

SONY

BETAMOVIE ^{Beta} **B**

BMC-220

OPERATING INSTRUCTIONS

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

OWNER'S RECORD

The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon Sony dealer regarding this product.

Model No. BMC-220 Serial No. _____



AF
Auto Focus

Betamovie

AVOID HIGH TEMPERATURES

Do not leave in a place exposed to direct sunlight, inside a closed car during the summertime, or near heat sources. (page 23)

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WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug the ac power adaptor into a different outlet so that adaptor and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

FEATURES

- Betamovie is a compact, lightweight combination VCR/camera.
- Incorporation of a compact, high-precision TCL* Auto Focusing System assures sharp focus.
- A PUSH AUTO button provides easy changeover from manual to auto focus to keep up with subject movement.
- Recordings as long as 3 hours 20 minutes on L-830 tape can be made by changing the battery.
- The Sony-developed SMF Trinicon* tube is a high-precision design providing excellent color reproduction and resolution.
- A motorized auto zoom lens assures smooth zooms.

*TCL and SMF Trinicon are registered trademarks.





For "once-only" events such as weddings etc., it is strongly recommended to have a trial run to check that everything working perfectly.

PRECAUTIONS

Mechanism

- Betamovie is for recording use only.
- Cassettes cannot be loaded or removed if the battery pack is not inserted or if the AC power adaptor is not connected. Furthermore, if a cassette is not loaded, only the EJECT button will operate.

Tape Compatibility

- The unit can be used with any video cassette tapes having the mark .
- Tape recording speed is the  mode (2.00 cm/sec.).
Tapes cannot be played back on  mode-only (4.00 cm/sec.) decks.
- Tapes recorded with Betamovie can be played back on any Beta format  VCR.

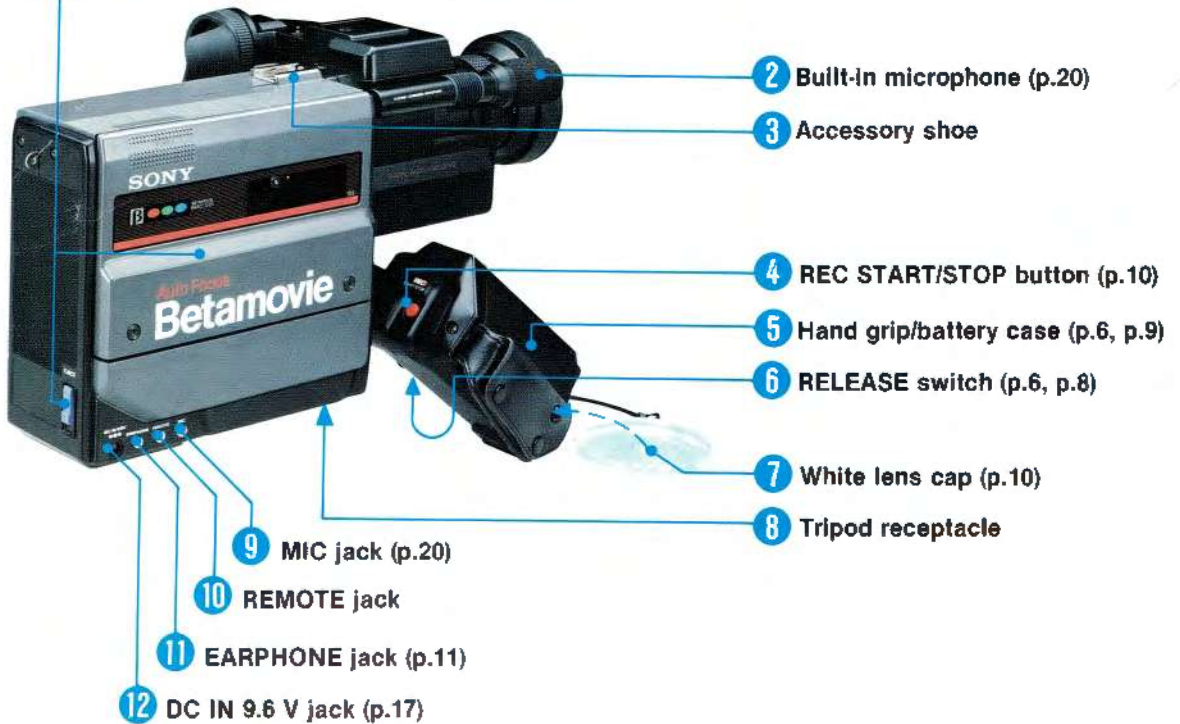
Color System

Your Betamovie is manufactured for use with NTSC broadcast systems, which are used in the USA, Canada, Japan, South Korea, and other countries. This means that tapes recorded on your Betamovie can be played back on the Beta format VCR in NTSC-system countries. Recordings made in non-NTSC-system countries (Europe, the Middle East, Africa, parts of Asia) cannot be played back on Beta format VCRs in those countries. See page 34.

LOCATION AND FUNCTION OF PARTS AND CONTROLS

For details, refer to the pages in parentheses.

1 EJECT button and cassette compartment (p.7)



13 Lens hood (p.21)

14 Focus ring (p.14)

15 Zoom lever (p.21)



- 1 **EJECT button and cassette compartment**
Slide down to open the cassette compartment.
The button does not operate when the power is not supplied or the battery power is exhausted. If a cassette is not loaded, no function except the EJECT button will work.
- 2 **Built-in microphone**
Sound is recorded simultaneously with video taping.
- 3 **Accessory shoe**
For attachment of an external microphone (with a SAD-100 external microphone shoe).
- 4 **REC START/STOP button**
Press to start recording, press again to stop.
- 5 **Hand grip**
Comfortable grip that also holds the battery pack.
- 6 **RELEASE switch**
Slide to unlock the hand grip. Hand grip angle can be set in one of three positions.
- 7 **White lens cap**
Snap onto the hand grip belt when shooting. Place on the lens hood when the unit is not in use, or to adjust the white balance.
- 8 **Tripod receptacle**
Attach the shoulder strap here and to the hook on the back when carrying the unit.
- 9 **MIC jack**
For connection of an external microphone. The built-in microphone is automatically disconnected.
- 10 **REMOTE jack**
For connection of an optional Betamovie Commander to control the unit from a distance.
- 11 **EARPHONE jack**
For connection of an optional earphone to monitor the sound being recorded.
- 12 **DC IN 9.6 V jack**
For connection of an ac power adaptor or car battery cord. The internal battery power is automatically disconnected.
- 13 **Lens hood**
Usually attached to the Betamovie. Remove when shooting close-ups or using an optional filter.
- 14 **Focus ring**
Turn the ring to focus while looking through the viewfinder.
- 15 **Zoom lever**
Use the zoom lever to turn the zoom ring manually between W(wide-angle) and T(telephoto) position.
For close-ups, turn the knob of the lever in the direction of arrow, then turn the lever counterclockwise until the ring is in the MACRO position.
- 16 **FILTER selector**
Set to the proper position in accordance with prevailing light conditions.
☀: Sunlight (outdoors or indoors)
💡: Incandescent lamps, fluorescent lamps or photo-flood lamps (indoors)
- 17 **Optical viewfinder**
Place your right eye here so that the lens' full field of view can be seen.
It is possible to focus the lens with the power off. The letter lamps inside the viewfinder indicate all the information necessary for operation.
- 18 **Eyesight correction knob**
Adjust to your eyesight to assure good focus. Be sure to adjust when shooting for the first time.
- 19 **POWER button and STANDBY indicator**
Press to adjust the white balance or to set the standby mode for immediate recording starts. The indicator lamp will light. Press again and the lamp goes off.
- 20 **WHITE BALANCE button**
Press to adjust the white balance with the white lens cap on, after setting the FILTER selector.

21 Indication lamps

These lamps indicate certain aspects of Betamovie operation by lighting steadily or by flashing.

TAPE/BATT :

Lights steady when the tape is running.
Blinks when the battery is exhausted.
Replace the battery pack.

DEW :

Lights when moisture has condensed inside the unit. Eject the cassette and let the Betamovie sit until the moisture evaporates. The unit can be used again if the light does not come on when the cassette is reinserted.

CAUTION :

Blinks when the video head becomes clogged or dirty. Clean the video head with a Sony L-25CL video head cleaning cassette.

Lights steady when the unit is out of order. Contact the nearest Sony dealer or local Sony service facility.

22 FOCUS switch

Set to the AUTO position for normal shooting; the subject centered in the marker in the viewfinder will automatically be kept in focus. Set to the MANUAL position to focus manually with the focus ring.

23 PUSH AUTO focus button

During manual focus operation, push this button to convert the camera to autofocus operation. The camera returns to manual focus when the button is released.

24 Power zoom button

Press for smooth power zooming between the W(wide-angle) and T(telephoto) positions.

25 BATTERY knob OPEN/CLOSE

To open the lid of the battery compartment, turn this knob to OPEN and to close the lid, turn to CLOSE.

26 Eye cup cover

Attach to the viewfinder eye cup when you set the FOCUS switch to AUTO and you do not use the viewfinder, or when you remotely control the Betamovie.

Attach the cover to the shoulder strap when not in use.

Note

If light enters through the viewfinder during the auto focus operation (FOCUS switch to AUTO), the auto focusing may not function properly. Therefore please note whenever you do not use the viewfinder while the auto focus operation, put the eye cup cover in the eye cup of the viewfinder.

OPERATION

PREPARATIONS FOR RECORDING

1 Install a charged battery pack, NP-11 (supplied, abt. 60 min.).

1 Slide the **RELEASE** switch up to bring down the hand grip.



2 Turn the **BATTERY** knob to **OPEN**, and open the lid.

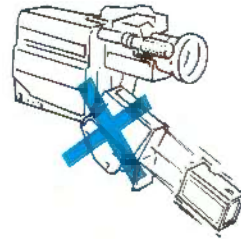


3 Insert a battery, close the lid and turn the knob to **CLOSE**.



To remove the battery pack

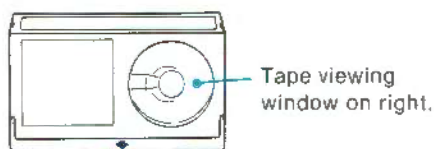
Hold the unit with the hand grip pointing up to open the battery compartment. Do not point the grip downward when turning the **BATTERY** knob as the battery can easily fall out.



For information on battery charging and handling, see page 16.

2 Load the cassette.

The EJECT button will not operate if the power is off.



Insert this way.

- 1 Press the EJECT button.



- 2 Insert a cassette with the round window to the right and press firmly into place.



- 3 Press the left side of the compartment lid (indicated PUSH) to close.



Checking the cassette

Cassette safety tab

Make sure that a cassette to be recorded has a safety tab or piece of tape in place over the opening on the cassette bottom.

Recording from the beginning of the tape

Run Betamovie for about 25 seconds at the beginning of a cassette before recording to avoid missing the starting point during playback on a video cassette recorder.

Using partially-recorded tapes

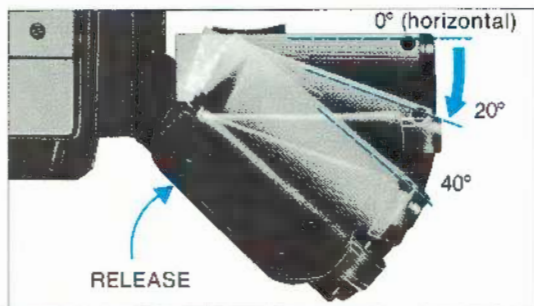
Wind the tape to the point from which playback on a VCR or further recording is to begin. When recording is resumed from the end of a previously-recorded portion, the section of tape wound on the drum will not be recorded (about 10 seconds).

Cassette	Recording time (⏮ mode)
L-830	200 min. (3 hr. 20 min.)
L-750	180 min. (3 hr.)
L-500	120 min. (2 hr.)
L-370	90 min. (1 hr. 30 min.)
L-330	80 min. (1 hr. 20 min.)
L-250	60 min. (1 hr.)
L-165	40 min.
L-125	30 min.

3 Set the FOCUS switch to the AUTO position.

4 Rest Betamovie on the shoulder.

- 1 Press the RELEASE switch and adjust the hand grip to the most comfortable angle; release the switch to lock.



- 2 Snap the viewfinder down to the operating position.



- 3 With Betamovie comfortably on shoulder, place eye or glasses securely against the eye cup.



Eye cup

Placing the Betamovie on your shoulder provides stable recording for most situations. For additional stability, a tripod or monopod can be attached to the tripod receptacle located on the underside of the unit. Monopods are convenient and easy to transport.



Grip belt adjustment

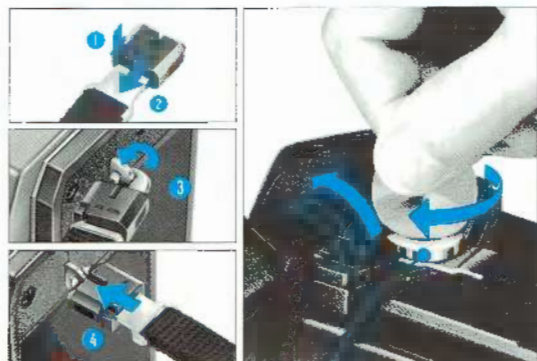
Adjust the length. (A tight belt makes operation easier.)

- 1 Unhook the buttons to open the cover.
- 2 Adjust the strap length to fit your hand.
- 3 Hook the buttons to secure the cover.

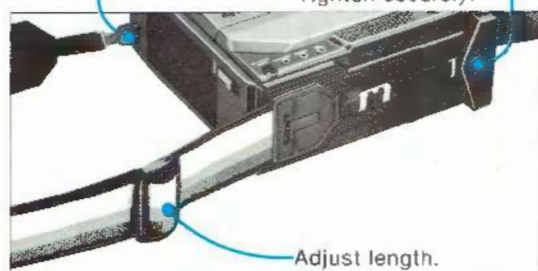


Carrying Betamovie

Attach the supplied shoulder strap.



Tighten securely.



Adjust length.

5 Press the **POWER** button.

6 Adjust eyesight correction knob.

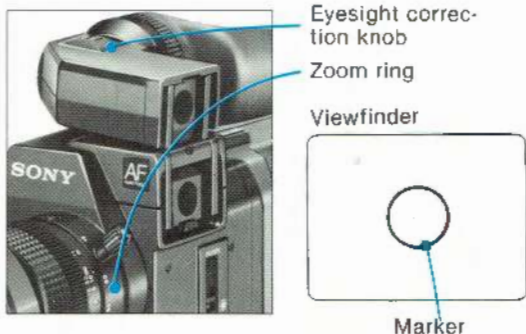
Set the zoom ring to 54 (telephoto) and aim the camera at a high-contrast subject (that includes both light and dark images) so that it fills the marker section in the viewfinder. Adjust the eyesight correction knob so that the subject is in best focus.

For quick future reference and adjustment, memorize the setting of the eyesight correction knob.

Adjusting the setting when using the Betamovie for the first time or after someone else has used the camera.

For easy adjustment, use a calendar or other subject with numbers when making settings indoors, or a letter on billboard or other high-contrast subject outdoors.

If a suitable subject is not available, adjust so that the marker's focus lines are sharpest.



Eyesight correction knob

Zoom ring

Viewfinder

Marker

Adjustment should be made for optimum visibility, with the viewfinder as bright as possible for easy viewing.

RECORDING

With the white lens cap in place **through step 2 below**:

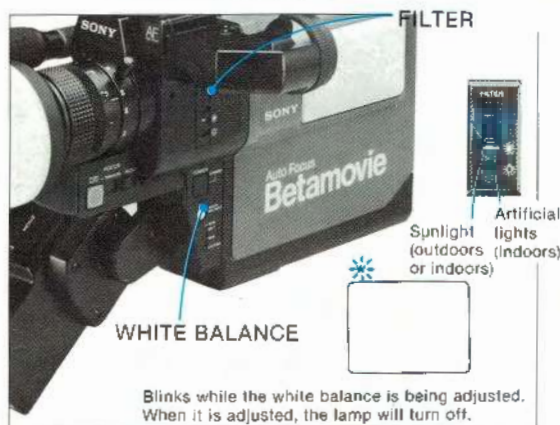
- 1 Press the POWER button.



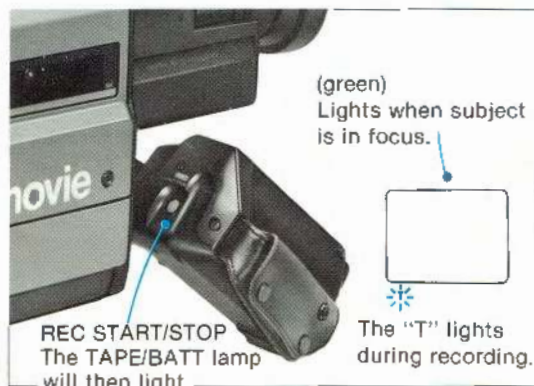
Confirm operating readiness by the indication lamps in the viewfinder.

Lamps will light initially in each corner.

- 2 Set the FILTER selector to the appropriate position, direct the unit to the major light source and then press the WHITE BALANCE button.



- 3 Frame the subject inside the autofocus marker and begin recording by pressing the REC START/STOP button.



- 4 To stop recording, press the REC START/STOP button again. (The STANDBY indicator will light.)
To resume recording, press the REC START/STOP button once more.

For consecutive recording on a cassette, do not remove it from the camera. For details on consecutive recording, refer to page 15.

The lamps inside the viewfinder

Four lamps at the corner light up at first when the POWER or REC START/STOP button is pressed.

The lamps blink or light steadily to indicate the information necessary for operation.

Lights steadily when the white balance is not adjusted, or when it cannot be adjusted.
Blinks while it is being adjusted.

Lights steadily when the subject is in focus correctly in the autofocus mode.
Blinks when the camera or subject moves.

Lights steadily when the picture tube is out of order.
Blinks when the video head is dirty or clogged.

W (orange) G (green) C (red)

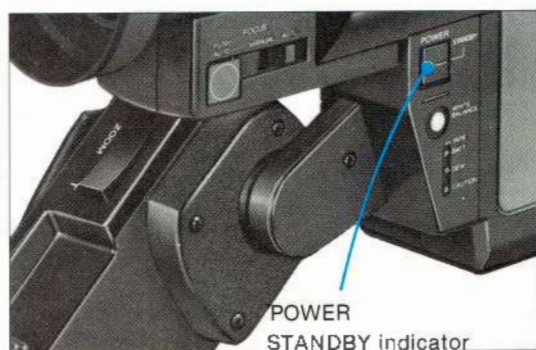
T (red) L (yellow)

Lights when the light level is insufficient.

Lights steadily when the tape is running.
Blinks when the inserted battery is exhausted.

After recording

- 1 Press the POWER button if the STANDBY indicator is on.



- 2 Press the EJECT button to remove the recorded cassette.



If the battery power is exhausted and the compartment lid cannot be opened, replace with a charged battery or connect with an ac power adaptor.

Playback of recorded tapes

A Beta format video cassette recorder and a TV (NTSC color system) are required. For details, refer to the instruction manual of the VCR.

POWER and REC START/STOP button operation and timing of recording operations

When recording is suspended by pressing the REC START/STOP button, the STANDBY indicator lights and the camera remains in the standby mode for about 3 minutes. Recording will resume when the REC START/STOP button is pressed again during the standby mode.

After 3 minutes
The STANDBY indicator will turn off.

Press the POWER button. The STANDBY indicator will light.

Press the REC START/STOP button. Recording will start in about 3 seconds.

Press the REC START/STOP button. Recording will start **immediately**.

It takes about 3 seconds for the picture tube warm-up before recording.

To monitor the sound being recorded

Attach an optional earphone to the EARPHONE jack (minijack) to monitor the sound being recorded through the built-in microphone.

Accurate measurement of camera-to-subject distance

To accurately determine the actual distance from the camera to the subject during recording, use the distances indicated on the outer surface.



USING AUTOFOCUS

For automatic focusing



Set the FOCUS switch to the AUTO position.



TCL autofocus system

The autofocus system incorporated in Betamovie utilizes high-precision sensors to determine contrast and adjust focus accordingly for automatic, highly accurate focusing.

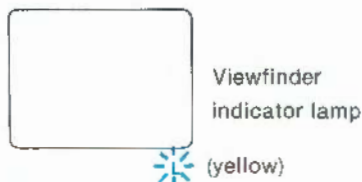
When the subject is in focus, the green lamp in the viewfinder lights. This allows you to concentrate on following the subject, without worrying about maintaining focus.

For optimum results using autofocus, it is important to choose scenes with good contrast and to set the subject in easily-focused scenes. Almost all well-lighted situations, indoors or out, will produce best results with this autofocus system.

Difficult autofocus conditions

Autofocus may not operate properly under the conditions outlined below. For best results in these conditions, set the FOCUS switch to the MANUAL position and focus manually with the focus ring.

(Insufficient light)



The "L" lamp will light when light is insufficient.

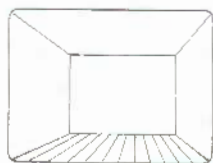


Subject is emphasized with strong backlighting, that is, too much bright light behind your subject.

Note

If recording is continued with the "L" lamp lit while the camera is in the AUTO mode, incorrect focus may result.

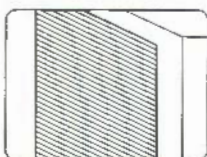
[For difficult-to-focus subjects]



Flat colors, walls, skies, etc., as main subjects when they fill the entire screen...



Finely-detailed repetitive patterns...



Subjects which include stripes as shown

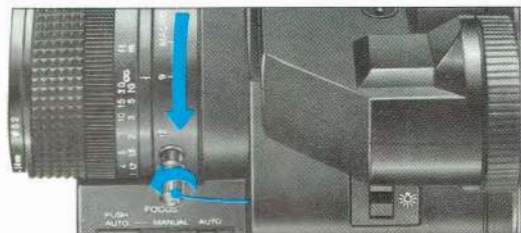


When the distance between subjects in the marker is extreme (e.g. one subject is close, the other is away)



Subjects beyond screens, nets, etc. ...

[Close-ups]



When the zoom lever is moved from the 9 mm to the MACRO position (green line area) ...

[Use of special lenses]

Special lenses are often used to emphasize certain effects, and it is possible that the autofocus function will be lost to preserve polarization effects. If special effects lenses are used, focus should be set manually.

Notes

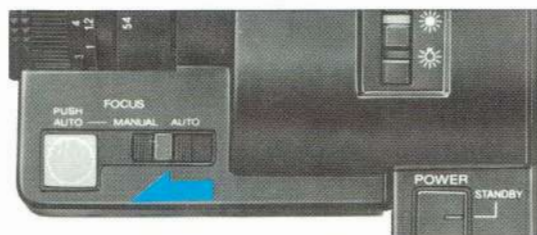
- Do not touch the focus ring as it rotates while pressing the EJECT button or operating the unit in the AUTO mode or while operating the unit in the autofocus mode.



- Continued operation of the unit in the autofocus mode with the "L" lamp on can result in improper focus.
- In the AUTO position, the autofocus function will operate (and the lens will automatically focus) even when the unit is in the standby mode (the STANDBY indicator lights). To preserve the battery, switch the unit to the MANUAL position when in the standby mode for extended periods of time.
- When you are using the Betamovie on a tripod to shoot a still subject, focus should be set manually.
- If another subject happens to come across the camera when you are autofocusing on a subject away, the autofocus function will not operate properly.

MANUAL FOCUSING

To focus the unit manually using the focus ring, set the FOCUS switch to the MANUAL position.



Focusing

To focus, first make the subject as large as possible in the viewfinder by using the telephoto lens setting. After the focus is set, the subject will remain in perfect focus regardless of the zoom setting.



Turn the zoom ring all the way to the right (Telephoto 54) to make the subject as large as possible in the viewfinder.



Turn the focus ring from the 1 m position to the ∞ (infinity) position to achieve sharp focus.



Set the desired shot length using the zoom ring.

Focusing with the lens in wide angle can lead to shots being out of focus.

This is because the focusing field is wider in wide angle than in telephoto, making it harder to achieve sharp focus.

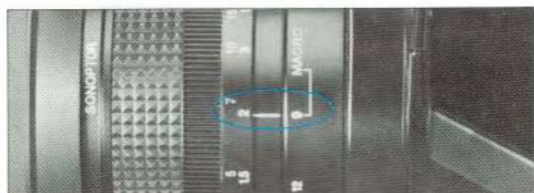
How to ensure proper focusing

To achieve properly focused recordings:

- Adjust focus sharply on the subject (use vertical lines for reference, if possible).
- A well-lighted subject provided sharper focus.

When shooting a scene with lots of movement outdoors, the subject can be kept in good focus regardless of movement by:

Setting the zoom ring to 9 and the focus ring to 2 m.



Focus depth of field

Indoors 1.2–9.5 m (4–30 ft.)

Outdoors, clear 40 cm– ∞ (15 in.– ∞)

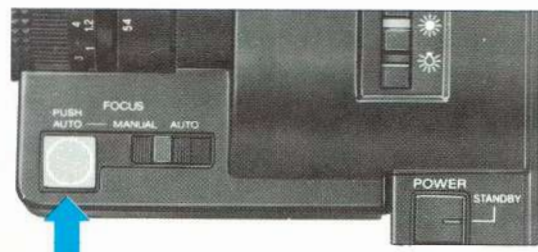
Reference

Focus depth of field with zoom ring set at 9:

Focus ring	Focus depth of field
1 m (3 ft. 3 in.)	0.72–1.65 m (2ft. 4 in.–5 ft. 5 in.)
1.2 m (3 ft. 11 in.)	0.81–2.28 m (2 ft. 8 in.–7 ft. 6 in.)
1.5 m (4 ft. 11 in.)	0.94–3.68 m (3 ft. 1 in.–12 ft. 1 in.)
2 m (6 ft. 7 in.)	1.12–9.53 m (3 ft. 8 in.–31 ft. 3 in.)
3 m (9 ft. 10 in.)	1.37– ∞ (4 ft. 6 in.– ∞)

Quick focus adjustment

For quick, automatic adjustment of focus while recording in the manual focus mode, merely press the PUSH AUTO button. The auto focus function will be engaged to properly focus on the subject during pressing the button.



MAKING CONSECUTIVE RECORDING

Smooth, "gap-free" recordings can be made on the tape, even if the power is shut off, as long as the tape is not removed from the camera before it is fully recorded. To ensure that the tape does not have to be removed before being fully recorded, observe the following:

Select the recording time of the cassette according to the planned recording time, and devote one tape to a single theme (wedding, birthday, etc.).

If the tape must be removed before being fully recorded, keep in mind that there will be about a 10 second gap when the tape is inserted and recorded on again. Therefore, the last scene should be extended for a few seconds to allow a margin for overlapping the next scene when recording is resumed.

When the cassette is removed before being fully recorded

When reloaded, the tape will automatically be advanced by about 10 seconds, which can cause gaps to be inserted in the tape. It is possible to eliminate these gaps by using a video deck to rewind the cassette, but please keep in mind that it is unlikely that the gaps can be perfectly bridged. This is why it is recommended that the cassette should not be removed until fully recorded if at all possible.

Notes

- It is possible that a "rainbow effect" will be seen in portions where the previously recorded and newly recorded portions overlap when the tape is rewound on a video deck.
- Be careful not to touch the tape while handling the cassette. This can affect the tape's characteristics to lower recording quality.

BATTERY CHARGING AND USE OF EXTERNAL POWER SOURCES

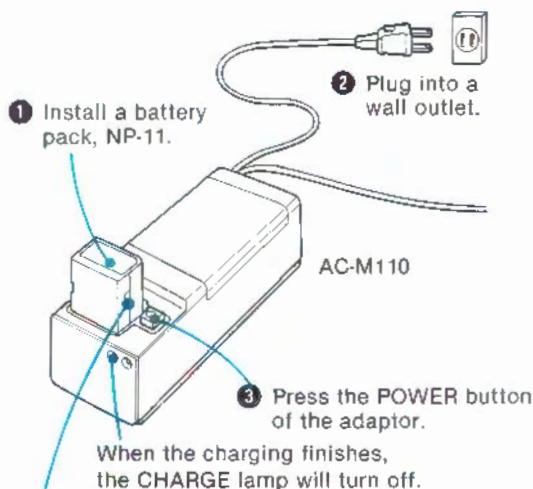
POWER SOURCE

Select a battery pack (supplied NP-11), ac power adaptor, or optional car battery cord, depending on the situation.

Battery pack NP-11 (supplied)

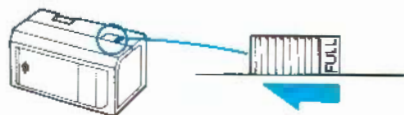
How to charge

The AC-M110 ac power adaptor (supplied) is required.



When the battery has been fully charged

Set the FULL/EMP indicator to FULL. Attach the supplied decals (1 to 5) and use batteries in order to avoid confusion.



Notes

- If the battery pack is not fully charged or if it is used in a cold place, the operating time is shortened. Keep batteries as warm as possible to avoid power drainage.
- The battery power is being used even in the standby mode. For outdoor shooting, you should carry extra battery packs to provide 2 or 3 times of the recording time you anticipate.

When to replace a battery pack

When the battery is being exhausted, the TAPE/BATT lamp or the "T" lamp in the viewfinder begins to blink slowly (1/1 sec.). Take the battery pack out and charge it or replace it with a charged one.

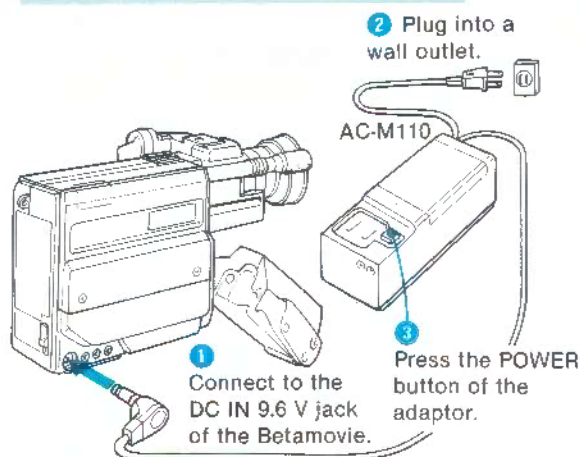
If you continue to use the exhausted battery, the unit is automatically turned off and recording stops. Then the lamp keeps blinking quickly (5/1 sec.) for about 30 seconds.

When the battery is exhausted

Set the FULL/EMP indicator to EMP. The indicator will tell you at a glance the condition of battery.

With a wall outlet

AC POWER ADAPTOR (supplied)

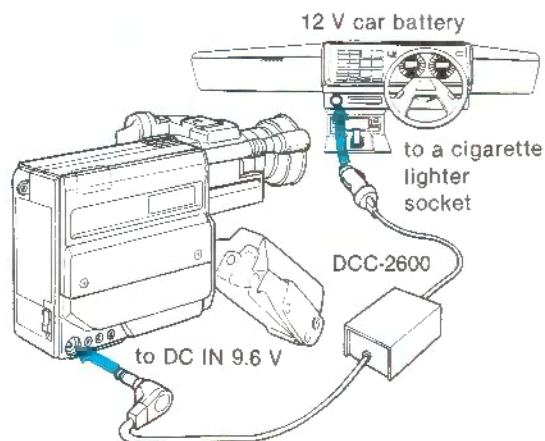


Notes

- When an adaptor is connected to the Betamovie, the internal battery power is automatically disconnected.
- If a battery pack is installed in the adaptor, power will not be supplied to the Betamovie through the adaptor cable.

In a car

CAR BATTERY CORD DCC-2600 (optional)



For details, refer to the instruction manual of the DCC-2600.

VIDEO CASSETTE TAPES

The cassette safety tab on the bottom

Make sure that a cassette to be recorded has a safety tab or a piece of tape over the opening.

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased.

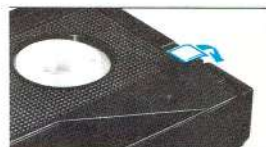
To avoid erasing a recording

Break off the safety tab using a screwdriver or similar object. With the safety tab removed, the unit will not operate when the POWER button is pressed. This ensures protection of important tapes.



To re-record on a cassette which has had its safety tab removed.

Cover the hole with a piece of plastic tape.



Notes on video cassette storage

- Unevenly wound tape can be damaged in storage. To prevent this, make sure that all tapes are wound evenly.
- Insert cassettes in their cases and store in an upright position to prevent intrusion of dust and uneven winding.
- Do not store in a place subject to dust, high heat or humidity, direct sunlight, or near heaters, motors, transformers, or magnetic sources. Color quality and tape transport can be adversely affected.
- Do not place on a car dashboard or rear window ledge to prevent warp of the case and damage to the tape.
- Do not store tapes for long periods of time without usage. Wind and rewind them on a VCR at least once a year.

TWO TIPS FOR OPTIMIZING COLOR BALANCE

POINT 1

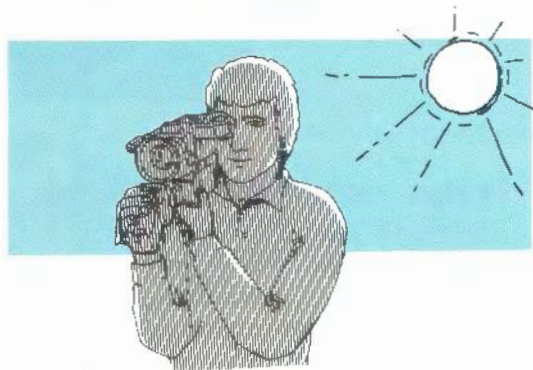
Brightness

Is the subject sufficiently lighted? Because the Betamovie uses Sony's SMF Tricon tube, most recording can be done without special lighting, indoors or outdoors. But for best results and for proper function of the autofocus system, which operates according to light contrast, there are times when additional lighting is necessary (especially in low light conditions indoors). When the light level is too low, the letter "L" will appear in the viewfinder; increase the light level as necessary.

(For further details, refer to the section entitled "Lighting for indoor shooting" on page 31.)

Light direction

Generally, shooting should be done with the sun at your back (front-lighting). This will illuminate the subject naturally and provide the best results from the very beginning of your shooting.



It is also possible to shoot with the sun behind your subject (back-lighting), but this technique is more likely to produce less than satisfactory results until you become proficient. Front-lighting usually provides better results unless you're trying to create special effects.

POINT 2

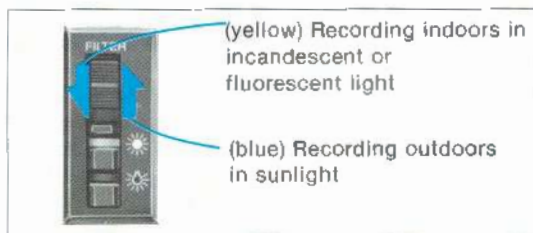
White Balance

Because Betamovie uses an optical viewfinder, the image you see in it is usually the same color as that of the subject. This is not always the case with the image being recorded, however, because of the fact that the color of the subject can be affected by the color temperature of the ambient light. The human eye has the ability to adapt to this situation, but a video camera does not. So to compensate for light temperature variations, the white balance control is used.

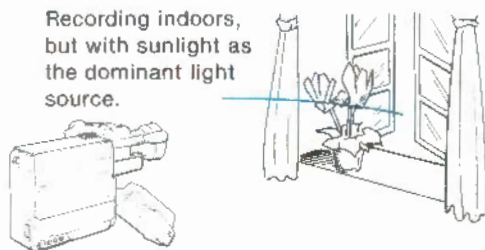
(See "Understanding light and color" on page 33.)

White balance adjustment

First, set the FILTER to the appropriate ambient light position, depending on the most dominant light source.



If the camera is indoors but the subject being recorded is in a window or outdoors, set the FILTER to the ☀ position.

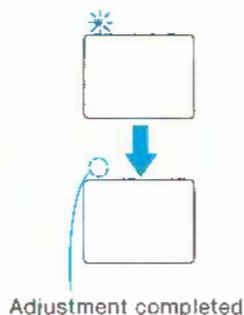


With the FILTER set and the white lens cap in place on the lens hood, aim the lens at a light source (indoors) or a subject from a distance of at least two meters (outdoors). Then merely press the WHITE BALANCE button and the white balance will be perfectly adjusted automatically.

When adjusting white balance outdoors, more accurate adjustment can be made by setting the white balance in accordance with the light conditions the subject will be taped under. For example, if the subject will be taped in sunlight, put the white lens cap on the lens hood and point the camera toward the sun. If the subject will be taped in shadows, white balance should also be adjusted in shadows. When white balance adjustment is completed the "W" lamp in the viewfinder will go off.



Press.



Cautions on white balance adjustment

Losing white balance adjustment

The white balance adjustment is preserved for about 30 minutes after the power is turned off. If the power is off for more than 30 minutes, or if the FILTER selector position is changed, the white balance adjustment will be lost and the "W" lamp will light when the power is turned on. Set the white balance adjustment again as outlined above.

"W" lamp stays on after the WHITE BALANCE button is pushed.

- Adjustment cannot be made because of insufficient light (the "L" lamp will also light.)
- Adjustment cannot be made because of the presence of certain types of light, such as neon signs or tunnel lights.

Even if the "W" lamp does not go off, the white balance is nearly properly adjusted by the position of the FILTER selector, so recording is still possible.

Changing light sources

If a major light source change is made, such as from indoor to outdoor shooting, the white balance will have to be readjusted. When setting the white balance, choose lighting conditions that will match those for actual shooting as closely as possible (such as when setting up to shoot stage productions with special lighting).

Because lighting remains basically the same for a given source, the white balance adjustment does not have to be changed very often.

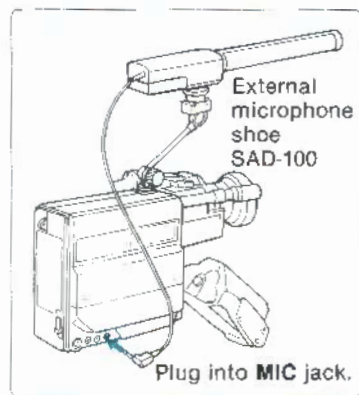
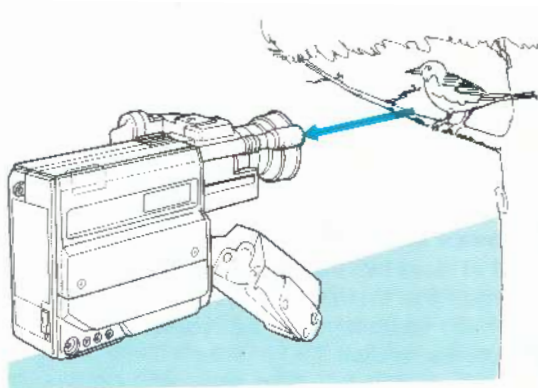
HANDY FUNCTIONS

Sound recording (Simultaneous audio/video)

Sound is recorded simultaneously with the video portion through the built-in microphone. Because this mic is a uni-directional monaural type, precise recording of the scene's subject is possible.

When to use an external microphone (optional)

If you are concerned about extraneous noises being recorded, such as when shooting in quiet indoor scenes or in windy conditions outdoors, using one of the optional external microphones (ECM-K100 or ECM-Z300) and external microphone shoe (SAD-100) are recommended to achieve superior results. The built-in mic is automatically disconnected when an external microphone is plugged into the MIC jack.

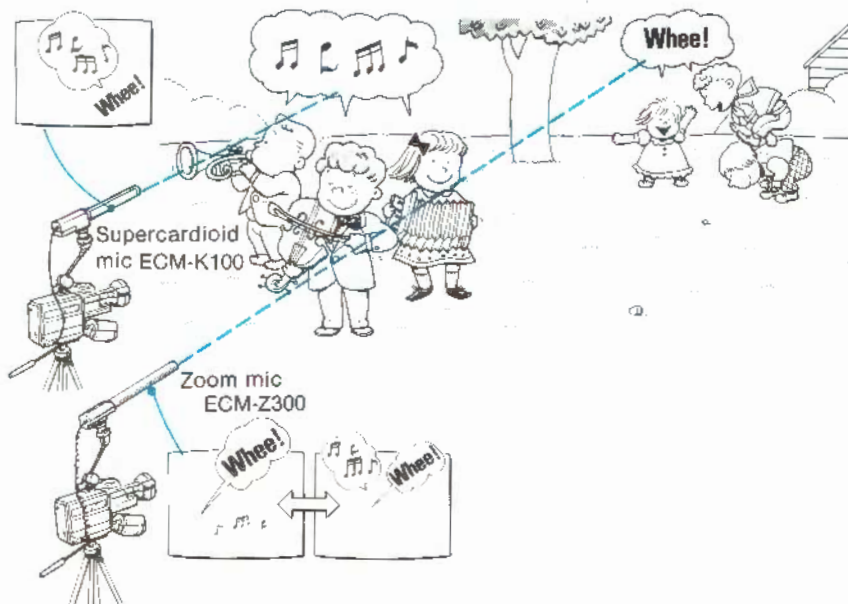


For isolating sounds in the direction the Betamovie is aimed—**uni-directional mic (built-in)**

For recording a narrower field—**supercardioid mic (external)**

For recording field width in accordance with the lens' focal length—**zoom mic (external)**

For optimum recording quality, locate the mic as close as possible to the subject.



Zoom to change subject size

Betamovie allows convenient zooming in two ways—by hand, using the zoom lever, or automatically, using the power zoom button.

Hand-controlled zooming



Automatic power zooming

Zooming allows you to change the size of the subject in the scene, so you can emphasize it or define it as part of a larger scene.

When using the manual zoom lever, zoom speed is easily adjusted. Fast zooms create a shocking effect.

When power zooming, zoom speed is smooth and constant.

Press either the T (telephoto) or W (wide angle) side of the zoom button and the zoom ring will move automatically.



To wide angle
(zoom out)

To telephoto
(zoom in)

Close-ups (macro)

How to remove the lens hood

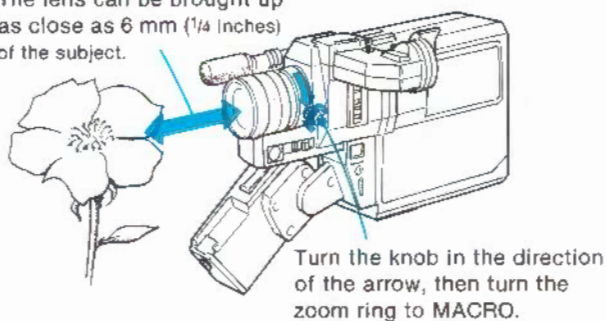
Because the camera will be positioned very close to the subject, the lens hood should be removed.



During normal shooting, the closest the Betamovie can get to the subject and stay in focus is about 1 m. Use of the macro function, however, allows the Betamovie to approach the subject almost to the lens, so that even tiny objects can literally fill the screen for dramatic close-up effects. This allows you to discover aspects of the subject that would otherwise be "impossible".

- 1 Set the FOCUS switch to the MANUAL position.
- 2 Turn the manual zoom lever to the MACRO position.
- 3 Select the subject size in the scene by changing the distance between the subject and lens.
- 4 Focus by turning the zoom lever.

The lens can be brought up as close as 6 mm (1/4 inches) of the subject.



Notes

- Autofocus cannot be used during macro shooting.
- When shooting in macro, the depth of field is very shallow, so pay careful attention to eyesight adjustment and focus.
- Zooming is not possible during macro recording. To change the size of the subject, move the lens closer or further away from it.

NOTES ON OPERATION

Moisture Condensation

If the Betamovie is brought directly from a cold to a warm location, moisture may condense on the drum assembly inside the unit. In this condition, the tape may have a tendency to adhere to the head drum.

Moisture in the unit

To prevent possible damage under these circumstances, the recorder is furnished with a moisture sensor. If moisture is present, the sensor will activate to prevent operation and the DEW lamp will light. No function button except the EJECT button will work.



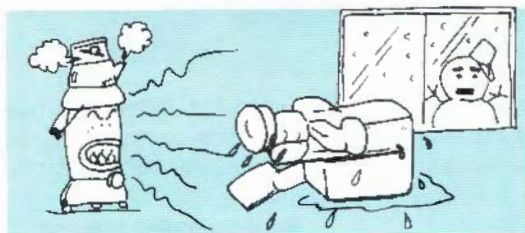
If the DEW lamp lights, moisture has condensed inside the unit.

Eject the cassette and let the Betamovie sit until the moisture evaporates.

The DEW lamp will light for about 30 seconds and then will turn off.

When to use

The Betamovie can be used again if the light does not come on when a cassette is inserted. If the cassette pops out when inserted, leave the unit for another while since the moisture has not yet evaporated.



The DEW lamp does not light

Moisture on the lens

If the image you see in the viewfinder is blurred because of moisture, normal operation will not be possible. Turn off the Betamovie and wait until the moisture evaporates. The DEW lamp does not light.

Operating in low temperature conditions

Vapor is apt to condense in low temperatures (around 0°C or 32°F), and may cause a condition of moisture condensation but not enough to cause the DEW lamp to light.

The picture on a tape recorded under these conditions may be distorted.

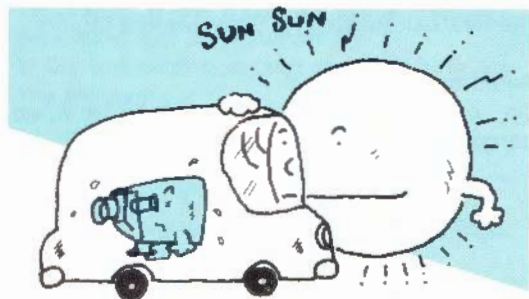
If the Betamovie is used in a cold location, such as a ski area, use of the optional Betamovie Jacket is recommended.

Avoid high temperatures!

The Betamovie is equipped with a 1/2-inch SMF Tricon tube incorporating a *Saticon® element, which assures excellent operating performance. However, if the Betamovie becomes overheated or is operated at high temperatures, performance can be adversely and irreversibly affected, and the autofocus sensor may be damaged. To protect your Betamovie, do not leave it or continuously operate it in the following locations:

- In places over 40°C (104°F) for operation
- **In places over 50°C (122°F) for storage**
- Locations exposed to direct sunlight or strong bright lights
- Inside a car with doors and windows closed or a car trunk
- Locations near heat sources

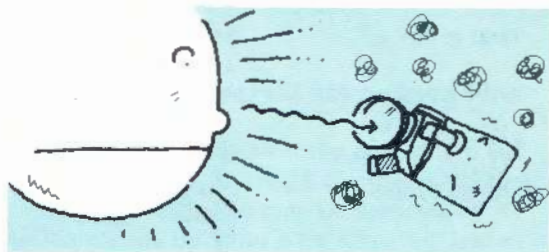
*Saticon is a registered trademark.



Avoid burning the pickup tube

If a strong bright light enters the pickup tube, it may cause severe damage to the tube and the autofocus sensor. For protection, attach the white lens cap when it is not in use.

- Never point the camera directly into the sun or bright lights
- Avoid continuous shooting of lamps or of a subject in a strong light
- Avoid prolonged exposure to a subject even in a dim light with dark background
- Place the white lens cap on the lens hood on cassette insertion and ejection



When a light leaves a trail on the playback picture, the tube may be suspected of having burn damage. A slight burning is cured when it is left with the power off for a night. If the burning still remains, contact the nearest Sony dealer or local authorized Sony service facility.

Precautions for use in adverse conditions

For best results and trouble-free operation, do not use or leave the Betamovie in locations with the following conditions:

High humidity



Strong vibrations or shocks



Dust or dirt



Extreme cold



Strong radio or TV broadcast signals from nearby antennas, or X-ray generation sources.



Strong magnetic fields.



If the Betamovie is used in the rain, protect it with an umbrella or waterproof cover. Water droplets on the lens adversely affect picture quality, and water inside the Betamovie can damage sensitive mechanisms.

If the Betamovie is used at the beach, take special care to keep sand and salt water from entering the body. Sand and salt water can damage internal mechanisms beyond repair.

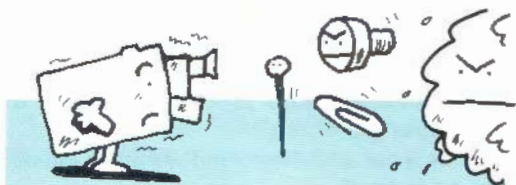
Handling precautions

Do not disassemble

Some sections of the Betamovie contain high voltages which can be dangerous if touched. Never disassemble to expose internal parts.

Prevent intrusion of foreign objects

Do not allow any solid object or liquid to fall into the camera body as malfunctions may occur.



Don't use if operation is not normal

In the event that any unusual sounds, smells, or operating conditions are encountered, turn off the power switch and refer the problem to the nearest authorized Sony service facility.

Avoid rough handling

Do not grab the lens ring or viewfinder when carrying as damage may result.



Handle the mic gently

Rough handling of the mic may damage the unit.

Routine maintenance for longterm, trouble-free operation

Keep the video head clean

the video head will become dirty with extended use. If recording is continued when the head becomes dirty, picture noise and dropouts will occur.

The Betamovie incorporates a special lamp to alert you when the head is dirty.

When the REC START/STOP button is pressed and recording begins, the "C" or CAUTION lamp flashes. This indicates that the head is dirty or clogged.



Press the REC START/STOP button repeatedly, alternatively starting and stopping recording. If the indicator stops flashing, recording can be resumed. If the indicator does not stop flashing, do the following.



Stop recording and clean the head. For best results, use the optional L-25CL cleaning tape.

- Incorrect use of the cleaning tape can cause damage to the video head. To prevent this, read the cleaning tape instruction manual carefully before using.
- If the indicator light continues flashing after the head is cleaned, contact the outlet where the Betamovie was purchased or your nearest authorized Sony service facility.
- If picture quality is not sharp after the head has been cleaned, it is possible that the head is worn. In this case, the video head will have to be replaced.

Cleaning the lens

If the lens surface becomes dusty or dirty, picture quality will not only suffer, but the auto focusing system may also work improperly, resulting in out-of-focus scenes.

Periodic inspection

Because the image is recorded from the Betamovie onto magnetic tape, high precision is required for optimum recording quality.

Especially, the video head and tape transport mechanism will become dirty and wear with extended use. To ensure optimum recording quality, it is recommended that basic inspection and repairs be conducted after every 1,000 hours of operation. These include cleaning, lubricating, and replacement of worn parts.

When the Betamovie will not be used for a long period of time

- Remove the cassette. If the cassette is left in the camera, the tape may stick to the head or other parts may be damaged.
- Operate the Betamovie for a few minutes at least once every six months, using the zoom and focus rings and other functions. This prevents deterioration of the Tricon tube and other internal parts through disuse.

For additional information on inspection, head changing, and other maintenance procedures, contact your nearest Sony dealer or authorized Sony service facility.

HINTS FOR BETTER SHOOTING

The key to success— practice makes perfect!

Record over and over using the same tape...
see what you've recorded on TV as soon as you're finished...
these are just two of the advantages of video recording.
The more you use your Betamovie, the better you'll get!
Once you've mastered each phase of operation,
you can polish your skills in camerawork, equipment use,
scene composition, sound effects...
You'll actually be able to see the improvement as you progress!
For more information on video recording, from beginning to expert levels,
it is advisable to refer to some of the many commercially available books
on the subject.
In this section, we'd like to introduce some basic techniques
to help bring more enjoyment to your video recording.
With Betamovie, recording life around you has never been easier!

AF
Auto Focus

Betamovie

BASIC CAMERAWORK

Getting stable pictures — starts with a correct stance

For hand-held shots, shooting position is the key.

Using these two basic positions as a reference, practice shooting positions until you find the stance which provides the easiest shooting and best results.

Basic shooting positions



- When kneeling, placing one knee on the ground provides the best stability.
- The focus ring will rotate automatically during auto focus operation, so do not touch it.
- Place the right eye firmly against the viewfinder eye cup.
- For hand-held shots, put the Betamovie on your shoulder and assume a comfortable, stable position. Make sure the unit does not move.
- Relax your shoulders.
- Put your right elbow firmly against your side to help stabilize the Betamovie.
- If you are going to move the unit while recording, keep both eyes open as much as possible.
- Stand firmly with your feet comfortably apart.
Leaning against something firm such as a wall or tree will also provide extra stability.

Use a tripod or monopod if possible

If you have a tripod for your still camera, it can also be used with Betamovie. Choose a sturdy one.

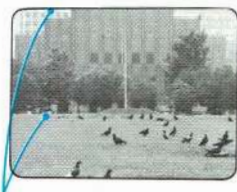
If a tripod is not available, try placing the camera on a tabletop, wall, or any other flat surface of suitable height.



A dolly makes camera movement smoother and easier.

Keeping the horizontal plane level

Even if camera work is smooth and stable, shots can be tilted or off axis horizontally.



The horizontal plane can be easily determined by using the viewfinder frame as a reference.

Three frequently used shots

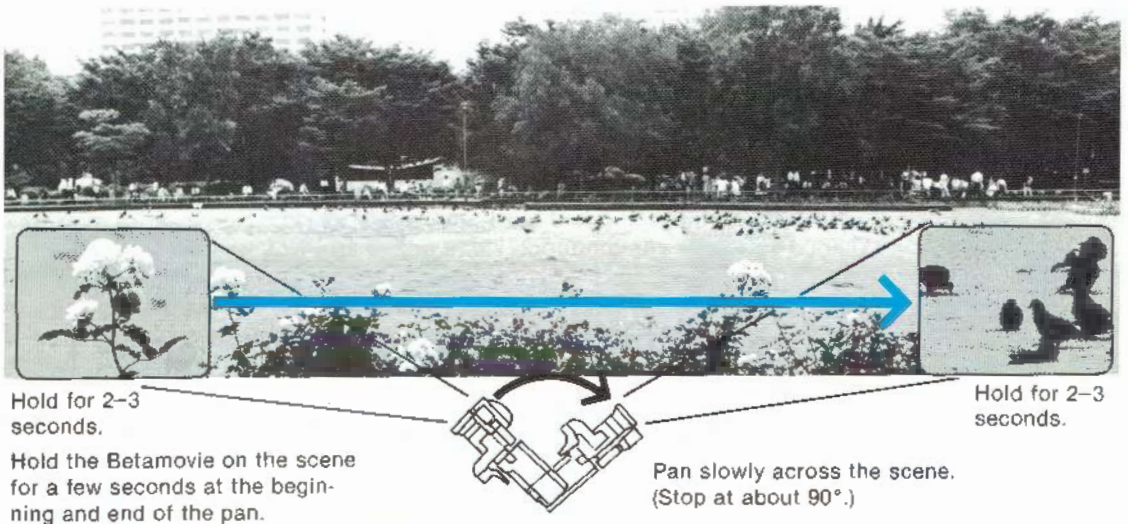
The Betamovie's autofocus function takes care of all focusing chores for you automatically, leaving you free to concentrate on composition and following the action.

These three types of shots will bring additional action and movement to your scenes when properly used.

For greatest effect, it is advisable that they not be overused.

Panning —moving the camera horizontally

For emphasizing the grandeur of a scene, and for including all of the scenery in a single continuous shot.



For professional-looking pans

1. First, stand so that you face in the direction where the pan will end.
2. Without moving your feet, rotate your upper body so that your Betamovie faces the direction where the scene will begin.
3. Start shooting. Rotate your body slowly to the point where the pan will stop.



The best panning speed is one that will allow you to explain the scene during playback.

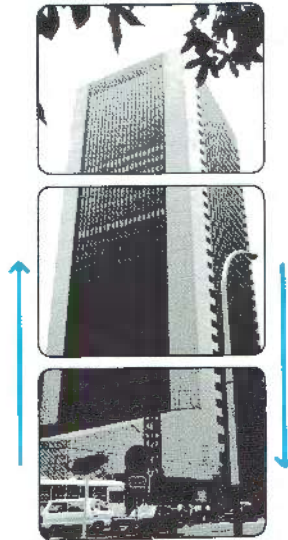
Repeated pans of the same scene should be avoided.

If you can hold your breath during panning and zooming, camera shake can be minimized, and you can concentrate more easily on the scene.

Tilting —moving the camera vertically

Tilting shots with Betamovie should be slightly faster than pans.

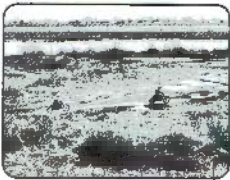
To emphasize height...
tilt up.



To emphasize the final part of
the scene...tilt down.

Zooming —changing the size of the subject

To draw attention to something specific...zoom in.



Because telephoto
shots make camera
shake more noticeable,
the Betamovie should
be as stable as
possible.

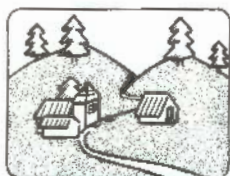
To end the shot by making the circumstances surrounding the scene understood...zoom out.



Sizing the scene

—mixing long, medium and close-up shots

Continuous use of long shots or close-ups will give your productions a monotonous “flat” impression. To avoid this, it is important to consider exactly what it is that you wish to “say” with every shot. Indeed, it is possible to change the impression that any subject makes merely by changing the way it’s shot.



You don’t have to change the subject to alter the scene—you can achieve a different effect by changing the size of the subject itself within the scene.

Framing people

Basic shots for properly framing people are shown below.

Experience has shown that shots that frame people differently than this do not have as pleasant an effect.

Face shot



● Even if you cut off the hairline, don’t cut off the chin.



● When shooting a profile, leave the space in front of the face to create a “sight line.”

Bust shot—Chest and above



Knee shot—Knees and above



Waist shot—Upper hips and above



Full shot—Entire body



Scene length

—not too long, not too short

While there’s no hard-and-fast rule, it is generally advisable to make each scene 6–7 seconds in length for easier viewing.

A succession of short scenes can tire the viewer, while long, single scenes can become boring.

Cutting according to the narration

Cut the scene when the narration is finished.



Cutting according to the subject

Make long shots longer.....and close-ups shorter.

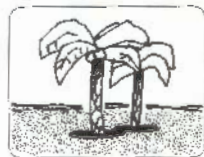


Because long shots have more to see in them than close-ups, show them longer so the viewer may understand what’s there.

Make interesting shots and shots in which the subject is constantly moving longer.



Make static shots shorter



Shoot as if you were watching the playback. That is, it’s helpful to occasionally imagine your commentary of the scene even as you’re shooting it!

LIGHTING FOR INDOOR SHOOTING

Lighting—For the sharpest pictures, you need the best light

For the most brilliant color in your scenes, a sufficient light level must be maintained. Further, with insufficient light, the autofocus system will be unstable, and improper focusing may result. If shooting is done indoors or under other circumstances where light is insufficient, lights must be used for best results.

What kind of light is best? Choosing the right lights approved by UL

Photography lamps or halogen lamps are recommended. For best results, use of the Sony video lights are recommended as their weight and low heat output levels allow safe, direct connection to the body.

For lighting of a wide area for easy use—
reflector flood light

To emphasize the subject—
use a reflector spotlight.

Lighting the subject

The number of lights and their angle to the subject can make a significant difference in lighting effectiveness.

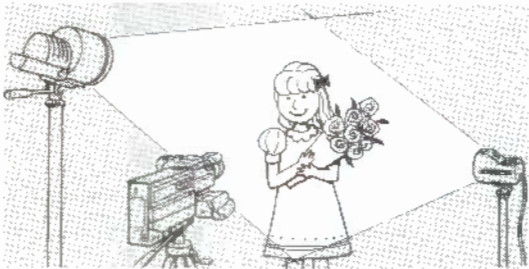
With a single light:

Locate it above and to one side of the subject. With just one light, contrast is unavoidably enhanced.

To eliminate shadows, another light should be added.

With two lights:

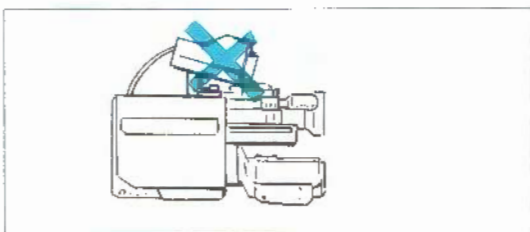
Locate one light above and to one side of the subject, and the second to the side of the subject in such a position that the shadows are illuminated.



If contrast is too strong when lights are used, point a light at the ceiling or reflect it off a white paper to add soft fill-in light.

Precautions for using lights

- Do not point the light at the Betamovie body. Instead, make sure that it is pointed parallel to the camera or away from it. Be especially careful with lights attached to the accessory shoe. The high heat from the lights pointed at the camera body can damage the autofocus sensor or warp the cabinet.



- Lights weighing over 500 g (2 lb.), or floodlights (lights with wide dispersion) must not be attached to the accessory shoe, as the heat from the light will damage the autofocus sensor or warp the cabinet. Use of a special light stand is recommended.
- Lights become extremely hot during use—do not touch them!
- Do not mix different types of light, as light color temperatures vary and can cause the subject's color to be recorded incorrectly.

For detailed instructions on proper use of lights, carefully read the instruction manuals that accompany them.

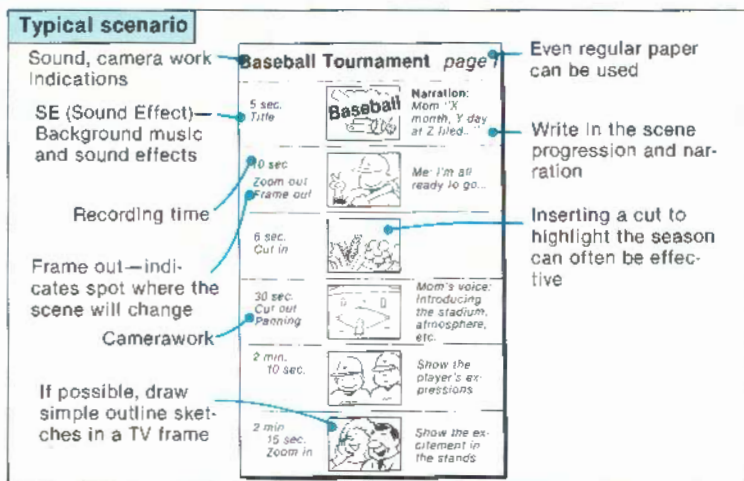
FOR MORE EFFECTIVE PRODUCTION

In video, organization is the key

To make a first-class production, it is important to decide the contents and shooting sequence in advance. The first step is to sketch out a simple outline of the actual production based on the time-tested "five W's of journalism" (who, what, where, when, why, how). This will allow you to efficiently and effectively record the many exciting events that happen around you, such as sports matches, graduations, birthday parties, picnics, camping trips, and other special events.

Write a script of what you want to record

After the theme has been decided, think about the progression of the scenes and write down the major points of the "story flow" on paper. This is called a scenario. When writing the script, it is helpful to scout the location where shooting will take place, and, in the event of school activities or weddings, to obtain a copy of the program in advance, if possible. This will allow you to complete actual recording with a minimum of bother.



Making titles

Inserting titles to introduce your programs can do much to enhance interest.

To record titles, the manual focus mode must be used.

*Make the title boards called for in the script before shooting.

Title boards are art paper on which titles, pictures, etc., are drawn to be shot as part of the program.

REFINING RECORDED TAPES

Dubbing—in the narration after shooting:

For dubbing, you need a TV monitor and VCR with an audio dubbing function, as well as a sound source such as a tape recorder or microphone.

To edit out unwanted scenes, put together your best recordings, or create "theme" programs:

Editing

Two VCRs (one for playback, one for recording) and a TV monitor are required. For proper color compensation, use the optional Sony XV-5000W Video Color Corrector.

To add titles or pictures:

Superimposing

A color superimposer (Sony HVS-120K Color Superimposer), two VCRs (one for playback, one for recording) and a TV monitor are required.

UNDERSTANDING LIGHT AND COLOR

Brightness levels

The single greatest influence on picture quality is the brightness level. Using the following chart as a reference, take a few minutes to familiarize yourself with brightness levels to improve your recording.

ND filter required	Unit: lux	Scenes
	100,000	Snow-covered mountains Snow fields Sandy beach, clear day in summer
Normal recording	10,000	Clear day, mid-day (100,000) Clear day, mid-afternoon (35,000) Overcast day, mid-day (32,000)
	1,000	Overcast day, one hour after sunrise (2,000) Office lit by fluorescent lamps, near window (1,000) Clear day, one hour before sunset (1,000) Department store counter (500~700) Station wicket (650)
Video light recommended	500	Office lit by fluorescent lamps (400~500) Room lit by two 30 W fluorescent lamps (300) Subway station platform (300) Arcade at night (150~200)
Video light required	100	Theater lobby (15~35) Candle light (10~15)
	10	

When to use an ND filter

Exceptionally bright scenes such as sunny days at the beach in summer or on snow fields in winter will look "washed out" when recorded. To make these scenes recorded naturally, an ND filter is required. (Refer to the chart) Three types are available—ND2, ND4, ND8—which reduce the exposure level to 1/2, 1/4, and 1/8, respectively. Select filters to match the lens diameter of 52 mm.

Color temperature—how it effects white balance adjustment

If the temperature of an object continues to increase, it will eventually begin giving off light. At this time, there is a fixed relationship between the object's temperature and its "light color." The temperature of the object radiating the light is expressed in absolute temperature ($^{\circ}\text{K}$). This is also known as the color temperature, which in turn stands for "light color." As color temperature increases, the light color changes from red to yellow to white to blue.

Natural light color temperature ($^{\circ}\text{K}$)	Color change	Artificial light color temperature ($^{\circ}\text{K}$)
Clear sky Slightly overcast	10,000($^{\circ}\text{K}$) ↑ 10,000($^{\circ}\text{K}$)	
Cloudy, rainy	8,000 ↑ Blue 7,000	Fluorescent lamp (clear)
Direct sunlight	7,000 ↓ 6,000	Fluorescent lamp (white)
2 hr.	5,000 ↓ 5,000	Fluorescent lamp (off white)
1 hr.	4,000 ↓ White 4,000	Studio lamp
40 min.	3,500 ↓ 3,500	Halogan lamp
	3,200 ↓ 3,200	
	3,000 ↓ 3,000	
	Yellow	Tungsten lamp
30 min.	2,500 ↓ 2,500	
20 min.	2,000 ↓ Red 2,000	Candle light
Sunrise/sunset		

USING YOUR BETAMOVIE ABROAD

Each country has special TV color broadcast and electricity systems. Before using your Betamovie abroad, check the following points.

Differences in color systems

If you prepare fully charged batteries and extra video cassette tapes, you can use your Betamovie in any country. However, to play recorded cassettes, the video cassette deck and TV must be based on the NTSC system, which is the standard used in the U.S. or Canada.

NTSC system countries as the same in the U.S.A. or Canada

Bahama Islands, Central America, Japan, Korea, Mexico, Taiwan, the Phillipines, etc.

PAL system countries

Australia, Austria, China, Denmark, Great Britain, Holland, Hong Kong, Italy, Kuwait, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand

SECAM system countries

Bulgaria, France, Hungary, Iran, Iraq, Luxemburg, Monaco, Poland, the Soviet Union, etc.

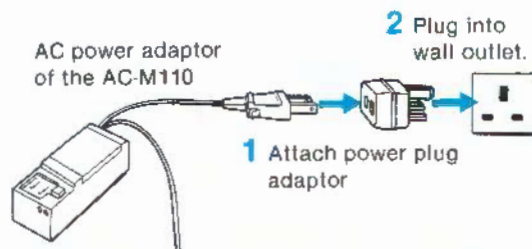
Electricity sources

The Sony AC-M110 ac power adaptor can supply power from AC 100V to 240V sources ($\pm 10\%$, 50/60 Hz). However, since the shape of AC wall outlets differs from country to country, and even from region to region, you will have to prepare a power plug adaptor which matches the wall outlet to be used. Consult the embassies or consulates of the countries you are planning to visit or a travel agency for detailed information. Also, some European countries have power sources well above 200V, so be careful to select a reliable power plug adaptor.

Power plug adaptor (reference)

(This example shows use of an adaptor to plug the AC power adaptor into a differently-shaped wall outlet; it does not illustrate use of a voltage converter.)

If you are going to use your Betamovie in a non-NTSC-system country such as Great Britain, Hong Kong, Singapore, etc.:



If your Betamovie does not function properly while traveling abroad

Your Betamovie is made for use in the U.S.A. or Canada.

Since the warranty is not valid outside your own country (U.S.A. and Puerto Rico or Canada) be sure to check the unit thoroughly and shoot some scenes using all the camera functions before leaving your country.

In the event that some malfunction occurs when traveling abroad, consult your Sony dealer or Sony service facility upon returning home.

SPECIFICATIONS

System

Video recording system	Rotary double-azimuth single-head, Helical scanning FM system
Usable cassettes	Cassettes having the V mark
Tape speed	2.0 cm/sec. (VII)
Maximum recording time	3 hours 20 min. (VII) (with L-830 video cassette)
Audio frequency response	50–8,000 Hz (VII) (using an external microphone)
Pickup tube	1/2-inch SMF Tricon tube
Lens	Combined 6x power zoom lens f9 mm (F1.2)–54 mm (F1.4) with macro Filter diameter: 52 mm
Autofocus system	TCL autofocus
Color temperature selector	Built-in 2-step filter (3200°K/5500°K)
Minimum illumination	35 lux
Illumination range	35 lux to 100,000 lux (3.3 to 9294 footcandles), automatic sensitivity and iris

Inputs and outputs

DC IN 9.6 V jack	9.6 V dc
EARPHONE jack	Minijack, –26 dBs, 8-ohm impedance
REMOTE jack	Minijack
MIC jack	Minijack, –65 dBs, Low impedance

General

Power requirements	9.6 V dc
Power consumption	9.5 W
Operating temperature	0°C to 40°C (32°F to 104°F)
Dimensions	Approx. 126 × 221 × 359 mm (w/h/d) (5 × 8 ³ / ₄ × 14 ¹ / ₈ inches) when packed
Weight	2.64 kg (5 lb 13 oz) Betamovie only
Viewfinder	TTL optical system, Eyesight correction adjustable (+2 – –4 DP)
Microphone	Built-in electret condenser mic
Accessories supplied	NP-11 battery pack...1 AC-M110 ac power adaptor...1 Eye cup cover...1 Shoulder strap...1 Decal...1

Design and specifications are subject to change without notice.

TROUBLESHOOTING

If you think you have a problem, double-check before calling the serviceman. You may have overlooked something relatively simple.

Symptom	Cause	Procedure
The STANDBY lamp does not light even when the POWER button is pressed.	<ul style="list-style-type: none"> ● No cassette is inserted. ● The inserted battery pack is exhausted. ● The cassette safety tab is removed. ● The tape is at its end. 	<ul style="list-style-type: none"> ● Insert a cassette. ● Take it out and charge, or replace with a charged one. ● Cover the hole, or insert a cassette with a safety tab. ● Rewind the tape on a VCR, or replace with a new cassette.
The function buttons cannot be activated. A cassette cannot be inserted.	The DEW lamp is lit.	<ul style="list-style-type: none"> ● Eject the cassette and let the unit sit until the moisture evaporates.
The tape does not run when the REC START/STOP button is pressed.	<ul style="list-style-type: none"> ● The tape is stuck to the head drum. ● The tape is at its end. 	<ul style="list-style-type: none"> ● Eject the cassette and insert it again. ● Rewind the tape on a VCR, or replace with a new cassette.
The CAUTION or "C" lamp in the viewfinder blinks.	The video head may be contaminated or clogged.	<ul style="list-style-type: none"> ● Repeat pressing the REC START/STOP button several times. If the lamp still blinks, use an optional Sony L-25CL video head cleaning cassette. If the blinking persists, contact the nearest Sony dealer or local Sony service facility.
The CAUTION or "C" lamp in the viewfinder is lit.	<ul style="list-style-type: none"> ● The unit has not been used for a long period of time. ● While the cassette is being inserted or ejected. 	<ul style="list-style-type: none"> ● Run the tape for a while, and the lamp may go out. If the lamp continues to light for more than 5 minutes, contact the nearest Sony dealer or local Sony service facility.
The white balance cannot be adjusted. (The "W" lamp in the viewfinder stays on.)	<ul style="list-style-type: none"> ● Light is insufficient. (The "L" lamp in the viewfinder is also lit.) ● Under certain types of light. 	<ul style="list-style-type: none"> ● Add lighting. ● Recording can be made.
The autofocus function does not work.	<ul style="list-style-type: none"> ● The FOCUS switch is not set to AUTO. ● The lens is foggy or dirty. 	<ul style="list-style-type: none"> ● Set the FOCUS switch to AUTO. ● Shooting conditions are not suitable for autofocus operation (see pages 12 and 13). ● Switch to MANUAL and focus using the focus ring. ● Wait until the condensation on the lens evaporates or, if dirty, clean the lens.
The cassette cannot be ejected. The EJECT button does not work.	<ul style="list-style-type: none"> ● The internal battery power is exhausted. ● The power connection is not properly made. 	<ul style="list-style-type: none"> ● Replace with a charged battery pack. ● Connect an ac power adaptor or a car battery cord firmly. Turn on the ac power adaptor. ● Insert battery pack.
The playback picture is not clear.	Focusing was not properly done.	<ul style="list-style-type: none"> ● Set the eyesight adjustment before focusing.
Another image appears in the center of the playback picture.	The light went through the viewfinder when recording from a distance.	<ul style="list-style-type: none"> ● Attach the eye cup cover to the viewfinder eye cup when remotely controlling the unit.

PRERECORDING CHECKLIST

To make sure you don't miss those "once in a lifetime" scenes, go over this checklist before recording. Also, check the Betamovie to confirm that the battery pack and cassette are loaded, and prepare extra battery packs and cassettes as required for your recording.

	Item	Checkpoints
Required for recording	Battery pack NP-11	<ul style="list-style-type: none"> Fully charged. (see page 16) The selector switch on every fully charged battery is set to FULL. Battery packs are numbered consecutively. There are enough battery packs to cover the planned recording time. (NP-11: 60 min.)
	Video cassette tapes	<ul style="list-style-type: none"> The tape is wound to the point where recording is to begin. The tab is not broken off or tape is attached in its place. Tape time will cover the planned recording time.
	Betamovie	<ul style="list-style-type: none"> The eyesight correction knob is set properly for you. The battery pack is inserted. The cassette is inserted. All functions are working properly (test recording). The shoulder strap is attached.
	Quick check card	Carry it with your Betamovie for quick, convenient reference.
Convenient accessories	Tripod	<ul style="list-style-type: none"> Required for scenes in which unit stability is important. Tripod mount screw must match Betamovie receptacle mount.
	AC power adaptor AC-M110	<ul style="list-style-type: none"> Can be used where AC power source outlet is available. Use to charge batteries. Can be connected to Betamovie for AC power supply.
	External spot microphone	<ul style="list-style-type: none"> Back electret condenser microphone which records specific sound source being aimed at. Suitable battery must be used in the microphone.
	External microphone shoe SAD-100	Attaches microphone directly to the unit for trouble-free recording.
	Video light	<ul style="list-style-type: none"> Required for recording in low light situations. Can be attached to accessory shoe for added convenience.
	Earphone (mini plug)	Permits monitoring of audio signal during recording.
	Instruction manual	Quick, complete reference for Betamovie operation and care; keep in a safe place for ready reference.