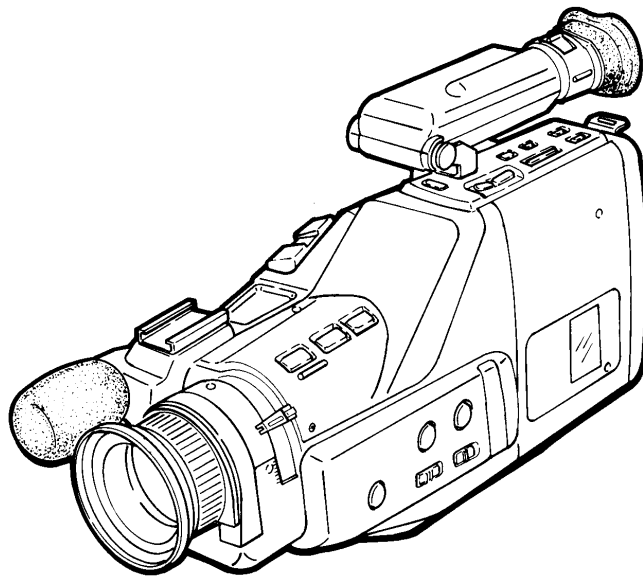


Instruction Manual

8 mm
Camcorder

VM-D6P



8 PAL

CONTENTS

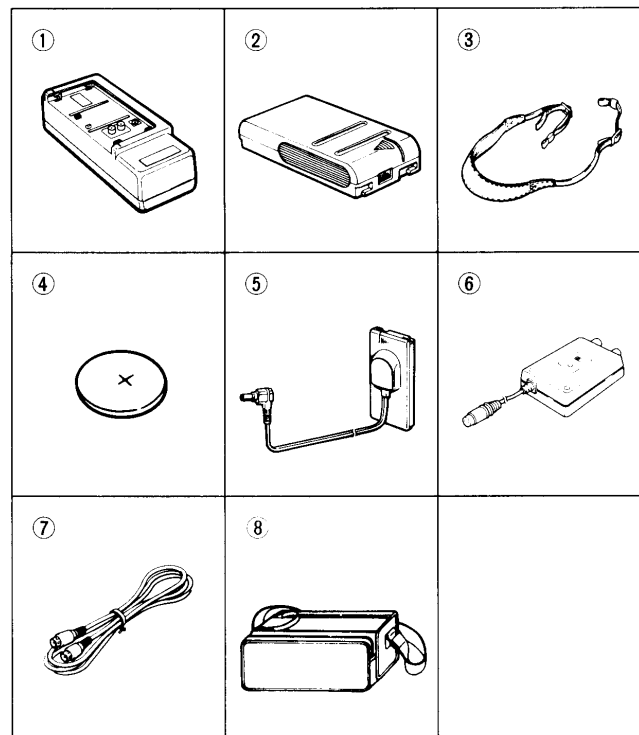
| | |
|-------------------------------------|----|
| FEATURES | 1 |
| ACCESSORIES | 1 |
| PART NAMES | 2 |
| PREPARATIONS | 4 |
| LINEAR TAPE COUNTER | 10 |
| HOLDING THE CAMCORDER | 11 |
| CAMERA RECORDING | 12 |
| PLAYBACK | 13 |
| SMOOTH RECORDING/INSERT EDIT | 15 |
| RECORDING REVIEW | 16 |
| ZOOM | 16 |
| MACRO (CLOSE-UP) FOCUSING | 17 |
| HIGH SPEED SHUTTER | 18 |
| AUTO WHITE BALANCE | 19 |
| TITLE INSERT | 20 |
| AUTO FOCUSING | 21 |
| AUTO IRIS | 23 |
| DATE/TIME IMPRINT | 24 |
| TAPE COPY | 25 |
| CONNECTION | 26 |
| IMPORTANT NOTES | 27 |
| BASIC SHOTS | 28 |
| PANNING/TILTING | 30 |
| ZOOMING | 31 |
| LIGHTING CONDITIONS AND LIGHT | 31 |
| THE PERSONAL TOUCH | 33 |
| BEFORE REQUESTING SERVICE | 34 |
| SPECIFICATIONS | 36 |

FEATURES

- Integrated camera/8mm video cassette recorder
- Automatic focus
- High speed shutter
- Title insert (superimpose)
- Scene search
- Date/time imprint
- Macro (close-up) recording
- Eight-power zoom-in/zoom-out-powered or manual operation
- Electronic viewfinder for immediate playback
- Recording review for checking the last part of a recording
- Still frame/picture search
- Linear time tape counter(Real time counter)
- Maximum recording time : 180 minutes
- LP/SP
- Insert Edit

ACCESSORIES

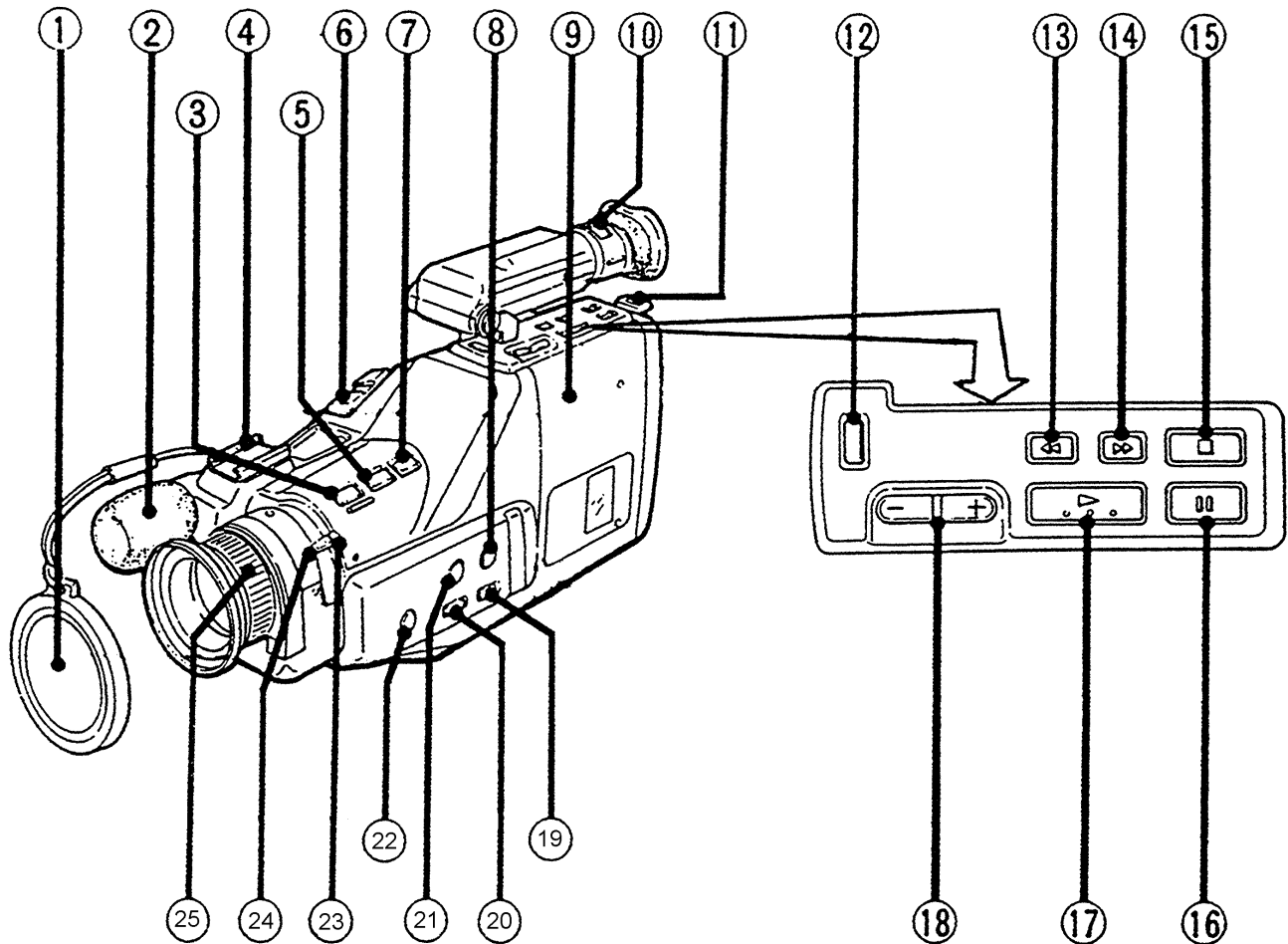
| | |
|---------------------------------------|---|
| ① VAR-30B or VAR-30C AC adaptor | 1 |
| ② NP-55 Battery pack | 1 |
| ③ Shoulder belt | 1 |
| ④ Lithium battery (CR2025) | 1 |
| ⑤ Power connection cord | 1 |
| ⑥ VRF-300 RF adaptor | 1 |
| ⑦ Coaxial cable | 1 |
| ⑧ Soft case | 1 |



OPTIONAL ACCESSORIES

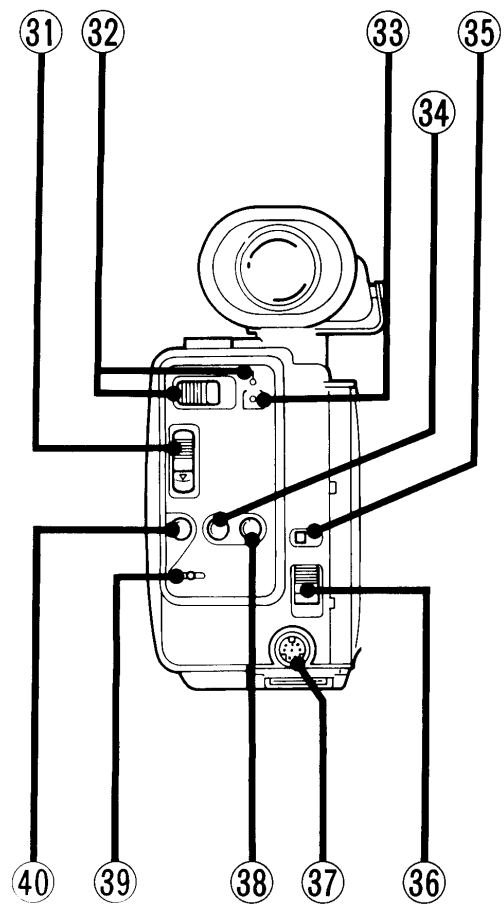
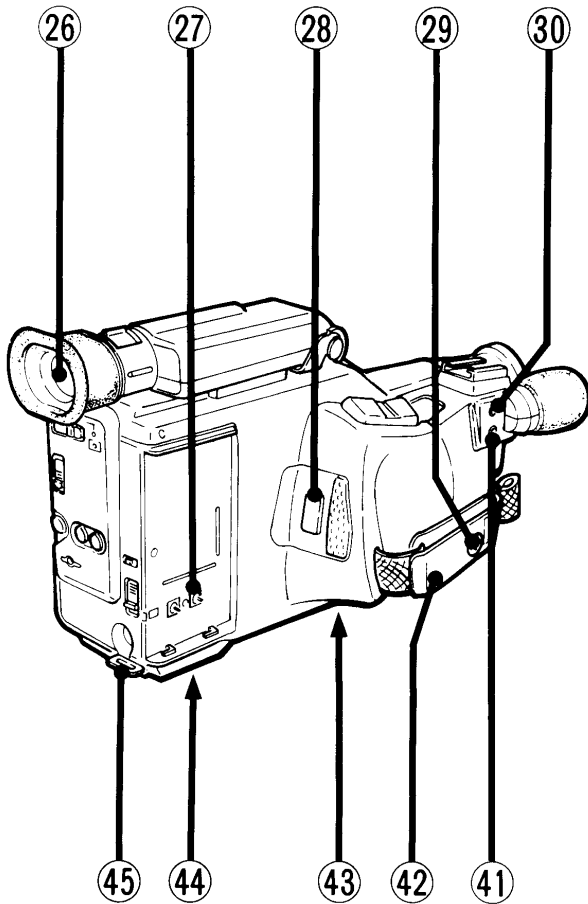
| | |
|---------|------------------------|
| NP-55 | Battery (45min approx) |
| NP-77 | Battery (90min approx) |
| VCL-80 | Standard Filter kit |
| VCL-85 | Creative Filter Kit |
| VCL-T20 | Teleconversion Lense |
| VCL-W7 | Wide Angle Lense |
| VBF-85 | Car Battery Pack |
| VBF-90 | Car Battery Chager |
| VP-90 | Ultra Microphone |
| VDL-20 | Video Light |
| VDC-80 | Cleaning Kit |
| VCW-82 | AV cord |
| VCE-212 | AV scart adaptor |

PART NAMES



| No. | Name |
|-----|-----------------------------|
| ① | Lens cap |
| ② | Microphone |
| ③ | TITLE ON/OFF button |
| ④ | Accessory shoe |
| ⑤ | TITLE MEMO button |
| ⑥ | Power zoom button |
| ⑦ | TITLE COLOR button |
| ⑧ | HIGH SPEED SHUTTER button |
| ⑨ | Cassette holder |
| ⑩ | Eyegight compensation lever |
| ⑪ | Shoulder belt hook |
| ⑫ | REC button |
| ⑬ | REW button |

| No. | Name |
|-----|----------------------|
| ⑭ | FF button |
| ⑮ | STOP button |
| ⑯ | STILL button |
| ⑰ | PLAY button |
| ⑱ | SCENE SEARCH button |
| 19 | WHITE BALANCE switch |
| 20 | FOCUS switch |
| 21 | IRIS switch |
| 22 | FOCUS REV button |
| 23 | MACRO SET button |
| 24 | Zoom lever |
| 25 | Focus ring |



| No. | Name |
|-----|-----------------------|
| 26 | Viewfinder |
| 27 | Battery holder |
| 28 | REC START/STOP button |
| 29 | Lens cap snap |
| 30 | EARPHONE jack |
| 31 | EJECT switch |
| 32 | POWER switch and lamp |
| 33 | REC/PAUSE lamp |
| 34 | RESET button |
| 35 | REC MODE/EDIT switch |

| No. | Name |
|-----|------------------------|
| 36 | Battery eject lever |
| 37 | AUDIO · VIDEO terminal |
| 38 | MEMORY button |
| 39 | DATE/TIME ADJ button |
| 40 | DATE/TIME button |
| 41 | EXT. MIC jack |
| 42 | Grip belt |
| 43 | Tripod screw mount |
| 44 | Lithium battery cover |
| 45 | Shouder belt hook |

PREPARATIONS

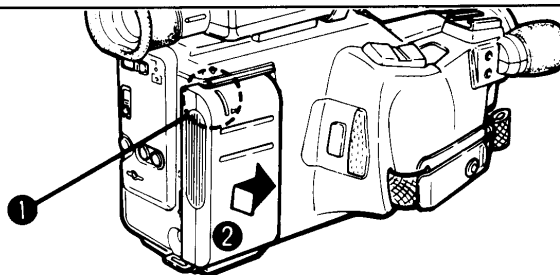
POWER SOURCE

Outdoor Use :

For outdoor recording, use supplied battery pack NP-55.

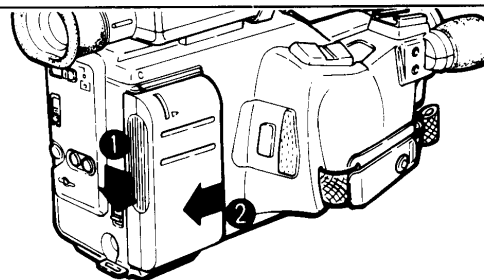
Attaching the Battery Pack

1. Align the line on the battery pack with the unit.
2. Gently press the battery pack toward the unit, then slide it to the right, until it "clicks" into place (arrow ②).



Removing the Battery Pack

1. Press and hold down the battery eject lever (arrow ①).
2. Slide the battery pack to the left (arrow ②).

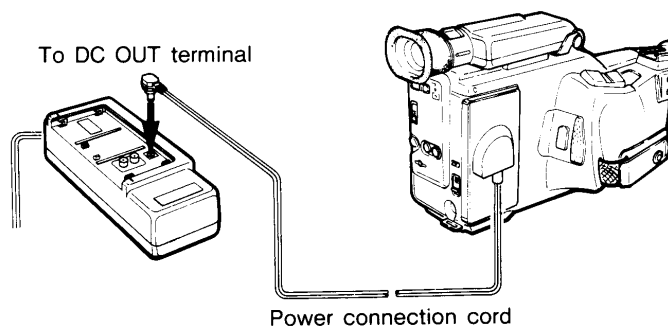


Indoor Use :

For indoor recording, use supplied AC adaptor VAR-30B or VAR-30C.

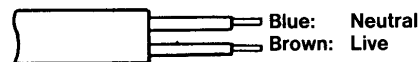
- a) Attach (or remove) the power connection cord using the procedures in steps 1 and 2 above "Attaching the Battery Pack" (or "Removing the battery pack").
- b) Connect the AC adaptor's plug to an AC outlet. The green power lamp will light.
- c) When finished recording or playback, disconnect the AC adaptor's plug from the wall outlet.

The AC adaptor can be used in countries with line voltages between 100 V AC and 240 V AC.



IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:



- As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter **N** or coloured blue or black.
- The wire which is coloured brown must be connected to the terminal which is marked with the letter **L** or coloured brown or red.

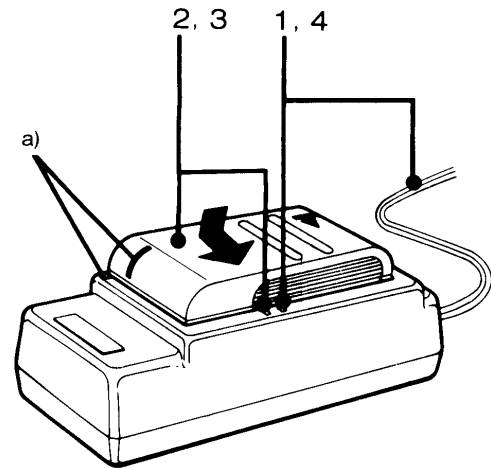
Notes :

- The battery pack supplied with this unit has not been charged. Charge it before initial use. (See page 5)
- Do not use VAR-30B or VAR-30C AC adaptor to supply power for other than VM-D6P 8mm camcorder.
- When removing the battery pack or power connection cord, power should be switched OFF.

CHARGING

Use the VAR-30B or VAR-30C AC adaptor to charge the battery pack.

1. Plug the AC adaptor into an AC outlet.
The green power lamp will light.
2. Attach the battery pack.
 - a) Align the line marks.
 - b) Gently press down on the battery pack. Slide it into place as shown by the arrow.The charge lamp will light and charging will begin.
When the battery pack has been fully charged, the charge lamp will change to yellow. The NP-55 battery pack can be charged in about one hour. (The optional NP-77 battery pack takes about 2 hours.)
3. Slide the battery pack in the opposite direction.
4. Disconnect the AC adaptor plug from the AC outlet.

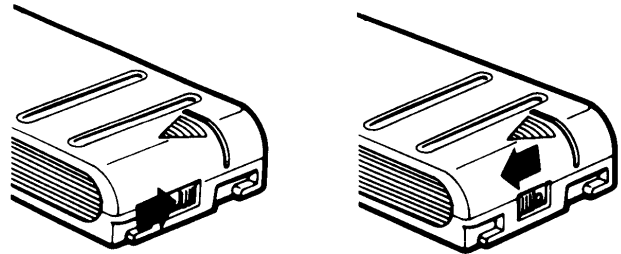


After charging :

Slide the mask on the battery pack as shown to cover the red circle.

When the battery pack is exhausted :

Slide the mask on the battery pack as shown to reveal the red circle.



Notes :

- At normal temperatures, a fully charged battery pack will provide enough power to record for about 45 minutes. It will provide much less recording time in cold locations.
- Do not use VAR-30B or VAR-30C AC adaptor for purposes other than charging NP-55 or NP-77 battery packs.
- Do not continue charging a fully charged battery pack, because doing so will adversely affect its performance.
- Although charging is possible within a temperature range of 5°C ~ 35°C, for best results, a temperature range of 10°C ~ 30°C is suggested.

8mm CASSETTE TAPE

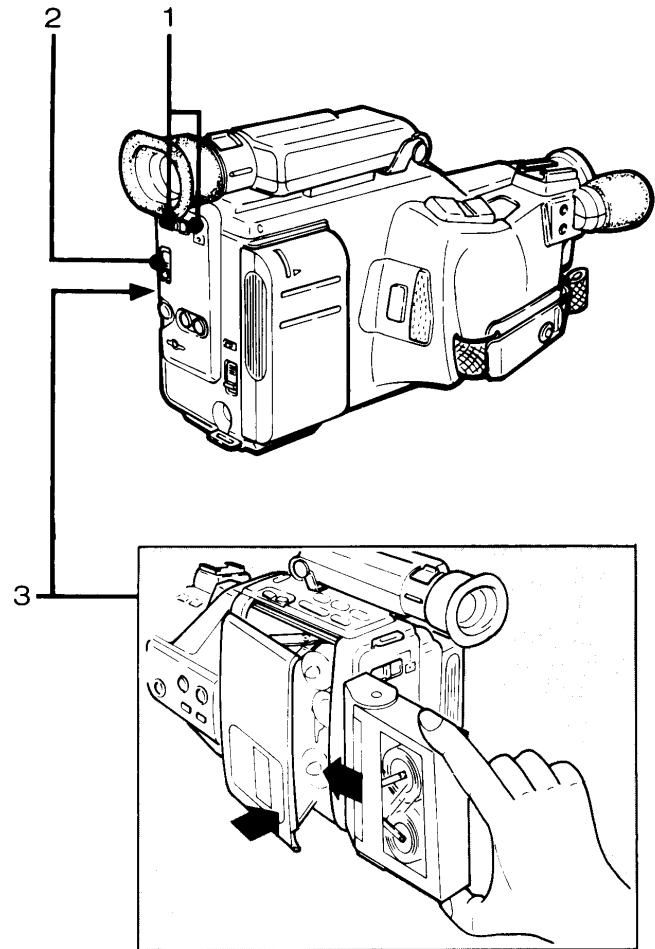
Only 8mm video cassettes can be used in this unit.

Loading Cassette

1. Switch the power on.
The POWER lamp will light.
2. Slide the EJECT switch.
The cassette holder will open.
3. Insert a cassette. Gently press the cassette holder ("PUSH" indicator section).

Ejecting Cassette

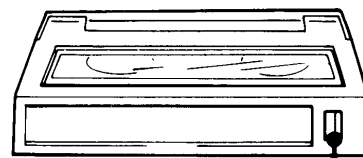
Slide the EJECT switch.



Video tape recording/playback time

| Recording mode | Recording time | | | |
|----------------|----------------|--------|---------|---------|
| | P5-15 | P5-30 | P5-60 | P5-90 |
| SP | 15 min | 30 min | 60 min | 90 min |
| LP | 30 min | 60 min | 120 min | 180 min |

SP mode: tape speed approx. 20.051 mm/sec.
LP mode: tape speed approx. 10.025 mm/sec.



ERASURE-PREVENTION switch

ERASURE-PREVENTION switch

To prevent accidental erasure of recorded material, set the switch on the spine of the cassette to the red position. Recording then cannot be made on that cassette. To record on it later, return the switch to the original position.

Notes :

- Never carry this unit by grasping the cassette holder.
- Do not cover the holes on the bottom of the cassette. These holes are used to determine the type and length of tape and whether or not recording is possible.
- Store each video tape cassette in its case, standing upright (vertical). This will prevent the entrance of dust and uneven tape winding.

LITHIUM BATTERY

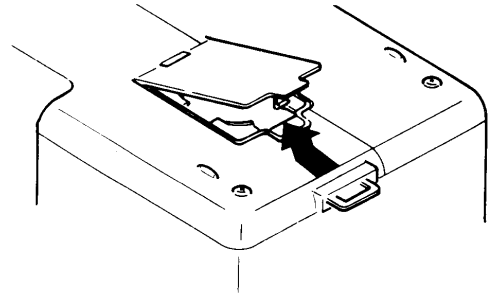
The date/time imprint function of this unit requires a lithium battery to prevent the loss of the date/time memory when the power is switched off.

The lithium battery has a life of approximately 1 year when used normally.

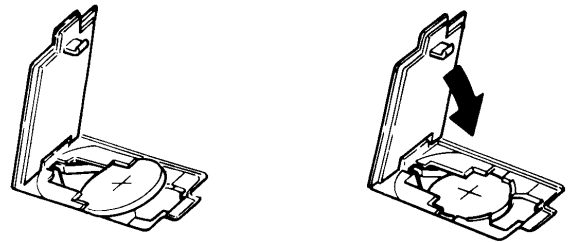
Installing the Lithium Battery

Use the same procedure to replace a worn out battery. (Lithium Battery : CR2025 [3V])

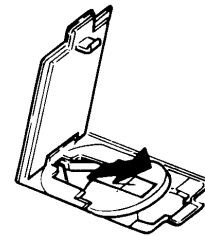
1. Open the lithium battery cover.



2. Lithium battery insertion.
 - a) Wipe the battery clean with a dry cloth to prevent faulty contact.
 - b) Insert the battery properly with the + side up.
 - c) Close the lithium battery cover.



3. To eject the lithium battery, press it down and then slide out of the housing in diagonally upward direction.



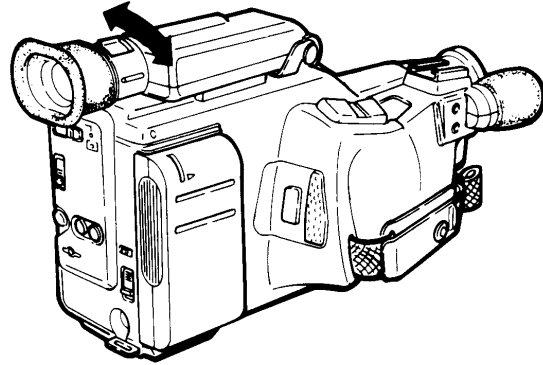
- After replacing the battery, adjust the DATE/TIME.
(See SETTING THE DATE/TIME.)

Notes :

- Keep the lithium battery out of the reach of children.
- Do not grasp the battery with metallic tweezers, etc., as this is liable to cause a short circuit.
- Do not disassemble, subject to heat, or place the battery in water due to the danger of explosion. When discarding, treat the battery as non-burnable waste.
- WHEN REPLACING THE BATTERY USE ONLY THE SAME TYPE.

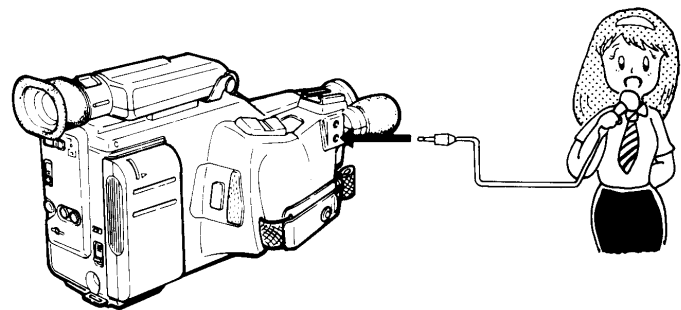
EYESIGHT COMPENSATION

- Switch on the power.
- Look through the viewfinder and observe the visible indications (see page 9).
- Turn the adjustment lever (see arrow) left or right to obtain the clearest possible image of the indications.
- The subject's image can now be focused accurately with the camcorder's focusing controls.



MICROPHONE

The built-in omnidirectional microphone is more or less evenly receptive to sound coming at it from all directions, making the recorded sound heard natural when played back. The wide pickup pattern of the omnidirectional mount would mean, however that, you may need an external microphone to get better result if you want to pick up a weaker sound at a distance or if you are in a place quiet enough to hear the motor running inside the unit.



● RECORDING IN A HIGH WIND

Popping sound will be produced. Use a handkerchief and wrap the microphone head with it to shield it from the wind.

Wrap the microphone head with a handkerchief.

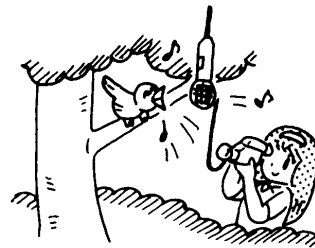


Screen the microphone off wind with your body.



● RECORDING DISTANT OBJECT

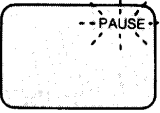

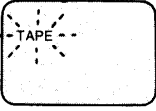
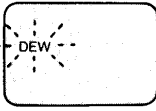
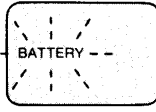
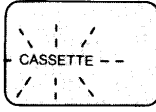
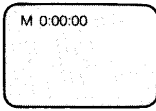
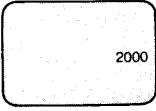
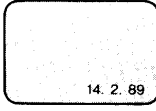
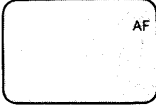
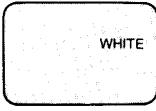
Place an external microphone close to the subject to get a clear sound.



Note :

- The built-in microphone will not function while an external microphone is connected.

INSIDE THE VIEWFINDER

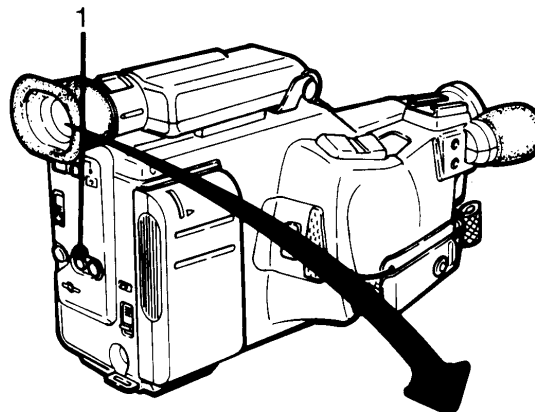
| | | | |
|---|---|--|--|
|  | <p>This indication appears during the recording pause mode.</p> | | |
|  | <p>This indication appears during the recording mode.</p> | | |
|  | <p>This indication appears about 5 minutes before the tape reaches its end.</p> | | |
|  | <p>This indication will appear and flash when dew has condensed inside the unit.</p> | | |
|  | <p>This indication will appear and flash when the battery becomes weak.</p> | | |
|  | <p>If one or more of the following conditions exist, this indication will flash when the recording mode is selected :</p> <ol style="list-style-type: none"> 1. No cassette has been loaded into the camcorder 2. If the cassette has been set for erase prevention 3. The tape has been wound to its end 4. If there is moisture on the tape 5. The unit cannot record normally | | |
|  | <p>Real time tape counter and memory (M) indications (see page 10).</p> |  | <p>Shutter speed indication (see page 18).</p> |
|  | <p>DATE/TIME indication (see page 24).</p> |  | <p>FOCUS indication (see page 21).</p> |
|  | <p>Color indication of the title insert function (see page 20).</p> | | |

LINEAR TIME TAPE COUNTER

The linear time tape counter indicates tape running in hour, minute and second. Reset the counter (0:00:00) at the beginning of recording or playback and you can easily determine the remainder of the tape or search the recorded scene you want to see.

RESET

1. Press the RESET button.
The tape counter will return to "0:00:00" in the viewfinder. Reset the counter at the beginning of the tape and you can easily calculate the remaining tape length, while tape is running. (Subtract the current counts from the nominal tape recording time.

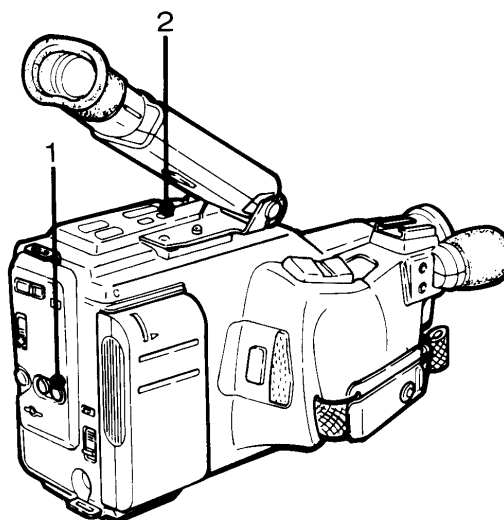


0:00:00

COUNTER MEMORY FUNCTION

Using this function you can find the tape position where you have reset the timer. Reset the counter, during recording or playing back, upon encountering a scene you want to see again.

1. Press the MEMORY button.
The counter memorizes the tape position you have reset. The letter "M" will appear in the viewfinder. To cancel the memory mode, press the MEMORY button again.
2. Press the REW button.
The tape will rewind and automatically stop in the vicinity of the "0:00:00" counter reading. If the counter reads a minus value, press the FF button.



M 0:46:27



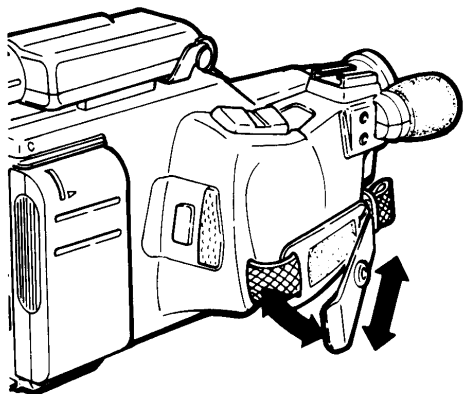
M 0:00:00

Notes :

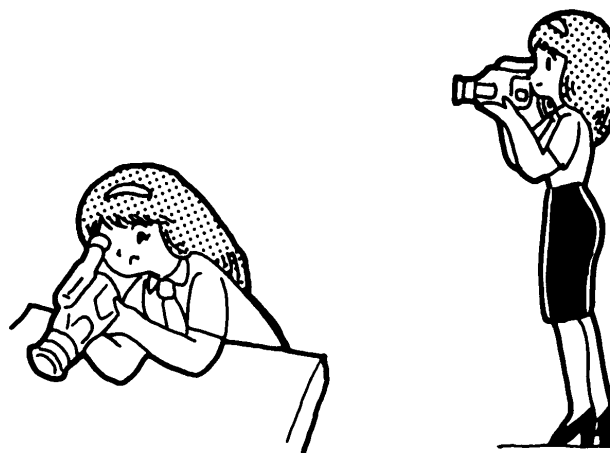
- There may be a small discrepancy between the counter reading and the actual tape running time.
- The counter will indicate a minus reading if the REW function does not stop at 0:00:00 reading.

HOLDING THE CAMCORDER

If the grip belt does not fit your hand unwanted camera movement may occur during recording. Adjust the belt's length as desired.



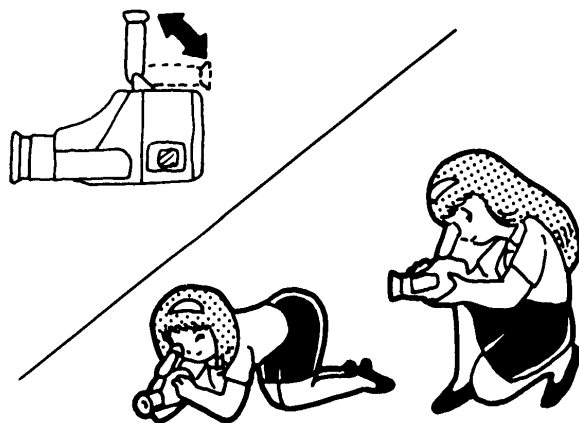
Keep your hands steady by resting on the wall or table for jitterfree images.



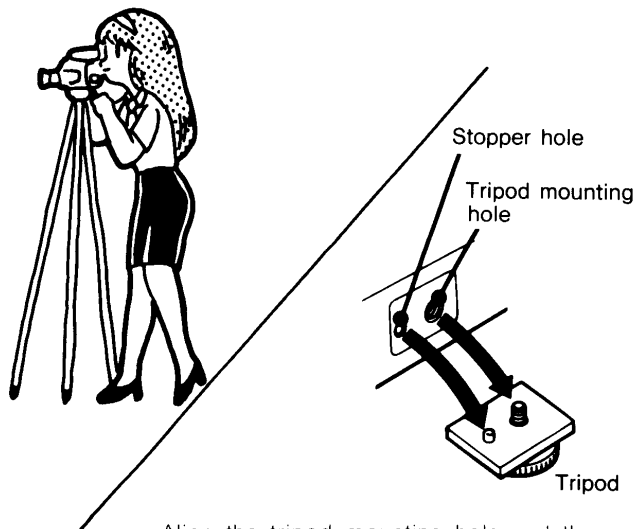
Hold horizontally



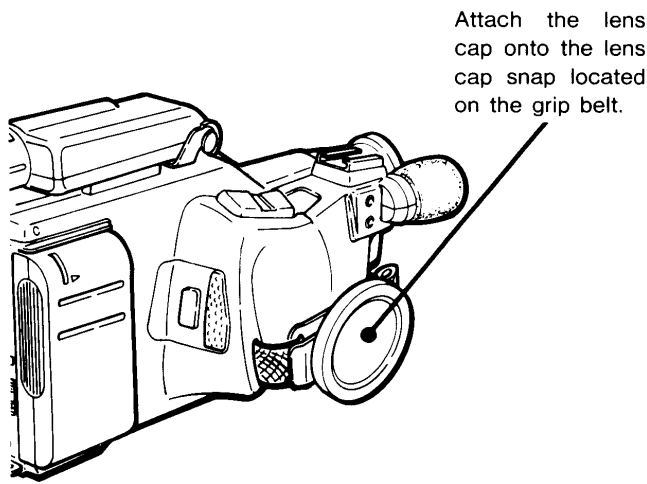
In recording at a low angle.



Use a tripod for more stable image.

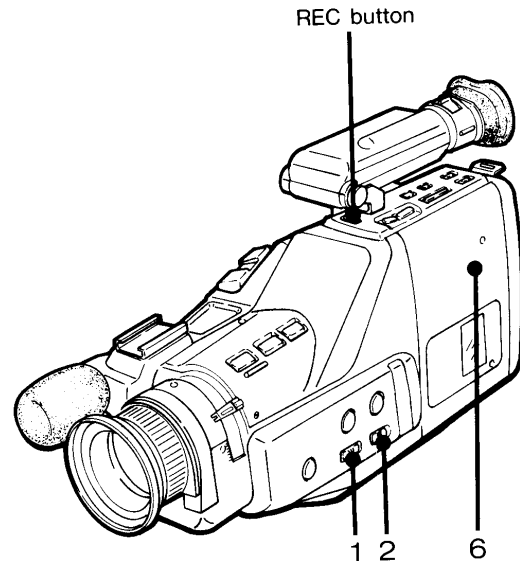


Align the tripod mounting hole and the stopper hole of this unit with the tripod's mounting screw and stopper. Tighten the mounting screw securely.



CAMERA RECORDING

1. Set the FOCUS switch to the AUTO position.
Focus is automatically adjusted.
2. Set the WHITE BALANCE switch to the AUTO position.
White balance is automatically adjusted.
3. Set the REC MODE/EDIT switch to the SP or LP position.
4. Switch the power on.
The POWER lamp will light.
5. Slide the EJECT switch.
6. Insert a cassette. Gently press the cassette holder ("PUSH" indicator section).
The unit will enter the recording pause mode.
7. a) Press the REC START/STOP button once. The REC/PAUSE lamp will stop blinking, remain on, and recording will begin.
b) Press the REC START/STOP button a second time. The REC PAUSE mode will begin, and the REC/PAUSE lamp will blink.
c) Repeat steps a) and b) to continue recording.
d) After recording, eject the cassette and switch off the power.



Recording from the STOP mode

- a) To begin recording from stop mode, press the REC button, to enter the recording pause mode. Then press the REC START/STOP button.
- b) Press the REC START/STOP button or STOP button to stop recording.

Notes :

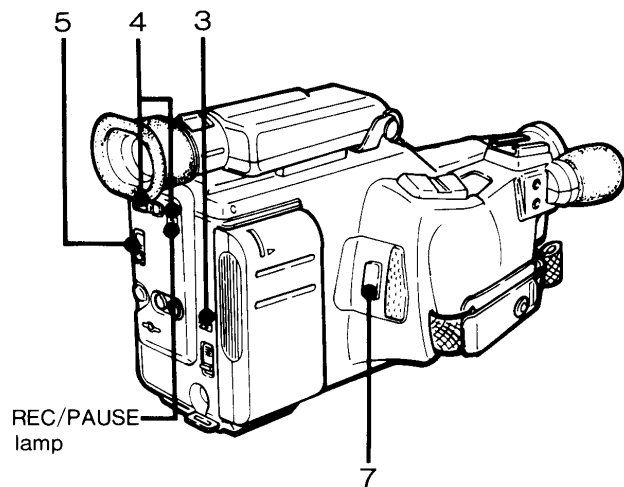
If you pause in the Record mode for more than say 90 seconds, it is recommended to switch off the camcorder to conserve the battery.

NONMINAL DISCHARGE TIMES

NP-55 45mins

NP-77 90mins

These times will be variable due to the type of use, ie : if the Zoom is used frequently, or the Focus range and Light level changes often, each of these will Therefore we recommend that a spare battery be carried to avoid disappointment at a crucial moment when recording.



Notes :

- Vertical stripes may appear if recording is attempted under candle light or in other conditions where the light is dim. This is not an indication of a malfunction.
- a) Battery power operation :
If the recording pause mode continues for about 5 minutes, the power will be switched off automatically.
After about 5 minutes in the stop mode, the power will be switched off automatically.
- b) AC power operation : If the recording pause mode continues for about 5 minutes, the unit will enter the stop mode.
- When fluorescent lamps or mercury-vapor lamps are used for lighting, the recorded images will flicker.

PLAYBACK

The tape recorded by this camcorder can be viewed on a TV screen, or in the viewfinder of this unit. See page 26 for TV connection diagrams.

1. Switch the power on.
2. Slide the EJECT switch.
3. Insert a recorded cassette. Gently press the cassette holder ("PUSH" indicator section).
The unit will enter the recording pause mode.

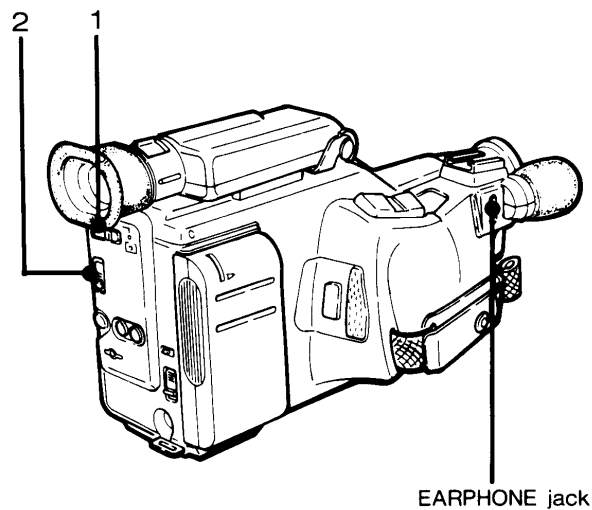
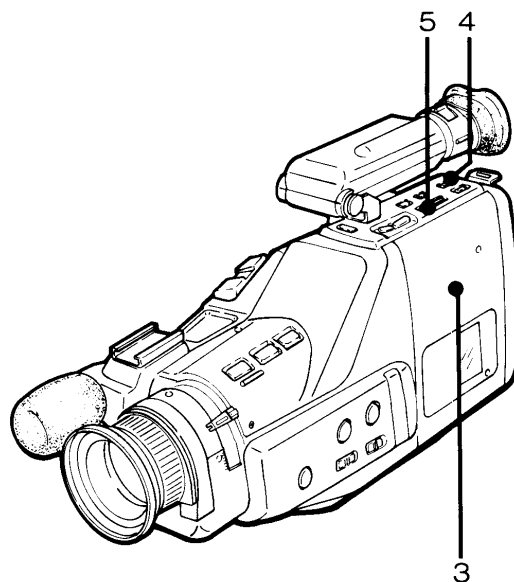
Skip step 4 (press the STOP button), if the cassette has already been protected against accidental erasure.

4. Press the STOP button.
5. Press the PLAY button.
Playback will begin.
To stop the tape, press the STOP button.

If you wish to listen to the recorded sound while playing back in the viewfinder, connect a commercially available earphone to the EARPHONE jack.

Note :

- If the tape has been recorded on another 8-mm video recorder, the beginning of the tape may not be correctly reproduced due to difference in mechanism (loading system).

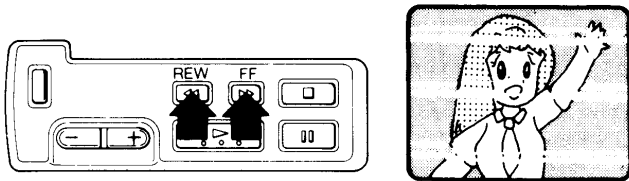


SPECIAL PLAYBACK MODES

Picture search

Press the FF button or the REW button during playback. The tape will move quickly forward or reverse respectively. To return to normal playback, press the PLAY button.

- Note that horizontal lines will appear in the picture during picture search.



Scene search

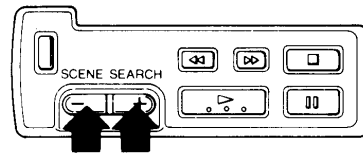
Press and hold the SCENE SEARCH button during still playback.

Scene search function will operate while the button is pressed.

Press "+" ... It will go to normal playback speed.

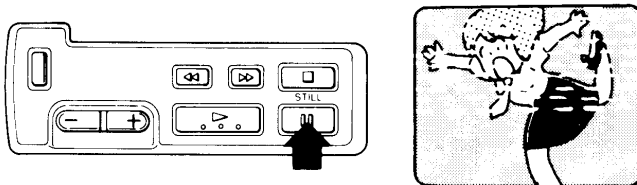
Press "-" ... It will go to reverse playback.

(Note that noise will appear in the picture.)



Still playback

Press the STILL button during playback to view a still picture. To return to normal playback, press the PLAY button.

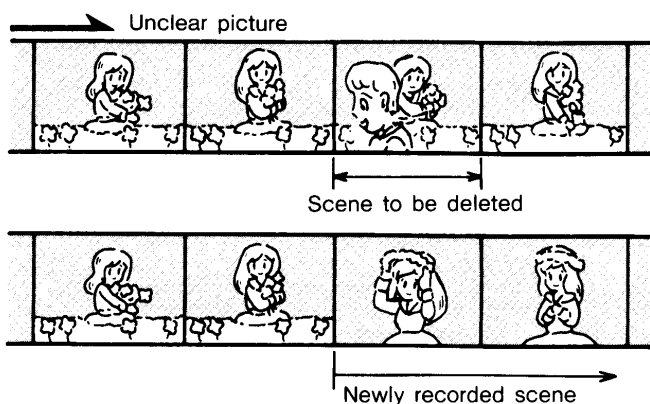


Notes :

- If the still mode continues for about 5 minutes, the unit will automatically switch to the stop mode.
- Image in quick motion will jitter.

SMOOTH RECORDING/INSERT EDIT

If you find scenes you've just recorded are unwanted, they can be replaced with new scenes by using smooth recording function.

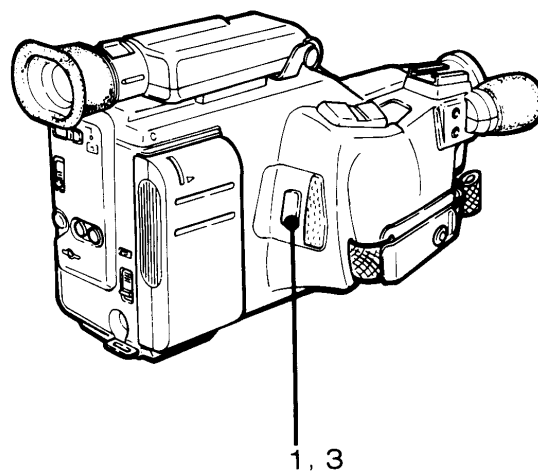
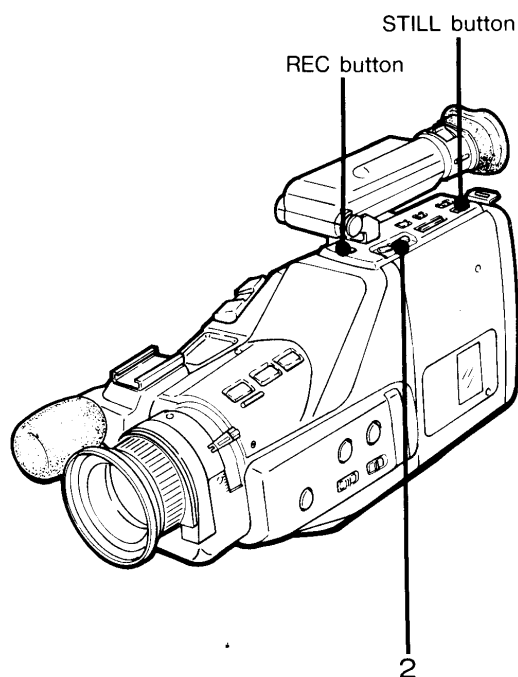


1. Press the REC START/STOP button to enter the recording pause mode.
2. Press the SCENE SEARCH button, watch the viewfinder and locate the beginning of the scene to be re-recorded. Press "+" ... It will go to normal playback speed. Press "-" ... It will go to reverse playback. Release the button at the beginning of the scene. (The unit will return to the recording pause mode.)
3. Start recording by pressing the REC START/STOP button.

To chain a new scene to the end of recorded scene, first playback the tape and press the STILL button the moment you encounter the chaining point. Press the REC button to pause the picture. Start recording by pressing the REC START/STOP button.

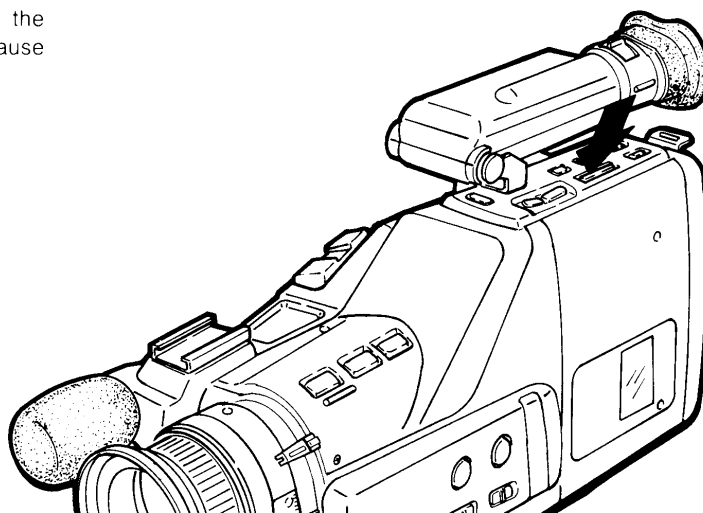
Note :

- During SCENE SEARCH in the chain-recording, noise may appear in the viewfinder irrespective of the playback direction, NORMAL or REVERSE.



RECORDING REVIEW

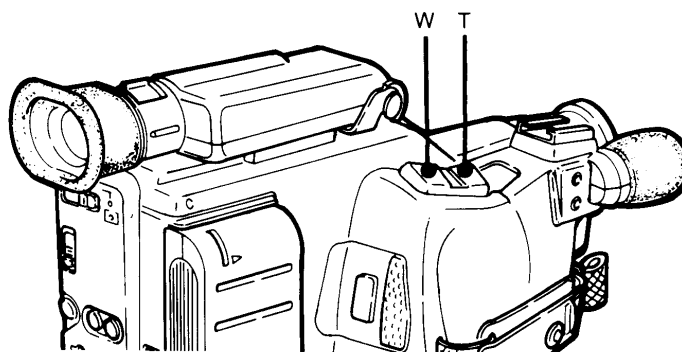
Press the PLAY button during the recording pause mode immediately after recording a new subject. The last portion of the new recording will be played back through the viewfinder, then the unit will re-enter the recording pause mode.



ZOOM

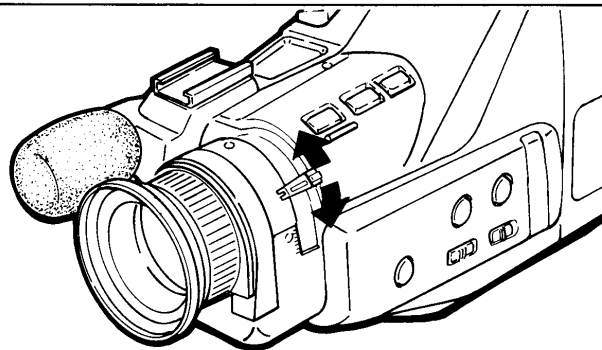
Power zooming

Press "W" side of the switch for wide angle recording, and press "T" side for telephoto recording. Zooming speed is proportional to the pressure applied to the switch.



Manual zooming

Use this method to select the desired zooming speed. Turn the zoom lever to the right or left, as seen from the back of the camcorder, to zoom in (telephoto recording) or zoom out (wide angle recording) respectively.

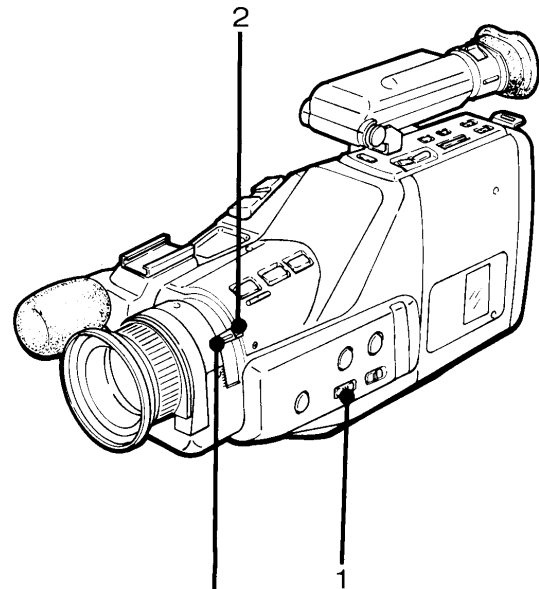


MACRO (CLOSE-UP) FOCUSING

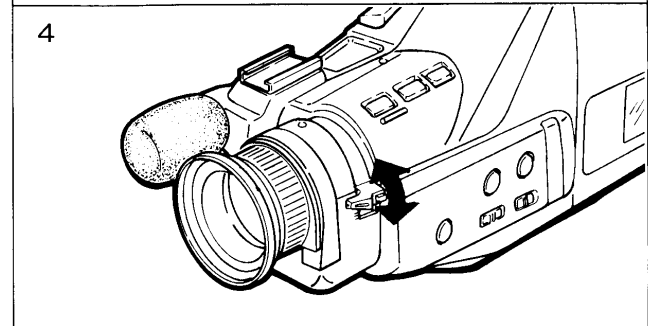
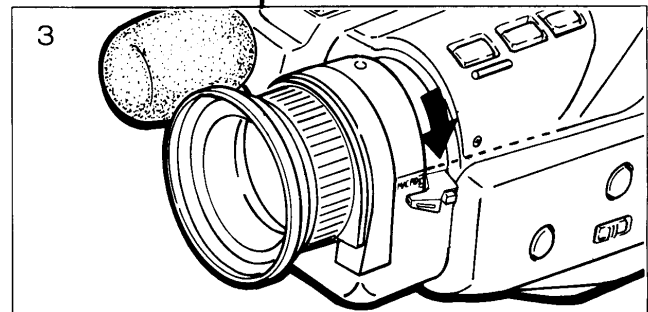
Under ordinary conditions, a subject's image cannot be focused in the viewfinder if the subject is within about 1.2 m of the camcorder. Macro focusing can be used to focus on closer subjects (from 1.2 m to about 15 mm from the camcorder).

1. Set the FOCUS switch to MAN.
2. Press and hold the MACRO SET button.
3. Move the manual zoom lever to the MACRO range.
4. Approach the subject and adjust the ZOOM lever within the MACRO range (area within the green bracket) to focus the subject's image in the viewfinder.

To return to normal shooting, manually turn the ZOOM LEVER or press and hold the POWER ZOOM until the lever clicks into the tele position.



- Inadvertent camcorder movement will reduce the quality of macro recordings. The use of a tripod or stand to hold the camcorder fixed in place during macro recording is recommended.

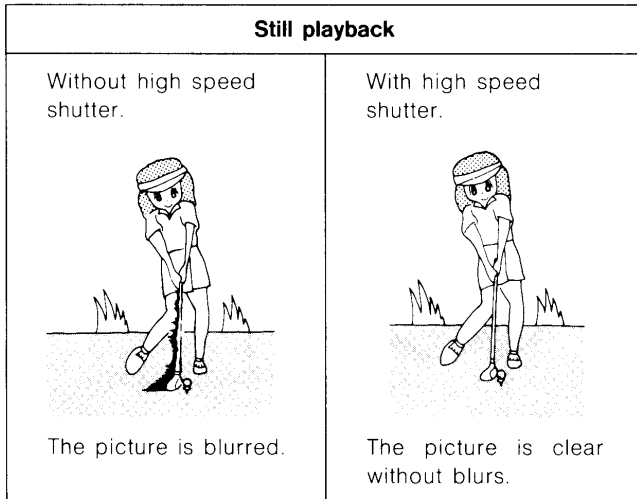


Note :

- The zoom feature cannot be used during macro recording. To reduce the size of the object in the viewfinder, the camera and the object must be moved farther apart.

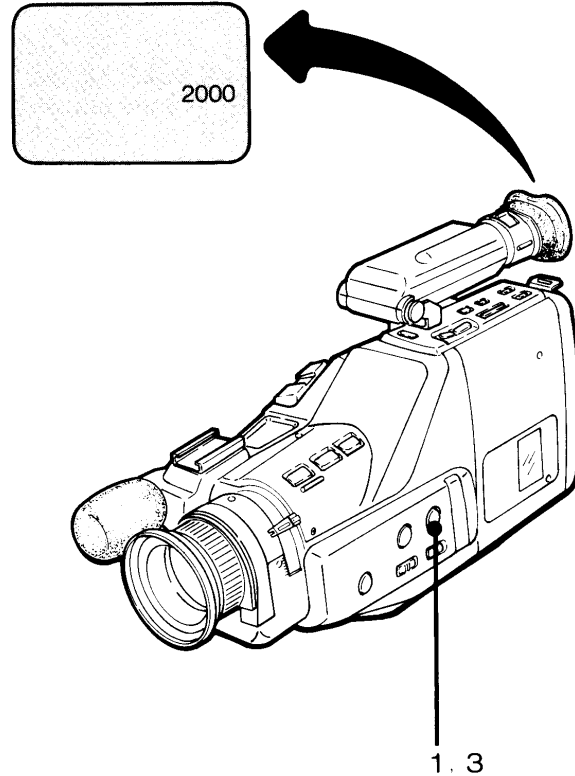
HIGH SPEED SHUTTER

After recording an object in high speed motion, if you wish to watch the motion very slowly, for example to study a swing in playing golf, the movement can be seen in a clear picture by still playback without blurs.



There may be picture noise caused by the still function of this unit.

1. Press the HIGH SPEED SHUTTER button and select the shutter speed to 1/2000 sec.
The shutter speed indication will appear and it will change each time the button is pressed.
120 → 2000 → No indication
(1/120) (1/2000)
2. Start recording.
3. To return to normal recording, press the HIGH SPEED SHUTTER button and make shutter speed indication disappear.



Flickering may occur during indoor recording if fluorescent light is used. Set the shutter speed to 1/120 sec. to reduce the effect.

Notes :

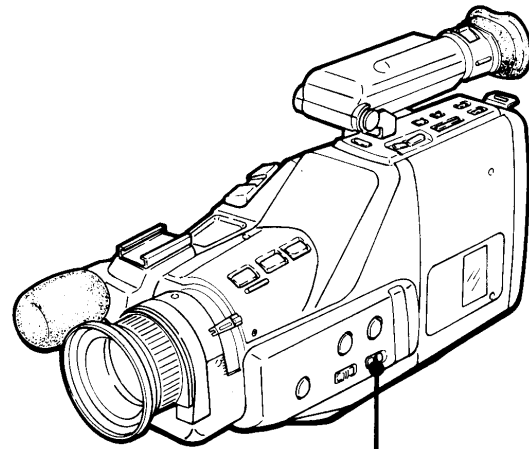
- If the high speed shutter is used for shooting in locations with low illumination such as indoors, the screen will be dimmer than usual. Shoot in a bright location such as outdoors on a clear day.
- Use the high speed shutter effectively. During normal playback, movement in pictures shot with the high speed shutter will not appear smooth.

AUTO WHITE BALANCE

This camera is designed to automatically make the white balance adjustment. Normally, set the WHITE BALANCE switch to the AUTO position.

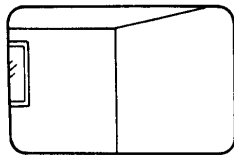
What is white balance?

Adjustment of the white balance is necessary so that white subjects are recorded as white, and the colours of other subjects appear natural.

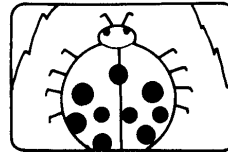


WHITE BALANCE switch

The white balance cannot be adjusted automatically in the following cases. Set the switch to either ☀ or 💡 position.



When the larger part of the subject is occupied by a single colour.

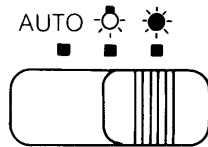


When performing close-up (macro) or telephoto recording :

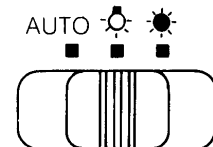
Manual Setting

Switch to ☀ or 💡 according to the light source for the subject.

Sunlight, fluorescent lamp illumination, night views, fireworks.

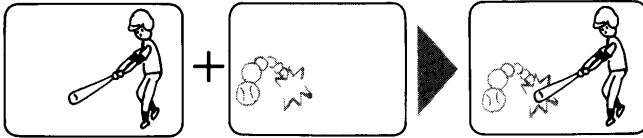


Incandescent lamp, halogen lamp, candle illumination.



TITLE INSERT

A coloured title or illustration can be overlaid during recording to make the scene memorable.

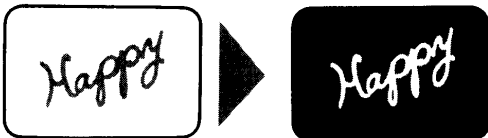


If you want to have your own title drawing, use white paper and a felt tip pen (black is ideal). Draw in a heavy line. The recorded picture can also be used as a title by memorizing it during playback. (Press the TITLE MEMO button while playing back.)

1. Take the picture of the title and press the TITLE MEMO button.
Memorized title picture will appear with colour indication. Previously memorized picture will be erased each time a picture is memorized.
2. Press the TITLE COLOR button and select matching colour.
Colour indication will change each time the button is pressed.
White → Blue → Red → Yellow → Black → White
3. Focus the object and start recording.
4. To end the title, press the TITLE ON/OFF button.
To put title on again, press the same button.

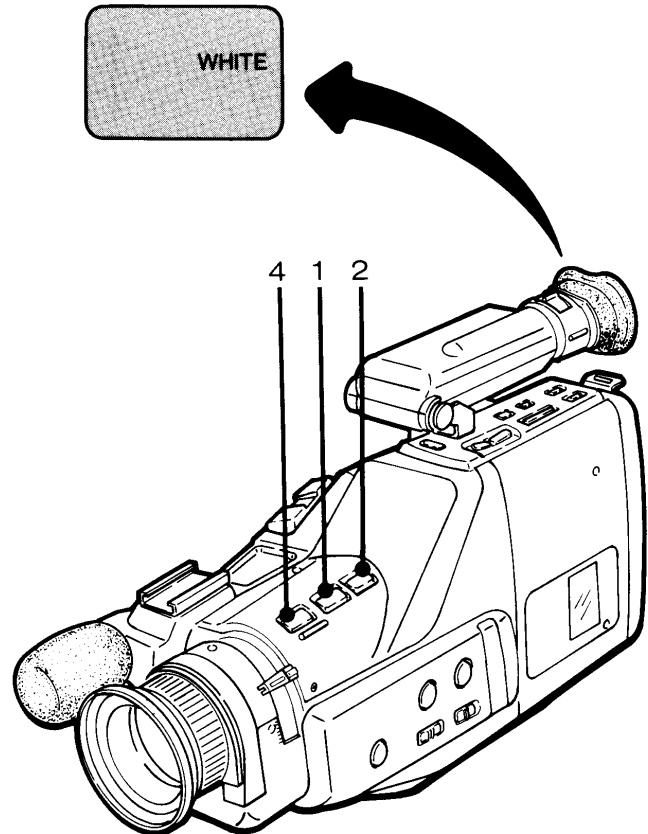
MEMORIZED PICTURE CAN BE REVERSED (NEGATIVE)

Keep on pressing the TITLE COLOR button for about 2 seconds.



- Suppose the title colour is blue, it is reversed when it steps to the next colour, red. Press the TITLE COLOR button to return back to blue.

Do the same operation to return back to the previous picture.



Notes :

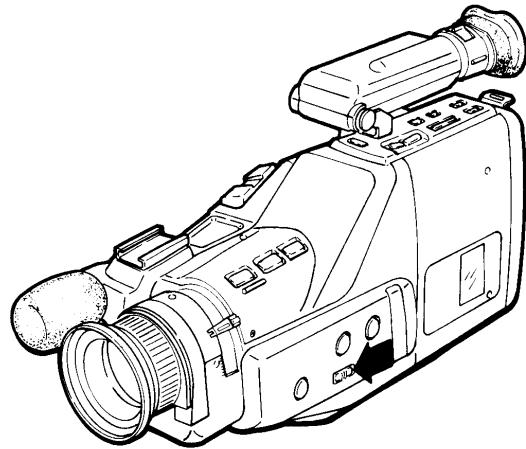
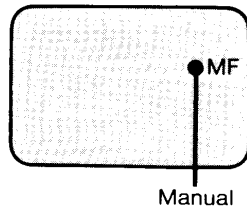
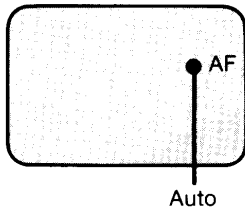
- Memorized picture can be kept even after power switch is cut off, by the effect of lithium battery.
- The title picture can be more clearly memorized as the intensity of the light is increased.

AUTO FOCUSING

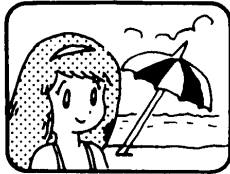
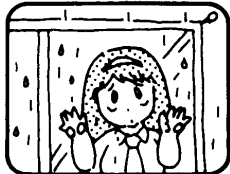
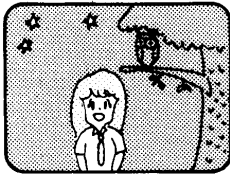

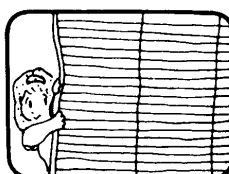

The camcorder will automatically focus on the subject in the center of the viewfinder's image when the FOCUS switch is set to AUTO.

This is the normal position for this switch.

The focus indication will always be visible in the viewfinder.



The auto-focus feature will not operate normally in the following circumstances. Set the FOCUS switch to MAN and adjust the focus manually.

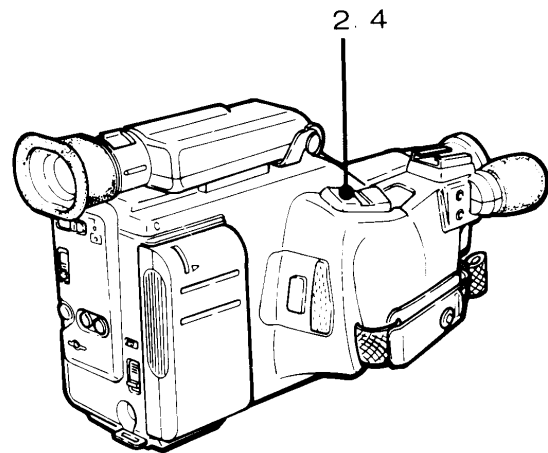
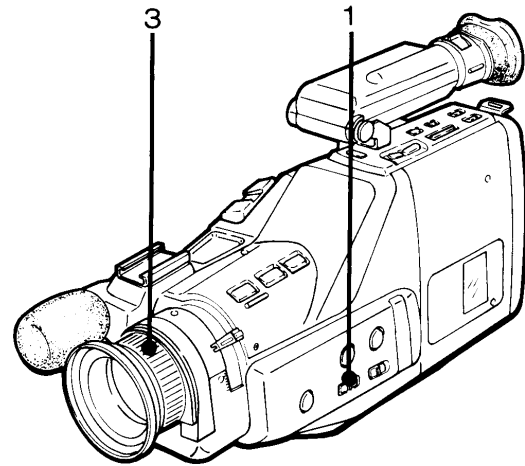
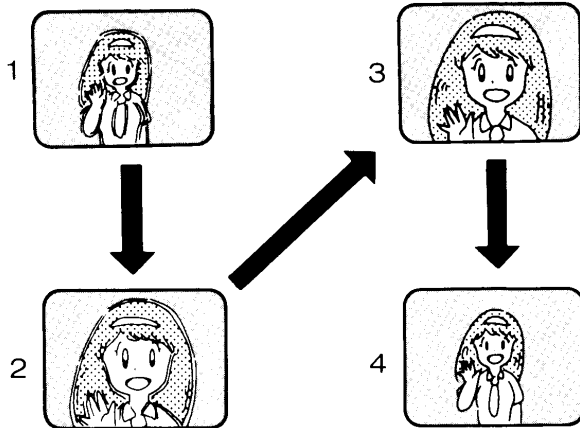
| | | |
|--|---|---|
| <p>a)</p>  <p>It is not possible to focus on a nearby subject and a distant subject at the same time.</p> | <p>b)</p>  <p>When shooting a subject through glass which has something visible on it (e.g. dirt, water drops, etc.), the auto-focus will focus on the objects on the glass, instead of the desired subject.</p> | <p>c)</p>  <p>When shooting a dark subject.</p> |
| <p>d)</p>  <p>When shooting subjects which have no contrast such as a white wall, sky, etc.</p> | <p>e)</p>  <p>When shooting a subject which has lateral stripes.</p> | <p>f)</p>  <p>When shooting an extremely bright subject.</p> |

Notes :

- While the auto-focus feature is operating, do not try to turn or stop the focus ring.
- If a special filter is used (for vari-cross, mirages, etc.), the automatic focus feature may not function normally. Manual focusing is recommended.
- Focus the camcorder manually when shooting rapidly moving subjects, moving the camcorder (rapid panning, tilting, etc.), or when objects are passing between the camcorder and the subject being recorded.

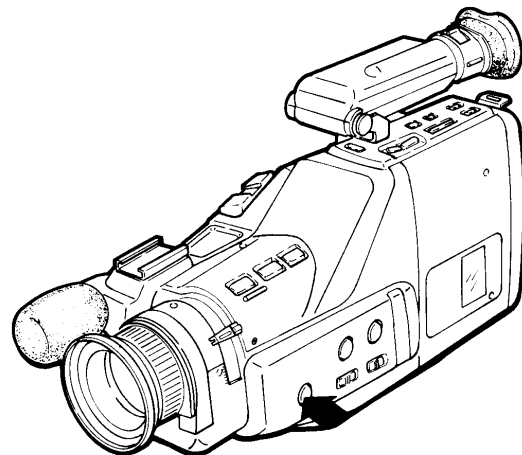
MANUAL FOCUSING

1. Set the FOCUS switch to MAN.
2. Press the power zoom button for a close-up view of the subject.
3. Turn the focus ring until the subject's image is sharp and clear.
4. Press the power zoom button to obtain the desired image.



FOCUS REVERSE

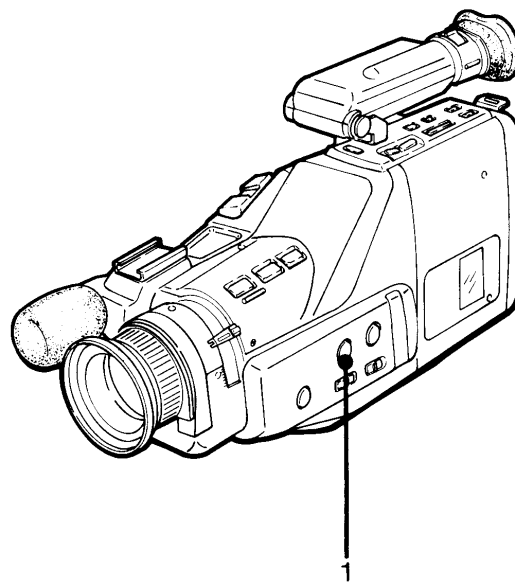
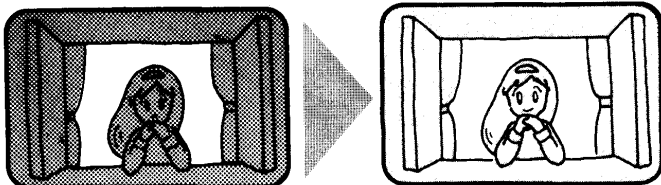
- When the FOCUS switch is set to AUTO :
Press and hold down the FOCUS REV button while panning.
The focus will remain fixed in the MANUAL mode during the pan, producing a smooth picture as you move from one subject to another. Release the button to return to the AUTO focusing mode.
- When the Focus switch is set to MAN :
For changing subjects press and hold down the FOCUS REV button to automatically focus the image of the new subject. Release the button to return to the MANUAL focusing mode.



AUTO IRIS

The iris system on the unit features digital auto iris that automatically adjusts the amount of light coming from the camera lens. With this system clear a picture is obtained when the light behind the object is not too strong. If the light is strong enough, the recorded picture will become distorted ; the auto iris system may need manual compensation.

1. Press the IRIS button.
Normal screen is brought back in the viewfinder in several seconds after releasing the button.



DATE/TIME IMPRINT

The date/time of the recording can be imprinted in your recording. See "SETTING THE DATE/TIME" on this page.

DATE IMPRINT

1. Press the DATE/TIME button.
The DATE indication will appear in the viewfinder.

TIME IMPRINT

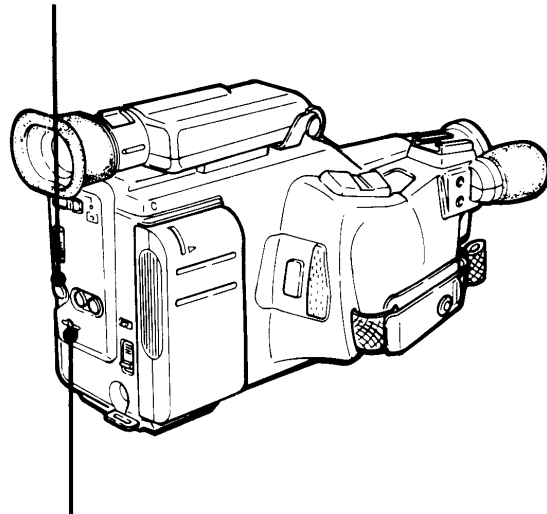
1. Press the DATE/TIME button once again.
The DATE indication changes to TIME indication.

To stop the date/time imprint, press the DATE/TIME button again.

Important Note :

If "88 : 88" flashes when pressing the DATE/TIME button, that is because either that date was erased due to exhaustion of the lithium battery or the date has not yet been set (initial state). Set the date by following the "Date Setting" procedure outlined below. (Replace the lithium battery if this is the source of the problem. See page 7)

DATE/TIME button

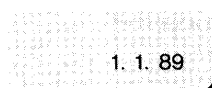


DATE/TIME ADJ button

SETTING THE DATE/TIME

Example : 14:10 24 December, 1990

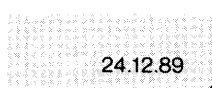
1. Press and hold down the DATE/TIME ADJ button for about one second.
The date indication will appear in the viewfinder.



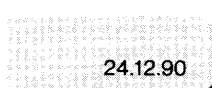
2. Press and hold down the DATE/TIME button until the day indication approaches the desired one.
Release the button, then press it repeatedly to slowly change the day indication (e.g. set to "24").



3. Press and release the DATE/TIME ADJ button, then press the DATE/TIME button to set the month indication (e.g. set to "12").



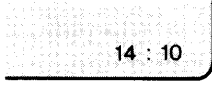
4. Press and release the DATE/TIME ADJ button, then press the DATE/TIME button to set the year indication (e.g. set to "90").



5. Press and release the DATE/TIME ADJ button, then press the DATE/TIME button to set the hour indication (e.g. set to "14").



6. Press and release the DATE/TIME ADJ button, then press the DATE/TIME button to set the minutes indication (e.g. set to "10").



7. Press and release the DATE/TIME ADJ button.
The TIME indication will disappear from the viewfinder.

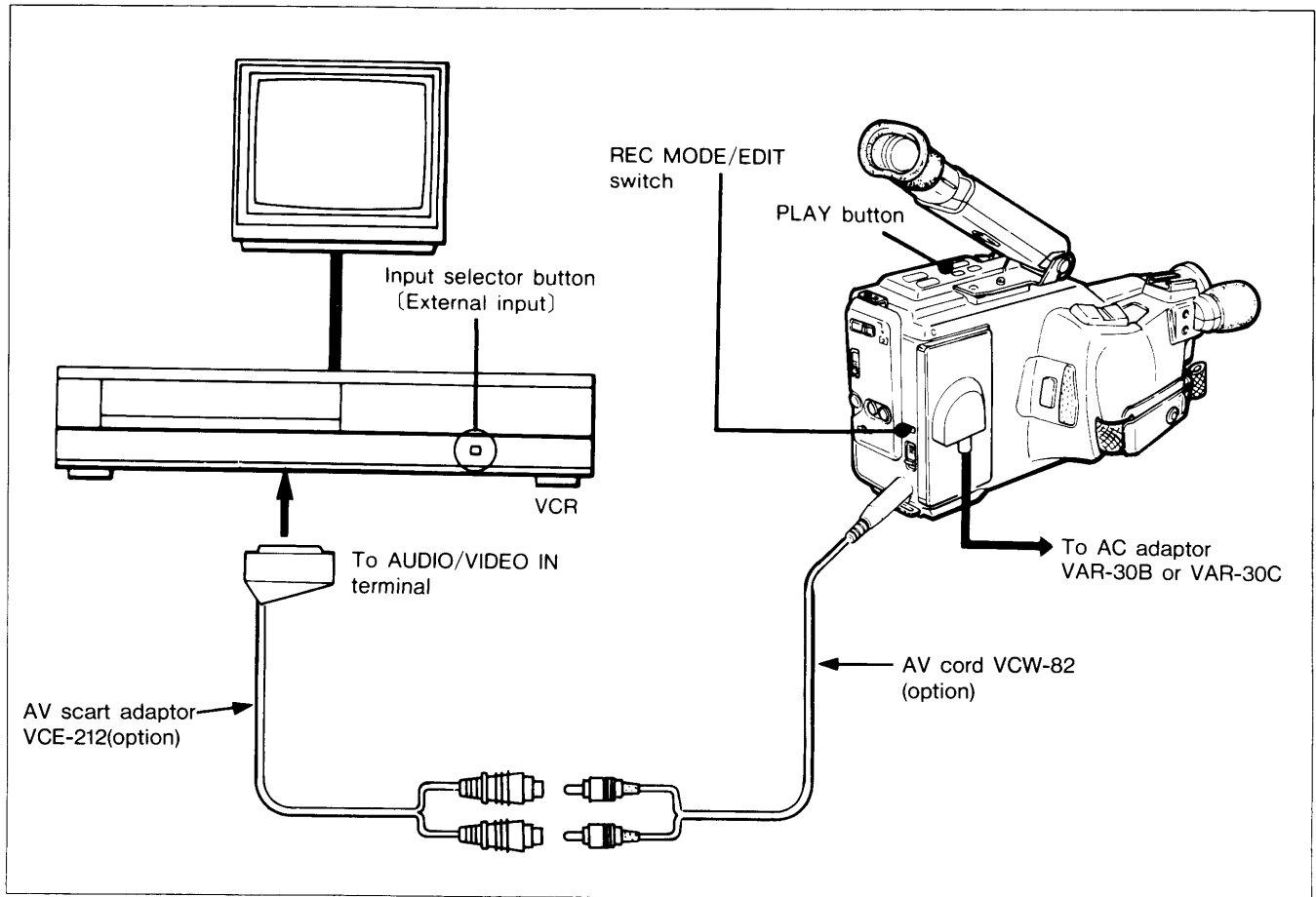


Note :

- The date/time cannot be set during recording or playback. Set the date/time during the STOP, PAUSE, FF, or REW mode.

TAPE COPY

To copy the tape in the camcorder to your home VCR, refer to the connection diagram shown below.



TAPE COPY OPERATION

1. Set the REC MODE/EDIT switch of the unit to the ON position.
(It will prevent the deterioration of picture quality.)
2. Set VCR to recording pause position.
3. Set camcorder to playback position.
4. Set VCR to recording mode.
5. When tape copying is finished, set the REC MODE/EDIT switch to the OFF position.

Note :

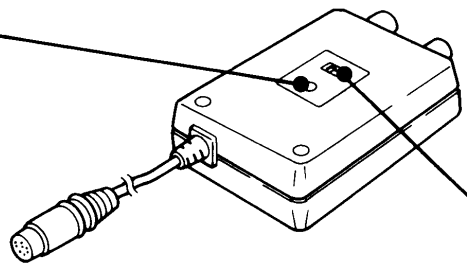
The copying or dubbing of video tapes is permissible only insofar as copyright or other rights of third parties are not thereby infringed.

CONNECTIONS

FOR TV's WITHOUT AUDIO/VIDEO INPUT TERMINAL

RF adaptor VRF-300

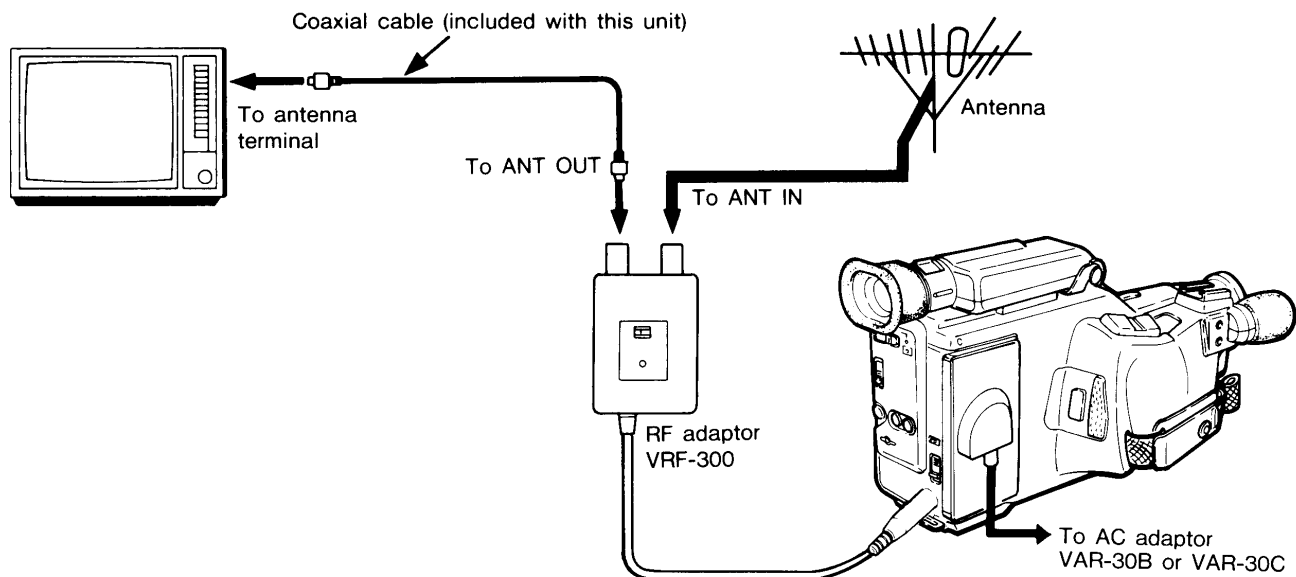
RF CHANNEL screw



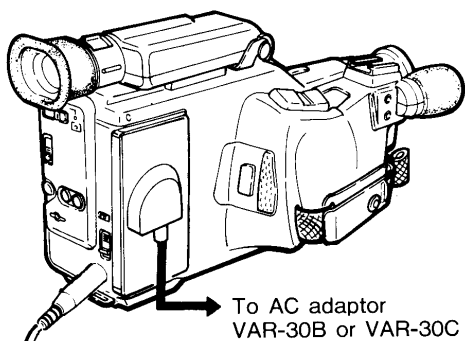
(Bottom view)

To playback via a TV.
Set camcorder to playback.
Select a spare programme position on the TV, Adjust tuning to receive the playback picture. If interference is seen on picture, adjust the RF Channel screw on the VRF-300, and retune the TV.

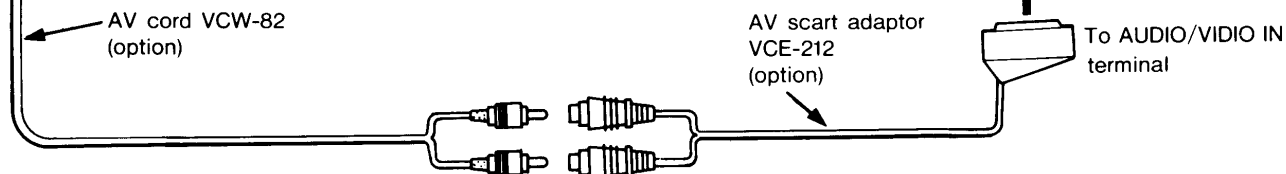
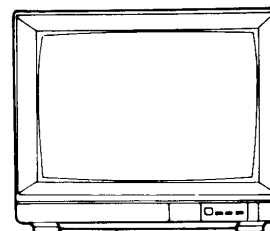
I/G SELECTOR
Set the I/G selector to the proper position.
(I for UK)



FOR TV's WITH AUDIO/VIDEO INPUT TERMINAL



TV with audio/video input terminal
(To playback, select AV on TV.)



IMPORTANT NOTES

1. Do not expose this unit to high temperatures.

Excessive heat may damage the unit.

- Do not place this unit near a heat source (heaters, etc.).
- Do not leave this unit in a closed car on warm or hot days.

2. Abnormal operation.

If you notice anything unusual (smoke, strange noise or odour, etc.), switch the unit off immediately. Consult the dealer where the unit was purchased, or contact a Sanyo-authorized service station.

3. Moisture and foreign objects.

- Do not allow moisture (rain, steam, dew, salt water, etc.) to enter the unit.
- Do not allow any foreign objects (sand, metal objects, flammable articles, etc.) to enter the unit.
- Do not place anything except tape cassettes and the power packs in the unit.

4. Strong lights.

- Do not aim the camcorder directly at bright light sources.
- Do not place the unit near bright light sources, as heat damage may result.

5. Do not use this unit under the following conditions :

- In location with high humidity.
- In areas subject to high vibration.
- Where excessive dust or dirt is present.
- Near strong magnetic fields (e.g. near transmitting antennas, motors, fluorescent lights).

6. Do not use the unit for monitoring only.

If the unit is used to record the same subject for a long time, e.g. for special applications such as monitoring, the picture quality will deteriorate.

7. Do not wrap the unit in a cloth etc.

If wrapped in a cloth during operation, the temperature inside the unit will rise excessively causing the unit to malfunction.

Video heads

When the video heads have been used for a long time, the playback picture may become fuzzy, and eventually there may be no picture at all.

This is caused by dirty video heads, and is an indication that they should be cleaned.

To clean the heads, Sanyo recommends that you have them cleaned by Sanyo-authorized personnel.

- Note that the video heads can be damaged if a cleaning tape cassette is used incorrectly.

Video heads wear in the same way as a phono stylus.

If the picture is not clear even though the heads have been cleaned, it is possible that the heads themselves are worn. If so, they must be replaced.

For detailed information and assistance, please consult your dealer.

Inspect at 1000 hour intervals

This unit requires an extremely high degree of precision to record images from the video camera onto magnetic tape and then to correctly reproduce those images. In particular, the video heads and mechanical parts which handle the tape are especially liable to becoming dirty and worn after long use.

For continued trouble-free operation, Sanyo recommends that the unit be inspected (including cleaning, lubrication and possible replacement of some parts) every 1000 hours of use (approximately).

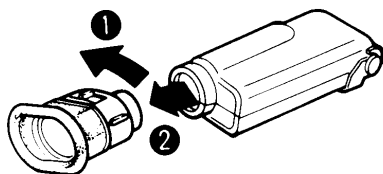
For detailed information and assistance, please consult your dealer.

Viewfinder

- The viewfinder attachment can be removed by turning it counterclockwise.

To remove dust accumulated inside the viewfinder unit, disconnect the attachment in this way.

Take the reverse order when re-attaching.



Use in other countries

All you need for recording in a foreign country is a charged battery pack (s) and cassette (s). If you want to play back the tape in that country, you will have to use a TV which uses the PAL color system and which has audio/video input terminals.

Main countries using the NTSC system

Canada, Japan, Korea, Mexico, the Philippines, Taiwan, U.S.A.

Main countries using the PAL system :

England, Italy, Austria, Australia, West Germany, Holland, Kuwait, Singapore, Switzerland, Sweden, Spain, Thailand, People's Republic of China, Denmark, New Zealand, Norway, Belgium, Portugal, Hong Kong

Main countries using the SECAM system :

Iran, Iraq, USSR, Hungary, France, Bulgaria, Poland, Monaco, Luxemburg

If a malfunction should unexpectedly occur while in another country, contact the dealer where the unit was purchased.

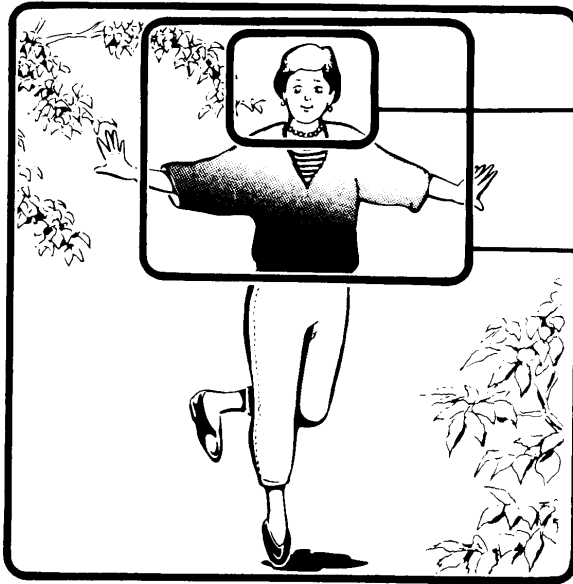
BASIC RECORDING TECHNIQUES

With just a little practice, you can acquire the basic techniques for fine recording results. With this unit you can record a scene over and over until you're satisfied.

BASIC SHOTS

Use angles and special shots effectively to make your recordings more interesting.

Human subjects



Close-up

Close-ups emphasize a certain part of the subject.

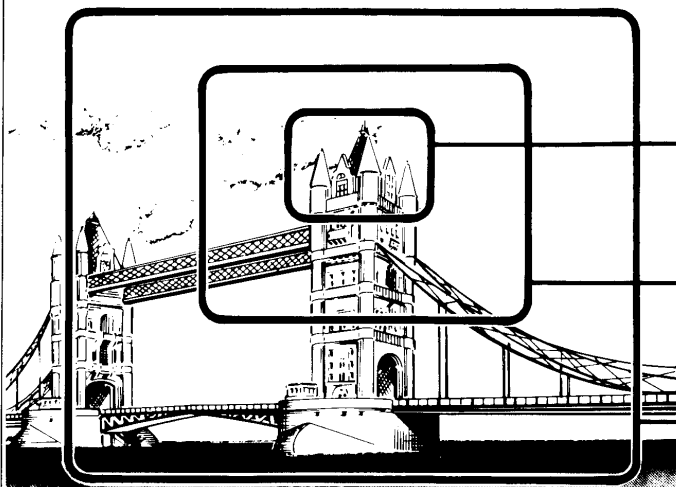
Medium range

Excellent for showing both facial expressions and clothing.

Full-length

For showing the entire subject, as well as a clear view of the background.

Scenic shots



Close-up

For bringing the subject close for emphasis.

Mid-range

The basic range from which you'll zoom in or zoom out for wide-angle shots.

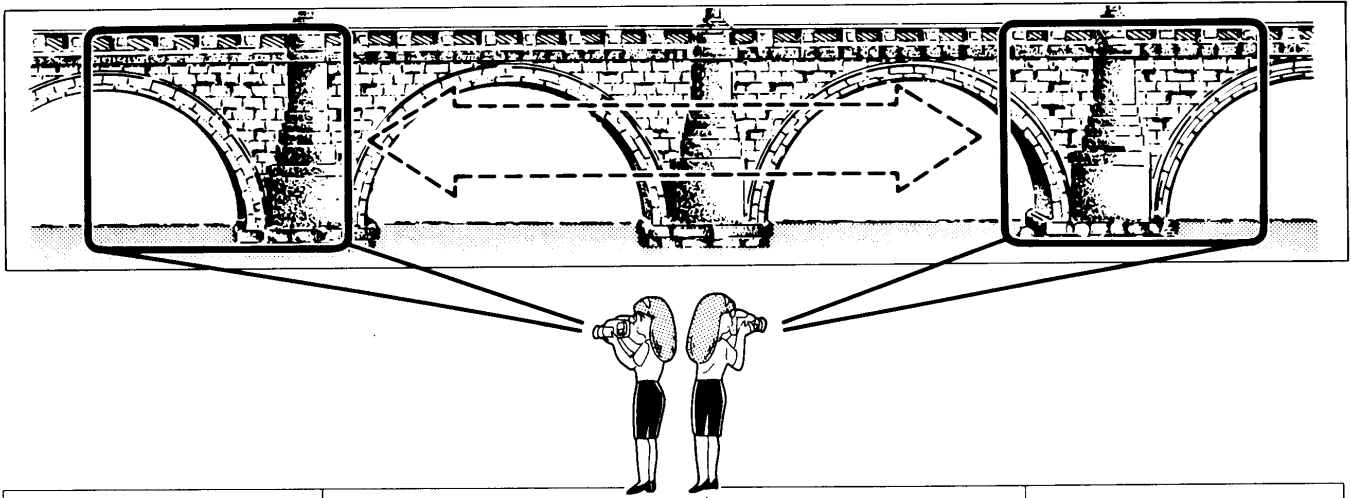
Long range

The most effective range for showing surrounding conditions and to express a sense of distance.

PANNING/TILTING

Panning

Moving laterally ... to shoot the overall view and to express dimensional breadth.
A steady camera position is important for wide-angle shots to prevent picture vibration.



1 Face your body in the direction you want to be facing at the end of the shot. Then twist your upper body to face the camera in the direction where you'll begin the shot.

2 Shoot the first scene for about three seconds.

3 Turn your body slowly while shooting, until you are facing in the direction where the shot will end.

4 Shoot the final scene for about three seconds.

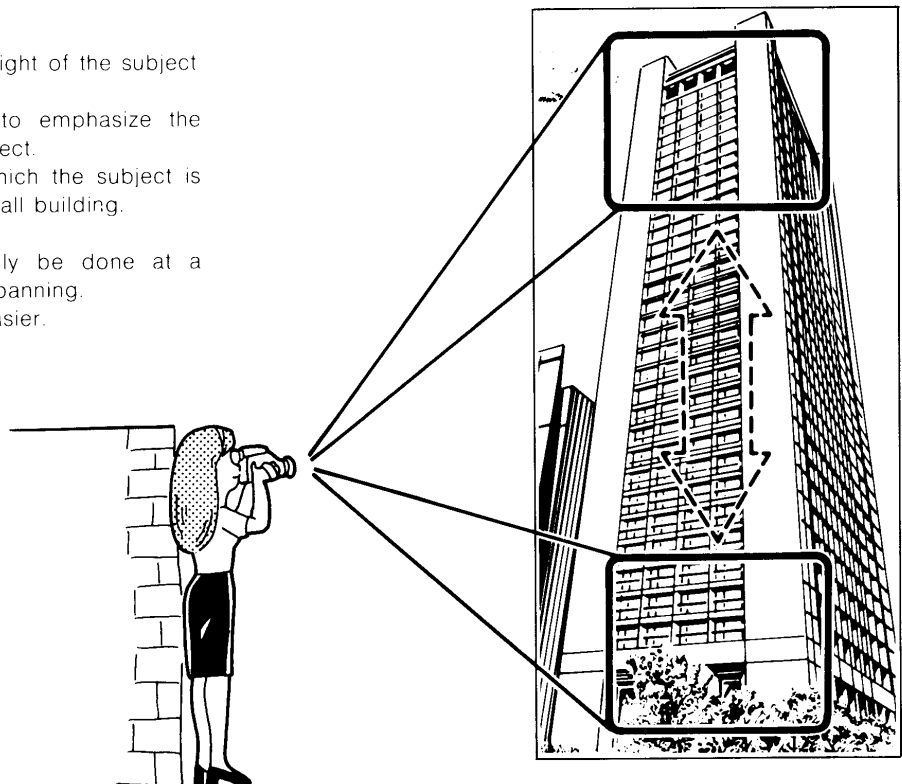
Tilting

Moving up and down ... to show the height of the subject

Tilt (pan) upward when you want to emphasize the height of the subject.

Tilt (pan) down for a scene in which the subject is coming out of a tall building.

Tilting (vertical panning) should usually be done at a somewhat faster speed than horizontal panning.
Support your back to make shooting easier.



ZOOMING

Use the zoom feature to smoothly change the picture from a wide-angle shot including the area surrounding the subject, to a close-up shot emphasizing the subject. You can also zoom from a close-up to a wide angle shot.

Zoom-in . . . To call attention to a specific point.



Zoom-out . . . To include a final shot of the surrounding scene.



Notes :

- Vibration is more noticeable in telephoto shots (when you zoom to a close-up), so be sure to keep the camcorder steady.
- When using the manual focus for the zoom feature, adjust the focus at the telephoto (close-up) position, return to the wide-angle (distant) position, then zoom to the telephoto position while recording. The focus will be blurred at the telephoto position if it is set at the wide-angle position.

LIGHTING CONDITIONS AND LIGHTS

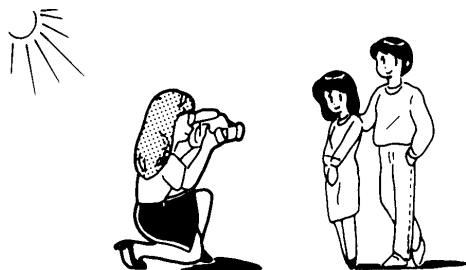
Correct lighting is important. Use the table below as a reference for selecting the most suitable lighting conditions.

| ND filter is recommended | Unit (lux) | |
|----------------------------|------------|--|
| | 100,000 | Snow-covered mountains Ski slopes Beach on clear summer day Clear-sky sunlight at noon (100,000) Clear-sky sunlight at 3 PM (35,000) Cloudy-sky sunlight at noon (32,000) |
| Usable range | 10,000 | Cloudy-sky sunlight one hour after dawn (2,000) |
| | 1,000 | Next to window in an office with fluorescent lighting (1,000) Clear-sky one hour before sunset (1,000) |
| | 500 | Inside a department store (500 to 700) Ticket gate of a train station (650) Office with fluorescent lighting (400 to 500) 13-m ² (43-ft ²) room with two 30-W fluorescent light (300) Subway platform (300) |
| More lighting is suggested | 100 | Shopping arcade at night (150 to 200) |
| More lighting is needed | 10 | Inside a movie theater at intermission (15 to 35) Candlelight (10 to 15) |

When shooting outdoors (natural lighting)

Select camera position as though carrying the sun on your back.

In this way, the sun shines on the object evenly.



Types of lights

Flat reflector light

The light will be spread over a wide area. This is an easy-to-use, convenient type of light for the beginner.

Spotlight reflector light

This type of light can be used to emphasize a certain point, and to create special lighting effects.

Note :

- Do not place this unit near a light or where it will be directly struck by the light. The heat from the light might damage the camcorder's case.

For a scene in which there is excessive light, such as a beach or a snow scene on a bright day, the scene will appear too white. An ND filter should be used to reduce the amount of light. The ND-4 filter will usually perform satisfactorily in most circumstances (filter size 49 mm).

When shooting indoors (artificial lighting)

Pictures may be shot using only fluorescent lamps, but more distinct pictures are obtained if additional lights are used.

Directing the lights

For one light :

The light should be directed diagonally from the front. With a single light, the contrast will always be strong. Use another light if you want to get rid of the shadows.

For two lights :

Direct one light diagonally from the front, and position the other light at the side of the subject, to eliminate any shadows.



THE PERSONAL TOUCH

Once you have mastered the techniques of the video camera, you can create work, which bears your own individual touch.

1. Planning a script

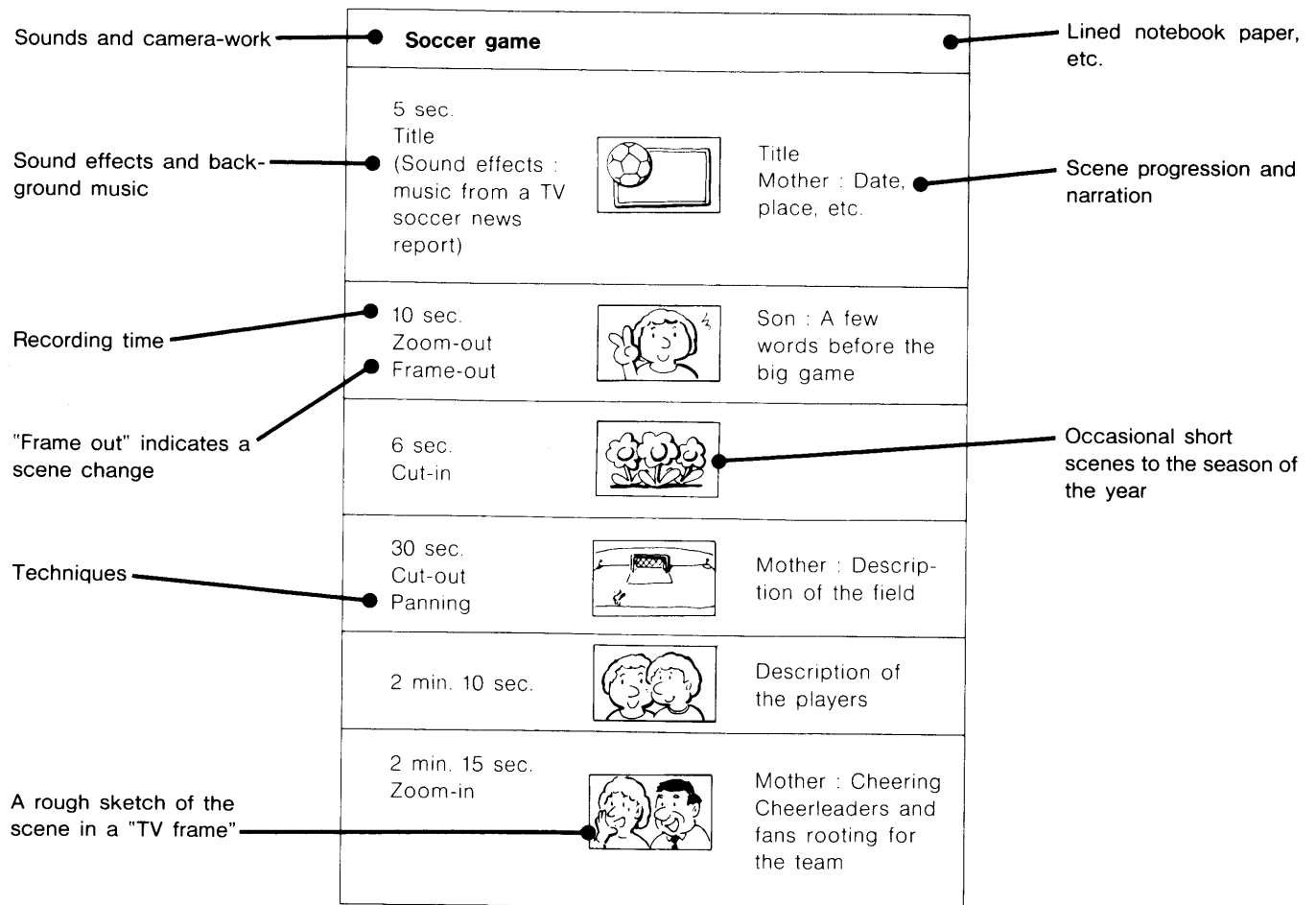
If a story is involved, the work is best done with the help of a script. Prepare it in advance, planning every step and sequence. A list of 6 easy questions (Who, What, When, Where, Why, How) helps you plan the progress of your story. A story-board script, which includes sketches, is shown below. The story-board is a valuable planning aid.

2. Making titles

Use titles the same way as in films shown in theatres or TV because titles add extra interest, flavour and the "professional touch".

3. Start recording

Begin shooting scenes based on your prepared script.



BEFORE REQUESTING SERVICE

Moisture ("DEW") condensation

The same moisture which forms on windows on cold days can also appear within this unit under certain conditions. This is called condensation, or "DEW".

Special care must be taken if this occurs.

Condensation ("DEW") indication

Condensation inside the unit can, if the tape moves, damage the tape as well as internal parts of the camcorder.

To prevent this, this unit includes a special safety device.

When condensation occurs, the DEW symbol (flashing) will appear in the viewfinder. The unit will not accept commands even if the power is ON, for any operation except cassette ejection.

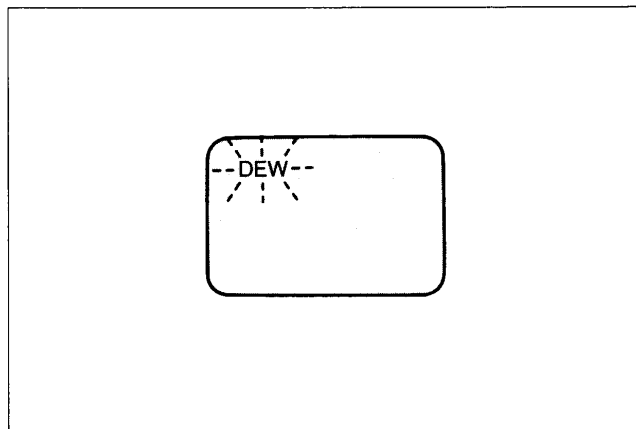
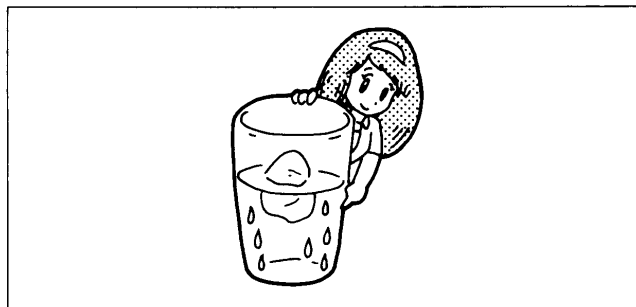
The cassette holder won't allow cassette insertion.

If condensation occurs

Press the EJECT button to eject the cassette.

The DEW symbol will disappear when the moisture is no longer present.

The time required will depend on the surrounding temperature.



Note :

- It sometimes happens that DEW symbol doesn't illuminate immediately, even though internal condensation is present. Do not use the unit for a short time if it has been subjected to a sudden change in temperature.

Moisture on a tape

Moisture can condense on a tape when the tape is moved from a cold place to a warm place. If a cassette with this problem is inserted, the CASSETTE indication will flash when one of the control buttons (PLAY button, etc.) is pressed, and only the EJECT button will function. Note that the DEW symbol will not appear in this instance.

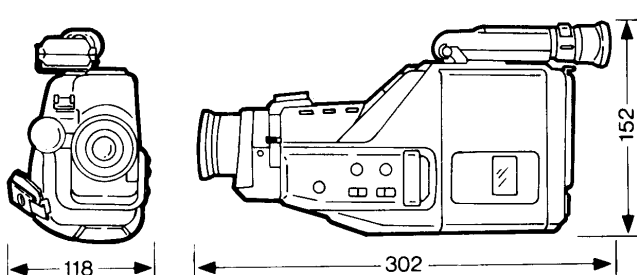
Take out the cassette and let it dry naturally.

Troubleshooting Guide

First check the items below. If operation still seems abnormal, consult the dealer where the unit was purchased for assistance.

| Symptom | Probable cause | Remedy | Page |
|---|---|---|--------|
| No power. | Battery pack is exhausted. | Replace with a charged battery pack. | 5 |
| | AC adaptor is turned off. | Turn on the power. | 4 |
| | Battery being charged. | Stop charging or wait for charging to be completed. | – |
| Nothing happens even with batteries attached. | Moisture exists. | Wait for DEW symbol to disappear. | 34 |
| Power is suddenly turned off during use. | Battery pack is exhausted. | Replace with a charged battery pack. | 5 |
| | Stop mode or pause mode is continued for 5 minutes or longer. | Turn on the power again. | – |
| Can't record. | No cassette. | Insert a cassette | 6 |
| | Cassette is set for erase prevention. | Reset cassette's switch, or insert another cassette. | 6 |
| | Tape has been wound to its end. | Rewind the tape, or insert another cassette. | – |
| Can't focus. | The subject is difficult to focus. | Adjust the focus manually. | 21, 22 |
| | Distance to subject is less than 1.2 m. | Move away, or use macro feature. | 17 |
| No picture on the TV | Wrong connection. | Correct the connection. | 26 |
| Playback picture flickers or blurs. | Video heads are dirty. | Clean them. (If this does not help, heads may need to be replaced.) | – |

SPECIFICATIONS

| | | | |
|---|---|--|--|
| Television system | PAL, CCIR | Power supply voltage | Battery holder input 6V/7.5V/9V |
| Video recording system | Rotating 2-head helical-scan FM, color under system | Power consumption | 6.5 W during camera recording |
| Audio recording system | Rotating head FM system | Operation temperature range | 0°C ~ 40°C (32°F ~ 104°F) |
| Cassette type | 8 mm video tape cassette | Storage temperature range | -20°C ~ +60°C (-4°F ~ 140°F) |
| Tape speed | SP : 20.051 mm/sec. LP : 10.025 mm/sec. | External dimensions (W × H × D)  | |
| Recording/playback time | 180 minutes (P5-90 cassette) | | |
| Fast forward/rewind time | Approx. 8 minutes (P5-90 cassette) | | |
| Pickup element | CCD solid-state type | | |
| Viewfinder | Electronic (0.7 inch type, black and white) | | |
| Lens | Electro-powered-8X zoom lens f = 8.5 mm ~ 68 mm F1.6 Close-up function (15mm~1.2m) Automatic focus Filter diameter 49 mm | Weight (approximately) (not including battery pack and cassette) | 1.1 kg |
| White balance adjustment | Automatic or set | Microphone | Electret condenser type (omnidirectional) |
| Minimum subject illumination | 7 lux | AUDIO · VIDEO terminal | Video output 1 Vp-p, 75 Ω unbalanced, negative sync Audio output -6 dBs, 2.2k Ω or less |
| Subject illumination range | 7 lux ~ 100,000 lux | Microphone jack | Mini jack, -68 dB For low-impedance microphone |
| Recommended subject illumination | 300 lux or more | Earphone jack | Mini jack, for 8 Ω earphone |

- Because its products are subject to continuous improvement, Sanyo reserves the right to modify product designs and specifications without notice and without incurring any obligation.

WARRANTY TO CUSTOMER

Sanyo Marubeni (UK) Ltd. (the Company) warrants to the initial retail purchaser that if this equipment is or becomes defective and that, in the opinion of the Company, the defect is due to faulty material or workmanship the Company will, for a period of 12 calendar months from the date of sale to the original purchaser repair or replace, at its sole option, free of charge, any such defective component part of the equipment, always provided that:-

1. The equipment has at all times been used in accordance with the operating instructions issued by the Company, and has not been connected to an electrical mains supply for which it has not been adjusted.
2. Accidental damage, or damage caused by negligence or misuse by the user, including leakage from exhausted batteries, is specifically excluded.
3. Unauthorised repairs, or any modification to the equipment which has not been expressly approved by the Company, shall render this warranty null and void.
4. Failure due to fair wear and tear of any item, such as batteries, record playing styli, and tape recording, playback and erase heads is specifically excluded.

This warranty is not transferable and is only applicable within the United Kingdom (and the Republic of Ireland).

Nothing in this express warranty affects the statutory rights available to the purchaser of this equipment.

Note: This warranty supersedes any other form of guarantee that may inadvertently have been enclosed with or attached to the product. (August 1978).

Dear Customer

Thank you for buying Sanyo. This equipment should give you many years of pleasure and faithful service but in the event that a fault occurs, the following notes for your guidance may be helpful:-

1. PLEASE RETAIN YOUR PURCHASE RECEIPT WHICH WILL BE REQUIRED FOR SERVICE DURING WARRANTY.
2. If your Sanyo equipment proves faulty during the period of guarantee, take it or send it back to the dealer who originally supplied it together with this guarantee and the proof of purchase. We have made arrangements with our approved dealers under which they will carry out in guarantee service repairs on our behalf. In this way, we hope to reduce to a minimum the amount of time you will be without your equipment.
3. If for some reason it is impossible to return the equipment to the original supplier, please contact our Service Department at the address below for further advice.
4. Should the equipment require servicing after the expiry of the guarantee period, take or send it to the original supplier or any other Sanyo dealer. He will be pleased to give you a quotation for the repair. If you are in any doubt about what to do, write to us at the address below or telephone:

Service Departments,
Sanyo Marubeni (UK) Limited,
Sanyo House
Otterspool way, Watford,
Hertfordshire WD2 8JX
Tel: Watford 46363

SANYO

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