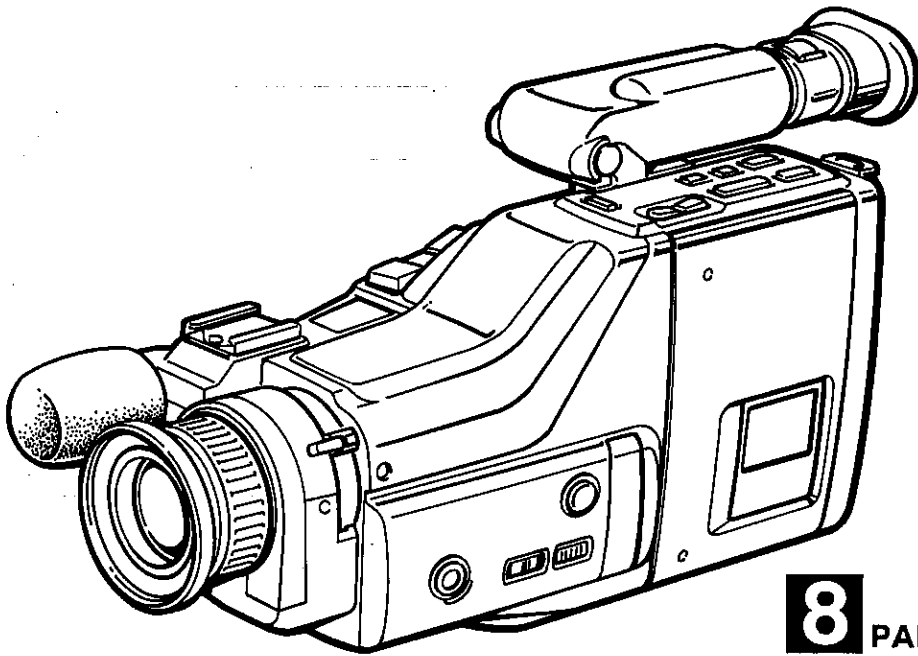


SANYO

Instruction Manual

8 mm
Camcorder

VM-D66P



8 PAL

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ACCESSORIES

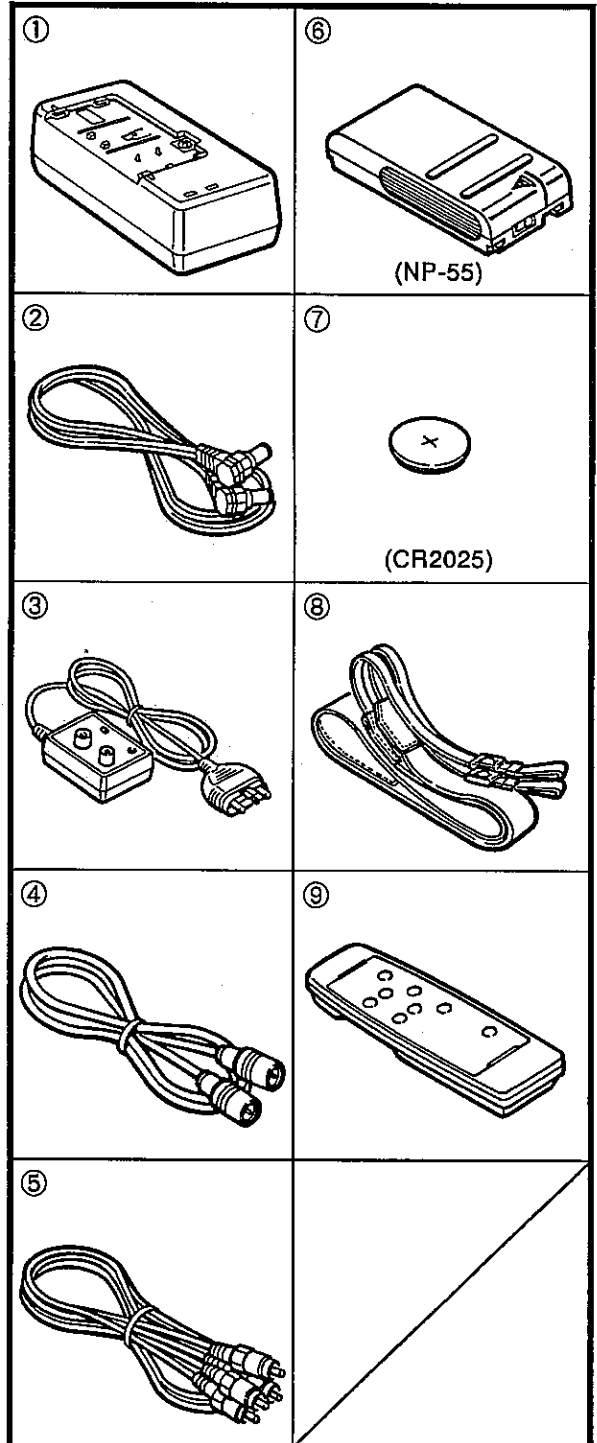
① AC adaptor	1
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FEATURES

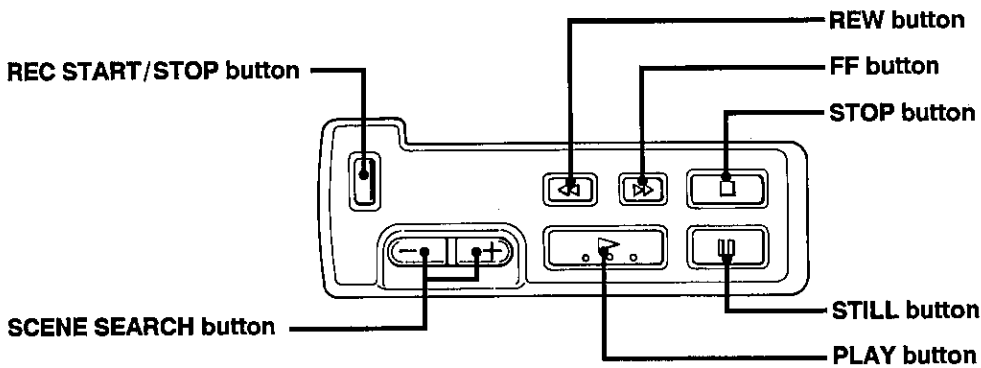
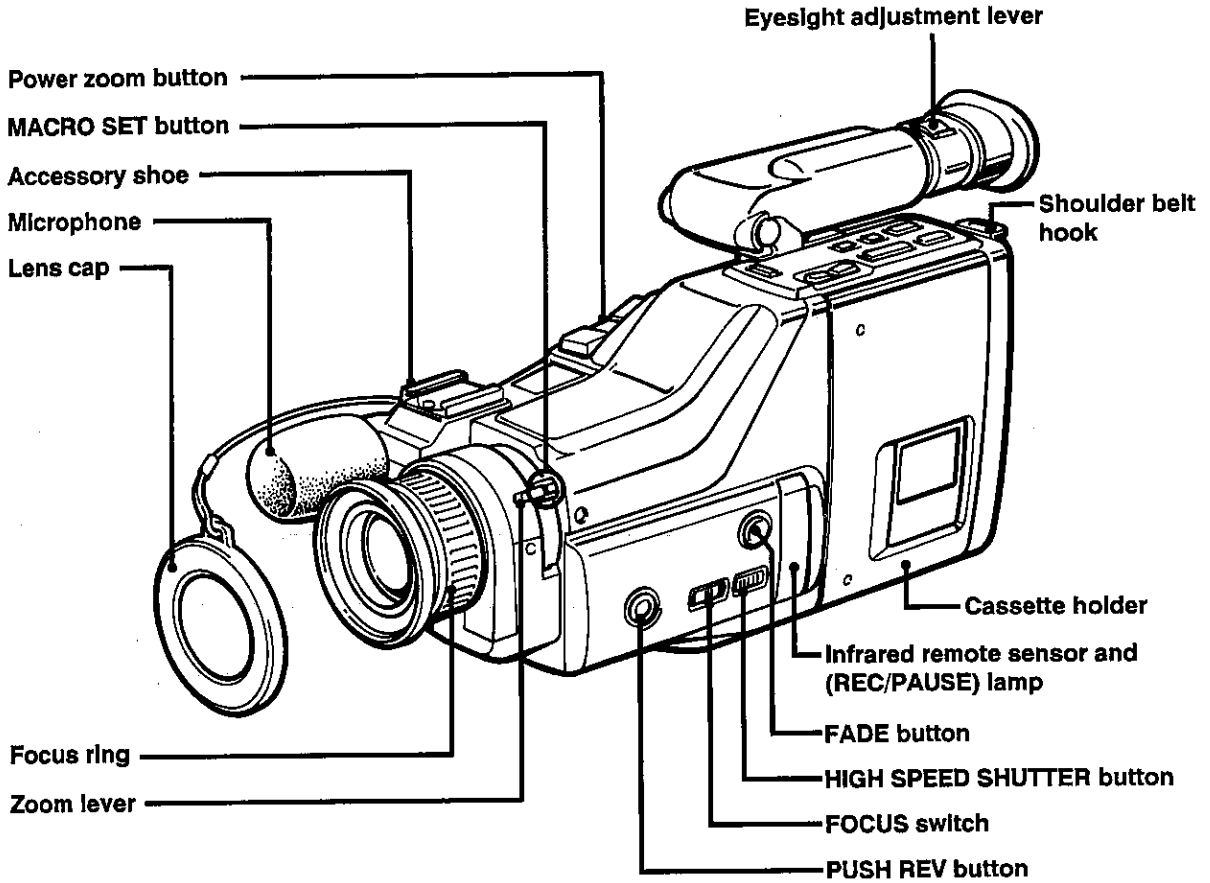
- Integrated camera/8mm video cassette recorder
- Fuzzy Logic AF, AE, AWB
- High speed shutter
- Scene search
- Date/time imprint
- Macro recording
- Eight-power zoom-in/zoom-out powered or manual operation
- Electronic viewfinder for immediate playback
- Recording review for checking the last part of a recording
- Still frame/picture search
- Linear time tape counter

WARNING:

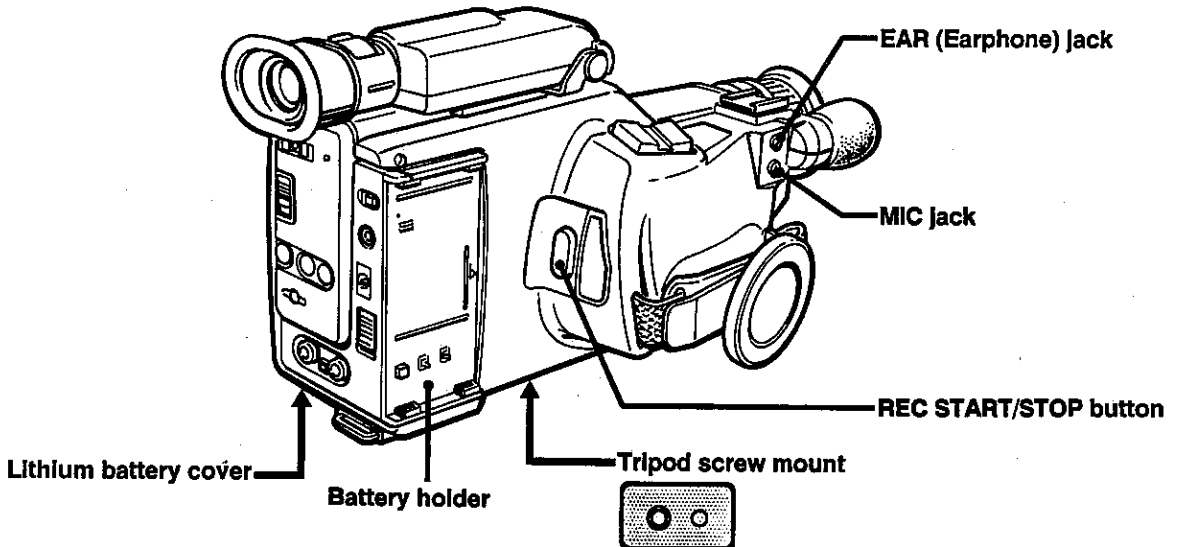
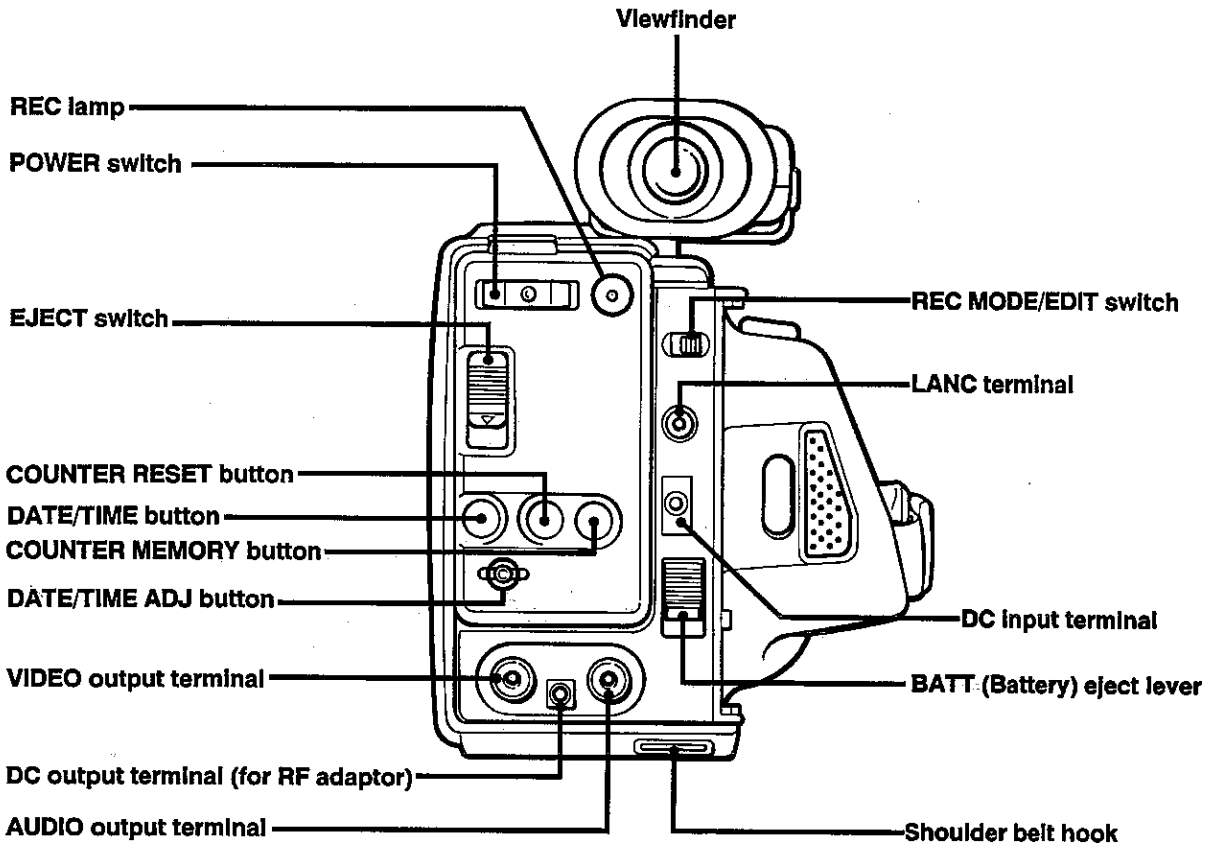
- Return to supplier for repairs.
- Should the power supply cord become damaged it must be replaced by the special cord part number 2AG4W10A01100.



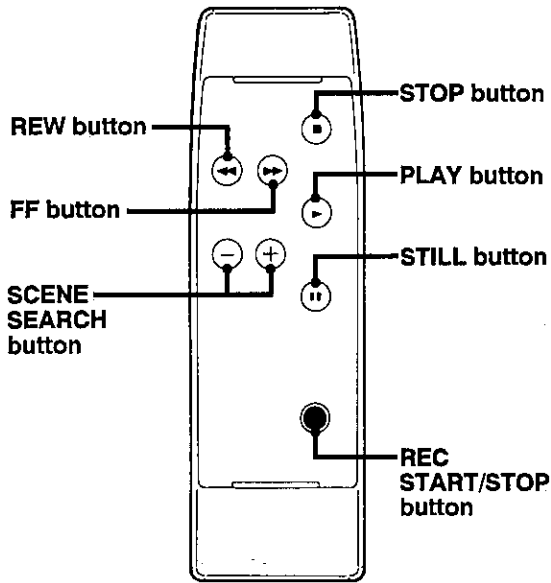
PART NAMES



PART NAMES

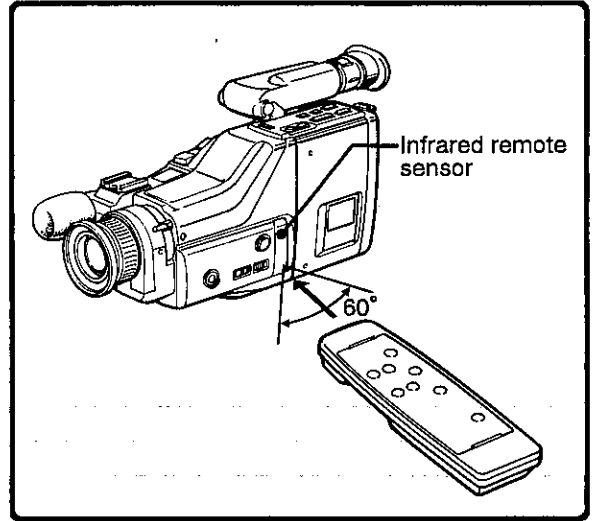


REMOTE CONTROL UNIT



OPERATION

- 1 Insert a cassette.
- 2 Aim the remote control unit at the infrared remote sensor on the camcorder and press the desired buttons to operate.



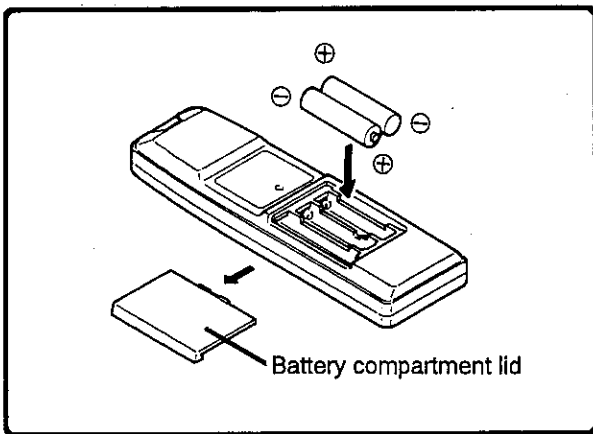
INSERT THE BATTERIES

The remote control unit is powered by two AAA size batteries (not supplied).

- 1 Remove the battery compartment lid.
- 2 Place the two batteries in the battery compartment while observing the correct polarity as indicated inside the compartment.
- 3 Replace the battery compartment lid.

Notes :

- The infrared rays used for operation travel in a straight line. If there is an obstacle between the remote control unit and camcorder, operation is not possible.
- Remove the batteries from the battery compartment when the unit is not to be used for a long time.
- Operate the remote control unit within an angle of approx. 60° and a range of 6 meters from the infrared remote sensor.
- When the remote control unit is used outdoors, the controllable range becomes shorter.

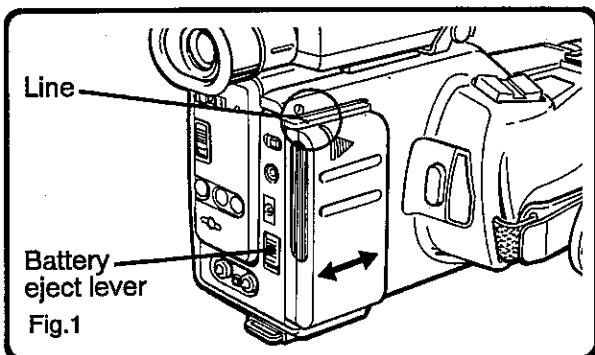


PREPARATIONS

POWER SOURCE

OUTDOOR USE :

For outdoor recording, use the 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.

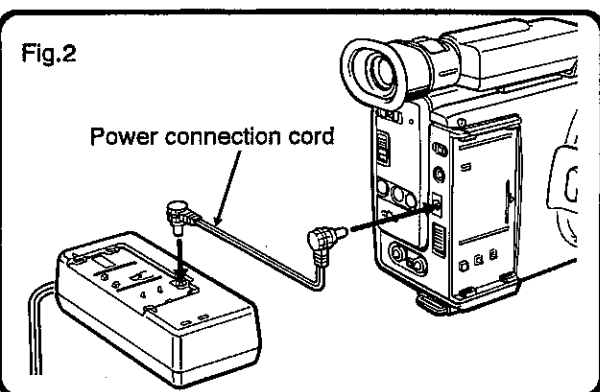
Removing the Battery Pack

- 1 Press and hold down the Battery eject lever.
- 2 Slide the battery pack to the left.

INDOOR USE :

For indoor recording, use the supplied AC adaptor VAR-66.

- This unit can be used in countries with line voltages between 100 V AC and 240 V AC.
- Attach (or remove) the AC adaptor as shown in Fig.2.



Notes :

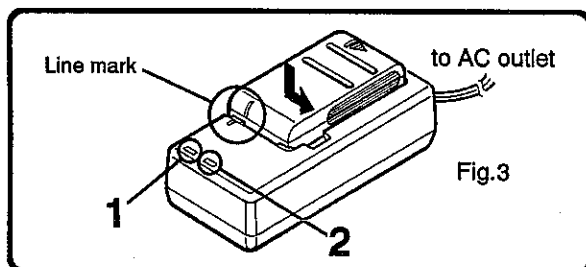
- Before connecting the supplied AC adaptor, be sure to remove the battery pack.
- The battery pack supplied with this unit has not been charged. Charge it before initial use.
- Do not use the VAR-66 AC adaptor to supply power for equipment other than the camcorder.
- When removing the battery pack or power connection cord, the power should be switched OFF.

For this product use the attached AC adaptor (conforming to EIAJ, with a unified polarity type plug). Use of other AC adaptors may cause trouble.



CHARGING

Use the VAR-66 AC adaptor to charge the battery pack.



- 1 The green power lamp will light. Plug the AC adaptor into an AC outlet.
- 2 Attach the battery pack.
 - ① Align the line marks.
 - ② 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 turn off.
- 3 Slide the battery pack in the opposite direction to remove it from the AC adaptor.

Charging/Recording Times (approx.)

	Charging	Recording "SP"
NP-55	60 min.	65 min.
NP-77	120 min.	130 min.
NP-77H	140 min.	140 min.

- Continuous recording at normal temperatures.

Note :

Battery pack power is consumed even in the recording pause mode.

PREPARATIONS

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.

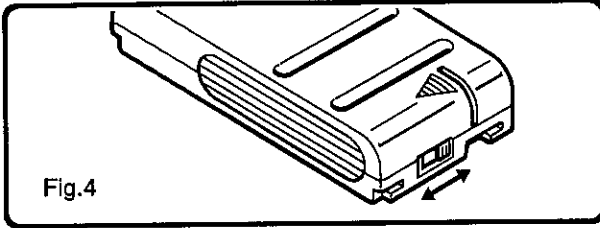


Fig.4

Notes :

- At normal temperatures, a fully charged battery pack NP-55 will provide enough power to record for about 60 minutes. It will provide much less recording time in cold locations.
- Do not use the VAR-66 AC adaptor for purposes other than charging the NP-55, NP-77 or NP-77H 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 A CASSETTE

- 1 Set the POWER switch to "CAMERA" or "PLAYER".
(Press the green button in the center of the power switch.)
- 2 Slide the EJECT switch.
The cassette holder will open.
- 3 Insert a cassette making sure it is inserted all the way. Gently press the cassette holder ("PUSH" indicator section).

EJECTING A CASSETTE

Slide the EJECT switch.

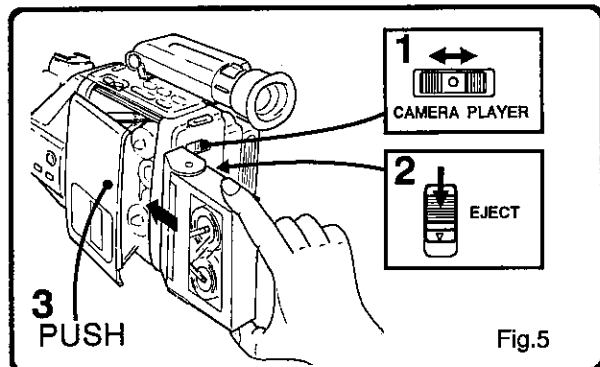


Fig.5

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

ERASURE-PREVENTION SWITCH

To prevent accidental erasure of recorded material, set the ERASURE-PREVENTION switch 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.

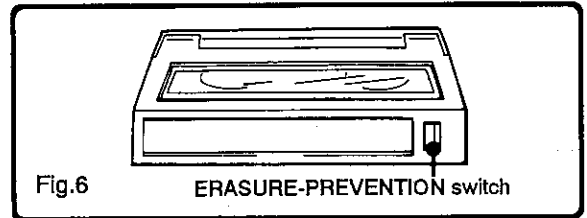


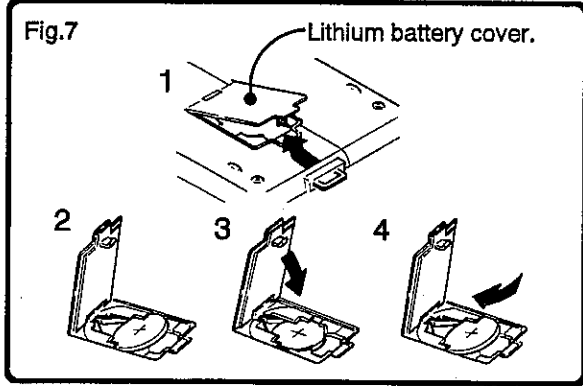
Fig.6

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 dust from entering 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 (Fig.7)

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

- 1 Open the lithium battery cover.
- 2 Lithium battery insertion.
 - Wipe the battery clean with a dry cloth to prevent faulty contact.
 - Insert the battery properly with the + side up.
- 3 Close the lithium battery cover.
- 4 To eject the lithium battery, press it down and then slide it out of the housing in a diagonally upward direction.
 - After replacing the battery, adjust the DATE/TIME. (See "SETTING THE DATE/TIME".)

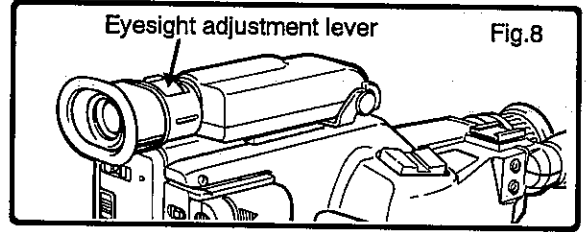
Notes :

- WHEN REPLACING THE BATTERY USE ONLY THE SAME TYPE. Use of another lithium battery may present a risk of fire or explosion.
- If swallowed promptly see doctor.
- WARNING : The lithium battery may explode resulting in a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F), or incinerate.
- Dispose of used lithium battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

Warning for Scandinavia

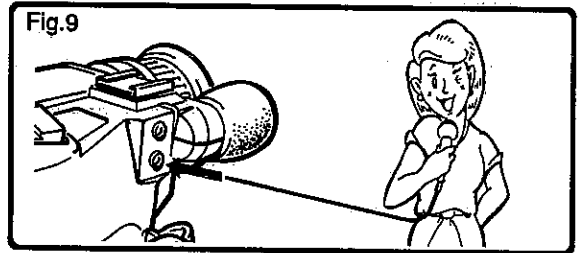
Lithium battery. Danger of explosion if handled carelessly. Replace the battery with the same manufacture and type. Return the old battery to the supplier.

EYESIGHT ADJUSTMENT



- 1 Set the POWER switch to the "CAMERA" position.
- 2 Look through the viewfinder and observe the visible indications.
- 3 Turn the eyesight adjustment lever left or right to obtain the clearest possible image of the indications.
- 4 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 will mean, however that, you may need an external microphone to get better results if you want to pick up a weaker sound at a distance or if you are in a place quiet enough to hear the inside motor running.

RECORDING IN A HIGH WIND

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

RECORDING A DISTANT OBJECT

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

Note :

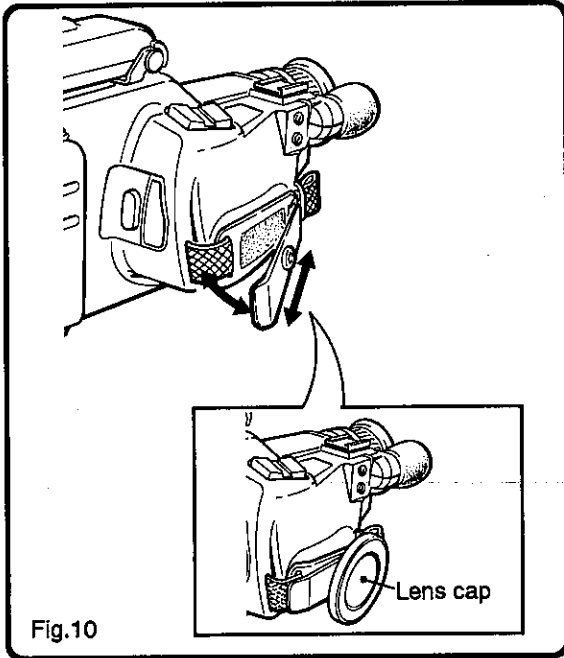
- The built-in microphone will not function while an external microphone is connected.

PREPARATIONS

BELT AND LENS CAP ADJUSTMENT

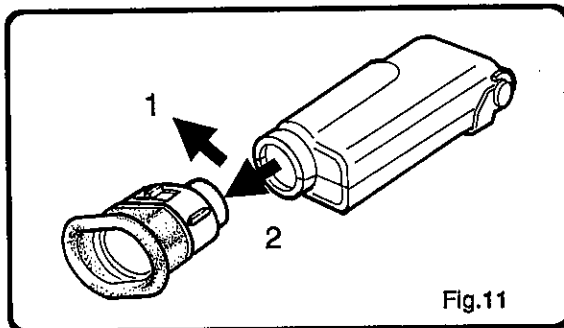
If the grip belt does not fit your hand, unwanted camera movement may occur during recording. Adjust the belt's length as desired.

Attach the lens cap onto the lens cap snap located on the grip belt.



VIEWFINDER

The viewfinder attachment can be removed by turning it counterclockwise. To remove dust accumulated inside the viewfinder unit, disconnect the attachment as described in Fig.11. Follow the reverse order when re-attaching.



INSIDE THE VIEWFINDER



This indication appears during the recording pause mode.



This indication appears during the recording mode.



This indication appears about 5 minutes before the tape reaches its end.



This indication will appear and flash when dew has condensed inside the unit.



This indication will appear and flash when the battery becomes weak.



If one or more of the following conditions exist, this indication will flash when the recording mode is selected :

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



Linear time tape counter and memory (M) indications.



DATE/TIME indications.



Shutter speed indications.



FOCUS indications.
AF : Auto Focus
MF : Manual Focus



This indication will appear when the REC MODE/EDIT switch is set to the "LP" position.

CAMERA RECORDING

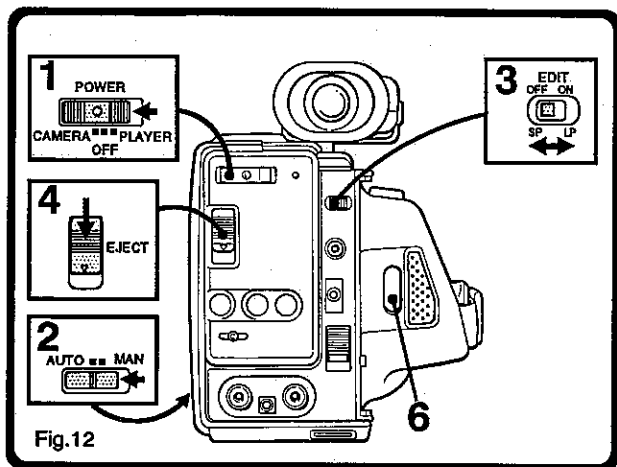


Fig.12

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

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.
- When fluorescent lamps or mercury-vapor lamps are used for lighting, the recorded images will flicker.
- If the unit is left in recording pause mode for more than 5 minutes, the power automatically turns off.

LINEAR TIME TAPE COUNTER

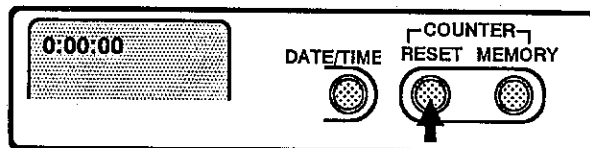
The linear time tape counter indicates the tape running in hours, minutes and seconds. Reset the counter (0:00:00) at the beginning of recording or playback and you can easily determine the remaining tape length or search the recorded scene you want to see.

RESET

Press the COUNTER RESET button.

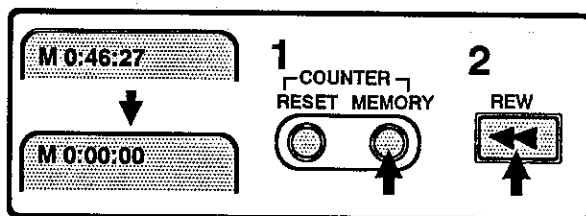
The tape counter will return to "0:00:00" in the viewfinder.

Reset the counter at the beginning of the tape and you can easily calculate the remaining tape length, while the tape is running. (Subtract the current tape count from the total tape recording time.)



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.



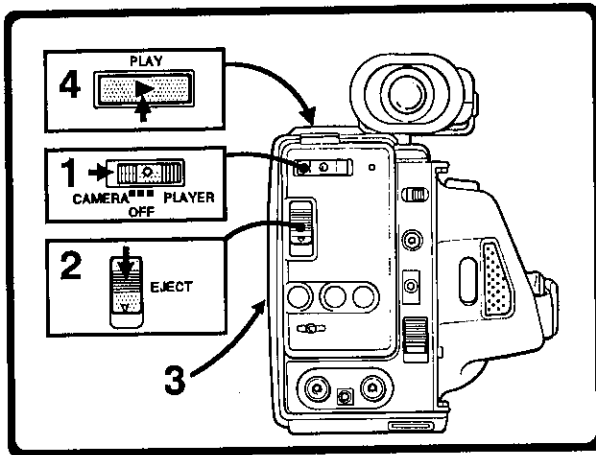
- 1 Press the COUNTER MEMORY button.
The counter memorizes the tape position you have reset. The letter "M" will appear in the viewfinder. To cancel the memory mode, press the COUNTER MEMORY button again.
- 2 Press the REW button.
The tape will rewind and automatically stop in the vicinity of the "0:00:00"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

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.

PLAYBACK

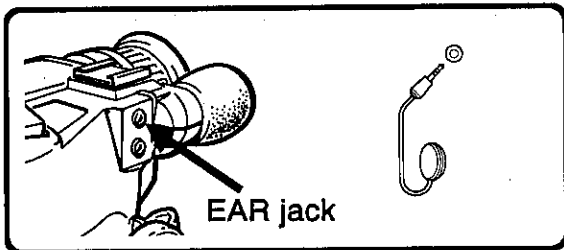
The tape recorded by this camcorder can be viewed on a TV screen, or in the viewfinder of this unit. See Page 16 "CONNECTIONS".



PLAYBACK

- 1 Set the POWER switch to the "PLAYER" position.
- 2 Slide the EJECT switch.
- 3 Insert a recorded cassette. Gently press the cassette holder ("PUSH" indicator section).
- 4 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 EAR (Earphone) jack.



Note :

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

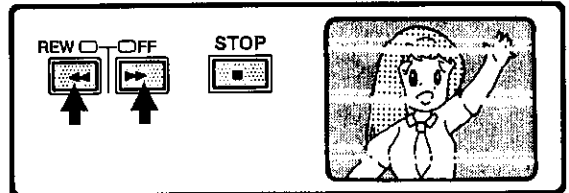
SPECIAL PLAYBACK MODES

PICTURE SEARCH

Press the FF button or the REW button during playback. The tape will move quickly forward or reverse respectively.

Notes :

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



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.

SCENE SEARCH

Press and hold the SCENE SEARCH button during still playback.

The scene search function is in operation while the button is pressed.

Press "+" : for normal playback speed.

Press "-" : for reverse playback.

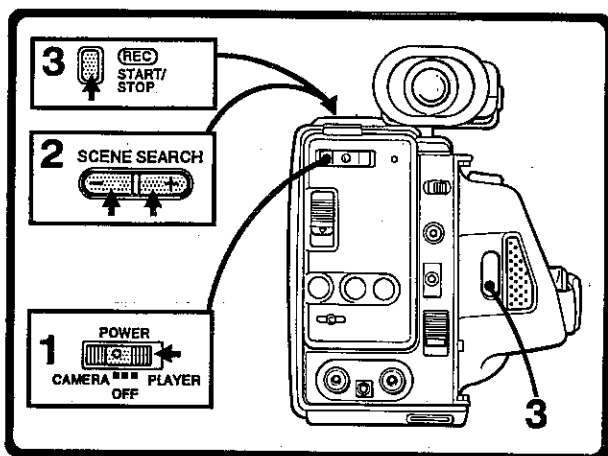
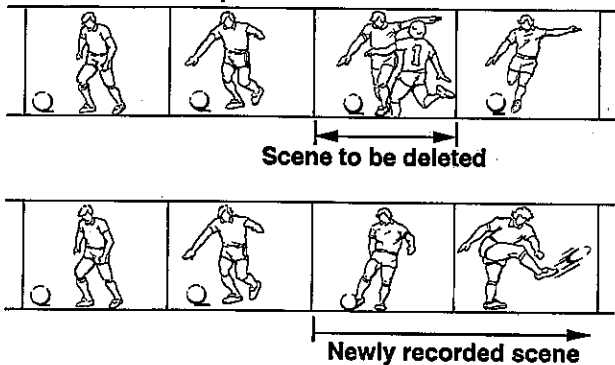
Note that noise will appear in the picture.



SMOOTH RECORDING

If you find scenes you've just recorded are disturbing, they can be replaced with new scenes by using the smooth recording function as described below.

Unclear picture



- 1 Set the POWER switch to the "CAMERA" position.
- 2 Press the SCENE SEARCH button, watch the viewfinder and locate the beginning of the scene to be re-recorded.

Press "+" : for normal playback speed.

Press "-" : for reverse playback.

Release the button at the beginning of the scene.
(The unit will return to the recording pause mode.)

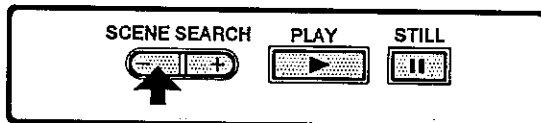
- 3 Start recording by pressing the REC START/STOP button.

Note :

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

RECORDING REVIEW

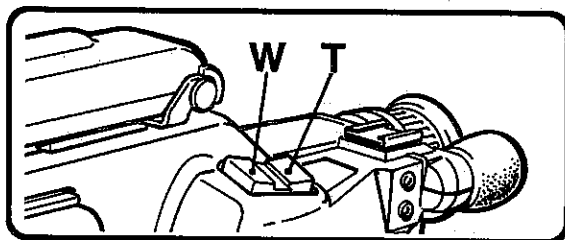
Press the SCENE SEARCH button during the recording pause mode immediately after recording a new subject. The last portion of the new recording will be played back through the viewfinder, then the unit will re-enter the recording pause mode.



ZOOM

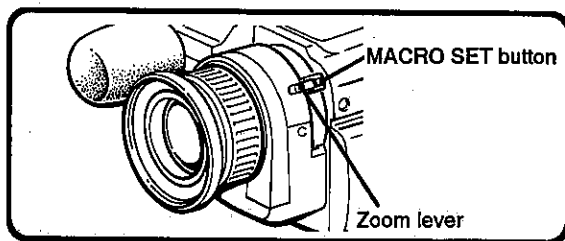
POWER ZOOMING

Press the "W" side of the Power zoom button for wide angle recording, and press the "T" side for telephoto recording.



MANUAL ZOOMING

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.

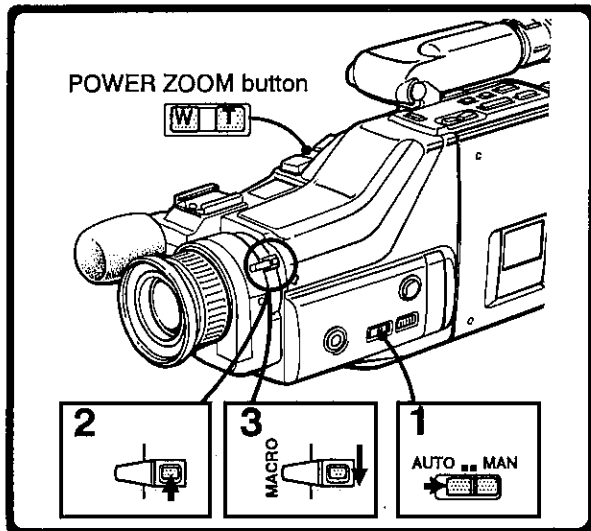


Note :

- When turning the ZOOM lever for wide angle shooting, do not press on the MACRO SET button so that the ZOOM lever won't turn to the MACRO range.

MACRO 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).



- 1 Set the FOCUS switch to "MAN" position.
- 2 Press and hold the MACRO SET button.
- 3 Move the ZOOM lever to the MACRO range.
- 4 Approach the subject and adjust the ZOOM lever within the MACRO range to focus the subject's image in the viewfinder.

To return to normal shooting, manually turn the ZOOM lever or press the Power zoom button and hold it down until the ZOOM lever clicks into the tele position.

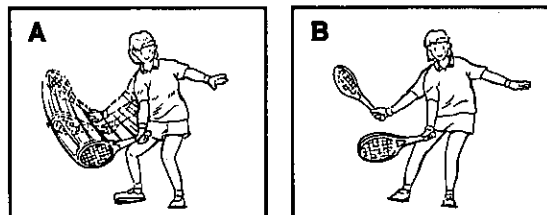
Accidental camcorder movement will reduce the quality of macro recordings. The use of a tripod or stand to hold the camcorder fixed in place during macro recording is recommended.

HIGH SPEED SHUTTER

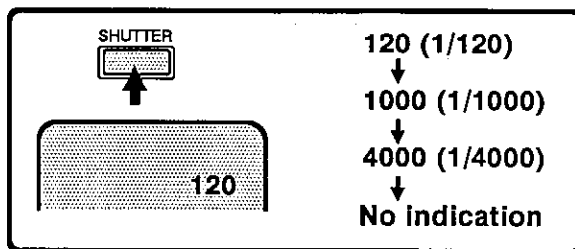
After recording an object in high speed motion, if you wish to watch the motion very slowly, for example to study a swing in playing tennis, the movement form can be seen in a clear picture by still playback without blurs.

STILL PLAYBACK

- A: Without high speed shutter
The picture is blurred.
- B: With high speed shutter
The picture is clear 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 1/4000 sec. The shutter speed indication will appear in the viewfinder and it will change each time the button is pressed.
- 2 Start recording.
- 3 To return to normal recording, press the HIGH SPEED SHUTTER button and make the shutter speed indication disappear. Flickering may occur during indoor recording if a fluorescent lamp is used. Set the shutter speed to 1/120 sec. to reducing 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.

FOCUSING



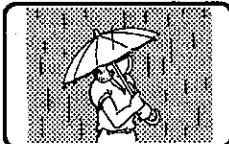

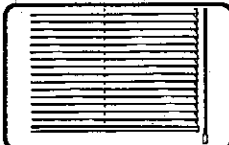

AUTO FOCUSING

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 is always be visible in the viewfinder.

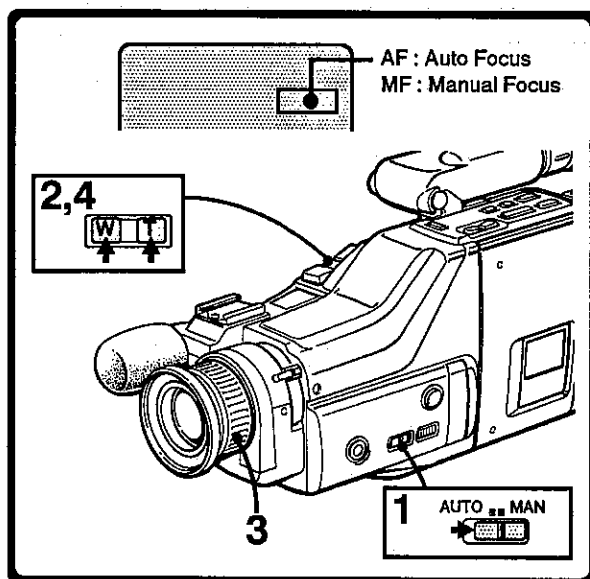
The auto-focus feature will not operate normally in the following circumstances. Set the FOCUS switch to "MAN" position and adjust the focus manually.

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

Notes :

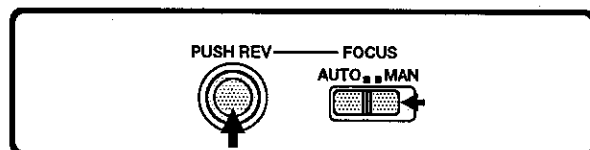
- While the auto-focus feature is operating, do not try to turn or stop the focus ring.
- If a special filter is used (for vari-cross, mirages, etc.), the automatic focus feature may not function normally. Manual focusing is recommended.
- Focus the camcorder manually when shooting rapidly moving subjects, 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" position.
- 2 Press the Power zoom "T" 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 "W" button to obtain the desired image.

FOCUS REVERSE



When the FOCUS switch is set to "AUTO" :

Press and hold down the PUSH 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.

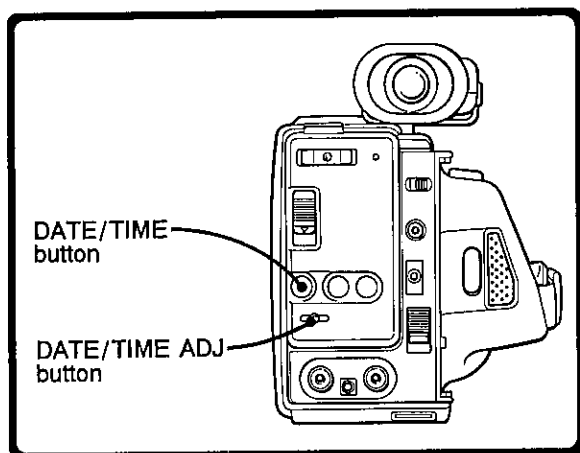
When the FOCUS switch is set to "MAN" :

For changing the subjects, press down the PUSH REV button to automatically focus the image of the new subject. Press the button again if a new focusing is necessary. For a continuous auto focusing hold the button depressed.

Release the button to return to the manual focusing mode.

DATE/TIME IMPRINT

The date/time of the recording can be imprinted in your recording.



FUNCTION OF THE DATE/TIME BUTTON

- Press the DATE/TIME button.
The date will appear in the viewfinder.
- Press the DATE/TIME button once again.
The date changes to the time.
- To stop the date/time imprint, press the DATE/TIME button again.

Important Note :

If "88 : 88" flashes by 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 right.
Replace the lithium battery if this is the source of the problem.

SETTING THE DATE/TIME

Example : 14:10 24 December, 1992

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

1. 1. 91

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

24. 1. 91

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

24. 12. 91

4. Press and release the DATE/TIME ADJ button, then press the DATE/TIME button to set the year (e.g. set to "92").

24. 12. 92

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

14 : 00 : 00

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

14 : 10 : 00

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

Note:

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

FADE RECORDING

This is a technique used to get the image emerging from dark (FADE IN) or disappearing into the darkened screen (FADE OUT) at the end of a scene, to generate fantastic mood.

FADE IN



FADE OUT



AUDIO RECORDING DURING FADE EFFECT RECORDING

FADE IN:

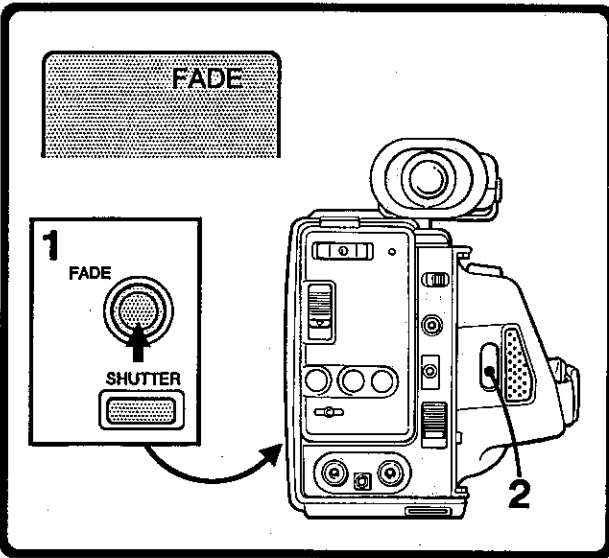
From silence, faint voice to normal volume recording.

FADE OUT:

From normal volume to faint and down to silence recording.

Note :

- In the FADE IN recording mode, actual recording starts when the screen becomes dark approx. 1 second after the REC START/STOP button has been pressed.



FADE IN RECORDING

- 1 Press the FADE button, during the recording pause mode. The FADE indication will appear in the viewfinder.
- 2 Press the REC START/STOP button whenever you want to start the FADE IN effect. The FADE indication will disappear after about 10 seconds, indicating return to the normal recording mode.

FADE OUT RECORDING

- 1 Press the FADE button, during the recording mode. The FADE indication will appear in the viewfinder.
- 2 To end the recording with fade effect, press the REC START/STOP button. The FADE indication will disappear after about 10 seconds, indicating a pause in recording.

TAPE COPY

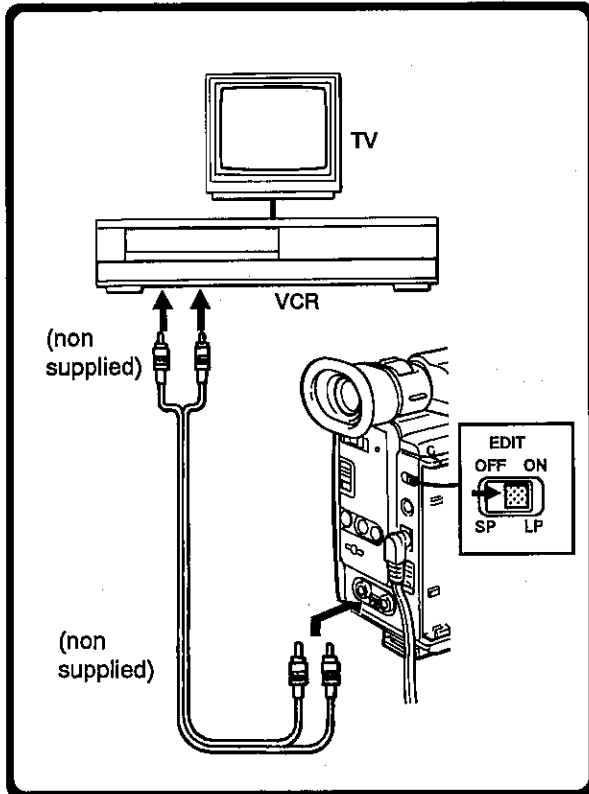
To copy the tape in the camcorder to your home VCR, refer to the connection diagram shown below.

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 the POWER switch of the camcorder to PLAYER and insert the original tape.
- 3 Switch on the VCR and insert a blank tape.
- 4 Set the VCR to the external input mode.
- 5 Set the VCR to the recording pause mode.
- 6 Begin camcorder playback.
- 7 Release the VCR pause button. Copying begins.
- 8 When tape copying is finished, set the REC MODE/EDIT switch to the "OFF" position.

Notes :

- The copying or dubbing of video tapes is permissible only insofar as copyright or other rights of third parties are not thereby infringed.
- The unit is automatically set to STOP mode if the picture is left in STILL mode for more than 5 minutes.

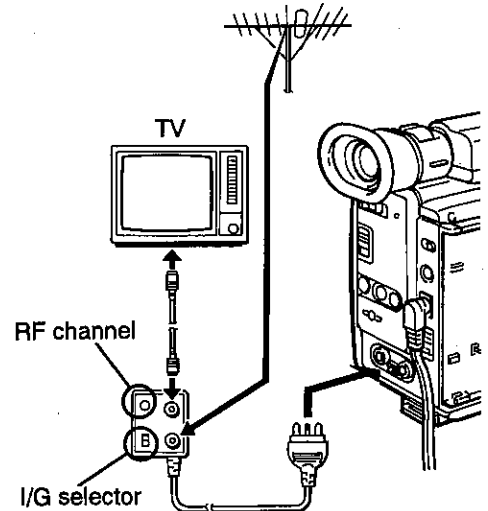


CONNECTIONS

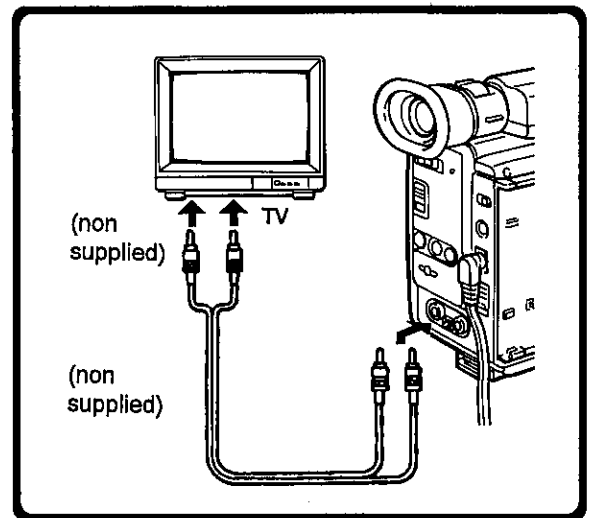
FOR TV'S WITHOUT AN AUDIO/VIDEO INPUT TERMINAL

Set the RF adaptor I/G selector to the proper position.

Adjust the RF CHANNEL screw of the RF adaptor and the TV's channel to the unused channel on which there are no TV broadcasts in your locality.



FOR TV'S WITH AUDIO/VIDEO INPUT TERMINAL



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, a strange noise or odor, 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 batteries 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, damage from heat may result.
- 5 Do not use this unit under the following conditions :**
 - In locations 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 noisy, 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 qualified personnel.

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

Caution:

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

VIDEO HEADS WEAR IN THE SAME WAY AS A TURNTABLE 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.

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, Holland, Kuwait, Singapore, Switzerland, Sweden, Spain, Thailand, People's Republic of China, Denmark, New Zealand, Norway, Belgium, Portugal, Hong Kong

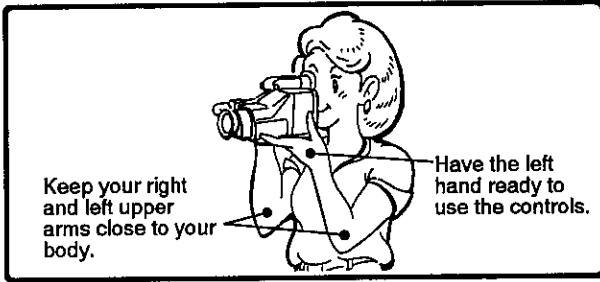
Main countries using the SECAM system :

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

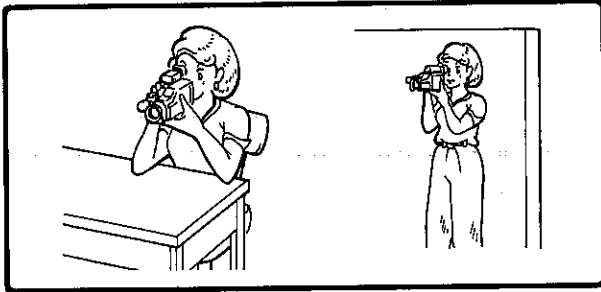
If a malfunction should unexpectedly occur while in another country, contact the dealer where the unit was purchased.

BASIC RECORDING TECHNIQUES

Hold horizontally
Have the left hand ready to use the controls.
Keep your right and left upper arms close to your body.



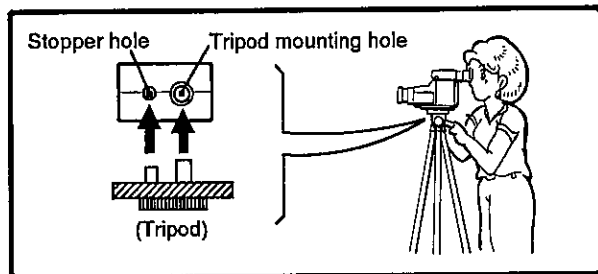
Keep your hands steady by resting on the wall or table for jitterfree images.



For recording at a low angle.



Use a tripod for a 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.

BASIC SHOTS

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

HUMAN SUBJECTS

Close-up

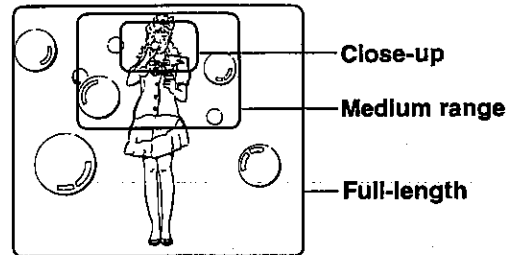
Close-ups emphasize a certain part of the subject.

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

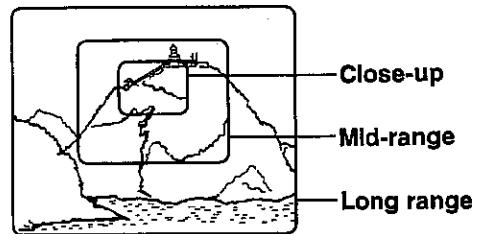
For bringing the subject close for emphasis.

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.

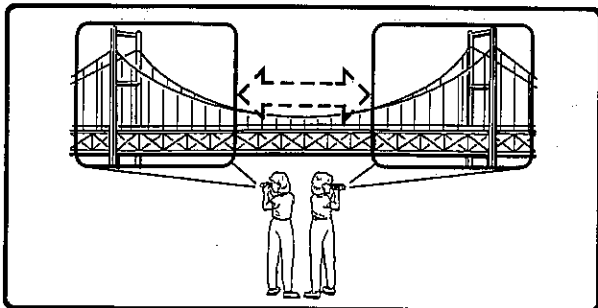


PANNING

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 Turn 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.

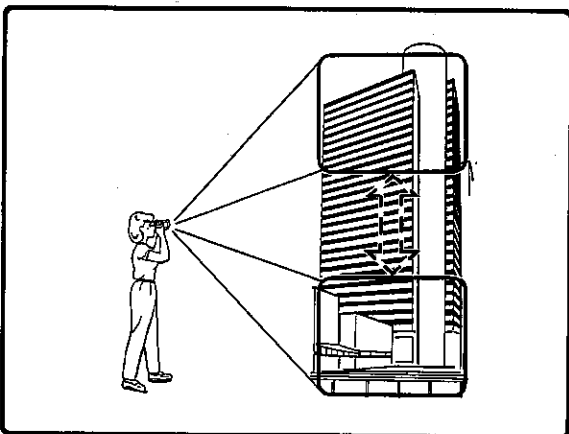
Tilt (pan) upward

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

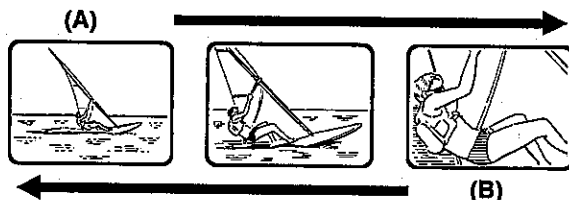
Use the zoom to smoothly change the picture from a wide-angle shot including the area surrounding the subject, to a close-up shot emphasizing the subject. You can also zoom from a close-up to a wide-angle shot.

Zoom-in (A)

To call attention to a specific point.

Zoom-out (B)

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, 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 LIGHT

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

ND filter is recommended	Unit (lux)	Snow-covered mountains Ski slopes Beach on clear summer day
	100,000	Clear-sky sunlight at noon (100,000) Clear-sky sunlight at 3 PM (35,000) Cloudy-sky sunlight at noon (32,000)
	10,000	Cloudy-sky sunlight one hour after dawn (2,000)
Usable range	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 (850) 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) Inside a movie theater at intermission (15 to 35)
More lighting is needed	10	Candlelight (10 to 15)

When shooting outdoors (natural lighting)

Select a camera position so that the sun is at your back.

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

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 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.

TYPES OF LIGHTS

Flat reflector light

The light will be spread over a wide area. This is an easy-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.

REGARDING LANC TERMINAL/ SYMBOL

The symbol "  " is for LANC (Local Application Control Bus System) terminal. LANC terminal is intended for connecting video equipment with peripheral equipment, and allows controlling of tape running and others.

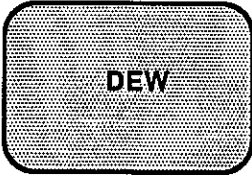
Note :

- Be careful not to insert the plug of an instrument that is not responsive to LANC, such as a microphone or earphone, otherwise, it may cause operation troubles.

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 switch 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 is sometimes happened that the DEW symbol doesn't light 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 switch will operate. 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
No power.	Battery pack is exhausted. AC adaptor is turned off. Battery being charged.
Nothing happens even with batteries attached.	Moisture exists.
Power is suddenly turned off during use.	Battery pack is exhausted. Stop mode or pause mode is continued for 5 minutes or longer.
Can't record.	No cassette. Cassette is set for erase prevention. Tape has been wound to its end.
Can't focus.	The subject is difficult to focus. Distance to subject is less than 1.2 m.
No picture on the TV.	Wrong connection.
Playback picture flickers or blurs.	Video heads are dirty.

SPECIFICATIONS

Television system	PAL, CCIR
Video recording system	Rotating 2-head helical-scan FM, color under system
Audio recording system	Rotating head FM system
Cassette type	8 mm video tape cassette
Tape speed	SP : 20.051 mm/sec. LP : 10.025 mm/sec.
Recording/playback time	180 minutes (P5-90 cassette)
Fast forward/rewind time	Approx. 6.5 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 $f=7\text{mm} \sim 56\text{mm}$ F1.4 Close-up function (15mm ~ 1.2m). Automatic focus Filter diameter 49 mm
White balance adjustment	Automatic
Minimum subject illumination	4 lux
Subject illumination range	4 lux ~ 100,000 lux
Recommended subject illumination	300 lux or more
Power supply voltage	DC input 6V/ 6.5V/ 7.5V/ 9V
Power consumption	5.3W during camera recording
Operation temperature range	0°C ~ 40°C (32°F ~ 104°F)
Storage temperature range	- 20°C ~ +60°C (- 4°F ~ 140°F)
External dimensions (W × H × D)	118mm × 153mm × 302mm
Weight (approximately) (not including battery pack and cassette)	1.0 kg
Microphone	Electret condenser type (omnidirectional)
VIDEO terminal	Video output 1 Vp-p, 75Ω unbalanced, negative sync
AUDIO terminal	Audio output - 7 dBs, 2.2kΩ or less
Microphone Jack	Mini jack, - 66 dBs For low-impedance microphone
Earphone Jack	Mini jack, for 8Ω earphone

When you request to repair the unit, please contact Sanyo, Sanyo Regional Repairers or your dealer where the unit was purchased.

Sanyo

Sydney	7 Figtree Dve, Australia Centre, Homebush, 2140
Melbourne	130 Dudley St, West Melbourne, 3003
Brisbane	Cnr Kerry & Beaudesert Rds, Archerfield, 4108
Adelaide	104 Mooringe Ave, Nth Plympton, 5037
Perth	33 Abernathy Rd, Belmont, 6104

Sanyo Regional Repairers

Newcastle	Dadnj Electronics, 17 Arnott St, Newcastle West, 3202
Canberra	Santronics, 15 Kembla St, Fyschwick, 2609
Wollongong	Electronic Services (Wollongong), 208 Corrimal St, 2500
Townsville	TV & Audio Service Centre, 53 Thuringowa Dve, Kirwan, 4814

For other Sanyo repairers please ask your closest Sanyo office.

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.

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SANYO

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