

**SONY®**

3-786-521-21 (1)

Stereo Video Cassette Recorder **8**

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# EV-S350

## Operating Instructions

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

### OWNER'S RECORD

The model number is located at the rear and the serial number on the top. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

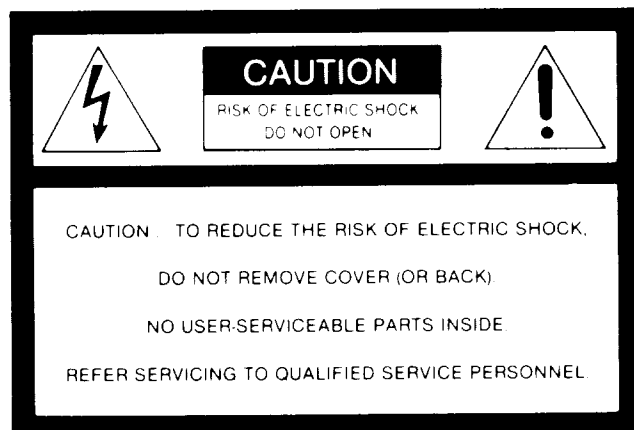
Model No. EV-S350    Serial No. \_\_\_\_\_



# Video 8

## WARNING

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



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



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

### CAUTION:

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

### Caution

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.

## INFORMATION

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

- Reorient the receiving antenna
- Relocate the equipment with respect to the receiver
- Move the equipment away from the receiver
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

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

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

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This unit uses 8mm video format cassettes.

It records in the SP mode (approximately 1.43cm/second) and the LP mode (approximately 0.72cm/second) and can play back in the SP mode and the LP mode.

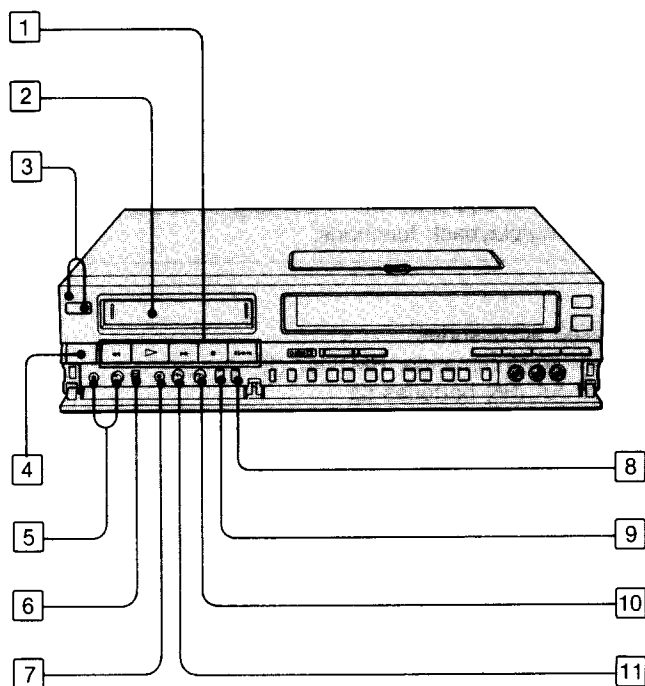
This unit is equipped with PCM (digital audio) recording/playback functions.

### Supplied accessories

- Remote Commander RMT-447 (1)
- Size AA (R6) batteries (2)
- Antenna cable with the F-connectors (1)
- Connecting cord (1)
- Antenna connector (1)

# Location and Function of Parts and Controls

A-1



Refer to the pages indicated in ● for details.

A-1

## 1 Tape transport buttons

◀ REW (rewind) button, ▶ PLAY (playback) button,  
 ►► FF (fast-forward) button, ■ STOP button,  
 ||/▶ PAUSE/STILL button

## 2 Cassette compartment

## 3 POWER switch and indication

## 4 ▲ EJECT button

## 5 PHONES jack and LEVEL control (stereo minijack)

Connect stereo headphones.

The volume can be adjusted with the LEVEL control.

## 6 AUDIO MONITOR selector ●, ●

During playback or recording, set to the appropriate position to monitor the desired sound.

**PCM:** to play back the sound on the PCM track.

When nothing is recorded on the PCM track, the sound recorded on the standard track is played back regardless of the position of this selector.

**MIX:** to play back the sound on the PCM and standard tracks simultaneously.

**STD:** to play back the sound on the standard track.

## 7 MIC (microphone) jack ●

To record from this jack, display LINE by pressing the INPUT SELECT button.

## 8 SP/LP (recording mode) selector

This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode.

The playback speed is automatically set regardless of the setting of this selector.

## 9 INPUT SELECT button ●

Press to display the desired input signal indication in the window.

**TUNER:** to record TV programs

**SIMUL:** to record TV programs and signals from the LINE IN AUDIO jacks.

**LINE:** to record video/audio signals from the LINE IN 1 or 2 VIDEO/AUDIO jacks or to dub only audio signals from LINE IN AUDIO or MIC jack.

## 10 SHARPNESS control ●

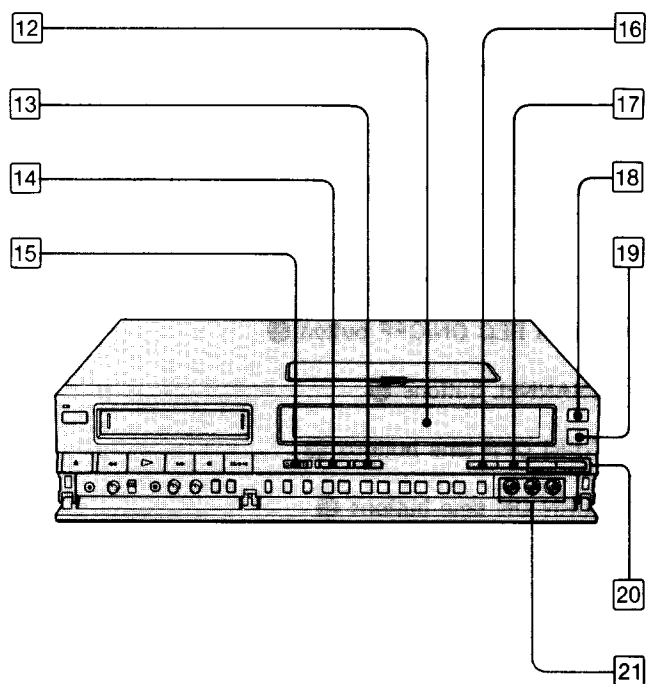
Use to adjust the sharpness of the picture if necessary.

Normally set the control at the center detent position.

## 11 INPUT LEVEL control

The volume of the microphone and equipment connected to the LINE IN VIDEO/AUDIO jacks can be adjusted.

**A-2**



**A-2**

**12 Display window**

**13 EDIT button** (●, ●)

When editing a tape, press the button so that the EDIT indication lights in the display window.

**14 AUDIO DUB button** (●)

Press to record on the PCM track of any recorded video tape.

**15 ● REC (recording) switch**

Slide to the right to start recording.

**16 ANT TV/VTR button**

Press to view the program selected on the recorder. The VTR indicator appears in the display window (VTR mode).

To view a TV program while recording another, press this button again.

The VTR indicator disappears. (TV mode).

**17 COUNTER RESET button** (●)

Press to reset the tape counter to zero.

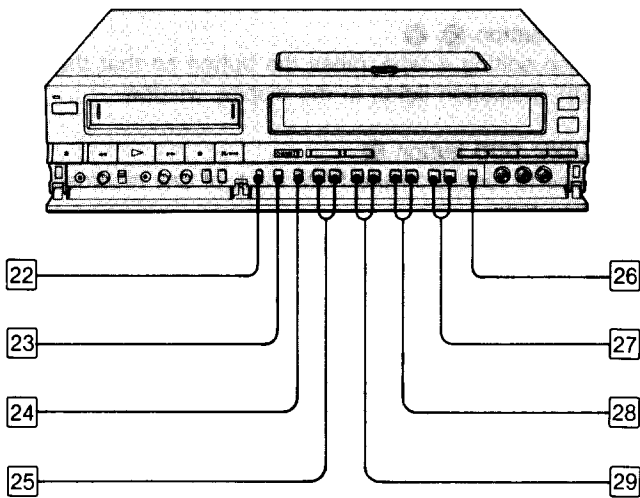
**18 PCM indicator**

**19 Remote control detector**

**20 CHANNEL buttons**

**21 LINE IN (input) 2 VIDEO/AUDIO jacks (phono jack)**

A-3



A-3

**22 CLEAR button 26**

Press to cancel a timer setting.

**23 CHECK button 25**

Press to check the contents of the timer presets.

**24 TIMER SET button 22**

Press to start the setting or resetting of timer programs.

**25 DATE buttons 22, 24**

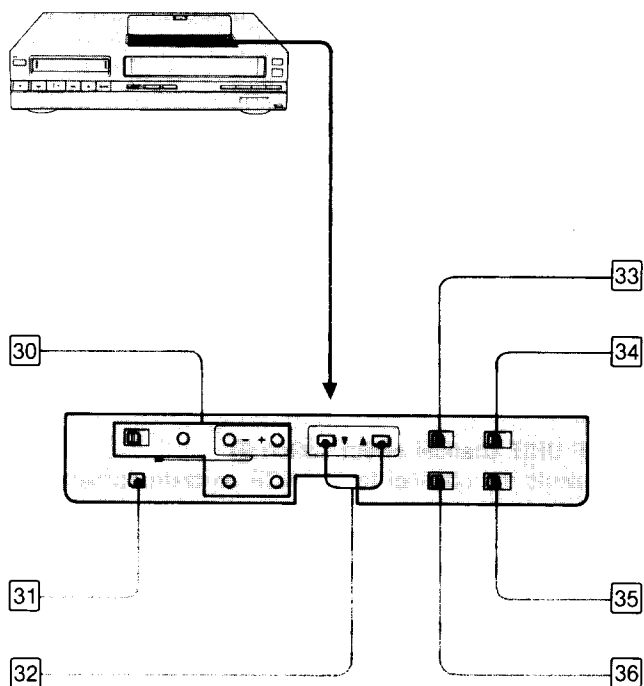
**26 TIMER REC ON/OFF button 22**

**27 CHANNEL buttons 22**

**28 TURN OFF time buttons 22**

**29 TURN ON time buttons 22**

A-4



A-4

**30 Buttons used for presetting channels 44**

AFT switch  
SET button  
TUNING buttons  
ADD button  
ERASE button

**31 CLOCK button 45**

**32 SLOW/STILL ADJ (adjustment) buttons 46**

Adjust the still or slow-monitor picture if necessary.

**33 X2 SOUND switch 48**

**34 ANT. (antenna) SW selector 42**

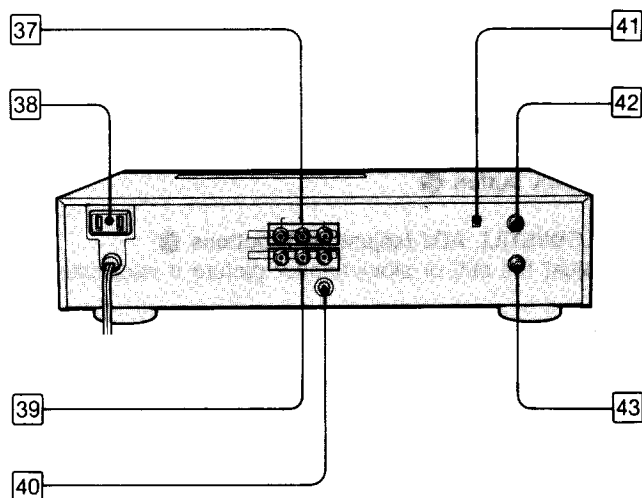
When connecting to a TV with video/audio inputs, set to MANUAL.  
When connecting to a TV without them, set to AUTO.

**35 AUTO STEREO switch**


Usually set to ON.

**36 STD (standard) AUDIO selector 49**

A-5

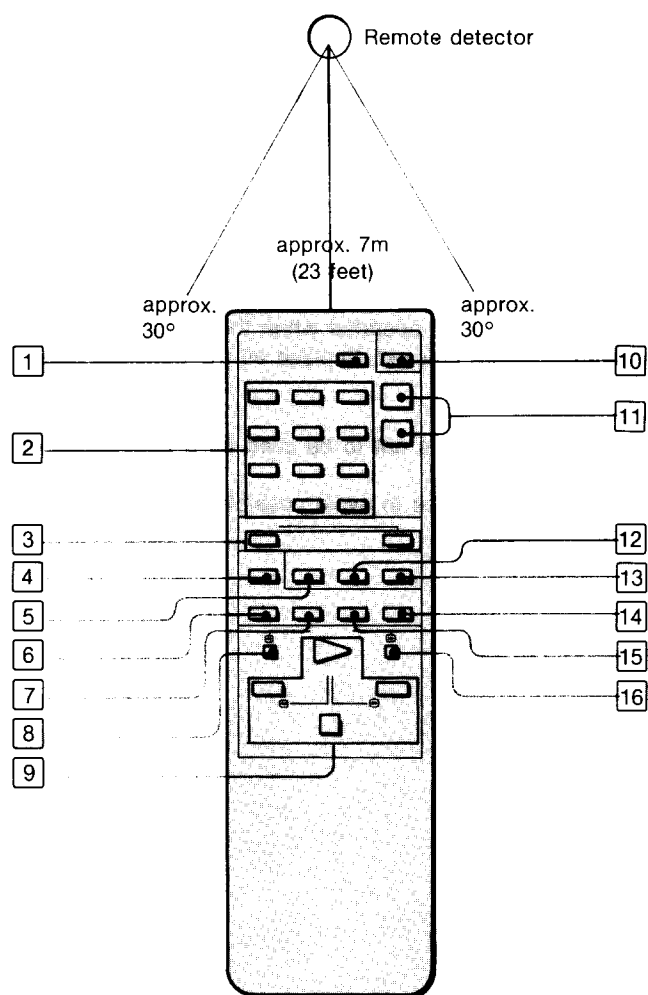


A-5

- 37 LINE IN (input) 1 VIDEO/AUDIO jacks (phono jack)**  
Connect to the video and audio outputs of a TV, VCR, CD player, etc.
- 38 AC OUTLET (unswitched)**  
Supplies AC power to the connected video or audio equipment with power consumption less than 400W.
- 39 LINE OUT (output) VIDEO/AUDIO jacks (phono jack)**  
Connect to the video and audio inputs of a TV, VCR, amplifier, etc.
- 40 CONTROL S IN (input) jack (minijack)**  
Connect to the CONTROL S output jack of other Sony products.
- 41 RF UNIT channel select switch **  
Selects the channel for the VCR program converted into a VHF signal and output from the VHF/UHF OUT connector. Set the switch to 3CH or 4CH, whichever is not active in your area.
- 42 VHF/UHF IN (input) terminal**  
Connect the antenna cable.
- 43 VHF/UHF OUT (output) terminal**  
Connect to the VHF/UHF antenna terminal of the TV.



**A-6**



**A-6**

### Remote Commander RMT-447

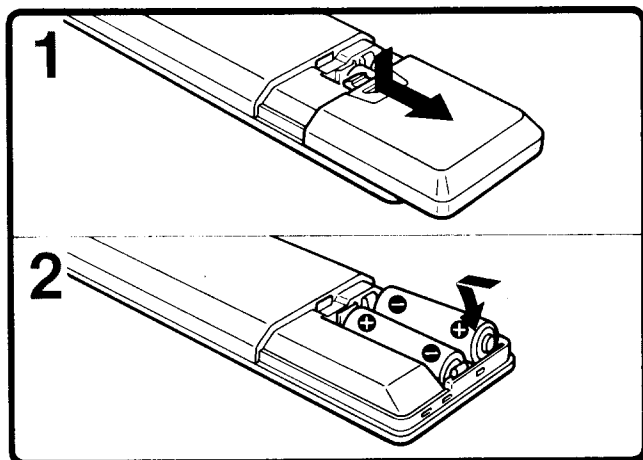
The buttons on the Remote Commander with the same name as the ones on the VCR have the same function.

- 1 ANT TV/VTR button**
- 2 Channel number buttons and ENTER button**  
Press to select directly the TV channel to be viewed or recorded.
- 3 ● REC (record) buttons**  
To start recording, press these buttons simultaneously.
- 4 || PAUSE button**
- 5 COUNTER RESET button ⑪**
- 6 ||▶ FRAME (frame-by-frame) button**
- 7 x1/10 (slow speed playback) button ⑮**  
Press to view slow speed playback picture.
- 8 Search (rewind) button ⑮**
- 9 Tape transport button**  
▷ (playback) button, ▶▶ (fast-forward) button  
◀◀ (rewind) button, □ (stop) button
- 10 POWER switch**
- 11 CHANNEL buttons**
- 12 TAPE RETURN button ⑪**  
Press to advance or rewind the tape to zero point.
- 13 SKIP button ⑮**  
Press to advance the tape rapidly for 30 seconds.
- 14 X2 (double speed playback) button ⑮**  
Press to view double speed playback picture.
- 15 X1/5 (slow speed playback) button ⑮**  
Press to view slow speed playback picture.
- 16 Search (fast-forward) button ⑮**

### Operable range

The shorter the distance between the Commander and the VCR, the wider the angle within which the Commander can be operated.

A-7



## Battery Insertion A-7

- 1 Open the lid.
- 2 Insert two size AA (R6) batteries with correct polarity.
- 3 Close the lid.

### Battery life

Under normal operation, batteries will last for about 6 months. When the batteries are exhausted, the remote function will not be operated when the buttons on the Commander are pressed. Replace all the batteries with new ones.

### If the Commander is not to be used for a long period of time

Remove the batteries to avoid possible damage from battery leakage.

**B**



## To Prevent Accidental Erasure **B**

Slide out the tab on the cassette so that the red appears.

To re-record on the cassette, slide the tab back.

## Tape Speed

The LP mode is twice as long as the SP mode. For better picture, recording in the SP mode is recommended.

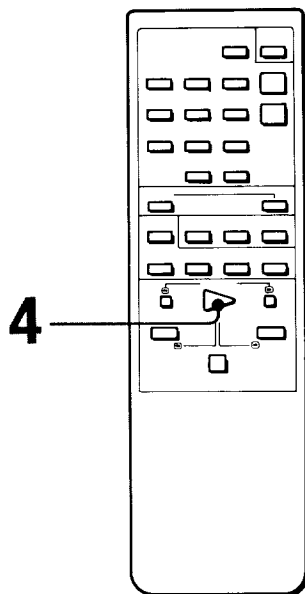
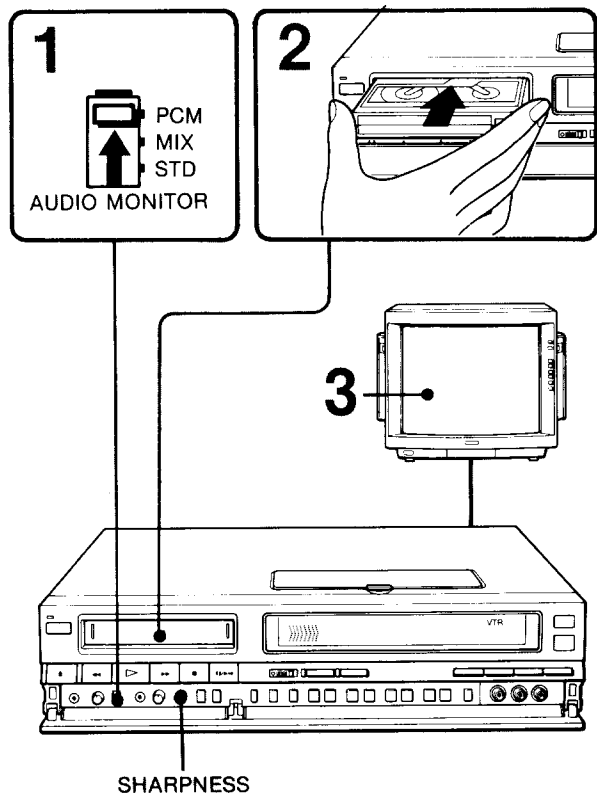
During playback, the mode in which the tape was recorded is selected automatically.

Cassette used	Tape speed	
	SP	LP
P6-15	15 min.	30 min.
P6-30	30 min.	1 h.
P6-60	1 h.	2 h.
P6-90	1 h. 30 min.	3 h.
P6-120	2 h.	4 h.

## Notes

- Always insert a cassette in the correct direction.
- Never insert anything in the small holes on the rear of the cassette.
- Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.
- To record from the beginning of the tape, run the video camera recorder for about 15 seconds at the beginning of a cassette before recording. It will avoid missing the starting point during playback on a video cassette recorder.
- When the VCR is not in use, remove the cassette.

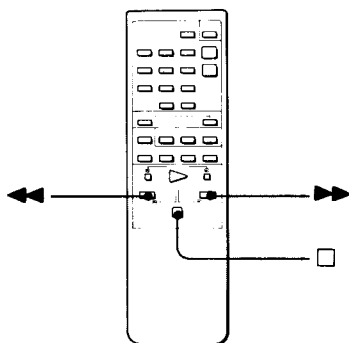
C-1



## Operation C-1

- 1 Set the AUDIO MONITOR selector to PCM.
- 2 Insert the cassette.
- 3 Turn on the TV and select the channel for the VCR or select the input for the VCR.
- 4 Press the ▷ PLAY button.  
Playback will begin and when the ANT. SW selector is set to AUTO, the VTR indication in the display window will light.

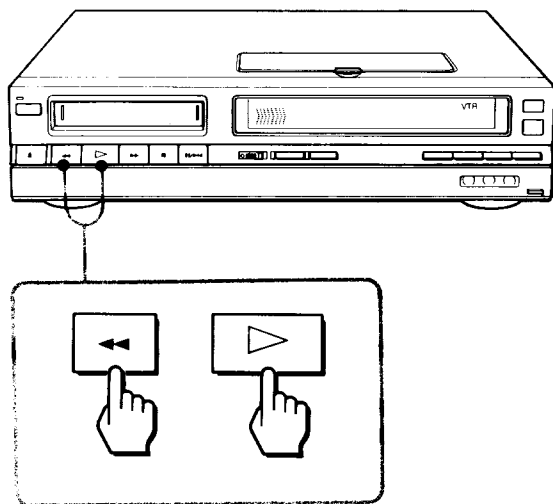
C-2



C-2

To stop playback, press the ☐ STOP button.  
 To advance the tape rapidly, press the **▶▶** FF button.  
 To rewind the tape, press the **◀◀** REW button.  
 When the tape reaches the end during playback, it will be automatically rewind.

C-3



C-3

**Auto play — To play back a tape from the beginning of the tape after rewinding**

While pressing the **◀◀** REW button depressed, press the **▶** PLAY button. The AUTO indication will be displayed.

<p><b>When the TV without the video input jack is used, the playback picture does not appear on the TV.</b></p>	<ul style="list-style-type: none"> <li>• Set the ANT. SW selector in the tuning compartment to AUTO.</li> <li>• Press the TV/VTR button on the VCR or Remote Commander so that the VTR indication is displayed.</li> </ul>
<p><b>When a blank tape is played back</b></p>	<p>The picture does not appear and the tape counter does not function.</p>

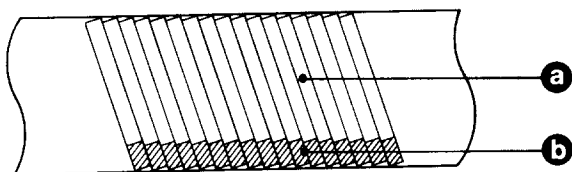
C-4



**Picture Adjustment** C-4

Turn the SHARPNESS control toward SOFT or SHARP.

C-5



C-6



## To Select the Monitor Sound

Enlarged tape C-5

- a Standard track
- b PCM track

Kind of the tape	Track to be played back	Position of the AUDIO MONITOR selector C-6
Stereo	PCM	PCM
FM simulcast	PCM	PCM
Multichannel TV sound broadcasts	PCM and/or standard	To monitor MAIN: PCM To monitor SAP: STD To monitor both: MIX
Audio dubbed	PCM and standard	MIX
Tapes recorded on VCR without PCM function	Standard	PCM (The sound recorded on the standard track is selected automatically.)

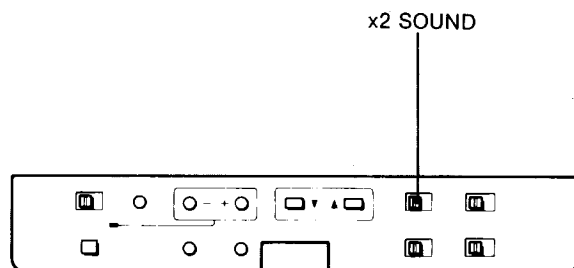
### If the sound is not heard or heard only intermittently

When a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set the AUDIO MONITOR selector on this unit to STD.

(Although the AUDIO MONITOR selector is set to STD, the PCM indication may occasionally light.)

### When the TV/monitor without the video/audio input jacks is connected

To monitor the stereo sound, connect the stereo equipment to this unit.



## Various Playback Modes

Use the Remote Commander for the following operations.

### To obtain a still picture

Press the **PAUSE/STILL** button during playback. The **II** mark will be displayed in the display window. To resume normal playback, press the **PLAY** button or press the **PAUSE/STILL** button again.

When the pause mode lasts for more than approximately 7 minutes, it will be automatically released and the unit will be set back in the playback mode.

### To advance the tape rapidly for 30 seconds

Press the **SKIP** button during playback. To advance the tape rapidly for 1 minute, press the **SKIP** button twice. To resume normal playback, press the **PLAY** button. After advancing the tape for 30 seconds or 1 minute, the tape is played back automatically.

### To view the picture at high speed

#### Locked picture search

Press the **SEARCH** button or **SEARCH** button during playback or in still picture mode. To resume normal playback, press the **PLAY** button.

#### Picture search

Keep pressing the **REW** or **FF** button during playback or in still picture mode. Release the button for normal playback.

### Double speed playback **C-7**

Press the **X2** button during playback or in still picture mode. To monitor the double speed sound, set the **X2 SOUND** switch on the VCR to **ON**. If the sound is heard intermittently or disturbed, set it to **OFF** and the sound will be muted.

To resume normal playback, press the **PLAY** button.

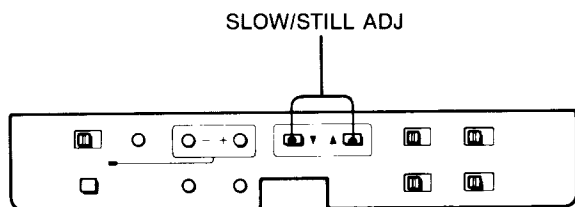
### Slow speed playback

Press the **x1/10** button or **x1/5** button during playback or in still picture mode. To resume normal playback, press the **PLAY** button.

### Frame-by-frame Playback

Press the **FRAME** button in still picture mode. To resume normal playback, press the **PLAY** button.

C-8



**To view the picture in fast-forward or rewind mode**

Press the ►► FF button in fast-forward mode or press the ◀◀ REW button in rewind mode. The picture is displayed while the button is kept pressed. Release the button to resume normal fast-forward or rewind mode.

**To adjust the still or double speed playback picture** C-8

If the still or double speed playback picture appears shake, press the SLOW/STILL ADJ buttons on the VCR until the picture stabilizes.

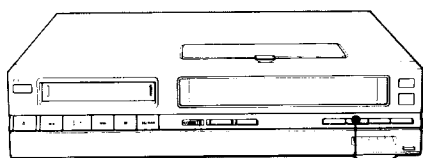
**To adjust the slow speed playback picture** C-8

If streaks appear in slow mode, press the SLOW/STILL ADJ buttons on the VCR.

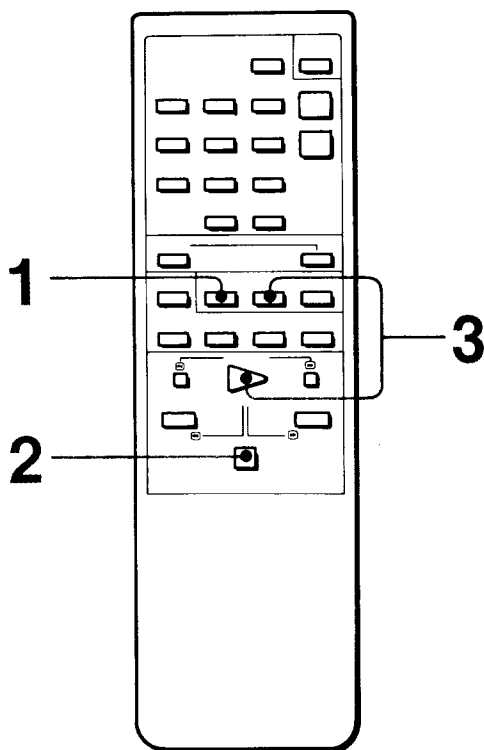
**Notes**

- Streaks will appear and the sound will be muted in the high-speed playback mode.
- When a tape recorded in SP mode is played back in still picture mode or picture search mode, the picture may appear in black and white or shake depending on the TV being used.
- When a tape is recorded in SP mode, streaks will be wider than those of the LP-recorded tape.





COUNTER RESET



## Use of the Tape Counter

**Use the button on the VCR or Remote Commander.**

Press the COUNTER RESET button at the beginning of the tape so that the counter shows "0H00M00s". By noting the counter reading at a particular point, you can easily find that point later by referring to the tape counter.

**To rewind the tape to a particular point (auto play) [C-9]**

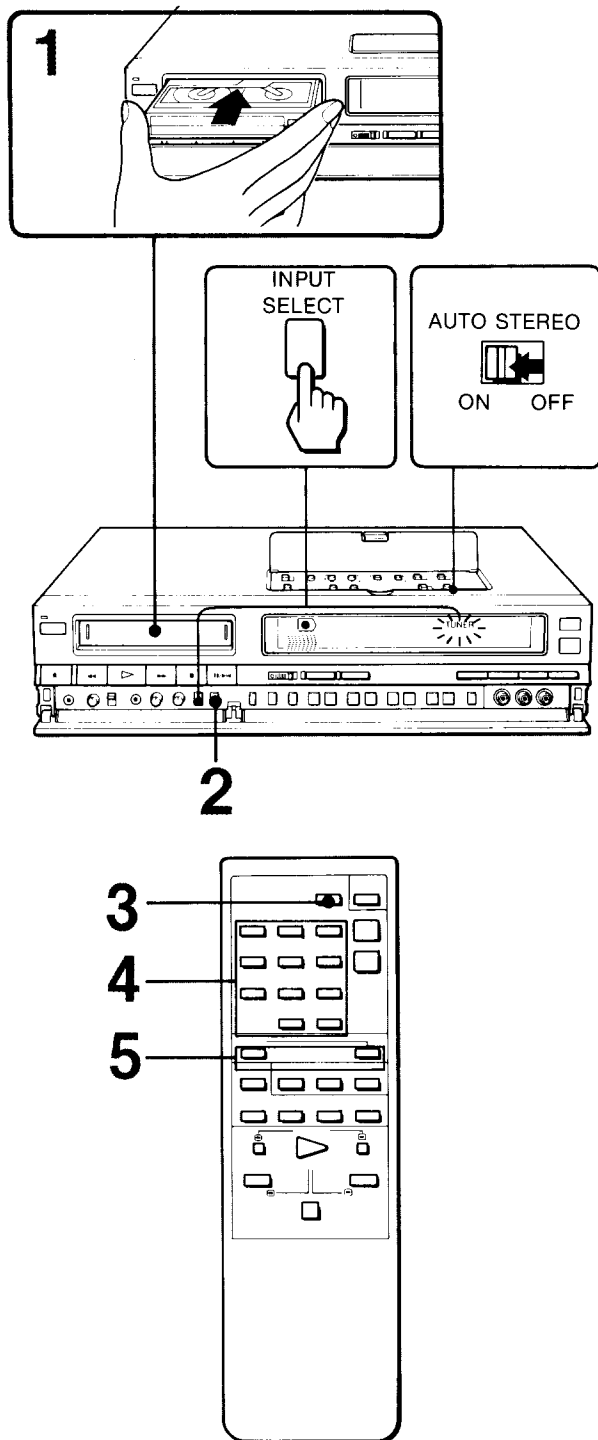
- 1** During playback or recording, press the **COUNTER RESET** button at the point to be located later. The counter is reset to "0H00M00s".
- 2** When playback or recording is finished, press the ☐ **STOP** button to stop the tape.
- 3** Press the **TAPE RETURN** and **▶ PLAY** buttons. The **AUTO** indication will be displayed. The tape is rewound or advanced to the approximate "0H00M00s" point and played back automatically.

### Notes

- When only the TAPE RETURN button is pressed, the tape will stop at the approximate "0H00M00s" point (tape return).
- The TAPE RETURN functions only when the counter reading is beyond  $\pm 1$  minutes.
- The counter reading and the point of the tape may not correspond exactly. Use the counter as a guide.
- The counter does not operate for a blank, unrecorded portion of a tape.
- There will be a time lag of several seconds on the counter reading after repeated fast-forward and rewind operations.
- There will be also a time lag of several seconds when the tape recorded in LP and SP modes mixed or the tape having a blank portion between the recorded portions is played back.

# Recording TV Program

D-1



## Operation D-1

### Before recording

- Turn on the TV and select the channel for the VCR or select the input for the VCR\*.
- Press the INPUT SELECT button so that the TUNER indication appears.
- Set the AUTO STEREO switch to ON.

\* If your TV/monitor is equipped with video/audio inputs, select the correct input on your TV/monitor.

- 1 Insert a cassette.
- 2 Select either SP or LP recording mode with the SP/LP selector.
- 3 Press the TV/VTR button.  
The VTR indication will be displayed.
- 4 Select the channel to be recorded.
- 5 Start recording by pressing the ● REC buttons.

### To stop recording

Press the □ STOP button.

### To stop recording for a moment

Press the |||▶◀ PAUSE/STILL button. The TV program can still be seen on the TV, but the picture is not recorded.

To resume recording, press the |||▶◀ PAUSE/STILL button again.

To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and recording will stop. Smooth recordings can be made by using the |||▶◀ PAUSE/STILL button. See page 20.

**When the recording is made to the end of the tape,** the tape will be automatically rewound to the beginning and the unit will enter the stop mode. The power remains on.

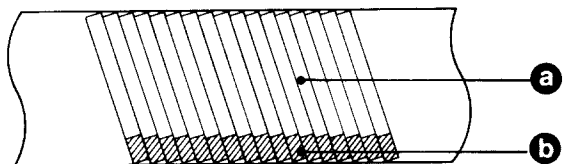
### If the tape is ejected when the ● REC buttons are pressed

The tab on the cassette is slid out. Slide the tab in or use a new cassette.

### To View One TV Program While Recording Another

Press the TV/VTR button so that the VTR indication disappears. Select the channel you want to view on the TV.

If your TV is equipped with a TV/VTR input selector, simply set the selector to TV and select the desired channel on the TV.



### During recording...

#### If stereo programs are received,

The STEREO indication will be displayed in the display window.

#### When recording SAP broadcasts

**1** Choose the sound to be recorded on the standard track by using the STD AUDIO selector. If you choose SAP, the SAP indication will appear in the display window.

**2** Choose the sound to be monitored by the AUDIO MONITOR selector.

PCM: to monitor the main sound  
(in stereo or monaural)

STD: to monitor the sound selected by the STD AUDIO selector.

MIX: to monitor both of the above sounds.

#### Note

If the SAP mode is selected and there is no SAP broadcast, no sound will be heard from the speakers and no sound is recorded on the standard track. Therefore, when you play back this tape on an 8mm VCR without a PCM function, no sound will be heard.

The SAP broadcast is always transmitted with the MAIN broadcast.

#### Recording is made as follows: D-2

##### a Standard track

Video/audio signals of the TV program and the main or SAP sound of a SAP program are recorded here.

Recorded sounds are monaural.

##### b PCM track

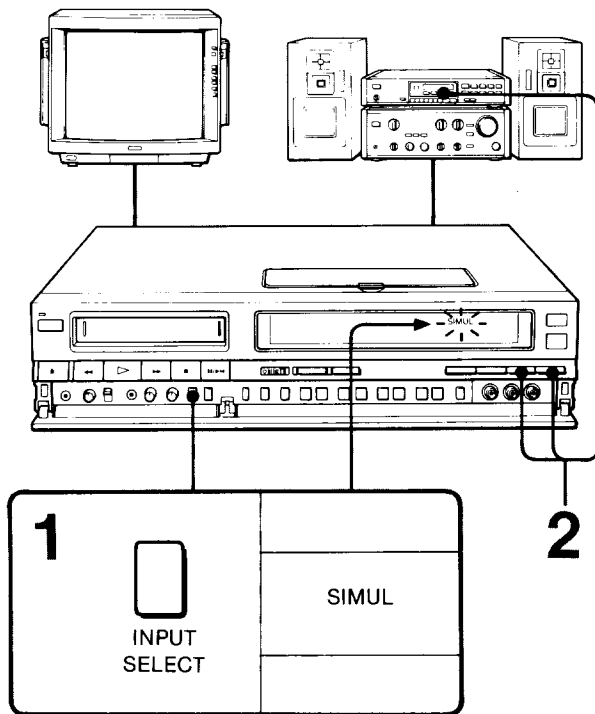
Audio signals from the connected equipment or from TV are recorded in digital PCM sound. Sound can either be in monaural (when sounds for left and right channel are the same) or in stereo (each sound for left and right channels). Only the main sound signal will be recorded.

#### If the received stereo signals are noisy

Set the AUTO STEREO switch to OFF.

The sound will be monaural.

D-3



## For Smooth Recording

Recording should always be started from the recording pause mode for smooth transitions between scenes. Proceed as follows if the recording was stopped or if you want to record on a pre-recorded tape from a desired point.

- 1 Play back the tape and locate the point for recording while watching the picture.
- 2 Press the **II/PAUSE/STILL** button to stop the tape where you wish to start recording.
- 3 Press the **● REC** buttons. The recorder will enter the recording pause mode.
- 4 Press the **II/PAUSE/STILL** button at the desired point to release the pause mode. Recording starts.

## To Record a TV Program While Recording an FM Broadcast at the Same Time D-3

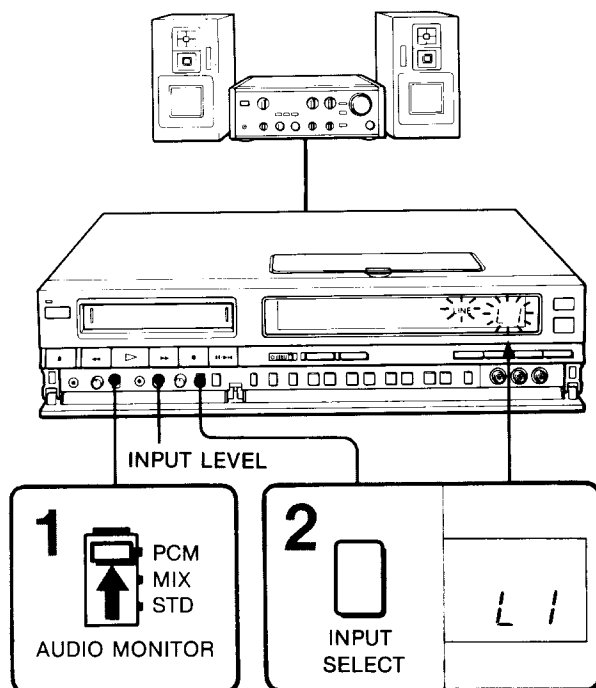
Sometimes a TV station and an FM radio station will broadcast a program simultaneously so that you can record a TV program in high-fidelity stereo. The TV program (video and monaural audio) is recorded normally on the standard track and the stereo audio portion is recorded on the PCM track from your FM tuner.

For details on connection, see page 40.

Operate as described in "Recording TV programs" on page 18 except the following points:

- 1 Press the **INPUT SELECT** button so that the **SIMUL** indication appears in the display window.
- 2 Select the channel both on the VCR and the FM tuner.

**E-1**



Only the audio signals are recorded on the PCM track.

**E-1**

Normally turn the INPUT LEVEL control to the green position.

To record both the video and audio signals, connect the video equipment to the LINE IN VIDEO jack.

For details on connection, see page 40.

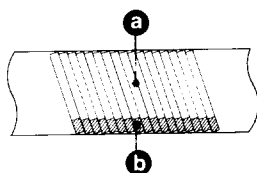
**1 Set the AUDIO MONITOR selector to PCM.**

**2 Press the INPUT SELECT button.**  
The "L1" indication will appear in the display window.

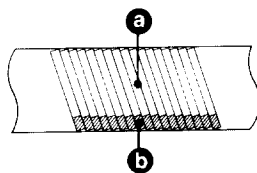
## Note

When the digital audio processor which does not conform to the 8 mm format standard is used, select the SP mode and press the EDIT button so that the EDIT indication lights.

**E-2**



**E-3**



Recording will be made as follows:

## FM simulcast recording **E-2**

### a standard track

Video and audio signals of the TV program will be recorded.

### b PCM track

FM broadcast program from the FM tuner will be recorded in stereo.

## Audio recording **E-3**

### a standard track

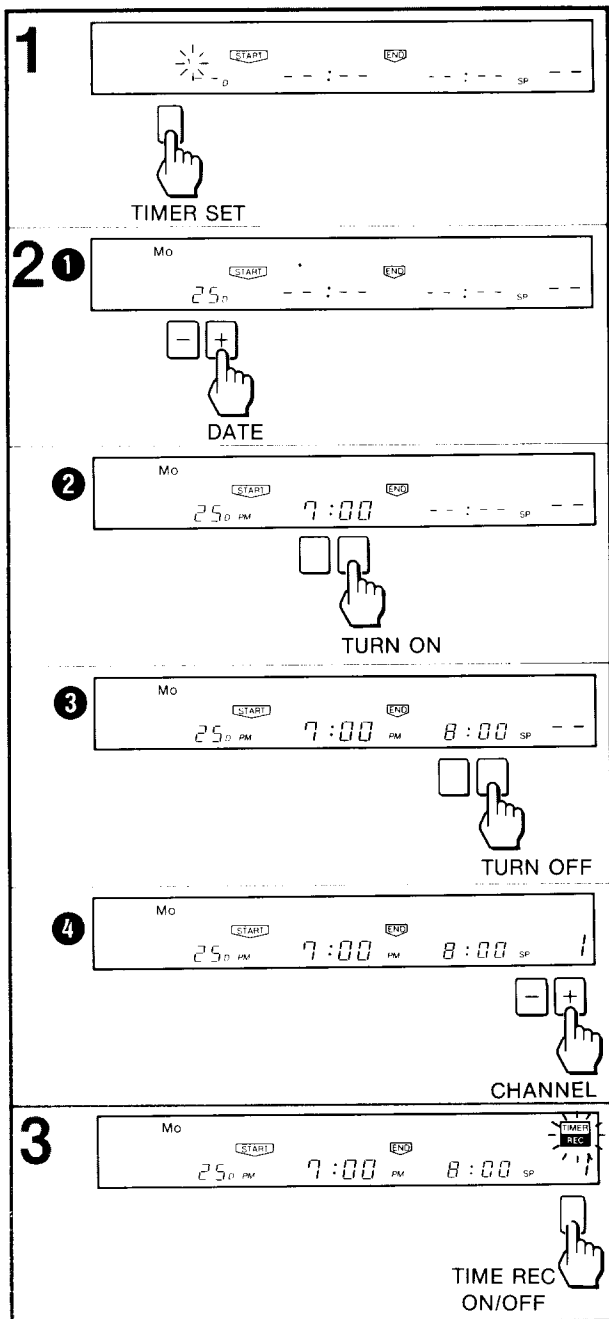
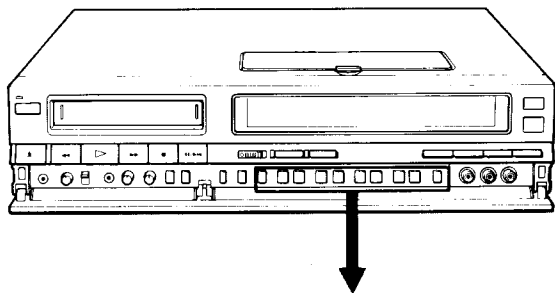
Audio signal from the FM tuner (equipment connected to the LINE IN AUDIO jacks) will be recorded in monaural.

### b PCM track

Audio signal from the FM tuner (equipment connected to the LINE IN AUDIO jacks) will be recorded in stereo.

# Timer-Activated Recording

F-1



The timer can be set to record up to four events on a certain day or every day within one month.

Su	Mo	Tu	We	Th	Fr	Sa	Today
		1	2	3	4	5	
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30	1	2	3	
							Possible days for recording
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	.....				

## Before setting the timer

- The clock must be set correctly.  
For the setting, see page 43.
- Make sure the cassette tape is long enough to record all the programs.
- Be sure the safety tab of the cassette has not been slid out.
- Select the recording speed, SP or LP.
- Press the INPUT SELECT button so that the TUNER indication appears.

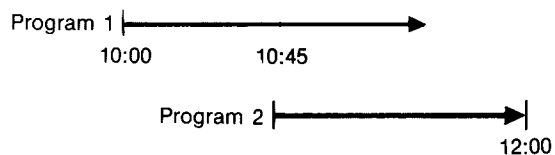
**Example: To record channel 8 from 7:00 PM to 8:00 PM on December 25th (Monday). [F-1]**

- 1 Press the TIMER SET button.**  
The program indication will blink.
- 2 Adjust the ① day, ② turn-on time, ③ turn-off time, ④ channel in sequence, following the illustration.**  
To preset other programs, repeat steps 1 and 2.  
To correct the setting, press the button of the incorrect digit.  
To display the current time, press the TIMER SET button twice.
- 3 Press the TIMER REC button.**  
A beep is heard once.

The power will be turned off and the recorder will enter the standby mode.  
If the TIMER REC button is pressed before completing the timer setting, a beep is heard seven times.  
Recording will start at the preset time and will automatically stop when the recording is completed.

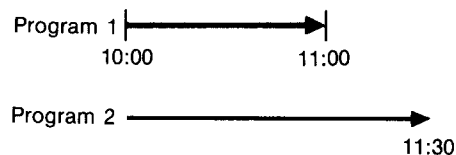
## Notes

- When the tape ends during recording, the tape stops and the power is turned off.  
The tape is not rewind.
- Once the TIMER REC indication has lit, no function of the VCR can be activated, except for the TIMER REC button and the CHECK button.

**F-2****When the presettings of your timer-activated recordings overlap F-2**

The recording of program 2 will begin before the program 1 is finished.

In the illust.: (The colored portion will not be recorded.)

**F-3****If the turn-on time of two programs are the same F-3**

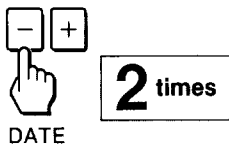
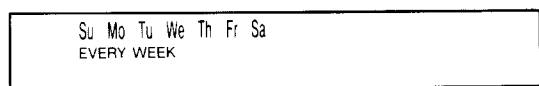
The recording of the program having the higher program number (ex. program 1) will be made. The memory of the program having the lower number will be cleared.

In the illust.: (The colored portion will not be recorded.)

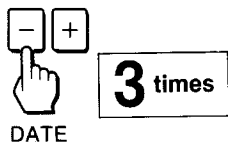
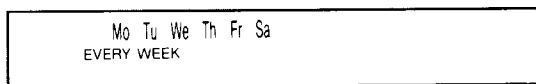
**To record using the entire tape**

Skip the turn-off time setting or set it to a time after the tape will reach the end.

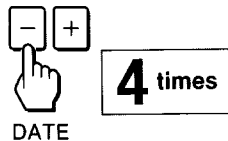
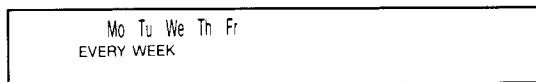
**F-4**



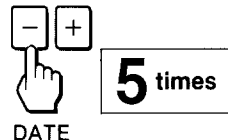
**F-5**



**F-6**



**F-7**



## Setting the Date

To record a program at the same time everyday **F-4**

- 1** Press the TIMER SET button.
- 2** Press the DATE – button twice.

To record a program at the same time on Monday to Saturday **F-5**

- 1** Press the TIMER SET button.
- 2** Press the DATE – button three times.

To record a program at the same time on Monday to Friday **F-6**

- 1** Press the TIMER SET button.
- 2** Press the DATE – button four times.

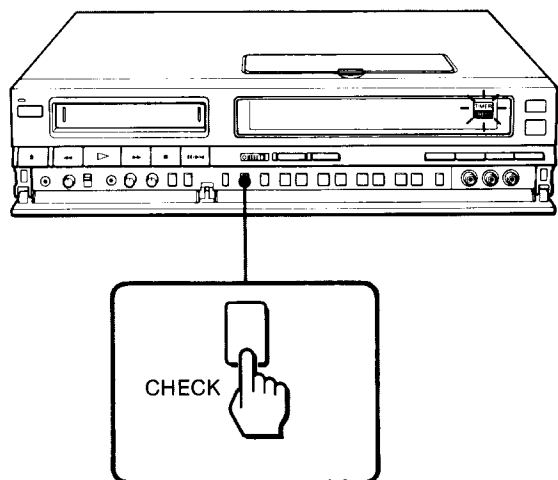
To record a program at the same time on same day of the week **F-7**

- 1** Press the TIMER SET button.
- 2** Press the DATE – button five times.

**To interrupt the everyday or every week recording**  
Press the TIMER REC button so that the TIMER REC indication disappears. To resume the setting, press the TIMER REC button so that the TIMER REC indication lights.



**F-8**



### To Check the Timer Settings **F-8**

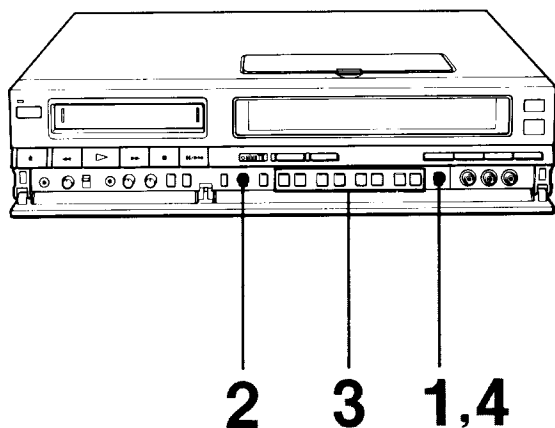
Press the CHECK button.

Every time you press the CHECK button, each program will be displayed in the display window.

### To Change the Setting **F-9**

- 1** Press the **TIMER REC** button.  
The **TIMER REC** indication will go off.
- 2** Press the **CHECK** button until the setting to be changed appears in the display window.
- 3** Press the button of the item to be changed.
- 4** Press the **TIMER REC** button.  
The **TIMER REC** indication will light.

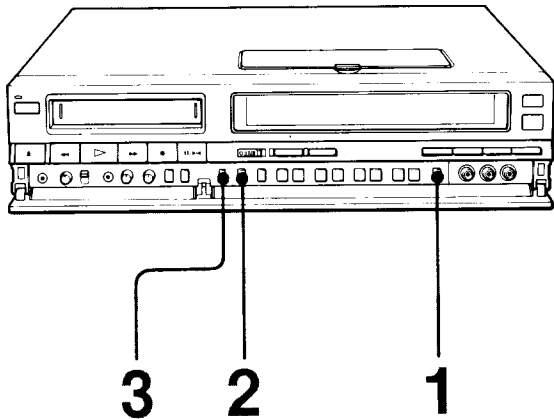
**F-9**



### Trouble when the **TIMER REC** Button is Pressed

Symptom	Possible causes
The cassette is ejected.	The cassette inserted has the safety tab slid out.
The beep is heard seven times.	The tape is at its end.
The <b>TIMER REC</b> indication does not light.	<ul style="list-style-type: none"> <li>The cassette is not inserted into the recorder.</li> <li>The turn-on time has been set before the current time.</li> </ul>

### F-10



### To Erase the Memory of a Particular Program **F-10**

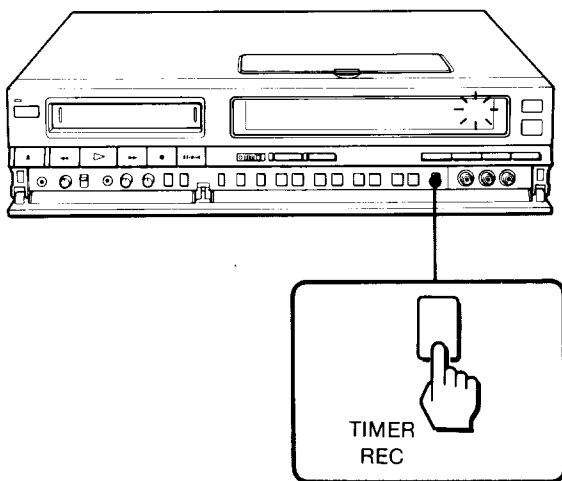
- 1** Press the **TIMER REC** button.  
The **TIMER REC** indication will go off.
- 2** Press the **CHECK** button until the setting to be erased appears in the display window.
- 3** Press the **CLEAR** button.

When you press the **TIMER REC** button again, the timer recording will be made as preset.

### To Stop the Timer Recording

Press the **TIMER REC** button. The recording will stop and the power will be turned off.

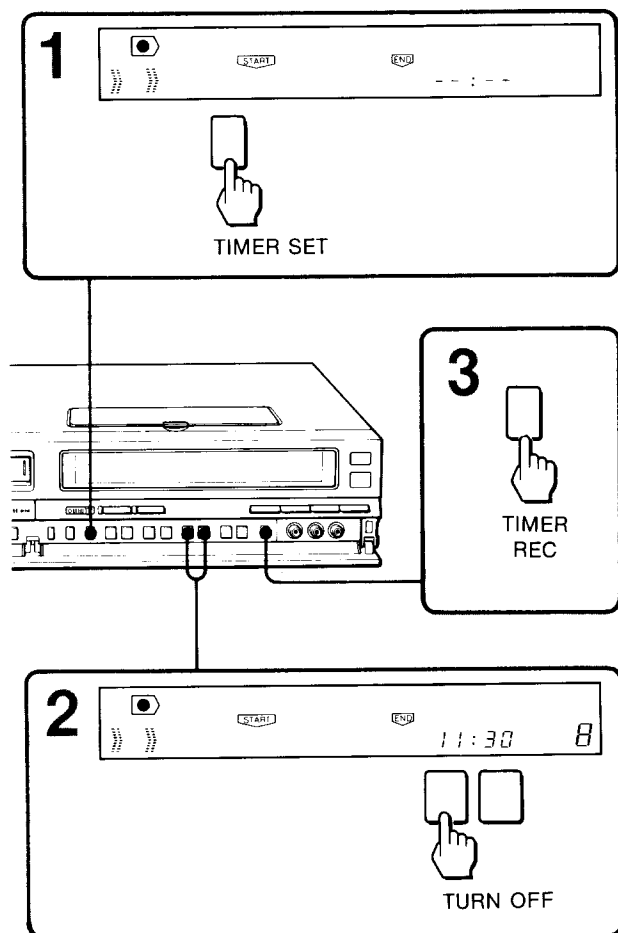
### F-11



### To Operate the Recorder before the Timer-Activated Recording Starts **F-11**

Press the **TIMER REC** button so that the **TIMER REC** indication disappears. Then, turn on the power and operate the unit.

When you press the **TIMER REC** button again, the timer recordings will be made as preset.



## To Set the Turn-off Time during Recording

F-12

**1** Press the TIMER SET button.

**2** Set the turn-off time.

**3** Press the TIMER REC button.

The beep is heard once when the setting is completed.

The recording will automatically stop at the turn-off time.

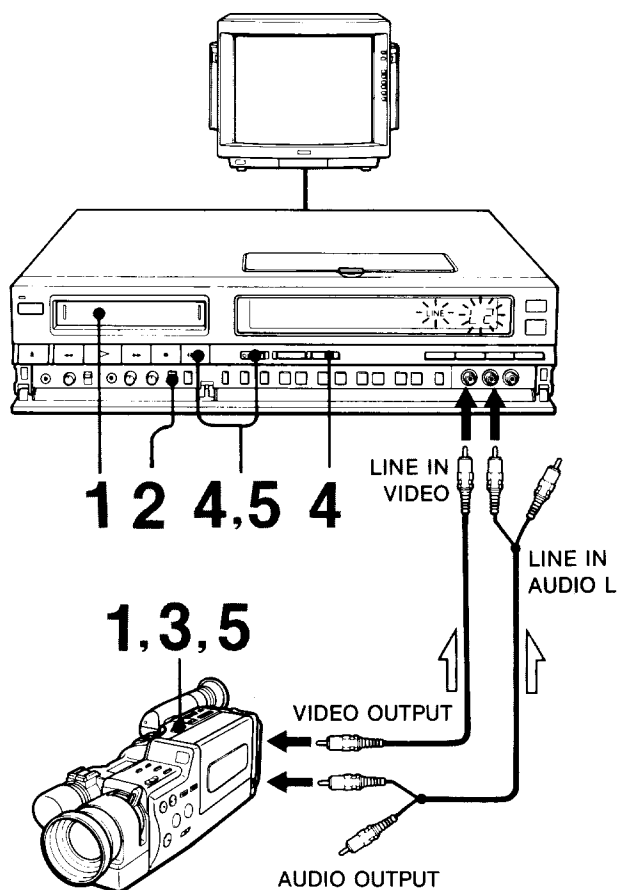
### To stop the turn-off timer recording

Press the TIMER REC button. The recording will stop and the power will be turned off.

<b>When the time indication blinks</b>	The power has been interrupted for more than 1 hour. Reset the clock and the timer settings.
<b>When some picture is not recorded during the timer-activated recording</b>	The power has been interrupted for less than 1 hour. The timer programs are retained in the memory and the on-going timer recording will resume when the power is resupplied.

## Tape Editing

G-1



## To Edit the Entire Tape Contents to Another Tape

Editing a home movie tape from another VCR to this unit

Ex. When the video camera recorder is used as the player

## Preparation

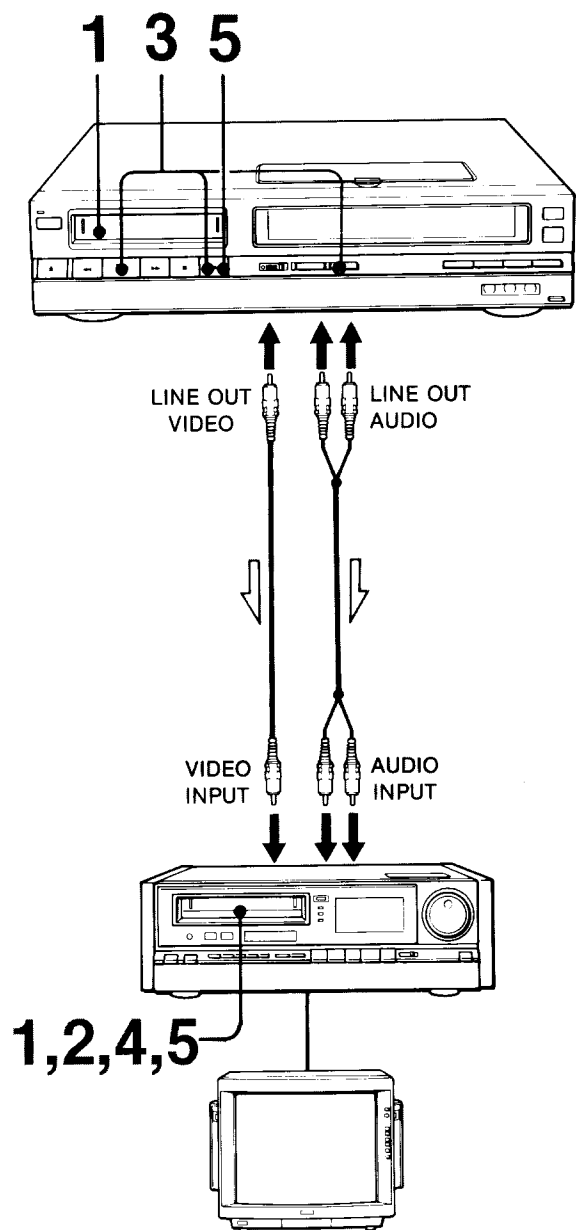
- Connect the equipment to be used. When the video camera recorder is a monaural type, connect the white plug of the supplied connecting cable to the audio jack.
- Turn the INPUT LEVEL control to the green position.

Operation G-1

- 1** Turn on the power of the equipment to be used. Insert the original cassette to the player and a new cassette to this unit.
- 2** Press the INPUT SELECT button to select the LINE 1 or LINE 2 (due to the jacks where the player is connected).
- 3** Set the player to the playback pause mode and set the EDIT switch to ON.
- 4** Set this unit to the recording pause mode and press the EDIT button so that the EDIT indication lights.
- 5** Release the pause modes simultaneously.

## Note

When the player is a stereo type, connect the plugs to the left and right jacks.



### Editing a home movie tape from this unit to another VCR G-2

- 1** Turn on the power of the equipment to be used. Insert the original cassette to this unit and a new cassette to another VCR.
- 2** Set the input select switch of another VCR to LINE.
- 3** Set this unit to the playback pause mode and press the EDIT button. The EDIT indication will light in the display window.
- 4** Set another VCR to the recording pause mode.
- 5** Release the pause modes simultaneously.

#### The EDIT button

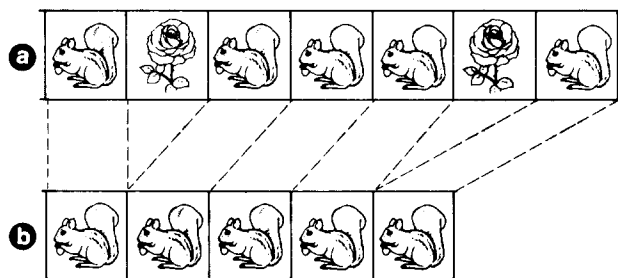
When editing a tape, press this button so that the EDIT indication lights in the display window. Deterioration of picture quality will be avoided. Press again after editing.

The SHARPNESS control will not function when the EDIT button is pressed.

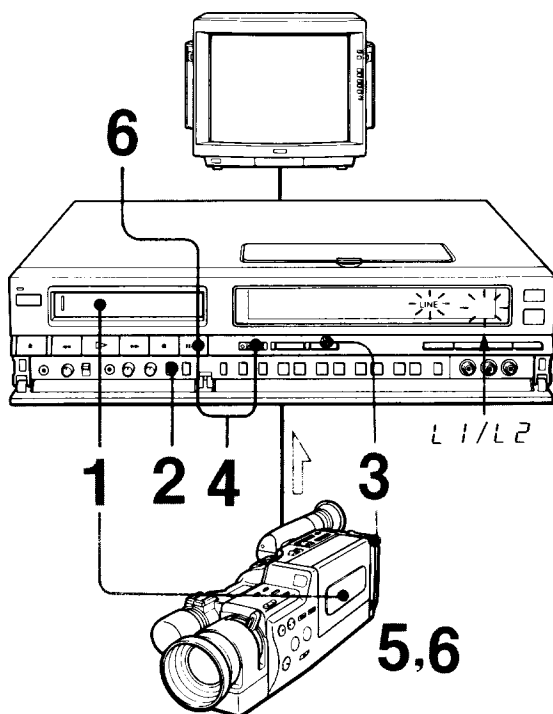
#### Notes

- Avoid repetition of editing tapes, as the picture and tone quality will be impaired noticeably for newly edited tapes.
- When you make the recording and playback connections simultaneously to the same VCR, noise may come out.
- When another VCR is a monaural type, use the optional RK-C72 connecting cable.

**G-3**



**G-4**



## To Edit only Desired Scenes

Editing a home movie tape from another VCR to this unit **G-3**

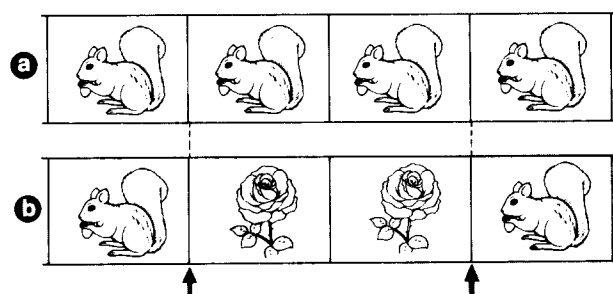
- a** original tape
- b** edited tape

**G-4**

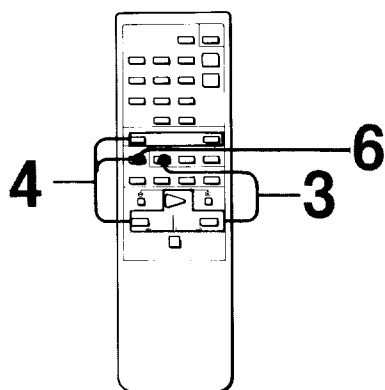
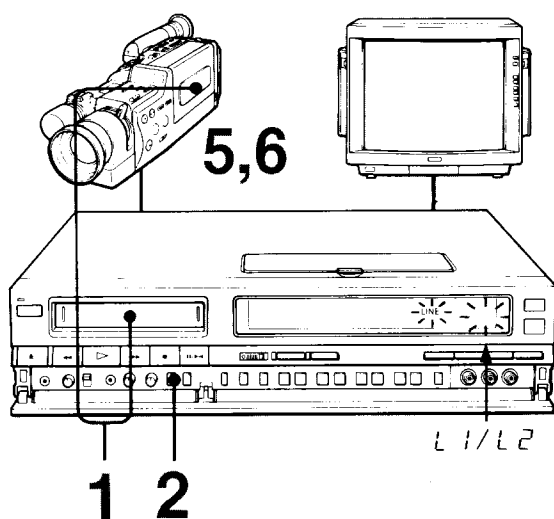
- 1** Turn on the power of the equipment to be used. Insert the original cassette to the player and a new cassette to this unit.
- 2** Press the INPUT SELECT button to select the LINE 1 or LINE 2 (due to the jacks where the player is connected).
- 3** Set the EDIT switch on the player to ON and press the EDIT button on this unit so that the indication lights.
- 4** Edit the tape while viewing the playback picture, and set this unit to the recording pause mode at the point where no picture is recorded.
- 5** Set the player to the playback pause mode at the point where the picture is recorded.
- 6** Release the pause modes simultaneously.

Repeat steps 4 to 6 for recording the desired scenes.

G-5



G-6



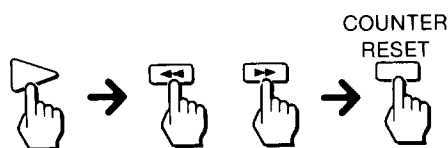
## To Insert a Picture from Another VCR — Insert Recording

G-5

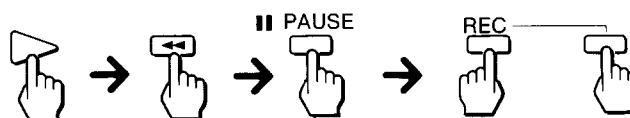
- Ⓐ original tape
- Ⓑ edited tape

G-6

- 1 Turn on the power of the equipment to be used. Insert the original cassette to the player and a new cassette to this unit.
- 2 Press the INPUT SELECT button to select the LINE 1 or LINE 2 (due to the jacks where the player is connected).
- 3 Locate the point on the tape where the insert should end by pressing the ◀◀ REW or ▶▶ FF button during playback and press the COUNTER RESET button.



- 4 Press the ◀◀ REW button during playback to rewind the tape a little further than the point where the insert should begin and set this unit to the recording pause mode.



- 5 Locate the cut-in point where the playback is begun on the player and set to the playback pause mode.
- 6 Release the pause modes simultaneously. Stop the recording at the cut-out point (0:00:00s).

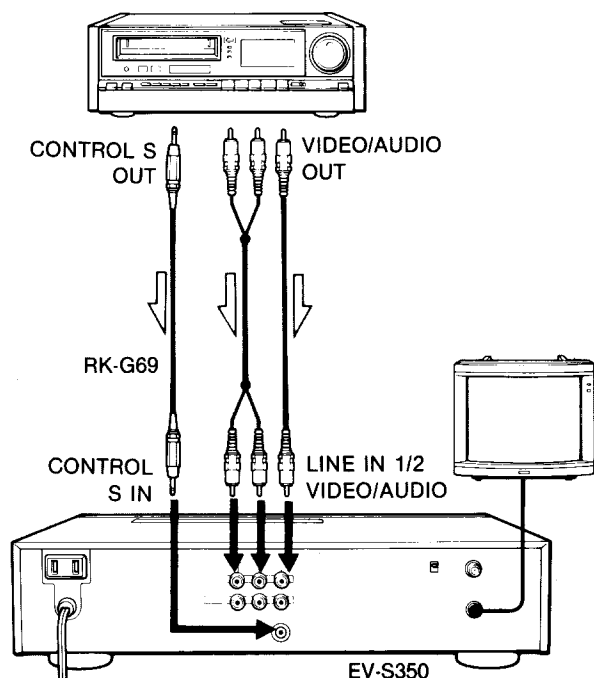
### For better editing

Release the playback pause mode a little earlier than the recording pause mode.

### Note

When the edited tape is played back, the picture may be disturbed momentarily at the cut-out point.

**G-7**



**To Control the Player and This Unit Simultaneously**

**Editing when the player is connected to the CONTROL S IN jack of this unit**

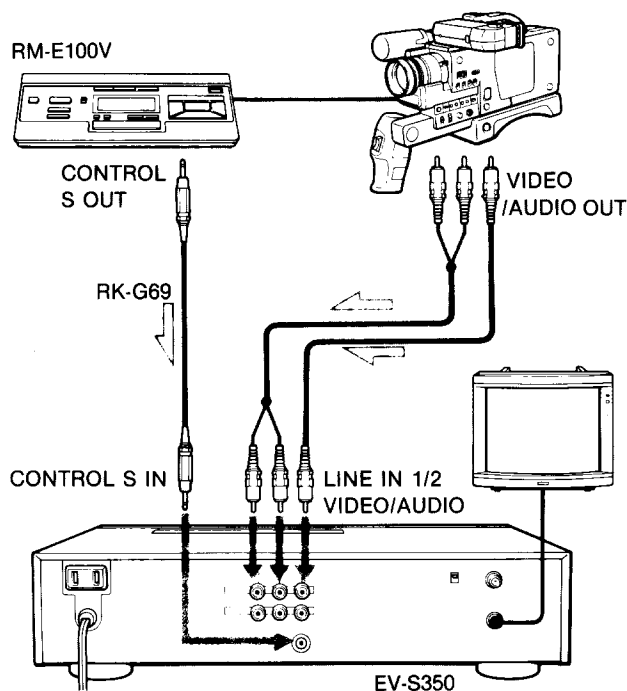
Playback and recording pause modes are released and playback of another VCR and recording of this unit is started simultaneously. (This unit is also used as the player.)

**Connection G-7**

Connect another VCR to the LINE IN 1 or 2 VIDEO/AUDIO jacks and CONTROL S IN jack of this unit. (When this unit is used as the player, connect another VCR to the LINE OUT 1 or 2 VIDEO/AUDIO jacks and CONTROL S IN jack of this unit.)

- 1** Turn on the power of the equipment to be used. Insert the cassettes.
- 2** Press the INPUT SELECT button to select the LINE 1 or LINE 2 and turn the INPUT LEVEL control to the green position.
- 3** Set this unit to the recording pause mode.
- 4** Set another VCR to the playback pause mode.
- 5** Press the SYNCHRO EDIT button of another VCR. The pause modes will be released and editing will be started.

**G-8**



**Editing with the Editing Controller G-8**

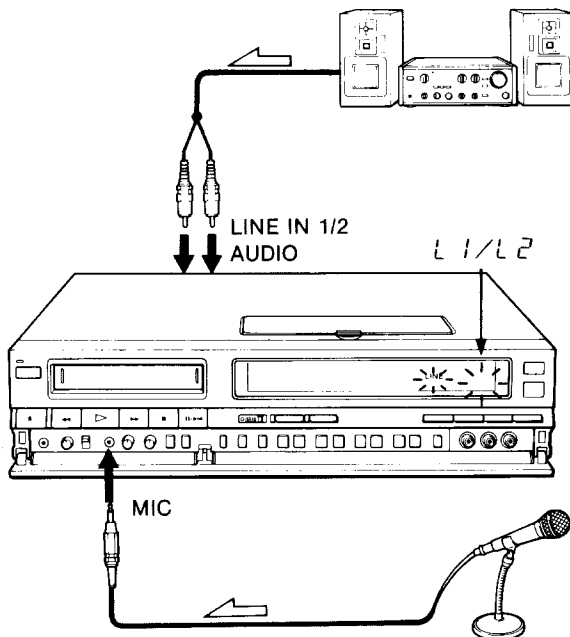
Connect another VCR and the editing controller (RM-E100V, etc.) to this unit as illustrated.

For details on operations, see the instruction manual of the editing controller.



# To Dub the Audio Signals

H-1



You can additionally record music or narration on the PCM track of your tape, while the picture and sound pre-recorded on the standard track are unchanged.

## Connection of the Audio Source H-1

### Notes

- Sound from the microphone is recorded in monaural.
- When the microphone is not in use, do not connect the microphone to the MIC jack or the sound will be mixed with the sound from the LINE IN 1 or 2 AUDIO.

### Hints for dubbing

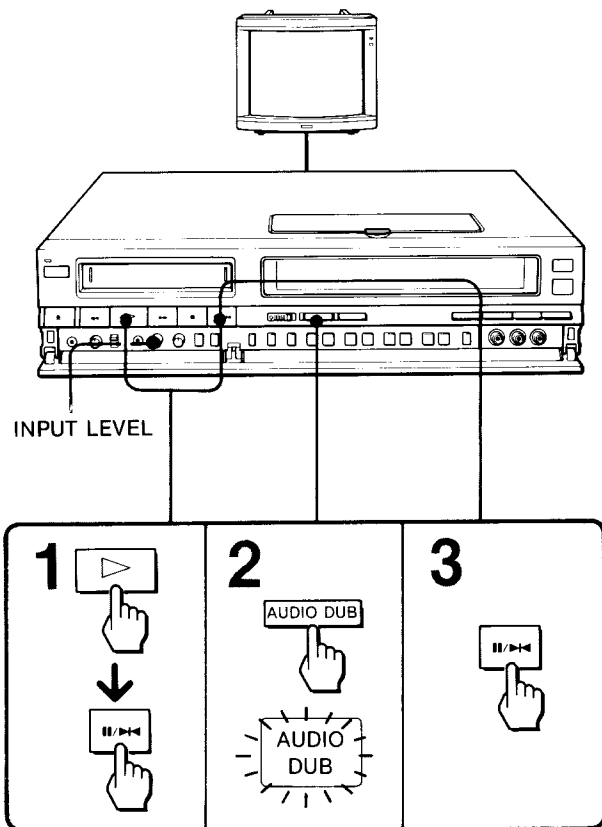
- For fade-in operation, turn the INPUT LEVEL control from MIN to the normal position. For fade-out operation, turn it from the normal position to MIN.
- The sounds from the LINE IN 1 or 2 AUDIO jacks and the MIC jack can be mixed.
- Adjust the balance of the sound of the standard track and the sound dubbed on the PCM track with the INPUT LEVEL control.

## Operation

### Before dubbing

- Turn on the TV and select the channel for the VCR or select the input for the VCR.
- Set the AUDIO MONITOR selector to PCM.
- Press the INPUT SELECT button so that the L 1 or L 2 indication lights.

H-2



1 While monitoring the picture, decide the starting point of audio dubbing and press the **II/PAUSE/STILL** button.

2 Press the **AUDIO DUB** button.

3 Press the **II/PAUSE/STILL** button to release the pause mode, and at the same time start the audio source.

**H-3**



### To adjust the volume **H-3**

Turn the INPUT LEVEL control.

**Normally set it to the green position** and to decrease the volume, turn towards MIN.

### To dub sounds from the TV

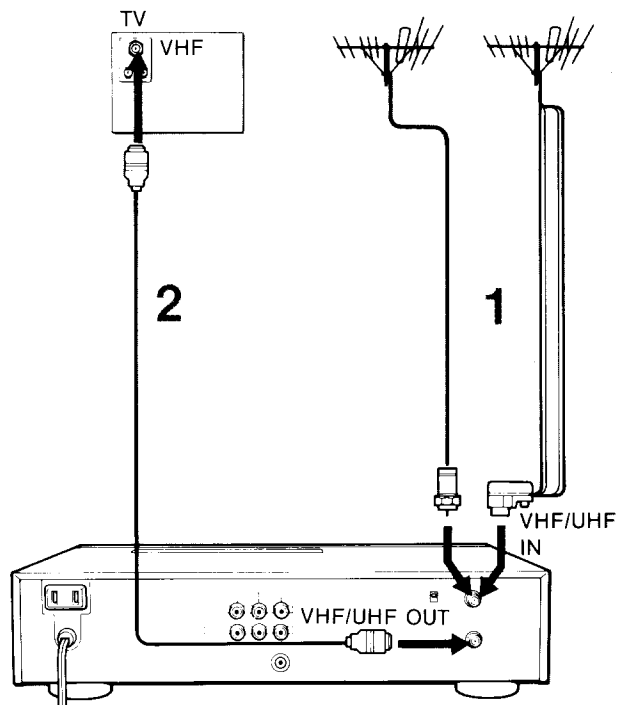
Press the INPUT SELECT button so that the L1 or L2 indication disappears. Other operations are the same as the above steps.

### Notes

- During dubbing, a black band appears in the center and lower positions of the screen.
- The dubbed sounds cannot be played back by a VCR without PCM recording or playback functions.
- The pre-recorded sounds on the PCM track will be erased by dubbing.

## Connections

I-1



## Notes

- Unplug each unit from the wall outlet before making the following connections.
- Make sure the connections are secure. A loose connection may cause a noisy picture.

## Connecting the Antenna/Cable and TV

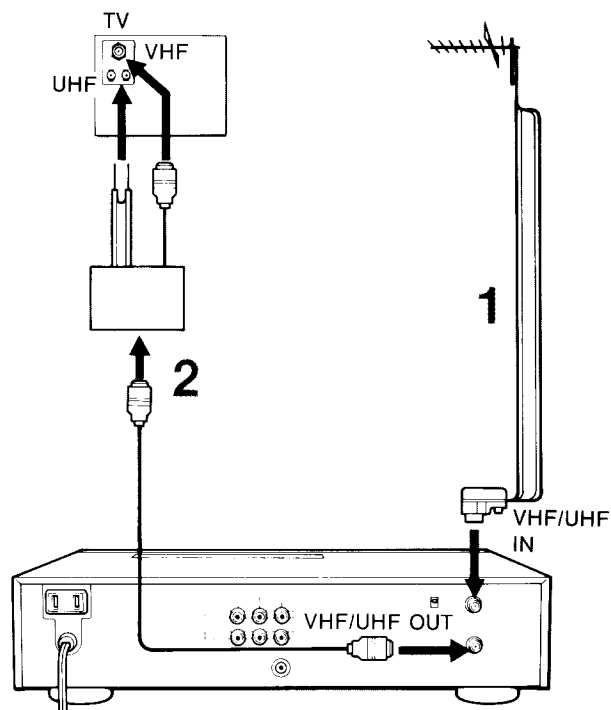
If you have a VHF antenna only I-1

- 1 **Connect the antenna cable to VHF/UHF IN.**
  - If your cable is a 300-ohm ribbon lead-in type (flat), use the supplied EAC-32 (EAC-25) antenna connector. (See I-4.)
  - If your cable is a 75-ohm coaxial type (round), use the optional F-type connector. (See I-3.)
- 2 **Connect the VHF/UHF OUT to the VHF input of your TV with the supplied 75-ohm coaxial cable.**

## Note

When using a 300-ohm cable, make sure that the cable is connected directly upward from the antenna terminal to keep it away from the unit as much as possible.

I-2

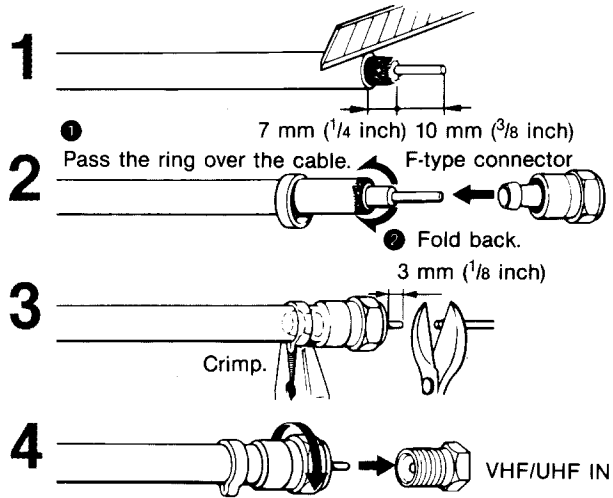


If you have a UHF antenna only I-2

- 1 **Connect the antenna cable to VHF/UHF IN** by using the supplied EAC-32 (EAC-25) antenna connector. (See I-4.)
- 2 **Connect the VHF/UHF OUT to the VHF and UHF terminals of your TV** with the supplied 75-ohm coaxial cable and the optional U/V band separator.

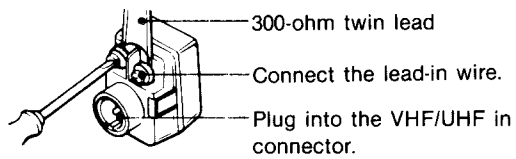
I-3

### How to attach an F-type connector

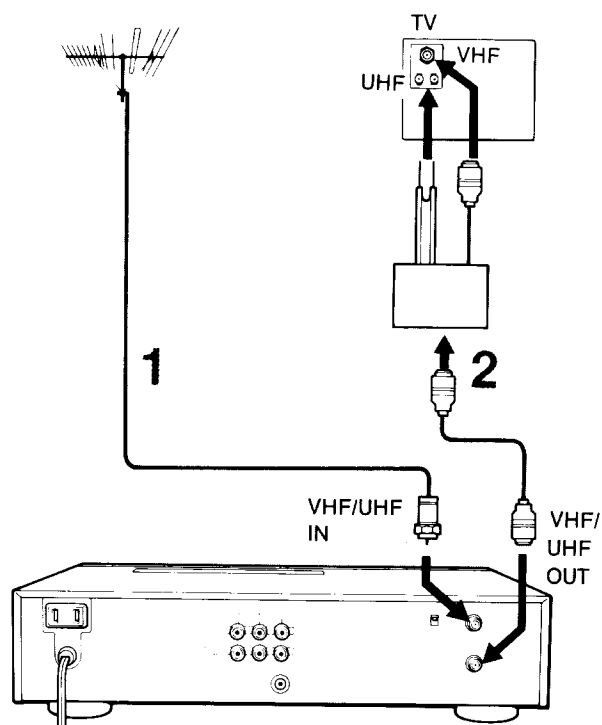


I-4

### How to attach an antenna connector



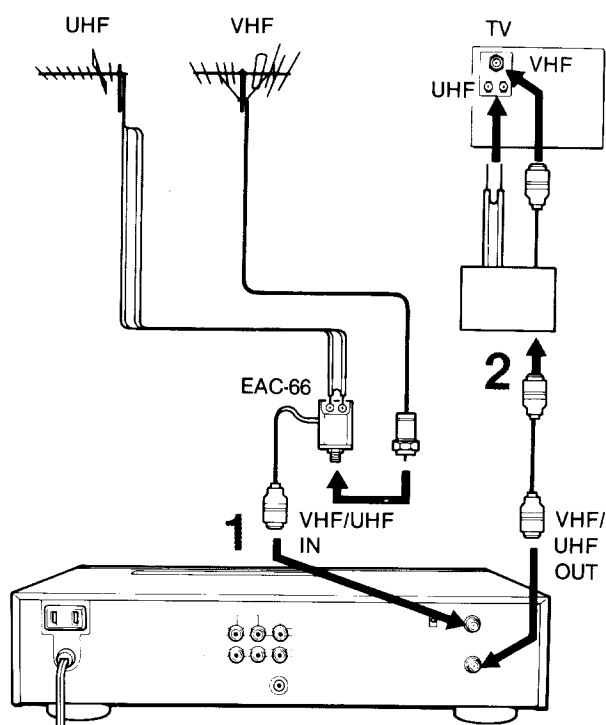
I-5



If you have a VHF/UHF combination antenna I-5

- 1 Connect the antenna cable to VHF/UHF IN by using the optional F-type connector. (See I-3.)
- 2 Connect the VHF/UHF OUT to the VHF and UHF terminals of your TV with the supplied 75-ohm coaxial cable and the optional U/V band separator. (Most combination antennas are equipped with a U/V band separator.)

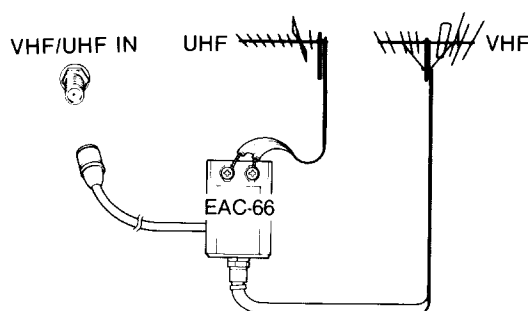
I-6



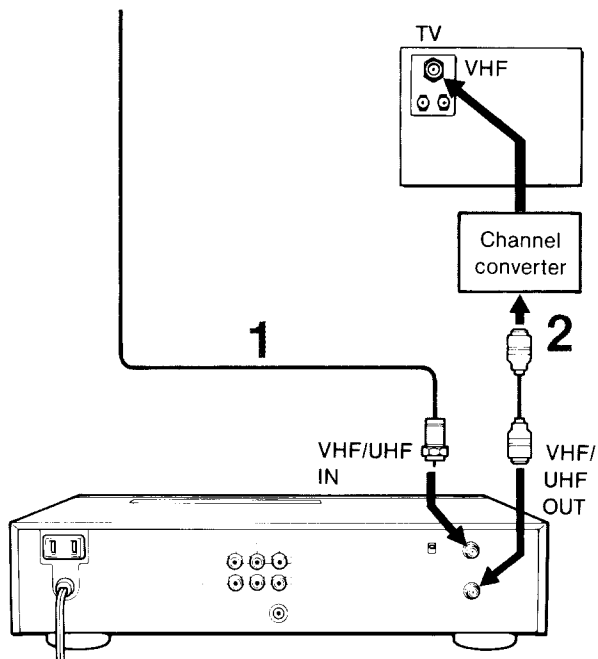
If you have both VHF and UHF antennas I-6

- 1 Attach the optional EAC-66 U/V mixer to the VHF and UHF antenna cables and connect it to the VHF/UHF IN. (See I-7.)
- 2 Connect the VHF/UHF OUT to the VHF and UHF terminals of your TV with the supplied 75-ohm coaxial cable and the optional U/V band separator.

I-7



I-8



**If you have a CATV cable I-8**

We recommend that you consult your cable company to make sure that the cable is properly connected.

- 1** Connect the CATV cable to the VHF/UHF IN by using the optional F-type connector.
- 2** Connect the VHF/UHF OUT to a channel converter and then to the VHF terminal of the TV.

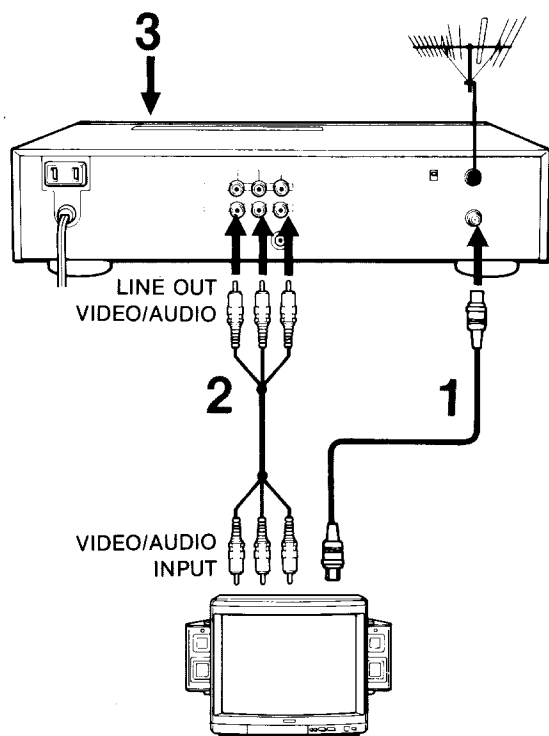
**When the TV is not compatible with cable TV**

Connect the cable TV channel converter between the VCR and the TV so that while you watch one cable TV program, you can record another cable TV program.

**Note to CATV system installer in the U.S.A**

This reminder is provided to call the cable TV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to grounding system of the building as close to the point of cable entry as practical.

I-9



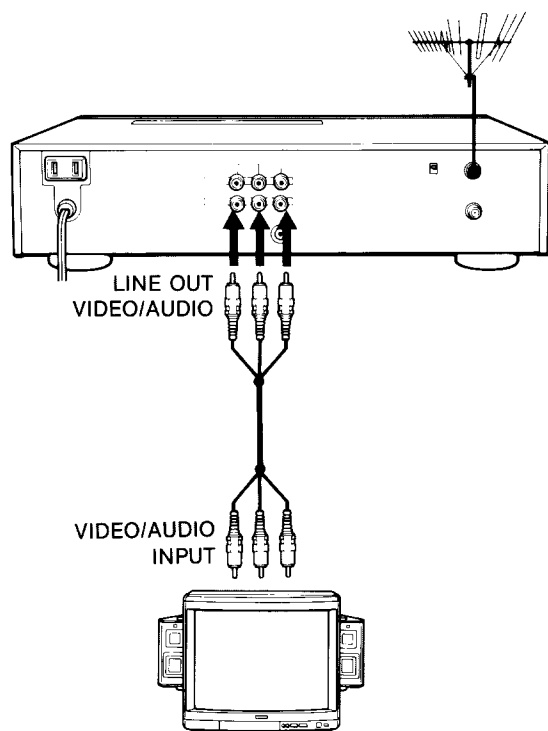
## Connecting a TV Equipped with Video and Audio Input Jacks I-9

- 1 Connect your antenna to the VHF/UHF IN and connect the VHF/UHF OUT to your TV. (See pages 35 – 38.)
- 2 Connect the LINE OUT VIDEO and AUDIO jacks to the video and audio input jacks on the TV.
- 3 Set the ANT. SW selector in the upper compartment to MANUAL.

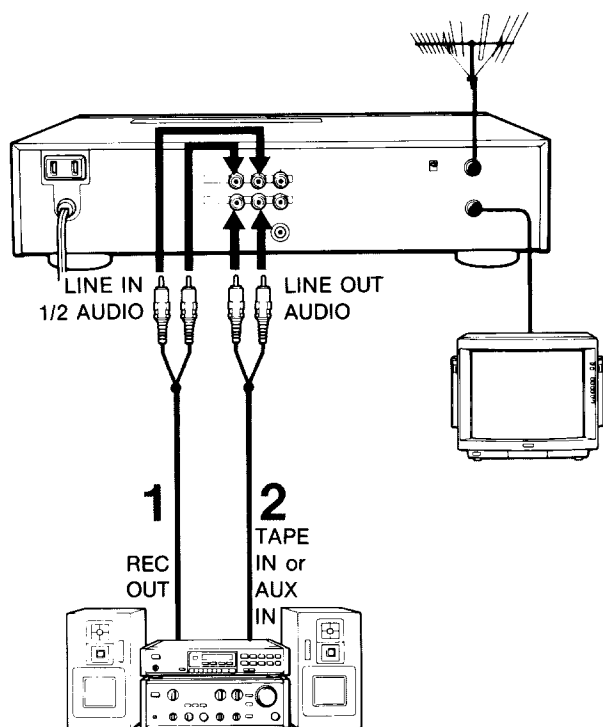
## Connecting a Color Monitor I-10

Connect the LINE OUT VIDEO and AUDIO jacks to the video and audio input jacks on the monitor.

I-10



I-11



## Connecting an Audio System I-11

You can enjoy playback of tapes recorded in stereo or record an audio source such as an FM tuner or CD player, when the recorder is connected to your audio system.

- 1** Connect **LINE IN 1 or 2 AUDIO** of the VCR to the **REC OUT** jacks of a stereo amplifier.
- 2** Connect **LINE OUT AUDIO** of the VCR to the **TAPE IN** (or **AUX IN**) jacks of a stereo amplifier.

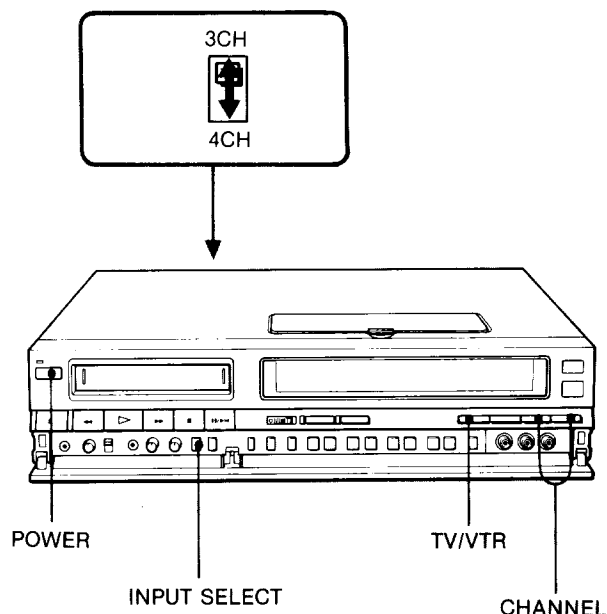
### Notes

- If the VCR is installed near a tuner or a radio, noise may be heard in AM reception. In this case, keep the VCR away from the tuner or the radio, adjust the AM bar antenna for minimum noise, or connect an external AM antenna to the tuner.
- Because PCM recorded tapes reproduces the sound with a wide dynamic range, adjust the volume carefully not so as to damage your speaker system.
- Before connecting or disconnecting the power cord of the VCR, be sure to turn the connected amplifier off.



## Adjusting the TV

**J-1**



Adjust your TV receiver to receive the signal from your VCR. When you have connected a color monitor or a TV equipped with video/audio input jacks, the following adjustment is not necessary.

If you do not have a recorded video cassette tape **J-1**

- 1 Set the RF UNIT channel selector** located at the rear of the VCR to 3CH or 4CH whichever channel is not active in your area.
- 2 Press the POWER switch.** The indication lights.
- 3 Press the TV/VTR button** to display the VTR indication in the display window.
- 4 Press the INPUT SELECT button** so that the TUNER indication is displayed in the display window and then select an active channel in your area with the CHANNEL +/- button.
- 5 Turn on the TV.**
- 6 Set the TV receiver to either VHF channel 3 or 4 to agree with the RF UNIT setting.**  
The TV program selected on the VCR will be displayed on the TV screen. If a picture does not appear on the TV screen or if the display is not clear, fine-tune the channel on the TV.  
For details about TV channel adjustment, see the instruction manual of the TV.

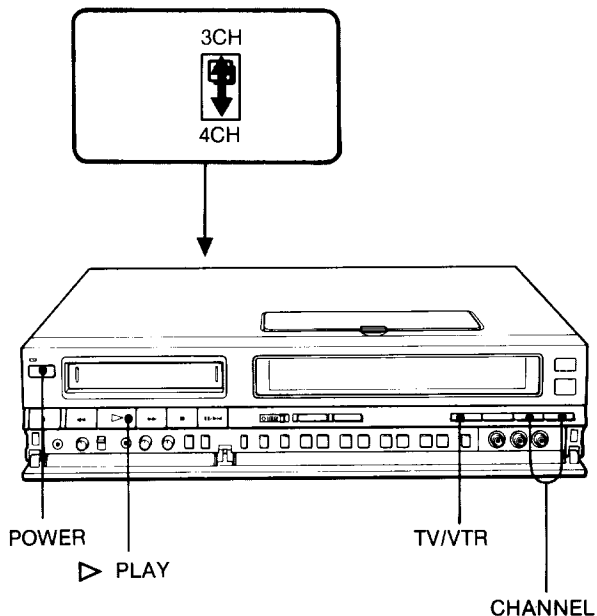
### Check!

Check that the program displayed on the screen changes when a different channel is selected on the VCR.

If the program does not change, repeat the preceding steps.

Now your TV receiver is tuned to the VCR. Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

## J-2



If you have a recorded video cassette tape **J-2**

- 1** Set the **RF UNIT channel selector** located at the rear of the VCR to 3CH or 4CH whichever channel is not active in your area.
- 2** Press the **POWER** switch. The indication lights.
- 3** Insert the cassette.
- 4** Press the **▶ PLAY** button.
- 5** Turn on the TV.
- 6** Set the **TV receiver to either VHF channel 3 or 4 to agree with the RF UNIT setting.**  
The TV program selected on the VCR will be displayed on the TV screen. If a picture does not appear on the TV screen or if the display is not clear, fine-tune the channel on the TV.
  - For details about TV channel adjustment, see the instruction manual of the TV.

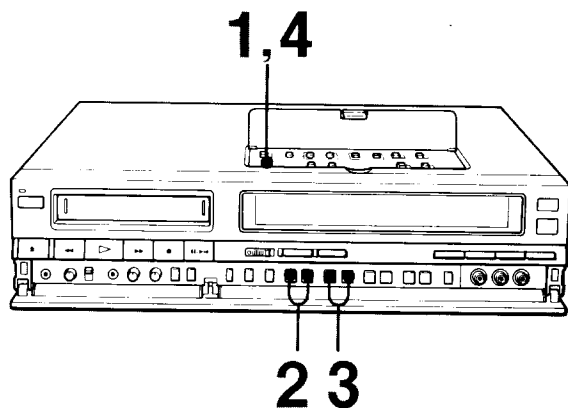
### Check!

Check that the display on the screen changes when you stop the tape by pressing the **□ STOP** button on the VCR. (To eject the cassette, press the **▲ EJECT** button.)  
If the program does not change, repeat the preceding steps.

Now your TV receiver is tuned to the VCR. Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

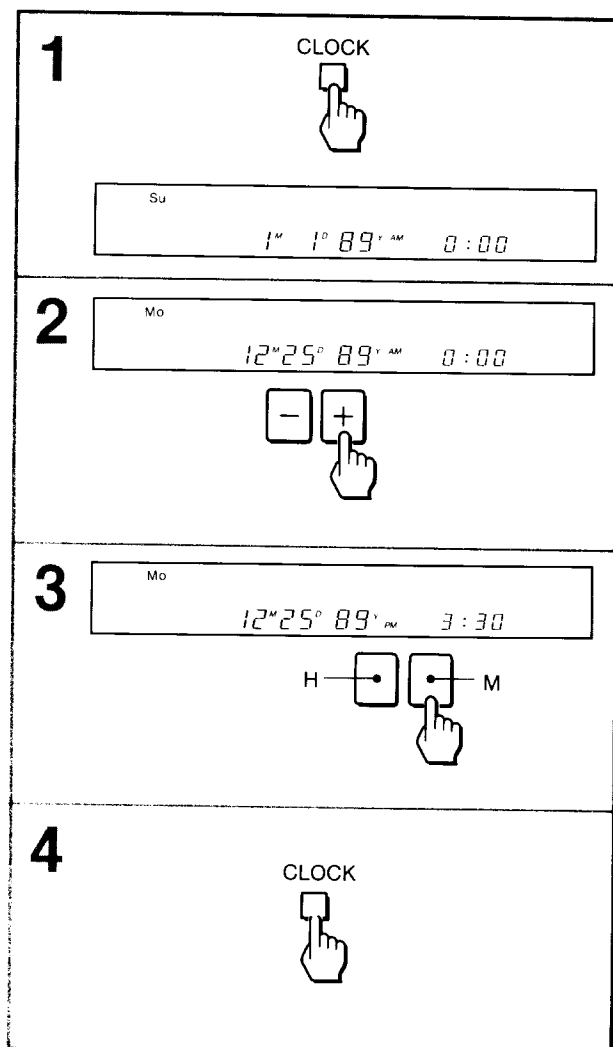
# Setting the Date and Time K

K



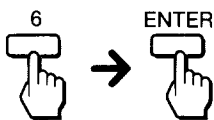
- 1** Press the **CLOCK** button.
- 2** Press the **DAY +/-** button to adjust the year, month and day.
  - When you keep a button pressed, the digits will advance continuously.
  - When you press and immediately released a button, the digits will advance by one.
- 3** **Adjust the hour and minute.**  
Press the **TURN ON H** button to adjust the hour.  
Press the **TURN ON M** button to adjust the minute.
- 4** To set the clock accurately, press the **CLOCK** button at the same time as an announced time signal.

The calendar from 1. 1. 1989 to 31. 12. 2004 is memorized in this unit. The day of the week is adjusted automatically by setting the year, month and day.

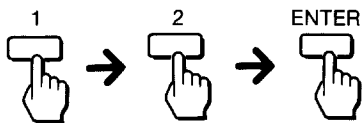


## Presetting TV Channels

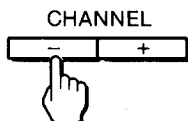
**L-1**



**L-2**



**L-3**



### Selecting TV Channels

Your recorder is capable of receiving VHF channels 2–13, UHF channels 14–69 and cable TV channels 1 (A-8), 98–99 (A-2 to A-1), 14–36 (A to W), 66–125 (W+30 to W+84). The channel numbers 1–99 will be displayed in the display window.

This unit is preset at the factory to receive certain channels. There are two ways to select the channels.

#### Using the channel number buttons and ENTER button on the Remote Commander

Press the numeral(s) of the channel and then press ENTER.

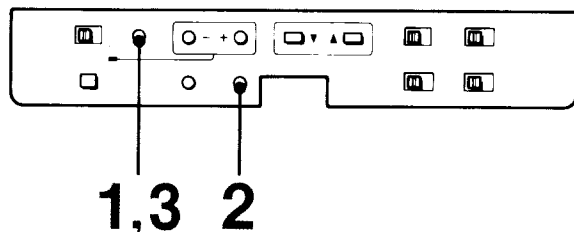
Ex. **L-1** Channel 6

**L-2** Channel 12

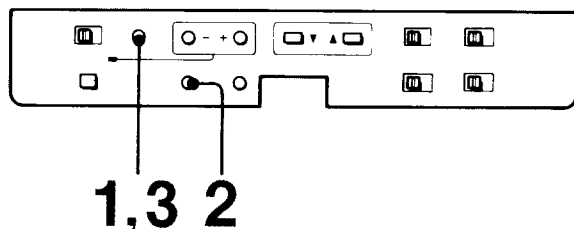
#### Using CHANNEL +/- on the VCR or on the Remote Commander **L-3**

For lower-numbered channels, press “–”, and for higher-numbered channels, press “+”. The channels will change consecutively if you hold the button down.

If the picture of your desired channel does not appear in the above procedure, preset the channel as in “To preset new channels” on page 46.

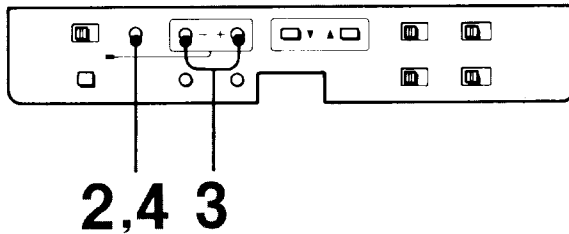
**L-4****To Erase Channels L-4**

- 1** Select the channel number to be erased and press the SET button.
- 2** Press the ERASE button.  
The “- -” indication appears momentarily, indicating that the channel has been erased.
- 3** Press the SET button again, repeat steps 1 and 2 for other channels to be erased.  
You will see that the channels erased are skipped over in numerical sequence when you press the CHANNEL +/- button later.

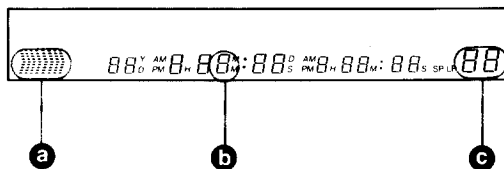
**L-5****To Add the Erased Channels Again L-5**

- 1** Select the channel number to be added by pressing the channel number and ENTER buttons on the Remote Commander and press the SET button.
- 2** Press the ADD button.  
The “- -” indication appears momentarily, indicating that the channel has been added.
- 3** Press the SET button again and repeat steps 1 and 2 for other channels to be added.  
The added channels will appear in the proper numerical sequence when the CHANNEL +/- button is pressed later.

**L-6**



**L-7**



## To Preset New Channels **L-6**

- 1** Select the channel number by pressing the channel number and ENTER buttons on the Remote Commander at which no picture appears on the monitor screen.
- 2** Press the SET button.
- 3** Press the TUNING +/- button until the desired channel appears on the TV.
- 4** Press the SET button again.
- 5** Repeat steps 1 to 4 for other channels to be added. The newly preset channels will appear in the proper numerical sequence when the CHANNEL +/- button is pressed.

## Check in the window during presetting **L-7**

- a** Indicates the approximate location of the channel scanned in the band
- b** The band in which channels are being tuned in (L,H,U)
- c** Channel number

## To fine-tune a weak station

Normally keep AFT at ON.

If the picture of a particular channel is not acceptable, set AFT to the OFF position and press TUNING + or - until the picture becomes clearer. When viewing this particular channel, do not set AFT to ON.

## Channel Allocation Chart

Frequency (MHz)	50	100	150	200	250	300	400	500	600	700	800
VHF/UHF channels	VHF 2-6		98, 99, 14	VHF 7-13		UHF14-69					
CATV channels	1	15-22		23-26		66-94	100-125				
Band indicator	L		H				U				

When the CHANNEL + button is pressed, the above channels will be scanned from the lowest frequency to the highest in sequence. By pressing the CHANNEL - button, the channels will be scanned reversely.

## Cable TV Channel Chart \*

Cable TV systems use letters or numbers to designate channels.

To tune in a channel, refer to this chart.

Number on this TV	1	98	99	14	15	16	17
Corresponding CATV channel	A-8	A-2	A-1	A	B	C	D
18	19	20	21	22	23	24	25
E	F	G	H	I	J	K	L
31	32	33	34	35	36	66	94
R	S	T	U	V	W	W+30	W+58
124	125						
W+83	W+84						

Check with your local cable TV company for more complete information on the available channels.

\*The designation of the cable TV channels conforms to the EIA/NCTA recommendation.

### Note

Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connections.

## **Precautions**

### **On safety**

- Operate the unit only on 120 V AC.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

### **On installation**

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object on the unit. Never place any object on the tuning compartment nor on the top of the front panel.

### **On operation**

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

### **On cleaning**

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.

Do not use any type of solvent, such as alcohol or benzene which might damage the finish.

### **On repacking**

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

### **On cassette care**

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

If you have any questions about this unit, contact your Sony dealer.



# Specifications

## System

Video recording system	Rotary two-head helical scanning FM system
Audio recording system	Rotary head, FM system (monaural) Digital recording system (stereo)
Video signal	EIA standard, NTSC color
Usable cassettes	8 mm video format cassettes
Tape speed	SP: approx. 1.43 cm/sec. LP: approx. 0.72 cm/sec.
Recording/playback time	SP: 2 hrs. LP: 4 hrs. (with Sony P6-120 cassette)
Fast forward/rewind time	Approx. 4 min. (with Sony P6-120 cassette)

## Tuner section

Channel coverage	VHF channels 2–13 UHF channels 14–69 Cable TV channels 1, 12, 36, 66–94, 98, 99, 100–125
VHF output signal	Channel 3 or 4 (selectable) 75 ohms, unbalanced
Antenna	75-ohm F-type connector for VHF/UHF IN and VHF/UHF OUT

## PCM

Sampling frequency	31.5 kHz
Audio frequency	20–15 kHz
Dynamic range	More than 85 dB
Wow and flutter	Less than 0.005 % RMS

## Inputs and outputs

Video input	Phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative
Video output	Phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input	Phono jack x2 –7.5 dBs (0 dBs = 0.775 V rms) more than 47 kilohms
Audio output	Phono jack x2 –7.5 dBs (at load impedance 47 kilohms) Less than 10 kilohms
Microphone input	Minijack –60 dBs, for low impedance microphone
Headphone jack	Stereo minijack –26 dBs, 8 ohms
AC outlet	120 V ac, 60 Hz 400 W (max.), unswitched

## Timer

Clock	Crystal lock
Timer indication	12-hour cycle
Timer setting	Only for recording 4 events/1 month max.

## General

Power requirements	120 V ac, 60 Hz
Power consumption	19 W (max.)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Dimensions	Approx. 355 × 89 × 270 mm (w/h/d) (14 × 3 <sup>5</sup> / <sub>8</sub> × 10 <sup>3</sup> / <sub>4</sub> inches)
Weight	Approx. 4 kg (8 lb 13 oz)

## Accessories supplied

See page 3.

## Remote Commander RMT-447

Remote control system	Infrared control
Command mode	VTR 2
Power requirements	3 V dc 2 size AA batteries (IEC designation R6)
Dimensions	Approx. 55 × 20 × 175 mm (w/h/d) (2 <sup>1</sup> / <sub>4</sub> × 7 <sup>7</sup> / <sub>8</sub> × 7 inches) incl. projecting parts and controls
Weight	Approx. 120 g (4 oz) incl. batteries

Design and specifications subject to change without notice.

## Troubleshooting

If any difficulty should arise during operation, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the unit and contact your Sony dealer or local authorized Sony service facility.

Symptom	Possible causes and corrections
The POWER switch does not function.	<ul style="list-style-type: none"> <li>The power cord is disconnected.</li> <li>The recorder is in the timer standby mode. (Press TIMER REC so that the TIMER REC indication goes off.)</li> </ul>
The clock blinks showing "Su AM 00:00:00".	There has been a power interruption. Reset the clock time and timer settings.
Picture being recorded cannot be monitored on the TV screen.	<ul style="list-style-type: none"> <li>Press TV/VTR so that the VTR indication is displayed in the display window.</li> <li>The channel for the VCR is not correctly tuned on the TV.</li> </ul>
TV program is not clearly displayed on the TV screen or no picture is displayed on the screen.	<ul style="list-style-type: none"> <li>The VTR indication is not displayed. Press the TV/VTR button.</li> <li>The channel for the VCR is not correctly tuned or the video input is not selected on the TV.</li> <li>The ANT. SW selector is not set correctly.</li> </ul>
When the ● REC buttons are pressed, the cassette is ejected.	The tab on the cassette is out (red).
Recording cannot be done correctly.	<ul style="list-style-type: none"> <li>The input is not selected correctly.</li> <li>The cassette is not inserted.</li> <li>The connecting cord is not connected to the LINE IN VIDEO/AUDIO jacks.</li> </ul>
Playback picture is not clearly displayed on the TV screen.	<ul style="list-style-type: none"> <li>The channel for the VCR is not correctly tuned or the video input is not selected on the TV.</li> <li>The video heads may be contaminated. Clean the heads using the Sony video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette.</li> <li>Adjust the SHARPNESS control.</li> </ul>
Stereo programs are heard in monaural.	<ul style="list-style-type: none"> <li>Set the AUTO STEREO switch to ON.</li> <li>Set the AUDIO MONITOR selector to PCM.</li> <li>No sound is recorded on the PCM track.</li> <li>The tape is audio dubbed.</li> </ul>
The picture shakes in the picture search mode.	Adjust the vertical hold control on the TV.
Timer setting cannot be made.	The clock is not set.
The cassette is ejected when the TIMER REC button is pressed.	The tab on the cassette is slid out.
A timer recording cannot be made	<ul style="list-style-type: none"> <li>There has been a power interruption.</li> <li>The TIMER REC button has not been pressed.</li> <li>The cassette is not long enough to record.</li> <li>The clock is not set correctly.</li> </ul>
The Remote Commander cannot be operated.	The batteries are exhausted.
Sounds from the LINE IN AUDIO jacks cannot be heard.	The INPUT LEVEL control is turned to MIN.