

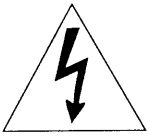
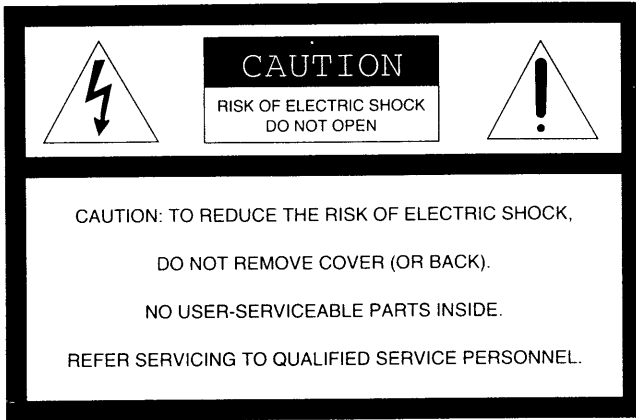
SONY[®]

Betamax[®]

SL-HF2100
Operating Instructions

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.

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 a different branch circuit.

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.

Note to CATV installer:

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

Owner's Record

The model number is located at the rear and front of the unit 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 service dealer regarding this product.

Model No. SL-HF2100 Serial No. _____

Introduction

How to Use This Manual

This manual is arranged to help you quickly find the information you need for the operation of the SL-HF2100. The manual consists of the following four sections.

- 1 Preliminaries**
- 2 Preparation**
- 3 Operation**
- 4 Other Information**

First, look through the Table of Contents. If you are already familiar with VCR operation, read starting from the "Preparations" section. If you are new to VCR operation, start with "Identifying the Operational Parts (page 8)" to familiarize yourself with this unit. To have a quick overview of the operation of the unit, refer to "Playing a Tape" (page 56), "Recording TV Programs" (page 66), and "Timer Recording" (page 78).

Before You Begin

- 1** On the right edge of each page, an index is provided. It is helpful for you to locate the desired information, turning pages.
- 2** Check that the following accessories are in the carton with your VCR:
 - Remote Commander RMT-2100A (1)
 - Size AA (R6) batteries (4)
 - 75-ohm coaxial cable with F-type connectors (1)
 - External antenna connector (1)
 - Audio connecting cable (2 phono to 2 phono) (1)
 - Video connecting cable (1 phono to 1 phono) (1)
 - S video connecting cable (4-pin DIN to 4-pin DIN) (1)
 - Cleaning cassette (1)
 - Cleaning cloth (1)
 - Operating Instructions (1)
 - Quick Reference Guide to the Remote Commander (1)
- 3** In the text, name of the keys and switches are written in capital letters:
Example: Press ► PLAY.
- 4** The operation explained in the text is based on the operation using the Remote Commander.
Note that the keys on the Remote Commander and the VCR that have the same name and mark have identical functions.
- 5** If the keys on the Remote Commander and the VCR that has different mark or name have identical functions, the key on the Remote Commander is written first followed by the key on the VCR enclosed in parenthesis.
Example: Remote Commander: [ON/OFF]
VCR: TIMER REC ON/OFF
By pressing the [ON/OFF] key on the Remote Commander(or the TIMER REC ON/OFF key on the VCR) ...
- 6** Operation that can only be performed with the keys on the VCR has the following note in the beginning.
Cannot be performed by the Remote Commander
- 7** Notes are enclosed in boxes.

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2. Preparation

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Precautions

1. On Safety

- Operate the unit only on 120 V AC, 60 Hz.
- Should anything 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 will not be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

2. On Installation

- Allow adequate air circulation to prevent internal heat build-up.
- 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, such as microwave ovens or large loud speakers.
- Do not place any heavy object on the unit.

3. On Operation

- When the unit is not in use, turn the power off to conserve energy and to extend the life of the unit.
- Remove and store video cassettes after recording or playback.
- Store the cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

4. On Cleaning

- Clean the cabinet and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution.
- Wipe the touch panel with the supplied cleaning cloth. (See page 12.)
- Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

5. 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.
- Before repacking the unit, close the front panel and fix it with an adhesive tape.

If you have any questions about this unit, contact your Sony dealer or a qualified technician.

Overview of the SL- HF2100

High Quality Picture

Realized by adopting the OPT(optimized)-4 head system and the video DSP(digital signal processing) circuitry.

High Quality Sound

Realized by the Beta hi-fi recording and playback function.

New Design Concept

Newly developed touch panel operation with transparent control panel.

Human Interface

LCD touch panel two-way remote commander with 13 display patterns for the desired operations.

Compatibility with All Non-ED Beta Format

Is **SHB/IS** format recording and playback.

Index Function

Index mark, index search, index scan, and index erase possible.

System Expandability

CONTROL L(LANC) and CONTROL S input/output terminals for control of and by other equipment.

S Video Input/output terminals

Input and output of Y/C separated signals for maximum picture quality.

Automatic Tracking

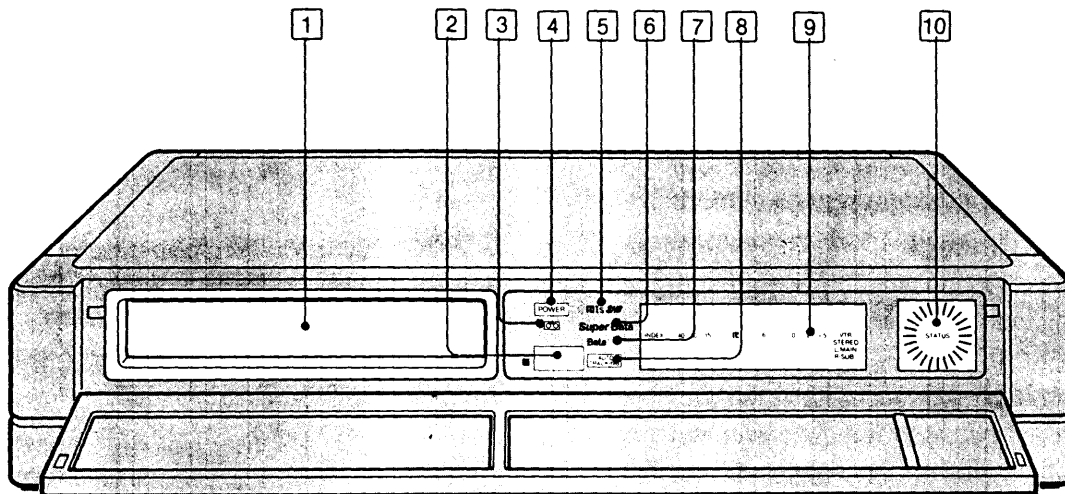
Automatically controls the picture to the maximum tracking condition.

Auto Head Cleaner

Cleans the video heads each time a cassette is loaded or unloaded.

Identifying the Operational Parts


Front

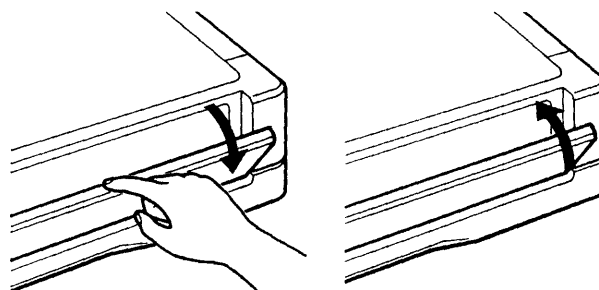


Refer to the pages indicated for details.

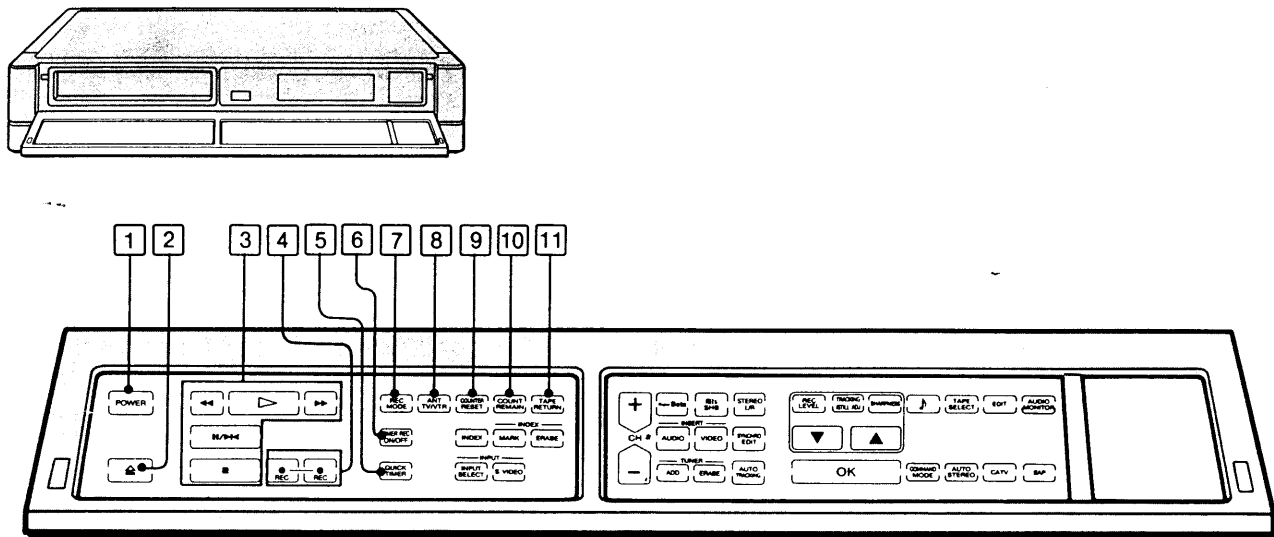
- | | |
|--|---|
| 1 Cassette compartment | 6 Super Beta lamp (p. 57, 70) |
| 2 Remote control transmitter/receiver | 7 Beta hi-fi lamp |
| 3 Cassette indicator | 8 AUTO TRACKING lamp |
| 4 POWER lamp | 9 Display window (p. 60) |
| 5 IBI SHB lamp (p. 57, 70) | 10 Tape operation indicator (p. 125) |

Opening and closing the touch panel

Open the touch panel as illustrated. When you let down the touch panel, its indicator lights and the touch panel can be operable. When the cassette is loaded, one press of the  will open the touch panel and automatically eject the cassette. Close the touch panel as illustrated.

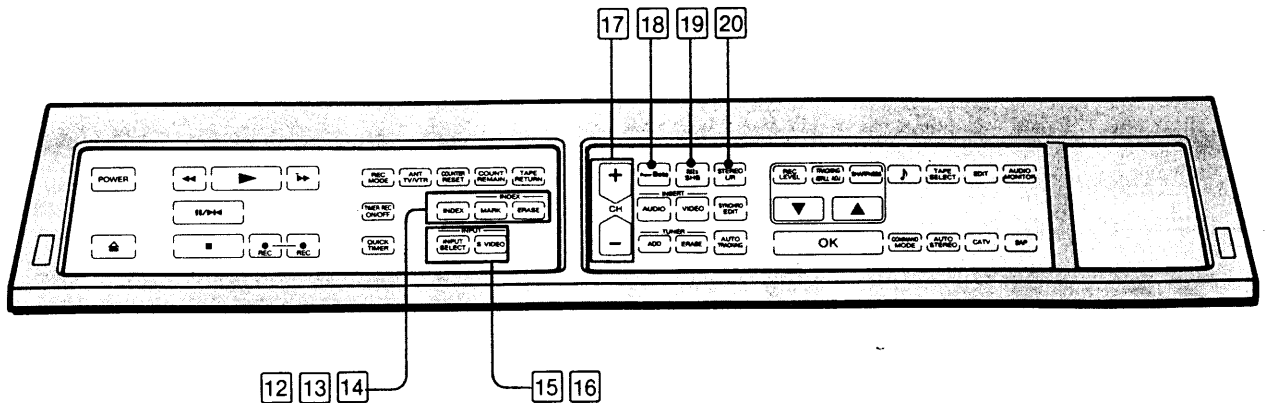
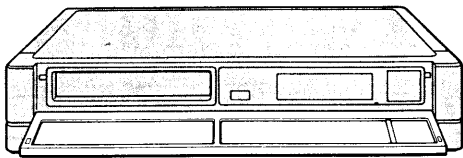


Touch Panel



Refer to the pages indicated for details.

- 1** POWER key
Power on/off.
- 2** \triangle EJECT key
Cassette ejection.
- 3** Tape operation key
 - \ll Rewind
 - \triangleright Playback
 - \gg Fastforward
 - \parallel/\gg Pause/freeze
 - \blacksquare Stop
- 4** REC \bullet -REC \bullet keys
Recording.
- 5** QUICK TIMER key
Activating and setting the time for quick timer recording. (p. 100)
- 6** TIMER REC ON/OFF key
Timer recording standby mode on/off. (p. 82, 92)
- 7** REC MODE key
Selecting the recording mode (**III**, **II**, **I**). (p. 55, 70, 81)
- 8** ANT TV/VTR key
Antenna TV/VTR selection. (p. 66, 76)
- 9** COUNTER RESET key
Resetting the counter to zero. (p. 101)
- 10** COUNTER REMAIN key
Switching between counter display or remaining tape length display. (p. 104)
- 11** TAPE RETURN key
Activating the tape return function. (p.102)

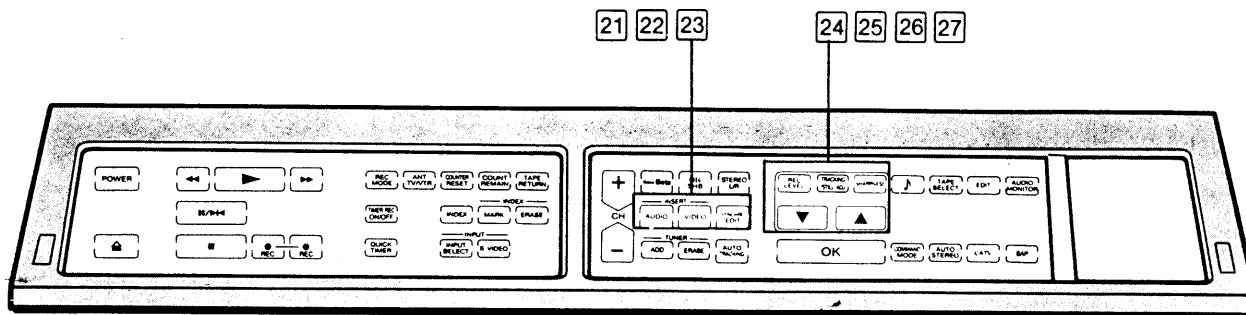


■ Index function block

- 12** INDEX key
Index function on/off. (p. 106, 107)
- 13** INDEX MARK key
Marking the index signal. (p. 105)
- 14** INDEX ERASE key
Erasing the index signal. (p. 109)

■ Input signal selection block

- 15** INPUT SELECT key
Selecting the input signal (tuner/L1/L2/L3).
(p. 81)
- 16** S VIDEO key
S video signal on/off for L1 or L2. (p. 116)
- 17** CH +/- key
Scrolling up and down the TV channels.
- 18** **Super Beta** key
Super Beta on/off. (p. 57, 70)
- 19** **Is SHB** key
Is SHB on/off. (p. 57, 70)
- 20** STEREO L/R key
Selecting the left or right channel of stereo
programs. (p. 64)

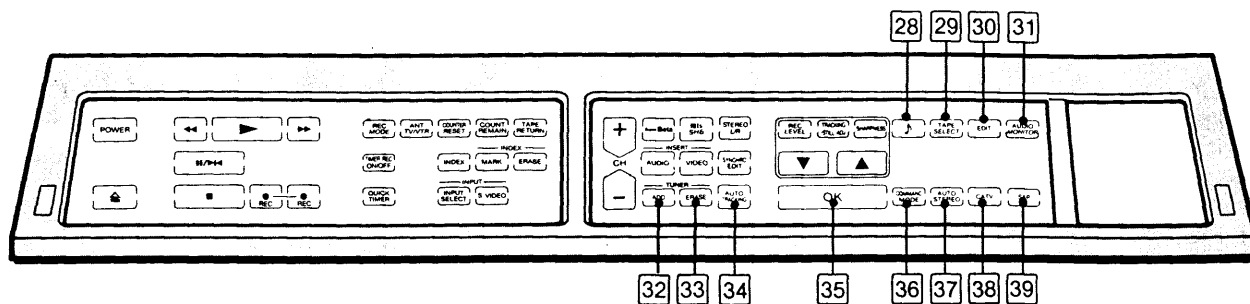


■ **Editing block**

- 21** AUDIO INSERT key
Audio insert editing on/off. (p. 122)
- 22** VIDEO INSERT key
Video insert editing on/off. (p. 122)
- 23** SYNCHRO EDIT key
Synchronized editing start/pause. (p. 118)

■ **Setting block**

- One press of keys **24** to **27** will display the display window for setting. After setting with the ▼/▲, pressing the OK key will return to normal display. Setting other than **24** REC LEVEL returns to normal display after 5 seconds.
- 24** REC LEVEL key
Setting the audio recording level. (p. 69)
Audio recording/playback level display on/off.
 - 25** TRACKING/STILL ADJ key
Setting the tracking condition for normal/slow playback, and adjusting the freeze picture. (p. 60)
 - 26** SHARPNESS key
Controlling the sharpness or softness of the playback picture. (p. 61)
 - 27** ▼/▲ key
Used together with keys number **24** to **26** to control the setting.



■ Confirming-and-changing-the-setting block

One press of the following keys will display the current setting in the display window. Pressing the same key while the setting is displayed will change the setting to an alternative.

- 28** (buzzer) key
Touch panel buzzer on/off.
- 29** TAPE SELECT key
Selecting the tape being used (L500, L750, L830). (p. 103)
- 30** EDIT key
Edit function on/off: (p. 114)
- 31** AUDIO MONITOR key
Selecting the playback sound (HI-FI, MIX, NORMAL). (p. 63, 65)
- 34** AUTO TRACKING key
Automatic tracking function on/off.

- 35** OK key
Returning to the normal display after setting with keys **24** to **31** and keys **36** to **39**. Settings other than **24** REC LEVEL returns to normal display after 5 seconds even if the OK key is not pressed.
- 36** COMMAND MODE key
Selecting the remote controlling command mode (VTR 1, VTR 2, VTR 3). (p. 42)
- 37** AUTO STEREO key
Automatic stereo program reception on/off. (p. 71)
- 38** CATV key
CATV channel reception on/off. (p. 51, 52)
- 39** SAP (Second Audio Program) key
Recording an SAP broadcast or not. (p. 72)

■ Tuner presetting block

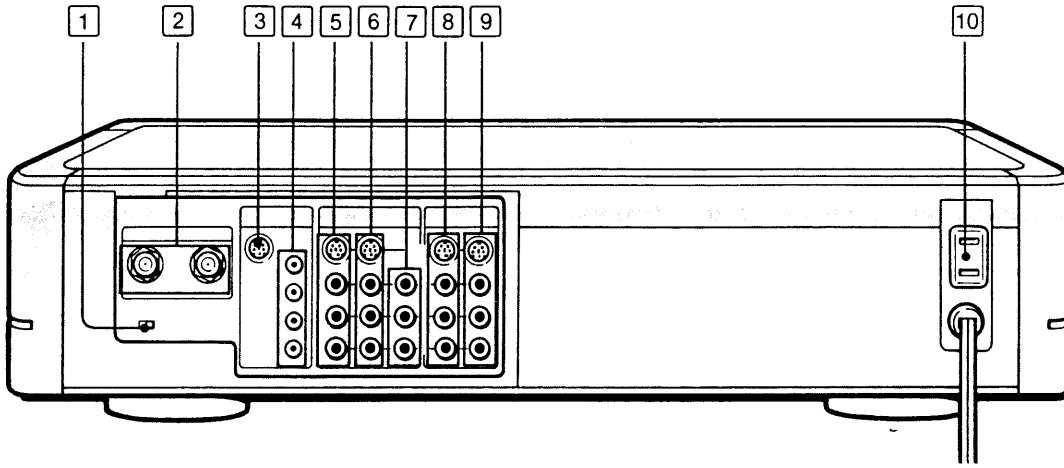
- 32** TUNER ADD key
Adding VHF, UHF or cable TV channels. (p. 51)
- 33** TUNER ERASE key
Erasing VHF, UHF or cable TV channels. (p. 52)

When the touch panel becomes dirty with finger prints

After pressing POWER to turn on the VCR, press POWER while pressing OK. The VCR will display "PANEL OFF FOR CLEANING PRESS POWER AND OK" in the display window

and enters the touch panel clean up mode. No key will be operable in this mode. Wipe the panel with the cleaning cloth (supplied). After cleaning, press POWER while pressing OK. The VCR will return to the normal operating mode.

Rear Panel



Refer to the pages indicated for details.

- 1 RF unit selector (3CH/4CH) (p. 38)
- 2 VHF/UHF IN/OUT connectors (F type)
- 3 CONTROL L (LANC)* connector (5-pin DIN) (p. 119)
- 4 CONTROL S IN/OUT 1, IN/OUT 2 jacks (mini type) (p. 115)
- 5 LINE IN 1 S VIDEO(4-pin DIN), VIDEO (phono), AUDIO L/R (phono)
- 6 LINE IN 2 S VIDEO(4-pin DIN), VIDEO(phono), AUDIO L/R (phono)
- 7 LINE IN 3 VIDEO(phono), AUDIO L/R(phono)
- 8 LINE OUT 1 S VIDEO(4-pin DIN), VIDEO (phono), AUDIO L/R (phono)
- 9 LINE OUT 2 S VIDEO(4-pin DIN), VIDEO(phono), AUDIO L/R (phono)
- 10 AC outlet (unswitched, max. 200W)
Do not connect any equipment whose power consumption is more than 200W.



*About the (LANC) mark

LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector

has the same function as the connectors indicated as CONTROL L or REMOTE.

Remote Commander RMT-2100A

The Remote Commander RMT-2100A is an intelligent remote commander which enables operation of multiple equipment by itself. This Remote Commander allows ...

- Interactive remote controlling between the VCR and the Commander.
The Commander not only sends the commands to the VCR but also will receive confirming signals from the VCR.
- The confirming signals from the VCR switches the Commander's touch panel display.
One out of 14 displays will be selected for the Commander to enable operation with minimum keys displayed.
- Possible to control other Sony VCRs and TVs.
Sony command modes for VCRs: VTR 1, VTR 2, VTR 3 and for TVs: TVs with the  mark and TVs without the  mark is installed in the Commander.
- Possible to control TVs of a total of 15 manufacturers including Sony.
Basic remote control operation of 15 manufacturers' TVs can be performed.

Notes on the handling of batteries

- With normal operation, the batteries will last for approximately 6 months.
- If the Commander will not be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

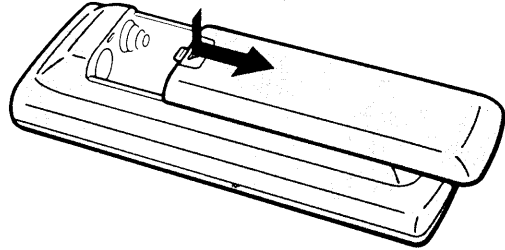
After replacing the batteries ...

- The COMMAND MODE is reset to VTR 1 and TV 1.
- Set the date and clock of the Commander.
- The stored setting of the custom memory is cancelled.

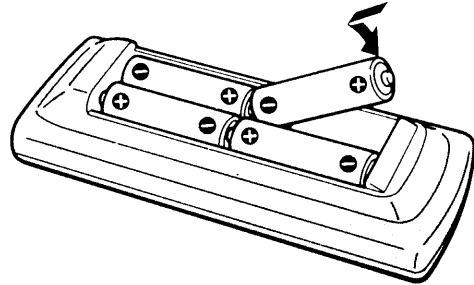
Preparing the Commander

Insert the batteries before operation.

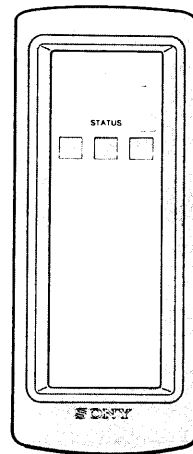
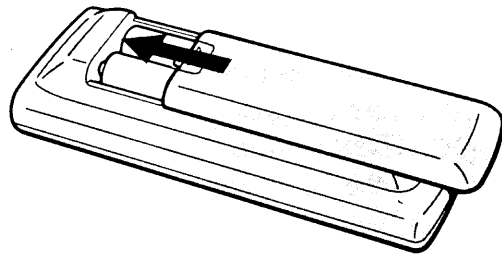
1 Open the lid.



2 Insert four size AA (IEC designation R6) batteries with the polarity lined up correctly.



3 Close the lid.
The Commander enters the SLEEP mode.
SLEEP mode is the Commander off mode.

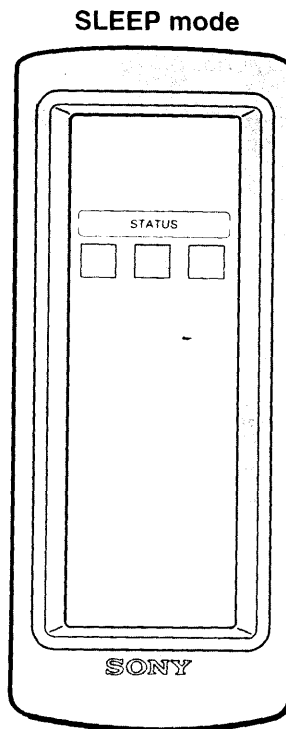


Before Operating the Commander

When using the Commander for the first time

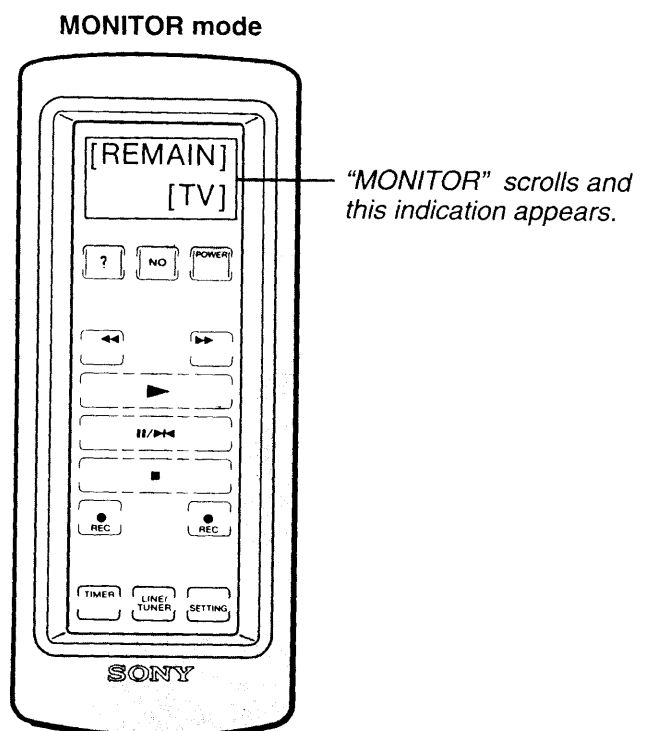
Performing the following operation allows you to set the date and clock and play a tape.

- 1 Point the Commander to the VCR and press STATUS.

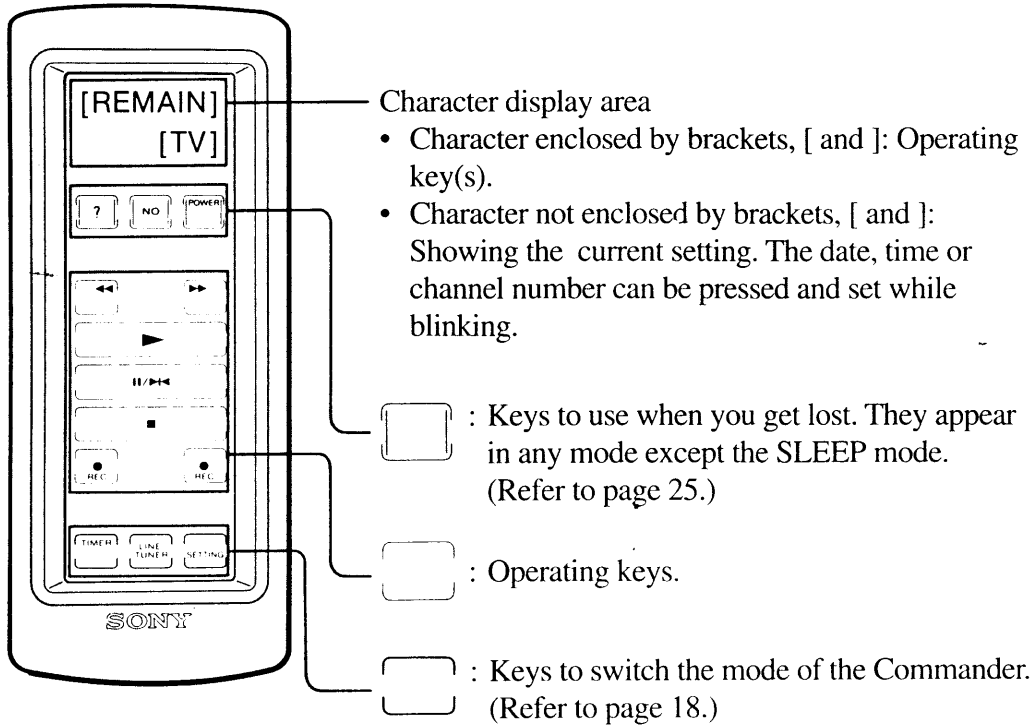


- 2 The VCR turns on and the confirming signal sent to the Commander switches the Commander's display to MONITOR mode.

Even if the Commander fails to receive the confirming signal, the Commander will enter the MONITOR mode.



How to read the display of the Commander



Notes on the Commander

- Do not place any obstructions between the Commander and the remote control transmitter/receiver, or else operations will not be performed correctly.
- Do not expose the remote control transmitter/receiver on the VCR to strong light such as direct sunlight, lighting apparatus, etc.
- Do not operate multiple Commanders simultaneously. The Commander may not work.

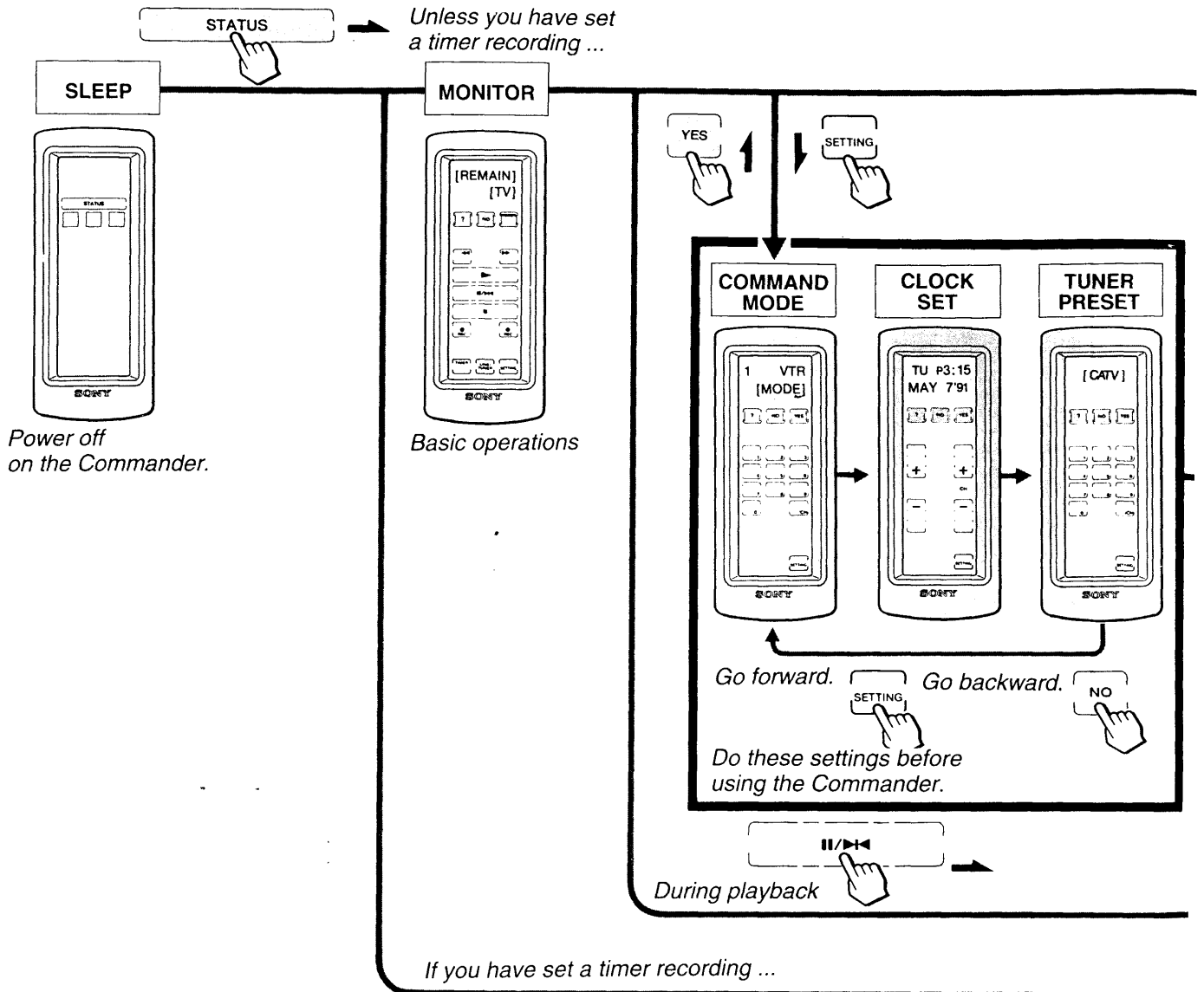
When using the Commander

- The maximum operating distance is approximately 7 m (23 feet).

When the touch panel of the Commander gets dirty with finger prints

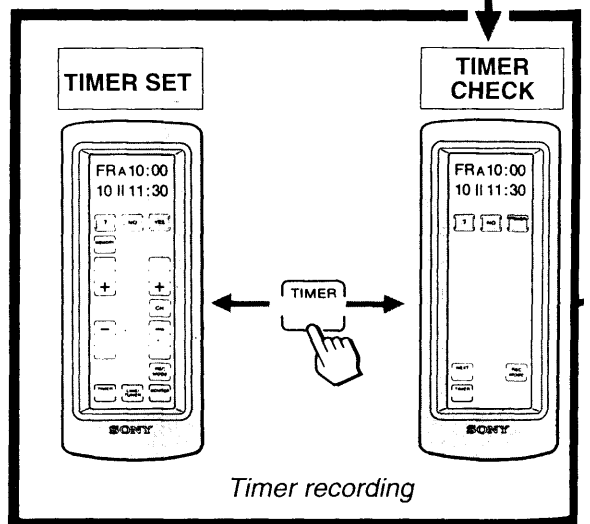
Wipe the panel with the cleaning cloth (supplied). When wiping the panel, turn off the VCR and keep ? depressed. This avoids an accidental operation.

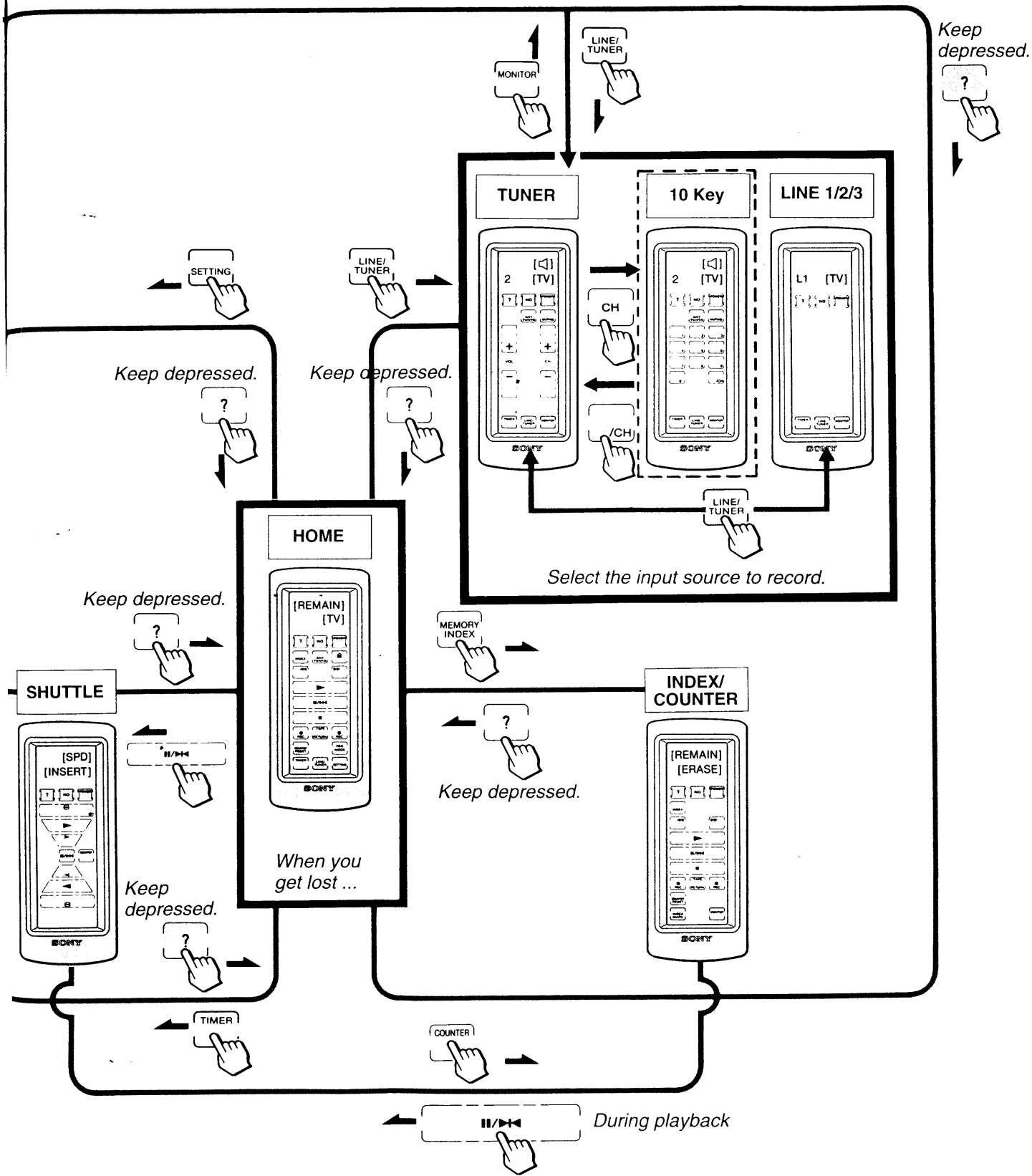
Chart for the Commander's Mode



How to read this chart

- Press . The mode changes to the one indicated with arrow.
- Press once. The current mode scrolls on the display.
- Keep depressed. The Commander enters HOME mode.
- Press once. The Commander goes back to the previous mode.
- Press twice or more. The Commander enters HOME mode.

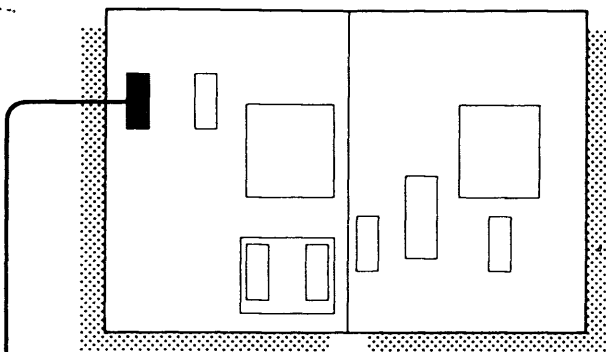




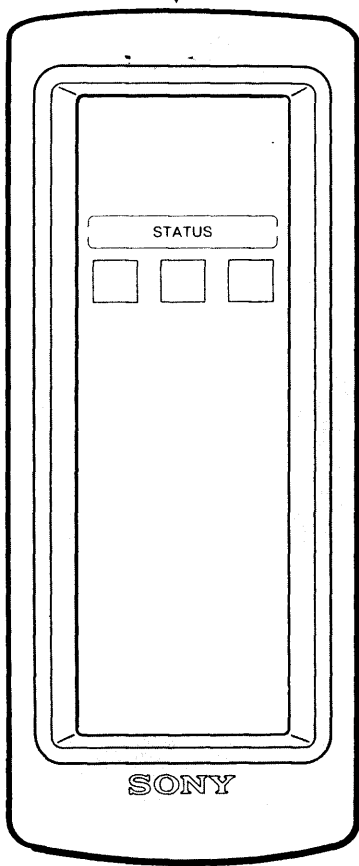
Overview of the Commander's Mode Displays

The Commander switches between 13 different mode displays depending upon the condition of the VCR and the operation being performed. Here is an overview of each mode display. Also refer to the "Remote Commander Quick Reference".

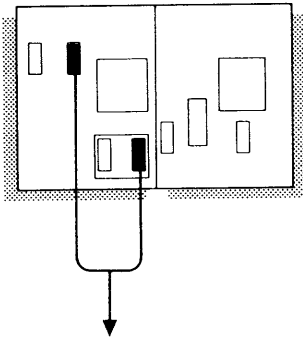
In the beginning ...



← The Chart for the Commander's Mode (pp. 18-19)

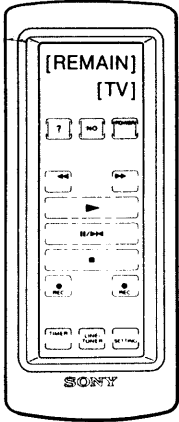


- **SLEEP mode: Commander OFF mode**
The Commander enters this mode right after battery installation or when the Commander is not used for approximately 5 minutes. Point the Commander to the VCR and press STATUS to start operation. The command signal is sent to the VCR and the confirming signal will be sent back to the Commander.



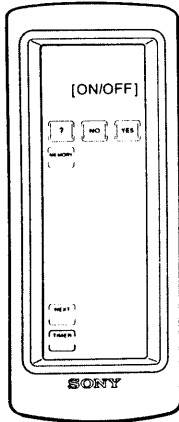
After receiving the confirming signal ...

The Commander's display will be switched to either one of the following two modes.



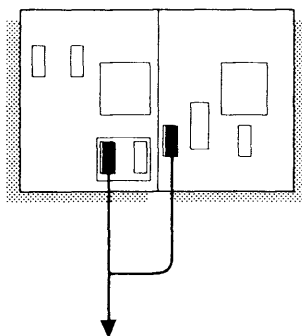
■ **MONITOR mode:** Basic mode for VCR and TV operation

The Commander enters this mode except for when the VCR is in the timer recording standby mode or performing timer recording. The basic operation for VCR and TV is performed in this mode.

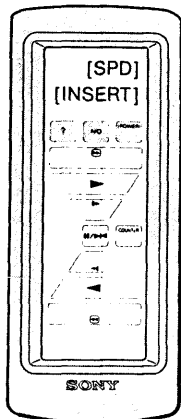


■ **TIMER CHECK mode:** Timer recording information check mode

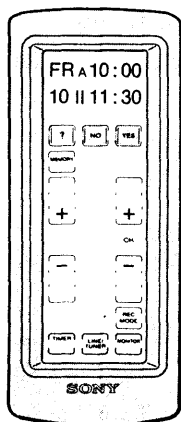
The Commander enters this mode when the VCR is in the timer recording standby mode or performing timer recording. Refer to page 84 for details.



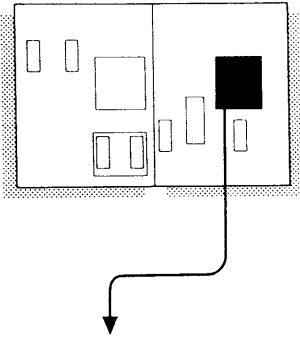
You can switch to other convenient modes such as ...



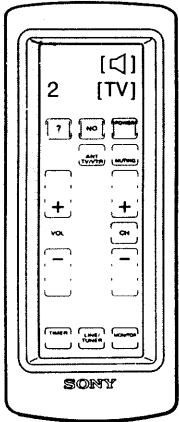
- **SHUTTLE mode:** Mode for various speed playback and insert editing
The Commander enters this mode when the VCR enters the pause/freeze mode. Playback of various speeds (x1/10, x1/5, x1, x2, and frame-by-frame in forward and reverse) is possible. Also, audio/video insert editing is performed in this mode.
Refer to page 59 for details.



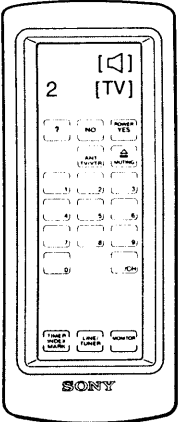
- **TIMER SET mode:** Timer recording setting mode
The Commander enters this mode when **TIMER** is pressed or when attempting to change the setting in the **TIMER CHECK** mode.
When **TIMER** is pressed, the Commander does not enter this mode if ...
 - the date and clock are not set. (The Commander enters the **CLOCK SET** mode.)
 - the VCR is in the recording standby mode. (The Commander enters the **TIMER CHECK** mode.)Refer to page 78 for details.



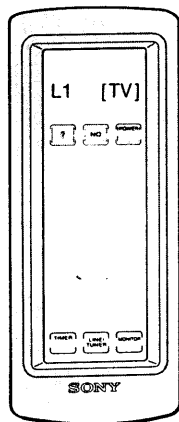
Pressing LINE/TUNER switches the Commander to the input selection mode ...



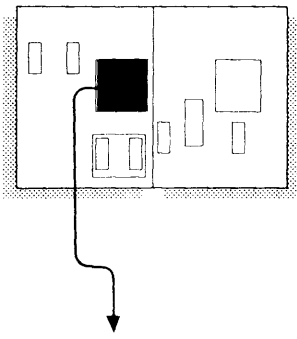
- TUNER mode: Mode to change the channel of the VCR
The Commander enters this mode when tuner input is selected on the VCR.
 - Press of CH to select channel of the VCR directly.
 - Another press of LINE/TUNER switches the Commander to LINE 1, LINE 2 or LINE 3 mode, according to the input source selected on the VCR.



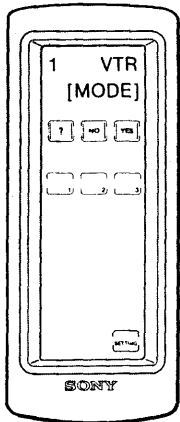
- 10 key mode: Mode to select the channel of the VCR directly
Press of /CH (enter key) switches the Commander to TUNER mode. Refer to page 49 for details.



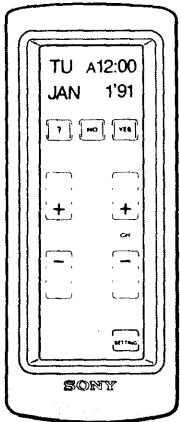
- LINE 1, 2 or 3 mode: Mode to change the parameters for the signals input from the LINE IN 1, 2 or 3 jacks
The Commander enters this mode when LINE 1 input is selected on the VCR. Another press of LINE/TUNER switches the Commander to LINE 2, LINE 3 or TUNER mode.



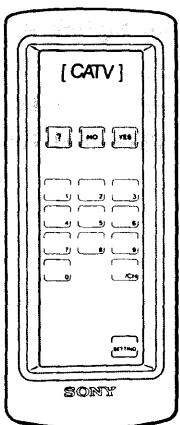
Pressing SETTING switches the Commander to the setting mode ...



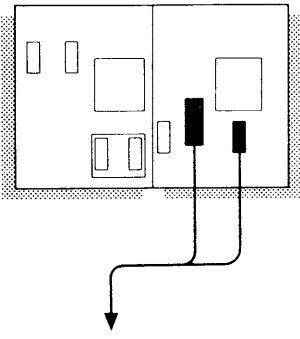
- COMMAND MODE mode:** Mode to select the remote control mode
 The Commander enters this mode when pressing SETTING once. Select VTR or TV, whichever you wish to control, and select the manufacturer number. Equipment other than this VCR can be controlled with the Commander for TV operation.
 Refer to page 00 for details.



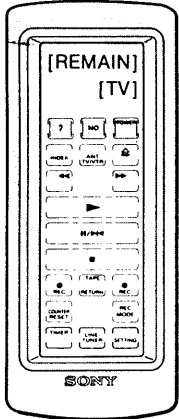
- CLOCK SET mode:** Mode to set the date and clock
 The Commander enters this mode when pressing SETTING once in the COMMAND MODE mode. Date and time can be set by using the information in the character display area and the +/- key.
 Refer to page 46 for details.



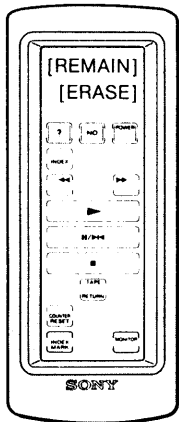
- TUNER PRESET mode:** Mode to preset the active channels to the VCR
 The Commander enters this mode when pressing SETTING twice in the COMMAND MODE mode. Presetting of the active channels is possible.
 Refer to page 48 for details.



Keeping ? depressed switches the Commander to HOME mode.



- HOME mode: Mode to refer to when you are lost
 This mode contains more keys than any other mode. If you get lost during Commander operation, keep ? depressed so that the display is lighted, the current mode name is scrolled, and finally the Commander switches to this mode which contains most of the keys necessary for VCR and TV operation.
 Pressing NO more than twice also switches the Commander to this mode.



- INDEX/COUNTER mode: Mode for an operation related to index or counter
 The Commander enters this mode when INDEX is pressed in the HOME mode. Various operations using the index function and the counter can be performed in this mode.

How to use ?, NO, and POWER/YES

- ? key: **When you want to know the current mode of the Commander**
 Press ? once to see the mode name scrolled in the character display area.
When you get lost
 Keep ? depressed to switch the Commander to the HOME mode.
- NO key: **When you want the Commander to return to the previous mode**
 Press NO once.

When you get lost

- Press NO twice to switch the Commander to the HOME mode.
- POWER/YES keys: YES is displayed in the TIMER SET, TIMER CHECK, COMMAND MODE, CLOCK SET, and TUNER PRESET modes. Press YES to confirm the setting. In other modes, POWER is displayed and turns on and off the power.

Connections

In order to watch the playback picture on the TV screen and to receive TV programs on this VCR, the VCR and the TV receiver must be connected properly. The connection between the two units varies depending upon the type of TV receiver and antenna that you have. We will show you some typical ways to make connections with the supplied accessories. Before operating the unit, go through this section and make the correct connections.

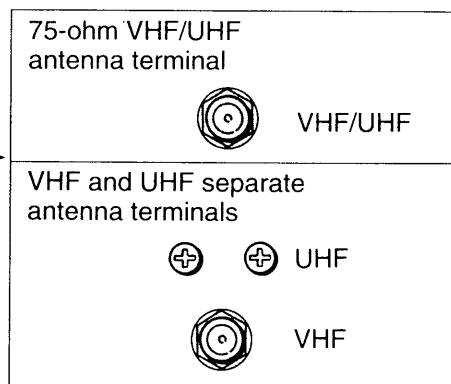
Before You Begin ...

- Turn off the power to the VCR and the TV.
- Do not connect the AC power cords until all of the connections are completed.
- Make connections firmly. Loose connections may cause picture distortion.
- If your TV does not match the three examples below ... Consult your nearest Sony dealer or qualified technician.

First Check Your Equipment

If your TV does not have video and audio input jacks

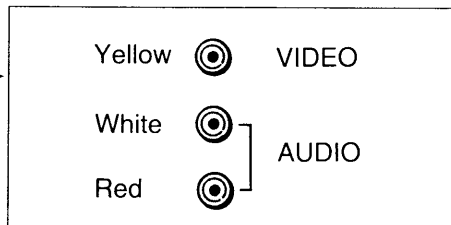
Check the antenna terminals on your TV



Go through "Connecting Examples 1 to 5" to find the appropriate connections.

Then read "Setting the RF Unit" to view the playback picture of the VCR on the TV.

If your TV has video and audio input jacks



You can enjoy a better quality picture. Read through "Connecting Examples 6."

You can enjoy the better quality picture by connecting the VCR to the stereo audio system. Read through "Connecting Example 7"

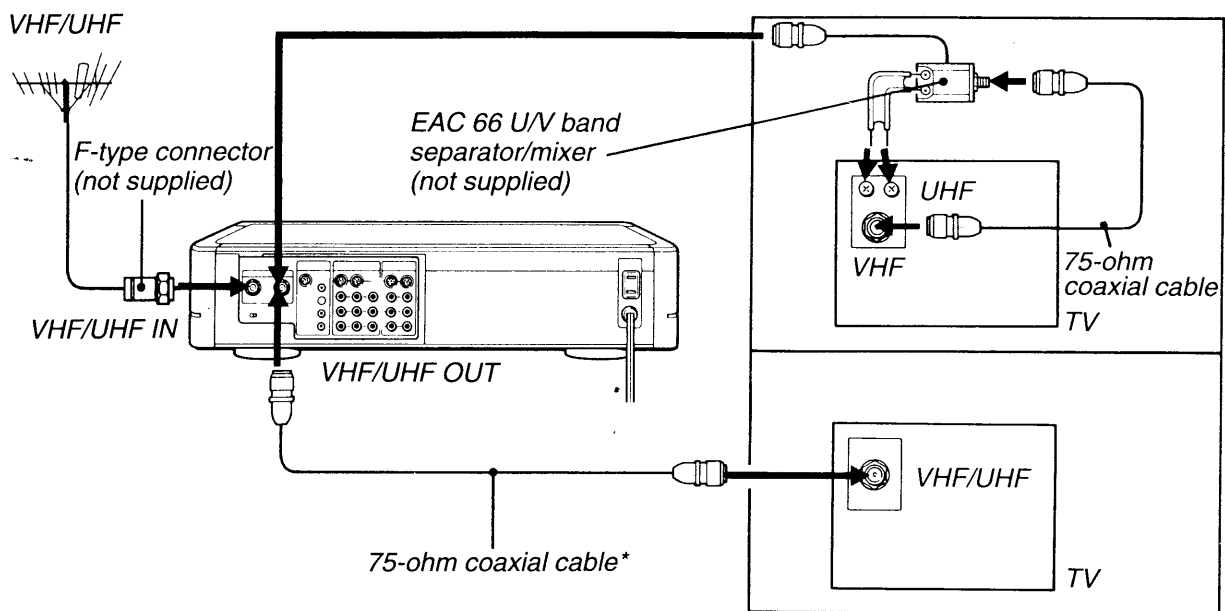
If you have a stereo audio system

Caution

Connections between the recorder VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in the instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission

regarding the use and operation of rf devices. Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

Connection Example 1 – To Connect a Combination VHF/UHF Antenna



* If the supplied 75-ohm coaxial cable is not long enough, use the RFC-8 extension cable (not supplied), 8m (25ft.) long.

1 Disconnect the TV antenna cable from the TV receiver and connect it to the VCR.

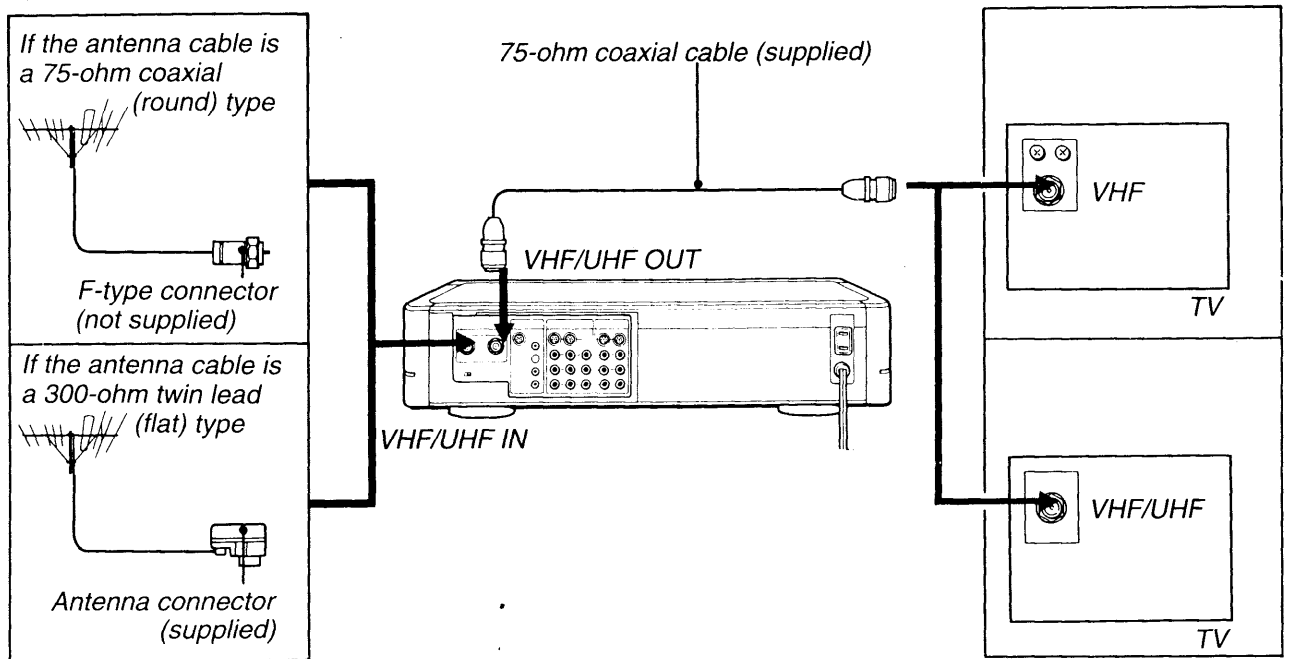
2 Connect the VCR and the TV.

3 If the TV has a single terminal for the VHF/UHF antenna: Use the 75-ohm coaxial cable (supplied).
If the TV has separate VHF/UHF antenna terminals:
Use the EAC-66 U/V band separator/mixer (not supplied).

How to attach the U/V band separator/mixer and the F-type connector

See pages 35 and 36.

Connection Example 2 - To Connect a VHF Antenna Only

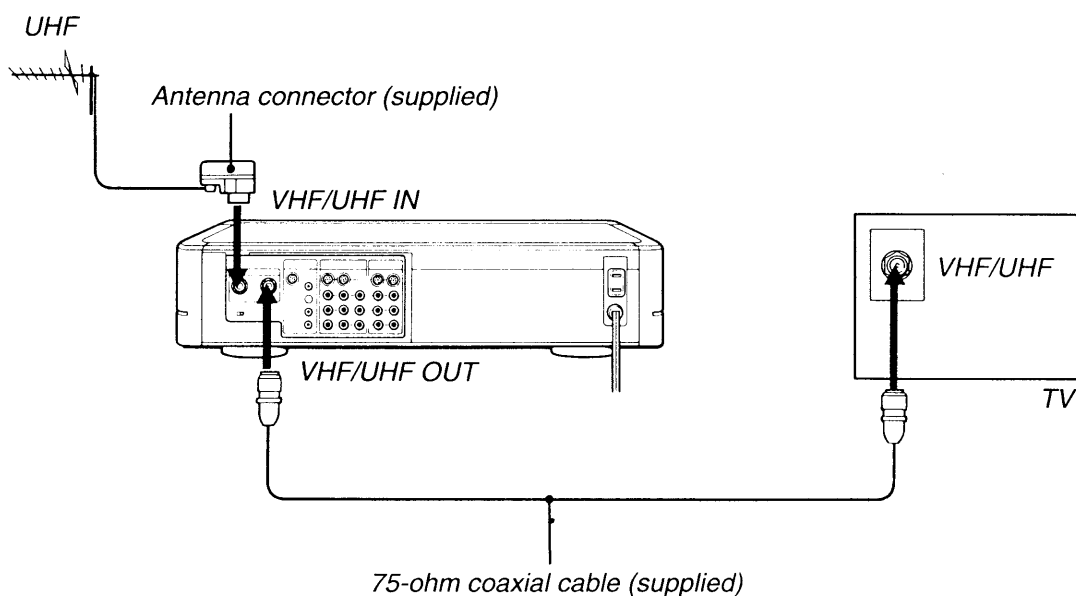


- 1** Disconnect the TV antenna cable from the TV and connect it to the VCR.
If the antenna cable is a 75-ohm coaxial (round) type: Use the F-type connector (not supplied).
If the antenna cable is a 300-ohm twin lead (flat) type: Use the antenna connector (supplied).
- 2** Connect the VHF/UHF OUT on the VCR and the VHF IN terminal on the TV with the 75-ohm coaxial cable (supplied).

How to attach the antenna connector and the F-type connector
See page 35.

Connection Example 3 – To Connect an UHF Antenna Only

A – When the VHF/UHF antenna terminal on the TV is combined

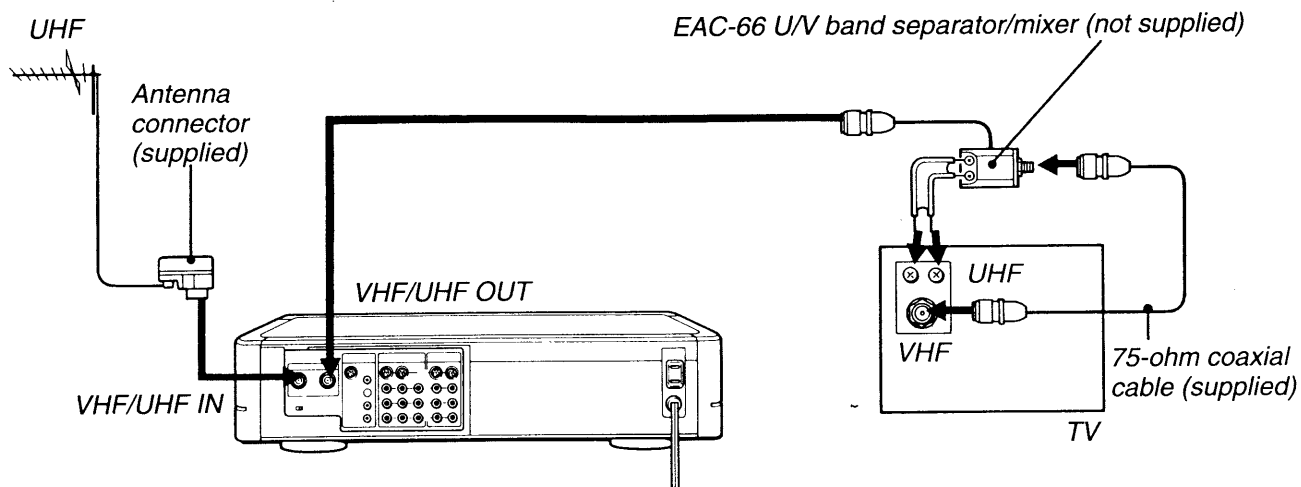


- 1** Connect the antenna connector (supplied) to the antenna cable.
- 2** Connect the antenna connector to VHF/UHF IN on the VCR.
- 3** Connect VHF/UHF OUT on the VCR and the VHF/UHF antenna terminal on the TV.

How to attach the antenna connector

See page 36.

B – When the VHF/UHF antenna terminals on the TV are separated

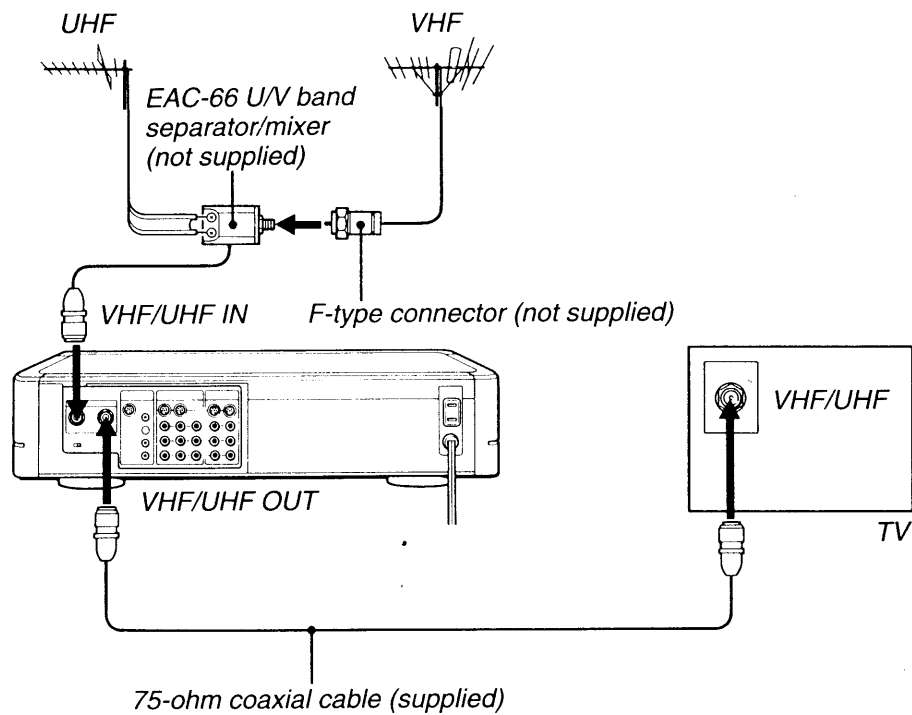


-
- 1** Connect the antenna connector (supplied) to the antenna cable.
-
- 2** Connect the antenna connector to the VHF/UHF IN on the VCR.
-
- 3** Connect the EAC-66 U/V band separator/mixer (not supplied) to the VHF/UHF OUT on the VCR.
-
- 4** Connect the EAC-66 U/V band separator/mixer to the VHF and UHF antenna terminals on the TV.
-

How to attach the antenna connector and the U/V band separator/mixer
See page 36.

Connection Example 4 – To Connect both VHF and UHF Antennas

A – When the VHF/UHF antenna terminal on the TV is combined

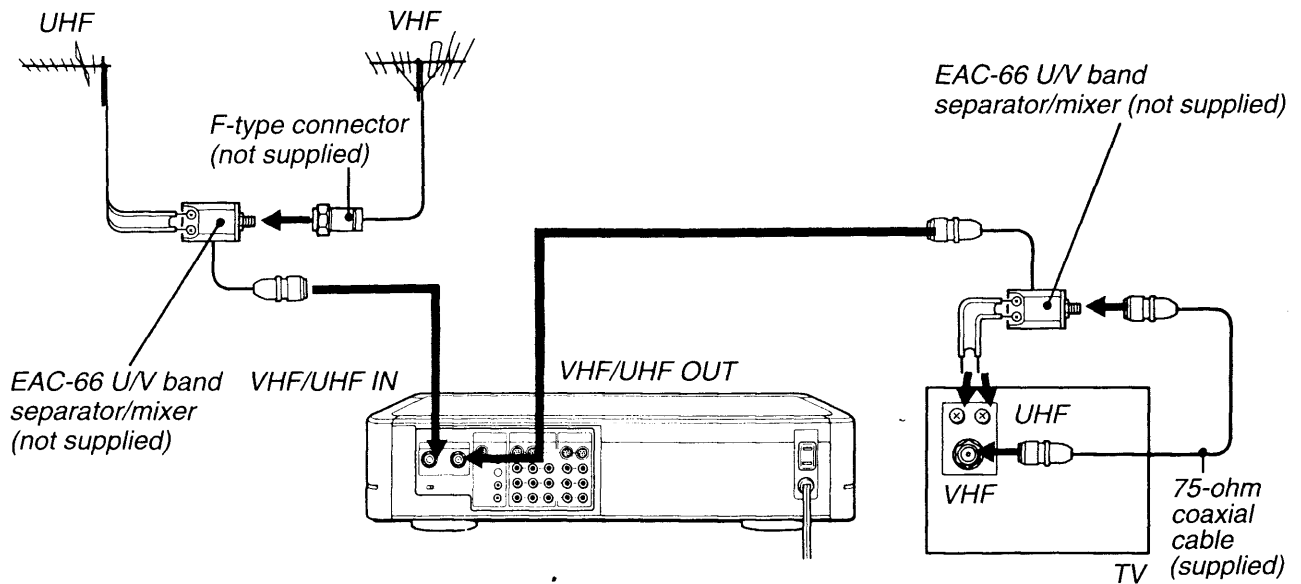


- 1** Connect the EAC-66 U/V band separator/mixer (not supplied) to the VHF and UHF antennas.
- 2** Connect the EAC-66 U/V band separator/mixer to the VHF/UHF IN on the VCR.
- 3** Connect the VHF/UHF OUT on the VCR and the VHF/UHF antenna terminal on the TV.

How to attach the U/V band separator/mixer and the F-type connector

See pages 35 and 36.

B - When the VHF/UHF antenna terminals on the TV are separated



- 1** Connect the EAC-66 U/V band separator/mixer (not supplied) to the VHF and UHF antennas.
- 2** Connect the U/V band separator/mixer to the VHF/UHF IN on the VCR.
- 3** Connect the U/V band separator/mixer to the VHF/UHF OUT on the VCR.
- 4** Connect the U/V band separator/mixer to the VHF and UHF antenna terminals on the TV.

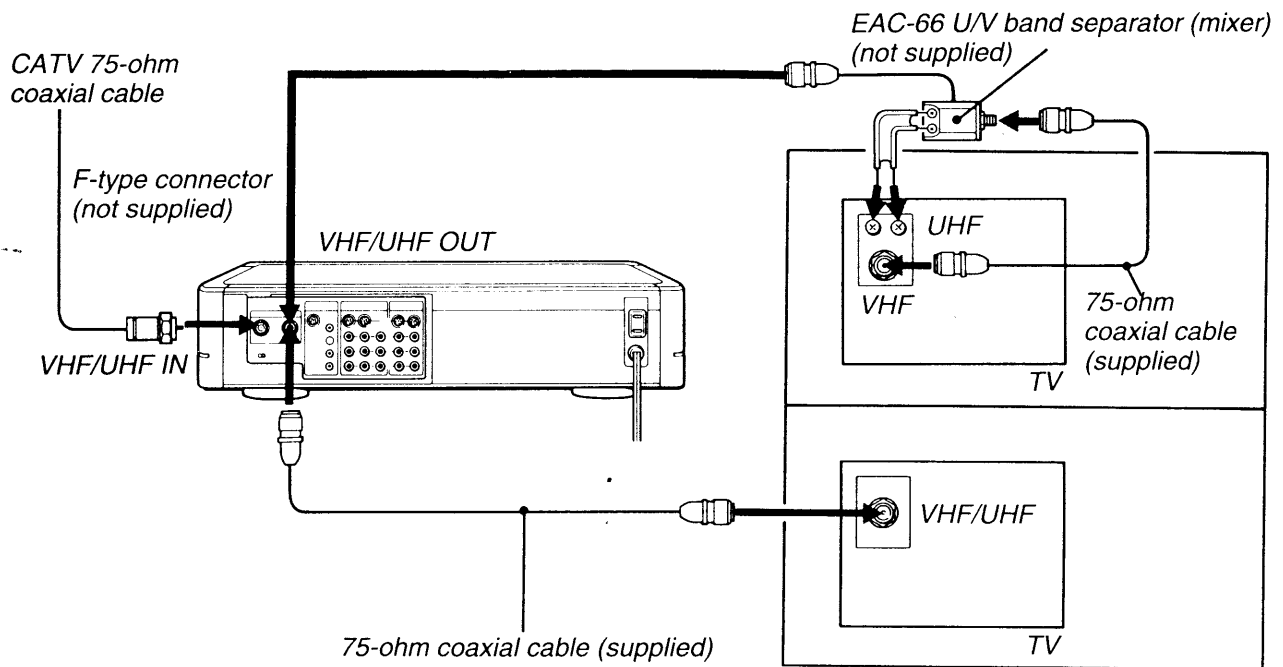
How to attach the U/V band separator/mixer and the F-type connector

See pages 35 and 36.

Connection Example 5 – To Connect a Cable TV System

A – If your TV has a built-in CATV decoder

A connection example is given below, but we recommend that you consult your cable company to make sure that the cable is properly connected.



How to attach the U/V band separator/mixer and the F-type connector

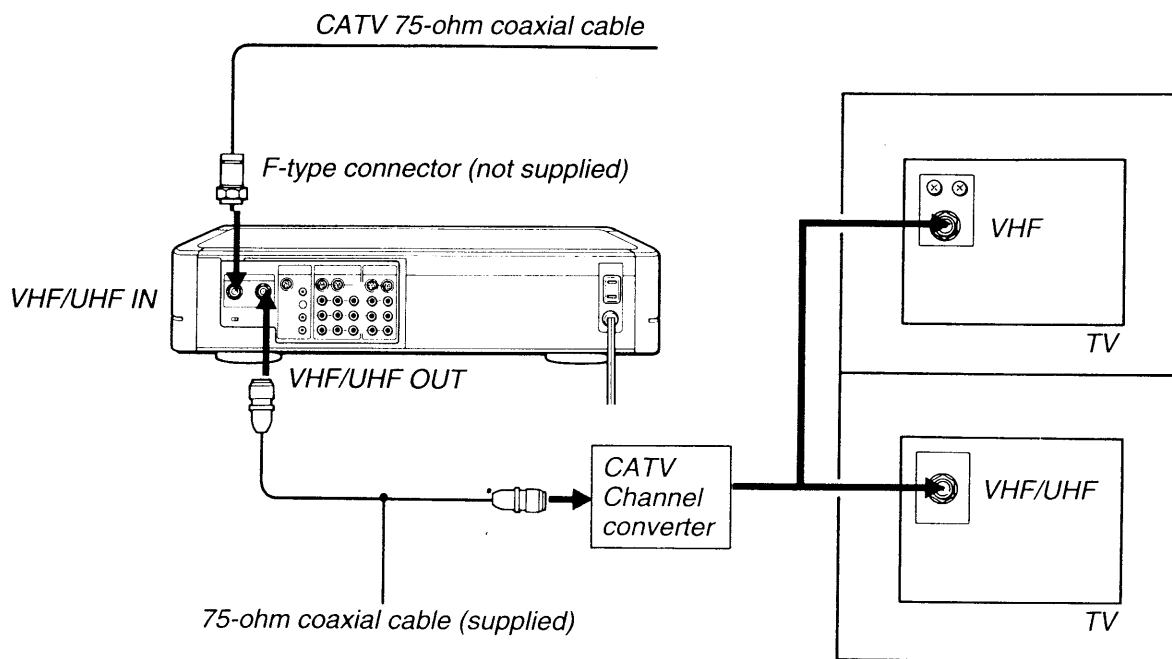
See pages 35 and 36.

Note

Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection. The special converter/decoder will be supplied by the cable company.

B – If your TV does not have a built-in CATV decoder

Connect the cable TV channel converter between the TV and the VCR. By pressing ANT TV/VTR and turning off the TV lamp, you can watch a cable TV program while playing back or recording video sources using the VIDEO LINE IN jacks on the VCR.

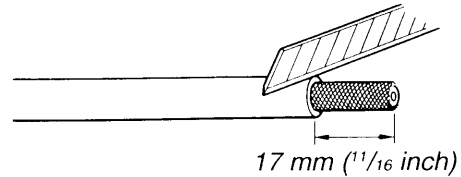


How to attach the F-type connector

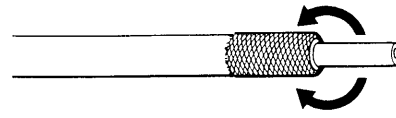
See page 35.

How to attach the F-type connector (not supplied)

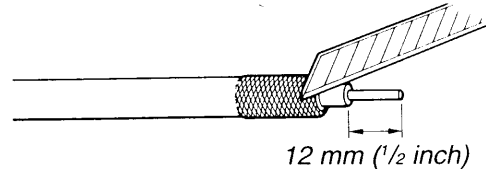
- 1** Strip 17 mm (11/16 inch) of the black polyvinyl jacket.



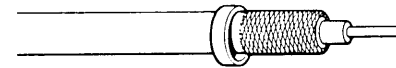
- 2** Fold back the woven wire.



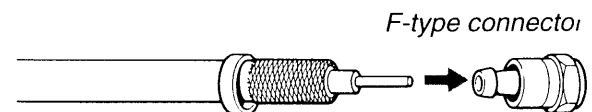
- 3** Strip 12 mm (1/2 inch) of the white plastic leaving 12 mm of the center conductor.



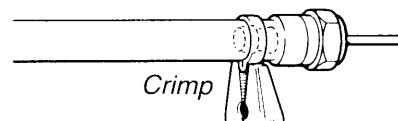
- 4** Slip the crimping ring over the cable.



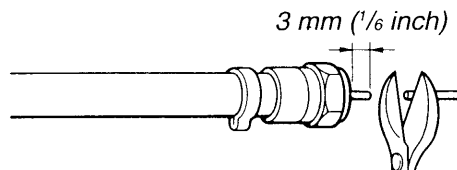
- 5** Insert the inner conductor into the F-type connector shaft and push the end of the cable into the connector as far as it will go.



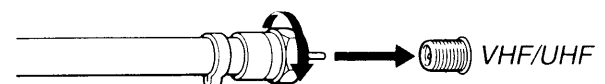
- 6** Slide the crimping ring over this assembly. Then pinch the crimping ring with pliers to hold the connection in place.



- 7** Cut the center conductor leaving 3 mm (1/8 inch) from the end.



- 8** Insert the F-type connector into VHF/UHF IN on the VCR.

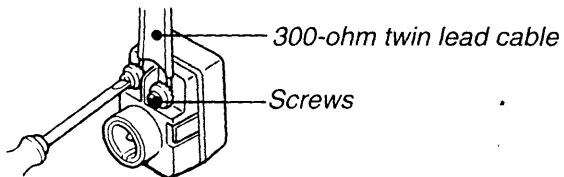


How to attach the external antenna connector (supplied)

1 Loosen the screws on the antenna connector.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws on antenna connector.

3 Tighten the screws again.



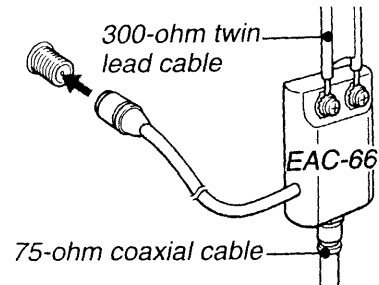
How to attach the EAC-66 U/V band separator/mixer (not supplied)

1 Loosen the screws on the U/V band separator/mixer.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws.

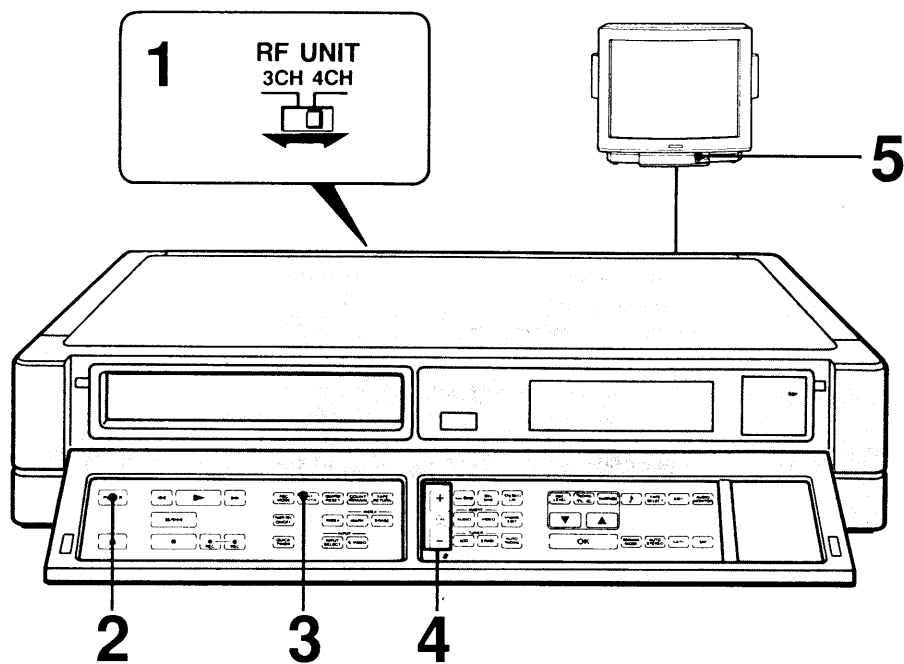
3 Connect the 75-ohm coaxial cable to the U/V band separator/mixer.

4 Connect the U/V band separator/mixer to the VHF/UHF IN on the VCR.



Setting the RF Unit

Necessary for connection examples 1 to 5.



1 Set the RF UNIT at the rear to 3 CH or 4 CH, whichever is not active in your area.

2 Press POWER.
The indicator will light.

3 Press ANT TV/VTR so that the VTR indicator lights.

4 Check that the TUNER indicator appears in the display window, then select an active channel in your area by pressing CH +/-.

5 Turn on the TV and set the TV to the channel selected in step 1.
The TV program selected on the VCR will appear on the screen. Your TV is now tuned to the VCR. Whenever you use the VCR, set the TV to the channel selected above.

Why this setting is necessary

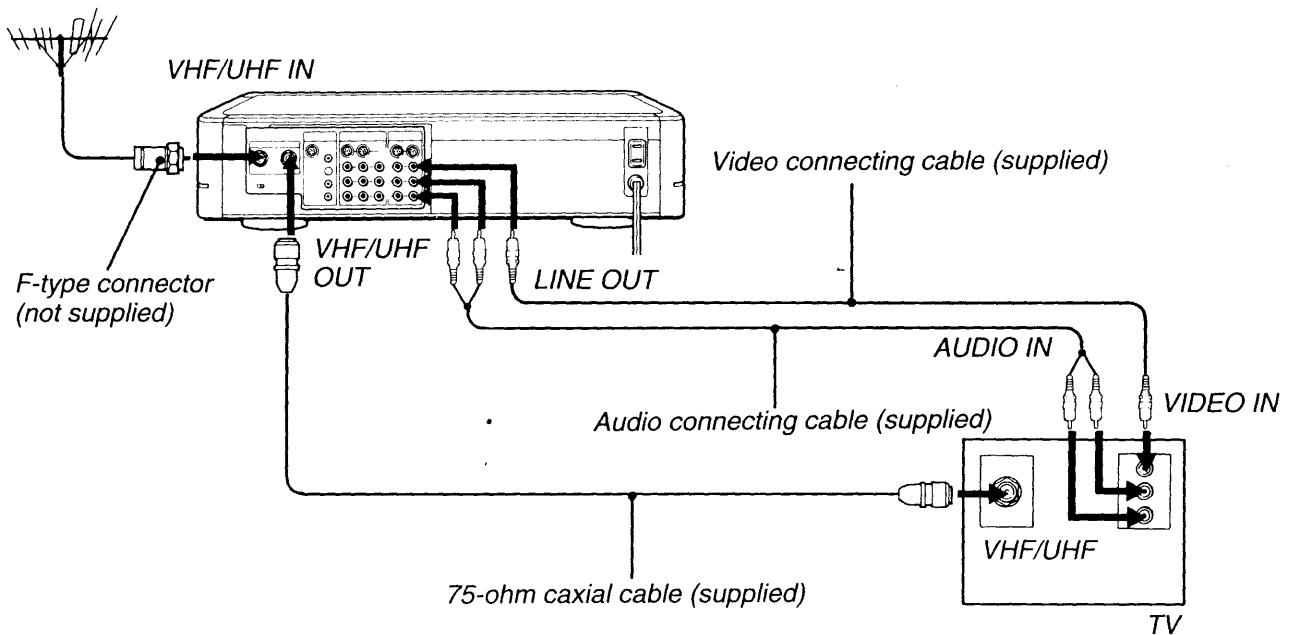
Your TV receiver must be set to receive the signal from your VCR. To get the proper RF signal, set the RF UNIT selector switch on the rear panel of the VCR. If channel 4 is active in your area, set the switch to 3 CH, and vice versa. If you connect a color monitor or a TV equipped with video/audio input jacks, you do not need to make this adjustment.

Note

For details about TV channel adjustment, see the instruction manual of the TV.

Connection Example 6 - To Connect a TV Equipped with Video/Audio Input Jacks

For a high-quality picture, connect a color monitor or a TV equipped with video/audio input jacks.



- 1** Connect the VHF/UHF antenna to the VHF/UHF IN on the VCR.
- 2** Connect the VHF/UHF OUT on the VCR and the VHF/UHF IN terminal on the TV with the supplied 75-ohm coaxial cable.
- 3** Connect the LINE OUT jacks on the VCR and the video/audio input jacks on the TV with the video connecting cable and audio connecting cable.

How to attach the F-type connector

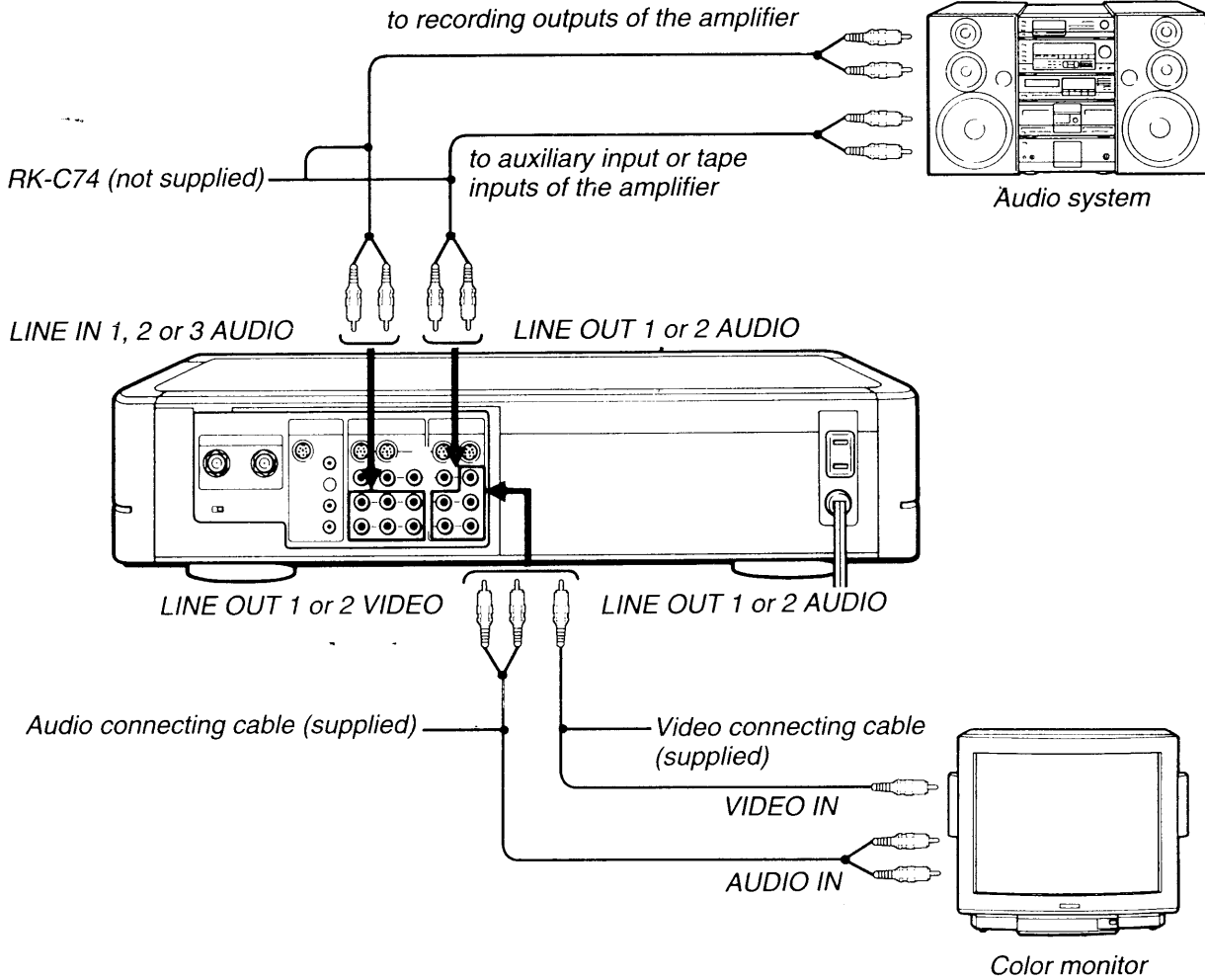
See page 35.

If your TV is a monaural type

Use the VMC-910MS/920MS connecting cable (not supplied).

Connection Example 7

You can enjoy stereo playback of tapes recorded in hi-fi stereo when the VCR is connected to your audio system.



Notes

- If the VCR installed near a tuner or a radio, noise may be heard in AM reception. In this case, move the VCR away from the tuner or the radio, adjust the AM antenna for minimum noise, or connect an external AM antenna to the tuner.
- Since a hi-fi recorded tape has wide dynamic range, turn down the volume on the amplifier before playing back the tape to avoid damaging the speakers.
- Before connecting or disconnecting the power cord of the VCR, be sure to turn off the connected amplifier.

Setting the Command Mode

Setting the Command Mode (1) Controlling other Sony VCRs

Both the VCR and the Commander is factory set to operate in the command mode VTR 1. Change this setting in the following cases:

If you have Sony VHS or 8 mm VCRs that does not have a command mode select switch

Set the command mode as shown in the chart below.

| Type | Command mode | Number to select in the Command mode |
|----------|--------------|--------------------------------------|
| This VCR | VTR 1 | 1 |
| 8 mm | VTR 2 | 2 |
| VHS | VTR 3 | 3 |

If you want to control Sony TVs and TVs of other manufacturers

Refer to "Setting the Command Mode (2) Controlling Equipment other than this VCR" (page 43).

If you have other Sony Betamax VCRs

The Sony Betamax VCRs is usually remotely controlled with VTR 1 mode. To avoid having both of your VCR to work on command mode VTR 1, change the setting on either VCR to VTR 2 or VTR 3. When using the Commander, change the command mode according to the VCR you wish to control.

If you want to control multiple Sony VCRs with this Commander

Change the setting on other VCRs to VTR 2 or VTR 3. When using the Commander, select the command mode according to the VCR you wish to control.

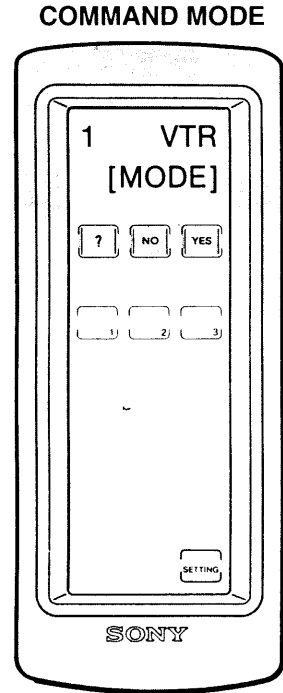
After replacing the batteries of the Remote Commander

The setting of the command mode is reset to VTR 1 and TV 1. When you set a mode other than VTR 1, set the command mode again.

Preparation

Press **SETTING** and enter the **COMMAND MODE** mode.

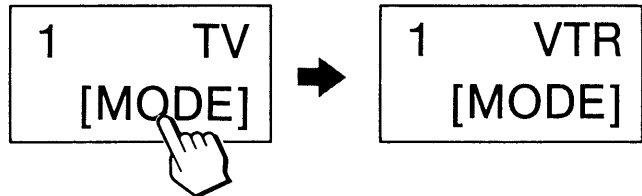
- When the Commander is in the **SLEEP** mode
Point the Commander to the VCR and press **STATUS**.
- If **SETTING** is not displayed
Keep **?** depressed. The Commander enters the **HOME** mode and **SETTING** appears.



Using the Commander

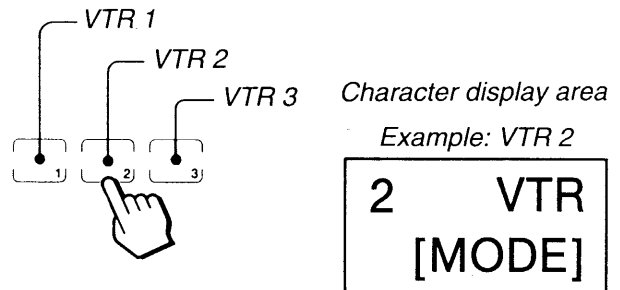
- 1 Press **[MODE]** and select **VTR**.

Character display area



- 2 Press the number and select the command mode.

The selected command mode is stored in the memory.



Character display area

Example: VTR 2

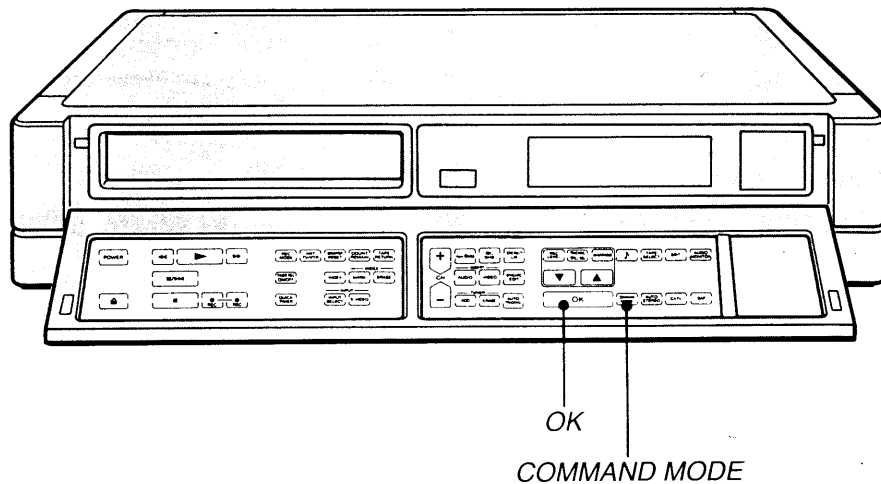
When you start operating the VCR

Press **YES**. The Commander returns to the **MONITOR** mode.

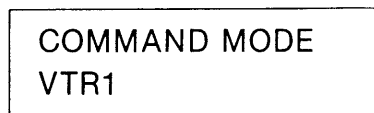
When you set the date and clock

Press **SETTING**. The Commander enters the **CLOCK SET** mode.

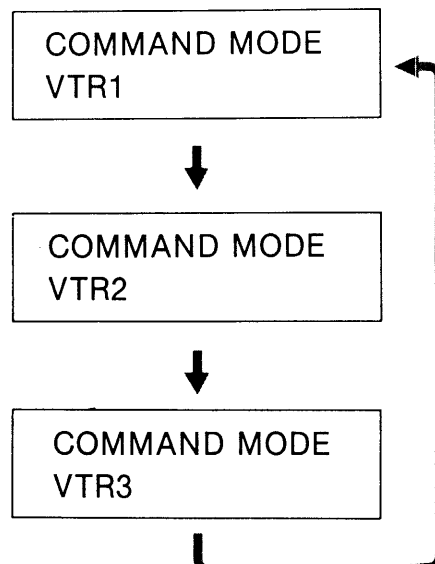
On the VCR



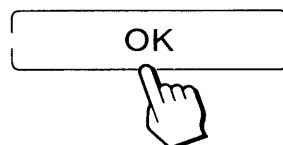
- 1 Press COMMAND MODE.**
The COMMAND MODE indication appears in the display window and the current setting is shown.



- 2 Press COMMAND MODE while the COMMAND MODE display is shown so that the command mode is the same as the one selected on the Commander.**
Each press of COMMAND MODE switches the setting as illustrated.



- 3 Press OK or leave the display as it is for more than 5 seconds.**
The selected command mode is stored in the memory and the display returns to normal display.



Setting the Command Mode (2) Controlling TVs

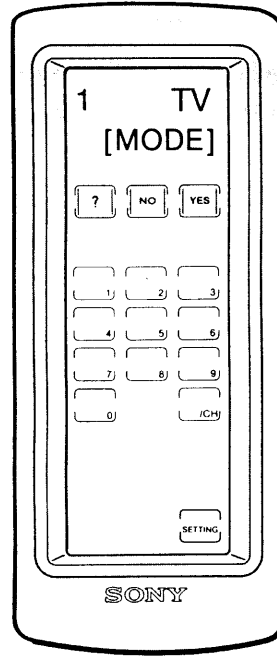
Besides remotely controlling Sony VCRs, Sony TVs and other manufacturers' TVs can also be remotely controlled. When batteries are installed into the Remote Commander, the command mode is set to VTR 1 and TV 1. Follow the procedure below to change the setting to the desired manufacturer.

Preparation

Press **SETTING** and enter the **COMMAND MODE** mode.

- When the Commander is in the **SLEEP** mode
Point the Commander to the VCR and press **STATUS**.
- If **SETTING** is not displayed
Keep **?** depressed. The Commander enters the **HOME** mode and **SETTING** appears.

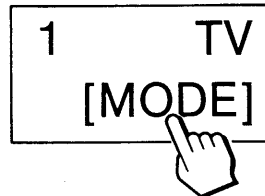
COMMAND MODE



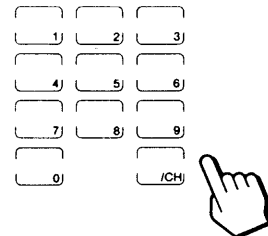
Operation

- 1 Press **[MODE]** and select **TV**.

Character display area



- 2 Press the number and select the manufacturer referring to the "Manufacturer list" on page 45 .
The selected command mode is stored in the memory.



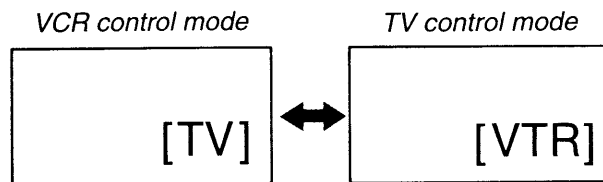
- 3 Press **/CH**.

If you press the wrong number(s)
Press **/CH** and repeat the steps 2 and 3.


How to use the VCR or TV control mode

This mode is operable in the HOME, MONITOR, LINE 1, LINE 2, LINE 3, and TUNER mode.

- VCRs can be controlled when [TV] is displayed in the character display area.
When you want to operate the television, press [TV]. The display will change to [VTR] and TVs can be controlled.
- TVs can be controlled when [VTR] is displayed in the character display area.
When you want to operate the VCR, press [VTR]. The display will change to [TV] and VCRs can be controlled.



Manufacturer list

| Number key on the COMMAND MODE | VCR | TV |
|-----------------------------------|--------------------|--|
| 1 | Sony VCRs in VTR 1 | Sony TVs with  mark |
| 2 | Sony VCRs in VTR 2 | Hitachi |
| 3 | Sony VCRs in VTR 3 | Gold Star 1 |
| 4 | / | NEC |
| 5 | | Sharp |
| 6 | | Panasonic |
| 7 | | Toshiba |
| 8 | | Philips/Magnavox |
| 9 | | JVC |
| 10 | | RCA/GE |
| 11 | | Sanyo/Fisher |
| 12 | | Gold Star 2 |
| 13 | | Mitsubishi |
| 14 | | Zenith |
| 15 | | Pioneer |

Refer to the “Functions of the Remote Commander” page 126 for the functions available in each mode.

Note on TV operation

The above list is not complete. Even if the manufacturer of your TV is included in the above list, you may not operate your TV with the specified command mode. In addition, you may operate the TV of manufacturers other than the described ones.

Date and Clock Setting

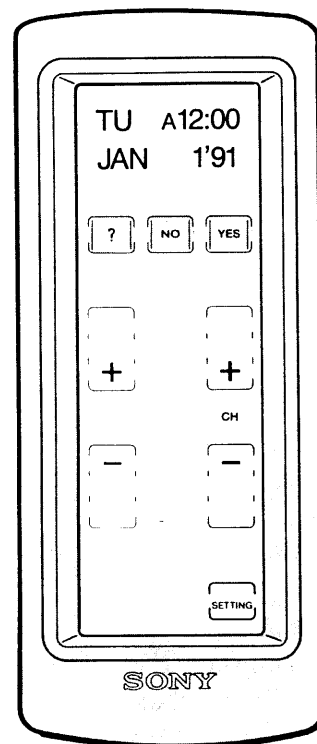
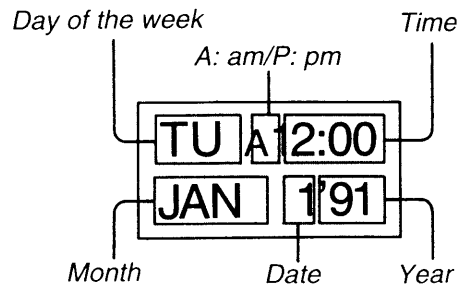
Set the date and clock with the Remote Commander and transmit the setting to the VCR. Dates between the year 1991 and 2005 can be set. Note that AM 12:00 is midnight and PM 12:00 is noon.

Preparation

Press **SETTING** and switch the Commander to **CLOCK SET** mode.

- If the Commander is in the **SLEEP** mode Press **STATUS**. The Commander enters the **MONITOR** mode and **SETTING** is displayed.
- If **SETTING** is not displayed on the Commander Keep **?** depressed. The Commander enters the **HOME** mode and **SETTING** is displayed.

Character display area of the Commander



Operation Example: To set to 3:15 pm, July 4, 1991

1 Press month.
 Month blinks.
 Set the month with +/- while the indication is blinking.

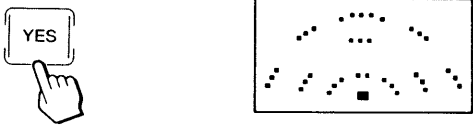
2 Press date.
 Date blinks.
 Set the date with +/- while the indication is blinking. The day of the week is automatically set.

3 Press the hour indication.
 Hour blinks.
 Set the hours with +/- while the indication is blinking.

4 Press the minute indication.
 Minute blinks.
 Set the minutes with +/- while the indication is blinking.

5 Check the setting and press YES.
 TRANSMIT appears.

6 While TRANSMIT is displayed, press YES again to transmit the setting to the VCR.
 The date and clock indication disappears and the VCR returns a beep sound to confirm that the setting is received.



How to use +/-
 Pressing of + advances the year, month, day, hours, and minutes ahead. Pressing of - reverses the indication behind.

When transmitting the data to the VCR
 Complete the transmission while TRANSMIT is displayed on the Commander. When TRANSMIT disappears, repeat steps 5 and 6.

After replacing batteries
 Repeat the procedure from "Preparation".

When "AM12:00" is blinking in the VCR's display window
 A power interruption of more than 1 hour have occurred. Reset the current date and time with the Commander in the CLOCK SET mode, and transmit the setting to the VCR.

To set the year
 Press the year indication. Year blinks. Set the year with +/- while it is blinking.

Presetting Active Channels

Selecting TV Channels

This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69, and cable TV channels 1 to 125. See the cable TV channel chart on page 53.

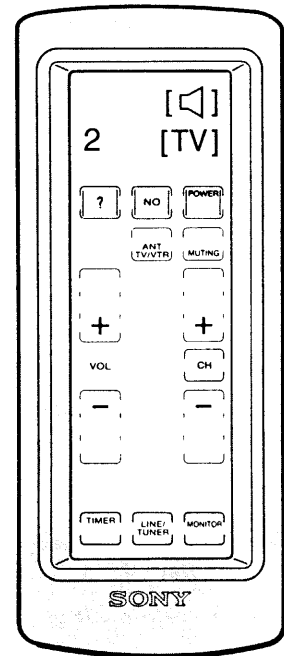
There are two ways to select the channels.

- 1 Using CH +/-
- 2 Using the channel number keys

Before selecting channels

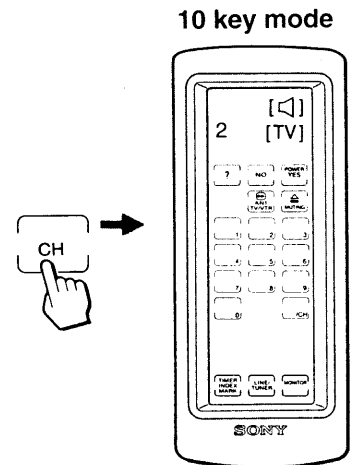
- Turn on the VCR and the TV.
- If you've connected the TV and the VCR using the VHF/UHF OUT on the VCR only, make sure that the TV is set to the correct channel (3 or 4) for the VCR.
- Press ANT TV/VTR to display the VTR indicator on the VCR.
- Press LINE/TUNER on the Commander (or INPUT SELECT on the VCR) to enter the TUNER or 10 key mode.

TUNER mode

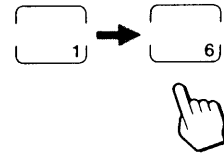


Using the channel number and /CH (enter) keys on the Commander

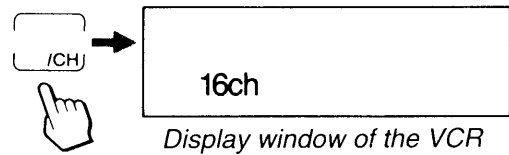
- 1 Press CH to display the numerals.



- 2 Press the numeral(s) of the channel.
Ex. Channel 16



- 3 Press /CH.
Channel 16 is selected directly. The Commander returns to the previous display.



If you cannot select the desired channel

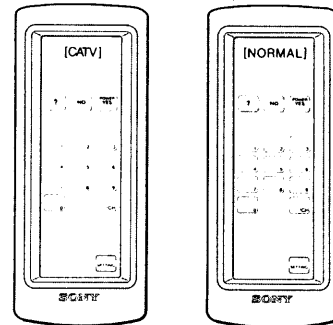
Check the setting for air or cable TV channels on the VCR and the Commander.

On the VCR, press CATV.

On the Commander, press SETTING and enter the TUNER PRESET mode.

- When you select "CATV OFF" on the VCR, display [CATV] on the Commander.
- When you select "CATV ON" on the VCR, display [NORMAL] on the Commander.

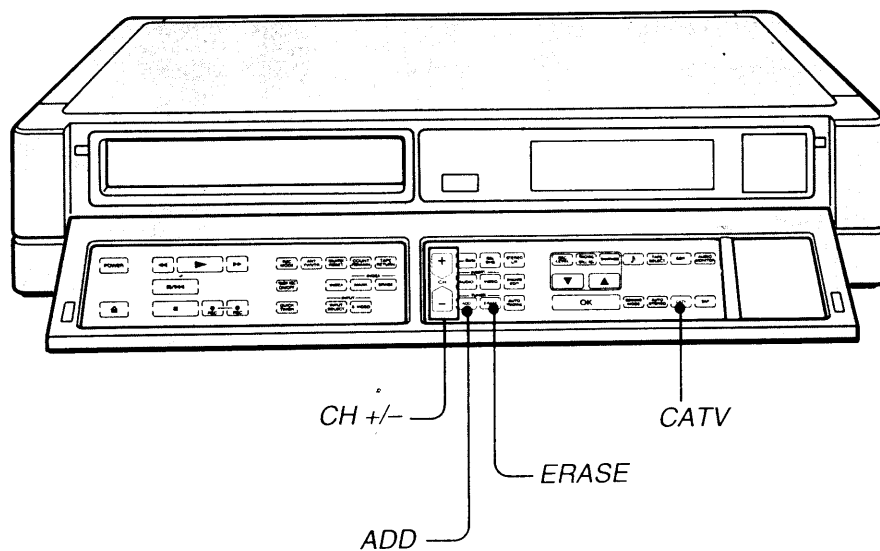
- The air TV channels can be selected when [CATV] is displayed.
- The cable TV channels can be selected when [NORMAL] is displayed.



Using CH +/-

VHF channels 2 to 13, UHF channels 14 to 69 and cable TV channels 1 to 125 are preset on this VCR. You can select these channels with CH +/-.

Erase the unreceivable channels to skip them, if you like.

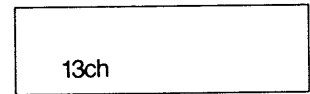
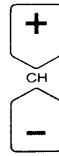


Skipping Unnecessary Channels

To erase unnecessary channels

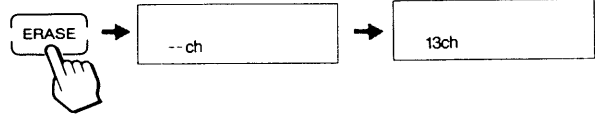
- 1 Press CH +/- until the channel you wish to erase appears on the display window.

Ex.: To erase channel 13



Display window of the VCR

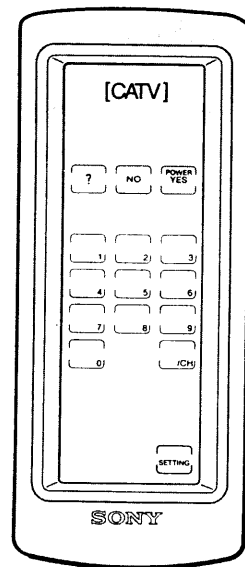
- 2 Press ERASE on the VCR until "--CH" appears on the display window of the VCR.



To put back the erased channels

Keep ? depressed to enter the HOME mode and press SETTING repeatedly so that the Commander enters the TUNER PRESET mode.

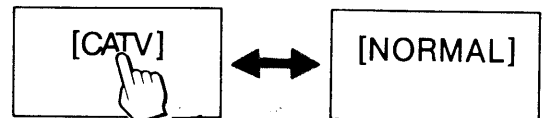
TUNER PRESET mode



1 Select the air TV channels or the cable TV channels.

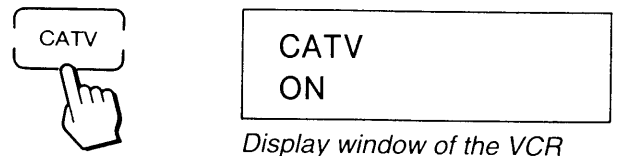
The air TV channels can be selected when [CATV] is displayed.

The cable TV channels can be selected when [NORMAL] is displayed.



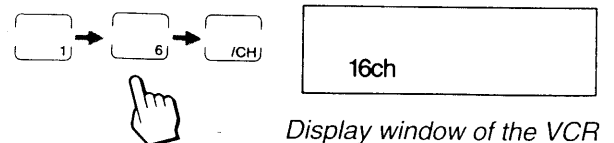
Character display area on the Commander

2 When you select the cable TV channels in step 1 above, press CATV on the VCR and display "CATV ON" on the display window of the VCR.

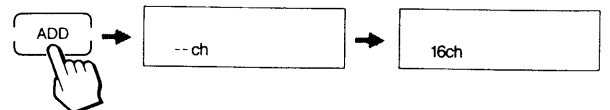


3 Press the numeral(s) of the channel and /CH on the Commander.

Ex. To preset channel 16



4 Press ADD on the VCR until "-- CH" appears on the display window of the VCR.



If you cannot preset the air TV channels

Check the display window of the VCR by pressing CATV on the VCR. Make sure that "CATV OFF" appears on the display window.

Cable TV Channel Assignment

Cable TV systems use letters or numbers to designate the channels. To tune-in a CATV channel, refer to the chart below which shows the CATV channel numbers on this VCR and the corresponding CATV channel. Note that the

channel number assignment shown in the chart may not correspond to the channel number used by your local cable TV company. Check with your local cable TV company for more information on the available channels.

| | |
|-----------------------------------|---|
| Number on this VCR | 1 2 ... 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 |
| Corresponding CATV channel | A-8 2 ... 13 A B C D E F G H I J K L M N O |

| | |
|-----------------------------------|--|
| Number on this VCR | 29 30 31 32 33 34 35 36 37 ... 94 95 96 97 98 99 100 ... 125 |
| Corresponding CATV channel | P Q R S T U V W W+1 ... W+58 A-5 A-4 A-3 A-2 A-1 W+59 ... W+84 |

This VCR is designed to correspond to the Standard cable system. However, the cable TV services may vary from area to area. Your local cable TV company may be either the HRC*1 or IRC*2 cable system. Even in these cases, this VCR is capable of receiving either of these cable systems in the best condition.

***1 HRC (Harmonic Related Carriers)**

All channels except for 5 and 6 are 1250 kHz lower than the Standard cable system. Channels 5 and 6 are 750 kHz higher than the Standard cable system.

***2 IRC (Incremental Related Carriers)**

All channels except for 5 and 6 are the same as the Standard cable system. Channels 5 and 6 are 2000 kHz higher than the Standard cable system.

Handling Video Cassettes

Inserting a Cassette

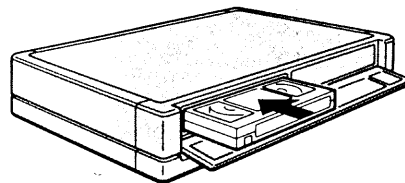
Insert the cassette fully into the compartment by slowly pressing its center with the arrow indication facing upwards.

Auto power on

If the AC power cord is connected to the wall outlet, the power will be automatically turned on.

Auto play

If the safety tab is removed (page 55), playback begins automatically.



Ejecting a Cassette

Preparation

Keep ? depressed.

The Commander enters the HOME mode.

- When the Commander is in the SLEEP mode
Press STATUS. The Commander enters the MONITOR mode and ? is displayed.

Operation

Press \triangle .

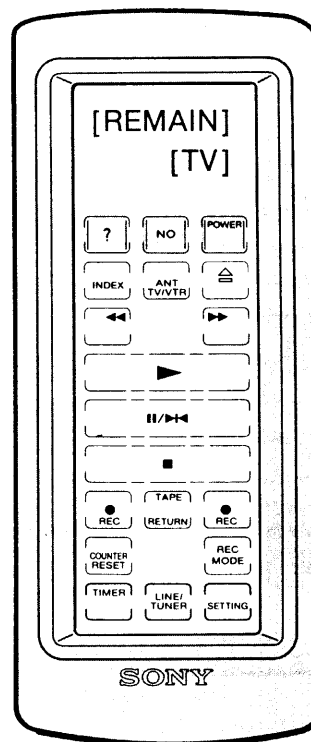
The cassette is ejected. When operating with the Commander, the touch panel opens automatically.

During recording, press \blacksquare to stop the tape and press \triangle .

Direct eject

Even when the power is turned off, press of \triangle turns the power on and the the cassette is ejected. The power is turned off after the cassette is removed.

HOME mode



Tape Length and Recording Time

| Cassette | ⓑI mode | ⓑII mode | ⓑIII mode |
|----------|---------------|---------------|---------------|
| L-125 | 15 min. | 30 min. | 45 min. |
| L-250 | 30 min. | 1 hr. | 1 hr. 30 min. |
| L-500 | 1 hr. | 2 hr. | 3 hr. |
| L-750 | 1 hr. 30 min. | 3 hr. | 4 hr. 30 min. |
| L-830 | 1 hr. 40 min. | 3 hr. 30 min. | 5 hr. |

When recording

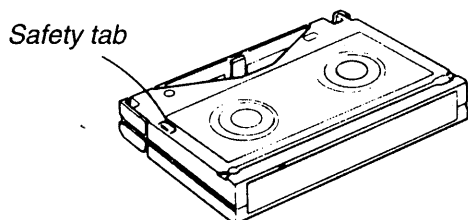
Three recording modes, ⓑI, ⓑII, and ⓑIII can be selected. Refer to “Recording TV Programs, Changing the recording mode” page 70.

When playing back

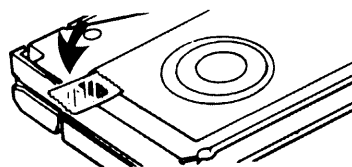
The mode is automatically switched according to the tape.

To avoid erasing the recording

Break off the safety tab with a screwdriver or a similar tool.



To re-record on the same cassette, cover the opening where the safety tab was removed with a piece of plastic tape.

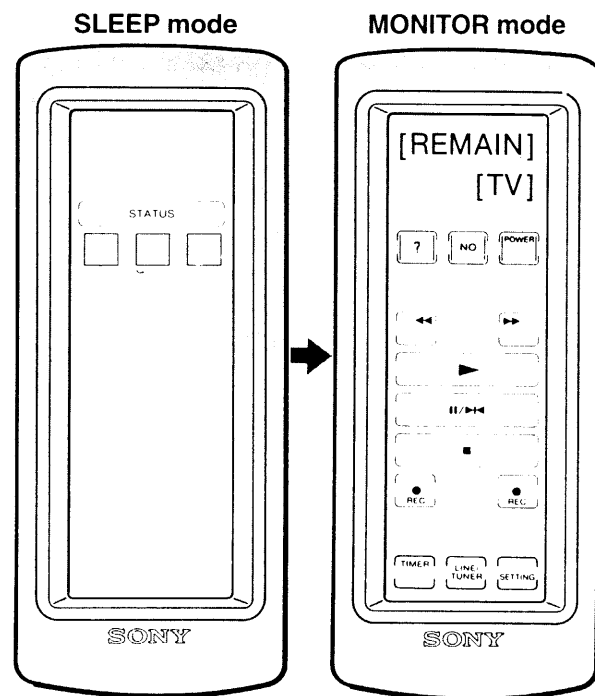


Playing a Tape

In this section, the operations and functions related to tape playback is explained.

Preparation

- Turn on the power of the TV.
- Select the channel for VCR playback (channel 3 or 4) on the TV. If the VCR and the TV is connected by the Audio/Video connecting cables, select the input for VCR on the TV.
- If no keys on the Commander are operable
Check that the same command mode is selected on the Commander and the VCR.
- If the command mode of the Commander is different from that of the VCR
Press SETTING to enter the Commander. On the VCR, press COMMAND MODE.



Playback

- 1 Point the Commander to the VCR and press STATUS.**
Power to the VCR is turned on and the Commander enters the MONITOR mode.
- 2 Insert a cassette.**
- 3 Press ►.**

If you press ► without inserting a cassette

The touch panel opens automatically and the VCR displays "PLEASE INSERT A CASSETTE" on the display window.

Auto play

If a cassette with its safety tab broken off is inserted to when the power is turned off, playback starts automatically.

Auto rewind

The tape is automatically rewound to the beginning when played back to the end.

To stop playback

Press ■.

To advance the tape rapidly

Stop the tape and press ►►.

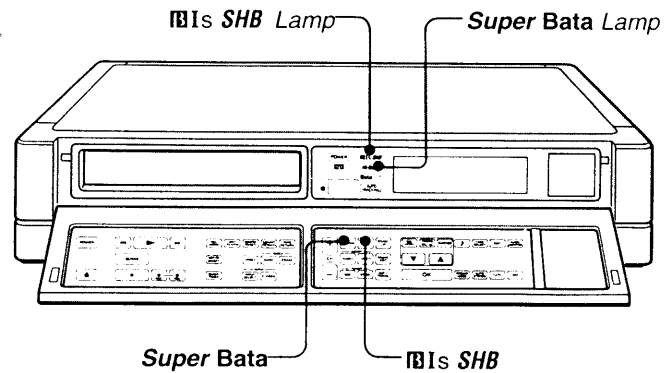
To rewind the tape

Stop the tape and press ◀◀.

Selecting the Playback Mode

Cannot be performed by the Commander.

Select the playback mode according to the type of tape being used. Playback in modes not recommended may cause noise in the picture.



| Tape | Recording mode | lamp | lamp | Playback mode |
|---|-------------------------------|-----------|-----------|-------------------|
| Recorded with Hi-Fi SHB recording function. | Hi-Fi SHB | off or on | on | Hi-Fi SHB |
| Recorded with Super Beta recording function. | Hi-Fi | on | off | Super Beta |
| | Hi-II, Hi-III | on | off or on | |
| Recorded with Hi-Fi SHB and Super Beta recording function turned off. | Hi-Fi | on | off | Super Beta |
| | Hi-II, Hi-III | off | off or on | |
| Recorded on VCR that does not have Super Beta or Hi-Fi SHB function. | Hi-I, Hi-II and Hi-III | off | off | Normal |

Even if the Super Beta recording function is turned off

Recording in **Hi-I** mode automatically results in **Super Beta** mode (**Hi-Fi SHB** mode).

Various Playback Modes

Operations available on the VCR and in the MONITOR mode of the Commander

To search for a particular scene - Betascan

Picture can be viewed during fast-forward or rewind mode while the following key is pressed. Keep ►► depressed during playback for fastforward with picture. Keep ◀◀ depressed during playback for rewind with picture. To resume normal playback, release the key.

To view the picture momentarily during the fast-forward or rewind mode - Beta skipscan

To view the picture during the fast-forward (rewind) mode, keep ►► (◀◀) depressed. To resume the fast-forward or rewind mode, release the key.

To obtain a freeze picture

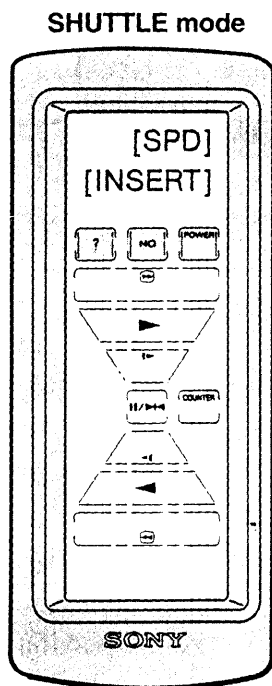
During playback mode, press ||/▶◀. The Commander enters the SHUTTLE mode.

To stop the tape

Press NO to return to the MONITOR or HOME mode and press ■.

Operations available in the SHUTTLE mode of the Commander

Keys located above **II/▶◀** is for forward playback and below **II/▶◀** is for reverse playback. The playback speed can be selected with [SPD]. Note that no sound can be heard during the playback of the SHUTTLE mode.



To watch a shuttle playback

Rub the keys between **II/▶◀** and **▶** for forward direction shuttle and between **II/▶◀** and **◀** for reverse direction shuttle. When rubbing the keys, the playback speed changes as follows:
Freeze picture – Slow motion picture – X1 (Normal speed picture) – Betascan

To watch slow motion playback

Press [SPD] to select X1/5[SPD] or X1/10[SPD]. Press **◀** for reverse slow. To resume forward slow, press **▶**.

To watch the picture at 2 times the normal speed

Press [SPD] and display X2 [SPD] on the Commander's character display area. Press **◀** for 2 times reverse picture. To resume 2 times forward picture, press **▶**.

To watch a frame-by-frame picture

Press [SPD] and display FRM[SPD] on the Commander's character display area. Press **▶** during pause/still for frame-by-frame forward. Press **◀** during pause/still for frame-by-frame reverse. One press moves the picture one frame.

To return to the pause/freeze mode

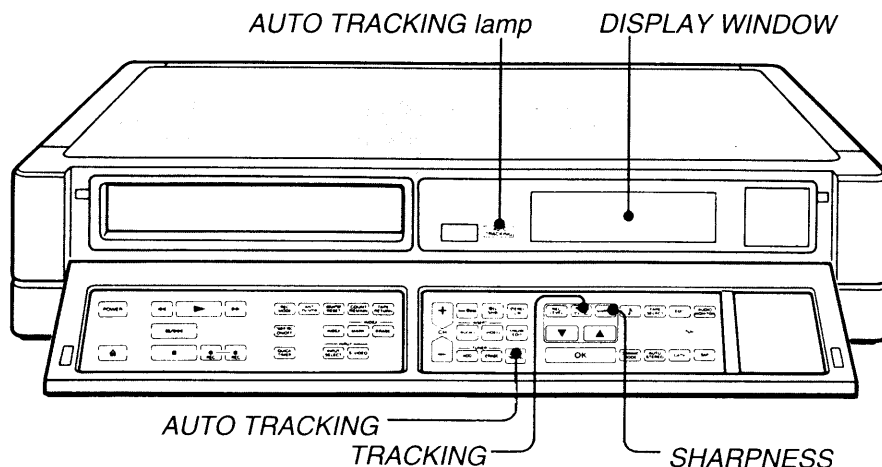
Press **II/▶◀**.

To listen to sound during the playback of the SHUTTLE mode

No sound can be heard in the SHUTTLE mode. Press NO to return to the MONITOR or HOME mode and press **■**.

Adjusting the Picture

Cannot be performed by the Remote Commander.

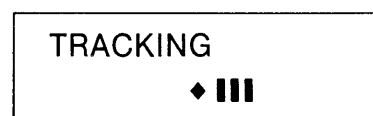
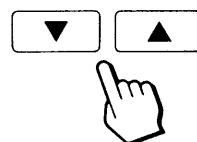


If streaks appear in the picture during normal playback

- 1 Press **TRACKING/STILL ADJ** on the VCR.
TRACKING display appears with the current setting.



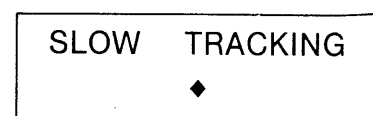
- 2 Press **▼** or **▲** on the VCR to move the streaks out of the screen.



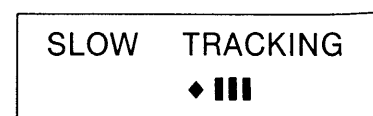
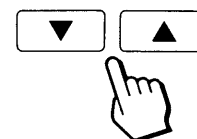
AUTO TRACKING lamp is turned off.

If streaks or noise appear in the slow mode

- 1 Press **TRACKING/STILL ADJ** on the VCR.
SLOW TRACKING display appears with the current setting.



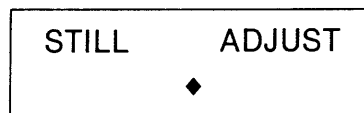
- 2 Press **▼** or **▲** on the VCR to adjust the picture.



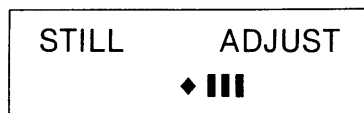
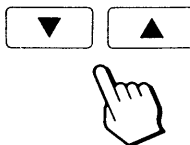
AUTO TRACKING lamp is still on.

If picture shakes in the freeze mode

- 1 Press TRACKING/STILL ADJ on the VCR.**
STILL ADJUST (adjustment) display appears with the current setting.



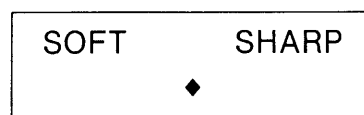
- 2 Press ▼ or ▲ on the VCR to stabilize the picture.**



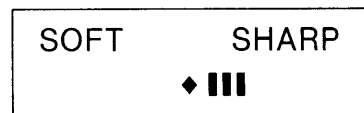
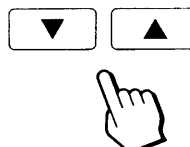
AUTO TRACKING lamp is still on.

Adjusting the sharpness and softness

- 1 Press SHARPNESS during normal playback.**
SOFT/SHARP display appears with the current setting.



- 2 Press ▼ or ▲ on the VCR to control the picture.**
To soften the picture: Press ▼.
To sharpen the picture: Press ▲.



AUTO TRACKING lamp is still on.

On the display window

The display automatically returns to the normal display after 5 seconds. To return to normal screen within 5 seconds, press OK.

On the automatic tracking

When a cassette is inserted, the AUTO TRACKING indicator is turned on and the picture is controlled to the maximum tracking condition. After adjusting with TRACKING/STILL ADJ during the normal playback, pressing AUTO TRACKING makes the VCR to return to the automatic tracking condition.

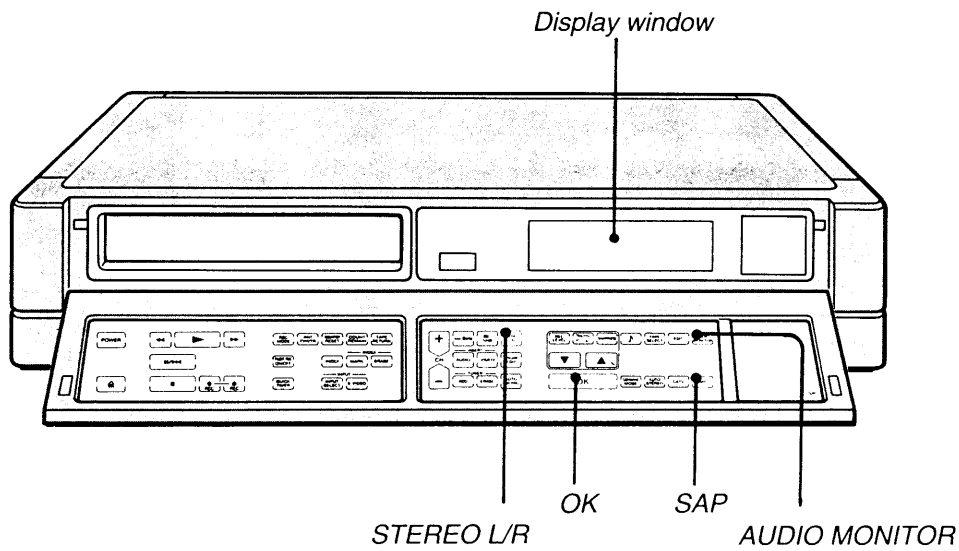
When playing back tapes recorded in $\overline{\text{BI}}$ or $\overline{\text{BI}}$ s

Picture may lose color or become noisy.

When playing the tape whose recording mode is not unique

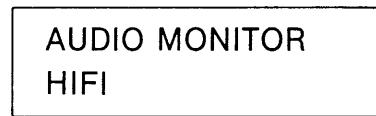
Picture may become noisy if the recording mode cannot be detected correctly.

Selecting the Monitor Sound of Beta Hi-fi Stereo Sound Programs

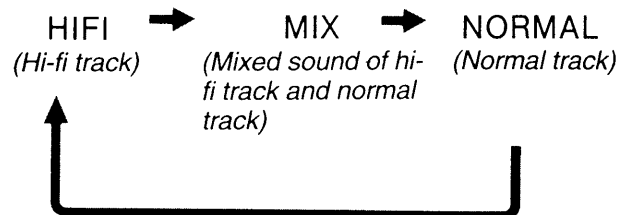


Selecting the playback track

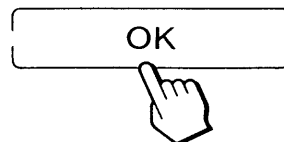
- 1 Press AUDIO MONITOR on the VCR.**
AUDIO MONITOR display appears with the current setting.
 - If HIFI is displayed: go to step 3.
 - If HIFI is not displayed: go to step 2.



- 2 Press AUDIO MONITOR to select HIFI.**
Each press changes the setting in the following order.

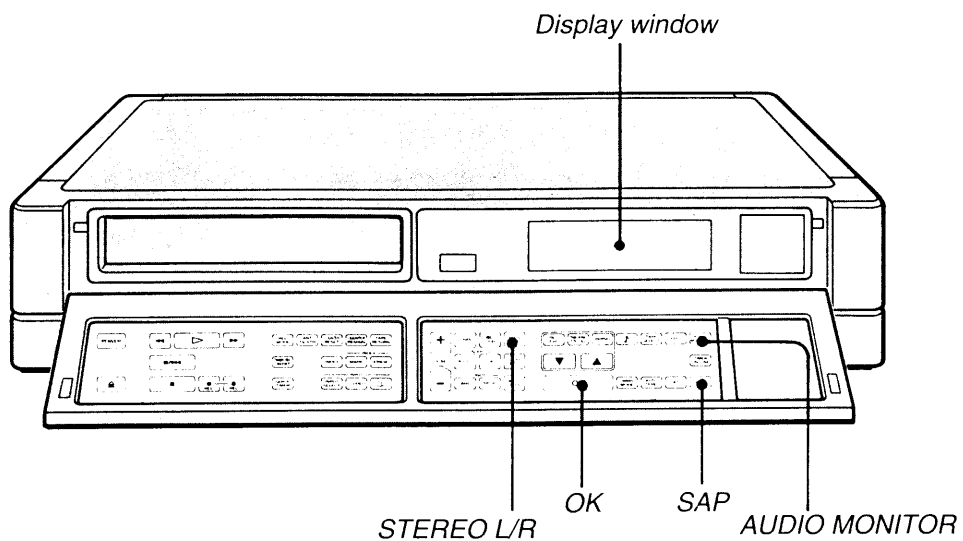


- 3 Press OK or leave the display as it is for more than 5 seconds.**
The new setting is stored and the display returns to the previous display.

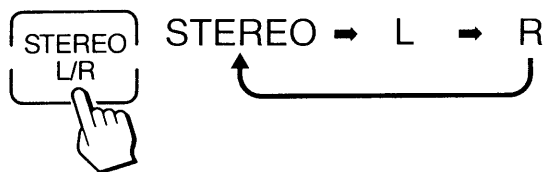


Selecting the monitor sound of a stereo program

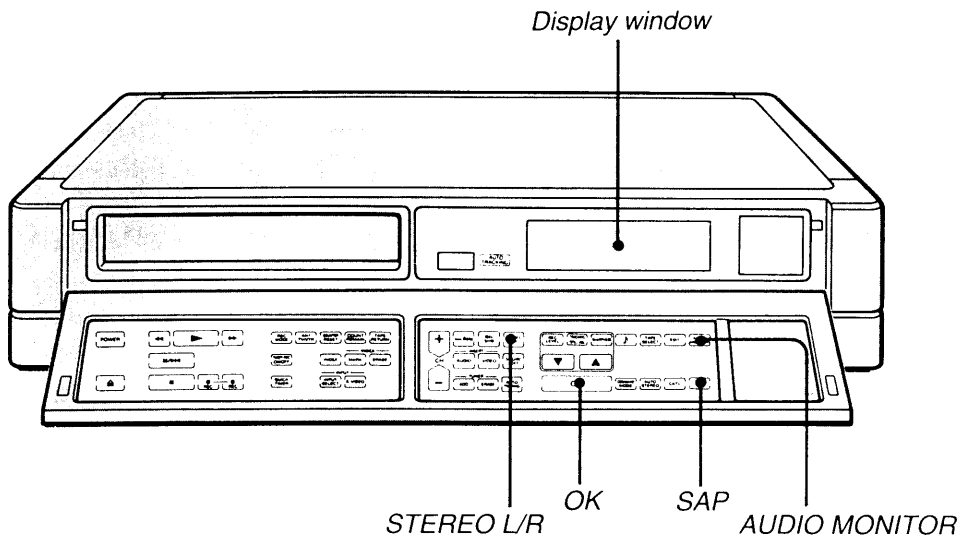
Cannot be performed by the Commander.



Press STEREO L/R to select the monitor sound.
Each press of STEREO L/R changes the monitor sound in the following order.

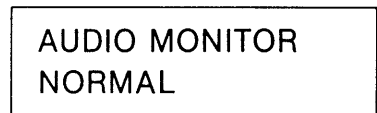


Selecting the SAP Sound Recorded with SAP set to SAP ON



Selecting the playback track

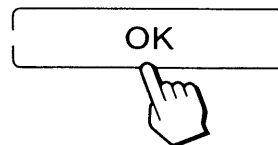
- 1 Press AUDIO MONITOR on the VCR.**
AUDIO MONITOR display appears with the current setting.
 - If MIX or NORMAL is displayed: go to step 3.
 - If MIX or NORMAL is not displayed: go to step 2.



- 2 Press AUDIO MONITOR to select MIX or NORMAL.**
When you select MIX, both the SAP and MAIN sound is heard.
When you select NORMAL, only the SAP sound is heard.



- 3 Press OK or leave the display as it is for more than 5 seconds.**
The new setting is stored and the display returns to the previous display.



Recording TV Programs

Preparation

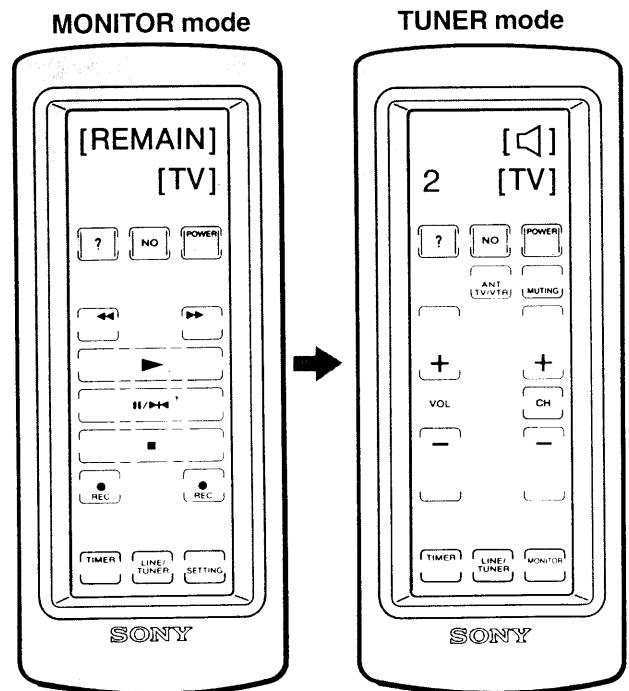
Check the following points:

- Make sure that the connections have been made correctly.
- Turn on the TV and select the channel (channel 3 or 4) for VCR playback on the TV.

If connection between the VCR and the TV is made via the AV connecting cable, select video input on the TV.

Press LINE/TUNER on the Commander and enter the TUNER mode.

- **If LINE/TUNER is not displayed**
Keep ? depressed. The Commander enters the HOME mode and LINE/TUNER is displayed.



Operation

- 1 Insert a cassette.**
The VCR automatically turns on.

- 2 Press ANT TV/VTR.**
The VTR indicator lights on the display window of the VCR.
Skip this step if the VCR and the TV is connected via an AV connecting cable.



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 transmission and/or program owner.

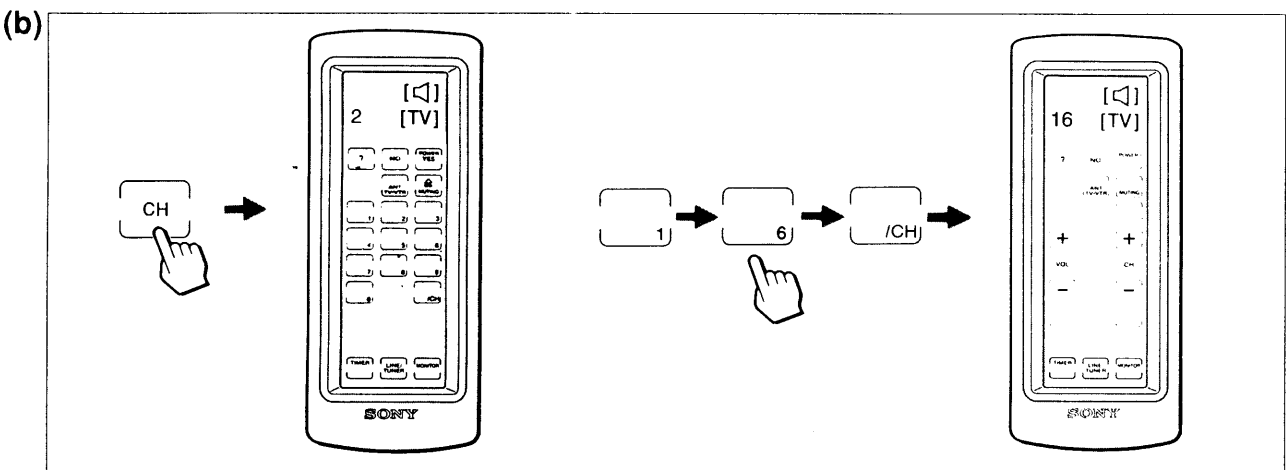
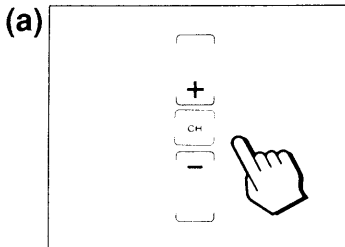
3 Select the channel to record. Two ways below are available.

(a): Press CH +/- . Preset channels are received.

(b): Press CH to display the numerals. Press the numeral(s) of the desired channel and press /CH.

Ex. To select channel 16

Press 1, 6 and /CH. The Commander returns to the previous display.



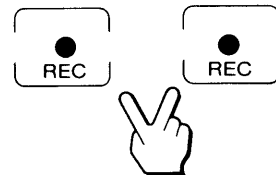
4 Press MONITOR or NO.

The Commander enters the MONITOR mode.



5 Press REC ● and REC ● simultaneously.

Recording begins.



To stop recording

Press ■.

To stop the tape for a moment

Press II/▶◀. When the recording pause mode lasts for more than approximately 8 minutes, the VCR automatically enters the stop mode.

To resume recording.

Press II/▶◀ again.

To record TV programs without watching it

Turn off the power of the TV or monitor. Recording continues.

Auto rewind function

The tape will be rewound to the beginning when recording is made to the end of the tape.

If a tape with its safety tab removed is inserted

Press of REC ● - REC ● ejects the cassette with "PLEASE CHANGE THE CASSETTE" message scrolling in the display window.

If no keys on the Commander are operable

Check that the same command mode is selected on the Commander and the VCR.
On the VCR, press COMMAND MODE.
On the Commander, press SETTING to enter the COMMAND MODE.

If the desired channel is not selected in the ste

Check the same setting for the TV channels is selected on the Commander and the VCR.

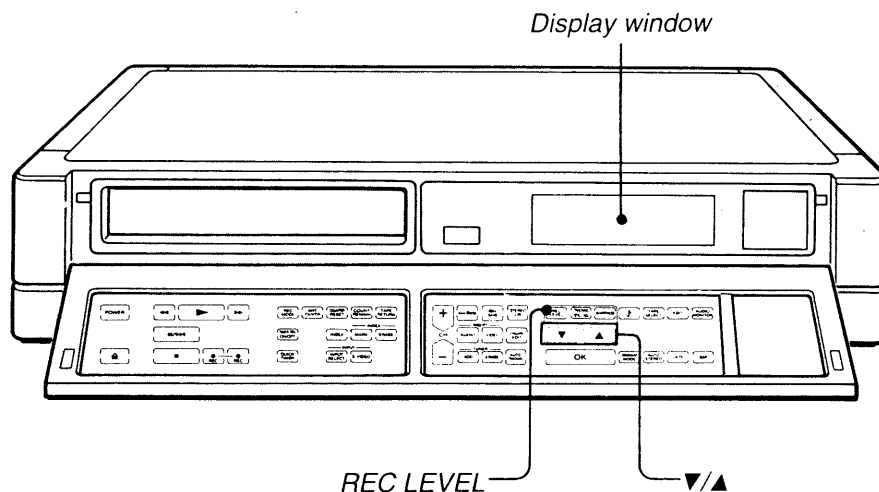
On the VCR, press CATV.

On the Commander press SETTING to enter the TUNER PRESET mode.

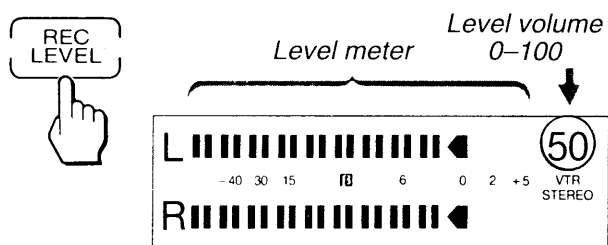
- When you select "CATV OFF" on the VCR, display [CATV OFF] on the Commander.
- When you select "CATV ON" on the VCR, display [NORMAL] on the Commander.

Adjusting the Recording Level

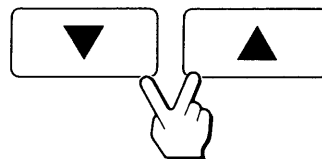
Cannot be performed by the Commander.



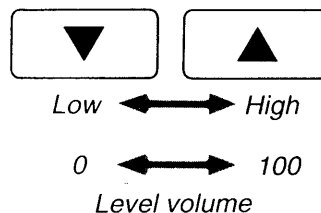
- 1 Press REC LEVEL on the VCR.**
The recording level meter is displayed with the current setting.



- 2 Press ▼/▲ on the VCR simultaneously.**
The level volume will show 50. This is the center position for the recording level.



- 3 Press ▼ or ▲.**
Select the recording level referring to the "Reference for recording level adjustment".



Reference for recording level adjustment

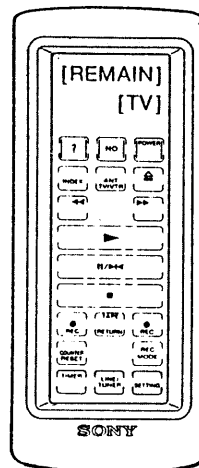
Set to the recording level below depending upon the input source.
The peak level is held for approximately 2 seconds.

| | |
|-----------------------|-----------------------------------|
| Conversation | One ◀ indicator lights sometimes. |
| Record | One ◀ indicator always lights. |
| CD, PCM source | One ◀ indicator rarely lights. |

To Change the Recording Mode

- 1 Keep **?** depressed to enter the HOME mode.

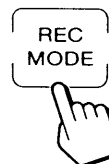
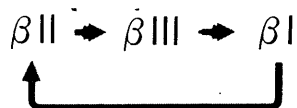
HOME mode



- 2 Press REC MODE.

The current recording mode appears on the Commander's character display area. It is normally set to **βII**.

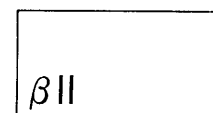
Press REC MODE to select the recording mode. Each press of REC MODE changes the setting in the following order.



Display window of the VCR



Character display area of the Commander



Disappears after 5 seconds

On Super Beta mode

Recording performed by pressing the **Super Beta** key and lighting the **Super Beta** lamp activates the **Super Beta** circuit that realizes high quality picture recording. Note that with this VCR, recording in **βI** mode automatically results in **Super Beta** mode (**βIS** mode).

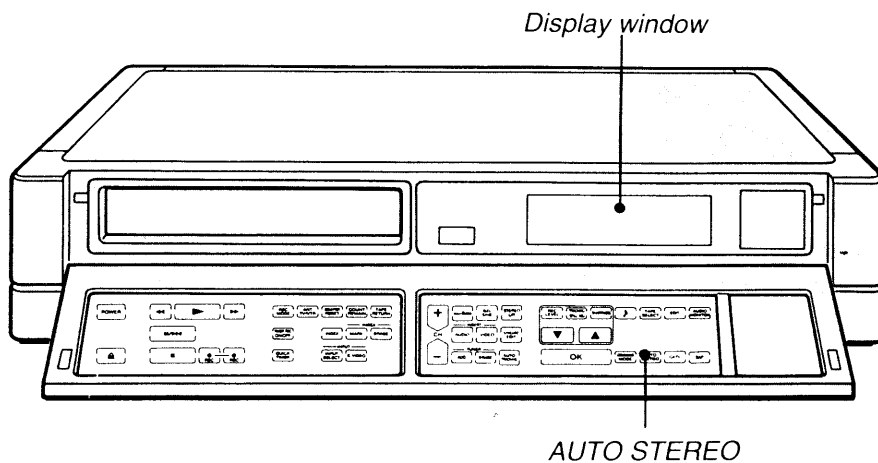
On βIS SHB mode

The **βIS SHB** mode further shifts the video frequency of **Super Beta** mode 5.6 MHz to 6.0 MHz. To record in the **βIS SHB** mode, press **βIS SHB** on the VCR while the recording mode is set to **βI**. Note that to achieve the best of the high quality picture recording feature of the **βIS SHB** mode, use high quality video cassette tapes such as the Sony PRO-X series is recommended. When recording in the **βII** or **βIII** mode, the **βIS SHB** mode is not available even if the **βIS SHB** indicator is on.

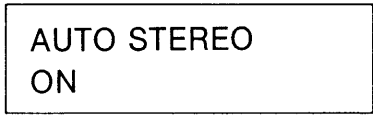
Receiving and Recording Multichannel TV Sound (MTS) Broadcasts (Stereocasts)

Cannot be performed by the Commander.

With this VCR, a stereo broadcast program is automatically recorded in stereo. However, if there is noise in the stereo broadcast, it is better to record in monaural. Change the setting referring to the following procedure.



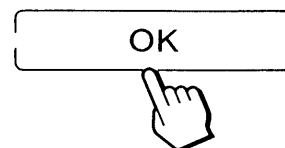
- 1** Press **AUTO STEREO** on the VCR.
 AUTO STEREO display appears with the current setting.



- 2** Press **AUTO STEREO** to select the desired setting.
 To record in stereo: ON
 When there is too much noise in the stereo sound:
 OFF (recording is made in monaural)
 Each press of AUTO STEREO changes the setting in the following order.
 ON ↔ OFF



- 3** Press **OK** or leave the display as it is for 5 seconds.
 The new setting is stored and the display returns to the previous display.
 Recording is made as follows:

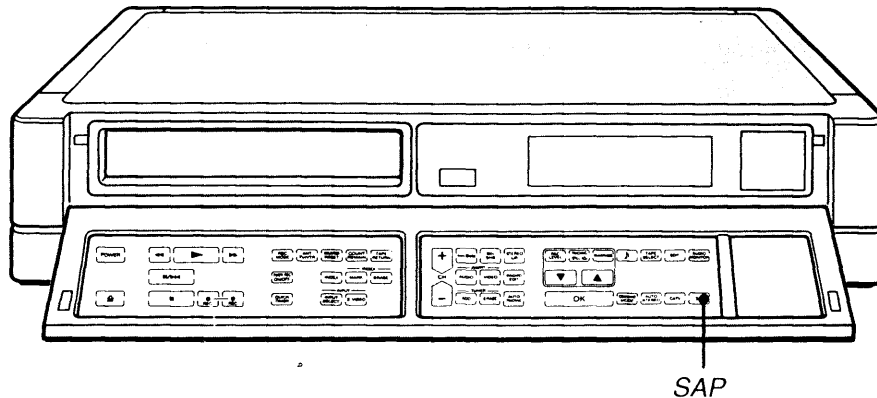


| | AUTO STEREO ON | AUTO STEREO OFF |
|-------------------------|-----------------------|------------------------|
| Beta hi-fi track | Stereo | Monaural |
| Normal track | Monaural | |

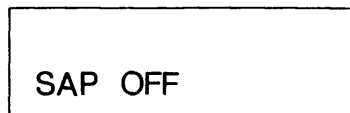
Receiving and Recording Second Audio Program (SAP) Broadcasts

Cannot be performed by the Commander.

With this VCR, the main sound is recorded on the Beta hi-fi track and the SAP sound is recorded on the normal track. Change the setting referring to the following procedure.



- 1 Press SAP on the VCR.**
SAP display appears with the current setting.



- 2 Press SAP to select the desired setting.**
To record an SAP broadcast: SAP ON
To record a MAIN broadcast only: SAP OFF
Each press of SAP changes the setting in the following order.



SAP OFF ↔ SAP ON

- 3 Press OK or leave the display as it is for 5 seconds.**
The new setting is stored and the display returns to the previous display.
Recording is made as follows:

| | SAP OFF | SAP ON |
|------------------|------------|-----------|
| Beta hi-fi track | Main sound | |
| Normal track | Main sound | SAP sound |

To monitor the SAP sound during recording

- 1 Press AUDIO MOMITOR on the VCR.**
AUDIO MONITOR display appears with the current setting.

 - 2 Press AUDIO MONITOR to select NORMAL.**

 - 3 Press OK or leave the display as it is for more than 5 seconds.**
The new setting is stored and the display returns to the previous display.
-

Note

When an SAP sound is not to be recorded, be sure to set the SAP display to SAP OFF. If it is set to SAP ON and there is no SAP broadcast, no sound is recorded on the normal track.

Temporarily Stopping Recording at a Particular Point

Technique 1

You can stop recording temporarily when unwanted scene appears and resume when that scene is over.

- 1 Press II/▶◀ when an unwanted scene appears.**
The VCR enters the recording pause mode.*
-

- 2 Press II/▶◀ when that scene is over.**
Recording resumes.
-

***If unwanted scene is recorded**

During the recording pause mode, follow the procedure below to delete that scene on the tape and continue recording smoothly.

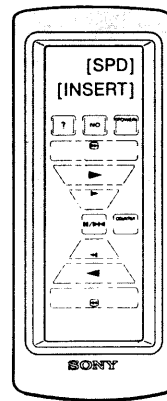
- 1 Press ▶ on the Commander.**
The VCR enters the playback pause mode, and the Commander enters the SHUTTLE mode.
- 2 Rewind the tape by rubbing the keys between II/▶◀ and ⏮ (Shuttle playback).**
- 3 Release your finger at the point where you want recording to resume.**
- 4 Press NO to enter the MONITOR mode.**
- 5 Press REC ● – REC ● simultaneously.**
The VCR enters the recording pause mode.

Technique 2

You can rewind the tape to a particular scene and smoothly record over from that point.

- 1** Play back the tape and press **II/▶◀** at the point the new recording should begin.
The VCR enters the playback pause mode and the Commander enters the SHUTTLE mode.

SHUTTLE mode

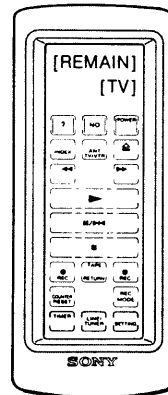
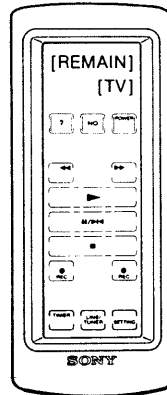


- 2** Rub the keys between **II/▶◀** and **◀▶** (**◀▶** and **II/▶◀**) to locate the start point more precisely.

- 3** Press **NO**.
The Commander enters the MONITOR or HOME mode.

MONITOR mode

HOME mode



- 4** Press **REC ● – REC ●** simultaneously.
The VCR enters the recording pause mode.

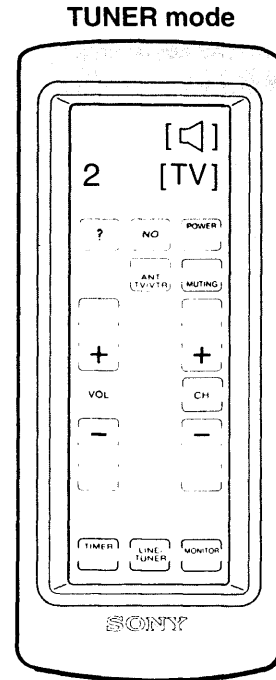
- 5** Press **II/▶◀**.
Recording resumes from that point.

How to Use ANT TV/VTR

Preparation

Press LINE/TUNER on the Commander to enter the TUNER mode.

- When the Commander is in the SLEEP mode Press STATUS.
- If LINE/TUNER is not displayed Keep ? depressed. LINE/TUNER appears.



Watching one TV program while recording another

1 Press ANT TV/VTR so that the VTR indicator on the display window is turned off.

2 Select the channel you want to watch on the TV.
Recording continues even if the power of the TV is turned off.

To watch the playback picture of the VCR

1 Select the channel for the VCR (3 CH or 4 CH).
If connection between the VCR and the TV is made via the AV connecting cable, select the input for the VCR.

2 Insert a cassette and press ►.
The VTR indicator on the display window lights automatically.

To change the channel of the TV using the channels on the VCR

- 1 Select the channel for the VCR (3 CH or 4 CH).**
If connection between the VCR and the TV is made via the AV connecting cable, select the input for the VCR.

 - 2 Press ANT TV/VTR and light the VTR indicator.**

 - 3 Press CH +/- on the VCR to select the desired channel.**
To select the channel directly, see page 67.
-

Notes

- If you are using a color monitor, you cannot watch another program during recording unless the monitor is connected to a TV tuner.
- If connections have been made via VHF/UHF IN/OUT, you can switch to other TV programs only by changing the channel selector on the TV.

To avoid automatic lighting of the VTR indicator during playback

When the power of the VCR is turned off, press POWER keeping TV/VTR on the VCR depressed. Then, you can turn on or off the VTR indicator by pressing ANT TV/VTR during playback.

To make the VTR indicator light automatically during playback, turn off the POWER of the VCR and press POWER keeping TV/VTR of the VCR depressed.

Timer Recording

Preset of up to eight recordings as much as one month in advance can be made. Set the parameters with the Commander and transmit the information to the VCR.

Before You Begin

- The date and clock must be set correctly. (See “Date and Clock Setting” on page 46.)
- Check that the same command mode is selected for the VCR and the Commander.
- Make sure that the cassette tape is long enough to record all the programs.
- Make sure that the safety tab on the cassette is not broken off. If you insert a cassette without its safety tab the cassette will be ejected when attempting to record.
- Check that the recording level is properly set.
- Check that the correct input is selected.

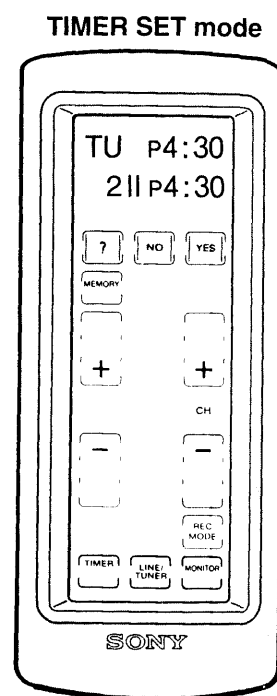
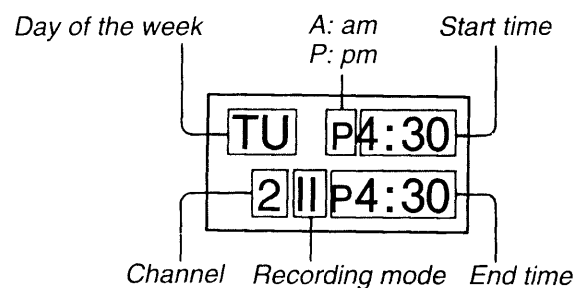
Preparation

Press **TIMER** and enter the **TIMER SET** mode.

- If the Commander is in the **SLEEP** mode
Press **STATUS**. The Commander enters the **MONITOR** mode and **TIMER** appears.
- If **TIMER** is not displayed
Keep **?** depressed. The Commander enters the **HOME** mode and **TIMER** appears.

Character Display Area of the Commander

Current time and date is displayed in the **TIMER SET** mode.



Recording from today to one month later

If today is December 31st, you can set the timer to record a program broadcast between today and January 30 (for 31 days). If today is January 31st, you can set the timer to record a program broadcast between today and February 28th (for 29 days). A leap year is automatically considered.

If the Commander enters the **CLOCK SET** mode when pressing **TIMER**

You have not yet set the date and clock. Refer to “Date and Clock Setting” page 46.

Operation

Example: To set to July 4th, Thursday, 1991 from 9 pm to 11:45 pm on channel 8. Note that AM 12:00 is midnight and PM 12:00 is noon.

- 1 Press day.**
Day blinks.
Change the setting to TH by pressing +/- while the indication is blinking.
- 2 Press starting hour.**
Starting hour blinks.
Change the setting to P9 by pressing +/- while the indication is blinking.
- 3 Press starting minute.**
Starting minute blinks.
Change the setting to 00 by pressing +/- while the indication is blinking.
- 4 Press end hour.**
End hour blinks.
Change the setting to 11 by pressing +/- while the indication is blinking.
- 5 Press end minute.**
End minute blinks.
Change the setting to 45 by pressing +/- while the indication is blinking.
- 6 Press channel.**
Channel blinks.
Change the setting to 8 by pressing CH +/- while the indication is blinking.
- 7 Check the setting and press YES.**
TRANSMIT appears.
- 8 While TRANSMIT is displayed, press YES again to transmit the setting to the VCR.**
The VCR enters the timer recording standby mode.

3 Operations (Recording)

To preset another program

Repeat steps 1 to 8.

Preset of up to eight programs can be made.

If a beep sounds repeatedly in the step 8

The timer setting cannot be transmitted to the VCR. Check the setting for air or cable TV channels on the VCR and the Commander.

On the VCR, press CATV.

On the Commander, press SETTING and enter the TUNER PRESET mode.

- When you select "CATV OFF" on the VCR, display [CATV] on the Commander.

CATV
ON'

[NORMAL]

VCR's display window

Commander's character display area

- When you select "CATV ON" on the VCR, display [CATV] on the Commander.

CATV
OFF

[CATV]
/

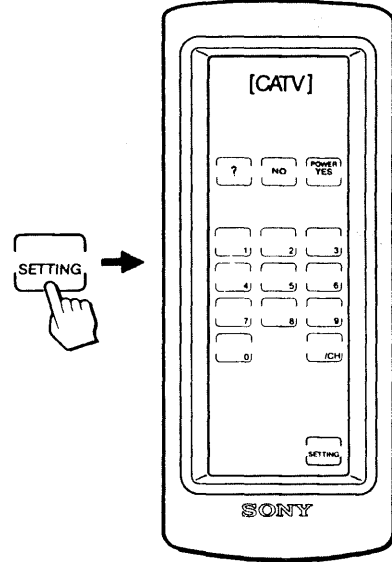
VCR's display window

Commander's character display area

■ On the VCR



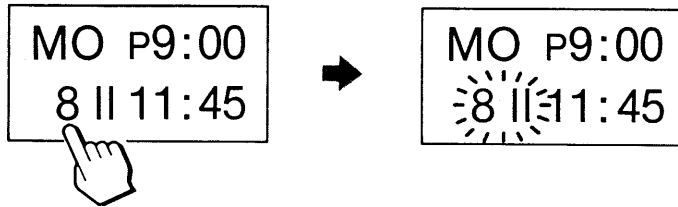
■ On the Commander



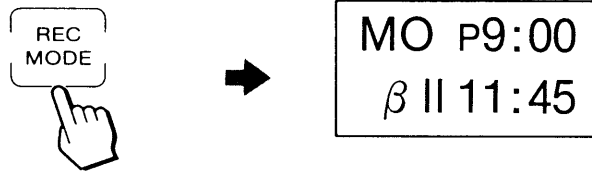
Changing the recording mode

The recording mode is normally set to **βII**. Follow the procedure below to change the setting.

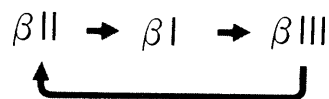
- 1 Press channel.**
Channel blinks.



- 2 Press REC MODE.**
βII appears in the character display area.



- 3 Press REC MODE to select the recording mode.**
Each press of REC MODE changes the setting in the following order.



Press CH +/- or other item in the character display area to return to the previous display.

To record video sources from LINE IN 1, 2 or 3 jacks

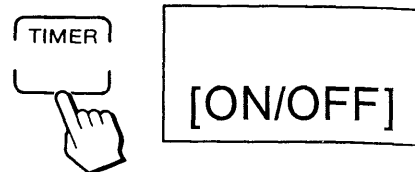
Press +/- instead of CH +/- (or the INPUT SELECT key on the VCR) in step 6. Press of + changes the setting in the following order.

- 2 (Tuner input) → L1 (Video input connected to LINE IN 1) → L2 (Video input connected to LINE IN 2) → L3 (Video input connected to LINE IN 3)

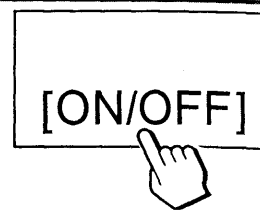
To Stop the Timer Recording That Have Started

On the Commander

- 1 Press TIMER and enter TIMER CHECK mode.**
[ON/OFF] is displayed on the character display area.



- 2 Press [ON/OFF].**
The timer recording stops.



On the VCR

Press TIMER REC ON/OFF.

The timer recording stops. When pressing TIMER REC ON/OFF, keep it depressed longer than other keys to avoid an accidental operation.

If timer recording end time is not set

Recording is made to the end of the tape.

If power interruption occurs

- If a power interruption lasting less than approximately one hour occurs while the VCR is waiting for the timer recording start time, the VCR will re-enter the timer recording standby mode after power is restored.
- If a power interruption lasting more than approximately one hour occurs before a timer recording, "AM 12:00" on the VCR's display window will blink and the memory will be cleared. Reset the date and time for timer recording.
- If a power interruption lasting less than approximately one hour occurs during timer recording, the VCR will start timer recording again. The tape counter will indicate "0H00M00S".

Every day and every week recording

Weekly or daily timer recording can be set on this VCR. This function is convenient if, for example, you wish to record the same program on the same day of the week.

Operation

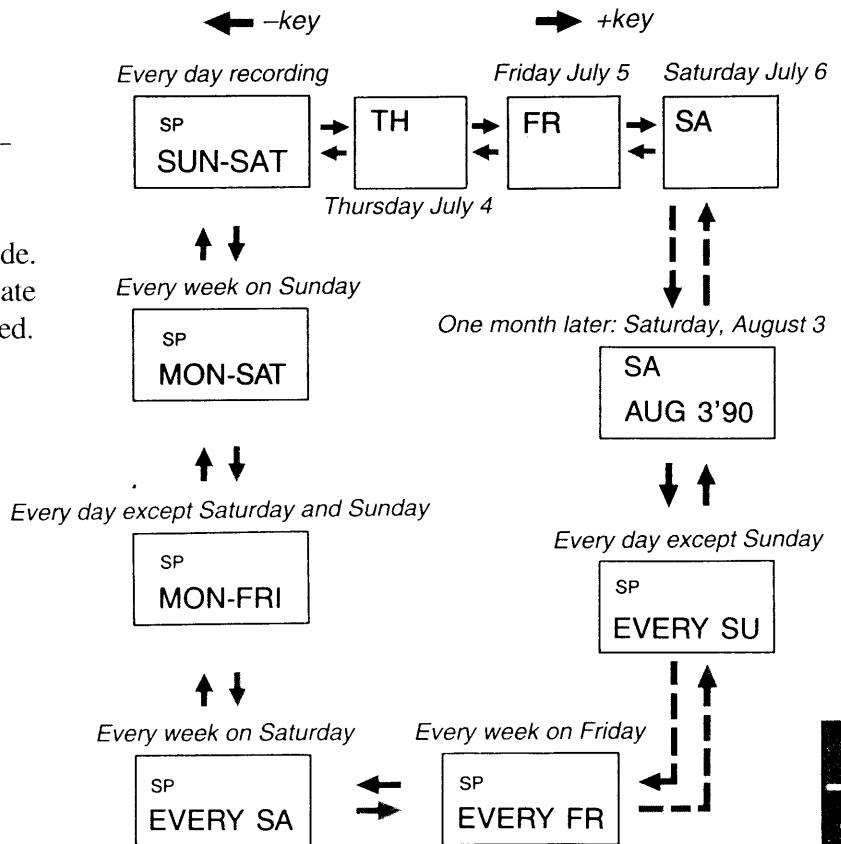
Keep pressing + in step 1 of "Timer Recording - Operation" (page 79).

The indication changes in the following order.

Press of ⇄ changes the display in the reverse mode.

SP appears in the character display area to indicate that every day or every week recording is selected.

Example: If today is Thursday, July 4th



| | Commander's character display area | VCR's display window |
|--|------------------------------------|-----------------------|
| Every week recording Example: Sunday (Same day of the week, same time, same program) | SP EVERY SU | EVERY WEEK SUN |
| Every day of the week except Saturday and Sunday (Same time, same program) | SP MON-FRI | EVERY WEEK MON-FRI |
| Every day of the week except Sunday (Same time, same program) | SP MON-SAT | EVERY WEEK MON-SAT |
| Every day (Same time, same program) | SP SUN-SAT | EVERY WEEK SUN-SAT |

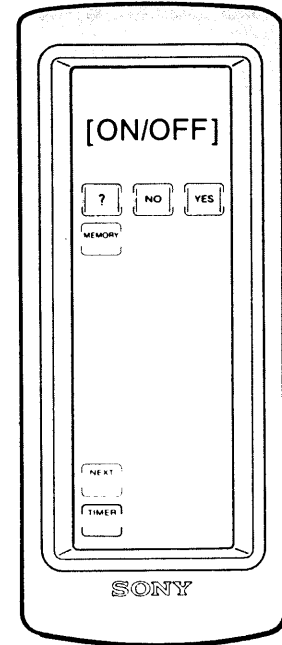
To Check Timer Settings

Preparation

Press **TIMER** and enter the **TIMER CHECK** mode.

- If the Commander is in the **SLEEP** mode
Point the Commander to the **VCR** and press **STATUS**. The Commander enters the **TIMER CHECK** mode.
- If **TIMER** is not displayed
Keep **?** depressed.
The Commander enters the **HOME** mode and **TIMER** appears.

TIMER CHECK mode

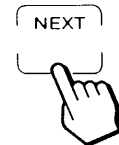


Operation

- 1** **[ON/OFF]** is displayed on the Commander's character display area.

[ON/OFF]

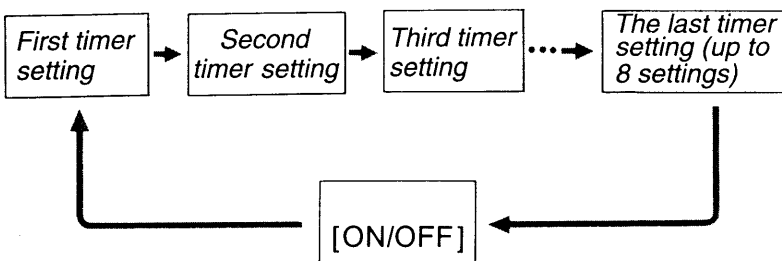
- 2** Press **NEXT**.
The setting of the first timer recording is displayed.



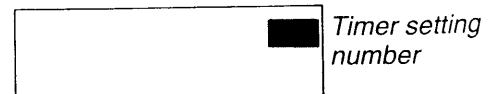
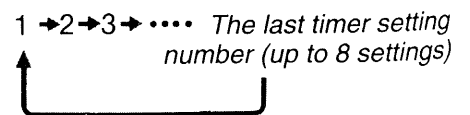
MO P9:00
8 || 11:45

- 3** Press **NEXT** to check the setting.
Press of **NEXT** key changes the timer setting display in the following order.
The display returns to **[ON/OFF]** after the last timer setting.

Commander's character display area



VCR's display window

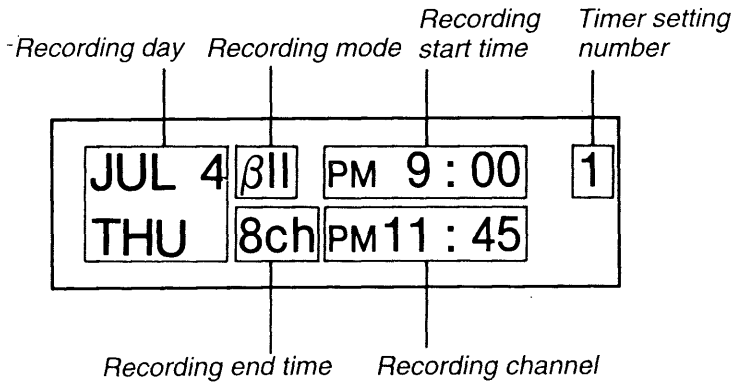
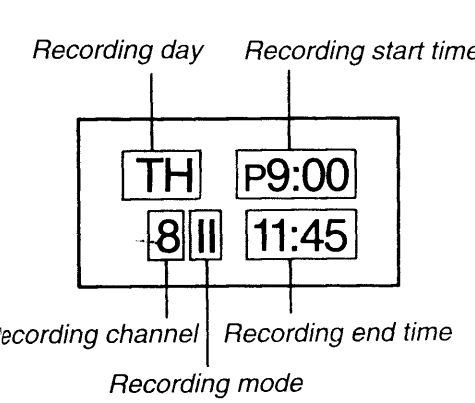


How to read the indications

Example: If timer setting is made on July 4th, Thursday, 1991 from 9 pm to 11:45 pm on channel 8 in β II mode

Commander's character display area

VCR's display window



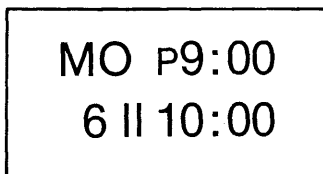
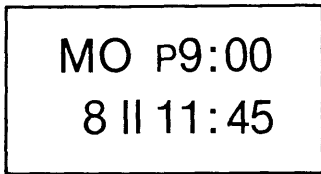
If multiple setting is made on the same day of the week

Example: If setting is made on this week's Monday and on Monday in the following week

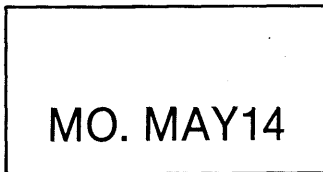
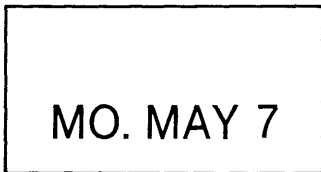
When checking the settings, both day of the week and month and day are displayed on the VCR's display window. On the Commander, the display automatically switches to the month and day display.

First, the timer start time, timer end time, recording mode and recording channel appear.

This week (first timer setting) The following week (second timer setting)



Then, the date appears.



Returns to the initial display after approximately 5 seconds.

If every day or every week setting is made

Example: If timer setting is made for Monday through Saturday 9:00 pm to 11:45 pm on channel 8 in β II mode

Commander's character display area

First, the timer start time, timer end time, recording mode, and recording channel appear.

SP P9:00
8 II 11:45



Then, the date setting appears.

EVERY
MON-SAT



Returns to the initial display after 5 seconds.

VCR's display window

First, the date information appears.

EVERY WEEK
MON-SAT



Then the recording time appears.

β II PM 9:00 1
8ch PM11:45

If you transmit a different timer setting while checking another

The setting that you are checking will be replaced by the new setting.

If you point the Commander to another Sony VCR and press TIMER key

Make sure the same command mode is selected on the Commander and the VCR.

[CLEAR]/[ON/OFF] appears in the Commander's character display area. The following operations will be available.

- Call up other timer settings by pressing NEXT.
- Clear the setting by pressing [CLEAR].
- Turn on or off the timer recording standby mode by pressing [ON/OFF].

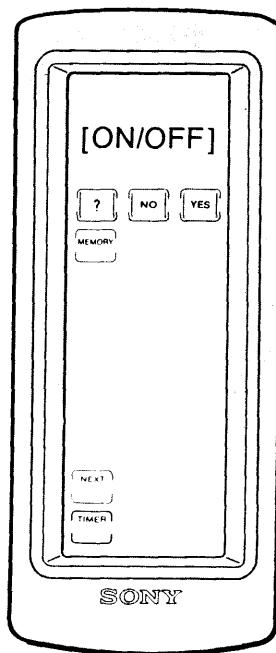
To Change the Timer Settings in the Timer Recording Standby Mode

Preparation

Press **TIMER** and enter the **TIMER CHECK** mode.

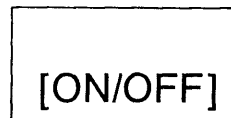
- If the Commander is in the **SLEEP** mode
Point the Commander to the **VCR** and press **STATUS**. The Commander enters the **TIMER CHECK** mode.
- If **TIMER** is not displayed
Keep **?** depressed.
The Commander enters the **HOME** mode and **TIMER** appears.

TIMER CHECK mode

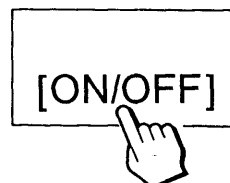


Operation

- 1** **[ON/OFF]** is displayed on the Commander's character display area.



- 2** Press **[ON/OFF]**.
Timer recording standby mode is cancelled.



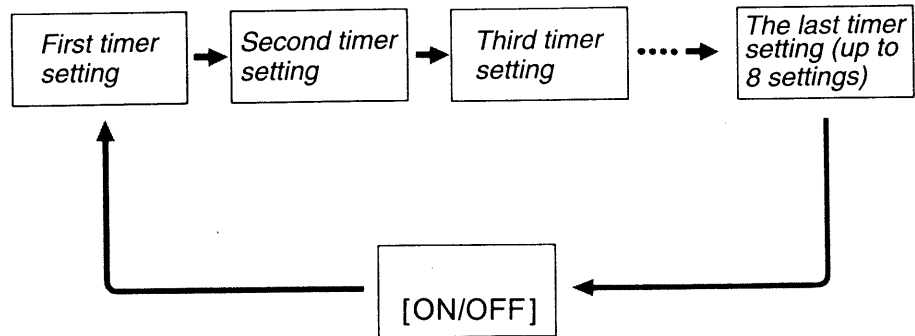
- 3** Press **NEXT**.
The setting of the first timer recording appears.



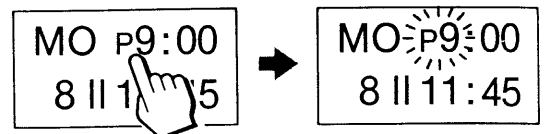
MO P9:00
8 || 11:45

- 4 Press NEXT to check the timer setting.**
Press of NEXT changes the timer setting display in the following order.

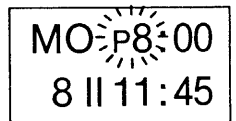
Commander's character display area



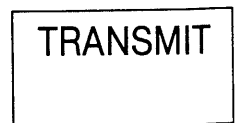
- 5** When the desired setting appears, press the item that you wish to change.



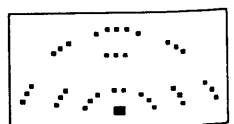
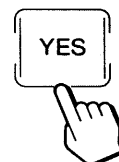
- 6** Change the setting while it is blinking by pressing +/- or CH +/-.



- 7** Check the setting and press YES.
TRANSMIT appears.



- 8** While TRANSMIT is displayed, press YES to transmit the information to the VCR.
The VCR enters the timer recording standby mode.



When the VCR is not in the timer recording standby mode
You need not to press [ON/OFF] in step 2.

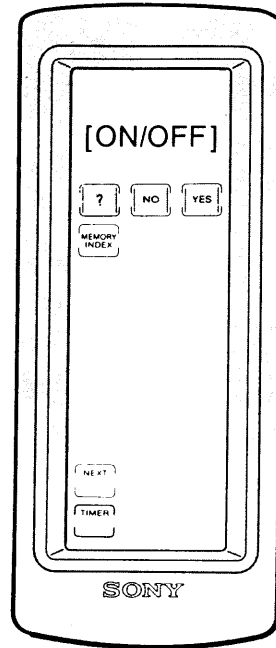
To Cancel Timer Setting in the Timer Recording Standby Mode

Preparation

Press **TIMER** and enter the **TIMER CHECK** mode.

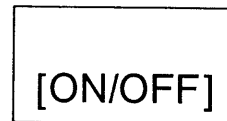
- If the Commander is in the **SLEEP** mode
Point the Commander to the VCR and press **STATUS**. The Commander enters the **TIMER CHECK** mode.
- If **TIMER** is not displayed
Keep **?** depressed.
The Commander enters the **HOME** mode and **TIMER** appears.

TIMER CHECK mode

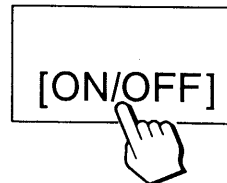


Operation

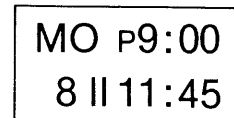
- 1** **[ON/OFF]** is displayed on the Commander's character display area.



- 2** Press **[ON/OFF]**.
Timer recording standby mode is cancelled.

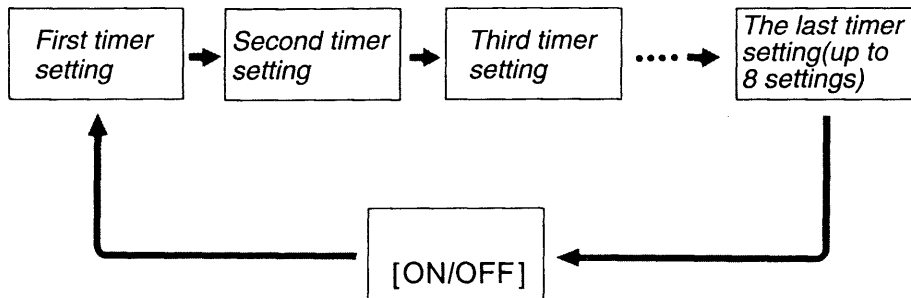


- 3** Press **NEXT**.
The setting of the first timer recording appears.

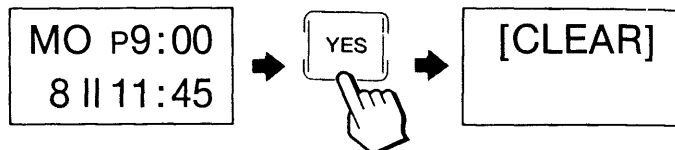


-
- 4 Press NEXT to check the timer setting.**
Press of NEXT changes the timer setting display in the following order.

Commander's character display area



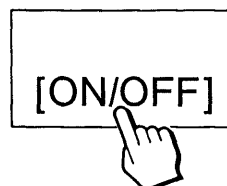
-
- 5 When the desired setting appears, press YES.**



-
- 6 Press [CLEAR].**
The setting is cancelled.
Press [CLEAR] while it is displayed for 5 seconds.



-
- 7 Press [ON/OFF] if there are other settings made.**
The VCR returns to the timer recording standby mode.



When the VCR is not in the timer recording standby mode
You need not to press [ON/OFF] in step 2.

To Use the VCR before Timer Recording Starts

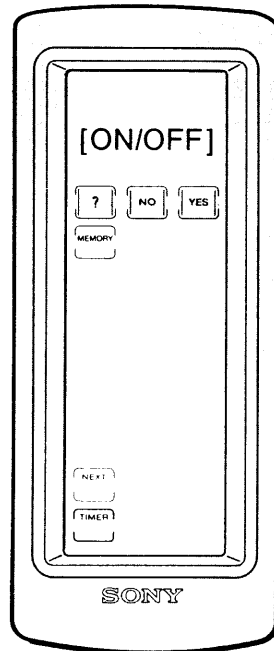
To use the VCR when it is in the timer recording standby mode, get out of the timer recording standby mode.

Preparation

Press **TIMER** and enter the **TIMER CHECK** mode.

- If the Commander is in the **SLEEP** mode
Point the Commander to the VCR and press **STATUS**. The Commander enters the **TIMER CHECK** mode.
- If **TIMER** is not displayed
Keep **?** depressed.
The Commander enters the **HOME** mode and **TIMER** appears.

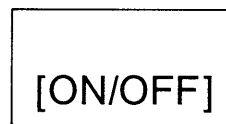
TIMER CHECK mode



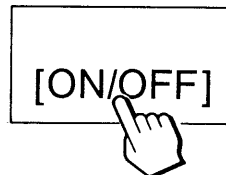
Operation

On the Commander

- 1** **[ON/OFF]** is displayed on the Commander's character display area.



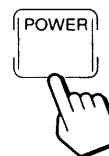
- 2** Press **[ON/OFF]**.
Timer recording standby mode is cancelled.



- 3** Keep **?** depressed.
The Commander enters the **HOME** mode.



- 4** Press **POWER**.
The power is turned on.



Now the VCR is ready to be used. After using the VCR, repeat step 2 with the Commander in the **TIMER CHECK** mode. The VCR returns to the timer recording standby mode.

On the VCR

- 1 Press TIMER REC ON/OFF.**
Timer recording standby mode is cancelled.
-

- 2 Press POWER.**
The power is turned on.

Now the VCR is ready to be used.
After using the VCR, press **TIMER REC ON/OFF**
to return to the timer recording standby mode.

**When the start time of the timer recording comes
when using the VCR**

The setting will be erased.

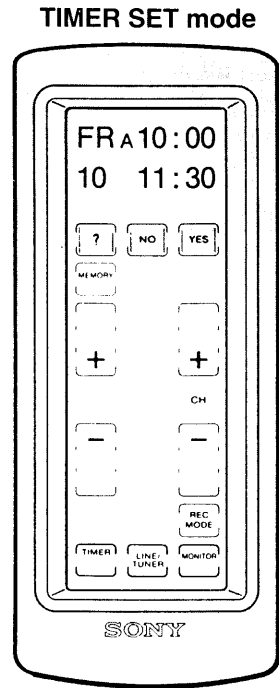
Naming the Timer Setting – Custom Memory

A personal identification name can be given to up to 6 timer settings. You can call up the setting referring to that name and transmit to the VCR. 6 out of 38 characters plus one space can be used.

Preparation

Press **TIMER** and enter the **TIMER SET** mode.

- If the Commander is in the **SLEEP** mode
Press **STATUS** and enter the **TIMER SET** mode.
- If **TIMER** is not displayed
Keep **?** depressed.
The Commander enters the **HOME** mode and **TIMER** appears.



Operation

- 1** Enter the desired setting referring to steps 1 to 6 of the “Timer Setting – Operation” page 79.

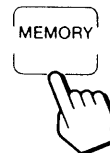
MO P9:00
8 || 11:45


- 2** Press **YES**.



TRANSMIT

- 3** Press **MEMORY** while **TRANSMIT** is displayed.
The character display area changes to the Custom Memory mode and the memory number blinks.




 [<] [>]

- 4** Press **[>]**.
Cursor blinks to indicate that a character can be entered in that space.

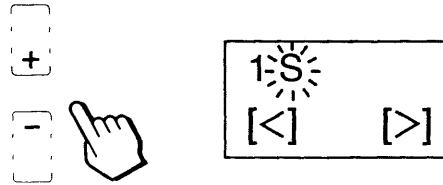
1 [<] [>]



 [<] [>]

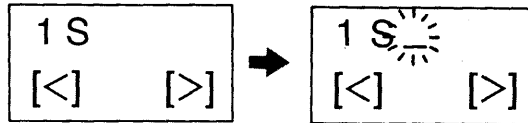
5 Press +/- to select the character.

Example: To enter "SPRTS1".
Press until S appears.

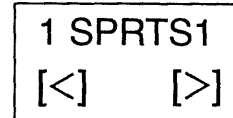


6 Press [>].

The cursor moves to the next space.

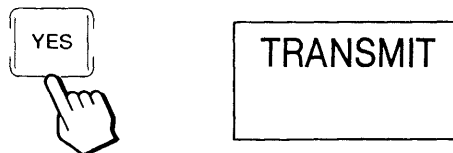


7 Repeat steps 5 and 6.



8 Press YES.

The timer setting and the identification name is stored to the Commander's memory.



Selectable characters

Pressing + calls up the 38 characters plus one space in the following order.

Space, A B C D E F G H I J K L M N O P Q R S T U V Q W X
Y Z 0 1 2 3 4 5 6 7 8 9 + - *

Pressing - calls up the characters in the reverse mode.

To change the entered characters

Before pressing YES in step 8, press of [>] moves the blinking space to the right and [<] moves the blinking space to the left. Enter a new character while the space is blinking.

To stop entering the characters

Press NO to erase the character in the blinking space.

Press again to return to step 1.

To name other settings and store them

1 Repeat steps 1 to 3 before step 8.

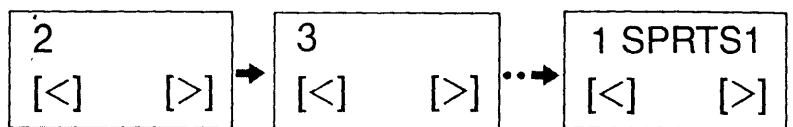
Memory number 1 appears.

| |
|------------|
| 1 SPRTS1 |
| [<] [>] |

2 Press +.

Each press of + advances the memory number one by one.

Press of - changes the memory number in the reverse direction.



3 Select the desired number and repeat steps 4 to 8.

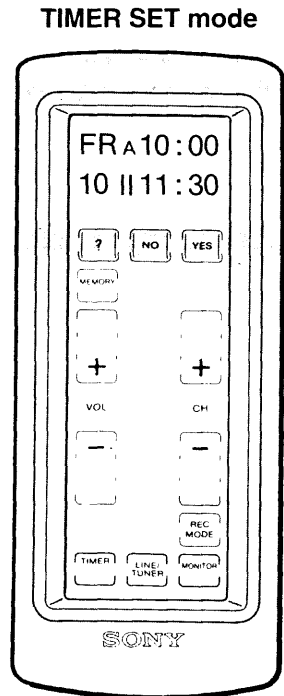
| |
|----------|
| 2 DOCMTY |
|----------|

To call up the stored setting

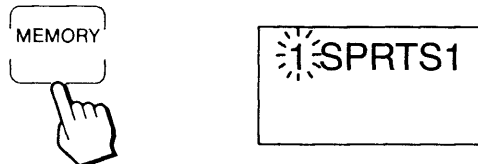
Preparation

Press **TIMER** and enter the **TIMER SET** mode.

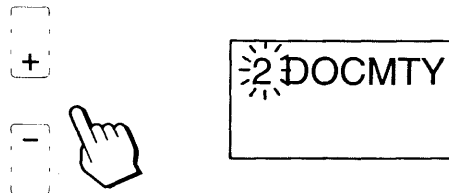
- If the Commander is in the **SLEEP** mode
Press **STATUS** and enter the **TIMER SET** mode.
- If **TIMER** is not displayed
Keep **?** depressed.
The Commander enters the **HOME** mode and **TIMER** appears.



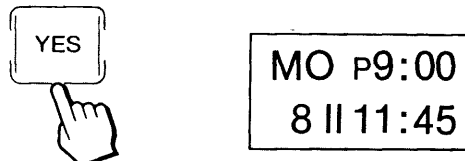
- 1** Press **MEMORY**.
Memory number 1 appears.



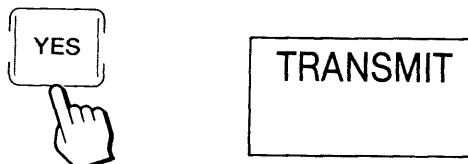
- 2** Press **+/-** to call up the next memory number.



- 3** Press **YES** when the desired memory number appears.
The timer setting appears.

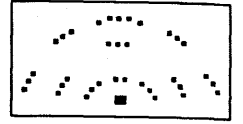


- 4** Check the setting and press **YES**.
TRANSMIT appears.



Continued to the next page

-
- 5** While **TRANSMIT** is displayed, press **YES** again to transmit the setting to the VCR.
The VCR enters the timer recording standby mode.
To cancel the memory number call up mode, press **NO** in step 3.



Quick Timer Recording

Cannot be performed by the Commander.

This function is convenient when you want to set the VCR to start recording immediately without going through the whole timer setting procedure.

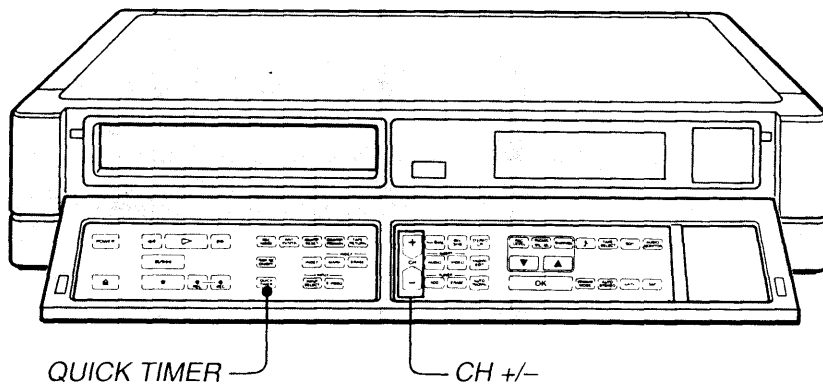
However, the quick timer recording function only provides a very rough setting for the desired program.

How to use the quick timer recording

- When you want to record a program with the rough end time set, go to step 1.
- When you want to record the program you're watching or when you cannot stay until the recording is over, go to step 2.

Preparation

- Is the clock set?
- Is a cassette inserted?
- Is the channel indication displayed?
- Is the recording level set?
- Is the recording mode set?



If the tape runs out during quick timer recording

Recording stops and the power is turned off. The tape will not be rewound automatically.

If a power interruption occurs during quick timer recording

Recording stops and the power is turned off. If the power interruption lasts less than one hour and the power is restored before the recording end time, recording will start again from that point.

If the VCR is in the timer recording standby mode

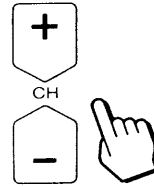
Quick timer cannot be set. Press [ON/OFF] on the Commander (or TIMER REC ON/OFF on the VCR) to cancel the timer recording standby mode.

If a cassette without its safety tab is inserted

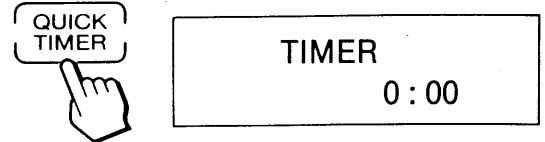
The cassette is ejected automatically when you press QUICK TIMER.

Operation

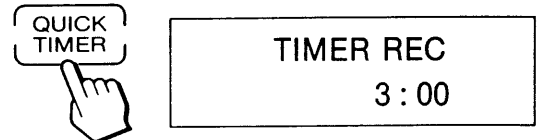
1 Press CH +/- to select the channel.



2 Press QUICK TIMER on the VCR.
 TIMER 0:00 appears in the display window.
 To avoid an accidental operation, keep this key depressed for a moment.



3 Press QUICK TIMER again to set the recording duration.
 TIMER REC appears in the display window and the quick timer recording starts.

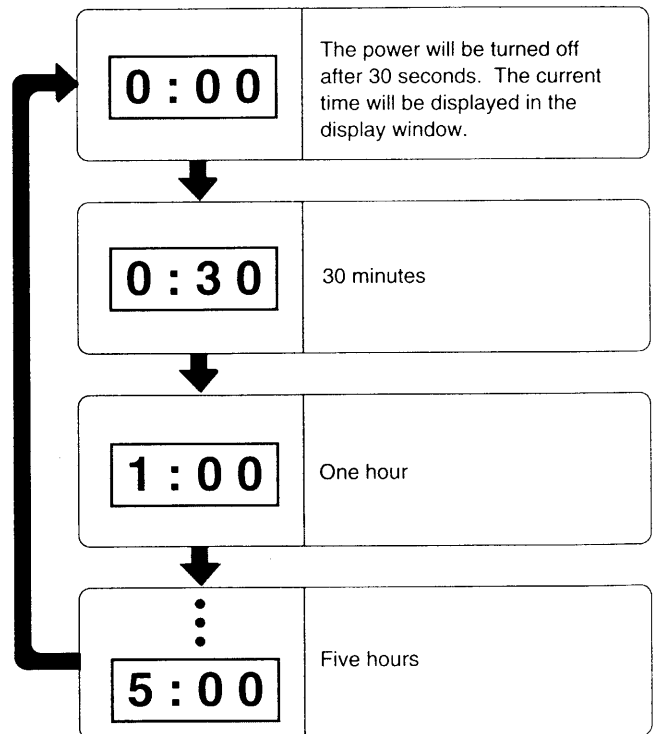


Recording duration indicator

Every press of QUICK TIMER increases the recording duration in units of 30 minutes. The time indications reduces minute by minute when recording starts.

Keys operable during quick timer recording

- [ON/OFF] on the Commander (or TIMER REC ON/OFF on the VCR): Press to stop quick timer recording.
- QUICK TIMER: Press to change the recording duration
- ANT TV/VTR: Press to watch a different program
- STEREO L/R on the VCR: Press to change the monitor sound of an MTS program

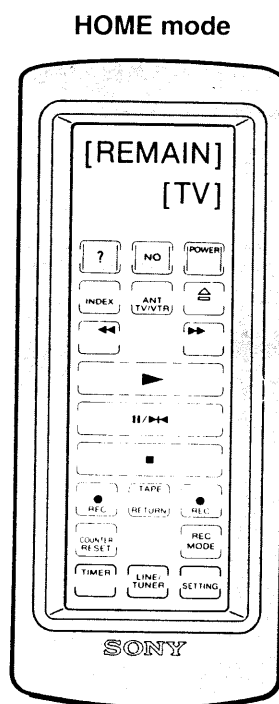


Use of the Tape Counter

The counter shows the tape movement in hours, minutes and seconds.

Preparation

- Insert a cassette.
- Keep ? depressed and enter the HOME mode.
- If the Commander is in the SLEEP mode Press STATUS. The Commander enters the MONITOR mode and ? appears.



Indexing the Tape Contents

Before starting recording or playback, press COUNTER RESET to reset the counter to zero. By noting the counter reading at the desired point, you can easily find that point later by referring to the counter. Use the label on the cassette to list the programs and their counter readings.



When the cassette is ejected

The counter indication remains. When a cassette is inserted, the indication is reset to 0H00M00S.

On counter reading

The counter does not function on a blank portion of the tape (with no CTL signal recorded). The counter works only during recording.

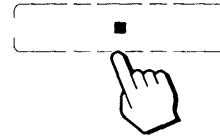
Tape Return

Stops the tape at a particular point.

- 1** Press **COUNTER RESET** during playback or recording at the point you want to locate later.



- 2** Press **■** when recording or playback ends.



- 3** Press **TAPE RETURN**.
The tape is rewound or advanced near the counter zero point and stops.



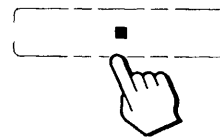
Tape Return Play

Starts playback automatically from the counter zero point.

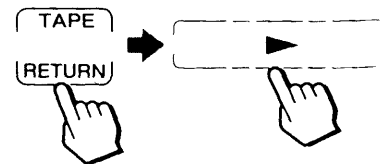
- 1** Press **COUNTER RESET** during playback or recording at the point you want to locate later.



- 2** Press **■** when recording or playback ends.

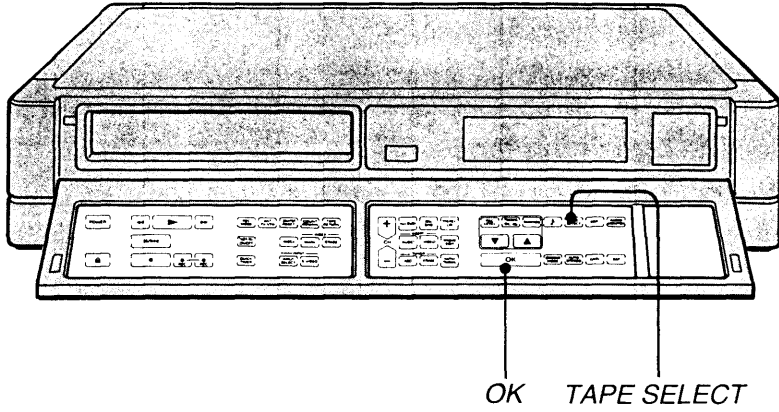


- 3** Press **TAPE RETURN** and then **▶** immediately.
The tape is rewound or advanced near the counter zero point and starts playing back.



Checking the Remaining Tape Length

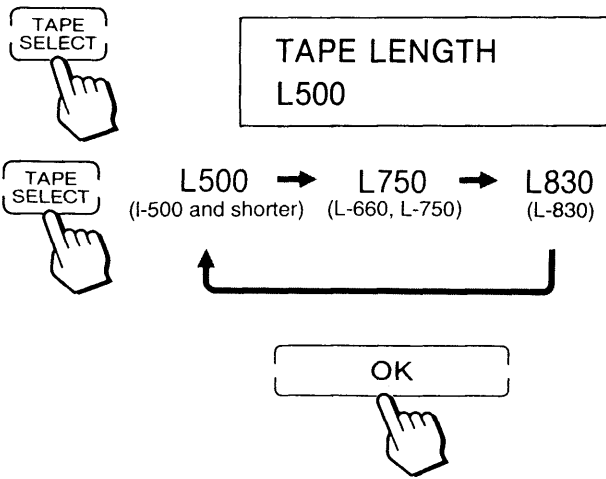
The remaining tape length during recording or playback can be displayed.



Preparing the VCR

Select the tape length according to the tape you are using.

- 1 Press TAPE SELECT on the VCR.**
TAPE LENGTH indication appears with the current setting.
- 2 Press TAPE SELECT to set the tape length.**
Each press of TAPE SELECT changes the setting in the following order.
- 3 Press OK or leave the VCR for more than 5 seconds.**
The setting is stored in the memory and the display returns to the previous display.



Operations (Recording)

Preparing the Commander

- Set the Commander in the MONITOR or HOME mode.
[REMAIN] appears in the character display area.
- If the Commander is in the SLEEP mode
Press STATUS and enter the MONITOR mode.
[REMAIN] appears in the character display area.

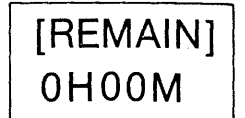
Operation

On the Commander

1 Press [REMAIN].



2 The VCR calculates the remaining tape length and returns the information to the Commander.

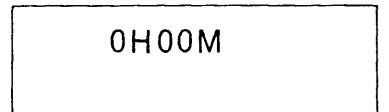


On the VCR

1 Press COUNTER REMAIN.



2 The remaining tape information appears in the display window.



To return to normal display

Press [REMAIN] on the Commander (or COUNTER REMAIN on the VCR).

On the accuracy of the remaining tape counter

- The remaining tape counter stops when the VCR is set to one of the following playback modes: pause/freeze, stop, slow, frame-by-frame. If normal or X2 playback is activated after these modes, the counter may take several seconds to return to normal display.
- The remaining tape counter displays -H- -M if [REMAIN] is pressed after the fast-forwarding, rewinding or Beta skips can is activated.
- The remaining time may not be calculated correctly on a blank portion of the tape (with no CTL signal recorded) or on a portion where the tape speed is changed.
- Correct remaining time may not be displayed in the beginning of the tape after rewinding.
- For commercially available recorded tapes, the counter may not indicate exactly the same counter number as the counter information supplied with the tape.
- For damaged tapes and non-standard tape, the remaining tape counter may not be correct.
- If [REMAIN] (or COUNTER REMAIN on the VCR) is pressed right after the AC power plug is connected or a cassette is inserted, the remaining tape counter displays -H- -M.

Index Function

A particular program can be easily located by an index signal marked on the tape.

Preparation

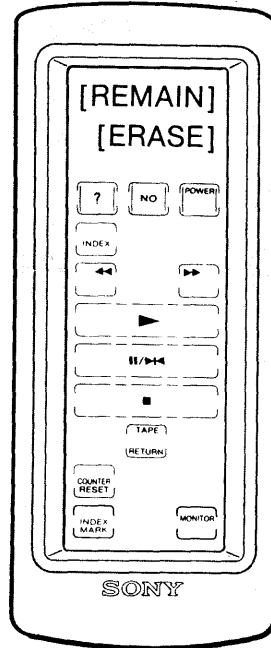
- Insert a cassette.
 - Set the Commander to the HOME mode and press INDEX to enter the INDEX/COUNTER mode.
- If the Commander is in the SLEEP mode

1 Press STATUS.

2 Keep ? depressed.

The Commander enters the HOME mode and INDEX key appears.

INDEX/COUNTER mode



Marking Index Signals

Automatic index mark

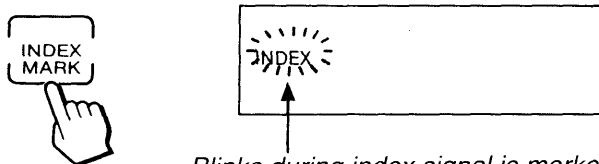
An index signal is automatically marked in the beginning of recording and timer recording.



Blinks during index signal is marked.

Manual index mark

Press INDEX MARK at the desired point during recording or playback.



Blinks during index signal is marked.

Notes during index marking

- Leave an interval of more than 2 to 3 minutes between index signals when marking them one after the other so that the VCR can detect them correctly.
- While an index signal is being marked during playback, the sound recorded on the conventional audio track will not be heard, but it will not be erased. The sound recorded on the video and hi-fi audio track will be heard.

Index signals cannot be marked

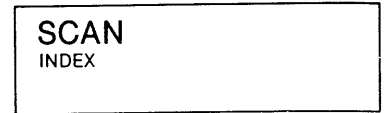
- When recording starts after the recording pause mode.
- On an unrecorded portion of a tape.
- Immediately before a point on the tape where the recording mode changes.
- On a portion where no CTL signal is recorded.

Index Scan

The beginning of each program can be found and played back by using the index signals.

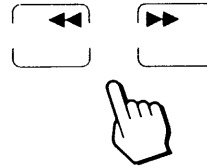
Example

1 Press INDEX once.



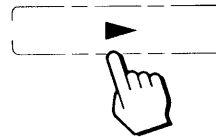
2 Press ◀◀ or ▶▶.

The tape is rewound or rapidly advanced to the first index signal and then played back for approximately 10 seconds.



3 Press ▶ when the desired program is detected.

Playback starts from that point and the index scan function is cancelled.



To release the index scan

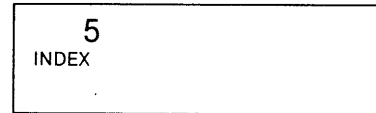
Press POWER or tape operation key except ◀◀ or ▶▶.

Index Search

A particular program can be located and be played back by designating how many index signals ahead or behind that program are from the current position. Up to 19 indexes can be searched for.

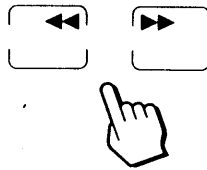
Example: To playback from five index signals ahead

- 1 Press INDEX until the index number of the desired program is displayed.**



- 2 Press >>> (press <<< to playback from an index signal behind).**

The tape is rapidly advanced (or rewind) to the designated index signal. The index number decreases each time an index signal is detected. Playback starts when the index number becomes zero.



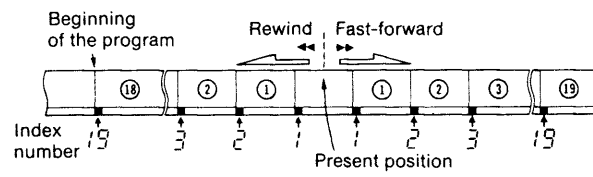
To release the index search

Press POWER or tape operation key except <<< or >>>.

How to count index signals

Index number changes each time an index signal is detected.

- Up to 19 indexes can be searched for.
- To search for the program ahead, the current program is "1" and to search for the program behind, the next program is "1".



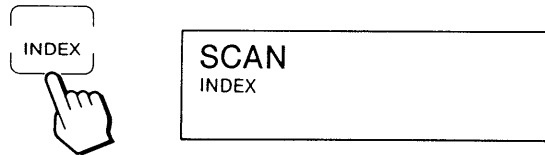
Erasing Index Signals

Unnecessary index signals can be erased.

Scan erase

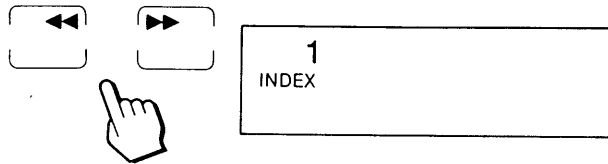
Search for and erase the index.

1 Press INDEX once.



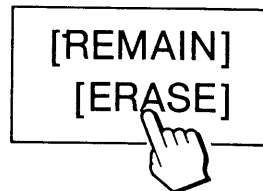
2 Press ◀◀ or ▶▶.

The tape is rewind or rapidly advanced to the first index signal and then played back for approximately 10 seconds.



3 Check the playback picture and press [ERASE] within approximately 10 seconds.

The index signal is erased. The VCR keeps on searching for the next index signal.



When to press [ERASE]

Press after 2 seconds the playback starts.

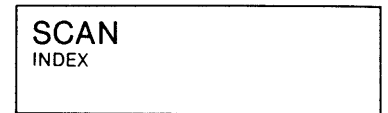
Notes while erasing index signals

- While the index signal is erased, the sound recorded on the normal track is not heard but will not be erased.
- If the playback picture becomes distorted while erasing index signals, immediately press ■ to stop playing back. Index signal marked in this area cannot be erased. The recorded signals will not be effected.
- Index signal cannot be erased if it is marked immediately after an unrecorded portion of a tape.
- Index signal marked on a portion of tape just before or after recording mode changes cannot be erased.
- Index signals marked in the very beginning of the tape may not be erased.

Search erase

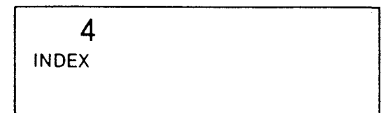
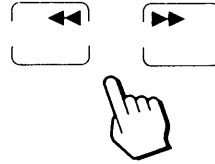
Designate and erase the index.

- 1 Press INDEX until the index number of the desired program is displayed.**



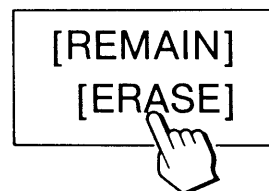
- 2 Press ◀◀ or ▶▶.**

The tape is rewind or rapidly advanced to the designated index signal. The index number decreases each time an index signal is detected. Playback starts when the index number becomes zero.



- 3 Check the playback picture and press [ERASE] within approximately 10 seconds.**

The index signal is erased. The VCR enters the normal playback mode.

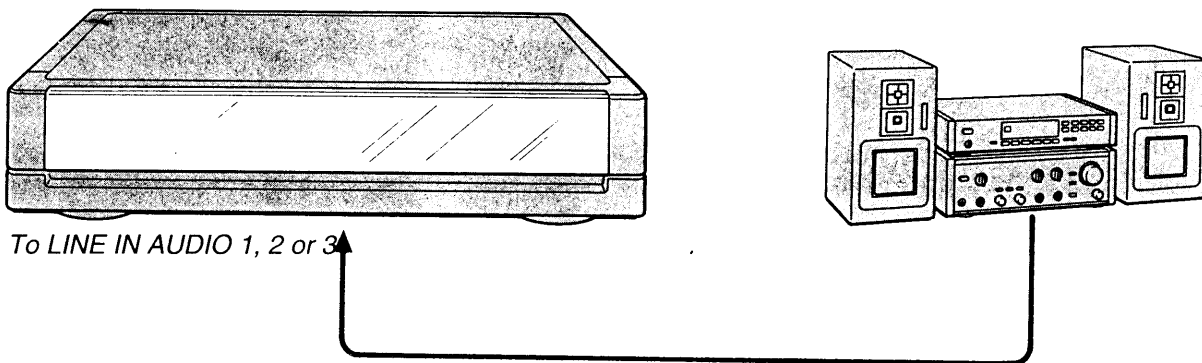


Beta Hi-fi Audio Recording

Recording from the Audio System

High quality recording of only the audio signals from your audio system can be performed.

Connections



Check the following points

For recording

- Press LINE/TUNER on the Commander (or INPUT SELECT on the VCR) to select the input that the audio source is connected to.
- Set the recording level referring to page 69.
- Select the recording mode referring to page 70.

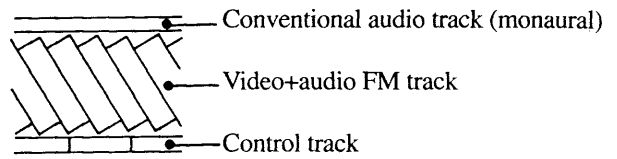
For playback

- Select AUDIO MONITOR HIFI by AUDIO MONITOR on the VCR.

What is Beta hi-fi recording?

In conventional recording, audio signals are recorded on the audio track and video signals on the video track. In Beta hi-fi recording, audio signals are recorded on the video track together with the video signals using 2 rotary video heads. The Beta hi-fi audio signals are frequency-modulated and recorded on 2 channels, so that you can record a stereo program with sound quality far superior to that of the conventional audio recording.

Beta hi-fi recording pattern on the video tape



This recorder automatically records audio signals on the video track (Beta hi-fi recording) and on the conventional audio track at the same time, so that these tapes can also be played back on any ordinary video cassette recorder without a Beta hi-fi system.

Editing Available on This VCR

Connect another VCR to this VCR, you can perform various types of editing using a pre-recorded tape.

Assemble Editing

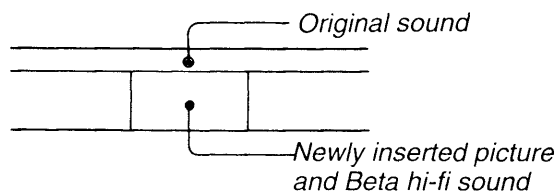
You can select desired scenes from a pre-recorded tape and create a new program. If the other VCR has a CONTROL S input jack, synchronized editing (page 115) can be performed.

Insert Editing

Using this VCR as the recording VCR, three types of insert editing, video insert, audio insert, and audio/video insert can be performed.

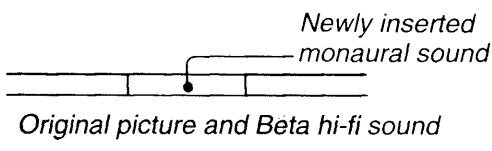
Video insert editing

New scenes and Beta hi-fi sound will be inserted to the original tape. Normal track audio sound will not be replaced.



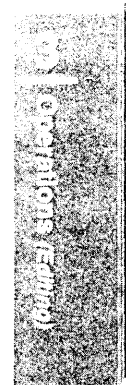
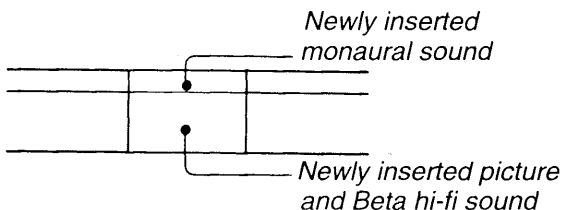
Audio insert editing

This is the audio after recording editing in which new sound is recorded on the normal track. The picture and Beta hi-fi audio sound will not be replaced.



Audio/video insert editing

New scenes, Beta hi-fi audio sound, and normal audio sound will be inserted to the original tape.



Caution

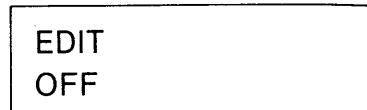
Television programs, films, video tapes and other materials may be copyrighted. Unauthorized duplication of such

material may be contrary to the provisions of the copyright laws.

Use of the EDIT function

When using this VCR as the recording VCR, use the edit function to keep picture deterioration resulting from editing to the minimum. However, even if the EDIT function is activated, the quality of the edited tape will have a certain amount of deterioration in picture. Please avoid using an edited tape for multiple generations of editing.

-
- 1 Press EDIT on the VCR.**
EDIT display appears with the current setting.



-
- 2 Press EDIT so that EDIT ON is displayed.**
Each press of EDIT changes the display in the following order.
ON: For editing. The edit function is activated.
OFF: Normal setting. The edit function is not activated.



When the setting of the edit function is finished

Press EDIT to turn off the edit function.

Preparation

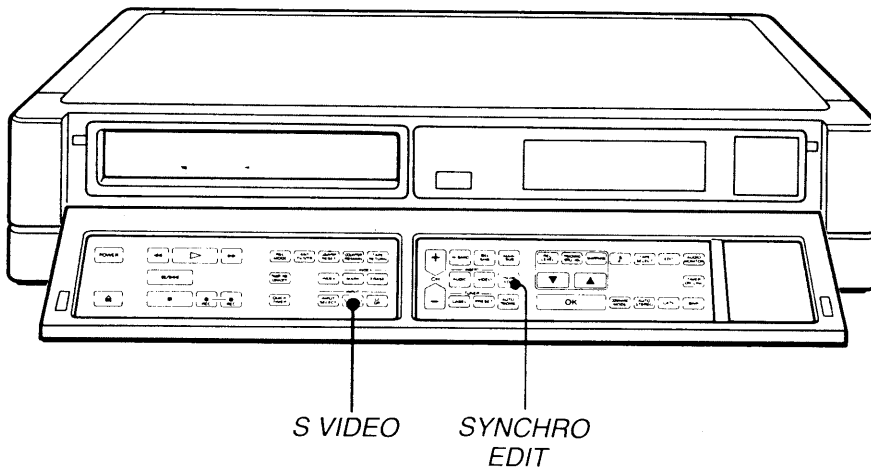
This VCR (Recording VCR)

- Insert a cassette for recording.
- Adjust the recording level referring to page 69.
- Select the recording mode referring to page 70.
- Activate the edit function.
- Select the input source.

Press LINE/TUNER on the Commander (or INPUT SELECT on the VCR) to select the input (L1 or L2) to this VCR.

The other VCR (Playback VCR)

- Turn on the VCR and insert a recorded cassette.
- Activate the edit function if available.



To record video source from the LINE IN S VIDEO jack

Press S VIDEO on the VCR so that L1-S or L2-S appears in the display window.

Operation

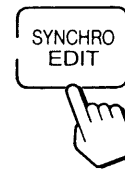
1 Search for the scene to start recording on this VCR (recording VCR) and enter the recording pause mode.

2 Search for the scene to transfer to the recording VCR on the other VCR (playback VCR) and enter the playback pause mode.

3 Press **SYNCHRO EDIT** on the recording VCR (this VCR).
Recording pause mode of this VCR and playback pause mode on the other VCR is released simultaneously and editing begins.



4 Press **SYNCHRO EDIT** on the recording VCR (this VCR) to stop the editing.
The recording VCR (this VCR) enters the recording pause mode and the playback VCR (the other VCR) enters playback pause mode.



To edit more scenes

Repeat steps 2 to 4.

When editing is finished

Stop both VCRs.

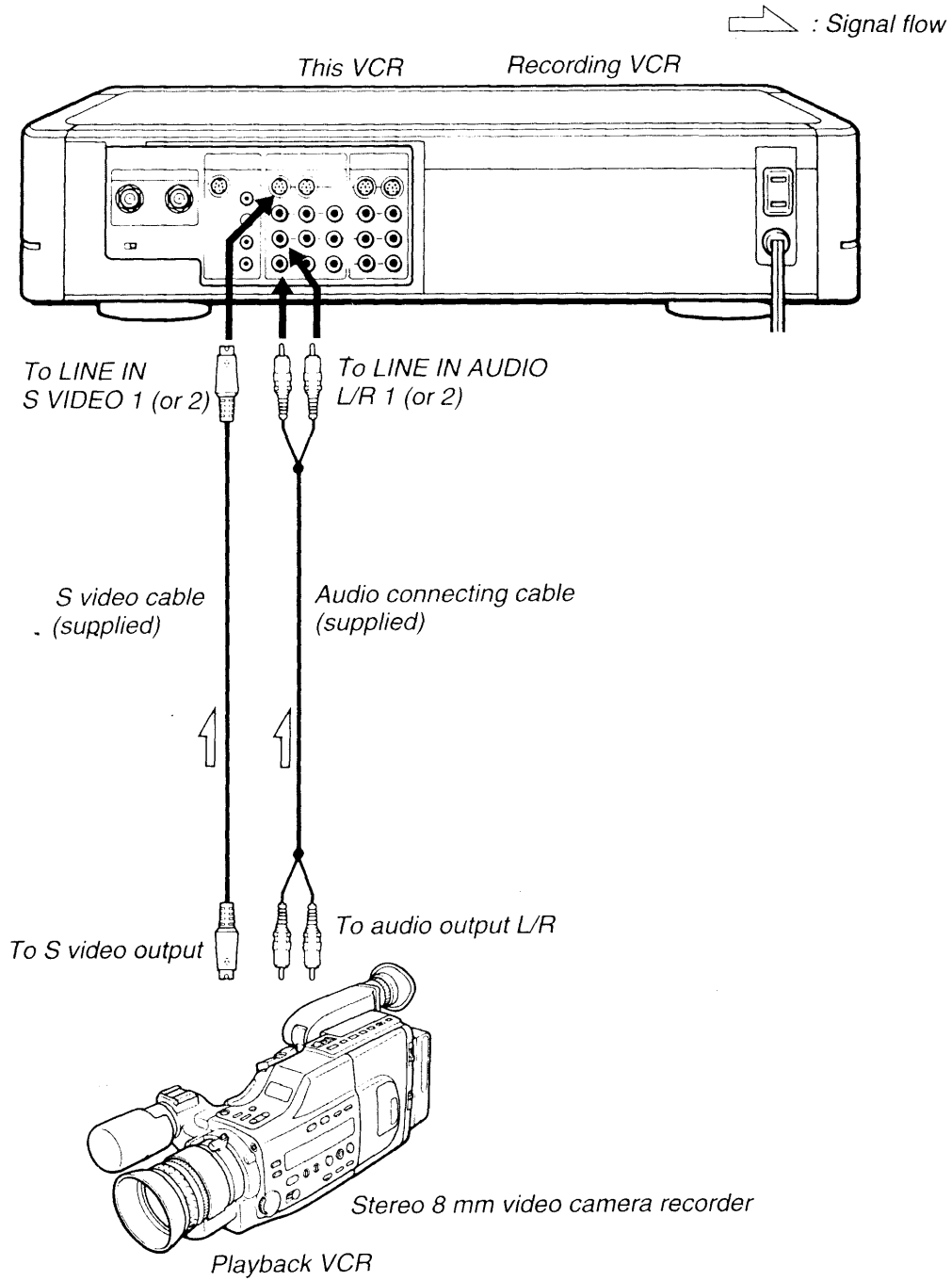
Notes on connection with a VCR with the CONTROL L jack

The CONTROL L jack of this VCR is locked to LANC mode S. If the other VCR that you have only has LANC mode S function, synchronized editing will not be performed even if SYNCHRO EDIT is pressed. Use a VCR that has a LANC mode M function and use SYNCHRO EDIT on that VCR.



Insert Editing

Example: Connection to an 8 mm video camera recorder



Preparation

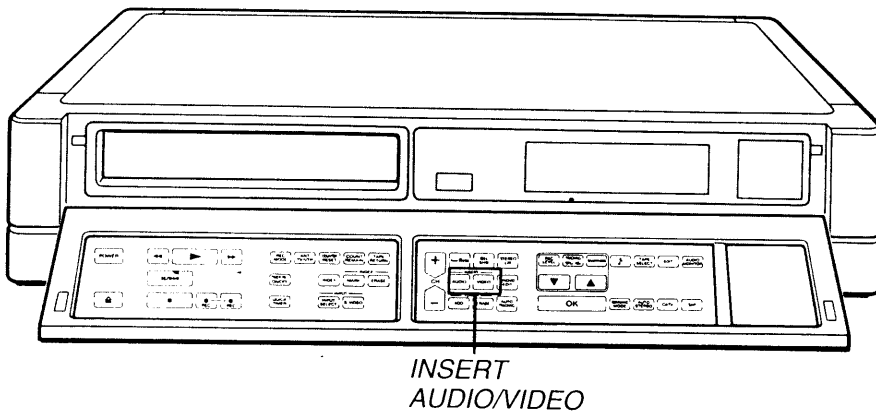
This VCR (Recording VCR)

- Insert a cassette for recording.
- Adjust the recording level referring to page 69.
- Select the recording mode referring to page 70.
- Activate the edit function.
- Select the input source.

Press LINE/TUNER on the Commander (or INPUT SELECT on the VCR) to select the input (L1 or L2) to this VCR.

The other VCR (Playback VCR)

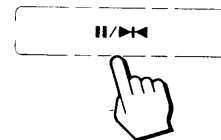
- Turn on the VCR and insert a recorded cassette.
- Activate the edit function if available.



Operation

- 1 Search for the scene to end insert recording on this VCR (recording VCR) and enter the playback pause mode.**

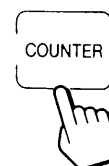
The Commander enters the SHUTTLE mode.



- 2 Press COUNTER on the Commander.**

The Commander enters the INDEX/COUNTER mode.

Skip this step if you are operating only with keys on the VCR.



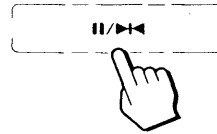
3 Press COUNTER RESET.

The counter is reset to 0H00M00S. This point is registered to the VCR's memory as the edit end point.

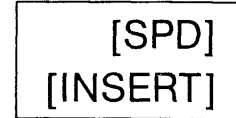


4 Search for the scene to start insert recording on this VCR (recording VCR) and enter the playback pause mode.

The Commander enters the SHUTTLE mode.

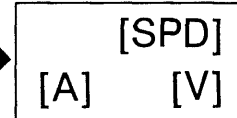
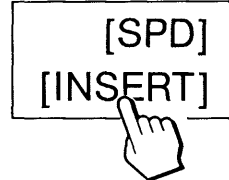


Commander's character display area



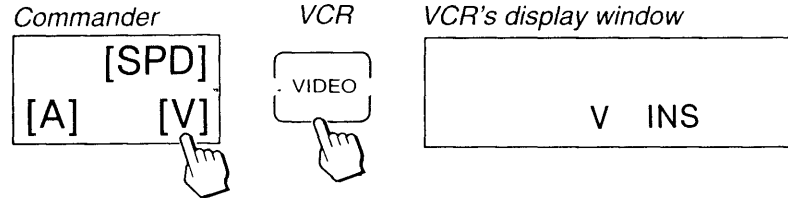
5 Press [INSERT].

Skip this step if you are operating only with keys on the VCR.

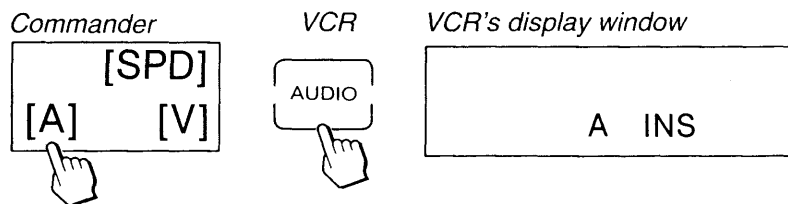


6 Press the keys according to the type of editing you wish to perform.

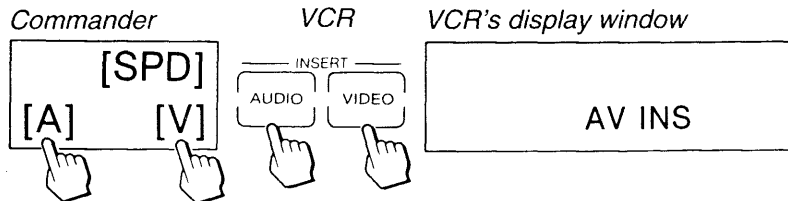
• Video insert (Video and Beta hi-fi audio)



• Audio insert (Normal track audio)



• Audio/Video insert (Video, Beta hi-fi, and normal track audio)



7 Search for the scene to transfer to the recording VCR on the other VCR (playback VCR) and enter the playback pause mode.

8 Release the pause mode on both VCRs simultaneously.
On the Commander, press NO to enter the INDEX COUNTER mode and press **II/▶◀**.
Insert editing starts.
Insert editing automatically stops when this VCR (recording VCR) reaches the edit end point registered in step 2.

9 Stop the playback on the other VCR (playback VCR).

To stop insert editing temporarily
Press **II/▶◀** on this VCR (recording VCR).

To stop insert editing
Press **■** on this VCR (recording VCR).

To cancel the insert editing mode
Video insert: Press [V] on the Commander (or VIDEO on the VCR)
Audio insert: Press [A] on the Commander (or AUDIO on the VCR)
Audio/video insert: Press [V] and [A] on the Commander (or VIDEO and AUDIO on the VCR) one after the other.

Notes on insert editing

- There is no need to make CONTROL S IN/OUT jacks or LANC L connections.
If the above connection is made, the pause mode of both VCR's in the above step 8 can be released with SYNCHRO EDIT of this VCR.
- When using this VCR as the recording VCR, insert editing cannot be made on a portion with no signal recorded.
- Insert editing cannot be made on a portion where recording mode changes.
- When playing back in the slow or frame-by-frame mode, noise may appear on a portion where insert editing is made.

Specifications

System

| | |
|--|--|
| Video recording system | Rotary two-head helical scanning FM system |
| Audio recording system | Beta hi-fi (2 channels), recording on the normal track is monaural |
| Video signal | EIA standard, NTSC color |
| Usable cassettes | Video cassettes with the II mark |
| Tape speed | II *, IS : 4.00 cm/sec. (*playback only) |
| | II : 2.00 cm/sec. |
| | III : 1.33 cm/sec. |
| Maximum recording/playback time | IS : 100 min. II : 200 min. III : 300 min. (with L-830) |
| Fast-forward and rewind time | Approx. 4 min. (with L-500) |
| Audio frequency response | 20 Hz – 20kHz (Beta hi-fi on) |
| Dynamic range | More than 90 dB (Beta hi-fi on) |
| Wow and flutter | Less than 0.005% below WRMS (Beta hi-fi on) |

Tuner Section

| | |
|--------------------------|--|
| Channel coverage | VHF channels 2 to 13, UHF channels 14 to 69, CATV channels A-8 to A-1, A to W, W+1 to W+84 |
| VHF output signal | Channel 3 or 4 selectable 75 ohms, unbalanced |
| Antenna | 75 ohm antenna terminal for VHF/UHF |

Inputs and Outputs

| | |
|------------------------|--|
| LINE IN 1 and 2 | VIDEO IN (phono jack) (1 each) Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative S VIDEO IN (4 pin DIN) (1 each) Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced |
| | AUDIO IN (phono jack) (2 each) Input level: -7.5 dBs (0 dBs = 0.775 Vrms) Input impedance: more than 47 kilohms |
| LINE IN 3 | VIDEO IN (phono jack) (1 each) Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO IN (phono jack) (1 each) Input level: -7.5 dBs (0 dBs = 0.775 Vrms) |

| | |
|--------------------------|--|
| LINE OUT 1 and 2 | VIDEO OUT (phono jack) (2 each) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative S VIDEO OUT (4 pin DIN) (1 each) Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced AUDIO OUT (phono jack) (2 each) Standard output: -7.5 dBs at load impedance 47 kilohms Output impedance: less than 10 kilohms |
| CONTROL S IN | Minijack (1) |
| CONTROL S OUT 1/2 | Minijack (1) |
| CONTROL L | 5 pin DIN (1) LANC S only |

Timer Section

| | |
|------------------------|---|
| Clock | Quartz locked |
| Time indication | 12-hour cycle |
| Timer setting | Only for recording, 8 programs in one month at max. |
| Power backup | Built-in self-charging capacitor, backup duration: Up to one hour at one time |

General

| | |
|------------------------------|---|
| Power requirements | 120 V AC, 60 Hz |
| Power consumption | 35 W |
| AC outlet | 200 W (unswitched) |
| 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 | 466 x 102 x 404 mm (w/h/d), (18 1/8 x 4 1/8 x 16 inches) including projecting parts |
| Weight | Approximately 11 kg (24 lb 4 oz) |
| Accessories supplied | Refer to page 4. |

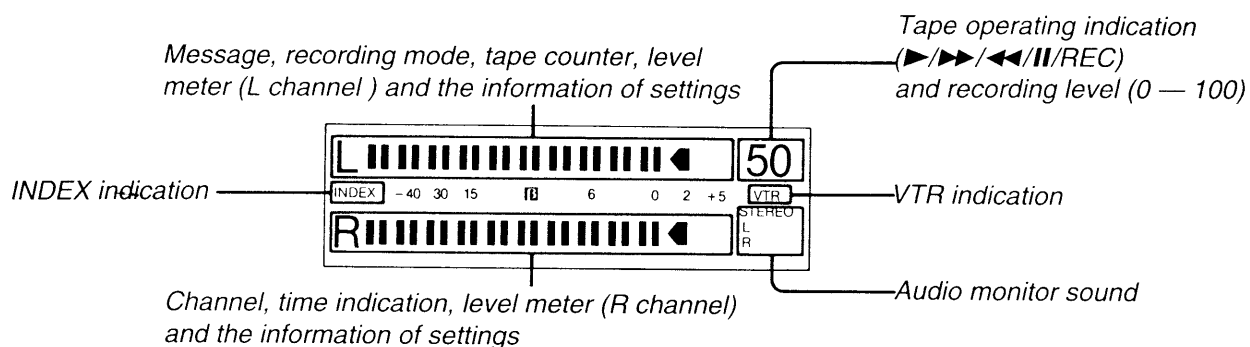
Wireless Commander RMT-2100A

| | |
|------------------------------|--|
| Remote control system | Infrared control |
| Power requirements | 6 V DC, 4 size AA batteries (IEC designation R6) |
| Dimensions | 66 x 31 x 161 mm (w/h/d), (2 5/8 x 1 1/4 x 6 3/8 inches) |
| Weight | Approximately 150 g (5 oz), (excluding batteries) |

Design and specifications subject to change without notice.

Indications in the Display Window

On location for the indications



In alphabetical order

| | |
|---|---|
| PLEASE CHANGE THE CASSETTE. | Recording, timer recording, quick timer recording was attempted with a cassette with its safety tab removed. Appears after the cassette is ejected. |
| PANEL OFF FOR CLEANING PRESS POWER AND OK. | Turn on the power and press POWER keeping OK depressed. Keys besides OK and POWER will not function. Use this mode to wipe the finger prints on the touch panel. Press POWER keeping OK depressed to return to the previous display. |
| PLEASE PUT IN A CASSETTE. | An operation that requires a cassette has been attempted without a cassette inserted. |
| PLEASE SET THE CLOCK. | Appears when the clock is not set after power has been turned on or when transmitting the timer recording information. |
| VCR IS RECORDING. | An operation that cannot be carried out while recording was attempted. |
| THE TAPE IS AT ITS END. | When fastforward, playback, recording, timer recording, quick timer recording was attempted at the end of the tape. |
| THE TAPE IS AT ITS START. | When tape rewind was attempted in the beginning of the tape. |

Functions of the Remote Commander

VCR

| Key indication | Available function |
|----------------------|--------------------------------------|
| POWER | Power on/off |
| CH +/- | Channel +/- |
| VOL +/- | Volume of Sony TV |
| 0 to 9 | 10-key selection |
| ANT TV/VTR | Selection of the antenna output |
| INDEX | Index search |
| ▶ | Playback |
| ■ | Stop |
| /⏸ | Pause/freeze |
| REC ● – REC ● | Recording |
| ◀◀, ▶▶ | Rewinding/Fast-forwarding |
| ◀ *1 | Frame-by-frame reverse |
| ▶ *1 | Frame-by-frame forward |
| ▶ *2 | Playback at 2 times the normal speed |
| ▶ *3 | Slow motion |
| ⏏ | Ejection of the cassette |

- *1 **◀|/|▶** When “FRM[SPD]” is displayed on the Commander’s character display area
- *2 **◀|/|▶** When “X2[SPD]” is displayed on the Commander’s character display area
- *3 **◀|/|▶** When “X1/10[SPD]” or “X1/5[SPD]” is displayed on the Commander’s character display area

TV

| Key indication | Available fuctions |
|----------------|--------------------|
| POWER | Power on/off |
| CH +/- | Channel +/- |
| VOL +/- | Volume +/- |
| MUTING | Muting |

Troubleshooting

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

| | Symptom | Possible causes |
|-------------------------------|---|--|
| Power | The power does not function. | <ul style="list-style-type: none">• The AC power cord is not connected.• [ON/OFF] on the Commander (or TIMER REC ON/OFF on the VCR) is pressed. |
| | The VCR does not function even though power is supplied. | <ul style="list-style-type: none">• The safety device has turned on. Turn off the power and pull out the AC power cord. Plug the AC power cord to the wall outlet after approximately one minute. |
| Clock | The clock is blinking at AM12:00. | <ul style="list-style-type: none">• Power interruption has occurred. Reset the date and clock. |
| Playback and recording | Picture being recorded cannot be monitored clearly on the TV screen. | <ul style="list-style-type: none">• The TV channel for VCR playback is not correctly selected. |
| | No picture on the TV screen during playback or recording. | <ul style="list-style-type: none">• Press ANT TV/VTR so that the VTR indicator appears in the display window.• The TV channel for VCR playback is not correctly selected. |
| | The desired channel does not appear when selecting it with the CH +/- keys. | <ul style="list-style-type: none">• That channel is erased. Add it with the channel number keys, referring to page 52. |
| | Recording cannot be made. | <ul style="list-style-type: none">• No cassette inserted.• The tape is at its end.• The input source selection is not correct. |
| | Playback picture is not clear. | <ul style="list-style-type: none">• The TV channel for VCR playback is not correctly selected.• A tape recorded with Super Beta and lamp or Hi8 SHB lamp turned on is played back with these lamps turned off.• Wrong setting of the Super Beta lamp is made when playing back a tape recorded in Hi8.• Tracking is not properly adjusted for two times normal speed and slow playback.• The video heads may be dirty. Clean the video heads using the Sony L-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If the L-25CL is not available in your area, have the video heads cleaned at your nearest Sony service facility.• The video heads are worn out.• The sharpness control is not properly adjusted. |

| | Symptom | Possible causes |
|------------------------|---|---|
| Playback and recording | The picture moves vertically during picture search and scan mode. | <ul style="list-style-type: none"> Adjust the vertical hold control on the TV or color monitor. |
| | Picture distorted in slow motion picture. | <ul style="list-style-type: none"> The recording mode of the tape cannot be detected. Return to normal playback mode and try the slow motion playback again. |
| | Sound drop out in Beta hi-fi recording. | <ul style="list-style-type: none"> The tape is defective. Use a new tape. |
| | Stereo recording cannot be made. | <ul style="list-style-type: none"> AUTO STEREO was set to OFF. |
| | Distorted or noisy sound. | <ul style="list-style-type: none"> Recording level was not properly selected. |
| | Both the main and sub sound of SAP program is heard. | <ul style="list-style-type: none"> AUDIO MONITOR is set to MIX. |
| | The sound is monaural when playing back stereo program. | <ul style="list-style-type: none"> AUDIO MONITOR is set to NORMAL. |
| Timer recording | The cassette is ejected when pressing [ON/OFF] on the Commander (or TIMER REC ON/OFF or QUICK TIMER on the VCR). | <ul style="list-style-type: none"> The safety tab on the cassette is removed. |
| | TIMER REC indication does not appear even when pressing [ON/OFF] on the Commander (or TIMER REC ON/OFF on the VCR). | <ul style="list-style-type: none"> The tape is at its end. No cassette is inserted. |
| Others | Timer recording could not be made. | <ul style="list-style-type: none"> Power interruption more than one hour has occurred. Tape is at its end. The command mode of the Commander and the VCR was not matching. |
| | The Commander does not operate. | <ul style="list-style-type: none"> The batteries are exhausted. The command mode of the Commander and the VCR is not matching. The Commander is in the TV operation mode. |