SONY

3-756-295-21(1)

Video Cassette Recorder

Operating Instructions

SuperBetahi-fi

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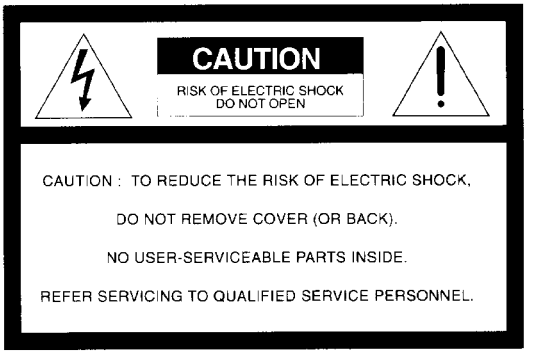
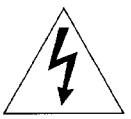
WARNING

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





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

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

The English language operating instructions covers the U.S.A., Canadian and other-country models of the SL-HF2000. These models are identical both in shape and function except for the following:

- For the Canadian model, LANGUAGE option is provided in the SET UP MENU, and allows you to select either English or French as your on-screen language. (See pages 24 and 25 for details.)
- For other-country model, an automatic voltage selector is incorporated so you can operate the unit on 110 V to 240 V AC, 50/60 Hz.

Owner's Record

The model number is located at the front and rear of the unit and the serial number is 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-HF2000 Serial No._____

For Customers in the U.S.A.

INFORMATION

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

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

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems."
This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Caution

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

NOTE TO CATV SYSTEM INSTALLERS IN THE U.S.A.:

This reminder is provided to call the cable TV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system in the building, as close to the point of cable entry as practical.

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Precautions

Safety

- Check the operating voltage of the unit before operation. It must be identical with that of your local power supply. The operating voltage is indicated on the nameplate at the back of the unit.

Destinations	Voltage
U.S.A.	120 V AC, 60 Hz
Canada	
Other countries	110 V – 240 V AC, automatically adjusted with voltage selector, 50/60 Hz,

- If anything falls into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- **For the U.S.A. and Canadian model:**
  One blade of the plug is wider than the other for the purposes of safety and will fit into the power outlet only one way.
  For other-country model:
  If the plug of your VCR does not match your power outlet, use the supplied AC plug adaptor.

  If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet if you do not intend to use it for an extended period of time. To disconnect the cord, pull it out by the plug, never by the cord.

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.
- Do not install the unit in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the unit and cassettes away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Do not place heavy objects on the unit.

Operation

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

Cleaning

- Clean the cabinet, panel and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution.
- Do not use any type of solvent, such as alcohol, benzine or paint thinner.

Introduction

How to Use This Manual

This manual is divided into the following five chapters:

Preliminaries (page 2)
Preparation (page 6)
Basic Operations (page 26)
Advanced Operations (page 41)
Additional Information (page 53)

If you are using your VCR for the first time, start from the section "**Hookups and Getting Started**" (page 6). This section explains how to hookup, set up, and operate your VCR so that you can start enjoying it right away.
For information about the VCR's basic operations, such as Playback (page 26), Recording TV Programs (page 32), or Timer Recording (page 34), see **Basic Operations**.
If you are already familiar with the basic operations, see **Advanced Operations**.
If you have any problems in operating the VCR, refer to Troubleshooting (page 60). If your VCR needs repair, contact your nearest Sony Service Center facility.

Conventions used in this manual

This manual explains operations mainly using the VCR Remote Commander. However, the buttons on the VCR with the same names or marks as those on the Remote Commander function exactly the same as those of the Remote Commander.

As you read the manual, remember:
- Buttons and switches are shown in uppercase letters. Example: Press ▷ PLAY.
- Numbers in the illustrations correspond to those in the text.
- → indicates signal flow.
- Notes and cautions are enclosed in boxes.
- On-screen displays for the U.S.A. model are used to explain operations requiring on-screen menus.

Unpacking

Check that you have received the following accessories:

- Remote Commander RMT-V128
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)
- Audio/Video connecting cable (3 phono to 3 phono) (1)
- Video head cleaning cassette (1)
- AC plug adaptor (1) (for other-country model)

If any one of the above is not included with your VCR, contact your dealer immediately.

Overview

On-screen display

- **On-screen display**

  Tape counter, cassette speed, operation mode, and remaining cassette length can be displayed on the TV screen.

- **TIMER SET/CHECK screen**

  Timer recording settings can be set and checked by referring to the TV screen.

- **On-screen help message**

  The VCR gives a message on screen to warn that you have attempted an incorrect operation.

Functions

- **Auto tracking function**

  Automatically adjusts the tracking condition for optimum picture quality.

- **Timer recordings of eight programs in a month**

  Recording of up to eight TV programs can be preset up to one month in advance.

Hookups and Getting Started

Before you can use your VCR for the first time, you need to connect it to your TV and set it up to receive programs for viewing and recording. This section explains how to hook up, set up, and operate your VCR so that you can start enjoying it right away. There are, however, many types of TVs available and many different ways in which your TV can be hooked up. As a result, this manual describes several ways your VCR can be connected.

To hook up your VCR so that it works best for you, first scan through this section to find the diagram that best illustrates the way your TV is currently connected (antenna or cable/cable box). Then use the accompanying diagrams and procedures to complete your VCR's connections.

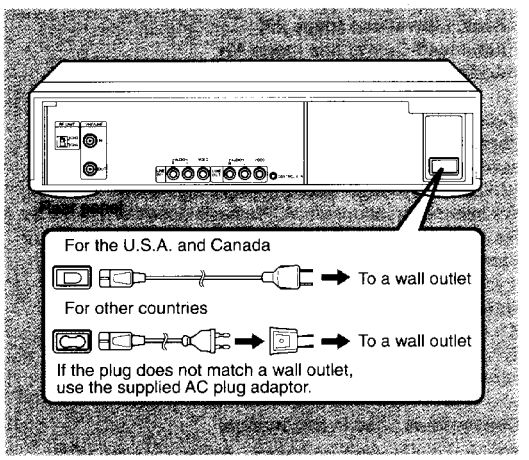
After you've completed the connections, follow the instructions for setup. (During setup, if you need more details of the procedures described, page numbers are provided where you can find complete, step-by-step instructions.)

After you've completed the setup, you're ready to use your VCR. Follow the instructions provided in "To Watch a Video," "To Watch TV After a Video" and "To Record a Program Using the Timer" for your specific hookup.

(Again, if you need step-by-step instructions, page numbers are provided where you can find this information.)

Before making the connections, check the following points:

- Turn off the power to the VCR and TV.
- Do not connect the AC power cord until all of the connections are completed.



- Make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, consult your nearest Sony dealer or qualified technician.

Caution

Connections between the VCR 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.

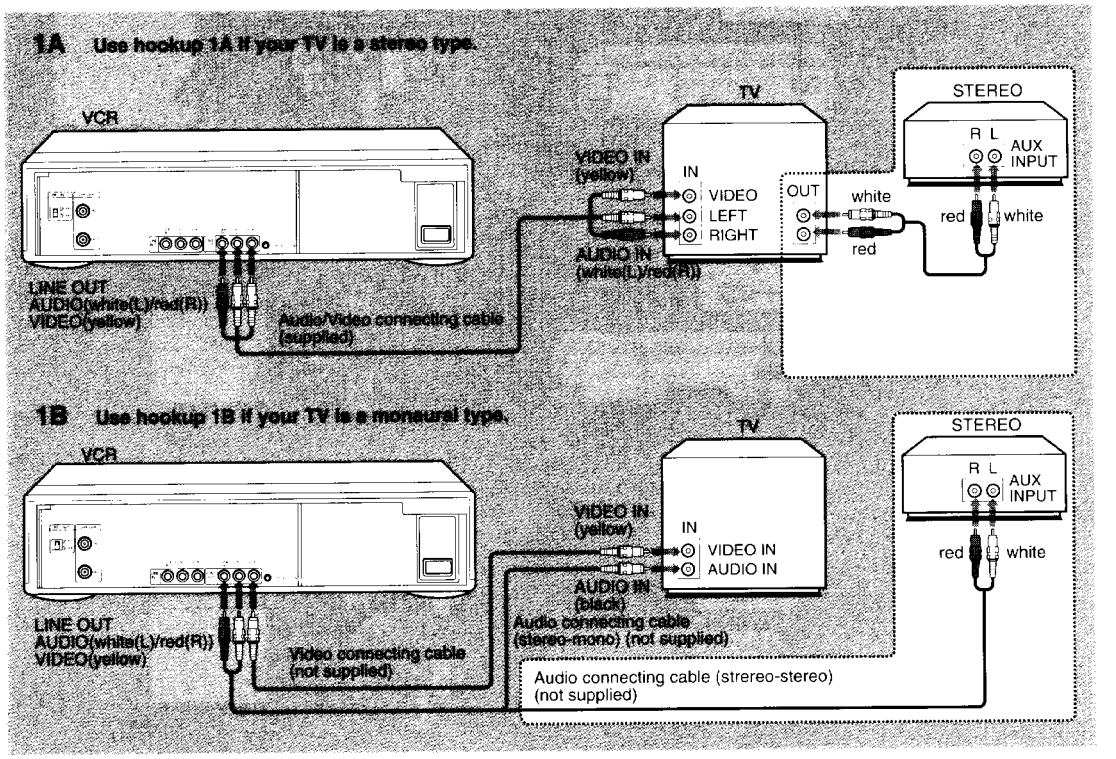
Hookup 1

Audio/Video (A/V) Hookup

If your TV has audio/video (A/V) input jacks, you will get a better picture by hooking up your VCR through these jacks. In addition, for a true "home theater" environment, you can connect the audio outputs of your VCR or TV to your stereo system. (The connection for this environment is shown in the diagram below by surrounding with dotted lines.)

If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookup.

If you only wish to play back pictures and movies, this is the only thing you have to do. If you also want to record off-air or off your cable TV system, do the A/V hookup on this page first, then go to the following pages for antenna or cable hookup.

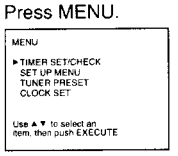


After you've hooked up your TV using the A/V jacks, use the following procedure to set up and use the VCR with your TV.

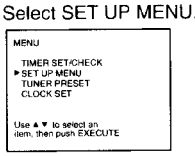
A/V Setup & Operation

Set AUTO ANT SEL to OFF.

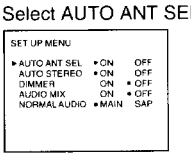
Press MENU.



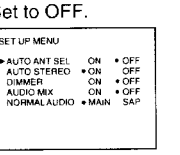
Select SET UP MENU.



Select AUTO ANT SEL.



Set to OFF.



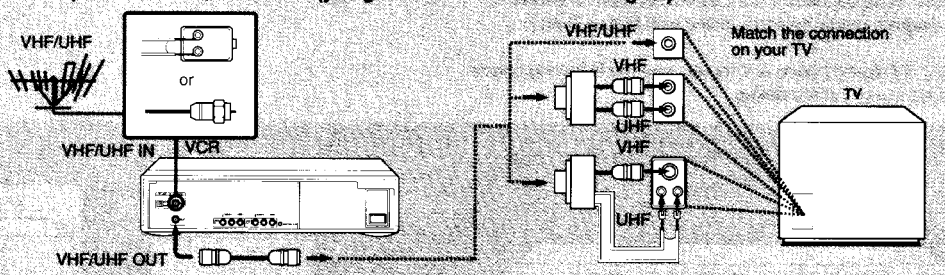
Details are on pages 24 and 25.

Hookup 2

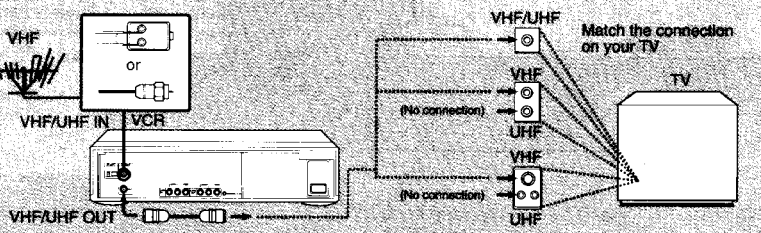
Antenna Hookup

Make the following connections if you're using an antenna (not cable TV). Check the type of antenna you are using and choose the appropriate connection.

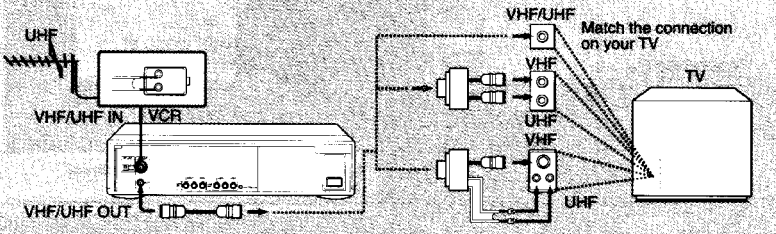
2A **Use hookup 2A for VHF/UHF antenna (you get Ch 2 – 13 and Ch 14 or higher).**



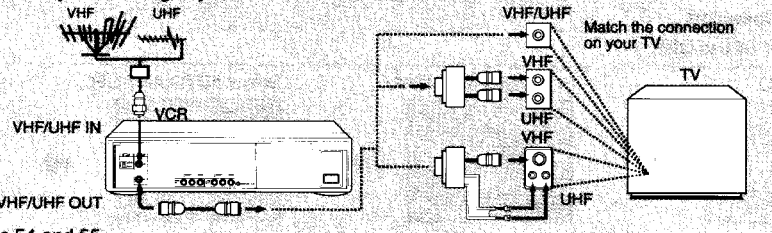
2B **Use hookup 2B for VHF only (you get Ch 2 – 13 only).**



2C **Use hookup 2C for UHF only (you get Ch 14 or higher only).**



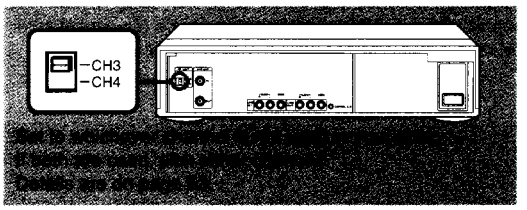
2D **Use hookup 2D if you're using separate VHF and UHF antennas.**



Details are on pages 54 and 55.

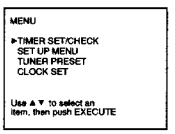
VCR Setup (Antenna)

1 Set the RF UNIT selector on the back of the VCR to CH 3 or CH 4.
If you have made A/V connections on page 7, skip this step.

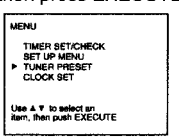


2 Set NORM/CATV to NORM on the on-screen display.

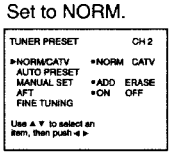
Press MENU.



Select TUNER PRESET, then press EXECUTE.



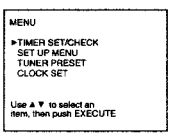
Set to NORM.



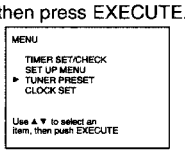
Details are on pages 20 and 21.

3 Preprogram the channels into the VCR.

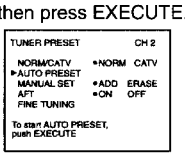
Press MENU.



Select TUNER PRESET, then press EXECUTE.



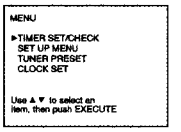
Select AUTO PRESET, then press EXECUTE.



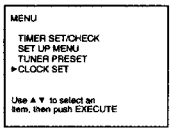
Details are on pages 20 and 21.

Clock Setting

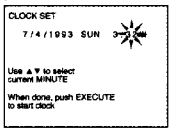
Press MENU.



Select CLOCK SET, then press EXECUTE.



Set the time, then press EXECUTE.



Details are on pages 18 and 19.

To Watch a Video

1 Tune the TV to CH 3 or CH 4, whichever you set with the RF UNIT selector on the back of the VCR. (If you have made the A/V connections on page 7, set your TV to the A/V input instead.)
2 Insert a cassette and press ▷ PLAY.

Details are on pages 26 and 27.

To Watch TV After a Video

1 Turn your VCR off, or press the VCR's TV/VTR button until "VTR" goes off in the display window.
2 Tune the TV normally.

(If you have made A/V connection and set AUTO ANT SEL to OFF on page 7, simply release the A/V input on your TV so that you can tune TV normally.)

To Record a Program Using the Timer

1 Insert a cassette.
2 Press MENU.
3 Select TIMER SET/CHECK.
4 Press EXECUTE.
5 Set DATE, START time, STOP time, CHannel and tape speed (recording mode).
6 Press EXECUTE and then TIMER REC (ON/OFF).

Details are on pages 34 and 35.

Hookup 3

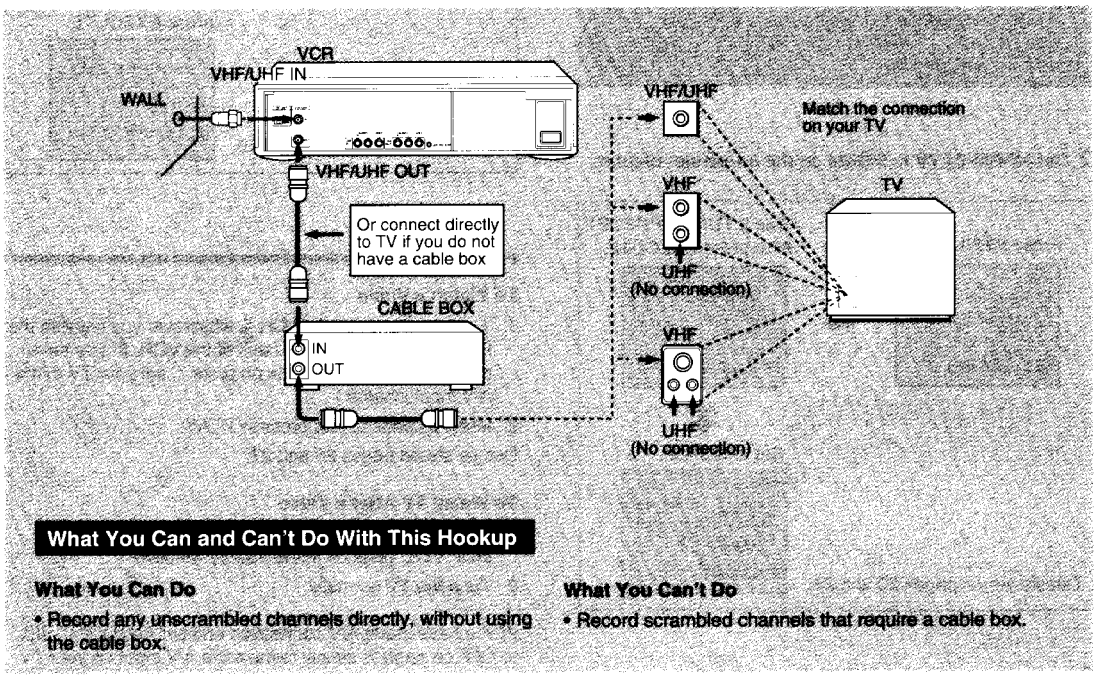
Simple Cable Hookup

Recommended Use:

Since this is the simplest hookup, we recommend that you try this hookup first. If you cannot record the channels you want, you'll need to change your hookup to one of the choices on the following pages, or contact your cable company for assistance.

Background

This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. You aren't able to record scrambled channels with this hookup.



What You Can and Can't Do With This Hookup

What You Can Do

- Record any unscrambled channels directly, without using the cable box.

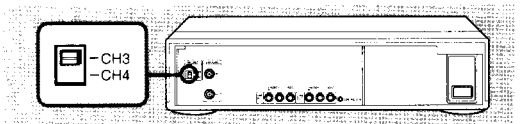
What You Can't Do

- Record scrambled channels that require a cable box.

VCR Setup (Simple Cable)

1 Set the RF UNIT selector on the back of the VCR to CH 3 or CH 4.

If you have made A/V connections on page 7, skip this step.

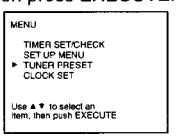


Set to whichever channel is not used in your area. If both are used, pick either channel.
Details are on page 53.

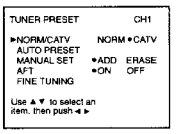
2 Set NORM/CATV to CATV on the on-screen display.

Press MENU.

Select TUNER PRESET, then press EXECUTE.



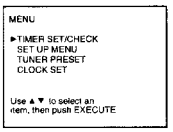
Set to CATV.



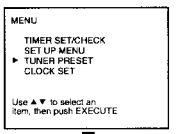
Details are on pages 20 and 21.

3 Preprogram the channels into the VCR.

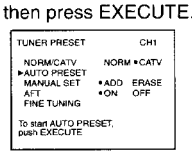
Press MENU.



Select TUNER PRESET, then press EXECUTE.



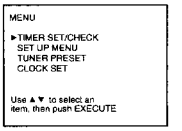
Select AUTO PRESET, then press EXECUTE.



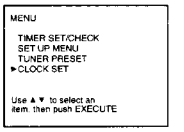
Details are on pages 20 and 21.

Clock Setting

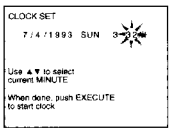
Press MENU.



Select CLOCK SET, then press EXECUTE.



Set the time, then press EXECUTE.



Details are on pages 18 and 19.

To Watch a Video

1a If you haven't made A/V connections:
- Turn your cable box on.
- Select CH 3 or CH 4 on your cable box (whichever you set on the back of the VCR).
- Select the cable box output channel (usually 2, 3 or 4) on your TV.

1b If you have made the A/V connections on page 7: Set your TV to the A/V input.

2 Insert a cassette and press ▷ PLAY.

Details are on pages 26 and 27.

To Watch TV After a Video

1 Turn your VCR off, or press the VCR's TV/VTR button until "VTR" goes off in the display window.
(If you have made A/V connection and set AUTO ANT SEL to OFF on page 7, simply release the A/V input on your TV so that you can tune TV normally.)

2 Select the channel on your cable box and select the cable box output channel on your TV (if you have one), or directly tune on your TV (if you don't).

To Record a Program Using the Timer

1 Insert a cassette.
2 Press MENU.
3 Select TIMER SET/CHECK.
4 Press EXECUTE.
5 Set DATE, START time, STOP time, CHannel and tape speed (recording mode).
6 Press EXECUTE and then TIMER REC (ON/OFF).

Details are on pages 34 and 35.

Hookup 4

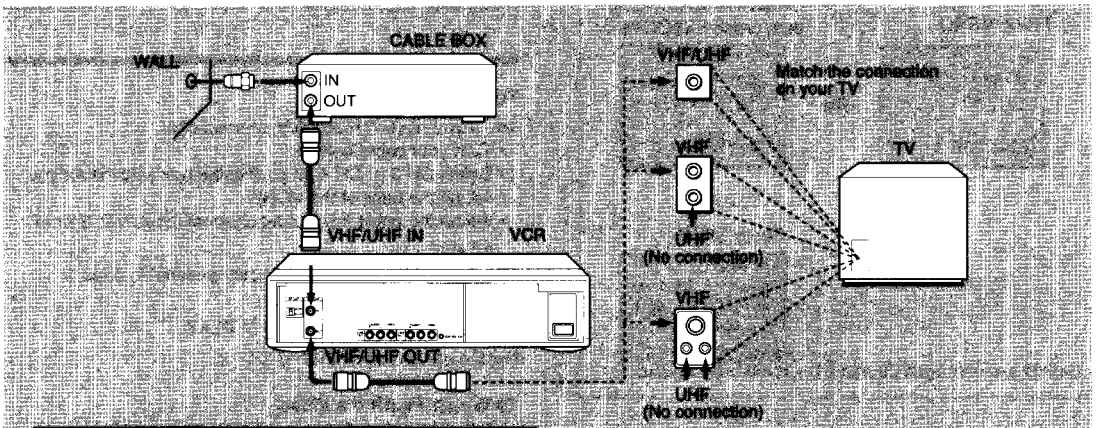
Alternate Cable Hookup

Recommended Use:

This hookup will allow you to record either scrambled or unscrambled channels. However, you will have to set the channel on the cable box for each program you want to record. If your cable system scrambles all or most channels, you **must** use this hookup. If your cable system scrambles only a few channels, you may prefer **Hookup 3** or **5** (on pages 10 and 14, respectively). Note that **Hookup 3** will not allow you to record scrambled channels, and that **Hookup 5** will allow you to record either scrambled or unscrambled channels, but will require that you purchase a few extra parts at your local electronics store.

Background

This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. Although this hookup will also allow you to record these scrambled channels, you must use the cable box rather than the VCR to select channels.



What You Can and Can't Do With This Hookup

What You Can Do

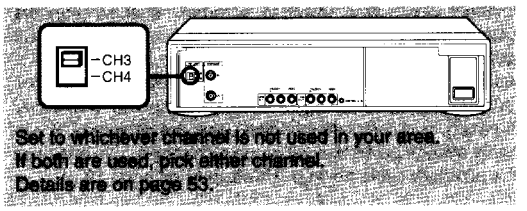
- Record any channel by selecting the channel on the cable box.

What You Can't Do

- Record with the cable box turned off.
- Record by selecting channels directly from the VCR.
- Record one channel while watching another channel.

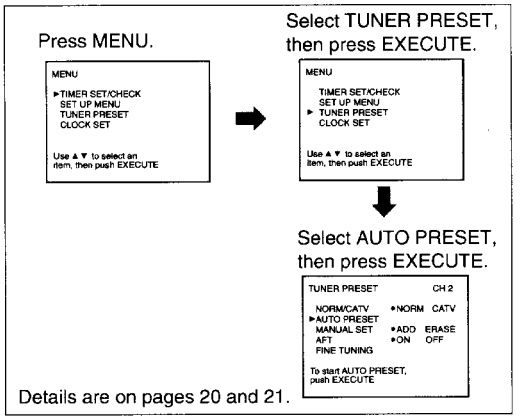
VCR Setup (Alternate Cable)

1 Set the RF UNIT selector on the back of the VCR to CH 3 or CH 4.
If you have made A/V connections on page 7, skip this step.



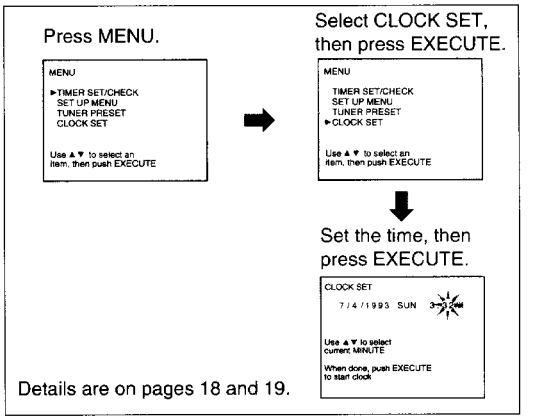
2 Turn your cable box on.

3 Preprogram the channels into the VCR.



Details are on pages 20 and 21.

Clock Setting



Details are on pages 18 and 19.

To Watch a Video

1 Tune the TV to CH 3 or CH 4 (or to A/V input if you have made A/V connections on page 7).
2 Insert a cassette and press ▷ PLAY.

Details are on pages 26 and 27.

To Watch TV After a Video

1 Turn your VCR off, or press the VCR's TV/VTR button until "VTR" goes off in the display window.
(If you have made A/V connection and set AUTO ANT SEL to OFF on page 7, simply release the A/V input on your TV so that you can tune TV normally.)
2 Turn your cable box on.
3 Select the cable box output channel (usually 2, 3, or 4) on your TV.
4 Select the channel, which you want to watch, on your cable box.

To Record a Program Using the Timer

1 Insert a cassette.
2 Turn your cable box on.
3 Select the channel, which you want to record, on your cable box.
4 Press MENU, and select TIMER SET/CHECK, and press EXECUTE.
5 Set DATE, START time, STOP time, CHannel and tape speed (recording mode).
The channel number must be the same as the cable box output channel (2, 3 or 4).
6 Press EXECUTE and then TIMER REC (ON/OFF).
7 Leave your cable box on.

Details are on pages 34 and 35.

Hookup 5

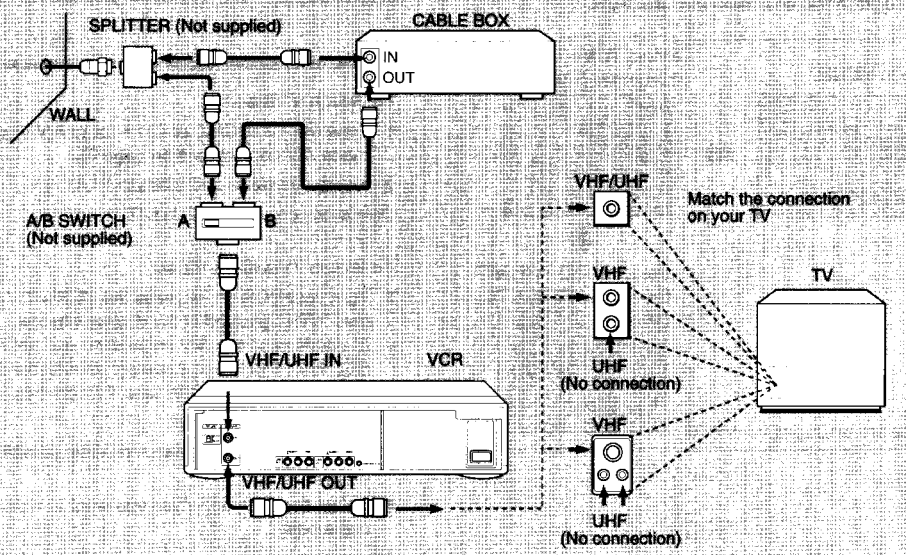
Advanced Cable Hookup

Recommended Use:

By using the A/B switch, this hookup allows you to record unscrambled channels directly with the VCR (position 'A'). You only use position 'B' and the cable box if you want to record a "scrambled" channel. This gives you the most convenient operation of the VCR's timer.

Background

This VCR can record virtually any unscrambled cable channel. Some cable systems "scramble" specific channels, usually premium or pay-per-view channels. This hookup will allow you to record unscrambled channels by selecting 'A' with the A/B switch, and tuning the channel directly on your VCR. To record "scrambled" channels, select 'B' with the A/B switch, and select the channel using the cable box. If your cable system scrambles all or most channels, you must use the alternate cable hookup (**Hookup 4**) on page 12.



What You Can and Can't Do With This Hookup

What You Can Do

- Record unscrambled channels directly with the A/B switch in the 'A' position.
- Record scrambled channels with the A/B switch in the 'B' position.

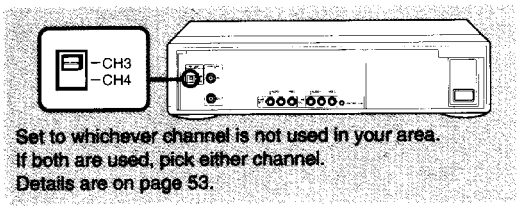
What You Can't Do

- Record scrambled channels directly without the cable box.
- Watch a different channel while you are recording a scrambled channel.
- Record scrambled channels with the A/B switch in the 'A' position.

VCR Setup (Advanced Cable)

1 Set the RF UNIT selector on the back of the VCR to CH 3 or CH 4.

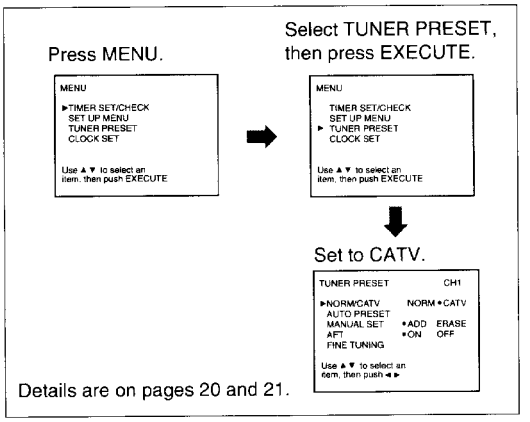
If you have made A/V connections on page 7, skip this step.



Set to whichever channel is not used in your area. If both are used, pick either channel. Details are on page 53.

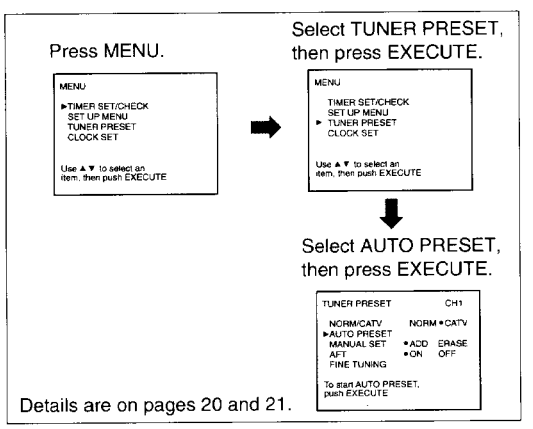
2 Set the A/B switch to 'A'.

3 Set NORM/CATV to CATV on the on-screen display.



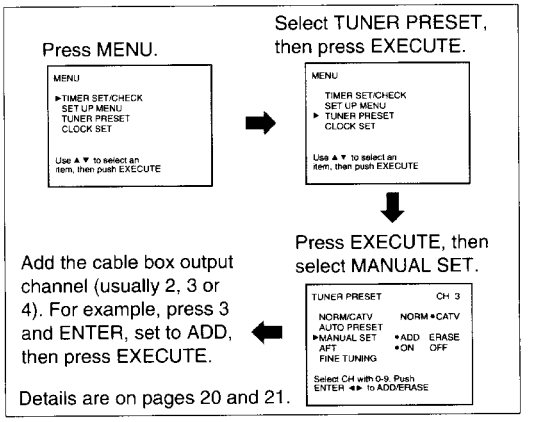
Details are on pages 20 and 21.

4 Preprogram the channels into the VCR.



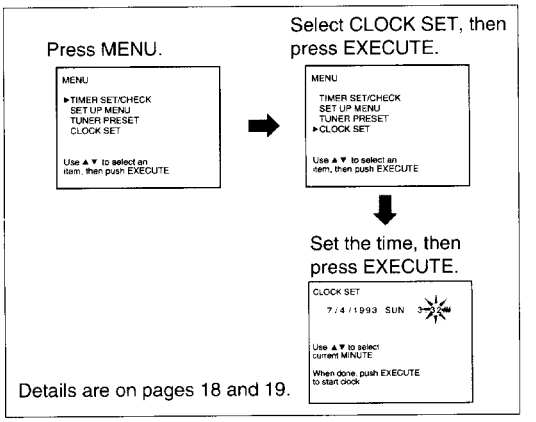
Details are on pages 20 and 21.

5 Add the cable box output channel (usually 2, 3, or 4).



Details are on pages 20 and 21.

Clock Setting



Details are on pages 18 and 19.

To Watch a Video

1 Tune the TV to CH 3 or CH 4 (or to A/V input if you have made A/V connections on page 7).

2 Insert a cassette and press ▷ PLAY.

Details are on pages 26 and 27.

To Watch TV After a Video

1 Turn your VCR off, or press the VCR's TV/VTR button until "VTR" goes off in the display window.
(If you have made A/V connection and set AUTO ANT SEL to OFF on page 7, simply release the A/V input on your TV so that you can tune TV normally.)

2 Set the A/B switch to 'B'.

3 Turn your cable box on.

4 Select the cable box output channel (usually 2, 3 or 4) on your TV.

5 Select the channel, which you want to watch, on your cable box.

6 After watching TV, return the A/B switch and cable box channel to the correct position.

To Record a Program Using the Timer

Unscrambled Channels

1 Insert a cassette.

2 Switch the A/B switch to 'A'.

3 Press MENU and select TIMER SET/CHECK.

4 Press EXECUTE.

5 Set DATE, START time, STOP time, CHannel and tape speed (recording mode).

6 Press EXECUTE and then press TIMER REC (ON/OFF).

7 Leave the A/B switch at 'A'.

Scrambled Channels

1 Insert a cassette.

2 Switch the A/B switch to 'B'.

3 Turn your cable box on.

4 Select the channel, which you want to record, on your cable box.

5 Press MENU and select TIMER SET/CHECK.

6 Press EXECUTE.

7 Set DATE, START time, STOP time, CHannel and tape speed (recording mode).
The channel number must be the same as the cable box output channel (2, 3 or 4).

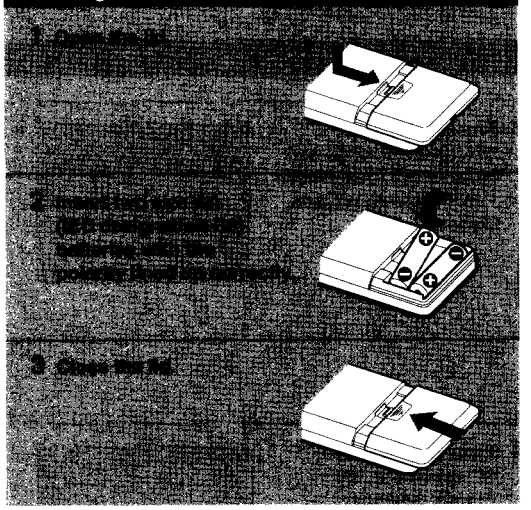
8 Press EXECUTE and then TIMER REC (ON/OFF).

9 Leave the A/B switch at 'B'.

Details are on pages 34 and 35.

Preparing the Remote Commander

Inserting Batteries

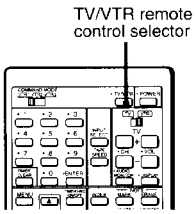


Notes on handling the batteries

- With normal use, the batteries should last for approximately six months.
- If you do not use the Remote Commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one, or use different types of batteries.

Setting the TV/VTR Remote Control Selector

You can control both the VCR and some Sony TVs with the Remote Commander. You must set the TV/VTR remote control selector to the 'TV' or 'VTR' position depending on whether you want to control the VCR or the TV.



When controlling the VCR

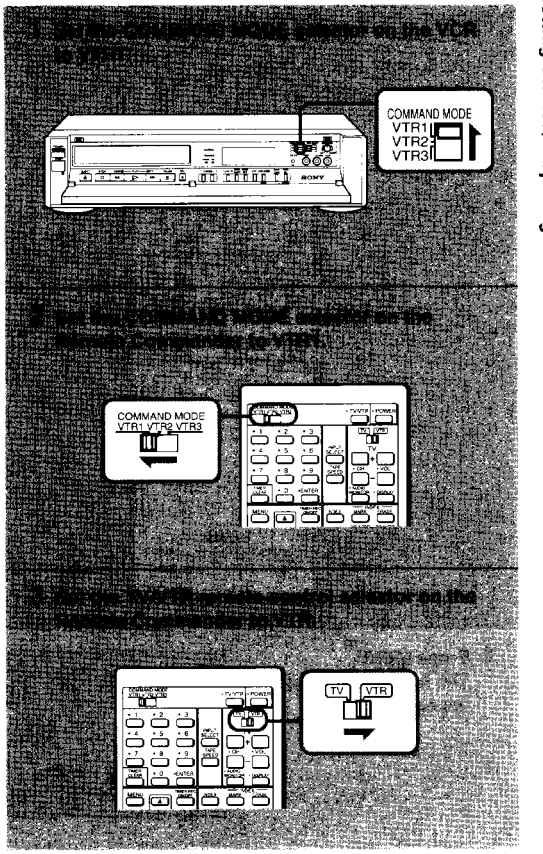
Set the TV/VTR remote control selector to the 'VTR' position.

When controlling a Sony TV

Set the TV/VTR remote control selector to the 'TV' position. The buttons marked with a small yellow dot can be used to control Sony TV sets bearing the ■ mark.

Setting the Command Mode

You can select three different settings for the Remote Command Mode to operate the VCR with the Remote Commander.



Controlling Other Sony Video Equipment Having a COMMAND MODE Selector

1 Set the COMMAND MODE selector on the Remote Commander to a position other than the one you selected for this VCR.
2 Set the COMMAND MODE selector of any other video equipment to the same position you selected in step 1.

If the other Sony video equipment does not have a COMMAND MODE selector, you can control other Sony video equipment using the following COMMAND MODE settings:

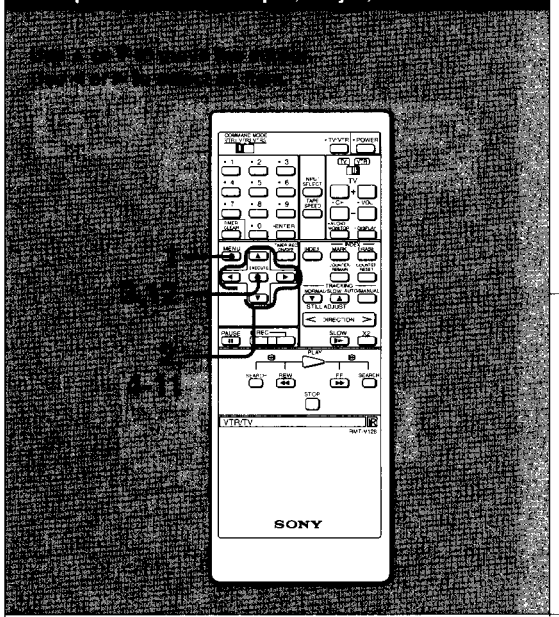
Infrared remote controlled Sony Betamax VCRs: VTR1
(Some of them may not be controlled at this setting)
Sony 8 mm format VCRs: VTR2
Sony VHS format VCRs: VTR3

Setting the Time and Date

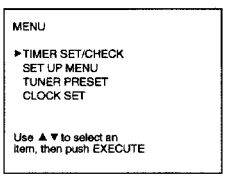
Before you can do timer recording, you first need to set the clock in the VCR.

Example of Time and Date Setting

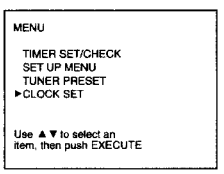
Example: To set to 3:32 pm, July 4, 1993



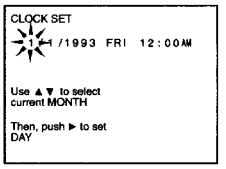
1 Press MENU.
The main MENU screen appears.



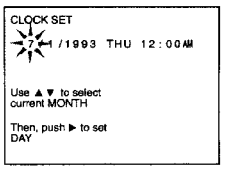
2 Press ▲ or ▼ to move the cursor (►) to CLOCK SET.



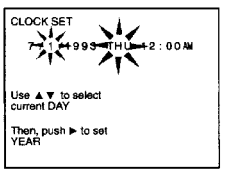
3 Press EXECUTE.
"1/1/1993 FRI 12:00 AM" is displayed. The leftmost 1, in the 'month' position, flashes.



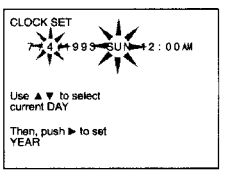
4 Press ▲ or ▼ until "7" appears in the 'month' position.



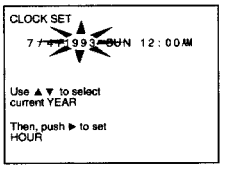
5 Press ► to make the number in the 'day' position flash.



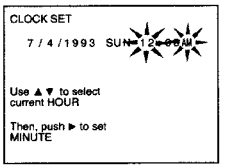
6 Press ▲ or ▼ until "4" appears in the 'day' position.
The day of the week is set automatically.



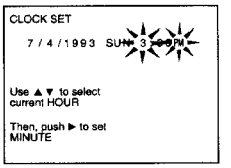
7 Press ▶ to make the year flash and press ▲ or ▼ if you need to change the year.
This time you want to leave the year unchanged, so just press ▶.



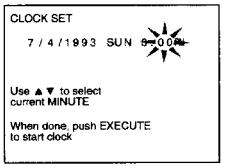
8 Press ▶ to make the hour flash.



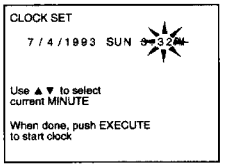
9 Press ▲ or ▼ until "3" and "PM" appear.



10 Press ▶ to make the minutes flash.



11 Press ▲ or ▼ until "32" appears in the 'minute' position.



12 Press EXECUTE to start the clock.
Pressing EXECUTE will set the clock to 3:32 pm 00 seconds.

Notes:

- You cannot set the time and date during timer recording, timer-recording standby or quick-timer recording.
- Though the time and date are not displayed in the display window during playback and recording, the clock keeps running. The time and date are shown in the display window only when the unit is turned off or when the cassette is ejected.

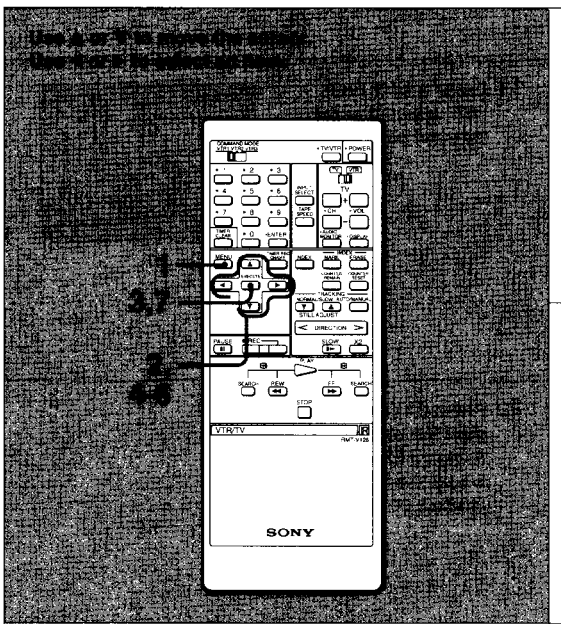
Presetting the Active Channels

This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and CATV channels 1 to 125. These channels can be preset using the Remote Commander and the TUNER PRESET display. First, we recommend that you preset the active channels in your area using the automatic preset mode. Then, if there are any unwanted channels, disable them manually. If you have already decided which channels you want to preset on the VCR, set them manually using the channel number buttons.

Before presetting channels, check the following points:

- Turn the VCR and the TV on.
- If you have connected the TV and the VCR through the VHF/UHF OUT connector on the VCR only, make sure that the TV is set to the correct channel (CH 3 or CH 4) for the VCR.
- If you have connected the TV and the VCR through the LINE OUT jacks on the VCR, select the input for the VCR on the TV.
- Press TV/VTR so that "VTR" lights up in the display window on the VCR.
- Press INPUT SELECT so that a channel number appears in the display window on the VCR.

Presetting All Receivable Channels Automatically



1 Press MENU.
The main MENU screen appears.

```
MENU

►TIMER SET/CHECK
  SET UP MENU
  TUNER PRESET
  CLOCK SET

Use ▲▼ to select an
item, then push EXECUTE
```

2 Press ▲ or ▼ to move the cursor (►) to TUNER PRESET.

```
MENU

  TIMER SET/CHECK
  SET UP MENU
►TUNER PRESET
  CLOCK SET

Use ▲▼ to select an
item, then push EXECUTE
```

3 Press EXECUTE.
The TUNER PRESET screen is displayed.

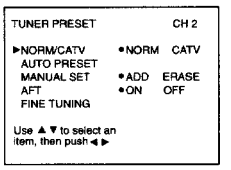
```
TUNER PRESET                CH 2

  NORM/CATV        •NORM   CATV
  AUTO PRESET
►MANUAL SET        •ADD    ERASE
  AFT              •ON     OFF
  FINE TUNING

Select CH with 0-9. Push
ENTER. ◄► to ADD/ERASE
```

4 Press ▲ or ▼ to move the cursor to NORM/CATV.

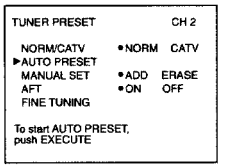
```
TUNER PRESET                CH 2

►NORM/CATV         •NORM   CATV
  AUTO PRESET
  MANUAL SET       •ADD    ERASE
  AFT              •ON     OFF
  FINE TUNING

Use ▲▼ to select an
item, then push◄►
```

5 Press ◀ or ▶ to select NORM or CATV.

NORM presets the VHF and UHF channels; CATV presets your cable TV channels. The lowest channel number, 2 for NORM and 1 for CATV, will appear on the screen.

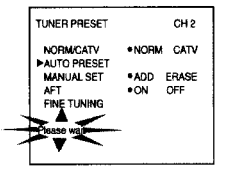


6 Press ▲ or ▼ to move the cursor to AUTO PRESET.



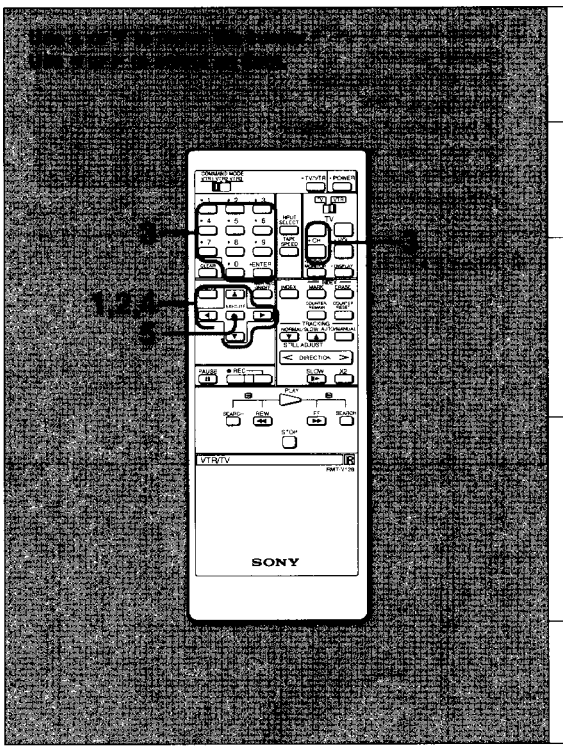
7 Press EXECUTE.

Receivable channels begin presetting in the numerical sequence. While presetting, "Please wait" appears and flashes on the screen. When no more channels can be found, the presetting stops and the picture of the lowest numbered channel is displayed on the TV screen.



Presetting Desired Channels or Disabling Unwanted Channels

After automatic presetting, you can disable and/or add channels manually.

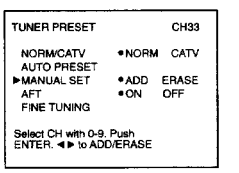


1 Follow steps 1 to 3 in "Presetting All Receivable Channels Automatically" on page 20.

2 Press ▲ or ▼ to move the cursor to MANUAL SET.

3 To disable channels, press CH +/– to select the channel.
To add channels, press channel number buttons (0 to 9) and then ENTER to select the channel.

4 To disable channels, press ▶ to select ERASE.
To add channels, press ◀ to select ADD.

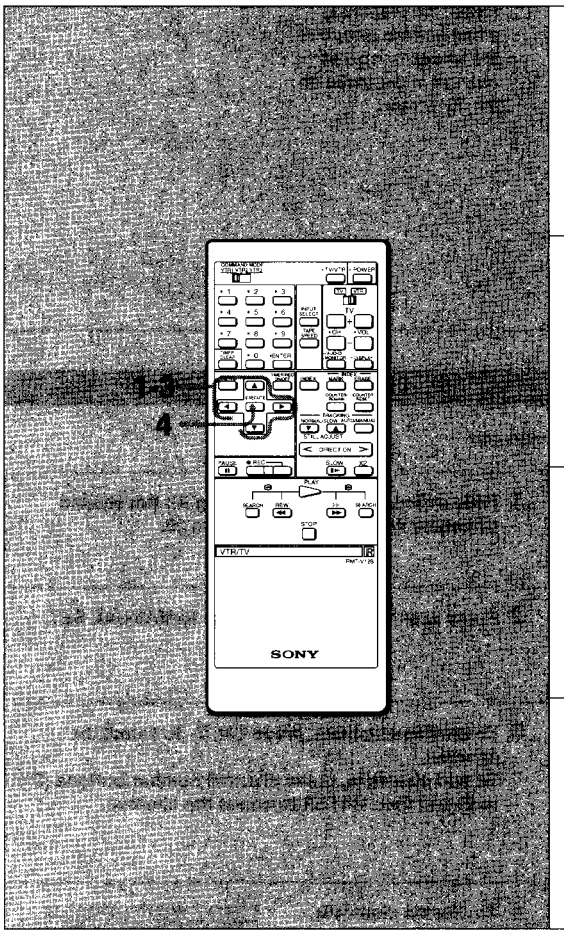


5 Press EXECUTE.

When you press CH +/–, the disabled channels are removed and the added channels are displayed.

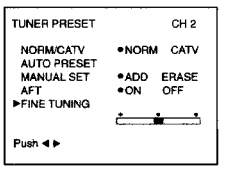
Fine-tuning

Normally, the Auto Fine Tuning (AFT) setting on the TUNER PRESET menu is set to ON, and the AFT function automatically fine-tunes the picture. If you change the channel and the picture is not acceptable, fine-tune it manually.

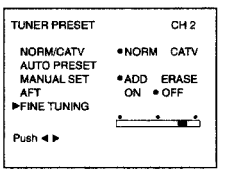


1 Display the TUNER PRESET screen referring to steps 1 to 3 in "Presetting All Receivable Channels Automatically" (page 20).

2 Press ▲ or ▼ to move the cursor (▶) to FINE TUNING.
The fine tuning indicator is displayed on the screen.



3 Press ◀ or ▶ to get a clearer picture.
The AFT automatically switches to OFF.
(If you cannot get a better picture, press ▲ or ▼ to move the cursor to AFT and reselect ON.)



4 Press EXECUTE.

The FINE TUNING indicator

The FINE TUNING indicator shows the operable fine-tuning range and stops at the optimal point of reception. When the VCR tuner is receiving an optimal broadcast signal, the indicator stops at the center position or one space right or left of the center position. However, even when a broadcast is received in an optimal condition, the indicator may not be at the optimal position.

Cable TV Channel Assignment

Cable TV systems use letters or numerals to designate 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 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
Corresponding CATV channel	A-8	2	...	13	A	B	C	D	E

19	20	21	22	23	24	25	26	27	28	29	30	31
F	G	H	I	J	K	L	M	N	O	P	Q	R

32	33	34	35	36	37	...	94	95	96	97	98	99
S	T	U	V	W	W-1	...	W+58	A-5	A-4	A-3	A-2	A-1

100	...	125
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 have adopted either the HRC or IRC cable system. This VCR is capable of properly receiving these two cable systems as well as the standard cable system.

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.

The FINE TUNING level bar for receiving HRC or IRC cable systems

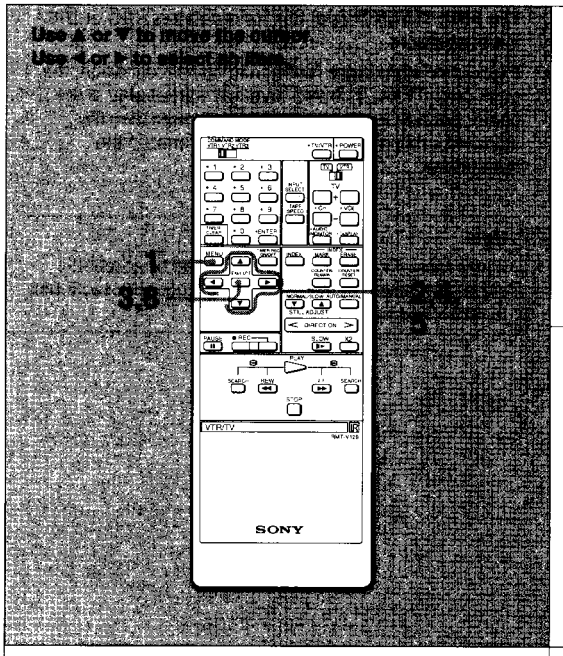
Even when signals are received in optimal condition, the mark on the FINE TUNING level bar will not stay at the center position for channels higher or lower than the standard cable system due to the difference in the frequencies.

Note

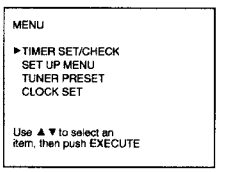
Many cable TV systems use scrambled or encoded signals for some channels. You may require a cable box to receive some or all channels.

Using the SET UP MENU Screen

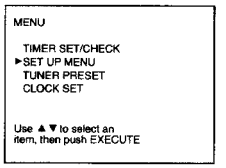
Before using your VCR, set your preferences on the SET UP MENU screen.



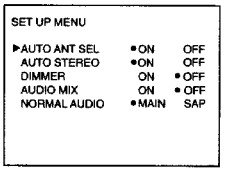
1 Press MENU.
The main MENU screen appears.



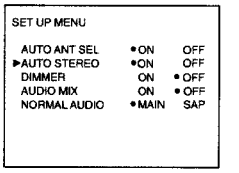
2 Press ▲ or ▼ to move the cursor (►) to SET UP MENU.



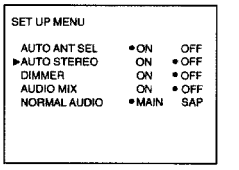
3 Press EXECUTE.
The SET UP MENU screen appears.



4 Press ▲ or ▼ to move the cursor to the desired menu choice. (For Menu Choices, see the next page.)



5 Press ◄ or ► to move the dot (●) to the desired setting.



6 Press EXECUTE to return to the original screen.
The settings are stored and will remain unless the power plug is disconnected.

Menu Choices

LANGUAGE (Canadian model only)

You can preset you VCR to display the screen information in either English or French.

AUTO ANT SEL (Automatic Antenna Selector)

- If your TV is connected only to the VHF/UHF OUT connector on the VCR, set to ON.

  When playing back a cassette, the picture is automatically displayed on the screen simply by selecting the channel for the VCR (CH 3 or CH 4) on the TV. To watch TV after the playback is over or you stop the playback (with this VCR still turned on), select a desired channel on the VCR, or press TV/VTR so that "VTR" goes off in the display window so that you can select a desired channel on your TV.

- If your TV is connected to both the VHF/UHF OUT connector and LINE OUT jacks on the VCR, set to OFF.

  When playing back a cassette, select the input for the VCR on the TV.
  To watch TV after the playback is over or you stop the playback (with this VCR still turned on), select a desired channel on the VCR.

AUTO STEREO

If a stereo program's reception is poor, set to OFF. The program is recorded in monaural but sound quality may improve. For details, see page 33.

DIMMER

To decrease the brightness of indications on the display window, set to ON. To resume the original brightness, set to OFF.

AUDIO MIX

To listen to sound recorded on both the Hi-Fi video track and the normal audio track of the tape, set to ON. For details, see page 31.

NORMAL AUDIO

When there is a SAP (Second Audio Program) broadcast, select SAP to record the SAP sound on the normal audio track. For details, see page 33.

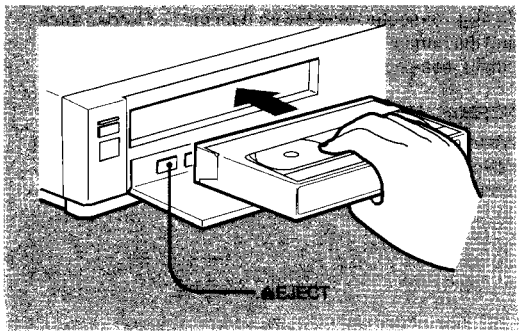
Playback

This section shows you how to insert, play back, and eject a video cassette.

Inserting a Video Cassette

1 Insert a video cassette as shown below.

2 Gently press the center of the front side of the cassette until the mechanism draws it into the compartment.
When the cassette has been loaded, the cassette indicator (📼) lights up in the display window and the VCR turns on automatically.



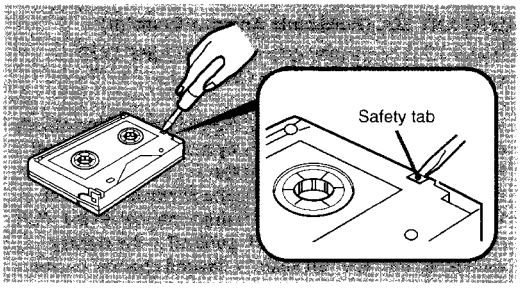
Note
If you insert a cassette without a safety tab while the VCR is turned off, the VCR turns on and playback starts automatically (auto power/playback function).

Ejecting the cassette

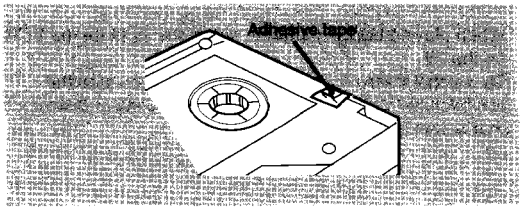
Press ⏏ EJECT on the VCR. You can eject the cassette when the power is off.
When you press ⏏ EJECT, the power is turned on. After ejecting the cassette, the power automatically shuts off.

Protecting your cassettes against accidental erasure

Cassettes have a safety tab to protect against accidental recording. Break off the safety tab with a screwdriver or other tools. If the safety tab is removed, the cassette will be ejected when you try to record on it.



To record on a cassette with the safety tab broken off, simply cover the opening with adhesive tape.



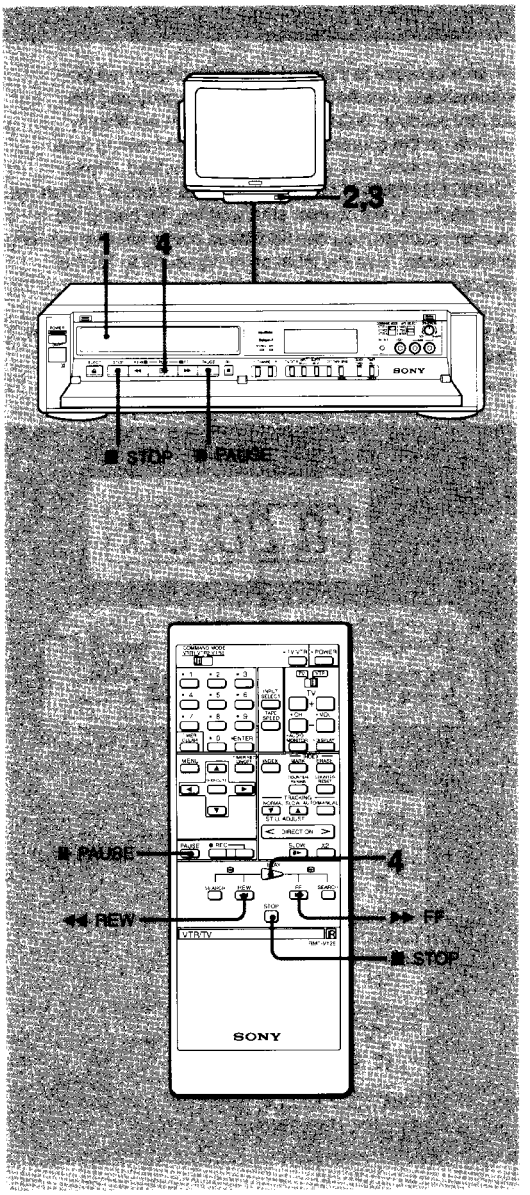
Maximum recording time of a cassette

Recording in either ⅡII or ⅡIII mode is possible with this VCR. When recording, select ⅡII or ⅡIII using TAPE SPEED. During playback, the VCR automatically detects the recording format, and then plays back the cassette in the appropriate mode. A cassette recorded in ⅡIII mode runs 1.5 times as slowly as a cassette recorded in ⅡII mode. Refer to the chart below for the recording/playback times available.

Cassette tape	Recording/Playback time	
	ⅡII	ⅡIII
L-125	30 min.	45 min.
L-250	1 hr.	1 hr. 30 min.
L-500	2 hr.	3 hr.
L-750	3 hr.	4 hr. 30 min.
L-830	3 hr. 20 min.	5 hr.

Cassettes recorded in ⅡI mode

Playback of cassettes recorded in ⅡI mode is also possible with this VCR. However, playback in any other mode than normal forward speed is not guaranteed. This VCR is not designed to record in ⅡI mode.



Play Back a Tape

1 Insert a cassette.

2 Turn the TV on.

3 If your TV is connected to both the VHF/UHF OUT connector and LINE OUT jacks on the VCR, select the input for the VCR. If your TV is connected only to the VHF/UHF OUT connector on the VCR, select the channel for the VCR (CH 3 or CH 4).

4 Press ▷ PLAY.

To stop playback
Press ■ STOP.

To stop playback for a moment, press II PAUSE.
To resume playback, press II PAUSE again or ▷ PLAY.
When the pause mode lasts for approximately 8 minutes, the VCR enters automatically stop mode.

To fast-forward the cassette during stop mode
Press ▶▶ FF.

To rewind the cassette during stop mode
Press ◀◀ REW.

To rewind the cassette to its beginning and to playback automatically (auto playback function)

Press ▷ PLAY while pressing ◀◀ REW on the VCR.
You cannot use the Remote Commander for the auto playback function.

When the tape reaches the end

The tape automatically rewinds to the beginning (auto rewind function), and power remains on.

Play Back a Tape Recorded with *Super* Beta Function

When you play back a tape recorded with ***Super* Beta** function on, press SUPER BETA on the VCR so that the ***Super* Beta** lamp on the VCR lights up.

Played-back tape	*Super* Beta	
	Function	Lamp
Tape recorded with ßIs or ßIs*SHB*	on	on
Tape recorded with ***Super* Beta**	on	on
Tape recorded without ***Super* Beta**	off	off

Note on playback

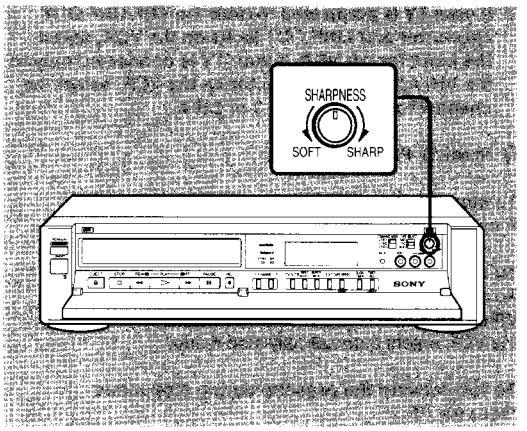
When playing back the beginning of a recording, the picture may be distorted or some streaks may appear in the picture.

Note on *Super* Beta function

If you do not select ***Super* Beta** function to match the recording condition of a played-back tape, noise may appear in the picture.

Adjusting the Sharpness of the Played-Back Picture

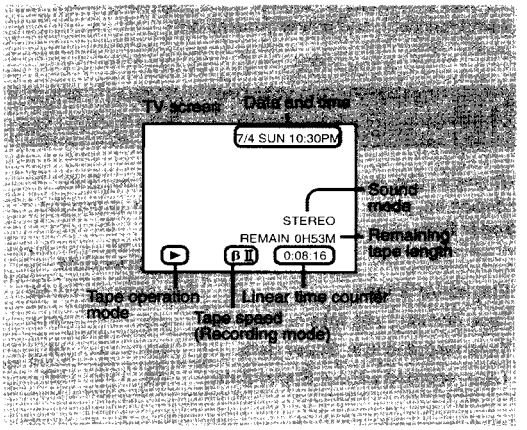
You can adjust the sharpness of the played-back picture according to your preference.



To get a sharper picture, turn the SHARPNESS control toward SHARP.
To get a softer picture, turn the SHARPNESS control toward SOFT.

The On-Screen Display

To delete or call up VCR information on the TV screen, press DISPLAY on the Remote Commander.



Note

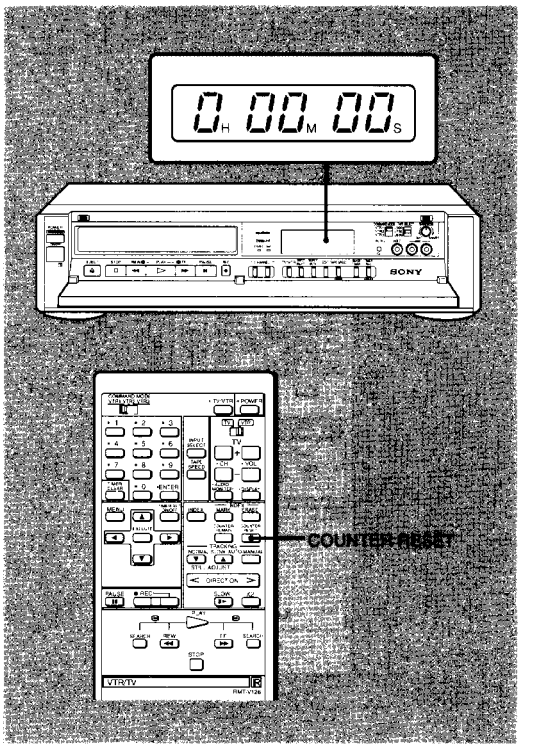
The on-screen display cannot be displayed on the TV screen during freeze mode, slow motion playback or high-speed playback.

Indexing Tape Contents

When a cassette is inserted, the clock display will be automatically switched to the counter display and the counter reading "0H00M00S" will appear in the display window. (If the counter diaplay is in the remaining time indication mode, "–H– –M" will appear instead. Press COUNTER/REMAIN to resume the time counter.) When you start playback, the counter start working. By noting the counter readings, you can find these points later by referring to the counter. Use the label on the cassette to list the programs and their counter readings.

To reset the counter to "0H00M00S" during playback or pause

Press COUNTER RESET on the Remote Commander.

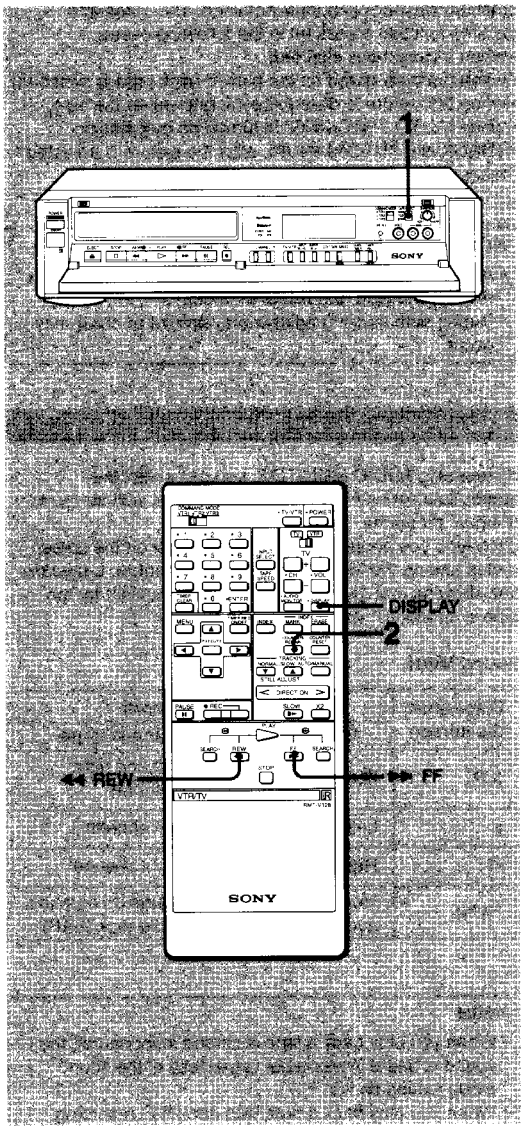


Notes on counter reading

- After a cassette is ejected, the counter display will be automatically switched to the clock display. When a cassette is reinserted, the counter display will appear and show the counter reading "0H00M00S" except when the counter display is in the remaining time indication mode.
- The counter does not work properly on the portions on which no recording has been made.

Checking the Remaining Time of a Tape

You can check the remaining time of a tape during playback or recording.



1 Before starting playback or recording, set the TAPE SELECT selector to the correct position according to the tape you use, by referring to the table below.

Position to be set to	Tape to be used
L500	L-500 and shorter
L750	L-660 and L-750
L830	L-830

2 Press COUNTER/REMAIN during playback or recording.

The time counter in the display window now changes to show the remaining time. (The remaining time is always shown on the on-screen display on the TV screen if you press DISPLAY.)

To resume the time counter in the display window

Press COUNTER/REMAIN again.

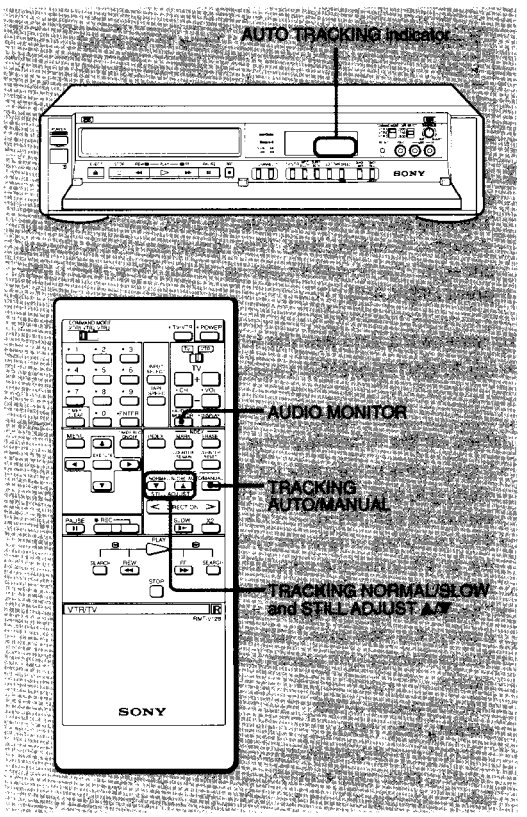
Notes on the remaining time

- It takes time to calculate the remaining time after starting to play back a tape. (When the remaining time cannot be calculated, "–H – – M" is displayed instead.)
- The remaining time is not to be displayed, if you press ▶▶ or ◀◀ before the remaining time is displayed. Instead, "–H – – M" is displayed.
- The remaining time cannot be changed even if you change the tape speed (SP/LP) during stop mode.
- The remaining time cannot be changed in the following cases:
  - during pause mode;
  - during stop mode;
  - during frame-by-frame picture (see page 41).
  - during slow motion playback (see page 42).

  When you press ▷ PLAY or X2, the normal remaining time resumes in several seconds.
- The remaining time may not be correct in the following cases:
  - when playing back a commercially available prerecorded tape;
  - when using a damaged or a non-standard tape;
  - when a tape has a blank portion or portion where the tape speed is changed;
  - when using a tape which has been rewound loosely.

Playing Back Externally-Recorded Tapes

When playing back a tape recorded on another VCR, the tracking condition is automatically adjusted. You can also adjust the tracking condition manually according to the following instructions.



Manual tracking adjustment

When the playback picture has streaks or snow during normal playback, adjust the tracking manually.

1 Press TRACKING AUTO/MANUAL.
The tracking level bar appears on the TV screen and "AUTO TRACKING" goes off in the display window.

2 Press TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ for the best possible picture.

To activate the automatic tracking function, press TRACKING AUTO/MANUAL again so that "AUTO TRACKING" lights up in the display window.

Automatic tracking adjustment

The tracking condition is automatically adjusted on this VCR. "AUTO TRACKING" flashes while the VCR is searching for the optimal tracking condition and lights when optimum playback picture is obtained. The automatic tracking function comes on in the following cases:

- when a cassette is inserted;
- when the tape speed on the played-back tape is switched;
- when the picture is distorted by scratches on the tape;
- when "AUTO TRACKING" is turned on by pressing TRACKING AUTO/MANUAL after the picture is adjusted manually.

Notes

- Auto tracking adjustment will not function well for tapes recorded in HiS and HiS*SHB* mode.
- During auto tracking adjustment, streaks or noise may occur.

Selecting the Monitor Sound

By pressing AUDIO MONITOR, you can select the appropriate sound mode to play back tapes with stereo or bilingual programs.
Each time you press the button, the display on the screen cycles among the four sound mode listed below. Leave the one showing that gives the sound track you want for the tape or broadcast you are listening to.

Sound Mode

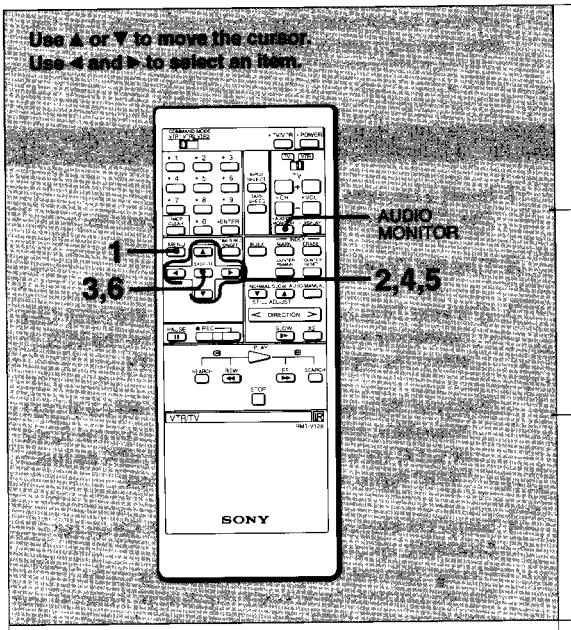
Display on the screen	Sound to be heard	
	Stereo tape	Bilingual tape
L/R	Stereo	Left and right channels
L	Left channel	Left channel
R	Right channel	Right channel
None	Monaural on normal audio track	Sound on normal audio tack (SAP)

Notes

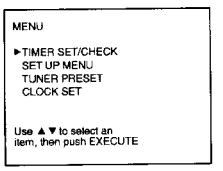
- When you play back a tape recorded in monaural, the sound is heard in monaural regardless of the sound mode setting above.
- When you play back a tape with non-Hi-Fi recording, the sound mode cannot be changed.

Listening to Mixed Hi-Fi and Normal Track Sound

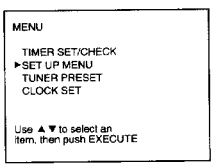
You can hear sound recorded on the Hi-Fi video track and the normal audio track simultaneously. This allows you to listen to an audio-inserted cassette.



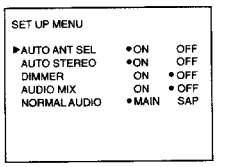
1 Press MENU.
The main MENU screen appears.



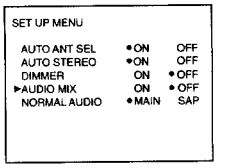
2 Press ▲ or ▼ to move the cursor (►) to SET UP MENU.



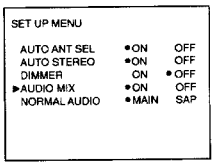
3 Press EXECUTE.
The SET UP MENU screen appears.



4 Press ▲ or ▼ to move the cursor to AUDIO MIX.



5 Press ◄ to move the dot (●) to ON.



6 Press EXECUTE to return to the original screen.

Notes

- When you set AUDIO MIX to ON, the AUDIO MONITOR button does not function.
- Reset AUDIO MIX to OFF after listening to the sound in audio mix mode.

Recording TV Programs

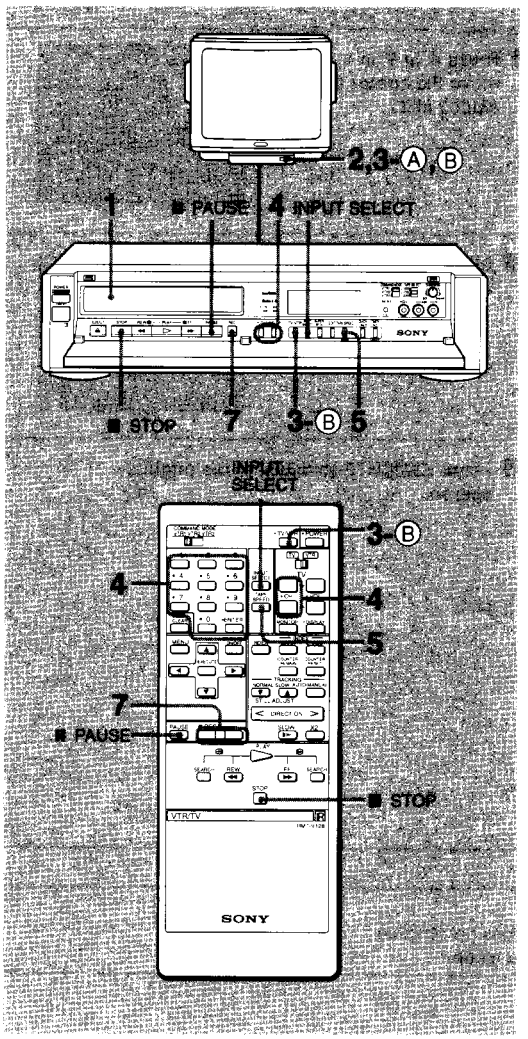
Before you begin, check the following points:

- Make sure that all the connections have been made correctly (see pages 6 to 16).
- Check the input mode indicator and the channel number indicator in the display window of the VCR (see page 58).
- Press INPUT SELECT repeatedly so that "LINE" disappears and the channel number appears in the display window.

Caution

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

Recording TV Programs



1 Insert a cassette.
The VCR turns on automatically (auto power on).

2 Turn the TV on.

3 Ⓐ If your TV is connected to both the VHF/UHF OUT connector and the LINE OUT jacks on the VCR, select the input for the VCR on the TV.

Ⓑ If your TV is connected only to the VHF/UHF OUT connector, set the TV to the preset channel (CH 3 or CH 4) for the VCR, then press TV/VTR so that "VTR" lights up in the display window.

4 Select the channel to be recorded with CH+/– (or CHANNEL +/– on the VCR).
You can also use channel number buttons on the Remote Commander to select the channel; however, you need to press ENTER after selecting the channel with the channel number buttons.

EXAMPLE: to select CH 125 with the channel number buttons, press 1, 2, 5 and then ENTER.

5 Select SP or LP with TAPE SPEED (SP/LP).
To select the best recording tape speed, see "Maximum recording time of a cassette" on page 26.

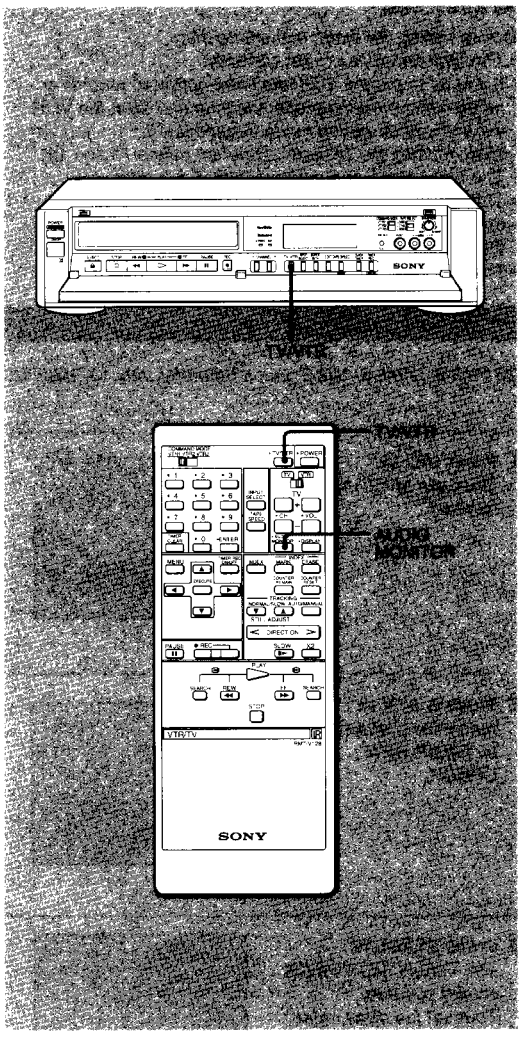
6 If you want the *Super* Beta function work to get a better picture quality in the recording, press SUPER BETA on the VCR so that the *Super* Beta lamp lights.

7 Press the two ● REC buttons on the Remote Commander at the same time, or the ● REC button on the VCR.

To stop recording
Press ■ STOP.

To stop recording for a moment
Press II PAUSE.
To resume recording, press II PAUSE again.
When the recording pause mode lasts for approximately 8 minutes, the VCR enters automatically stop mode.

When the tape reaches its end
The tape rewinds to the beginning and the power remains on.



Recording with the TV Off

Turn off the power to the TV or color monitor.
There will be no interference with the recording.

Watching One TV Program While Recording Another

1 Press TV/VTR so that "VTR" goes off in the display window.
Skip this step if you have connected the TV and the VCR through the LINE OUT jacks.

2 Select the channel you want to watch on the TV.

When "VTR" is	Picture on the TV screen is from
Lit	Channel selected by the VCR tuner
Unlit	Channel selected by the TV tuner

Recording Multi-Channel TV Sound (MTS) Broadcasts

To record a stereo broadcast

When a stereo broadcast program is received, the STEREO lamp lights up on the front panel of the VCR. The stereo program is automatically recorded in stereo. If a stereo program's reception is poor, set AUTO STEREO to OFF on the SET UP MENU screen (see pages 24 and 25). The sound is heard in monaural but the noise is reduced.

To record a Second Audio Program (SAP) broadcast

To record the SAP sound on the normal audio track, set NORMAL AUDIO to SAP on the SET UP MENU screen (see pages 24 and 25).
Normally, set NORMAL AUDIO to MAIN on the SET UP MENU screen so that the main sound is recorded on the normal track.

To monitor the SAP sound during recording, press AUDIO MONITOR to light the SAP lamp on the front panel of the VCR. (See page 30.)

Notes

- When recording other than a SAP broadcast, select MAIN for NORMAL AUDIO on the SET UP MENU screen. If you select SAP, no sound is recorded on the normal audio track.
- When the TV is connected only to the VHF/UHF OUT connector on the VCR, you cannot hear the program in stereo.

Timer Recording

The timer recording function lets you preset your VCR to record up to eight programs within a one-month period. You'll do this procedure on the TIMER SET/CHECK screen on your TV.

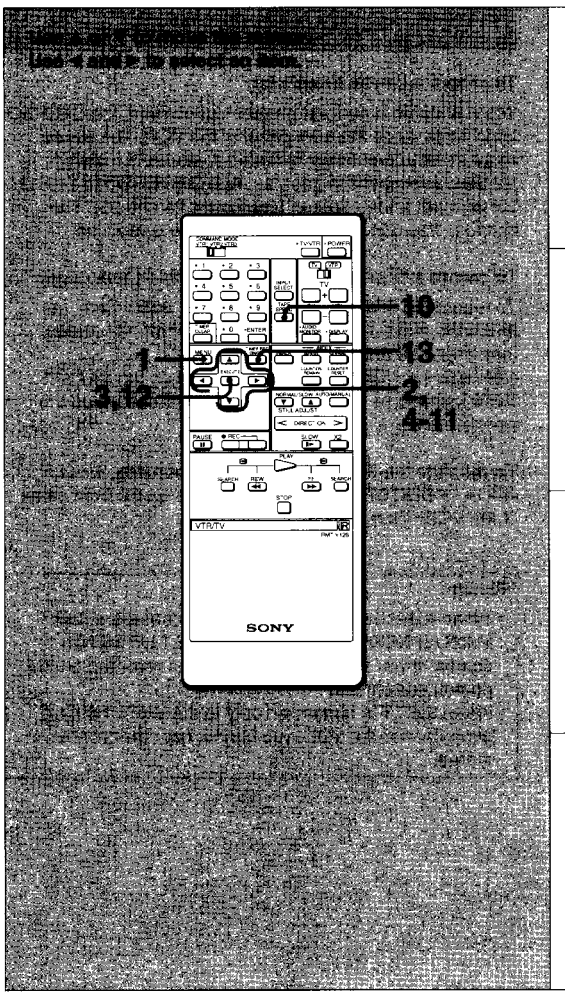
As a First Step

Before setting the timer, make sure that:

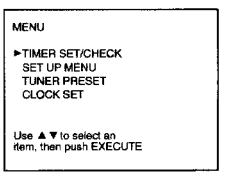
- The time and date are set correctly.
  If you try to put the VCR into timer-activated recording mode without having preset the time and date, the VCR will enter clock setting mode automatically.
  (See "Setting the Time and Date" on pages 18 and 19).
- The tape is long enough to record all the programs.
- The safety tab on the cassette is intact. If you insert a cassette with no safety tab and press TIMER REC (ON/OFF), the cassette automatically ejects from the VCR.
- The VCR and TV are both turned on.

Setting the Timer

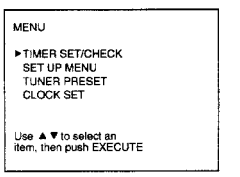
EXAMPLE: Here's how to record a program broadcast on channel 26 from 9:00 pm to 10:55 pm on Saturday, July 10, 1993 in ⏺II mode.



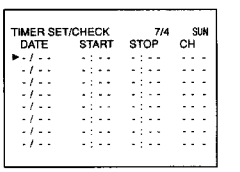
1 Press MENU.
The main MENU screen appears.



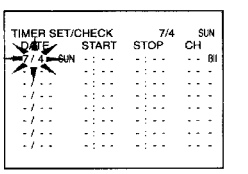
2 Press ▲ or ▼ to move the cursor (►) to TIMER SET/CHECK.



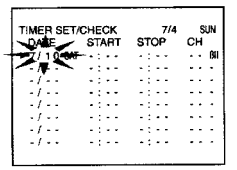
3 Press EXECUTE.
The TIMER SET/CHECK screen appears.
To reset the clock, refer to "Setting the Time and Date" (pages 18 and 19).



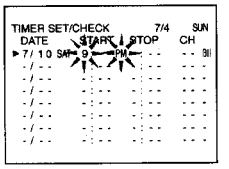
4 Press ►.
Make sure that today's date is flashing.
If it isn't, reset the clock to the correct time. See "Setting the Time and Date" (pages 18 and 19).



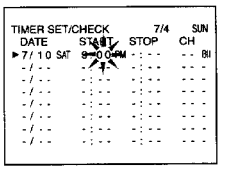
5 Press ▲ or ▼ to set the month and day to 7/10 SAT.
The day of the week is automatically set.



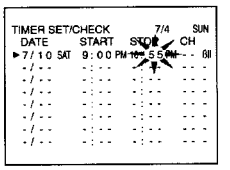
6 Press ▶ so that the hour position under "START" flashes. Then press ▲ or ▼ until "9" and "PM" appear.



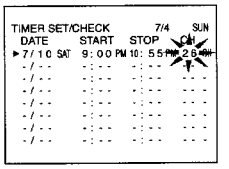
7 Press ▶ so that the minute position under "START" flashes. Then press ▲ or ▼ until "00" appears.



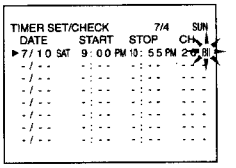
8 Press ▶.
The hour position under "STOP" flashes. Set both the hour and the minute under "STOP" to finish recording, referring to steps 6 and 7.



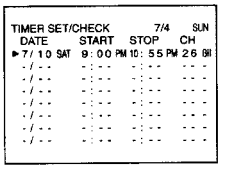
9 Press ▶ so that the "CH" position flashes. Then press ▲ or ▼ until "26" appears.
Only the channels preset in the VCR appear. You can also use the CH +/– or channel number buttons.



10 Press ▶ so that the tape speed position flashes. Then press ▲, ▼ or TAPE SPEED until your desired tape speed (SP/LP) appears.
To change or correct a setting before entering it, press ◀ to return to the item you wish to change.



11 Press ▶ to store the setting.
When all of the settings stop flashing and the cursor (▶) appears in the leftmost column, you've completed the setting. To preset another setting, press ▲ or ▼ to move the cursor (▶) to another line and repeat steps 4 to 11.



12 Press EXECUTE.
The message "Please push TIMER REC to set timer" appears.

13 Press TIMER REC (ON/OFF).
The VCR enters timer-recording standby mode and "TIMER" lights up in the display window.
If a cassette is not loaded into the VCR, "TIMER" will not light up in the display window, but the timer setting will be stored in the VCR.

To stop timer recording

To stop timer recording while a program is being recorded, press TIMER REC (ON/OFF).

Notes

- To change or correct the setting before completing it, press ◀ to return to the item you wish to change.
- To record video sources from LINE IN 1 or 2 jacks, press INPUT SELECT in step 9 to display "LINE 1" or "LINE 2" in the "CH" position. If you press the button three times, the previous channel number appears again in the "CH" position.
- If you don't do anything for more than one minute, the VCR automatically exits from the TIMER SET/CHECK screen.

Daily/weekly recording

You can preset your VCR for daily or weekly recording. Daily recording records the same program every day of the week while weekly recording records the same program every week. Follow steps 1 to 4 in "Setting the Timer" (page 34).

Then in step 5, press ▼.
Each time you press the button, the "DATE" section changes as follows:

Current date
↓
SUN — SAT (Every day of the week)
↓
MON — SAT (Every day except Sunday)
↓
MON — FRI (Every day except Saturday and Sunday)
↓
EVERY SAT

:

EVERY TUE
↓
EVERY MON
↓
EVERY SUN
↓
Date one month after from the current date

Follow step 6 and so on.

Timer-recording standby mode

When you put the VCR into timer-recording standby mode, you can record any previously preset programs. The VCR turns on automatically to record the first preset program. When it finishes recording, the power automatically shuts off.
To stop timer recording, press TIMER REC (ON/OFF).

Buttons operable during timer recording

TIMER REC (ON/OFF)	To stop timer recording.
COUNTER RESET	(See "Indexing Tape Contents" on page 28.)
COUNTER/REMAIN	(See "Checking the Remaining Time of a Tape" on page 29.)
TV/VTR	(See "Watching One TV Program While Recording Another" on page 33.)
DISPLAY	(See "The On-Screen Display" on page 28.)
MENU	Only to check settings. (See "Checking the Timer Settings" on page 38.)
INDEX MARK	(See "Marking Index Signals" on page 43.)
SUPER BETA	(See "Recording TV Programs" on page 32.)

Note

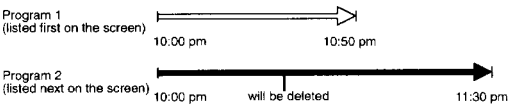
If a power interruption occurs during timer recording, recording will stop and your VCR will turn off. If power is restored within one hour and it's before the recording end time, recording will start again from that point. If the interruption lasts for more than one hour, any presettings will be erased and you'll need to reset the time and date for your programs. Note that the tape counter will return to "0H00M00S."

Overlapping Timer Recordings

Case 1

If you preset two programs to record at the same time....

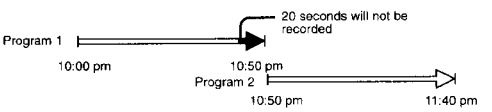
The program listed first on the TIMER SET/CHECK screen has priority over the other programs. The timer settings for lower priority programs will be deleted from the TIMER SET/CHECK screen when recording begins for the first program.



Case 2

If you preset program 2 to record at the same time you set program 1 to finish recording....

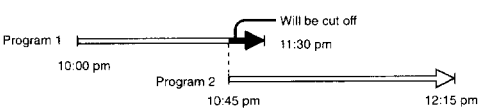
The last 20 seconds of program 1 will not be recorded.



Case 3

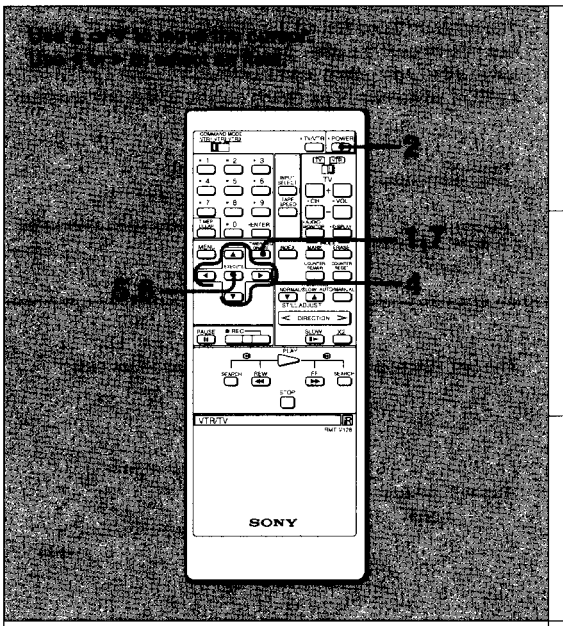
If you preset program 2 to record before program 1 has finished recording....

Program 2 will begin recording before program 1 is finished, so you will lose the last part of program 1.



Checking the Timer Settings

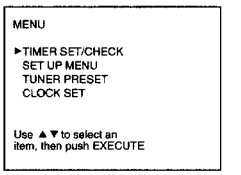
Here's how to display your timer settings to check the programs you want to record.



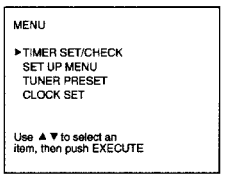
1 Press TIMER REC (ON/OFF).
"TIMER" goes off in the display window.

2 Press POWER.

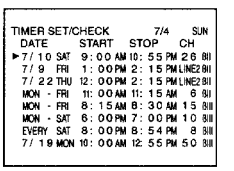
3 Press MENU.
The main MENU screen appears.



4 Press ▲ or ▼ to move the cursor (►) to TIMER SET/ CHECK.



5 Press EXECUTE.
The TIMER SET/CHECK screen appears.



6 Press EXECUTE to return to the original screen.

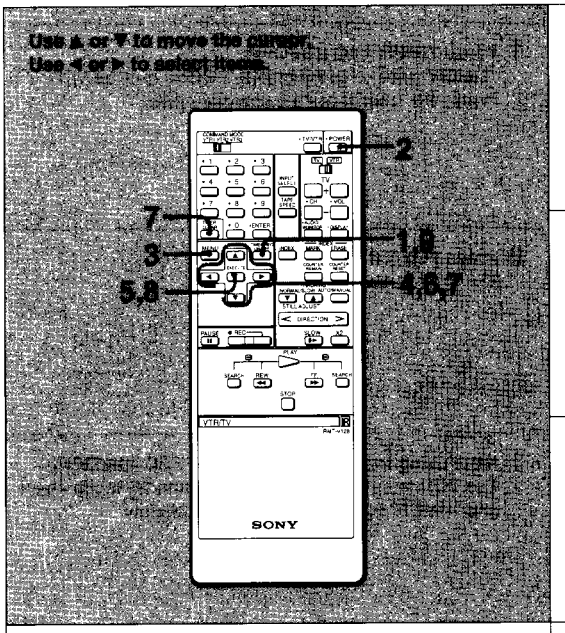
7 Press TIMER REC (ON/OFF).
The VCR returns to timer-recording standby mode.

Notes

- If you set a program to record only once, that setting is erased from the TIMER SET/CHECK screen when the recording has finished.
- To check the timer settings during timer recording, follow steps 3 to 6 above.

Changing or Cancelling the Timer Settings

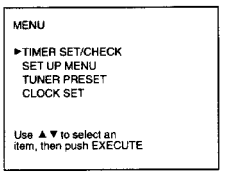
Here's how to change or cancel any timer settings from the TIMER SET/CHECK screen.



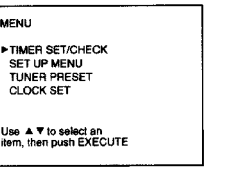
1 Press TIMER REC (ON/OFF).
"TIMER" goes off in the display window.

2 Press POWER.

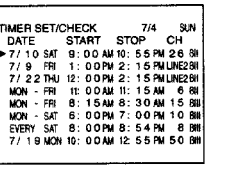
3 Press MENU.
The main MENU screen appears.



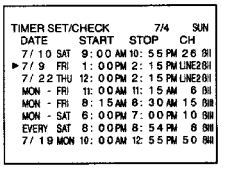
4 Press ▲ or ▼ to move the cursor (►) to TIMER SET/ CHECK.



5 Press EXECUTE.
The TIMER SET/CHECK screen appears.



6 Press ▲ or ▼ to move the cursor (►) to a setting you wish to change or cancel.



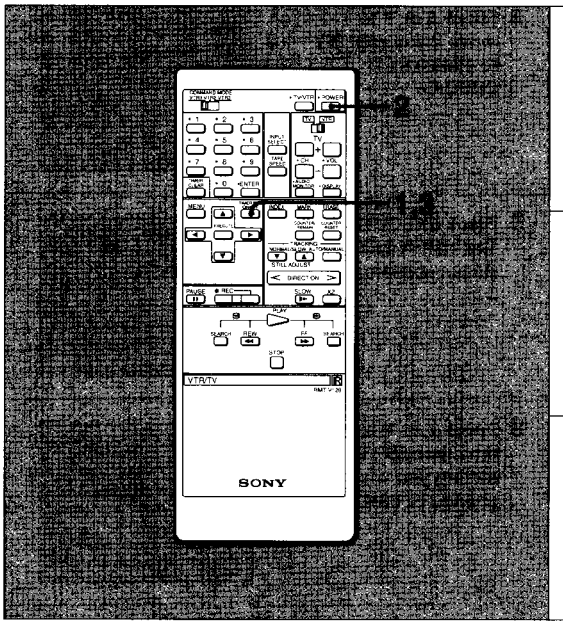
7 To change the setting, select the item to be changed by pressing ◀ or ▶, then make changes by pressing ▲ or ▼.
To cancel it, press TIMER CLEAR.
Repeat this step to change or cancel other settings.

8 Press EXECUTE.
This stores the changes and the original screen resumes.

9 Press TIMER REC (ON/OFF).
The VCR returns to timer-recording standby mode.

Using the VCR Before Timer Recording Starts

If you want to use your VCR while it's in timer-recording standby mode, you must first turn off "TIMER" from the display window. Here's how:



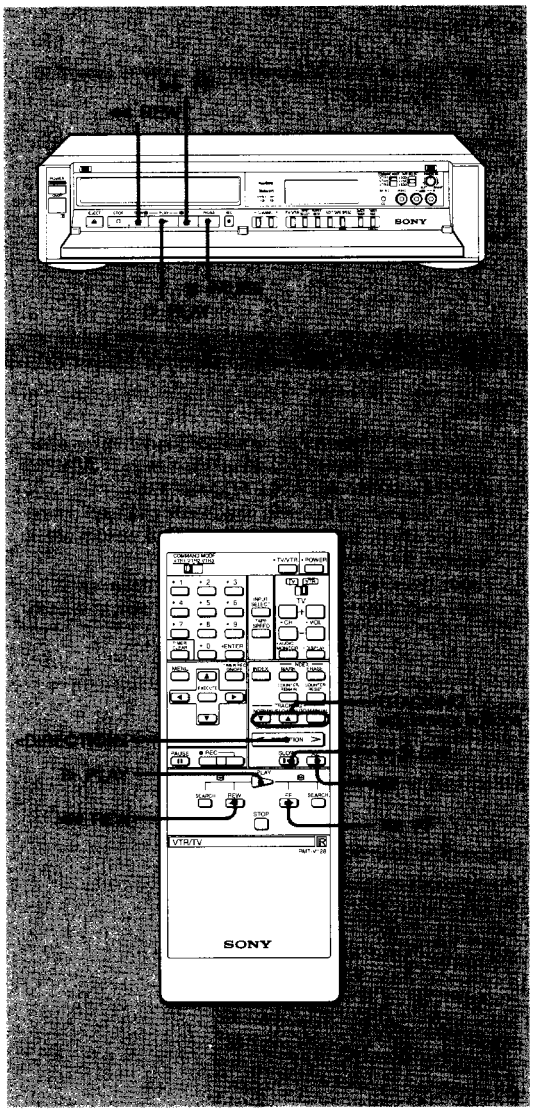
1 Press TIMER REC (ON/OFF).
"TIMER" goes off in the display window and the VCR leaves the timer-recording standby mode.

2 Press POWER.
The VCR is ready to use.

3 After using the VCR, press TIMER REC (ON/OFF).
The VCR returns to timer-recording standby mode again and "TIMER" lights up in the display window.

Variable Speed Playback

The following section explains the advanced playback functions you can use with your VCR. No sound can be heard during these operations.



Freeze Picture

When playing back a tape, press ❚❚ PAUSE to hold the picture of a particular scene.
To resume normal playback, press either ▷ PLAY or ❚❚ PAUSE. If you leave your VCR in pause mode, normal playback resumes after approximately 8 minutes.

Notes

Some snow or streaks are unavoidable during freeze picture.

Picture Search

You can fast-forward or rewind a tape while viewing the picture.

• Picture Search During Playback or Pause Mode

While playing or pausing, press ◀◀ REW or ▶▶ FF.
A high-speed picture without sound is displayed on the screen until you release the button.

If you release the button in pause mode, the VCR returns to pause mode again. If you release the button during playback, normal playback resumes.

• Picture Search While Fast-Forwarding or Rewinding a Tape

When fast-forwarding or rewinding a tape, you can press and hold ▶▶ FF or ◀◀ REW to view a high-speed picture.
For forward viewing: press ▶▶ FF during fast-forwarding.
For reverse viewing: press ◀◀ REW during rewinding.

When you release the button, the VCR continues fast-forwarding or rewinding.

Locked Picture Search

You can view a high-speed picture while playing or pausing, without holding ◀◀ REW or ▶▶ FF depressed.
In playback or playback pause mode, press ⏪ SEARCH (reverse) or ⏩ SEARCH (forward) on the Remote Commander.
To resume normal playback, press ▷ PLAY.

Frame-by-Frame Picture

During playback pause, Press < DIRECTION >.
Each time the button is pressed, the picture moves one frame.
To reverse the picture one frame, press < DIRECTION.
To advance the picture one frame, press DIRECTION >.
To resume normal playback, press ▷ PLAY.

Variable Speed Playback

Slow Motion Playback

In playback or playback pause mode, press ▮► SLOW on the Remote Commander. Change the playback direction with < DIRECTION >.

To play back in slow motion in the reverse direction
Press < DIRECTION.

To play back in slow motion in the forward direction
Press DIRECTION >.

To resume normal playback
Press ▷ PLAY.

Double Speed (X2) Playback

In playback or playback pause mode, press X2 on the Remote Commander. Change the playback direction with < DIRECTION >.

To play back at double speed in the reverse direction
Press < DIRECTION.

To play back at double speed in the forward direction
Press DIRECTION >.

To resume normal playback
Press ▷ PLAY.

Picture Adjustment During Variable Speed Playback

- If a picture played in slow motion displays streaks, adjust the picture with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ on the Remote Commander.
- If the picture appears to shake in freeze mode, adjust it using TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ on the Remote Commander until the picture stabilizes. Moreover, in freeze mode you may notice a band at the top or bottom of the screen. Adjust the picture by playing back the tape in slow motion and using the TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲ on the Remote Commander.

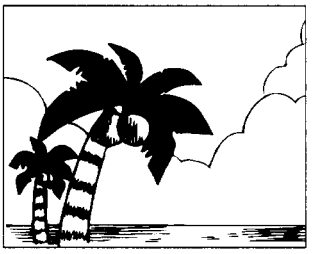
Notes

- Some snow or streaks are unavoidable during variable playback even though you adjust them with TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.
- When the tape transporting direction is changed during variable speed playback, the played back picture will be distorted for a moment.
- Tapes recorded in [8]s or [8]II mode will have some snow or streaks during freeze picture or picture search.

Note on picture search performed on a tape recorded in [8]II mode

If you perform picture search on a tape recorded in [8]II mode, the picture will be distorted as shown below. In addition, depending on the TV you use, the picture will be much more distorted, shake and/or become monochrome.
(If the picture rolls up and down or shakes too much, adjust the vertical hold on the TV.)

Normal Played-back Picture

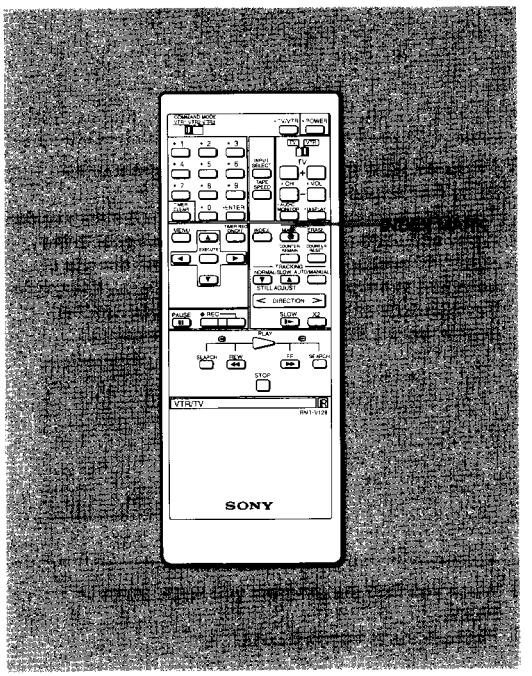


Picture-Searched Picture

Index Function

You can find specific scenes easily using the markings (index signals) recorded on a tape. This function is called the index function.
You can mark an index anywhere on a tape, so that you can easily find the specific scene later on. The index works as a divider between scenes, and is not numbered. So, when you specify another index mark later, you have to specify the relative position from the current position. (The first index, the second index ... from the current position.)
You can mark index signals during playback and recording. However, you can only mark them but cannot erase them during recording .

Marking Index Signals



Whenever you mark an index, "INDEX MARK" appears on the TV screen.

Automatic index mark

An index signal is automatically marked at the beginning of a scene when you start recording.

Manual index mark

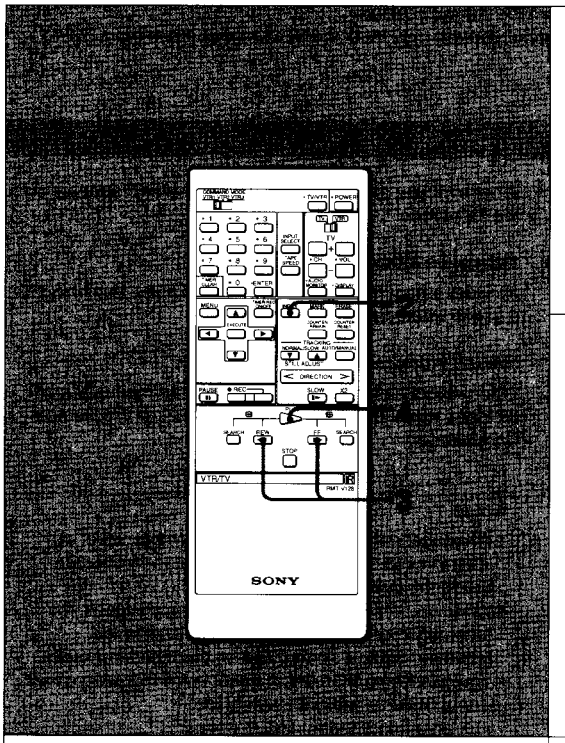
When recording or playing a tape, you can manually mark an index signal by pressing INDEX MARK on the Remote Commander.

Notes

- When marking index signals, leave an interval of at least 2 minutes between them so that the VCR can detect the index signals correctly.
- When you mark an index signal during playback, the recorded sound may be distorted or interrupted. However, there is no damage on the recording itself.
- You cannot mark an index signal in the following cases:
  - on a cassette without a safety tab;
  - on an unrecorded portion of a tape;
  - immediately before a point on the tape where the tape speed (Ⅱ/Ⅲ) changes;
  - when playing a tape recorded in Ⅱs or Ⅱs*SHB* mode.

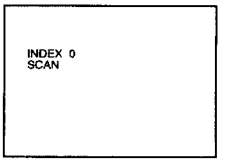
Playing Back from the Index Point — Index Scan

Here's how to find and play a program you've marked with an index signal.

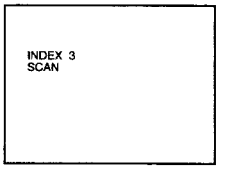


1 Insert an indexed cassette into the VCR.

2 Press INDEX once.
"INDEX 0" and "SCAN" appear on the TV screen.



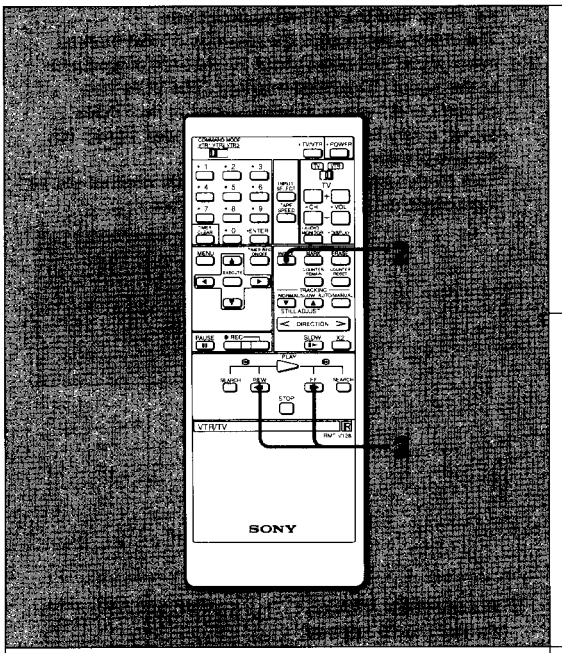
3 Press ◀◀ REW to find a previous program or ▶▶ FF to find a following program.
The index scan locates the previous or next marked index signal and plays about 10 seconds of tape prior to the signal (10-second preview). The VCR then rewinds or advances to the previous or next index signal. Every time the VCR finds an index signal, a 10-second preview begins and the displayed index number increase.



4 When you find the program you want, press ▷ PLAY.
Playback starts from that point.

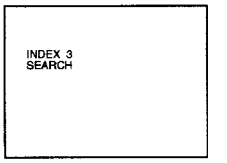
Locating an Index — Index Search

Locate an index by indicating how many index signals ahead or behind the scene is from the tape's current position. You can specify up to the 19th index signal.
Here's how:

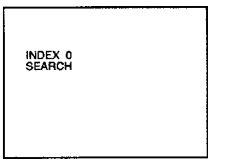


1 Insert an indexed cassette into your VCR.

2 Press INDEX repeatedly until the index number for the desired program appears on the TV screen.
The VCR exits from the index mode, if you pass index number 19.



3 Press ◀◀ REW to find a previous index or ▶▶ FF to find an upcoming index.
The tape rewinds or advances to the previous or the next index. Each time an index signal is detected, the index number on the screen decreases. When the number reaches 0, your VCR begins to play.



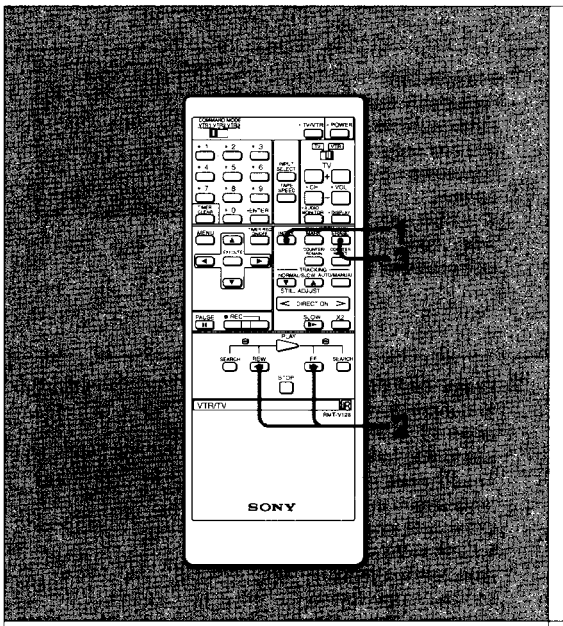
How to count index signals

For example: if the scene you want to view is located 3 scenes ahead of the present position, display "INDEX 3" and press ▶▶ FF. On the other hand, if the scene is located 3 scenes prior to the present position, display "INDEX 4" and press ◀◀ REW.

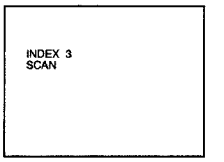
INDEX 4	INDEX 3	INDEX 2	INDEX 1	INDEX 1	INDEX 2	INDEX 3	INDEX 4	INDEX 5
3 scenes prior	2 scenes prior	Prior scene	Present position	Next scene	2 scenes ahead	3 scenes ahead	4 scenes ahead	

Erasing Index Signals

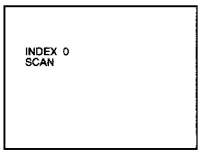
To remove any unwanted index signals, follow the procedure below.



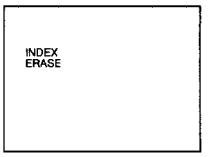
2 Press ◀◀ REW to find the previous programs or ▶▶ FF to find the following programs.
The index scan locates the previous or next marked index signal and plays about 10 seconds of tape prior to the signal (10-second preview). The VCR then rewinds or advances to the previous or next index signal. Every time the VCR finds an index signal, 10-second preview begins.
This 10-second preview lets you decide whether you've located the index mark you want to erase.



1 Press INDEX once.
"INDEX 0" and "SCAN" appear on the TV screen.



3 Press INDEX ERASE during the 10-second preview.
"INDEX ERASE" appears on the TV screen.



Notes on erasing index signals

- When you erase an index signal during playback, the recorded sound may be distorted or interrupted. However, there is no damage to the recording itself.
- Press ■ STOP immediately if the played-back picture becomes distorted while erasing an index signal. Index signals marked around this portion cannot be erased. However, there is no damage to the recording.
- You cannot erase an index signal in the following cases:
  - at the beginning of a tape;
  - on a cassette without a safety tab;
  - immediately after an unrecorded portion of a tape;
  - immediately before or after a point on the tape where the tape speed (Ⅱ/Ⅲ) changes;
  - when playing a tape recorded in Ⅱs or Ⅱs*SHB* mode;
  - if an index signal was marked on another VCR.

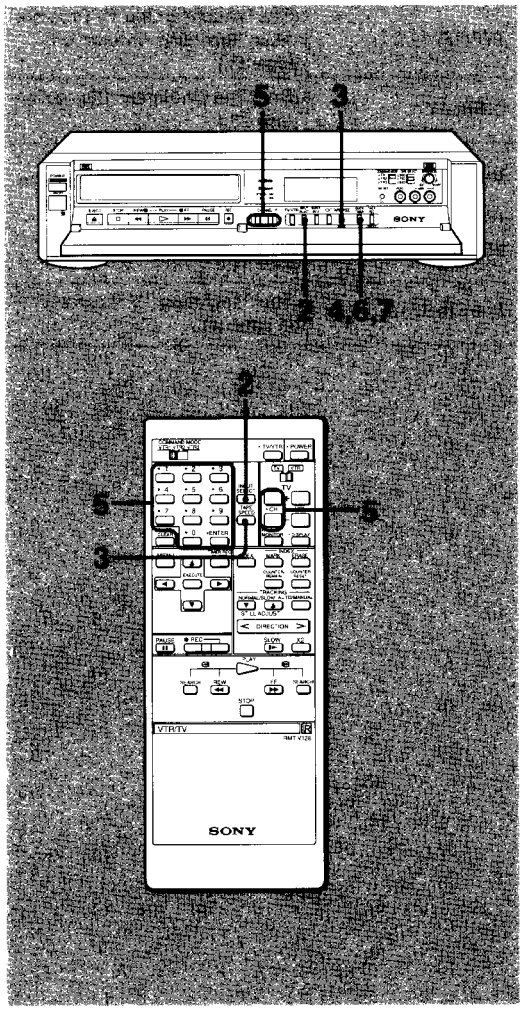
Quick-Timer Recording

This function provides you a short cut to recording programs without going through the entire timer setting procedure. You can preset the timer to record up to 5 hours in 30 minute intervals.

Note

Before you begin, make sure the clock has been set, and then that the timer recording function is turned off by checking to see that "TIMER" is not lit in the display window. If "TIMER" is lit, press TIMER REC (ON/OFF) to turn it off.

Operating Quick-Timer Recording



If your VCR is in stop mode, perform all of the following steps. If your VCR is currently recording, skip steps 1 to 6, and begin with step 7.

1 Insert a cassette into your VCR.

2 Press INPUT SELECT repeatedly so that a channel number appears in the display window.

3 Select the desired tape speed (SP/LP) by pressing TAPE SPEED.

4 Press QUICK TIMER on the VCR.
If you insert a cassette without its safety tab, your VCR will eject the cassette.

5 Select the channel you want to record using the CHANNEL +/– on the VCR or CH +/– on the Remote Commander.
You can also use channel number buttons on the Remote Commander to select the channel; however, you need to press ENTER after selecting the channel with the channel number buttons.

6 Press QUICK TIMER on the VCR again to start recording.

7 Press QUICK TIMER on the VCR until the amount of time you want to record appears in the display window.
Each time you press QUICK TIMER, the recording time increases by 30 minutes.

→0:00 → 0:30 → 1:00 → 1:30 ..... 5:00 ┐

Once recording is finished, your VCR will turn off automatically.

To stop quick-timer recording

Press TIMER REC (ON/OFF) so that "TIMER" and "REC" go off in the display window.

Notes

- If your tape ends during quick-timer recording, recording stops and the VCR turns off. The tape will not rewind automatically.
- If a power interruption occurs during quick-timer recording, recording will stop and your VCR will turn off. If the interruption lasts less than one hour, and the power is restored before the recording end time, recording will start again from that point.

Buttons operable during quick-timer recording

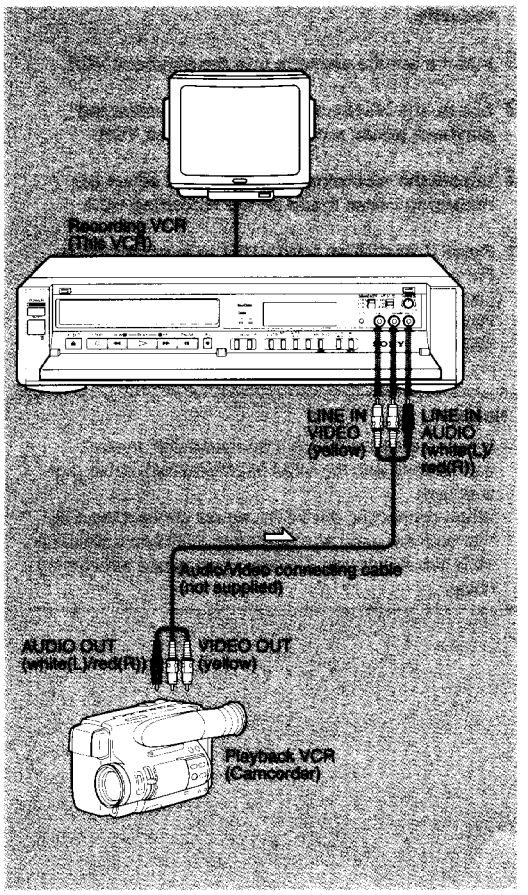
TIMER REC (ON/OFF)	To stop quick-timer recording. (See page 47.)
QUICK TIMER	To increase or decrease recording time. (See page 47.)
COUNTER RESET	(See "Indexing Tape Contents" on page 28.)
TV/VTR	(See "Watching One TV Program While Recording Another" on page 33.)
DISPLAY	(See "The On-Screen Display" on page 28.)
MENU	Only to check settings. (See "Checking the Timer Settings" on page 38.)
INDEX MARK	(See "Marking Index Signals" on page 43.)
SUPER BETA	(See "Recording TV Programs" on page 32.)

Editing

Using an additional VCR, you can record programs from one VCR to the other. Here's how.

Tape Dubbing — Editing from Another VCR

Here's how to edit from another VCR (such as an 8 mm video camera recorder for playback) when using this VCR for recording.
You can use the jacks located on the front panel (LINE IN 2) or on the back panel (LINE IN 1) even though the diagram below shows only connection to the LINE IN 2 jacks on the front panel.



Before you start:
- Select LINE 1 or LINE 2 by pressing INPUT SELECT.
- Select the tape speed (SP/LP) by pressing TAPE SPEED.

Note

If your playback VCR has an EDIT function (like the EDIT button on this VCR), this function should also be selected to avoid deterioration of picture quality.

How to edit:

1 **Insert a blank cassette into the recording VCR.**

2 **Turn on the playback VCR and insert a source cassette.**

3 **Locate the playback start point and select the playback pause mode on the playback VCR.**

4 **Locate the recording start point and select the recording pause mode on the recording VCR.**

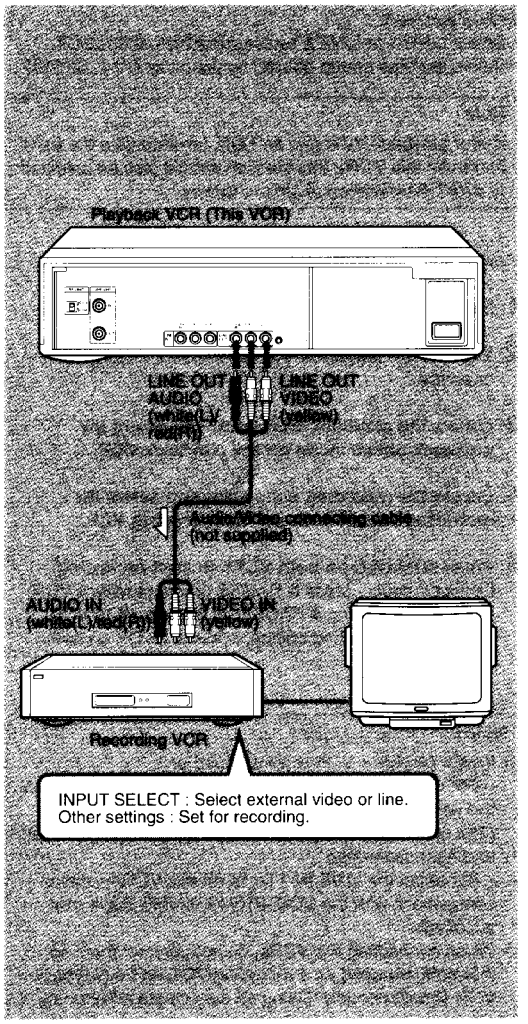
5 **Press II PAUSE on both VCRs to start recording.**
For best results, press II PAUSE on the playback VCR just before pressing II PAUSE on the recording VCR. When you've finished editing, press ■ STOP on both VCRs.

Notes

- If your playback VCR is a monaural unit:
  – For using the LINE IN 2 jacks on this VCR — use only the yellow (VIDEO) and the white (AUDIO-L) jacks. (The sound is monaural but will be recorded on both left and right channels.)
  – For using the LINE IN 1 jacks on this VCR — make connections with the VCM-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect them so that both are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.

Tape Dubbing — Editing onto Another VCR

Here's how to use this VCR as the playback VCR and another VCR as the recording VCR.



Before you start:

- Press EDIT to light "EDIT" in the display window.
- Press DISPLAY to delete the on-screen display.
- Press SUPER BETA to match the playback condition (whether Super Beta function is on or off) of this VCR to the recording condition of the source tape.

How to edit:

1 Turn on the recording VCR and insert a blank cassette.

2 Insert a source cassette into the playback VCR.

3 Locate the playback start point and select the playback pause mode on the playback VCR.

4 Locate the recording start point and select the recording pause mode on the recording VCR.

5 Press II PAUSE on both VCRs to start recording.
For best results, press II PAUSE on the playback VCR just before pressing II PAUSE on the recording VCR. When you've finished editing, press ■ STOP on both VCRs.

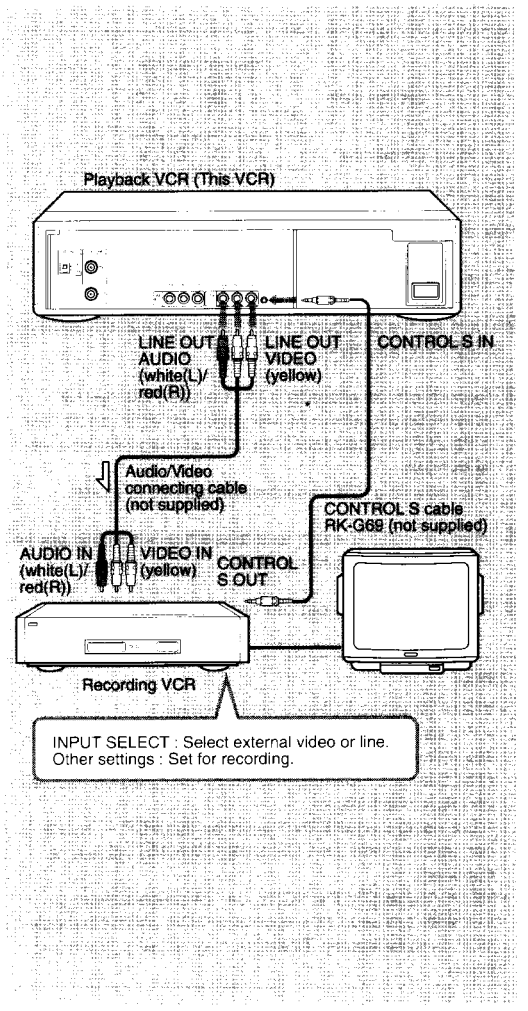
Notes

- If your recording VCR is a monaural unit, make connections with the VCM-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect them so that both are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.

Synchronized Editing onto Another VCR

This VCR is equipped with the CONTROL S IN terminal. So, if the other VCR has the CONTROL S OUT terminal, you can use the SYNCHRO EDIT button on the other VCR to put both VCRs into pause mode simultaneously or release pause mode simultaneously.

The following diagram shows only how to use this VCR as the playback VCR and the other VCR having the CONTROL S OUT terminal as the recording VCR.



Before you start:

- Press EDIT to light "EDIT" in the display window.
- Press DISPLAY to delete the on-screen display.
- Press SUPER BETA to match the playback condition (whether Super Beta function is on or off) of this VCR to the recording condition of the source tape.

How to edit:

1 Turn on the recording VCR and insert a blank cassette.

2 Insert a source cassette into the playback VCR.

3 Locate the edit start point and put the recording VCR into recording pause mode.

4 Locate the playback start point and put the playback VCR into playback pause mode.

5 Press SYNCHRO EDIT on the recording VCR.
The recording VCR starts recording and the playback VCR starts playback simultaneously.

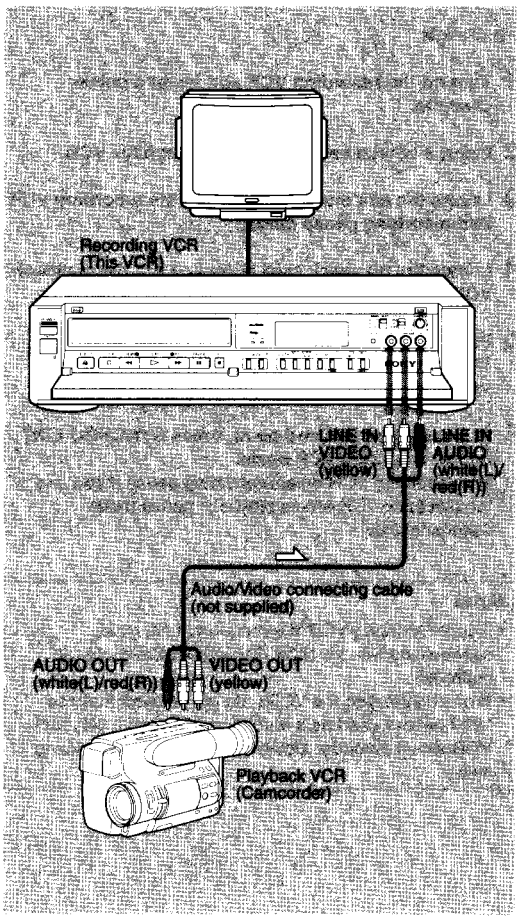
6 At the desired edit end point, press SYNCHRO EDIT on the recording VCR again.
The recording VCR enters recording pause mode and the playback VCR enters playback pause mode simultaneously.

Notes

- If your recording VCR is a monaural unit, make connections with the VCM-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect them so that both are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.

Assemble Editing

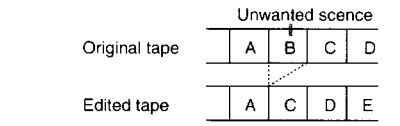
You can cut out unwanted scenes while editing from another onto this VCR.
You can use the jacks located on the front panel (LINE IN 2) or on the back panel (LINE IN 1) even though the diagram below shows only connection to the LINE IN 2 jacks on the front panel.



Before you start:
- Select LINE 1 or LINE 2 by pressing INPUT SELECT.
- Select the recording mode (SP/LP) by pressing TAPE SPEED.

Note

If your playback VCR has an EDIT function (like the EDIT button on this VCR), this function should also be selected to avoid deterioration of picture quality.



How to edit:

1 Insert a blank cassette into the recording VCR.

2 Turn on the playback VCR, insert a source cassette, and start playback.

3 Record on the recording VCR while viewing the played-back picture of the playback VCR, and press II PAUSE on the recording VCR at the point you want to cut out.
The recording VCR enters recording pause mode.

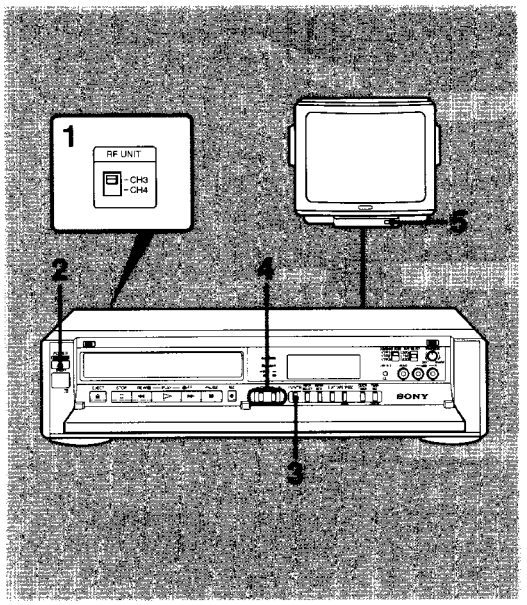
4 Press II PAUSE again to release the recording pause mode for the recording VCR.

5 Repeat 3 and 4 to cut out other unwanted scenes.

Notes

- If your playback VCR is a monaural unit:
  – For using the LINE IN 2 jacks on this VCR — use only the yellow (VIDEO) and the white (AUDIO-L) jacks. (The sound is monaural but will be recorded on both left and right channels.)
  – For using the LINE IN 1 jacks on this VCR — make connections with the VCM-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect them so that both are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.

Setting the RF UNIT Selector



Why this setting is necessary

You must set the RF UNIT selector on the back of the VCR so that your TV can receive the correct signal from the VCR. Set the selector to CH 3 or CH 4, whichever channel is not active in your area.

If you have connected a TV or color monitor equipped with A/V input jacks, you can skip this adjustment.

1 **Set the RF UNIT selector on the back of the VCR to CH 3 or CH 4, whichever channel is not active in your area.**

2 **Press POWER.**
The power lamp lights up.

3 **Press TV/VTR so that "VTR" lights up in the display window.**

4 **Check that the channel number indicator appears in the display window, then select an active channel in your area by pressing CHANNEL +/– on the VCR (or CH +/– on the Remote Commander).**

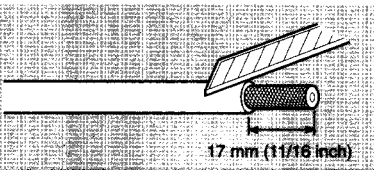
5 **Turn on your TV and set it to the channel you selected in step 1 (Ch 3 or Ch 4).**
Your TV is now tuned to the VCR. Whenever you use the VCR, set the TV to this channel.

Note

For details on adjusting TV channels, see your TV instruction manual.

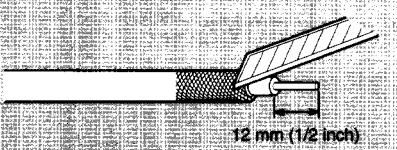
Attaching the F-Type Connector (not supplied)

1 Strip 17 mm (11/16") of the black polyvinyl jacket.



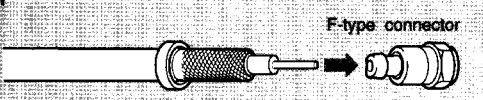
2 Fold back the woven wire.

3 Strip 12 mm (1/2") of the white plastic casing, leaving 12 mm of the center conductor.

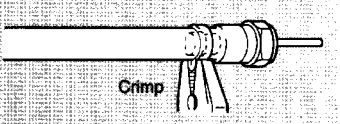


4 Slip the crimping ring over the cable.

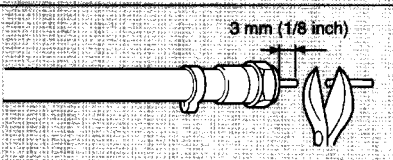
5 Insert the liner conductor into the F-type connector shaft and push the end of the cable into the connector as far as it will go.



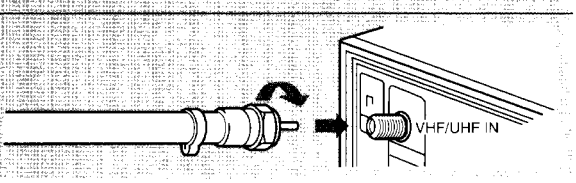
6 Slide the crimping ring over this assembly. Pinch the crimping ring with pliers to hold the connection in place.



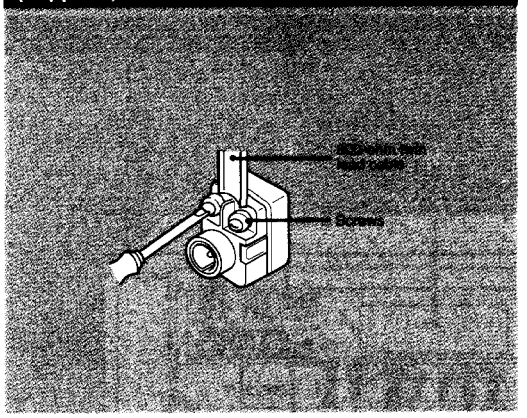
7 Cut the center conductor leaving 3 mm (1/8") from the end.



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



Attaching the External Antenna Connector (supplied)

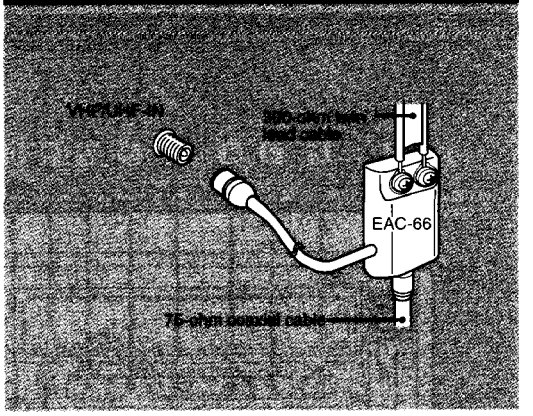


1 Loosen the screws on the antenna connector.

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

3 Retighten the screws.

Attaching 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 Retighten the screws.

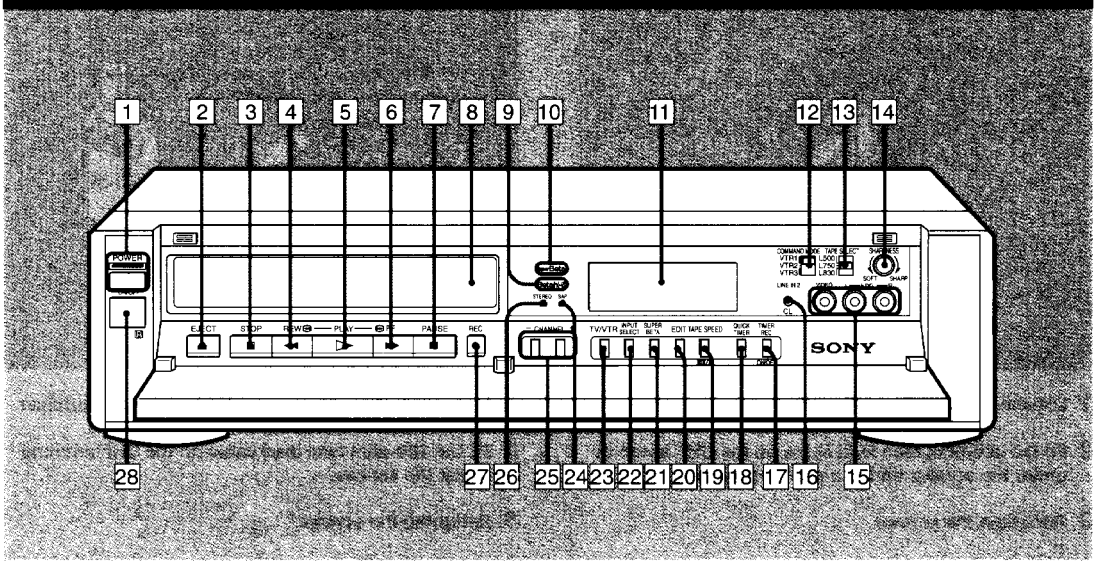
4 Connect the 75-ohm coaxial cable to the U/V band separator/mixer.

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

Identifying the Parts and Controls

Refer to the pages indicated for details.

Front Panel



1 **POWER (ON/OFF) switch and lamp (pages 38, 53)**

2 ⏏ **EJECT button (page 26)**

3 ■ **STOP button (page 27)**

4 ◀◀ **REW (rewind) buttons (pages 27, 41, 44 – 46)**

5 ▷ **PLAY button (page 27)**

6 ▶▶ **FF (fast forward) (pages 27, 41, 44 – 46)**

7 ❚❚ **PAUSE button (page 27)**

8 **Cassette compartment (page 26)**

9 **Beta Hi-Fi lamp**
Always lights up except when a tape with non-Hi-Fi recording is played back.

10 ***Super* Beta lamp (page 27)**

11 **Display window (page 58)**

12 **COMMAND MODE selector (page 17)**

13 **TAPE SELECT selector (page 29)**

14 **SHARPNESS control (page 28)**

15 **LINE IN 2 (AUDIO and VIDEO) jacks (pages 49, 52)**

16 **CL (clear) button (pages 60, 61)**

17 **TIMER REC (ON/OFF) button (pages 35, 36, 38 – 40)**

18 **QUICK TIMER button (page 47)**

19 **TAPE SPEED (SP/LP) button (page 32)**

20 **EDIT button (pages 49 – 52)**

21 **SUPER BETA button (page 27)**

22 **INPUT SELECT button (pages 32, 47, 49, 52)**

23 **TV/VTR button (pages 9, 11, 13, 16, 32)**

24 **SAP lamp (page 33)**

25 **CHANNEL +/– buttons (pages 21, 32)**

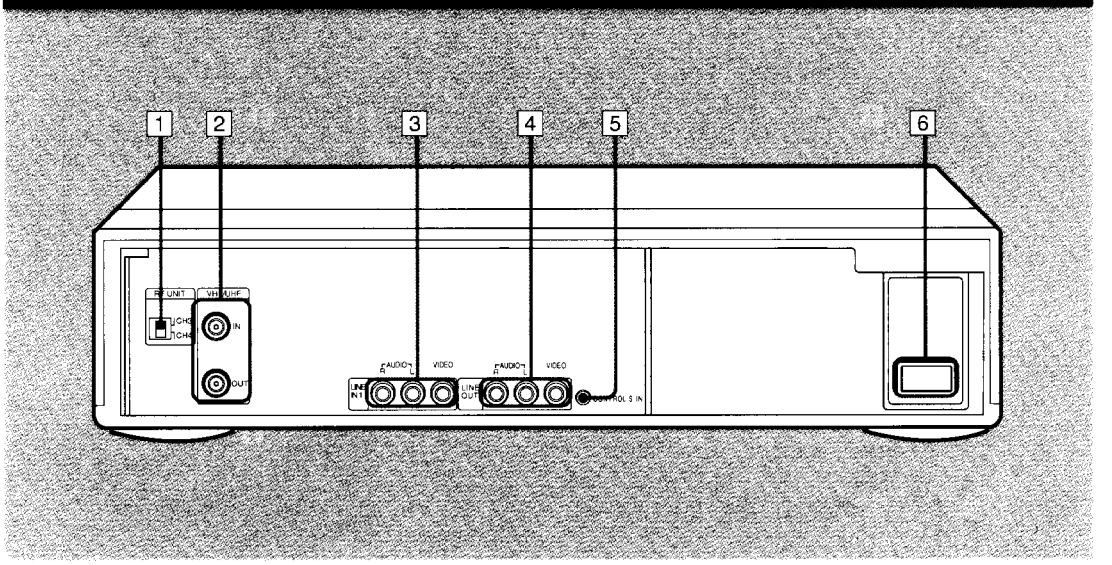
26 **STEREO lamp**
Lights up when receiving a stereo broadcast.

27 ● **REC button (page 32)**

28 **Remote sensor**

Refer to the pages indicated for details.

Rear Panel



1 **RF UNIT selector (page 53)**

2 **VHF/UHF IN/OUT connectors (F-type) (pages 8 – 14, 54)**

3 **LINE IN 1 AUDIO and VIDEO jacks (phono type) (pages 49, 52)**

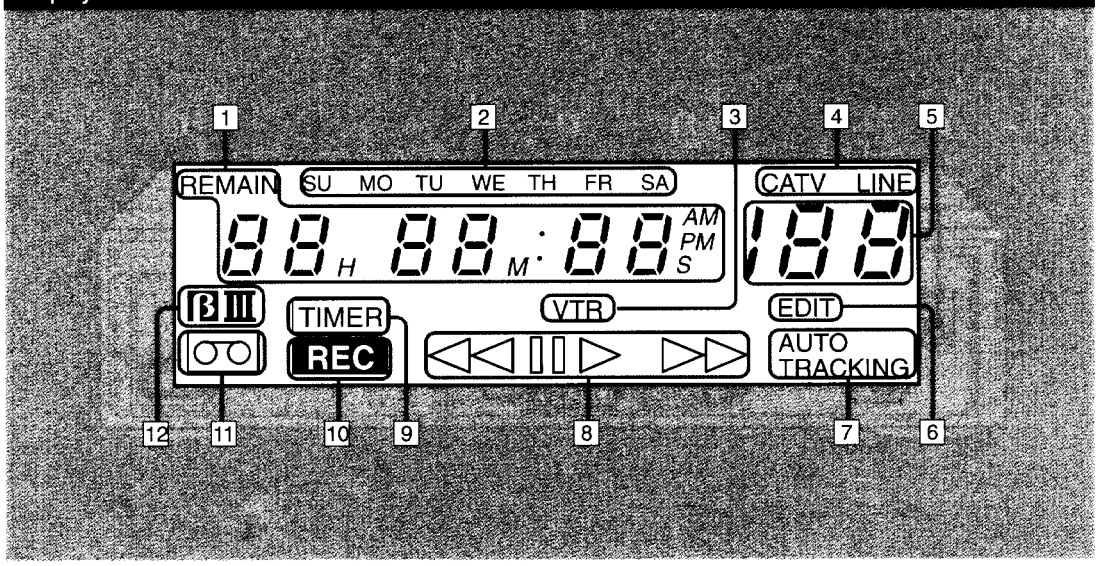
4 **LINE OUT AUDIO and VIDEO jacks (phono type) (pages 7, 50, 51)**

5 **CONTROL S IN terminal (page 51)**

6 **AC IN socket (page 6)**

Refer to the pages indicated for details.

Display Window



1 **Linear time counter/remaining time/current time/ quick-timer recording time (page 28)**

2 **Day of the week indicator**

3 **VTR indicator (pages 9, 11, 13, 16, 32)**

4 **Input mode indicator (page 32)**

5 **Channel number indicator (page 32)**

6 **EDIT indicator (pages 50, 51)**

7 **AUTO TRACKING indicator (page 30)**

8 **Tape Operation indicators**

9 **TIMER indicator**

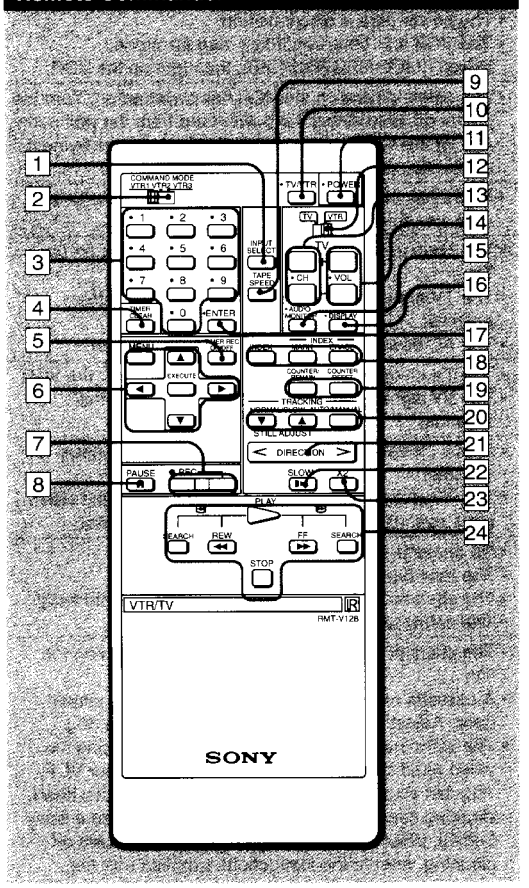
10 **REC (recording) indicator**

11 **Cassette indicator (page 26)**

12 **Tape speed (recording mode) indicator**

Refer to the pages indicated for details.

Remote Commander



[1] **INPUT SELECT button (pages 32, 47, 49, 52)**

[2] **COMMAND MODE (VTR1/VTR2/VTR3) selector (page 17)**

[3] **Channel number buttons* (page 32)**

[4] **TIMER CLEAR button (page 39)**

[5] **TIMER REC (ON/OFF) button (pages 35, 36, 38 – 40)**

[6] **Menu screen setting buttons (pages 18 – 22, 24, 31, 34, 35, 38, 39)**
MENU button
EXECUTE button
Cursor shift (▲/▼/◀/▶) buttons

[7] **● REC buttons (page 32)**
Press both buttons simultaneously.

[8] **II PAUSE buttons (page 27)**

[9] **TAPE SPEED button (page 32)**

[10] **TV/VTR button* (pages 9, 11, 13, 16, 32)**

[11] **POWER button* (pages 38, 53)**

[12] **TV/VTR remote control selector (page 17)**

[13] **CH (channel) +/– buttons* (pages 21, 32)**

[14] **VOL (volume) +/– buttons**
For adjusting the TV volume.

[15] **AUDIO MONITOR button* (pages 30, 31, 33)**

[16] **DISPLAY button* (page 28)**

[17] **ENTER button* (pages 21, 32)**

[18] **Index buttons**
INDEX button (pages 44 – 46)
INDEX MARK button (page 43)
INDEX ERASE button (page 46)

[19] **Counter buttons**
COUNTER REMAIN button (page 29)
COUNTER RESET button (page 28)

[20] **TRACKING adjustment buttons (pages 30, 42)**
NORMAL/SLOW and STILL ADJUST ▼/▲ buttons
AUTO/MANUAL button

[21] **< DIRECTION > button (pages 41, 42)**

[22] **I► SLOW button (page 42)**

[23] **X2 button (page 42)**

[24] **Tape transport buttons**
▷ PLAY button (page 27)
◀◀ REW (rewind) button (pages 27, 41, 44 – 46)
▶▶ FF (fast-forward) button (pages 27, 41, 44 – 46)
◀◀/▶▶ SEARCH button (page 41)
■ STOP button (page 27)

* When the TV/VTR remote control selector is set to TV, you can use the buttons marked with an asterisk to control the TV.

Troubleshooting

If you have a problem with your VCR, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the unit, and contact your Sony dealer or local authorized Sony Service Center facility.

	Symptom	Possible causes and remedies
Power	The POWER switch doesn't work.	• The power cord is disconnected. • The VCR is in timer-recording standby mode. Press TIMER REC (ON/OFF), then turn on the VCR.
	The power is turned on but the VCR doesn't work.	• The safety device on the VCR has switched on. Turn the power off, disconnect the power cord from the wall outlet, and let the VCR rest for at least an hour before trying it again. You can also press the CL button.
Time and Date Clock	The clock has stopped and " - : - - " lights up.	• There has been a power interruption. Reset the time, date and timer settings.
TV Reception	TV reception is poor.	• The channel for the VCR is not correctly tuned on the TV. • The TV signal is weak. Adjust the direction of the antenna. • The AC power cord of the VCR is disconnected.
Recording and Playback	Shaky and/or snowy picture during recording.	• The TV channel is not set to the one preset for the VCR. • The TV signal is weak. Adjust the direction of the antenna.
	No picture on the TV screen.	• Press TV/VTR so that "VTR" lights up in the display window. • The TV channel is not set to Ch 3 or Ch 4, or the video input has not been selected on the TV or monitor.
	The VCR won't record.	• No cassette has been inserted. • The tape has run out. • The input mode (LINE 1 or LINE 2) is not set correctly. • The safety tab on the cassette is broken off.
	The playback picture is not clear.	• The channel for the VCR is not correctly tuned on the TV. • A cassette recorded on another VCR is being played back. Adjust the tracking manually. (See page 30.) • The video heads are dirty. Clean the heads using the video head cleaning cassette supplied with your VCR. You can also buy a commercially available video head cleaning cassette. We recommend that you use a Sony L-25CL video head cleaning cassette. For details on cleaning, refer to the instructions supplied with the cleaning cassette. If a cleaning cassette is not available in your area, have the heads cleaned at your nearest Sony Service Center facility. With this service, there is a standard charge. (Do not use a commercially-available wet-type cleaning cassette. It may damage the video heads.) • The video heads are worn out.
	The picture rolls up and down during picture search.	• Adjust the vertical hold control on the TV or color monitor.
	The sound drops out.	• The cassette is defective. Use a new video cassette.
	Stereo recording cannot be made.	• AUTO STEREO is set to OFF on the SET UP MENU screen.
	Both main and SAP sounds are heard when playing back a cassette on which an MTS broadcast was recorded.	• AUDIO MIX is set to ON on the SET UP MENU screen.

	Symptom	Possible causes and remedies
Recording and Playback	No sound is recorded on the normal audio track.	• NORMAL AUDIO is set to SAP on the SET UP MENU screen when there is no SAP broadcast.
Timer Recording	Timer setting cannot be made.	• The current time has not been preset.
	"TIMER" is not lit in the display window even though you've pressed TIMER REC (ON/OFF).	• No cassette has been inserted. • The tape has run out. • No setting for timer recording has been made.
	The cassette is ejected when you press TIMER REC (ON/OFF).	• The safety tab of the cassette has been removed.
	Timer recording was not made.	• There has been a power interruption of one hour or more. • TIMER REC (ON/OFF) was not pressed.
On-Screen Display	The on-screen display does not appear on the screen.	• Press DISPLAY. • Remote command mode has been set incorrectly.
Other Problems	A cassette cannot be inserted.	• A cassette has already been inserted.
	The Remote Commander cannot be operated.	• The batteries are low.
	The tracking level bar does not appear on the screen.	• Press TRACKING AUTO/MANUAL. • The recording condition of the cassette is very poor and tracking cannot be adjusted.
	A short beep sounds repeatedly and a help message appears on the TV screen.	• An inappropriate operation has been tried. Follow the help message on the screen.
	The VCR does not respond when you press any button.	• The built-in microprocessor may be defective. Pressing the CL (clear) button on the front of the VCR with a pointed object such as a ballpoint pen may fix the problem. All stored information (e.g., the clock and any preset programs) will be erased.

Specifications

System

Format Beta Hi-Fi system
Video recording system
Rotary two-head helical scanning FM system
Video head Two heads
Video signal NTSC color, EIA standards
Tape speed Ⅱ/ⅡS: 4.00 cm/s (1 5/8 inches/s) (Playback only)
Ⅱ: 2.00 cm/s (13/16 inches/s)
Ⅲ: 1.33 cm/s (17/32 inches/s)
Maximum recording/ playback time
5 hrs in Ⅲ mode (with L-830 tape)
Fast-forward and rewind time
Within approx. 4 min. (with L-500 tape)

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
Antenna 75-ohm antenna terminal for VHF/ UHF

Inputs and Outputs

LINE IN VIDEO IN 1 and 2 (phono jacks)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN 1 and 2 (phono jacks)
Input level: –7.5 dBs (0 dBs = 0.775 Vrms)
Input impedance: more than 47 kilohms
LINE OUT VIDEO OUT (phono jack)
Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO OUT (phono jacks)
Standard output: –7.5 dBs at load impedance 47 kilohms
Output impedance: less than 10 kilohms

Timer Section

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

General

Power requirements For USA and Canada:
120 V AC, 60 Hz
For other countries:
110 V – 240 V, 50/60 Hz, automatically adjusted
Power consumption For USA and Canada:
24 W
10.5 W (in standby condition)
For other countries:
24 W
10.5 W (in standby condition)
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 430 X 108 X 359 mm (w/h/d)
(17 X 4 3/8 X 14 1/4 inches)
Weight 6.5 kg (14 lb 5 oz)

Wireless Commander RMT-V128

Remote control system
Infrared control
Power requirements 3 V DC, 2 size AA batteries (IEC designation R6)

Accessories Supplied

Wireless Remote Commander RMT-V128 ..... (1)
Size AA (R6) batteries ..... (2)
75-ohm coaxial cable with F-type connectors ..... (1)
External antenna connector ..... (1)
AC power cord ..... (1)
Audio/video connecting cable (3 phono to 3 phono) ..... (1)
Video head cleaning cassette ..... (1)
AC plug adaptor (only for other-country model) ..... (1)

Design and specifications are subject to change without notice.

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W

Warning 2

If you have any questions about this product, you may call:
Sony Customer Information Center
East Coast : 201-930-7669 (Sony) NJ
Central : 708-250-7669 (Sony) IL
West Coast: 714-821-7669 (Sony) CA

or write to:
Sony Customer Information Center
Sony Drive, Mail Drop # T1-11,
Park Ridge, NJ 07656

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