

SONY.

3-750-623-21 (1)

Stereo Video Cassette Recorder ^{Beta} **B**

SL-HF870D

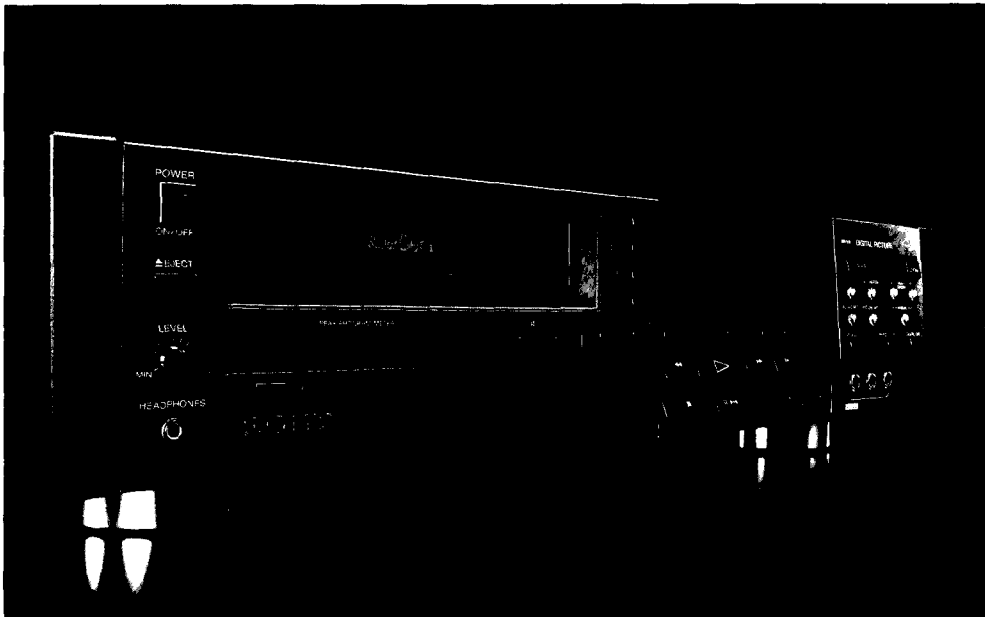
Operating Instructions

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

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FILE COPY

Do not remove



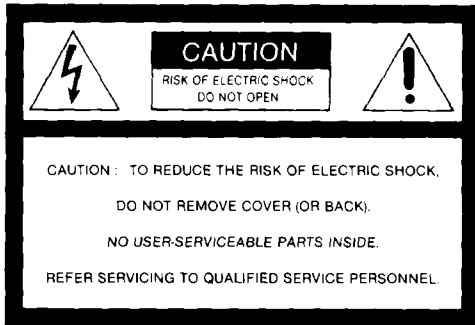
Super Beta hi-fi

This unit can be used with any video cassette tapes having the mark **B**.

It is compatible with the **BII** and **BIII** type recording and playback formats, and will play back tapes recorded in the **BII** and **BIS** formats.

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.

Owner's Record

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

Model No. SL-HF870D Serial No. _____

Note to CATV system installers:

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

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.

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Precautions

On safety

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

On installation

- Allow adequate air circulation to prevent internal heat build-up.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Do not place any heavy object on the unit.

On operation

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

On cleaning

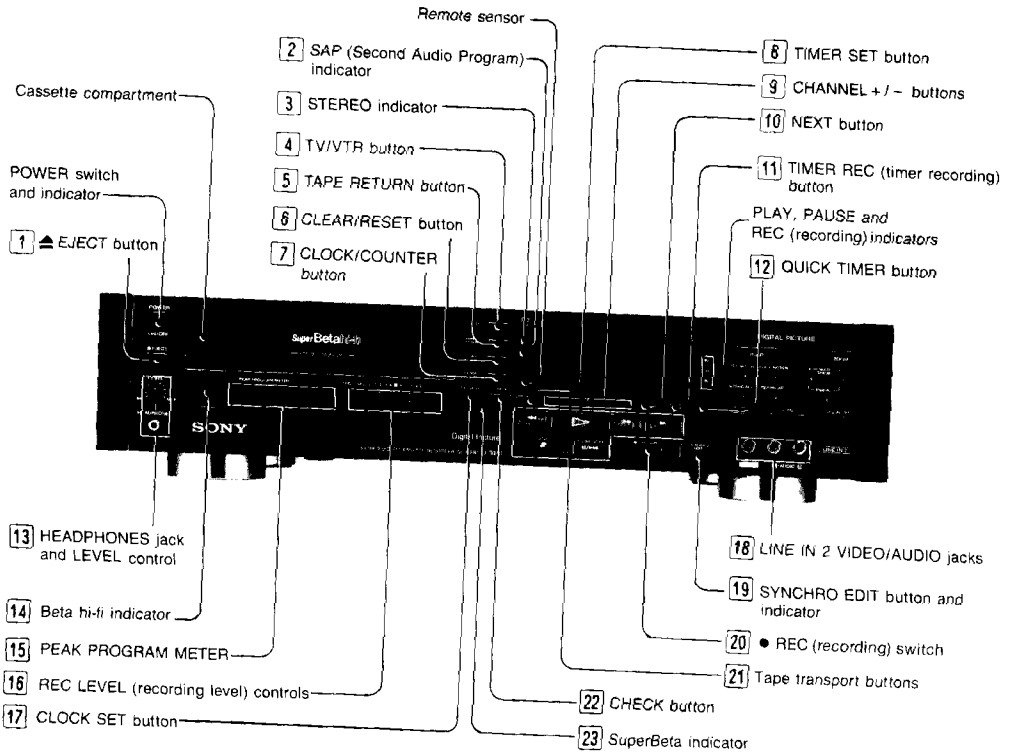
Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzene, which might damage the finish.

On repacking

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

Location and Function of Controls

Front

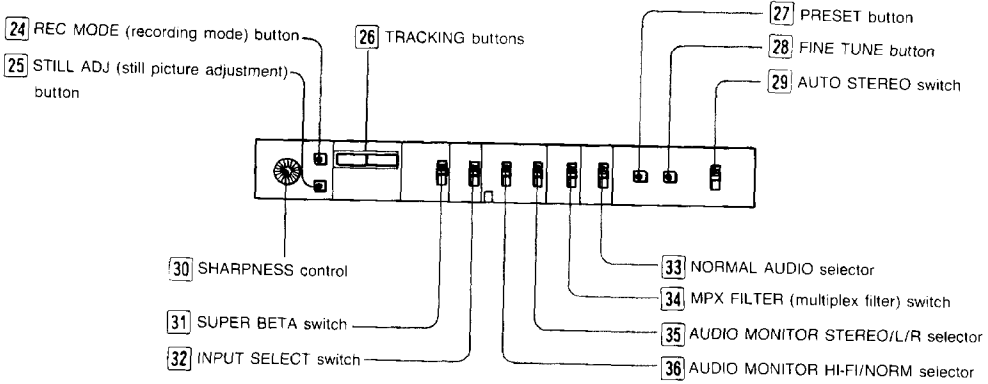
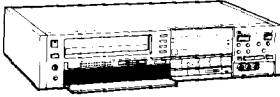


For details on the use of each control, refer to the pages indicated in the black circles (●).

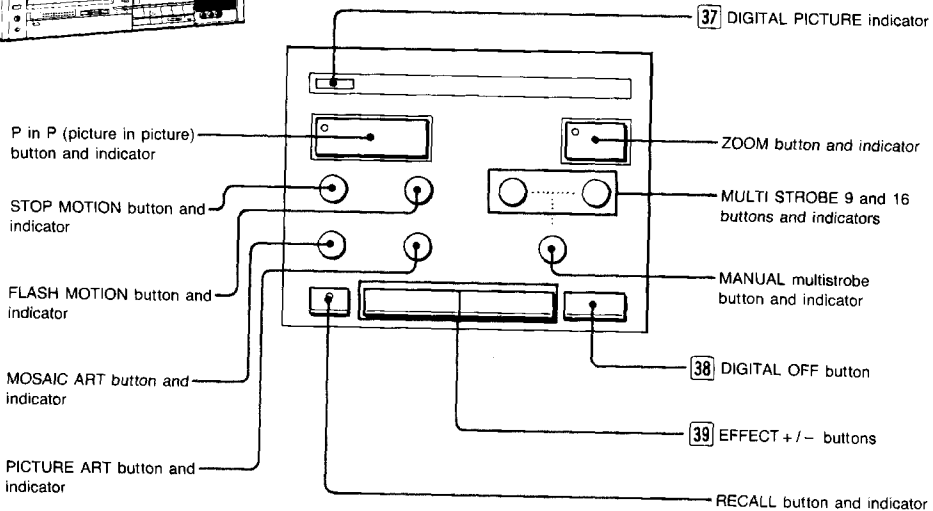
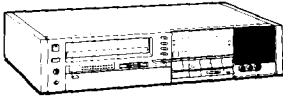
1. **EJECT button**
Press to eject the cassette.
This button does not function during recording.
2. **SAP indicator**
Lights when the NORMAL AUDIO selector is set to SAP.
3. **STEREO indicator**
Lights when a stereo broadcast is being received.
4. **TV/VTR button**
Press so that VTR indicator lights up in the display window (VTR mode) to watch the program selected on the recorder. To watch one TV program while recording another, press this button again so that the VTR indicator goes off.
5. **TAPE RETURN button**
In the stop mode, press this button to advance or rewind the tape to the counter zero point.
6. **CLEAR/RESET button**
Press to reset the tape counter to "0H00M00S" and also to clear a timer setting or an unused channel.
7. **CLOCK/COUNTER button**
Press to select the clock display or the tape counter display.
8. **TIMER SET button**
Press to start timer setting.
9. **CHANNEL + / - buttons**
Press to select channels, to set the clock or timer recording and to preset channels. Press + to advance and - to reverse.
10. **NEXT button**
Press to advance to the next item to be set during clock setting, timer setting or channel presetting.
11. **TIMER REC button**
Press to activate timer recording.
12. **QUICK TIMER button**
Press to start a quick timer recording and then set the duration of the recording.
13. **HEADPHONES jack and LEVEL control**
Connect stereo headphones (with a stereo miniplug) to the HEADPHONES jack. The volume can be adjusted with the LEVEL control.
14. **Beta hi-fi indicator**
Lights to show Beta hi-fi recording and playback. With a Beta hi-fi recorded tape, the indicator lights even when the sound recorded on the conventional audio track is being played back.
15. **PEAK PROGRAM METER**
Shows the peak input level of the right and left channels during Beta hi-fi recording.
16. **REC LEVEL controls**
Adjust the audio recording level. Normally keep these controls at the indented center position [5].
17. **CLOCK SET button**
Press to start clock setting.
18. **LINE IN 2 VIDEO/AUDIO jacks** (phono type)
Use to connect a recording source, such as a portable VCR, video camera, stereo system, etc.
19. **SYNCHRO EDIT button and indicator**
Press to start and stop playback on this VCR and recording on another VCR simultaneously for synchro editing.
20. **● REC switch**
Slide to the right to start recording.
21. **Tape transport buttons**
◀◀REW (rewind), ▶▶PLAY, ▶▶▶FF (fast-forward), ▶ SLOW, ■ STOP, ■▶▶▶PAUSE/STILL
22. **CHECK button**
Press to check the timer settings.
23. **SuperBeta indicator**
Lights when the SUPER BETA switch is set to ON.


Location and Function of Controls

Inside the front panel



Digital picture section For watching digital pictures, see pages 16 through 21.

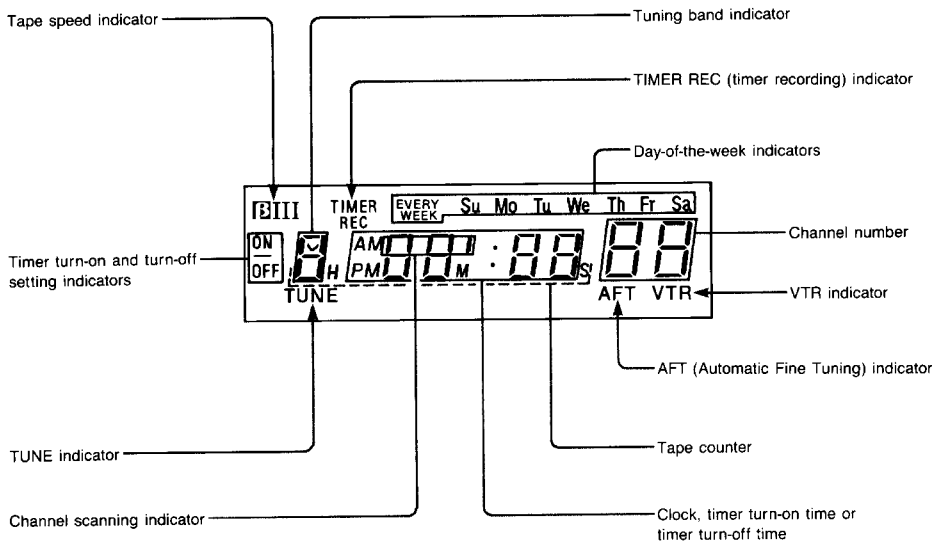


- 24 REC MODE button**
Press to select the recording speed, **ⓑ II** or **ⓑ III**.
- 25 STILL ADJ button**
Press to stabilize the still picture, if it shakes.
- 26 TRACKING buttons**
Press the **▼** or **▲** button if streaks, snow or noise bands appear during normal or slow motion playback.
- 27 PRESET button**
Press to start the presetting of TV channels. Press again to cancel presetting mode.
- 28 FINE TUNE button**
Press to start the fine tuning of a TV channel. Press again to cancel fine-tuning mode.
- 29 AUTO STEREO switch**
Normally set to ON. When the signal is weak on a particular channel, set to OFF.
- 30 SHARPNESS control**
Use to adjust the sharpness of the picture if necessary. Normally set the control at the indented center position.
- 31 SUPER BETA switch** 
Normally keep this switch at ON.
- 32 INPUT SELECT switch**
Select the program to be recorded.
TUNER: For recording TV programs
LINE 1: For recording signals from the LINE IN 1 VIDEO/AUDIO jacks
LINE 2: For recording signals from the LINE IN 2 VIDEO/AUDIO jacks on the front panel
- 33 NORMAL AUDIO selector**
Select the sound to be recorded on the conventional audio track. Normally set to MAIN, To record SAP (Second Audio Program), set to SAP.
- 34 MPX FILTER switch**
When making a recording other than regular TV recordings, set the selector as follows:
OFF: For recording the sound from a record player or a compact disc player
ON: For recording FM radio broadcast programs. (If your FM tuner is provided with an MPX filter, set this selector to OFF)
- 35 AUDIO MONITOR STEREO/L/R selector**
Select the channel(s) of the Beta hi-fi sound to be monitored.
STEREO: To monitor in stereo mode
L: To monitor the L (left) channel of a stereo program
R: To monitor the R (right) channel of a stereo program
- 36 AUDIO MONITOR HI-FI/NORM selector**
Select the sound to be monitored.
HI-FI: Normally set to this position for beta hi-fi sound
NORM: To monitor the sound recorded on the conventional audio track.
- 37 DIGITAL PICTURE Indicator**
Lights when one of the digital picture functions is activated.
- 38 DIGITAL OFF button**
Press to cancel the digital picture function in use.
- 39 EFFECT +/- buttons**
Used to adjust the effects of various digital pictures.

Note

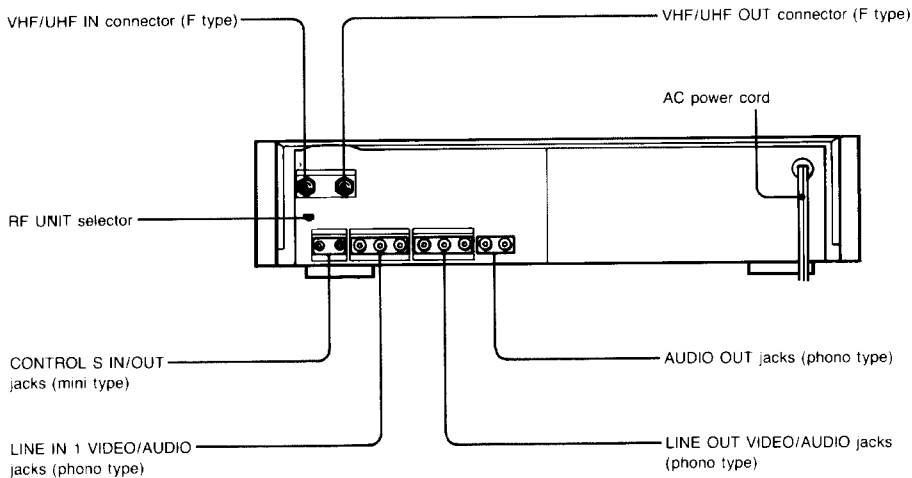
Regardless of the setting of the selector, TV programs are automatically recorded in MPX FILTER ON mode.

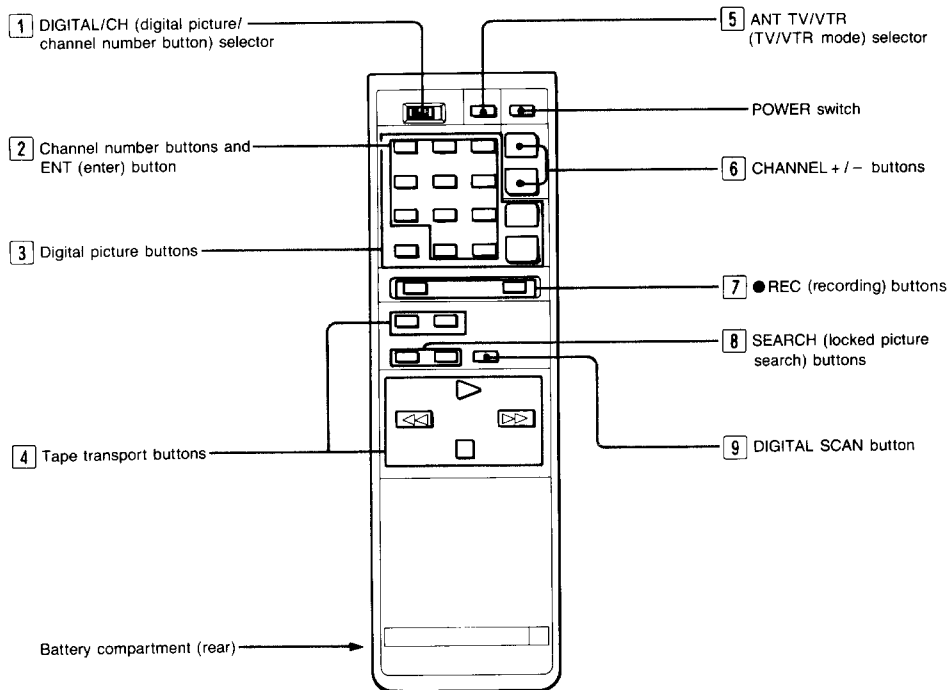
Display window



Rear

For basic connections, see pages 33 through 37.





1 DIGITAL/CH selector

When using the digital picture functions, set to DIGITAL. When selecting a channel directly with 0 through 9 channel number buttons and ENT button, set to CH.

2 Channel number buttons and ENT button

These buttons function as the channel number buttons and ENT button for selecting channels when the DIGITAL/CH selector is set to CH.

To select a channel, press the digits of the desired channel one by one and press ENT.

E.g. To select channel 12, press 1, 2 and ENT.

3 Digital picture buttons

These buttons function as the digital picture buttons when the DIGITAL/CH selector is set to DIGITAL. STOP MOTION, FLASH MOTION, P in P, MANUAL (manual multi-strobe), 9 MULTI (9-frame multi-strobe), 16 MULTI (16-frame multi-strobe), MOSAIC ART, PICTURE ART, ZOOM, RECALL, DIGITAL OFF, EFFECT +/-

4 Tape transport buttons

PAUSE, SLOW, ► (playback), ◀◀ (rewind), ▶▶ (fast-forward), ■ (stop)

5 ANT TV/VTR (TV/VTR mode) selector

Select TV or VTR mode.

6 CHANNEL +/- buttons

Select the channels.

7 ● REC buttons

To start recording, press these buttons simultaneously.

8 SEARCH buttons

During playback or in freeze picture mode, press to watch the picture at a fast speed.

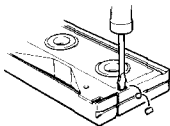
9 DIGITAL SCAN button

In fast-forward or rewind mode, press to watch the picture at a fast speed.

Handling the Video Cassettes

To avoid erasing a recording

Break off the safety tab on the rear of the cassette.



To re-record the cassette

If the safety tab has been removed, re-cover the opening with a piece of cellophane tape.

When the inserted cassette has had its safety tab removed

If you activate ● REC, QUICK TIMER or TIMER REC, the cassette will be automatically ejected.

Recording time available in each mode

By selecting the recording speed, **Ⓜ II** or **Ⓜ III**, with the REC MODE button, you can decide the recording time.

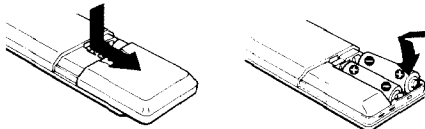
| Cassette used | Ⓜ II mode | Ⓜ III mode |
|---------------|---------------|---------------|
| L-125 | 30 min. | 45 min. |
| L-250 | 1 hr. | 1 hr. 30 min. |
| L-500 | 2 hr. | 3 hr. |
| L-750 | 3 hr. | 4 hr. 30 min. |
| L-830 | 3 hr. 20 min. | 5 hr. |

Playback speed is set automatically.

Remote Control Operation

Battery Insertion

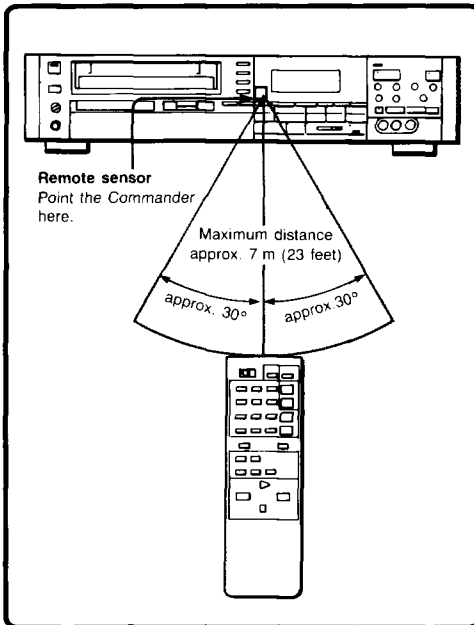
Insert two size AA (R6) batteries with the polarity lined up correctly.



Battery life

With normal operation, batteries will last for about six months.

Operation



Notes

- The buttons without an explanation will function the same as the buttons on the recorder with a similar name or mark.
- Auto play cannot be activated with ◀ and ▶ on the Commander.

Recording TV Programs (Beta hi-fi recording)

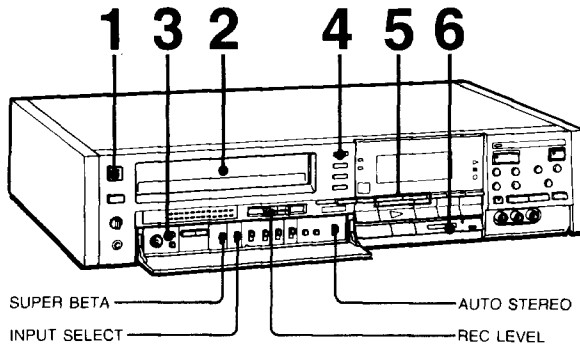
Make sure that you have finished all the connections and adjustment on pages 33 through 41.

Caution

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

Operation

Numbers in the illustration show the sequence of operation.



Before you begin

- Check the positions of the selectors.
SUPER BETA → ON
AUTO STEREO → ON
INPUT SELECT → TUNER
REC LEVEL → 5
- Turn on the TV and select the channel for the recorder or select the input for the recorder.

Note

The power can be turned on automatically by inserting a cassette without pressing POWER.

- 1 Press POWER.
The power indicator will light up.
- 2 Insert a cassette.
- 3 Select the recording tape speed, **II** or **III**, with REC MODE.
The length of recording time differs for each mode. Refer to the chart on page 10.
- 4 Press TV/VTR so that the VTR indicator appears in the display window.
- 5 Select the channel to be recorded with CHANNEL + / -.
- 6 Slide ● REC to the right. The REC ● indicator will light and recording will begin.

To stop recording, press ■ STOP.

When the tape reaches its end, it will be rewound to the beginning.

To eject the cassette, press ▲ EJECT.

The ▲ EJECT button functions even when the power is turned off.

To turn off the power, press POWER.

To stop the tape momentarily during recording

Press **II** / **▶** PAUSE/STILL. The PAUSE **II** indicator will light. The TV program can still be seen on the TV, but the picture will not be recorded. To resume recording, press **II** / **▶** PAUSE/STILL again.

To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will stop.

Recording TV Programs (Beta hi-fi recording)

If you want to record a tape which is to be played back on another recorder from the very beginning of the tape, run the tape for about 15 seconds before starting recording. Otherwise you may miss the starting point during playback on the other machine.

About the Super Beta System

Normally, keep the SUPER BETA switch at the "ON" position to obtain high picture quality recordings and playback. Tapes recorded on other non-SuperBeta VCR's can be played on SuperBeta VCR's.

Tapes recorded in SuperBeta can be played on other non-SuperBeta VCR's. However, some over-modulation noise may appear in the picture during playback. If you intend to play back the tape on other non-SuperBeta VCR's, then set the SUPER BETA switch to the "OFF" position when making your recordings.

To Start Recording from a Particular Point

You can decide the starting point for recording while watching the picture.

- 1 Play back the tape and locate the point where you wish to start recording on the tape.
- 2 Press **II / ► PAUSE/STILL** to stop the tape where you wish to start recording.
- 3 Slide **● REC** to the right. The recorder will enter recording pause mode.
- 4 Press **II / ► PAUSE/STILL** at the desired point to release the pause mode. Recording will begin.

To Watch One TV Program While Recording Another

Press TV/VTR so that the VTR indicator disappears from the display window. Select the channel you want to watch on the TV.

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

To Record Multichannel TV Sound (MTS) Broadcasts (Stereocasts)

Make sure AUTO STEREO is set to ON.

In the years to come, an increasing number of programs will be broadcast in stereo. Called Multichannel TV Sound or MTS, the new technology will greatly enhance TV viewing by bringing you programs with high fidelity stereo sound.

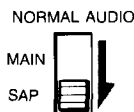
MTS also provides for an extra channel called the Second Audio Program or SAP which broadcasters can use to transmit a second language for bilingual transmissions or any other sound track.

To record a stereo broadcast

When the STEREO indicator lights up, a stereo broadcast is being received. With the usual recording procedure, the program will be recorded in stereo on the video track, and in monaural on the conventional audio track.

To record an SAP (Second Audio Program) broadcast

Set NORMAL AUDIO to SAP. The SAP indicator will light up. If recording is made when there is a SAP broadcast, the SAP sound will be recorded on the conventional audio track while the MAIN sound will be recorded on the video track in Beta hi-fi. To listen to the SAP sound, set AUDIO MONITOR HI-FI/NORM to NORM.



To record a MAIN broadcast only

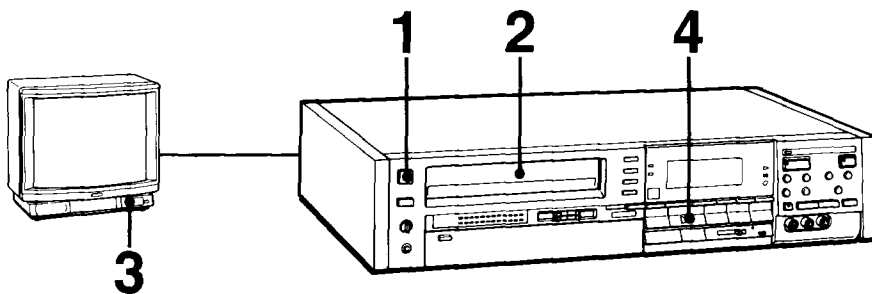
Set NORMAL AUDIO to MAIN. The MAIN sound will be recorded on the video track and the conventional audio track.

Notes

- When SAP sound is not to be recorded, be sure to set NORMAL AUDIO to MAIN. If it is set to SAP and there is no SAP broadcast, no sound will be recorded on the conventional audio track.
- You may find more noise in the reproduction of the SAP sound than in that of the main sound.

Operation

Numbers in the illustration show the sequence of operation.



- 1 Turn on the power.
- 2 Insert a cassette.
- 3 Turn on the TV and select the channel for the video recorder or select the input for the recorder.
- 4 Press ►PLAY.

Note

If you are playing back a tape that was recorded on another VCR, noise (if any) in the picture may be eliminated by setting SUPER BETA to OFF. Normally, keep this switch at ON.

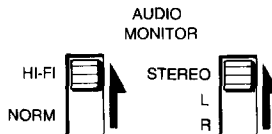
Auto Play

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

Press ►PLAY while keeping ◀REW pressed. After the tape is completely rewind, it will be automatically played back.

To Select the Monitor Sound

Playback of Beta hi-fi stereo sound programs
Set AUDIO MONITOR to HI-FI and to STEREO.



When the recorder is connected to a Component TV, a stereo system or stereo headphones, you can enjoy stereo sound reproduction.

When a conventional (monaural) TV is connected, the sound of the left and right channels are mixed so that monaural sound comes from the TV speaker.

To select the left or right channel of stereo programs
Set AUDIO MONITOR to HI-FI and to L or R.

Select the position L or R to play back the channel you wish to listen to.

Playback of SAP sound

To listen to SAP sound that was recorded with NORMAL AUDIO set to SAP, set AUDIO MONITOR to NORM.

When You Play Back a Tape Recorded on Another VCR

- If the VCR on which the tape was recorded is not equipped with the Beta hi-fi system, the recorder will play back the tape in the conventional way.
- If streaks or snow appear, press TRACKING ▼ or ▲ until the best possible picture is obtained. After watching that particular tape, press TRACKING ▼ and ▲ simultaneously to reset the tracking to the standard position.



- To get a sharper picture, turn SHARPNESS toward SHARP.



To Cancel the Automatic TV/VTR Mode Selection

This VCR is preset at the factory so that it will be automatically set to VTR mode when playback starts. To cancel this function, proceed as follows:

- 1 Turn off the VCR.
- 2 Keeping the TV/VTR button pressed, press the POWER switch.
The VTR indicator will blink in the display window and the function will be cancelled.

When playing back a tape, press TV/VTR to set to VTR mode.

To resume the automatic TV/VTR mode selection, repeat steps 1 and 2.

Various Playback Modes

Digital Betascan

- Watching the picture at a fast speed to find a particular scene

Keep pressing ►► FF or ◀◀ REW during playback. When you release the button, normal playback will be resumed.

Digital Beta SkipScan

- Watching the picture momentarily during fast-forward or rewind.

Keep pressing ►► FF or ◀◀ REW during fast-forward or rewind mode.

When you release the button, the fast-forward or rewind mode will be resumed.

Digital Freeze Picture

Press II / ►◀ PAUSE/STILL during playback (in normal or slow mode). The sound will be muted.

Press II / ►◀ PAUSE/STILL again or press ► PLAY to resume normal playback.

To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and playback will be resumed.

Digital Slow Motion Picture

Press ► SLOW during normal playback or in freeze picture mode. The sound will be muted.

Press ► PLAY to resume normal playback.

Various Playback Modes Using the Remote Commander

Locked picture search and digital scan can be activated only by using the buttons on the Remote Commander.

Locked picture search

— Watching the picture during fast-forward or rewind

Press SEARCH ►► or ◀◀ on the Commander momentarily during playback or in freeze picture mode. To resume playback, press ► PLAY.

Digital scan

— Watching a monochrome picture at a faster speed

Press DIGITAL SCAN on the Commander momentarily in fast-forward or rewind mode. To resume normal fast-forward or rewind mode, press DIGITAL SCAN again.

To Obtain a Better Playback Picture

• If the picture seems to shake in freeze picture mode...

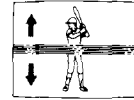
Press STILL ADJ inside the front panel until the picture stabilizes.

• If the picture seems to shake in slow motion picture mode...

Press TRACKING ▼ or ▲ until the picture stabilizes.

• If a noise band appears on the screen...

Set the VCR to the slow motion picture mode, and then move the noise band by pressing TRACKING ▼ or ▲. Readjustment may be necessary for tapes recorded on other VCR's.



Notes

- Streaks will appear and sound will be muted in the Betascan, Beta SkipScan and digital scan pictures.


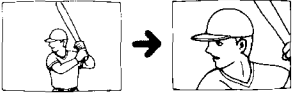

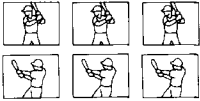


- Shaking of certain freeze or slow pictures may not be stabilized completely and noise may not be eliminated completely with the STILL ADJ and TRACKING buttons on this recorder.
- Freeze pictures are difficult to see in **BI** and **BIS** modes. The appearance of these noisy pictures does not indicate a recorder failure.
- The tape counter may go slow in slow motion picture mode.
- When normal playback is resumed from the freeze picture or slow motion picture mode, the tape may have been slightly advanced.
- In digital scan mode, the top and bottom portions of the picture may be defective or the width of the picture may vary.
- In various playback modes, a white band may appear at the left end of the screen depending on the TV.

Watching Digital Pictures

The digital picture function performs digital image processing of the received TV signals, VCR playback signals or signals from the line inputs, stores the processed signals in the digital frame memory and displays them on the screen with various effects.

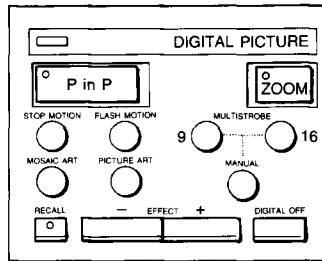
The following digital pictures can be viewed with this unit.





| | | | |
|----------------------------------|--|---|----------------|
| <p>Picture in Picture</p> | <p>A small TV picture can be inset into a VCR playback picture.</p> |  | <p>Page 18</p> |
| <p>Zoom</p> | <p>A portion of the picture can be zoomed on the whole screen.</p> |  | <p>Page 18</p> |
| <p>Stop Motion</p> | <p>A picture can be frozen at a particular point.</p> |  | <p>Page 19</p> |
| <p>Flash Motion</p> | <p>Freeze pictures can be viewed successively at specific intervals.</p> |  | <p>Page 19</p> |

Notes

- The digital pictures cannot be recorded with this unit. They can be recorded with another recorder, but may not be played back correctly.
- The digital picture obtained from the playback of external video equipment may be distorted.
- If the Betascan is activated while a digital picture is displayed, the image on the screen may be momentarily distorted when the Betascan mode is cancelled.
- When a digital picture function button is pressed with no video signal input, the previously stored picture may appear on the screen.
- In digital picture mode, a white band may appear at the left end of the screen depending on the TV.

Buttons for the digital picture functions



| | | | |
|--|--|---|----------------|
| <p>Recall</p> | <p>A particular picture can be stored in memory and recalled as required.</p> |  | <p>Page 19</p> |
| <p>Mosaic Art</p> | <p>A mosaic picture can be viewed.</p> |  | <p>Page 20</p> |
| <p>Picture Art (Solarization)</p> | <p>A picture with a solarization effect can be viewed.</p> |  | <p>Page 20</p> |
| <p>Multistrobe</p> | <p>9 or 16 frames of freeze pictures according to the passage of time can be viewed on the screen.</p> |  | <p>Page 20</p> |

Automatic cancellation of the digital picture function

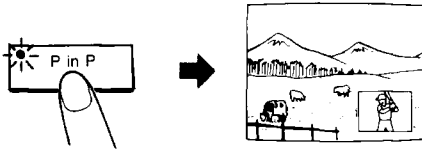
The digital picture function is automatically cancelled and the normal motion picture resumed when:

- a channel is changed (except in picture-in-picture mode)
- a tape transport button is pressed (in VCR playback mode)
- the INPUT SELECT switch is moved.

Picture in Picture

— to inset a small TV picture into the VCR playback picture

During playback, press "P in P".



A moving TV picture (subsidiary picture) will appear in the lower right of the screen.

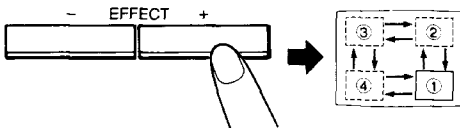
The channel of the subsidiary picture can be selected with CHANNEL +/-.

To invert the main picture and the subsidiary picture

Press P in P again. The TV sound will be heard.

To change the position of the subsidiary picture

By pressing EFFECT +, the position of the subsidiary picture can be changed from ① to ④ in order, and by pressing EFFECT -, the position changes reversely ①→④→③→②→①).



To resume the playback picture

Press DIGITAL OFF.

To display a subsidiary picture input into the LINE IN 1 or 2 jacks

Set INPUT SELECT to LINE 1 or LINE 2 to select the input to which the desired video source is connected.

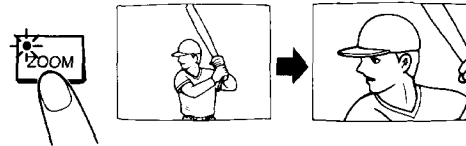
Notes

- Picture-in-picture mode cannot be activated from freeze picture or slow motion picture mode.
- The picture-in-picture mode will be cancelled when any of the tape transport buttons is pressed.
- If the P in P button is pressed when the VCR is not in playback mode, the same image as the main picture will appear in the position of the subsidiary picture.

Zoom

— to zoom a part of the picture

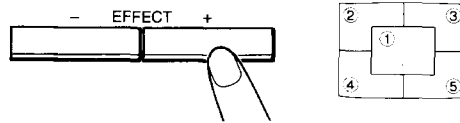
While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press ZOOM.



The center portion of the picture will be zoomed up to fill the whole screen.

To change the portion of the picture to be zoomed

By pressing EFFECT +, the portion of the picture ① to ⑤ will be zoomed in order, and by pressing EFFECT -, the portion will be zoomed in the reverse order ①→⑤→④→...→①).



To resume the normal picture

Press ZOOM again or press DIGITAL OFF.

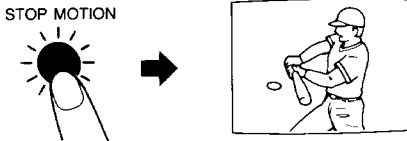
Notes

- The zoom function can be activated when a freeze picture is displayed in stop motion, flash motion or recall mode.
- For zooming in multistrobe mode, see page 21.
- The zoomed picture will appear somewhat mosaic.
- When the center portion of the picture is zoomed, the zoomed picture may be broken horizontally at about half height of the screen.
- If the zoomed picture seems to shake, press STILL ADJ inside the front panel until the picture stabilizes.

Stop Motion

— to freeze a picture

While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press **STOP MOTION**.



The picture will freeze. The sound will continue to be heard.

To resume normal viewing
Press **DIGITAL OFF**.

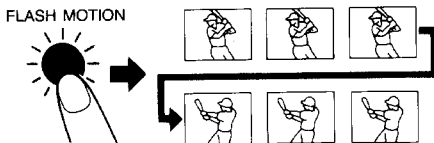
Notes

- The zoom, picture art or mosaic art function can be activated in stop motion mode.
- When the stop motion mode is cancelled, VCR playback will be resumed from an advanced portion of the taped program, since the tape continues running even in stop motion mode. In the case of a TV program, the scene being broadcast will appear.

Flash Motion

— to watch freeze pictures successively at specific intervals

While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press **FLASH MOTION**.



The picture will freeze, and after a given period of time, the next freeze picture will appear. The sound will continue to be heard.

To change the intervals at which the freeze picture is switched

When you press **EFFECT +**, the interval becomes shorter, and when you press **EFFECT -**, it becomes longer. Six intervals can be selected between approximately 1/8 and 4 seconds.

To resume normal viewing
Press **DIGITAL OFF**.

Note

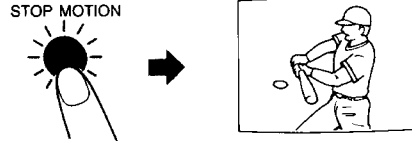
The zoom, picture art and mosaic art functions can be activated in flash motion mode.

Recall

— to store a particular scene in memory and recall

To store in memory

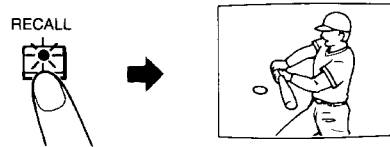
- 1 While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press **STOP MOTION**.



The picture will freeze and be stored in memory.

- 2 To resume watching the program, press **DIGITAL OFF**.

To recall the stored picture
Press **RECALL**.



To resume normal viewing
Press **DIGITAL OFF**.

Memory of a new picture

Once a picture is stored in memory, it can be recalled repeatedly by pressing **RECALL**.

However, when any of the following digital picture functions or digital playback modes are used, the last scene will be stored in memory and the previously stored picture will be erased from the memory.

- Digital picture functions: picture-in-picture, stop motion, flash motion and multistrobe
- Digital playback modes: freeze picture, slow motion picture, Betascan, Beta Skipscan, locked picture search and digital scan

Notes

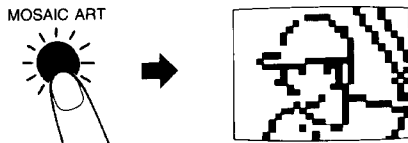
- The zoom, picture art and mosaic art functions can be activated for the recalled picture.
- The **RECALL** button operates only when one of the digital picture functions has been used with the power on.
- The **RECALL** button cannot be operated while another digital picture function is in use.
- When **RECALL** is pressed after the picture-in-picture mode, four subsidiary pictures will appear. This is not a problem.



Mosaic Art

— to watch a mosaic picture

While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press **MOSAIC ART**. The picture will be displayed with a mosaic effect.



To change the size of the mosaic pieces

When you press **EFFECT +**, the mosaic piece will become bigger, and when you press **EFFECT -**, they will become smaller. Three sizes can be selected.

To resume the normal picture

Press **MOSAIC ART** again or press **DIGITAL OFF**.

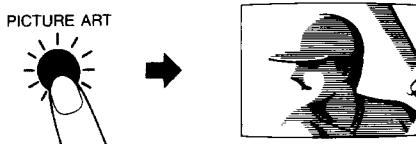
Note

The mosaic art function can be activated when a freeze picture is displayed in stop motion, flash motion or recall mode.

Picture Art (Solarization)

— to watch a picture with a solarization effect

While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press **PICTURE ART**.



The picture will be displayed with a solarization effect.

To change the level of the solarization effect

When you press **EFFECT +**, the effect will be increased, and when you press **EFFECT -**, it will be decreased. Three levels can be selected.

To resume the normal picture

Press **PICTURE ART** again or press **DIGITAL OFF**.

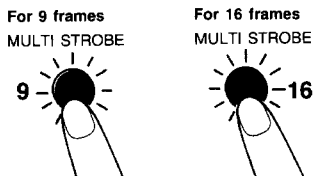
Note

The picture art function can be activated when a freeze picture is displayed in stop motion, flash motion or recall mode.

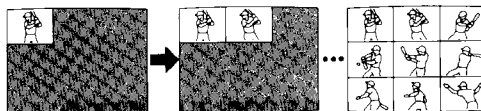
Multistrobe

— to watch 9 or 16 frames of pictures on the screen

While watching a VCR playback, a TV program or a picture from LINE IN 1 or 2, press **MULTI STROBE 9** or **16**.



The picture will freeze and be displayed in the upper left section of the screen.



After a given period of time, the next freeze picture will appear in the next section. This sequence will be repeated until all the sections are filled with the freeze pictures. The sound will continue to be heard.

To change the intervals at which the next freeze picture appears

Press **EFFECT +** or **-** after **MULTI STROBE 9** or **16** is pressed. When you press **EFFECT +**, the interval will become shorter, and when you press **EFFECT -**, it will become longer. Six intervals can be selected between approximately 1/8 and 4 seconds. The adjusted interval is stored in memory.

To resume normal viewing

Press **DIGITAL OFF**.

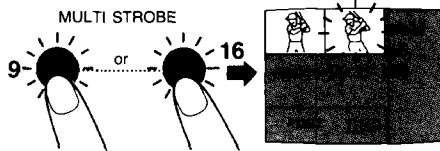
Manual multistrobe function

— to display 9 or 16 frames of pictures at the desired intervals

- 1 Press MANUAL MULTI STROBE.



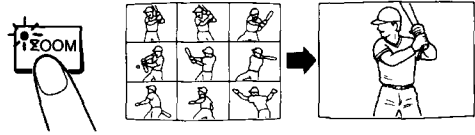
- 2 Press MULTI STROBE 9 or 16 to select 9 or 16 frames. A moving picture will appear in the upper left section of the screen.
- 3 Repeat pressing MULTI STROBE 9 or 16. Each time the button is pressed, the previous picture will freeze and the moving picture will appear in the next section.



When the last section of the screen is filled, all the pictures will freeze. When you press MULTI STROBE 9 or 16 again, the moving picture being transmitted will appear in the upper left section.

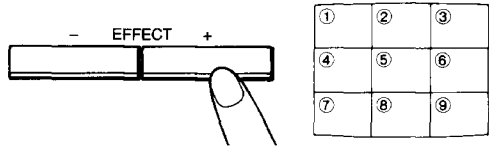
Zooming in multistrobe mode

- 1 After all the sections of the screen are filled with pictures, press ZOOM.



The picture which is in the upper left section will be zoomed up to fill the whole screen.

- 2 Press EFFECT +/- to select the picture to be zoomed. When you press EFFECT +, the pictures in sections ① to ⑨ will be zoomed in order, and when you press EFFECT -, the pictures will be zoomed in the reverse order (①→⑨→⑧→...→①).



To resume the multistrobe screen
Press ZOOM again.

Notes

- Although the interval for the multistrobe function is stored in memory in multistrobe mode, it will be changed automatically if EFFECT +/- is pressed later in flash motion or other digital picture mode. In this case, readjust the interval when you newly use the multistrobe function.
- When a multistrobe picture is zoomed, it will appear somewhat mosaic.

Timer-Activated Recording

Six recordings can be preset to be made for any day or every day within seven days or, for the same day every week.

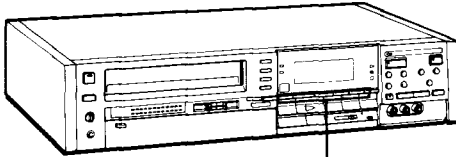
The clock time must first be set to the correct current time. To set the clock, see page 39.

Before Setting the Timer

- Make sure the cassette tape is long enough to record programs.
- Be sure a cassette with a safety tab has been inserted in the compartment.
- Select the recording tape speed. Check the **II** or **III** indicator in the window.
- Set the selectors correctly as on page 11.

Setting the Timer

Suppose you want to make a recording of channel 6 from 7:10 to 11:15 on Friday evening.



CHANNEL +/- buttons

To set the day of the week, the time and the channel, press the + button to advance, and the - button to reverse.

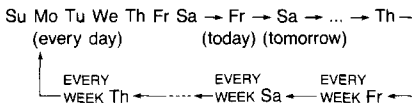
NEXT button

Every time you press the NEXT button, the item to be preset will blink and you will be setting that item.

Day indication

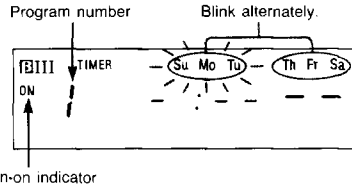
When you press the + button, the day indication changes as follows:

Ex. Today is Friday.

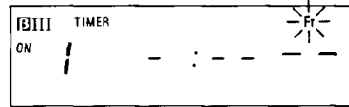


To record at the same time every day, select "Su Mo Tu We Th Fr Sa".
To record at the same time and day every week, select the desired day indication with "EVERY WEEK".

1 Press TIMER SET.



2 Set the day with the + or - button.

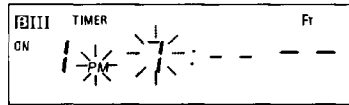


3 Press NEXT and set the turn-on hour with the + or - button.

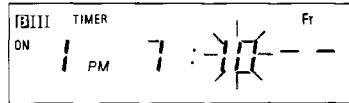
Make sure that AM or PM is properly set.

AM 12:00 = midnight

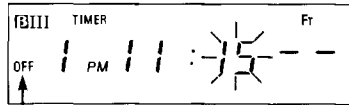
PM 12:00 = noon



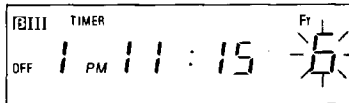
4 Press NEXT and set the minute with the + or - button.



5 Press NEXT and set the turn-off time as in steps 3 and 4.



6 Press NEXT and set the channel to be recorded with the + or - button.



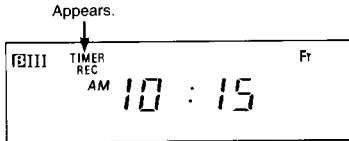
7 Press NEXT.

The turn-on time and turn-off time will be displayed for 3 seconds respectively and the current time will reappear.

To preset another program, repeat steps 1 to 7. Up to 6 programs can be preset.

8 Press TIMER REC.

The power will be turned off and the recorder will enter the standby mode.



Recording will start at the preset time and will automatically stop when the recording is completed.

The memory of the program (except everyday and every week settings) will be erased and the program positions preset in the timer will advance one by one.

Notice:

ONCE THE TIMER REC INDICATOR HAS BEEN DISPLAYED, only the functions of CHECK and TIMER REC on the recorder can be activated. To turn on the power again for the usual manual operations, press TIMER REC again so that the indicator turns off.

Before the Timer-activated Recording Starts

To check the timer settings

Press CHECK. Every time you press CHECK, another program will be displayed.

To change the settings

- 1 Press TIMER REC. The TIMER REC indicator turns off.
- 2 Press CHECK to select the program to be changed.
- 3 Press TIMER SET.
- 4 Press NEXT until the item to be changed blinks.
- 5 Change the setting with the + or - button.
- 6 Press NEXT so that the current time appears.
- 7 Press TIMER REC again to reactivate the timer.

To erase the memory of the timer settings

- 1 Press TIMER REC. The TIMER REC indicator turns off.
- 2 Press CHECK to select the program to be erased.
- 3 Press CLEAR/RESET. The memory of the program will be eliminated.
- 4 If other programs have been preset for recording, press TIMER REC again to reactivate the timer.

During Recording

To stop during the timer recording

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

When the tape ends during timer recording

The tape will stop but the tape will not be rewound to the beginning.

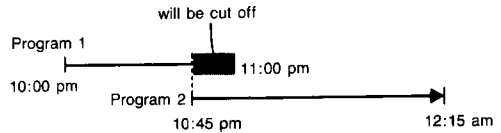
Notes on Timer Recording

Problems when TIMER REC is pressed

- The cassette is ejected automatically. → The cassette inserted has had its safety tab removed.
- The TIMER REC indicator does not appear in the window. → No cassette has been inserted.

When the presettings of your timer-activated recordings overlap

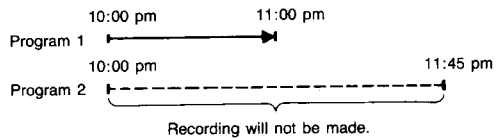
There will be no error indication to inform you of the overlap. Even if there is an overlap, a recording will be made.



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

If the turn-on time of two programs are the same

The recording of the program having the lower program number will be made. The memory of the program having the higher number will be cleared.



If a power interruption occurs during timer recording and the clock shows "AM 12:00" and blinks

If the recorder was in the standby mode, all the timer settings were erased. Reset the clock and timer settings. If the timer-recording has been activated, the recording will have stopped.

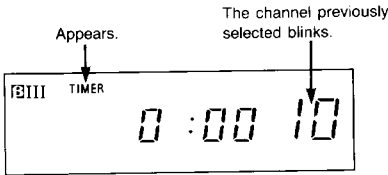
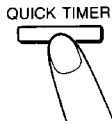
Quick Timer Recording

You can start a timer recording just by pressing QUICK TIMER. The recording duration can be set for up to 5 hours in 30 minute intervals. You can also use this function to stop a non-timer recording by presetting the recording duration. Before operating, set the clock.

To Use Quick Timer from the Tape Stop Mode

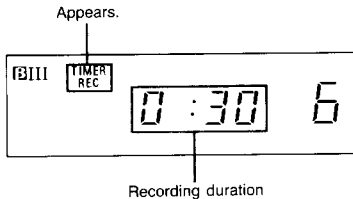
Make sure that a cassette has been inserted.

- 1 Press QUICK TIMER.
If the power was off, it will be turned on.

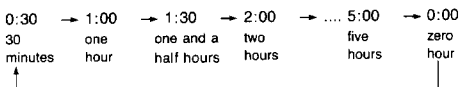


If you do not advance to the next step within 30 seconds, the power will be turned off.

- 2 Choose the channel to be recorded with CHANNEL + / - .
- 3 Press QUICK TIMER so that the recording starts. Now decide the recording duration.



Every time you press QUICK TIMER, the recording duration indication will change as follows:



After recording starts, the duration indication will decrease minute by minute to 0:00 and the power will be turned off automatically about 30 seconds after the recording is finished.

To Use Quick Timer While Recording

By pressing QUICK TIMER, you can set the duration so that the recording stops and the power turns off after the preset amount of time.

Once the quick timer recording has started

Only the following function buttons can be activated:

- QUICK TIMER to change recording duration
- TIMER REC to interrupt quick timer recording
- II / ► PAUSE/STILL to stop quick timer recording momentarily
- CLEAR/RESET to reset the tape counter to zero

Use of the Tape Counter

The tape counter indicates the approximate running time of the tape and the relative position of programs on the tape. Press **CLOCK/COUNTER** if the current time is displayed.

To Index the Tape Contents

Before starting recording or playback, press **CLEAR/RESET** to set the counter to "0H00M00S". By noting the counter reading at a particular point, you can easily find that point again later by referring to the counter. Use the label on the cassette to list the programs and their counter readings.



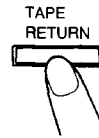
Notes

- The counter reading is automatically reset to zero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the cassette is in the cassette compartment.
- The counter will not advance during any portion of a tape that is blank or unrecorded. Thus the counter can be used to find unrecorded sections on a tape.

Tape Return/Tape Return Play

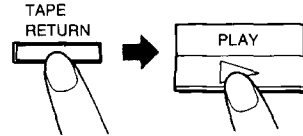
— To stop the tape at a particular point or play back from a particular point

- 1 During recording or playback, press **CLEAR/RESET** at the point you want to locate later.
- 2 When recording or playback is finished, stop the tape and press **TAPE RETURN**. The tape will be rewound or advanced close to the point where the counter reads "0H00M00S".



To start playback automatically from the "0H00M00S" point

Press ► **PLAY** after pressing **TAPE RETURN**.



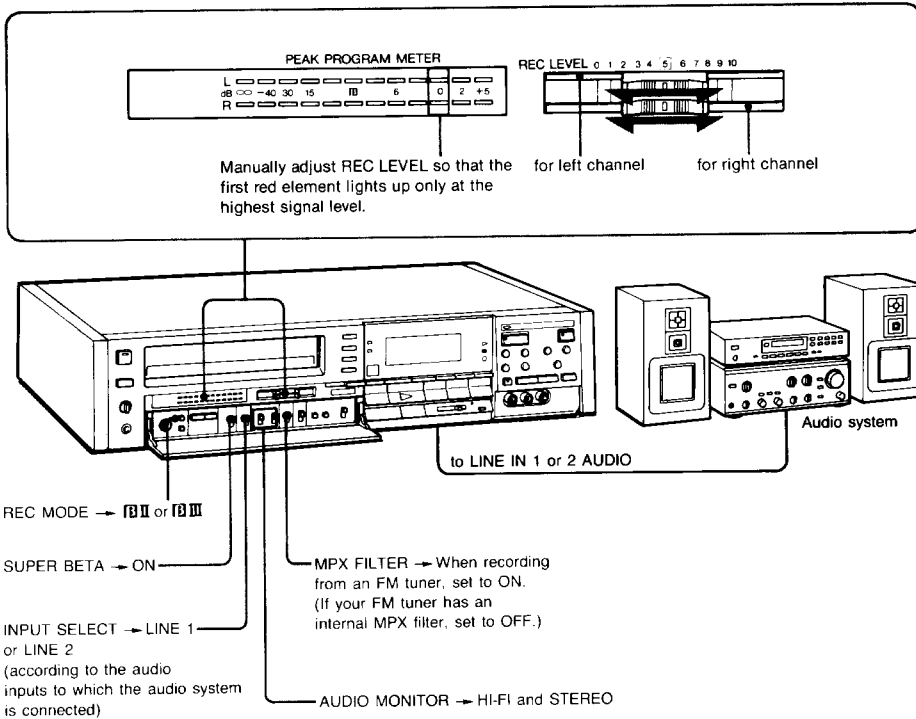
Note

Tape return and tape return play cannot be activated when the counter reading is within $\pm 0H00M10S$.

Beta Hi-Fi Audio Recording

Recording from Your Audio System

To connect the VCR to your audio system, see page 37. Set the switches as shown below. To start recording, insert a cassette and slide ● REC to the right.

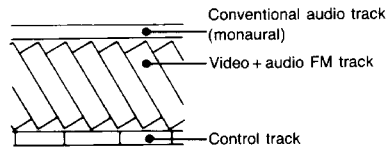


What Is Beta Hi-Fi Recording?

In conventional recording, audio signals are recorded on the audio track and video signals on the video track. In Beta hi-fi recording, audio signals are recorded on the video track together with the video signals using 2 rotary video heads.

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

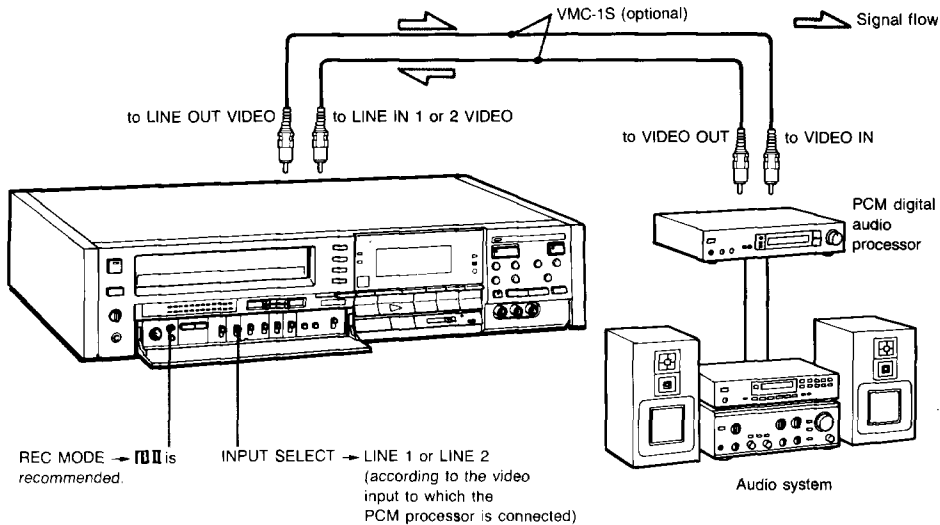
Beta hi-fi recording pattern on the video tape



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

PCM Recording And Playback

Connect a PCM digital audio processor as shown below.



For optimum results, use a video cassette with a model number of L-500 or below (L-250, L-125, etc.) and select the tape speed **II**.

For details, refer to the instruction manual furnished with the PCM digital audio processor.

Note

If you intend to play back on a VCR with SUPER BETA set to "OFF" or on other non-SuperBeta VCRs, set SUPER BETA to "OFF" when making your PCM recordings. Otherwise, the sound may be muted.

Camera Recording

When connecting a Sony color video camera, the use of a Sony HVA-220 AC adaptor is required. For details on connections, refer to the instruction manual furnished with the AC adaptor.

Note

The camera must conform to American TV (EIA) standards.

Editing a Tape

To edit a home movie tape, you need two video cassette recorders.

To start recording, set the VCR for playback in the playback mode, then press the record button on the other VCR.

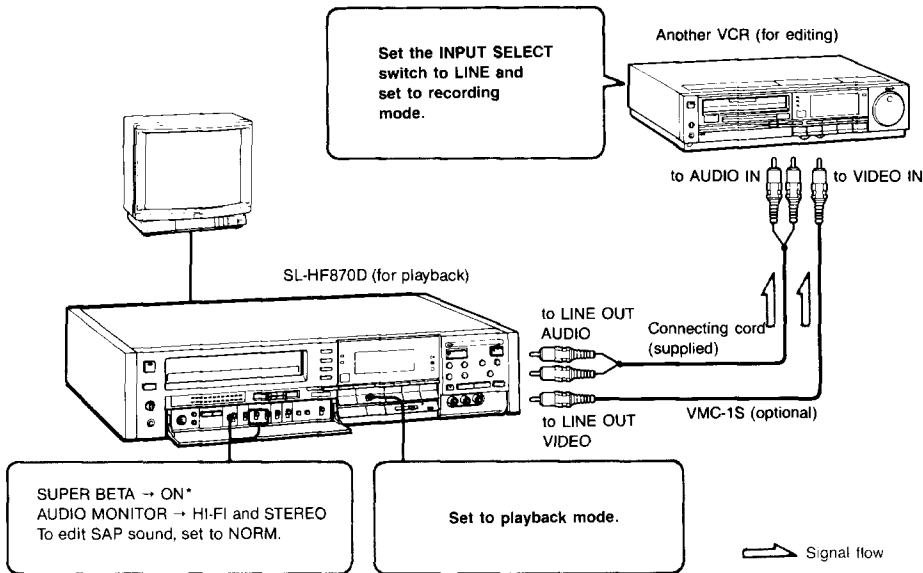
Caution

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

Note

Avoid repeated editing with the same tape, as the picture and sound quality will be impaired noticeably on newly edited tapes.

To Edit a Home Movie Tape from This VCR to Another VCR



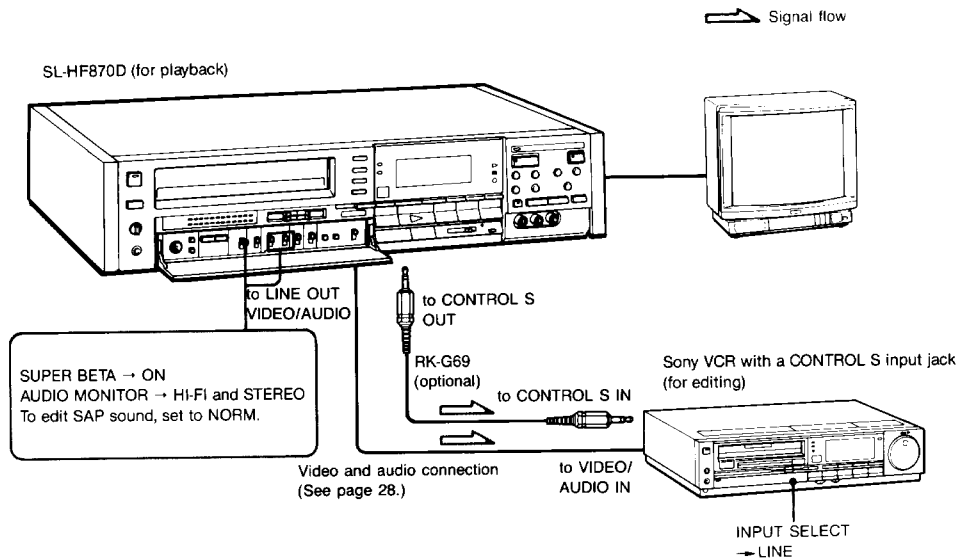
The impairment of the edited picture quality can be decreased by activating the SYNCHRO EDIT button as follows:

Set the SL-HF870D to playback pause mode and press SYNCHRO EDIT to turn on the indicator above the button and start editing.

*For a tape recorded on another VCR, noise may be eliminated by setting SUPER BETA to OFF.

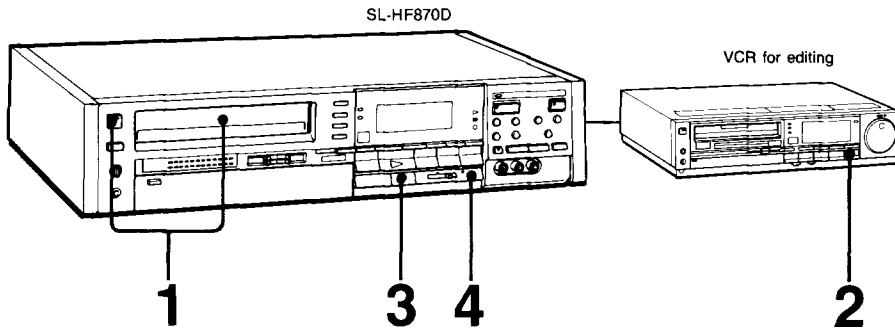
Synchro Editing — Using a VCR equipped with a CONTROL S input jack

Connect the CONTROL S OUT jack of this VCR to the CONTROL S input jack of another VCR. Recording start/stop on the other VCR can be activated in synchronization with playback start/stop on this VCR simply by pressing the SYNCHRO EDIT button.



Note for owners of VCR's equipped with the CONTROL S IN and OUT jacks
Avoid simultaneous connections to the CONTROL S IN and OUT jacks. This may cause malfunction of the VCR's.

Operation



- 1 Turn on the VCR's. Insert a recorded cassette in the SL-HF870D and a cassette for recording in the other VCR.
- 2 Set the VCR for editing to recording pause mode.
- 3 Locate the portion of the tape at which you want to start editing and press **II / PAUSE/STILL** (playback pause mode).
- 4 Press **SYNCHRO EDIT**. The indicator above the button will light. Recording and playback will begin simultaneously on the respective VCR's.

To stop editing momentarily

Press **SYNCHRO EDIT** again. The indicator above the button will go off. The SL-HF870D will enter playback pause mode, and the VCR for editing will enter recording pause mode.
(The pause mode will be automatically released after about 8 minutes and the tape will stop on the VCR for editing and playback will resume on the SL-HF870D.)

To start editing of the next scene

Repeat steps 3 and 4.

To stop the tapes

Press the **■ STOP** button on each VCR.

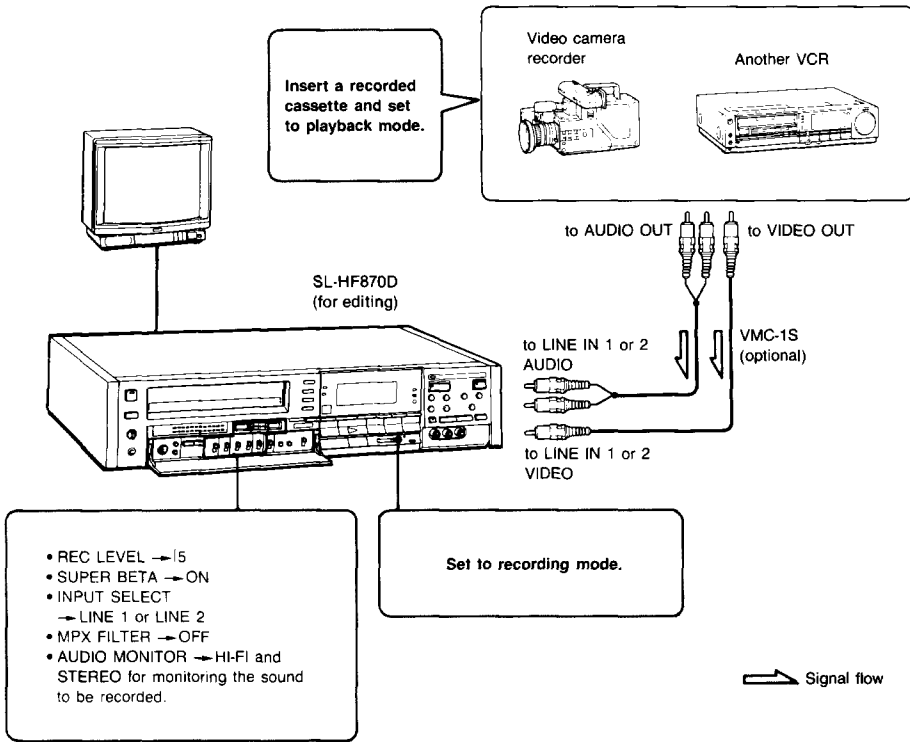
Note

When **SYNCHRO EDIT** is pressed and the indicator above the button is lit, the video circuit is switched to editing mode. In this mode, better editing will result.

Caution

Do not press any button on the VCR's or on the Remote Commander during editing, as synchro editing will malfunction.

To Edit a Home Movie Tape from Another VCR to This VCR

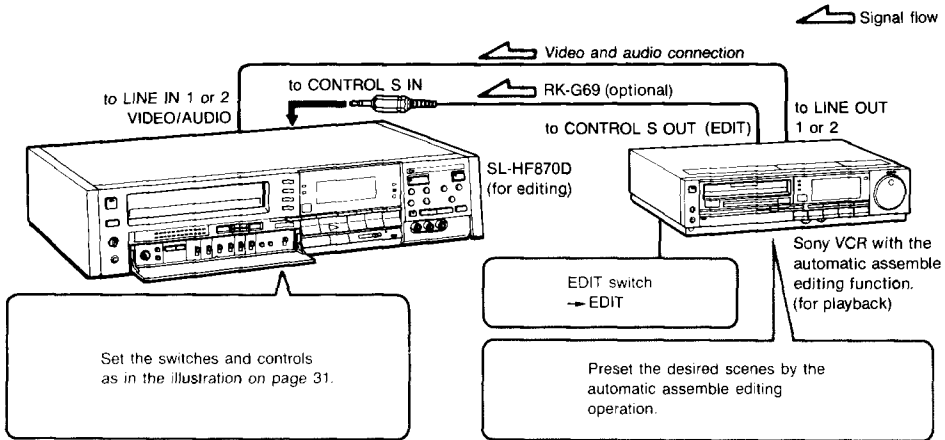


The impairment of the edited picture quality can be decreased by activating the SYNCHRO EDIT button as follows:

Set the SL-HF870D to recording pause mode, press SYNCHRO EDIT to turn on the indicator above the button, and then press **II / PAUSE/STILL** to start editing.

To edit from a VCR equipped with CONTROL S (EDIT) output

Only the particular scenes preset on the playback VCR will be edited (automatic assemble editing). Recording start/stop on the SL-HF870D can be activated in synchronization with playback start/stop on the playback VCR.

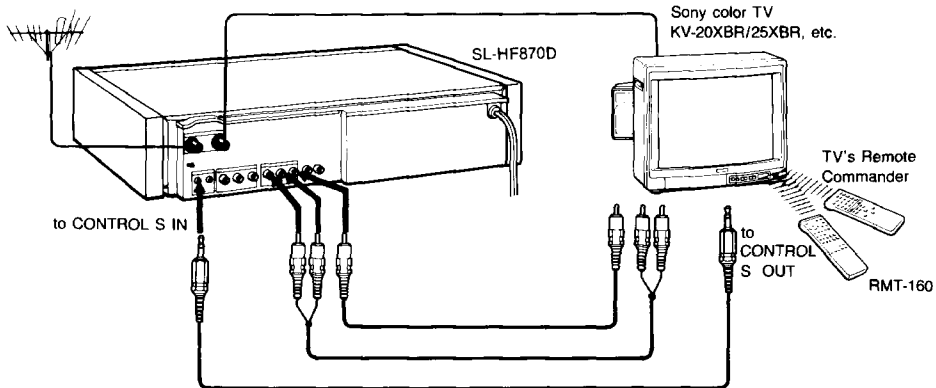


To start editing, set the SL-HF870D in recording pause mode and then follow the instruction manual of the playback VCR for automatic assemble editing.

•The optional RM-E100/E100V video editing controller allows easier editing between two VCR's.

Use of the CONTROL S IN Jack

If this jack is connected to the CONTROL(S) OUT jack of a Sony color TV or TV tuner, this VCR can be controlled by pointing the supplied RMT-160 Remote Commander toward the remote sensor on the color TV or TV tuner.



Antenna/Cable and TV Connections

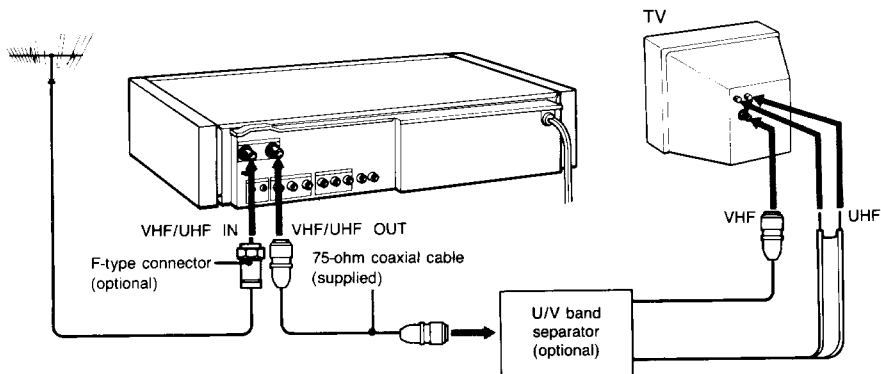
Before making connections

- Turn off the TV.
- Make the connections firmly. Loose connections may cause a distorted picture.
- Do not connect the AC power cord to a wall outlet until all the connections of the video cassette recorder and the TV have been completed.

Disconnect the TV antenna cables from the TV receiver and connect them to the recorder, then connect the recorder and the TV.

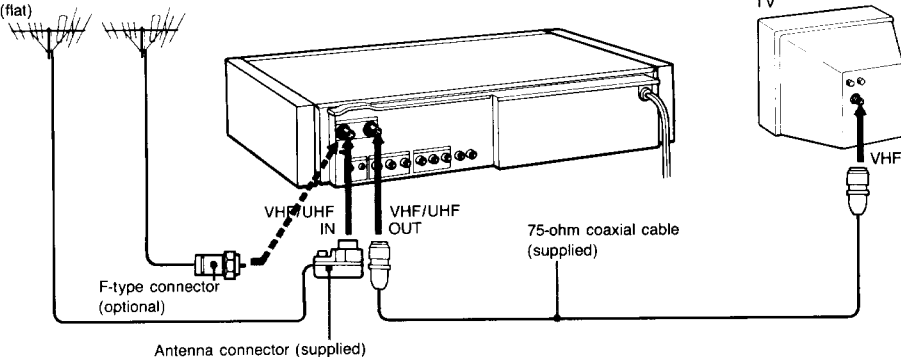
Combination VHF/UHF antenna

Most combination antennas are equipped with a U/V band separator (signal splitter). Take off the separator and connect the cable directly to the recorder. Use the removed separator to connect the recorder and the TV.

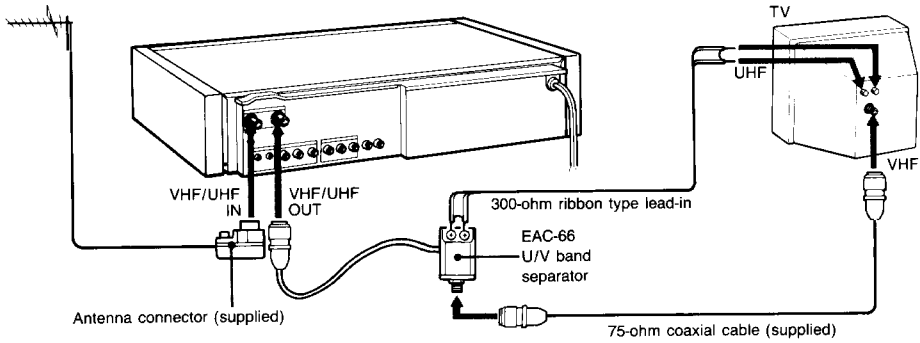


VHF antenna

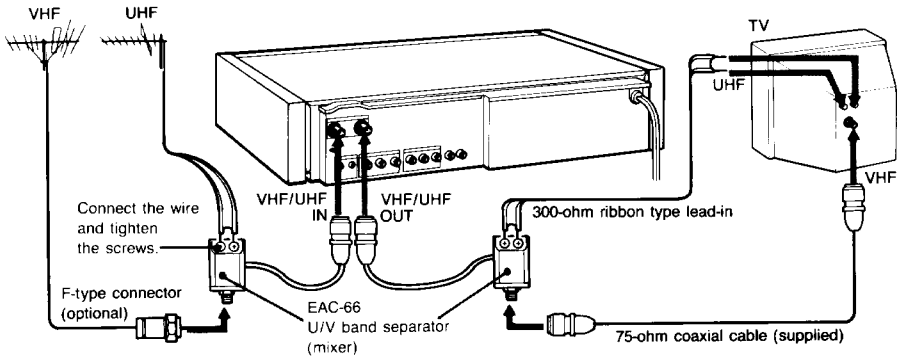
When the cable is a 300-ohm ribbon type lead-in (flat) When the cable is a 75-ohm coaxial type (round)



UHF antenna



When separate VHF and UHF antennas are connected



Caution

Connections between the recorder VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in these 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.

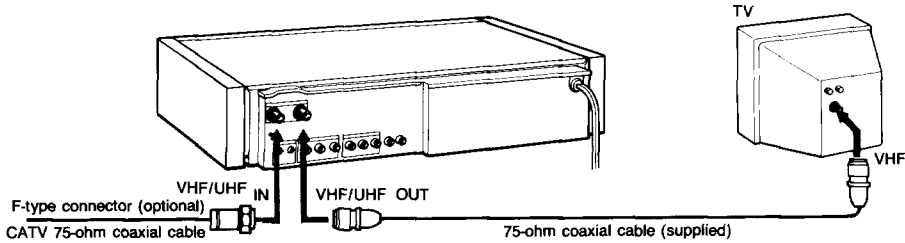
When a TV has a 75-ohm UHF/VHF antenna terminal

Easy connection of the recorder to the TV can be made with the supplied 75-ohm coaxial cable regardless of the types of antenna.

Once the connections explained above have been made, the antenna TV signals, as well as the signal from the recorder, will be fed to the TV and you can watch TV programs in the usual way.

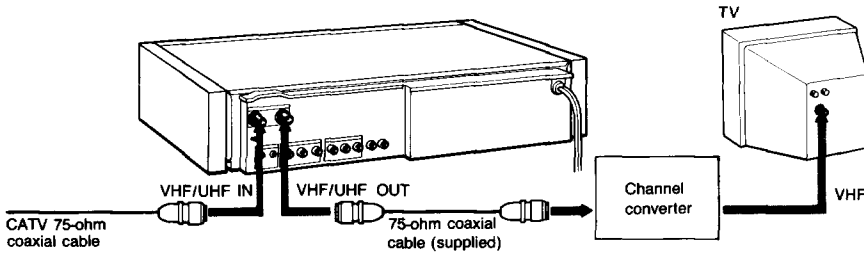
CATV cable

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

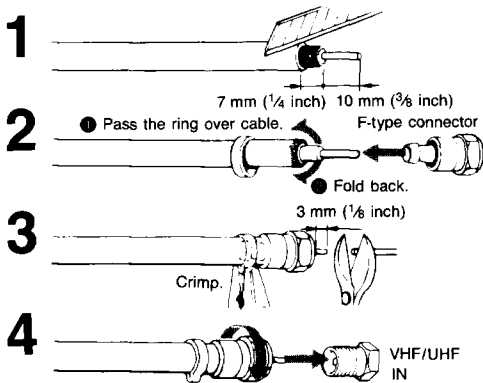


When a TV is not a cable TV compatible type

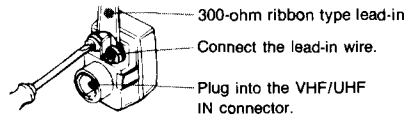
Connect the cable TV channel converter between the recorder and the TV so that you can watch one cable TV program while recording another cable TV program.



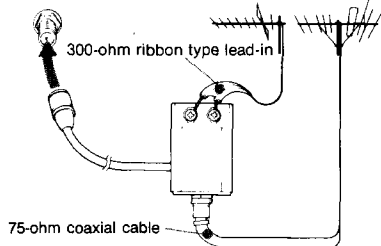
How to attach an F-type connector



How to attach an external antenna connector



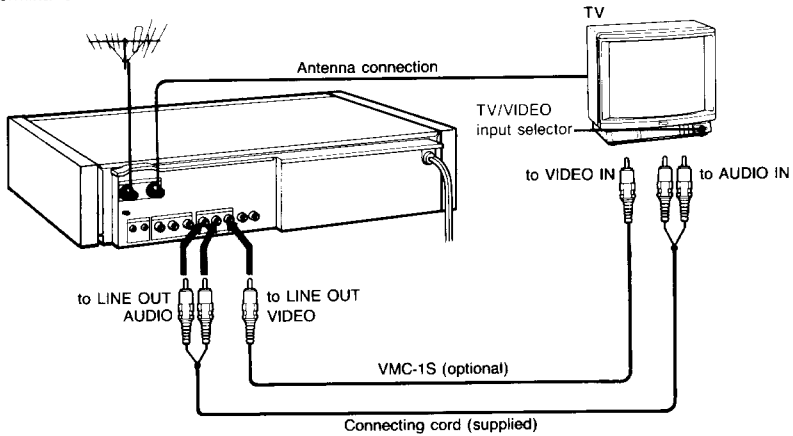
How to attach an EAC-56 U/V band separator (mixer)



Connecting a TV Equipped with Video/Audio Input Jacks

With the following connection, the picture and sound quality will be better than that when the TV is connected only to the VHF/UHF OUT terminal on the VCR.

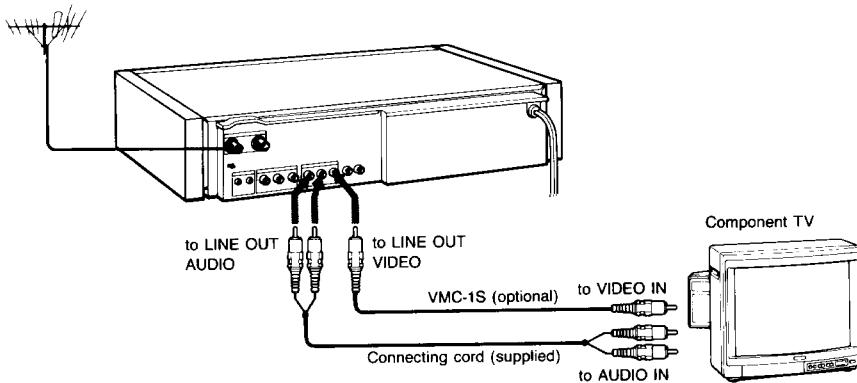
To view the playback picture, set the TV/VIDEO input selector on the TV to VIDEO.



Connecting a Color Monitor

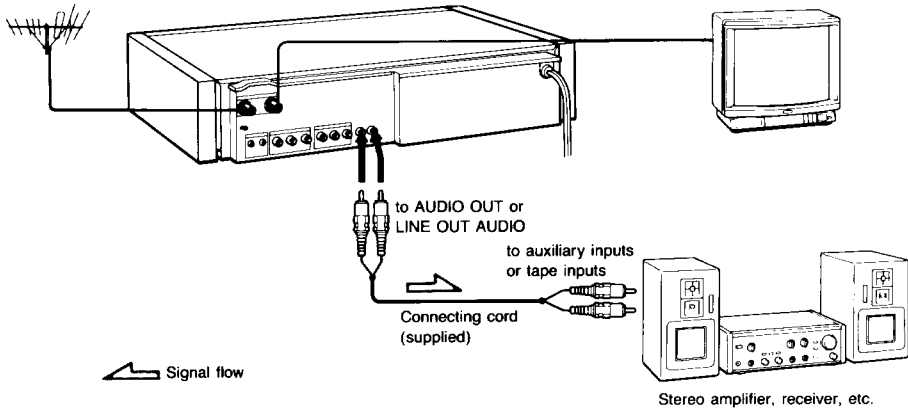
To obtain a better quality picture, connect a color monitor, such as the Sony-Profeel Trinitron Component TV. When a component TV is combined with the speaker system as illustrated, you can enjoy tapes recorded with Beta hi-fi stereo.

To use a component TV tuner together with the monitor, make the same connection as in the case of the recorder and the conventional TV receiver described on pages 33, 34 and 35. For details on the connection of the TV tuner and the monitor, refer to the instruction manual of the TV tuner.



Connecting an Audio System

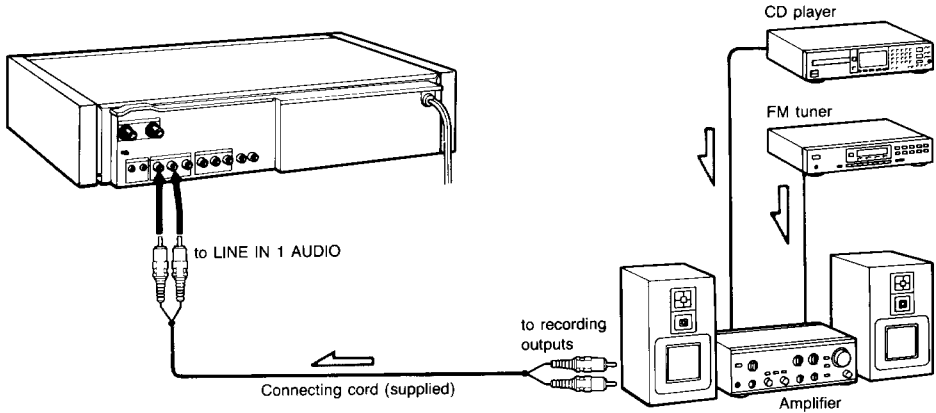
You can enjoy tapes recorded with Beta hi-fi stereo when the recorder is connected to your audio system.



To record audio signals from your audio system

You can record from an audio source such as an FM tuner, CD player, with the Beta hi-fi system without recording video signals.

The audio system can also be connected to the front panel LINE IN 2 AUDIO jacks. This connection is convenient for temporary use.



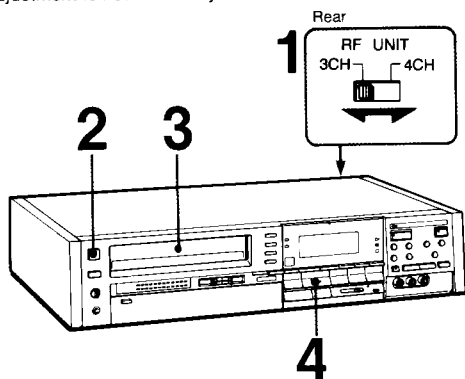
Notes

- If the VCR is installed near a tuner or a radio, noise may be heard in AM reception. In this case, keep the VCR away from the tuner or the radio, adjust the AM antenna for minimum noise, or connect an external AM antenna to the tuner.
- Before connecting or disconnecting the power cord of the VCR, be sure to turn off the connected amplifier.

Adjusting the TV

Adjust your TV receiver to receive the signal from your recorder.

When you have connected a color monitor or a TV equipped with video/audio input jacks, the following adjustment is not necessary.



- 1 Set RF UNIT located at the rear to 3 CH or 4 CH, whichever channel is not active in your area.
- 2 Press POWER. The indicator will light up.
- 3 Insert a recorded cassette.
- 4 Press ► PLAY.
- 5 Turn on the TV.
- 6 Set the TV receiver to either VHF channel 3 or 4 to agree with the RF UNIT setting.

If the recording on the tape is clearly displayed on the TV screen

The TV adjustment is complete.

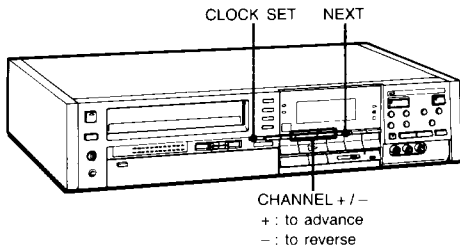
If a picture does not appear or if the display is not clear

Fine-tune the channel (3 or 4) on the TV.

Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

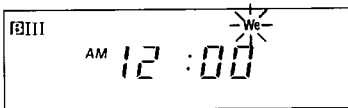
Setting the Clock

When you connect the AC power cord to a wall outlet, the clock will indicate "Su AM 12:00" and it will blink to show that the clock is ready to be set.



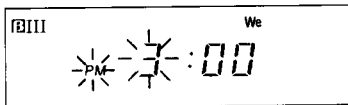
Example: to set for Wednesday afternoon 3:56

- 1 Press **CLOCK SET**.
Set the day with the + or - button until "We" (for Wednesday) appears.

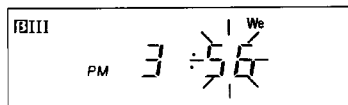


- 2 Press **NEXT**.
Set the hour with the + or - button until "PM 3:00" appears.

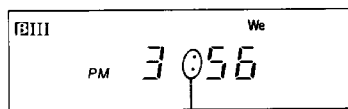
AM 12:00 = midnight
PM 12:00 = noon



- 3 Press **NEXT**.
Set the minute with the + or - button until "PM 3:56" appears.



- 4 Press **NEXT**.
(For accurate setting, press **NEXT** at the same time as an announced time signal.)
The clock will now show the current time.



The dots of the colon (:) blink alternately every 30 seconds.

CHANNEL +/- buttons

The + and - buttons can be used in two ways:

When you keep a button pressed, the digits will advance continuously until the button is released.



When you press and immediately release a button, the digits will advance by one.



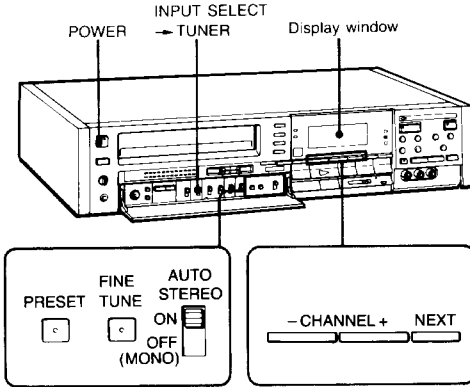
Presetting the Active Channels in Your Area

Your recorder is capable of receiving VHF channels 2–13, UHF channels 14–69 and cable TV channels 14–36 (A to W) and 66–125 (A-5 to A-1 and W+30 to W+84).

See the cable TV channel chart on page 41.

This recorder is preset at the factory to receive certain channels.

You can preset new channels or erase inactive channels in your area so that only the desired channels appear in sequence when you press CHANNEL +/–.



Before Presetting

- Turn on the recorder and TV.
- Make sure that the TV is set to the correct channel (channel 3 or 4) for the recorder, or set the TV/VIDEO input selector on the TV to VIDEO.
- Set the INPUT SELECT switch to TUNER.

Presetting New Channels

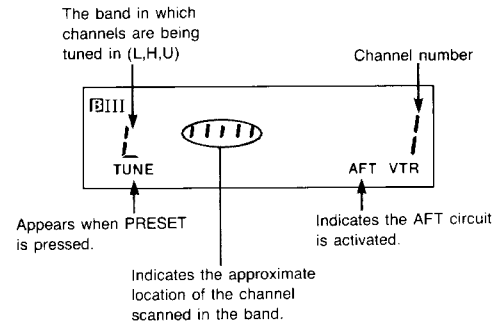
- 1 Press PRESET.
The channel number will blink.
- 2 Select a channel number with CHANNEL +/– for the desired channel to be tuned in.
- 3 Press NEXT.
The band indicator and the channel scanning indicator will blink.
- 4 Tune in the desired channel.
Press CHANNEL+ to tune in a higher-numbered channel, or – to tune in a lower-numbered channel.

If the first channel appearing on the screen is not the one you wish, repeat pressing CHANNEL+ or – until the desired channel appears.

- 5 Press NEXT.
The current time will reappear.

Repeat steps 1 to 5 for other channels to be preset.

Check in the window during presetting



To Erase an Unused Channel

- 1 Select the channel to be erased with CHANNEL + or –.
- 2 Press PRESET.
The channel number will blink.
- 3 Press CLEAR/RESET.
The current time will appear.

Now the erased channel will be skipped when CHANNEL +/– is pressed.

To Fine-tune a Weak Station

If the picture of a particular channel is not acceptable, fine-tune the channel as follows.

- 1 Press FINE TUNE.
The band indicator and the channel scanning indicator will blink.
- 2 Keep CHANNEL + or - pressed until the picture becomes clearer.
The AFT indicator will go off.
- 3 Press NEXT.
The current time will reappear.

AFT (Automatic Fine Tuning) circuit

When a channel is preset, the AFT circuit will automatically lock in to maintain a sharp picture. Once the channel is fine-tuned, the AFT will be deactivated and the AFT indicator will go off. To reactivate the AFT on that channel, repeat the channel presetting procedure on page 40.

Channel Allocation Chart

| Frequency (MHz) | 50 | 100 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 700 | 800 |
|------------------|------------|-----------|-----|-------------|-------|-----|-----|-----------|-----|---------|-----|
| VHF/UHF channels | VHF 2-6 | 95-99, 14 | | VHF 7-13 | | | | UHF 14-69 | | | |
| CATV channels | | 15-22 | | | 23-36 | | | 66-94 | | 100-125 | |
| Band indicator | | L | H | | | | | U | | | |

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

Cable TV Channel Chart*

Cable TV systems use letters or numbers to designate channels as in the following chart.

| CATV channels in numbers | | 95 | 96 | 97 | 98 | 99 | 14 | 15 | 16 | 17 | 18 | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| CATV channels in letters | | A-5 | A-4 | A-3 | A-2 | A-1 | A | B | C | D | E | | |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
| 33 | 34 | 35 | 36 | 66 | .... | .... | .... | .... | 94 | 100 | 101 | 102 | .... |
| T | U | V | W | W+30 | .... | .... | .... | .... | W+58 | W+59 | W+60 | W+61 | .... |
| .... | 123 | 124 | 125 | | | | | | | | | | |
| .... | W+82 | W+83 | W+84 | | | | | | | | | | |

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

This unit can display 1 through 99 channel numbers only. To preset channels 100 through 125, use channel numbers which correspond to inactive channels in your area.

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

Note

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

General Specifications

System

| | |
|------------------------------|---|
| Video recording system | Rotary two-head helical scanning |
| Audio recording system | Beta hi-fi system (2 channels) (Recording on the conventional audio track is monaural) |
| Video signal | EIA standards, NTSC color |
| Usable cassettes | Cassettes having the mark β βI / βIS : 4.0 cm/sec. (only for playback) βII : 2.0 cm/sec. βIII : 1.33 cm/sec. βII : 3 hours 20 min. βIII : 5 hours (with Sony L-830 cassette) |
| Maximum recording time | |
| Fast-forward and rewind time | Approx. 4 min. (L-500) |
| Audio frequency response | Beta hi-fi ON, MPX FILTER OFF βII , βIII : 20 - 20,000 Hz |
| Wow and flutter | Beta hi-fi ON Less than 0.005% WRMS |
| Dynamic range | Beta hi-fi ON More than 90 dB |

Tuner section

| | |
|-------------------|--|
| Channel coverage | VHF channels 2 to 13 UHF channels 14 to 69 CATV channels 14 to 36, 66 to 125 |
| VHF output signal | Channel 3 or 4 (selectable) 75 ohms, unbalanced |
| Antenna | 75-ohm antenna terminal for VHF/UHF |

Inputs and outputs

| | |
|-----------------|--|
| Video inputs | LINE IN 1, 2 VIDEO (phono jack) (2) 1 Vp-p ± 0.5 Vp-p, 75 ohms, unbalanced, sync negative |
| Video output | LINE OUT VIDEO (phono jack) (1) 1 Vp-p ± 0.1 Vp-p, 75 ohms, unbalanced, sync negative |
| Audio inputs | LINE IN 1, 2 R-AUDIO-L (phono jack) (4) - 10 dBs (0 dBs = 0.775 Vrms), more than 47 k ohms |
| Audio outputs | LINE OUT, AUDIO OUT R-AUDIO-L (phono jack) (4) - 10 dBs (at load impedance 47 k ohms) Output impedance less than 10 k ohms |
| CONTROL S IN | Minijack (1) |
| CONTROL S OUT | Minijack (1) |
| HEADPHONES jack | Stereo minijack (1) - 26 dBs, 8 ohms |

Timer section

| | |
|-----------------|--|
| Clock | Synchronized with the power frequency 12-hour cycle |
| Time indication | Only for recording |
| Timer setting | 6 programs 7 days at max. |
| Power back up | Self-charging battery incorporated Back-up duration: Up to 30 seconds at one time |

General

| | |
|-----------------------|---|
| Power requirements | 120 V AC ± 10%, 60 Hz ± 0.5% |
| Power consumption | 45 W |
| Operating temperature | 5°C to 40°C (41°F to 104°F) |
| Dimensions | Approx. 470 x 111 x 408 mm (w/h/d) (18 ¹ / ₈ x 4 ³ / ₈ x 16 ¹ / ₈ inches) incl. projecting parts and controls |
| Weight | Approx. 10.5 kg (23 lb 2 oz) net |

Remote Commander RMT-160

| | |
|-----------------------|--|
| Remote control system | Infrared control |
| Command mode | VTR-1 |
| Power requirements | 3 V DC, 2 size AA batteries (IEC designation R6) |
| Dimensions | Approx. 55 x 18 x 175 mm (w/h/d) (2 ¹ / ₄ x 2 ³ / ₃₂ x 7 inches) incl. projecting parts and controls |
| Weight | Approx. 90 g (4 oz) not incl. batteries |

Accessories supplied

| | |
|--|-----|
| 75-ohm coaxial cable with F-type connectors | (1) |
| Antenna connector | (1) |
| Connecting cord (2 phono to 2 phono) | (1) |
| Remote Commander RMT-160 with two size AA (R6) batteries | (1) |

Design and specifications are subject to change without notice.

Troubleshooting

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

| | Symptom | Possible causes and corrections |
|---|---|---|
| POWER | The POWER switch does not function. | The recorder is in the timer standby mode. Press TIMER REC. |
| | The power is turned on, but the unit does not operate. | The safety device on the unit has activated. Turn the power off, disconnect the power cord from the wall outlet and leave the unit for more than one minute. |
| CLOCK AND TIMER | The clock has stopped and "Su AM 12:00" is blinking. | There has been a power interruption. Reset the clock and timer settings. |
| | Timer setting cannot be made. | <ul style="list-style-type: none"> • The clock is not set. • The timer cannot be set during recording. |
| TV RECEPTION | TV program is not clearly displayed on the TV screen. | <ul style="list-style-type: none"> • The channel for the video recorder is not correctly tuned on the TV receiver. • The TV signal is weak. Adjust the direction of the antenna. • The AC power cord of the recorder is disconnected. |
| | Stereo programs are heard in monaural. | <ul style="list-style-type: none"> • AUTO STEREO is set to OFF. • AUDIO MONITOR is set to NORM or L, R. |
| RECORDING AND PLAYBACK | No picture on the TV screen during recording or playback | The TV's channel is not set to that preset for the video recorder. |
| | Picture being recorded cannot be monitored on the TV screen. | Press TV/VTR so that the VTR indicator appears in the window. |
| | Noisy picture | The video heads may be contaminated. Clean the heads using the Sony L-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If the L-25CL cleaning cassette is not available in your area, have the heads cleaned at the nearest Sony service facility. |
| | The playback picture is not clear. | <ul style="list-style-type: none"> • Check the SUPER BETA switch. • Adjust TRACKING. • Adjust SHARPNESS. |
| | The picture moves vertically in Betascan or Beta Skipscan mode. | Adjust the vertical hold control on the TV or color monitor. |
| | The picture is distorted in slow motion playback mode. | Set to normal playback mode, and press ► SLOW again. |
| | Noise band in the slow motion picture, or freeze picture. | Adjust TRACKING to move it. |
| | Distorted or noisy sound. | Recording level was not properly adjusted. |
| Sound drop-outs from a Beta hi-fi recorded tape | The tape is defective. Use a new video cassette tape. | |

| | Symptom | Possible causes and corrections |
|------------------------------|---|---|
| RECORDING AND PLAYBACK | SAP sound cannot be recorded. | Set NORMAL AUDIO to SAP. To listen to the SAP, set AUDIO MONITOR (HI-FI/NORM) to NORM. |
| | No sound was recorded on the conventional audio track. | NORMAL AUDIO was set to SAP and there was no SAP broadcast. |
| | SAP sound cannot be played back. | Set AUDIO MONITOR (HI-FI/NORM) to NORM. |
| | No sound is heard during playback. | A tape on which no sound is recorded on the conventional audio track is being played back with AUDIO MONITOR set to NORM. Set it to HI-FI. |
| | Timer recording was not made correctly. | <ul style="list-style-type: none"> • The clock is not set correctly. • There has been a power interruption. • The cassette inserted has had the safety tab removed or no cassette has been inserted. • The tape is at its end. • Two or more timer settings overlap. |
| OTHER | The recorder cannot be remotely controlled. | <ul style="list-style-type: none"> • The Remote Commander is pointed toward the remote sensor of this VCR when a plug is connected to the CONTROL S IN jack. • The batteries are exhausted. |
| | The tape counter does not operate even though the tape moves. | <ul style="list-style-type: none"> • The tape is brand-new. • It will not operate with the unrecorded portion of a tape. |
| | Cassette cannot be inserted. | The cassette being inserted is upside down. |
| | The cassette cannot be ejected. | Recording is being done. |