

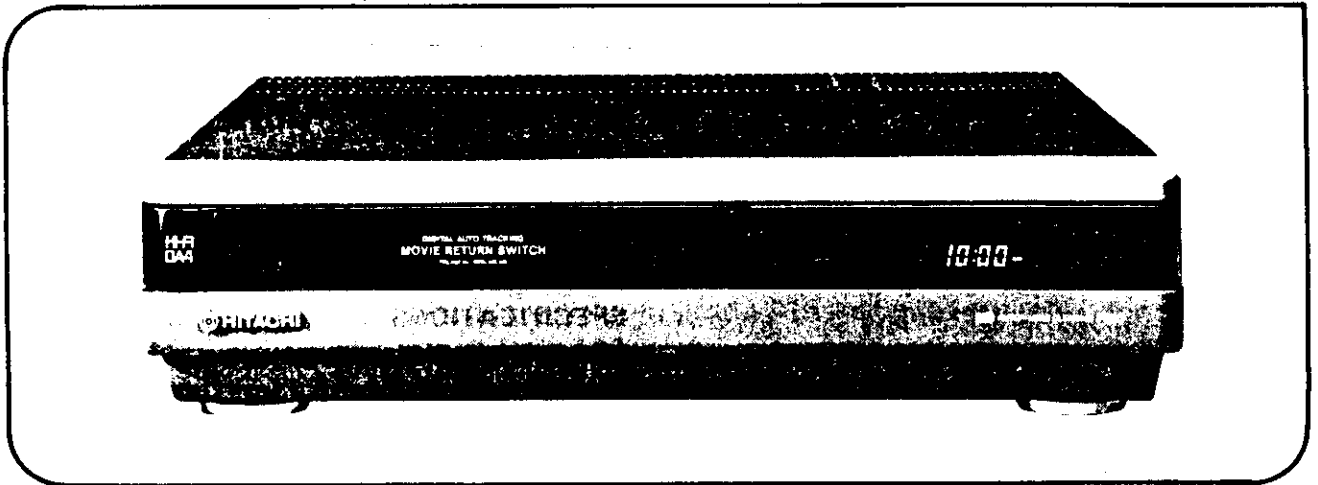


Instruction Manual

VHS

Video Deck

VT-F350A



Hitachi Home Electronics (America), Inc.

For information concerning repairs, operation or technical assistance, please contact the Service Department of your nearest Regional Office.

Eastern Regional Office

1290 Wall Street West, Lyndhurst, New Jersey 07071
Tel. 201-935-8980

Mid-Western Regional Office

1400 Morse Ave., Elk Grove Village, Ill. 60007
Tel. 708-593-1550

Southern Regional Office

510 Plaza Drive College Park, Georgia 30349
Tel. 404-763-0360

Western Regional Office

401 West Artesia Boulevard, Compton, California
90220
Tel. 213-537-8383

HITACHI SALES CORPORATION OF HAWAII, INC.

3219 Koapaka Street, Honolulu, Hawaii 96819
Tel. 808-836-3621

HITACHI (HSC) CANADA INC.

3300 Trans Canada Highway, Pointe Claire,
Quebec, H9R 1B1, CANADA
Tel. 514-697-9150

Please read this instruction manual carefully before use and refer to it if any difficulties arise.

FEATURES

- VHS Hi-Fi stereo system
- Auto head cleaning system
- Setting 8 programs/1 year is possible with built-in programmable timer
- Cable-compatible frequency synthesizer quartz tuner
- Auto tracking
- Automatic rewind
- Remote control for use in common by TV/VCR
- Intelascan feature
- Multichannel Television Sound (MTS) is receivable

TABLE OF CONTENTS

FOR YOUR SAFETY.....	3
IMPORTANT SAFEGUARDS	4
CONTROLS AND FEATURES.....	6
INSTALLATION.....	10
VIDEO CHANNEL SETTING	16
NORMAL TV VIEWING.....	16
CONNECTION WITH A/V TV	17
SETTING THE CLOCK	18
CHANNEL TUNING	20
VCR FUNCTION SETTING	22
CASSETTE TAPES	24
RECORDING TV PROGRAMS	24
INSTANT RECORDING	26
PLAYBACK	27
TIMER RECORDING.....	29
RECALLING THE PROGRAM	31
CLEARING INFORMATION FROM A PROGRAM.....	32
PROGRAM PRIORITY	32
HOW TO OPERATE YOUR TV BY USING THE REMOTE CONTROL UNIT.....	33
RECORDING FROM ANOTHER VCR	36
RECORDING FROM A VIDEO CAMERA	36
USING AS AN AUDIO DECK.....	37
HEAD CLEANING	38
PERIODIC MAINTENANCE.....	38
PROBLEM GUIDE	39
SPECIFICATIONS.....	40
SPANISH QUICK USE GUIDE.....	43

INTELASCAN FEATURE

This feature displays an outline of VCR operation procedure (playback, recording, clock setting, etc.) in 3 languages on the TV screen to guide you when operating the VCR.

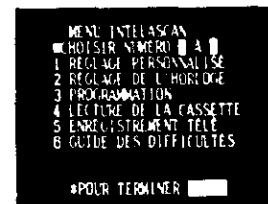
Connect the VCR and TV by the procedure shown on pages 10 — 16, and then perform the following.

1. Turn on TV and VCR.
2. Set the TV to channel 3 (or 4).
3. Press GUIDE button on the remote control unit.



4. Select the language by pressing one of buttons "1" ~ "3" and then press the GUIDE button.

When you press button "2" to select "FRANÇAIS" and then press the GUIDE button, for example, the menu will be displayed in French.



5. Press "1" through "6" on the remote control unit.

For example, press "2" for clock setting.



6. Press "GUIDE" to return to "original menu".

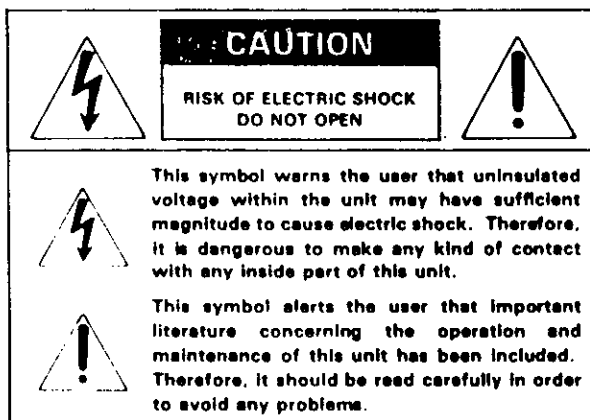
FOR YOUR SAFETY

Power supply: AC 120V, 60 Hz only

The **POWER** switch switches the VCR on and off, leaving the clock/timer unaffected.

If the unit is to be left unattended for a long period, it is recommended that the unit be completely switched off and the plug removed.

Illustrated below is the label on the back of your unit.



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER – SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

WARNING:

Many television programs and films are copyrighted. In certain circumstances, copyright law may apply to private in-home video taping of copyrighted materials.

**WARNING: TO PREVENT FIRE OR
ELECTRIC SHOCK, DO NOT EXPOSE
THIS APPLIANCE TO RAIN OR
MOISTURE.**

CAUTION:

**TO PREVENT ELECTRIC SHOCK DO NOT
USE THIS (POLARIZED) PLUG WITH AN EX-
TENSION CORD, RECEPTACLE OR OTHER
OUTLET UNLESS THE BLADES CAN BE
FULLY INSERTED TO PREVENT BLADE EX-
POSURE.**

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference regulations of the Canadian Department of Communications.

Moisture condensation

If you pour cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is moisture condensation.

Moisture condensation on the head drum, one of the most crucial parts of the unit, will cause damage to the tape. When the VCR is exposed to a rapid temperature change from cold to warm, some condensation will occur. Under this condition, connect the power cord to the AC line, press **POWER** button on and allow at least two hours for the VCR to dry out.

Caution for users living in an area with frequent electrical storms

Your VCR and TV may be damaged by power surges, or during electrical storms if they are connected to a cable systems/outside antenna, or they are plugged into an AC outlet.

The use of surge protection devices at the antenna and AC inputs to the VCR and television will decrease the likelihood of damage from lightning surges in the power line or antenna/cable system.

Two surge suppressor models are available from Hitachi Parts Distributors for U.S.A. only. Model **COMBO #1** provides one protected AC receptacle and a set of in/out cable/antenna protection ports. Model **COMBO #2** offers four protected AC receptacles, a six foot line cord, master rocker switch and a set of in/out cable/antenna protection ports.

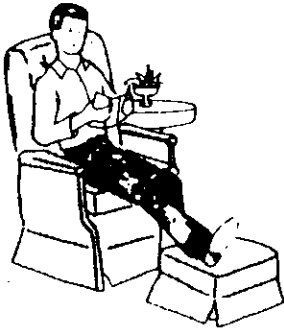
IMPORTANT SAFEGUARDS

In addition to the careful attention devoted to quality standards in the manufacture of your video product, safety is a major factor in the design of every instrument. But, safety is your responsibility too.

This page lists important information that will help to assure your enjoyment and proper use of a Video Cassette Recorder and accessory equipment. Please read it carefully before operating your video product and keep it in a handy place for future reference.

INSTALLATION

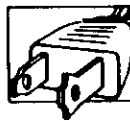
- 1 Read and Follow Instructions**—All the safety and operating instructions should be read before the video product is operated. Follow all operating and use instructions.



- 2 Retain Instructions**—The safety and operating instructions should be retained for future reference.

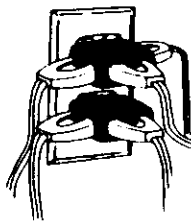
- 3 Heed Warnings**—Comply with all warnings on the video product and in the operating instructions.

- 4 Polarized Plug**—This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. To prevent electric shock do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted without blade exposure. If you need an extension, use a polarized cord.



- 5 Power Sources**—This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your video dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.

- 6 Overloading**—Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock. Overloaded AC outlets and extension cords are dangerous, and so are frayed power cords, damaged or cracked wire insulation and broken plugs. They may result in a shock or fire hazard. Periodically examine the cord and have it replaced by your service technician if appearance indicates damage or deteriorated insulation.



- 7 Power-Cord Protection**—Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

- 8 Ventilation**—Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the video product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug, or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the video product manufacturer's instructions have been followed.



- 9 Attachments**—Do not use attachments unless recommended by the video product manufacturer as they may cause hazards.

Caution: Maintain electrical safety. Powerline operated equipment or accessories connected to this unit should bear the UL listing mark or CSA certification mark on the accessory itself and should not have been modified so as to defeat the safety features. This will help avoid any potential hazard from electric shock or fire. If in doubt, contact qualified service personnel.

- 10 Water and Moisture**—Do not use this video product near water—for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

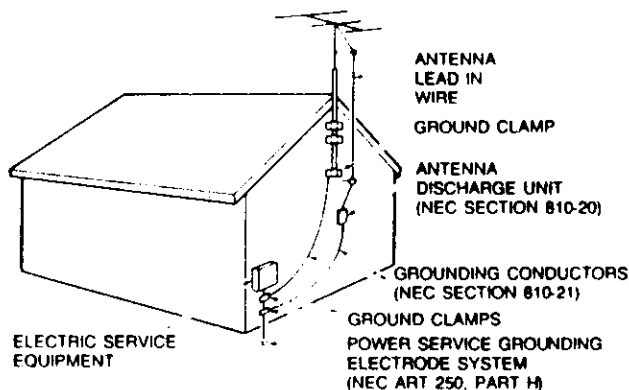
- 11 Accessories**—Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

- 11A** An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



12 Outdoor Antenna Grounding—If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See example below.

EXAMPLE OF ANTENNA GROUNDING



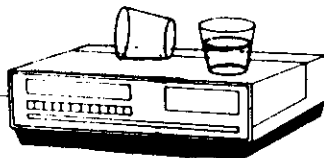
NEC — NATIONAL ELECTRICAL CODE

13 Power Lines—An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching or approaching such power lines or circuits as contact with them might be fatal. Installing an outdoor antenna can be hazardous and should be left to a professional antenna installer.

USE

14 Cleaning—Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

15 Object and Liquid Entry—Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.



16 Lightning—For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable-system. This will prevent damage to the video product due to lightning and power-line surges.



SERVICE

17 Servicing—Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

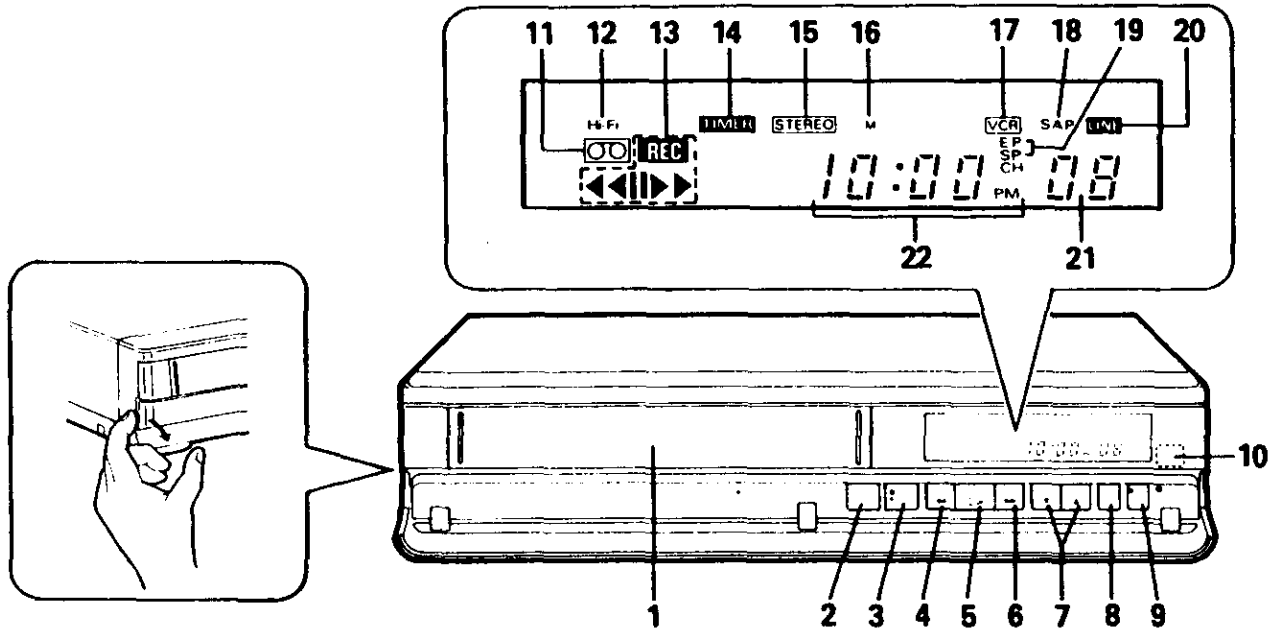
18 Conditions Requiring Service—Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions.

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the video product.
- If the video product has been exposed to rain or water.
- If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
- If the video product has been dropped or the cabinet has been damaged.
- When the video product exhibits a distinct change in performance — this indicates a need for service.

19 Replacement Parts—When replacement parts are required, have the service technician verify that the replacements he uses have the same safety characteristics as the original parts. Use of replacements specified by the video product manufacturer can prevent fire, electric shock or other hazards.

20 Safety Check—Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks recommended by the manufacturer to determine that the video product is in safe operating condition.

CONTROLS AND FEATURES



1. CASSETTE COMPARTMENT

Insert a cassette in through a door, and loading will be completed automatically.

Note: Power is turned on automatically when the cassette is loaded.

2. POWER BUTTON

Turn system power on and off.

3. STOP/EJECT BUTTON

If this button is pressed, while the set is operating, the running of tape stops and all operating modes are cancelled (except for timer recording). The cassette is ejected, when this button is pressed again in STOP mode.

Note: Power may be on or off when removing the cassette.

4. REWIND BUTTON

Press to start rewind.

Press this button during playback, and reverse playback picture at high speed can be seen.

5. PLAY BUTTON

Press to start play.

6. FAST FORWARD BUTTON

Press to activate fast forward.

Press this button during playback, and forward playback picture at high speed can be seen.

7. CHANNEL SELECT BUTTONS

Select the channels you wish to view or to record by pressing these buttons.

And you can also select "LINE"* by pressing these buttons to record or watch the program input at the VIDEO IN and AUDIO IN. (*One channel position either higher or lower outside the range of your preset channels.)

8. HEAD CLEANING BUTTON

Press this button to manually clean the video heads when the dirt cannot be removed by auto cleaning.

9. RECORD/IRT BUTTON

Press to start recording.

10. INFRARED RAY RECEIVING SECTION

Receives the infrared ray from remote control unit.

11. TAPE-IN INDICATOR

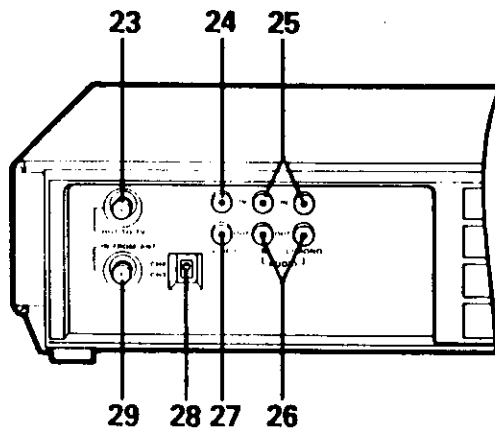
Lights when cassette is loaded in the compartment.

12. HI-FI INDICATOR

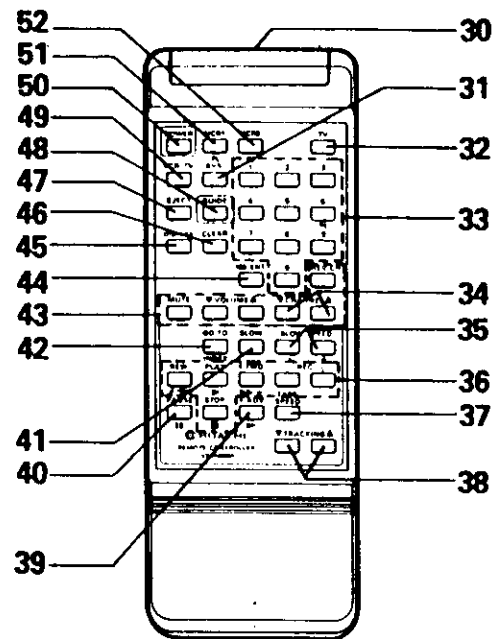
Lights when a Hi-Fi recorded tape is being played.

13. VCR MODE INDICATOR

- **REC** appears during recording.
- **<<** appears during the rewind mode.
- **>>** appears during the fast-forward mode.
- **▷** appears during the playback.
- **□□** appears when the PAUSE button is pressed during record or play mode and disappears when the PAUSE button is pressed again.



14. **TIMER INDICATOR**
Will light when turning power off after programming.
15. **STEREO INDICATOR**
Lights when receiving a stereo broadcast.
16. **MEMORY INDICATOR**
Appears when the DISPLAY button is pressed when the counter is displayed on TV screen or VCR's display. Rewind the tape with "M" lit, and the tape stops when the counter reads "0:00:00".
17. **VCR INDICATOR**
Appears when the VCR is turned on or the VCR is in the playback mode.
18. **SAP INDICATOR**
Some TV stations transmit a "Second Audio Program" (SAP). The SAP is normally used for a second language.
This indicator lights when the VCR is tuned to SAP broadcast.
19. **TAPE SPEED INDICATORS**
20. **LINE INDICATOR**
Lights when you select the LINE position by pressing the AVX button or CHANNEL select button. LINE position is used to record or watch the program input at the VIDEO IN and AUDIO IN.
21. **CHANNEL INDICATOR**
22. **CLOCK DISPLAY**
Shows the clock and tape counter.
23. **ANTENNA OUTPUT**
Connect this terminal to the antenna terminal on the back of the TV.



24. **VIDEO IN**
Receives video signal from a video camera or another VCR.
25. **AUDIO IN**
Receive audio signals from a stereo system or another VCR. AUDIO IN (L) handles the left-channel stereo sound or monaural sound. If you connect an audio source to only AUDIO IN (L), the same sound is recorded on Hi-Fi tracks (L) and (R) in monaural.
26. **AUDIO OUT**
For a connection to a monitor or another VCR.
27. **VIDEO OUT**
For connection to monitor TV.
28. **RF CONVERTER SWITCH**
Set this switch to whichever channel (CH3 or CH4) is unused in your area.
29. **ANTENNA INPUT**
Connect the UHF and/or VHF antenna to this terminal.
30. **SIGNAL TRANSMISSION WINDOW**
Transmits an invisible light beam (infrared) from the remote control unit to the VCR.
31. **AVX BUTTON**
Press to select tuner position to record or view an off-the-air TV program (through the VCR's built-in tuner) or the "LINE" position to record or view the program input through the video and audio line input jacks.

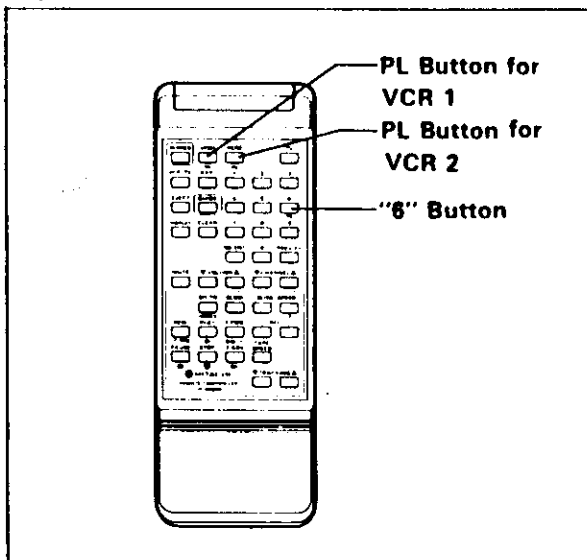
- 32. TV BUTTON**
First press this button when operating your TV with this remote control, and then press the button which corresponds to the function you want.
- 33. NUMBER BUTTONS "0" THROUGH "9"**
Select any channel (whether or not it is in the "Tuner Scan List") by pressing two buttons. (Press "0" and then "8" for channel 8.) The number buttons are also used for setting the clock and programming the timer.
- 34. CHANNEL SELECT BUTTONS**
Same as the buttons on the VCR.
- 35. SLOW SPEED BUTTONS**
During slow playback the slow speed can be adjusted by pressing the SLOW SPEED button.
- 36. VCR CONTROL BUTTONS**
These buttons (except for "REC" buttons) function same as the buttons on your VCR. **Note:** The REC buttons must be pressed simultaneously to start recording.
- 37. TAPE SPEED SELECT BUTTON**
Recording time using Cassette tape T-160:
EP: 8 hours SP: 2.6 hours
Notes:
- Playback speed automatically corresponds with recorded speed.
 - This VCR cannot record in LP mode, but can play LP recorded tapes.
- 38. TRACKING CONTROL BUTTONS**
To minimize noise in playback.
- 39. FRAME ADVANCE BUTTON**
Press to view tape one frame at a time. Operates only after PAUSE button has been pressed.
- 40. PAUSE BUTTON**
Press to pause during recording or playback.
- 41. SLOW BUTTON**
Allows you to view a picture at slow speed.
- 42. GO-TO/INDEX BUTTON**
Press this button to search for the scene you want to view using the counter GO-TO or INDEX feature.
- 43. TV CONTROL BUTTONS**
Used for controlling the TV.
- 44. 100/ENT BUTTON**
Used to select TV or CATV channels. Press "100", "2", "3" in this order to select channel 123. Press "100", "0" and "5" for channel 105.
- 45. DISPLAY BUTTON**
1st Press Calls up the mode display on TV screen.
2nd Press (before display disappears) The display on TV screen disappears except for "Linear Time Counter". Also changes the VCR's display from the clock to the counter.
3rd Press The counter memory "M" appears on TV screen and in VCR's display.
4th Press Clears the display on TV screen. Also changes the VCR's display from the counter to the clock.
- 46. CLEAR BUTTON**
Used for programming the timer. And also used for counter reset button.
- 47. EJECT BUTTON**
When this button is pressed in modes other than recording, the tape stops, and the cassette is ejected.
- 48. INTELASCAN GUIDE BUTTON**
Press this button to use the Intelascan feature. (See page 2 for details.)
- 49. VCR/TV SELECT BUTTON**
Selects the signal to be viewed. The VCR indicator comes on when the unit is in VCR mode and the signal received by the VCR is displayed on the TV screen. With the switch in the TV position (indicator light off) the broadcast signal is received directly by your TV set. When the VCR power is turned off, the VCR automatically switches to "TV".
- 50. POWER BUTTON**
Press to turn VCR on. Press again to turn VCR off.
- 51. VCR1 BUTTON**
First press this button when operating the VCR with this remote control and then press the button which corresponds to the function you want.
- 52. VCR 2 BUTTON**
Press this button when using another Hitachi VCR and operating the remote control provided to control the two VCRs.

■ PL (Parent Lock) Button

When this button and button "6" are pressed simultaneously, the buttons on the front panel of the VCR cannot be operated. This prevents children from operating the VCR without their parents approval.

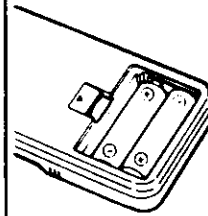
To release the lock, press the PL button and button "6" simultaneously or press the POWER button of the remote control.

You can select the VCR 1 or VCR 2 remote mode with this VCR. If you press the VCR 2 (PL) button and button "6" simultaneously when VCR 2 is selected, for example, the VCR cannot be operated by the operation buttons on the VCR. (See page 22 for the selection of remote mode.)



■ USING THE REMOTE CONTROL UNIT

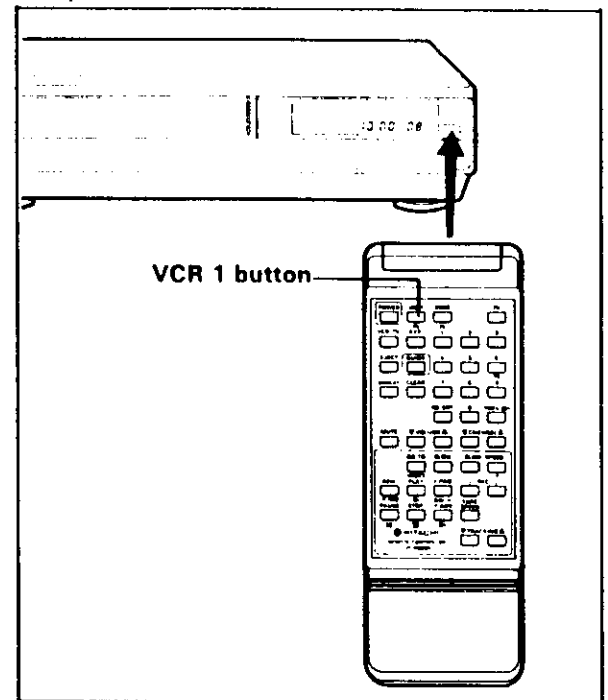
HOW TO INSTALL BATTERIES



NOTES:

1. Be sure to install two "AA" size batteries before use.
2. Be aware of the polarity.

Aim the remote control at the receiver on the front panel of the VCR.



NOTES:

1. If the range is short, try new batteries.
2. An object in between the VCR and remote control unit may block the invisible light beam and operation will not be possible.
3. If you cannot operate the VCR with this remote control, first press the VCR 1 button and then press the button which corresponds to the VCR function you want.

INTRODUCTION

Place your Video Cassette Recorder (VCR) in a horizontal position on a solid, stable surface near your TV. Connect the VCR AC plug into a non-switched AC outlet. Before you can use your VCR, the TV antenna connection must be moved to the VCR. Then new connections must be added from the VCR to the TV. An accessory for common connections is included with your VCR. If your installation requires other accessories, they may be purchased at your Dealer or Electronic Parts Stores. There are several installations shown in the following figures. Select the figure which best matches your TV signal source, equipment features, and operating needs. TV broadcasts in your area may be VHF, UHF, or both. In a UHF-only area, use figure A3 for VHF and UHF connections between the VCR and TV. The VHF connection from VCR to TV is always needed for the VCR output channel of VHF Channel 3 or 4. Even if your VCR has Cable Tuning Ability (CTA), cable channels can only be received by connection to a Cable Service.

CABLE SYSTEMS

Cable system features and services vary in each local area. If you presently use your TV with a cable system, please read CABLE SYSTEMS INFORMATION on page 12 before making any connections.

"Note to CATV system installer: This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guide lines 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".

Rabbit ear antenna

Your VCR can be used with this type of antenna only if the picture is very clear and stable. When the antenna is part of the TV, the leads may not reach the VCR. You can either extend the leads, or obtain a movable rabbit ear antenna. We recommend using an outside antenna.

Note: If your TV has single antenna input (UHF/VHF), use figure A1.

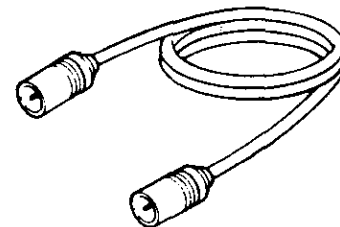
Precautions

- Avoid extreme heat, cold, moisture, dust, magnetic fields, and strong vibrations.
- Protect the VCR from household pets.
- In areas with frequent electrical storms, lightning protection devices attached to the cable/antenna should be checked each year for good connections and condition. AC power line Surge Protection accessories are recommended for the VCR and TV. Such devices are commonly used for computer protection, and will minimize damage to the TV and VCR in the event of AC surge from lightning strike or other cause. Whenever possible, the TV and VCR should be unplugged from AC, and disconnected from the antenna/cable during electrical storms.

CAUTION:

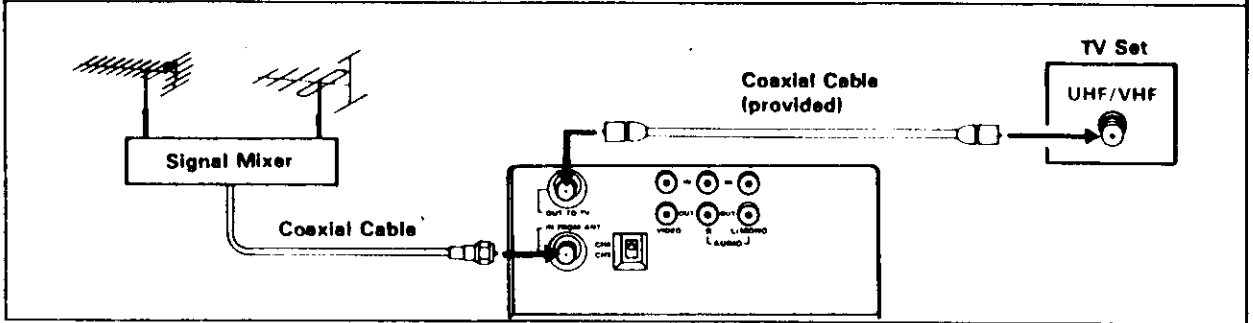
Do not place the VCR by a window where it will be exposed to strong sunlight as it may malfunction.

ACCESSORY PROVIDED WITH VCR

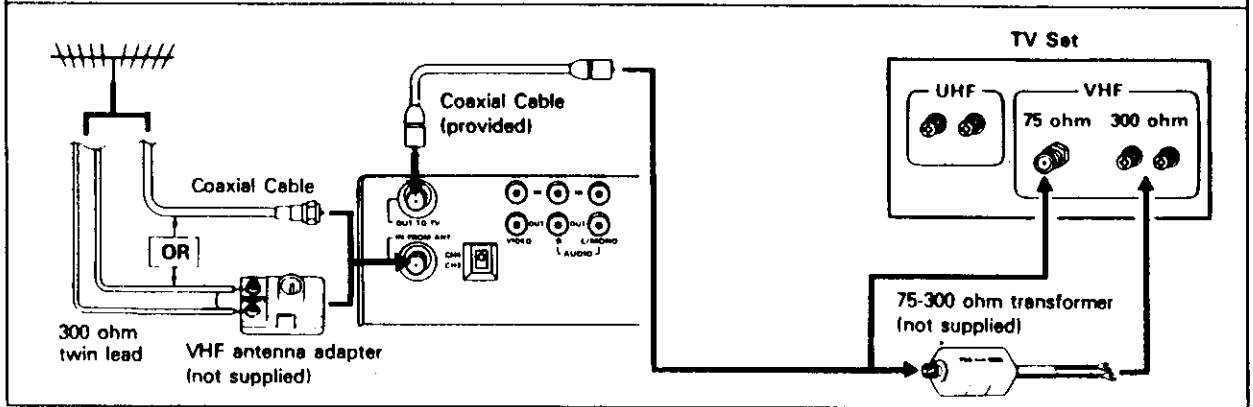


COAXIAL CABLE

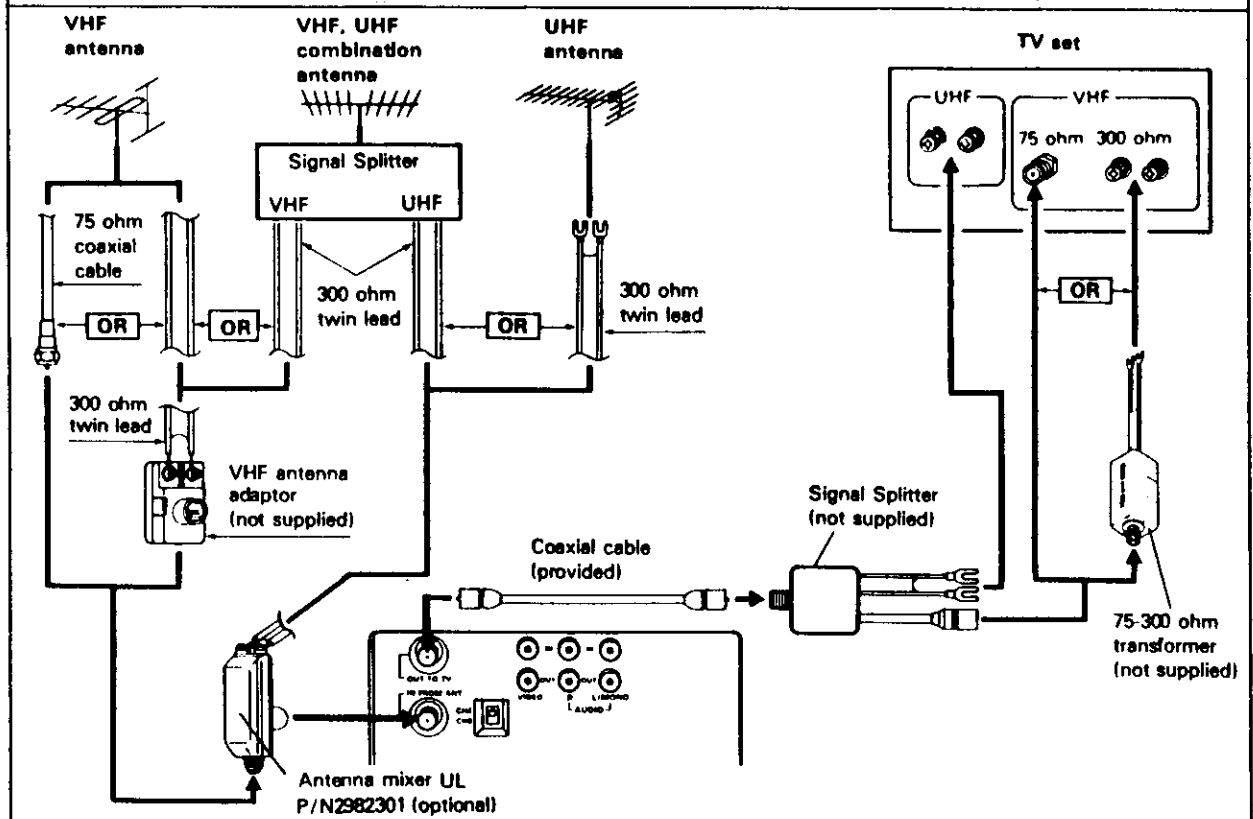
TV with UHF/VHF single antenna input terminal – FIG. A1



VHF RECEPTION AREA – FIG. A2 (TV has UHF/VHF separate antenna input)



BOTH VHF AND UHF RECEPTION AREA (An antenna for each OR a combination antenna) – FIG. A3



CABLE SYSTEM INFORMATION

Cable systems vary in features and services. The information and figures which follow cover most installations. If you need information about other installations, please write to Service at the nearest Hitachi address listed at the back of this manual. The tuning abilities of your VCR and the type of cable service you have will determine what connections can be used. The VCR Tuning Range is listed in the rear of this Manual. VCRs with Cable Tuning Ability (CTA) are able to tune channels listed for CATV. Most cable services will be one of the following four types.

1. **Basic Cable:** Apartment buildings and planned communities may provide this type of service. No channel selection Cable Box is used with the TV. All channels are received using VHF channels 2 – 13. With this system, no special connections or operating procedures are needed. Connect the VCR and TV as shown in figure C1.

2. **Extended Cable** – A Cable Box is used for TV Channel Selection: The TV is usually set to channel 3 or 4, and all channel selection is performed using the cable company supplied Cable Box. In this type of system, no extra cost channels are available, and no channels are scrambled.

A CTA VCR can select channels on this system without a Cable Box, if the channels on the cable are in the VCR tuning range. The Cable Box may still be needed for the TV, unless the VCR is used as a cable converter. You can use figure C1, C2, or C3 for Extended Cable connection. Connections in C1 and C2 need no additional accessories. The connection of figure C3 allows recording and watching different programs but operation is more complicated.

3. **Extended Cable With Extra Cost Channels – No Scrambled Channels On System-Cable Converter Box Used For TV:** In this type of cable system, extra cost channels are added or deleted before the cable enters the customer home.

If a CTA VCR and CTA TV are used, a Cable Box is not needed. Connections can be made as shown in figure C1. If a non-CTA TV is used with a CTA VCR, either figure C2 or C3 can be used. If both non-CTA VCR and TV are used, figure C2 must be used.

4. **Extended Cable With Extra Cost Channels – Scrambled Channels on System-Cable Descrambler/Converter Box Used For TV:** In this type of system the cable company supplied Box must always be used to get proper reception of Extra Cost channels. All Extra Cost channels on the cable are scrambled, but the Cable Box unscrambles any that you pay extra to view. Channels included in the basic cable service fee are usually not scrambled, and can be tuned by a CTA VCR or CTA TV.

ADDITIONAL INFORMATION

When any type of scrambling is used for Extra Cost channels, the Cable Box must be used to view or record those channels. A CTA VCR does not include unscrambling ability. That ability is restricted to only cable company supplied equipment. On cable systems with scrambled channels, you have several choices. Among them are:

- a. Recording and watching only channels selected by the Cable Box (see figure C2).
- b. Adding a second cable company supplied Box.
- c. Adding switches to allow either recording and watching the channel selected by the Cable Box or recording a channel which is non-scrambled while watching another channel selected by the Cable Box (see figure C3).

Two Cable Systems: In some areas, two cables are used as inputs to the Cable Box. One cable may contain mostly non-scrambled channels, the other mostly Extra Cost scrambled channels. When you have a two-cable system, the cable with non-scrambled channels you wish to record (Cable A or Cable B) can usually be connected as in figure C3. One Cable can be connected directly, or both cables can be accessed by using the Cable Box. If you need to use both cables directly, write Hitachi service for a connection diagram.

CAUTION: Only high quality, low loss switches and splitters should be used. All connections must be with shielded Coax cable. If your added connections degrade the performance of Extra Cost channels, all connections should be removed. The circuit of figure C2 should cause least signal loss. If even the circuit of figure C2 is not satisfactory, consult your cable company about installation.

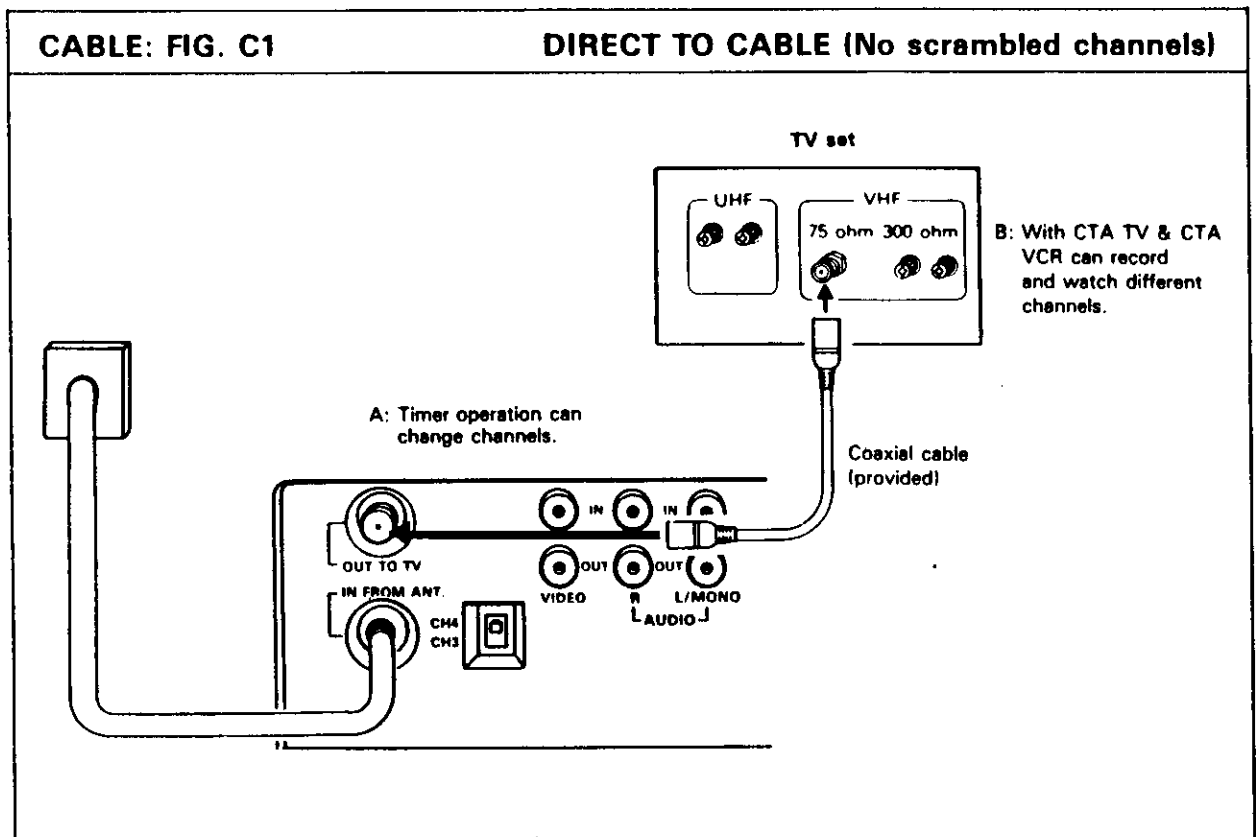
CABLE SYSTEM VCR OPERATION

Direct Cable Connection

When a direct cable connection is used as in figure C1, VCR operation requires no special procedures.

Setting VCR Channels For Cable

Due to the many channels available on Cable, programming channel memory will require patience. Although the VCR is preset for channels 2 – 13 (air signals), the sequence of channels may be different on cable. For example, channel 6 of the VCR may actually receive channel 28, as identified by the station. Any VCR channel memory position can be programmed to select any channel. Please refer to the section on presetting channel memory for details. (See page 20.)



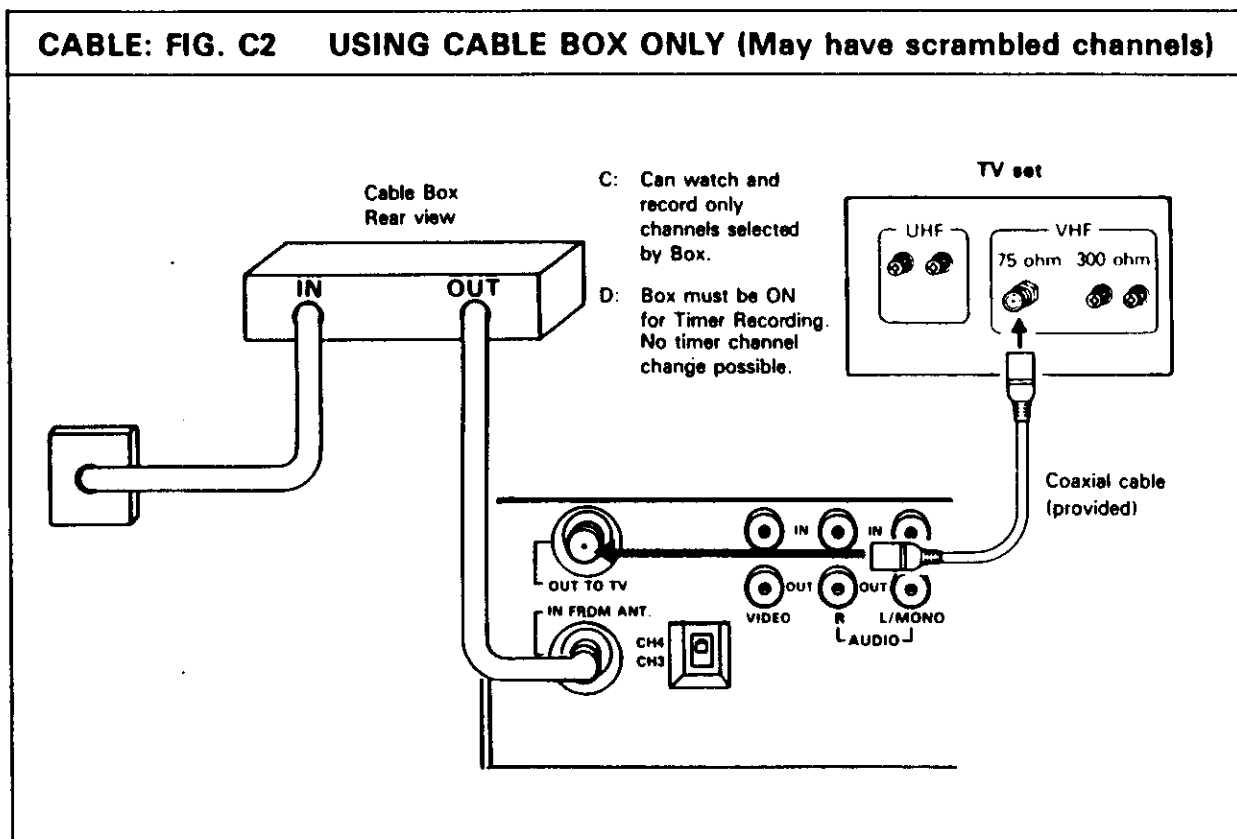
Cable Connection Using Cable Box Only
Interconnect as in figure C2.

1. Set the TV, Cable Box, and VCR power ON. Select a channel on the Cable Box.
2. Set the VCR/TV switch to the VCR position, and set the channel selector of the TV to the Video channel output by the VCR (CH 3/4 setting on RF modulator).
3. Using Channel Up/Down on the VCR, select the channel used for Cable Box output to the TV. You should be able to view the Cable Box output in only one VCR channel setting. If you are correctly set to the Cable Box, changing the channel setting of the VCR to any other channel will provide only a snowy picture. If no picture is obtained, re-check your connections and TV tuning to the VCR output channel. Setting TV tuning to view the VCR output is often easiest by playing a pre-recorded tape.

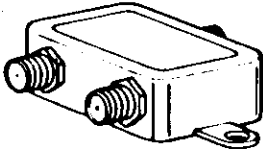
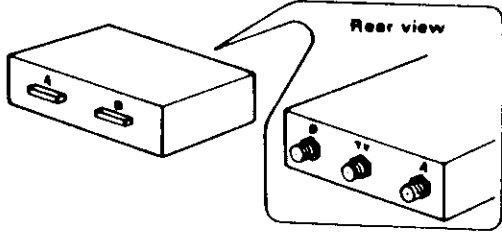
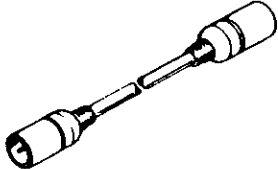
The VCR should now be set to tune the Cable Box. To record from the Cable Box, the Cable Box must be turned ON. If the Cable Box is used to control TV power, and you do not wish to have the TV on during Recording or Timer Recording, turn the TV OFF with the power switch on the TV. If the Cable Box controls the TV volume using a Remote Control, the volume setting must be set to normal.

Timer Recording: When you program the Timer for unattended recording, set the VCR to select the VCR channel used to view the Cable Box. The same VCR channel setting must be used for all timer programs. The VCR is unable to control channel selection when it is used with the Cable Box. The VCR can only select the Cable Box or no picture.

Before leaving the VCR to perform Timer Recording, be sure to activate the timer mode, set the Cable Box power ON, and set the channel on the Cable Box to the channel you want to record.

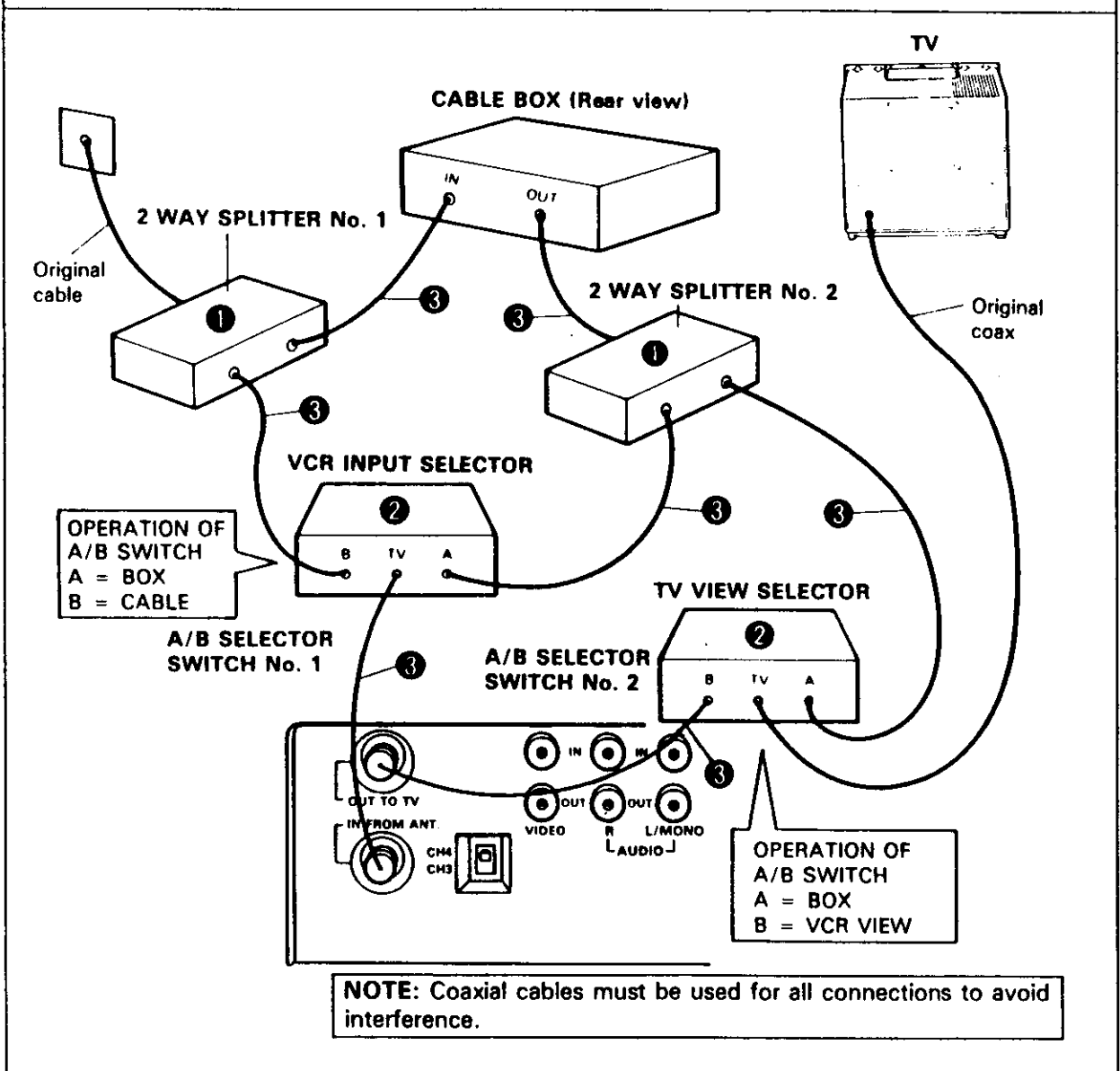


ACCESSORIES REQUIRED FOR OPTIONAL CABLE CONNECTIONS – NOT PROVIDED
 (These items can be purchased at your local electronics supply store.)

<p>1</p> 	<p>2</p> 	<p>3</p> 
<p>2 WAY SPLITTER (2 used)</p>	<p>A/B SELECTOR SWITCH (2 used)</p>	<p>COAX CABLE (7 used)</p>

CABLE FIG. C3

DIRECT OR USING BOX



Cable Connection Direct or Using Cable Box
When using figure C3 with a non-scrambled cable system, the VCR Input Selector Switch No. 1 and the 2 Way Splitter No. 2 can be omitted, along with the coax interconnecting the two. Connect the VCR Input directly to splitter No. 1, and the cable box Output directly to A/B switch No. 2.

Function of Accessories

2 Way Splitter No. 1: Divides the cable signal so the signal is provided to the VCR and the Cable Box.

A/B Selector Switch No. 1, VCR Recording Input Selector: Used to select the Source for VCR use. In one position, the cable can be recorded directly. In the other position, the VCR can record the Cable Box.

2 Way Splitter No. 2: Divides the signal from the Cable Box so the VCR can record it, or it can be viewed on TV.

A/B Selector Switch No. 2, TV Viewing Switch: Used to allow the TV to view the Cable Box while the VCR is recording Direct cable sources. In the other position, TV can view VCR Recording or Playing. (VCR/TV switch of video tape recorder must be in VCR mode.)

Operation: After completing connections, set A/B No. 2 to A position. Verify cable channels to TV. In this position, the TV and Cable Box can be used as previously, except when making unattended recording of the Cable Box. Then the Cable Box power must remain ON. To view what the VCR is Recording or playing, set the switch to position B. Tune the TV to the VCR output channel, and set the VCR/TV Switch to the VCR mode.

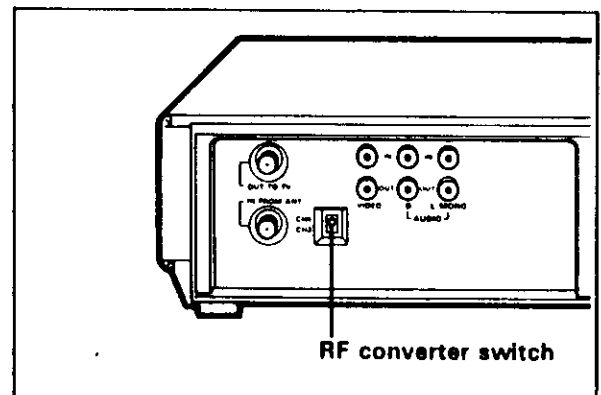
Operation of VCR

When the VCR Input Selector Switch A/B No. 1 is in position A, the VCR can record the Cable Box. One channel position of the VCR should be set to tune the Cable Box. Channel position 01 is recommended. Set the VCR as in the section for Using Cable Box Only, when using position A. When the A/B No. 1 is in position B, the VCR operates as indicated in Direct Connection to Cable. Refer to Setting channels for Cable.

Remember that when making a Timer Recording using the Cable Box, the Cable Box channel must be programmed into the Timer, the A/B No. 1 switch must be set to A, and Cable Box power must be left ON. When recording the Cable directly, be sure to set the switch to position B. The VCR cannot select between the Cable Box and Direct Cable inputs, so unattended recordings of both sources alternately should not be programmed unless someone is available to change the setting of switch A/B No. 1 during Timer operation.

VIDEO CHANNEL SETTING

The RF converter changes the video and audio signals from the tuner or tape playback, to a standard television broadcast signal on channel 3 or 4. To obtain video recorder output on either channel 3 or 4, set the RF converter switch to CH3 or 4 whichever channel is unused in your area.



NORMAL TV VIEWING

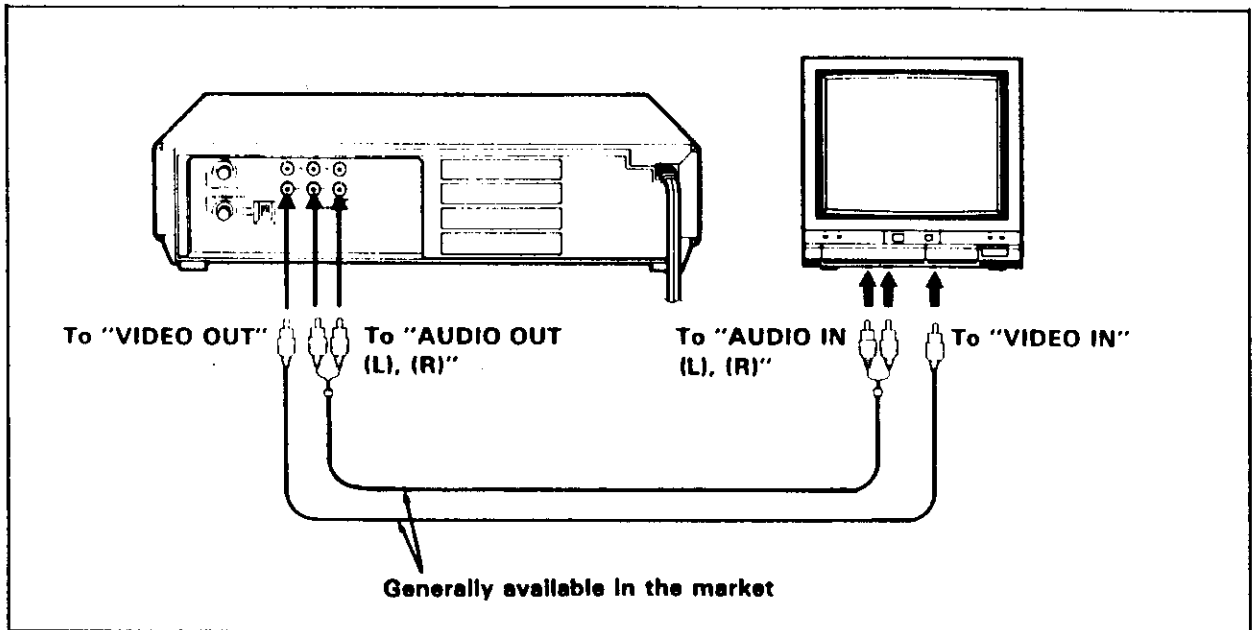
You do not need to disconnect VCR from your TV set to watch TV. When you turn off the POWER switch on your VCR, the VCR automatically switches to "TV".

To watch TV, turn on TV and select a channel as usual.

CONNECTION WITH A/V TV

If your TV has audio/video input jacks, connect it to this VCR as follows; you can enjoy better a picture and sound.

Connect the antenna, VCR and TV as shown on pages 10 ~ 16 and then perform the following connection.



1. Connect the VCR and TV as shown in the figure.
2. When you select "VIDEO" by pressing the input select button of the TV, you can view a tape played back by the VCR or a program selected by the channel select button of the VCR.

■ HI-FI SOUND

This VCR records sound using the following two formats.

Hi-Fi sound

FM sound is recorded using the rotary audio heads.

Normal (linear) sound

Records in monaural using the same format as with a non-Hi-Fi VCR. Therefore, conventional VCRs can be used for playback.

Remarkable Specifications of Hi-Fi Sound

- Dynamic range 90 dB
- Frequency response 20 Hz — 20 kHz
- Wow and flutter 0.005% or less

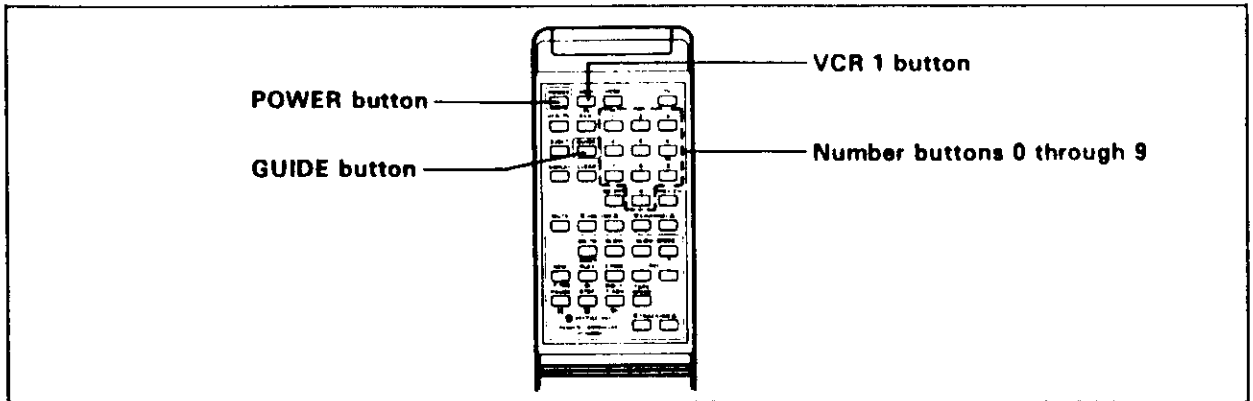
Recording of Multichannel Television Sound

- Stereo programs are recorded in Hi-Fi on both the L and R channels and also recorded on the linear track as monaural.

SETTING THE CLOCK

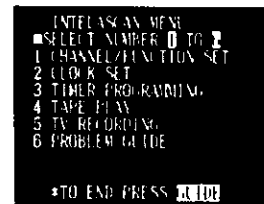
Things to know before starting

- The clock uses the 12-hour system. (Be aware of AM and PM.)
- When you first plug in your VCR, the clock will read "--:--".
- While you are setting the clock, the "menu" display on the TV screen will prompt you through the procedures.
- If you press a wrong digit, press the CLEAR button repeatedly until the digit to be corrected flashes and then enter the correct digit.



1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4). (See page 16.)
3. Aim the remote control unit at the receiver on the front panel of the VCR.

4. Press the GUIDE button until the "MENU", as illustrated, appears on the TV screen.
NOTE: If the menu does not appear when the GUIDE button is pressed, press the VCR 1 button and then the GUIDE button.

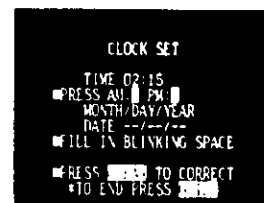


Original menu

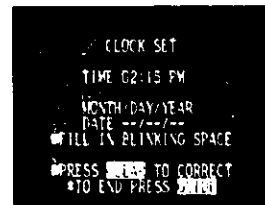
5. Press "2" button to set the clock.



6. Set the hour by pressing two number buttons on the remote control unit and two more for the minute (for example, 0 2 1 5 for 2:15).

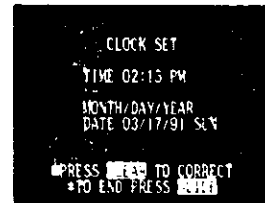


7. Press "1" for AM or "2" for PM.



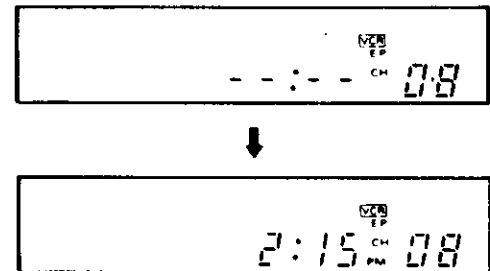
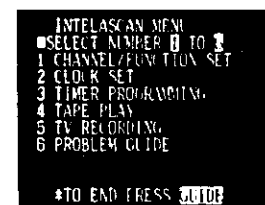
8. Set the date by pressing six digits in order of month, day and year (for example, 0 3 1 7 9 1 for March 17, 1991).

NOTE: Always press "0" before single-digit months and days.



9. Press GUIDE button to start the clock.

NOTE: Now the display on the VCR will show the correct time.



10. Press GUIDE button once again to return to the TV screen.

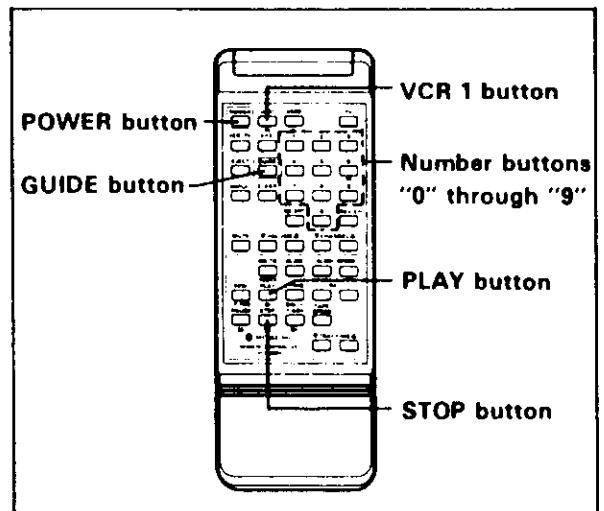
NOTES:

1. If you input an illogical time or date (13th month for example), this will not be accepted.
2. The clock must be set to the correct time before programming the timer for unattended recording or using the Instant Recording Timer (IRT) feature.
3. The display of Clock Setting procedures will resume the "original menu" if not further steps are followed in the setting for about 1 minute.
4. If power is interrupted for about 30 minutes "---:--" will appear on the display and Timer and Programming will need to be reset.

CHANNEL TUNING

The automatic programming feature makes it easy and convenient to program the TV station into the tuner's memory.

Automatic programming is usually a "one-time" procedure, but you will need to repeat it if you move to a location that has different channels, or if the power is interrupted for about 30 minutes.



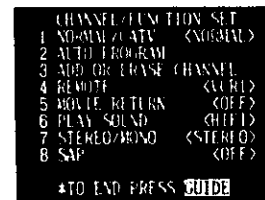
1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4). (See page 16.)
3. Aim the remote control unit at the receiver on the front panel of the VCR.

4. Press the GUIDE button until the "MENU", as illustrated, appears on the TV screen.
NOTE: If the menu does not appear when the GUIDE button is pressed, press the VCR 1 button and then the GUIDE button.

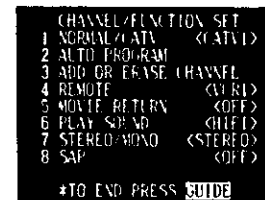


Original menu

5. Press button "1" for channel setting.



6. Press button "1" to select "NORMAL", "CATV1" or "CATV2". If your VCR is connected to a home antenna system, select "NORMAL"; select "CATV1" when your VCR is connected to a cable antenna. Switching is performed between "NORMAL", "CATV1" and "CATV2" on the TV screen every time button "1" is pressed.
NOTE: Usually select "CATV1" when your VCR is connected to a cable antenna. "CATV2" is to be selected in special cases. See page 21 for details.



7. Press "2" button.

The tuner will automatically cycle through all available channels in the area and place them in the tuner's memory. It takes about 2 – 3 minutes.

The channel number will stop changing when the tuner is finished cycling. Programming is now completed.

You can select the active channels by pressing the CHANNEL select buttons.

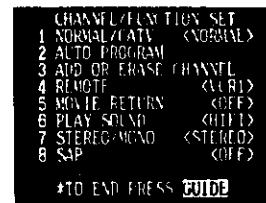
■ **Eliminating unwanted preset channels**

You may want to have only a few favorite channels in the tuner's memory so you can select them more quickly with the CHANNEL select button. Occasionally automatic programming may include a vacant channel in the tuner's memory if there happened to be some sort of "noise" or "stray signal" on the channel when the tuner was programmed. This procedure explains how to delete any unwanted channels from the tuner's memory.

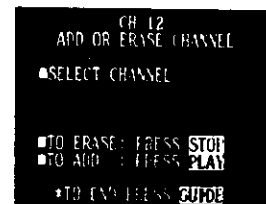
■ **Adding channels to the tuner's memory**

You may have deleted a channel from the tuner's memory and want to put it back. Occasionally automatic programming may "miss" an active channel because the signal is very weak or because the channel happened to be "off the air" when the tuner was programmed. Use this procedure to add any channel in the memory.

1. Follow steps 1 through 5 of "Channel Tuning" on page 20.



2. Press "3". The "menu", as illustrated, will appear on the TV screen.



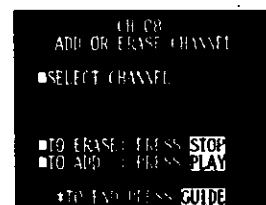
3. Select the channel number by pressing buttons "0" through "9". (Press "0" and then "8" for channel 8.)

Press the PLAY button to add channels and the STOP button to erase channels.

Perform the same procedure to add or erase other channel numbers.

NOTE: Erased channels cannot be selected by the CHANNEL button, but can be selected by buttons "0" through "9".

4. Press GUIDE button to return to the TV screen.



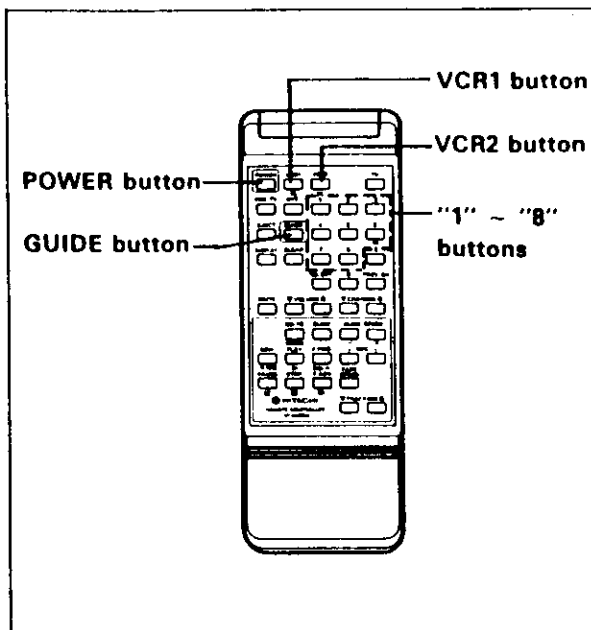
NOTE: There are some areas where channels cannot be switched when "CATV1" is selected. In this case, select "CATV2" as in step 6 on the previous page.

Your VCR is capable of receiving "off-the-air" TV channels (VHF 02 – 13, UHF 14 – 69) and CATV channels 01 – 125, a total of 181 channels*.

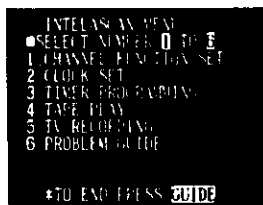
* You can receive channels 02 – 13 on both "off-the-air" and "cable" channels. Therefore, the total number of channels including "off-the-air" and "cable" channels is 181 channels (12 + 56 + 125 – 12 = 181).

VCR FUNCTION SETTING

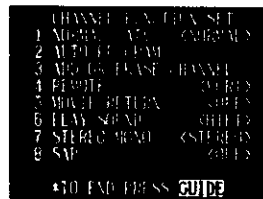
You can change the VCR mode as required using the "INTELASCAN GUIDE MENU".



1. Turn on the power of both the VCR and TV.
2. Be sure that the TV is set to the video channel (3 or 4).
3. Point the remote control unit at the receiver on the front panel of the VCR.
4. Press the GUIDE button until the "menu", as illustrated, will appear on the TV screen.



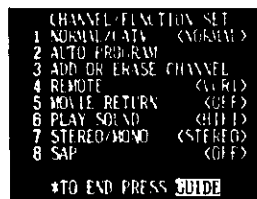
5. Press button "1".



- The VCR function set menu will appear. Press buttons "4" through "8" to select the required function.

■ REMOTE MODE VCR1/VCR2

Press "4" →
to change



VCR 1: Normally select this "VCR1".

VCR 2: Select "VCR2" when you are using another Hitachi VCR and operate the two VCRs using the remote control unit provided with this VCR.

Note: After you have selected "VCR2", press the VCR2 button and then perform the following operations; otherwise, the VCR does not accept commands. To return to "VCR1" after you have selected "VCR2", press the VCR2 button first.

■ MOVIE RETURN ON/OFF

Press "5" →
to change



ON: When a cassette (with erase prevention tab removed) is loaded, playback starts automatically. When the tape reaches the end, it will stop automatically and will rewind to its start. Then the cassette will be ejected automatically.

Note: This function also rewinds the tape automatically when it detects a non-recorded section lasting about 30 seconds or more.

OFF: This function does not operate.

■ PLAY SOUND SELECTION

Press "6" →
to change

CHANNEL/FUNCTION SET	
1	NORMAL/CATV (NORMAL)
2	AUTO PROGRAM
3	ADD OR ERASE CHANNEL
4	REMOTE (CUE)
5	MOVIE RETURN (OFF)
6	PLAY SOUND (HI FI)
7	STEREO/MONO (STEREO)
8	SAP (OFF)

*TO END PRESS **GUIDE**

You can switch the sound output from the AUDIO OUT jack during playback.

- **Hi-Fi:** Hi-Fi sound is played back with a Hi-Fi tape. The linear sound is played back with a non-Hi-Fi tape. Normally, select "Hi-Fi".
- **LINEAR:** The linear sound is played even when Hi-Fi sound is recorded on the tape.

■ STEREO/MONO SELECTION

Press "7" →
to change

CHANNEL/FUNCTION SET	
1	NORMAL/CATV (NORMAL)
2	AUTO PROGRAM
3	ADD OR ERASE CHANNEL
4	REMOTE (CUE)
5	MOVIE RETURN (OFF)
6	PLAY SOUND (HI FI)
7	STEREO/MONO (STEREO)
8	SAP (OFF)

*TO END PRESS **GUIDE**

Your VCR is capable of recording stereo sound from TV stations transmitting stereo in your area. All you have to do is to make sure the STEREO indicator is displayed in the VCR display as the VCR can receive stereo broadcasts. Normally this function can be left in the STEREO mode. Your VCR will then automatically record either stereo or monaural sound — whatever is broadcast.

In some fringe viewing areas, however, the stereo signal may not be strong enough for quality reception. The signal may drift or become noisy. Should that occur, change the STEREO/MONO function to the MONO mode to receive clearer, cleaner sound.

■ SAP ON/OFF SELECTION

Press "8" →
to change

CHANNEL/FUNCTION SET	
1	NORMAL/CATV (NORMAL)
2	AUTO PROGRAM
3	ADD OR ERASE CHANNEL
4	REMOTE (CUE)
5	MOVIE RETURN (OFF)
6	PLAY SOUND (HI FI)
7	STEREO/MONO (STEREO)
8	SAP (OFF)

*TO END PRESS **GUIDE**

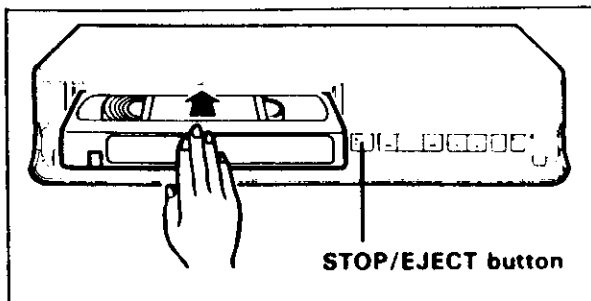
Some TV stations broadcast another sound channel along with selected stereo programs called the SAP (Second Audio Program). The SAP audio is sometimes used to broadcast the second sound track of a bilingual movie.

If desired, you can record the SAP audio on the linear sound track by changing the SAP menu display to ON. For normal recording, leave the SAP display set to OFF.

- When OFF appears in the menu display, the SAP function is turned off, and the VCR will not record the SAP.
- When ON appears, the SAP function is turned on and the VCR will record SAP audio when it is broadcast.
- Because SAP is transmitted together with a stereo signal, the STEREO function (described above) must also be set to the STEREO mode before your VCR can record the SAP.
- To hear SAP, the "PLAY SOUND SELECTION" (described above) must be set to "LINEAR".

CASSETTE TAPES


Insertion and removal of cassettes



Insertion

1. Insert the cassette.


Notes:

- When the cassette is loaded, power is turned on automatically and TAPE-IN indicator  lights.

Removal

1. Press STOP/EJECT button.
2. Remove the cassette.

Types of video cassette

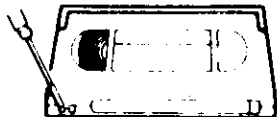
Use video cassettes with the  mark in this VCR. The table below shows how to distinguish difference in recording time of cassettes.

TYPES	RECORDING TIME	
	SP	EP
T-120	120 min.	360 min.
T-160	160 min.	480 min.

It is recommended that the "SP" speed is selected to obtain better picture quality when recording. **NOTE:** This VCR cannot record in LP mode. However, it can play cassettes recorded in LP mode.

To avoid erasing a recording

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



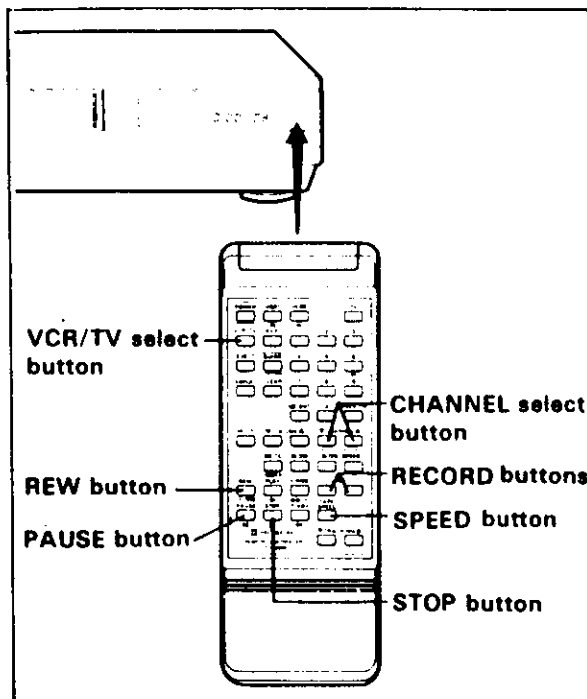
To re-record on a cassette which has its safety tab removed

Cover the hole with cellophane tape.



Refer to the instructions included with cassettes for more information.

RECORDING TV PROGRAMS



1. If you wish to view a program being recorded, turn on TV and select the channel 3 or 4 for your video channel.
2. Insert cassette.
VCR power is turned on automatically.
Note: Whenever you change the mode, the new mode is displayed on the TV screen automatically for about a few seconds.
3. Press SPEED button to select "SP" or "EP".
4. Press the VCR/TV select button to select "VCR" (VCR indicator lights) if you wish to view a program being recorded.
5. Select channel to be recorded.
6. Press RECORD button on the VCR or two RECORD buttons on the remote control unit. Recording will start.
Note: If the erase prevention tab of the cassette has been removed, the cassette is ejected automatically when you press RECORD button.
7. Press PAUSE button to stop recording temporarily. Press again to release.
Note: When the REC·PAUSE mode continues for more than 5 minutes, the VCR will automatically change to stop mode to protect the tape.
8. Press STOP button to stop recording.

To record one program while viewing another
 You can record one program while viewing another by setting the VCR for recording, then setting the VCR/TV select button to "TV", and selecting the desired channel on your TV.

To change the channel to be recorded while in record mode

During recording, the channel lock function operates and channel cannot be changed if the CHANNEL select button is pressed.

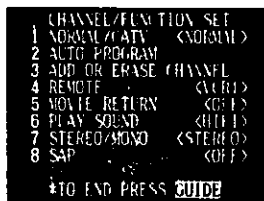
If you wish to change channel, proceed as follows.

1. Press the PAUSE button.
2. Change channel desired.
3. Press the PAUSE button to release record pause mode.

Recording broadcast stereo TV

The basic procedure for recording broadcast stereo TV is the same as it is for normal off-the-air recording.

Before you start recording, be sure that "STEREO" is selected following "STEREO/MONO SELECTION" on page 23. The STEREO indicator will come on if the station is broadcasting in stereo. Press the RECORD button to start recording.

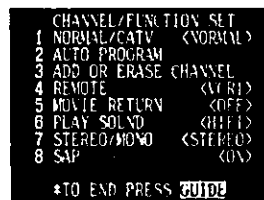


Recording Second Audio Program (SAP)

Some stations transmit the Second Audio Program. To record the Second Audio Program, be sure that "ON" is selected following "SAP ON/OFF SELECTION" on page 23. When the station broadcasts an SAP, the SAP indicator will turn on. Press the RECORD button to start recording.

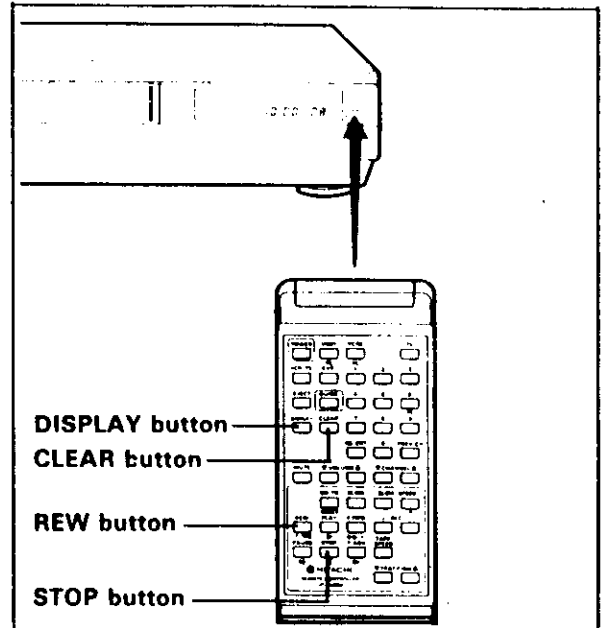
Your VCR will record the SAP instead of the normal audio on the linear track. The normal audio will still be recorded on the Hi-Fi track.

Note: To play back SAP, the "PLAY SOUND SELECTION" on page 23 must be set to "LINEAR".



Counter memory function

This is useful if there is a section of tape you want to view immediately after recording or you want to return to the same point several times.

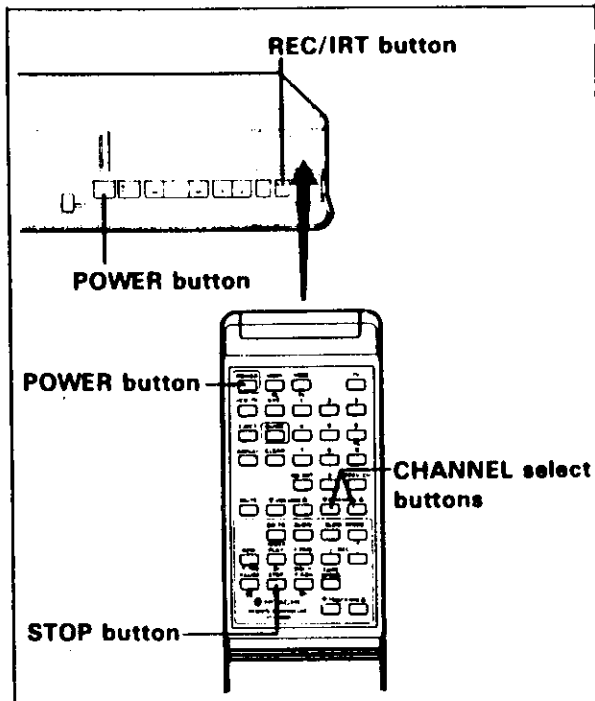


1. Press the DISPLAY button to display the counter reading in the VCR's display.
2. Begin recording or playing back a tape.
3. At the point you want playback to start, press CLEAR button to reset the Counter to "0:00:00".
4. Press the STOP button when recording or playback finishes..
5. Press the DISPLAY button again to display the counter memory "M" in the VCR's display.
6. Press the REW button. The tape will automatically stop at the pre-selected "0:00:00M" position.

NOTE: The tape will also automatically stop at "0:00:00M" during fast forwarding.

INSTANT RECORDING

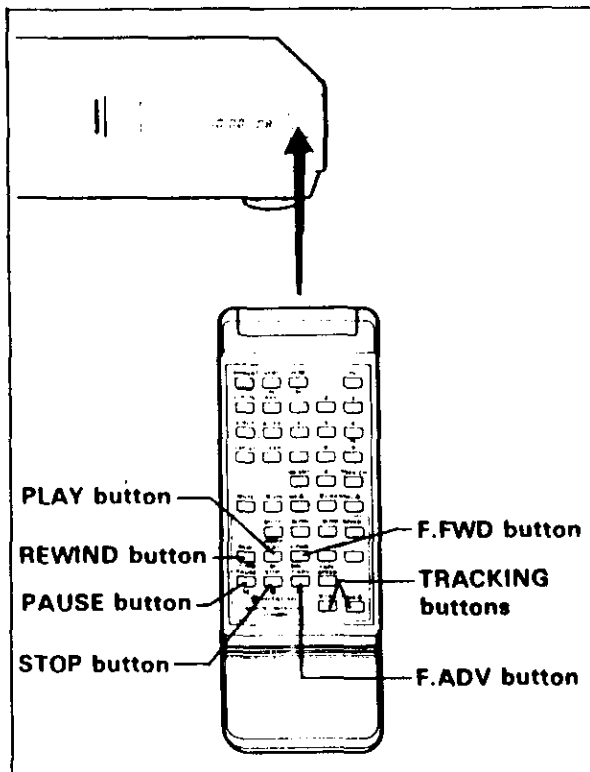
Instant Recording Timer (IRT) allows you to make simplified timer recording without using the program timer. Be sure that clock is set to the correct time before IRT.



1. Follow the steps 1 through 6 on "RECORDING TV PROGRAM".
2. After recording has started, press REC/IRT button on the VCR once again to indicate the recording time on the display. The time changes in hours and minutes in the order of 0:30, 1:00, 1:30, 2:00, 3:00 and 4:00 every time the button is pressed. During recording, the remaining time is displayed.
3. At the end of recording the display reads "0:00"; the VCR will automatically stop recording.

NOTE: To stop the VCR during "IRT", press POWER button and then STOP button (on the VCR or remote control) within 10 seconds.

PLAYBACK



1. Insert the cassette.
VCR power is turned on automatically.
2. Turn the TV on and select the video channel.
3. Press the PLAY button.
4. Press the STOP button to stop playback.

Auto Tracking

When playback is started, the auto tracking function operates and adjusts tracking automatically so the picture is optimized.

- Auto tracking may not operate correctly when the tape is scratched or the recorded condition is poor. In this case, press the tracking control button (▼ or ▲) to adjust tracking.
- After operating the tracking manually, eject the cassette to operate auto tracking feature.

Still playback

When the PAUSE button is pressed during playback, a still picture can be seen. To start again press PAUSE button and the VCR will continue playback.

Notes:

- There will be some noise (interference) in the still pictures.
- When the still mode continues for about more than 5 minutes, the VCR will automatically change to stop mode to protect the tape.
- If vertical jitter (shaking) occurs during the still mode, press either TRACKING control button (▲ or ▼) (one by one) to minimize it.

Frame Advance

When you press F.ADV button during Still (play-pause) mode, one frame at a time can be seen.

Visual search

This allows you to view the picture from a recorded tape at high speed in both the forward and reverse directions.

Press the PLAY button to play a tape, then press either REW or F.FWD button. Pictures can be viewed at high speed in either the forward or reverse direction.

Press the button again (or press PLAY) to return to normal playback.

Note: The playback picture will have some noise in the visual search mode.

Slow playback

When you press SLOW button during playback, the tape will be played back at a speed about 5 to 30 times slower than the normal speed.

Press PLAY button to return to normal playback mode or press STOP button to stop tape movement.

Notes:

- During slow playback TRACKING button (▼ or ▲) can be adjusted to minimize noise bands.
- During slow playback the slow speed can be adjusted by operating the SLOW SPEED button (– or +). If you press the (–) button, the speed gets slower, and if you press the (+) button, the speed gets faster.
- When the slow mode continues for more than about 5 minutes, the VCR will automatically change to stop mode to protect the tape.

When you play prerecorded tapes, the mode indication may not appear correctly, but this does not indicate a fault.

Automatic rewind

The tape will stop and automatically rewind when the end of the tape is reached.

This function does not operate during timer recording and instant recording.

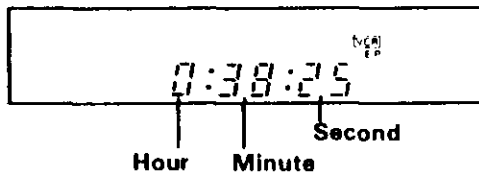
Rewind shut off

If power button is pressed during rewind operation, power will be turned off automatically after the tape has been completely rewound.

Linear Time Counter

The counter on the TV screen or in the VCR display shows length of tape run in hours, minutes and seconds.

Load a cassette into the VCR and perform recording or playback; the counter indicates the elapsed time.

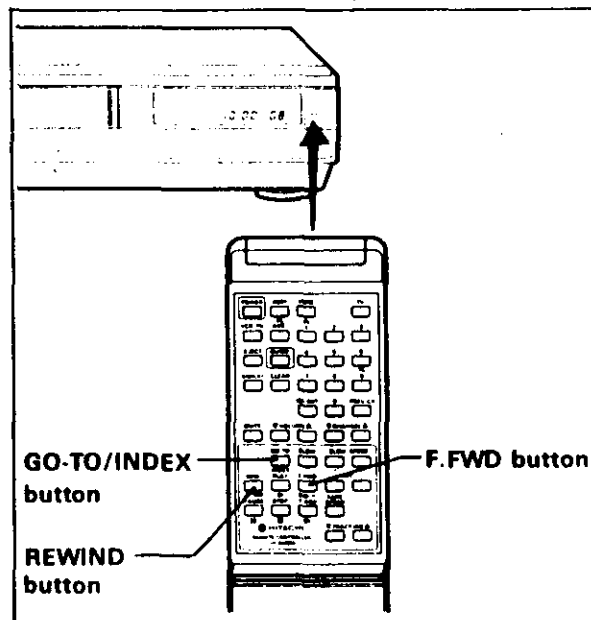


Notes:

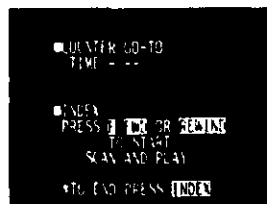
- The linear time counter does not operate when nothing is recorded on the tape.
- Counter changes to 0:00:00 when the cassette is ejected.

Counter GO-TO function

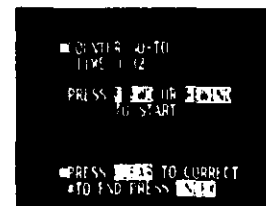
Use the linear time counter to conveniently search for positions a designated number of minutes before or after the present position.



1. Press GO-TO/INDEX button during stop mode. The "MENU", as illustrated, appears on TV screen.



2. Select the required number of minutes by pressing "0" - "9" buttons. Press "0" "3" "2", for example, to search for the scene 32 minutes before or after the present position.



3. Press the REWIND button to search the scene 32 minutes before the present position or the F.FWD button to search the scene 32 minutes after it. The tape is rewound or fast forwarded to the position 32 minutes before or after, and then playback starts.

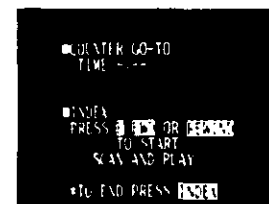
Tape indexing

The indexing system used in your VCR is based on a new VHS Standard Indexing System called "VISS" (VHS Index Search System). It allows you to directly access specific program segments. The new system used in your VCR will not recognize index marks on tapes made on older VCR's. Likewise, older VCR's cannot recognize the "VISS" index marks. The INDEX "mark" is recorded automatically every time the REC button is pressed.

Note: Normally, an index "mark" is not recorded if PAUSE is pressed and released during recording. You must press the RECORD button. If you are recording two programs — one immediately following the other — you must press STOP and then RECORD to insert an index "mark".

1. Press the GO-TO/INDEX button once during the stop mode.

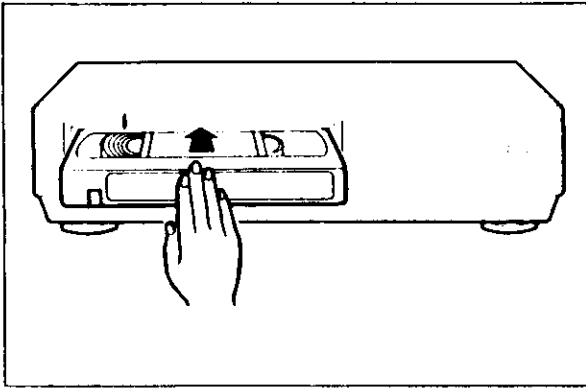
The index menu appears on the TV screen.



2. Press the REW of F.FWD button. The tape will rewind or fast forward until an index signal is detected.
3. When the VCR locates an index mark, it will stop and play approximately 10 seconds of the program following the mark. This is long enough for you to recognize the program.
4. The VCR will continue to locate index marks in either direction and play 10 seconds of the program following it until you press GO-TO/INDEX.
5. When you see the program you want to watch, press PLAY.

TIMER RECORDING

The programmable electronic clock/timer permits the unattended recording of up to 8 preselected programs, including one program on the same day of each week or one program at the same time every day.



1. Insert the Cassette.
2. Press the SPEED button to select "SP" or "EP".
3. Set the program timer. "START (ON) TIME", "STOP (OFF) TIME", "DAY" etc. See below.
4. Turn power off. Now recording will begin automatically at the start time.

Notes:

- It is not necessary to press RECORD button.
- The TIMER indicator flashes to warn that recording will not occur because cassette has not been inserted. If the safety tab on the cassette has been removed, the VCR will automatically eject the cassette when placed in the Timer mode.

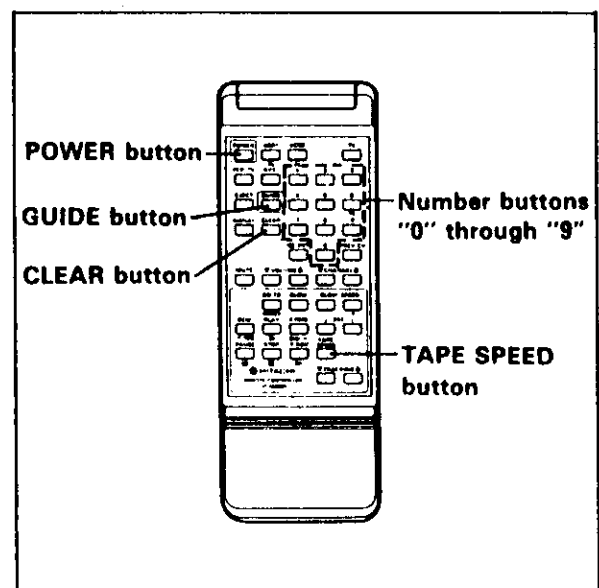
■ Programming the timer for unattended recording

For unattended recording the timer needs to know what **day** to make the recording, the **time to start**, the **time to stop**, and the **channel to be recorded**.

Things to know before starting

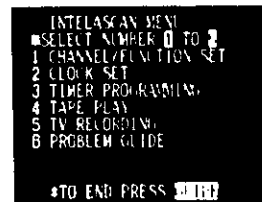
- While you are programming the timer, the "menu" display on the TV screen will prompt you through the procedures.
- You can correct an error in the program any time before the last step by pressing CLEAR button repeatedly until the digit to be corrected becomes flashing and then enter the correct digit.
- The programming will automatically resume the "original menu" if no further steps are followed in programming for about 1 minute.

1. Turn on the power of both VCR and TV.
2. Be sure that the TV is set to the video channel (channel 3 or 4). (See page 16.)
3. Aim the remote control unit at the receiver on the front panel of the VCR.

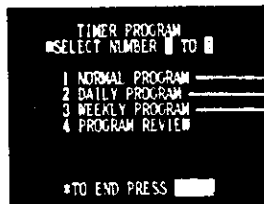


TIMER RECORDING (cont)

4. Press the GUIDE button until the "menu", as illustrated, appears on the TV.



5. Press button "3" to set the program.



for recording up to 8 programs on a single day or over the days within a period of 1 year.

for recording up to 8 programs at the same time(s) Monday through Friday within a period of 1 year.

for recording up to 8 programs on certain days of every week within a period of 1 year.

Note: Any one of these program modes or any combination thereof (up to 8 programs in total) may be selected. A typical example of a "Normal" program is demonstrated below.

6. Press button "1". The display will prompt you to select the channel to be recorded.



7. Press two digits for the channel to be recorded (for example, "0" "4" for channel 4).

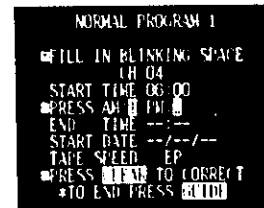
Note: If you want to select channel 124 for example, press "100", "2", "4" in this order.

In this case, "NORMAL/CATV SELECTION" on page 20 should be selected "CATV1" or "CATV2".

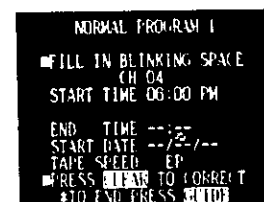


8. Press four digits, two for the hour and two more for a minute (for example, "0" "6" "0" "0" for 6:00).

Note: Always press "0" before a single digit hour and minute.



9. Press "1" for AM or "2" for PM.



-
10. Press four digits, two for the hour and two more for the minute (for example, "0" "7" "3" "0" for 7:30).

NORMAL PROGRAM 1
PRESS **TAPE SPEED**
CH 04
START TIME 06:00 PM
END TIME 07:30 PM
START DATE 03/17/01 SUN
TAPE SPEED EP
PRESS **RETURN** TO CORRECT
*TO END PRESS **GUIDE**

-
11. Press four digits (two for the month and two for the day) (for example, "0" "3" "2" "1" for begin recording on March 21). If you want to select the recording speed, press TAPE SPEED button to select the desired speed.

NORMAL PROGRAM 1
PRESS **TAPE SPEED**
CH 04
START TIME 06:00 PM
END TIME 07:30 PM
START DATE 03/21/01 THU
TAPE SPEED EP
PRESS **RETURN** TO CORRECT
*TO END PRESS **GUIDE**

-
12. Press the GUIDE button to enter your program and return to the programming "menu" display. Additional programs may be entered by repeating Steps 6 through 11. If you have no other programs to enter, press the GUIDE button twice.

TIMER PROGRAM
SELECT NUMBER 0 TO 9
1 NORMAL PROGRAM
2 DAILY PROGRAM
3 WEEKLY PROGRAM
4 PROGRAM REVIEW
*TO END PRESS **GUIDE**

-
13. Turn off VCR power.
Now recording will begin automatically at the start time.
Note: To stop a timer recording in progress with the VCR, press POWER button and then press STOP button within 10 seconds.

RECALLING THE PROGRAM

1. Follow Steps 1 through 5 of "Programming the timer for unattended recording" on pages 29 and 30.

TIMER PROGRAM
SELECT NUMBER 0 TO 9
1 NORMAL PROGRAM
2 DAILY PROGRAM
3 WEEKLY PROGRAM
4 PROGRAM REVIEW
*TO END PRESS **GUIDE**

-
2. Press "4" button (Program Review).
3. Press "4" again if you want to view the next program information immediately.
4. When you finish reviewing the programs, press the GUIDE button three times to switch off the on-screen display.

NORMAL PROGRAM 1
PRESS **RETURN** TO ERASE
CH 04
START TIME 06:00 PM
END TIME 07:30 PM
START DATE 03/21/01 THU
TAPE SPEED EP
PRESS 0 FOR NEXT
*TO END PRESS **GUIDE**

CLEARING ("ERASING") INFORMATION FROM A PROGRAM

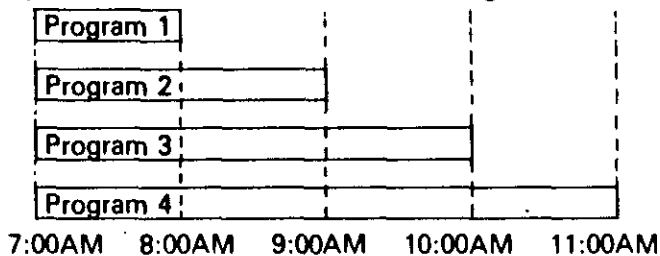
1. Follow Steps 1 through 5 of "Programming the timer for unattended recording" on pages 29 and 30.
2. Press "4" button (Program Review).
3. Press "4" again if you want to view the next program information immediately.
4. Press CLEAR button when the program information you want to clear is displayed.
5. Press the GUIDE button three times to switch off the on-screen display.

Note:

- Normal program is cleared automatically when the timer recording is finished, but daily and weekly programs remain in the timer even after the timer recording is finished.

PROGRAM PRIORITY

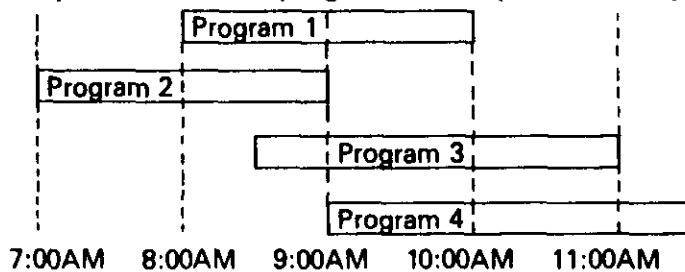
Example 1: When the program start time is the same among the programs on the same day, they are recorded in the order of Program 1, 2, 3 --- 8.



7:00AM – 8:00AM for Program 1
8:00AM – 9:00AM for Program 2
9:00AM – 10:00AM for Program 3
10:00AM – 11:00AM for Program 4

Program 1 is executed as programmed, and Program 2 as illustrated after Program 1, and Program 3 as illustrated after Programs 1 and 2, and Program 4 as illustrated after Programs 1, 2 and 3.

Example 2: When the programs overlap, an earlier program has priority.



7:00AM – 9:00AM for Program 2
9:00AM – 10:00AM for Program 1
10:00AM – 11:00AM for Program 3
11:00AM – for Program 4

Program 2 is executed as programmed, and Program 1 as illustrated after Program 2, and Program 3 as illustrated after Programs 2 and 1, and Program 4 as illustrated after Programs 2, 1 and 3.

HOW TO OPERATE YOUR TV BY USING THE REMOTE CONTROL UNIT

This remote control unit is designed to operate 14 different types of TV's.
You must first program the remote control unit to match the remote system in your TV.

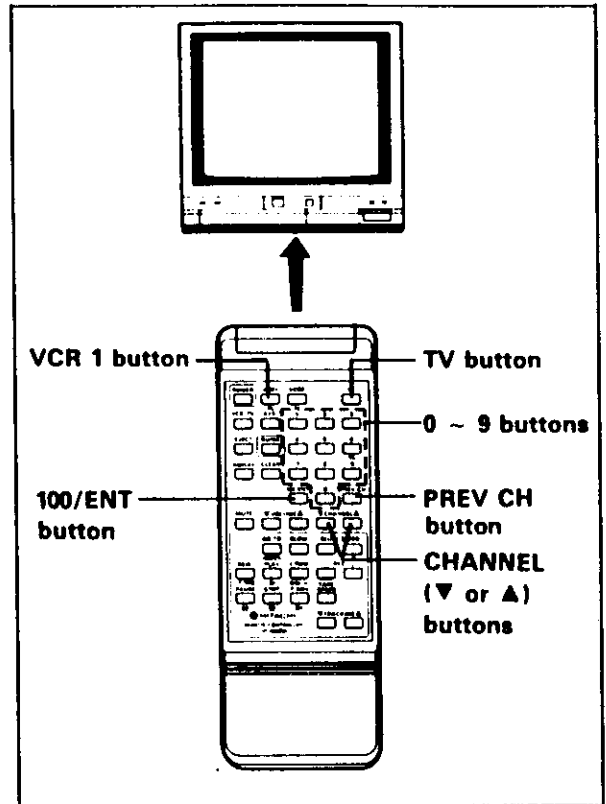
Programming the remote control for TV set

1. Install the batteries in the remote control unit.
2. Turn on your TV.
3. Point remote control unit toward front of your TV.
4. While holding TV button down, press 0 through 9, CHANNEL (▲), (▼), 100/ENT and PREV CH button (one at a time). The TV will change channels when the matching number button is pressed.
5. Release both buttons when the TV starts changing channels. The other remote buttons shown on next page will now control your TV.

Notes:

- If your TV does not respond to any of the above procedures, the TV cannot be controlled by this remote control unit.
- You will only have to program your remote control to match your TV once. It will remember what codes matches your TV until you replace the batteries.
- Whenever you install or replace batteries in the remote control, you must program the remote control to match the remote system in your TV.
- When operating the TV, first press the TV button, and then press the button which corresponds to the TV function you want.

- When you want to operate the VCR with this remote control after operating the TV, first press the VCR 1 button and then press the button which corresponds to the VCR function you want.

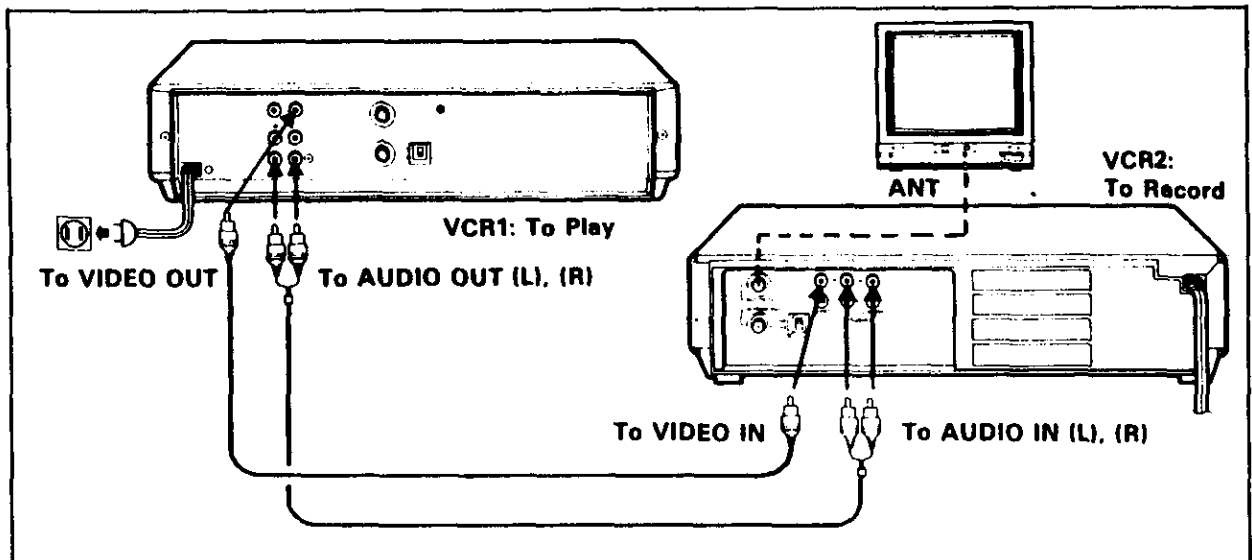


Types of TV Buttons on remote control	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11
	TV whose channel changes by pressing TV and										
	1	2	3	4	5	6	7	8	9	0	CHANNEL ▲
	Hitachi	Zenith	Sony	Magnabox	Sanyo	Gold Star 1	Toshiba	Gold Star 2	NEC	RCA	Panasonic
POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER	POWER
1	1	1	1	1	1	1	1	A	1	1	1
2	2	2	2	2	2	2	2	B	2	2	2
3	3	3	3	3	3	3	3	C	3	3	3
4	4	4	4	4	4	4	4	D	4	4	4
5	5	5	5	5	5	5	5	E	5	5	5
6	6	6	6	6	6	6	6	F	6	6	6
7	7	7	7	7	7	7	7	G	7	7	7
8	8	8	8	8	8	8	8	H	8	8	8
9	9	9	9	9	9	9	9	I	9	9	9
0	0	0	0	0	0	0	0	K	0	0	0
CHANNEL ▲	CHANNEL ▲	CHANNEL ▲	CHANNEL ▲	CHANNEL ▲	CHANNEL ▲	CHANNEL ▲	CHANNEL ▲	L	CHANNEL ▲	CHANNEL ▲	CHANNEL ▲
CHANNEL ▼	CHANNEL ▼	CHANNEL ▼	CHANNEL ▼	CHANNEL ▼	CHANNEL ▼	CHANNEL ▼	CHANNEL ▼	J	CHANNEL ▼	CHANNEL ▼	CHANNEL ▼
VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲	VOLUME ▲
VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼	VOLUME ▼
MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE	MUTE
DISPLAY	DISPLAY	—	DISPLAY	DISPLAY	—	—	—	—	—	DISPLAY	RECALL
100/ENT	100	ENTER	ENTER	100	100	—	100	—	—	100	—
PREV CH	PREV CH	PREV CH	—	PREV CH	—	—	—	—	PREV CH	PREV CH	PREV CH
AVX	AVX	—	—	—	—	—	—	—	—	—	—

IMPORTANT NOTICE:
 While Hitachi's remote control unit is compatible with most television sets, it is possible that the remote control unit will not work with your TV set.

No. 12	No. 13	No. 14
CHANNEL ▾	100/ENT	PREV CH
Mitsubishi	JVC	Sharp
POWER	POWER	POWER
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
0	0	0
CHANNEL ▲	CHANNEL ▲	CHANNEL ▲
CHANNEL ▾	CHANNEL ▾	CHANNEL ▾
VOLUME ▲	VOLUME ▲	VOLUME ▲
VOLUME ▾	VOLUME ▾	VOLUME ▾
MUTE	MUTE	MUTE
DISPLAY	DISPLAY	—
—	MENU	—
PREV CH	PREV CH	PREV CH
—	—	—

RECORDING FROM ANOTHER VCR



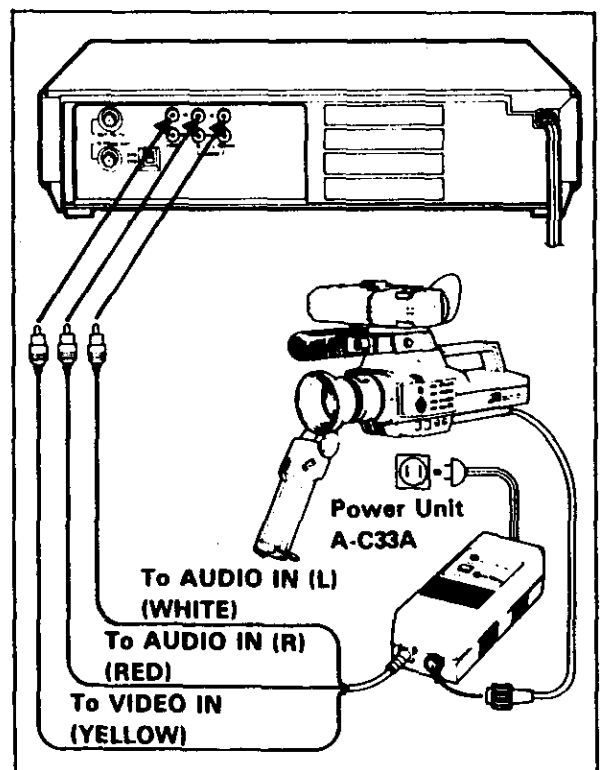
1. Connect Video Out/Audio Out of VCR1 to Video In/Audio In of VCR2.
2. Press the AVX button of VCR 2 so as to have LINE indicator lights in the display.
3. Play the tape in VCR1 and record it with VCR2.

NOTE: If you connect the VHF OUT TO TV connector of VCR2 to the TV ANT connector, as illustrated and press the "VCR/TV" selector to turn the "VCR" indication on, the picture being dubbed by VCR2 can be monitored.

RECORDING FROM A VIDEO CAMERA

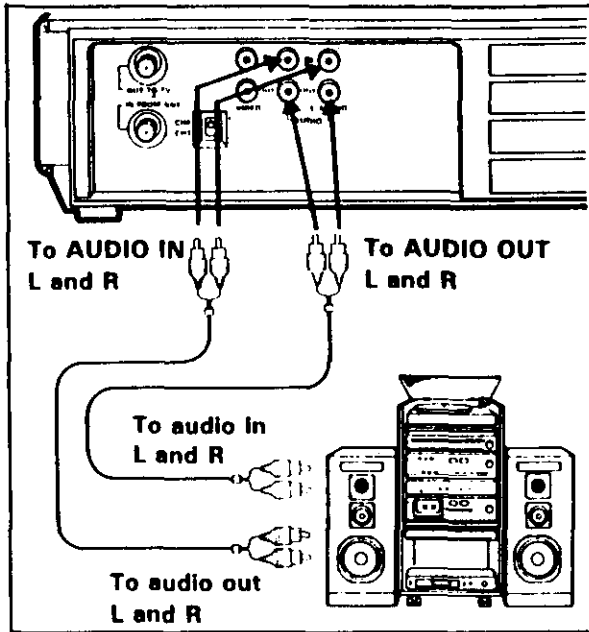
At first you must connect the Video Camera to Power Supply and then connect Power Supply to VCR. (Refer to the Instruction Manual of the Camera as well as these instructions.)

1. Turn on Power Unit.
2. Insert a cassette.
3. Press the SPEED button to select "SP" or "EP".
4. Press AVX button so as to have LINE indicator lights in the display.
5. Adjust focus and white balance on camera. (Refer to Instruction Manual of video camera.)
6. Press RECORD button.
7. Press STOP button to stop recording.



USING AS AN AUDIO DECK

CONNECTIONS



In order to record and play stereo audio with a stereo system, the amplifier or receiver must have an unused set of tape record (L and R) jacks and tape play (L and R) jacks. Some systems have a set of tape jacks for two tape decks, other systems have jacks for only one deck. If your system has connections for only one deck, and you already have an audio deck connected, you will need to obtain an accessory for connecting multiple audio decks. Please consult your audio dealer.

If you have connections for two tape decks, your audio deck can remain connected to the tape-1 connectors, and you may connect your VCR's audio connections to the jacks for tape-2. The tape record (L and R) jacks of your amplifier should be connected to the Audio Inputs (L and R) of your VCR, and the VCR's Audio Outputs (L and R) connected to the amplifier's tape play jacks. Select the tape switch on the amplifier which matches the VCR's tape connections.

To play back in stereo

1. Connect the audio cable to the AUDIO OUT (L and R) jacks of your VCR and to the audio input jacks (left and right) of your stereo system.
2. Then follow the steps for "PLAYBACK" (page 27), turning down the sound of your TV.
Note: For operation of your stereo system, see its operation manual.

To use the unit as an audio deck

Hi-Fi sound can be enjoyed using this VCR as an audio deck when connected to an audio system.

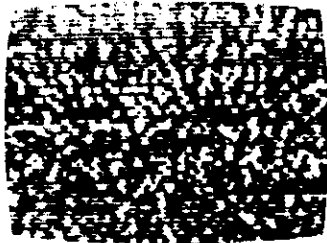
1. Connect this VCR and the stereo system.
2. Insert a cassette.
3. Press SPEED button to select "SP" or "EP".
4. Press the AVX button to turn on the L(line) indicator in the display.
5. Press RECORD button.
6. To stop recording, press STOP button.
7. To play back, rewind tape and select "Hi-Fi" following "PLAY SOUND SELECTION" on page 23, then press PLAY.

Notes:

1. It is not required to turn the TV on.
2. Only audio is recorded and video is not recorded when no connection is made for the video in jack.

HEAD CLEANING

- Picture playback may become blurred or be interrupted while the TV program received is clear. This does not mean that the recorded program has been erased. (See figure below.)
- Dirt accumulated on the head after long periods of use causes this problem. Since this VCR uses an auto head cleaning system, dirt does not often adhere to the heads. Even when it is difficult to remove dirt using this system, you can remove it using the HEAD CLEAN button.
- Insert a cassette and press the HEAD CLEAN button while the VTR is in the stop mode. The cleaning roller cleans the heads. When the TV is turned on, "HEAD CLEANING" will appear on the screen.
- When the HEAD CLEAN button is pressed once, the head cleaning operation is performed once. (It takes about 20 seconds).
- If dirt cannot be removed, perform the cleaning operation several times.
- If dirt cannot still be removed, consult your dealer.



Example of playback with dirty video heads

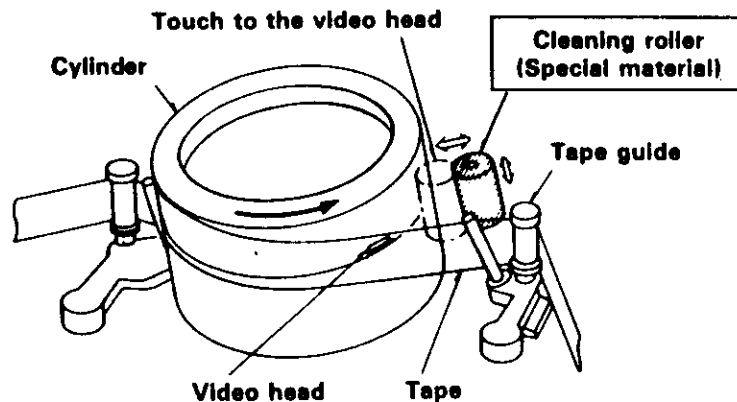
PERIODIC MAINTENANCE

The VCR is a precision electromechanical device which will require periodic maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the warranty period by most users, unless the VCR is heavily used or seldom used. Normal maintenance is the responsibility of the user, although defective parts are covered during the warranty period. Consult your VCR Service Center to determine recommendations for normal maintenance based on your location, use patterns and machine age.

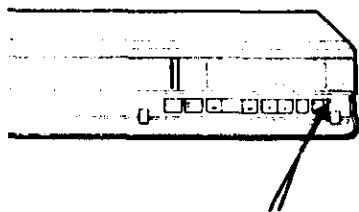
Auto Head Cleaning System

This system cleans the video heads automatically when a cassette is inserted and ejected or the power is turned on or off while a cassette is in the VCR, to prevent dirt from accumulating on the heads.

NOTE: Mechanical sound is heard during head cleaning.



PROBLEM GUIDE

PROBLEM	THINGS TO CHECK	SOLUTION
No power	<ul style="list-style-type: none"> • Is power cord connected? 	<ul style="list-style-type: none"> • Connect power cord to AC outlet.
Timer recording is not possible.	<ul style="list-style-type: none"> • Is the program timer set correctly? • Is the POWER switch set to "OFF"? • Is the record safety tab missing? 	<ul style="list-style-type: none"> • Set the program timer correctly. • Set the POWER switch to "OFF". • Place cellophane tape over missing safety tab.
REC mode cannot be engaged.	<ul style="list-style-type: none"> • Is the record safety tab missing? 	<ul style="list-style-type: none"> • Place cellophane tape over missing safety tab.
Picture is poor on playback.	<ul style="list-style-type: none"> • Is the TV channel selector on the proper channel? • Is the TV fine tuning set correctly? 	<ul style="list-style-type: none"> • On playback, the TV channel selector should be on channel 3 or 4. • Fine tune your TV.
Noise in picture on playback	<ul style="list-style-type: none"> • Is video head clean? 	<ul style="list-style-type: none"> • Head cleaning is necessary.
No picture on playback	<ul style="list-style-type: none"> • Is the TV set to the proper channel? 	<ul style="list-style-type: none"> • Set to correct channel, CH3 or 4. (for your video channel)
Playback picture is partially noisy.	<ul style="list-style-type: none"> • Is the TRACKING adjusted correctly? 	<ul style="list-style-type: none"> • Press either TRACKING control button (▲ or ▼) for best picture.
TV program cannot be recorded or cannot be seen.	<ul style="list-style-type: none"> • Is connection correct? 	<ul style="list-style-type: none"> • Connect correctly.
TV cannot be operated from the remote control.	<p style="text-align: center;">_____</p>	<ul style="list-style-type: none"> • First press TV button and then press the button which corresponds to the TV function you want.
The indication of the VCR's display appears abnormal or no button can be engaged.	<ul style="list-style-type: none"> • Push the reset switch using a toothpick, etc. The display will be reset. Then set the information again. 	

NOTE: Mechanical sound is slightly heard when the stop mode (with a cassette loaded in the VCR) continues for more than 5 minutes. This does not indicate a fault. This means that the tape protection mechanism in the VCR is operating.

SPECIFICATIONS

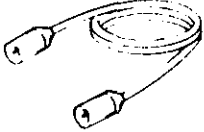
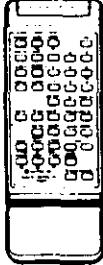
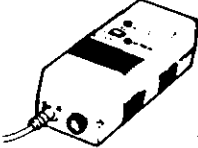
Recording:	Rotary two head Helical Scan Azimuth Recording
Video:	NTSC Color EIA Standard
Cassette:	VHS Type
Heads:	4 video heads 2 for SP, 2 for EP 2 Hi-Fi audio heads 1 Full track audio/video erase head 1 Combination head for control track, audio erase and audio record/play (3 heads/single housing)
Tape Speed:	33.35 mm/sec (SP), 16.67 mm/sec (LP) (playback only), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
RF Output:	Channel 3 or Channel 4
RF Input:	UHF/VHF 75 ohm
Tuning Range:	VHF LOW CH, 2 ~ 6 (54 MHz — 88 MHz) VHF MID CH, A-5 ~ A-1 and A ~ I (90 MHz — 174 MHz) CATV VHF HIGH CH, 7 ~ 13 (174 MHz — 216 MHz) VHF SUPER CH, J ~ W (216 MHz — 300 MHz) CATV VHF HYPER CH, W+1 ~ W+28 (300 MHz — 468 MHz) CATV UHF CH, 14 ~ 69, W+29 ~ W+84 (470 MHz — 806 MHz)
Video Input:	1 — 2 Vp-p 75 ohm Unbalanced
Video Output:	1 Vp-p 75 ohm Unbalanced
Audio Input:	316 mV rms (-7.8 dB) 100 kohm
Audio Output:	316 mV rms (-7.8 dB) 600 ohm
Video Recording S/N:	Better than 46 dB (SP), Better than 40 dB (EP)
Horizontal Resolution:	240 lines (SP), 230 lines (EP)
Audio Response:	50 Hz — 10 kHz (SP), 100 Hz — 6 kHz (EP)
Audio S/N:	Better than 43 dB (SP), Better than 40 dB (EP)
Hi-Fi Audio	
Frequency Range:	20 Hz to 20 kHz
Dynamic Range:	90 dB
Wow and Flutter:	Less than 0.005% WRMS
Power Input:	AC 120V 60 Hz
Power Consumption:	26W Nominal
Cabinet Size:	14-9/16"(W) x 3-1/2"(H) x 12-3/4"(D) 37.0(W) x 8.9(H) x 32.4(D) cm
Weight:	11.7 lbs (5.3 kg)
Accessories:	1 — Coaxial cable 1 — Remote control unit 2 — Batteries

Design and Specifications subject to change without notice.

ACCESSORIES PARTS NUMBERS (For U.S.A. only)

For information regarding how to obtain these accessories, please call TOLL FREE 1-800-448-2244 for your nearest Hitachi Authorized Parts Distributor in the continental United States.

For ALASKA and HAWAII, please contact the nearest Hitachi Regional office.

Coaxial Cable Part No. 5857952	Remote Control Unit Part No. 5614895	Power Unit A-C33A
		



*Service
hotline*

To locate an authorized
HITACHI service facility
in the continental U.S.A.

DIAL TOLL FREE

7 days a week, 24 hours a day

800 HITACHI

You must state zip code when calling **1-800-448-2244**

Hitachi Home Electronics (America), Inc.

Hitachi has made every effort to assure you hours of trouble free operation from your unit. However, should you require service, a network of Hitachi Authorized Service Facilities has been established in all 50 states and Puerto Rico. Each facility will provide you with convenient and expedient assistance. Our service Hotline operator will direct you to the Hitachi Authorized Service Facility nearest you. Just present proof of purchase and/or delivery receipts to the Hitachi Authorized Service Facility, and service will be rendered in accordance with the terms of the limited warranty as stated on your warranty card or operating guide.

If for any reason a Hitachi Authorized Service Facility is not conveniently located near you, it will be necessary to ship your unit to one of Hitachi's four Regional Offices listed below. Carefully pack your unit in the original packing container(s) and ship your unit, prepaid and insured, to the closest Regional Office. Please provide a clear description of the problem you are experiencing and a return shipping address. Upon completion of the service action Hitachi will ship the unit back to you at Hitachi's expense.

Should you have any questions regarding in-warranty service, operation or technical assistance, please contact the service department of your nearest Hitachi Regional Office.

Eastern Region

1290 Wall Street West
Lyndhurst, NJ 07071
201 935 8960
ME NH VT MA RI CT NY
NJ PA MD WV VA DE DC

Southern Region

510 Plaza Dr.
College Park, GA 30349
404 763 0360
TX OK AR LA TN MS AL
FL GA NC SC PR

Western Region

401 West Artesia Blvd
Compton, CA 90220
213 537 8383
AK WA OR CA ID NV MT
UT AZ WY CO NM

Midwestern Region

1400 Morse Ave.
Elin Grove Village, IL 60007
708 593 1550
ND SD NE KS MN IA MO
WI IL KY IN MI OH

Hitachi Authorized Service outside continental U.S.

Puerto Rico			Alaska		Hawaii
Chicago TV Center Georgetown #47 Vega Alta, PR 00762 Tel: 809 883 4865	Electronic Specialist Carr #110 KM 9 Barrio Matez Aguadilla, PR 00603	Video Repair Center 1330 Roosevelt Avenue Pueblo Nuevo, PR 00921 Tel: 809 790 7301	Alora T.V. Service 907 E Dowling Rd #11 Anchorage, AK 99502 Tel: 907 562 1912	Home Electronics 405 W Benson Anchorage, AK 99503 Tel: 907 272 0025	Hitachi Sales Corporation of Hawaii 3219 Koapaka St Honolulu, HI 96819 Tel: 808 836 3621
Professional Audio & Video Corp. Calle Francia 468 Hato Rey, PR 00917 Tel: 809 764 6845	J.C. TV Service Centro Com Alturas de Rio Grande Rio Grande, PR 00745 Tel: 809 887 5027	Anchorage Commercial 1114 E 5th Ave Anchorage, AK 99501 Tel: 907 276 7942	SE Technical Service P.O. Box 793 Douglas, AK 99824 Tel: 907 789 2777		