

**RCA**

VideoCassette  
Recorder

Owner's Manual



# Warranty Registration

No other RCA Video Cassette Recorder has the same serial number as yours. It is important that you record the number and other vital information here, in case your VCR is stolen or in case you need a complete description for any other reason. You will find the model and serial numbers on the back of the VCR. You will also find both numbers recorded on your registration form.

Purchase Date \_\_\_\_\_

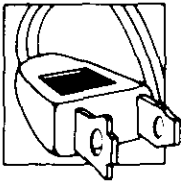
Dealer \_\_\_\_\_

Model: \_\_\_\_\_ Serial Number \_\_\_\_\_

VCR registration is very important so that you can be contacted should there be a safety inspection, modification, or product recall under applicable laws or regulations or otherwise. The dealer who sold you the VCR should have registered it and given you a copy of the registration form.

If your dealer did not give you a copy of the registration, contact him promptly and ask for it. You must be able to show your registration or evidence of purchase date to any RCA Authorized VCR Servicenter or the RCA Service Company to receive warranty parts and service. We suggest you attach your sales slip and warranty registration to this booklet and keep them in a safe place for future reference.

## Safety Precautions



Your VCR operates on 120 volts, 60 Hz (normal household current) and has a polarized plug. Because one blade of the plug is wider than the other, the plug fits in the wall socket only one way. Do not defeat the safety feature of this plug. If you need an extension, use a polarized cord.


**Caution:** To prevent electric shock do not use the polarized plug on this Video Cassette Recorder with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure.


**Mise en garde:** Pour prévenir les chocs électriques, ne pas utiliser la fiche polarisée de cet appareil avec une rallonge, une prise de courant ou une autre sortie, à moins que les lames ne puissent être insérées à fond sans qu'aucune partie ne soit laissée à découvert.

**WARNING:** To prevent fire or shock hazard, do not expose this VCR to rain or moisture.

Illustrated below is the label on the back of your Video Cassette Recorder.



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

 An exclamation point within a triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the product.

**CAUTION:** To reduce the risk of electric shock, do not remove the cover or back. No user-serviceable parts are inside. If you spill liquid on the VCR disconnect the power cord to prevent possible fire or shock hazard and consult authorized service personnel. Moisture can damage internal parts. Refer all service to RCA Authorized Servicenter personnel or the RCA Service Company only.

**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.

### Note to Cable TV Installer:

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

**Caution:** The unauthorized recording of television programs and other materials may infringe the rights of others.

## Using This Manual

Congratulations on your choice of an RCA VCR. You have selected a high-quality, precision-engineered instrument designed to give you years of trouble-free video and audio enjoyment.

To get the best performance from your new VCR, it is important that you carefully read and follow the operating instructions in this manual in the sequence in which they are presented.

Should you experience a problem, please follow the "Things to Check" near the end of this manual. The warranty on the back cover describes what RCA will do for you should your new VCR need service during the warranty period. It also tells you how and from whom you should request service.



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## Contents

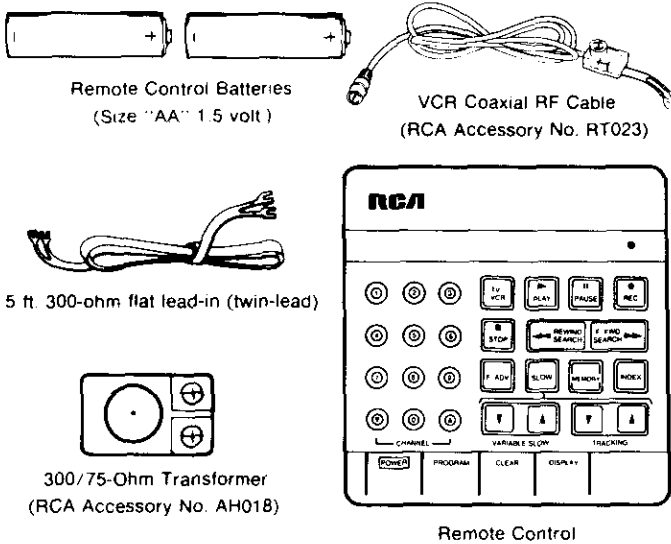
<b>Warranty Registration</b> .....	Inside Front Cover
<b>Safety Precautions</b> .....	Inside Front Cover
<b>Installation</b>	
• Unpacking, Choosing Location .....	2
• General Installation Information .....	2
• Antenna Connections .....	3-4
• Cable-TV Connections .....	5-6
• TV Monitor/Receiver Connections .....	7
• Stereo Amplifier Connections .....	8
<b>What Your VCR Will Do</b> .....	9
<b>Basic Operation</b>	
• Basic Operating Controls and Displays .....	10
• Inserting/Removing Cassettes .....	10
• Turning on Your VCR for the First Time .....	11
• Programming Active Channels into Tuner .....	11
• Setting <i>NORM/CATV</i> Switch .....	11
• Setting TV to the VCR Channel .....	11
• Setting the VCR/TV Switch .....	11
• Simplified Installation Checklist .....	12
• Deleting Channels from Scan List .....	12
• Adding Channels to Scan List .....	12
<b>Remote Control</b> .....	13
<b>Setting the Clock</b> .....	14
<b>First Recording and Playback</b> .....	15
<b>Operating Controls (Detailed)</b> .....	16-17
<b>Special Effects</b>	
• Pause During Recording .....	17
• Recording Speeds for Special Effects .....	17
• Pause for Stop-Action Playback .....	17
• Frame Advance .....	17
• Slow Motion .....	17
• Picture Search .....	17
<b>Special Features</b>	
• Memory Stop .....	18
• Tape Counter .....	18
• Electronic Program Indexing .....	18
• Indexed Playback .....	18
• Tracking Control .....	18
<b>Audio System</b>	
• VHS Hi-Fi Sound .....	19
• Broadcast Stereo TV .....	19
• Second Audio Program .....	19
• Audio Dubbing .....	19
• Automatic Level Control .....	19
<b>Video Cassettes</b> .....	20
<b>Quick-Reference Operating Guides</b>	
• Normal TV Viewing .....	21
• Recording With TV Off .....	21
• Recording and Viewing the Same Program .....	21
• Recording and Viewing Different Programs .....	22
• Basic Playback .....	22
• Recording Broadcast Stereo/SAP .....	23
• Recording TV/FM Simulcasts and Audio Only .....	24
• Recording from Another VCR .....	25
• Camera Recording .....	26
<b>Express Recording</b> .....	27
<b>Programming the Timer</b> .....	28-29
<b>Timer Recording</b> .....	30
<b>Alternate Remote Control Units</b> .....	31
<b>Cabinet Cleaning</b> .....	32
<b>Things To Check Before You Call for Service</b> .....	32
<b>Subject Index</b> .....	33
<b>Specifications</b> .....	Back Cover
<b>RCA Limited Warranty</b> .....	Back Cover

# Installation

## Unpacking

When you unpack your new VCR, be sure you have removed all the accessories and information sheets. We recommend that you save the packing materials and box in case you ever need to ship or store your VCR.

The accessories supplied for connecting your antenna, VCR, and TV set are shown here. The remote control unit and its batteries are also packed in with the VCR.



## Location

- Choose a location that is convenient, but away from sources of heat such as direct sunlight and heating units.
- If the VCR is to be installed in an equipment rack or cabinet with other devices, be sure that there is adequate ventilation at the back and around the sides of the components. The VCR should not be placed on or directly above a stereo amplifier because of the heat that rises from the amplifier.
- Choose a flat surface at least as large as the VCR so that it rests on its mounting feet. It is important that air can pass through the ventilation holes in the bottom of the unit to prevent it from overheating. Do not operate the VCR on a rug or carpet because the pile will obstruct these holes.

Some TV sets may cause interference in home VCR's. To avoid interference and get the best performance from your VCR, follow these guidelines:

- When placing the VCR under a TV, keep at least 18 inches between the bottom of the TV and the top of the VCR.
- If interference is present when the VCR is used on top of the TV or at the 18-inch distance below the set, move the VCR to a position beside the TV.
- If interference continues after all the above, call your dealer or service representative.

# General Installation Information

## IMPORTANT

There are two basic steps for connecting your new VCR to your present TV and antenna(s) or cable-TV. The first step is to disconnect the antenna(s) or cable-TV from the TV and reconnect it to the VCR. The second step is to connect the VCR to the TV. Be sure you do both steps.

Since there are many different types of antennas and TV's, there are several ways to make the above connections. Therefore, the instructions have been divided into two sets, one set for connections to your own antenna(s) on pages 3 and 4, and another set for connections to a cable-TV system on pages 5 and 6. If you have a TV monitor/receiver, you may want to make the additional connections described on page 7. Page 8 describes the connections for playing your VCR through a stereo amplifier or receiver and also for recording from your audio equipment.

The antenna is the "signal receiver" that picks up TV broadcasts. Some modern antennas receive both VHF (Very High Frequency) channels 2 through 13, and UHF (Ultra High Frequency) channels 14 through 83. Some antennas are designed only for VHF reception and others are designed only for UHF reception.

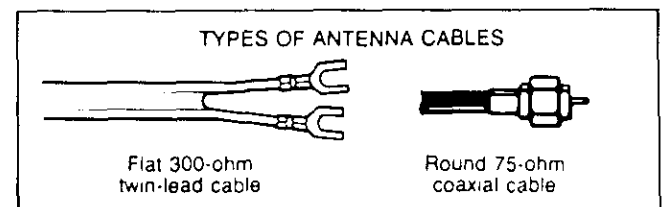


TYPICAL OUTDOOR ANTENNA



TYPICAL INDOOR ANTENNA

Signals from your antenna are conducted through flat "twin-lead" cable, or through round "coaxial" cable.



Cable-TV (CATV) supplies television signals directly by round cable without the need for a home antenna. Cable-TV delivers both VHF and UHF channels and programs not available from a home antenna. Although Cable-TV systems vary, most require use of a converter box for TV's that are not Cable-TV compatible.

In most situations you will get better picture quality if you use an outdoor antenna or connect your TV and VCR to a cable-TV system. If this is not possible, use a good quality indoor antenna. Your indoor antenna should have separate leads for VHF and UHF if you are in an area with both VHF and UHF stations — or you may use separate VHF and UHF indoor antennas.

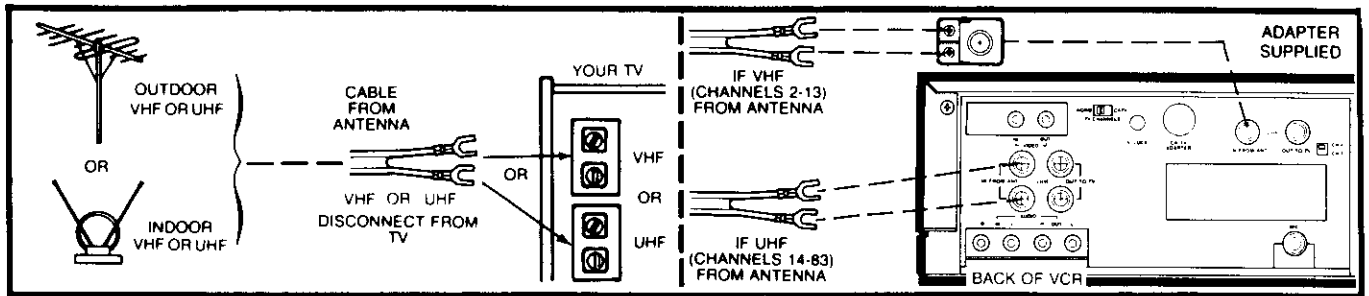
# Antenna Connections

## 1. Disconnect Existing Antenna from TV and Connect it to VCR.

(Your antenna will probably resemble one of the diagrams on this page.)

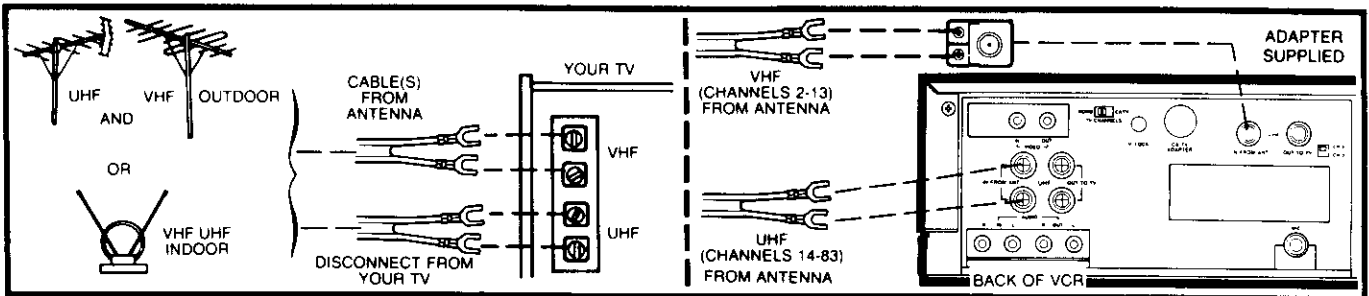
**A.** If your existing antenna is connected to your TV like this:

Disconnect the antenna from your TV and connect it to your VCR like this:



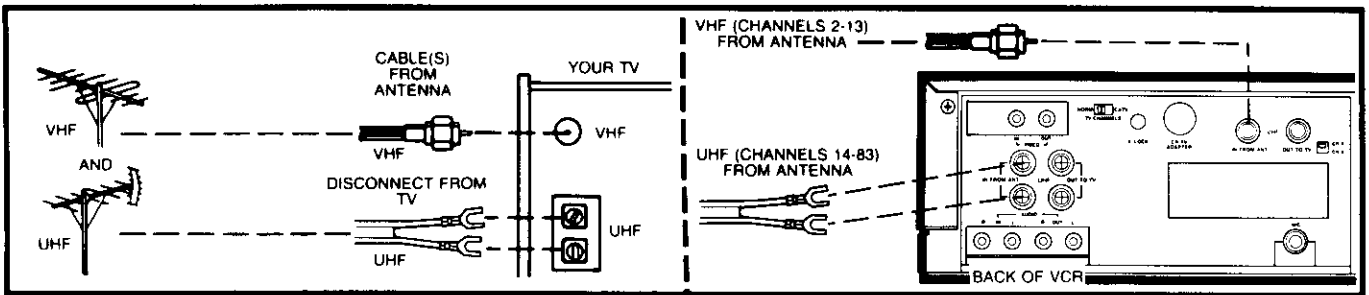
**B.** If your existing antenna is connected to your TV like this:

Disconnect the antenna from your TV and connect it to your VCR like this:



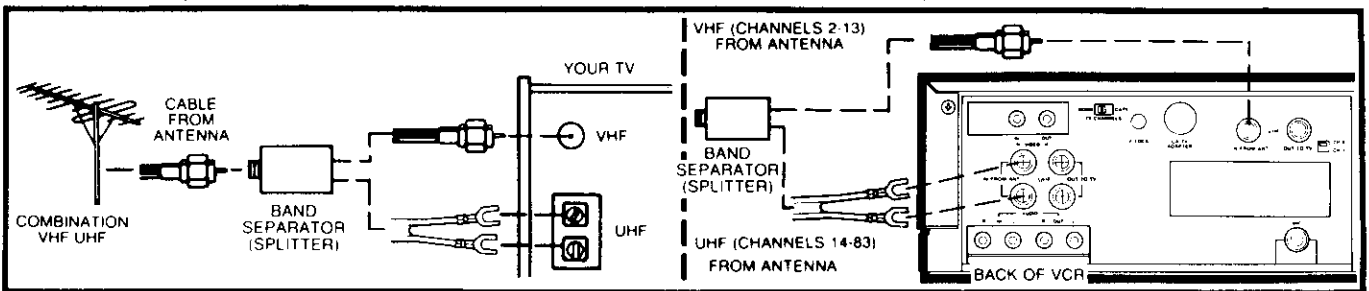
**C.** If your existing antenna is connected to your TV like this:

Disconnect the antenna from your TV and connect it to your VCR like this:



**D.** If your existing antenna is connected to your TV like this:

Disconnect the antenna from your TV and connect it to your VCR like this:



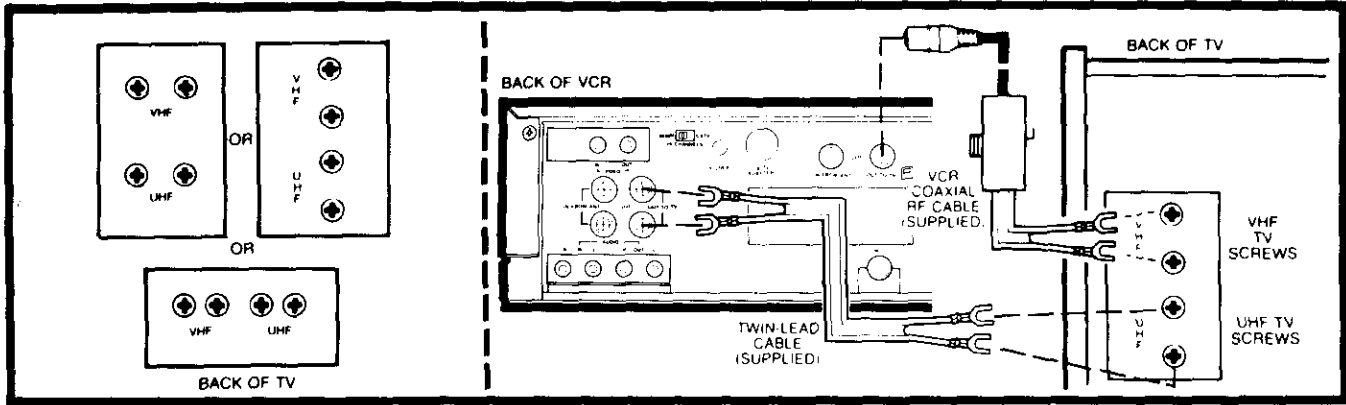
(Continued on next page)

# Antenna Connections (continued)

## 2. Connect VCR to back of TV. (The back of your TV will probably resemble one of the diagrams below.)

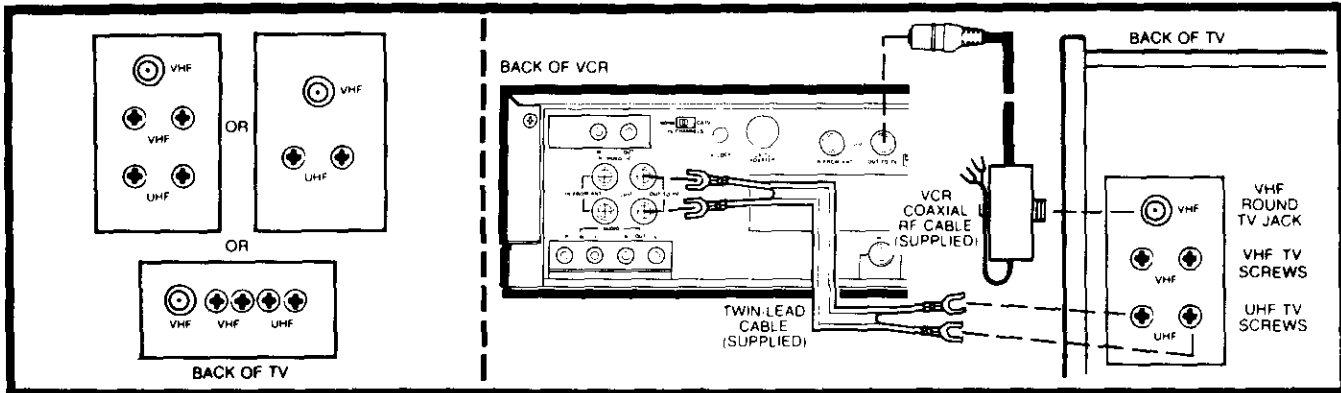
**A.** If the antenna connection on the back of your TV looks like this:

Connect the VCR to your TV like this:



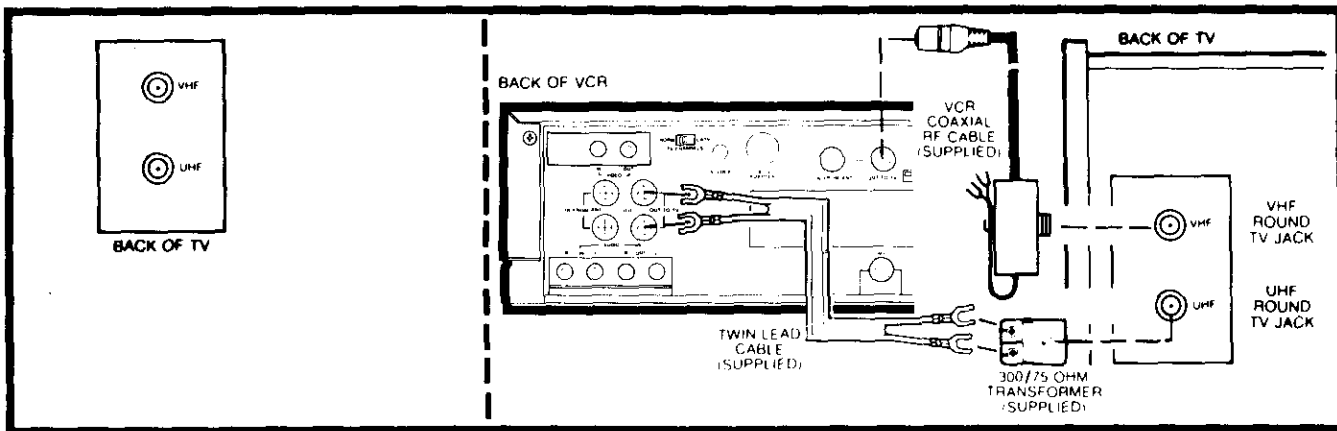
**B.** If the antenna connection on the back of your TV looks like this:

Connect the VCR to your TV like this:



**C.** If the antenna connection on the back of your TV looks like this:

Connect the VCR to your TV like this:



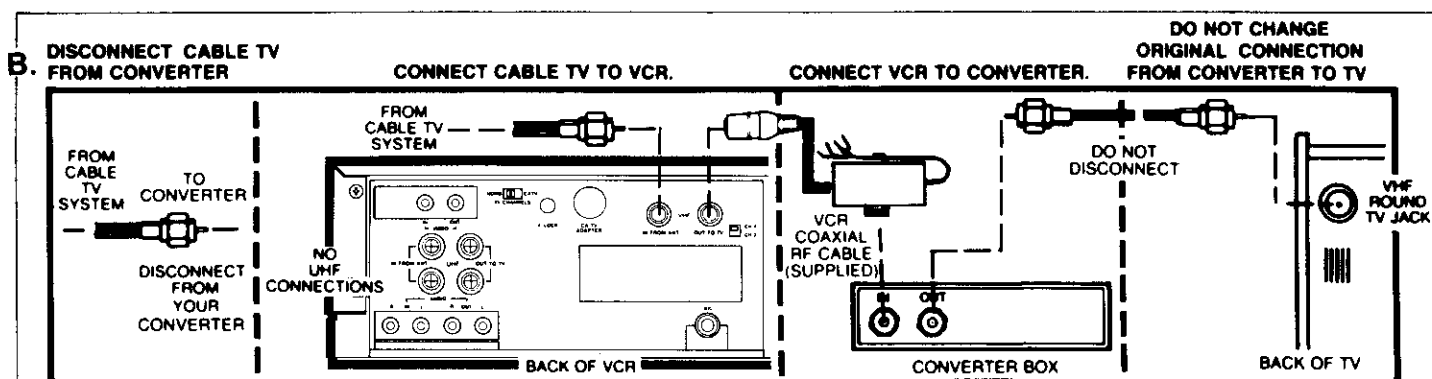
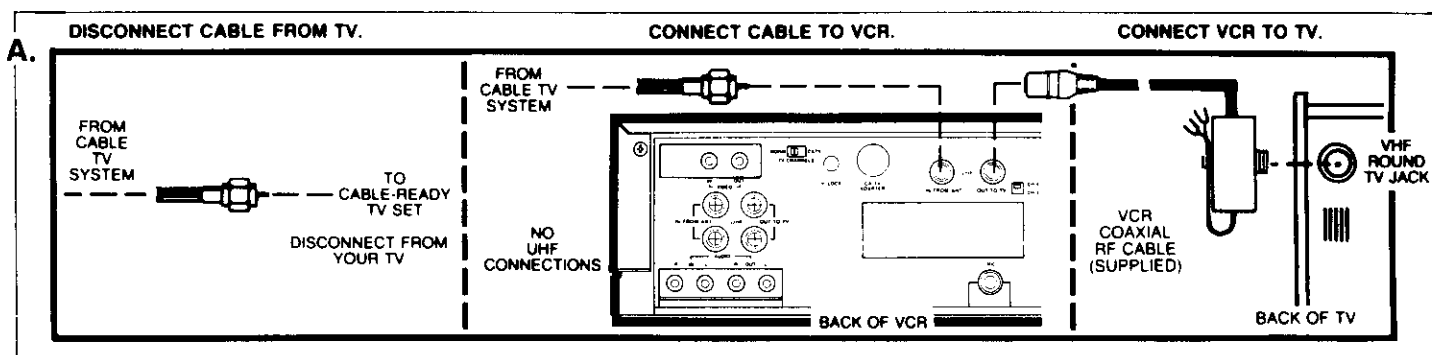
# Cable-TV Connections

Your VCR is designed to receive **unscrambled** cable channels 2 thru 13, 14 thru 36 (A-W), 37 thru 94 (W+1 to W+58), 95 thru 99 (A-5 to A-1), and 01 (A-8) without a "converter box."

The way you interconnect your VCR and TV with a cable system depends on (a) whether your TV is cable-compatible and (b) whether any channels on your cable-TV system are scrambled. Use the Selection Chart at the right to determine which one of the following four Cable-TV connection diagrams (A-D) you should use.

If you wish to record one or more local UHF channels that your Cable-TV system does not offer, first follow the appropriate cable-TV connection instructions described below. Then connect your UHF antenna to the VCR as described in the section titled "Antenna Connections."

IF YOUR TV IS:	AND YOUR CABLE-TV SYSTEM HAS:	THEN USE DIAGRAM
cable-compatible	no scrambled channels	A
	some or all channels scrambled	D
not cable-compatible	no scrambled channels	B or C
	some or all channels scrambled	D



When you use this set of connections, keep your TV tuned to the channel you have been using (usually channel 3 or 4) and use the converter box as you always have for normal TV viewing and for viewing some other channel while you are recording.

When you want to view the channel you are recording, or when you play the VCR, tune the "converter box" to the same channel that you have set the channel switch on the back of the VCR, either channel 3 or 4. (This is called the "VCR channel" throughout the operating instructions in this manual.)

## Special CATV Adapter

Your VCR has a connector for a "CATV Adapter" (RCA CAD030) which you may purchase as an accessory. Connecting cables and installation instructions are included. Among its features are:

- It simplifies the use of your VCR with a TV set being operated with a converter/descrambler.

- VCR timer recording and recording one channel while watching another is possible for both regular and scrambled channels.
- A TV game can be included for electronic switching without changing connections.
- A built-in high performance booster reduces signal loss.
- See page 33 for more information.

(Continued on next page)

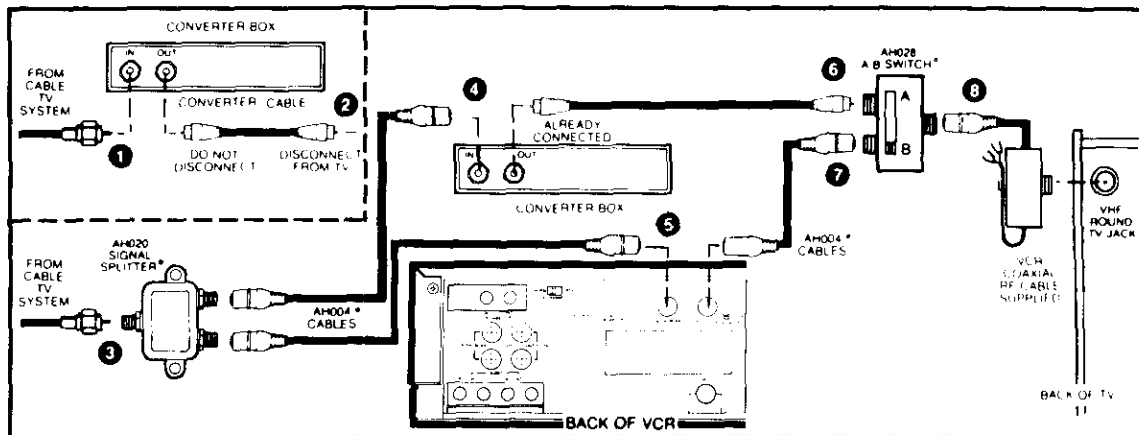
# Cable-TV Connections (continued)

C.

When you use these connections the A-B switch is used to select either the converter output or the VCR output.

This arrangement will let you use your VCR as a "remote-controlled converter box" when you are not recording.

- 1 Disconnect Cable-TV from converter.
- 2 Disconnect TV from converter cable.
- 3 Connect Cable-TV to input of splitter.
- 4 Connect splitter to converter.
- 5 Connect splitter to VCR.
- 6 Connect converter to A-B switch.
- 7 Connect VCR to A-B switch.
- 8 Connect A-B switch to TV.



\* Optional accessory available from your RCA Dealer.

### Use "A" Position of A-B Switch For:

- Viewing any cable-TV channel while you record some other channel with the VCR.
- Viewing all scrambled channels.
- Viewing cable channels when the VCR is turned off. (Cable channels 2 through 13 can also be viewed with the VCR turned off and the A-B switch set to position "B.")

### Use "B" Position of A-B Switch For:

- Playing a recording.
- Viewing a nonscrambled channel at the same time you are recording it (channel selected with the VCR tuner).
- Using the VCR remote control to select channels for viewing when the VCR is not recording.

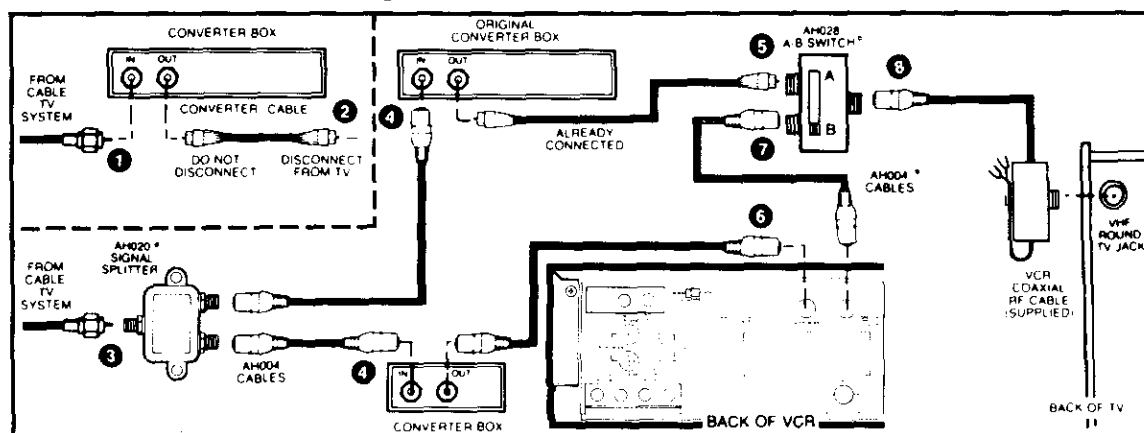
**Note:** When you set the A-B switch to "B," tune your TV to the same channel that you have selected on the back of your VCR (3 or 4). This is called the "VCR channel" throughout this manual.

D.

This system requires two "converter boxes" from your cable-TV company, and there may be an additional

charge. All channels must be selected with the converter boxes, both for recording and normal TV viewing.

- 1 Disconnect Cable-TV from converter.
- 2 Disconnect TV from converter cable.
- 3 Connect Cable-TV to input of splitter.
- 4 Connect splitter to each of the converters.
- 5 Connect one converter to A-B switch.
- 6 Connect other converter to VCR.
- 7 Connect VCR to A-B switch.
- 8 Connect A-B switch to TV.



\* Optional accessory available from your RCA Dealer.

### Use "A" Position of A-B Switch For:

- Viewing any cable-TV channel while you record some other channel with the VCR.
- Viewing any cable-TV channel when your VCR is turned off.

### Use "B" Position of A-B Switch For:

- Playing a recording.
- Viewing any channel at the same time you are recording it. Select the channel with the converter that is connected to the VCR, and tune the VCR to the output channel of the converter (usually 3 or 4).

**Note:** When you set the A-B switch to "B," tune your TV to the same channel that you have selected on the back of your VCR (3 or 4). This is called the "VCR channel" throughout this manual.



# TV Monitor/Receiver Connections

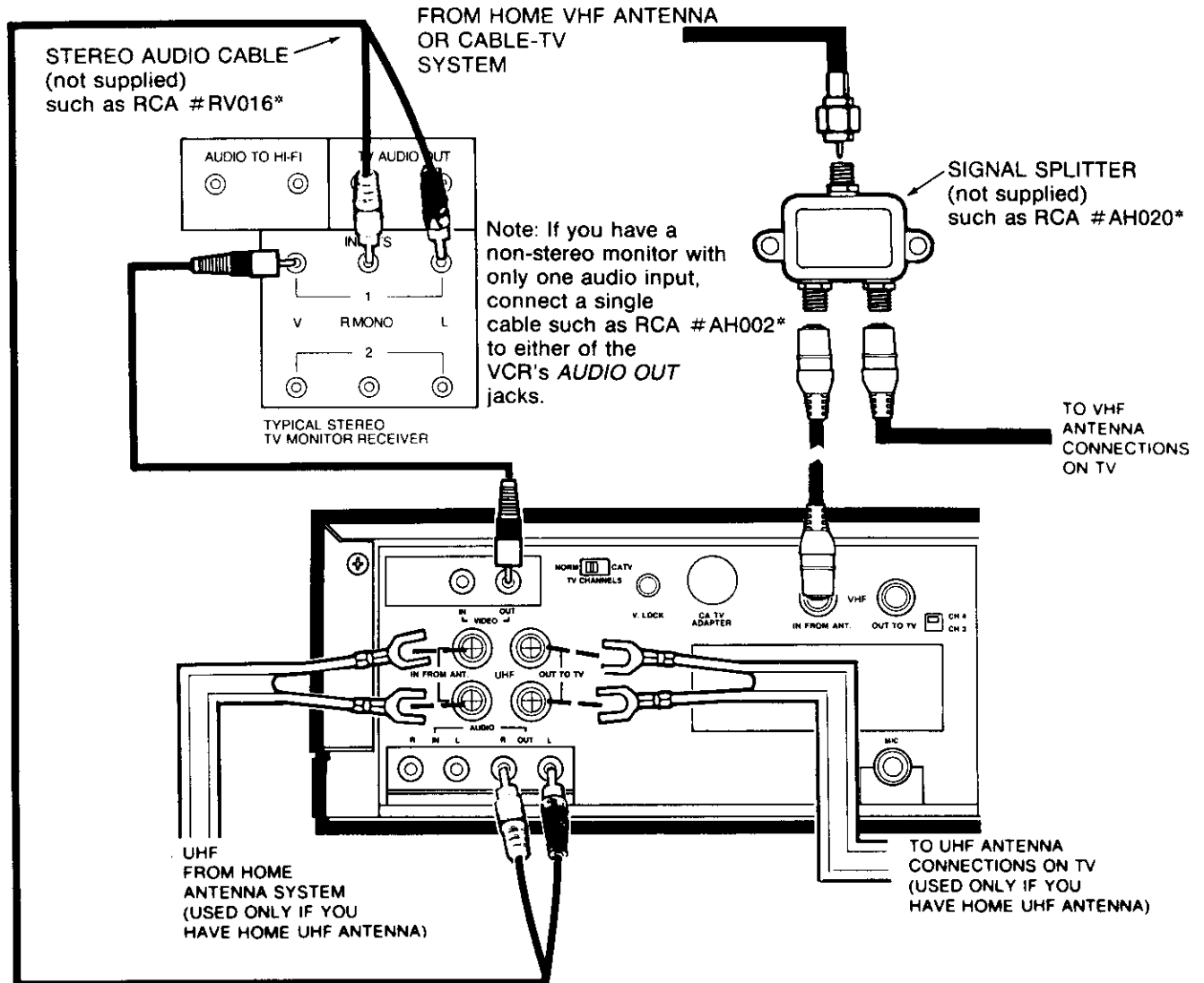
## Direct Video and Audio Connections

Connecting the video output of your VCR to the video input jack of your TV monitor/receiver may produce a slightly better picture during playback. This "direct" signal connection bypasses the TV tuner during playback.

If your TV monitor/receiver has a stereo amplifier for TV sound, connect the stereo audio outputs from the VCR to the stereo audio input jacks of the TV monitor/receiver as shown in the drawing on this page. Both the video and

audio connections are necessary so that you can hear stereo sound when you play a stereo cassette, and when you are viewing and recording the same channel.

If your TV monitor/receiver does not have a stereo amplifier, you will probably want to connect the audio output from your VCR to your stereo amplifier or receiver. The instructions are on the next page.



\*Optional accessory available from your RCA dealer

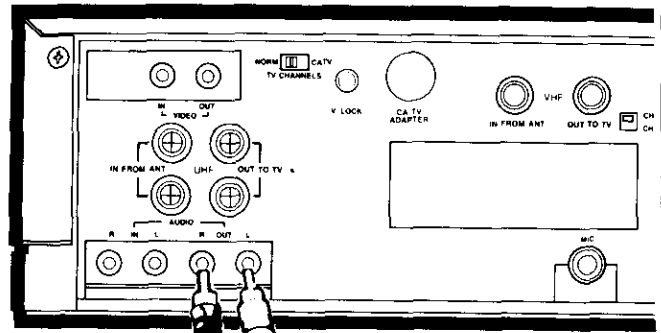
## Operating Instructions

- For normal VHF or cable-TV viewing independent of the VCR, use the TV monitor/receiver's *TUNER INPUT* and select channels with the monitor/receiver's tuner.
- For viewing the channel being recorded, use the TV monitor/receiver's *VIDEO INPUT* and select the channel with the VCR tuner.
- For recording one channel while viewing another, use the TV monitor/receiver's *TUNER INPUT*. Use the VCR tuner to select the channel to be recorded. Use the TV monitor/receiver's tuner to select the channel to be viewed.
- For playing a cassette, use the TV monitor/receiver's *VIDEO INPUT*.

# Stereo Amplifier Connections

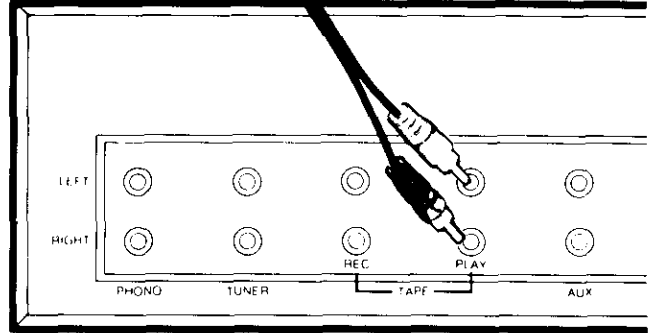
## Playback Connections

- Stereo sound from your video cassettes can be played by connecting the VCR to the stereo amplifier/receiver of your audio equipment. These connections will also let you enjoy broadcast stereo TV by using the VCR's stereo tuner to receive the station. You can listen to the broadcast stereo sound, whether or not you choose to record the program.
- Some stereo amplifiers and receivers have two sets of "TAPE" jacks, one set for an audio tape deck and another set for a VCR. If your amplifier has both sets, connect your VCR to the set of jacks for the VCR. Follow the instructions in your amplifier/receiver owner's manual. If your stereo amplifier does not have a set of jacks for a VCR, use the following instructions and diagram.
- The connector panel shown in the drawing is typical of many amplifiers; however, the locations of the jacks and the number of inputs and outputs will vary. Read the amplifier/receiver manual before connecting your VCR.
- The cable leading from the *AUDIO OUT* jacks on the VCR to the *TAPE PLAY* jacks on the amplifier is for playing your VCR through the stereo amplifier. Follow the instructions in your amplifier/receiver owner's manual for playing sound from a tape recorder.
- A stereo audio cable is shown in the drawing. The connectors on it are color coded: *RED* for the right channel and *WHITE* for the left channel. You can use single-conductor cables if you prefer (RCA # AH002). In all cases be sure you connect left output to left input and right output to right input.
- If you already have a tape deck connected to the tape inputs on your amplifier, and you want to connect your VCR to the amplifier for playback only, you can use another input such as *AUX*, *TUNER*, or *CD*.



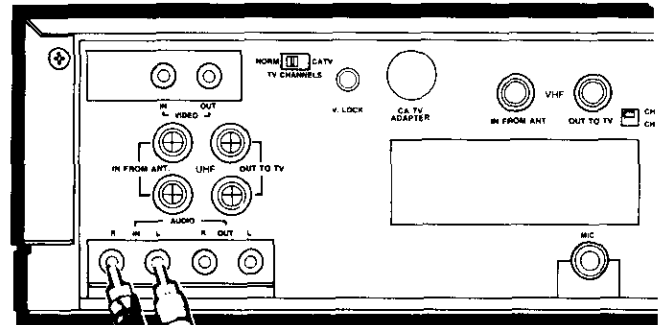
STEREO AUDIO CABLE  
(not supplied) SUCH  
AS RCA PART NO. RV016

TYPICAL  
STEREO  
AMPLIFIER



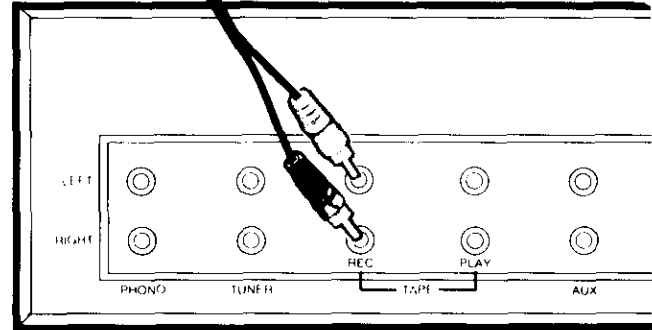
## Recording Connections

- You can use your VCR to record stereo sound from your amplifier/receiver by connecting them as shown at the right. Stereo audio alone can be recorded with your VCR, or you can record stereo audio from the amplifier/receiver along with video from a TV broadcast (TV/FM simulcast).
- Some stereo amplifiers and receivers have two sets of jacks, one set for an audio tape deck and another set for a VCR. If your amplifier has both sets, connect your VCR to the set of jacks for the VCR. Follow the instructions in your amplifier/receiver owner's manual. If your stereo amplifier does not have a set of jacks for a VCR, use the following instructions and diagram.
- The connector panel shown in the drawing is typical of many amplifiers; however, the locations of the jacks and the number of inputs and outputs will vary. Read the amplifier/receiver manual before connecting your VCR.
- The cable leading from the *TAPE REC* jacks on the amplifier to the *AUDIO IN* jacks on the VCR is for recording the sound you have selected with the amplifier's input selector switch. Follow the instructions in your amplifier/receiver owner's manual for recording sound from the amplifier.
- A stereo audio cable is shown in the drawing. The connectors on it are color coded: *RED* for the right channel and *WHITE* for the left channel. You can use single-conductor cables if you prefer (RCA # AH002). In all cases be sure you connect left output to left input and right output to right input.



STEREO AUDIO CABLE  
(not supplied) SUCH  
AS RCA PART NO. RV016

TYPICAL  
STEREO  
AMPLIFIER



# What Your VCR Will Do

## **Broadcast/Cable Frequency-Synthesis Tuner**

Provides accurate selection of VHF/UHF TV channels or up to 99 unscrambled cable channels.\* Quartz-controlled electronics automatically lock the system onto the signal, eliminating the need for fine tuning. Bright, easy-to-read channel display.

\*Local systems may vary; check your cable company's compatibility requirements.

## **Auto Programming**

Preset available channels into VCR's electronic scan memory at the touch of a single button. Eliminates cumbersome manual programming steps. After automatic programming, channels can be selected by remote control scanning — either up or down. *Add* and *Erase* buttons also are included for tailoring memory scan list to personal preference.

## **Broadcast Stereo Recording Capability with Bilingual Audio Channel Reception (SAP)**

Receive and record stereo sound from BTSC stereo TV broadcasts, where available — no modification or special equipment is required. External stereo system or compatible stereo TV required for stereo playback.

Also lets you record broadcast stereo while at the same time recording the bilingual (SAP) channel, where available. Choose either standard or bilingual channel on playback.

## **8-Hour Recording Time**

Up to eight hours of uninterrupted record/playback time are available in SLP mode with the RCA T-160 cassette. During VHS Hi-Fi recording, that's comparable to ten or more LP albums — long enough to preserve hours of music on a single tape without the need to change sides. Standard Play (SP) and Long Play also are included to ensure compatibility with all VHS-format tapes. VCR automatically selects correct playback speed. LED indicators signal tape speed.

## **VHS Hi-Fi Stereo**

VHS Hi-Fi is a technological breakthrough that delivers amazingly lifelike high fidelity stereo reproduction at all three tape speeds with a dynamic range of more than 80 dB. (Conventional VCR's, by comparison, approach only 45-55 dB.) The secret is in the headwheel, which contains two audio heads in addition to the video heads. Audio signals therefore are recorded at the same speed as video signals — a rate over a hundred times faster than conventional audio recording. As a result, playback audio approaches the quality of advanced digital audio.

Plays all standard prerecorded VHS tapes, whether stereo or mono. Stereo audio outputs permit hook-up to an external audio system or stereo TV. Stereo audio inputs make Hi-Fi recordings from an external system possible at home — even without a video signal. Automatic level control (ALC) self-adjusts recording levels. Also features right/left slide controls and illuminated peak indicators for manual recording level adjustments.

## **Sound-with-Sound Audio Dub**

Without affecting the Hi-Fi soundtrack, new audio can be recorded onto the linear sound track of a previously recorded cassette, erasing original linear audio. Optional microphone or external audio system required. On playback, Hi-Fi track, linear track, or mix of both may be chosen.

## **VHS HQ Picture Quality**

This VCR incorporates VHS HQ (High Quality) circuitry for

improved picture quality. It is fully compatible with earlier VHS VCR's.

## **Infrared Remote Control**

Provides wireless VCR control from the comfort of an easy chair. This VCR can also be operated with an RCA Digital Command remote control and integrated into a unified RCA audio/video system.

## **Remote Programming with On-Screen Display**

With RCA's advanced remote control, all VCR timer programming can be done from across the room. At the touch of a button, simple easy-to-follow instructions appear on TV screen to guide the viewer through each programming sequence. Built-in computer memory can be preset up to a year in advance to record as many as eight programs automatically. Backup circuitry retains programming instructions to prevent VCR memory loss in case of brief power interruptions.

## **Delayed-Start Express Recording (XPR)**

Two touch-buttons permit automatic timer recording without the need for numerous programming steps. Just enter starting time and length of desired program up to 24 hours before it airs. VCR will turn on at the correct time, record the program and automatically shut off.

## **On-Screen Display Graphics**

Vivid display appears on TV screen to provide visual confirmation of commands to VCR. Includes day/date, time, channel, as well as on-screen tape counter to indicate relative position of programs on cassette. Counter memory automatically stops tape at desired point during rewind or fast forward.

## **"Field-Still" Video System with Jitter-Free Special Effects (SP and SLP modes)**

Sophisticated 5-head record/playback system with jitter-free "field-still" video performance provides these special effects in SP and SLP modes: *Forward* and *Reverse Search*; *Stop Action*; *Frame Advance*; *Variable Speed Slow Motion*.

## **Electronic Program Indexing**

Simplifies finding start of recorded programs by automatically encoding an electronic signal on the tape at beginning of each new recording. During Fast Forward or Rewind, the VCR will stop at each encoded signal, preview a brief segment in Play mode and continue to next signal. When desired point is reached, simply press *PLAY* for normal viewing.

## **Automatic Rewind**

Cassette is rewound automatically when end of tape is reached. If VCR is turned off during rewind, it will finish rewinding the cassette before shutting off. (To prevent accidental erasures, Auto Rewind is not operative in "Timer" mode.)

## **Scene Transition Stabilizer**

Minimizes picture break-up that can occur when pause control is used during recording. Result is smooth transition between taped segments.

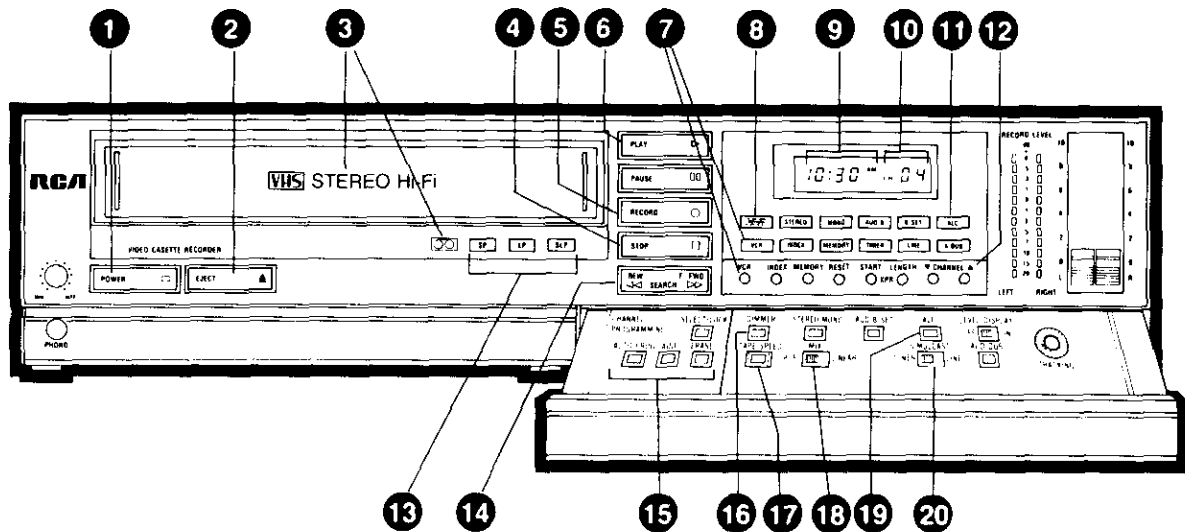
## **Headphone Jack**

Optional headphones can be plugged into VCR for private stereo listening during recording or playback.

## **Unswitched AC Outlet**

Power additional audio or video components (maximum 300 watts) directly from the VCR. Components plugged into outlet operate regardless of whether VCR is on or off. Helps minimize cords at wall outlet.

# Basic Operation

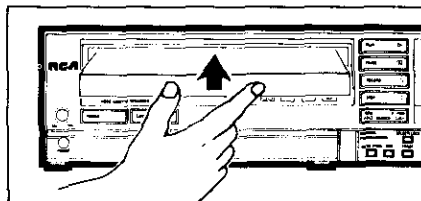


Now that you have connected your VCR to your TV and antenna or cable-TV system, you are ready to turn it on. You don't need to know all the details about the controls and display before you begin using your new VCR, so only those you will use for basic recording and playback are discussed here. Additional information about the controls is on pages 16-17.

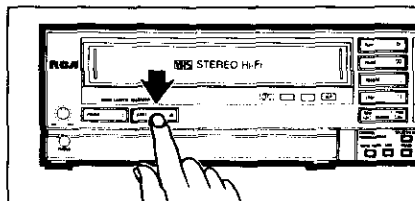
## Basic Operating Controls and Displays

- 1 **POWER:** Turns the VCR on and off.
- 2 **EJECT:** Ejects the cassette from the VCR.
- 3 **CASSETTE COMPARTMENT AND INDICATOR:** Instructions for inserting and removing cassettes are at the bottom of this page. The indicator is on when a cassette is in place.
- 4 **STOP:** Stops whatever the VCR is doing (Record, Play, Rewind, Fast Forward, and Special Effects described on page 17).
- 5 **RECORD:** Press **RECORD** and **PLAY** at the same time to begin recording.
- 6 **PLAY:** Starts playback.
- 7 **VCR/TV SWITCH:** Selects the signal source that is fed to your TV. When the light above the button is off, your TV receives signals from your VHF antenna or from the cable-TV system. When the light is on, signals come from the VCR tuner or the tape that is playing. (This switch is called the "VCR/TV switch" in this manual to avoid confusion with the VCR itself.)
- 8 **Hi-Fi INDICATOR:** Lights when VHS Hi-Fi sound is being played back.
- 9 **TIME DISPLAY:** The time is normally shown here. If the clock has stopped you will see "--:--" in this area.
- 10 **CHANNEL DISPLAY:** Shows channel to which VCR is tuned.
- 11 **ALC INDICATOR:** Lights when Automatic Level Control is turned on (switch 19).
- 12 **CHANNEL:** ▼ selects the next lower channel and ▲ selects the next higher channel. (Channels must first be programmed - see next page.)
- 13 **TAPE SPEED INDICATORS:** Show tape speed.
- 14 **REW ◀◀ F.FWD ▶▶:** Press **REW** to rewind the tape when the VCR is stopped. Press **F.FWD** to fast forward the tape. Pressing these buttons while the VCR is playing causes the VCR to search backward or forward thru the tape.
- 15 **CHANNEL PROGRAMMING:** See "Programming Active Channels into the VCR Tuner" on page 11.
- 16 **DIMMER:** Alternately produces a bright or dim display.
- 17 **TAPE SPEED:** Selects tape speed for recording. The lighted indicators ( 13 ) show the tape speed during recording and playback. Use **SLP** for now.
- 18 **HI-FI/MIX/LINEAR:** Set this switch to **Hi-Fi** for normal playback.
- 19 **ALC ON/OFF:** Alternately turns the ALC (Automatic Level Control) on and off. Turn on the ALC (indicator 11 on) for normal recording.
- 20 **TUNER/SIMULCAST/LINE:** Be sure it is set to **TUNER** for recording TV programs.

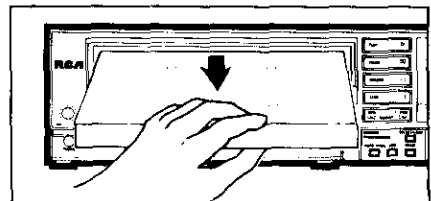
## Inserting and Removing Cassettes



**To Insert:** Turn on the VCR and then push the cassette through the door until the VCR mechanism pulls it into the compartment. Light 3 turns on when the cassette is in place.



**To Eject:** Power must be on to eject the cassette. Rewind the cassette before ejecting it. Press **EJECT**.



**To Remove:** The cassette will come partially out of the compartment so you can pull it out. Put the cassette in its box and store it upright.

# Basic Operation (continued)

## Turning on Your VCR for the First Time

When you have finished connecting the cables to your antenna and TV, plug in the VCR's power cord and press **POWER**. The light in the **STOP** button should come on. If it flashes, too much moisture has collected inside the unit for it to operate. Leave the VCR turned on until the internal heat dries it and the light stops flashing. Proceed below when the light in the **STOP** button is on and not flashing.

## Programming Active Channels into the VCR Tuner

The **AUTO PROG** (Automatic Programming) button makes it simple to program TV stations into the VCR's scan list. The scan list is the list of channels that your VCR tuner stops on when you press the **CHANNEL ▲** or **CHANNEL ▼** button. The scan list is empty, however, until you program active channels as described below.

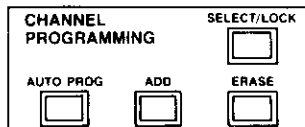
**Note:** You must program the tuner as described below before you can use the **CHANNEL ▲/▼** buttons.

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 power is interrupted for an extended period.

To program active channels:

1. Turn on the VCR by pressing the **POWER** button.
2. Set the **NORM/CATV** switch on the back of the VCR to the **NORM** position if your VCR is connected to a home antenna system. Set the switch to the **CATV** position if your VCR is connected to a cable-TV system.

**Note:** Your VCR was shipped from the factory with the switch set to **NORM**.



3. Press and release the **SELECT/LOCK** button. The channel number will begin flashing.
4. Press and release the **AUTO PROG** button. The tuner will automatically search through all the channels and place the channel numbers it receives in the scan list. This takes about a minute. The channel number in the display will stop changing when the tuner is finished searching.
5. Press **SELECT/LOCK**. The channel number will stop flashing, and Automatic Programming is completed. Now you can use the **CHANNEL ▲** and **▼** buttons to select channels.
6. Now turn on your TV and adjust it to view what the VCR tuner is receiving, as explained in the next column.
7. After you have set up your TV to view the VCR, you may want to delete channels from the scan list, or add channels to it. The instructions are on the next page.

### Notes:

- Channel numbers flash when the **SELECT/LOCK** switch is in **SELECT**, and the **CHANNEL ▲/▼** buttons will select every channel, whether or not it is in the scan list.
- Channel numbers do not flash when the **SELECT/LOCK** switch is in **LOCK**, and the **CHANNEL ▲/▼** buttons will select only those channels that are in the scan list.

## Setting Your TV to the VCR Channel

The "VCR Channel" is the TV channel you use for viewing what the VCR is recording or playing, and for viewing the signal from VCR tuner when it is stopped. Your TV must be set to this channel, and the **VCR** light above the **VCR/TV** switch on your VCR must be on.

Selecting the VCR Channel is normally a one-time procedure, since there is little reason ever to change it. Proceed as follows:

1. Be sure the **TUNER/SIMULCAST/LINE** switch behind the auxiliary control door is set to **TUNER**.
2. Decide whether you want to view your VCR on Channel 3 or Channel 4 of the TV. If one of these channels is vacant in your area, you should use it. Otherwise, pick the channel you view less.
3. Set the channel switch on the back of the VCR to whichever channel you have chosen.
4. Turn on your TV and tune it to the same channel. This is the "VCR Channel."

## Setting the VCR/TV Switch

1. Push the **VCR/TV** switch so that the **VCR** light is on. When the light is on, the VCR is in the "VCR Mode" and your TV must be tuned to the VCR channel (channel 3 or 4). Your TV will then display the tape that you are playing or whatever channel the VCR is tuned to.
2. Push the **VCR/TV** switch again so that the **VCR** light is out. When the light is out, the VCR is in the "TV Mode," and your TV will work like it did before you connected the VCR.

The **VCR/TV** switch allows you to record one program with the VCR while you watch another program on your TV. To do this, first put the VCR in the "VCR Mode" (light on) and start recording the program. Then press the **VCR/TV** switch to go to the "TV Mode" (light out) and tune your TV to whichever channel you want to watch.

**Note:** Your VCR automatically switches to the "VCR Mode" (**VCR** light on) when you turn it on with the **POWER** button, and when you start playing a tape.

# Basic Operation (continued)

## Simplified Installation Checklist

Use this checklist to determine quickly if you have completed all the steps for installation and basic operation.

- [ ] Make sure your VCR is connected properly as explained on pages 2-8.
- [ ] Press *POWER* to turn on the VCR.
- [ ] Set the *NORM/CATV* switch on the back of the VCR to *NORM* if you have a home antenna system. Set the switch to *CATV* if you have cable TV.
- [ ] Program active channels into the VCR's scan list. Press *SELECT/LOCK*, press *AUTO PROG*, wait about one minute, and then press *SELECT/LOCK* again.
- [ ] Select the "VCR Channel".  
First set the *CH 3/CH 4* switch on the back of the VCR to the channel you prefer and then tune your TV to the same channel. This is called the "VCR" Channel" throughout this manual.
- [ ] Learn how to use the *VCR/TV* switch and *VCR* light.
  - When the *VCR* light is on, the VCR is in the "VCR Mode" and your TV must be tuned to the "VCR Channel" (3 or 4). Then your TV will display the tape you are playing or the program from which ever channel the VCR tuner is tuned to.
  - When the *VCR* light is off, the VCR is in the "TV Mode" and your TV will work like it did before you connected the VCR.
- [ ] Delete or add individual channels into the VCR tuner's scan list as desired. (Detailed instructions are in the next column.)

## Deleting Channels from the Scan List

You may want to have only a few favorite channels in the scan list so you can select them more quickly with the *CHANNEL ▲ AND ▼* buttons. (Use the numbered buttons on the remote control to select channels you have deleted from the scan list.) Occasionally Automatic Programming may include a blank channel in the scan list if there happened to be some sort of "noise" or "stray signal" on the channel when the tuner was programmed.

Use this procedure to delete any unwanted channels from the scan list:

1. Use the *CHANNEL ▲* or *▼* button to select the channel that you want to remove from the scan list.
2. Press *SELECT/LOCK*. The channel number will begin flashing.
3. Press *ERASE*.  
The sound will go off, which tells you that the channel number has been deleted from the scan list.
4. Press *SELECT/LOCK* again.  
This returns the tuner to normal operation. The number will stop flashing and will no longer be in the scan list.
5. Repeat this procedure for each channel you want to delete from the scan list.

### Notes:

- Channel numbers flash when the *SELECT/LOCK* switch is in *SELECT*, and the *CHANNEL ▲/▼* buttons will select every channel, whether or not it is in the scan list.
- Channel numbers do not flash when the *SELECT/LOCK* switch is in *LOCK*, and the *CHANNEL ▲/▼* buttons will select only those channels that are in the scan list.

## Adding Channels to the Scan List

You may have deleted a channel from the scan list and want to put it back. Occasionally Automatic Programming may "miss" an active channel because the signal is very weak, or because the the channel happened to be "off the air" when the tuner was programmed.

Use this procedure to put any channel in the scan list:

1. Press *SELECT/LOCK*. The channel number will begin flashing.
2. Use the *CHANNEL ▲/▼* buttons or the numbered buttons on the remote control to select the channel you want to add to the scan list. There will be picture but no sound at this time, and the channel number will flash.
3. Press *ADD*.  
The sound will come on to tell you that the channel has been added to the scan list.
4. Press *SELECT/LOCK*.  
The channel number will stop flashing to tell you that the tuner is in its normal operating mode.

# Remote Control

Before you use the remote control unit supplied with your VCR, install the batteries (instructions below). Several of the remote's buttons do the same things as buttons with the same names on the front of your VCR, and you can use whichever one is more convenient at the moment. The remote control has additional buttons for controlling some of the VCR's Special Effects and Features, and it is also used for setting the clock and programming the timer.

Since the remote control operates the VCR by infrared light, it is immune to electrical and sound interference. However, you must aim the remote unit directly at the VCR. There cannot be any obstructions between them.

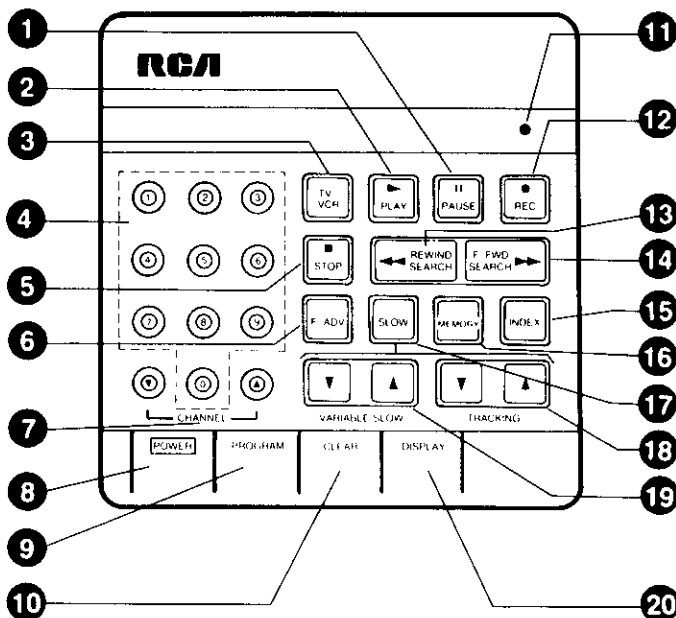
## Battery Installation

The batteries supplied with your remote control are packed separately. To install them in the hand unit:

1. Turn the hand unit over and remove the cover of the battery compartment.
2. Insert the batteries so that their positive (+) ends contact the positive terminals in the battery compartment. These are marked (+) in the bottom of the compartment.
3. Replace the cover.

Replace the batteries when your VCR fails to respond to the remote control. Replacement batteries are widely available. Use size "AA" 1.5 volt cells. Alkaline type batteries are preferred. Good batteries should last a year or more in normal service.

Avoid laying the remote control upside down or placing things on top of it. This could depress the buttons and discharge the batteries. If you are not going to use the hand unit for a month or more, it is wise to remove the batteries to avoid leakage.



**Note:** Selected models of RCA color TV receivers and monitor/receivers feature hand units that will also remotely control your VCR. See page 31 for details.

- 1 **PAUSE:** Same as *PAUSE* on the VCR.
- 2 **PLAY:** Same as *PLAY* on the VCR.
- 3 **TV VCR:** Same as the *VCR/TV* switch on the VCR.
- 4 **NUMBERED BUTTONS:** 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 numbered buttons are also used for setting the clock and programming the timer.
- 5 **STOP:** Same as *STOP* on the VCR.
- 6 **F. ADV:** (Frame Advance) Advances the picture from frame to frame during stop-action viewing. This is explained on page 17.
- 7 **CHANNEL ▲ and ▼:** Same as the *CHANNEL* buttons on the VCR.
- 8 **POWER:** Same as *POWER* on the VCR.
- 9 **PROGRAM:** Used for setting the clock and programming the timer.
- 10 **CLEAR:** Used for setting the clock and programming the timer. Also resets the tape counter to 0000.
- 11 **INDICATOR:** Blinks when the remote sends a command to the VCR.
- 12 **REC:** Same as *RECORD* on the VCR. (Press both *PLAY* and *REC* to begin recording.)
- 13 **REWIND/SEARCH ◀◀:** Same as *REW/SEARCH* ◀◀ on the VCR.
- 14 **F. FWD/SEARCH ▶▶:** Same as *F. FWD/SEARCH* ▶▶ on the VCR.
- 15 **INDEX:** Turns Program Indexing on and off. See "Electronic Program Indexing" and "Indexed Playback" on page 18.
- 16 **MEMORY:** Same as *MEMORY* on the VCR.
- 17 **SLOW:** Used to switch from normal playback to Slow-Motion play. VCR must be in *PLAY* when *SLOW* is pressed. Press *PLAY* to resume normal playing speed.
- 18 **TRACKING ▼ and ▲:** If horizontal streaks ("noise bars") appear in the picture during Slow-Motion Playback, press one or the other of these buttons to move the "noise bar" up or down and out of the picture.
- 19 **VARIABLE SLOW ▼ and ▲:** After you have begun Slow-Motion playback, use these buttons to decrease or increase the Slow-Motion speed.
- 20 **DISPLAY:** Controls the On-Screen Displays in a four-step sequence. (The TV must be turned on and tuned to the VCR channel.)  
 First keypress: Displays VCR status on the TV. (The display comes on automatically whenever you change VCR status.)  
 Second keypress: (Must be made before the display disappears from the TV screen.) Erases everything from the display except the *TAPE COUNTER*.  
 Third keypress: Turns off all the On-Screen Displays. (This is useful if you are dubbing a tape and do not want the On-Screen Displays to be recorded.)  
 Fourth keypress: Returns the On-Screen Displays to normal operation.

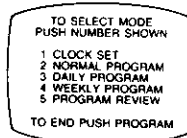
# Setting the Clock

Here are some things you should know before you set the clock:

- When you first plug in your VCR, the clock will read "--:--".
- The buttons for setting the clock are on the remote hand unit.
- While you are setting the clock, the display on the TV screen will prompt you through the procedure.
- If you press a wrong digit, press *CLEAR* repeatedly until the incorrect digit flashes, and then enter the correct digit.
- If you enter an illogical time or date (13th month for example) a question mark will appear instead of the illogical entry. Simply enter the correct digit to replace the question mark.
- The clock must be set to the correct time before you can program the timer for unattended recordings or use Express Recording (XPR)
- If power is interrupted for an extended period, you will have to reset the clock and re-enter your programs in the timer.

- [1] Turn on your TV and tune it to the VCR Channel (channel 3 or 4). The VCR Channel is explained on page 11.

Turn on the VCR.  
Press *PROGRAM* on the remote hand unit  
This "menu" will appear on the TV.



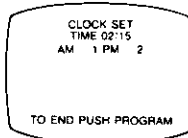
Press "1" to set the clock

- [2] The display prompts you to set the time.



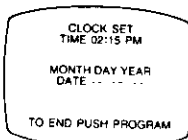
Set the time by pressing two digit buttons on the remote for the current hour and two more for the minute.  
(For example, press 0 2 1 5 for 2:15.)

- [3] The display prompts you to select AM or PM.



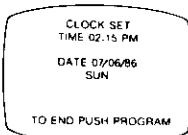
Press "1" for AM or press "2" for PM.

- [4] The display prompts you to set the date.



Set the date by pressing six digits in order for the month, day, and year. (For example, press 0 7 0 6 8 6 for July 6, 1986.)  
Always press "0" before single-digit months and days.

- [5] The day of the week will appear when you have entered all six digits for the date.



Press *PROGRAM* to start the clock. (Note that the display on the VCR will show the correct time after you press *PROGRAM*.)

Press *PROGRAM* again to return to the program you were watching.



# First Recording and Playback

This page gives the basic steps for recording and playback. You should practice them until you can do them without referring to the manual. To save time, we suggest you record for only two or three minutes.

The first drawing shows how to make a recording, and the second one shows how to play it back and turn off the VCR. The operating notes at the bottom of the page are keyed to the step numbers for quick reference if you have a problem or need more information.

## Making a Recording

1 TURN ON TV.

2 TUNE TV TO VCR CHANNEL (3 OR 4).

3 TURN ON VCR.

4 INSERT CASSETTE.

5 SET SPEED TO SLP.

6 SET TO Hi-Fi.

7 TURN ON ALC.

8 SET TO TUNER.

9 SELECT CHANNEL.

10 PRESS BOTH PLAY AND RECORD.

11 STOP WHEN FINISHED.

## Playing It Back

12 REWIND TAPE.

13 START PLAYBACK.

14 STOP WHEN FINISHED.

15 REWIND TAPE.

16 EJECT CASSETTE.

17 TURN OFF VCR.

18 TURN OFF TV.

## Operating Notes

- 2 The channel switch on the back of the VCR and the channel selector on your TV must be set to the same channel.
- 3 If the light in the STOP button flashes, wait until it lights continuously. This is not a problem with the VCR. A flashing light indicates too much internal moisture is present.
- 8 Normally record at SLP. Recording speeds are compared on page 20.
- 9 It may be necessary to fine tune the TV for best picture and sound. If there is no picture on the TV and no channel numbers in the display, check that the TUNER/SIMULCAST/LINE switch is set to TUNER.

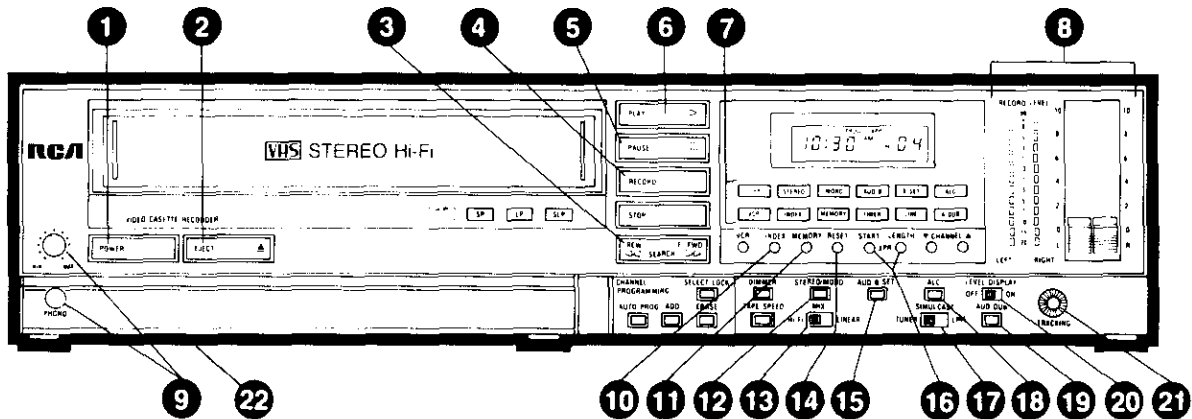
# Operating Controls (Detailed Descriptions)

The uses of the controls for basic operation are on page 10. Now that you are familiar with the basic procedure for recording a TV program and playing it back, you are ready to learn the rest of the control functions. (Buttons described completely on pages 10-14 are not numbered in the drawing below.)

The controls of your VCR are designed so that:

- Accidentally pressing a wrong button will not damage the VCR or the cassette.
- Non-essential buttons are disabled during recording to help you avoid accidental interruptions.

- Operation of the VCR is automatic whenever this is feasible.
- Automatic recording functions (Timer and XPR) will not disturb normal TV viewing.
- If you run out of tape during playback or normal recording, the VCR rewinds it and stops automatically. If tape runs out during Timer or Express Recording, the VCR stops without rewinding.
- Because of these features, the functions of some control buttons depend on the condition of the VCR at the time they are used.



**1 POWER:** When the VCR is turned off, the timer is automatically turned on if it has been programmed. When the VCR is turned on, the timer is automatically turned off. Your VCR will not make a timer recording if it is already turned on at the time.

The VCR will stop and turn off if you press the **POWER** button during Recording, Playback, or Fast Forward. If you press it during rewind, the VCR will continue rewinding until it is finished and then turn off.

The **POWER** button operates differently during Timer and Express recording. Press **POWER**, **STOP** in that order to stop the VCR during a Timer recording.

**2 EJECT:** The **EJECT** button will not operate when the VCR is recording. It will eject the cassette in any other mode of operation.

**3 REW/◀◀ SEARCH ▶▶/F.FWD:** This is the **REWIND/FAST FORWARD** button when the VCR is stopped. When you press the **REW** end, the VCR will rewind to the beginning of the tape (or to a counter reading of 0000 if memory is turned on) unless you press **STOP**. When you press the **F. FWD** end, the tape will continue to "fast forward" until you press the **STOP** button. If you do not press the **STOP** button, the VCR will "fast forward" to the end of the tape and then automatically rewind. See "Memory Stop" on page 18.

This same button becomes the **SEARCH** button when the VCR is playing. See "Picture Search" on page 17.

The button is inactive during recording.

**4 RECORD:** Press both **RECORD** and **PLAY** to begin recording when the VCR is stopped. You can switch directly from Playback to Recording by pressing both buttons when the VCR is playing.

**5 PAUSE:** Interrupts a recording or switches from normal playback to Stop-Action. Pressing **PAUSE** again resumes recording or normal playback. See "Pause During Recording" and "Pause for Stop-Action Playback" on page 17.

**6 PLAY:** The **PLAY** button is normally used to begin playback when the VCR is stopped. It is also used to switch from Stop Action to Slow-Motion (described on page 17). The **PLAY** button is inactive when the VCR is recording.

## 7 INDICATORS:

**Hi-Fi:** On when VHS Hi-Fi audio is being played back.

**STEREO:** On when stereo audio is being received. The **MONO** light must be off before stereo can be recorded.

**MONO:** Controlled by **12**. All TV sound will be received in monaural when the light is on.

**AUD B:** On when a Second Audio Program (SAP) is being received. SAP will not be recorded unless the **B SET** light is also on.

**B SET:** Controlled by **15**. A Second Audio Program (SAP) can be recorded when the light is on.

**ALC:** Controlled by **16**. On when Automatic Level Control (ALC) is on.

**INDEX:** Controlled by **10**. On when Electronic Program Indexing is on. (See page 18.)

**MEMORY:** Controlled by **11**. On when Memory Stop is on.

**TIMER:** On when the Timer has been programmed and the VCR is turned off.

**LINE:** Controlled by **17**. On when the video and audio input jacks on the back of the VCR have been selected as the recording source.

**A. DUB:** Controlled by **19**. On when Audio Dubbing is in use.

# Operating Controls (Detailed Descriptions)

- 8 AUDIO LEVEL CONTROLS AND DISPLAY:** Control and display the levels of the audio being recorded. The controls are active only when **ALC 18** is turned off. See "Automatic Level Control" on page 19.
- 9 PHONE:** Jack for stereo headphones and control for headphone volume.
- 10 INDEX:** Turns Electronic Program Indexing on and off. See page 18.
- 11 MEMORY:** Press this button once to turn on the Memory Stop feature. Press it again to turn off Memory Stop. See "Tape Counter" and "Memory Stop" on page 18.
- 12 STEREO/MONO:** Prevents stereo reception of TV broadcasts when you turn on the **MONO** light (use if stereo sound is too noisy). When you turn off the **MONO** light, the VCR tuner will receive stereo TV when it is broadcast. See "Broadcast Stereo TV" on page 19.
- 13 HI-FI/MIX/LINEAR:** Use the **HI-FI** position for normal playback. See "VHS Hi-Fi Sound," "Second Audio Program," and "Audio Dubbing" on page 19.
- 14 RESET:** Resets the Tape Counter to 0000. See "Memory Stop" on page 18.
- 15 AUDIO B SET:** Controls the **B SET** light and permits the VCR to record a Second Audio Program (SAP or AUDIO B) when the light is on and an SAP program is being received. See "Second Audio Program" on page 19.
- 16 XPR:** Complete information is on page 27.
- 17 TUNER/SIMULCAST/LINE:** Selects the program source to be recorded. The **TUNER** position is used for recording from the VCR's built-in tuner. The **SIMULCAST** position selects video from the VCR tuner and audio from the **AUDIO IN** jacks on the back of the VCR. The **LINE** position is for recording video and audio connected to the input jacks on the back of the recorder. When the switch is in the **LINE** position, the **LINE** light comes on and the channel display is turned off. See page 24 for recording simulcasts and audio only.
- 18 ALC:** Permits manual adjustment of the audio levels when you turn off the **ALC** light. See "Automatic Level Control" on page 19.
- 19 AUD DUB:** Turns the Audio Dubbing feature on and off. See page 19.
- 20 LEVEL DISPLAY ON/OFF:** Turns the level display on and off. Does not affect the audio levels.
- 21 TRACKING:** See "Tracking Control" on page 18.
- 22 Display Reset:** If the indication or operation of the display appears abnormal, push the switch within the hole located on the bottom of the VCR.

## Special Effects

### Pause During Recording

Press the **PAUSE** button when you are recording to prevent recording short passages of unwanted material. Press the **PAUSE** button again when you are ready to resume recording. Avoid pausing for more than three or four minutes, because the spinning record/playback heads are still in contact with the tape and will eventually wear off the active material. This will cause streaks or spots in the picture when you play the worn part of the tape (called dropouts).

### Recording Speeds for Special Effects

**All of the following Special Effects are designed for use at either SP or SLP speed. Although they may be used with tapes recorded at LP speed, the picture will not be as good as for tapes recorded in SP or SLP.**

### Pause for Stop-Action Playback

Press the **PAUSE** button during playback to stop the action. This lets you examine all the details of the scene, similar to looking at a single frame of a movie film. When you are ready to resume normal playback, press the **PAUSE** button again.

- The stop-action picture may tend to jump up and down slightly. Adjust the control marked **V LOCK** on the back of the VCR to reduce this jitter.
- Using stop-action on a single frame of the picture for a long time can wear the tape, as explained in "Pause During Recording" above. Use **STOP** instead of **PAUSE** to interrupt playback for an extended time. The VCR will automatically switch from Pause to Stop after five minutes.

### Frame Advance

Frame Advance lets you view one Stop-Action "frame" after another. Press **PAUSE** to begin stop-action viewing. Then press **F. ADV** on the remote control each time you want to go on to the next "frame" of the scene. Press **PAUSE** to resume playback at normal speed.

### Slow Motion

While the tape is playing at normal speed, press **SLOW** on the remote control to begin slow-motion viewing. If you are using Stop-Action viewing (Pause during Play) press **PLAY** to begin Slow Motion. To return to normal playback speed, press **PLAY** again. Sound is turned off during slow motion.

The VCR will automatically switch from slow motion to normal play after about five minutes.

It is normal to occasionally see some streaks in the picture during slow motion. Use the **TRACKING** buttons on the remote control to move them up or down and out of the picture.

### Picture Search

The **REWIND/FAST FORWARD** button becomes the **SEARCH** button when you are playing a tape. When you press the end marked **▶▶**, the VCR plays at a higher speed until you release the button. When you press the end marked **◀◀**, the VCR reverses from the normal direction and plays the tape backward at high speed until you release the button. The sound is turned off during picture search because it would not be understandable at the high speed. Expect to see some horizontal lines in the picture when you are searching.

# Special Features

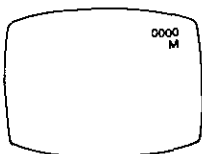
## Memory Stop

Press *MEMORY* to turn on Memory Stop. Now the VCR will stop automatically at 0000 whenever you use *REWIND* or *FAST FORWARD*. (Simply press the *REWIND* button again to rewind to the end of the tape.) If you press *FAST FORWARD* and the counter never reads 0000 between that point and the end of the tape, the VCR will continue to the end of the tape, switch to Rewind, and then stop when the counter reads 0000.

Since you can reset the counter to 0000 at any point on the tape, Memory Stop is convenient for "marking" the beginning of a recording you are going to make, and for finding the part of a recording you want to repeat.

Use this procedure when you want to begin recording somewhere beyond the start of the tape.

1. Turn on the VCR.
2. Use *F. FWD* and *STOP* to locate the point where you want to begin recording.
3. Press the *DISPLAY* button on the remote twice so that the counter is displayed on the screen.
4. Press *MEMORY* on the remote to turn on memory stop. (An "M" will appear on the screen below the counter reading whenever memory stop is on.)  
Note: If you press *MEMORY* again, the "M" will disappear and the memory stop feature will be turned off.
5. Press *CLEAR* on the remote to reset the counter to "0000".
6. When you are finished recording, press *STOP* then *REWIND*. The cassette will rewind until the counter reading reaches "0000".
7. You can now press *PLAY* to view the segment you have selected . . . or press *REWIND* again to rewind the cassette completely.



Use this procedure during playback to mark a point to be repeated.

1. When you see the beginning of the part you want to view repeatedly, press the *CLEAR* button on the remote. This resets the counter to "0000" and shows it on the screen.
2. If the "M" is not showing under the counter reading, press *MEMORY* to turn on the Memory Stop feature.
3. When you have played to the end of the scene, press *STOP* and then *REWIND*. The tape will rewind until the counter reading is "0000" and then stop.
4. Press *PLAY* to view the scene again.
5. Repeat steps 3 and 4 as many times as you like.

## Tape Counter

You can also use the tape counter for making an index of programs on a tape. Simply press *DISPLAY* on the remote to display the counter and press *CLEAR* when the tape is completely rewound. Then note the counter reading at the beginning of each program. A label kit is provided with RCA tapes for listing programs and counter readings.

## Electronic Program Indexing

This indexing method causes electronic "marks" to be recorded on the tape at each point where you begin recording. Later, the VCR can find these "marks" automatically, making it easy to find the beginning of each program for playback. Since these indexing points are permanent (until the tape is erased) they are not lost when the counter is reset or the cassette is removed from the VCR. Program Indexing is especially useful if you record audio only, since sound is muted during normal Picture Search.

An index mark is recorded automatically each time the VCR goes from *STOP* to *RECORD*. If you wish to make an index mark in the middle of a recording, you must press *STOP* then *PLAY* and *RECORD* to restart the recording and make the index mark.

**Note:** Using *PAUSE* for a momentary interruption in a recording does not generate an index mark. If two programs are to be recorded and one immediately follows the other, you must press *STOP* and then press both *RECORD* and *PLAY* if you want to insert an index mark.

## Indexed Playback

The tape must have been indexed beforehand. An indexed tape can be played without using Indexed Playback if you choose.

1. Prepare to play the tape in the usual manner, and then turn on *INDEX* (indicator light on).
2. Press *F FWD* if the tape is completely rewound. Otherwise press either *F FWD* or *REWIND*, depending on the direction you want to search. The tape will "fast forward" or rewind until an index mark is reached. When the VCR finds an index mark, it plays for approximately ten seconds so you can identify the program, and then resumes fast forward or rewind to the next index mark.
3. Press *PLAY* when the desired program has been located.
4. To rewind or fast forward the tape without stopping at the index marks, turn off *INDEX* and then press *REWIND* or *F.FWD*.

## Tracking Control

When you play tapes that were not recorded on the same VCR, streaks may appear in the picture, or VHS Hi-Fi sound may be noisy. Adjust the *TRACKING CONTROL*, located behind the auxiliary control door, in either direction to correct the problem. Return it to its center position when the tape has finished playing. The *TRACKING CONTROL* only affects tape playback. It has no effect during recording.

## VHS Hi-Fi Sound

Your VCR has two separate sound-recording systems, the high-quality "VHS Hi-Fi" system and the standard "linear" system. With two exceptions (see "Second Audio Program" and "Audio Dubbing" on this page) the same sound is recorded by both systems — on separate stereo channels by the VHS Hi-Fi system, and monaurally by the linear system. (The linear track is always recorded, so that the cassette can be played on a VCR that does not have VHS Hi-Fi.)

To hear stereo playback, you must connect your VCR to a stereo amplifier receiver or stereo monitor TV using the stereo audio out jacks. See pages 7 and 8 for connections.

The *Hi-Fi/MIX/LINEAR* switch normally should be set to *Hi-Fi*, because the sound quality from the Hi-Fi tracks is much better. The VCR will automatically switch to the linear system if the Hi-Fi tracks are vacant (for example, if the cassette was recorded on a VCR that does not have VHS Hi-Fi).

## 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 begin recording, be sure the *MONO* light in the display unit is off. If it is lit, press the *MONO/STEREO* button to turn it off. As long as the *MONO* light is off, the *STEREO* light will come on if the station is broadcasting in stereo. Press both *PLAY* and *RECORD* to start recording.

**Note:** If the stereo signal is noisy (from a weak station, for example) press the *STEREO/MONO* switch. This turns on the *MONO* light and turns off the *STEREO* light, and the audio you receive will be monaural. Monaural reception may improve a noisy stereo signal (page 23).

You can use the Timer or XPR for recording stereo TV. Just be sure the *STEREO/MONO* switch is set so that the *MONO* light is off.

## Second Audio Program

Some stations transmit a "Second Audio Program" (SAP). The SAP is normally used for a second language. Get ready to record in stereo as explained above, and then press the *AUD B SET* switch. This will turn on the *B SET* light. When the station broadcasts a Second Audio Program, the *AUD B* light will turn on. Press both *PLAY* and *RECORD* to begin recording.

The stereo sound will be recorded on the VHS Hi-Fi tracks, and the Second Audio Program will be recorded on the linear track. Use the *Hi-Fi/MIX/LINEAR* switch to select the one you want for playback: *Hi-Fi* for the stereo sound or *LINER* for the Second Audio Program. (The *MIX* position will play both.)

To hear the SAP sound while you are making a recording or while you are using the VCR's tuner for viewing, set the *Hi-Fi/MIX/LINEAR* switch to the *LINER* position. This will not affect a recording in progress. Return the switch to the *Hi-Fi* position to hear the normal audio.

**Note:** If you play a tape recorded with SAP on a VCR that does not have VHS Hi-Fi, you can hear only the sound from the second audio program.

## Audio Dubbing

Audio dubbing is the process of recording new audio in place of the audio that was formerly recorded on the linear audio tracks. Audio dubbing does not disturb the recorded video and it does not disturb the audio that was formerly recorded on the VHS Hi-Fi tracks.

1. Plug a microphone (not supplied) into the *MIC* jack on the back of the VCR, or connect the audio source to either (or both) *AUDIO IN* jacks. (Stereo inputs will be mixed and recorded in monaural on the linear track.)
2. Set the *TUNER/SIMULCAST/LINE SWITCH* TO *LINER*.
3. Play the tape you intend to modify to the point where dubbing is to **end** and press *STOP*.
4. Press *DISPLAY* on the remote twice to display the tape counter.
5. Press *MEMORY* to turn on the memory indicator. (An "M" will appear under the counter reading whenever the memory is turned on.)
6. Press *RESET* to set the tape counter to 0000.
7. Press *PLAY* and then use **◀◀ SEARCH** to locate a point a few seconds before where dubbing is to begin.
8. Release the *SEARCH* button and press *PAUSE* exactly where dubbing is to begin.
9. Press and hold *PLAY*.
10. Press *AUDIO DUB* and then release both *AUDIO DUB* and *PLAY* at the same time. The *A. DUB* light turns on.
11. Press *PAUSE* to begin dubbing.

The VCR will stop at counter reading 0000. If you do not want the audio dubbing to stop at a predetermined point, omit steps 3, 4, and 5, and press *STOP* to stop dubbing. After you have dubbed in audio, use the *Hi-Fi/MIX/LINER* switch to select the audio for playback.

You may also monitor the audio being dubbed by switching to the *LINER* position. This will not affect the audio dub.

- *Hi-Fi* plays back the audio that was originally recorded on the VHS Hi-Fi tracks.
- *LINER* plays the audio that you dubbed in.
- *MIX* plays the audio recorded on both the Hi-Fi tracks and the linear tracks. Therefore you will have "sound-on-sound" when you play a dubbed tape using mixed audio output.

## Automatic Level Control

The Automatic Level Control (*ALC*) should be used for normal recording situations. However, manual level control (*ALC* turned off) is very useful if one audio input level is much lower than the other (recording from microphones connected to your stereo amplifier, for example). Use the following procedure for Manual Level Control:

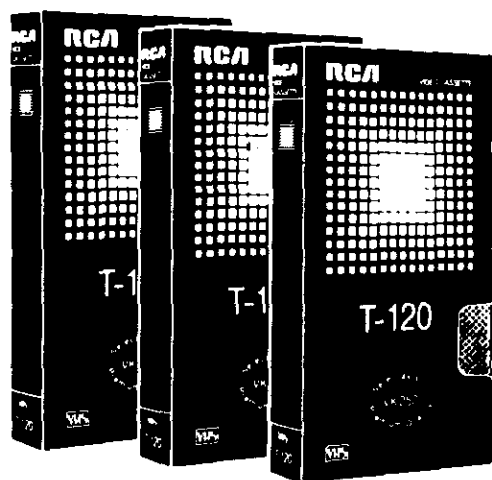
1. Use the normal recording procedure, but turn off *ALC*.
2. Press *LEVEL DISPLAY*, if necessary, to turn on the level display.
3. Adjust *AUDIO LEVEL* for each stereo channel so that two red segments of the indicators light occasionally during the loudest parts of the material you are recording.

# Video Cassettes

RCA recommends that RCA cassettes be used with this unit. The tape in RCA cassettes is of high-quality formulation, intended for use with multi-speed VHS video cassette recorders. It has been manufactured to RCA's critical specifications for excellent performance with RCA VCR's. Use of tape not meeting these specifications could considerably reduce the performance of your VCR.

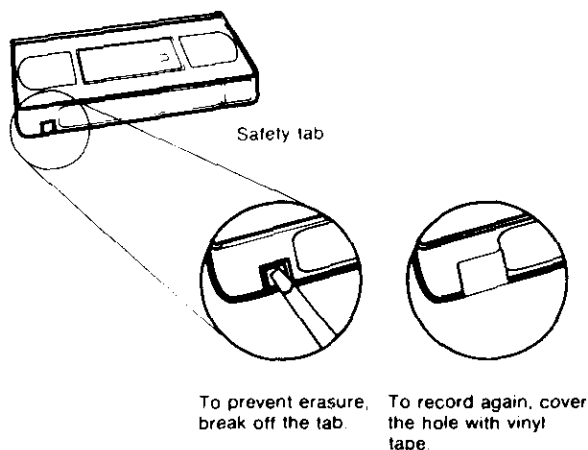
Use of poor quality tapes or tapes that have been damaged or mishandled can contaminate the VCR heads. This can cause a snowy picture or a missing picture during playback. Because RCA has no control over the type of tape purchased or rented by consumers, **head cleaning is not covered by RCA's warranty.** It is considered normal maintenance.

Playing a new RCA tape for approximately 30 minutes often will clean the VCR heads and improve your picture. If a snowy picture or missing picture condition persists, consider the use of a chemical non-abrasive head cleaning tape (RCA Stock No. AV009). It is available from your dealer and many electronic supply stores.



## Erase Protection

To prevent erasing a recording you want to keep, remove the safety tab from the back of the cassette as shown in the illustration. Recording is impossible when this tab is removed. To record again on a cassette that has the tab removed, simply cover the hole with vinyl tape.



## Cassette Playing Times and Speeds

The playing times and counter readings below are approximate. Also, it is assumed the counter is set to 0000 at the start of the tape.

SPEED	T-60 CASSETTE (VK125)		
	SP Counter Reading	LP Counter Reading	SLP Counter Reading
Time			
1 hour	2080 (end)	1120	760
2 hours		2080 (end)	1460
3 hours			2080 (end)

SPEED	T-120 CASSETTE (VK250)		
	SP Counter Reading	LP Counter Reading	SLP Counter Reading
Time			
1 hour	3520	2100	1520
2 hours	5680 (end)	3520	2600
3 hours		4660	3520
4 hours		5680 (end)	4300
5 hours			5000
6 hours			5680 (end)

SPEED	T-160 CASSETTE (VK330)		
	SP Counter Reading	LP Counter Reading	SLP Counter Reading
Time			
1 hour	3740	2160	1560
2 hours	6120	3740	2740
3 hours		5020	3740
4 hours		6120	4640
5 hours			5400
6 hours			6120
7 hours			6760
8 hours			7420 (end)

## Recording Speed

This information will help you decide which tape speed to use when recording.

- **Your VCR's special effects (search, stop action, slow motion, and frame advance) are designed for optimum performance at either SP or SLP speed.** We recommend that you use whichever of these two speeds is better for the particular material you are recording.
- **SP:** Standard Play uses the most tape. Video recorded at this speed has the least "picture noise" (snow). Pre-recorded tapes use SP for this reason and also because all VHS recorders have this speed.
- **SLP:** Super Long Play uses one-third as much tape as SP. SLP has slightly more "picture noise" than LP in normal playback (which may not be noticeable).
- **LP:** Long Play uses one-half as much tape as SP. This speed is provided primarily for playing tapes recorded on older machines that do not have SLP.

## Cassette Care and Storage

Follow these directions for continued high-quality performance from your cassettes.

- When you are finished with a cassette, rewind it and remove it from the VCR.
- Never attempt to force open the cassette door.
- Store cassettes vertically in their protective boxes at normal room temperatures. Avoid extreme heat and humidity. Extreme heat can warp the cassette or cause the tape to stretch excessively.
- Be especially careful to keep dust from entering the cassette and the VCR mechanism. All dust is abrasive and it will cause excessive wear of both the tape and the VCR's recording/playback heads.

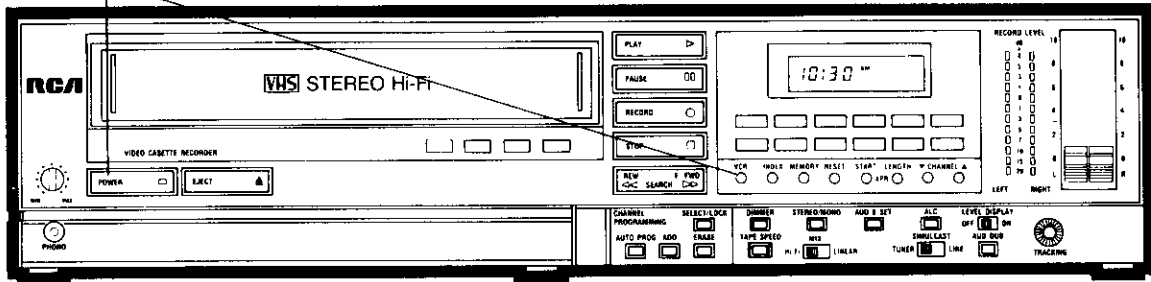
# Quick Reference Guides

## Normal TV Viewing

Follow the two steps in the drawing for normal TV viewing. To view UHF stations, just tune your TV to the channel, regardless of what the VCR is doing. If you have a TV Monitor/Receiver and the VCR's audio and video are

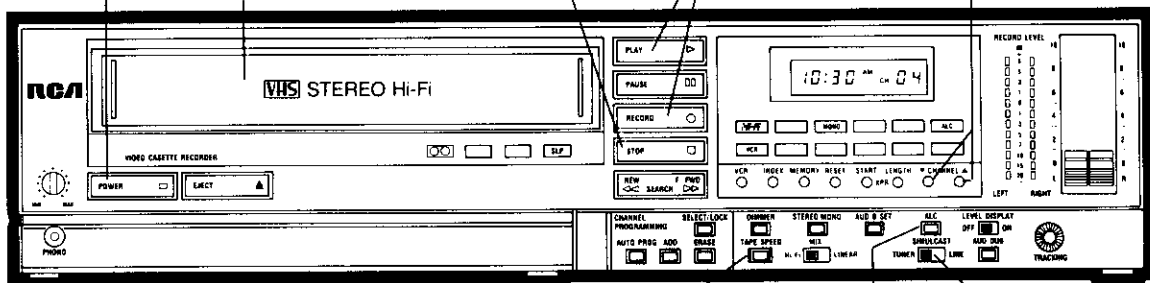
connected to it, switch the TV to "Tuner Input" and select the channel you want, regardless of what the VCR is doing.

- 1 TURN POWER OFF OR TURN VCR LIGHT OFF.
- 2 OPERATE TV AS USUAL.



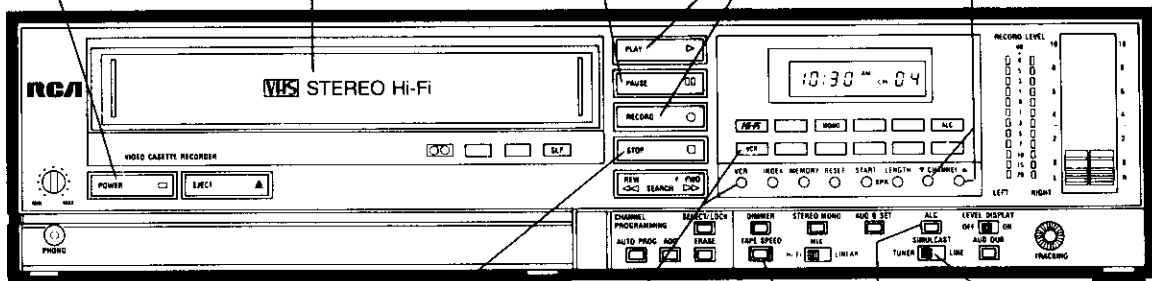
## Recording with TV Off

- 1 TURN ON VCR.
- 2 INSERT CASSETTE.
- 3 SELECT SPEED.
- 4 TURN ON ALC.
- 5 SET TO TUNER.
- 6 SELECT CHANNEL.
- 7 PRESS BOTH PLAY AND RECORD.
- 8 STOP WHEN FINISHED.



## Recording and Viewing the Same Program

- 1 TURN ON TV.
- 2 TUNE TV TO VCR CHANNEL (3 OR 4).
- 3 TURN ON VCR.
- 4 INSERT CASSETTE.
- 5 VCR LIGHT ON.
- 6 SELECT SPEED.
- 7 TURN ON ALC.
- 8 SET TO TUNER.
- 9 SELECT CHANNEL.
- 10 PRESS BOTH PLAY AND RECORD.
- 11 STOP WHEN FINISHED.

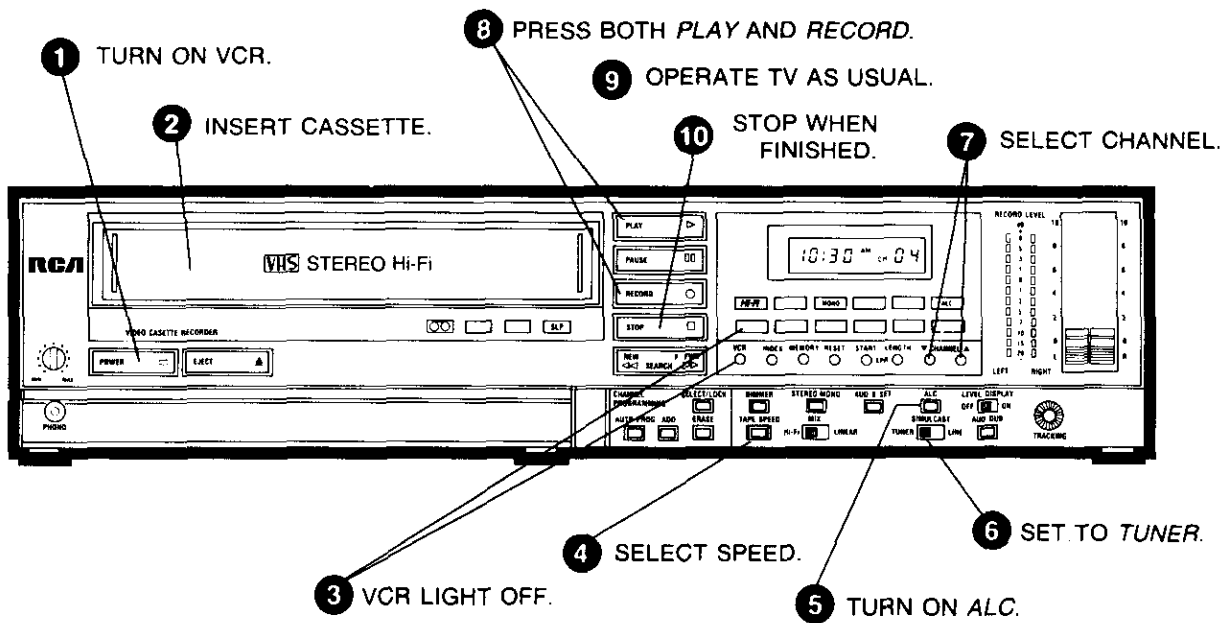


**Note:** If you want to view another VHF or Cable-TV channel after you start recording, press the VCR/TV switch (step 5) so the VCR light goes off. Then select the chan-

nel on the TV. If you want to view a UHF channel after you start recording, simply tune the TV to the channel. The recording will not be affected.

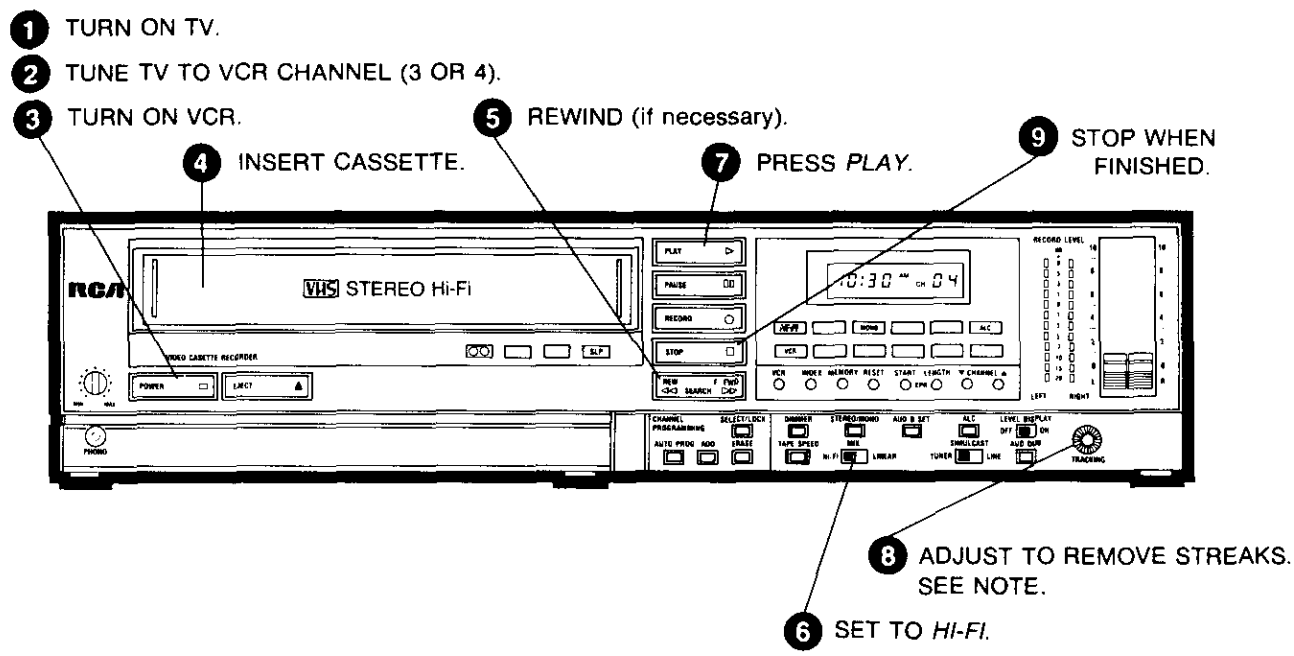
# Quick Reference Guides (continued)

## Recording and Viewing Different Programs



**Note:** If you want to view what is being recorded, press the *VCR/TV* switch to turn on the light and then tune your TV to the VCR channel (3 or 4).

## Basic Playback



**Note:**

8 Adjust *TRACKING* to remove streaks in the picture, which may appear if the tape was recorded on another VCR. When you have finished playing the tape, reset the control to its center position.



# Recording Broadcast Stereo/Second Audio Programs

- Some TV programs are broadcast with stereo audio, and your VCR is capable of receiving and recording these stereo broadcasts. The *MONO* indicator light must be turned off. Then, when stereo sound is received, the *STEREO* light will come on.
- By connecting your VCR to a stereo amplifier, receiver, or a TV equipped with stereo inputs (see pages 7 and 8), the stereo recording may be played back in stereo.
- Your VCR is also capable of receiving and recording an SAP (second audio program). The second audio program, which is broadcast with certain TV programs, is generally used to provide the audio information in a second language. The *AUD B* indicator will turn on automatically when a second audio program is being

broadcast. To record the SAP audio, press the *AUD B SET* switch (*B SET* indicator will come on).

- Follow the installation instructions on pages 7 and 8 if you have not already made the connections.
- To record **both** the stereo and the second audio program, follow all the steps shown below. Stereo will be recorded on the VHS Hi-Fi tracks and SAP will be recorded on the linear tracks. (Only the SAP can be played back on a VHS non-Hi-Fi VCR.)
- If you don't want to record the SAP, follow all the steps below **except step 7**. The stereo will be recorded in stereo on the VHS Hi-Fi tracks and in monaural on the linear tracks. (The stereo sound can be played back, in monaural, on a VHS non-Hi-Fi VCR.)
- See page 19 for more information on Stereo/SAP recording.

**1** TURN ON TV AND TUNE TO VCR CHANNEL, OR SELECT APPROPRIATE AUXILIARY INPUT IF TV HAS STEREO.

**2** TURN ON VCR.

**3** INSERT CASSETTE.

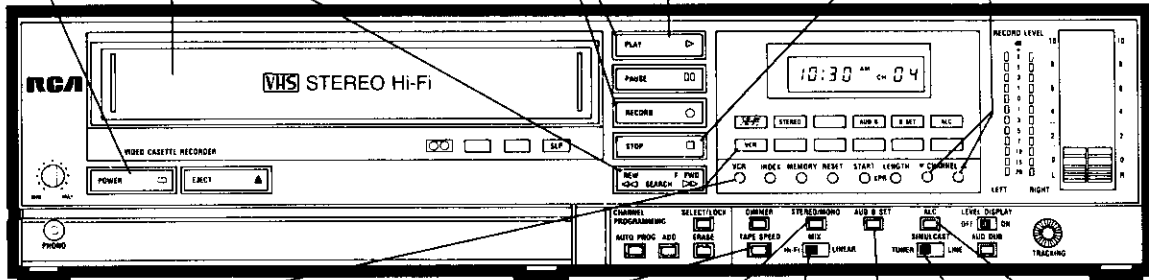
**13** REWIND CASSETTE.

**11** PRESS BOTH *PLAY* AND *RECORD*.

**15** PRESS *PLAY* FOR PLAYBACK.

**12** STOP WHEN FINISHED.

**10** SELECT CHANNEL.



**4** VCR LIGHT ON.

**5** SELECT SPEED.

**6** TURN *MONO* LIGHT OFF.

**8** TURN ON *ALC*.

**9** SET TO *TUNER*.

**7** TURN *B SET* LIGHT ON (FOR SAP ONLY).

**14** SET TO *Hi-Fi* FOR STEREO PLAYBACK. SET TO *LINEAR* TO PLAY BACK SAP.

## Display Panel

**STEREO light on:** Stereo audio is being received.

**STEREO light off:** Stereo audio is not being broadcast, or *MONO* light is on.

**MONO light on:** VCR will only record monaural audio. When the *MONO* light is on, the VCR cannot receive or record stereo or SAP. The *STEREO* and *AUDIO B* lights will not come on even if stereo and/or SAP is being broadcast. The *MONO* light should only be used if the stereo reception is too noisy for enjoyable listening. If the stereo signal is too noisy, turning on the *MONO* light will usually improve the sound.

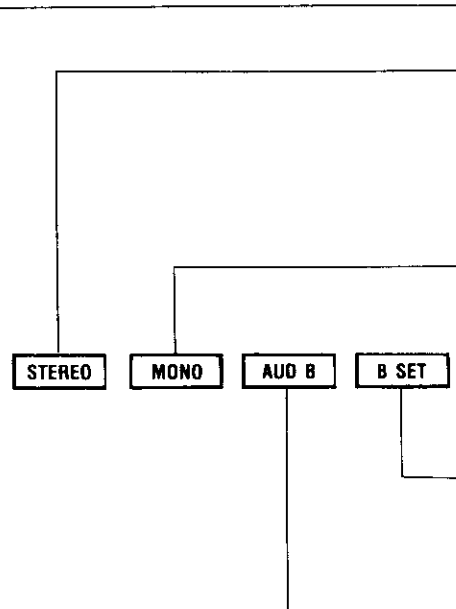
**MONO light off:** The *MONO* light should normally be off. This will allow the *STEREO* light to come on whenever stereo is being broadcast, and will allow the *AUDIO B* light to come on whenever SAP is being broadcast.

**B SET light on:** SAP will be recorded on the linear tracks whenever SAP is received (whenever the *AUDIO B* light is also on). The *B SET* light should only be turned on if you want to record SAP audio.

**B SET light off:** SAP will not be recorded even if the *AUDIO B* light is on.

**AUDIO B light on:** Second Audio Program (SAP) is being received.

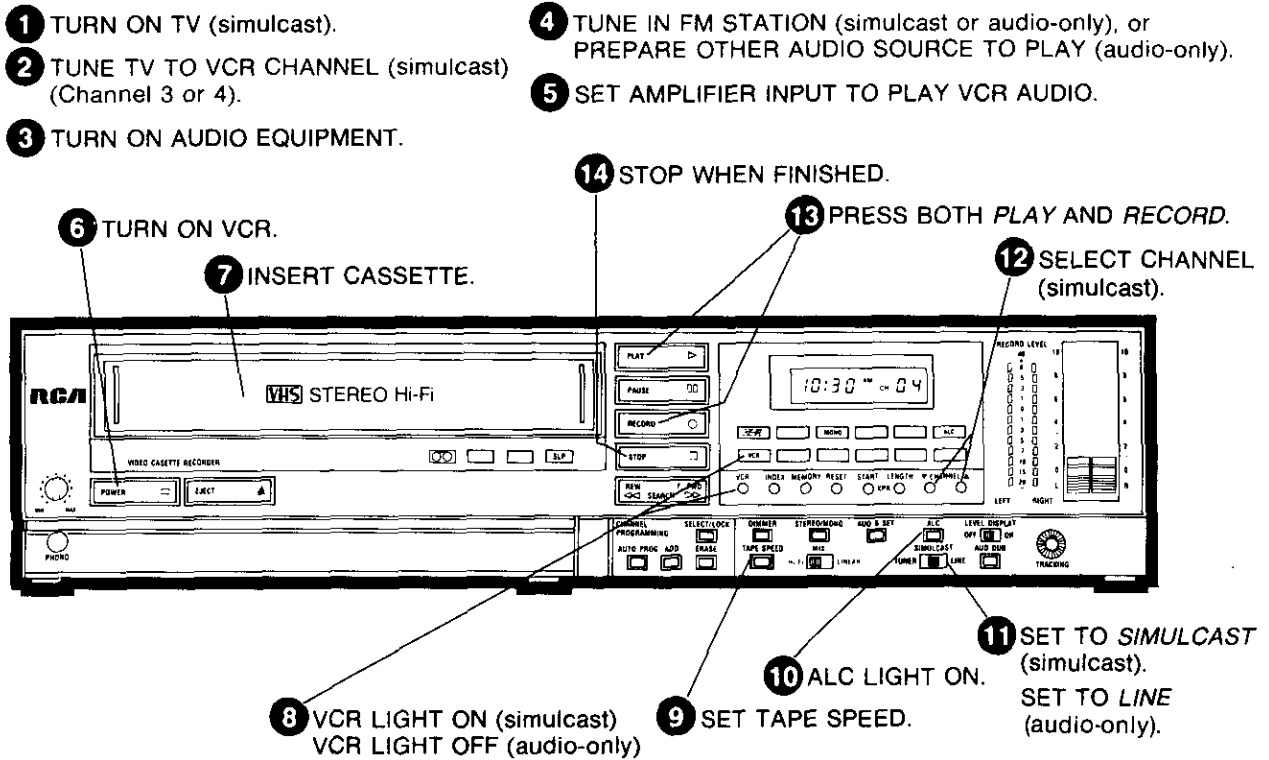
**AUDIO B light off:** SAP not being broadcast, or *MONO* light is on.



# Recording Simulcasts and Audio Only

- A TV/FM simulcast is a TV program whose sound is also broadcast at the same time by an FM radio station. By connecting your VCR to an FM tuner, you can record both the video from the TV station and the sound from the FM station.
- You can also make audio-only recordings from an FM tuner or some other audio source.

- Follow the installation instructions on page 8 if you have not already made the connections.
- Recording simulcasts and recording audio-only are similar. Recording audio-only is easier, however, since your TV is not involved. The steps which apply only to one or the other are designated "simulcast" or "audio-only" in the operating guide below.



## Notes:

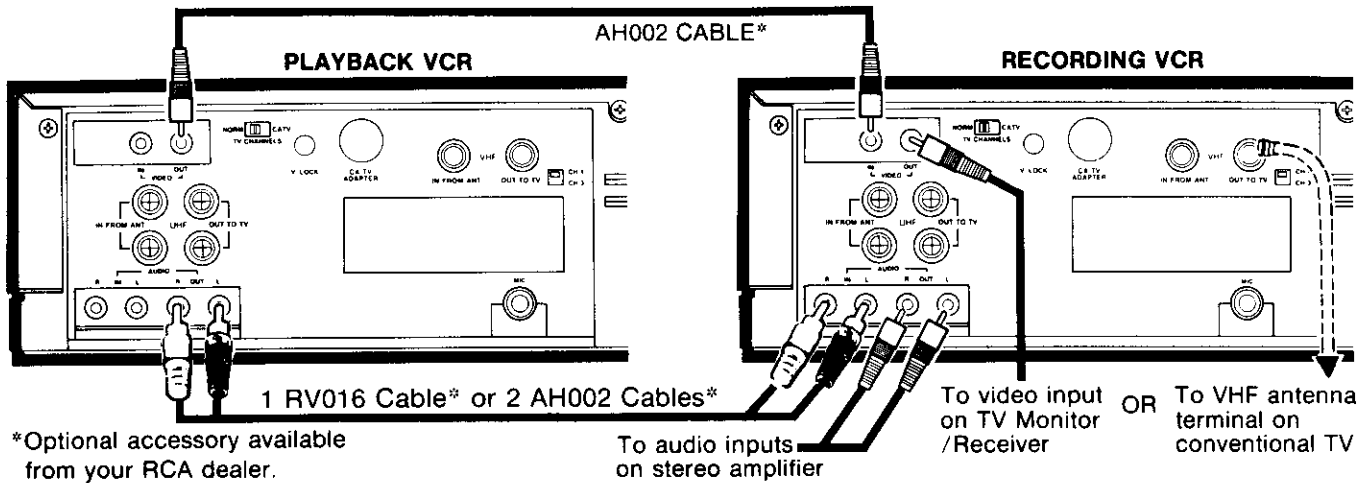
- If you want to watch/listen to simulcast while recording, do all steps above.
- To just record simulcast or audio only, omit steps 1, 2, and 8 above.
- When making a simulcast recording, the audio from the FM tuner or other audio source that is connected to the audio inputs on the backs of the VCR is recorded on the VHS Hi-Fi tracks. The sound from the television channel is recorded on the monaural linear track. This provides a "backup" audio track in case the FM portion of the simulcast is interrupted.

# Recording from Another VCR

- To copy (dub) tapes, connect the two VCR's as shown below. It is preferable to play the original tape on the same machine that was used to record it, so make it the "Playback VCR."
- If you use the VMT670HF as the Playback VCR, press the *DISPLAY* button on the remote control three times to turn off the on-screen displays. Otherwise on-screen displays will be recorded on the new tape. See 20 on page 13.
- If the VCR you are using as the Playback VCR is monaural, connect the audio from it to either *AUDIO IN* jack on the Recording VCR.

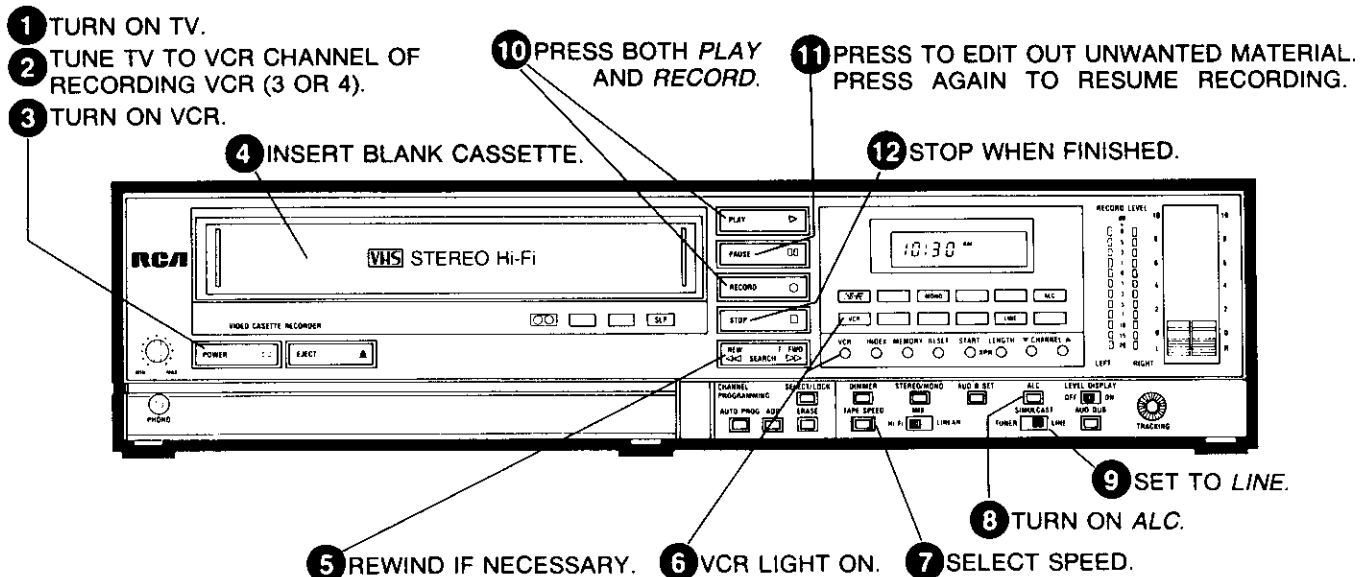
- The connections from the recording VCR to your TV are the ones you normally use. Make the connections between the two VCR's as shown in the drawing. Use shielded audio and video cables, such as RCA AH002 (audio/video) and RV016 (stereo audio).

**CAUTION:** The unauthorized recording of television programs and other materials may infringe the rights of others.



\*Optional accessory available from your RCA dealer.

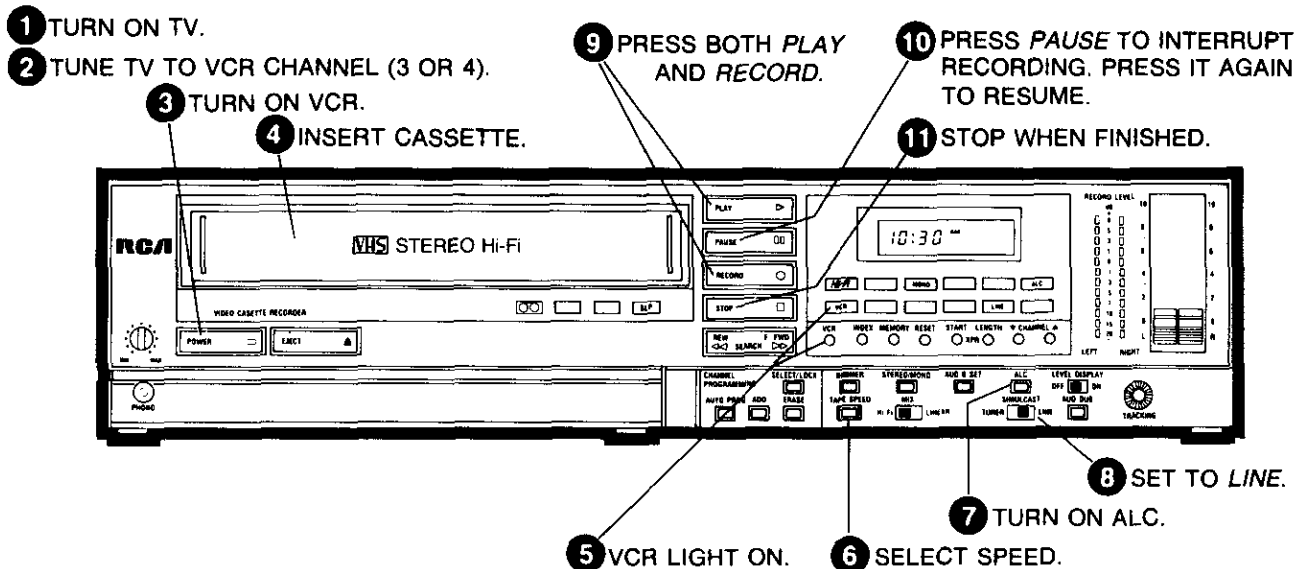
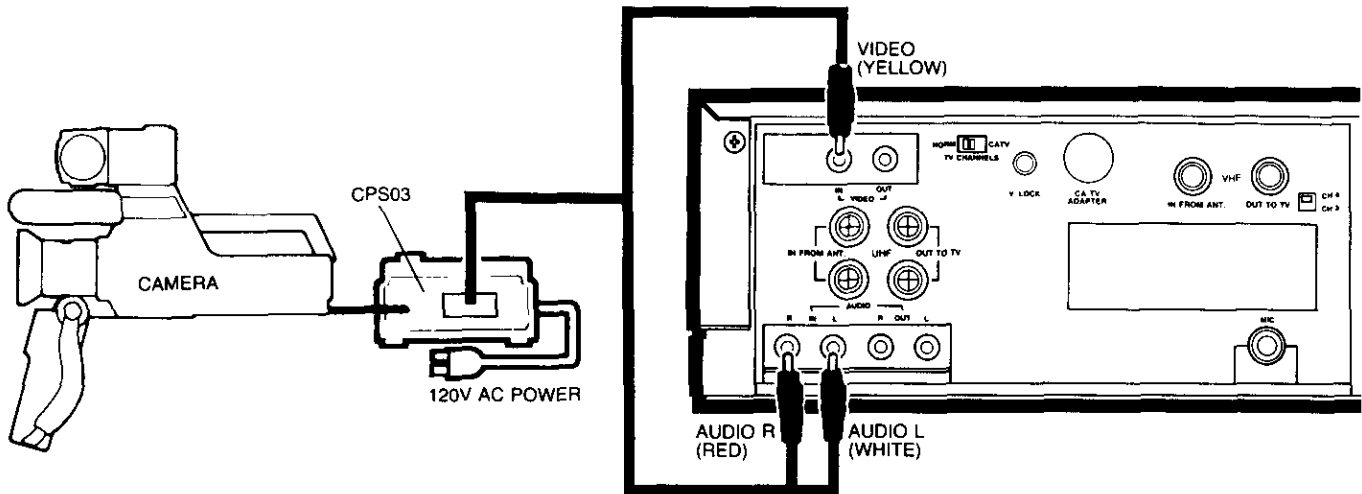
- Prepare the Recording VCR to record by following Steps 1 through 9 in the diagram below. Do not start recording yet.
- Now set up your Playback VCR to play the program you want to copy and start playing it. The playback will appear on your TV.
- Adjust the Tracking Control (if any) on the Playback VCR as necessary.
- Cue the tape to the start of the program you want to copy and put the VCR in *PAUSE*.
- Start recording by pressing both *PLAY* and *RECORD* on the Recording VCR (Step 10 below).
- Start playback on the Playback VCR by pressing its *PAUSE* button again.
- Continue with Steps 11 and 12 below.
- Use the *PAUSE* button (Step 11) only for brief pauses. If you want to pause for more than three or four minutes, stop the VCR by pressing *STOP*. When you are ready to resume, press both *PLAY* and *RECORD*.
- If you don't want to monitor the dubbing, you can watch something else on TV by pressing the *VCR/TV* button on the Recording VCR (*VCR* light off).



# Camera Recording

In addition to the camera itself, you will need a **Camera AC Power Supply** (RCA Model CPS03 for RCA cameras). Plug the camera cable into the power supply and then connect the cables from the power supply to the VCR as the drawing shows. (The cable ends on the CPS03 are labeled.) The connections from the VCR to your TV are the same ones you normally use.

To start recording press **PLAY** and **RECORD** on the VCR. Use the **PAUSE** button on the VCR to stop and start the recording. Use the **PAUSE** button only for brief pauses. If you want to pause for more than three or four minutes, stop the VCR by pressing **STOP**. When you are ready to resume, press both **PLAY** and **RECORD**.

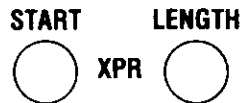


# Express Recording

Express Recording (XPR) lets you record up to four hours without programming the timer. It also allows you to start (or continue) recording immediately or to delay recording up to 24 hours. *When the recording is finished, the VCR will turn off automatically.*

**Note:** Although you do not have to program the timer, the clock must be set before you can Express Record.

Only two buttons are used to Express Record:



## IMMEDIATE START

If you want the VCR to start recording immediately or to continue a recording you've already started, follow the simplified instructions at the right labeled "Immediate Start"

## DELAYED START

If you want the VCR to delay recording, follow the simplified instructions at the right labeled "Delayed Start"

## Simplified Instructions

### Immediate Start

1. Press **LENGTH** (at least twice) to select desired recording time [0:30 (30 minutes) to 4:00 (4 hours)].

### Delayed Start

1. Press **START** (Clock will skip to next half-hour).
2. Keep pressing **START** until desired start time appears in display.
3. Press **LENGTH** to select desired recording time [0:30 (30 minutes) to 4:00 (4 hours)].
4. Press **POWER** to turn off VCR.

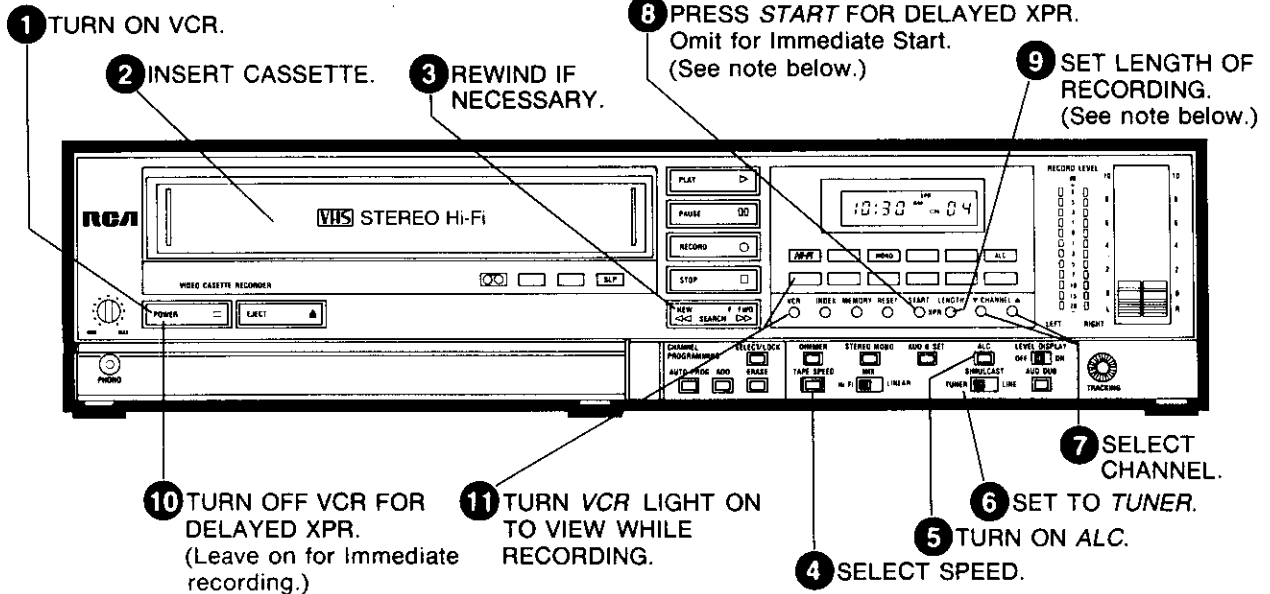
### To Cancel Delayed-Start XPR (Before Recording Begins)

- Press **LENGTH** until the display shows 0:00.

### To Stop XPR (After Recording Starts)

- Press **LENGTH** until display shows 0:00.
- OR—
- Press **POWER** and the **STOP** within ten seconds.

## Detailed Instructions



### Note for Step 8

- The first time you press the **START** button, **XPR** will appear in the display and the clock will skip to the next half-hour. Examples: If you press the button at 9:35 AM the clock will skip to 10:00 AM; if you press it at 8:15 PM the clock will skip to 8:30 PM.
- Each additional time you press **START**, the clock will advance another 30 minutes. The time that is displayed is the time when the recording will start.
- After you have set the starting time, you must set **LENGTH** within 8 seconds. Otherwise, **XPR** will disappear and the clock will return to the actual time. Then you must reset the start time. (See note 9 for setting **LENGTH**.)

### Note for Step 9

- Press the **LENGTH** button at least twice. The first keypress only starts the **XPR** recording; it does not advance the recording length.
- Increase the recording time by pressing the **LENGTH** button additional times. The clock display shows the amount of recording time you have set. [from 0:30 (30 minutes) to 4:00 (4 hours)]
- The time remaining is constantly displayed during **XPR**. You can extend the time whenever you want by pressing **LENGTH**.
- When the recording time has expired, the VCR turns off and the clock display returns to current time.

# Programming the Timer

The programmable clock/timer permits unattended recording of up to eight different TV programs. The timer is actually a small computer which will turn on the VCR at the time you select, record for a selected length of time, and then turn off the VCR . . . all automatically without you being there.

## You can program the timer to do the following:

- Record a program on a single day up to one year away. [NORMAL PROGRAM]
- Record a program at the same time Monday through Friday. [DAILY PROGRAM]
- Record a program on one certain day of every week. [WEEKLY PROGRAM]

## Things to know before you start:

- You can program the timer up to one year before the TV program is to be recorded.
- You can correct an error in the program any time before the last step by pressing CLEAR repeatedly until the digit to be corrected is flashing. Then enter the correct digit and continue the programming sequence.

## Simplified Programming Instructions

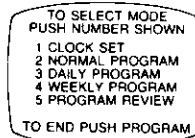
1. Turn on VCR and tune your TV to the VCR channel (channel 3 or 4).
2. Press **PROGRAM** on remote hand unit.
3. Watch the display on the TV screen—it will prompt you through the rest of the programming steps. Just insert information as requested by flashing cursor.
4. Turn off the VCR.

[1] Turn on the TV and tune it to the VCR channel (channel 3 or 4) so you'll be able to see the programming display on the TV screen.

Make sure the VCR's clock is set to the correct time. The timer cannot record at the right time if the clock is set incorrectly. Reset the clock if necessary.

Press **PROGRAM** on the remote hand unit.

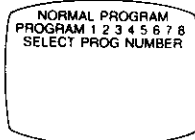
The programming "menu" appears on the TV screen.



Press "2" to enter a Normal Program, "3" to enter a Daily Program, or "4" to enter a Weekly Program.

[2] The display will prompt you to select a Program Number.

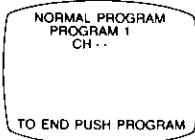
Eight program numbers are available and you can enter different programming instructions in each one. All eight program numbers will be flashing because none of them have been used. If the timer has been programmed, the number that was used will stay on instead of flashing. You must clear a program number before the same number can be used again. See "Clearing a Timer Program" on the next page.



Press a digit from 1 to 8 on the remote control to select the program number you want to use.

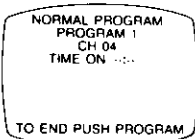
Program numbers can be selected in any order.

[3] The display will prompt you to select a channel number.



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

[4] The display will prompt you to enter the recording start time.



Press four digits, two for the hour and two more for the minute. For example, press 0 6 0 0 for 6:00. (Always press "0" before a single-digit hour or minute.)

# Programming the Timer (continued)

- [5] The display will prompt you to select either AM or PM.

```
NORMAL PROGRAM
PROGRAM 1
CH 04
TIME ON 06:00
AM 1 PM 2
TO END PUSH PROGRAM
```

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

- [6] The display will prompt you to select the stopping time.

```
NORMAL PROGRAM
PROGRAM 1
CH 04
TIME ON 06:00 PM
TIME OFF ...
TO END PUSH PROGRAM
```

Press four digits, two for the hour and two more for the minute. For example, press 0 8 0 5 for 8:05. (Always press "0" before a single-digit hour or minute.)

- [7] The display will prompt you to select either AM or PM.

```
NORMAL PROGRAM
PROGRAM 1
CH 04
TIME ON 06:00 PM
TIME OFF 08:05
AM 1 PM 2
TO END PUSH PROGRAM
```

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

- [8] The display will show "START DATE" followed by the current date and day.

```
NORMAL PROGRAM
PROGRAM 1
CH 04
TIME ON 06:00 PM
TIME OFF 08:05 PM
START DATE 07/19/86
SAT
TO END PUSH PROGRAM
```

If you want to start recording on the current day, skip to Step 9.

If you want to start recording on a future date, press four digits (two for the month and two for the day). Press "0" first for a single-digit month or day. For example, press 0 7 1 9 to begin recording on July 19.

The year and day of the week are displayed automatically when you finish.

- [9] Press *PROGRAM* to enter your program and return to the original display. Additional programs may be entered by repeating steps 2-9.

```
TO SELECT MODE
PUSH NUMBER SHOWN
1 CLOCK SET
2 NORMAL PROGRAM
3 DAILY PROGRAM
4 WEEKLY PROGRAM
5 PROGRAM REVIEW
TO END PUSH PROGRAM
```

If you have no other programs to enter, press *PROGRAM* again.

- [10] Turn off the VCR.  
(See "Programming Reminders" on page 30.)

## Checking the Timer Programs

Programs can be checked whenever the VCR is not recording.

1. Press *PROGRAM* on the remote hand unit to display the programming menu.
2. Press 5 (Program Review).  
The TV screen will display for ten seconds the information you entered for the lowest program number. Then the display changes to the next higher program number, and so on until all program information has been displayed.
3. Press 5 again if you want to view the next program information without waiting ten seconds.
4. When you are finished, press *PROGRAM* to erase the on-screen display.

## Clearing a Timer Program

1. Press *PROGRAM* on the remote hand unit to display the programming menu.
2. Press 5 (Program Review).  
The TV screen will display for ten seconds the information you entered for the lowest program number. Then the display changes to the next higher program number, and so on until all program information has been displayed.
3. Press 5 again if you want to view the next program information without waiting ten seconds.
4. Press *CLEAR* when the program information you want to clear is displayed.
5. Press *PROGRAM* to erase the on-screen display.

### Notes:

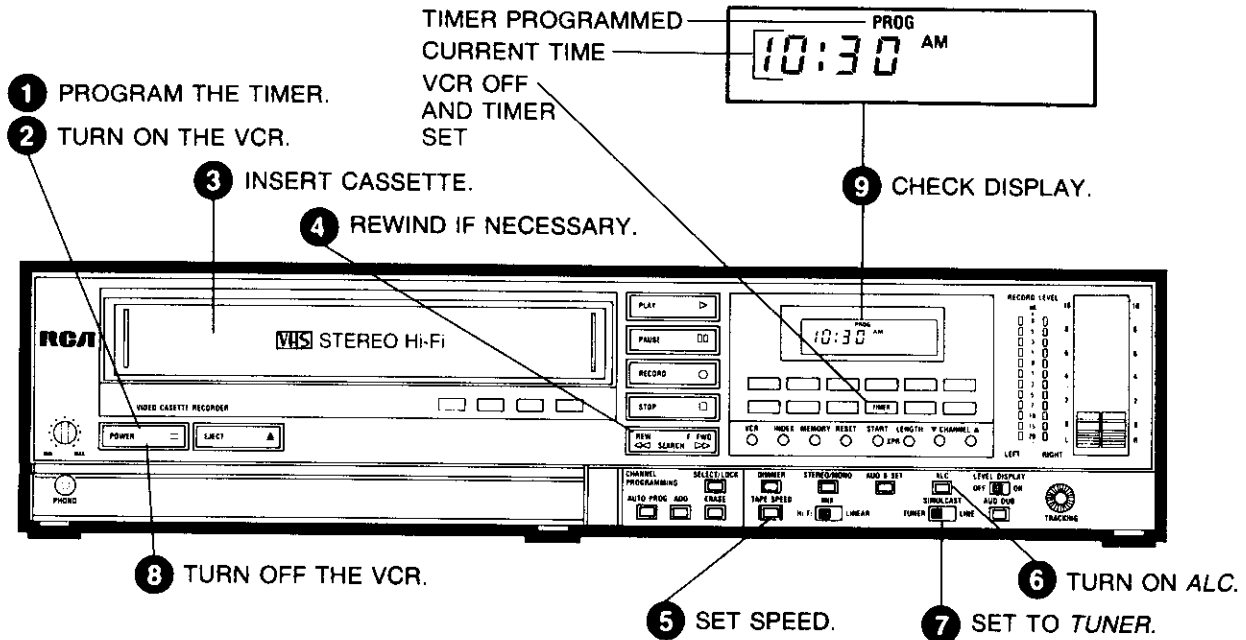
- Normal timer programs clear automatically when the recording is finished, but daily and weekly programs remain in the timer indefinitely.
- All programs are erased if power is interrupted for more than approximately ten minutes.

# Timer Recording

The information on this page tells you how to set up your VCR for Timer Recording *after you have programmed the timer.* (The programming instructions are on pages 28-29.) When you have finished programming the timer, follow the steps in the drawing to prepare for timer recording. We suggest that you make one or more short timer

recordings for practice so you won't be disappointed later on.

If you have a Daily or Weekly program in the VCR timer, you should check the steps in the drawing sometime before the recording time to be sure that your VCR is ready to record.



## Timer Recording Checklist

Before your VCR timer can record a TV broadcast, all the conditions listed here must be fulfilled. They are presented as a checklist you can use until you are familiar with your VCR.

- [ ] Cassette inserted in the VCR. ("TIMER" flashes if not.)
- [ ] Cassette has its safety tab in place. (If not, the cassette is ejected.) See page 20.
- [ ] Cassette length and recording speed are adequate for program(s) to be recorded.
- [ ] Cassette rewound to beginning or to desired place on tape.
- [ ] TUNER/SIMULCAST/LINE switch set to TUNER.
- [ ] Clock set to correct time and date.
- [ ] Timer has been programmed. (PROG will be displayed.)
- [ ] POWER has been turned off. ("TIMER" appears only if the timer is programmed and the VCR is off.)

## Programming Reminders

- The timer light will flash when you turn off the VCR if you have programmed the timer but forgotten to insert a cassette.

- If the cassette in the VCR has its safety tab removed (page 20), the VCR will eject it after you have programmed the timer and turned off the VCR. This is to remind you to insert a new cassette or cover the safety tab.
- If the TV program to be recorded is in stereo, turn off the MONO light before you turn off the VCR in Step 7 above. If you want to record the Second Audio Program (SAP), turn on the B SET light.

## TV Viewing During a Timer Recording

When the VCR turns on automatically to make a timer recording, it does not disturb whatever program you may be watching at the time. Press the VCR/TV switch to turn on the VCR light if you want to monitor the recording.

## Stopping a Timer Recording While In Progress

Press POWER and then press STOP within 10 seconds. (Press POWER once more to turn off the VCR). This erases a Normal program from the timer's memory, but a Daily or Weekly program will record on the next scheduled day.





# Cabinet Cleaning

## Cleaning

Dust exposed surfaces as required, using a soft cloth or the dusting attachment of your vacuum cleaner. Occasionally use the vacuum cleaner to remove dust from the ventilation holes on the top, back, sides, and bottom of the cabinet.

Some of the plastic surfaces are easily scratched and they can be marred by alcohol and various solvents. Avoid excessive use of oil-based furniture polishes since the materials used in the cabinet are non-porous and the residue will accumulate more dust.

## Things To Check

Sometimes problems can be easily solved by checking a few basic things. Check below before you call for help or take your unit to an RCA Authorized Servicenter or the RCA Service Company. It could save you time and money.

If service should be necessary, RCA Authorized Servicenters and the RCA Service Company are trained and equipped to furnish it.

<b>No Power (indicator won't come on)</b>	<ul style="list-style-type: none"><li>● Check to see if the VCR is plugged into an operating outlet.</li></ul>
<b>Does Not Respond to Remote Control</b>	<ul style="list-style-type: none"><li>● Weak battery in hand unit.</li><li>● Hand unit not aimed at the VCR or there is an obstruction between them.</li></ul>
<b>Poor/No Picture for Normal TV Viewing</b>	<ul style="list-style-type: none"><li>● The VCR/TV switch may be set to VCR. Switch the VCR to TV or turn it off.</li><li>● TV monitor/receiver set to "Video Input." Switch to an active channel.</li><li>● Carefully check antenna connections.</li></ul>
<b>Snowy/No Picture During Playback</b>	<ul style="list-style-type: none"><li>● VCR/TV switch set for TV viewing.</li><li>● Make sure the TV channel selector matches the channel you have selected on the back of the VCR (3 or 4).</li><li>● Make sure the TV is fine tuned.</li><li>● Check the video cable connections between the VCR and a TV monitor/receiver.</li><li>● Make sure the TV monitor/receiver is set for "Video In."</li><li>● Try another tape.</li><li>● Very dirty tape has left deposits on VCR heads. See page 20 for head cleaning.</li><li>● Some snow and streaks are normal during Search and Stop-Action play.</li></ul>
<b>No Sound From Recorded Tape</b>	<ul style="list-style-type: none"><li>● TUNER/SIMULCAST/LINE switch left in the SIMULCAST position when recording off-the-air TV. Return it to TUNER.</li></ul>
<b>Streaks in Picture During Normal Playback</b>	<ul style="list-style-type: none"><li>● Adjust the TRACKING CONTROL.</li><li>● Tape stretched (poor quality or worn out).</li></ul>
<b>Will Not Record or Play</b>	<ul style="list-style-type: none"><li>● Stop light blinks if there is moisture in the VCR. Leave the power on and wait until the light is on continuously. If liquid entered the VCR, unplug it and have it inspected by a qualified Servicenter.</li><li>● No cassette in VCR.</li><li>● Eject and reinsert cassette.</li><li>● Broken tape — try another cassette.</li></ul>
<b>Will Not Record</b>	<ul style="list-style-type: none"><li>● VCR is in the pause mode.</li><li>● Safety tab removed from cassette.</li></ul>
<b>Timer Recording Not Made</b>	<ul style="list-style-type: none"><li>● Program entered incorrectly (wrong channel or times).</li><li>● Power interruption. (Clock on the VCR's front panel will show "--:--".)</li><li>● Clock was not set accurately (including AM/PM).</li><li>● Program exceeded cassette length or tape was not rewound beforehand.</li><li>● TUNER/SIMULCAST/LINE switch set to wrong position.</li><li>● No tape in VCR or cassette safety tab broken off.</li></ul>
<b>Tape Stops Before Complete Rewind</b>	<ul style="list-style-type: none"><li>● Turn off MEMORY or press REWIND again. Tape rewinds only to 0000 when the counter is on.</li></ul>
<b>Rewind does not operate</b>	<ul style="list-style-type: none"><li>● Tape already rewound. Check counter reading.</li></ul>
<b>Clock Shows Incorrect Time or Date</b>	<ul style="list-style-type: none"><li>● Power interruption. (Clock on the front panel shows "--:--".)</li><li>● Clock was not set accurately (especially AM and PM).</li><li>● Clock display shows recording time remaining during XPR recording.</li></ul>
<b>Channel ▲/▼ Does Not Operate</b>	<ul style="list-style-type: none"><li>● Program channels into VCR tuner's scan list.</li></ul>

Accessories (Included) .....	2	General Installation Information .....	2	RESET Button .....	17
Adding Channels to Scan List .....	12	Headphone Jack .....	17	REW (Rewind) Button .....	10,16
ALC Indicator .....	10,16	Hi-Fi Indicator .....	10,16	REWIND Button .....	16
ALC (On/Off) Switch .....	10,17	Hi-Fi/MIX/LINEAR Switch .....	10,17	Safety Precautions .....	Inside Front Cover
Alternate Remote Control Units .....	31	Immediate Start XPR .....	27	SAP (Second Audio Program) .....	19,23
Antenna Cables (Types) .....	2	INDEX Button .....	17	Scan List .....	11,12
Antenna Connections .....	3,4	INDEX Indicator .....	16	SEARCH Button .....	16
AUD B Indicator .....	16,23	Indexed Playback .....	18	Second Audio Program (SAP) .....	19,23
AUD DUB Button .....	17	Indicators .....	16,23	Setting Clock .....	14
AUDIO B SET Button .....	17	Inserting/Removing Cassettes .....	10	Setting NORM/CATV Switch .....	11
Audio Dubbing .....	19	Installation .....	2	Setting TV to the VCR Channel .....	11
Audio Level Controls & Display .....	17	LEVEL DISPLAY ON/OFF Button .....	17	Setting the VCR/TV Switch .....	11
Audio System .....	19	LINE Indicator .....	16	Simplified Installation Checklist .....	12
Automatic Level Control .....	19	Location (Choosing) .....	2	Simplified Instructions (XPR) .....	2
B SET Indicator .....	16,23	MEMORY Button .....	17	Simplified Programming Instructions .....	28
Basic Playback (Guide) .....	22	MEMORY Indicator .....	16	Slow Motion .....	17
Battery Installation (Remote) .....	13	Memory Stop .....	18	Special Effects and Features .....	17
Cabinet Cleaning .....	32	MONO Indicator .....	16,23	Specifications .....	Back Cover
Cable-TV Connections .....	5,6	NORM/CATV Switch .....	11	Stereo Amplifier Connections .....	8
Cables, Antenna (Types) .....	2	Normal TV Viewing (Guide) .....	21	STEREO Indicator .....	16,23
Camera AC Power Supply .....	26	Operating Controls (Detailed) .....	16	STEREO/MONO Switch .....	17
Camera Recording (Guide) .....	26	PAUSE Button .....	16	STOP Button .....	10
Care and Storage (Cassettes) .....	20	Pause During Recording .....	17	Stopping a Timer Recording in Progress .....	30
Cassette Compartment .....	10	Pause for Stop-Action Playback .....	17	Tape Counter .....	18
Cassettes (Inserting/Removing) .....	10	PHONE Jack .....	17	Tape Speed Indicators .....	10
Channel Display .....	10	Picture Search .....	17	TAPE SPEED Switch .....	10
CHANNEL UP/DOWN Buttons .....	10	PLAY Button .....	10,16	Things to Check Before Calling Service .....	32
Checking Timer Programs .....	29	Playing Times & Speeds (Cassettes) .....	20	Time Display .....	10
Checklist (Simplified Installation) .....	12	POWER Button .....	10,16	TIMER Indicator .....	16
Clearing Timer Programs .....	29	Programming Active Channels into .....	11	Timer Recording Checklist .....	30
Clock (Setting) .....	14	Tuner .....	11	Timer Recording .....	28,29,30
Compatible Remote Control Units .....	31	Programming Instructions (Simplified) .....	28	TRACKING Control .....	18
Copying Tapes .....	25	Programming Reminders .....	30	Troubleshooting Chart .....	32
Delayed Start XPR .....	27	Programming the Timer .....	28,29,30	TUNER/SIMULCAST/LINE Switch .....	10,17
Deleting Channels from Scan List .....	12	RCA Warranty .....	Back Cover	Turning VCR On For First Time .....	11
Detailed Operating Controls .....	16	RECORD Button .....	10,16	TV Monitor/Receiver Connections .....	7
Dimmer Switch .....	10	Recording & Viewing Different Programs .....	22	TV Viewing During a Timer Recording .....	30
Display Panel (SAP Indicators) .....	23	Recording & Viewing Same Program .....	21	Types of Antenna Cables .....	2
Display Reset Switch .....	17	(Guide) .....	21	Unpacking .....	2
Dubbing Tapes .....	25	Recording Broadcast Stereo TV .....	19,23	VCR Channel (3 or 4) .....	11
EJECT Button .....	10,16	Recording Broadcast Stereo/SAP .....	23	VCR/TV Switch .....	10,11
Electronic Program Indexing .....	18	(Guide) .....	23	VHS Hi-Fi Sound .....	19
Erase Protection (Cassettes) .....	20	Recording Simulcasts & Audio Only .....	24	Video Cassettes .....	20
Express Recording (XPR) .....	27	Recording Speed (Cassettes) .....	20	Warranty .....	Back Cover
F.FWD (Fast Forward) .....	16	Recording Speeds for Special Effects .....	17	Warranty Registration .....	Inside Front Cover
Features .....	9	Recording Speeds for Special Effects .....	17	What Your VCR Will Do .....	9
First Recording and Playback .....	15	Recording With TV Off (Guide) .....	21	XPR (Express Recording) .....	27
Frame Advance .....	17	Recording from Another VCR (Guide) .....	25		
		Remote Control .....	13,31		

## CAD030 Cable Adapter



The CAD030 is used to allow you to connect the cable company's converter/decoder box and the cable to your VCR at the same time. You can then use your VCR's tuner and remote control to tune non-scrambled cable channels and also switch by remote control to the scrambled channel that is coming out of the converter/decoder box.

1. Connect the CAD030 to your VCR and TV as described in the instructions that accompany the CAD030.
2. Set the selector knob on the rear of the CAD030 to the "0" position.
  - To record a regular, unscrambled cable channel through your VCR, select the channel number as you normally do, using the remote control or the channel up/down buttons on the VCR.
  - To record a scrambled channel, first use the channel selector on the converter/descrambler to select the scrambled channel. Then use the VCR's remote to select channel "00". The VCR will automatically tune to the output of the converter/descrambler.

**Note:** The output of the converter/descrambler must be on channel 2, 3, 4, 5, or 6. If your converter/descrambler does not use one of these channels for its output, contact your cable company to obtain one that does.

- When programming your VCR to make a timer recording of an unscrambled channel, either the channel number of the unscrambled channel as you normally would.
- When programming your VCR to make a timer recording of a scrambled channel, select the scrambled channel using the channel selector on the converter/descrambler, then enter "00" for the channel when programming the timer. **Be sure not to change the position of the channel selector on the converter/descrambler after you have programmed the timer.**

When using your TV, the position of the "TV remote tune" switch is important. If you have a "cable-ready" TV, placing the "TV remote tune" switch in the "on" position will allow you to tune unscrambled channels directly, without going through the converter/descrambler. To watch scrambled channels, place the "TV remote tune" switch in the "off" position, select the scrambled channel using the channel selector on the converter/descrambler, and tune your TV to the output of the converter/descrambler (usually channel 2, 3, 4, 5, or 6).

# Specifications

<b>Format</b>	VHS
<b>Record/Playback System</b>	Five video record/playback heads (two for SP, two for LP and SLP, one for special effects) Two VHS Hi-Fi record/playback heads
<b>Video signal system</b>	EIA standard, NTSC color
<b>Antenna</b>	75-ohm external VHF antenna terminal 300-ohm external UHF antenna terminals
<b>Tuner</b>	169-channel frequency synthesis with auto programming
<b>Broadcast Channels</b>	VHF 2 - 13, UHF 14-83
<b>Cable-TV Channels</b>	Low Band VHF 2-6, A-8(01) Midband A thru I (14-22) Midband A-5 thru A-1 (95-99) High Band VHF 7-13 Superband J thru W (23-36) Hyperband W+1 thru W+58 (37-94)

## VHS Hi-Fi Audio

<b>Frequency response</b>	20 Hz to 20,000 Hz
<b>Dynamic range</b>	Greater than 80db
<b>Wow and flutter</b>	0.005%
<b>Total harmonic distortion</b>	0.4%
<b>Channel separation</b>	60db
<b>Power requirement</b>	120V AC, 60 Hz
<b>Power consumption</b>	48 watts
<b>Dimensions</b>	3-13/16" high 17-1/8" wide 13-7/16" deep
<b>Weight</b>	19.1 pounds

**Note:** Specifications subject to change without notice.

## RCA Limited Warranty Video Cassette Recorder

### What does your warranty cover:

- Any defect in material or workmanship.

### For how long after purchase:

- Ninety days for labor charges.
- One year for parts.

The warranty period for rental VCR's begins with the first rental.

### What will RCA do:

- Pay any RCA Authorized VCR Servicenter the labor charges to repair your VCR.
- Provide new or, at our option, rebuilt replacement parts for the RCA Authorized VCR Servicenter to make the repairs.

### How do you get service:

- Take your VCR to any RCA Authorized VCR Servicenter or to the RCA Service Company. For their names and locations, ask your dealer or RCA Distributor, or look in the Yellow Pages.
- Show the service technician your Warranty Registration or evidence of purchase date.
- Pick up your VCR when repairs are completed.

### What does your warranty *not* cover:

- Transportation to and from the Servicenter.
- Customer instruction. Your Owner's Manual provides information regarding operating instructions and user controls. For additional information ask your dealer.
- Installation and set-up service adjustments.
- Signal reception problems caused by external antenna or cable systems.
- Damage from misuse or neglect.
- Cleaning of video/audio heads, which is normal maintenance.
- Remote control batteries.
- VCR's which have been modified or incorporated into other products.
- VCR's purchased or serviced outside the USA.

### How does state law relate to this warranty:

- This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

### What if you purchased your VCR in Canada:

- Refer to the Canadian Warranty.

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Part Number 2822 456-1  
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E72118  
4649578

Si un livret d'instructions en français n'est pas inclus avec votre appareil, vous pouvez en obtenir un (INDIQUER LE NUMÉRO DE MODÈLE, VOTRE NOM ET VOTRE ADRESSE) en vous adressant à:



RCA Corporation  
Consumer Electronics Division  
600 N Sherman Dr, PO Box 1976  
Indianapolis, Indiana 46206

RCA Inc.  
Service des données techniques  
5575 av. Royalmount,  
Ville Mont-Royal, Québec, Canada  
H4P 1 J8