

Cat. No. 16-421/422

OWNER'S MANUAL

Please read before using this equipment.

**Color TV with
Built-in VHS HQ VCR**

**Model 29 13" TV (16-421)
Model 30 20" TV (16-422)**

VHS

OPTIMUS®

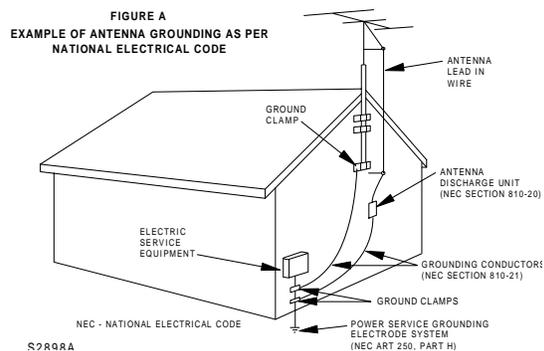
IMPORTANT SAFEGUARDS AND PRECAUTIONS

1. **Read instructions** — All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Cleaning** — Unplug TV/VCR from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **Attachments** — Do not use attachments not recommended by the TV/VCR manufacturer as they may cause hazards.
7. **Water and Moisture** — Do not use this TV/VCR near water—for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **Accessories** — Do not place this TV/VCR on an unstable cart, stand, tripod, bracket, or table. The TV/VCR may fall, causing serious injury to someone and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the TV/VCR. Any mounting of the appliance should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer. An appliance and cart combination should be moved with care.

Quick stops, excessive force, and uneven surfaces may cause an appliance and cart combination to overturn.
9. **Ventilation** — Slots and openings in the cabinet and the back or bottom are provided for ventilation and to ensure reliable operation of the TV/VCR and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the TV/VCR on a bed, sofa, rug, or other similar surface.

This TV/VCR should never be placed near or over a radiator or heat register. This TV/VCR should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. **Power Sources** — This TV/VCR should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your appliance dealer or local power company. For TV/VCRs intended to operate from battery power or other sources, refer to the operating instructions.
11. **Grounding and Polarization** — This TV/VCR is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. **Power-Cord Protection** — Power-supply cords should be routed so they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Outdoor Antenna Grounding** — If an outside antenna or cable system is connected to the TV/VCR, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

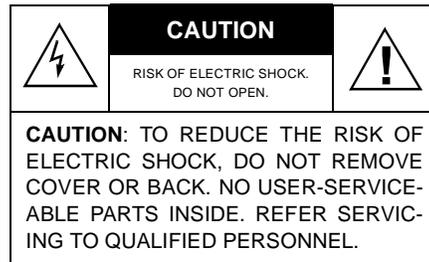


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RadioShack is a trademark used by Tandy Corporation.

14. **Lightning** — For added protection for this TV/VCR receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the TV/VCR due to lightning and power-line surges.
15. **Power Lines** — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
16. **Overloading** — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. **Object and Liquid Entry** — Never push objects of any kind into this TV/VCR through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the TV/VCR.
18. **Servicing** — Do not attempt to service this TV/VCR yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. **Damage Requiring Service** — Unplug this TV/VCR from the wall outlet and refer servicing to qualified service personnel under the following conditions:
- When the power-supply cord or plug is damaged or frayed.
- If liquid has been spilled or objects have fallen into the TV/VCR.
 - If the TV/VCR has been exposed to rain or water.
 - If the TV/VCR does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the TV/VCR to its normal operation.
 - If the TV/VCR has been dropped or the cabinet has been damaged.
- If the TV/VCR exhibits a distinct change in performance — this indicates a need for service.
20. **Replacement Parts** — When replacement parts are required, be sure the service technician has used replacement parts, specified by the manufacturer, that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, injury to persons or other hazards.
21. **Safety Check** — Upon completion of any service or repairs to this TV/VCR, ask the service technician to perform routine safety checks to determine that the TV/VCR is in proper operating condition.
22. **Heat** — This TV/VCR product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Warning: To prevent fire or shock hazard, do not expose this product to rain or moisture.



This symbol is intended to alert you to the presence of uninsulated dangerous voltage within the product's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product's case.



This symbol is intended to inform you that important operating and maintenance instructions are included in the literature accompanying this product.

FEATURES

Your Model 29/Model 30 Color TV with Built-In VHS VCR combines a versatile color TV/monitor and a VCR in one space-saving cabinet. The TV/VCR receives TV programs and plays video tapes. It also records onto video tapes from TV programs or an audio/video source you connect to it.

Please read this owner's manual carefully. It has been prepared to assist you with initial setup procedures and to guide you in the TV/VCR's everyday operation.

GENERAL

Automatic/Manual Clock Setting — lets you set the TV/VCR to automatically update its clock using EDS (Extended Data Service) signals broadcast by certain stations. You can also manually set the clock.

Note: EDS is a service provided by some broadcasters to transmit various types of information including the current time. If no broadcasters in your area transmit EDS signals, automatic clock setting will not work.

Station Display — automatically displays station identification call letters if a station transmits them.

Automatic DST (Daylight Saving Time) Adjustment — lets you set the TV/VCR to automatically adjust the time for Daylight Saving Time.

Remote Control — provides remote access to most of the tape-motion and TV controls.

Note: Your TV/VCR's remote control requires two AA batteries (not included) for operation.

Rear Audio/Video Input Jacks — let you quickly connect an audio/video device such as a

Automatic Playback/Rewind/Eject — makes playback easy when you load a video cassette tape because it automatically plays, rewinds, and then, if the erase protection tab has been removed, ejects it.

Freeze-Frame — lets you temporarily stop the action and view a single frame.

Auto Repeat — lets you set the TV/VCR to automatically repeat a tape when it reaches the end or a blank spot on the tape during playback.

Fast-Forward/Reverse with Visual Search — helps you easily find a selection on the tape, and lets you quickly move the tape through recorded material you want to skip.

Real-Time Counter with Memory — lets you select and easily return to a specific point on the tape.

One-Minute Skip — lets you quickly skip over unwanted portions of a recording such as commercials.

Note: Most material performed in public, such as concerts, plays, and movies, or distributed on prerecorded video tapes, is copyrighted. The unauthorized recording or duplication of copyrighted material is a violation of the copyright laws of most countries and such duplication may result in fines and/or imprisonment. Note, however, that in the United States, it is not a violation of U.S. copyright laws for a consumer to record a broadcast television program for private (in-home) viewing.

TUNING

179-Channel Capability, Digital PLL (Phase-Locked Loop) Tuner — offers a broad range of viewing choices and a clear, sharp picture.

Tuner Memory Programming — automatically stores all the active channels in your area into memory. You can also manually program the tuner's memory, which makes it easy to add new channels when you move the TV/VCR to another area, or delete channels you do not want.

For your records, we recommend you record the TV/VCR's model number and serial number here. The numbers are on the back panel.

Model Number _____

Serial Number _____

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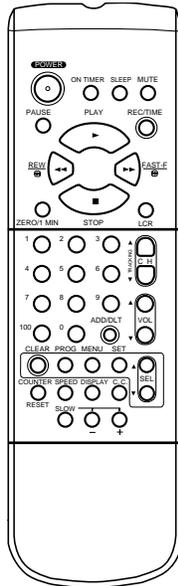
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BEFORE YOU BEGIN

REMOTE CONTROL

Your TV/VCR's remote control is packed separately. Be sure to locate it before you store the packing material.



MOISTURE CONDENSATION

Condensation inside the TV/VCR can cause tape jams or video head damage. When you first install your TV/VCR, or when you move it from a cold area to a warm one, let it sit for about 2 hours before you plug it in and begin operation. This allows complete evaporation of any moisture inside the TV/VCR that could damage it.

Caution: Do not use your TV/VCR in areas of high humidity.

USING THIS MANUAL

This manual is organized into these major sections.

- “Connections” on Page 9 — describes the connections required to begin using your TV/VCR.
- “Setup” on Page 11 — includes procedures for preparing and using the remote control, setting the on-screen programming language, selecting the input signal, setting the clock, and storing channels.
- “Basic TV Operation” on Page 17 — explains how to select channels, watch TV using the TV/VCR tuner, adjust the picture, mute the sound, use the channel return feature, and view an external device.
- “Basic VCR Operation” on Page 19 — explains how to load and play a video tape, use the TV/VCR's visual search and freeze-frame features, fast-forward and rewind a tape, and adjust the tracking manually.
- “Special Functions” on Page 21 — describes the things you see on the TV/VCR's TV screen and how to use the TV/VCR's on timer or sleep timer, counter, automatic repeat playback, or closed caption functions.
- “Recording” on Page 26 — describes the different types of recordings and gives instructions for making each.
- “Additional Information” on Page 32 — includes a troubleshooting section, care and maintenance procedures, FCC information, information on servicing your TV/VCR, and specifications.

CONNECTIONS

Before using your TV/VCR for the first time, read through this entire section to determine which connections best meet your needs. Then follow the directions for completing the connections.

Note: You can connect many different types of audio/video systems such as a stereo receiver/amplifier, a satellite receiver, or a combination of a cable system and outside antenna to your TV/VCR. These connections might require additional supplies that are available from your local RadioShack store.

CHOOSING A LOCATION

Choose a location for your TV/VCR where:

- Air flows freely on all sides of the TV/VCR.
- The power cord is not in the way of normal traffic.

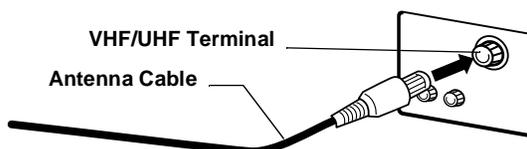
CONNECTING THE SIGNAL SOURCE

You can connect either an outdoor antenna or the cable from your cable service provider.

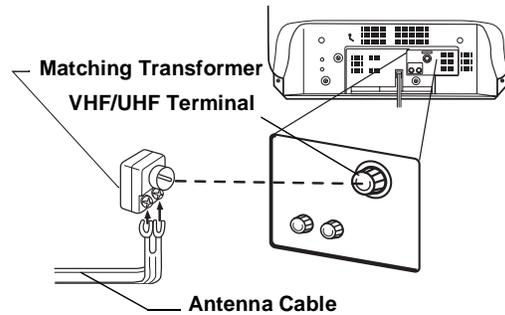
Connecting an Outdoor Antenna

Connect the antenna to the **VHF/UHF** terminal on the back of the TV/VCR. If you do not have a TV antenna yet, use a high-quality outdoor antenna, available at your local RadioShack store.

- If the antenna uses 75-ohm coaxial cable, connect the antenna's cable directly to the TV/VCR's **VHF/UHF** terminal.



- If the antenna uses 300-ohm twin-lead cable, use a 300-to-75-ohm matching transformer (not supplied) to make the connection.



- If you have separate VHF and UHF antennas, connect the antenna cables to a splitter/combiner (such as RadioShack Cat. No. 15-1296). Then connect the splitter/combiner's output to the **VHF/UHF** terminal.

Refer to your antenna's installation instructions for additional information.

Connecting to a Cable System

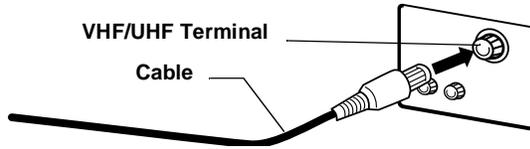
Note to the CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the National Electrical 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.

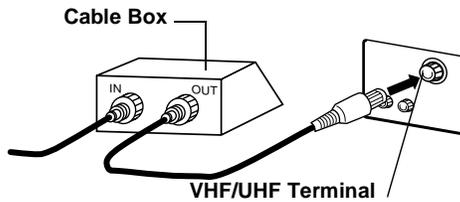
Caution: Some areas have laws restricting direct connections to cable wires (connections that do not go through the cable box). Check the laws in your area before making any connections.

To receive cable channels, connect your local cable system to the TV/VCR as follows.

If you do not receive scrambled channels, you can connect the cable directly to the TV/VCR's VHF/UHF terminal.



If you receive scrambled channels, you must connect the cable converter box to the TV/VCR's VHF/UHF terminal. Tune the TV/VCR to the cable box's output channel (3 or 4) and use the cable box to select the channel.



CONNECTING AN EXTERNAL DEVICE

You can connect another audio/video device that has audio/video outputs, such as a VCR, camcorder, or satellite receiver, to the TV/VCR so you can view the source's output on the TV/VCR.

Note: Always use video-quality shielded cables with phono connectors. Do not use standard audio patch cords.

To connect an audio/video device's outputs to the TV/VCR, connect the device's video and audio outputs to the corresponding **VIDEO IN** and **AUDIO IN** jacks on the back of the TV/VCR.

A/V Device



VIDEO IN

AUDIO IN

Cable Channel Designations

Your TV/VCR can receive up to 125 cable channels, displayed as 1–125. Channels 2-13 are the same for VHF and cable TV, and cable companies usually number them as they appear on the TV screen. For other channels, the cable service's channel designations might not match the channel numbers that appear on the TV screen.

For more information, contact your cable company. You might need to experiment to determine the proper cable channel designations for your cable system.

CONNECTING POWER

When you have completed all other connections, plug the TV/VCR's power cord into a standard AC outlet.

Warning: For your protection, the power cord has a polarized plug. To prevent blade exposure, be sure the blades fit fully and easily into the outlet. If you do not have a polarized outlet, have a qualified electrician install one before you use the TV/VCR.

Note: When you plug in the TV/VCR within 24 hours after a power failure, the TV/VCR starts to search for a channel that uses an Extended Data Service (EDS) signal (see "Setting the On-Screen Language/Channels/Clock" on Page 12).

SETUP

FRONT PANEL

The buttons on the TV/VCR's front panel control the TV and the VCR.

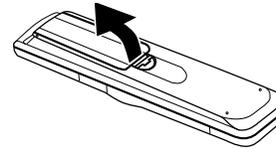
Installing Batteries

The remote control requires two AA batteries (not supplied). For the longest operation and best performance, we recommend alkaline batteries (such as RadioShack Cat. No. 23-557).

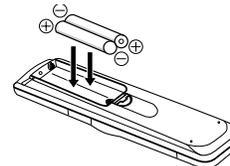
Cautions:

- Use only fresh batteries of the required size and type.
- Never leave dead batteries in the remote control. Batteries can leak chemicals that can damage electronic circuits.
- Dispose of dead batteries promptly and properly; do not bury or burn them.

1. Press down on the battery compartment cover's tab and lift off the cover.



2. Insert fresh batteries into the compartment, as indicated by the polarity symbols (+ and -) marked inside.



3. Replace the cover.

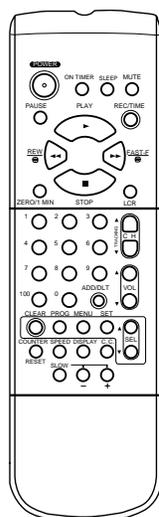
Note: If the remote control does not work or operates poorly, replace both batteries.

Using the Remote Control

To use the remote control, aim the LED on the front of the remote control toward the front of the TV/VCR and press the desired button(s).

REMOTE CONTROL

All the remote control's buttons have the same functions as the buttons on the TV/VCR's front panel. In addition, the number buttons let you directly select channels and menu options and settings, program, sleep and on timers, and more.



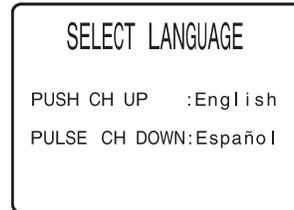
SETTING THE ON-SCREEN LANGUAGE/CHANNELS/CLOCK

The first time you turn on the TV/VCR, the **SELECT LANGUAGE** screen automatically appears. You can set the TV/VCR to display on-screen menus in English or in Spanish. After you select a language, the TV/VCR automatically scans through the channels and stores all active channels in your area. Then the TV/VCR automatically sets the clock if a broadcast station with an EDS signal is available in your area.

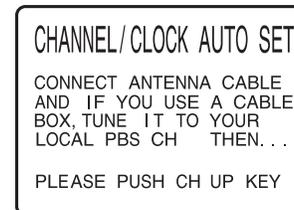
Notes:

- Make sure you have connected the TV/VCR to your cable system or an antenna before continuing (see "Connecting an Outdoor Antenna" or "Connecting to a Cable System" on Page 9).
- The on-screen language defaults to English.
- EDS is a service provided by some broadcasters such as PBS to transmit various types of information, including the current time. If no broadcaster in your area transmits EDS signals, you must set the clock manually after the TV/VCR finishes looking for an EDS signal. If you want to use timer recording immediately, you can stop the TV/VCR from looking for an EDS signal by setting the clock manually. See "Setting the Clock Manually" on Page 15.
- The TV/VCR might not store active channels and automatically set the clock if the signal the TV/VCR receives from your antenna is weak.

1. Press **POWER** to turn on the TV/VCR. The **SELECT LANGUAGE** screen automatically appears.



2. To select the on-screen language, press **CH ▲** to select **ENGLISH** or **CH ▼** to select **ESPANOL** (Spanish). The **CHANNEL/CLOCK AUTO SET** screen automatically appears.



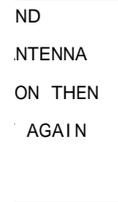
Note: If you use a cable box, you must turn it on and select an EDS broadcaster in your time zone before pressing **CH ▲**.

3. To automatically scan and store channels in your area then automatically set the clock, press **CH ▲**.

CH AUTO SET PROCEEDING appears on the screen, and the TV/VCR stores active channels (TV or CATV).

Notes:

- If the TV/VCR found no active channels during the search, it beeps and displays the following on the TV screen.



Check your antenna or cable connections, then press **CH ▲** again.

- If a channel you wanted was not stored, you can add the channel. If a channel you did not want was stored, you can delete the channel. See “Adding/Erasing Channels” on Page 15.
- The TV/VCR retains stored channels when you turn off the TV/VCR, or if power to the TV/VCR is lost for up to 60 seconds.

When the TV/VCR finds all active channels, it displays **CH AUTO SET COMPLETED**. Then it displays **AUTO CLOCK SET PROCEEDING**, and automatically searches for an EDS signal and sets the clock.

- If the TV/VCR finds an EDS signal during the search, the clock is automatically set, and a screen shows the currently set date and time. Then the TV/VCR tunes to the lowest stored channel.

```

12/25/1996 WED 12:00PM
          DST:ON
SETTING : CH 10
AUTO CLOCK SET
      COMPLETED
END : PUSH CH UP KEY
    
```

- If the TV/VCR does not find an EDS signal during the search, you see:

```

          AUTO CLOCK SET
          IS INCOMPLETE
          PUSH MENU TO SET CLOCK
    
```

If this occurs, the broadcaster you selected did not transmit an EDS signal, or there is no EDS broadcaster in your area. Manually set the clock (see “Setting the Clock Manually” on Page 15).

Note: Depending on the number of channels it tunes, the TV/VCR might take as long as 10 minutes to search for an EDS signal to set the clock.

Selecting Automatic Auto Clock Set-Up

You can set the TV/VCR any time so it automatically searches for a channel that has an EDS signal and sets the clock.

1. Press **MENU** to display the main menu.
2. Repeatedly press **SEL ▲** or **SEL ▼** on the remote control to select **CLOCK**, then press **SET**. The **SET CLOCK** screen appears on the TV screen.

```

----- SET CLOCK -----
          AUTO SET
          MANUAL SET
SELECT : PUSH SELECT ▲/▼
SET    : PUSH SET KEY
END    : PUSH MENU KEY
    
```

3. Press **SEL ▲** or **SEL ▼** on the remote control to highlight **AUTO SET**, then press **SET**. The **CHANNEL/CLOCK AUTO SET** screen appears.
4. To automatically set the clock, press **CH ▲**.

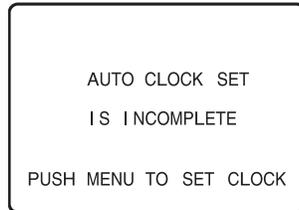
Notes:

- If you use a cable box, you must turn it on and select an EDS broadcaster in your time zone before pressing **CH ▲**.
- When you press **CH ▲**, the TV/VCR scans through all channels, even if no channel in your area carries an EDS signal.

AUTO CLOCK SET PROCEEDING appears on the screen, and the TV/VCR automatically searches for an EDS signal and sets the clock.

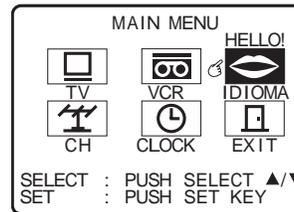
- If the TV/VCR finds an EDS signal during the search, the clock is automatically set, and a screen shows the currently set date and time. Then the TV/VCR tunes to the lowest stored channel.

- If the TV/VCR does not find an EDS signal during the search, you see:



If this occurs, the broadcaster you selected did not transmit an EDS signal, or there is no EDS broadcaster in your area. Manually set the clock (see "Setting the Clock Manually" on Page 15).

Note: Depending on the number of channels it tunes, the TV/VCR might take as long as 10 minutes to search for an EDS signal to set the clock.



4. Repeatedly press **SEL ▲** or **SEL ▼** on the remote control to select **SALIR** or **EXIT**, then press **SET** or **MENU** on the remote control to exit the menu.

Changing the Channels Stored in Memory

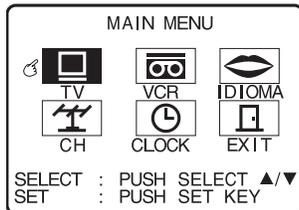
Although the TV/VCR automatically stores all active channels in your area the first time you turn it on, you can manually program the tuner's memory.

Notes:

- If you tune both TV (broadcast) and CATV (cable TV) signals, you can store both types of channels.
- If an EDS broadcaster is available in your area, the TV/VCR also displays the **CHANNEL/CLOCK AUTO SET** screen to let you automatically update the clock after you change what channels are stored in memory.

Changing the On-Screen Programming Language

1. Press **MENU** on the remote control to display the main menu.

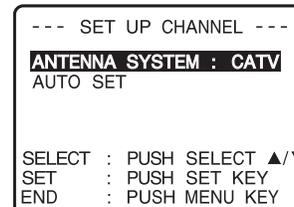


2. Repeatedly press **SEL ▲** or **SEL ▼** on the remote control to select **IDIOMA** (to change the language to Spanish) or **LANGUAGE** (to change the language to English).

Note: **IDIOMA** is "language" in Spanish.

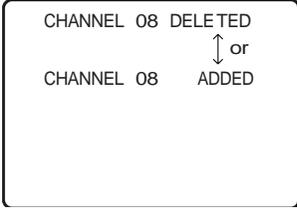
3. Press **SET** on the remote control to change the language. **HELLO!** (if you selected English) or **HOLA!** (if you selected Spanish) appears above the language selection icon.

1. Press **MENU** on the remote control to display the main menu.
2. Repeatedly press **SEL ▲** or **SEL ▼** on the remote control to select **CH**, then press **SET**. The **SET UP CHANNEL** menu appears on the TV screen.



3. If necessary, press **SEL ▲** or **SEL ▼** on the remote control to highlight **ANTENNA SYSTEM:**, then press **SET** to display the broadcast system (**TV** or **CATV**).
4. Press **SEL ▼** to highlight **AUTO SET**, then press **SET**. **CH AUTO SET PROCEEDING** appears, and the TV/VCR's tuner scans through the channels (**TV** or **CATV**) and stores all the active channels in your area. The currently tuned channel number appears on the TV screen. After scanning all the channels, **CH AUTO SET COMPLETED** appears, and the tuner stops on the lowest-numbered active channel.
5. To review the stored channels, repeatedly press **CH ▲** or **CH ▼** on the remote control.

Note: You can directly select channels that are not stored in the tuner's memory by using the remote control's number buttons.



Setting the Clock Manually

If the TV/VCR did not automatically set the clock, or if there is no EDS broadcast station in your area, you must manually set the clock. We suggest you use another TV or a radio station as your time source.

Follow these steps to set the clock manually.

1. Press **MENU** to display the main menu.
2. Repeatedly press **SEL ▲** or **SEL ▼** on the remote control to select **CLOCK**, then press **SET**. The **SET CLOCK** screen appears on the TV screen.

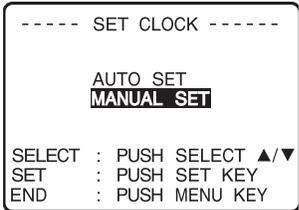
Adding/Erasing Channels

If a channel you want was not stored, or if a channel you do not want was stored, follow these steps to add or erase it.

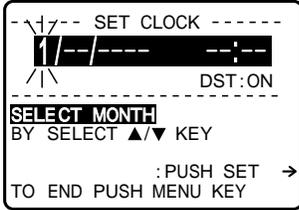
1. Repeatedly press **CH ▲** or **CH ▼** or use the number keys on the remote control to enter the channel number you want to add or erase.

Notes:

- You must use the number keys to select a channel that is not stored.
 - To enter a 3-digit number, press **100**. Then enter the second and third digits in the channel number.
 - Precede a single-digit number with a 0 — for example, **01**, **02**, etc.
2. Press **ADD/DEL** on the remote control to add or delete the channel. **CHANNEL** and the channel number and **ADDED** or **DELETED** appears on the TV screen.



3. Press **SEL ▲** or **SEL ▼** on the remote control to highlight **MANUAL SET**, then press **SET**. The next **SET CLOCK** screen appears on the TV screen.
4. Repeatedly press **SET** until the month digit flashes.



-
5. Repeatedly press **SEL ▲** or **SEL ▼** on the remote control to display the correct month, then press **SET** again. The day flashes.
 6. Repeat Step 5 to set the day, year, hour, and minute (the TV/VCR automatically sets the day of the week).

Note: Your TV/VCR uses a 12-hour clock. Be sure you set **AM** or **PM** correctly.

7. Press **SEL ▲** or **SEL ▼** on the remote control to turn **DST** (Daylight Saving Time) on or off.

When **DST** is set to **ON**, the TV/VCR automatically adds one hour on the first Sunday in April, and subtracts one hour on the first Sunday in October.

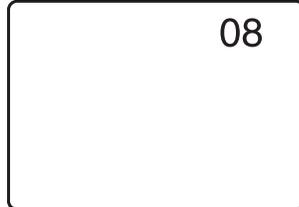
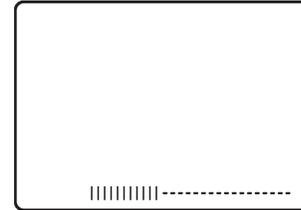
8. Review the entered information.
 - If it is correct, press **MENU** twice to start the clock.
 - If you find an incorrect entry, repeatedly press **CLEAR** to move back or **SET** to move forward to the incorrect number, then enter the correct number. Then press **MENU** twice.

When you press **MENU**, the seconds begin counting from 00.

BASIC TV OPERATION

SELECTING CHANNELS

To select a channel, press **CH ▲** or **CH ▼**. The tuner automatically advances to the next channel stored in the tuner's memory. The selected channel number (or station name, if available) appears on the upper right part of the screen for a few seconds.



You can also select channels directly using the number keys on the remote control. You can choose any channel in the tuner's range.

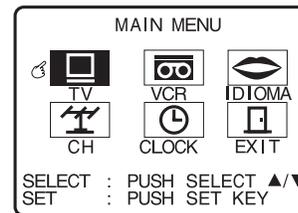
Notes:

- Precede a single-digit number with a 0 — for example, **01**, **02**, etc.
- To enter a three-digit number, press **100** then enter the second and third digits in the channel number.

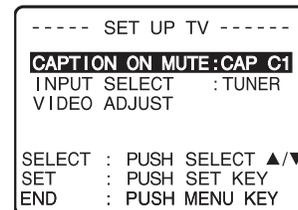
ADJUSTING THE PICTURE

Follow these steps to adjust the picture's contrast (picture), brightness, color, tint, and sharpness.

1. Press **MENU** on the remote control to display the main menu.
2. If necessary, repeatedly press **SEL ▲** or **SEL ▼** on the remote control to highlight **TV**.



3. Press **SET** to select **TV**. The **SET UP TV** screen appears.

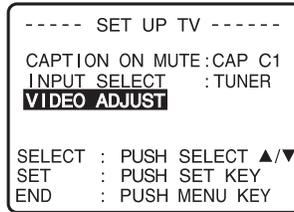


VIEWING TV

Follow these steps to view a broadcast using the TV.

1. If necessary, press **POWER** to turn on the TV/VCR.
2. Select the channel you want to watch.
3. Repeatedly press **VOL ▲** or **VOL ▼** to adjust the volume. A number and a bar graph appear on the TV screen to show the currently set volume level.

4. Repeatedly press **SEL ▲** or **SEL ▼** to highlight **VIDEO ADJUST**.



5. Press **SET**. A screen appears with the current picture settings.



6. Repeatedly press **SEL ▲** or **SEL ▼** until the setting you want to adjust is highlighted, then press **SET**. A screen showing the currently set adjustment for that setting appears.

Note: To reset all settings to their factory defaults, select **NORMAL**.

7. Repeatedly press **SEL ▲** or **SEL ▼** to adjust the picture as desired, then press **SET**.
8. Repeat Steps 6 and 7 to adjust the other setting(s) as necessary.
9. Press **MENU** three times to exit this mode.

Note: If you do not press any button within 5 minutes, the picture setting screen disappears.

USING MUTE

To temporarily turn off the TV/VCR's sound, press **MUTE** on the remote control. **MUTE** appears on the TV screen.

To restore the sound to the previous level, press **MUTE** again. Or, to restore the sound and change its level, press **VOL ▲** or **VOL ▼**.

USING LAST CHANNEL RECALL

The TV/VCR's last channel recall function lets you quickly switch between two channels you tuned.

Repeatedly press **LCR** (Last Channel Recall) on the remote control to switch between the channel you are watching and the previous channel you tuned.

VIEWING AN EXTERNAL DEVICE

To view the signals from an external device connected to the audio/video input jacks on the back of the TV/VCR, do either of the following:

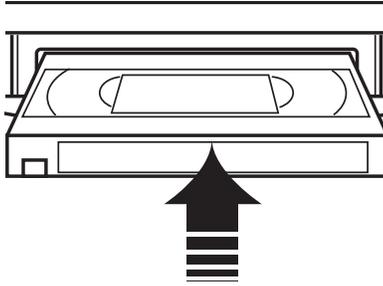
- Press **MENU** to display the main menu, repeatedly press **SEL ▲** or **SEL ▼** to select **TV**, then press **SET**. The **SET UP TV** screen appears. Then repeatedly press **SEL ▲** or **SEL ▼** to highlight **INPUT SELECT**, press **SET** to select **LINE**, then press **MENU** twice. The menu disappears.
- Select one channel higher than the highest programmed channel or one channel lower than the lowest programmed channel.

LINE appears on the TV screen.

BASIC VCR OPERATION

LOADING A VIDEO TAPE

Hold the cassette with the main label facing up and the spine facing out from the TV/VCR. Then insert the cassette into the cassette compartment and gently push the center of its spine until the TV/VCR draws it in.



The TV/VCR automatically turns on. If the erase-protection tab has been removed from the cassette, playback automatically begins (see "Erase Protection" on Page 26) and **PLAY** appears on the TV screen for about 4 seconds.

Caution: Never insert anything except a VHS video cassette into the cassette compartment. You might damage the TV/VCR's internal mechanisms.

PLAYING A VIDEO TAPE

1. Load a video tape.
2. If playback does not automatically begin, press **PLAY/REPEAT** on the front panel or **PLAY** on the remote control. **PLAY** appears on the TV screen and the TV/VCR plays the tape.

Notes:

- During playback, the TV/VCR automatically adjusts the tracking, but you can manually adjust it if necessary (see "Tracking" on Page 20).
- If there is no tape in the TV/VCR when you press **PLAY** (or **PLAY/REPEAT**), the following appears on the TV screen.

TTE
INSERT A CASSETTE

Load a video tape into the TV/VCR, then press **PLAY** (or **PLAY/REPEAT**) again.

3. Press **VOL ▲** or **VOL ▼** to adjust the volume.
- Note:** To adjust the contrast, brightness, color, tint, or sharpness, see "Adjusting the Picture" on Page 17.
4. To stop playback before it automatically stops at the end of the tape, press **STOP/EJECT** on the front panel or **STOP** on the remote control.
5. To eject the tape, press **STOP/EJECT** on the front panel.

When a tape reaches the end during playback or recording, the TV/VCR automatically stops the tape, completely rewinds it, then stops. If the erase-protection tab on the cassette is removed, the TV/VCR ejects the cassette.

TAPE MOTION CONTROLS

You can use the buttons on the front panel and remote control to change the tape's direction and vary the playback speed.

Visual Search

Visual search lets you view recordings at a faster speed either forward or backward, so you can find a specific section of the tape.

During visual search, the sound is muted and the picture quality is lower than during normal playback. The search picture is best with tapes recorded at the SP or SLP speed (see "Recording Speeds" on Page 26).

To search forward during playback, press **FAST-F**. To search backward during playback, press **REW** (or **REWIND**).

To stop visual search and play the tape, press **PLAY/REPEAT** on the front panel or **PLAY** on the remote control.

Slow Motion

Slow motion lets you view recordings at a slower speed, so you can easily see details on a tape.

To start slow motion playback, press **SLOW** during playback. To vary the slow motion speed, press **+** or **-**. Press **SLOW** or **PLAY** (or **PLAY/REPEAT**) to return to normal playback.

Note: During slow motion playback, the picture quality is lower than during normal playback.

Freeze-Frame

Freeze-frame lets you stop the tape to view a single frame. During freeze-frame, the picture quality is lower than during normal playback. The picture quality is best with recordings made at the SP or SLP speed.

To freeze a frame during playback, press **PAUSE**. To advance the picture one frame at a time, repeatedly press **SLOW**. Press **PAUSE** or **PLAY** (or **PLAY/REPEAT**) to return to the normal playback speed.

Notes:

- If the picture jitters during freeze-frame, try pressing and holding **CH ▲** or **CH ▼** (or **CHANNEL ▲** or **CHANNEL ▼**) until the picture stabilizes.
- If you leave the TV/VCR in the freeze-frame mode for 3 minutes, it automatically stops the tape to protect it.

Fast-Forward/Rewind

To advance the tape quickly when it is stopped, press **FAST-F**. To rewind the tape quickly when it is stopped, press **REW**.

Note: You cannot view the tape or hear the tape's sound while you fast-forward and rewind it, but you can use the tape counter to locate the approximate position on the tape. See "Using the Counter" on Page 21.

TRACKING

The TV/VCR automatically adjusts tracking when you play a tape. If different parts of the tape were recorded at different speeds, the TV/VCR automatically readjusts the tracking at the beginning of each recording.

If the TV/VCR's picture is poor while playing a tape, press and hold down **CH ▲** or **CH ▼** to manually adjust the tracking. To return to automatic tracking, eject and re-insert the tape.

SPECIAL FUNCTIONS

The following information describes some of your TV/VCR's special on-screen, display, and search functions.

THINGS YOU SEE

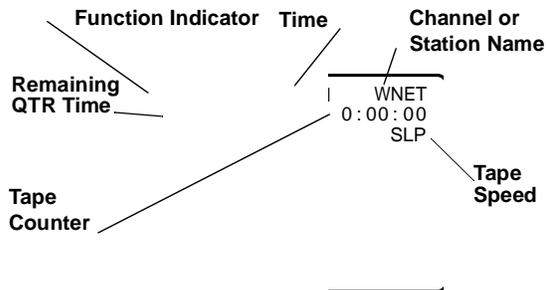
Blue Screen

The TV/VCR displays a blue screen when you select the menu, play unrecorded portions of a tape, or when you tune to a weak TV station.

On-Screen Displays

To view your TV/VCR's current operating mode and other information about your TV/VCR, press **DISPLAY** on the remote control during playback or while watching TV. You see this information on the TV screen.

- Function indicator (if a tape is loaded)
- Time
- Channel or (if station name is broadcast) station name
- Tape counter
- Tape speed
- Remaining QTR time (if programmed)



Press **DISPLAY** again to clear the information from the screen.

Note: If you change the channel while information is displayed, all information except the channel number disappears. Then, after about 4 seconds, the information reappears.

Function Indicators

When you press a function button (such as **STOP**), the selected function's indicator appears on the TV screen.

Note: If you play back a poor quality (worn) or damaged tape, the function indicator might not appear on the TV screen.

When you change the channel, the new channel number appears on the TV screen for about 4 seconds.

USING THE COUNTER

Your TV/VCR's counter shows how long a tape has been running, in hours, minutes, and seconds. To display the counter, press **DISPLAY** on the remote control.

Notes:

- Because the TV/VCR's counter reads special signals recorded on the tape, the counter might stop while you fast-forward or rewind through a blank section on the tape. This is normal.
- To reset the counter to **0:00:00**, press **COUNTER RESET** on the remote control.

Follow these steps to easily return to a selected point on the tape.

1. During playback, press **DISPLAY** on the remote control.
2. When you see the location on the tape that you want to return to later, press **COUNTER RESET** on the remote control. The TV/VCR displays **0:00:00** on the TV screen.
3. To return to the location you selected in Step 2, press **STOP** then **ZERO/1 MIN**. The tape fast-forwards or rewinds and automatically stops at **0:00:00**.

Note: The tape usually stops exactly at **0:00:00**. However, depending on the tape you use, it might stop a few seconds sooner or later.

USING ONE-MINUTE SKIP

With this feature, you can skip over unwanted portions of a recording such as commercials. While playing a tape, simply press **ZERO/1MIN.** The TV/VCR fast-forwards the tape, skipping over 60 seconds of recorded time. Then normal playback resumes.

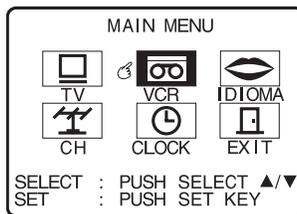
USING AUTOMATIC REPEAT PLAYBACK

Your TV/VCR lets you automatically repeat playback from the beginning to the end of a tape, or from the beginning to a blank (unrecorded) portion of a tape (at least 30 seconds long).

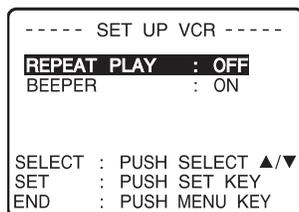
To automatically repeat playback using the front panel, repeatedly press **PLAY/REPEAT** until the REPEAT indicator lights on the front panel. To cancel automatic repeat playback, repeatedly press **PLAY/REPEAT** until the REPEAT indicator turns off.

Or, follow these steps to automatically repeat playback using the remote control.

1. Press **MENU**. The main menu appears on the TV screen.
2. Repeatedly press **SEL ▲** or **SEL ▼** to highlight **VCR**.



3. Press **SET** to display the **SET UP VCR** screen.



4. If necessary, press **SEL ▲** or **SEL ▼** to select **REPEAT PLAY**, then press **SET** to select **ON**. The REPEAT indicator lights on the front panel.

To cancel automatic repeat playback, select **OFF**.

5. Press **MENU** twice to return to the normal screen.

USING VCR LOCK

You can use the VCR lock feature to prevent operation of the VCR. This is handy if you want to stop small children from using the VCR.

To turn on VCR lock, while the tape is stopped, press and hold down **STOP/EJECT** on the front panel for more than 7 seconds until **VCR LOCK ACTIVATED** appears on the screen.

If any VCR control button on the TV/VCR (except **STOP/EJECT**) or remote control is pressed, **VCR LOCK ACTIVATED** appears on the screen, and the button does not function.

To release VCR lock, press and hold down **STOP/EJECT** on the front panel for more than 7 seconds until **VCR LOCK OFF** appears on the screen.

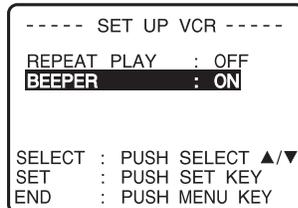
Notes:

- VCR lock is automatically released after 24 hours (when the clock is set).
- You cannot turn on or release VCR lock when a timer or quick timer recording is in progress.

TURNING ERROR BEEP ON/OFF

The TV/VCR is preset to sound an error beep if you make an invalid entry or try an invalid operation, but you can turn the beep off.

1. Press **MENU** to display the main menu screen.
2. Repeatedly press **SEL ▲** or **SEL ▼** to select **VCR**, then press **SET**.
3. Repeatedly press **SEL ▲** or **SEL ▼** to select **BEEPER**, then press **SET** to select **ON** or **OFF**.



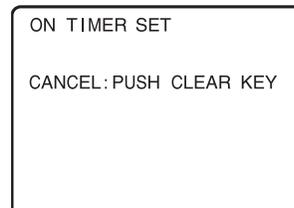
4. Press **MENU** twice to exit.

4. Repeatedly press (or press and hold) **SEL ▲** or **SEL ▼** to select the channel number you want the TV/VCR to tune to when it turns itself on, or select **PLAY** if you want the TV/VCR to play a tape when it turns itself on.

Notes:

- If you want to play a tape when the TV/VCR turns itself on, be sure to insert a cassette tape.
- If an entry is not correct, repeatedly press **SET** to move forward or **CLEAR** to move backward to the incorrect entry then correct it.

5. Press **ON TIMER**. The following screen appears for about 5 seconds, and the **ON TIMER** indicator lights on the front panel.

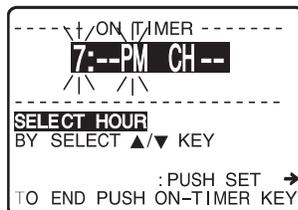


USING THE TIMER FEATURES

Setting/Cancelling the On Timer

Follow these steps to set the TV/VCR to turn on at a specified time.

1. Press **ON TIMER** on the remote control. The **ON TIMER** screen appears.



2. Repeatedly press (or press and hold) **SEL ▲** or **SEL ▼** to select the hour when you want the TV/VCR to start playing, then press **SET**.

Note: Your TV/VCR uses a 12-hour clock. Be sure **AM** or **PM** appears correctly.

3. Repeatedly press (or press and hold) **SEL ▲** or **SEL ▼** to select the minute when you want the TV/VCR to start playing, then press **SET**.

The TV/VCR turns itself on at the time you selected.

To cancel the on timer, press **ON TIMER** to display **ON TIMER SET CANCEL: PUSH CLEAR KEY** on the TV screen, then press **CLEAR** within about 5 seconds. **ON TIMER END** appears on the screen.

Note: After the TV/VCR has been on for 60 minutes, it turns itself off again unless you press any button on the remote control or front panel.

Using the Sleep Timer

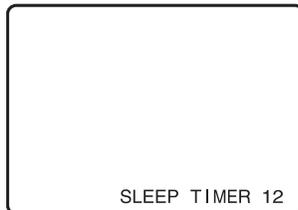
The TV/VCR's sleep timer lets you set the TV/VCR so it plays for a specific amount of time then automatically turns off.

Follow these steps to set the sleep timer.

1. Press **SLEEP** on the remote control. **SLEEP TIMER 30** appears on the TV screen.
2. Within 5 seconds, repeatedly press **SLEEP** until the TV screen shows the desired sleep time period. You can set the time in 30-minute increments, up to 90 minutes.

Note: If you do not press **SLEEP** again within 5 seconds, **SLEEP** and the displayed time period disappear.

To see the remaining time on the sleep timer, press **SLEEP**. **SLEEP TIMER** and the remaining time appear on the screen.



Note: The TV/VCR automatically displays **SLEEP TIMER 3** when there are 3 minutes left.

To cancel the sleep timer, repeatedly press **SLEEP** until **SLEEP TIMER 00** appears on the TV screen.

CLOSED CAPTION SYSTEM

Your TV/VCR has several closed caption options. Check your TV program listings for CC (Closed Caption) broadcasts.

Selecting the Closed Caption Mode

Most broadcasters send closed captioning information by using one of two captioning methods; C1 and C2. You can select option C1 or C2 for each active caption mode. You can select any of the following caption modes.

CAP C1 or C2 — A narration of the TV program is displayed on the TV screen.

TEXT C1 or C2 — The center of the screen is blocked out. When the TV station broadcasts text, such as program listings, special information, etc., it appears in this space.

OFF — Narration does not appear on the screen even if a closed caption or text broadcast is received.

Notes:

- The closed caption or text signal might be broadcast over C1, C2, or both.
- Text contents can vary, so you might want to try different settings.

Repeatedly press **C.C.** (closed caption) on the remote control until the desired caption mode appears on the screen.

Using the Caption On Mute Feature

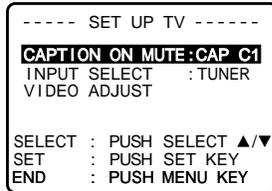
You can set the TV/VCR so it automatically displays closed caption information when you mute the sound.

Note: To use this feature, you must have selected **CAPTION OFF** using **C.C.**

1. Press **MENU** to display the main menu.
2. Repeatedly press **SEL ▲** or **SEL ▼** to highlight **TV**, then press **SET**. The **SET UP TV** screen appears with the currently selected caption setting.
3. Repeatedly press **SEL ▲** or **SEL ▼** to highlight **CAPTION ON MUTE**.

4. Repeatedly press **SET** to select one of the following caption modes:

- **CAP C1** (Caption Option C1)
- **CAP C2** (Caption Option C2)
- **NO** (No caption option)



5. Press **MENU** twice to exit.

Recording/Playing Back a Closed Caption/Text Program

The TV/VCR automatically records closed caption/text signals if they are broadcast (even if you do not display them).

To display the closed caption narration or text during playback, repeatedly press **C.C.** to select the appropriate caption or text mode.

RECORDING

GENERAL INFORMATION

You can use the following methods to record with your TV/VCR.

- Immediate recording
- Quick timer recording
- Automatic timer recording
- Dubbing

Notes:

- Your TV/VCR automatically records the audio signal and adjusts the sound level while it records.
- The video tape you use for recording must have the erase-protection tab in place. If the tab is removed, the TV/VCR automatically ejects the tape if you try to record on it (see "Erase Protection").
- You cannot use the TV/VCR to record one program while you watch another.
- If you want to record from a VCR or other audio/video source with A/V outputs, see "Dubbing (Copying) a Tape" on Page 30.

Recording Speeds

There are three VHS recording speeds: SP (standard play), LP (long play), and SLP (super long play).

SP (standard play) is the fastest recording speed and results in the highest quality picture, but uses the most tape.

LP (long play) records more slowly than SP but more quickly than SLP. LP provides a better quality picture than SLP and uses less tape than SP.

SLP (super long play) records more slowly and uses less tape, but the picture quality is not as high as with a recording made at the SP speed.

Note: The TV/VCR plays back tapes at the speed in which they were recorded.

Tape Selection

The quality of tape you use greatly affects record/playback quality and the life of the TV/VCR. High-grade tape has a better oxide coating that helps prevent dirty video heads and gives the best results. Use only video cassettes that display the official **VHS** logo.

Although T-160 video cassettes offer the longest recording time, they contain thinner tape that is more likely to jam. We suggest you use T-120 or shorter length tape.

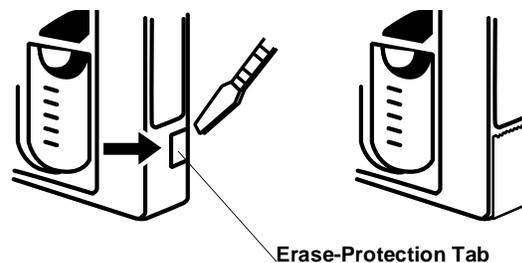
The following chart shows the maximum recording times for different-length tapes at the three recording speeds.

Tape Length	SP	LP	SLP
T-60	1 hour (60 min.)	2 hours (120 min.)	3 hours (180 min.)
T-120	2 hours (120 min.)	4 hours (240 min.)	6 hours (360 min.)
T-160	2 ² / ₃ hours (160 min.)	5 ¹ / ₃ hours (320 min.)	8 hours (480 min.)

Erase Protection

Video cassettes have an erase-protection tab to prevent accidental erasure. To prevent recording on a tape, break off the tab using a screwdriver. The cassette automatically ejects if you try to record on the tape.

If you want to record on a video cassette that has had its tab removed, put a piece of heavy plastic tape over the erase-protection tab hole.



IMMEDIATE RECORDING

Follow these steps to record a program without setting an on or off time.

1. Insert a blank cassette, or one that you want to record over, into the cassette compartment. The TV/VCR automatically turns on.
- Note:** If a cassette was loaded when you last turned off the TV/VCR, you must press **POWER** to turn on the TV/VCR.
2. Repeatedly press **SPEED** on the remote control until the desired recording speed (SP, LP, or SLP) appears on the TV screen.
3. Repeatedly press **CH ▲** or **CH ▼** or use the remote control's number buttons to select the desired channel.
4. Press **REC/TIME** on the remote control or press **PLAY/REPEAT** and **RECORD** on the front panel at the same time. The RECORD indicator on the TV/VCR turns on, **REC**, the current channel number, and **TO SET SPECIFIC REC TIME PLEASE PUSH REC KEY** appear on the TV screen for a few seconds, and the TV/VCR records what you see on the TV screen.

Notes:

- You can press **PAUSE** to temporarily pause recording (during commercials, for example) while recording. The RECORD indicator flashes. To resume recording, press **PAUSE** again.
- The TV/VCR does not record displayed information such as the channel number and function indicator.
- If you pause the TV/VCR for more than 5 minutes while recording, it automatically stops to protect the video heads.
- To turn off the TV screen while recording, press **POWER**. The TV/VCR continues to record until you press **STOP** on the remote control or **STOP/EJECT** on the front panel.

5. Press **STOP/EJECT** on the front panel or **STOP** on the remote control to stop recording.

QUICK TIMER RECORDING (QTR)

Quick timer recording lets you quickly set the TV/VCR to start recording immediately then stop after a length of time you specify (from 30 minutes to 4 hours).

1. Insert a blank cassette, or one that you want to record over, into the cassette compartment. The TV/VCR automatically turns on.
- Note:** If a cassette was loaded when you last turned off the TV/VCR, you must press **POWER** to turn on the TV/VCR.
2. Repeatedly press **SPEED** on the remote control until the desired recording speed (SP, LP, or SLP) appears on the TV screen.
3. Repeatedly press **CH ▲** or **CH ▼** or use the remote control's number buttons to select the desired channel.
4. Press **REC/TIME** twice on the remote control to begin recording. **REC TIME** and **0 : 30** appear on the TV screen for about 5 seconds, and the TV/VCR starts to record what you see on the TV screen.
5. To change the displayed total recording time, within 5 seconds repeatedly press **REC/TIME** to advance the time in 30-minute increments up to 2 hours, then in 1-hour increments up to 4 hours.

Note: If you do not press **REC/TIME** within 5 seconds, the recording time disappears. Simply press **REC/TIME** again to display the remaining recording time. When you finish entering all QTR information, the displayed information disappears after about 5 seconds.

When the recording time you set ends, the TV/VCR stops recording.

QTR Hints

- To see the remaining recording time, press **DISPLAY** or **REC/TIME** on the remote control once while QTR is in progress.
- QTR cannot function if a cassette is not inserted, if the erase-protection tab is removed, or if an automatic timer recording is in progress.
- To cancel QTR in progress, press **STOP**.
- To temporarily stop the tape during QTR, press **PAUSE**. Press **PAUSE** again to resume recording. If you pause a tape for 5 minutes, the TV/VCR automatically stops.

AUTOMATIC TIMER RECORDING

You can program the TV/VCR's automatic timer to select a channel, start recording a broadcast on that channel at a time and tape speed you set, then stop recording at a time you set. You can set up to 8 automatic program timers to record any combination of weekly, daily, or one-time broadcasts on the same or different channels.

You can set up the TV/VCR to record at any time on a specific day you set within a 1-month period (ONCE), any time at the same time Monday through Friday (DAILY), or any time the same day every week (WEEKLY).

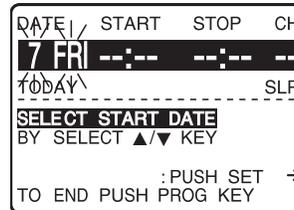
Setting the Automatic Timer

Note: Before you start, be sure you set the TV/VCR's clock to the correct date and time. If you have not yet set the clock, the TV/VCR automatically enters the clock setting mode before it displays the timer setting menu. See "Setting the Clock Manually" on Page 15.

1. If the TV/VCR is off, insert a blank cassette, or one that you want to record over, into the cassette compartment. The TV/VCR automatically turns on.

Note: If a cassette was loaded when you last turned off the TV/VCR, you must press **POWER** to turn on the TV/VCR.

2. Press **PROG** on the remote control. The timer setting menu appears on the TV screen. Today's date flashes, and **TODAY** appears below the flashing date.

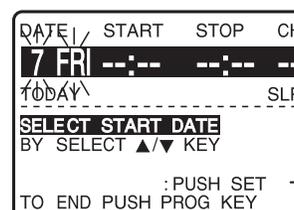


Notes:

- You can also use the buttons on the front of the TV/VCR to display and set the timer setting menu. To display the menu, press and hold down **REC/TIME**, then press **FAST-F**. To set menu options, press **PLAY** instead of **SEL ▲**, **REW** instead of **SEL ▼**, and **FAST-F** instead of **SET**.
- If the set program menu screen appears instead of the timer setting menu, you have already entered one or more programs.
- The current settings for the first four program numbers appear. Repeatedly press **SEL ▲** or **SEL ▼** to select an available program number, then press **SET**. The timer setting menu appears.

To record a program today (ONCE), go to Step 3. (The TV/VCR is preset to record a program today).

To record a program on a future date, repeatedly press (or press and hold) **SEL ▲** or **SEL ▼** until the date you want to record flashes on the TV screen.



To record a program at the same time each Monday through Friday (DAILY), repeatedly press or press and hold **SEL ▲** or **SEL ▼** until **DAILY** flashes on the TV screen above **MON-FRI**.

DATE	START	STOP	CH
DAILY	--:--	--:--	--
MON-FRI	----- SLP		
SELECT START DATE			
BY SELECT ▲/▼ KEY			
			: PUSH SET →
TO END PUSH PROG KEY			

To record a program at the same time each week (WEEKLY), repeatedly press or press and hold **SEL ▲** or **SEL ▼** until **WEEKLY** flashes on the TV screen and the desired day of the week appears below **WEEKLY**.

DATE	START	STOP	CH
WEEKLY	--:--	--:--	--
SUN \	----- SLP		
SELECT START DATE			
BY SELECT ▲/▼ KEY			
			: PUSH SET →
TO END PUSH PROG KEY			

- Press **SET** to enter your selection. The start time's hour and **A** (for AM) or **P** (for PM) flash on the TV screen.
- Repeatedly press (or press and hold) **SEL ▲** or **SEL ▼** to select the start hour. When the correct hour appears, press **SET**. The start time's minute flashes on the TV screen.
- Repeatedly press (or press and hold) **SEL ▲** or **SEL ▼** to select the start minute. When the correct minute appears, press **SET**. The stop time's hour and **A** (for AM) or **P** (for PM) flash on the TV screen.
- Repeat Steps 4 and 5 to set the stop time (hour and minute). The channel number flashes on the TV screen.
- Repeatedly press **SEL ▲** or **SEL ▼** to select the channel you want to record, then press **SET**. The tape speed (SP, LP, or SLP) flashes on the TV screen below the channel.

8. Repeatedly press **SEL ▲** or **SEL ▼** to select the tape speed (SP, LP, or SLP), then press **SET**. **SET COMPLETED** appears on the TV screen.

9. Double-check all the set information.

- If it is correct, press **PROG**.
- If an entry is not correct, repeatedly press **SET** or **CLEAR** to move to the incorrect entry, enter the correct information, then press **PROG**.

If all entries in the program are correct, **PROGRAM COMPLETED** appears on the screen for a few seconds. Then the **SET PROGRAM MENU** screen appears with your programming.

If all entries in the program are not correct, **PROGRAM IS INCOMPLETE** appears on the screen. Check and correct your programming, then press **PROG** again.

- To enter more programs, repeatedly press **SEL ▲** or **SEL ▼** to select another program number and repeat Steps 2–9.
- Press **PROG** to exit the program mode. The PROGRAM TIMER indicator lights on the front panel.

You can turn on and operate the TV/VCR normally prior to the set times. Two minutes before the timer recording starts, **TIMER REC WILL START SOON** appears on the screen if a tape is loaded in the TV/VCR, or **PLEASE PREPARE FOR TIMER REC** appears on the screen if a tape is not loaded in the TV/VCR. Make sure a tape is loaded and turn off the TV/VCR.

Notes:

- During timer recording, the TV/VCR does not turn on. You must press **POWER** to watch TV while timer recording is in progress.
- If the ON TIMER or PROGRAM indicator flashes, check that a cassette is inserted and the TV/VCR is turned off.

- If you are using a cable box, be sure to leave the cable box turned on and tuned to the desired station before the timer program starts.

2. Repeatedly press **SEL ▲** or **SEL ▼** to select the program you want to clear, then press **CLEAR**.
3. Press **PROG** to return to the normal screen.

Timer Recording Hints

- If there is a power failure or the TV/VCR is unplugged for more than 60 seconds, the clock setting and all timer settings are cleared.
- The TV/VCR can record only one broadcast at a time. If you program the TV/VCR's timer to record broadcasts on different channels that start at the same time, the TV/VCR records the broadcast with the lowest program number.
- If automatic timers overlap, the one that starts first has priority. When the first program ends, the TV/VCR switches to record the remainder of the second program.

To stop timer recording, simply press and hold down **STOP** for a few seconds.

DUBBING (COPYING) A TAPE

The process of recording from one audio/video device to another is called *dubbing*.

You can connect a VCR, camcorder, satellite receiver, or other device with audio and video outputs to the TV/VCR (see "Connecting an External Device" on Page 10), then use your TV/VCR to record the signal from the dubbing source.

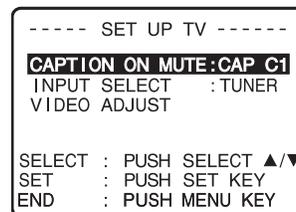
Note: For the best results while dubbing, hold the remote control close to the TV/VCR's infrared window when you press a button. Otherwise, the remote control might affect the dubbing source's operation.

Checking/Changing Program Timers

If a timer recording has not yet started, follow these steps to check/change a program timer.

1. Press **PROG**. The TV screen shows the status of the first four timer programs.
2. If necessary, repeatedly press **SEL ▲** or **SEL ▼** to select the program you want to change, then press **SET**. Then follow Steps 3–11 under "Setting the Automatic Timer" on Page 28 to correct the entry you want.
3. After checking or correcting the program contents, press **PROG** to exit the program mode.

1. Insert a blank cassette, or one that you want to record over, into the cassette compartment. The TV/VCR turns on.
2. Press **MENU** to display the main menu, repeatedly press **SEL ▲** or **SEL ▼** to select **TV**, then press **SET**. The **SET UP TV** screen appears.



Clearing a Program Timer

If a timer recording has not yet started, follow these steps to clear a program timer.

1. Press **PROG** to display all currently set programs.

3. Repeatedly press **SEL ▲** or **SEL ▼** to highlight **INPUT SELECT**, press **SET** to select **LINE**, then press **MENU** twice. The menu disappears and **LINE** appears on the TV screen.

Or, repeatedly press **CH ▲** or **CH ▼** to set the TV/VCR to one channel higher than the highest channel (or one channel lower than the lowest channel number). **LINE** appears on the TV screen.

4. Repeatedly press **SPEED** on the remote control until the desired recording speed (**SP**, **LP**, or **SLP**) appears.

5. Press **REC/TIME** on the remote control, or **PLAY/REPEAT** and **RECORD** at the same time on the front panel, to begin recording.

6. Start the dubbing source.

Note: You can edit out unwanted parts of the original recording by using **PAUSE** on the remote control while dubbing is in progress.

7. Press **STOP** to stop recording before it automatically stops at the end of the tape. Then stop the dubbing source.

ADDITIONAL INFORMATION

TROUBLESHOOTING GUIDE

If you follow the instructions in this manual and still have trouble operating your Model 29/Model 30, try the suggestions in this troubleshooting chart.

Problem	Possible Cause	Suggestion
No power.	The power cord is not connected.	Plug the power cord into an AC outlet.
	POWER not pressed.	Press POWER .
Timer recording does not work.	<ul style="list-style-type: none"> The TV/VCR is still turned on. The clock is not set correctly. 	<ul style="list-style-type: none"> Turn off the TV/VCR. Check the clock and reset it if necessary.
	Tape not inserted or erase-protection tab missing.	Insert a tape, or place a piece of strong tape over the erase-protection tab hole (see "Erase Protection" on Page 26).
	The program timer is not set or is set incorrectly.	Set the program timer correctly.
Cannot record.	The tape's erase-protection tab is missing.	Place a piece of strong tape over the tab hole (see "Erase Protection" on Page 26).
Picture is poor on playback.	The tracking is not properly adjusted.	Adjust the tracking (see "Tracking" on Page 20).
	The video tape might be faulty.	Try another tape.
	Video heads are dirty.	The video heads must be cleaned (see "Cleaning the Video Heads" on Page 35).
Remote control buttons do not work when the power is on and a cassette is inserted.	The cassette might be jammed.	Press STOP/EJECT on the front of the TV/VCR several times to release the cassette.
	The remote control's batteries might be weak.	Check the remote control's batteries and replace them if necessary.
	VCR lock might be on.	Set VCR lock to OFF (see "Using VCR Lock" on Page 22).

Problem	Possible Cause	Suggestion
Cannot record from the input jacks.	Connections are incorrect.	Use shielded audio/video cables with phono-type connectors to connect the source device to the TV/VCR's input jacks (see "Connecting an External Device" on Page 10).
	TV/VCR not set to LINE .	Set TV/VCR to LINE (see "Dubbing (Copying) a Tape" on Page 30).
Cannot see broadcast TV programs using the TV/VCR's tuner.	Antenna/CATV connections are incorrect.	Recheck all connections (see "Connections" on Page 9).
Picture or sound is not stable during playback.	Interference from electrical and magnetic sources.	Keep your TV/VCR away from electrical and magnetic appliances.
	The tape might be faulty.	Try another tape.

CARE AND MAINTENANCE

Your Optimus Model 29 13" Color TV with Built-In VHS VCR/Model 30 20" Color TV with Built-In VHS VCR is an example of superior design and craftsmanship. The following suggestions will help you care for your TV/VCR so you can enjoy it for years.



Keep the TV/VCR dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that corrode electronic circuits.



Use and store the TV/VCR only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, damage batteries, and distort or melt plastic parts.



Use only fresh batteries of the recommended size and type in the remote control. Always remove old or weak batteries. They can leak chemicals that can damage electronic circuits.



Handle the TV/VCR gently and carefully. Dropping it can damage circuit boards and cases, and cause it to work improperly.



Keep the TV/VCR away from dust and dirt, which can cause premature wear of parts.



Wipe the TV/VCR with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean it.

Modifying or tampering with the TV/VCR's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your TV/VCR is not performing as it should, take it to your local RadioShack store for assistance.

THE FCC WANTS YOU TO KNOW

Your TV/VCR might cause TV or radio interference even when it is operating properly. To determine whether your TV/VCR is causing the interference, turn off your TV/VCR. If the interference goes away, your TV/VCR is causing it. Try to eliminate the interference by:

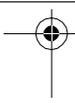
- Moving your TV/VCR away from the receiver
- Connecting your TV/VCR to an outlet that is on a different electrical circuit from the receiver
- Contacting your local RadioShack store for help

If you cannot eliminate the interference, the FCC requires that you stop using your TV/VCR.

RESETTING THE TV/VCR'S MEMORY

You can clear all settings from the TV/VCR's memory at once. This is handy if you want to load new channels into the TV/VCR's memory.

To reset the TV/VCR's memory, eject the cassette tape (if loaded), then press and hold down both **PLAY/REPEAT** and **REW** on the front of the TV/VCR for at least 5 seconds. The TV/VCR shuts itself off, and the settings are erased.



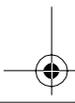
CLEANING THE VIDEO HEADS

Dirty video heads cause the playback picture to blur, even if the recorded signal is clear. However, video head cleaning is a delicate operation that requires a trained technician. For more head cleaning information, contact your local RadioShack store.

Have the video heads cleaned only when picture quality is affected.

DEGAUSSING

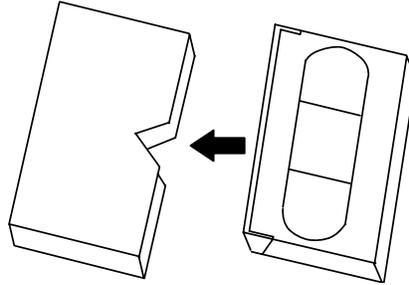
Your TV/VCR has an automatic degaussing circuit. The circuit functions each time you turn the power off. However, strong magnetism from nearby appliances might affect the TV/VCR's picture. If this happens, turn the power off for 1 minute, then turn it back on. If the TV/VCR's picture is still affected, move the TV/VCR away from the appliance.



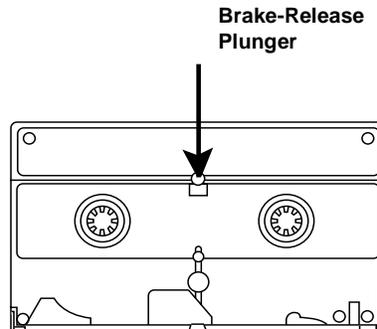
STORING VIDEO CASSETTES

Unless you are making a timer recording, eject and store the cassette when you finish using it. This helps protect the cassette and the TV/VCR's internal mechanisms from dust.

Place your video cassettes in their protective boxes and store them in a cool, dry, dust-free environment. Store the cassettes on end, not on their sides. This prevents improper settling of the cassette's spools.



Tape can become wound too tightly around the cassette's spools after you play a tape several times. This can cause the cassette to improperly load and automatically eject when you insert it. On most cassettes there is a brake-release plunger on the bottom center of the cassette. Use the tip of a pen or pencil to press the plunger. This loosens the tape.



SPECIFICATIONS

Television System NTSC Standard Color Signal

Playback System Rotary Four-Head Helical
Scan System

Tape Width $\frac{1}{2}$ Inch

Tape Speed:

SP 1.31 Inch/sec. (33.35 mm/s)

LP 0.65 Inch/sec. (16.67 mm/s)

SLP 0.43 Inch/sec. (11.125 mm/s)

Tuner Channels:

VHF 2–13

UHF 14–69

CATV 125

Terminals:

Antenna Input VHF/UHF 75 Ohms Unbalanced

Video Input Phono connector

Audio Input Phono connector

Power Requirements 120 VAC, 60 Hz

Power Consumption:

Model 29 69 Watts

Model 30 110 Watts

Dimensions (HWD):

Model 29 $15\frac{7}{8}$ x $14\frac{3}{8}$ x $15\frac{3}{4}$ Inches (403 x 365 x 400 mm)

Model 30 21 x $20\frac{1}{2}$ x $18\frac{7}{8}$ Inches (533 x 520 x 484 mm)

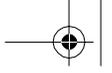
Weight (approx.):

Model 29 28 lb (12.7 kg)

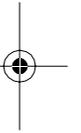
Model 30 54 lb (24.5 kg)

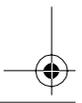
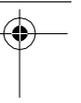
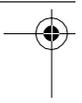
Included Accessory Remote Control

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.



NOTES





RadioShack Limited Warranty

This product is warranted against defects for 90 days from date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your RadioShack sales slip** as proof of purchase date to any RadioShack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage.

EXCEPT AS PROVIDED HEREIN, RADIOSHACK MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

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

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