

Cat. No. 16-830

OWNER'S MANUAL

Please read before using this equipment.

MODEL 130 MOVIECODER[™]

Camcorder

Radio Shack

FEATURES

Your Optimus Model 130 MovieCorder camcorder combines all the features of a video camera and a portable VCR in one lightweight package. Using standard VHS cassettes, you can record and play back home movies anywhere. The low-light (1 lux) CCD imager makes special lighting unnecessary in most situations.

You can also use the camcorder as a VCR to play back a tape or copy to a VCR.

This camcorder has many special features that make operation simple, convenient, and versatile. Be sure to read this manual carefully and completely so you can understand and enjoy all of your camcorder's features.

The camcorder has these features.

CCD Imager — provides a clear, high-resolution picture, even in low-light conditions (down to 1 lux).

Electronic Viewfinder with Adjustable Focus — lets you monitor the picture during recording and playback.

12-to-1 Power Zoom — lets you go smoothly from wide-angle to telephoto shots. You control the zoom rate by the amount of pressure you place on the buttons.

Digital Zoom Enhancement — increases the magnification of the power zoom up to 2 times (to 24-to-1).

Fuzzy Logic Circuitry — enables the camcorder to focus and adjust to different lighting conditions, much like the human eye.

Automatic Focusing — provides automatic, full-range focusing from $\frac{3}{8}$ inch to infinity for a sharp, clear picture in almost all situations. You can also focus the camcorder on close objects for stunning detail.

Zoom Automatic Focusing — automatically

Power Sources — Operate this product using only the power source indicated on its marking label. If you are not sure of your home's power type, consult your product dealer or local power company.

Polarization — This product is equipped with a polarized AC line plug (a plug having one blade wider than the other). This plug will fit in the power outlet only one way. This is a safety feature. If you cannot insert the plug fully into the outlet, try reversing the plug. If the plug still doesn't fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If you need an extension, use a polarized cord.

Power-Cord Protection — Route power-supply cords so they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

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

Overloading — Do not overload wall outlets, extension cords, or integral convenience receptacles, as this can result in a risk of fire or electric shock.

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

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

Damage Requiring Service — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

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

Replacement Parts — When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or having the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.



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CAUTION

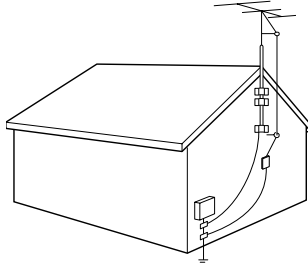


Safety Check — Upon completion of service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Wall or Ceiling Mount — The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

Heat — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Outdoor Antenna Grounding — If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, **ANSI/NFPA 70**, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See the example below.



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

AC ADAPTER/CHARGER

1. **Save these instructions** — This page contains important safety and operating instructions for the video product's supplied AC adapter/charger.
2. **Before using the video product's AC adapter/charger** — read all instructions and cautionary markings on the AC adapter/charger, battery pack, and the video product using the battery pack.
3. **To reduce risk of injury** — use the AC adapter/charger to charge only the supplied battery pack or a replacement battery pack VM-BP64/BP65/BP66/BP67. Other types of batteries may burst causing personal injury and damage.
4. **To reduce risk of damage to the power-supply cord or plug** — do not pull the power-supply cord to disconnect the AC adapter/charger from the wall outlet. Pull the power-supply plug.

5. **Do not operate the AC adapter/charger with a damaged power-supply cord or plug.** Have a qualified service technician replace them immediately.

6. **Do not use an extension cord unless absolutely necessary.** Use of an improper extension cord could result in a risk of fire and electric shock. If you use an extension cord, make sure that:

- A. The pins on the extension cord's plug are the same number, size, and shape as those of the power-supply plug on the AC adapter/charger.
- B. The extension cord is properly wired and in good electrical condition.
- C. You use an extension cord with the following wire sizes:

MINIMUM SIZE (AWG GAUGE)	LENGTH OF EXTENSION CORD (FEET)
18	Equal to or less than 100
16	Equal to or less than 150

7. **Do not operate the AC adapter/charger if it has received a sharp blow, been dropped, or otherwise damaged in any way.** Take it to a qualified service technician.

8. **Do not disassemble the AC adapter/charger.** Take it to a qualified service technician when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.

9. To reduce risk of electric shock, **unplug the AC adapter/charger from the wall outlet before attempting any maintenance or cleaning.**

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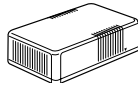
BEFORE YOU BEGIN

Please read this owner's manual carefully. It has been prepared to help you with initial setup procedures and in the everyday operation of your camcorder.

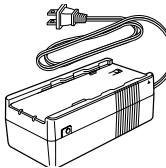
SUPPLIED ACCESSORIES

Your camcorder includes the following accessories. Be sure to remove these items before you store the packing material.

Battery Pack — supplies power for recording and playback during portable operation.



AC Adapter/Charger — charges the battery or, when used with the auxiliary power cord, supplies power to the camcorder from an AC outlet.



Auxiliary Power Cord — lets you connect the camcorder to the AC adapter/charger to operate the camcorder from AC power.

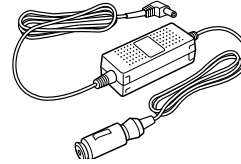


Shoulder Strap — provides a convenient way to carry the camcorder.



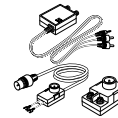
OPTIONAL ACCESSORIES

DC Adapter (CMC No. T16-CC70A) — supplies power to the camcorder from your vehicle's battery. Use it only in vehicles that have a 12-volt negative-ground electrical system.

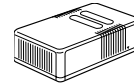


RF Adapter Kit (CMC No. T16-RF71A) — lets you play back a tape from the camcorder through a TV that does not have separate audio/video input jacks. The RF adapter kit includes:

- One RF converter
- One 300- to 75-ohm matching transformer
- One 75-ohm antenna cable



Spare Battery Pack (CMC No. T16-BP67)



Telephoto/Wide Angle Lens (CMC No. 16-2339)

Filter Kit (CMC No. (please add))



MOISTURE CONDENSATION

Condensation inside the camcorder can cause tape jams or video head damage. If the camcorder senses moisture, **TAPE** flashes in the viewfinder.

If **TAPE** flashes in the viewfinder, or when you first use your camcorder after moving it from a cold area to a warm one, follow these steps.

1. Eject the cassette if one is installed.
2. If necessary, slide **POWER** to **OFF**.
3. Let the camcorder sit for about 1 hour before you begin operation.

Caution: Avoid using the camcorder in excessively humid areas.

QUICK START

To eliminate complicated adjustments in most situations, this camcorder has fully automatic features for focus, white balance, and shutter speed. All you need to do is press **REC/PAUSE**.

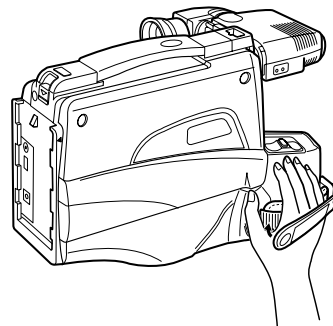
The following steps outline the basic procedures for making a recording. In many of the steps, you are directed to a specific section of this manual that contains more detailed information. When operating the camcorder for the first time, read all the steps and the suggested detailed information before you actually begin.

1. Choose and connect a power source. See "Selecting a Power Source" on Page 10.
2. Press **STOP/EJECT** to open the cassette compartment. Insert a standard VHS cassette, and close the compartment. See "Inserting/Removing a Video Cassette" on Page 16.
3. Slide **POWER** to **CAMERA**. The **POWER** indicator lights. See "Setting the Power Switch on Page 17.

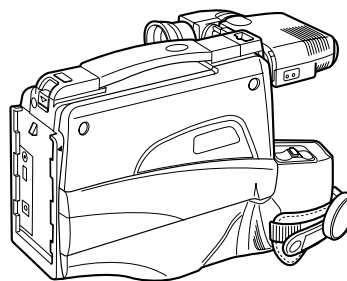
Note: If there is no cassette in the camcorder, **NO TAPE** appears in the viewfinder. If the cassette has its erase-protection tab broken off, **TAPE** appears in the viewfinder. See "Erase Protection" on Page 39.

4. Adjust the viewfinder's position until you can look into it comfortably when the back of the camcorder rests on your right shoulder. Then adjust the focus control on the eyepiece for the sharpest picture in the viewfinder. See "Preparing/Adjusting the Viewfinder" on Page 14.
5. Place your right hand between the hand strap and the camcorder. Then adjust the hand strap so it fits tightly over your hand.

Note: If the strap is too loose, the camcorder is difficult to handle.



6. Remove the lens cap and hang it on the hand strap clip.



7. Point the camcorder at the desired subject, then press **W** or **T** on the power zoom control until you see the desired picture in the viewfinder. See "Variable Speed Power Zoom" on Page 21.
8. To begin recording, press **REC/PAUSE** with your right middle finger. During recording, **REC** appears in the viewfinder with arrows above it to show the direction of tape travel.

Note: When about 5 minutes or less remain on the tape, **TAPE END** flashes in the viewfinder.
9. To pause the tape, press **REC/PAUSE** again. The tape pauses, the arrows disappear, and **PAUSE** appears in the viewfinder. To continue recording, press **REC/PAUSE** again.

Notes:

- To protect the tape and conserve battery power, the camcorder turns itself off if you pause the tape for more than 5 minutes. To turn the camcorder back on, press **REC/PAUSE**.
- For more information about recording with your camcorder, be sure to read all the sections under "Special Video Recording Features" on Page 18.

VIEWFINDER PLAYBACK

After you make a recording, you can play it back through the viewfinder. (Of course, you can also press **STOP/EJECT**, remove the tape, and play it in any VHS VCR).

1. Slide **POWER** to **VCR**. The POWER indicator lights.
2. Press **REWIND** to return the tape to the beginning or to the place where you want to begin playback. See "Digital Counter" on Page 21.
3. Press **PLAY** and watch the picture in the viewfinder. See "Special VCR Features" on Page 26.

Note: You cannot hear the tape's audio recording during viewfinder playback. To hear sound, play the tape through a TV/monitor or on a VCR. See "Connecting the Camcorder to a TV" on Page 32.

4. Press **STOP/EJECT** to end playback.
5. To remove the cassette, press **STOP/EJECT** again.

Note: Except when you are recording, you can eject a cassette any time power is connected to the camcorder, whether or not the POWER indicator is lighted.

SELECTING A POWER SOURCE

You can power the camcorder from any of three sources — the supplied battery pack, the supplied AC adapter/charger, or your vehicle's battery (with an optional DC adapter, not supplied).

Note: Your camcorder has a built-in rechargeable battery in addition to the battery pack. This battery protects the camcorder's date and time and any titles you created (see "Title" on Page 22.). You should recharge this battery about every 2 months. To recharge the battery, slide **POWER** to **OFF** and leave a power source connected to the camcorder for about 24 hours.

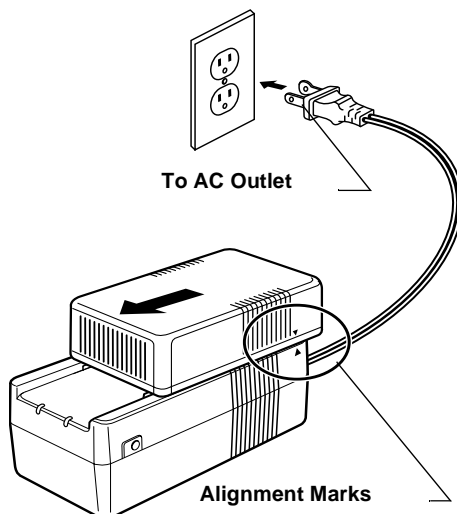
USING THE BATTERY PACK

You can power the camcorder using the supplied battery pack. However, you must charge the battery pack before you use it.

Charging the Battery Pack

Caution: Use only the supplied AC adapter/charger to charge the battery pack. Use of any other adapter/charger could damage the battery pack. Also, do not use the AC adapter/charger to charge any battery pack other than the type supplied.

Follow these steps to charge the battery pack with the supplied AC adapter/charger.



1. Make sure the auxiliary power cord is not connected to the AC adapter/charger.

Note: The battery pack will not charge if the auxiliary power cord is connected to the AC adapter/charger.

2. Align the marks on both sides of the battery pack with the marks on both sides of the AC adapter/charger.
3. Gently press the battery pack against the AC adapter/charger, then slide the battery pack toward you until it locks into place.

Caution: The battery pack fits only one way onto the AC adapter/charger. Do not force it.

4. Plug the AC adapter/charger's power cord into a standard AC outlet. The **POWER** and **CHARGE** indicators on the AC adapter/charger light, and charging begins. When the battery pack is fully charged, the **CHARGE** indicator turns off.

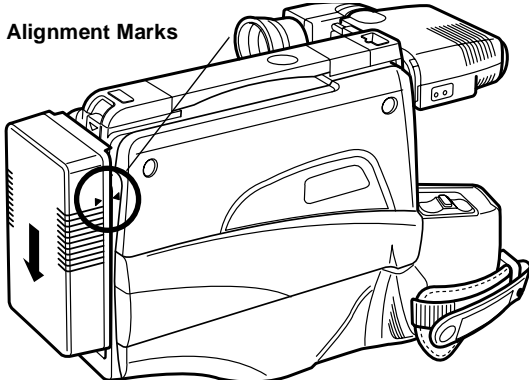
Caution: If the battery pack is hot, wait until it cools before connecting it to the AC adapter/charger. Otherwise, the **CHARGE** indicator might not light.

Notes:

- If the **POWER** and **CHARGE** indicators on the AC adapter/charger flash, remove the battery pack from the AC adapter/charger, then re-attach it. If both indicators continue to flash, you need a new battery pack.
 - It takes about 2 hours to fully charge the battery pack, but the exact charging time depends on the ambient temperature and the condition of the battery pack.
5. When the battery pack is fully charged, remove it from the AC adapter/charger by sliding it away from you. Then disconnect the AC adapter/charger from the AC outlet.

Attaching the Battery Pack to the Camcorder

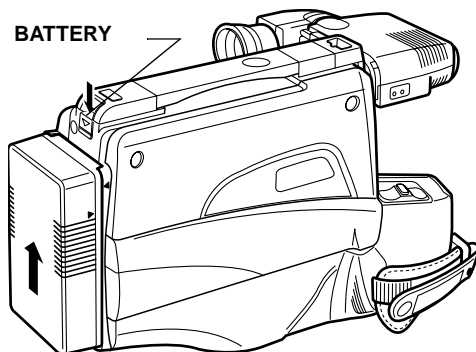
Alignment Marks



1. Align the marks on both sides of the battery pack with the marks on the sides of the camcorder.
2. Gently press the battery pack against the camcorder, then slide the battery pack down until it clicks and locks in place.

Caution: The battery pack fits only one way onto the camcorder. Do not force it.

Removing the Battery Pack from the Camcorder




1. Slide **POWER** to **OFF** to turn off the camcorder.
2. While pressing and holding down **BATTERY**, slide the battery pack up to remove it.



Caution: Always stop the tape and turn off the camcorder before you remove the bat-

tery pack. You might damage the tape if you remove the battery pack during recording or playback.

Battery Status Indicators




When the battery pack is fully charged,  appears in the viewfinder when you slide **POWER** to **CAMERA**.

As the battery's power is used,  appears in the viewfinder. When the battery is low,  blinks in the viewfinder. Then, after a few seconds, the camcorder turns itself off. Recharge the battery pack or power the camcorder from the supplied AC adapter/charger or an optional DC adapter.

Note: You can order additional battery packs from your local Radio Shack store so you can use one battery while you charge another.

Replacing the Battery Pack While Recording

You can replace the battery pack with a fresh one while recording.

1. If  flashes in the viewfinder during recording, press **REC/PAUSE** to stop recording.
2. If the camcorder is still on, slide **POWER** to **OFF**. The **POWER** indicator turns off.

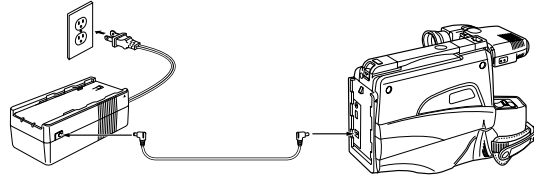
Caution: Be sure the **POWER** indicator is off before you remove the battery pack.
3. Remove the old battery pack and attach a fresh one.
4. Slide **POWER** to **CAMERA**. The **POWER** indicator turns on.
5. Press **REC/PAUSE** to continue recording from the same place as before.

Battery Usage Hints

- Recording with many starts and stops, frequent zooming, and recording in low temperatures might shorten battery life. Be sure to slide **POWER** on the camcorder to **OFF** when not recording.
- Do not use the camcorder with a low or discharged battery pack attached. This might cause the camcorder to automatically stop during recording or playback, possibly damaging the tape, battery pack, and camcorder.
- The camcorder consumes a small amount of battery power even when **POWER** is set to **OFF**. If you are not going to use the camcorder for a long time, remove the battery pack from the camcorder.
- Recharge the battery pack immediately after you record. Leaving the battery discharged can damage it, preventing further recharging and use.
- If you recharged the battery pack then stored it for a long period of time, recharge it again before you connect it to the camcorder. Batteries stored for an extended time lose some power, resulting in decreased battery life and recording time.
- Recharge the battery pack at least once every 6 months, even when it is not used.
- Store the battery pack in a dry, cool place.

Important: This product contains a rechargeable lead-acid battery. At the end of the battery's useful life, it must be recycled or disposed of properly. Contact your local, county, or state hazardous waste management authorities for information on recycling or disposal programs in your area. Some options that might be available are: municipal curb-side collection, drop-off boxes at retailers, recycling collection centers, and mailback programs.

USING THE AC ADAPTER/ CHARGER



1. Connect one end of the supplied auxiliary power cord to the AC adapter/charger's **DC OUTPUT** jack.
2. Connect the other end of the auxiliary power cord to the **DC IN** jack on the back of the camcorder.
3. Plug the AC adapter/charger's power cord into an AC outlet.

Caution: The supplied AC adapter/charger is specially designed for use with your camcorder. Never use it to power any other device

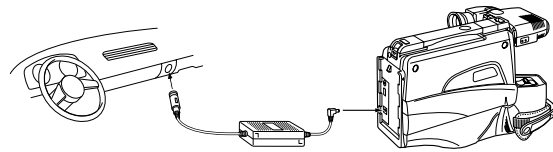
USING AN OPTIONAL DC ADAPTER

You can use a DC adapter (CMC No. T16-CC70A, not supplied) to power your camcorder.

Cautions:

- Your vehicle must have a 12-volt, negative-ground electrical system.
- The recommended DC adapter is specially designed for use with your camcorder. Never use it to power any other device.
- Use only the recommended DC adapter to power the camcorder from your vehicle. Using a DC adapter other than the recommended DC adapter could seriously damage your camcorder and the DC adapter.
- Always connect the DC adapter to the camcorder before you plug it into your vehicle's cigarette-lighter socket, and unplug the DC adapter from the cigarette-lighter socket before you unplug it from the camcorder.

Follow these steps to power the camcorder from your vehicle's battery:



1. Connect the DC adapter's barrel plug to the **DC IN** jack on the back of the camcorder.
2. Plug the DC adapter into your vehicle's cigarette-lighter socket.

Notes:

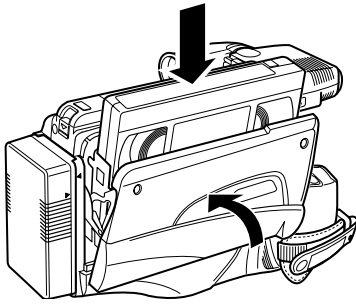
- Be sure to push the plug completely into the cigarette-lighter socket.
- Be sure the socket is free from ashes and other debris.

PREPARING THE CAMCORDER FOR USE

INSERTING/REMOVING A VIDEO CASSETTE

You can open the cassette compartment to insert/remove a video cassette whenever a power source is connected to the camcorder, whether or not the camcorder is turned on.

1. Press **STOP/EJECT** to open the cassette compartment.
2. Insert a VHS cassette into the cassette compartment with the side label facing you and the spine label facing up, then gently press the cassette compartment door until it closes.



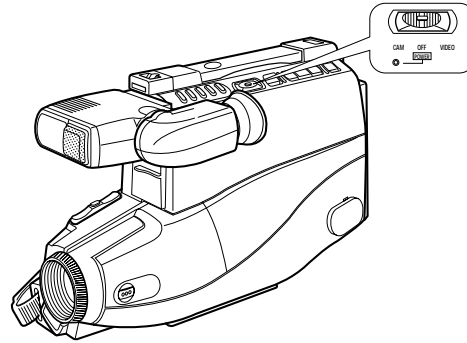
Caution: Never insert anything except a VHS video cassette into the cassette compartment.

To remove a cassette, press **STOP/EJECT**, wait for the cassette compartment door to open, and pull out the cassette.

Caution: Always remove the cassette before storing the camcorder.

SETTING THE POWER SWITCH

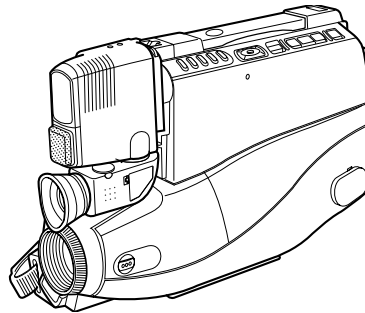
While pressing and holding down the red button in the center of **POWER**, slide it to **CAMERA** for video recording or to **VCR** for playback. The **POWER** indicator lights.



Slide **POWER** to **OFF** to turn off the camcorder.

PREPARING/ADJUSTING THE VIEWFINDER

The camcorder's viewfinder is set to this position at the factory.

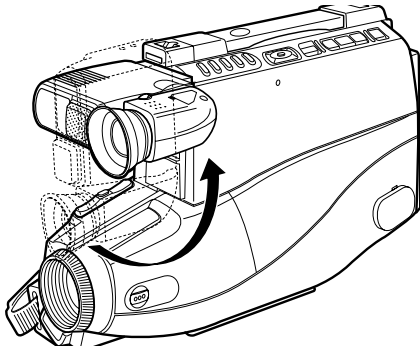


Before you carry the camcorder by its shoulder strap or store it, return the viewfinder to this position (see "Setup" on Page 17).

Setup

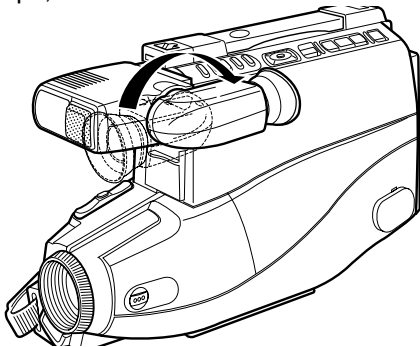
Before you can use the camcorder, you must set up the viewfinder.

1. Rotate the viewfinder support until it stops, as shown.



Caution: The viewfinder support rotates only 90°. Do not force it past this point.

2. Rotate the eyepiece about 180° until it stops, as shown.

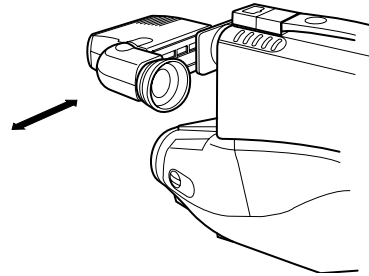


Caution: The eyepiece rotates only about 225°. Do not force it past this point.

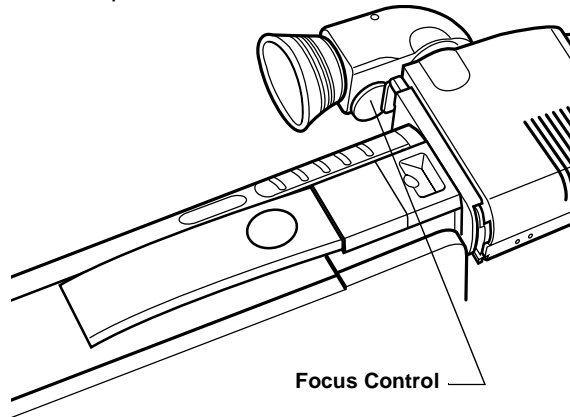
Adjustment

Once you set up the viewfinder, you can adjust the position of the viewfinder support and angle of the eyepiece, so you can see through the eyepiece easily.

1. Slide **POWER** to **CAMERA** or **VCR**.
2. To adjust the viewfinder support, slide it to the left or right until the eyepiece is directly in front of your right eye.

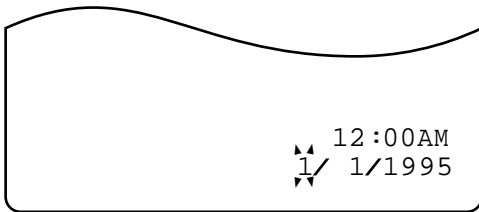


3. To adjust the eyepiece, rotate it up or down until you can see through it.
4. Turn the focus control on the right side of the eyepiece until the image is clear and sharp.



SETTING/CHANGING THE DATE AND TIME

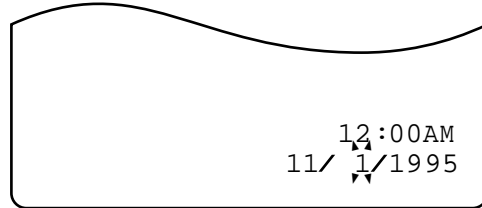
1. Slide **POWER** to **CAMERA**. The **POWER** indicator lights.
2. If the currently set date does not appear in the viewfinder, repeatedly press **DATE/TIME** until the date appears and the month's digit flashes.



If the month's digit does not flash, press and hold down **DATE/TIME**, then press **STOP/EJECT** once.

3. Repeatedly press **FAST-F** or **REWIND** to move forward or backward through the months until the viewfinder shows the correct month. To quickly move forward or backward through the months, press and hold down **FAST-F** or **REWIND**.

4. When the viewfinder shows the correct month, press **STOP/EJECT**. The day's digit flashes.

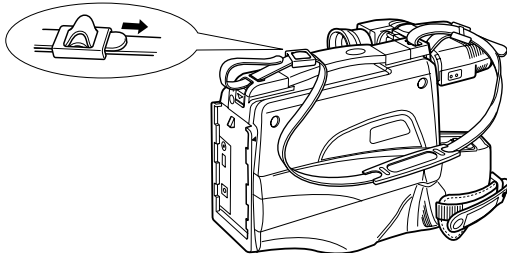


5. Repeat Steps 3-4 to set the correct day, year, hour, minute, and AM (if the hour is an AM hour) or PM (if the hour is a PM hour).
6. When you have set the date and time, repeatedly press **DATE/TIME** to confirm the information you set.
7. To change the displayed date and time, repeat Steps 2-6.

ATTACHING THE SHOULDER STRAP

The shoulder strap provides a convenient way to carry the camcorder when it is not in use. You can also use it as a safety strap when you use the camcorder.

To attach the shoulder strap, slide **POWER** to **OFF**, then attach each end of the strap as shown.



Cautions:

- Use only the supplied shoulder strap with this camcorder.
- Do not swing the camcorder from the shoulder strap.
- Replace the lens cap while carrying the camcorder with the shoulder strap.

SPECIAL VIDEO RECORDING FEATURES

AUTO FOCUSING

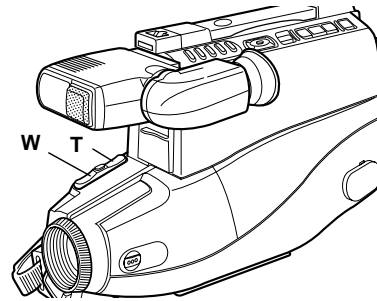
The automatic focusing feature lets you concentrate on recording great videos without having to worry about whether or not they are properly focused.

The camcorder detects the distance from the camcorder to the object you see in the center of the viewfinder, then sets the focus for that distance. When you move the camcorder, the camcorder continuously adjusts the focus to maintain the sharpest picture. Try to keep your desired subject in the middle of the viewfinder.

Notes:

- If the lens gets dirty, clean it with a soft tissue and lens-cleaning fluid.
- If the lens gets damp, dry it with a soft cloth or wait until the moisture evaporates.
- Always replace the lens cap when you finish recording.
- The auto-focus sensor might not be able to focus on a subject when:
 - You are taping in extremely low light.
 - You are taping in snow or fog.
 - Close and distant objects are both near the center of the viewfinder.
 - You are taping a long object (such as a fence rail) from its end.
 - The scene includes several objects equal distances apart.
 - Light reflects off the subject.
 - The focus point moves rapidly.
 - You are taping through a window.

VARIABLE SPEED POWER ZOOM



The power-zoom feature lets you go from wide-angle to telephoto shots at the touch of a button. During recording, press **W** or **T** with the fingers of your right hand. Press **W** (wide-angle) to zoom out and **T** (telephoto) to zoom in.

As you zoom out or in, a bar with an indicator appears on the left side of the viewfinder. The indicator moves up and down the bar, showing the relative zoom position. The pressure you place on **W** and **T** controls the speed of the zoom. The harder you press **W** and **T**, the faster the camcorder zooms.

MACRO FOCUSING

The camcorder's macro focusing feature lets you shoot close up pictures (as little as 1¹/₄ inches away) of objects such as flowers, printed material, or photos in your family album.

To use macro focus, press and hold down **W** (see "Variable Speed Power Zoom" above) until you see the widest possible angle in the viewfinder, then aim the camcorder at the object you are shooting. In most cases, the camcorder automatically focuses on the subject.

Notes:

- Since macro focus exaggerates even the slightest movement of the camcorder or subject, we recommend that you set the camcorder on a tripod while using macro focus.

- For the best possible resolution while using macro focus, be sure to shoot in a well-lit area.

DIGITAL ZOOM


The camcorder's digital zoom feature automatically doubles the magnification of telephoto shots while you use variable speed power zoom.

To use digital zoom, simply continue to press and hold down **T** while you are zooming. As you press and hold down **T**, the magnification doubles and **ZOOM** appears above the indicator on the left side of the viewfinder.


Notes:

- The subject you are magnifying while using digital zoom might appear coarse. This is normal.
- Since digital zoom exaggerates even the slightest movement of the camcorder or subject, we recommend that you set the camcorder on a tripod while using digital zoom.


The camcorder has the following fade options:

White fade: The picture fades in/out from/to a white screen. When you select this option,  appears in the upper left corner of the viewfinder.



Wipe fade: The picture opens/closes gradually from/to the center of a black screen. When you select this option,  appears in the upper left corner of the viewfinder.



Zoom fade: The picture fades in/out while zooming from/to a white screen. When you select this option,  appears in the upper left corner of the viewfinder.



FADE IN AND FADE OUT

To give your recordings a professional look, the camcorder has three fade options.

To select a fade option and fade in or out, repeatedly press **FADE** during recording or while the camcorder is paused until the icon for the option you want appears. Then press **REC/PAUSE**.

Note: During fade, the recorded audio also fades in/out along with the video.

REVIEW

This feature lets you quickly review the last few seconds of a recording.

1. During recording, press **REC/PAUSE** to stop the tape. **REV** appears in the viewfinder.
2. Press **REVIEW**. The tape rewinds and plays the last few seconds of the tape, then stops the tape where the recording ends.
3. Press **REC/PAUSE** to resume recording from that point.

CAMERA SEARCH

The camera search feature lets you review recorded portions of a tape and resume recording at the desired point on the tape. This lets you smoothly connect recorded scenes.

1. During recording, press **REC/PAUSE** to stop the tape. **CS** appears in the viewfinder.
2. Press and hold down **FAST-F** to search forward, or **REWIND** to search backward.
3. When you see the approximate place on the tape where you want to start recording, continue to press and hold down **FAST-F** or **REWIND** for a few seconds more, then release **FAST-F** or **REWIND**.
4. Press and hold down **PLAY** to position the tape at the exact place where you want to start recording. When you locate the exact place, release **PLAY** to stop the tape.
5. Press **REC/PAUSE** to start recording at the desired position on the tape.

AUTO EXPOSURE

Depending on the brightness of the subject, the camcorder automatically sets its shutter speed to one of the following speeds:

- 1/60
- 1/100
- 1/120
- 1/180
- 1/250
- 1/350
- 1/500
- 1/750
- 1/1000
- 1/1500
- 1/2000
- 1/4000

The iris in the camcorder's lens also adjusts automatically in response to the shutter speed.

The camcorder displays **AE** and the current shutter speed in the upper left corner of the viewfinder.

AUTOMATIC INDEX

Indexing makes it easy to find each recording on a tape using a VCR with the VHS Index Search System (VISS) feature.

Note: For more information about VISS, refer to your VCR's owner's manual.

The camcorder automatically records VISS index signals when:

- You turn on the camcorder's power within about 4 hours after you last turned it off, then start recording.
- You turn on the camcorder's power after the date changed to the next day while the power was off, then start recording.

When the camcorder records a VISS index signal, **INDEX** appears in the viewfinder until you start recording.

RECORDING THE DATE AND TIME ON A TAPE

You can select a date/time recording option by repeatedly pressing **DATE/TIME**. Each time you press **DATE/TIME**, you see one of the following options:

- **AUTC and the date** — the camcorder automatically records the date on the first 10 seconds of the first recording of the day.
- **Date only** — the camcorder continuously records the date.
- **No date/time display** — the camcorder does not record the date or time.
- **Time and date** — the camcorder continuously records the date and time.

Notes:

- The camcorder records the same date when:
 - You replace the cassette
 - You select another date/time option, then select the auto date option
 - The previous recording was less than 10 seconds long
- If the date changes while recording continues for more than 10 seconds, the new date is recorded at the beginning of the next recording.

DIGITAL COUNTER

The camcorder displays a digital tape counter in the upper right corner of the viewfinder during recording or playback. You can use this counter to mark and return to specific locations on a tape. The camcorder does not record the digital counter onto the tape.

1. Load a cassette into the camcorder, then slide **POWER** to **CAMERA** or **VCR**. The counter appears in the viewfinder.
2. Rewind the tape in the camcorder, then press **RESET**. The counter resets to **0000**.

3. Begin recording or playback of the tape.
4. While recording or playing back, if you see a place on the tape you might want to return to, note the counter reading at that point.

COUNTER MEMORY

This feature lets you rewind or fast-forward the tape to a specific point where you reset the tape counter to **0000**.

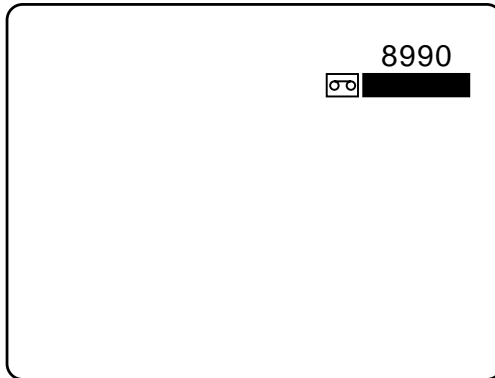
1. Load a cassette into the camcorder, then slide **POWER** to **CAMERA** or **VCR**. The counter appears in the viewfinder.
2. Press **DISPLAY**. **M** appears next to the counter in the viewfinder.
3. Begin recording or playback of the tape. When you see a scene you might want to return to, press **RESET**. The counter resets to **0000**.
4. When you are ready to return to the location on the tape where you pressed **RESET**, follow these steps if you are recording:
 - a. Press **REC/PAUSE**
 - b. Slide **POWER** to **VCR**
 - c. Press **REWIND** or **FAST-F**.


If you are playing back a tape, press **STOP/EJECT**, then press **REWIND** or **FAST-F**.

The tape rewinds or fast-forwards, then stops when the counter reaches **0000**.


To rewind or fast-forward past the location on the tape where you pressed **RESET**, press **REWIND** or **FAST-F** again.

TAPE REMAINING



During recording and playback, the camcorder displays a bar below the tape counter in the viewfinder showing the amount of tape left on the loaded cassette. The camcorder displays remaining tape information in ranges from (the tape is at or near the beginning), (the tape is in or near the middle), to  (the tape is at or near the end).

Notes:

- When there is less than 5 minutes of tape left, **TAPE END** also flashes in the viewfinder.
- When you first record or play back a cassette, the camcorder displays  for about 10 seconds. Then the bar changes to show the remaining amount of tape.
- The remaining tape bar disappears when you eject the cassette.

TITLER

You can easily create and record personalized titles on your recordings using the camcorder's titler.

The camcorder stores up to two title "pages" in its memory. Once you store a title, you can display and record it onto a tape any time. Each title page can contain up to two lines of 16 characters each.

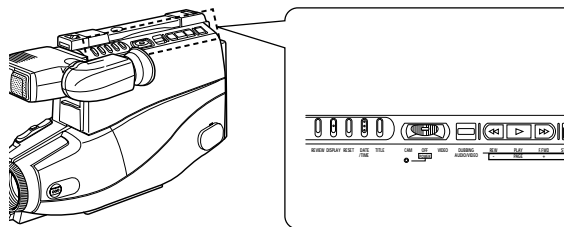
The titler contains 47 different characters you can use to create titles.

Creating Titles

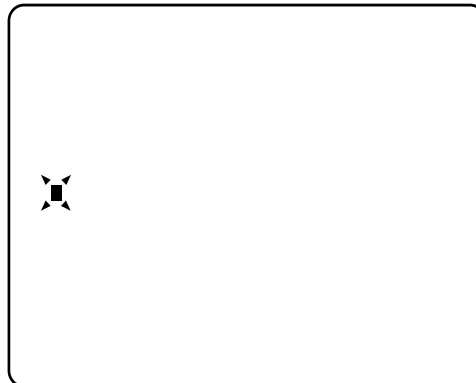
Follow these steps to create titles and save them in the camcorder's memory (one title per page).

Note: You cannot load or eject a cassette while creating a title.

1. Slide **POWER** to **CAMERA** or **VCR**.
2. Press **TITLE**.



A flashing cursor appears in the viewfinder.



3. Repeatedly press **SHIFT** to move the flashing cursor to the place where you want to begin your title.
4. Select the first character of your title by repeatedly pressing **-** or **+** to move backward or forward through the characters until the viewfinder shows the correct character. To quickly move backward or forward through the characters, press and hold down **-** or **+**.

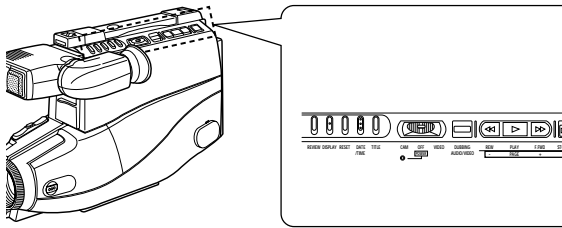
The characters appear in this order as you press **+** (or in reverse order as you press **-**).

**A B C D E F G H I J K L M N O P Q R S T
U V W X Y Z 0 1 2 3 4 5 6 7 8 9 ? ' . / , - ; < > !
(space)**

- After you have selected the first character, press **SHIFT** to move the flashing cursor to the place where you want the next character.
- Repeat Steps 4 and 5 until you complete the title.

Note: The last character you select might flash in the viewfinder, but it will not flash when you save it.

- If you like, you can press **PAGE** then repeat Steps 3-6 to create another title.



- To save and review the titles you created, press **TITLE**. The last title page you created appears, and the first character of the title flashes. To view the other title page (if you created one), press **PAGE**.

Notes:

- Your camcorder's built-in rechargeable battery protects the titles you created (see "Selecting a Power Source" on Page 12).
- The camcorder saves the titles you created when it automatically stops and turns itself off after 5 minutes.

Editing Titles

Follow these steps to change a title.

- Press **TITLE**. Then, if the title page you want to correct does not appear, press **PAGE** to select the other title page.
- Repeatedly press **SHIFT** to move forward through the characters until the incorrect character flashes.
- Repeatedly press **-** or **+** to move backward or forward through the characters until the viewfinder shows the correct character. To quickly move backward or forward through the characters, press and hold down **-** or **+**.
- If necessary, repeat Steps 2 and 3 to select and correct other characters.

Adding Titles While Recording

You can use the camcorder to superimpose (add) titles to your recordings while you record.

Note: You cannot use these steps to superimpose titles over material previously recorded. You can do this while you dub a tape. See "Adding Titles onto an Existing Recording" on Page 31.

- Slide **POWER** to **VCR**.
- Locate the position on the tape where you want to record a title.
- Slide **POWER** to **CAMERA**.
- Press **TITLE**. Then, if the title page you want to record does not appear, press **PAGE** to select the other title page.
- Press **REC/PAUSE** to start the title recording.

The camcorder superimposes the title you selected over the scene you are recording.

- When you want to stop recording the title onto the tape, press **TITLE**. The title disappears.

HINTS FOR MAKING BETTER VIDEO TAPES

If you are not familiar with camera techniques, there are many books about the subject available at your local library. However, because the camcorder is so simple to use and tape can be used again and again, it is inexpensive to experiment and learn as you go.

The following information will get you started.

LIGHTING

Lighting should be uniform. The camcorder can record in low-light conditions, but more light is usually better. The optimum brightness for top-quality pictures is between 500 and 100,000 lux.

Caution: Do not place a light source near the camcorder. The heat can damage the camcorder.

The chart at right shows you the approximate brightness in different situations or from different light sources.

Typical Brightness of Common Situations

Brightness (LUX)	Situation
100,000	Clear day at noon
65,000	Clear day at 10:00 AM
35,000	Clear day at 3:00 PM
32,000	Cloudy day at noon
25,000	Cloudy day at 10:00 AM
2,000	Cloudy day, one hour after sunrise
1,000	Clear day, one hour before sunset
1,000	Fluorescent light near window
700-800	Factory floor
500-700	Sales counter in department store
500	Bowling alley
400-500	Library
400-500	Office with fluorescent lighting
400	Fluorescent desk lamp
250	Flashlight at 3 feet
100	Factory stairway
15-35	During intermission at movie theater
15-20	Cigarette lighter at 1 foot
10-15	Candles on birthday cake at 8 inches

CAMCORDER MOVEMENT

When you move the camcorder while recording, do so slowly and steadily. Too much movement or fast movement make your recordings look awkward. A video camera tripod (such as Radio Shack Cat. No. 16-2017, not supplied) is a worthwhile investment for top-quality movie making.

ZOOM IN AND ZOOM OUT

As with movement, too much use of the camcorder's zoom features can detract from your recordings. When you use variable speed power zoom and/or digital zoom, it is best to zoom in or zoom out in one smooth motion, not in several jerky motions.

If you use them sparingly, movements from side to side combined with zooms can be very effective in your video tapes.

SPECIAL VCR FEATURES

This section describes some of your camcorder's special VCR features and functions.

Note: Unless otherwise noted, you can use these features only when **POWER** is set to **VCR**.

VISUAL SEARCH

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

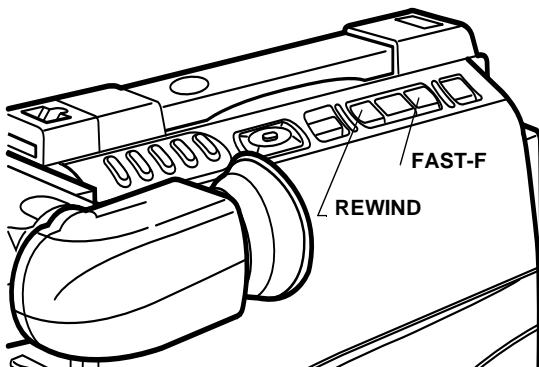
To search forward during playback, press **FAST-F**. To search backward during playback, press **REWIND**.

To stop visual search and play the tape, press **PLAY**.

Note: You cannot hear the tape's sound during visual search.

FAST FORWARD AND REWIND

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



Note: You cannot view the tape or hear the tape's sound while you fast-forward and rewind it.

FREEZE FRAME

Freeze-frame lets you stop the tape to view a single frame.

To freeze a frame during playback, press **REC/PAUSE**. To return to the normal playback speed, press **REC/PAUSE** again.

Notes:

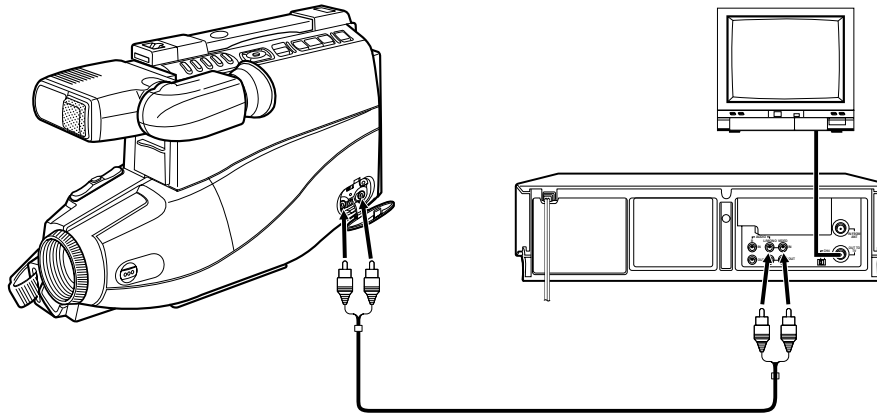
- During freeze-frame, the picture quality is lower than during normal playback.
- If you leave the VCR in the freeze-frame mode for 5 minutes, the camcorder automatically stops playback to protect the tape.

AUTO TRACKING

The camcorder automatically adjusts tracking when you play a tape. However, you can manually adjust the tracking if the camcorder's picture is poor. Repeatedly press **W** or **T** during playback to manually adjust the tracking.

Note: The camcorder resets to auto tracking when you load another tape.

DUBBING (COPYING) A TAPE



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

You can connect the camcorder and the VCR together, then either:

- Use your camcorder to record the signal from the VCR
- Use your VCR to record the signal from the camcorder

Notes:

- Always use video quality shielded cables with phono-type connectors (such as Cat. No. 15-1540, not supplied) to connect the camcorder's **AUDIO/VIDEO OUT/IN** jacks to your VCR.
- Do not use standard audio cables for this connection.
- You can monitor the dubbing on the TV connected to your VCR. See your VCR's owner's manual for more information.

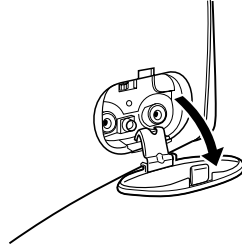
If you want to use your camcorder to record from the VCR, see "Dubbing to the Camcorder" on Page 27. If you want to use your VCR to record from the camcorder, see "Dubbing from the Camcorder" on Page 28.

Dubbing to the Camcorder

Follow these steps to connect the camcorder to the VCR and copy a tape from the VCR to the camcorder.

Note: You can also use this procedure to record broadcasts from your cable box, satellite receiver, or other audio/video source. Simply connect the camcorder's **AUDIO** and **VIDEO** jacks to the output jacks on the audio/video source (instead of the VCR) in Step 3.

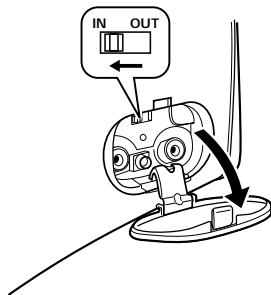
1. Use a fingernail to pull down the cover on the camcorder's **AUDIO/VIDEO OUT/IN** jack compartment to open it.



Caution: The cover on the **AUDIO/VIDEO OUT/IN** jack compartment is attached to the camcorder. Do not try to remove it.

2. Connect the white plug on one end of the cable to the camcorder's **AUDIO** jack, then connect the yellow plug on the same end of the cable to the camcorder's **VIDEO** jack.
3. Connect the white plug on the other end of the cable to the VCR's **AUDIO OUT** jack. Then connect the yellow plug on the same end of the cable to the VCR's **VIDEO OUT** jack.

4. Set **AV OUT/IN** inside the **AUDIO/VIDEO OUT/IN** jack compartment to **IN**.



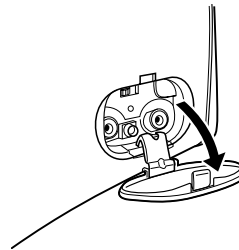
5. Slide **POWER** to **CAMERA**.

6. Insert a cassette into the camcorder.
7. Begin playback on the VCR or audio/video source.
8. Press **REC/PAUSE** on the camcorder to start dubbing.
9. Press **REC/PAUSE** on the camcorder to stop dubbing.

Dubbing from the Camcorder

Follow these steps to connect the camcorder to the VCR and copy a tape from the camcorder to the VCR.

1. Use a fingernail to pull down the cover on the camcorder's **AUDIO/VIDEO OUT/IN** jack compartment to open it.



Caution: The cover on the **AUDIO/VIDEO OUT/IN** jack compartment is attached to the camcorder. Do not try to remove it.

2. Connect the white plug on one end of the cable to the camcorder's **AUDIO** jack, then connect the yellow plug on the same end of the cable to the camcorder's **VIDEO** jack.
3. Connect the white plug on the other end of the cable to the VCR's **AUDIO IN** jack. If your VCR is a stereo VCR, use a Y-adapter (such as Cat. No. 42-2435) to connect the white plug to both audio outputs. Then connect the yellow plug on the same end of the cable to the VCR's **VIDEO IN** jack.

4. Set **AV OUT/IN** inside the **AUDIO/VIDEO OUT/IN** jack compartment to **OUT**.
5. Slide **POWER** to **VCR**.
6. Insert a cassette into the camcorder.
7. Set your VCR to its audio/video mode.

Note: Some VCRs have a manual input-select switch, while others automatically "sense" when you connect another audio/video source to the VCR's audio/video input jacks. Check your VCR's owner's manual for more information about your VCR.

8. Press **PLAY** on the camcorder to find the portion of the tape you want to dub. Then press **REC/PAUSE** to pause it.
9. Set the VCR to record, then press the VCR's record button to begin recording.
10. Press **REC/PAUSE** on the camcorder to play the portion of the tape you want to dub.
11. Press **REC/PAUSE** on the camcorder to stop dubbing.

Adding Titles onto an Existing Recording

Note: You need a separate VHS VCR to superimpose titles over an existing recording.

1. Connect the camcorder and VCR (see "Dubbing from the Camcorder" on Page 28.).
2. Press **TITLE** to select the title you want to record. Then, if the title you want to record does not appear, press **PAGE** to select the other title page.
3. Press **TITLE** to remove the title from the viewfinder. The title disappears.
4. Load a blank cassette, or one you want to record onto, into the VCR. Then set the VCR to its recording mode.
5. Load the cassette you want to record from into the camcorder, then press **PLAY** to play it back.

6. When you see the scene where you want to record the title, press **TITLE**. The camcorder plays the title and superimposes it over the recording.
7. When you want to stop recording the title onto the tape, press **TITLE**. The title disappears.

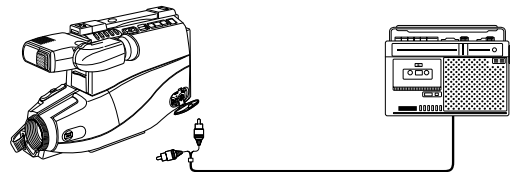
AUDIO EDITING

The camcorder's audio editing feature lets you record a new soundtrack onto a previously recorded tape without erasing the original picture.

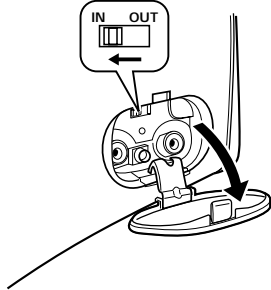
When you use audio editing, you replace the audio on the tape with new sound. You can use sounds picked up by the camcorder's built-in microphone or signals from an audio source connected to the camcorder's **AUDIO** jack.

Notes:

- If you connect an audio source, always use video quality shielded cables with phono-type connectors (such as Cat. No. 15-1540, not supplied) to connect the camcorder's **AUDIO** jack to the audio source's **AUDIO OUT** jack.
 - Do not use a standard audio cable for this connection.
1. If you are not using the camcorder's built-in microphone as an audio source, connect the audio source's **AUDIO OUT** jack to the camcorder's **AUDIO** jack.



- Set **AV OUT/IN** inside the **AUDIO/VIDEO OUT/IN** jack compartment for the audio source you chose:



- If you are using the built-in microphone, set **AV OUT/IN** to **OUT**.
 - If you are using an audio source connected to the camcorder's **AUDIO** jack, set **AV OUT/IN** to **IN**.
- Slide **POWER** to **VCR**.
 - Insert a cassette into the camcorder.
 - Press **PLAY** on the camcorder to find the portion of the tape where you want to start audio dubbing. Then press **REC/PAUSE** to pause it.
 - Press **PLAY** and **DUBBING AUDIO/VIDEO** together once. **AV OUT/IN** appears in the viewfinder.

Note: If **AV OUT/IN** does not appear in the viewfinder, press **STOP/EJECT**, then press **PLAY** and **DUBBING AUDIO/VIDEO** together once to continue.

- If you are not using the camcorder's built-in microphone as an audio source, start the audio source.
- To start audio dubbing, press **REC/PAUSE** on the camcorder.
- Press **STOP/EJECT** on the camcorder to stop dubbing.

Notes:

- To set the position where you want to end audio dubbing, start playback of the tape, press **DISPLAY** on the camcorder at the

point where you want to end audio, then start the dubbing process.

- To prevent feedback squeals, turn down the volume control on any TV or TV/monitor connected to the camcorder.

AUDIO/VIDEO EDITING

When you use audio/video editing, you can replace the audio and video on a tape with new sound and pictures.

You can use sounds picked up by the camcorder's built-in microphone or signals from an audio source connected to the camcorder's **AUDIO** jack. You can use pictures taken by the camera or signals from a video source connected to the camcorder's **VIDEO** jack.

Notes:

- If you connect an audio/video source, always use video quality shielded cables with phono-type connectors (such as Cat. No. 15-1540, not supplied) to connect the camcorder's **AUDIO** and **VIDEO** jacks to the source's **AUDIO OUT** and **VIDEO OUT** jacks.
 - Do not use standard audio cables for this connection.
- If you are not using the camcorder's built-in microphone as an audio source, connect the audio source's **AUDIO** jack to the camcorder's **AUDIO** jack.
 - Set **AV OUT/IN** inside the **AUDIO/VIDEO OUT/IN** jack compartment for the video source you chose.
 - If you are using the camcorder's lens, set **AV OUT/IN** to **OUT**.
 - If you are using a video source connected to the camcorder's **VIDEO** jack, set **AV OUT/IN** to **IN**.
 - Slide **POWER** to **VCR**.

4. Insert a cassette into the camcorder.
5. Press **PLAY** on the camcorder to play the tape to the point where you want audio/video dubbing to end. Then press **REC/PAUSE** to pause it.
6. Press **DISPLAY**. **M** appears in the viewfinder next to the tape counter. Then press **RESET** to reset the tape counter to **0000**.
7. Press **REWIND** to rewind the tape past the point where you want to start audio/video dubbing, then press **PLAY**. When you see the point of the tape where you want to start audio/video dubbing, press **REC/PAUSE**.
8. Press **PLAY** and **DUBBING AUDIO/VIDEO** together twice. and the picture you are dubbing appear in the viewfinder.
9. Press **REC/PAUSE** on the camcorder. Audio/video dubbing begins.
10. Press **STOP/EJECT** on the camcorder to stop audio/video dubbing at any time.

When the tape counter shows **0000**, the camcorder automatically stops the tape, and video and audio dubbing stop.

Notes:

- To protect the tape and conserve battery power, the camcorder automatically stops and turns itself off if left in the record/pause mode for more than 5 minutes.
- To prevent feedback squeals, turn down the volume control on any TV or TV/monitor connected to the camcorder.

Note: If you accidentally press **PLAY** and **DUBBING AUDIO/VIDEO** together only once, appears in the viewfinder instead. If this happens, simply press **PLAY** and **DUBBING AUDIO/VIDEO** together again.

CONNECTING THE CAMCORDER TO A TV

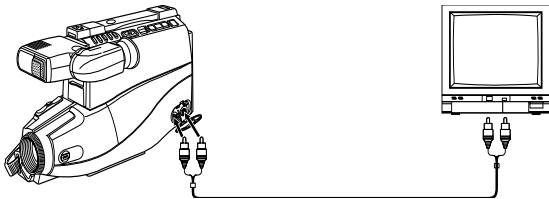
USING A TV FOR PLAYBACK

There are many different types of TVs and ways to connect them to your camcorder. This section describes the most common set ups.

Notes:

- If your TV doesn't match any of the examples provided, contact your local Radio Shack store for assistance.
- Turn off power to the camcorder and TV when making connections. Do not power the camcorder until you complete all other connections.

TV with Audio/Video (A/V) Jacks



If your TV has audio/video (A/V) input jacks, you can connect your camcorder directly to the TV so you can play and watch video tapes.

If your TV does not have audio/video jacks, see "Standard TV" on Page 33.

Use video quality shielded cables with phono-type connectors (such as Cat. No. 15-1540, not supplied) to connect the camcorder's **AUDIO/VIDEO IN/OUT** jacks to your TV's input jacks.

Note: Do not use standard audio cables for this connection.

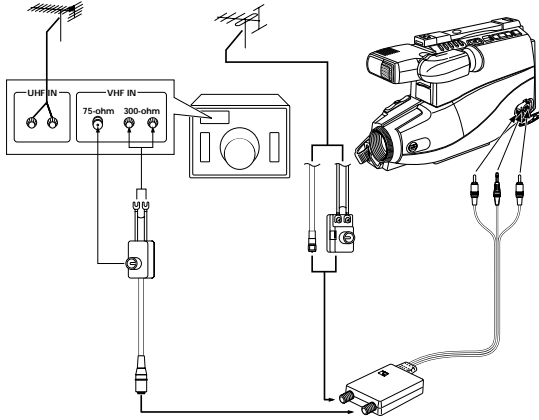
Follow these steps to connect the camcorder to the TV.

1. Use a fingernail to pull down the cover on the camcorder's **AUDIO/VIDEO OUT/IN** jack compartment to open it.

Caution: The cover on the **AUDIO/VIDEO OUT/IN** jack compartment is attached to the camcorder. Do not try to remove it.

2. Connect the white plug on one end of the cable to the camcorder's **AUDIO** jack, then connect the yellow plug on the same end of the cable to the camcorder's **VIDEO** jack.
3. Connect the white plug on the other end of the cable to the TV's **AUDIO IN** jack. If your TV is a stereo TV, use a Y-adaptor (such as Cat. No. 42-2435) to connect the white plug to both audio inputs. Then connect the yellow plug on the same end of the cable to the TV's **VIDEO IN** jack.
4. Set **AV OUT/IN** inside the **AUDIO/VIDEO OUT/IN** jack compartment to **OUT**.

Standard TV



To connect the camcorder to a standard TV (with only VHF and UHF terminals), you need an RF adapter kit (CMC No. T16-RF71A, not supplied). The RF adapter kit includes:

- RF converter
- 300-to 75-ohm matching transformer
- 75-ohm antenna cable

Cautions:

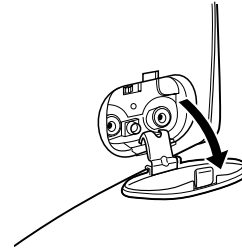
- Use only the recommended RF adapter kit with this camcorder. You can order the kit from your local Radio Shack store.
- The RF converter is a sealed unit. Do not attempt to open or modify it.
- Do not damage or drop the RF converter or subject it to mechanical vibration.
- Unplug the RF converter during lightning storms.

Notes:

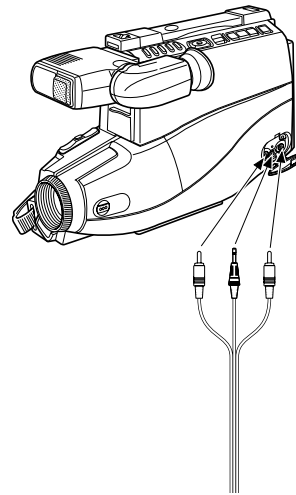
- You do not have to disconnect the RF converter when you watch TV broadcasts. Simply set the TV's tuner as usual.
- Unless your antenna is VHF-only (you receive Channels 2-13 only), you also need a band-splitter (such as Cat. No. 15-1252, not supplied) to connect your camcorder to separate TV VHF/UHF terminals.

1. Use a fingernail to pull down the cover on the camcorder's **AUDIO/VIDEO OUT/IN** jack compartment to open it.

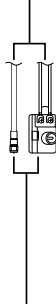
Caution: The cover on the **AUDIO/VIDEO OUT/IN** jack compartment is attached to the camcorder. Do not try to remove it.



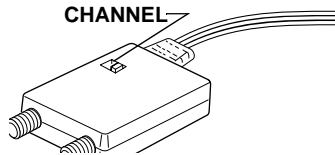
2. Connect the RF converter's plug to the camcorder's **VIDEO**, **RF DC OUT**, and **AUDIO** jacks.



3. Set **AV OUT/IN** inside the **AUDIO/VIDEO OUT/IN** jack compartment to **OUT**.
4. Disconnect the VHF antenna/cable wire from your TV and connect it to the RF converter's **IN FROM ANT** jack:
 - If the antenna/cable wire is the round, 75-ohm type, connect it directly to the jack.
 - If the antenna/cable wire is the flat, 300-ohm type, use another 300- to 75-ohm matching transformer (such as Cat. No. 15-1253, not supplied) to connect the wire to the jack.



5. Using the supplied 75-ohm antenna cable, connect the RF converter's **OUT TO TV** jack to the TV's VHF antenna terminal.
 - If the TV's VHF antenna terminal is the round, 75-ohm type, connect the cable directly to the terminal.
 - If the TV's VHF antenna terminal is the flat, 300-ohm type, use another matching transformer (such as Cat. No. 15-1253, not supplied) to connect the cable to the terminal.
6. Set **CHANNEL** on the RF converter to 3 or 4.



PLAYBACK

After you connect the camcorder to your TV, follow these steps to play a tape.

1. Turn on the TV, then:
 - If you are using a TV with audio/video (A/V) jacks, set it to the video mode.
 - If you are using a standard TV, set the TV's tuner to the same channel where you set **CHANNEL** on the RF converter (3 or 4).
2. Slide **POWER** on the camcorder to **VCR**.
3. Insert a cassette into the camcorder.
4. Press **PLAY** on the camcorder. The tape plays on your TV.
5. Press **STOP/EJECT** to stop playback. Press **STOP/EJECT** again to remove the cassette.

ADDITIONAL INFORMATION

TROUBLESHOOTING

If you follow the instructions in this manual and still have trouble operating your camcorder, refer to the following troubleshooting chart. If you still cannot solve the problem, take your camcorder to your local Radio Shack store for assistance.

FUNCTION	PROBLEM	POSSIBLE REASON	SUGGESTION
POWER	No power.	<ul style="list-style-type: none"> • Safety devices are functioning. • The battery pack is not charged. • The AC adapter/charger is not correctly connected. 	<ul style="list-style-type: none"> • Disconnect the AC adapter/charger's power cord, then plug it into the AC outlet again. • Charge the battery pack. • Reconnect the AC adapter/charger.
	The camcorder turns off soon after you turn it on.	The battery pack might be weak.	Recharge the battery pack and try again.
RECORDING	Power on, but no image in viewfinder.	<ul style="list-style-type: none"> • Lens cap on. • POWER set to VCR. • A/V OUT/IN set to IN. 	<ul style="list-style-type: none"> • Remove the lens cap. • Slide POWER to CAMERA. • Set A/V OUT/IN to OUT.
	Cannot record.	POWER set to VCR .	Slide POWER to CAMERA .
	Poor color when tape is played on a TV/monitor.	TV not properly adjusted.	Adjust the TV.
	Recording is fuzzy.	<ul style="list-style-type: none"> • Poor lighting. • Dust or other foreign matter on lens. 	<ul style="list-style-type: none"> • Use additional lighting. • Clean the lens.

FUNCTION	PROBLEM	POSSIBLE REASON	SUGGESTION
PLAYBACK	Image in viewfinder is fuzzy.	<ul style="list-style-type: none"> • Focus control on the viewfinder must be adjusted. • Viewfinder must be reset. 	<ul style="list-style-type: none"> • Adjust the focus control. • Turn off the camcorder and disconnect the power source. Then, after about 1 minute, reconnect the power source. When the characters displayed in the viewfinder are clear, set the date and time.
	No image appears on TV.	<ul style="list-style-type: none"> • Camcorder improperly connected to TV. • AV OUT/IN set to IN. • TV's tuner or TV/video switch not properly set. 	<ul style="list-style-type: none"> • Reconnect properly. • Set AV OUT/IN to OUT. • Set TV's tuner to channel 3 or channel 4 (if RF converter connected). • Set TV's TV/video switch to VIDEO (if A/V input used).
	Poor color.	TV not properly adjusted.	Adjust the TV.
	Camcorder does not play back in color on your TV.	<ul style="list-style-type: none"> • Tracking not properly adjusted. • Old or worn tape. 	<ul style="list-style-type: none"> • Adjust the tracking. • Use a new tape.
	Broken image.	<ul style="list-style-type: none"> • The battery pack might be weak. • Old or worn tape. 	<ul style="list-style-type: none"> • Recharge the battery pack. • Use a new tape.
	Cassette cannot be inserted.	<ul style="list-style-type: none"> • Cassette is not right side up or is backwards. • Another cassette already loaded in camcorder. 	<ul style="list-style-type: none"> • Check cassette positioning and reinsert. • Eject the cassette and insert the new cassette.

FUNCTION	PROBLEM	POSSIBLE REASON	SUGGESTION
PLAYBACK (continued)	Cassette will not eject and power will not turn off.	Camcorder is recording.	Press REC/PAUSE to stop the tape and try again.
	No tape movement in fast-forward mode.	Tape is already completely wound.	Rewind the tape to the desired point.
	No tape movement in rewind mode.	Tape is already completely wound.	Fast-forward the tape to the desired point.

CARE AND MAINTENANCE

Your Optimus Model 130 MovieCorder camcorder is an example of superior design and craftsmanship. The following suggestions will help you care for the camcorder so you can enjoy it for years.



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



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



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



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



Wipe the camcorder 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 camcorder's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your camcorder is not performing as it should, take it to your local Radio Shack store for assistance.

HANDLING

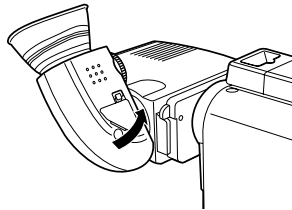
- Remove the cassette tape and turn off the power when the camcorder is not in use.
- Avoid shocks and drops. Do not drop or otherwise subject the camcorder to hard shocks or strong vibrations. Bumping or striking the unit during recording generates noise in the recorded image.
- To protect the lens, always replace the lens cap when the camcorder is not in use. Do not touch the lens surface with your hand.
- Do not point the camcorder lens or the viewfinder eyepiece at the sun, whether recording is in progress or not. Direct sunlight can make recording impossible, burn the CCD imager, and damage the camcorder beyond repair. Be particularly careful when recording outside.
- Do not use the camcorder in excessive temperatures and humidity. You can use the camcorder between 32° F and 104° F and between 35% and 80% relative humidity.
- Do not store the unit in an unventilated car in the summer, in direct sunlight, or near strong heat sources. This can result in severe damage to the camcorder's case and electronic circuits.
- Avoid magnetic sources. Using the camcorder near strong fluorescent lights, motors, televisions, or other magnetic sources can adversely affect recorded images.
- Avoid situations where water, sand, dust or other foreign matter could get on or inside the camcorder. Such substances could cause malfunctions.
- Do not use or leave the camcorder in areas with excessive smoke, steam, dust, or moisture. Such environments can cause dew to form on the camcorder's lenses. Be sure to provide ample ventilation.

- Do not use the camcorder on its side. The tape might not wind properly and might jam.
- Some small, portable tripods might be difficult to connect and might not be sturdy enough to support your camcorder. Be sure to use only a strong, stable tripod.

SERVICING YOUR CAMCORDER

Except as noted in this owner's manual, there are no user-serviceable parts inside your camcorder. If you encounter a problem that you cannot correct using this owner's manual and its troubleshooting guide or the sections below, take the camcorder to your local Radio Shack store for assistance.

- To clean the camcorder's lens and optical elements, use air blowers and lens papers designed for photographic lenses.
- To clean the picture tube face and lens inside the eyepiece, press and hold down the cover's tab on the back of the eyepiece, then open the cover.



Caution: The eyepiece's cover is not removable. Do not try to remove it from the eyepiece.

Clean the picture tube face and lens using a soft non-abrasive cloth, swab, or lens cleaning paper. When you finish cleaning, close the cover.

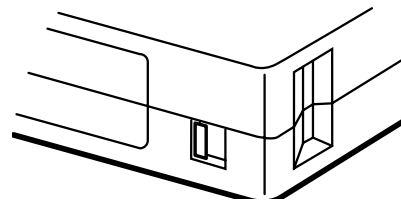
CLEANING THE VIDEO HEADS

The camcorder's video heads require cleaning from time to time. Dirty video heads can cause the playback picture to become blurred even

though the audio signal is clear. Head cleaning must be done by an experienced camcorder technician. If the camcorder's heads become dirty, contact your local Radio Shack store for assistance.

ERASE PROTECTION

Video cassettes have an erase-protection tab to prevent accidental erasure of a tape. If the erase-protection tab is missing, the camcorder cannot record on the tape.



If you try to record on a tape with the erase-protection tab missing, **TAPE** appears in the viewfinder.

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.

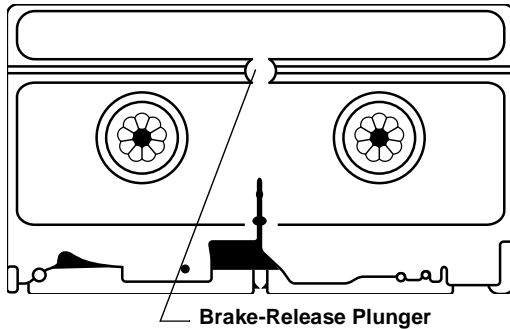
STORING YOUR VIDEO CASSETTES

Eject and store the cassette when you finish using it. This helps protect the cassette and the camcorder'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.

Note: Tape can become wound too tightly around the cassette's spools after numerous recordings and playbacks. This can cause the cassette to improperly load 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.



- Reorient or relocate the receiving antenna
- Increase the distance between the equipment and the radio or TV
- Use outlets on different electrical circuits for the equipment and the radio or TV

Consult your local Radio Shack store if the problem still exists.

You must use shielded interface cables with this equipment.

Modifying or tampering with the camcorder's internal components can cause a malfunction and might invalidate the camcorder's warranty and void your FCC authorization to operate it. If your camcorder is not performing as it should, take it to your local Radio Shack Store for assistance.

THE FCC WANTS YOU TO KNOW

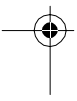
This device complies with Part 15 of *FCC Rules*. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with the limits for a Class B digital device as specified in Part 15 of *FCC Rules*. These limits provide reasonable protection against radio and TV interference in a residential area. However, your equipment might cause TV or radio interference even when it is operating properly. To eliminate interference, you can try one or more of the following corrective measures:

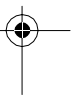
SPECIFICATIONS

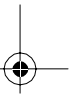
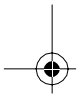
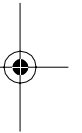
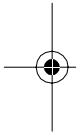
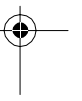
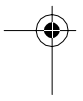
Signal System	NTSC-Type Standard Color and Monochrome
Recording System	VHS Standard
Tape Width	1/2 Inch (12.7 mm)
Tape Speed	SP (1.31 Inch/sec... (33.35 mm/s)
Maximum Recording/Playback Time	160 Minutes (with T-160 Tape)
Pickup Device.....	CCD Image Sensor (approx. 270,000 pixels including optical black)
Lens.....	F1.6-F3.2 12x Power Zoom, Full-Range Auto-Focus
Lens Filter Diameter	46 mm
Viewfinder.....	0.6 Inch B/W CRT with Diopter
Microphone.....	Omnidirectional Electret Condenser
Color Temperature Compensation	Auto White Balance with White Balance Lock
Minimum Illumination.....	1 Lux
Video Output Level.....	1.0 Vp-p Composite, 75 Ohms
Audio Output Level.....	316 mV, less than 1 K Ohms
Power Requirement.....	9.6 Volts
Battery Power Supplied.....	10 Volts
DC Power Consumption.....	7 Watts
Dimensions (approx.)	8 1/2 x 4 3/8 x 12 1/4 Inches HWD (without battery) (205 x 111 x 311 mm)
Camcorder Weight (approx.)	4 lbs 3 oz (2.0 kg) (without battery)
Battery Weight (approx.).....	1 lb (0.56 kg)

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



NOTES





RADIO SHACK LIMITED WARRANTY

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

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

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