

RCA

**Video Camcorder
Model CC176
Owner's Manual**

VHS

57-04-173



Product Registration	i
Safety Precautions	ii-vii
Optional Accessories	1-7
• Accessory Order Form	5-7
First-Time Operation	8-15
Powering Your Camcorder	16-20
Attaching the Shoulder Strap	21
Using the Cassette Adapter	22-23
RCA Video Cassettes	24-25
Electronic Viewfinder	26
Displays in Viewfinder	27-29
Date, Time, and Age Displays	30-33
Features	
• Tape Positioning	34
• Camera Edit	34
• Quick Review	35
• Flying Erase Head	35
• Auto Head Cleaner	35
• Microphone	35
• Tally Light	35
• Self Timer	35
• Focusing Your Camcorder	36-37
• Power Zooming	38
• Fading In and Out of Scenes	39
• Variable Shutter Speeds	40
• 16x9 Mode	41
• SCENE SELECT AE Modes	42
• White Balance	43
• Time Counter With Memory Stop	44
• Tape Time-Remaining Display	45
Recording and Traveling Tips	46
Playback Features	
• Tracking	47
• Viewfinder Playback	48-49
• Playback on TV (or VCR) With AUDIO/VIDEO IN Jacks	50-51
• Playback on TV Without Audio/Video Inputs	52-53
Trouble Checks	54-56
Design Specifications	57
Care and Maintenance	58-59
Limited Warranty	60
Index (Alphabetical)	61-63

Product Registration

Thank you for choosing an RCA camcorder.

You have selected a precision-engineered camcorder designed to give you years of performance and enjoyment.

Although your camcorder is very simple to use, it is important that you read and carefully follow the instructions in this manual until you are completely familiar with the proper operating procedures.

Mail Your Registration Card Today.

A *Product Registration Card* is packed with your camcorder. Please fill out the card and return it immediately.

Your prompt submission of this card confirms your right to the protection available under the terms and conditions of the warranty and also allows us to contact you should it ever become necessary.

With your card on file, we can also help you in the event of loss or theft by verifying your ownership.

If you did not receive a *Product Registration Card*, please contact your dealer.

Attach Sales Receipt Here and File For Future Reference.

To obtain warranty parts and service, you must show your sales receipt (or other evidence of purchase) to your Authorized RCA Compact Camcorder Servicenter.

Tape or staple your sales receipt to this manual so you will have it handy should service ever be needed. Do not mail your sales receipt to us. File it at home with your owner's manual for future reference.

If you should experience a problem, always refer first to "*Trouble Checks*" on pages 54-56. Many times a simple solution is all that is needed, and it could save you a costly service call. If your camcorder should require service during the warranty period, refer to page 60 for a description of what we will do and instructions on how to request service.

Record Vital Information Here.

No other RCA camcorder has the same serial number as yours. You will find the serial number and model number on the bottom of your camcorder.

Be sure both numbers are recorded below so that you will have them in case your camcorder is stolen or you need a complete description for identification.

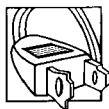
Model No. CC176

Serial No. _____

Purchase Date: _____

Purchased From: _____

SAFETY PRECAUTIONS



Your video camcorder's AC adapter/charger will operate on 100-240 volts AC, 50/60 Hz. It has a polarized plug with one blade of the plug wider than the other. The plug fits in the wall socket only one way. Do not defeat the safety feature of this plug. If you need an extension cord, use a polarized cord.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH THE WIDE BLADE OF THE PLUG TO THE WIDE SLOT OF THE SOCKET, AND INSERT FULLY.

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER (OR BACK). NO USER-SERVICEABLE PARTS ARE INSIDE. IF YOU SPILL LIQUID ON THE CAMCORDER OR ADAPTER/CHARGER, DISCONNECT THE AC ADAPTER/CHARGER'S POWER CORD TO PREVENT POSSIBLE FIRE OR SHOCK HAZARD AND CONSULT AUTHORIZED SERVICE PERSONNEL. MOISTURE CAN DAMAGE INTERNAL PARTS. HAVE SERVICE PERFORMED ONLY BY AUTHORIZED RCA COMPACT CAMCORDER SERVICENTER PERSONNEL.

Caution: Read "Important Safety Instructions for AC Adapter/Charger" on the next page before using the AC adapter/charger.

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

WARNING: To prevent fire or shock hazard, do not expose camcorder or AC adapter/charger to rain or moisture.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



AVIS

RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR



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



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

Caution: Avoid operating your camcorder immediately after moving it from a cold location to a warm location. Give the camcorder 1-1/2 to 2 hours to reach a stable temperature before inserting a video cassette. When moved from a cold area to a warm location, moisture may condense on the head drum inside the machine. This moisture could cause the tape to stick to the headwheel and damage the headwheel or tape.

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.

IMPORTANT SAFETY INSTRUCTIONS

Important Safety Instructions for AC Adapter/Charger

Review these operating instructions, then save them for future reference.

Before using the AC adapter/charger, read all instructions and cautionary markings on (1) AC adapter/charger, (2) battery, and (3) product using battery.

Caution: To reduce risk of injury, charge only rechargeable batteries type FB1260, or FB120. Other types of batteries may burst causing personal injury and damage.

Do not expose the adapter/charger to moisture of any kind.

Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.

To reduce risk of damage to electric plug and cord, disconnect the adapter/charger from the wall outlet by pulling only on the plug, rather than on the cord.

Make sure the cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.

Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure that:

1. Pins on the plug of the extension cord are the same number, size, and shape as those of the plug on the adapter/charger.

2. Extension cord is properly wired and in good electrical condition, and

3. Wire size below is met:

Length of Extension Cord (Feet)	Minimum AWG Size
Less than or Equal to 100	18
Greater than 100, but less than 150*	16

* Do not operate with an extension cord longer than 150 feet.

Do not operate adapter/charger with a damaged cord or plug. Replace it immediately.

Do not operate adapter/charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Take it to a qualified servicenter.

Do not disassemble charger. Take it to an Authorized RCA Compact Camcorder Servicenter when service or repair is required. Incorrect reassembly may result in a risk of electric shock.

To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.

Note: FCC regulations state that unauthorized changes or modifications to this equipment may void the user's authority to operate.

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

IMPORTANT SAFEGUARDS

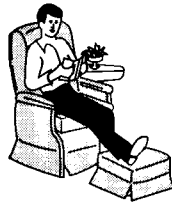
In addition to the careful attention devoted to quality standards in the manufacture of your video product, safety is a major factor in the design of every instrument. However, safety is your responsibility too.

These pages list important information that will help to assure your enjoyment and proper use of a camcorder, adapter/charger, and accessory equipment. Please read them carefully before operating your video products.

Installation

1. Read and Follow Instructions—

All the safety and operating instructions should be read before the video product is operated. Follow all operating instructions.



2. Retain Instructions—

The safety and operating instructions should be retained for future reference.

3. Heed Warnings—

Comply with all warnings on the video product and in the operating instructions.

4. Polarization—

This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. To prevent electric shock, do

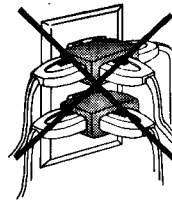
not use this polarized plug with an extension cord, receptacle, or other outlet unless the blades can be fully inserted without blade exposure. If you need an extension cord, use one with a polarized plug.

5. Power Sources—

This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply available where you wish to operate the camcorder, consult your video dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.

6. Overloading—

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



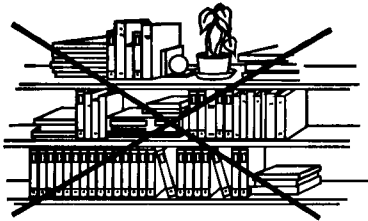
7. Power-Cord Protection—

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

(continued on next page)

IMPORTANT SAFEGUARDS (continued)

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



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

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

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

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

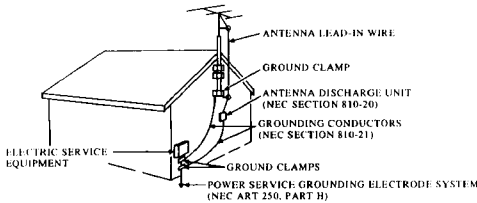
11A A video product and cart combination should be moved with care. Quick stops, excessive force, or uneven surfaces may cause the video product and cart combination to overturn.



IMPORTANT SAFEGUARDS (continued)

12. Outdoor Antenna Grounding—If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984 (Section 54 of Canadian Electrical Code, Part 1) provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See example below.

Example of Antenna Grounding



13. Power Lines—An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, or where it can fall against such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching or approaching such power lines or circuits as contact

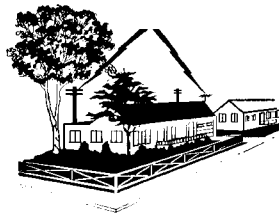
with them might be fatal. Installing an outdoor antenna can be hazardous and should be left to a professional antenna installer.

Use

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

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

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



(continued on next page)

IMPORTANT SAFEGUARDS (continued)

Service

17. **Servicing**—Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
18. **Conditions Requiring Service**—Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions.
 - A. When the power-supply cord or plug is damaged.
 - B. If liquid has been spilled, or objects have fallen into the video product.
 - C. If the video product has been exposed to rain or water.
 - D. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
 - E. If the video product has been dropped or the case has been damaged.
 - F. When the video product exhibits a distinct change in performance—this indicates a need for service.
19. **Replacement Parts**—When replacement parts are required, have the service technician verify that the replacements he uses have the same safety characteristics as the original parts. Use of replacements specified by the video product manufacturer can prevent fire, electric shock, or other hazards.
20. **Safety Check**—Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks recommended by the manufacturer to determine that the video product is in safe operating condition.
21. **Lithium Cell Batteries**—Must be disposed of properly.
 - A. Never handle punctured or leaking cell batteries. May cause burns or personal injury.
 - B. Can cause death or injury if swallowed.
 - C. Keep out of hands of children. If swallowed, consult a physician immediately for emergency treatment.
 - D. The lithium cell battery may explode resulting in a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 212°F (100°C), or burn.

Optional Accessories

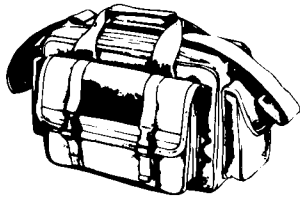
We invite you to take a look at some great ideas for sparking creativity and adding to the fun of using your compact VHS camcorder. These pages have a selection of accessories to help make your memorable moments look and sound even better.

These accessories are designed to make the process of recording and watching your videos more enjoyable.

To order accessories, contact your local Dealer.

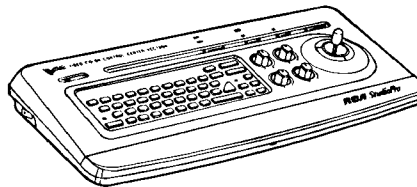
If a dealer is not nearby, all accessories are available through toll-free ordering or by using the order form *on page 5*.

AC025A Soft Carrying Case



Custom compact soft case designed especially to provide protection and utility for your RCA compact VHS camcorder and most accessories. Rugged fabric lined with soft non-abrasive material and generous padding. Has three outside pockets with storage for lens filters, adapters, batteries, and tapes.

VCC1000 Video Color Control Center

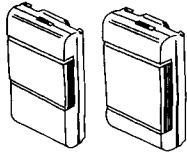


The VCC1000 is actually two accessories in one. The color control center allows you to adjust the color intensity, tint, white balance, and sharpness of tapes being dubbed. This is especially helpful when the original tape was produced in poor lighting conditions or poor color settings. The second feature, the character generator, lets you create titles that can be recorded on your tapes. This lets you add a professional and/or personal touch to your home videos.

All specifications and descriptions of accessories are subject to change without notice.

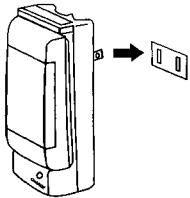
Optional Accessories (continued)

FB1260 and FB120 Rechargeable Batteries



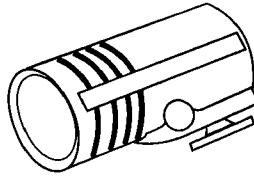
These rechargeable nickel-cadmium batteries specifically are designed for long life. The FB1260 can power your camcorder up to approximately 1 hour, and the FB120 up to approximately 2 hours (depending on how much you use zoom and pause). Both can be recharged with the AC adapter/charger that came with your camcorder.

CPS91 AC Battery Charger



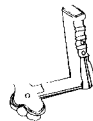
The CPS91 battery charger plugs directly into an AC outlet and charges the FB1260 and FB120 camcorder batteries. Because the CPS91 operates on 100-240 Volts, 50/60 Hz, it can be used virtually anywhere in the world. A plug adapter may be required in some countries. Charging takes approximately eight hours for the FB1260 (1-hour battery) and 13 hours for the FB120 (2-hour battery).

VDC88 Color Enhancement Light



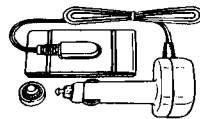
This ultra compact 15-watt video light is cordless, light in weight, and includes a rechargeable battery. The VDC88 provides excellent soft, lush fill light. An extra BP1000 battery also can be ordered. A VDC085 battery charger is included. This light requires a 1CVS140C shoe mount and grip.

1CVS140C Shoe Mount and Grip



This shoe mount and grip adds stability while shooting. It also provides a shoe mount so additional accessories, such as the VDC88 color enhancement light, can be used with the camcorder.

DCC08 DC Car Cord Adapter

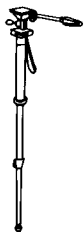


This DC car cord adapter enables you to operate your camcorder from your car, truck, or RV by plugging the car cord directly into the vehicle's cigarette lighter socket. The DCC08 is designed specifically to convert power from a 12-volt battery to a 6-volt output.

Do not use any other car cord with this camcorder.

Optional Accessories (continued)

AC036 Monopod

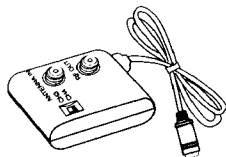


This monopod gives a flexible alternative to using a traditional tripod. Its rugged compact design provides excellent stability. It is ideal for all

camcorder sizes and photo cameras.

It has a quick-release shoe, three-section leg, handstrap, foot step and weighs only 35 ounces.

CRF92 RF Output Adapter



This RF output adapter is used with a coaxial RF cable, such as AH065G or AH066G, to connect your

camcorder to a standard TV (one without audio/video input jacks) for playback.

If your antenna cable is the flat twin-lead type attached by two screws, you will also need a 300-75 ohm transformer such as 193983. If your TV has 300 ohm VHS screw terminals, you will need an optional 75-300 ohm transformer such as AH011.

Coaxial RF Cable



AH065G (6-ft)
AH066G (10-ft)

These RF cables are used with the CRF92 output adapter to connect your camcorder to a standard TV (one without audio/video input jacks) for playback. If your antenna cable is the flat twin-lead type attached by two screws, you will also need a 300-75 ohm transformer such as 193983. If your TV has 300 ohm VHS screw terminals, you will need an optional 75-300 ohm transformer such as AH011.

193983 Cable Transformer



This 300-to-75 ohm transformer is used to connect a standard (300 ohm) antenna twin-lead to a standard round 75-ohm connector.

AH011 Cable Transformer



This 75-to-300 ohm transformer is used to connect a standard 75-ohm antenna cable (such as AH065G or AH066G) to the 300-ohm screw terminals on a TV.

All specifications and descriptions of accessories are subject to change without notice.

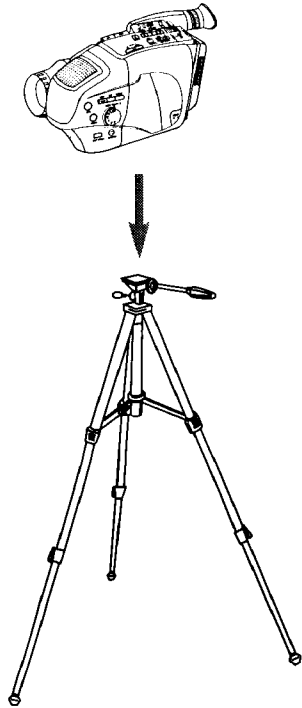
Optional Accessories (continued)

Using the Optional AC035 Super Lightweight Tripod

Mounting the camcorder on a tripod, such as AC035, will keep the camcorder steady and produce excellent video results.

This tripod's fluid-effect head provides smooth camera pan and tilt. The quick-

release mount makes it easy to attach or remove the camcorder. The grooved, tubular 3-section leg design folds down to 23-1/2" when not in use and weighs only 3-1/2 lbs. Rubber feet allow for sure footing.



Cautions

Before using a tripod, make sure it is stable enough to hold the camcorder without falling over.

When attaching your camcorder to a tripod, be careful not to force the tripod screw into the camcorder's tripod mounting hole.

The tripod screw should not protrude into the camcorder more than approximately three-eighths ($3/8$) inch. Forcing the screw could damage the mounting hole on the bottom of the camcorder.

Accessory Order Form

Order Form for Camcorder Model CC176

Description	Part No.	Price	Qty.	Total
Soft Camcorder Case	AC025A	\$ 59.95		
Super Lightweight Tripod	AC035	\$ 69.95		
Monopod	AC036	\$ 39.95		
Shoulder Strap	ACS091	\$ 13.95		
75-300 Cable Transformer	AH011	\$ 1.90		
Coaxial RF Cable	AH065G	\$ 6.99		
Coaxial RF Cable	AH066G	\$ 8.99		
AC Battery Charger	CPS91	\$ 59.95		
RF Output Adapter	CRF92	\$ 52.30		
DC Car Cord Adapter	DCC08	\$ 74.95		
Rechargeable Battery (2 Hr.)	FB120	\$ 59.95		
Rechargeable Battery (1 Hr.)	FB1260	\$ 49.95		
Audio/Video Output Cable	VAA016	\$ 14.95		
Cassette Adapter	VCA115	\$ 49.95		
Video Color Control Center	VCC1000	\$349.00		
Color Enhancement Light	VDC88	\$ 79.95		
Replacement Bulb (15 watt) for VDC88 Light	VDC090	\$ 12.95		
Extra Battery for VDC88 Light	BP1000	\$ 29.95		
Battery Charger for BP1000	VDC085	\$ 18.95		
Shoe Mount and Grip	1CVS140C	\$ 59.95		
300-75 Cable Transformer	193983	\$ 6.95		
AC Adapter/Charger	217010	\$159.95		

Prices are subject to change without notice.

Total Merchandise (\$10 Minimum Order).....\$ _____

Sales Tax\$ _____

We are required by law to collect the appropriate sales tax for each individual state, county, and locality to which the merchandise is being sent.

Shipping, Handling, and Insurance\$ 5.00

Total Amount Enclosed\$ _____

Use VISA or MasterCard preferably. Money order or check must be in U.S. currency only. No COD or cash.

✂ Detach Here


Please complete other side also 

Accessory Order Form (continued)

Charge your order on your VISA
or MasterCard by
filling in below


USE YOUR CREDIT CARD

IMPORTANT: Copy complete account number
from your VISA card



My card expires:

IMPORTANT: Copy complete account number
from your MasterCard



Copy Number above your
name on
MasterCard

My card expires:

AUTHORIZED SIGNATURE

Prices are subject to change without notice.

Print or type your name and
address clearly. This will be your
mailing label.



A complete and correct order will
save you days of waiting.

Name: _____

Street: _____


_____ Apt: _____

City: _____

State: _____ Zip: _____

Please make sure that both sides of this form have
been filled out completely.

- Allow 8 weeks for delivery.
- All accessories are subject to availability.
- Where applicable, we will ship a superseding model.

Detach Here 

Accessory Order Form (continued)

To order accessories, contact your local Dealer.

If a dealer is not nearby, you can also follow the directions below to order by telephone or direct-by-mail.

United States and Canada Orders

To place your order by phone, have your Visa or MasterCard ready and call the toll-free number listed below between 8AM and 8PM Eastern Standard Time.

Use this number only to place an order for accessory items listed on this order form.

1 – 800 – 338 – 0376

Most times your order will be shipped UPS within 72 hours of receipt. If ever it is not possible to ship within 30 days, we will notify you with an update on your order and an option to cancel.

To place your order by mail, detach and mail the completed order form with credit card information, money order, or check in U.S. currency (made payable to Thomson Consumer Electronics, Inc.) to the following address:

RCA Video Accessories
PO Box 8419
Ronks, PA 17573

For more information on these accessories (or current prices), write to the following address:

Video Accessories Customer Service
Thomson Consumer Electronics, Inc.
Distributor & Special Products
2000 Clements Bridge Rd
Deptford, NJ 08096-2088

International Orders

This offer is valid only in the United States and Canada. For international orders, please send your request for a price quotation (not an order) to:

International Customer Service
Thomson Consumer Electronics, Inc.
Distributor & Special Products
2000 Clements Bridge Rd
Deptford, NJ USA 08096-2088

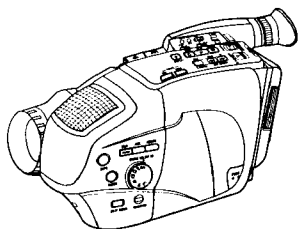
First-Time Operation

1. Unpack the camcorder and accessories.

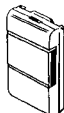
Remove all the accessories and information papers that came packed with the camcorder.

- Save the packing materials and box in case you ever need to ship or store your camcorder.

- The items shown below are packed with your camcorder. If any of the items are missing or appear damaged, contact your RCA dealer immediately.



Camcorder: Model CC176

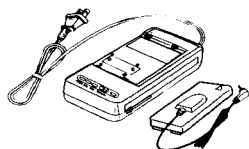


Rechargeable
6-Volt Battery
Part No. FB1260

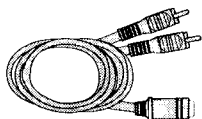
**WARNING: NICKEL
CADMIUM BATTERY
MUST BE DISPOSED
OF PROPERLY.**



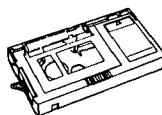
Shoulder Strap
Part No. ACS091



AC Adapter/Charger
Part No. 217010



Audio/Video
Output Cable
Part No. VAA016



Cassette Adapter
Part No. VCA115



Cassette
Adapter
Battery
(Size "AA",
1.5 Volt)



Clock Battery
3-Volt Micro Lithium
Cell—Maxell No. CR2025 is
available from most local
drug stores and camera
shops. Use of another cell
presents a risk of fire or
explosion.

Caution: Lithium cell battery. Must be disposed of properly.
Never handle punctured or leaking cell. May cause burns or
personal injury.

Can cause death or injury if swallowed.

Keep out of hands of children. If swallowed, consult a physician
immediately for emergency treatment.

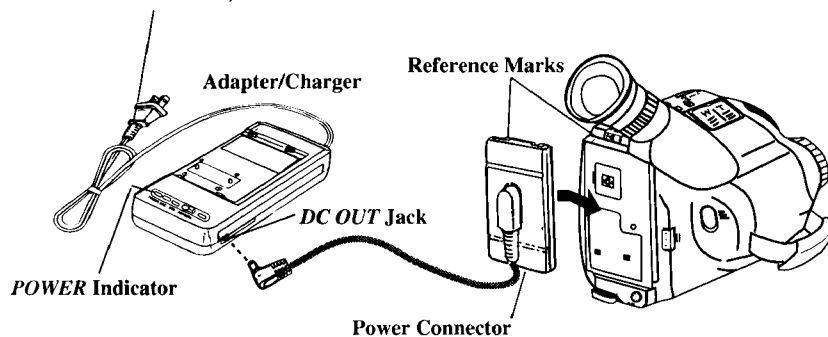
The lithium cell may explode resulting in a fire or chemical burn
hazard if mistreated. Do not recharge, disassemble, heat above
212°F (100°C), or burn.

First-Time Operation (continued)

2. Attach a power supply.

Adapter/Charger

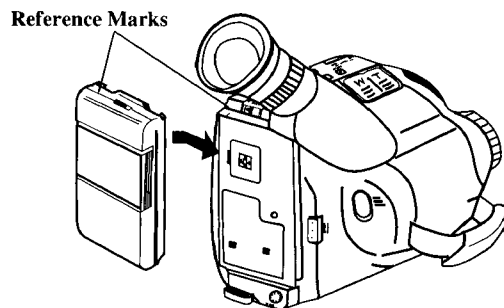
To AC 100-240V, 50/60 Hz



Connect the power connector's small plug into the *DC OUT* jack on the adapter/charger. Align the reference mark on the power connector with the mark on the camcorder. Hold the power connector flush against the

back of the camcorder, and slide it in the direction of the arrow *as shown*. Plug the adapter/charger's plug into an operating outlet. The adapter/charger's *POWER* indicator will light.

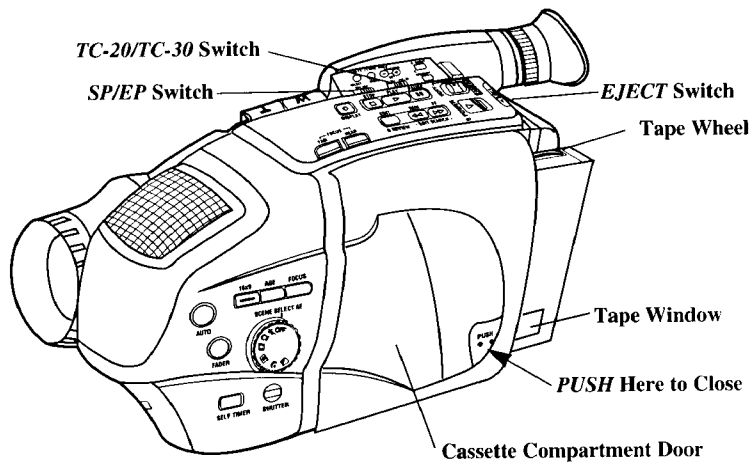
Charged Battery*



Match the reference mark on the battery to the reference mark on the camcorder. Hold the battery flush against the camcorder and slide it in the direction of the arrow.

* The battery must be charged before it can be used the first time. *Details are on page 18.*

(continued on next page)



3. Insert a tape.

- Slide the *EJECT* switch.
- Turn the tape wheel on the cassette to remove any slack from the tape.
- Insert the cassette with the tape wheel facing up and the tape window facing out.
- Press on the area labeled *PUSH* until the door locks into place.

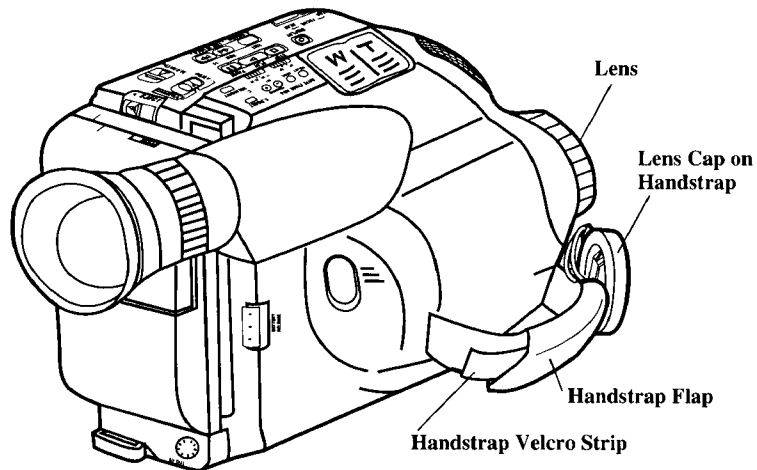
4. Select a recording speed (*SP* or *EP*) with the *SP/EP* switch.

- *SP* – Standard play provides the best picture, but the shortest recording time (20 minutes with a *TC-20* tape).
- *EP* – Extended play provides three times the recording time as *SP* (60 minutes with a *TC-20* tape). *EP* has slightly more picture noise in normal playback.

5. Set the tape length *TC-20/TC-30* switch.

This switch must be set for the camcorder to correctly calculate the recording time remaining on the tape in the camcorder.

- Select *TC-20* if you are using a tape with 20 minutes or less recording time when using *SP* recording speed.
- Select *TC-30* if you are using a tape with more than 20 minutes recording time when using *SP* recording speed.



6. Adjust the handstrap to fit your hand.

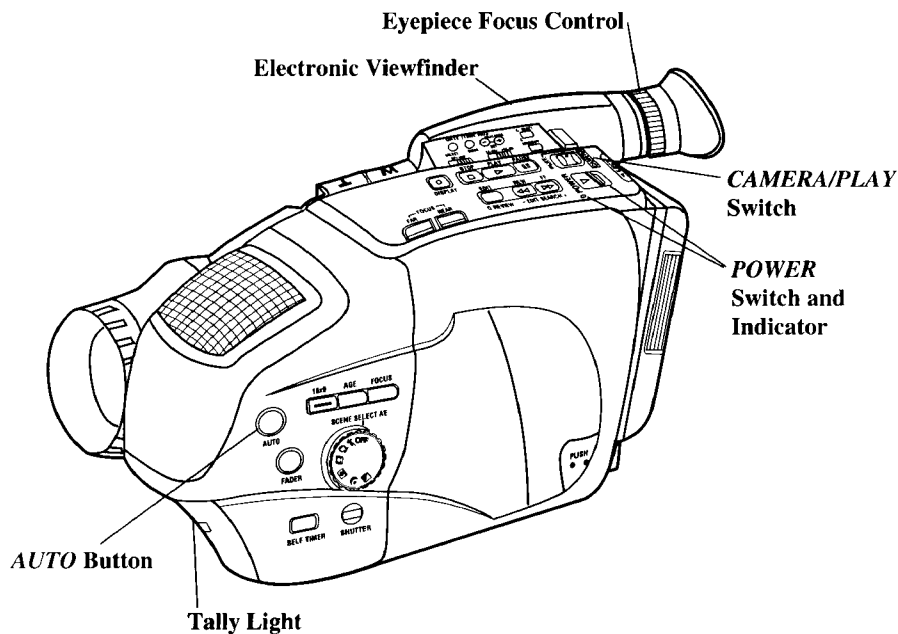
- Lift the flap on the hand strap and separate the velcro strip.
- Insert your hand, adjust the strap to fit snugly, and refasten the strap.

7. Remove the lens cap and attach it to the handstrap.

- Press the tabs on either side of the lens cap to remove it from the lens.
- Attach the cap to the lens cap holder on the handstrap.

(continued on next page)

First-Time Operation (continued)



8. Place the **CAMERA/PLAY** switch in **CAMERA**.

The position of this switch tells the camcorder whether you want to record (**CAMERA**) or play back tapes (**PLAY**).

9. Turn on the power.

Slide the **POWER** switch to turn on the camcorder. The **POWER** indicator will light, and the camcorder will enter the record-pause mode. **PAUSE** and — appear in the viewfinder when the camcorder is in the record-pause mode.

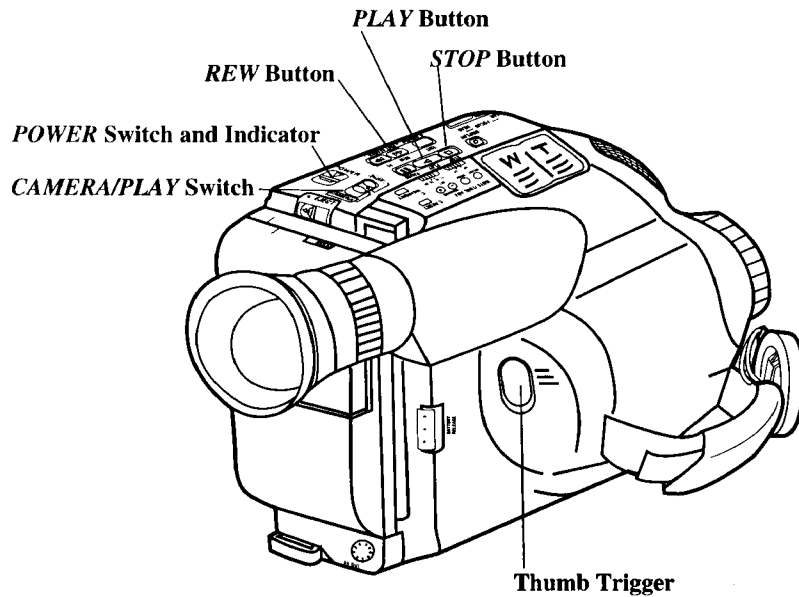
10. Set the controls to automatic.

Press the **AUTO** button to set white balance, shutter speed, and focus to automatic.

11. Adjust the viewfinder and eyepiece focus control.

- Rotate the viewfinder into a comfortable operating position.
- Turn the eyepiece focus control to adjust the focus of the viewfinder for your vision.

First-Time Operation (continued)



12. Start and stop recording.

- Press and release the thumb trigger to start recording. The tally light will light when the camcorder is recording.
- Press and release the thumb trigger again to stop recording. The camcorder is now in the record-pause mode (*PAUSE* and — appear in the viewfinder). The camcorder will automatically turn off if it remains in the record-pause mode for five minutes.

13. Play back what you have recorded.

- Place the *CAMERA/PLAY* switch in the *PLAY* position.
- Press the *REW* button to rewind the tape.
- Press the *PLAY* button to play back the tape in the electronic viewfinder.
- Press the *STOP* button when you are finished playing back the tape.
- *Details on viewfinder playback are on pages 48-49.*

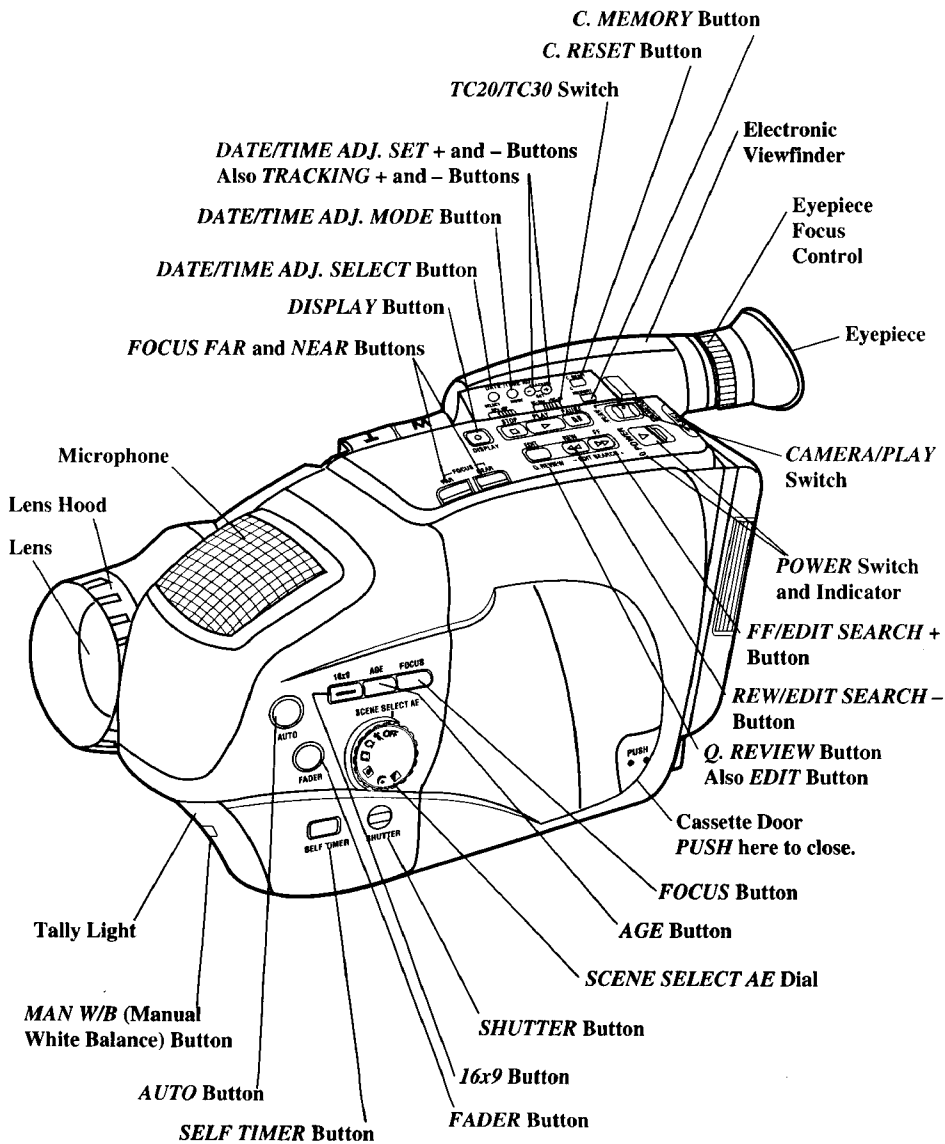
14. Slide the *POWER* switch to turn off the camcorder.

The *POWER* indicator will turn off.

(continued on next page)

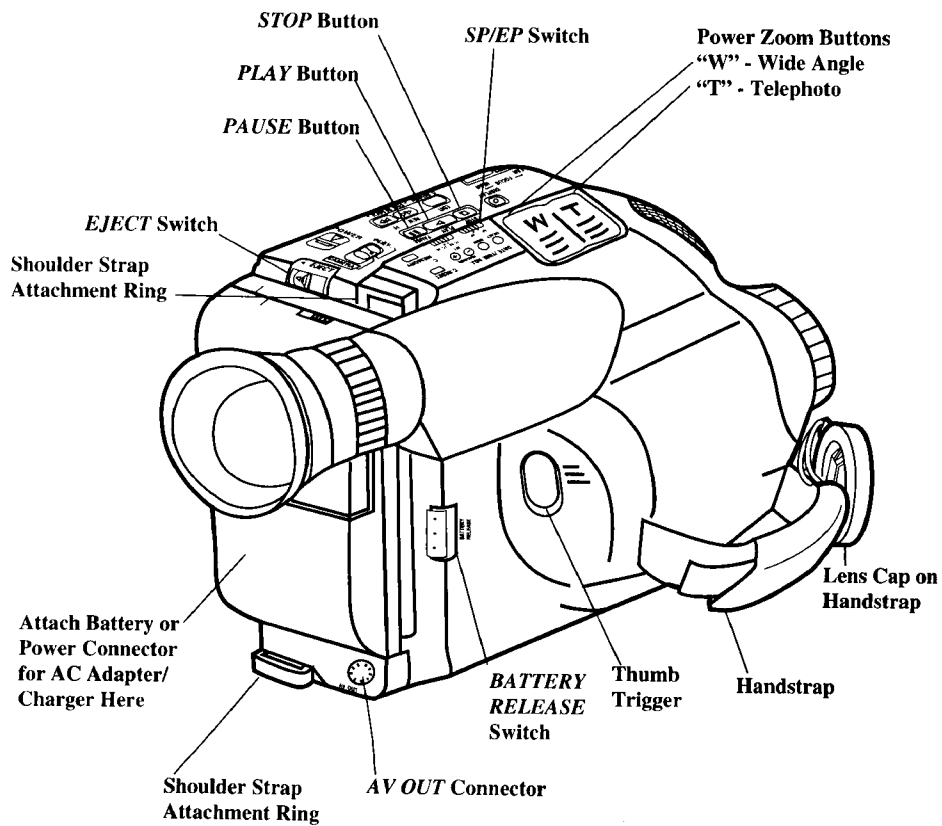
First-Time Operation (continued)

15. Review camcorder's operating controls.



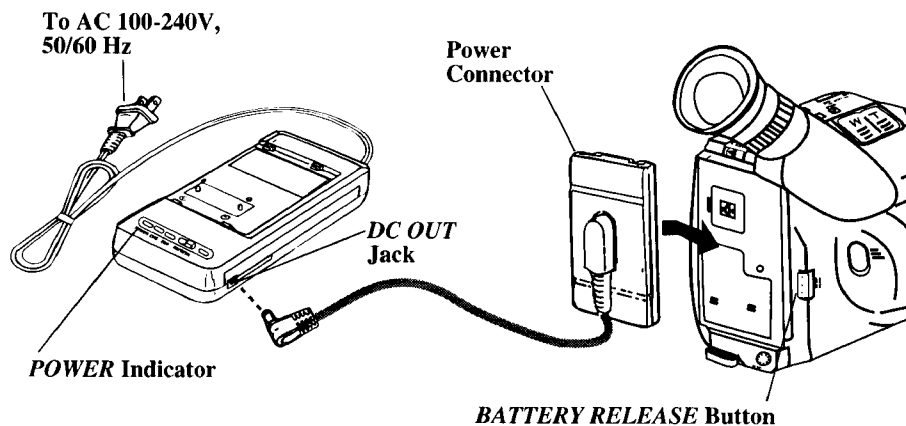
First-Time Operation (continued)

15. Review camcorder's operating controls. (continued)



Powering Your Camcorder

Using the Adapter/Charger to Power Your Camcorder



The adapter/charger's power connector attaches to the camcorder and lets you power your camcorder directly from standard household power. The adapter/charger operates on 100-240 volts, 50/60 Hz, so it can be used virtually anywhere in the world to power the camcorder or recharge the battery. You may need a plug adapter in some countries. Consult your RCA dealer. If an adapter is required, be sure to purchase it before traveling. The adapter can be hard to find in foreign countries.

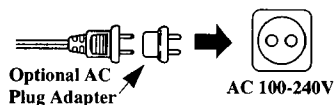
To Attach the Adapter/Charger

1. Connect the power connector's small plug into the *DC OUT* jack on the adapter/charger.
2. Hold the power connector flush against the back of the camcorder, and slide it to the right in the direction of the arrow as shown.
3. Plug the adapter/charger's plug into the nearest AC outlet (100-240V, 50/60Hz).

4. If the adapter/charger is properly connected, its *POWER* indicator will light.

Using an optional plug adapter

An optional plug adapter may be required in some countries.



1. Plug the adapter/charger's plug into the AC plug adapter.
2. Plug the AC plug adapter into the AC outlet.

To Remove the Adapter/Charger

1. Unplug the adapter/charger from the wall outlet.
2. Press and hold the *BATTERY RELEASE* button on the camcorder while sliding the power connector to the left and off the camcorder.

Powering Your Camcorder (continued)

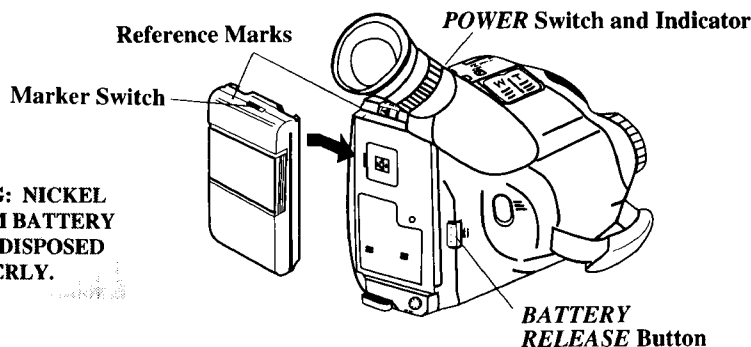
Using the Battery to Power Your Camcorder

The battery must be charged *as described on the next page* before it can be used the first time. Initial charging will take approximately 70 minutes. When fully charged, the battery should supply about 45 minutes of operating time (depending on how much you use zoom and pause).

When using the battery to power the camcorder, turn the camcorder off during

recording breaks to conserve the battery's power. Slide the switch again and press the thumb trigger when you are ready to resume recording.

Note: The small marker switch on the top of the battery is for use as a personal reminder to help you remember to recharge the battery. It has no other function.



**WARNING: NICKEL
CADMIUM BATTERY
MUST BE DISPOSED
OF PROPERLY.**

Attaching the Charged Battery

If the power connector is attached to the camcorder, remove it before attaching the battery. Also, install the lithium clock cell before attaching the battery pack.

Details on page 30.

1. Align the reference mark on the battery with the mark on the back of the camcorder.
2. Hold the battery flush against the camcorder and slide it in the direction of the arrow.
3. Slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.

Removing the Battery

Press and hold the *BATTERY RELEASE* button on the camcorder while sliding the battery to the left and off the camcorder.

Battery Safety Precautions

Do not short the battery's terminals.

Do not attempt to disassemble or modify the battery. There are no user-serviceable parts inside.

Use the battery only with specified RCA adapter/chargers and camcorders.

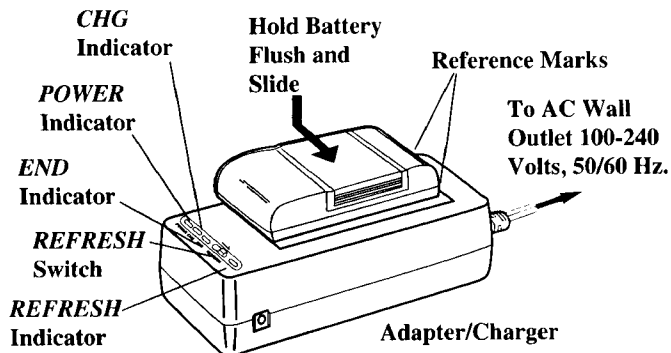
Dispose of battery properly.

ATTENTION:

The product that you have purchased contains a rechargeable battery. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Powering Your Camcorder (continued)

Using the Battery to Power Your Camcorder (continued)



WARNING:
NICKEL
CADMIUM
BATTERY.
MUST BE
DISPOSED
OF
PROPERLY.

Caution: When a battery is attached to the adapter/charger, do not turn them upside down. The battery may fall off and be damaged or cause injury.

Charging the Battery

If the power connector is attached to the *DC OUT* jack on the adapter/charger, remove its plug.

1. Align the reference mark on the battery with the mark on the adapter/charger.
2. Hold the battery flush against the adapter/charger and slide it in the direction of the arrow.
3. Plug the adapter/charger into the nearest AC outlet (100-240V, 50/60Hz).
4. If the battery is properly connected, the adapter/charger's *CHG* (charge) indicator will light.

Note: If you try to charge a battery that has not been charged for a long period of time, it may take a few minutes for the *CHG* indicator to light.

5. After the battery is charged, the *END* indicator will light.
6. Remove the charged battery by sliding it off the adapter/charger.
7. Attach the charged battery to the camcorder.

Using the *REFRESH* Switch

The *REFRESH* switch allows you to "refresh" the battery by completely discharging it. The battery will provide increased operation time if you "refresh" it before each charging.

1. Attach the battery to the adapter/charger.
2. Press the *REFRESH* switch. The *REFRESH* indicator will light, and the battery will begin discharging.
3. When discharging is completed, the *REFRESH* indicator will turn off, and the *CHG* indicator will light. The battery will then charge.
4. After the battery is charged, the *END* indicator will light. Remove the battery from the adapter/charger.

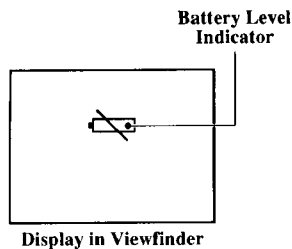
(continued on next page)

Powering Your Camcorder (continued)

Using the Battery to Power Your Camcorder (continued)

Battery Level Indicator

The battery level indicator will appear in the camcorder's viewfinder when the battery needs to be recharged.



When this indicator appears, slide the *POWER* switch to turn off the camcorder before replacing the battery. After replacing the battery, slide the *POWER* switch again to place the camcorder in the record-pause mode.

The battery level indicator will not be recorded on the tape when it appears in the viewfinder.

Battery Information

- Recharging takes approximately 70 minutes for the battery depending on its condition.
- Refreshing takes approximately 210 minutes depending on the battery's condition.
- After repeated charging and use, operation time will gradually decrease. When operation time becomes too short to be useful, it is time to replace the battery.
- If the *CHG* indicator starts flashing, the battery pack has become too hot. Remove the battery and let it cool down.
- If the battery discharging must be stopped in the middle, remove the battery from the adapter/charger before unplugging it from the AC outlet.
- Let a hot battery cool down before attaching it to the AC adapter/charger.

Battery Care and Storage

- The nickel cadmium battery will provide better service and increased operation time if you "refresh" it before each charging.
- The battery will also provide better service if its power is completely drained before storing it for long periods of time (30 days or more).
- The battery should be charged in the temperature range of 50-95°F (10-35C) to prevent damage.
- Do not operate the battery at temperatures below 32°F (0C) or above 104°F (40C). The battery may be damaged if operated at temperatures above 122°F (50C). Operation time will decrease at extremely low temperatures.
- Store the battery at normal room temperature.

Powering Your Camcorder (continued)

Optional RCA DC Car Cord Adapter

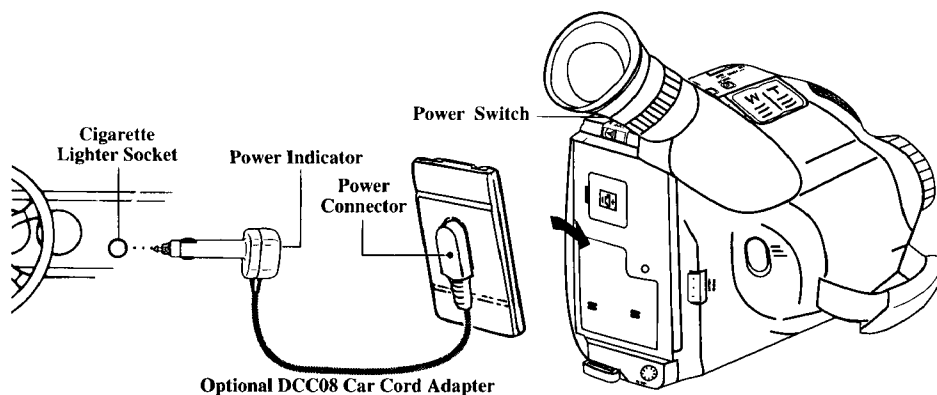
The optional RCA DCC08 DC car cord *shown on page 2* allows you to power your camcorder from the cigarette lighter socket of a car, truck, or RV. It converts 12-volts to a 6-volt output.

Note: Consult the installation and operating instructions enclosed with the DCC08 for complete operating instructions.

Cautions: The DCC08 is designed to be used only with vehicles having negative ground electrical systems.

Use only RCA car cord adapter DCC08 with this camcorder. Use of any other car cord adapter may damage the camcorder and void your warranty.

Using the RCA DCC08 DC Car Cord Adapter



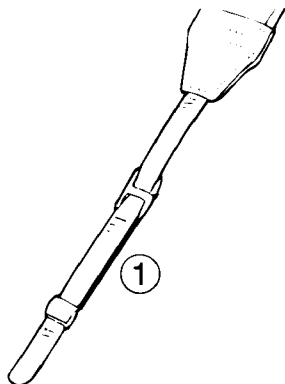
1. Slide the *POWER* switch to turn off the camcorder. *POWER* indicator turns off.
2. If the battery is attached to the camcorder, remove it.
3. Hold the power connector flush against the back of the camcorder and slide it to the right in the direction of the arrow as shown.
4. Take the vehicle's cigarette lighter out of the socket.
5. Insert the car cord's cigarette lighter plug into the vehicle's cigarette lighter socket. The *POWER* indicator on the car cord adapter will light.
6. Slide the *POWER* switch to turn on the camcorder. *POWER* indicator turns on.

Caution: Make sure the camcorder's power is turned off before removing the car cord's plug from the cigarette lighter socket.

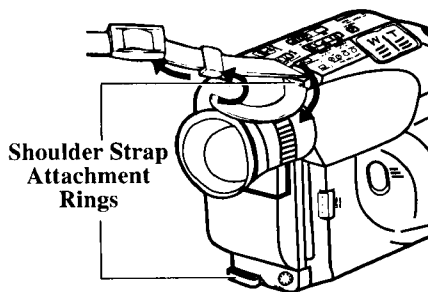
Attaching the Shoulder Strap

The camcorder's shoulder strap is designed to let you carry the camcorder from your shoulder and — when you are ready to shoot — bring the camcorder to shooting position in one quick movement.

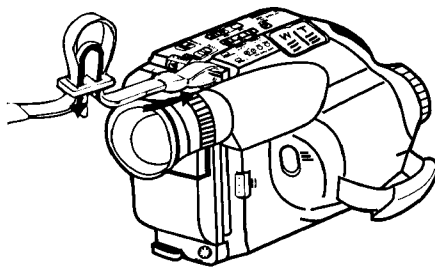
To Attach the Shoulder Strap



1. If the strap keeper is over a double section of the strap, slide the strap keeper off the end of the strap. Replace the keeper on the strap between the buckle and the end of the strap as shown above.



2. Loop the end of the strap over the top of the shoulder strap attachment ring. Then thread the end of the strap back through the keeper and buckle. Make sure the strap is not twisted.
3. Attach the other end of the strap to the other shoulder strap attachment ring.



4. Adjust the shoulder strap to the desired length. Then slide both keepers up snugly against the shoulder strap attachment rings to prevent the strap from slipping.

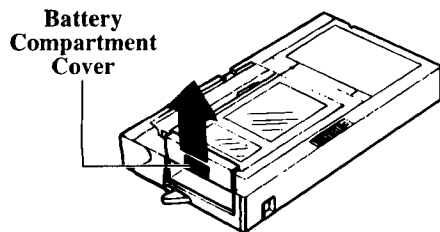
Caution: When carrying the camcorder with the shoulder strap, you may find it convenient to rotate the electronic viewfinder to the front. This helps prevent possible damage to the viewfinder from bumping against your body as you move.

Using the Cassette Adapter

The camcorder uses a smaller size cassette, but records in standard VHS format. The cassette adapter allows you to play your VHS-C cassettes in a VCR just like other standard VHS cassettes.

Insert the VHS-C cassette into the cassette adapter. Insert the cassette adapter into the VHS VCR like a normal VHS cassette.

Install the cassette adapter's battery.

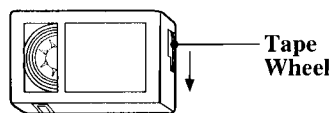


1. Remove the battery compartment cover.
2. Install the supplied "AA" battery so the positive (+) and negative (-) ends align properly with the (+) and (-) terminals in the battery compartment.
3. Replace the battery compartment cover.

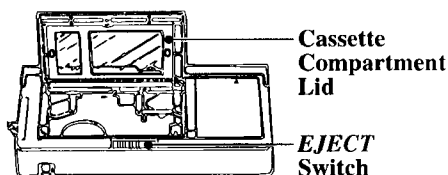
Notes: Replace the battery when the load time becomes much longer than normal.

Remove the battery from the cassette adapter if it will not be used for a month or more. This will prevent possible damage from battery leakage. If leakage occurs, wipe up the liquid inside the compartment and replace the battery with a new one.

Insert the cassette into the cassette adapter.



1. Before inserting the cassette into the adapter, remove any slack in the tape by turning the tape wheel on the side of the cassette.

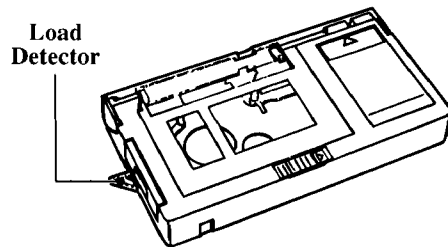


2. Slide the *EJECT* switch to the right to open the cassette compartment lid.
3. Insert the cassette with the tape window on the left and facing up. Allow the cassette to drop into the adapter. **Do not force the cassette.**

(continued on next page)

Using the Cassette Adapter (continued)

Insert the cassette into the cassette adapter. (continued)

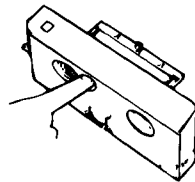


4. Gently close the cassette compartment lid until it locks into place. Make sure the cassette reel area under the adapter is free to turn while the cassette is loading.

Note: You should hear a whirring sound while the tape loads. The adapter's load detector will automatically retract into the adapter.

Caution: If the load detector is still extending from the side of the cassette adapter after you have attempted to load the cassette, the cassette loading is not complete. Try to load the cassette again. Attempting to insert the cassette adapter into a VCR with the load detector extending may cause damage to the cassette adapter and/or VCR.

Remove the cassette from the cassette adapter.



1. Slide the adapter's *EJECT* switch to the right. The load detector will extend from the side and the whirring sound indicates the tape is being released before the adapter's cassette compartment lid opens.
2. Use the access hole on the bottom of the adapter to push the cassette up and remove it from the adapter.
3. Gently close the adapter's cassette compartment lid.

RCA Video Cassettes

We recommend that RCA cassettes be used with your camcorder. The tape in these cassettes is of high-quality formulation. It has been manufactured to our critical specifications for excellent performance. Use of tape not meeting these specifications could considerably reduce the performance of your camcorder.

Use of poor quality tapes or tapes that have been damaged or mishandled can contaminate the video heads, resulting in

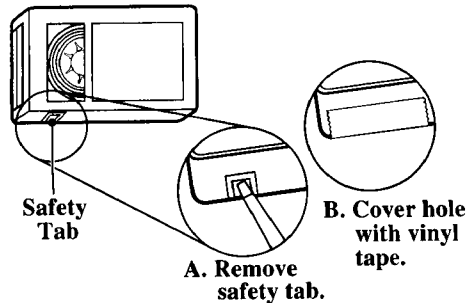
a snowy picture or no picture at all during playback. Because there is no control over the type of tape purchased or rented by consumers, head cleaning is not covered under warranty. It is considered normal maintenance.

The automatic head-cleaning system minimizes the need for accessory cleaners or cleaning by a Servicenter. This system is activated whenever you insert or remove a cassette.

Erase Protection—Safety Tab

You can use your video cassettes over and over again. To erase a previous recording, just record over it.

- A. To prevent erasing a recording you want to keep, break off the cassette's safety tab.
- B. To record again on the cassette, cover the hole with vinyl tape.



Recording Speeds and Times

The camcorder records and plays back in standard speed (SP) or extended play (EP). Select the recording speed with the *EP/SP* switch. The selected speed will be displayed in the viewfinder.

- EP – Extended play provides three times the recording time as SP (60 minutes with a TC-20 tape). EP has slightly more picture noise than SP in normal playback. This may not be noticeable.
- SP – Standard play provides the best picture (less picture noise), but the shortest recording time (20 minutes with a TC-20 tape).

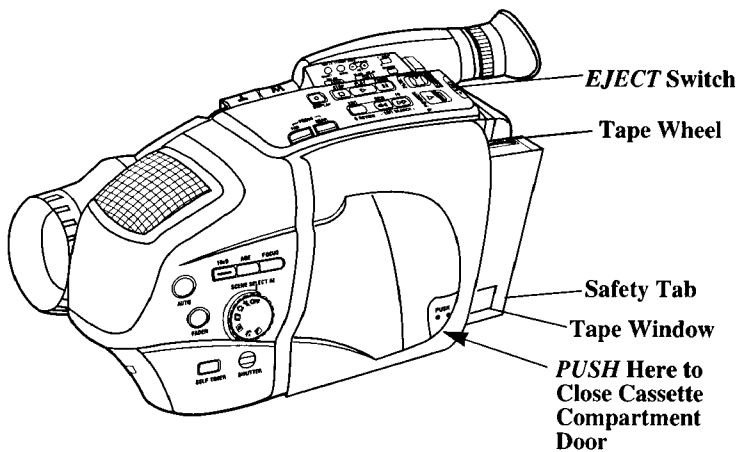
Listed below are the maximum SP and EP recording times for popular VHS-C cassettes.

Cassette	Recording Time	
	SP	EP
TC-20	20 Min.	60 Min.
TC-30	30 Min.	90 Min.
TC-40	40 Min.	120 Min.*

* Will probably be available soon.

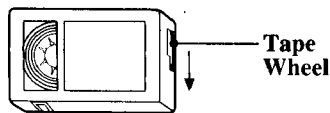
RCA Video Cassettes (continued)

Inserting and Removing Cassettes



Caution:
Insert the cassette only one way with the tape wheel facing up and the tape window facing out. The cassette should slide easily into the compartment. Do not force the cassette.

Before inserting a cassette, turn the tape wheel on the side of the cassette in the direction shown to remove any slack in the tape.



1. Attach a power supply. Then slide and release the *EJECT* switch to open the cassette compartment.
2. Insert or remove the cassette.
3. Close the cassette compartment door by pressing on the area of the cassette compartment door labeled *PUSH* until it locks into place.

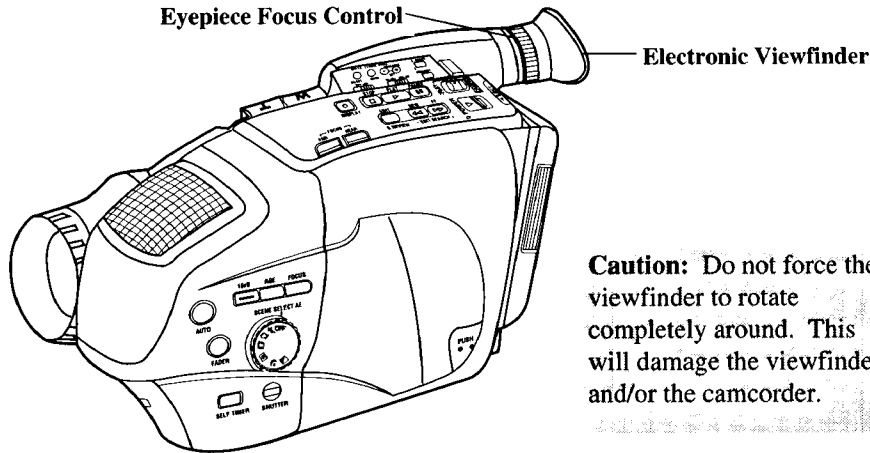
Cassette Care and Storage

- When you are finished with a cassette, rewind it, and remove it from the camcorder.
- Label your cassettes before storing them.
- Store cassettes vertically in their protective boxes at normal room temperatures. Do not leave your camcorder or cassettes in a car or outdoors for an extended period. Excessive heat or cold may damage your cassettes.
- Keep dust from entering the cassette compartment. All dust is abrasive and will cause excessive wear on the tape and the camcorder's recording or playback heads.
- Keep the cassette away from strong magnetic fields such as electric motors and other devices.
- Do not use cassettes with damaged or spliced tape.
- Do not use a cassette if it has been damaged or exposed to moisture. The tape may jam and/or damage your camcorder.

Electronic Viewfinder

The camcorder's electronic viewfinder is a miniature black-and-white monitor that displays the picture seen by the

camcorder when recording. The viewfinder can also be used for viewing the tape during playback.



Caution: Do not force the viewfinder to rotate completely around. This will damage the viewfinder and/or the camcorder.

Eyepiece Focus Control

The eyepiece focus control lets you set the focus of the viewfinder for your personal vision. If you wear eyeglasses, you probably can operate the camcorder without them.

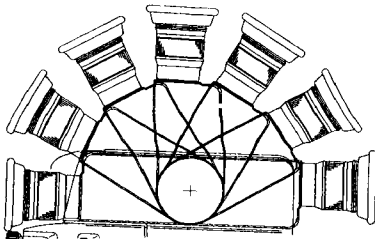
It is easiest to set the correct focus by focusing on one of the viewfinder's

on-screen displays (such as the time counter display). Look through the viewfinder and adjust the eyepiece focus control for your vision.

The eyepiece focus control does not affect the focus of the picture actually recorded by the camcorder.

Tilt Adjustment

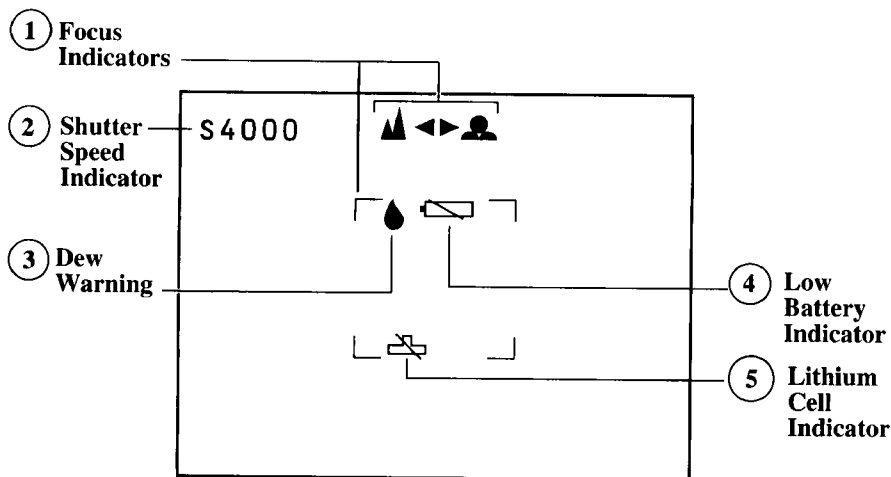
For convenient viewing, you can rotate the viewfinder about 180°.



180° Tilt

Caution: When carrying the camcorder with the shoulder strap, rotate the electronic viewfinder to the front. This helps prevent possible damage to the viewfinder from bumping against your body as you move.

Viewfinder Displays



Displays in Viewfinder

1 Focus Indicators

- **Auto Focus:** Center the object you want the camcorder to focus on inside the framed detection area.
- **Manual Focus Indicators** (▲ ▲) appear when manual focus is selected. The *CAMERA/PLAY* switch must be in the *CAMERA* position.
- **Low-Contrast Indicators** (◀▶▲) appear when there is not enough light to record at the higher shutter speed or when the auto-focus feature cannot focus properly.
- *Details are on pages 36-37.*

2 Shutter Speed Indicator

- The shutter speed indicator appears for the shutter speed selected with the *SHUTTER* button. The *CAMERA/PLAY* switch must be in *CAMERA*.
- *Details are on page 40.*

3 Dew Warning Indicator

- The dew indicator appears when excessive moisture (condensation) has entered the camcorder. The camcorder will not operate when this indicator appears. Place the camcorder in a warm, dry area until the dew indicator disappears. When the dew indicator disappears from the viewfinder, the camcorder will operate.

4 Low Battery Indicator

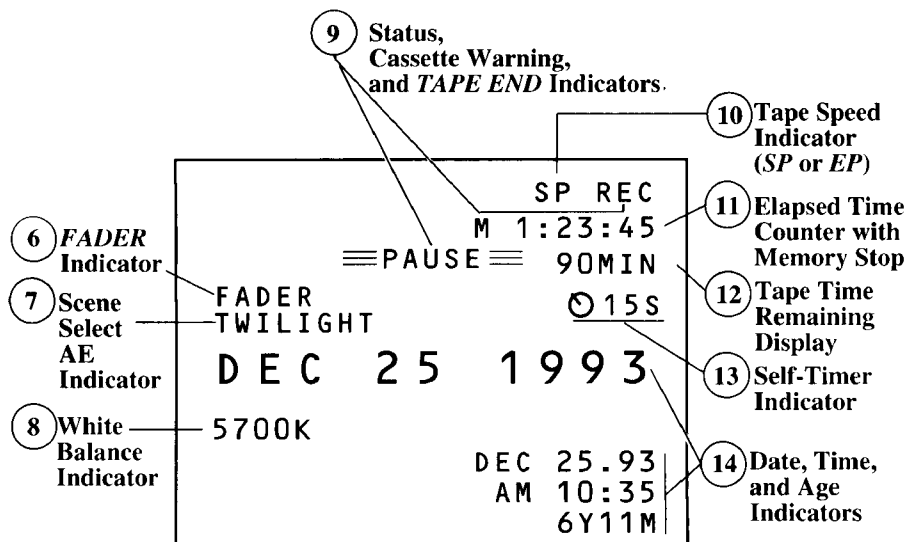
- This indicator appears when it is time to recharge the battery.
- *Details are on page 19.*

5 Lithium Cell Indicator

- This indicator appears when the clock cell has not been installed or it needs to be replaced.
- *Details are on page 30.*

(continued on next page)

Viewfinder Displays (continued)



Displays in Viewfinder

6 FADER Indicator

- *FADER* appears when you press the *FADER* button.
- *FADER* flashes when the camcorder is fading in or out.
- The *CAMERA/PLAY* switch must be in *CAMERA*.
- *Details are on page 39.*

7 Scene Select AE Indicators

- The indicator for the mode selected with the *SCENE SELECT AE* dial appears here.
- The *CAMERA/PLAY* switch must be in *CAMERA*.
- *Details are on page 42.*

8 White Balance Indicators

- The indicator for the manual white balance selected with the *MAN W/B* (manual white balance) button appears here.
- No indicator appears for automatic white balance.
- The *CAMERA/PLAY* switch must be in *CAMERA*.
- *Details are on page 43.*

⑨ Status, Cassette Warning (REC), and TAPE END Indicators

- The REC indicator appears here when the camcorder is recording.
- The PAUSE and — indicators appear when the camcorder is in the record-pause mode.
- The TAPE END indicator flashes when the CAMERA/PLAY switch is set to CAMERA and the safety tab has been removed from the cassette.
- The TAPE END indicator also flashes when the CAMERA/PLAY switch is set to CAMERA and there is no cassette in the camcorder.
- TAPE END appears when the end of the tape is reached during recording or a cassette is inserted with its tape already at the end.

⑩ Tape Speed Indicator (SP or EP)

- The tape speed selected with the SP/EP switch appears here.
- *Details are on page 24.*

⑪ Elapsed Time-Counter with Memory Stop

- The time counter automatically appears here during the record and playback modes. It is not recorded on the tape.
- An “M” appears in front of the time counter when memory-stop is turned on.
- *Details are on page 44.*

⑫ Tape Time-Remaining Display

- The approximate time remaining on the tape in the camcorder is automatically displayed in the viewfinder.
- The time-remaining indicator will start flashing when the remaining tape time reaches two minutes.
- *Details are on page 45.*

⑬ Self-Timer Indicator

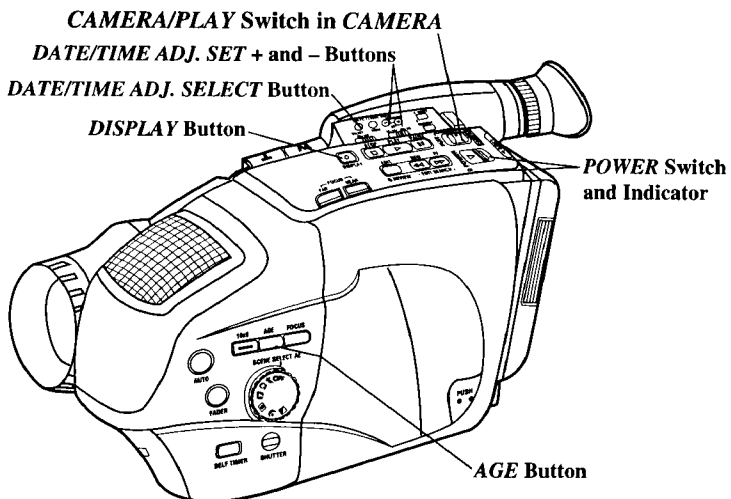
- This indicator appears when the camcorder has been set for self-timer recording.
- *Details are on page 35.*

⑭ Date, Time, and Age Indicators


- Whenever these indicators appear in the viewfinder, they will be recorded on the tape.
- The date, time, and age must be set, and the CAMERA/PLAY switch must be in CAMERA.
- *Details are on pages 30-33.*

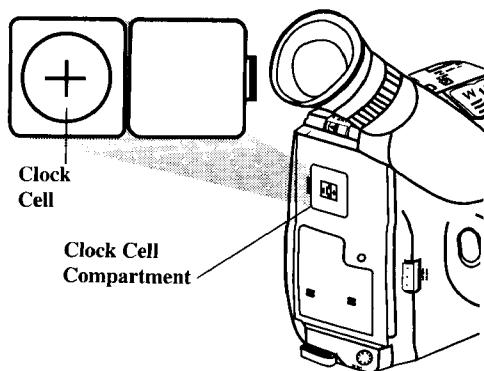
Date, Time, and Age Displays

After the date, time, and ages have been set, they can be displayed and recorded on your tapes. The clock cell must be installed.



Install the clock lithium cell.

The clock cell indicator  will appear in the viewfinder when the cell has not been installed or needs to be replaced. The cell should last approximately one year.



Cautions: Lithium cell batteries. Must be disposed of properly.

Never handle punctured or leaking cells. May cause burns or personal injury.

Can cause death or injury if swallowed.

Keep out of hands of children. If swallowed, consult a physician *immediately for emergency treatment.*

The lithium cell may explode resulting in a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 212°F (100°C), or burn.

1. Make sure the camcorder is turned off, and remove any power supply attached to the camcorder.
2. Press the release tab of the clock cell compartment cover and open the compartment.
3. Insert the clock cell with the "+" terminal facing out.
4. Close the compartment cover. It will click into place.

Date, Time, and Age Displays (continued)

Set the Date, Time, and Age(s).

1. Install the clock cell
2. Place the *CAMERA/PLAY* switch in *CAMERA*.
3. Attach a power supply, and slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.
4. Press the *DISPLAY* button. The date and time display appear with a flashing cursor on the month. The flashing cursor lets you know which part of the display you are setting.
5. Repeatedly press the *DATE/TIME ADJ. SET* + or – button until the correct month appears.
6. Press the *DATE/TIME ADJ. SELECT* button to move the flashing cursor to the next part of the display.
Note: Press and hold the button to rapidly advance the flashing cursor.
7. Repeat steps 4 and 5 until you have entered the correct month, day, year, hour (including *AM* or *PM*), and minutes.
Note: The clock begins when the minute digits stop flashing. The clock does not keep time while any digits are flashing.
8. After the date and time have been set, you can enter two birth dates into

memory. After you enter the birth dates, the current ages can be displayed and recorded.

Press the *DATE/TIME ADJ. SELECT* button to access the age display feature. The month will flash first.

9. Press the *DATE/TIME ADJ. SET* + or – button until the correct month of birth appears.
10. Repeat steps 8 and 9 until you have set the month, day, and year of two birth dates.
Note: Press the *DATE/TIME ADJ. MODE* button to clear the age setting.
11. Once all features have been set, press *DATE/TIME ADJ. SELECT*. All flashing will stop and the date will be displayed for about three seconds.

Notes

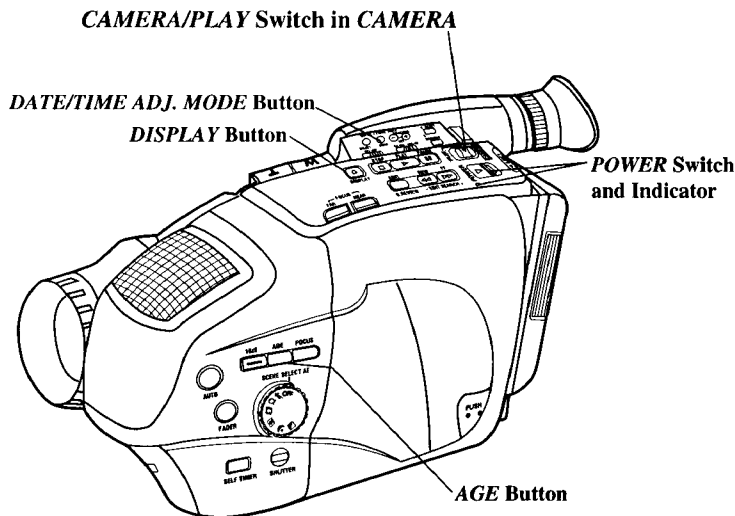
- The age will be displayed in days (*10D*) for ages under one month.
- The age will be displayed in months (*11M*) for ages from one to eleven months.
- The age will be displayed in years and months (*6Y11M*) from one year to six years and eleven months.
- The age will be displayed in years (*50Y*) for ages from seven years and older (up to 99 years).

To Correct the Displays

Press the *DISPLAY* button to display the time and date, or press the *AGE* button to display the age. Repeatedly press the *DATE/TIME ADJ. SELECT* button to select the item you want to change.

Press the *DATE/TIME ADJ. SET* + or – button to enter the correct digit(s). Repeatedly press the *DATE/TIME ADJ. SELECT* button to remove the flashing cursor and start the clock.

(continued on next page)



Select the date, time, and/or age display you want to record on your tape.

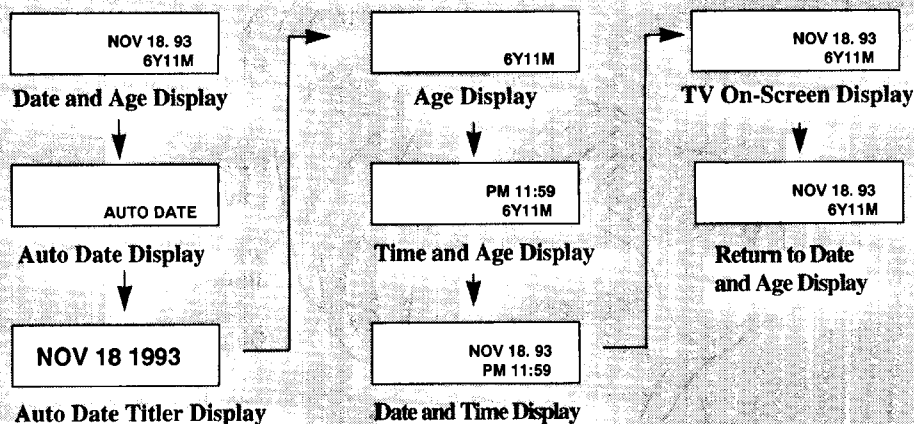
The clock cell must be installed and the date, time, and ages set before they can be selected and recorded.

1. Place the *CAMERA/PLAY* switch in *CAMERA*.
2. Attach a power supply, and slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.
3. Press the *DATE/TIME ADJ. MODE* button to select one of the displays.
Note: Press the *AGE* button to select the first age, second age, or no age.
 - **Date and Age Display:** The date and age will be displayed and recorded.
 - **Auto Date:** The date will be automatically recorded.

- **Auto Date Titler Display:** The date is automatically recorded across the center approximately four times larger than the normal displays.
- **Age Display:** Only the age will be displayed and recorded. Press the *AGE* button to record the other age.
- **Time and Age Display:** The time and age will be displayed and recorded.
- **Date and Time:** The date and time will be displayed and recorded.
- **TV On-Screen Display:** The viewfinder displays will appear on the screen of a TV connected to the camcorder during the record-pause mode.

Viewfinder Displays

Press the *DATE/TIME ADJ. MODE* button to select mode.



Press the *DISPLAY* button to display and record the mode selected.

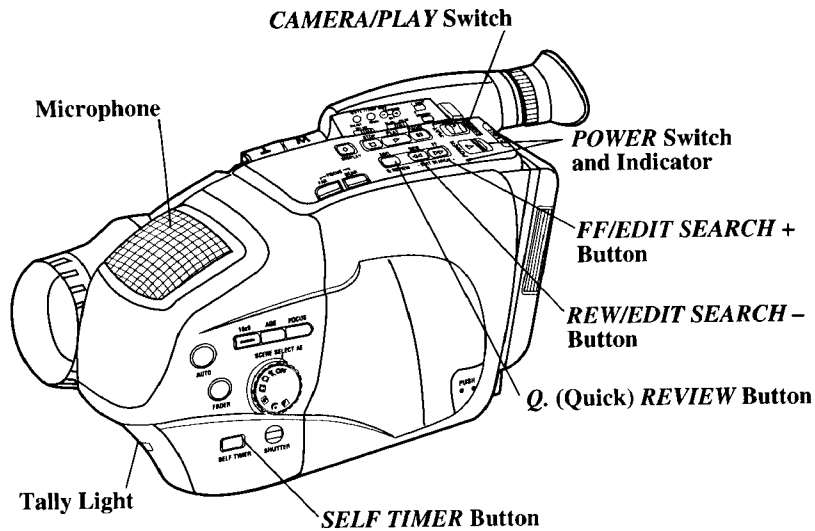
To record the date, time, and/or age display on your tape.

1. During recording, press the *DISPLAY* button to display the mode you have selected in the viewfinder. If the mode you select contains an age, place the camcorder in the record-pause mode and repeatedly press the *AGE* button to select the first age, second age, or no age.

The mode you select will be recorded whenever it appears in the electronic viewfinder.

If you have selected one of the auto modes (*AUTO DATE* or auto date titler), it will automatically appear, be recorded for five seconds, and then disappear whenever:

- The date, time, or birthday(s) have been set or changed.
 - The display mode has been changed.
 - The tape has been changed or the tape compartment opened.
2. Press the *DISPLAY* button to remove the display from the electronic viewfinder. The display will not be recorded on the tape.



Tape Positioning

Place the *CAMERA/PLAY* switch in *PLAY* and press the *STOP* button.

- Press and quickly release the *REW/EDIT SEARCH -* or *FF/EDIT SEARCH +* button to rewind or fast-forward the tape. Press the *STOP* button to stop the tape.
- Press and hold the *REW/EDIT SEARCH -* or *FF/EDIT SEARCH +* button more than two seconds for high-speed rewind or fast forward.

Note: The time counter does not operate during high-speed rewind or fast forward.

Camera Edit

The camera edit feature allows you to position the tape when the camcorder is in the record-pause mode. The *CAMERA/PLAY* switch must be in *CAMERA*.

- Press and hold the *REW/EDIT SEARCH -* button to search visually the recorded tape in reverse.
- Press and hold the *FF/EDIT SEARCH +* button to search visually forward on the recorded tape.

Release the button to have the camcorder return to the record-pause mode at that point on the tape. Press the thumb trigger to start recording at this point.

Special Features (continued)

Quick Review

Press the *Q*. (quick) *REVIEW* button when the camcorder is in the record-pause mode to review the last few seconds of a recording. The *CAMERA/PLAY* switch must be in *CAMERA*.

The camcorder will play back the last few seconds of the recording, return the tape to its previous position, and return to the record-pause mode.

Flying Erase Head

A separate erase head is mounted on the spinning headwheel (hence the term “flying”).

This allows you to make clean edits without the “glitches” or “rainbow noise” that may occur at the beginning and end of recordings made on camcorders not having a flying erase head.

Auto Head Cleaner

The camcorder has an automatic head-cleaning system. Whenever a cassette is inserted or removed, the automatic head-cleaning system is activated.

The automatic head cleaning system minimizes the need for accessory cleaners or cleaning by a Servicerter.

Microphone

The microphone picks up the sound during a recording. It is more sensitive to sounds coming from the direction the lens is pointed.

Tally Light

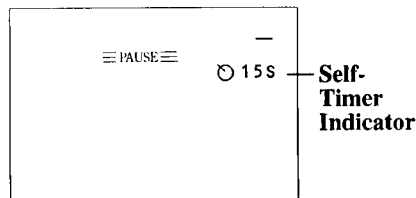
The tally light lights when the camcorder is recording. The tally light flashes during the self-timer recording mode.

Self Timer

The self-timer feature delays recording for 15 seconds after the thumb trigger is pressed. This lets the operator join the picture. Mounting the camcorder on a tripod, such as *AC035* shown on page 4, will keep the camcorder steady.

To use the self timer

1. Turn on the camcorder, and place the *CAMERA/PLAY* switch in *CAMERA*.
2. Press the *SELF TIMER* button. The *15S* indicator will appear in the viewfinder.



Display in Viewfinder

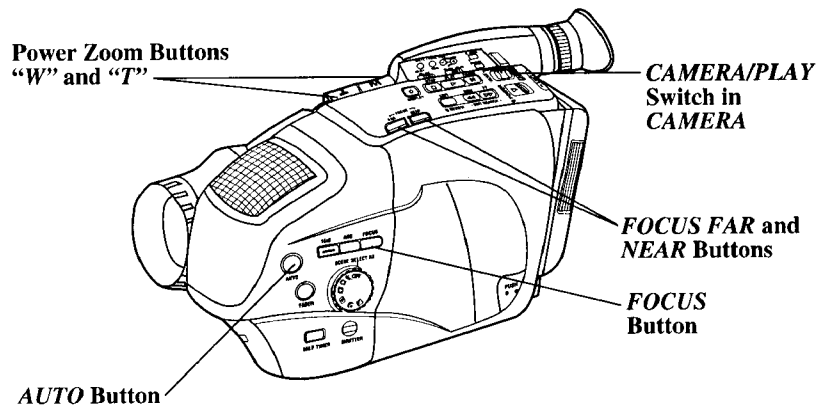
3. Press the thumb trigger. The tally light and — indicator will flash for approximately 10 seconds before recording begins.

REC will appear in the viewfinder and the tally light will light when recording begins.

To turn the self-timer off

Press the *SELF TIMER* button. If the tally light and — indicator are flashing, press the thumb trigger, and then press the *SELF TIMER* button.

Focusing Your Camcorder



Auto Focus

During auto focus the camcorder will focus automatically and the auto-focus detection frame will appear in the center of the viewfinder. The area within the detection frame is used to detect focus. Center the object that you want the camcorder to focus on in this frame.

- Press the *AUTO* button to turn on the auto feature. Manual focus will not operate.
- Press the *FOCUS* button to switch between automatic and manual focus.

Notes: The low-contrast indicator (▲↔▲) in the viewfinder indicates the auto-focus system may not operate correctly due to low illumination, low or no contrast, repeated patterns, or two subjects at different distances overlapping. Focus the camcorder manually.

If the camcorder has been zoomed in on the subject and the auto-focus system cannot achieve proper focus, the camcorder will automatically zoom out. This may allow the focus system to focus properly. If proper focus still cannot be achieved, adjust the focus manually.

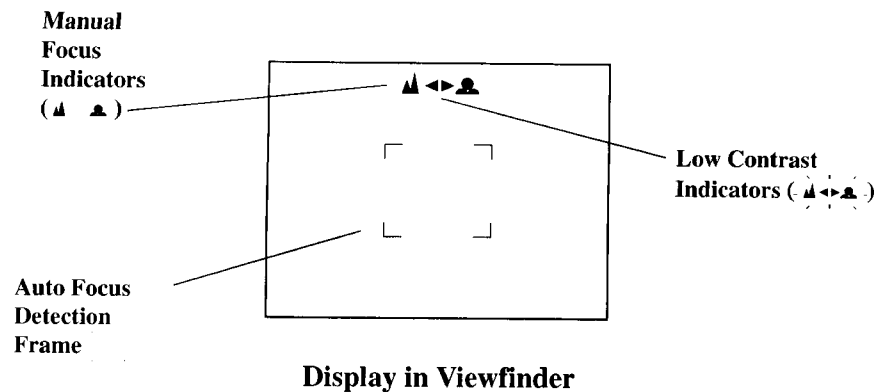
Macro Focus

The auto-focus system may be used for recording subjects very close to the camcorder. Increased illumination may produce better results.

1. Press the power zoom button labeled "W" until the lens is completely zoomed out.
2. Position the subject or scene in the center of the viewfinder.

Caution: During recording pauses, light entering the camcorder will operate the auto-focus feature and consume battery power.

Focusing Your Camcorder (continued)



Manual Focus

Under certain conditions, such as those listed, you may need to focus manually.

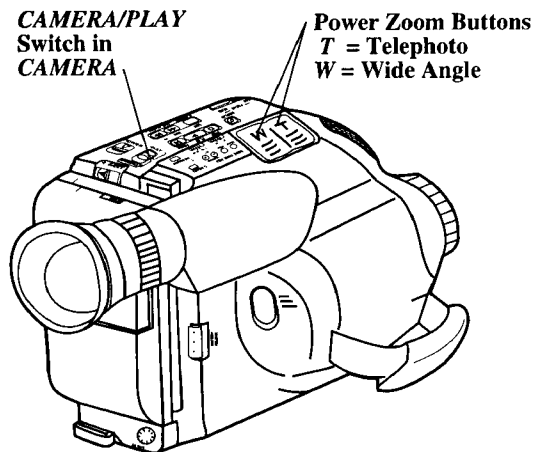
1. Press the *FOCUS* button to turn on manual focus. The (▲ ▲) indicators appear in the electronic viewfinder.
2. Press the power zoom button labeled "T" to zoom in on your subject. To maintain proper focus throughout the zoom range, you must zoom in on the subject before adjusting the focus.
3. Press the *FOCUS FAR* or *NEAR* button to display a clear picture in the center of the viewfinder. The ◀ or ▶ indicator will flash. When the focus cannot be adjusted any farther, the (▲) indicator will flash. When the focus cannot be adjusted any closer, the (▲) indicator will flash.
4. To turn off manual focus, press the *FOCUS* or *AUTO* button.

Some conditions that may require the use of manual focusing during recording are:

- When recording a subject through a window.
- When recording a subject having a close foreground and a background that is far away.
- When recording two subjects at different distances that overlap in the same scene.
- When the subject is not in the center of the electronic viewfinder.
- When recording in low-light situations.
- When recording a scene with fast motions, like a tennis swing.

Power Zooming

The motorized zoom lens allows you to zoom in and out for close-ups or wide-angle shots just by pressing one of the power zoom buttons on the camcorder.



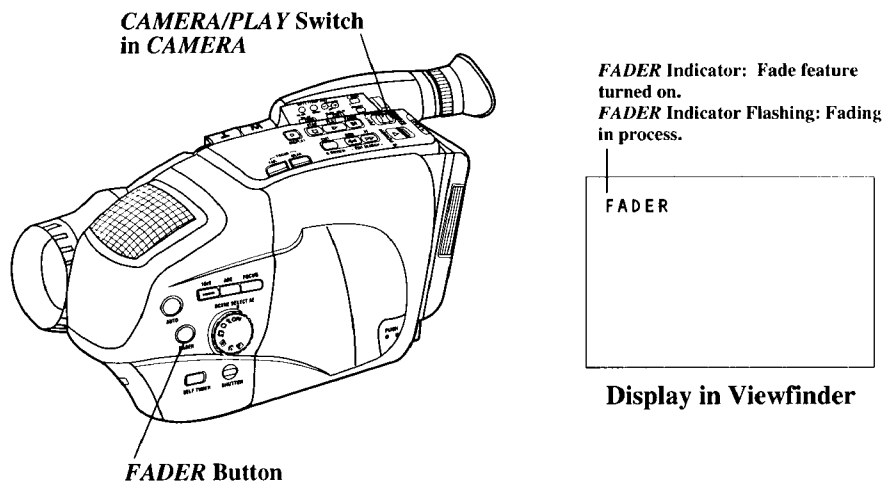
The zoom buttons on the camcorder are easily controlled by your index and middle fingers when you hold the camcorder through the handstrap.

- Press the button labeled *T* to move the lens in the telephoto (close-up) direction.
- Press the button labeled *W* to move the lens in the wide-angle direction.

Note: If you have zoomed in on low-contrast subjects while recording and the automatic focus system cannot attain proper focus, the camcorder will automatically zoom out, and the low-contrast () indicator will appear in the viewfinder.

Fading In and Out of Scenes

You can add a professional touch to your recordings when you fade in and out of scenes. The picture will gradually appear or disappear. The speed of the fade is automatically controlled by the camcorder.



Fade In

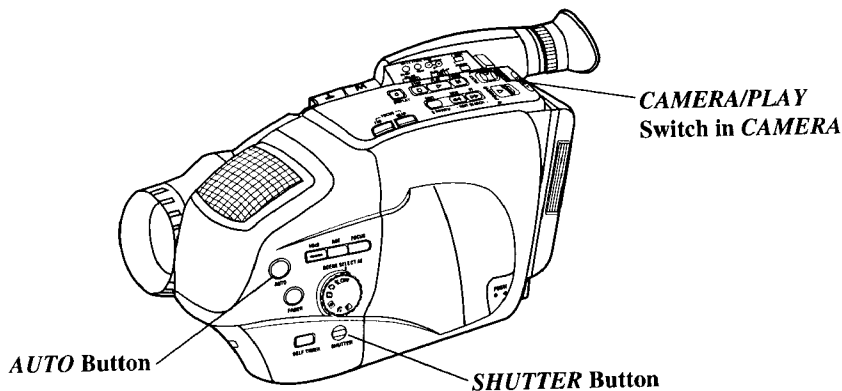
1. Place the *CAMERA/PLAY* switch in *CAMERA*.
2. Slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light. The camcorder will enter the record-pause mode. Center the subject or scene that you want to record in the electronic viewfinder.
3. Press the *FADER* button. *FADER* will appear in the electronic viewfinder.
4. Press the thumb trigger to start recording. The screen turns blank and the camcorder will automatically fade into the scene you have selected. *FADER* flashes in the electronic viewfinder while the camcorder is fading in.

Fade Out

1. During recording, press the *FADER* button. *FADER* will appear in the electronic viewfinder.
2. Press the thumb trigger to stop recording. The camcorder will automatically fade out of the scene and enter the record-pause mode. *FADER* flashes in the electronic viewfinder while the camcorder is fading out.

Note: When recording using the *MONOCHROME* setting on the *SCENE SELECT AE* dial, the screen will become slightly reddish during fading.

Variable Shutter Speeds



The higher shutter speeds are recommended when you are taping fast-moving action outdoors that you plan to view using “stop-action pause” or slow-motion on a VCR. The higher shutter speeds produce better special effects performance.

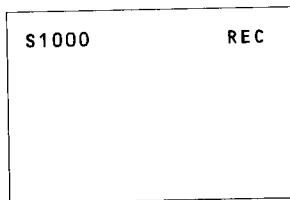
Because your camcorder has a variable shutter, you can choose a shutter speed of 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, or 1/8000 second.

Notes: A tape recorded at the higher shutter speed may not show movement and change of scene as smoothly as recordings at the normal 1/60 second speed.

For indoor high-speed shutter recording, you may find that additional halogen or tungsten lighting is required. Use of fluorescent, mercury vapor, or sodium lighting may cause a “flickering” effect.

Using Higher Shutter Speeds

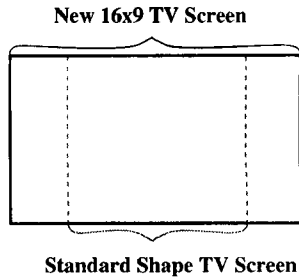
1. During recording, press the *SHUTTER* button to select a higher shutter speed. The indicator for the shutter speed selected (*S60, S100, S250, S500, S1000, S2000, S4000, or S8000*) appears in the electronic viewfinder.



2. When you are finished recording the fast-moving action, press the *SHUTTER* button to select auto (no display), or press the *AUTO* button.

16x9 Mode

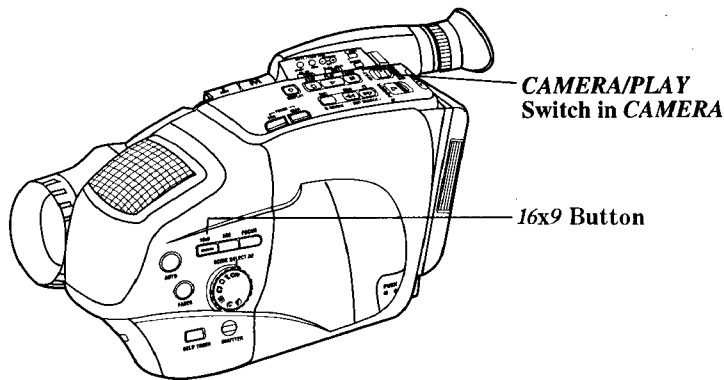
A new 16x9 TV format will be introduced that provides a 30% wider picture.



The camcorder has a 16x9 recording mode that lets you make recordings compatible with the 16x9 format. When the 16x9 mode is activated, the camcorder records black bars at the top and bottom of the picture to produce the wide-screen effect. This is also known as "letter box" recording.

Do not use this format unless you have a compatible 16x9 TV. When played back on a regular TV, the black bars appear in the picture.

To record using the 16x9 mode



1. During recording, press the *16x9* button to activate the 16x9 mode.
2. Press the *16x9* button again to turn off the 16x9 mode.



16x9 Mode

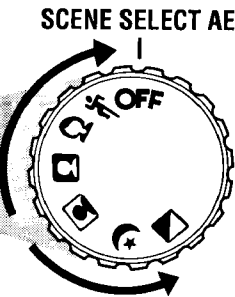
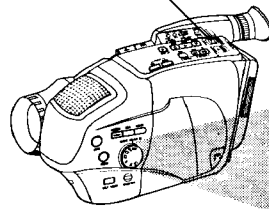


Normal Mode







SCENE SELECT AE Modes

The **SCENE SELECT AE** dial lets you select one of several different effects for creative recording. Turn the dial to select the effect you want. The indicator for the effect you select will appear in the viewfinder. Set the dial to **OFF** for normal recording.

CAMERA/PLAY
Switch in CAMERA



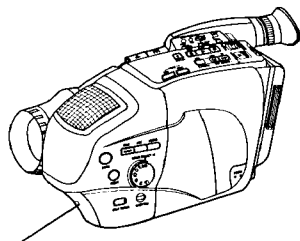
SCENE SELECT AE Dial

Mode	Indicator	Uses
Sports 	<i>AE</i> <i>SPORTS</i>	Use when playing back recording on a VCR featuring special effects, such as pause or slow-motion. Uses high shutter speeds to clearly capture fast-moving action with less blurring.
Portrait 	<i>AE</i> <i>PORTRAIT</i>	Use for portraits. Reduces depth-of-field so background becomes blurry while subject remains clearly focused.
Back-Light 	<i>B-LIT</i>	Use when the subject is in front of a window or with the sun to their back. Compensates for subjects appearing too dark because of backlighting.
Front-Light 	<i>F-LIT</i>	Use for weddings, stage plays, etc. Compensates for subjects that appear washed-out because of front spot lighting.
Twilight 	<i>TWILIGHT</i> 5700K	Use for recording in low-light situations such as sunrise or sunset or when shooting scenes including fireworks or neon signs. Focus is set to infinity, white balance is set to 5700K, and shutter speed is set to automatic. Each of these features also can be manually adjusted.
Monochrome 	<i>MONOTONE</i>	Use to give effect of old movies. Records in black-and-white with brown tones. Use with the 16x9 mode to create a movie effect.

White Balance

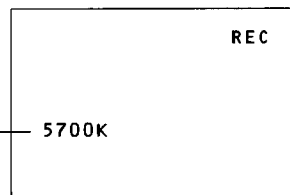
Making colors look natural is what white balance is all about. This is achieved by adjusting the way the camcorder “sees” and records the light source in the scene you wish to record.

Your camcorder is equipped with automatic white balance. However, under certain conditions, you may want to make manual adjustments.



MAN W/B (Manual White Balance) Button

White
Balance
Indicator








Display in Viewfinder

To Adjust White Balance

Find the situation that matches the lighting conditions under which you will be recording.

1. Repeatedly press the *MAN W/B* button to display the indicator for the situation you have selected.
2. To have the camcorder automatically control white balance, repeatedly press the *MAN W/B* button until no white balance indicator appears in the electronic viewfinder (or press the *AUTO* button).

Note: Connecting your camcorder to a TV monitor may be helpful when making white balance adjustments.

Indicator	Situation
6500K	Cloudy day—makes recorded pictures less bluish.
5700K	Sunny day—makes recorded pictures slightly less bluish.
4400K	Sunset—makes recorded pictures less bluish.
3100K	Halogen lamp—select when using a video light.
 —1	Under warm white fluorescent lights—regular type lighting in department stores, grocery stores, etc.
 —2	Under bulb-lamp-color fluorescent lights—high grade type lighting in electronics stores, etc.
 —3	Under cool white lighting fluorescent lights—regular lighting in offices, etc.
 —4	Under high grade fluorescent lights—high color temperature lighting—nearly day light.
 —5	Under highest-grade fluorescent lights—higher color temperature lighting—almost day light.
None	Automatic white balance.

Time Counter With Memory Stop

Time Counter

The time-counter display shows the actual time elapsed when recording a program or playing back a segment of a prerecorded tape.

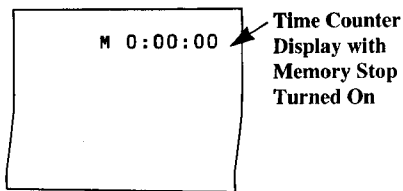
The time counter also helps you quickly locate the end of programs. Note the time counter reading when you finish

recording or playing back a tape. For example, you recorded for 10 minutes. Later, you want to locate the end of your recording—insert the tape, display the time counter, and fast forward the tape until the time counter reads “0:10:00”.

Memory-Stop Feature

The memory-stop feature helps you locate a certain point on the tape. This is useful if you want to review a section immediately after recording or return to the same place on the tape several times during playback. When memory stop is on, the tape will stop automatically during rewind or fast forward when the time counter reaches *M 0:00:00*.

1. Press the *C. MEMORY* button to turn the time counter's memory stop feature on or off. When memory stop is on, an *M* appears before the time counter in the viewfinder.



Time Counter Display with Memory Stop Turned On

Viewfinder Display

2. Locate the place on the tape you want to return to, and press the *C. RESET* button to set the time counter to *M 0:00:00*.

3. Continue to record or play the tape. When you want to return to the place you marked, press the thumb trigger to stop recording, or the *STOP* button to stop playing back the tape.
4. Place the *CAMERA/PLAY* switch in *PLAY*. Press and release the *REW* button. The tape will rewind to the time counter reading of *M 0:00:00*.

Notes: Whenever the time counter is displayed, you can reset it to *M 0:00:00* by pressing the *C. RESET* button.

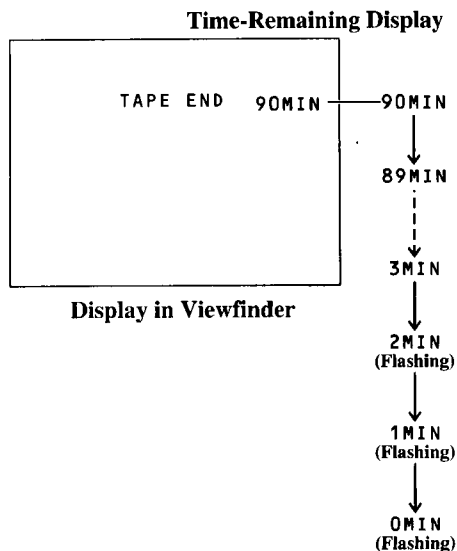
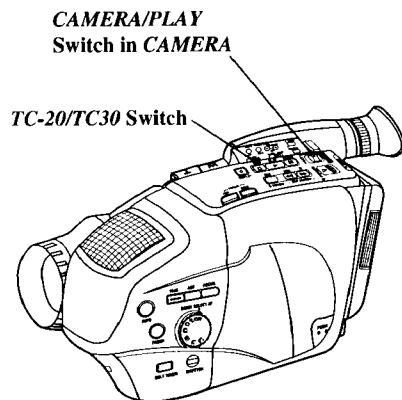
Whenever memory stop is on, the camcorder will stop rewinding or fast forwarding when the counter reaches *M 0:00:00*. To continue rewinding or fast forwarding, press the *REW* or *FF* button again.

The time counter does not operate during high-speed rewind or fast-forward operation.

The time counter's memory is automatically cancelled when the power supply is disconnected.

Tape Time-Remaining Display

The approximate time remaining on the tape in the camcorder is automatically displayed in the viewfinder. The *TC-20/TC-30* switch must be set to the correct position before the camcorder can correctly calculate time remaining.



Set the *TC-20/TC30* Switch

Before recording, set the *TC-20/TC-30* switch for the size of tape you are using.

- Select *TC-20* when using a tape with 20-minutes or less recording time when using SP recording speed.
- Select *TC-30* when using a tape with more than 20-minutes recording time using SP recording speed.

Note: The time-remaining display does not work for TC-40 tapes.

The time-remaining indicator will start flashing when the remaining tape time reaches two minutes.

TAPE END appears when the tape reaches its end during recording or when a cassette is loaded whose tape is already at its end.

Recording and Traveling Tips

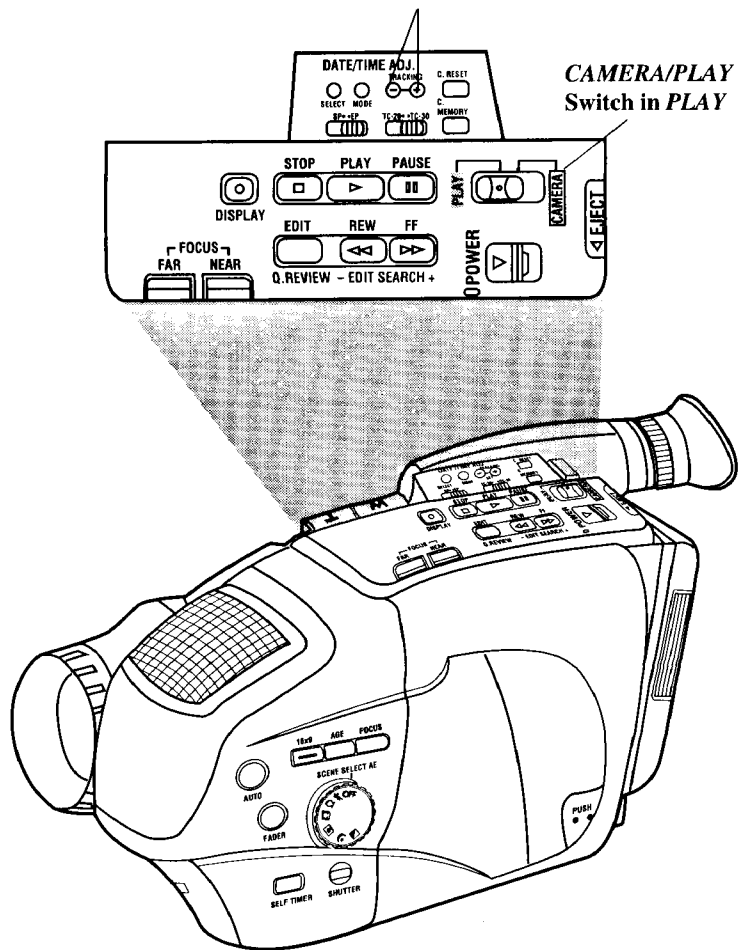
Traveling Tips

- Try to make sure indoor scenes are well-lit. This improves picture quality and color reproduction.
- Do not move the camcorder rapidly from side-to-side while recording. A steady, gradual “pan” avoids blurring and “jitter”.
- Use the viewfinder to make sure the camcorder is level while recording or your scenes will appear “tilted”.
- Do not bump or tap the camcorder’s microphone while recording because this sound will be recorded.
- Be aware of video and audio backgrounds. Background details barely noticed while you are taping may show up as visual “clutter” on your recording. Background noises (especially TV sets, radios, household appliances, traffic sounds, etc.) can detract from the sound you want to record.
- Avoid long “still” shots of landmarks and scenic attractions. Recordings are more interesting if they include people and details. “Local color” will give travel videos lasting appeal. Consider recording a familiar or landmark scene from an unfamiliar vantage point.
- Include close-up shots of individuals when taping family outings or group functions.
- Fading in and out of scenes will make your videos appear more professional.
- When recording fast-moving action in outdoor light that you plan to view in stop-action or slow motion on a 3-5 head VCR, try increasing the shutter speed.
- In case of fire or theft, make a video recording of your home and contents to store in a safe place.

Traveling Tips

- Write down your camcorder’s serial number and keep it separate from the camcorder when traveling. If your camcorder is lost or stolen, you will be able to identify it.
- Use extra care to avoid damage to your camcorder and accessories when operating them at a beach or pool. Spray, sand, and dust should be avoided. If your lens has been exposed to the elements, clean it only with proper lens cleaning supplies.
- Make sure you have any plug adapters that you may need before taking your camcorder to other countries. Consult your dealer for advice.
- Carry your camcorder in a carrying case when traveling. *See page 1* for a case designed especially for this camcorder. An ordinary suitcase or carry bag does not offer the protection your camcorder needs. Treat your camcorder as carry-on luggage to protect it from rough handling.

TRACKING – and + Buttons



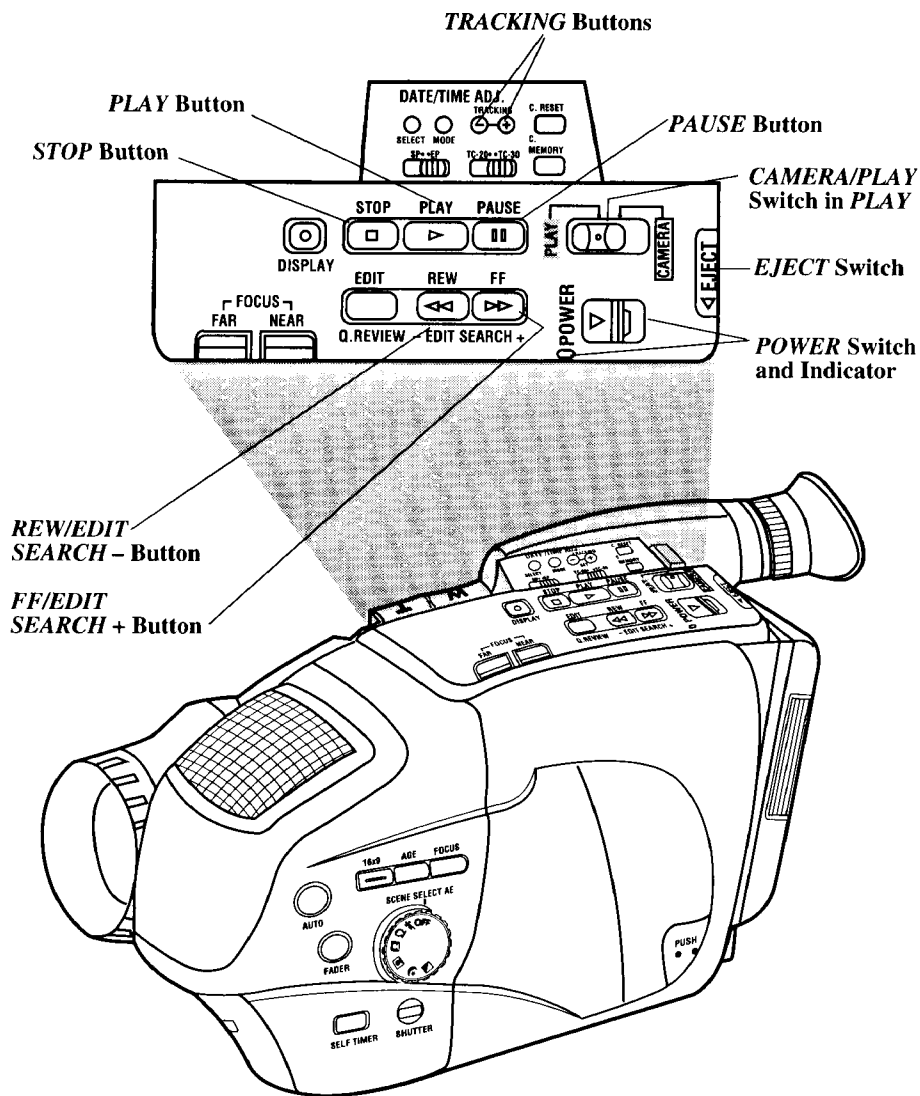
During playback, streaks may appear in the playback picture. Press either of the *TRACKING* buttons to move the streaks up or down and out of the picture.

- During stop-action playback, pressing one of the *TRACKING* buttons may reduce picture “jitter” (picture bouncing up and down). Some “jitter” is normal during stop-action viewing.

Simultaneously press both *TRACKING* buttons to return tracking to its preset center.

Note: The *TRACKING* buttons may have no effect on tapes recorded on other camcorders or VCR's.

Viewfinder Playback



(continued on next page)

Viewfinder Playback (continued)

Viewfinder playback is the simplest way to watch tapes using the camcorder. This method is generally used only to review scenes immediately after recording because the display is in black and white.

To play back a tape through the viewfinder

1. Place the *CAMERA/PLAY* switch in *PLAY*.
2. Slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.
3. Slide the *EJECT* switch and insert the cassette you want to play back. Close the cassette compartment.
4. Press the *PLAY* button to begin playback.
 - During playback, press and release the *FF/EDIT SEARCH +* or *REW/EDIT SEARCH -* button if you want to search the tape visually in forward or reverse. Press the *PLAY* button to return to normal playback.
 - For brief searching, press and hold the *FF/EDIT SEARCH +* or *REW/EDIT SEARCH -* button for more than two seconds. Release the button to return to normal playback.
 - During playback, press the *PAUSE* button to “stop the action” and view

one frame of the tape. Press the *PLAY* button to return to normal playback.

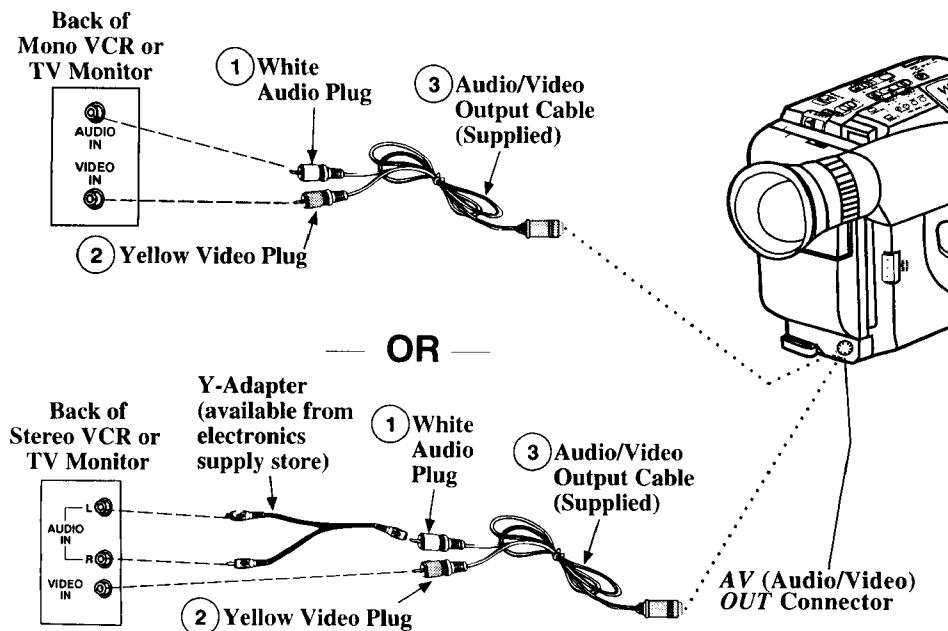
Caution: Pause is designed for momentary interruptions and should not be used for an extended period of time. If the camcorder remains in the pause mode for more than five minutes, it will automatically enter the stop mode and then turn off to prevent excessive tape wear.

5. Press the *STOP* button when you are finished.

Note: If there are streaks in the playback picture, press either *TRACKING* button to move the streaks up or down and out of the picture. Simultaneously press both *TRACKING* buttons to return tracking to its preset center.

Playback on TV (or VCR) with Input Jacks

To connect your camcorder to a TV monitor (or VCR) with *AUDIO/VIDEO IN* jacks, you will need the audio/video output cable that came packed with your camcorder. If your TV is already connected to a VCR, you can attach the camcorder to the VCR and watch what the camcorder is recording or playing on the TV.



Installation

- 1 Attach the audio/video output cable's white plug to the *AUDIO IN* jack on the TV (or VCR).
Note: If your TV (or VCR) has stereo *AUDIO IN* jacks, attach the white audio plug to the one labeled *MONO*. If one is not labeled *MONO*, you may need a Y-adapter to hear both channels.
- 2 Attach the audio/video output cable's yellow plug to the *VIDEO IN* jack on the TV (or VCR).
- 3 Attach the plug on the other end of the audio/video output cable to the *AV OUT* connector of the camcorder.

Caution: The unauthorized recording of copyrighted material may infringe the rights of others.

Playback Operation and How to Copy Tapes on the VCR

1. A. Camcorder connected directly to TV: Turn on the TV and tune it to the video input channel.
B. Camcorder connected to VCR that is already connected to TV: Turn on VCR and place it in the "line" or "camera mode". (If your VCR does not have a "line" or "camera

Playback (continued)

mode”, consult the VCR owner’s manual.) Operate the TV as you normally do to see the signal coming from the VCR.

2. Place the *CAMERA/PLAY* switch in *PLAY*, and slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.

3. Press the *PLAY* button.

- During playback, press and release the *FF/EDIT SEARCH* + or *REW/EDIT SEARCH* – button if you want to search the tape visually in forward or reverse. Press the *PLAY* button to return to normal playback.
- For brief searching, press and hold the *FF/EDIT SEARCH* + or *REW/EDIT SEARCH* – button for more than two seconds. Release the button to return to normal playback.
- If noise bars appear on the screen, press the *TRACKING* – or + button.
- During playback, press the *PAUSE* button to “stop the action” and view one frame of the tape. Press *PLAY* to return to normal playback.

Caution: Pause is designed for momentary interruptions and should not be used for an extended period of time. If the camcorder remains in the pause mode for more than five minutes, it will automatically enter the stop mode and then turn off to prevent excessive tape wear.

4. To copy what the camcorder is playing, place a blank cassette in the VCR, and press the VCR’s *RECORD* button.

Note: Press the *EDIT* button to start camcorder playback when copying tapes to improve picture reproduction. Make sure the memory-stop feature is turned off (press *C. MEMORY* button) or the camcorder will enter the play-pause mode when the counter reaches *M 0:00:00*.

5. Press the *STOP* button when you are finished.

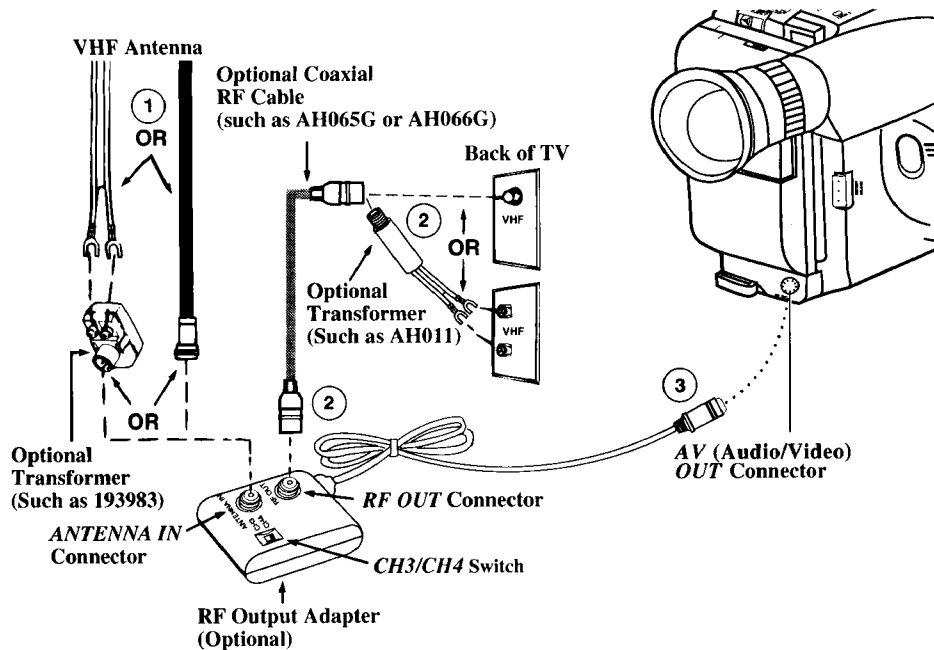
Viewing What the Camcorder is Seeing (or Recording)

1. A. Camcorder connected directly to TV: Turn on the TV, and tune it to the video input channel.
B. Camcorder connected to VCR that is already connected to TV: Turn on VCR and place it in the “line” or “camera mode”. (If your VCR does not have a “line” or “camera mode”, consult the VCR owner’s manual.) Operate the TV as you normally do to see the signal coming from the VCR.
2. Place the *CAMERA/PLAY* switch in *CAMERA*.
Note: When the camcorder is used as a camera, turn the TV’s volume down to prevent a high-pitched squeal caused by feedback.
3. Press the thumb trigger to begin recording. You can watch what the camcorder is seeing (or recording) on the TV screen.

Note: During the record-pause mode, you can see the camcorder’s displays on the TV screen. Repeatedly press the *DATE/TIME ADJ. MODE* button. *Details are on page 32.*

Playback on a TV without Audio/Video Input Jacks

To connect your camcorder to a TV without audio/video inputs, you will need an optional CRF92 RF output adapter and an optional coaxial RF cable, such as AH065G or AH066G shown on page 3. If your TV has *AUDIO* and *VIDEO IN* jacks (or is connected to a VCR), refer to pages 50-51.



Installation

- ① Disconnect the VHF antenna from your TV. Connect the antenna to the **ANTENNA IN** connector on the RF output adapter if you are going to leave the adapter connected to the TV.
- ③ Attach the RF output adapter's plug to the **AV (audio/video) OUT** connector on the camcorder.

Note: If your VHF antenna is the flat twin-lead type attached by two screws, you will also need an optional 300/75 ohm transformer, such as 193983 shown on page 3.

- ② Attach one end of the optional coaxial RF cable to the **RF OUT** connector on the adapter, and attach the other end to the **VHF** input on your TV as shown.

Note: If your TV has 300 ohm screw terminals, you will need a 75/300 ohm transformer, such as AH011, shown on page 3.

Note to Cable TV Installer

This reminder is provided to call your attention to Article 820-40 of the National Electrical Code (Section 54 of Canadian Electrical Code, Part I), 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.

Playback (continued)

Playback Operation

1. Set the *CH3/CH4* switch on the RF output adapter to channel 3 or 4.
2. Turn on the TV, and tune it to the same channel you selected with the RF output adapter's *CH3/CH4* switch.
3. Place the *CAMERA/PLAY* switch in *CAMERA*. Slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.
4. Press the *PLAY* button on the camcorder.
 - During playback, press and release the *FF/EDIT SEARCH +* or *REW/EDIT SEARCH -* button if you want to search the tape visually in forward or reverse. Press the *PLAY* button to return to normal playback.
 - For brief searching, press and hold the *FF/EDIT SEARCH +* or *REW/EDIT SEARCH -* button for more than two seconds. Release the button to return to normal playback.
 - During playback, press the *PAUSE* button to "stop the action" and view one frame of the tape. Press the *PLAY* button to return to normal playback.

Caution: Pause is designed for momentary interruptions and should not be used for an extended period of time. If the camcorder remains in the pause mode for more than five minutes, it will automatically enter the stop mode and then turn off to prevent excessive tape wear.

- If noise bars appear on the screen, adjust tracking *as described on page 47*.
5. Press the *STOP* button on the camcorder when you are finished.

Viewing What the Camcorder Is Recording

1. Turn on the TV and tune it to channel 3 or 4. When the camcorder is used as a camera, turn the TV's volume down to prevent a high-pitched squeal caused by feedback.
2. Set the *CH3/CH4* switch on the RF output adapter to the same channel you selected on the TV.
3. Place the *CAMERA/PLAY* switch in *CAMERA*. Slide the *POWER* switch to turn on the camcorder. The *POWER* indicator will light.
4. Press the thumb trigger to begin recording. You can watch what the camcorder is seeing (or recording) on the TV screen.

Note: During the record-pause mode, you can see the camcorder's displays on the TV screen. Repeatedly press the *DATE/TIME ADJ. MODE* button. *Details are on page 32.*

Normal TV Viewing

For normal TV viewing, you may leave the RF output adapter hooked up to the TV.

Trouble Checks

Troubles sometimes are caused by simple "faults" that you can easily correct without the help of a service technician by first checking a few basic remedies.

Before you call or take your camcorder to an Authorized RCA Compact Camcorder Servicer, look below for the type of trouble you are experiencing. Then perform the simple checks and adjustments listed for that trouble.

If service should be necessary, the warranty information lists what your warranty covers and explains how to get service.

Trouble	Checks and Adjustments
No power	<ul style="list-style-type: none">• Slide the <i>POWER</i> switch to turn on the camcorder. The <i>POWER</i> indicator will light.• If using battery, it may need to be recharged.• If using AC adapter/charger, make sure it is plugged into a working outlet.
Won't record or playback	<ul style="list-style-type: none">• If using AC adapter/charger, make sure it is plugged into a working outlet.• If dew indicator flashes in the viewfinder, there is moisture in the camcorder. Leave power on, and wait until the dew indicator no longer appears.• Make sure <i>CAMERA/PLAY</i> switch is in correct position for desired operation.• There may not be a cassette in the camcorder.• Try ejecting and reinserting the cassette.• The cassette tape may be broken, try another cassette.• You may have reached the end of the cassette, try rewinding it.
Won't playback	<ul style="list-style-type: none">• <i>CAMERA/PLAY</i> switch must be in <i>PLAY</i> position.
Won't record	<ul style="list-style-type: none">• Safety tab has been removed. (See page 24.)• <i>CAMERA/PLAY</i> switch must be in <i>CAMERA</i>.
No picture in viewfinder	<ul style="list-style-type: none">• Remove lens cap.
Camcorder turns itself off	<ul style="list-style-type: none">• Slide <i>POWER</i> switch to turn camcorder back on. If the camcorder is left in the record-pause or play-pause mode for several minutes, it will turn itself off to prevent tape wear.

Trouble Checks (continued)

Trouble	Checks and Adjustments
Tape stops during rewind or fast forward	<ul style="list-style-type: none"> • Time-counter memory may be on. Whenever an “M” appears with the time-counter display, the camcorder will stop rewinding (or fast forwarding) when counter reads <i>M 0:00:00</i>. Press <i>REW/EDIT SEARCH</i> – or <i>FF/EDIT SEARCH</i> + button again to continue rewinding or fast forwarding, or press the <i>C. MEMORY</i> button to turn off the memory-stop feature.
Camcorder remains in pause mode	<ul style="list-style-type: none"> • Press <i>PLAY</i> button to return to normal playback.
Sound is too low or distorted	<ul style="list-style-type: none"> • Subject was too far from camcorder.
Dew Indicator flashing in viewfinder	<ul style="list-style-type: none"> • If dew indicator flashes in the viewfinder, there is moisture in the camcorder. Leave power on, and wait until the dew indicator no longer appears.
Poor auto-focus operation	<ul style="list-style-type: none"> • Subject is dark or behind glass. Auto-focus may not work under these conditions. Press the <i>FOCUS</i> button, and focus manually. <i>See pages 36-37.</i> • Subject is not in center of viewfinder or two subjects are at different distances. Press the <i>FOCUS</i> button, and focus manually. <i>See pages 36-37.</i> • Auto focus is automatically turned off when some effects are selected with the <i>SCENE SELECT AE</i> dial. Press the <i>FOCUS</i> button to turn on auto focus. <i>See page 42.</i>
Viewfinder displays are out of focus	<ul style="list-style-type: none"> • Lens is smudged, and image appears unfocused. • Eyepiece focus control is misadjusted. • The small <i>BRIGHT</i> and <i>CONTRAST</i> controls on the bottom of the viewfinder control the brightness and contrast of the viewfinder. These controls have been set at the factory and should require no adjustment. If the brightness or contrast of the viewfinder ever does require adjustment, carefully remove the small plastic cover and use a plastic screwdriver. Make the adjustments with caution to prevent damaging the miniature controls. Replace the plastic cover.

(continued on next page)

Trouble Checks (continued)

Trouble	Checks and Adjustments
Picture is too dark or subject too dark	<ul style="list-style-type: none"> • For best results, only use higher shutter speeds outdoors. Rotate <i>SCENE SELECT AE</i> dial to <i>SPORTS</i>. See page 42. • Subject in front of a strong backlight. Rotate <i>SCENE SELECT AE</i> dial to select <i>B-LIT</i>. See page 42. • Strong front spotlight on subject. Rotate <i>SCENE SELECT AE</i> dial to select <i>F-LIT</i>. See page 42. • If at dusk or twilight, rotate <i>SCENE SELECT AE</i> dial to select <i>TWILIGHT</i>. See page 42.
Picture recorded with special effect	<ul style="list-style-type: none"> • <i>SCENE SELECT AE</i> dial may be turned to special effect mode. Turn the <i>SCENE SELECT AE</i> dial to <i>OFF</i>. See page 42.
Picture recorded in brown tones	<ul style="list-style-type: none"> • <i>MONOCHROME</i> selected with <i>SCENE SELECT AE</i> dial. Turn the <i>SCENE SELECT AE</i> dial to <i>OFF</i>. See page 42.
Picture recorded with black bars at top and bottom	<ul style="list-style-type: none"> • Camcorder is set to the <i>16x9</i> mode. Press the <i>16x9</i> button. See page 41.
Colors do not look natural on recording	<ul style="list-style-type: none"> • Try adjusting white balance. See page 43.
Picture blurred during review or camera edit	<ul style="list-style-type: none"> • Make sure tape speed <i>SP/EP</i> switch is set to the same speed that the tape was recorded at.
Date, time, and/or age were recorded on tape	<ul style="list-style-type: none"> • Displays will be recorded on tape whenever they appear in the viewfinder. Press <i>DISPLAY</i> or <i>AGE</i> button to remove them from viewfinder when recording. See pages 32-33. • When <i>AUTO DATE</i> or auto date titler mode is selected, display will automatically be recorded when you begin recording or change the cassette. See pages 32-33.
Date, time, and/or age are incorrect	<ul style="list-style-type: none"> • Clock lithium cell battery may need replacing. See page 30. • Date, time, or age may need to be set. See pages 30-31.
Vertical white lines appear when shooting bright object	<ul style="list-style-type: none"> • This may occur when background extremely contrasts with the subject.
Error number (<i>E01</i> , <i>E02</i> , etc.) appears in viewfinder	<ul style="list-style-type: none"> • Try disconnecting power source. Wait ten seconds and then connect power source again. If error number does not disappear from viewfinder, consult your Authorized RCA Compact Camcorder Servicenter.

Design Specifications

General

Power requirement: 6VDC
Power consumption: 6 watts (normal)
Weight: 1.6 lbs. (690g)
Dimensions: 184 x 120 x 111mm

Video Recorder Section

Format: VHS-C
Record/Playback System:
Two video record/playback heads
One flying erase head
Video Signal: EIA Standard NTSC color

Camera Section

Image Sensor: 1/3" CCD Imager
Tripod Mount: One 1/4" x 20 threaded hole
Lens: f1/1.8
10:1 (6-60mm)
Diameter: 43 mm

All features and specifications are subject to change without notice.

Information to User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Alterations or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

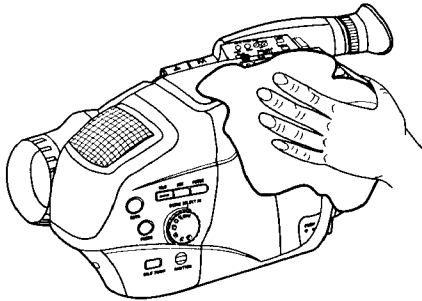
This digital apparatus does not exceed the class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

L'interférence radioélectrique générée par cet appareil digital ne dépasse pas les limites de la classe B édictées par le Règlement sur les perturbations radioélectriques du Ministère Canadien des Communications.

Care and Maintenance

Cleaning the Camcorder

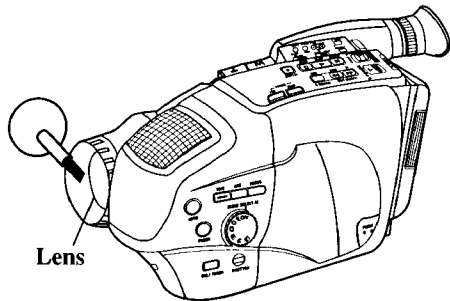
To clean the camcorder's exterior, remove any power source connected to the camcorder and gently wipe it with a clean soft cloth.



Caution: Use of strong cleaning products, such as those containing alcohol or benzine, may damage the camcorder.

Cleaning the Camcorder's Lens

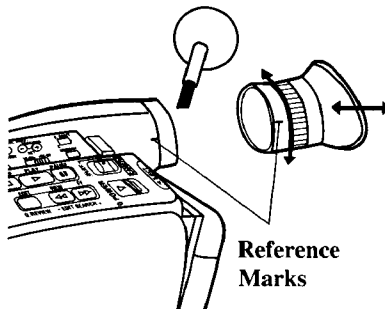
To clean the camcorder's lens, blow it with a blower brush, and then gently wipe the lens with cleaning tissue and commercially prepared cleaning solution designed for use on camera lens. Improper cleaning may scratch the lens.



Caution: Do not touch the lens with your fingers. The oil from your skin may damage the lens.

Cleaning the Camcorder's Viewfinder

The viewfinder eyepiece can be removed for cleaning.



1. Turn the eyepiece counterclockwise and pull it out.
2. Remove dust using a blower brush.
3. Reattach the eyepiece by aligning the reference marks, and then turn the eyepiece clockwise.

Care and Maintenance (continued)

Proper Care and Storage

- Keep dust and grit from entering the camcorder's cassette door. Dust and grit are abrasive and will cause excessive wear to both the camcorder's recording/playback heads and cassettes.
- We recommend RCA video cassettes be used with this camcorder. These cassettes have been manufactured to our critical specifications. Use of cassettes not meeting these specifications may reduce the camcorder's performance or contaminate the heads resulting in a snowy picture or no picture during playback.
- Always replace the lens cap on the lens when the camcorder is not in use.
- Before handling your camcorder, make sure your hands and face are free from any chemical products such as suntan lotion, as it may damage the finish.
- The camcorder can be damaged by improper storage or handling. Do not subject the camcorder to swinging, shaking, or dropping.
- Do not store the camcorder in temperatures below -22°F (-30C) or above 149°F (65C).
- When the camcorder is not in use, always remove the cassette and AC adapter/charger or battery.
- Retain the original carton for future storage or shipping purposes.

Things to Avoid

- Do not attempt to disassemble your camcorder. There are no user-serviceable parts inside.
- Avoid operating your camcorder immediately after moving it from a cold location to a warm location. Give the camcorder 1-1/2 to 2 hours to reach a stable temperature before inserting a cassette. When the camcorder is moved from cold to warm, condensation may cause the tape to stick to the headwheel and damage the headwheel or tape.
- Do not aim your camcorder at the sun or other bright objects.
- Do not leave your camcorder in direct sunlight for extended periods of time. The resulting heat buildup could permanently damage the camcorder's internal parts.
- Do not operate the camcorder in extremely humid environments.
- Do not operate the camcorder near the ocean as salt water or salt water spray may damage the internal parts of the camcorder.
- Do not operate the camcorder for extended periods in temperatures below 40°F (4C) or above 95°F (35C).
- Do not expose the camcorder or adapter/charger to rain or moisture. If either component becomes wet, turn off the power and take the unit to an Authorized RCA Compact Camcorder Servicenter.
- Do not use an adapter/charger or batteries other than the ones specified for the camcorder. Use of the wrong accessories may cause damage to the camcorder.

Compact Camcorder Limited Warranty

What your warranty covers:

- Any defect in material or workmanship.
- 90 days for labor charges.
- One year for parts.

The warranty period for rental units begins with the first rental.

What we will do:

- Pay any Authorized RCA Compact Camcorder Servicenter the labor charges to repair your camcorder.
- Pay any Authorized RCA Compact Camcorder Servicenter for the new or, at our option, rebuilt replacement parts required to repair your camcorder.

How you get service:

- Check with your RCA Dealer or call 1-800-336-1900 for the Authorized RCA Compact Camcorder Servicenter nearest you. State that you have an RCA VHS-C camcorder.

If an Authorized RCA Compact Camcorder Servicenter is conveniently near you:

- Take your camcorder to the Authorized RCA Compact Camcorder Servicenter of your choice.
- Show the Servicenter Representative your sales receipt or other evidence of purchase date.
- Pick up your camcorder when repairs are completed.

If an Authorized RCA Compact Camcorder Servicenter is not located conveniently near you:

- Pack the camcorder so that it will not be damaged during shipping. (We recommend using the original carton and packing materials.) Include any cables and other accessories originally furnished with the camcorder.

- Include in the camcorder carton (1) a copy of your sales receipt or other evidence of purchase date, (2) your name and address, and (3) a brief description of the problem.
- Ship the camcorder to an Authorized RCA Compact Camcorder Servicenter.
- Pay any charges billed to you by the Servicenter for service not covered by the warranty.

What your warranty *does not* cover:

- Customer instruction. (Your owner's manual clearly describes how to install, adjust, and operate your camcorder. Any additional information should be obtained from your Dealer.)
- Installation and related adjustments.
- Cleaning of video/audio heads.
- Damage from misuse or neglect.
- Batteries for clock or other features.
- A camcorder that has been modified or incorporated into other products or is used for institutional or other commercial purposes.
- A camcorder purchased or serviced outside the USA.

How state law relates to this warranty:

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

Product registration:

- Please complete and mail the *product registration card* packed with your camcorder. It will make it easier to contact you should it ever be necessary. The return of the card is not required for warranty coverage.

If you purchased your camcorder in Canada:

- The Canadian warranty applies in place of this warranty.

Index

16x9 Button.....41
16x9 Mode.....41

-A-

Accessories, Included.....8
Accessories, Optional.....1-7
Accessory Order Form.....5-7
Adapter, Cassette.....22-23
Adapter/Charger, Attaching.....9,16
Adapter/Charger, Safety Instructions.....iii
Adapter/Charger, Using.....9,16
Adjustments and Checks.....54-56
AGE Button.....30-33
Age, Date, and Time Correcting.....30-31
Age, Date, and Time Recording.....32-33
Age, Date, and Time Setting.....30-31
Age, Time, and Date
Indicators.....28-29,30-33
Attaching a Power Supply.....9,16-17
Attaching the Battery.....9,17
Attaching the Shoulder Strap.....21
AUTO Button.....12,36-37
AUTO DATE Display.....28-29,32-33
Auto Date Titler Display.....28-29,32-33
Auto Focus.....36
Auto Focus Detection Frame.....36-37
Auto Head Cleaner.....35
AV (Audio/Video) OUT
Connector.....50,52

-B-

B-LIT Indicator.....42
Back-Light Mode.....42
Battery Care and Storage.....19
Battery Charging.....18
Battery Level Indicator.....19
Battery, Attaching.....9,17
Battery, Installing,
Cassette Adapter.....22
Battery, Rechargeable.....9,17-19
Battery, Refreshing.....18

-C-

C. MEMORY Button.....44
C. RESET Button.....44
Camcorder Operating Controls.....14-15
Camcorder Recording Tips.....46
Camcorder, Cleaning.....58
Camcorder, Powering.....16-20
Camcorder, Unpacking.....8

Camera Edit.....34
CAMERA/PLAY Switch.....
.....12,27-35,39,41,45,47,49,51,53
Car Cord, Optional.....20
Card, Registration.....i
Care and Maintenance.....58-59
Care and Storage, Battery.....19
Care and Storage, Cassette.....25
Cassette Adapter, Using.....22-23
Cassette Care and Storage.....25
Cassette Door.....10,25
Cassette Warning Indicator.....28-29
Cassette, Inserting.....25
Cassette, Removing.....25
Cassettes, RCA Video.....24-25
Charging the Battery.....18
Checks and Adjustments.....54-56
Cleaning the Camcorder.....58
Cleaning the Lens.....58
Cleaning the Viewfinder.....58
Clock Lithium Cell Indicator.....27
Clock Lithium Cell, Installing.....30
Coaxial RF Cable.....52
Compact Camcorder Limited
Warranty.....60
Contents.....Front Cover
Copying Tapes.....50-51
Correcting the Date, Time, and
Age.....30-31

-D-

Date, Time and Age
Indicators.....28-29,30-33
Date, Time, and Age, Correcting.....30-31
Date, Time, and Age, Recording.....32-33
Date, Time, and Age, Setting.....30-31
DATE/TIME ADJ. MODE
Button.....32-33,51,53
DATE/TIME ADJ. SELECT
Button.....30-33
DATE/TIME ADJ. SET + and -
Buttons.....30-33
Design Specifications.....57
Dew Warning.....27
DISPLAY Button.....30-33
Displays in Viewfinder.....27-29

Index (continued)

-E-

EDIT Button.....	51,53
EDIT SEARCH Buttons	34
EJECT Switch.....	10,25,49
Elapsed-Time Counter.....	28-29,44
Electronic Viewfinder.....	26
EP (Extended Play) Speed.....	24
EP Indicator.....	24,28-29
EP/SP Switch.....	10,24
Erase Protection	24
Eyepiece Focus Control	12,26

-F-

F-LIT Indicator	42
FADER Button.....	39
FADER Indicator	28,39
Fading In and Out	39
FAR and NEAR Buttons	36-37
FF/EDIT SEARCH + Button.....	34,44,49,51,53
First-Time Operation	8-15
Flying Erase Head.....	35
FOCUS Button	36-37
FOCUS FAR and NEAR Buttons.....	36-37
Focus Indicators	27,36-37
Focusing	36-37
Front-Light Mode	42

-H-

Handstrap, Adjusting	11
Head Cleaning, Auto	35

-I-

Important Safeguards	iv-vii
Inserting Lithium Cell for Clock	30
Introduction	i

-L-

Lens Cap	11
Lens, Cleaning	58
Letterbox Recording	41
Limited Warranty.....	60
Lithium Cell, Clock	30
Low Battery Indicator.....	19,27
Low-Contrast Indicator	36-37

-M-

M (Memory-Stop) Indicator	44
Macro Focus	36
Maintenance and Care	58-59

MAN W/B Button	43
Manual Focus Indicators.....	37
Memory-Stop Feature.....	44
Microphone	34-35
MONOCHROME Indicator	42
Monochrome Mode	42

-N-

NEAR and FAR Buttons	36-37
----------------------------	-------

-O-

On-Screen Displays	32-33,51,53
Operating Controls, Camcorder	14-15
Operation, First-Time.....	8-15
Optional Accessories	1-7
Optional RCA DC Car Cord.....	20
Order Form, Accessories	5-7

-P-

PAUSE Button	49,51,53
PLAY Button	13,49,51,53
Playback, First	13
Playback on a TV With AUDIO/VIDEO IN Jacks	50-51
Playback on a TV Without Audio/Video Inputs	52-53
Playback, Viewfinder	48-49
Plug Adapter, Optional	16
PORTRAIT Indicator	42
Portrait Mode	42
POWER Indicator	12
POWER Switch.....	12
Power Supplies, Attaching	9,16-17,20
Power Zoom Buttons	38
Powering Your Camcorder.....	16-20
Problem Solving	54-56
Product Registration	i

-Q-

Q. (Quick) REVIEW Button	34-35
Quick Review	35

-R-

Rechargeable Battery	9,17-19
Recording Speeds	10,24
Recording the Date, Time, and Age.....	32-33
Recording Tips, Camcorder.....	46
Recording, 16x9.....	41
Recording, Start and Stop.....	13

Index (continued)

- Refreshing the Battery18
Registration Cardi
Removing the Battery
 from the Camcorder17
REWEDIT SEARCH -
 Button13,34,44,49,51,53
RF Output Adapter3,52-53
- S-**
- Safeguards, Importantiv-vii
Safety Instructions for AC
 Adapter/Chargeriii
Safety Precautionsii
Safety Tab24
SCENE SELECT AE Dial42
SCENE SELECT AE Mode42
SCENE SELECT AE Mode
 Indicators28,42
SELF TIMER Button34-35
Self-Timer Feature35
Self-Timer Indicator28-29,35
Setting the Date, Time, and Age30-31
Shoulder Strap, Attaching21
SHUTTER Button40
Shutter Speed Indicator27,40
Shutter Speeds, Variable40
Solving Problems54-56
SP (Standard Play) Speed24
SP Indicator24,28-29
SP/EP Switch10,24
Special Features34-35
Specifications57
SPORTS Indicator42
Sports Mode42
Status Indicators28-29
STOP Button
 13,34,44,49,51,53
- T-**
- Tab, Safety24
Table of ContentsFront Cover
Tally Light34-35
TAPE END Indicator28-29,45
Tape Copying50-51
Tape Length *TC-20/30* Switch10,45
Tape Positioning34
Tape Speed Indicator24,28-29
Tape Time-Remaining
 Display28-29,45
Tape Wheel on Cassette10,25
TC-20/TC-30 (Tape Length)
 Switch10,24,45
Telephoto Zoom Button38
Things to Avoid59
Thumb Trigger13
Tilt Adjustment, Viewfinder26
Time Counter44
Time, Date, and Age
 Correcting30-31
Time, Date, and Age
 Indicators28-29,30-33
Time, Date, and Age
 Recording32-33
Time, Date, and Age Setting30-31
Time-Remaining Display28-29,45
Titler (Auto Date) Display28-29,32-33
TRACKING + and -
 Buttons47,49,51,53
Tracking47
Traveling Tips46
Tripod, Using4
Trouble Checks54-56
TV On-Screen Displays51,53
TWILIGHT Indicator42
Twilight Mode42
- U-**
- Unpacking the Camcorder8
Using a Tripod4
Using Adapter/Charger9,16
Using the Rechargeable
 Battery9,17-19
- V-**
- Variable Shutter Speeds40
Video Cassettes24-25
Viewfinder12,26
Viewfinder Displays27-29
Viewfinder Playback48-49
Viewfinder, Cleaning58
- W-**
- Warranty, Limited60
White Balance43
White Balance Indicators28,43
Wide Angle Zoom Button36,38
- Z-**
- Zooming, Power38



For your nearest Authorized Servicenter
call toll-free in the U.S.A.

1-800-336-1900

Canadian Consumers –
Your toll free numbers are:

English: 1-800-522-0338
French: 1-800-522-0445

If you would like a copy of this manual in French, please follow the
instructions below:

Si un livret d'instructions en français n'est pas inclus avec votre appareil, vous
pouvez en obtenir un (indiquer le numéro de modèle, votre nom, et votre
adresse) en vous adressant à:

Thomson Consumer Electronics
Attention: Canadian Operations
P. O. Box 0944
Indianapolis, IN 46206-0944

If your camcorder needs service, please contact
your dealer or the nearest servicenter from the
yellow pages. Please do not send any products to
the Indianapolis address listed in this manual or
on the carton. This will only add delays in
service for your product.

Thomson Consumer Electronics
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