Digital Video Camcorder

Mini **DV** Digital Video Cassette **SCD530/D590 SCD530T/D590T**
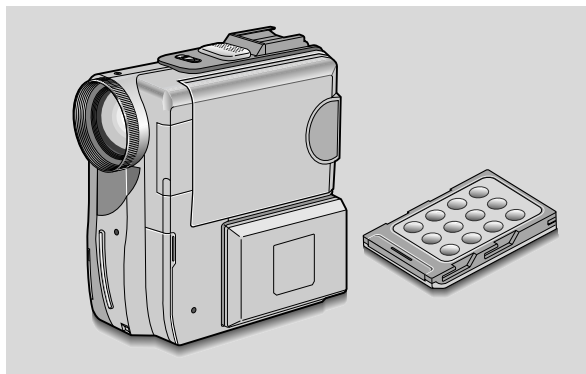
AF Auto Focus
CCD Charge Coupled Device
LCD Liquid Crystal Display

Owner's Instruction Book

Before operating the unit, please read this instruction book thoroughly, and retain it for future reference.

US PATENT 4415844

SAMSUNG ELECTRONICS

Notices and Safety Instructions

Safety Instructions

⚡	**CAUTION** RISK OF ELECTRIC SHOCK DO NOT OPEN	⚠

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

To prevent electric shock, match wide blade of plug
to wide slot and fully insert.

⚡ This symbol is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of fire or electric shock.

⚠ This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying this product.

1. READ INSTRUCTIONS:
All the safety and operating instructions should be read
before the CAMCORDER is operated.

2. RETAIN INSTRUCTIONS:
The safety and operating instructions should be retained for
future reference.

3. HEED WARNINGS:
All warnings on the CAMCORDER and in the operatinginstructions
should be adhered to.

4. FOLLOW INSTRUCTIONS:
All operating and maintenance instructions should be followed.

5. CLEANING:
Unplug this CAMCORDER from the wall outlet before cleaning.
Do not use liquid or aerosol cleaners.
Use a dry cloth used for dusting cabinets.

6. ATTACHMENTS:
Do not use attachments not recommended by the CAMCORDER
product manufacturer as they may be hazardous.

7. WATER AND MOISTURE:
Do not use this CAMCORDER near water;
for example, near a bathtub, wash bowl, kitchen sink, laundry
tub, in a wet basement, near a swimming pool or lake.

8. ACCESSORIES:
Do not place this CAMCORDER on an unstable cart, stand, tripod,
bracket or table. The CAMCORDER may fall, causing serious injury
to a child or adult, and serious damage to the unit.
Use only with a cart, stand, tripod, bracket, or table recommended
by the manufacturer or sold with the CAMCORDER. Any mounting
of the unit should follow the manufacturer's instructions and should
use a mounting accessory recommended by the manufacturer.

A. An appliance and cart combination should be moved with care.
Quick stops, excessive force and uneven surfaces may cause
the appliance and cart combination to overturn.
PORTABLE CART WARNING
(Symbol provided by RETAC)

Notices and Safety Instructions

9. VENTILATION:

Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the CAMCORDER and to protect it from overheating. These openings must not be blocked or covered. Never place your CAMCORDER on a bed, sofa, rug, or other similar surface: on or near a radiator or heat register. This CAMCORDER should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. POWER SOURCES:

The CAMCORDER should be operated only from the type of power source indicated on the label.
If you are not sure of the type of power supply at your home, consult your appliance dealer or local power company.
A CAMCORDER is intended to be operated from battery power, or other sources, refer to the operating instructions.

11. GROUNDING OR POLARIZATION:

This CAMCORDER may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug, a plug having a third (grounding) pin.
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 outlet. Do not defeat the safety purpose of the polarized plug.

12. 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 or plugs, convenient receptacles, and the point where they exit from the unit.

13. OUTDOOR ANTENNA GROUNDING:

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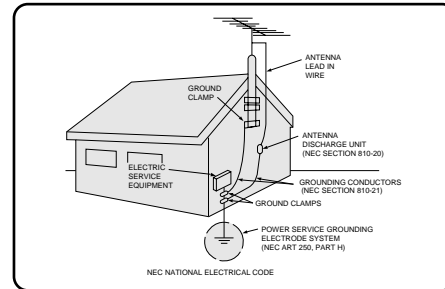
Notices and Safety Instructions

14. LIGHTNING:
For added protection of this CAMCORDER during a lightning storm o 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 CAMCORDER due to lightning and power-line surges.

15. POWER LINES:
An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

16. OVERLOADING:
Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

17. OBJECTS AND LIQUIDS:
Never push objects of any kind into this CAMCORDER through openings as they may touch dangerous voltage points or short out a part that could result in a fire or electric shock.
Never spill liquids of any kind onto the CAMCORDER. Should spillage occur, unplug unit and have it checked by a technician before use.

18. SERVICING:
Do not attempt to service this CAMCORDER yourself. Opening or removing covers may expose you to dangerous voltage or other hazards.
Refer all servicing to qualified service personnel.

19. DAMAGE REQUIRING SERVICE:
Unplug this CAMCORDER 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 any liquid has been spilled onto, or objects have fallen into the CAMCORDER.
c. If the CAMCORDER has been exposed to rain or water.
d. If the CAMCORDER 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 CAMCORDER to its normal operation.
e. If the CAMCORDER has been dropped or the cabinet has been damaged.
f. When the CAMCORDER exhibits a distinct change in performance, this indicates a need for service.

20. REPLACEMENT PARTS:
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer and having the same characteristics as the original part.
Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK:
Upon completion of any service or repairs to this CAMCORDER, ask the service technician to perform safety checks to determine that the CAMCORDER is in safe operating order.

Notices and Safety Instructions

NOTE TO CATV SYSTEM INSTALLER:
This reminder is provided to call the CATV system installer's attention
to Article 820-40 of the NEC 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.

USER INSTALLER CAUTION:
Your authority to operate this FCC certified equipment could be voided
if you make changes or modifications not expressly approved by this
party responsible for compliance to part 15 FCC rules.

NOTE: 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.

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Notes and Safety Instructions

Notes regarding the rotation of the LCD screen

Please rotate the LCD screen carefully as illustrated.
Over rotation may cause damage to the inside of the hinge that connects the LCD screen to the Camcorder.

1. LCD screen closed.

2. Standard recording using the LCD screen.

3. Recording when looking at the LCD screen from the top.

4. Recording when looking at the LCD screen from the front.

5. Recording with the LCD screen closed.
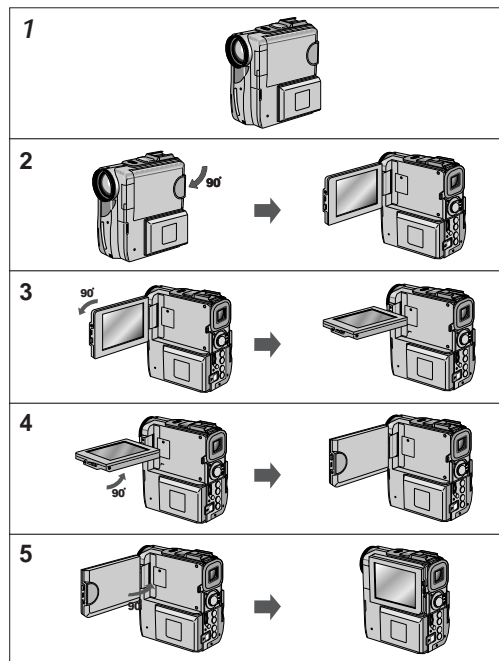
Notes and Safety Instructions

Notes regarding COPYRIGHT

Television programs, video tapes, DVD titles, films, and other program materials may be copyrighted.
Unauthorized copying of copyrighted material may be against the law.

Notes regarding moisture condensation

1. A sudden rise in atmospheric temperature may cause condensation to form inside the camcorder.

for example:
- When you move the camcorder from a cold location to a warm location (e.g. from outside to inside during winter.)
- When you move the camcorder from a cool location to a hot location (e.g. from inside to outside during the summer.)

2. If the ▣(DEW) protection feature is activated, leave the camcorder for at least two hours in a dry, warm room with the cassette compartment opened and the battery pack removed.

Notes regarding CAMCORDER

1. Do not leave the camcorder exposed to high temperature (above 60°C or 140°F).
   For example, in a parked car in the sun or exposed to direct sunlight.

2. Do not let the camcorder get wet.
   Keep the camcorder away from rain, sea water, and any other form of moisture. If the camcorder gets wet, it may get damaged.
   Sometimes a malfunction due to exposure to liquids cannot be repaired.

Notes and Safety Instructions

Notes regarding the battery pack

- Make sure that the battery pack is fully charged before starting to record.
- To preserve battery power, keep your camcorder turned off when you are not operating it.
- If your camcorder is in CAMERA mode, and it is left in STBY mode without being operated for more than 5 minutes with a tape installed, it will automatically turn itself off to protect against unnecessary battery discharge.
- Make sure that the battery pack is fitted firmly into place. Dropping the battery pack may damage it.
- A brand new battery pack is not charged. Before using the battery pack, you need to charge it completely.
- It is a good idea to use the viewfinder rather than the LCD when making a long recording, because the LCD uses up more battery power.

* When the battery reaches the end of its life, please contact your local dealer. The batteries have to be dealt with as chemical waste.
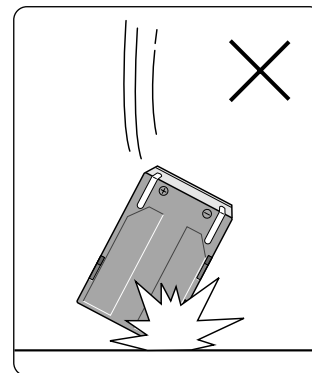
Notes regarding the Video Head Cleaning

- To ensure normal recording and a clear picture, clean the video heads regularly. If a square block-shape distorts playback, or only a blue screen is displayed, the video heads may be dirty. If this happens, clean the video heads with a dry type cleaning cassette.
- Do not use a wet-type cleaning cassette. It may damage the video heads.

Notes and Safety Instructions

Note regarding the LENS

- Do not film with the camera lens pointing directly at the sun.
  Direct sunlight can damage the CCD(Charge Coupled Device).

Notes regarding viewfinder

1. Do not position the camcorder such that the viewfinder is pointing towards the sun.
   Direct sunlight can damage the inside of the viewfinder. Be careful when placing the camcorder under sunlight or near a window exposed to sunlight.
2. Do not pick up the camcorder from the viewfinder.
3. Over pulling of the viewfinder may damage it.

Notes regarding 'Record' or 'Playback' using the LCD

1. The LCD display has been manufactured using high precision technology. However, there may be tiny dots (red, blue or green in color) that appear on the LCD display.
   These dots are normal and do not affect the recorded picture in any way.
2. When you use the LCD display under direct sunlight or outdoors, it maybe difficult to see the picture clearly.
   If this occurs, we recommend using the viewfinder.
3. Direct sunlight can damage the LCD monitor.
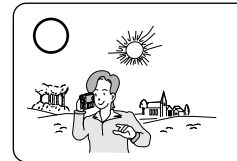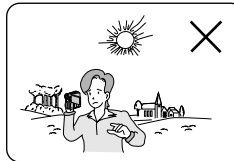
Notes regarding the hand grip

- To ensure a steady picture during filming, check that the hand grip is properly adjusted.
- Do not force your hand into the hand grip as you could damage it.
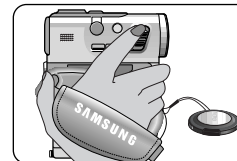
Notes and Safety Instructions

Precautions regarding the Lithium battery

1. The camcorder's built-in lithium battery maintains the clock function and user settings, even if the battery pack or AC adapter is removed.

2. The lithium battery for the camcorder lasts about a week under normal operation from the time of installation.

3. When the lithium battery becomes weak or is dead, the date/time indicator will display "– – –" when you set the DATE/TIME to ON.
   When this occurs, connect the camcorder to power to fully recharge the built-in lithium battery. If the same problem occurs with a fully recharged battery, contact a Samsung authorized Service Center to replace the battery.

Precautions regarding the external lithium battery for the remote control

Warning:
■ **Keep the LITHIUM BATTERY(Remote Control) out of reach of children.**
  Should a battery be swallowed, consult a doctor immediately.
■ **Danger of explosion if battery is incorrectly replaced.**
  Replace only with the same or equivalent type.

Getting to Know Your Camcorder

Features

- **Digital data transfer function with IEEE1394**
  By incorporating the IEEE 1394 (i.LINK™ : i.LINK is a serial data transfer protocol and interconnectivity system, used to transmit DV data) high speed data transport port, both moving and still images can be transferred to a PC, making it possible to produce or edit various images.

- **USB interface for digital image data transfer**
  You can transfer still images to a PC using the USB interface without an add-on card.

- **PHOTO**
  The PHOTO function lets you capture an object as a still along with sound, while in Camera mode.

- **400x Digital zoom**
  Allows you to magnify an image up to 400 times its original size.

- **Color TFT LCD**
  A high-resolution color TFT LCD (with 211,000 pixels) gives you clean, sharp images as well as the ability to review your recordings immediately.

- **Electronic Image Stabilizer (EIS)**
  The EIS compensates for any handshake, reducing unstable images particularly at high magnification.

- **Various digital effects**
  The DSE (Digital Special Effects) allows you to give your films a special look by adding various special effects.

- **Back Light Compensation (BLC)**
  The BLC function compensates for the bright background behind a subject you're recording.

- **Program AE**
  The Program AE enables you to alter the shutter speed and aperture to suit the type of scene/action to be filmed.

- **NITE PIX**
  The NITE PIX function enables you to record a subject in a dark place.

- **Digital Still Camera function (SCD590/D590T only)**
  - Using Memory Stick, you can easily record and play back standard still images.
  - You can transfer standard still images on the Memory Stick to your PC by using the USB interface.

Getting to Know Your Camcorder

Accessories Supplied with camcorder

Make sure that the following basic accessories are supplied with your digital video camera.

Basic Accessories

1. Lithium Ion Battery pack

2. AC Power Adapter

3. AC Cord

4. Multi-AV cable (AUDIO/VIDEO/S-VIDEO)

5. Instruction Book

6. Lithium battery for Remote Control
   (TYPE: CR2025, 1 EA)

7. Remote Control

8. Remocon Strap

9. Hand Grip

10. Ring Hood

11. Neck Strap

12. USB cable

13. Software CD
   ■ SCD530/D530T: DVC Media 3.0
   ■ SCD590/D590T: DVC Media 4.0

14. USB Audio Cable (SCD530/D530T only)

15. Memory Stick (SCD590/D590T only)

16. Lens Cover

1. Lithium Ion Battery pack (AD43-00096A)	2. AC Power Adapter (AD44-00065A)	3. AC cord (AD39-00076A)
4. Multi-AV cable (AUDIO/VIDEO/S-VIDEO) (AD39-00099A)	5. Instruction Book	6. Lithium battery (1EA) (AD43-10130H)
7. Remote Control (AD59-00084A)	8. Remocon Strap (AD72-00044B)	9. Hand Grip (SCD530/D530T: AD97-04884A SCD590/D590T: AD97-04885A)
10. Ring Hood (AD63-00374A)	11. Neck Strap (AD97-04978A)	12. USB cable (AD39-00073A)
13. Software CD	14. USB Audio Cable (SCD530/D530T only) (AD39-00101A)	15. Memory Stick (SCD590/D590T only) (1109-001221)
16. Lens Cover		

Getting to Know Your Camcorder

Front & Left View

1. Lens

3. Remote Sensor
12. Infrared light
7. REC Lamp
9. Earphone Jack
10. Multi-AV Jack
11. DC Jack
2. Lens Cover

5. LCD monitor

6. Battery Pack

8. Charging Indicator

4. Hand grip

1. **Lens**
2. **Lens Cover**
3. **Remote Sensor**
4. **Hand grip (see page 24)**
5. **LCD monitor**
6. **Battery Pack (see page 20)**
7. **REC Lamp (see page 38)**
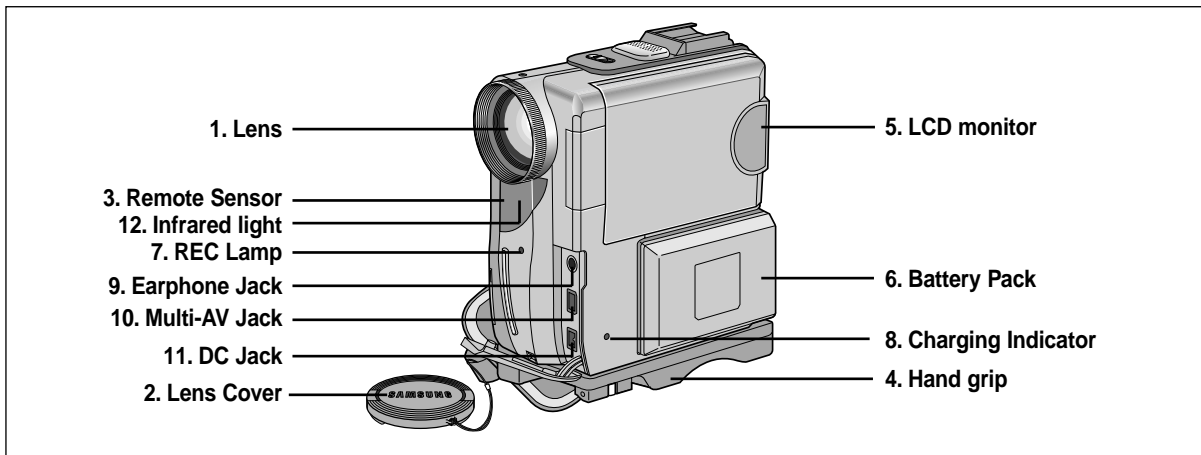
8. **Charging Indicator**
9. **Earphone Jack**
10. **Multi-AV Jack (see page 72)**
11. **DC Jack (see page 19)**
12. **Infrared light (see page 69)**

Right & Top View

8. Internal MIC
7. NITE PIX switch
9. Smart Shoe
2. External MIC in
1. SPEAKER
5. Photo button
6. Zoom lever
4. Easy.Q button
3. Custom.Q button
14. Focus Adjustment Knob
10. MEMORY STICK/ TAPE select switch (SCD590/D590T only)
11. Memory Stick slot (SCD590/D590T only)
12. DV in/out
13. USB Jack
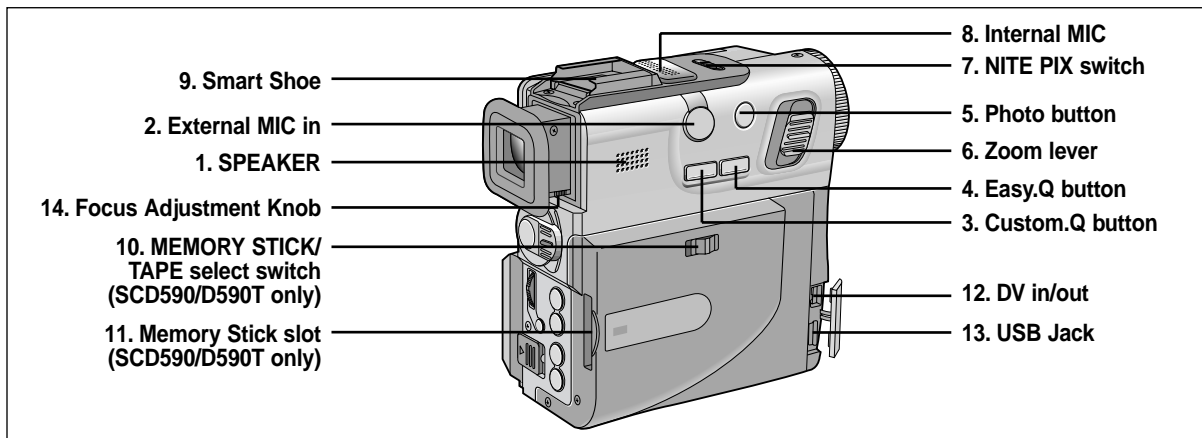
1. **SPEAKER**
2. **External MIC in**
3. **Custom.Q button (see page 62)**
4. **Easy.Q button (see page 61)**
5. **Photo button (see page 68)**
6. **Zoom lever (see page 45)**
7. **NITE PIX switch (see page 69)**
8. **Internal MIC**

9. **Smart Shoe (see page 102)**
10. **MEMORY STICK/TAPE select switch (SCD590/D590T only)**
11. **Memory Stick slot (SCD590/D590T only)**
12. **DV in/out (see pages 78, 79)**
13. **USB Jack (see page 85)**
14. **Focus Adjustment Knob (see page 31)**

Getting to Know Your Camcorder

Rear & Bottom View

10. RESET
1. LCD open
3. MENU selector (MENU SELECT/VOLUME)
2. MENU button
8. Power indicator
9. Viewfinder
7. Power switch
6. START/STOP button
5. Function Buttons
4. Battery Release button
11. TAPE Eject Switch
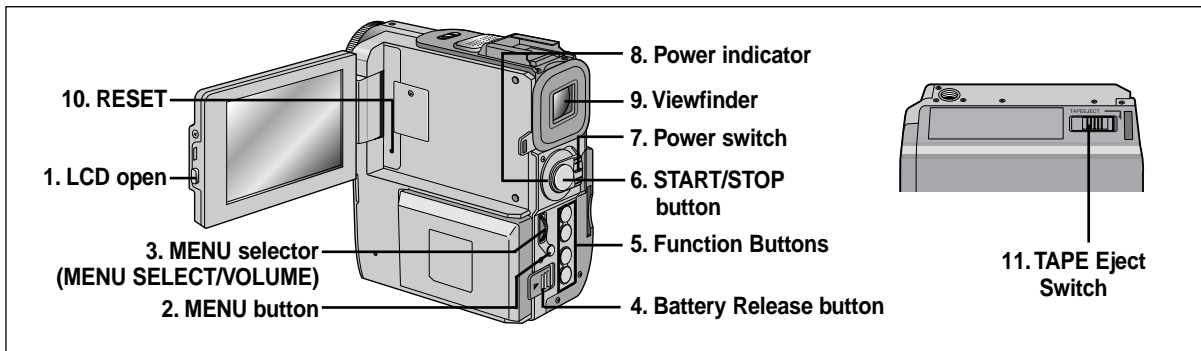
1. LCD open
2. MENU button (see page 34)
3. MENU selector (MENU SELECT/VOLUME) (see page 34)
4. Battery Release button (see page 99)
5. Function Buttons
6. START/STOP button

7. Power switch (see page 27)
8. Power indicator
9. Viewfinder (see page 31)
10. RESET (see page 35)
11. TAPE Eject Switch

Function Buttons

PLAYER	CAMERA	M.PLAY (SCD590/D590T only)
▶/❙❙ (PLAY/STILL)	FADE (see page 65)	S.SHOW (see page 92)
■ (STOP)	BLC (see page 64)	DELETE (see page 97)
▶▶ (FF)	REC SEARCH + (see page 28)	FWD (see page 92)
◀◀ (REW)	REC SEARCH –	REV

Getting to Know Your Camcorder

Remote control

12. Zoom TELE (CAMERA mode) /
F.ADV(◀II) ⊖ (PLAYER mode)

1. START/STOP

11. Zoom WIDE (CAMERA mode) /
F.ADV(II▶) ⊕ (PLAYER mode)

2. PHOTO

10. ZERO MEMORY

3. II (STILL)

4. ◀◀ (REW/RPS)

9. ▶▶(FF/FPS)

5. ▶ (PLAY)

6. A.DUB

8. SELF TIMER (CAMERA mode) /
SLOW (PLAYER mode)
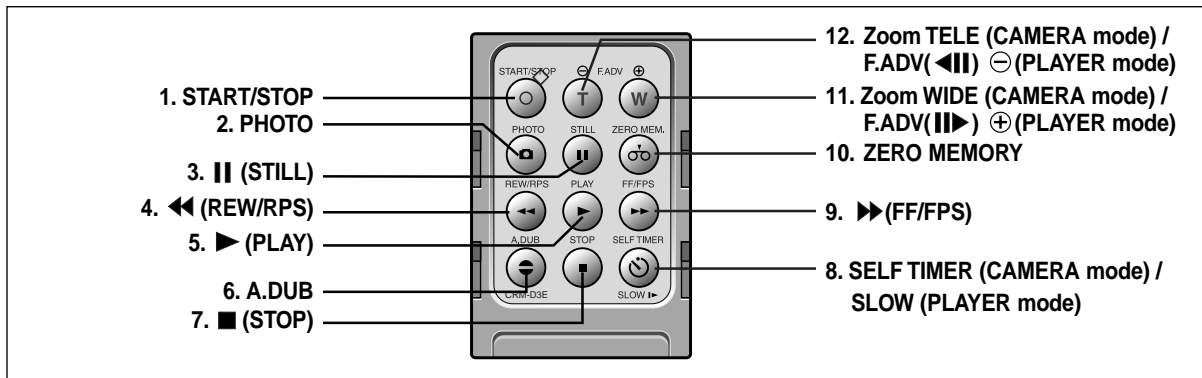
7. ■ (STOP)

1. **START/STOP**

2. **PHOTO**

3. **II (STILL)**

4. **◀◀ (REW/RPS)**

5. **▶ (PLAY)**

6. **AUDIO DUBBING (see page 66)**

7. **■ (STOP)**

8. **SELF TIMER (CAMERA mode) (see page 70) /**
   SLOW (PLAYER mode)

9. **▶▶ (FF/FPS)**

10. **ZERO MEMORY (see page 76)**

11. **Zoom WIDE (CAMERA mode) /**
    F.ADV(II▶) ⊕ (PLAYER mode)

12. **Zoom TELE (CAMERA mode) /**
    F.ADV(◀II) ⊖ (PLAYER mode)

Getting to Know Your Camcorder

OSD (On Screen Display in CAMERA and PLAYER modes)

1. **Battery level (see page 22)**
2. **Custom or Easy mode (see pages 61, 62)**
3. **DSE (Digital Special Effects) mode (see page 48)**
4. **Program AE (see page 42)**
5. **BLC (Back Light Compensation) (see page 64)**
6. **White Balance mode (see page 44)**
7. **Manual focus (see page 63)**
8. **Shutter speed and EXPOSURE (see page 60)**
9. **Zoom position (see page 45)**
10. **DATE/TIME (see page 56)**
11. **USB**
12. **REMOCON**
13. **WIND CUT (see page 55)**
14. **Audio recording mode (see page 54)**
15. **Remaining Tape (measured in minutes)**
16. **Tape counter**
17. **Zero memory indicator (see page 76)**
18. **Operating mode**
19. **Record speed mode**
20. **PHOTO mode**
21. **Self recording and waiting timer (see page 70)**
22. **EIS (see page 47)**
23. **NITE PIX (see page 69)**
24. **FLASH mode (see page 50)**
25. **Volume control (see page 33)**
26. **Audio playback channel**
27. **DV IN (DV data transfer mode) (see page 79)**
28. **DEW (see page 7)**
29. **Message Line**

OSD in CAMERA mode

OSD in PLAYER mode

17
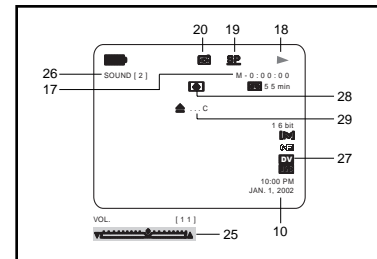
Getting to Know Your Camcorder

OSD (On Screen Display in M.REC/M.PLAY modes)

�֎ These items are available on model SCD590/D590T only.

30.Folder number-file number (see page 88)
31.Image counter
 - Current still image/Total number of recordable still images.
32.CARD indicator
33.Image recording and loading indicator
34.Quality (see page 89)
35.ERASE PROTECTION indicator (see page 96)
36.Print Mark(see page 95)
37.SLIDE SHOW

Turning the OSD on/off (On Screen Display)

✤ You can turn the OSD on/off by setting the menu's DISPLAY function.
✤ The OSD is displayed in the viewfinder and the LCD monitor.
✤ When you set the power switch to CAMERA or PLAYER, the OSD is automatically turned on.
✤ Refer to page 57.

- **Turning OSD on/off**
  - When you turn the OSD off,
  In CAMERA mode: The STBY, REC, EASY.Q and CUSTOM.Q modes are always displayed on the OSD, even when the OSD is turned OFF and the key input is displayed for 3 seconds then turned off.
  In PLAYER mode: When you press any Function button, the function is displayed on the OSD for 3 seconds before it turns off.

- **Turning on/off the DATE/TIME**
  - The DATE/TIME is not affected when the OSD function is switched ON or OFF.
  - To turn the DATE/TIME on or off, access the menu and change the DATE/TIME mode. (see page 56)
  - You may also use the Dial Navigator to turn the DATE/TIME ON or OFF. (only in CAMERA / M.REC mode)

OSD in M.REC mode
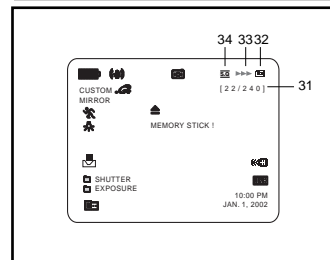
OSD in M.PLAY mode
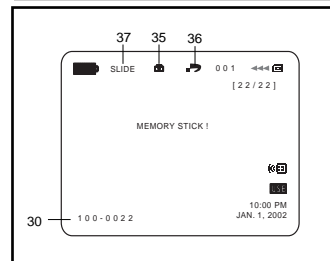
Preparation

Connecting a Power Source

There are two types of power source that can be connected to your camcorder.
- The AC Power Adapter and AC cord : used for indoor recording.
- The Battery Pack : used for outdoor recording.

To use the AC Power adapter and DC Cable

1. Connect the AC Power adapter to the AC cord.

2. Connect the AC cord to a wall socket.

Note

■ The plug and wall socket type may differ according to your resident country.

3. Connect the DC cable to the DC jack socket of the camcorder.

4. Set the camcorder to each mode by holding down the tab on the power switch and turning it to the CAMERA, PLAYER, M.REC, M.PLAY mode.
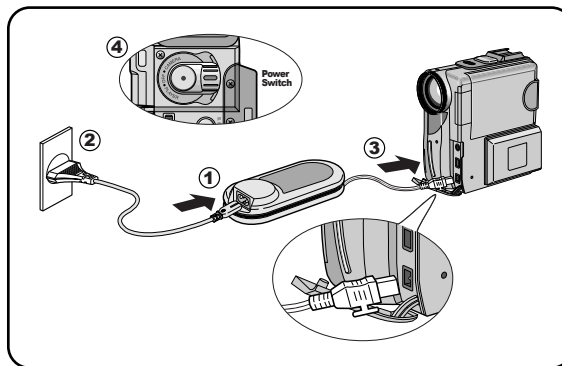
To select the CAMCORDER mode (SCD590/D590T only)

❈ If you want to use this unit as a camcorder, set the mode switch to TAPE position. (CAMERA, PLAYER)
❈ If you want to use this unit as a DSC (Digital Still Camera), set the mode switch to MEMORY STICK position. (M.REC, M.PLAY)

Preparation

Using the Lithium Ion Battery Pack

� The amount of continuous recording time available depends on :
- The type and capacity of the battery pack you are using.
- How often the Zoom function is used.
  It is recommended that you have several batteries available.

Charging the Lithium Ion Battery Pack

1. Attach the battery pack to the camcorder.
2. Connect the AC Power adapter to an AC cord and connect the AC cord to a wall socket.
3. Connect the DC cable to the DC jack socket on the camcorder.
4. Turn the Camera power switch to off, and the charging indicator will start to flash, showing that the battery is charging.

Blinking time	Charging rate
Once per second	Less than 50%
Twice per second	50% ~ 75%
Three times per second	75% ~ 90%
Blinking stops and stays on	90 ~ 100%
On for a second and off for a second	Error - Reset the battery pack and the DC cable
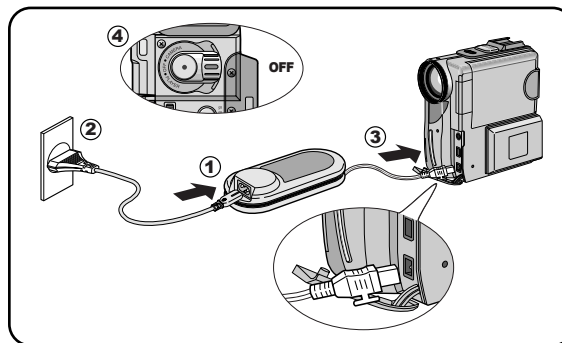
5. When the battery is fully charged, disconnect the battery pack and the AC Power adapter from the camcorder.
   ■ Even with the power switched off, the battery will still discharge if it is left connected to the camcorder.

Notes

■ The battery pack may be charged a little at the time of purchase.
■ To prevent reduction in the life and capacity of the battery pack, always remove it from the camcorder after it is fully charged.

Preparation

Using the Lithium Ion Battery Pack

Table of continuous recording time based on model and battery type.

- ✤ If you close the LCD screen, it switches off and the CVF switches on automatically.
- ✤ The continuous recording times given in the table above are approximations.
  Actual recording time depends on usage.

Time〳Battery	Charging time	Continuous recording time	
		LCD ON	CVF ON
SB-L70A	Approx. 1hr 30min	Approx. 1hr	Approx. 1hr 30min
SB-L110	Approx. 1hr 40min	Approx. 1hr 30min	Approx. 2hr
SB-L220	Approx. 3hr 20min	Approx. 3hr 10min	Approx. 4hr 10min

Notes

- ■ The battery pack should be recharged in an environment of between 32°F (0°C) and 104°F (40°C).
- ■ The battery pack should never be charged in a room temperature that is below 32°F (0°C).
- ■ The life and capacity of the battery pack will be reduced if it is used in temperatures below 32°F (0°C) or left in temperatures above 104°F (40°C) for a long period, even when it is fully recharged.
- ■ Do not put the battery pack near any heat source (fire or flames, for example).
- ■ Do not disassemble, process, pressure, or heat the Battery Pack.
- ■ Do not allow the + and - terminals of the battery pack to be short-circuited.
  It may cause leakage, heat generation, induce fire and overheating.

Preparation

Battery level display

- **The battery level display indicates the amount of power remaining in the battery pack.**

a. Fully charged
b. 20~40% used
c. 40~80% used
d. 80~95% used
e. Completely used (flickers)
  (The camcorder will turn off soon, change the battery as soon as possible)
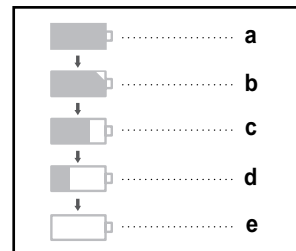
�֍ Please refer to the table on page 21 for approximate continuous recording times.
✤ The recording time is affected by environmental temperature and conditions.
  The recording time becomes very short in a cold environment. The continuous recording times in the operating instructions are measured using a fully charged battery pack at 77°F(25°C). As the environmental temperature and conditions may differ when you actually use the camcorder, the remaining battery time may not be   the same as the approximate continuous recording times given in these instructions.

Preparation

Inserting and Ejecting a Cassette

✳ When inserting a tape or closing a cassette holder, do not apply excessive force.
  This may cause a malfunction.
✳ Do not use any tapes other than Mini DV CASSETTES.

1. Connect a power source and slide the TAPE EJECT switch
   (on the bottom of the camcorder) and open the cassette door.
   - The cassette holding mechanism rises automatically.
2. Insert a tape into the holder with the tape window facing outward and the
   protection tab toward the top.
3. Press the area labelled PUSH on the cassette holding mechanism until
   it clicks into place.
   - The cassette is loaded automatically.
4. Close the cassette door.
   - Close the door completely until you can hear a "click".

| 1 | 2 |
| 3 | 4 |
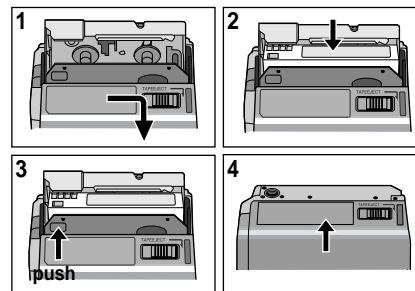
push

Note

■ When you have recorded something that you wish to keep,
  you can protect it so that it will not be accidentally erased.

a. Protecting a tape :
  Push the safety tab on the cassette so that the hole is uncovered.

b. Removing the tape protection :
  If you no longer wish to keep the recording on the cassette,
  push the write-protect tab back so that it covers the hole.

• **How to keep a tape**
a. Avoid places with magnets or magnetic interference.
b. Avoid humidity and dust prone places.
c. Keep the tape in an upright position and avoid storing it in direct sunlight.
d. Avoid dropping or knocking your tapes.

a. SAVE

b. REC
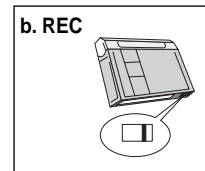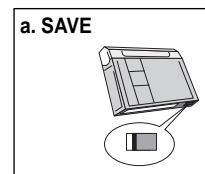
Preparation

Adjusting the Hand Grip

It is very important to ensure that the Hand Grip has been correctly adjusted before you begin your recording.
The hand grip enables you to :
- Hold the camcorder in a stable, comfortable position.
- Press the Zoom and START/STOP button without having to change the position of your hand.

Attaching the Hand Grip

1. Put the camcorder on the Hand Grip.
2. Put the screw in the Hand Grip (Tripod) hole, and fasten the screw.
   ■ After fastening the screw, lay the screw lever for the locking.
3. To firmly attach the camcorder to the Hand Grip, push the holder button.
   ■ Please confirm that the camcorder is firmly fixed.
4. Pull open the Hand Strap cover and release the Hand Strap.
5. Adjust its length and stick it back onto the Hand Strap cover.
6. Close the Hand Strap cover again.
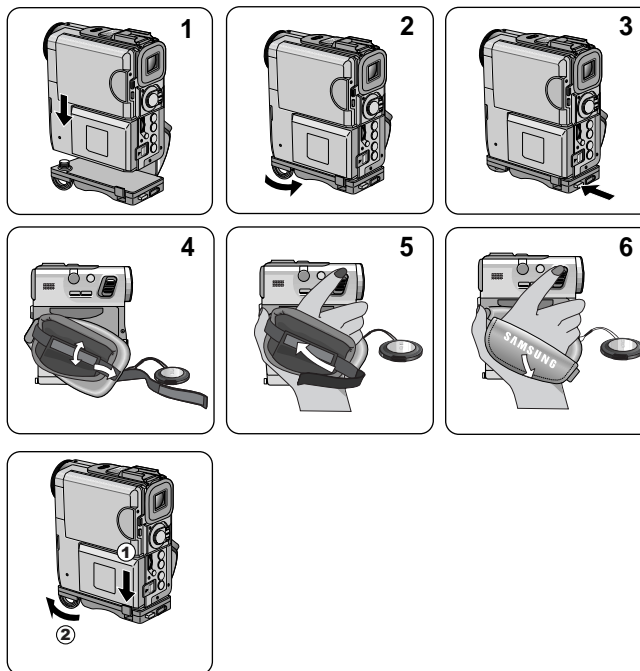
Removing the Hand Grip

1. Press the holder lever down to release the holder.
2. Loosen the screw holding the camcorder to the Hand Grip.
3. Remove the Hand Grip.

Preparation

Ejecting the tape when the Hand Grip is attached

1. Turn the Grip Cover down.
2. Press the holder lever down to release the holder.
3. Stand the screw lever for the unlocking, and loose the screw a little.
4. Turn the camcorder in the direction of the arrow.
5. Slide the TAPE EJECT switch and open the cassette door.
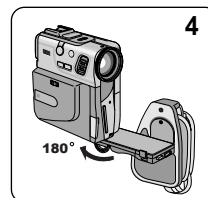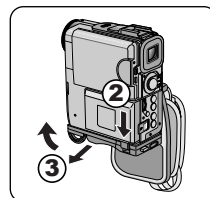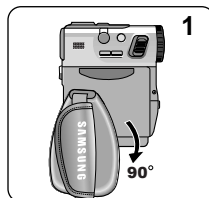
Using the Neck Strap

⌘ For extra security and portability, attach the Neck Strap before using the camcorder.

⌘ Be sure to test the strap to check that it is properly attached before using it to carry the camcorder.
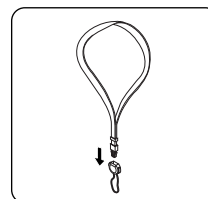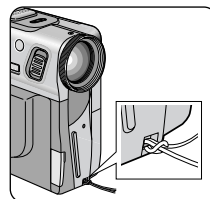
Attaching the Lens Cover
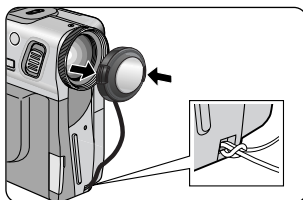
Attaching the Ring Hood

⌘ Since the ring hood cuts stray light that may cause flare and ghost images and protects the lens, be sure to attach the hood when you are recording.

⌘ Make sure attach the hood to the camcorder horizontally.
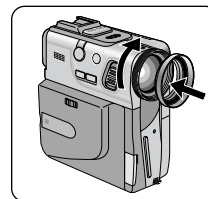
Preparation

How to use the Remote Control

Battery Installation for the Remote Control

- ✣ You need to insert or replace the lithium battery when :
  - You purchase the camcorder.
  - The remote control doesn't work.
- ✣ Ensure that you insert the lithium cell correctly,
  following the + and – markings.
- ✣ Be careful not to reverse the polarity of the battery.
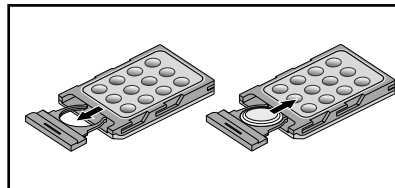
Using the Remocon Strap

- ✣ The Remote comes with a convenient strap.
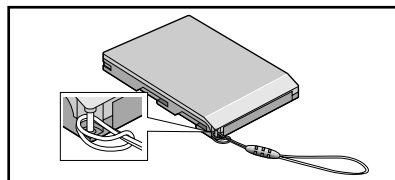
Attaching the Remote Control

- ✣ You can attach the Remote Control to the camcorder so it is not
  misplaced.

Note

- ■ When the AC power adapter is connected to
  the camcorder, do not attach the Remote Control to
  the camcorder.
- ■ When the Remote Control is attached the camcorder,
  do not pick up the camcorder from the Remocon Strap.
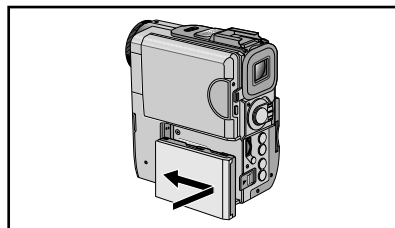
Basic Recording

Making your First Recording

1. Connect a Power source to the camcorder. (see page 19)
   (A battery pack or a AC power adapter)
   ■ Insert a cassette. (see page 23)

2. Remove the LENS CAP and hook it onto the hand grip.

3. Set the power switch to the CAMERA position.
   ■ Open the LCD monitor and make sure that STBY is
     displayed.
   ■ The camcorder power indicator lights up red.
   ■ The confirmation beep sounds.
   ■ If the protection tab of the cassette is open, STOP and
     PROTECTION! will be displayed.
   ■ Make sure the image you want to record appears
     in the LCD monitor or viewfinder.
   ■ Make sure the battery level indicates that there is enough
     remaining power for your expected recording time.

4. To start recording, press the START/STOP button.
   ■ REC is displayed in the LCD.
     To stop recording, press the START/STOP button again.
   ■ STBY is displayed in the LCD.
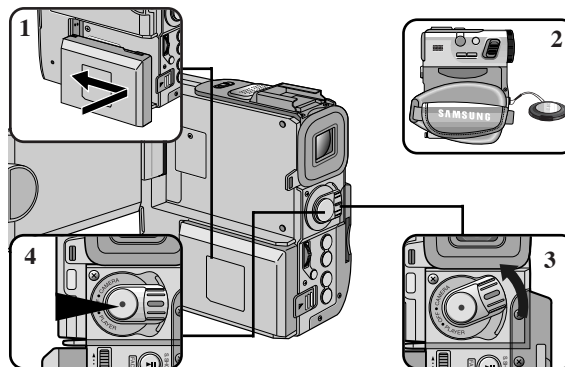
Basic Recording

When a cassette is loaded and the camcorder is left in the STBY mode for more than 5 minutes without being used, it will switch off automatically.
To use it again, push the START/STOP button or set the Power switch to OFF and then back to CAMERA.
This Auto Power off feature is designed to save battery power.

REC Search

✽ When the camcorder is in STBY mode, you can use record search to play the tape forwards or backwards to find the point where you want to start or resume recording. REC SEARCH – enables you to play the recording backwards and REC SEARCH + enables you to play it forwards, for as long as you keep each button pressed down.

✽ If you press the REC SEARCH – button in STBY mode, your camcorder will play in reverse for 3 seconds and return to the original position automatically.

| Note |

■ Mosaic shaped distortion may appear on the screen while in REC SEARCH mode.
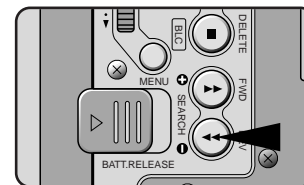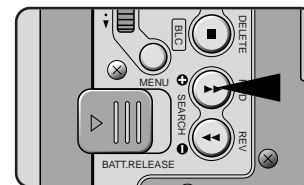
Basic Recording

Hints for Stable Image Recording

- While recording, it is very important to hold the camcorder correctly.
- Fix the LENS cap firmly by clipping it to the hand grip. (refer to the figure)

Recording with the LCD monitor

1. Hold the camcorder firmly using the hand grip.
2. Place your right elbow against your side.
3. Place your left hand under or beside the LCD to support and adjust it.
   Do not touch the built-in microphone.
4. Choose a comfortable, stable position for the shots that you are taking.
   You can lean against a wall or on a table for greater stability.
   Do not forget to breathe gently.
5. Use the LCD frame as a guide to determine the horizontal plane.
6. Whenever possible, use a tripod.

Recording with the Viewfinder

1. Hold the camcorder firmly using the hand grip.
2. Place your right elbow against your side.
3. Place your left hand under the camcorder to support it.
   Be sure not to touch the built-in microphone.
4. Choose a comfortable, stable position for the shots that you are taking.
   You can lean against a wall or on a table for greater stability.
   Do not forget to breathe gently.
5. To view an object through the viewfinder, pull it out until you hear the 'click' sound.
   Excessive force may cause damage to the viewfinder.
6. Place your eye firmly against the viewfinder eyecup.
7. Use the viewfinder frame as a guide to determine the horizontal plane.
8. Whenever possible, use a tripod.
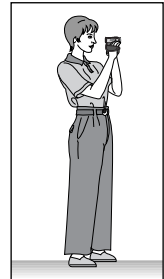
Basic Recording

Adjusting the LCD

✽ Your camcorder is equipped with a 2.5 inch color Liquid Crystal Display(LCD) screen, which enables you to view what you are recording or playing back directly.
✽ Depending on the conditions under which you are using the camcorder (indoors or outdoors for example), you can adjust ;
  ■ BRIGHT SELECT
  ■ BRIGHT ADJUST
  ■ COLOR ADJUST

1. Set the POWER switch to CAMERA position.
   ■ In the PLAYER mode, you may only setup the LCD while the tape is playing.

2. Open the LCD screen, and the LCD switches on.

3. Press the MENU button.

4. Move the MENU SELECTOR so that VIEWER is highlighted and then push the MENU SELECTOR.

5. Move the MENU SELECTOR so that LCD ADJUST is highlighted.

6. Push the MENU SELECTOR to enter the sub-menu.

7. Move the MENU SELECTOR so that it highlights the menu item you want to adjust (BRIGHT SELECT, BRIGHT ADJUST, COLOR ADJUST).

CAMERA Mode

```
CAM MODE
 INITIAL
 CAMERA
 A/V
 MEMORY (SCD590/D590T only)
 VIEWER    LCD ADJUST
             ◦ DATE/TIME ··········
             ◦ DISPLAY ············
```

```
CAM MODE
 VIEWER SET
  LCD ADJUST
  DATE / TIME ····················
  DISPLAY ························
```

✽ **SCD530/D590 only**

```
CAM MODE
 VIEWER SET
  LCD ADJUST
   ◦ BRIGHT SELECT . . . . NORMAL
   ◦ BRIGHT ADJUST ······ [ 1 8 ]
   ◦ COLOR ADJUST ······ [ 1 8 ]
```

```
CAM MODE
 LCD ADJUST
  BRIGHT SELECT
   ◦ NORMAL
   ◦ SUPER
   ◦ BACK LIGHT
```

30
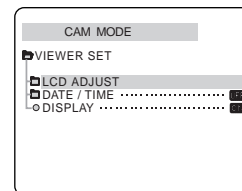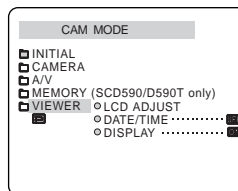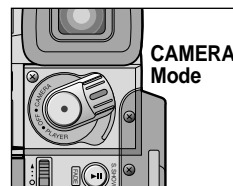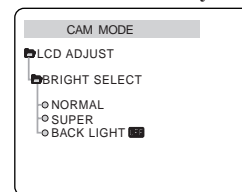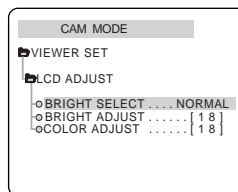
Basic Recording

8. Push the MENU SELECTOR again.
   - ■ You may select NORMAL, SUPER or BACK LIGHT ⊡ (SCD530/D590 only) in the BRIGHT SELECT feature and push the MENU SELECTOR to save the setting.
     - When you use the LCD BACK LIGHT ⊡ mode in a dark place or indoor, it's difficult for you to view the image (SCD530/D590 only).
   - ■ Use the MENU SELECTOR to adjust the value of BRIGHT ADJUST and COLOR ADJUST.
   - ■ You can set values for BRIGHT ADJUST between 00 ~ 35 and COLOR ADJUST between 00 ~ 35.

9. Press the MENU button to finish the setting.

Using the VIEWFINDER

⌘ The VIEWFINDER will not work when the LCD is open.
⌘ In order to bring it into focus, pull the viewfinder forward until you here a click.

Adjusting the Focus

Use the focus adjustment knob of the VIEWFINDER to focus the picture. (refer to figure)
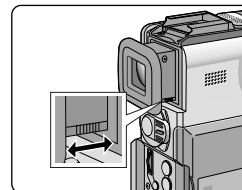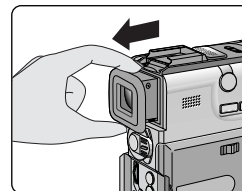
Basic Recording

Playing back a tape you have recorded on the LCD

✽ You can monitor the playback picture on the LCD monitor.
✽ Make sure that the battery pack is in place.

1. Hold down the Power switch tab and turn it to the PLAYER position.
   - The Function button indicator light up blue.
   - The confirmation sound beeps.

2. Insert the tape you wish to view. (see page 23)

3. Open the LCD screen.
   Adjust the angle of the LCD screen and set the brightness or color if necessary.

4. Press the ◄◄ (REW) button to rewind the tape to the starting point.
   - To stop rewinding, press the ■(STOP) button.
   - The camcorder stops automatically after rewinding is complete.

5. Press the ►/II (PLAY/STILL) button to start playback.
   - You can view the picture you recorded on the LCD.
   - To stop the PLAY operation, press the ■(STOP) button.
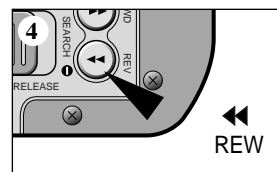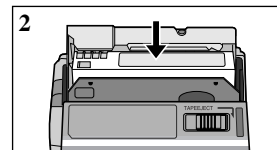
Notes

- You can also view the picture on a TV screen, after connecting the camcorder to a TV or VCR. (see page 72)
- Various functions are available in playback mode. (see page 74)

Basic Recording

Adjusting the LCD during PLAY

❋ You can adjust the LCD during playback.
❋ The adjustment method is the same procedure as used in CAMERA mode. (see page 30)

Controlling Sound from the Speaker

The Speaker works in PLAYER mode only.

■ When you use the LCD screen for playback, you can hear the recorded sound from
the built-in Speaker.
- Follow the instructions below to decrease or mute speaker volume in the PLAYER mode.
- Take the following steps to lower the volume or mute the sound while playing a tape
on the PLAYER.

1. Set the power switch to PLAYER mode.
2. Press ▶/ll (PLAY/STILL) to play the tape.
3. When you hear sounds once the tape is in play, use the MENU SELECTOR to adjust the volume.
  ■ A volume level display will appear on the LCD.
  Levels may be adjusted from anywhere between 00 to 19 and you will not hear
  any sound when the volume is set on 00.
  ■ You can adjust the headphone volume separately from the built-in speaker.
  ■ If you close the LCD while playing, you will not hear sound from the speaker.
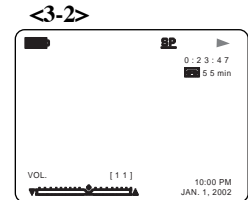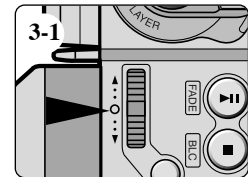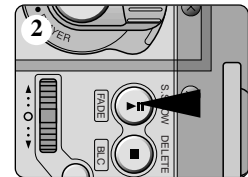
Notes

■ Sometimes audio may sound distorted when the volume is turned up high.
If this happens, turn down the volume.
■ The speaker turns off when you use headphones.

33

Advanced Recording

Use of various Functions

● **Setting menu items**

MENU	SUB MENU	MODE switch
INITIAL	CLOCK SET REMOCON REC LAMP BEEP SOUND SHUTTER SOUND DEMONSTRATION	C/P/MR/MP C/P/MR/MP C C/P/MR/MP P/MR C
CAMERA	PROGRAM AE WHT. BALANCE D. ZOOM EIS DSE SELECT FLASH SELECT CUSTOM. Q	C/MR C/MR C/MR C/MR C/MR C/MR C/MR
A/V	REC MODE LINE IN SELECT PHOTO SEARCH COPY AUDIO MODE AUDIO SELECT WIND CUT	C/P P P P C/P P C/P
MEMORY (SCD590/ D590T only)	QUALITY PRINT MARK PROTECT DELETE FORMAT	P/MR MP MP MP MP
VIEWER	LCD ADJUST DATE/TIME DISPLAY	C/P/MR/MP C/P/MR/MP C/P/MR/MP

✽ C : CAMERA MODE ✽ P : PLAYER MODE
✽ MR : M.REC MODE (SCD590/D590T only) ✽ MP : M.PLAY MODE (SCD590/D590T only)

● **Set the camcorder to CAMERA or PLAYER mode and M.REC or M.PLAY mode (SCD590/D590T only)**

1. Press the MENU button.
   The MENU OSD is displayed. The cursor (HIGHLIGHT) indicates the feature you are currently adjusting.
2. Using the MENU SELECTOR and push the MENU SELECTOR on the rear side panel, select and activate the item.
3. You can exit the menu mode by pressing the MENU button.

Advanced Recording

● **Availability of functions in each mode**

Operating Mode \ Requested Mode	Digital functions			Digital special effects	NITE PIX
	EIS	D.ZOOM	PHOTO		
EIS		O	O	O	O
D.ZOOM	O		O	O	O
PHOTO	✕	✕		✕	O
Digital Special Effects	O	O	O		△
NITE PIX	O	O	O	✕	

O : The requested mode will work in this operating mode.

✕ : You can not change the requested mode.

△ : The operating mode will be released and the requested mode will work.

Notes

■ When a menu item on the LCD is marked with an ⊠ , that item cannot be activated.

■ When you select an item that cannot be changed, an error message will be displayed.

● **RESET**

❅ If you push the RESET button, the LCD MENU settings are changed to the default settings.

❅ Push the RESET button by using an object with sharp point such as a small screwdriver.
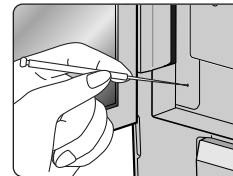
Advanced Recording

● CLOCK SET

⌘ CLOCK setup works in CAMERA, PLAYER, M.REC and M.PLAY modes.
⌘ The DATE/TIME is automatically recorded onto a tape.
  Before recording, please set the DATE/TIME.

1. Press the MENU button.
   ■ The menu list will appear.

2. Move the MENU SELECTOR to highlight INITIAL and push the MENU SELECTOR.

3. Use the MENU SELECTOR to select CLOCK SET from the submenu.

4. Push the MENU SELECTOR to enter SETTING mode.
   ■ A blinking item indicates the item to be changed. The year will blink first.

5. Using the MENU SELECTOR, change the year setting.

6. Push the MENU SELECTOR.
   ■ The month will blink.

7. Using the MENU SELECTOR, change the month setting.

8. Push the MENU SELECTOR.
   ■ The day will blink.

9. You can set the day, hour and minute following the same procedure for
   setting the year and month.

10. Push the MENU SELECTOR after setting the minutes.
    ■ The word COMPLETE! will appear, and a few seconds later, the menu screen will automatically return to the sub menu.

11. To exit, press the MENU button.

CAM MODE

INITIAL   CLOCK SET
CAMERA   REMOCON
A/V   REC LAMP
MEMORY   BEEP SOUND
VIEWER   SHUT.SOUND
          DEMO

CAM MODE

INITIAL SET

CLOCK SET
REMOCON
REC LAMP
BEEP SOUND
SHUTTER SOUND
DEMONSTRATION

CAM MODE

INITIAL SET

CLOCK SET

10:00 AM
JAN. 3, 2002
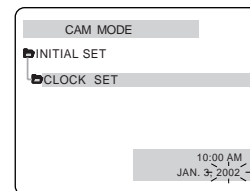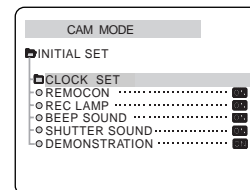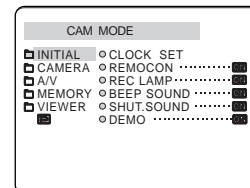
Advanced Recording

● **REMOCON**

❈ The REMOCON function works in CAMERA, PLAYER, M.REC, M.PLAY modes.

❈ The REMOCON option allows you to enable or disable the remote control for use with the camcorder.

1. Press the MENU button.
   ■ The menu list will appear.

2. Move the MENU SELECTOR to highlight INITIAL and push the MENU SELECTOR.

3. Use the MENU SELECTOR to select REMOCON from the submenu.

4. Push the MENU SELECTOR to enable or disable the remote control.
   The setting switches between ON/OFF each time you push the MENU SELECTOR.

5. To exit, press the MENU button.
   ■ If you set the remote to OFF in the menu and try to use it,
     the remote icon will blink on the LCD for 3 seconds, then disappear.

```
┌─────────────────────────┐
│      CAM MODE           │
├─────────────────────────┤
│ INITIAL   CLOCK SET     │
│ CAMERA    REMOCON ······ │
│ A/V       REC LAMP ····· │
│ MEMORY    BEEP SOUND ··· │
│ VIEWER    SHUT.SOUND ··· │
│           DEMO ········· │
└─────────────────────────┘
```

```
┌─────────────────────────┐
│      CAM MODE           │
├─────────────────────────┤
│ INITIAL SET             │
│ CLOCK SET               │
│ REMOCON ··············· │
│ REC LAMP ············   │
│ BEEP SOUND ·········    │
│ SHUTTER SOUND ·······   │
│ DEMONSTRATION ········  │
└─────────────────────────┘
```
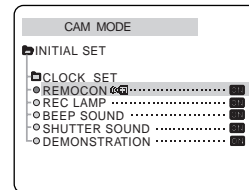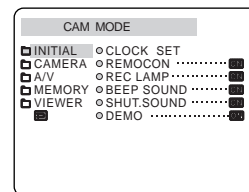
Advanced Recording

● **REC LAMP**

❖ The REC LAMP function works in CAMERA mode only.
❖ The REC LAMP lets you know that the camcorder is recording or counting down for the self-timer.
❖ You can turn the REC indicator on or off during recording.

1. Press the MENU button.
   ■ The menu list will appear.

2. Move the MENU SELECTOR to highlight INITIAL and push the MENU SELECTOR.

3. Use the MENU SELECTOR to select REC LAMP from the submenu.

4. To turn the REC indicator ON or OFF during recording, push the MENU SELECTOR.
   ■ The REC LAMP menu is changed to ON or OFF respectively.
   ■ If you want to turn off the indicator, set the REC LAMP to OFF.

5. To exit, press the MENU button.

```
┌─────────────────────────────┐
│        CAM MODE             │
│                             │
│ ▭ INITIAL  ○ CLOCK  SET     │
│ ▭ CAMERA   ○ REMOCON ⋯⋯⋯ ▨  │
│ ▭ A/V      ○ REC LAMP ⋯⋯⋯ ▨ │
│ ▭ MEMORY   ○ BEEP SOUND ⋯⋯ ▨│
│ ▭ VIEWER   ○ SHUT.SOUND ⋯⋯ ▨│
│   ▣        ○ DEMO ⋯⋯⋯⋯⋯⋯ ▨  │
│                             │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│        CAM MODE             │
│ ▭ INITIAL SET               │
│                             │
│ ▭ CLOCK  SET                │
│ ○ REMOCON ▣ ⋯⋯⋯⋯⋯⋯⋯ ▨       │
│ ○ REC LAMP ⋯⋯⋯⋯⋯⋯⋯⋯ ▨       │
│ ○ BEEP SOUND ⋯⋯⋯⋯⋯⋯ ▨       │
│ ○ SHUTTER SOUND ⋯⋯⋯⋯ ▨      │
│ ○ DEMONSTRATION ⋯⋯⋯⋯ ▨      │
│                             │
└─────────────────────────────┘
```
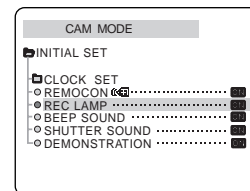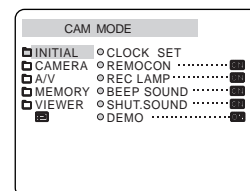
Advanced Recording

● **BEEP SOUND**

⌘ THE BEEP SOUND function works in CAMERA, PLAYER, M.REC, M.PLAY modes.
⌘ Use the MENU to setup the BEEP SOUND function. Select whether or not you want to hear a beep sound whenever you change a setup value.

1. Press the MENU button.
   ■ The menu list will appear.

2. Move the MENU SELECTOR to highlight INITIAL and push the MENU SELECTOR.

3. Use the MENU SELECTOR to select BEEP SOUND from the submenu.

4. Push the MENU SELECTOR to enable or disable the BEEP SOUND.
   The setting switches between ON/OFF each time you push the MENU SELECTOR.
   ■ When you press the START / STOP button to start a recording, the BEEP SOUND is automatically OFF.

5. To exit, press the MENU button.

```
┌─────────────────────────────┐
│        CAM  MODE            │
├─────────────────────────────┤
│ □INITIAL  ○CLOCK  SET       │
│ □CAMERA   ○REMOCON ·······▣ │
│ □A/V      ○REC LAMP ·······▣│
│ □MEMORY   ○BEEP SOUND ·····▣ │
│ □VIEWER   ○SHUT.SOUND ·····▣ │
│    ▣      ○DEMO ··········▣ │
│                             │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│        CAM  MODE            │
├─────────────────────────────┤
│ ▣INITIAL SET                │
│                             │
│ ○CLOCK  SET                 │
│ ○REMOCON ··············▣    │
│ ○REC LAMP ·············▣    │
│ ○BEEP SOUND ···········▣    │
│ ▣SHUTTER SOUND ········▣    │
│ ○DEMONSTRATION ········▣    │
└─────────────────────────────┘
```

39
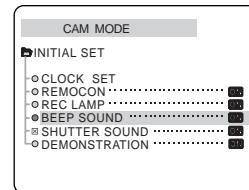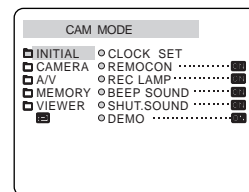
Advanced Recording

● **SHUTTER SOUND (SCD590/D590T only)**

✿ You can hear SHUTTER SOUND only when the PHOTO function is working.

✿ Determines whether or not you wish to hear a SHUTTER SOUND when using the DSC feature.

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to CAMERA mode.

3. Press the MENU button.
   ■ The menu list will appear.

4. Move the MENU SELECTOR to highlight INITIAL and push the MENU SELECTOR.

5. Use the MENU SELECTOR to select SHUTTER SOUND from the submenu.

6. Push the MENU SELECTOR to switch between ON and OFF.

7. To exit, press the MENU button.

```
┌─────────────────────────────┐
│  M.REC  MODE            📷   │
├─────────────────────────────┤
│ 📁INITIAL  ○CLOCK  SET       │
│ 📁CAMERA   ○REMOCON ········ │
│ ⊠A/V       ○REC LAMP ······· │
│ 📁MEMORY   ○BEEP SOUND ····· │
│ 📁VIEWER   ○SHUT.SOUND ····· │
│    📼      ○DEMO ··········· │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│  M.REC  MODE            📷   │
├─────────────────────────────┤
│ 📁INITIAL SET                │
│                              │
│ 📁CLOCK  SET                 │
│ ○REMOCON ··················· │
│ ○REC LAMP ·················· │
│ ○BEEP SOUND ················ │
│ ○SHUTTER SOUND ············· │
│ ⊠DEMONSTRATION ············· │
└─────────────────────────────┘
```
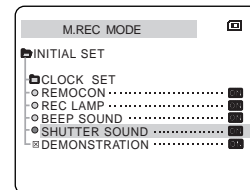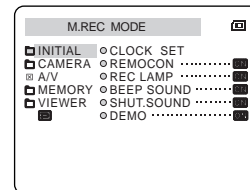
Advanced Recording

● **DEMONSTRATION**

  � Demonstration automatically shows you the major functions that are included with your camcorder so that you may use them more easily.
  ✇ The DEMONSTRATION function may only be used in the CAMERA mode without a tape inserted in the camcorder.
  ✇ The demonstration operates repeatedly until the DEMONSTRATION mode switched OFF.

1. Set the camcorder to CAMERA mode.

2. Press the MENU button.
   ■ The menu list will appear.

3. Move the MENU SELECTOR to highlight INITIAL.

4. Select DEMONSTRATION from the submenu and push the MENU SELECTOR.

5. To activate the DEMONSTRATION, set DEMONSTRATION ON.
   ■ Press the menu button to quit the menu.
   ■ The demonstration will begin.

6. To end the DEMONSTRATION, set the DEMONSTRATION to OFF.

```
       CAM  MODE

 INITIAL  CLOCK  SET
 CAMERA  REMOCON
 A/V     REC LAMP
 MEMORY  BEEP SOUND
 VIEWER  SHUT.SOUND
         DEMO
```

```
       CAM  MODE

 INITIAL SET
  CLOCK  SET
  REMOCON
  REC LAMP
  BEEP SOUND
  SHUTTER SOUND
  DEMONSTRATION
```
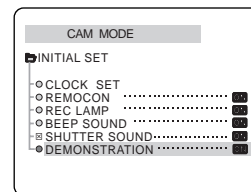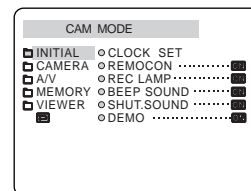
Notes

■ The DEMONSTRATION function only works without a TAPE installed.
■ The DEMONSTRATION mode is automatically activated when the camcorder is left idle for more than 10 minutes after switching to the CAMERA mode (when the tape is not inserted in the camcorder).
■ If you press other buttons (FADE, BLC, PHOTO, EASY, CUSTOM, NITE PIX) during the DEMONSTRATION mode, the DEMONSTRATION stops temporarily and resumes 10 minutes later if you do not operate any other functions.

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Advanced Recording

● PROGRAM AE

  ❃ The PROGRAM AE function works in CAMERA or M.REC mode only.
  ❃ The PROGRAM AE mode allows you to adjust shutter speeds and apertures to suit different recording conditions.
  ❃ They give you creative control over the depth of field.

■ **AUTO mode**
  - Auto balance between the subject and the background.
  - To be used in normal conditions.
  - The shutter speed automatically varies from 1/60 to 1/250 per second, depending on the scene.

■ **SPORTS mode (❆)**
  - For recording people or objects moving quickly.

■ **PORTRAIT mode (👥)**
  - For focusing on the background of the subject, when the background is out of focus.
  - The PORTRAIT mode is most effective when used outdoors.
  - The shutter speed automatically varies from 1/60 to 1/1000 per second.

■ **SPOTLIGHT mode (⑧)**
  - For recording correctly when there is only light on the subject and not the rest of the picture.

■ **SAND/SNOW mode (❅)**
  - For recording when people or objects are darker than the background because of reflected light from sand or snow.

■ **HIGH S.SPEED (High Shutter Speed) mode (⚡)**
  - For recording fast-moving subjects such as players in golf or tennis games.

Advanced Recording

Setting the PROGRAM AE

1. Press the MENU button.
   ■ The menu list will appear.

2. Move the MENU SELECTOR to highlight CAMERA and
   push the MENU SELECTOR.

3. Select PROGRAM AE from the submenu.

4. Push the MENU SELECTOR to enter the sub-menu.

5. Using the MENU SELECTOR, select the PROGRAM AE mode.
   ■ Push the MENU SELECTOR to confirm the
     PROGRAM AE mode.

6. To exit, press the MENU button.
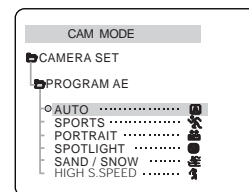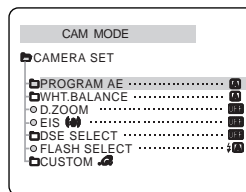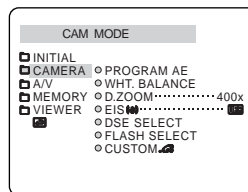
Notes

■ While setting the NITE PIX to ON, the PROGRAM AE function does not work.
■ The P.AE function will not operate in EASY mode.
■ When recording with a PROGRAM AE mode, the Flash function and Video Light Auto function do not work (optional).

Advanced Recording

● WHT. BALANCE (WHITE BALANCE)

✱ The WHITE BALANCE function works in CAMERA or M.REC mode only.
✱ The WHITE BALANCE is a recording function that preserves the unique color of the object in any recording condition.
✱ You may select the appropriate WHITE BALANCE mode to obtain good quality color of the image.
  ■ AUTO (Ⓐ) : This mode is generally used to control the WHITE BALANCE automatically.
  ■ HOLD (☂) :This fixes the current WHITE BALANCE value.
  ■ INDOOR (✲) : This controls the WHITE BALANCE according to the indoor ambience.
    - Under halogen or studio/video lighting
    - Subject is of one dominant color
    - Close ups
  ■ OUTDOOR (☀) : This controls the WHITE BALANCE according to the outdoor ambience.
    - In daylight, especially for close ups and where the subject is of one dominant color.

1. Set the camcorder to CAMERA mode.
2. Press the MENU button.
   ■ The menu list will appear.
3. Move the MENU SELECTOR to highlight CAMERA and push the MENU SELECTOR.
4. Select WHT.BALANCE from the submenu.
5. Push the MENU SELECTOR to enter the sub-menu.
6. Using the MENU SELECTOR, select the WHITE BALANCE mode.
   ■ Push the MENU SELECTOR to confirm the WHITE BALANCE mode.
7. To exit, press the MENU button.

CAM MODE
☐ INITIAL
☐ CAMERA ○ PROGRAM AE
☐ A/V ○ WHT. BALANCE
☐ MEMORY ○ D.ZOOM·············400x
☐ VIEWER ○ EIS📷················📷
📷 ○ DSE SELECT
○ FLASH SELECT
○ CUSTOM📷

CAM MODE
📁CAMERA SET
☐PROGRAM AE ················· 🎿
☐WHT.BALANCE ·················· Ⓐ
○ D.ZOOM ··························
○ EIS📷 ·························
☐DSE SELECT ·················
○ FLASH SELECT ··············· ⚡Ⓐ
📁CUSTOM📷

Notes

■ While setting the NITE PIX to ON, the WHT.BALANCE function does not work.
■ The WHT.BALANCE function will not operate in EASY mode.
■ Turn the digital zoom off (if necessary) to set a more accurate white balance.
■ If you have set the white balance and lighting conditions change, reset the white balance.
■ During normal outdoor recording, setting to AUTO may provide better results.

CAM MODE
📁CAMERA SET
📂WHT. BALANCE
○ AUTO ··························· Ⓐ
HOLD ······················· ☂
INDOOR ······················ ✲
OUTDOOR ····················· ☀
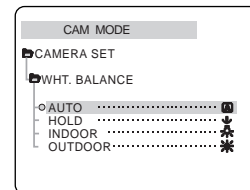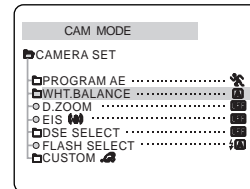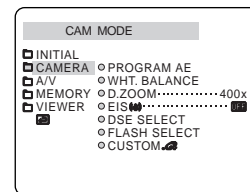
Advanced Recording

Zooming In and Out with DIGITAL ZOOM

� Zoom works in CAMERA/M.REC mode only.

Zooming In and Out

✱ Zooming is a recording technique that lets you change the size of the subject in a scene.
For more professional looking recordings, do not use the zoom function too often.
✱ You can zoom using variable zoom speeds.
✱ Use these features for different shots. Please note that over-use of the zoom feature can lead to unprofessional looking results and a reduction of battery usage time.

1. Move the zoom lever slightly for a gradual zoom, move it further for a high-speed zoom.
   Your zooming is monitored on the OSD.
2. T(Telephoto) side: Subject appears closer.
3. W(Wide angle) side: Subject appears farther away.
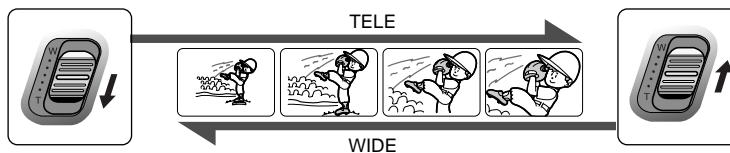
TELE

WIDE

Note

■ You can record a subject that is a minimum of 1 m (about 3.2 feet) away from the lens surface in the TELE position, or about 10 mm (about 0.5 inch) away in the WIDE position.

Advanced Recording

Digital Zoom

- ✿ More than 10x zoom is achieved digitally.
- ✿ The picture quality may deteriorate depending on how much you zoom in on the subject.
- ✿ We recommend that you use the EIS feature with DIGITAL ZOOM for picture stability. (see page 47)

1. Set the camcorder to CAMERA or M.REC mode.

2. Press the MENU button.
   - The menu list will appear.

3. Move the MENU SELECTOR to CAMERA and push the MENU SELECTOR.

4. Select D.ZOOM from the submenu.

5. Push the MENU SELECTOR to setup the 400x digital zoom function or to turn the feature OFF.

6. To exit, press the MENU button.

```
        CAM  MODE

 INITIAL
 CAMERA  o PROGRAM AE
 A/V      o WHT. BALANCE
 MEMORY   o D.ZOOM
 VIEWER   o EIS
          o DSE SELECT
          o FLASH SELECT
          o CUSTOM
```

```
        CAM  MODE

 CAMERA SET

  PROGRAM AE
  WHT. BALANCE
 o D. ZOOM              400x
 o EIS
  DSE SELECT
 o FLASH SELECT
  CUSTOM
```
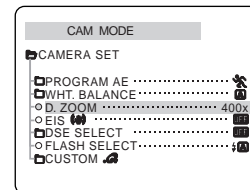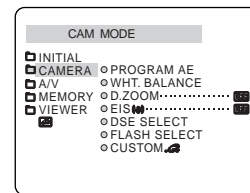
Advanced Recording

● **EIS (Electronic Image Stabilizer)**

✿ The EIS function works in CAMERA/M.REC mode only.
✿ EIS(Electronic Image Stabilizer) is a function that compensates for any shaking or hand movement while holding the camcorder (within reasonable limits).
✿ It provides more stable pictures when:
  ■ Recording a small object close-up
  ■ Recording and walking at the same time
  ■ Recording through the window of a vehicle

1. Set the camcorder to CAMERA mode.

2. Press the MENU button.
  ■ The menu list will appear.

3. Move the MENU SELECTOR highlight to CAMERA and push the MENU SELECTOR.
  ■ The sub menu list will appear.

4. Move the MENU SELECTOR to activate the EIS function, push the MENU SELECTOR.
  ■ The EIS menu is changed to ON.
  ■ If you do not want to use the EIS function, set the EIS menu to OFF.

5. To exit, press the MENU button.

```
┌─────────────────────────────┐
│        CAM  MODE            │
│                             │
│ 🗂 INITIAL                   │
│ 🗂 CAMERA  ○ PROGRAM AE      │
│ 🗂 A/V     ○ WHT. BALANCE    │
│ 🗂 MEMORY  ○ D.ZOOM······400x│
│ 🗂 VIEWER  ○ EIS◖◗········   │
│   📷       ○ DSE SELECT      │
│           ○ FLASH SELECT    │
│           ○ CUSTOM          │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│        CAM  MODE            │
│                             │
│ 🗂 CAMERA SET               │
│                             │
│ 🗂 PROGRAM AE ·········     │
│ 🗂 WHT. BALANCE ········    │
│ ○ D. ZOOM ··········· 400x  │
│ ○ EIS ◖◗ ············       │
│ 🗂 DSE SELECT ·········     │
│ ○ FLASH SELECT ·······     │
│ 🗂 CUSTOM                   │
└─────────────────────────────┘
```
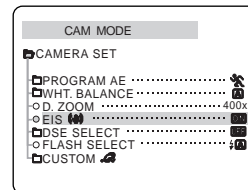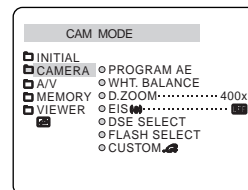
Notes

■ It is recommended that you deactivate the shake compensation function when using a tripod.

Advanced Recording

● DSE(Digital Special Effects) SELECT

- ✵ The DSE function works in CAMERA and M.REC mode only.
- ✵ The digital effects enable you to give a creative look to your recording by adding various special effects.
- ✵ Select the appropriate digital effect for the type of picture that you wish to record and the effect you wish to create.
- ✵ There are 9 DSE modes.

a ART mode

This mode gives the images a coarse effect.
b. MOSAIC mode

This mode gives the images a mosaic effect.
c. SEPIA mode

This mode gives the images a reddish-brown pigment.
d. NEGA mode

This mode reverses the colors of the images, creating a negative image.
e. MIRROR mode

This mode cuts the picture in half, using a mirror effect.
f. BLK & WHT mode

This mode changes the images to black and white.
g. EMBOSS mode

This mode creates a 3D effect (embossing).
h. CINEMA mode

This mode covers the upper/lower portions of the screen to give a cinematic effect.
i. MAKE - UP mode

This mode allows the images to be selected in red, green, blue or yellow colors.
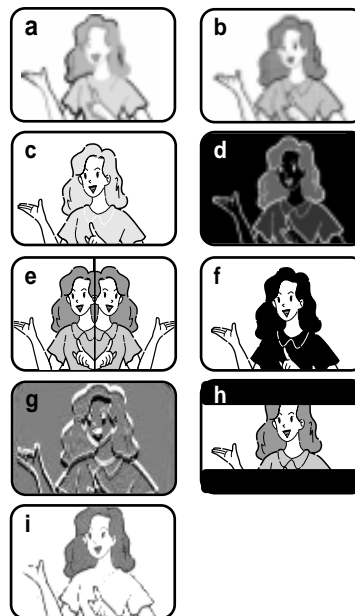
Advanced Recording

Selecting an effect

1. Set the camcorder to CAMERA mode.

2. Press the MENU button.
   ■ The menu list will appear.

3. Move the MENU SELECTOR to highlight CAMERA and push the MENU SELECTOR.

4. Select DSE SELECT from the submenu.

5. Push the MENU SELECTOR to enter the sub-menu.

6. Using MENU SELECTOR, select the DSE mode.
   ■ Push the MENU SELECTOR to confirm the DSE mode.

7. To exit, press the MENU button.
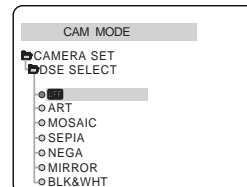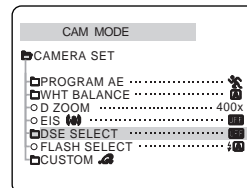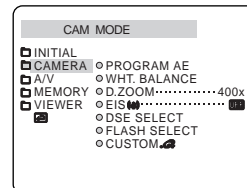
Notes

■ While setting the NITE PIX to ON, the DSE function does not work.
■ The DSE function will not operate in EASY mode.

```
CAM  MODE
INITIAL
CAMERA    PROGRAM AE
A/V       WHT. BALANCE
MEMORY    D.ZOOM          400x
VIEWER    EIS
          DSE SELECT
          FLASH SELECT
          CUSTOM
```

```
CAM  MODE
CAMERA SET

PROGRAM AE
WHT BALANCE
D ZOOM              400x
EIS
DSE SELECT
FLASH SELECT
CUSTOM
```

```
CAM  MODE
CAMERA SET
DSE SELECT

ART
MOSAIC
SEPIA
NEGA
MIRROR
BLK&WHT
```

Advanced Recording

● FLASH SELECT
✽ The FLASH SELECT function works in CAMERA and M.REC mode.
✽ To use the FLASH SELECT function, attach the VL-S1FL Video Light/Flash (optional) to the camcorder's Smart Shoe and set the VL-S1FL to FLASH mode.

1. Set the camcorder to CAMERA mode.

2. Press the MENU button.
   ■ The menu list will appear.

3. Move the MENU SELECTOR to highlight CAMERA and push the MENU SELECTOR.

4. Select FLASH SELECT form the submenu and push the MENU SELECTOR.
   ■ The FLASH mode toggles between AUTO (🔦🅰) and flash on (🔦) with each push.
   - 🔦🅰 (Auto): The flash comes on depending on the brightness of the subject.
   - 🔦 (Flash on): The flash comes on regardless of the brightness of the subject.

5. To exit the menu, press the MENU button.

```
┌─────────────────────────────┐
│         CAM  MODE           │
│                             │
│ ▯INITIAL                    │
│ ▯CAMERA ○PROGRAM AE         │
│ ▯A/V     ○WHT. BALANCE      │
│ ▯MEMORY  ○D.ZOOM········400x│
│ ▯VIEWER  ○EIS�… ……… ▱       │
│   ▱      ○DSE SELECT        │
│          ○FLASH SELECT      │
│          ○CUSTOM▱           │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│         CAM  MODE           │
│ ▭CAMERA SET                 │
│                             │
│ ▯PROGRAM AE ············· 🏃 │
│ ▯WHT. BALANCE ··········· ▣ │
│ ○D. ZOOM ··············400x │
│ ○EIS 〈◗〉 ·············· ▱  │
│ ▯DSE SELECT ············· ▱ │
│ ○FLASH SELECT ··········· 🔦🅰│
│ ▯CUSTOM ▱                   │
└─────────────────────────────┘
```
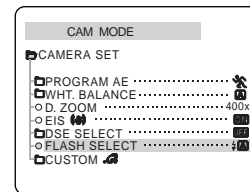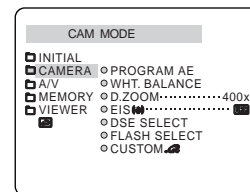
Advanced Recording

● CUSTOM.Q

- ✼ You can customize settings and save them for future use.
  - ■ The CUSTOM.Q function operates in the CAMERA and M.REC mode.
- ✼ If you want to use the CUSTOM.Q function (see page 62) correctly, set the status of each item as desired before using the CUSTOM.Q function.
- ✼ You can set and store the following items:
  - ■ PROGRAM AE, WHT.BALANCE, D.ZOOM, EIS, DSE SELECT

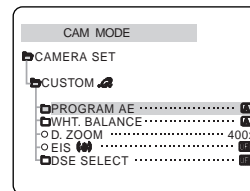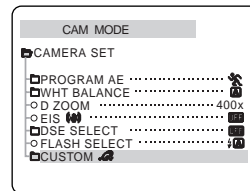1. Set the power switch to CAMERA mode.

2. Press the MENU button.
   - ■ The MENU list will appear.

3. Move the MENU SELECTOR, select CAMERA position and push the MENU SELECTOR.

4. Select CUSTOM.Q using MENU SELECTOR in the submenu and push the MENU SELECTOR.

5. Using the MENU SELECTOR and push the MENU SELECTOR, set the status of each item as desired.

6. To exit the menu, press the MENU button.

Note

■ If you want to activate the CUSTOM.Q function, press the CUSTOM.Q button while in CAMERA mode.

```
CAM  MODE
INITIAL
CAMERA    ○ PROGRAM AE
A/V       ○ WHT. BALANCE
MEMORY    ○ D.ZOOM·············400x
VIEWER    ○ EIS
          ○ DSE SELECT
          ○ FLASH SELECT
          ○ CUSTOM
```

```
CAM  MODE
CAMERA SET

PROGRAM AE ··················
WHT BALANCE ··················
D ZOOM ··················400x
EIS ··················
DSE SELECT ··················
FLASH SELECT ··················
CUSTOM
```

```
CAM  MODE
CAMERA SET

CUSTOM

PROGRAM AE ··················
WHT. BALANCE ··················
D. ZOOM ··················400x
EIS ··················
DSE SELECT ··················
```

51
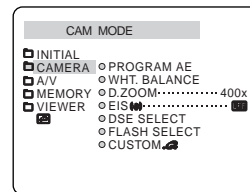
Advanced Recording

● REC MODE

⌘ The REC MODE function works in both CAMERA and PLAYER modes.
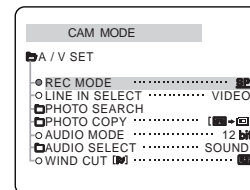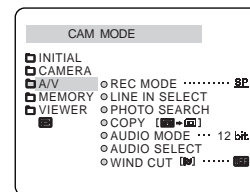⌘ This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode.
- SP (standard play): This mode permits 60 minutes of recording time with a DVM60 tape.
- LP (long play): This mode permits 90 minutes of recording time with a DVM60 tape.

1. Set the camcorder to CAMERA or PLAYER mode.

2. Press the MENU button.
- The menu list will appear.

3. Move the MENU SELECTOR to highlight A/V and push the MENU SELECTOR.

4. Select REC MODE from the submenu and push the MENU SELECTOR.
- The REC MODE toggles between SP and LP with each push.

5. To exit, press the MENU button.

```
         CAM  MODE
 ▢ INITIAL
 ▢ CAMERA
 ▢ A/V      ⊙ REC MODE ········· SP
 ▢ MEMORY   ⊙ LINE IN SELECT
 ▢ VIEWER   ⊙ PHOTO SEARCH
   📼        ⊙ COPY  [📼▸🖭]
             ⊙ AUDIO MODE ··· 12 bit
             ⊙ AUDIO SELECT
             ⊙ WIND CUT [M] ······ 📼
```

```
         CAM  MODE
 ▣ A / V SET

 ─⊙ REC MODE ·················· SP
  ⊙ LINE IN SELECT ·········· VIDEO
 ▢ PHOTO SEARCH
 ▢ PHOTO COPY ··········· [📼▸🖭]
  ⊙ AUDIO MODE ·············· 12 bit
 ▢ AUDIO SELECT ··········· SOUND1
 └⊙ WIND CUT [M] ·················· 📼
```

Notes

- We recommend that you use this camcorder to play back any tapes recorded on this camcorder.
  Playing back a tape recorded in other equipment may produce mosaic shaped distortion.
- When you record a tape in SP and LP modes, or LP mode only, the playback picture may be distorted
  or the time code may not be written properly between scenes.
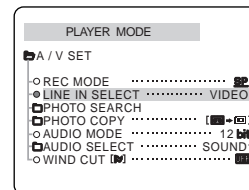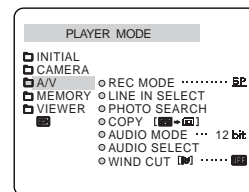- Record using SP mode for best picture and sound quality.

Advanced Recording

● LINE IN SELECT

� The LINE IN SELECT function works in PLAYER mode.

✤ You can select the input signal (VIDEO or S-VIDEO) when you want to record in PLAYER mode. (see page 77)

1. Set the camcorder to PLAYER mode.

2. Press the MENU button.
   - ■ The menu list will appear.

3. Move the MENU SELECTOR to highlight A/V and push the MENU SELECTOR.

4. Select LINE IN SELECT from the submenu and push the MENU SELECTOR.
   - ■ The LINE IN SELECT toggles between VIDEO and S-VIDEO with each push.

5. To exit, press the MENU button.

```
         PLAYER  MODE
 ☐ INITIAL
 ☐ CAMERA
 ☐ A/V      ○ REC MODE ········· SP
 ☐ MEMORY   ○ LINE IN SELECT
 ☐ VIEWER   ○ PHOTO SEARCH
            ○ COPY  [▦◆▣]
            ○ AUDIO MODE ··· 12 bit
            ○ AUDIO SELECT
            ○ WIND CUT [M] ······ ▦
```

```
         PLAYER  MODE
 ▦ A / V SET

 ○ REC MODE        ················· SP
 ○ LINE IN SELECT  ··········· VIDEO
 ☐ PHOTO SEARCH
 ☐ PHOTO COPY      ············· [▦◆▣]
 ○ AUDIO MODE      ················ 12 bit
 ☐ AUDIO SELECT    ··········· SOUND1
 ○ WIND CUT [M]    ···················· ▦
```
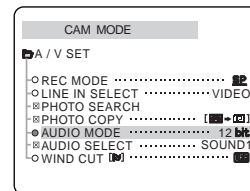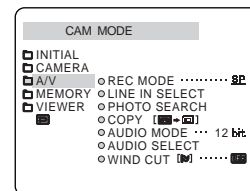

Advanced Recording

● AUDIO MODE

� The AUDIO MODE function works in CAMERA and PLAYER modes.
� This camcorder can record sound on a tape in two audio modes.
   ■ 12bit : You can record two 12bit stereo sound tracks.
             The original stereo sound can be recorded onto the MAIN (SOUND1) track.
             Additional stereo sound can be dubbed onto the SUB (SOUND2) track.
   ■ 16bit : You can record one high quality stereo sound using the 16bit recording mode.
             Audio dubbing is not possible when using this mode.

1. Set the camcorder to CAMERA mode.

2. Press the MENU button.
   ■ The menu list will appear.

3. Move the MENU SELECTOR to highlight A/V and push the MENU SELECTOR.

4. Select the AUDIO MODE from the menu and push the MENU SELECTOR.
   ■ The AUDIO MODE toggles between 12bit-16bit with each push.
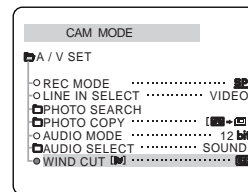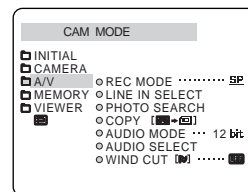
5. To exit, press the MENU button.

```
┌─────────────────────────────────┐
│       CAM  MODE                  │
│                                  │
│ □ INITIAL                        │
│ □ CAMERA                         │
│ □ A/V      ○ REC MODE ········· SP│
│ □ MEMORY   ○ LINE IN SELECT      │
│ □ VIEWER   ○ PHOTO SEARCH        │
│            ○ COPY  [▦→▣]          │
│            ○ AUDIO MODE ··· 12 bit│
│            ○ AUDIO SELECT         │
│            ○ WIND CUT [M] ······ ▦│
│                                  │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│       CAM  MODE                  │
│                                  │
│ ▣ A / V SET                      │
│                                  │
│ ○ REC MODE ····················· SP│
│ ○ LINE IN SELECT ············· VIDEO│
│ ⊠ PHOTO SEARCH                   │
│ ⊠ PHOTO COPY ·········· [▦→▣]    │
│ ● AUDIO MODE ················ 12 bit│
│ ⊠ AUDIO SELECT ·········· SOUND1  │
│ ○ WIND CUT [M] ·················· ▦│
│                                  │
└─────────────────────────────────┘
```

Advanced Recording

● **WIND CUT**

⌜ The WIND CUT function works in CAMERA and PLAYER modes.

⌜ The WIND CUT function minimizes wind noise or other noise while recording.
- When the wind cut is on, some low sounds are eliminated along with the sound of the wind.

1. Set the camcorder to CAMERA mode.

2. Press the MENU button.
- The menu list will appear.

3. Move the MENU SELECTOR to highlight A/V and push the MENU SELECTOR.

4. Select WIND CUT from submenu.

5. This feature toggles ON/OFF each time you push the MENU SELECTOR.
- [**M**] is shown in the display when you turn the WIND CUT on.

6. To exit, press the MENU button.

```
        CAM  MODE

□ INITIAL
□ CAMERA
□ A/V      ○ REC MODE ········· SP
□ MEMORY   ○ LINE IN SELECT
□ VIEWER   ○ PHOTO SEARCH
           ○ COPY  [▤◄►▣]
           ○ AUDIO MODE ··· 12 bit
           ○ AUDIO SELECT
           ○ WIND CUT [M] ······ ▦
```

```
        CAM  MODE

▶ A / V SET

○ REC MODE ···················· SP
○ LINE IN SELECT ··········· VIDEO
□ PHOTO SEARCH
□ PHOTO COPY ·············· [▤◄►▣]
○ AUDIO MODE ················ 12 bit
□ AUDIO SELECT ············ SOUND1
○ WIND CUT [M] ···················· ▦
```

Notes

- The WIND CUT does not operate when an external microphone is connected to the External MIC in or the optional ZM-EC1 microphone is connected to the Smart Shoe.
- Make sure WIND CUT is set to off when you want the microphone to be as sensitive as possible.
- Use the WIND CUT when recording in windy places such as the beach or near buildings.
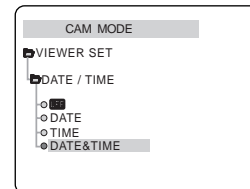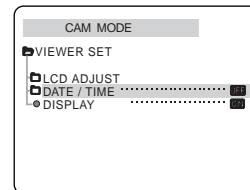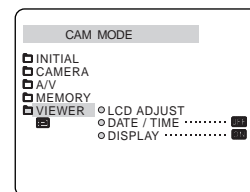
Advanced Recording

● **DATE/TIME**

    ✿ The DATE/TIME function works in CAMERA, PLAYER, M.REC and M.PLAY modes.

    ✿ The date and time are automatically recorded on a special data area of the tape.

1. Press the MENU button.
   - The menu list will appear.

2. Move the MENU SELECTOR to highlight VIEWER and push the MENU SELECTOR.

3. Move the MENU SELECTOR to highlight DATE/TIME.

4. Push the MENU SELECTOR to select the sub-menu.

5. Using the MENU SELECTOR, select the DATE/TIME mode.
       ✿ You can choose between the OFF, DATE, TIME, and DATE&TIME modes.
   - OFF
   - DATE only
   - TIME only
   - DATE & TIME
       ✿ To return to the previous menu, highlight DATE/TIME in the middle of the menu and push MENU SELECTOR.

6. To exit, press the MENU button.

Notes

- The DATE/TIME is not affected by the OSD ON/OFF (DISPLAY) menu.
- The DATE/TIME will read "- - -" in the following conditions.
  - During playback of a blank section of a tape.
  - If the tape was recorded before setting the DATE/TIME in the Camera's memory.
  - When the lithium battery becomes weak or dead. (see page 10)
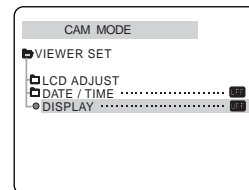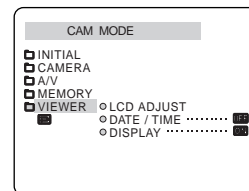- Before you can use the DATE/TIME function, you must set the Clock. See CLOCK SET on page 36.

```
      CAM MODE
□ INITIAL
□ CAMERA
□ A/V
□ MEMORY
□ VIEWER   ○ LCD ADJUST
            ○ DATE / TIME ········ [OFF]
            ○ DISPLAY ············ [ON]
```

```
      CAM MODE
▶ VIEWER SET

□ LCD ADJUST
□ DATE / TIME ···················· [OFF]
○ DISPLAY ······················· [ON]
```

```
      CAM MODE
▶ VIEWER SET

□ DATE / TIME

○ OFF
○ DATE
○ TIME
○ DATE&TIME
```

Advanced Recording

DISPLAY

⌘ The DISPLAY function works in CAMERA, PLAYER, M.REC, M.PLAY modes.
⌘ You can select the output path of the OSD (On Screen Display).
  ■ OFF: The OSD appears in the LCD screen, CVF only.
    - In CAMERA mode: The STBY, REC, EASY.Q and CUSTOM.Q appear even when the DISPLAY is turned OFF.
      The Function input is displayed for 3 seconds then turned off.
    - In PLAYER mode: When you press any function button, the function is displayed
      on the OSD for 3 seconds before it turns off.
  ■ ON: The OSD appears in the LCD screen, CVF and TV.

1. Set the camcorder to CAMERA, PLAYER, M.REC, M.PLAY mode.

2. Press the MENU button.
  ■ The menu list will appear.

3. Move the MENU SELECTOR to highlight VIEWER and push the MENU SELECTOR.

4. Select the DISPLAY mode in list, push the MENU SELECTOR.
  ■ The DISPLAY mode switches between ON/OFF with each push.

5. To exit, press the MENU button.

```
        CAM  MODE
□ INITIAL
□ CAMERA
□ A/V
□ MEMORY
□ VIEWER  ○ LCD ADJUST
          ○ DATE / TIME ········
          ○ DISPLAY ···········
```

```
        CAM  MODE
► VIEWER SET
□ LCD ADJUST
□ DATE / TIME ················
○ DISPLAY ····················
```

Advanced Recording

Using Quick Menu

❈ Quick menu is available in CAMERA and M.REC mode.
❈ Quick menu is used to adjust camera functions by simply using the MENU SELECTOR button.
   This feature is useful for when you want to make simple adjustments without having to access the menus and submenus.

■ **DATE/TIME**
   - Each time you select DATE/TIME and press the MENU SELECTOR, it will be displayed
     in the order of DATE - TIME - DATE/TIME - OFF(See page 56).

■ **REMOCON( )**
   - Each time you select REMOCON and press the MENU SELECTOR, the REMOCON is
     switched to either enabled ( ) or disabled ( ) .

■ **EIS( )**
   - Each time you select EIS and press the MENU SELECTOR, the EIS icon is displayed or set to OFF.

■ **DSE(Digital Special Effect) (see page 48)**
   - Each time you select DSE and press the MENU SELECTOR, the DSE preset values are applied or set to OFF.
     DSE values will not switch between On and Off if they have not been preset in the menu.

■ **PROGRAM AE (see page 42)**
   - Each time you select PROGRAM AE and press the MENU SELECTOR, you can choose between
     the preset PROGRAM AE values and AUTO. You can't choose between Auto and the PROGRAM AE values
     if the values have not been preset in the regular menu.

■ **WHT. BALANCE (see page 44)**
   - Each time you select WHT. BALANCE and press the MENU SELECTOR, you can choose between
     preset WHT.BALANCE values and AUTO. As in PROGRAM AE, you can't choose between
     Auto and WHT.BALANCE values it they have not been preset.

MIRROR

10:00
1. JAN. 2002

58
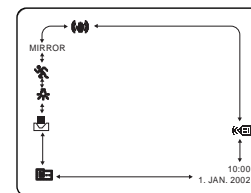
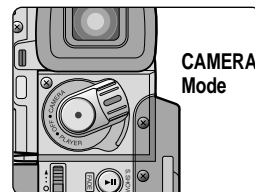# Advanced Recording

■ **FOCUS (see page 63)**
- Each time you select FOCUS and press the MENU SELECTOR, it will be displayed
  in the order of M.FOCUS( ) -AUTO(A).

■ **SHUTTER SPEED & EXPOSURE**
- You can set values for SHUTTER SPEED and EXPOSURE by selecting ( ) icon and pressing the MENU SELECTOR.
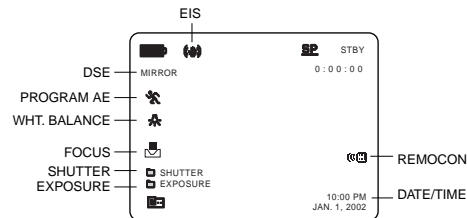 For more information, see the next chapter.

Setting the Quick menu

1. Set the camcorder to CAMERA mode.

2. Move the MENU SELECTOR.
   ■ If you move the MENU SELECTOR up, you'll see FOCUS icon first.

3. Move the MENU SELECTOR to select a function you want and
   then press the MENU SELECTOR to change the values.

Notes

■ Quick menu function will not operate in EASY mode.
■ If you are using the M.FOCUS( ) function,
  you cannot use the Quick menu.
  If you want to use the Quick menu function,
  release the M.FOCUS( ) mode.

CAMERA Mode

EIS

DSE —— MIRROR
PROGRAM AE ——
WHT. BALANCE ——

FOCUS ——
SHUTTER —— SHUTTER
EXPOSURE —— EXPOSURE

SP STBY
0 : 0 0 : 0 0

—— REMOCON

10:00 PM —— DATE/TIME
JAN. 1, 2002

Advanced Recording

SHUTTER SPEED & EXPOSURE

✼ You can set SHUTTER SPEED and EXPOSURE in CAMERA/M.REC mode.
✼ SHUTTER SPEED and EXPOSURE values can only be set in the Quick Menu.
✼ SHUTTER SPEED and EXPOSURE are automatically switched and/or deactivated.

1. Set the power switch to CAMERA mode.
2. Move the MENU SELECTOR until you see ▣ icon on, and then press the MENU SELECTOR.
   - You see a screen on which you can select SHUTTER SPEED and EXPOSURE.
   - Move the MENU SELECTOR to select the item you want and then press the MENU SELECTOR.
   - SHUTTER SPEED can be set to 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000 or 1/10000.
   - EXPOSURE can be set between 00 and 29.
3. To exit from the setting screen, select the ▣ icon and press the MENU SELECTOR.

Recommended Shutter speeds when recording

   ✼ Outdoor sports such as golf or tennis: 1/2000 or 1/4000.
   ✼ Moving cars or trains or other rapidly moving vehicles such as roller coasters: 1/1000, 1/500 or 1/250.
   ✼ Indoor sports such as basketball: 1/100.

Notes

- If you want to use the selected shutter speed and exposure value, you should begin the recording with the shutter speed and the exposure adjustment screens displayed on the LCD.
- If you manually change the shutter speed and the exposure value when Auto-exposure option is selected, manual changes are applied first.
- The image may not appear smooth when a high shutter speed is set.
- The camcorder returns to the auto shutter setting and auto exposure setting when you set the NITE PIX to ON, or change to the EASY mode.
- When recording with a SHUTTER SPEED of 1/1000 or higher, make sure the sun is not shining into the lens.
- When recording with a SHUTTER SPEED or EXPOSURE, the Flash function and Video Light Auto function do not work. (VL-S1FL Video Light/Flash, VL-S1IR Video/IR Light: optional)

Advanced Recording

EASY Mode (for Beginners)

✤ The EASY mode allows a beginner to make good recordings easily.
- The EASY mode operates in CAMERA and M.REC mode.

1. Set the power switch to CAMERA mode.

2. By pressing the EASY.Q button, all functions on the camera will be set to off and
   the recording settings will be set to the following basic modes:
   - Battery level, recording mode, counter, DATE/TIME, and EIS ( ) will be displayed.
   - The word "EASY.Q" will appear on the LCD at the same time.
   However, the DATE/TIME will only be seen if it has been previously set. (see page 56)

3. Press START/STOP to start recording.
   - Recording will begin using the basic automatic settings.

4. Pressing the EASY.Q button again turns the EASY mode off.
   - The camera will return to the settings that were set prior to activating EASY mode.

<div style="text-align:right">

MIC
CUSTOM Q EASY

▬ (((•))) SP STBY
EASY 0 : 0 0 : 0 0
53 min
12:00 PM
SEP. 28, 2002

</div>
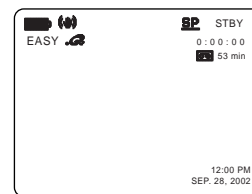
Notes

- In EASY mode, certain functions are not available, such as MENU, BLC, MF.
  - If you want to use these functions, you must first switch the EASY mode off.
- The EASY mode settings are deleted when the battery pack is uninstalled from the camcorder and therefore, they must be reset when a battery pack has been replaced.

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Advanced Recording

CUSTOM Mode

� You can customize settings and save them for future use.
  ■ The CUSTOM SET function operates in CAMERA and M.REC mode only.
✿ Please set the custom settings before using this function. (see page 51)

1. Set the power switch to CAMERA mode.

2. To activate the CUSTOM function, press the CUSTOM.Q button.
   ■ "CUSTOM.Q" will be displayed on the screen.

3. Press START/STOP to start recording.
   ■ Recording will begin using the CUSTOM settings.

4. To switch CUSTOM mode off, press the CUSTOM.Q button again.
   ■ The camcorder will revert to the settings that were set prior to
     custom mode being selected.
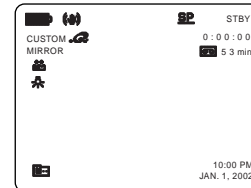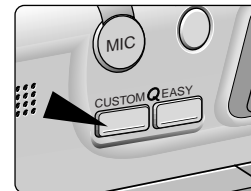
Notes

■ The CUSTOM mode settings are deleted when a battery is uninstalled and therefore they must be reset when a battery has
  been replaced.
■ While setting the NITE PIX to ON, the CUSTOM function does not work.

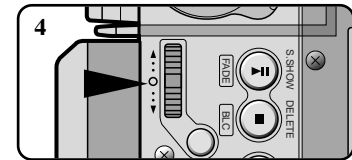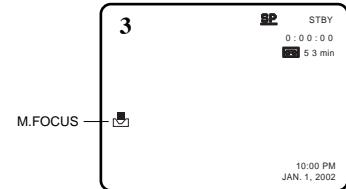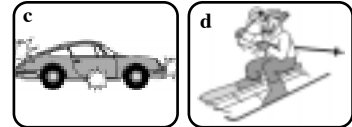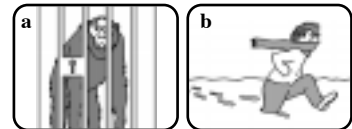# Advanced Recording

MF/AF (Manual Focus/Auto Focus)

❈ The MF/AF function works in CAMERA and M.REC mode.
❈ In most situations, it is better to use the automatic focus
   feature, as it enables you to concentrate on the creative side of your recording.
❈ Manual focusing may be necessary under certain conditions that make automatic
   focusing difficult and/or unreliable.

Auto Focusing

❈ If you are inexperienced in the use of camcorders, we recommend that you make
   use of Auto Focus.

Manual Focusing

❈ In the following cases you may obtain better results by adjusting
   the focus manually.

a. A picture containing several objects, some close to the camcorder,
   others further away.
b. A person enveloped in fog or surrounded by snow.
c. Very shiny or glossy surfaces like a car.
d. People or objects moving constantly or quickly like an athlete or a crowd.

1. Set the power switch to CAMERA mode.
2. Move the MENU SELECTOR up or down until the FOCUS is highlighted and
   then push the MENU SELECTOR.
   ■ M.FOCUS( ) will display.
3. Move the MENU SELECTOR up or down until the object is in focus.
   ■ Zoom out a little if focusing is difficult.
4. To return to AF(Auto Focus), press the MENU SELECTOR again.

Advanced Recording

BLC (Back Light Compensation)

✿ BLC works in CAMERA/M.REC mode.

✿ Back lighting exists when the subject is darker than the background:
- The subject is in front of a window.
- The person to be recorded is wearing white or shiny clothes and is placed against a bright background; the person's face is too dark to distinguish his/her features.
- The subject is outdoors and the background is overcast.
- The light sources are too bright.
- The subject is against a snowy background.

1. Set the power switch to CAMERA mode.

2. Press the BLC button.
- Normal - BLC - Normal
- BLC enhances the subject.

* BLC off *** BLC on**

BLC

Notes

- When NITE PIX is set to ON, the BLC function does not work.
- The BLC function will not operate in EASY mode.
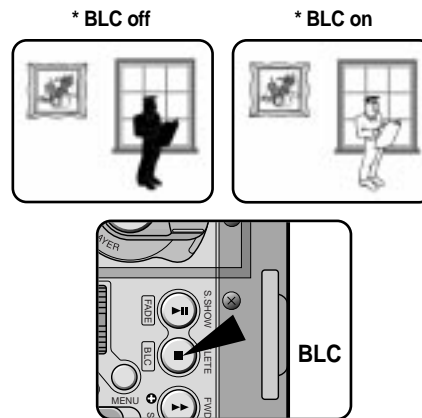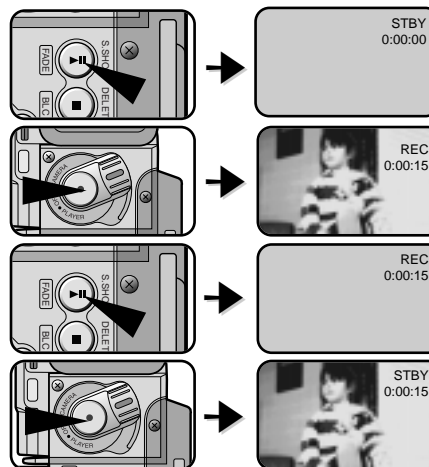
Advanced Recording

Fade In and Out

⌘ The FADE function works in CAMERA mode only.
⌘ You can give your recordings a professional look by using special effects such as fading in at the beginning of a sequence or fading out at the end of a sequence.

To Start Recording

1. Before recording, hold down the FADE button.
   The picture and sound gradually disappear (fade out).
2. Press the START/STOP button and at the same time release the FADE button. Recording starts and the picture and sound gradually appear (fade in).
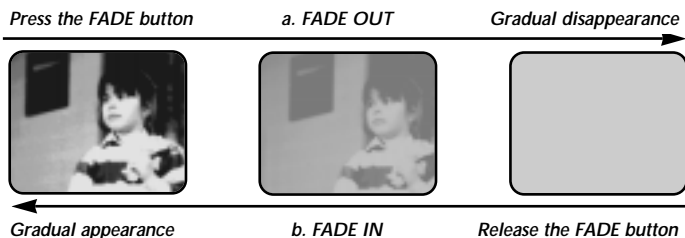
To Stop Recording (use FADE IN / FADE OUT)

3. When you wish to stop recording, hold down the FADE button.
   The picture and sound gradually disappear (fade out).
4. When the picture has disappeared, press the START/STOP button to stop recording.

a. FADE OUT (Approx. 4 seconds)

b. FADE IN (Approx. 4 seconds)

Press the FADE button   *a. FADE OUT*   *Gradual disappearance*

Gradual appearance   *b. FADE IN*   *Release the FADE button*

Advanced Recording

Audio dubbing

- � The AUDIO DUBBING function only works in PLAYER Mode.
- ✻ You can add sound to the original sound on a pre-recorded tape, recorded in SP mode with 12bit sound.
- ✻ Use the internal and external microphones or other audio equipment.
- ✻ The original sound will not be erased.

Dubbing Sound

1. Set the camcorder to PLAYER mode.
   - ■ If you want to use an external microphone, connect the microphone to the external MIC input jack on the camcorder.
   - ■ When you wish to dub using the External A/V input, connect the AUDIO /VIDEO cable to the camcorder by inserting the cable jack into the Multi AV in/out terminal at the front side of the camcorder.
2. Press the ▶/❚❚ (PLAY/STILL) button and find the time frame of the scene to be dubbed.
3. Press the ▶/❚❚ (PLAY/STILL) button to pause the scene.
4. Press the A.DUB button on the Remote Control.
   - ■ A.DUB will be displayed on the LCD.
   - ■ The camcorder is in a ready-to-dub state for dubbing.
5. Press the ▶/❚❚ (PLAY/STILL) button to start dubbing.
   - ■ Press the ■ (STOP) button to stop the dubbing.
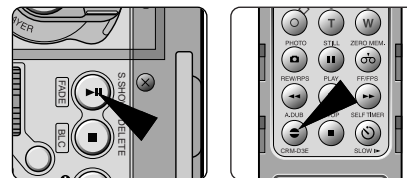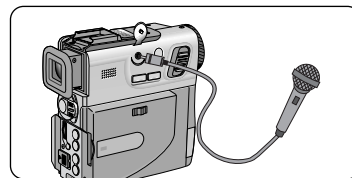
Notes

- ■ You can not use the audio dubbing function while playing a write protected video tape.
- ■ When you wish to dub using the External A/V input, you must connect the AUDIO/VIDEO cable to the audio system from which you wish to record.
- ■ You can not use the audio dubbing function while the Multi AV cable is connected to TV.
- ■ You can not dub sound on a pre-recorded in LP mode or 16 bit mode.

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Advanced Recording

Dubbed audio Playback

1. Insert the dubbed tape and press MENU button.

2. Move the MENU SELECTOR to highlight A/V.

3. Push the MENU SELECTOR to enter the sub-menu.

4. Use the MENU SELECTOR to select AUDIO SELECT from the submenu.

5. Push the MENU SELECTOR to enter the sub-menu.

6. Using the MENU SELECTOR, select the AUDIO playback channel.
   - Push the MENU SELECTOR to confirm the audio playback channel.
     - SOUND1 : play the original sound.
     - SOUND2 : play the dubbed sound.
     - MIX(1+2) : play back SOUND1 and 2 equally mixed.

7. To exit, press the MENU button.

8. Press the ▶/❚❚ (PLAY/STILL) button to playback the dubbed tape.
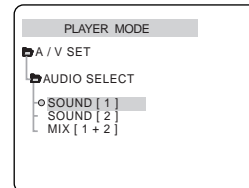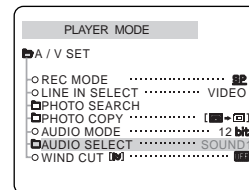
Note

- When you playback added sound (SOUND2 or MIX mode), you may experience loss of sound quality.

```
          PLAYER  MODE

  A / V SET

  REC MODE  ················  SP
  LINE IN SELECT  ··········  VIDEO
  PHOTO SEARCH
  PHOTO COPY  ············  [ ▣ ▸ ▣ ]
  AUDIO MODE  ···············  12 bit
  AUDIO SELECT  ··········  SOUND1
  WIND CUT [ ]  ················
```

```
          PLAYER  MODE

  A / V SET

  AUDIO SELECT

  SOUND [ 1 ]
  SOUND [ 2 ]
  MIX [ 1 + 2 ]
```

Advanced Recording
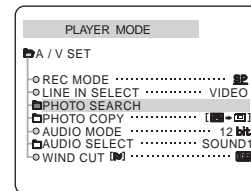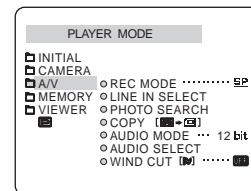
PHOTO Image Recording

1. Press the PHOTO button and hold it.
   - The still picture appears on the LCD monitor.
   - If you do not wish to record, release the button and wait for more than 2 seconds.
2. Press the PHOTO button once again within 2 seconds after releasing the button.
   - The still picture will be recorded for about 6~7 seconds.
3. After the PHOTO has been recorded, the camcorder returns to STBY mode.
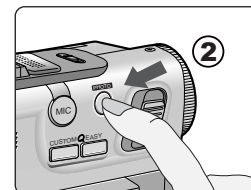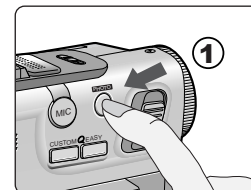
Searching for a PHOTO picture

- ✿ You can search for the recorded still image recorded on tape.
- ✿ The PHOTO SEARCH works in PLAYER mode only.

1. Press the MENU button.
   - The menu list will appear.
2. Move the MENU SELECTOR to highlight A/V.
3. Push the MENU SELECTOR to enter the sub-menu.
4. Select PHOTO SEARCH from the submenu and push the MENU SELECTOR.
5. Search the PHOTO using the ▶▶ (FF) and ◀◀ (REW) buttons.
   - The PHOTO search process appears on the LCD while you are searching.
   - After completing the search, the camcorder displays the still image.
6. To exit, press the ■ (STOP) button.

```
        PLAYER  MODE
□ INITIAL
□ CAMERA
□ A/V         ○ REC MODE ········· SP
□ MEMORY   ○ LINE IN SELECT
□ VIEWER    ○ PHOTO SEARCH
              ○ COPY  [    ◀   ]
              ○ AUDIO MODE ··· 12 bit
              ○ AUDIO SELECT
              ○ WIND CUT  [M] ······
```

```
        PLAYER  MODE
  A / V SET

○ REC MODE ····················· SP
○ LINE IN SELECT ··········· VIDEO
■ PHOTO SEARCH
□ PHOTO COPY ············ [   ◀   ]
○ AUDIO MODE ··············· 12 bit
■ AUDIO SELECT ············ SOUND1
○ WIND CUT  [M] ···················
```

Advanced Recording

NITE PIX

⌘ The NITE PIX function works in CAMERA or M.REC mode.
⌘ The NITE PIX function enables you to record a subject in a dark place.

1. Set the power switch to CAMERA mode.

2. Slide the NITE PIX switch to ON.
   - ■ " ◉ " and "NITE PIX" will be displayed on the screen,
     - The "NITE PIX" is displayed on the screen for about 3 seconds each time you turn the NITE PIX mode ON.

3. To cancel the NITE PIX function, slide the NITE PIX switch to OFF.
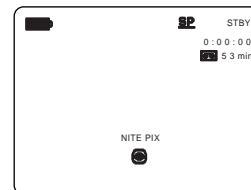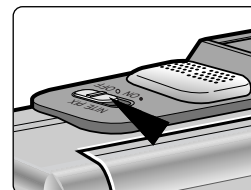
Notes

- The maximum recording distance using the infrared light is about 2m (6.5 feet).
- If you use the NITE PIX function in normal recording situations (ex. outdoors in the daytime), the recorded picture may contain unnatural colors.
- If focusing is difficult with the autofocus mode when using the NITE PIX function, focus manually.
- While using the NITE PIX function, you cannot use the following functions;
 - PROGRAM AE, WHITE BALANCE, DSE, Exposure, Shutter, BLC, CUSTOM.

Advanced Recording

Setting the Self-Timer

Self Record using the Remote Control

When you use the Self Timer function on the remote control, the recording begins automatically in 10 seconds.

1. Set the camcorder to CAMERA mode.

2. Press the SELF TIMER button until the appropriate indicator is displayed in the viewfinder.

3. Press the START/STOP button to start the timer.
   - Self-Timer starts counting down from 10 with a beep sound.
   - In the last one second of the countdown, the beep sound gets faster, then recording starts automatically.
   - If you want to cancel the Self-Timer function before recording, press the SELF TIMER button.

4. Press START/STOP again when you wish to stop recording.

Self Timer
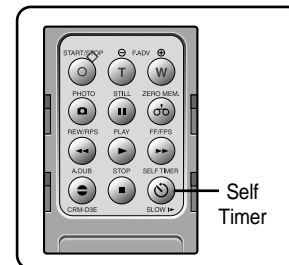
Advanced Recording

Various Recording Techniques

⌘ In some situations different recording techniques may be required for more dramatic results.

Note

Please rotate the LCD screen carefully as excessive rotation may cause damage to the inside of the hinge that connects the LCD screen to the Camcorder.

1. General recording.

2. Downward recording.

Making a recording with a top view of the LCD screen.

3. Upward recording.

Making a recording viewing the LCD screen from below.

4. Self recording.

Making a recording viewing the LCD screen from the front.

5. Recording with the Viewfinder.

■ In circumstances where it is difficult to use the LCD monitor, the viewfinder can be used as a convenient alternative.
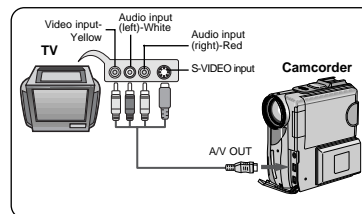
Playing back a Tape

Tape Playback

※ The playback function works in PLAYER mode only.

Playback on the LCD

※ It is practical to view a tape using the LCD in a car or outdoors.

Playback on a TV monitor

※ To play back a tape, the television must have a compatible color system.
※ We recommend that you use the AC Power Adapter as the power source for the camcorder.

Connecting to a TV which has Multi-AV input jacks

1. Connect the camcorder and TV with the Multi-AV cable.
    ■ The yellow plug : Video
    ■ The white plug : Audio(L)
    ■ The red plug : Audio(R) - STEREO only
        - If you connect to a monaural TV or VCR, connect the yellow plug (Video) to the video input of the TV or VCR and the white plug (Audio L) to the audio input of the TV or VCR.
2. Set the power switch on the camcorder to PLAYER mode.
3. Turn on the TV and set the TV/VIDEO selector on the TV to VIDEO.
   ■ Refer to the TV or VCR user's manual.
4. Play the tape back.

Notes

■ You may use the S-VIDEO cable to obtain better quality pictures if you have an S-VIDEO connector on your TV.

Playing back a Tape

Connecting to a VCR

✿ You can connect your camcorder to a TV which has no Audio and Video input jacks through a VCR.

1. Connect the camcorder and VCR with the Multi-AV cable.
   - The yellow plug : Video
   - The white plug : Audio(L)
   - The red plug : Audio(R) - STEREO only
2. Connect a TV to the VCR.
3. Set the power switch on the camcorder to PLAYER mode.
4. Turn on both the TV and VCR.
   - Set the input selector on the VCR to LINE.
   - Select the channel reserved for your VCR on the TV set.
5. Play the tape back.
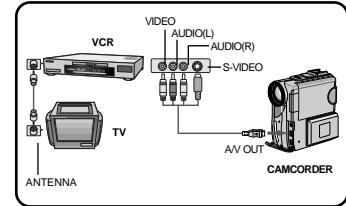
Playback

✿ You can play the recorded tape in PLAYER mode.
1. Connect a power source and set the power switch to PLAYER mode.
2. Insert the tape you wish to play back.
3. Using the ▶▶(FF) and ◀◀ (REW) buttons, find the first position
   you wish to play back.
4. Press the ▶/❚❚ (PLAY/STILL) button.
   - The images you recorded will appear on the TV after a few seconds.
   - If a tape reaches its end while being played back, the tape will rewind automatically.
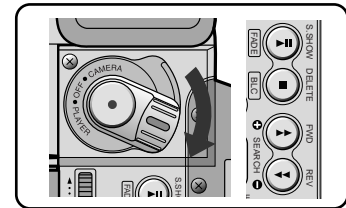
Notes

- It is best to decrease the volume of the built-in speaker when your camcorder is connected to the TV.
- The playback mode (SP/LP) is selected automatically.

Playing back a Tape

Various Functions while in PLAYER mode

❈ The PLAY/STILL, STOP, FF, REW buttons are located on the camcorder and the Remote Control.

❈ The F.ADV(Frame advance), SLOW buttons are located on the Remote Control only.

❈ To prevent tape and head-drum wear, your camcorder will automatically stop if it is left in STILL or SLOW modes for more than 5 minutes.

Playback pause

❈ Press the ▶/❚❚ (PLAY/STILL) button during Playback or Slow playback.

❈ To resume playback, press the ▶/❚❚ (PLAY/STILL) button.

Picture search (Forward/Reverse)

❈ Press the ▶▶ (FF) or ◀◀ (REW) buttons once during Playback mode, Still mode or Slow mode.
To resume normal playback, press the ▶/❚❚ (PLAY/STILL) button.

❈ Keep pressing ▶▶ (FF) or ◀◀ (REW) buttons during Playback mode.
To resume normal playback, release the button.

Slow playback (Forward/Reverse)

❈ Forward Slow Playback
  ■ Press the SLOW button on the Remote Control during Playback.
  ■ To resume normal playback, press the ▶/❚❚ (PLAY/STILL) button.

❈ Reverse slow playback
  ■ Press the ⊖ button during Forward Slow Play back.
  ■ To resume forward slow playback, press the ⊕ button.
  ■ To resume normal playback, press the ▶/❚❚ (PLAY/STILL) button.

Playing back a Tape

Frame advance (To play back frame by frame)

�instead Press the F.ADV button on the Remote control while in Still mode.
The F.ADV function works in still mode only.
✻ To resume normal playback, press the ▶/❚❚ (PLAY/STILL) button.
✻ Forward frame advance
- Press the ⊕ (F.ADV) button on the remote control in still mode.
✻ Reverse frame advance
- Press the ⊖ (F.ADV) button on the remote control in still mode.

F.ADV

Notes

- Mosaic shaped distortion may appear on the screen while in some of the various playback modes.
  - Mosaic shaped distortion or noise may be experienced when you play back tapes recorded in LP which contain various playback functions.
- There is no sound when using some playback functions.

Reverse playback

✻ To play back in reverse at normal speed, press the ⊖ button during normal forward playback.
✻ Press the ▶/❚❚ (PLAY/STILL) or ⊕ button to return to normal forward playback.

Notes

- Mosaic shaped distortion may appear on the screen while in some of the various playback modes.
  - Mosaic shaped distortion or noise may be experienced when you play back tapes recorded in LP which contain various playback functions.
- Sound will only be heard during regular playback.

Playing back a Tape

ZERO MEMORY

✽ The MEMORY function works in both CAMERA and PLAYER modes.

✽ You can mark a point on a tape that you want to return to following playback.

1. Press the ZERO MEMORY button on the Remote Control during playback or recording at the point you wish to return to.
   - ■ The time code is changed to a tape counter that is set to zero memory with the M 0:00:00(Zero memory indicator)
   - ■ If you want to cancel the zero memory function, press the ZERO MEMORY button again.

2. Finding the zero position.
   - ■ When you have finished playback, fast forward or rewind the tape.
     - - The tape stops automatically when it reaches the zero position.
   - ■ When you have finished recording, press the power switch on the PLAYER and press the ◀◀ (REW) button.
     - - The tape stops automatically when it reaches the zero position.

3. The tape counter with the M (Zero memory indicator) disappears from the display and the tape counter is changed to the time code.

Notes

- ■ In the following situations, ZERO MEMORY mode may be canceled automatically:
  - - At the end of the section marked with the ZERO MEMORY function.
  - - When the tape is ejected.
  - - When you remove the battery pack or power supply.
- ■ The zero memory may not function correctly where there is a break between recordings on the tape.
- ■ The ZERO MEMORY will not operate in DV IN mode.

Recording in PLAYER mode

Recording in PLAYER mode

✿ You can use this camcorder as a recorder.
✿ You can record a tape from VCR or TV, if the TV or other device has audio/video
  outputs.

1. Connect the camcorder and VCR or TV with the Multi-AV cable.

2. Set the power switch of camcorder to PLAYER mode.

3. Turn on the VCR or TV.

4. Insert a blank tape with protection tab closed into the camcorder.
   ■ If you want to record from the connected VCR,
     insert a recorded VHS tape into the VCR.

5. Press the START/STOP button to set the camcorder to REC PAUSE mode.
   ■ "PAUSE" and picture appear on the LCD monitor.

6. Select the TV program or playback the VHS tape.

7. Press START/STOP button to start recording.
   ■ If you want to pause recording for a while, press the START/STOP button again.

8. To stop recording, press the ■ (STOP) button.
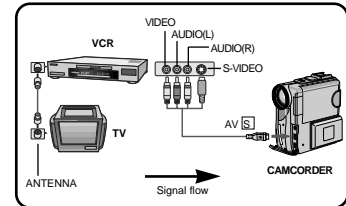
IEEE 1394 Data Transfer

Transferring IEEE1394 (i.LINK)-DV standard data connections

Connecting to a DV device

- �֎ Connecting with other DV standard products.
    - A standard DV connection is quite simple. If a product has a DV port, you can transfer data by connecting to the DV port using the correct cable.
    - !!! Please be careful since there are two types of DV ports, (4pin, 6pin). This camcorder has a 4pin terminal.
- ✖ With a digital connection, video and audio signals are transmitted in digital format, allowing high quality images to be transferred.

Connecting to a PC

- ✖ If you want to transmit data to a PC, you must install a IEEE 1394 add-on card onto the PC. (not supplied)
- ✖ The frame rate recorded for video capturing is dependent on the capacity of the PC.

Notes

- When you transmit data from the camcorder to another DV device, some functions may not work.
  If this occurs, please reconnect the DV cable or turn the power OFF and ON again.
- SCD530/D530T/D590/D590T can receive digital data from another DV device.
- You can record a picture transferred over a DV connection on SCD530/D530T/D590/D590T.

# IEEE 1394 Data Transfer

● **System requirements**

- CPU : faster Intel® Pentium III™ 450Mhz compatible.
- Operating system : Windows® 98SE, ME, Mac OS
- Main memory : more than 64 MB RAM
- IEEE1394 add-on card or built in IEEE1394 card

Recording with a DV connection cable

1. Set the power switch to PLAYER mode.

2. Connect the DV cable (not supplied) from the DV IN/OUT port of the camcorder to the DV IN/OUT port of the other DV device.
   - Make sure that DV appears on the screen.

3. Press the START/STOP button to begin REC PAUSE mode.
   - PAUSE is displayed on the OSD.

4. Start playback on the other DV device while you monitor the picture.

5. Press the START/STOP button to start recording.
   - If you want to pause recording momentarily, press the START/STOP button again.

6. To stop recording, press the ■ (STOP) button.

Note

When using this camcorder as a recorder, the pictures that appear on a monitor may seem uneven, however recorded pictures will not be affected.
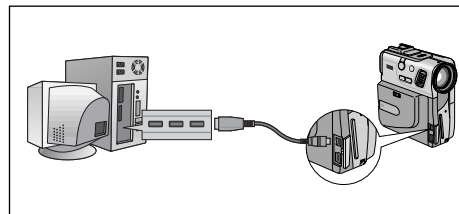
● **Transferring a Digital Image through a USB Connection**

 ⌘ You can easily transfer a still image from a camera, tape, memory to a PC without additional add-on cards via a USB connection.
 ⌘ You can transfer an image to a PC via a USB connection.
 ⌘ If you transfer data to a PC, you need to install the software (Driver, Editing software) supplied with the camcorder.

System Requirements

■ CPU : Intel® Pentium II™ 400MHz processor compatible or better
■ Operating system : Windows® 98/98SE/ME/2000/XP
■ RAM : 64 MB or more
■ CD-ROM: 4x CD-ROM drive
■ VIDEO : 65,000-color or better video display card
■ Available USB port
■ Hard Disc : 4GB (8GB recommended)

Notes

■ Intel® Pentium II™ is a trademark of the Intel Corporation.
■ Windows® is a registered trademark of the Microsoft® Corporation.
■ All other brands and names are property of their respective owners.
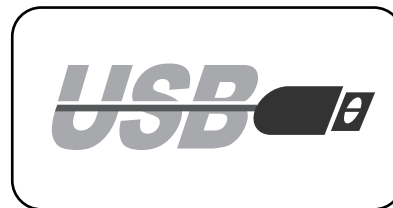
USB interface (SCD530/D530T only)

Installing DVC Media 3.0 Program

✿ Do not connect the camcorder to PC before installing the program.
✿ If another camera or scanner is connected, please disconnect it in advance.
✿ This explanation is based on Windows® 98SE OS.

How to install the program

1. The install program automatically operates when the CD is inserted into CD-ROM drive.

Note

■ If the install program does not operate, please double click Install.exe in CD-ROM Drive.

2. Click [ ] to install the program.

3. Follow the installation instructions.

USB interface (SCD530/D530T only)

4. The window below displays the folder to install the program.
   - The program is installed in the following folder.
     C:\Programfiles\Samsung\DVC Media 3.0

   - Click [Browse...] to change the folder.

4.
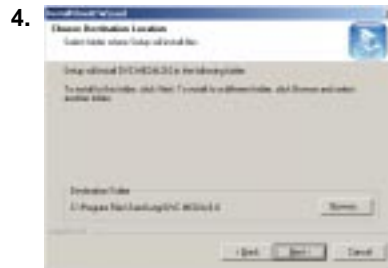
5. Connect the camcorder to PC.

6. PC finds new hardware and installs a driver automatically.

7. If the driver is installed, the installation is complete.

8. Execute DVC Media 3.0 player on the Windows wall paper.

6.

Note

■ DVC Media 3.0 User's Manual is included on the accompanying CD in Adobe's Portable Document Format (PDF).
   The user's manual can be viewed using Acrobat Reader software, which is also included on the CD.
   (The Acrobat Reader is a freeware product of Adobe Systems, Inc.)

USB interface (SCD590/D590T only)

Installing DVC Media 4.0 Program

❆ Do not connect the camcorder to PC before installing the program.

❆ If another camera or scanner is connected, please disconnect it in advance.

❆ This explanation is based on Windows® 98SE OS.

Program installation

1. Insert the software CD into CD-ROM drive.
   - Installation selection screen appears in the monitor.

1.

2. If the installation selection screen does not appear after inserting CD
   click "Run" on the Windows "Start" menu and
   execute SETUP.EXE file to begin installation.
   - When CD-ROM drive is set to
     "D:" drive: type "D:\setup.exe" and press Enter.

3. Click a button to install the selected software.
   - DVC Driver
   - USB Software
   - Editing Software

Install the DVC Driver

4. When you see the Start window, click "DVC Driver" to continue installation.

USB interface (SCD590/D590T only)

Install the USB Software (DVC media 4.0™)

4. Repeat steps 1~3.

5. When you see the Start window, click "DVC media 4.0™" to continue installation.

6. Select a language and click "OK".

7. When the dialogue box appears, click the "NEXT" button.

8. Choose the Destination Folder:
   - To install to default folder, click "NEXT"
   - To install to different folder, click " Browse" and select another folder.

9. Click the "NEXT" button.

10. Files are copied to selected folder.

11. When the next dialogue box appears, click Finish.

7.

8.

10.

11.

Note

- DVC Media 4.0 User's Manual is included on the accompanying CD in Adobe's Portable Document Format (PDF).
  The user's manual can be viewed using Acrobat Reader software, which is also included on the CD. (The Acrobat Reader is a freeware product of Adobe Systems, Inc.)

USB interface

1. Connect a USB cable to the USB port on the PC.

2. Connect the other end of the USB cable into the proper terminal on the camcorder. (USB jack)

3. Connect the audio cable to the Line input jack of the PC.
   If the PC has no Line input jack, connect the audio cable to the MIC input jack.
   There is a possibility you'll here some audio noise if you use the MIC jack.

Notes

■ If you disconnect the USB cable from the PC or the camcorder while transferring, the data transmission will stop and the data may be damaged.
■ If you connect the USB cable to a PC via a USB HUB or simultaneously connect the USB cable along with other USB devices, the camcorder may not work properly.
   - If this occurs, remove all USB devices from the PC and reconnect the camcorder.

USB Cable

**USB AUDIO Cable
(SCD530/D530T only)**
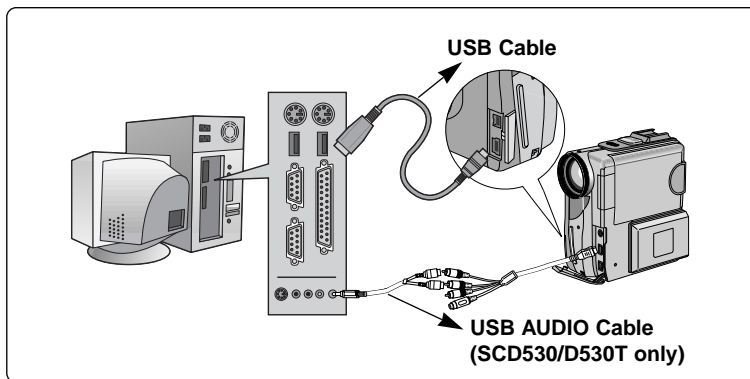
Digital Still Camera mode (SCD590/D590T only)

Memory Stick

⌘ The Memory Stick stores and manages still images recorded by the camera.

Memory Stick Functions

⌘ Recording still images
⌘ Viewing still images 3 ways
  ■ Single
  ■ Slide show
  ■ Multi screen
⌘ Protecting images against accidental erasure
⌘ Deleting images recorded on a Memory Stick
⌘ Print marking still images
⌘ Formatting a Memory Stick

```
                                    Terminal
                                    Protection
                                    tab
```
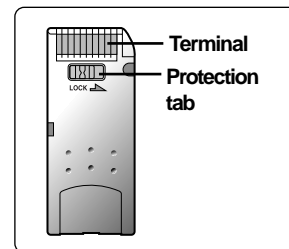
Notes

■ You can use most of the camera's functions when recording to the Memory Stick.
■ " ▶▶ □ " appears on the screen while recording to the Memory Stick.
■ While recording or loading an image, do not eject or insert the Memory Stick.
  - Inserting or ejecting a Memory Stick while recording or loading an image can cause data damage.
■ If you want to save all images on the Memory Stick, set the write-protect tab on the Memory Stick to LOCK.

MEMORY STICK TM

● "Memory Stick" and ▬▬ are trademarks of Sony Corporation.
● All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM"and "®" are not mentioned in each case in this manual.

Digital Still Camera mode (SCD590/D590T only)

Inserting and removing the Memory Stick

● **Inserting Memory Stick**

1. Turn the Power switch to OFF.
2. Insert the Memory Stick into the Memory Stick slot located on the camcorder, in the direction of the arrow.

● **Removing the Memory Stick**

1. Turn the Power switch to OFF.
2. Remove the Memory Stick by pushing the card in and letting it spring out.
� Do not attempt to pull the Memory Stick out without first pushing it in.
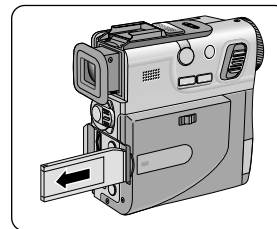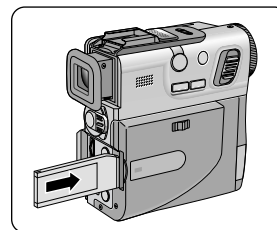
Notes

■ If you turn the power switch to M.PLAY, the last recorded image appears.
  - If there are no recorded images on the Memory Stick, NO STORED IMAGE! and 🔲 will display on the screen.
■ Do not turn the power off while recording, loading, erasing or formatting.
■ Please turn the power off before you insert or remove the Memory Stick. You could lose data on the Memory Stick.
■ Do not allow metal substances to come in contact with the terminals of the Memory Stick.
■ Do not bend, drop or apply strong shock to Memory Stick.
■ After pulling the card out from the camcorder, please keep the Memory Stick in a soft case to prevent static shock.
■ The stored contents may be changed or lost as a result of misuse, static electricity, electric noise or repair. Save important images separately.
■ Samsung is not responsible for data loss due to misuse.
■ If the USB cable is connected to the camcorder, the ■ (DELETE), ▶/‖ (S.SHOW), ▶▶ (FWD), ◀◀ (REV) buttons are not available in M.PLAY mode.

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Digital Still Camera mode (SCD590/D590T only)

Structure of folders and files on the Memory Stick

❆ The still images that you recorded are saved in JPEG file format on the Memory Stick.

❆ Each file has a file number and all files are assigned to a folder.
- A file number from DCAM0001 to DCAM9999 is sequentially assigned to each recorded image.
- Each folder is numbered from 100SSDVC to 999SSDVC and recorded on the Memory Stick.

Image Format

❆ Images are compressed in JPEG (Joint Photographic Experts Group) format.
❆ The number of pixels are 640 × 480 (VGA) in each mode.

Selecting the CAMCORDER mode

❆ You can use this camcorder as a Digital Still Camera (DSC).

❆ You have to set the mode switch to MEMORY STICK position to use this camcorder as Digital Still Camera.
- M.REC mode (Memory RECORD mode)
  1. Set the mode switch to MEMORY STICK
  2. Set the power switch to CAMERA.

- M.PLAY mode (Memory PLAYBACK mode)
  1. Set the mode switch to MEMORY STICK
 2. Set the power switch to PLAYER.

DCIM
100 SSDVC
DCAM 0001
DCAM 0002
⋮
101SSDVC

*M.PLAY

000-0000
File number
Folder number
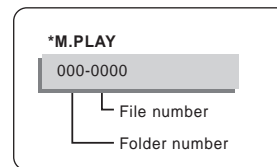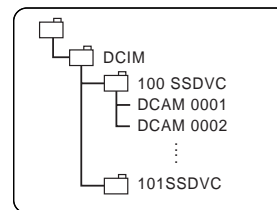
Digital Still Camera mode (SCD590/D590T only)

Selecting the image quality

✤ You can select the quality of a still image to be recorded.

Select the image quality

1. Set the mode switch to MEMORY STICK.
2. Set the power switch to the CAMERA mode.
3. Press the MENU button.
   ■ The menu list will appear.
4. Move the MENU SELECTOR to highlight MEMORY.
5. Push the MENU SELECTOR to enter the sub-menu.
6. Move the MENU SELECTOR to highlight QUALITY in the submenu.
7. Push the MENU SELECTOR.
8. Using the MENU SELECTOR, select the image quality.
   ■ Push the MENU SELECTOR to confirm the image quality.
   ■ If you exit the sub-menu without pushing the MENU SELECTOR, the quality mode is not changed.
9. To exit, press the MENU button.
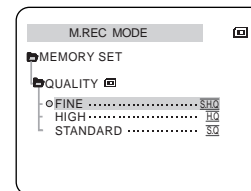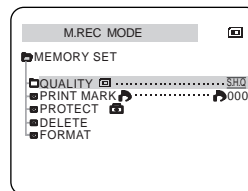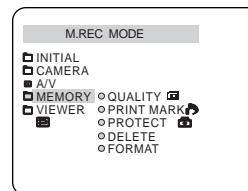
● Number of images on the Memory Stick.

QUALITY	8MB	16MB
FINE	Approx.60	Approx.120
HIGH	Approx.120	Approx.240
STANDARD	Approx.240	Approx.480

- The actual number that you can record varies depending on the image size.

Digital Still Camera mode (SCD590/D590T only)

Recording Still images to a Memory Stick in M.REC Mode.

✿ You cannot record moving pictures onto a Memory Stick.
✿ Audio cannot be recorded onto the Memory Stick.

Recording images to a Memory Stick.

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to CAMERA.

3. Press the PHOTO button.
   - If you do not wish to record, after releasing the pressure from the button, wait more than 2 seconds until the still picture releases.

4. Press the PHOTO button once again within 2 seconds after releasing the button.
   - The still image is recorded to the Memory Stick.
   - While the camcorder is recording the still image, "▶▶▶" appears on the screen.

M.REC Mode

PHOTO

S.Q ▶▶▶ ▣

[2 2 / 2 4 0]
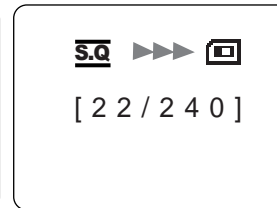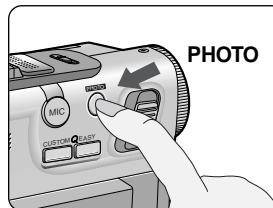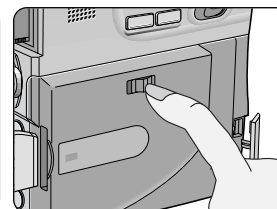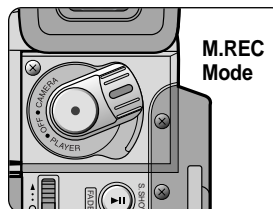
Digital Still Camera mode (SCD590/D590T only)

Recording an image from a cassette as a still image.

� You can record still image from a cassette onto a Memory Stick.
✂ If you want to recorded multiple still images from a cassette to a Memory Stick, use the COPY function.

1. Set the mode switch to TAPE.

2. Set the power switch to PLAYER mode.

3. Play back the cassette.

4. Press the PHOTO button when the image you want to record appears.
   - The tape is set to play back pause (STILL) mode.
   - If you want to change the captured image without recording, release the pressure from the PHOTO button, wait more than 2 seconds until the still picture releases and select the image again.

5. Press the PHOTO button again within 2 seconds after releasing the button.
   - The still image is recorded to the Memory Stick.
   - While the camcorder is recording the still image, "▶▶" appears on the screen.

Digital Still Camera mode (SCD590/D590T only)

Viewing Still images

✷ You can playback and view still images recorded on the Memory Stick.
✷ There are 3 ways to view recorded images.
- Single : To view an image frame by frame.
- Slide show : To view all images automatically and in consecutive order.
- Multi screen: To view 6 images at once.

To view a Single image

1. Set the mode switch to MEMORY STICK.
2. Set the power switch to PLAYER mode.
   - The last recorded image appears.
     - If there are no recorded images on the Memory Stick, NO STORED IMAGE!
       and ▣ will display on the screen.
3. Using the ▶▶ (FWD) and ◀◀ (REV) buttons, search for the desired still image.
   - To view the next image : press the ▶▶ (FWD) button.
   - To view the previous image : press the ◀◀ (REV) button.
   - Pressing ▶▶ (FWD) when you are on the last image will take you to the first image and
     pressing ◀◀ (REV) when you are on the first image will take you to the last image.
   - Keep pressing ▶▶ (FWD) or ◀◀ (REV) to search for an image quickly.

To view a slide show

1. Set the mode switch to MEMORY STICK.
2. Set the power switch to PLAYER mode.
   - The last recorded image appears
3. Press the ▶/❚❚ (S.SHOW) button.
   - All images will be played back consecutively for 3~4 seconds each.
4. To stop the slide show, press the ▶/❚❚ (S.SHOW) button again.

Digital Still Camera mode (SCD590/D590T only)

To view the Multi Screen

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to PLAYER.
   - The last recorded image appears.

3. Press the PHOTO button to view 6 images on a single screen.
   - A selection mark (▶) appears under the image.
   - Move the MENU SELECTOR downwards to go the previous image and upwards to go to the next image.
   - Jump to the next/previous multi screen with the ▶▶ (FWD) or ◀◀ (REV) buttons.

4. Press the PHOTO button.
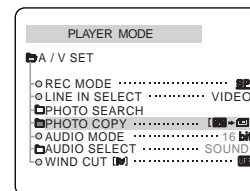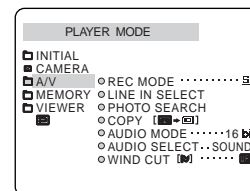   - The image you have marked fills the whole display.
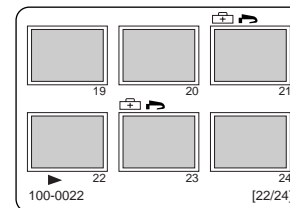
Note

- You can delete the selection marked image by pressing ■ (DELETE) on the function keys. (see page 97)

Digital Still Camera mode (SCD590/D590T only)

Copying still images from a cassette to Memory Stick

✿ You can copy still images with PHOTO function on a cassette onto a Memory Stick.

1. Set the power switch to the PLAYER mode.

2. Press the MENU button.

3. Move the MENU SELECTOR to highlight A/V and push the MENU SELECTOR.
   - The submenu will appear.

4. Move the MENU SELECTOR to highlight PHOTO COPY and push the MENU SELECTOR.
   - All still images that recorded on a cassette will be copied to a Memory Stick.

5. The camcorder automatically performs the photo search to find still images and copying starts.

6. Press ■ (STOP) button to stop copying.
   - Copying stops when the cassette is finished or Memory Stick is full.
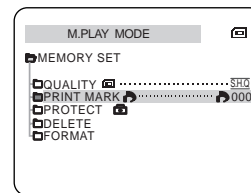
```
┌─────────────────────────────┐
│        PLAYER MODE          │
├─────────────────────────────┤
│ ▢ INITIAL                   │
│ ▣ CAMERA                    │
│ ▤ A/V       ○ REC MODE ······ SP │
│ ▢ MEMORY    ○ LINE IN SELECT │
│ ▢ VIEWER    ○ PHOTO SEARCH  │
│ ▣            ○ COPY [▩→▣]   │
│              ○ AUDIO MODE ······16 bit │
│              ○ AUDIO SELECT··SOUND1 │
│              ○ WIND CUT [M] ······ ▣ │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│        PLAYER MODE          │
├─────────────────────────────┤
│ ▥ A / V SET                 │
│                             │
│ ○ REC MODE ················ SP │
│ ○ LINE IN SELECT ······· VIDEO │
│ ▢ PHOTO SEARCH              │
│ ▥ PHOTO COPY ··········· [▩→▣] │
│ ○ AUDIO MODE ··········· 16 bit │
│ ▢ AUDIO SELECT ········· SOUND1 │
│ ○ WIND CUT [M] ············ ▣ │
└─────────────────────────────┘
```
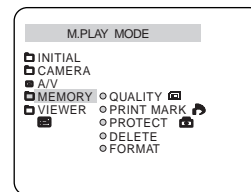
Digital Still Camera mode (SCD590/D590T only)

Marking images for printing

�֎ This camcorder supports the DPOF (Digital Print Order Format) print format.
✖ You can automatically print images recorded on a Memory Stick with a printer supporting DPOF.
✖ There are 2 ways to make a PRINT MARK.
   ■ THIS FILE : You can set a print mark on the photo image displayed on the LCD.
   ■ ALL FILES : To print 1 copy each of all of the stored images.

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to PLAYER mode
   ■ The last recorded image appears.

3. Using the ▶▶(FWD) and ◀◀ (REV) buttons, search for the still image that you want to mark.

4. Press the MENU button.

5. Move the MENU SELECTOR to highlight MEMORY and push the MENU SELECTOR.
   ■ The MEMORY SET submenu will appear.

6. Move the MENU SELECTOR to highlight PRINT MARK, push the MENU SELECTOR.

7. Use the MENU SELECTOR to select either THIS FILE or ALL FILES and push the MENU SELECTOR.

8. Use the MENU SELECTOR to select the quantity and push the MENU SELECTOR.

```
     M.PLAY  MODE

□ INITIAL
□ CAMERA
■ A/V
□ MEMORY  ○ QUALITY
□ VIEWER  ○ PRINT MARK
          ○ PROTECT
          ○ DELETE
          ○ FORMAT
```

```
     M.PLAY  MODE          ▭

▶MEMORY SET

□ QUALITY ▭ ·····················SHQ
▶ PRINT MARK ▶···········▶ 000
□ PROTECT ▣
□ DELETE
□ FORMAT
```

Notes

■ When you setup the PRINT MARK option to ALL FILES, 999 files from the current file are printed.
■ The ALL FILES option may require extended operation time depending on the number of stored images.

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Protection from accidental erasure

❆ You can protect important images from accidental erasure.
■ If you execute FORMAT, all images including protected images will be erased.

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to PLAYER mode.
■ The last recorded image appears.
■ If there are no recorded images on the Memory Stick, NO STORED IMAGE! and 🔲 will display on the screen.

3. Using the ►► (FWD) and ◄◄ (REV) buttons, search for the still image that you want to protect.

4. Press the MENU button.

5. Move the MENU SELECTOR to highlight MEMORY and push the MENU SELECTOR.
■ The submenu of MEMORY SET will appear.

6. Move the MENU SELECTOR to highlight PROTECT and push the MENU SELECTOR.

7. Using the MENU SELECTOR, select the method and push the MENU SELECTOR.
■ THIS FILE : protects the currently selected file from erasure.

8. Using the ►► (FWD) and ◄◄ (REV) buttons, search for the still image that you wish to protect.
■ Deactivate the image protection for the image following step 6.

9. To exit the menu, press the MENU button.

Digital Still Camera mode (SCD590/D590T only)

Deleting Still images

✤ You can erase the still images recorded on the Memory Stick.

✤ If you want to delete protected images, you must first deactivate the image protection.

✤ An image which has been deleted cannot be recovered.

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to PLAYER mode

3. Using the ▶▶ (FWD) and ◀◀ (REV) buttons, search for the still image that you want to delete.

4. Press the MENU button.

5. Move the MENU SELECTOR to highlight MEMORY and push the MENU SELECTOR.
   - The MEMORY SET submenu will appear.

6. Move the MENU SELECTOR to highlight DELETE and push the MENU SELECTOR.
   - Using the MENU SELECTOR, select either THIS FILE or ALL FILES and push the MENU SELECTOR.
   - THIS FILE : deletes only the file currently selected.
   - ALL FILES : deletes all files stored in the Memory Stick.

7. A box will appear to verify whether you wish to delete the image(s).
   - EXECUTE : deletes the selected image(s).
   - CANCEL : does not delete the selected image(s) and returns to the previous menu.

Notes

- If you try to delete a protected image, "Protect!" appears on the screen.
- You can delete the current displayed image (when still images are on) by pressing ■ (DELETE) on the function keys.
  Pressing ■ (DELETE) will see you "DELETE REALLY?", and pressing again will delete the current image.

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Digital Still Camera mode (SCD590/D590T only)

Formatting the Memory Stick

✽ You can use the MEMORY FORMAT functions to completely delete all images and options on the Memory Stick , including protected images.

✽ The format function restores the Memory Stick to its initial states.

✽ The Memory Stick supplied with this camcorder has been formatted already.

Attention

> ✽ If you execute the MEMORY FORMAT function, all images will be erased completely and erased images cannot be recovered.

1. Set the mode switch to MEMORY STICK.

2. Set the power switch to PLAYER mode

3. Press the MENU button.

4. Move the MENU SELECTOR to highlight MEMORY and push the MENU SELECTOR.
   - The sub menu will appear.

5. Select FORMAT from the list and push the MENU SELECTOR.

6. "ALL FILES ARE DELETED! FORMAT REALLY?" appears on the screen.

7. Using the MENU SELECTOR, select the item.
   - NO : To return to previous menu
   - YES : To start formatting.

8. Push the MENU SELECTOR.

9. To exit the menu, press the MENU button.

Note

- "Memory Stick" formatted on the PC with the USB adaptor (not supplied) do not have a guaranteed compatibility with this camcorder.
  If you want to format the Memory Stick on the PC, use the "Memory Stick formatter" supplied with the software CD.
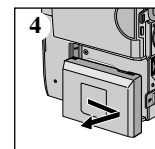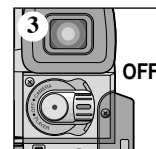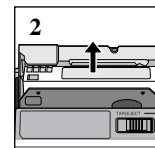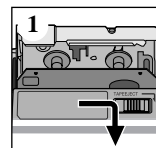
Maintenance

After finishing a recording

✻ At the end of a recording you must remove the power source.
✻ When recording with a Lithium Ion Battery Pack, leaving the pack on the camcorder can reduce the life span of the battery. Hence, it should be removed from the camcorder.

After completing a recording session

1. Slide the TAPE EJECT switch in the direction of the arrow.
   ■ Opening the cassette door ejects the tape automatically.
   ■ Please wait while the tape is completely ejected.

2. After removing the tape, close the door and store the camcorder in a dust free environment.
   ■ Dust and other foreign materials can cause square-shaped noise or jerky images.

3. Set the power switch to the OFF mode.

4. Disconnect the power source or remove the Lithium Ion Battery Pack.
   ■ When disconnecting a power supply, separate it in the reverse order as connecting it, by referring to page 19.
   ■ Hold down the BATTERY RELEASE button and slide the battery pack in the direction of the arrow.

Maintenance

Cleaning and Maintaining the Camcorder

Cleaning the VIEWFINDER

1. Pull the VIEWFINDER out.
2. As shown in the illustration, press the fix button located on the left side of the camcorder section adjacent to the VIEWFINDER with a sharp object and pull the VIEWFINDER out.
3. Clean the VIEWFINDER lens and the lens on the camcorder with a soft cotton swab.
4. Once the cleaning is completed, place the VIEWFINDER back on to the camcorder.
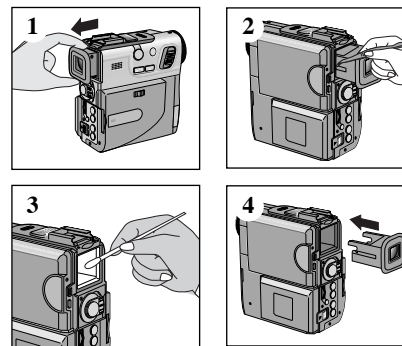
Cleaning the Video Heads

To ensure normal recording and clear pictures, clean the video heads when the playback pictures display square block-shaped noise or distortion or if only a blue screen appears during playback, as the video heads may be dirty.

1. Set the power switch to PLAYER mode.
2. Insert the cleaning tape.
3. Press the ▶/❙❙ (PLAY/STILL) button.
4. Press the ■ (STOP) button after 10 seconds.

Notes

■ Check the quality of the picture using a videocassette.
  If the picture quality has not improved, repeat the operation.
  If the problem continues, contact your local authorized service center.
■ Clean the video heads with a dry type cassette cleaner.

Maintenance

Using Your Camcorder Abroad

� Each country or region has its own electric and color systems.

✻ Before using your camcorder abroad, check the following items.

Power sources

■ You can use your camcorder in any country or area with the supplied AC Power Adapter within 100V to 240V, 50/60 Hz.

■ Use a commercially available AC plug Adapter, if necessary, depending on the design of the local wall outlet.

Color system

■ You can view your recording in the viewfinder.
However, to view it on a television or copy it to a videocassette recorder, the television or VCR must be NTSC-compatible and have the appropriate audio/video jacks.
Otherwise, you may need to use a transcoder.

● **PAL-compatible Countries/Regions**
Australia, Austria, Belgium, Bulgaria, China, CIS, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Great Britain, Holland, Hong Kong, Hungary, India, Iran, Iraq, Kuwait, Libya, Malaysia, Mauritius, Norway, Romania, Saudi Arabia, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Syria, Thailand, Tunisia, etc.

● **NTSC-compatible Countries/Regions**
Bahamas, Canada, Central America, Japan, Korea, Mexico, Philippines, Taiwan, United States of America, etc.

Note

You can make recordings with your camcorder and view pictures on the LCD from anywhere in the world.

Smart Shoe

Using the Smart Shoe

✿ You can use to attach an optional accessory to the camcorder's Smart Shoe.
✿ The accessory is powered by the camcorder's power supply.
✿ Turn the camcorder's power off before attaching/removing the accessory to the Smart Shoe.
✿ Types of optional accessories for Smart Shoe.
   ■ VL-S1IR   Video/IR Light
   ■ VL-S1FL   Video Light/Flash
   ■ ZM-EC1   Gun Zoom Mic
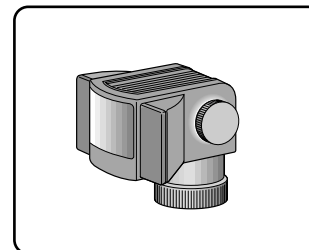   ex) Using the VL-S1FL Video Light/Flash(optional)
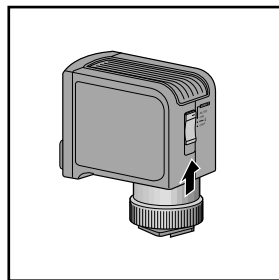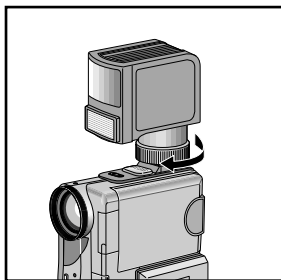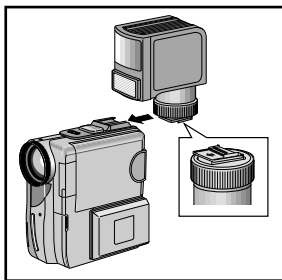
1. Slide the VL-S1FL(Video Light/Flash) onto the Smart Shoe and tighten with shoe lock.
   ■ Slide the VL-S1FL onto the camcorder until it clicks securely into place.
   ■ Make sure that the accessory does not come disconnected when turning the shoe lock.

2. Set the camcorder to CAMERA or M.REC mode.

3. Turn the Video Light's power switch to AUTO or ON.

Smart Shoe

VL-S1IR Video/IR Light

Attach the Video Light/IR Light to the camcorder when recording in dark rooms or places.
When on its automatic setting, the Video Light turns ON/OFF automatically according to the brightness level of recording conditions.
When using the IR Light, set the camcorder's NITE PIX switch to ON.

VL-S1FL Video Light/Flash

Attach the Video Light/Flash to a camcorder when recording in dark places.
When recording a PHOTO, you can take natural-looking flash pictures with appropriate illumination using the Flash.
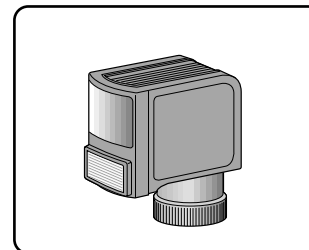
ZM-EC1 Gun Zoom Mic

This is a highly sensitive microphone that can be switched between functioning as a directional microphone (Gun mode) or variable microphone (Zoom mode).
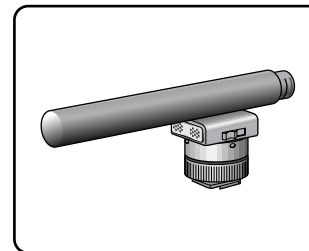
Troubleshooting

Troubleshooting

✖ Before contacting a Samsung authorized service center, perform the following simple checks.
They may save you the time and expense of an unnecessary call.

Self Diagnosis Display

Display	Blinking	Informs that...	Action
▭	slow	the battery pack is almost discharged.	Change to a charged one.
TAPE END!	slow	When the remaining time on the tape is about 2 minutes.	Prepare a new one.
TAPE END!	no	the tape reached its end.	Change to a new one.
TAPE!	slow	there is no tape in camcorder.	Insert a tape.
PROTECTION!	slow	the tape is record protected.	If you want to record, release the protection.
▲....D L C R	slow	the camcorder has some mechanical fault.	1. Eject the tape. 2. Set to OFF. 3. Detach the battery. 4. Reattach the battery. * If unresolved contact your local service representative.
◉	slow	moisture condensation has formed in the camcorder.	see below.

Moisture Condensation

✖ If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly.
To prevent possible damage under these circumstances, the camcorder is fitted with a moisture sensor.
✖ If there is moisture inside the camcorder, ◉ (DEW) is displayed. If this happens, none of the functions except cassette ejection will work.
Open the cassette compartment and remove the battery pack.
Leave the camcorder for at least two hours in a dry warm room.

Troubleshooting

Self Diagnosis Display in M.REC/M.PLAY mode (SCD590/D590T only)

Display	Blinking	Informs that...	Action
MEMORY STICK!	slow	There no Memory Stick in the camcorder.	Insert a Memory Stick.
MEMORY FULL!	slow	There is not enough memory to record.	Change to a new Memory Stick or erase recorded image.
NO STORED IMAGE!	slow	There are no images recorded on the Memory Stick.	Record new images.
WRITE PROTECT!	slow	The Memory Stick is record protected.	Release the write-protect tab on the Memory Stick.
PROTECT!	slow	When you try to delete to protected image.	Cancel the protect of image.
READ ERROR!	slow	The camera can not playback.	Format a Memory Stick or insert Memory Stick recorded on this camcorder.
WRITE ERROR!	slow	The camera can not record.	Format a Memory Stick or change to a new Memory Stick.
NOT FORMAT!	slow	The Memory Stick needs to format.	Format a Memory Stick.
NOW DELETE...	slow	When progressing FILE DELETE.	Wait until the end of deleting.
NOW FORMAT...	slow	When progressing MEMORY FORMAT.	Wait until the end of formatting.
NOW COPY...	slow	When progressing FILE COPY.	Wait until the end of copying.

Troubleshooting

�instructions If these instructions do not solve your problem, contact your nearest Samsung authorized service center.

Symptom	Explanation/Solution
You cannot switch the camcorder on	Check the battery pack or the AC Power Adapter.
START/STOP button does not operate while recording	Check the POWER switch is set to CAMERA. You have reached the end of the cassette. Check the record protection tab on the cassette.
The camcorder goes off automatically.	You have left the camcorder set to STBY for more than 5 minutes without using it. The battery pack is fully exhausted.
The battery pack is quickly exhausted.	The atmospheric temperature is too low. The battery pack has not been charged fully. The battery pack is completely dead, and cannot be recharged, Use another battery pack.
When you see a blue screen during playback	The video heads may be dirty. Clean the head with a cleaning tape.
A vertical stripe appears on the screen when recording a dark background.	The contrast between the subject and the background is too great for the camcorder to operate normally. Make the background bright to reduce the contrast or use the BLC function while you are recording brighter.
The image in the viewfinder is blurred.	The Viewfinder lens has not been adjusted. Adjust the viewfinder control lever until the indicators displayed on the viewfinder come into sharp focus.
Auto focus does not work.	Check the M.FOCUS menu. Auto focus does not work in the Manual Focus mode.
Play, FF or REW button does not work.	Check the POWER switch. Set the power switch to PLAYER. You have reached the beginning or end of the cassette.
When you see a broken block image during the REC SEARCH.	This is normal operation and is not a failure or defect.

Specifications

Model name: SCD530/D530T/D590/D590T

System	
Video signal	NTSC standards
Video recording system	2 rotary heads, Helical scanning system
Audio recording system	Rotary heads, PCM system
Usable cassette	Digital video tape (6.35mm width): Mini DV cassette
Tape speed	SP: approx. 18.81mm/s LP: approx. 12.56mm/s
Tape recording time	SP: 60 minutes (when using DVM 60), LP: 90 minutes (when using DVM 60)
FF/REW time	Approx. 150 sec. (using DVM60 tape)
Image device	CCD (Charge Coupled Device)
Lens	F1.4 10x(Optical), 400x(Digital) Electronic zoom lens
Filter diameter	Ø30
LCD monitor/Viewfinder	
Size/dot number	2.5inch/211,000
LCD monitor Method	Trans-Reflective LCD (SCD530/D590), Transmission LCD (SCD530T/D590T)
Viewfinder	0.44" color LCD
Connectors	
Video output	1Vp-p (75Ω terminated)
S-video output	Y: 1Vp-p, 75Ω, C: 0. 286Vp-p, 75Ω
Audio output	-7.5dBs (600Ω terminated)
DV input/output	4pin special in/out connector
USB output	Mini-B type connector
External mic	Ø3.5 stereo

General	
Power source	DC 8.4V, Lithium Ion Battery Pack 7.4V
Power source type	Lithium Ion Battery Pack, Power supply (100V~240V) 50/60Hz
Power consumption (Recording)	4.9W(LCD), 3.7W(LCD Back Light off mode; SCD530/D590 only), 3.7W(CVF)
Operating temperature	0˚~40˚C (32˚F~104˚F)
Storage temperature	-20˚C ~ 60˚C (-4˚F ~ 140˚F)
External dimension	SCD530/D530T: Length 3.67inch (93.3mm), Height 3.74inch (95mm), Width 1.6inch (40.6mm)
	SCD590/D590T: Length 3.67inch (93.3mm), Height 3.74inch (95mm), Width 1.81inch (46mm)
Weight	SCD530/D530T: 0.75lbs (339g), SCD590/D590T: 0.78lbs (355g) (Except for Lithium Ion Battery Pack and tape)
Built-in MIC	Omni-directional stereo condenser microphone
Remote Control	Indoors: greater than 49ft (15m) (straight line), Outdoors: greater than 16.4ft (5m) (straight line)

• These technical specifications and design may be changed without notice.

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Warranty

SAMSUNG
LIMITED WARRANTY

SAMSUNG Electronics America Inc. (SEA), warrants that this product is free from defective material and workmanship.
SEA further warrants that if product fails to operate properly within the specified warranty period and the failure is due
to improper workmanship or defective material, SEA will repair or replace the product at it's option.
All warranty repairs must be performed by a SEA authorized service center. The name and address of the location
nearest you can be obtained by calling toll free: 1-800 SAMSUNG (1-800-726-7864).
Labor
90 days carry-in
Parts
1 year

On carry-in models, transportation to and from the service center is the customer's responsibility.

The original dated sales receipt must be retained by the customer and is the only acceptable proof of purchase.
It must be presented to the authorized service center.

EXCLUSIONS (WHAT IS NOT COVERED)

This warranty does not cover damage due to accident, fire, flood and/or other acts of God; misuse, incorrect line
voltage, improper installation, improper or unauthorized repairs, commercial use, or damage that occurs in shipping.
Exterior and interior finish, lamps, and glass are not covered under this warranty.
Customer adjustments which are explained in the instruction manual are not covered under the terms of this warranty.
This warranty will automatically be voided for any unit found with a missing or altered serial number. This warranty is
valid only on products purchased in the United States and Puerto Rico.

Some States do not allow the exclusions or limitations of incidental or consequential damages, or allow limitations on
how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.
This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.

THIS CAMCORDER IS MANUFACTURED BY:

SAMSUNG
ELECTRONICS

SERVICE DIVISION
400 Valley Road, Suite 201, Mt. Arlington N.J. 07856
Tel: 1-800-SAMSUNG
(1-800-726-7864)