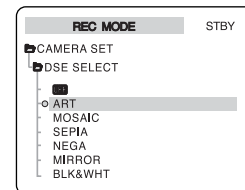
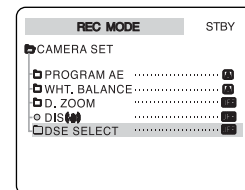
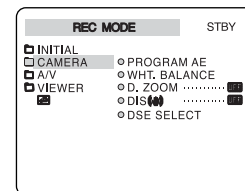


The Camcorder : Advanced Recording

Selecting a Digital Special Effect in Camcorder Mode

1. Turn your camcorder on by setting the Power Switch to REC mode.
2. Press the MENU button.
 - The top menu including “CAMERA” is displayed.
3. Press the DOWN button to select “CAMERA” then press the OK button.
 - The submenu including “DSE SELECT” is displayed.
4. Press the DOWN button to select “DSE SELECT” then press the OK button.
 - The available DSE SELECT options are listed.
5. Select you option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.
6. Press the MENU button to exit the menu screen.



Notes

- DSE and NITE PIX cannot be used at the same time.
- DSE mode is not available in EASYQ mode.
- The selected DSE mode can be accessed through the Quick Menu by using the Navigation Wheel (refer to Quick Menu on page 69).

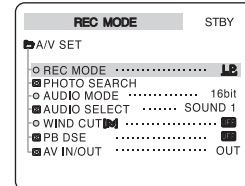
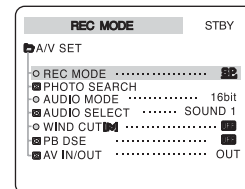
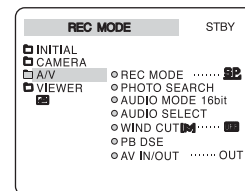
ENGLISH

The Camcorder : Advanced Recording

Selecting the Record Mode for Camcorder Use

- You can select the Recording mode in the REC and PLAY (DV IN) modes of your camcorder.
- This camcorder records and plays back in SP (Standard Play) and LP (Long Play) modes.
 - SP: Standard Play, this mode permits 60 minutes of recording time with a normal DVM60 tape.
 - LP: Long Play, this mode permits 90 minutes of recording time with a normal DVM60 tape.

1. Turn your camcorder on by setting the Power Switch to REC mode.
2. Press the MENU button.
 - The top menu including "A/V" is displayed.
3. Press the DOWN button to select "A/V" then press the OK button.
 - The submenu including "REC MODE" is displayed.
4. Press the DOWN or UP button to select "REC MODE" then press the OK button.
 - Each press of the OK button toggles the REC MODE between SL and LP.
5. Press the MENU button to exit the menu screen.



Notes

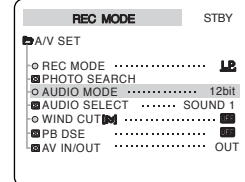
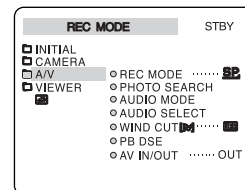
- Playback of a tape recorded by different equipment may produce mosaic shaped distortion.
- When you record a tape in both SP and LP modes, or only in LP mode, the playback picture may be distorted or the time code may not be properly written between scenes.
- Record using SP mode for the best picture and sound quality.

The Camcorder : Advanced Recording

Selecting the Audio Mode for Camcorder Use

- You can select the Audio recording mode in REC mode.
- This camcorder records audio signals in two ways.
 - 12bit: You can record two 12bit stereo sound tracks along with the video.
The original stereo sound can be recorded onto the MAIN (SOUND1) track and an additional soundtrack can be dubbed onto the SUB (SOUND2) track. For dubbing audio, refer to page 78.
 - 16bit: You can record one high quality stereo track using the 16bit recording mode. Audio dubbing is not available for video using 16bit sound.

1. Turn your camcorder on by setting the Power Switch to REC mode.
2. Press the MENU button.
 - The top menu including "A/V" is displayed.
3. Press the DOWN button to select "A/V" then press the OK button.
 - The submenu including "AUDIO MODE" is displayed.
4. Press the DOWN or UP button to select "AUDIO MODE" then press the OK button.
 - Each press of the OK button toggles the AUDIO MODE between 12bit and 16bit.
5. Press the MENU button to exit the menu screen.



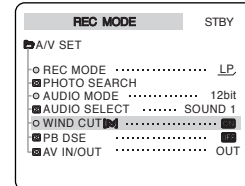
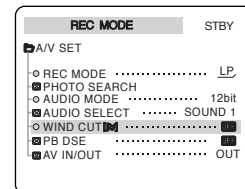
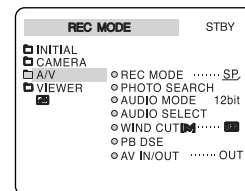
ENGLISH

The Camcorder : Advanced Recording

Cutting Off Wind Noise (WIND CUT)

- The WIND CUT function works only in REC and PLAY modes.
- To reduce microphone wind noise, use the Wind Cut function.
- Use the Wind Cut function when recording in a windy place such as on the beach, in the mountains or near buildings.

1. Turn on your camcorder by setting the Power Switch to REC mode.
2. Press the MENU button.
 - The top menu including "A/V" is displayed.
3. Press the DOWN button to select "A/V" then press the OK button.
 - The submenu including "WIND CUT" is displayed.
4. Press the DOWN button to select "WIND CUT" then press the OK button.
 - Each press of the OK button toggles the WIND CUT function between ON and OFF.
5. Press the MENU button to exit the menu screen.



Notes

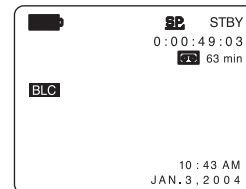
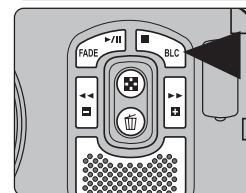
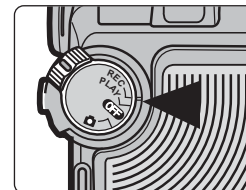
- When the Wind Cut function is set to ON, low pitched tones might be eliminated along with the wind noise.
- Be sure that Wind Cut is set to OFF when higher microphone sensitivity is required.

The Camcorder : Advanced Recording

Using Backlight Compensation Mode (BLC)

- The Back Light Compensation function works only in REC mode. The Back Light Compensation function helps to make the subject brighter when the light source is behind the subject, throwing their features into shadow, or when the subject is in the shade but the background is brightly lit.
- Use BLC when:
 - The subject is in front of a window
 - The subject is wearing white or shiny clothes and in a front of a bright background; or the subject is too dark to distinguish his/her/their/its features
 - Outdoor filming with a bright background
 - The light source is too bright
 - The subject is against a snowy background

1. Turn your camcorder on by setting the Power Switch to REC mode.
2. Press the BLC  (STOP) button.
 - BLC is displayed on the LCD screen.
3. To exit BLC mode, press the BLC  (STOP) button again.
 - Each press of the BLC ( STOP) button toggles the BLC function between ON and OFF.



Notes

- BLC and NITE PIX modes cannot be used at the same time.
- The BLC function is not available in EASYQ mode.

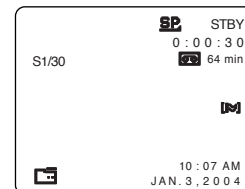
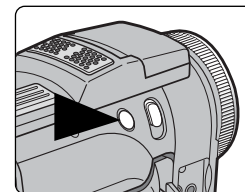
ENGLISH

The Camcorder : Advanced Recording

Setting the Slow Shutter Speed

- The Slow Shutter function works only in REC mode.
- The Slow Shutter allows the user to record dark subjects or in darker areas, making them even brighter than they would be under good natural lighting. A subject recorded using this function may appear to move slowly.

1. Turn your camcorder on by setting the Power Switch to REC mode.
2. Press the SLOW SHUTTER button.
 - Each press of the SLOW SHUTTER button sets the shutter speed to S1/30, S1/15, S1/8 and Normal.



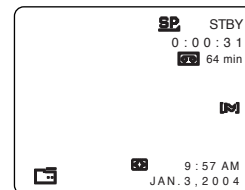
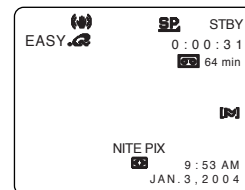
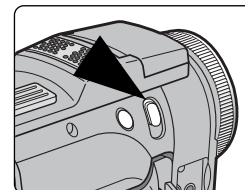
Notes

- The SLOW SHUTTER works only in REC mode.
- The SLOW SHUTTER function may produce a brighter image. The SLOW SHUTTER function allows users to get a brighter recording in dark environment.
- The SLOW SHUTTER and DIS (Digital Image Stabilizer) cannot be used at the same time.
- The SLOW SHUTTER and DIGITAL ZOOM cannot be used at the same time.

The Camcorder : Advanced Recording

NITE PIX

- The NITE PIX function works only in REC mode.
 - The NITE PIX enables you to record subjects in dark lighting conditions.
1. Turn your camcorder on by setting the Power Switch to REC mode.
 2. Slide the NITE PIX button upwards.
 - NITE PIX and  indicator will appear on the LCD monitor. The NITE PIX message will disappear within 3 seconds.
 3. Press the START/STOP button to start recording.
 4. To exit the NITE PIX mode, slide the NITE PIX button downwards.
 - The  indicator disappears.



Notes

- The NITE PIX and POWER NITE PIX work only in the REC mode.
- Do not set the NITE PIX to ON in bright lighting. It might damage the CCD.
- If you use the NITE PIX function in normal recording situations (ex. outdoors in daylight), the recorded picture may be tinted green.
- Use manual focusing if you have an unclear image while using NITE PIX.
- The maximum recording distance using Infrared light is about 9 feet (3m).
- NITE PIX cannot be used with Manual Exposure, White Balance, Program AE, BLC, and DSE.

ENGLISH

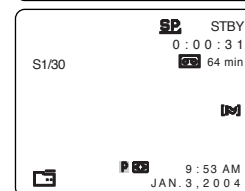
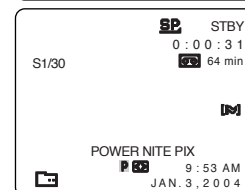
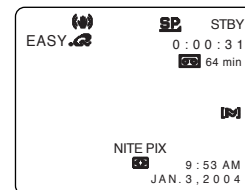
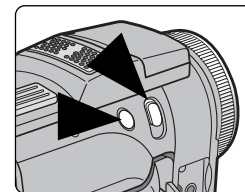
The Camcorder : Advanced Recording

POWER NITE PIX

- The POWER NITE PIX function works only in REC mode.
 - With its maximum sensitivity, POWER NITE PIX enables you to make dark subjects and areas brighter. POWER NITE PIX works with the Slow Shutter function to produce brighter recordings under extremely dark lighting conditions.
1. Turn your camcorder on by setting the Power Switch to REC mode.
 2. Slide the NITE PIX button to upwards.
 - “NITE PIX” and  indicator will appear on the LCD monitor. The NITE PIX message will disappear within 3 seconds.
 3. Press the Slow Shutter button.
 - POWER NITE PIX and P  indicator will appear on the LCD monitor. The POWER NITE PIX message will disappear within 3 seconds.
 - The current shutter speed appears on the LCD monitor.
 - Each press of the SLOW SHUTTER button toggles the mode between S1/30, S1/15, S1/8 and Normal shutter speeds. (Refer to page 64)
 4. To return to NITE PIX mode, press the SLOW SHUTTER button to select normal shutter speed.
 - The P  indicator disappears while the  indicator remains on the LCD monitor.
 5. To exit NITE PIX mode, slide the NITE PIX button downwards.
 - The  indicator disappears.

Notes

- NITE PIX and POWER NITE PIX work only in the REC mode.
- Do not set the POWER NITE PIX to ON in bright lighting conditions.
- Using the POWER NITE PIX under natural lighting may affect the color balance.
- Use manual focusing if you have an unclear image while using POWER NITE PIX mode.
- The maximum recording distance using Infrared light is about 9 feet (3m).
- POWER NITE PIX is not available in EASYQ mode.
- POWER NITE PIX cannot be used with Manual Exposure, White Balance, Program AE, BLC, DSE and Digital ZOOM.



The Camcorder : Advanced Recording

Setting the Shutter Speed and Exposure

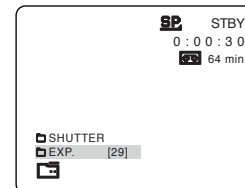
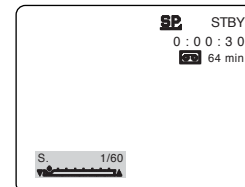
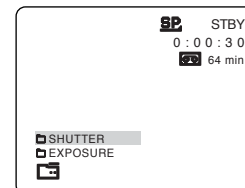
- Shutter Speed function works only in REC mode.
- Adjusting the exposure and shutter speed helps the user to control the recorded image. Greater exposure results in a brighter image while shorter shutter speeds make the image darker. For further information on the effect on the image according to exposure and shutter speed, refer to the page 64.

1. Turn on your camcorder by setting the Power Switch to REC mode.
2. Turn the Navigation Wheel to select  then press the Navigation Wheel.
 - The Quick Menu including “SHUTTER” and “EXPOSURE” is displayed.
3. Turn the Navigation Wheel to select SHUTTER for shutter speed adjustment, or select “EXPOSURE” for exposure adjustment.
 - The Control Bar appears for the selected submenu.
4. Turn the Navigation Wheel for adjustment then press the Navigation Wheel to set the adjustment.
 - The new value of your adjustment is applied.
 - Values for Shutter Speed: 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second
 - Values for Exposure: 0 ~ 29
5. Press the START/STOP button to start recording. Note that the SHUTTER SPEED and EXPOSURE disappear from the On-Screen Display and your adjustment is canceled, returning to Automatic Mode.

Manual Exposure and Shutter Speed are only applied while this menu appears on the LCD monitor.
6. Turn the Navigation Wheel to select  then press the Navigation Wheel to exit the menu screen.

Notes

- Do not frame the sun when you set the shutter speed to less than 1/1000 second. Slower shutter speeds expose the CCD to the light source and can damage the CCD.
- Slow shutter speed may produce discontinuous and uneven motion.
- Manual Exposure and Shutter Speed are not available in EASYQ mode.
- NITE PIX and Manual Shutter Speed/Exposure cannot be applied at the same time.



ENGLISH

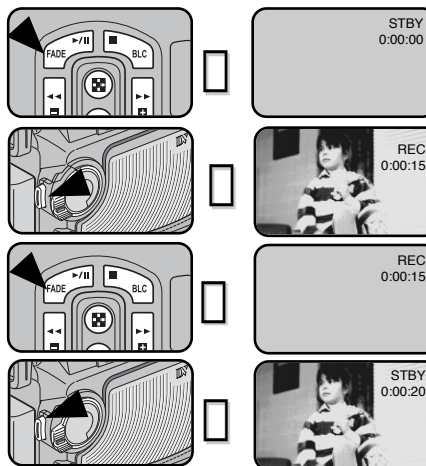
The Camcorder : Advanced Recording

Using the Fade In / Out Function

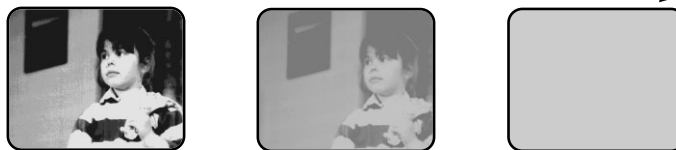
- The Fade In / Out function works only in REC mode.
- You can give your recordings more professional look by using special effects such as fading in at the beginning and fading out at the end of a sequence.

1. Turn on your camcorder by setting the Power Switch to REC mode.
2. To start recording using the FADE IN function, hold down the FADE button to make the picture and sound gradually appear (FADE IN).
3. Press the START/STOP button and release the FADE button at the same time. Recording starts and the picture and sound gradually appear (FADE IN).
4. To stop recording using the FADE OUT function, hold down the FADE button.
5. When the picture has completely disappeared, press the START/STOP button to stop recording.

□ The picture and sound gradually disappear (FADE OUT).



Hold down the FADE button a. FADE OUT Gradual disappearance



Gradual appearance

b. FADE IN

Release the FADE button

Note

- The duration of the FADE IN / OUT is approximately 4 seconds each.

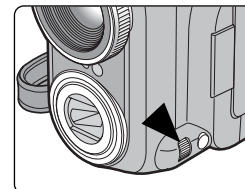
The Camcorder : Advanced Recording

Setting Up and Using the Quick Menu

- The Quick Menu is only available in REC mode.
- Quick Menu is used to access camcorder functions by simply using the Navigation Wheel. Quick Menu provides easier access to the frequently used menus without using the MENU button.
- You can access the following functions by turning the Navigation Wheel:

□ DATE/TIME

- Changes the DATE/TIME stamp format that is displayed on screen.
- You can access this function using the MENU button (refer to page 39).
- 1. Turn the Navigation Wheel to select “DATE/TIME”.
- 2. To change the format, press the Navigation Wheel while the “DATE/TIME” is highlighted.
- Each press of the Navigation Wheel on the DATE/TIME menu changes the format in this order: DATE – TIME – DATE/TIME



□ WL.REMOTE(📶)

- Changes Wireless Remote Control acceptance.
- You can access this function using the MENU button (refer to page 40).
- 1. Turn the Navigation Wheel to select “WL.REMOTE(📶)”.
- 2. Each press of the Navigation Wheel on WL.REMOTE(📶) toggles the Wireless Remote acceptance between ON and OFF.

□ DIS(👤)

- Anti-Shake function; turns the Digital Image Stabilizer function on and off.
- You can access this function using the MENU button (refer to page 57).
- 1. Turn the Navigation Wheel to select “DIS(👤)”.
- 2. Each press of the Navigation Wheel on DIS(👤) toggles the Digital Image Stabilizer between ON and OFF.

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The Camcorder : Advanced Recording

□ DSE (Digital Special Effects)

1. Provides a quick way to access the Digital Special Effects.
2. Using the Navigation Wheel, you can quickly set and release the special effect for your filming. Pressing the Navigation Wheel while DSE is highlighted will toggle the DSE between OFF and selected the DSE mode. (refer to page 58)
1. Turn the Navigation Wheel to select the "DSE".
2. Each press of the Navigation Wheel on the "DSE" menu toggles the DSE mode between OFF and preset DSE selection.
 - If there is no preset DSE selection, "OFF" is the only available option.

□ PROGRAM AE

- Provides a quick way to access the PROGRAM AE settings.
 - Using the Navigation Wheel, you can quickly set and release the PROGRAM AE for your filming. Pressing the Navigation Wheel while PROGRAM AE is highlighted will toggle between the selected PROGRAM AE mode and **[A]** (Auto) (refer to page 53).
1. Turn the Navigation Wheel to select "PROGRAM AE".
 2. Each press of the Navigation Wheel on the "PROGRAM AE" menu toggles the PROGRAM AE mode between **[A]** (Auto) and the preset PROGRAM AE selection.

If there is no preset PROGRAM AE selection, "**[A]**" (Auto) is the only available option.

□ WHT.BALANCE

1. Provides quick way to access the White Balance settings.
2. Using the Navigation Wheel, you can quickly set and release the custom WHT.BALANCE for your filming. Pressing the Navigation Wheel while the WHT.BALANCE is highlighted will toggle between the selected WHT.BALANCE and **[A]** (Auto) (refer to page 55).
3. Turn the Navigation Wheel to select "WHT.BALANCE".
4. Each press of the Navigation Wheel on the "WHT.BALANCE" menu toggles the White Balance between **[A]** (Auto) and preset White Balance selection.
5. If there is no preset WHT.BALANCE selection, **[A]** (Auto) is the only available option.

- You can access following functions by pressing the Navigation Wheel instead of turning it:
- SHUTTER: Shutter Speed Adjustment
- EXPOSURE: Exposure Adjustment

The Camcorder : Advanced Recording

□ SHUTTER

- Provides a quick way to access the SHUTTER Speed Settings.
- 1. Press the Navigation Wheel once then turn the Navigation Wheel to select "SHUTTER".
 - The adjustable Shutter Speed slide bar appears on the screen.
- 2. Adjust the Shutter Speed by turning the Navigation Wheel.
The range of Shutter Speeds: 1/60 ~ 1/10,000 (8 steps)
- 3. Press the Navigation Wheel to select the adjusted Shutter Speed.
 - S. [Value] is displayed.
- 4. Turn the Navigation Wheel to select the Navigator icon () then press the Navigation Wheel to return to recording mode.

□ EXPOSURE

- Provides a quick way to access the EXPOSURE settings.
- 1. Press the Navigation Wheel once then turn the Navigation Wheel to select "EXPOSURE".
 - The adjustable Exposure slide bar appears on the screen.
- 2. Adjust the EXPOSURE by turning the Navigation Wheel.
The range of Exposure Values: 0 ~ 29 (30 steps)
- 3. Press the Navigation Wheel to select the adjusted Exposure Value.
 - EXP. [Value] is displayed.
- 4. Turn the Navigation Wheel to select the Navigator icon () then press the Navigation Wheel to return to recording mode.

Note

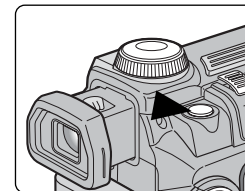
- The Quick Menu is not available in EASYQ mode.

ENGLISH

The Camcorder : Advanced Recording

Taking Photos

- You may take still images while in REC mode and store the images on tape. This function is useful when you want to take a snapshot of a subject while you are using the camcorder.
 - If you want to take a higher resolution still image, switch to  (CAMERA) mode (refer to page 96).
 - You can take photos using the remote control.
 - You can search still pictures recorded on a tape (refer to page 77).
1. Turn your camcorder on by setting the Power Switch to REC mode.
 - The STBY indicator appears on the LCD monitor.
 2. Press the PHOTO button halfway down to focus the image.
 - The  indicator appears on the LCD monitor.
 3. Within 2 seconds, fully press down the PHOTO button and then release it to record the picture.
If you do not want to record, release the PHOTO button before fully pressing it down.
 4. The camcorder returns to STBY (Stand-by) mode.



Notes

- It takes about 6 ~ 7 seconds to record the still image onto the tape.
- Releasing the PHOTO button after having the focus by pressing the PHOTO button halfway down to gain focus, cancels the shooting.
- Pressing the PHOTO button while recording video stops the video recording and saves the still image captured at that moment. It takes approx. 6 ~ 7 seconds to save the image and then resumes the recording.
- You can use the remote control to take a photo by using the PHOTO button on the remote control. Pressing the PHOTO button on the remote control records the still image at once with automatic focusing.

The Camcorder : Advanced Recording

Various Recording Techniques

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

1. General Recording

Suitable for most recording situations.

2. Downward Recording

Make a recording while viewing the LCD monitor from above.

3. Upward Recording

Make a recording while viewing the LCD monitor from below.

4. Self Recording

Make a recording while viewing the LCD monitor from the front.

5. Recording with the Viewfinder

In circumstances where it is difficult to use or see the LCD monitor clearly, using the viewfinder is a convenient alternative.



ENGLISH

The Camcorder : Playback

Playing Back a Recorded Tape

- The tape playback functions work only in PLAY mode.

Playback on the LCD Monitor

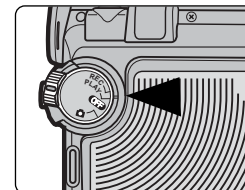
- It is handy and practical to view a tape using the LCD monitor almost anywhere (i.e. in a car, indoors, or outdoors).

Playback on a TV Monitor

- To display a recorded tape on a TV, the television set needs to comply with the Color System (NTSC/PAL).
- It is recommended to use the AC Power Adapter and Cable as the power source for the camcorder.
For instructions on connecting the AC Power Adapter and Cable to your camcorder, refer to page 27.
- Refer to page 138 for instructions on connecting your camcorder to a TV set.

Playback

1. Connect a power source and set the device to PLAY mode by setting the Power Switch to PLAY mode.
2. Using the ►► (FF) and ◀◀ (REW) buttons, find the beginning of the section you want to play back.
3. Press the ►/III (PLAY/STILL) button to start the playback.
The recorded video is displayed on the selected monitor (LCD monitor / TV)
If a tape reaches its end, the tape will automatically rewind.
4. Press the ►/III (PLAY/STILL) button again to stop the playback.



Note

- The playback mode (SP/LP) is automatically selected.

The Camcorder : Playback

Various Functions in PLAY modes

- The ►/|| (PLAY/STILL), ■ (STOP), ►► (FF), ◄◄ (REW) buttons are located both on the Camcorder and the Remote Control.
- The F.ADV (Frame advance), ►► (SLOW) buttons are located only on the Remote Control.
- 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

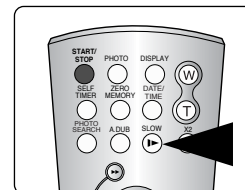
- Press the ►/|| (PLAY/STILL) button during the playback.
- To resume the playback, press the ►/|| (PLAY/STILL) button again.

Picture Search – Forward/Reverse

- Press the ►► (FF) button or ◄◄ (REW) button once during the playback or while in STILL mode.
To resume the playback, press the ►/|| (PLAY/STILL) button.
- Press and hold the ►► (FF) button or ◄◄ (REW) button during playback or while in STILL mode.
To resume the playback, release the button.

Slow Playback – Forward/Reverse

- Forward Slow Playback
 - Press the ►► (SLOW) button on the remote control during playback.
 - To return to normal speed, press the ►/|| (PLAY/STILL) button
- Reverse Slow Playback
 - Press the ◄◄ (-) button during Forward Slow Playback.
 - To resume forward slow playback, press the ►► (+) button.
 - To return to normal speed, press the ►/|| (PLAY/STILL) button

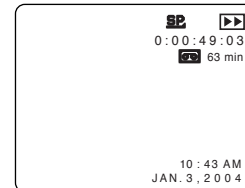
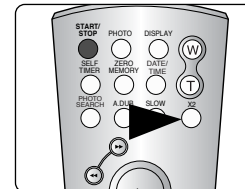


ENGLISH

The Camcorder : Playback

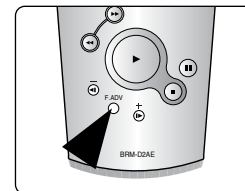
X2 Playback (Forward/Reverse)

- You can playback your recording at 2x normal speed using the X2 button on the remote control.
- Forward X2 Playback
 - Press the X2 button on the Remote Control during Playback.
 - To resume normal playback, press the ►/II (PLAY/STILL) button.
- Reverse X2 Playback
 - Press the ◀II (-) button during Forward X2 Playback.
 - To resume normal playback, press the ►/II (PLAY/STILL) button.



Frame Advance – Frame by Frame Playback

- Press the F.ADV button on the remote control while in Still mode. The F.ADV function works only in Still mode.
- To return to normal speed, press the ►/II (PLAY/STILL) button.
- Forward Frame Advance
 - Press the F.ADV button on the remote control while in Still mode to begin the forward frame advance.
- Reverse Frame Advance
 - Press the ◀II (-) button on the remote control to reverse the frame advance direction while in Still mode.



Notes

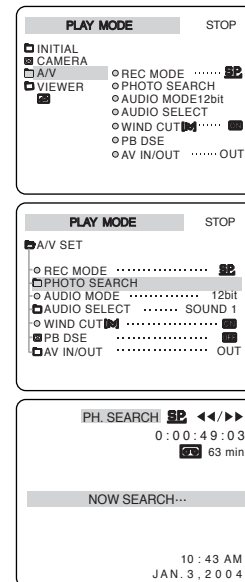
- Mosaic shaped distortion may appear on the screen while in the various playback modes.
 - Mosaic shaped distortion or noise may be experienced when you play back tapes recorded in LP which contain various playback functions.
- Sound will only be heard during normal SP or LP playback.

The Camcorder : Playback

Searching Still Images

- Searching the Still Images recorded on a tape works only in PLAY mode.
- Recorded Still Images are played back using stop-motion.

1. Turn your camcorder on by setting the Power Switch to PLAY mode.
2. Press the MENU button.
 - The top menu including "A/V" is displayed.
3. Press the DOWN button to select "A/V" then press the OK button.
 - The submenu including "PHOTO SEARCH" is displayed.
4. Press the DOWN button to select "PHOTO SEARCH" then press the OK button.
 - The ◀▶ indicator flashes on the LCD monitor.
5. Press the ◀ (REW) or ▶ (FF) button to begin the search in given direction.
 - The ◀▶ indicator and "NOW SEARCH..." message appear on the LCD monitor and the search begins.
6. To stop the search, press the MENU button or the ■ (STOP) button.



Notes

- When there are no still images recorded on the tape, it will be fully rewound or forwarded.
- The PHOTO SEARCH will stop after one still image has been found. To begin another search, press the ◀ or ▶ button.

ENGLISH

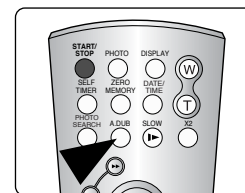
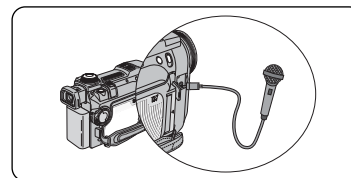
The Camcorder : Playback

Dubbing an Additional Sound Track to Your Recording

- Audio Dubbing works only in PLAY mode.
- You can dub additional audio to your recordings using the remote control. Dubbing is supported only when the recorded image has been recorded in SP (Standard Play) mode using the 12-bit settings for audio.
- This function is useful for adding additional background music or sound effects to your recordings. The original sound will not be erased.

Dubbing the Sound

1. Turn your camcorder on by setting the Power Switch to PLAY mode.
2. Move to the desired starting position of the recorded video using ◀◀ (REW), ▶▶ (FF) or ▶/|| (PLAY/STILL) buttons.
3. Press the ▶/|| (PLAY/STILL) button at the starting point.
4. Press the A.DUB button on the remote control.
 - The “A.DUB” message appears on the LCD monitor and the camcorder is ready for dubbing.
5. Press the ▶/|| (PLAY/STILL) button to start dubbing.
6. To stop the audio dubbing, press the ■ (STOP) button.



Notes

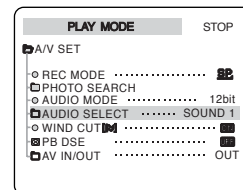
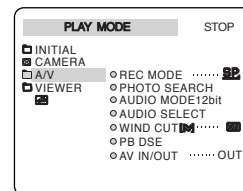
- Audio Dubbing is not available when using protected tapes. To release the protection, refer to page 49.
- Audio Dubbing is not available for recordings using 16-bit sound.
- Audio Dubbing is not available for recordings made in LP mode.
- To utilize an external MIC or sound source, connect a microphone to the MIC jack or use the AV cable for external sound source input.
- To dub an external sound source, set the AV Input/Output function to AV IN (refer to page 141).

The Camcorder : Playback

Playing Dubbed Sound

You may select the audio track to be played back.

1. Turn your camcorder on by setting the Power Switch to PLAY mode.
2. Press the MENU button.
 - The top menu including “A/V” is displayed.
3. Press the DOWN button to select “A/V” then press the OK button.
 - The submenu including “AUDIO SELECT” is displayed.
4. Press the DOWN button to select “AUDIO SELECT” then press the OK button.
 - The available AUDIO SELECT options are listed.
 - SOUND[1]: Main Audio Track only, plays only the original audio.
 - SOUND[2]: Additional Audio Track only, plays only the dubbed audio.
 - MIX[1+2]: Mixed Audio Tracks, plays both the original and the dubbed audio.
5. Select your option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.
6. Press the MENU button to exit the menu screen.
7. Press the ►/|| (PLAY/STILL) button to begin the playback.
 - The selected Audio Tracks are played back.
8. To stop the playback, press the ►/|| (PLAY/STILL) button again.



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The Camcorder : Playback

Setting the Zero Memory on the Tape (Ending Position)

- The MEMORY function works in both REC and PLAY modes.
 - On a tape, you can mark a point that you want to return to following playback.
1. Press the ZERO MEMORY button on the remote control during playback or while recording at the point you wish to return to.
 - The time code is changed to a tape counter which is set to Zero Memory with the 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 with the playback, fast forward or rewind the tape.
 - The tape automatically stops when it reaches the Zero Position.
 - When you have finished recording, Set the Power Switch to the PLAY mode then press the ◀◀ (REW) button.
 - The tape automatically stops 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 back to time code.

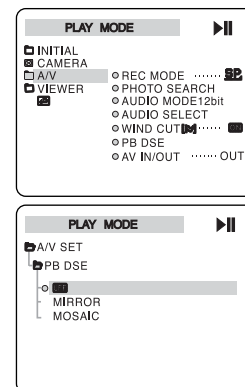
Notes

- In the following situations, ZERO MEMORY mode may be automatically canceled:
 - 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 when there is a break between recordings on the tape.

The Camcorder : Playback

PB DSE - Applying Digital Special Effects to Your Recording During Playback

- The PB DSE function works only in PLAY mode.
- The PB DSE function allows the user to apply digital effects to recorded video and still pictures.
 1. Turn on your camcorder by setting the Power Switch to PLAY mode.
 2. Press the ►/|| (PLAY/STILL) button to start the playback.
 3. Press the MENU button during the playback.
 - The top menu including “A/V” is displayed.
 4. Press the DOWN button to select the “A/V” then press the OK button.
 - The submenu including “PB DSE” is displayed.
 5. Press the DOWN button to select the “PB DSE” then press the OK button.
 - The available options are listed: Off, Mosaic and Mirror.
 6. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied to your playback.
 7. Press the MENU button to exit the menu screen.
 8. To cancel applied PB DSE, set the PB DSE to OFF or press the ■ STOP button.



Notes

- You cannot apply PB DSE to pictures being input from an external video source.
- Once you modify an image using the PB DSE function, it cannot be exported to a PC using the camcorder's DV (IEEE 1394) connection.

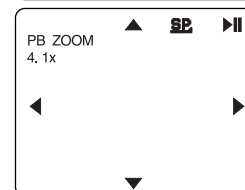
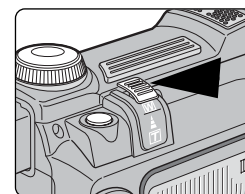
ENGLISH

The Camcorder : Playback

PB ZOOM- Zooming During Playback

- The PB ZOOM function works only in PLAY mode.
- The PB ZOOM function allows the user to zoom in or out on recorded video and still pictures.
- The Zooming Range for PLAY mode: 1.2 ~ 8.0x

1. Turn on your camcorder by setting the Power Switch to PLAY mode.
2. During playback, zoom in or zoom out using the Zoom Lever.
 - The image is magnified or reduced to scale.
3. To move around the enlarged image, press the LEFT, RIGHT, UP or DOWN button.
4. To cancel the PB ZOOM function, press the MENU button twice or press the ■ STOP button.
 - You can Zoom out to 1.2x and push the Zoom lever further to cancel the PB ZOOM.



Notes

- You cannot apply the PB ZOOM function to pictures being input from an external video source.
- The PB ZOOM images cannot be exported to a PC using the camcorder's DV (IEEE 1394) connection.

The Camera : Preparation

Using the Memory Card

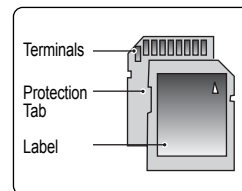
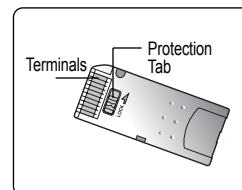
- MMC, SD Memory Card, Memory Stick and Memory Stick Pro are compatible with the SC-D6050.
- The Memory Device stores and manages still images recorded by the camera.

Memory Card Functions

- Recording Still Images
- Viewing Still Images
- Protecting Images from accidental erasure (except MMC)
- Deleting Still Images stored in the Memory Card
- Marking Still Images with Print Information
- Formatting Memory Cards

Notes

- Formatting the memory card using a different device will cause memory card read errors.
- Formatting the memory card deletes all the stored data in the memory card.
- Do not turn the power off in the middle of the formatting.
- Do not turn the power off while saving information or accessing the memory card. It may cause damage to memory card.
- Do not place the memory card near a strong electro-magnetic device.



- 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. "TM" will not be mentioned in every instance in this manual.

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The Camera : Preparation

- MMC / SD Memory Card, Memory Stick and Memory Stick Pro are available for taking photographs. Before inserting or ejecting the memory device, turn the camcorder OFF.

Inserting a Memory Card

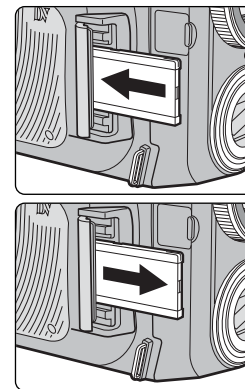
To Insert a Memory Device into the Slot

1. Open the Memory Slot lid.
2. Insert the Memory Card into the Slot until it softly clicks.
3. Close the Memory Slot.

Ejecting a Memory Card

To Eject the Memory Device from the Slot

1. Open the Memory Slot lid.
2. Slightly push the memory card inwards to pop it out.
3. Pull the memory card out of the slot and close the lid.



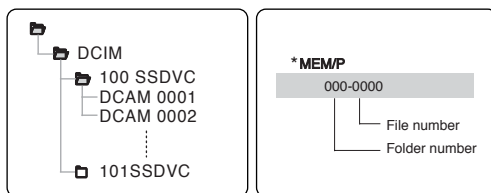
Notes

- Do not apply excessive force when you insert / eject the memory card.
- The memory device type is displayed on the LCD monitor.
- Do not turn the power off while recording, loading, erasing still picture or formatting the memory card.
- Please turn the power off before you insert or eject the Memory Card to avoid losing data.
- Do not allow metal substances to come in contact with the terminals on the memory card.
- Do not bend the memory card.
- After pulling the card out from the camcorder, keep the memory cards in a soft case to prevent static shock.
- The data stored on the card 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.

The Camera : Preparation

Number of Recordable Images / Length of Motion Clip

- The still images that you recorded are saved in JPEG file format.
- Each file has a file name (using sequential numbers) and all files are assigned to a folder.
- A file number beginning with DCAM0001 up to DCAM9999 is sequentially assigned to each recorded image.
- Each folder is numbered from 100SSDVC to 999SSDVC and recorded in the memory card.



Memory Card Functions

Size	Still Image			
	TIFF	SUPER FINE	FINE	NORMAL
2592x1944	Approx. 2	Approx. 25	Approx. 50	Approx. 75
2272x1704	Approx. 2	Approx. 32	Approx. 65	Approx. 98
2048x1536	Approx. 3	Approx. 40	Approx. 80	Approx. 121
1600x1200	Approx. 5	Approx. 66	Approx. 132	Approx. 198
1024x768	Approx. 13	Approx. 161	Approx. 322	Approx. 484
640x480	Approx. 32	Approx. 413	Approx. 837	Approx. 1240

QUALITY	Motion Clip	
	30fps	15fps
High 640 x 480	Approx. 2min	Approx. 5min
High 320 x 240	Approx. 3min	Approx. 6min
Low 640 x 480	Approx. 4min	Approx. 7min
Low 320 x 240	Approx. 5min	Approx. 8min

Notes

- The above approximation is based on a 32MB SD Memory Card under normal lighting condition.
- The number of pictures that can be stored on a memory card depends on various conditions.

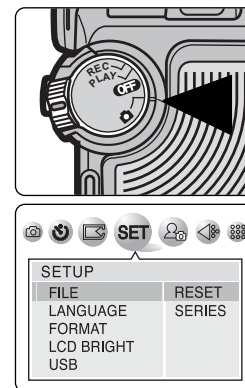
ENGLISH

The Camera : Functions

Numbering Stored Pictures

- File numbers will be automatically given, in the order they were recorded, to pictures taken and stored in the Memory Card. By default, pictures are stored on the memory card in a folder labeled 100SSCAM, with four-digit file numbers, starting from DCAM0001.
- You can reset the numbering back to DCAM0001 at any time by setting the FILE to RESET.

1. Turn your camcorder on by setting the Power Switch to (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including (SET) is displayed.
 3. Press the LEFT or RIGHT button to select (SET) then press the DOWN button.
 - The submenu including “FILE” is displayed.
 4. Press the DOWN or UP button to select “FILE” then press the RIGHT button.
 - The RESET and SERIES options are displayed and RESET is highlighted.
 5. Highlight your option by pressing the DOWN or UP button then press the MENU button.
 - The selected option is applied and automatically exits from the menu screen.
- RESET: When selected, the file number of the next picture is set to DCAM0001.
 - SERIES: Continues the numbering.



Notes

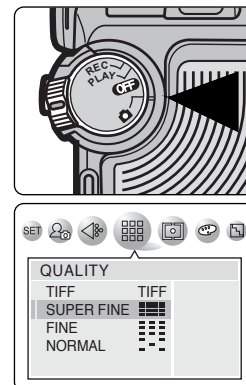
- The file numbers start from DCAM0001 at the time of purchase.
- MPEG motion clips are stored in the folder DCIM.
- File numbering for a Memory Card that contains image files from another device, will begin after the largest number.
- File numbering restarts from 0001 when 9999 files have been saved.
- A previously formatted Memory card using a personal computer might require reformatting.
- Each folder can contain up to 9999 images. A Memory Card may contain up to 999 folders. “DCF FULL ERROR” message is displayed when it exceeds the limit.

The Camera : Functions

Setting the Picture Quality

- Set the level of picture quality for the still images taken by the Camera before you begin. The number of stored images varies depending on the memory card capacity, picture size and quality.

 1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including (QUALITY) is displayed.
 3. Press the LEFT or RIGHT button to select (QUALITY) then press the DOWN button.
 - The available options are listed.
 - **TIFF** – SUPER FINE – FINE – NORMAL
 4. Select an option by pressing the DOWN or UP button to highlight your choice.
 5. Press the MENU button to exit the menu screen.
 - The selected option's indicator appears on the LCD monitor.



Notes

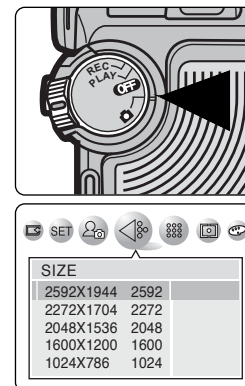
- The actual number of pictures you can record varies depending on the picture quality and size settings.
- The TIFF format does not compress the image and therefore produce larger image size.

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The Camera : Functions

Setting the Picture Size

- Set the picture size for still images taken by the Camera before you begin. The number of stored images varies depending on the memory card capacity, picture size and quality.
1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including  (SIZE) is displayed.
 3. Press the LEFT or RIGHT button to select  (SIZE) then press the DOWN button.
 - The available options are listed.
 - 2592x1944, 2272x1704, 2048x1536, 1600x1200, 1024x768, 640x480
 4. Select an option by pressing the DOWN or UP button to highlight your choice.
 5. Press the MENU button to exit the menu screen.
 - The selected option's indicator appears on the LCD monitor.



Notes

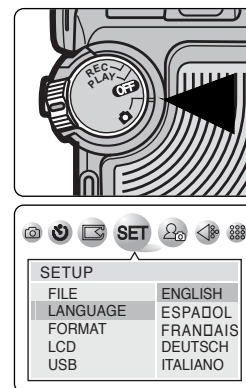
- The actual number of pictures you can record varies depending on the picture quality and size settings.
- For photo development, the higher the resolution the finer quality of the picture.
- 640x480 format is adequate for e-mail transfers.

The Camera : Functions

Setting the Menu Language

- You can choose a language for the OSD (On-screen Display) menu.
- Menus and messages can be displayed in English, Español, Français, Português, Deutsch, and Italiano.

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
2. Press the MENU button.
 - The top menu including  (SET) is displayed.
3. Press the LEFT or RIGHT button to select the  (SET) then press the DOWN button.
 - The submenu including “LANGUAGE” is displayed.
4. Press the DOWN button to select “LANGUAGE” then press the RIGHT button.
 - The available options for LANGUAGE setting are displayed.
5. Select your option by pressing the UP or DOWN button.
 - The selected option is highlighted and applied.
6. Press the LEFT or OK button to return to the SETUP menu.
7. Press the MENU or OK button to exit the menu screen.

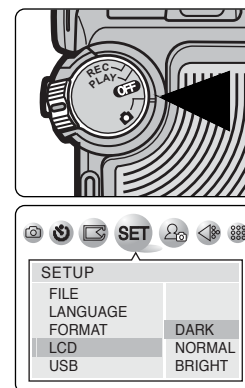


ENGLISH

The Camera : Functions

Setting the LCD Brightness

- You can adjust the brightness of the LCD monitor for Camera use.
- 1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
- 2. Press the MENU button.
 - The top menu including “SET” is displayed.
- 3. Press the LEFT or RIGHT button to select the  (SET) then press the DOWN button.
 - The submenu including “LCD” is displayed.
- 4. Press the DOWN button to select the “LCD” then press the RIGHT button.
 - The available options for LCD brightness settings are displayed.
DARK – NORMAL – BRIGHT
- 5. Select an option by pressing the UP or DOWN button.
 - The selected option is highlighted.
- 6. Press the LEFT or OK button to apply your selection.
 - The selected option is applied.
- 7. Press the OK button or MENU button to exit the menu screen.



Notes

- A brighter LCD Monitor setting consumes more battery power.
- You may adjust the brightness in  (CAMERA) modes.
- For brightness adjustment in Camcorder mode, refer to page 33.
- The available menu items are displayed for the selected Camera mode.

The Camera : Functions

Setting the Clock

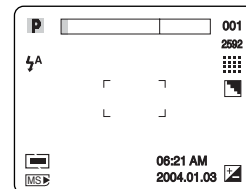
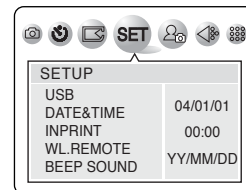
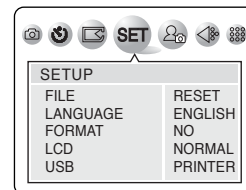
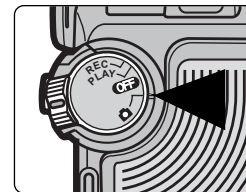
- A built-in clock for Camera mode creates the Time Stamp. For further information on Time Stamp Imprinting, refer to the next page.
1. Turn your Camera on by setting the Power Switch to (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including (SET) is displayed.
 3. Press the LEFT or RIGHT button to select the (SET) then press the DOWN button.
 - The submenu including “DATE & TIME” is displayed.
 4. Press the DOWN button to select the “DATE & TIME” then press the RIGHT button.
 - The adjustable fields of Stamp Format, Date and Time are displayed while the YEAR field is selected.
 5. Press the DOWN or UP button to set the value. Move to next field by pressing the RIGHT button.
 6. Repeat Step 5 for the MONTH and DATE fields.
 7. Press the DOWN or UP button to select the Stamp Format.

Available formats: YY/MM/DD, MM/DD/YY, DD/MM/YY
 8. Press the OK button to return to the SETUP menu.

Press the MENU button to exit the menu screen.

Note

- If you remove the batteries from the camera for an extended period of time, or the batteries become run out, you may need to reset the clock.



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The Camera : Functions

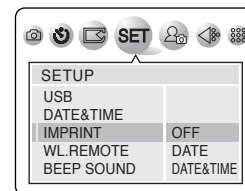
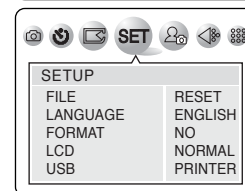
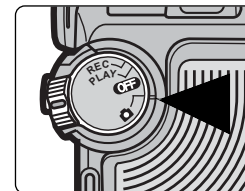
Setting the IMPRINT Option

- IMPRINT allows the user to place a date stamp on a picture. Your camera has a built-in clock that maintains the date and time in a 24-hour format. The camera clock needs to be set if you plan to use the date stamp to imprint the date and time on your picture.

Before you begin!

- Set the CLOCK (refer to the previous page).

1. Turn your Camera on by setting the Power Switch to (CAMERA) mode.
2. Press the MENU button.
 - The top menu including (SET) is displayed.
3. Press the LEFT or RIGHT button to select the (SET) then press the DOWN button.
 - The submenu including “IMPRINT” is displayed.
4. Press the DOWN button to select the “IMPRINT” then press the RIGHT button.
 - The available options: OFF, Date and DATE&TIME are displayed.
5. Select an option by pressing the UP or DOWN button then press the OK button.
 - The selected option is applied.
6. Press the MENU button to exit the menu screen.



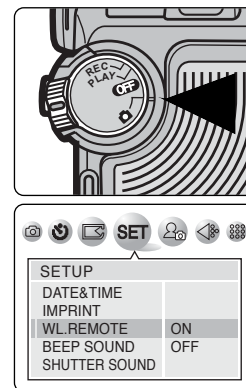
Notes

- A separate clock setting for Camera mode is required. For further information on Date & Time setup for the Camcorder, refer to page 38.
- If you remove the batteries from the camera for an extended period of time, or the batteries become run out, you may need to reset the clock.

The Camera : Functions

Setting the Wireless Remote Control Acceptance (WL.REMOTE)

- You can enable or disable the Wireless Remote Control for use in Camera mode.
 - Using the Wireless Remote Control, you can easily and remotely manipulate your camera. Refer to page 40 for setting the Wireless Remote Control for Camcorder use.
 - Using the Wireless Remote Control provided, you can take a delayed picture using the SELF TIMER button (refer to page 102).
1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including  (SET) is displayed.
 3. Press the LEFT or RIGHT button to select  "SET" then press the DOWN button.
 - The submenu including "WL.REMOTE" displays
 4. Press the DOWN button to select "WL.REMOTE" then press RIGHT button.
 - The available options of "ON" and "OFF" are displayed.
 5. Select an option by pressing the UP or DOWN button.
 - The selected option is applied.
 6. Press the LEFT or the OK button to return to the SETUP menu.
 7. Press the OK button or MENU button exit the menu screen.



The Camera : Functions

MENU	SUB MENU	Functions	Page
SETUP	FILE	Reset the file numbering	86
	LANGUAGE	Set the OSD language	89
	FORMAT	Format the memory card	
	LCD	Adjust the LCD brightness	90
	USB	USB data destination (PC/PRINTER)	133
	DATE&TIME	Set the Date and Time	91
	IMPRINT	Set the imprint option (Date/Time)	92
	WL.REMOTE	Set the Wireless Remote acceptance	93
	BEEP SOUND	Set the beep sound for key press	
	SHUTTER SOUND	Set the shutter sound	
	Q.VIEW	Adjust the Quick Review duration	99
MYCAM	OFF	Default starting image	127
	START IMAGE1	Set a custom starting image	127
	START IMAGE2		
	START IMAGE3		
SIZE	2592 X 1944	Change the picture size	88
	2272 X 1704		
	2048 X 1536		
	1600 X 1200		
	1024 X 768		
	640 X 480		
QUALITY	TIFF	Set to TIFF non-compressing format	87
	SUPER FINE	Set to super fine picture quality	
	FINE	Set to fine picture quality	
	NORMAL	Set to normal picture quality	
METERING	MULTI	Set the metering to MULTI	112
	SPOT	Set the metering to SPOT	

The Camera : Functions

MENU	SUB MENU	Functions	Page
EFFECT	NORMAL B & W SEPIA NEGATIVE	No special effect Converts colors into Black and White Converts color info. to brown tone Reverses colors	120
SHARPNESS	SOFT NORMAL VIVID	Changes sharpness setting	123
SHOOTING	SINGLE CONTINUOUS AEB	Normal single picture shooting 3 continuous picture shootings 3 continuous pictures with exposure bracketing	122
SELF TIMER	OFF 2s SELF 10s SELF	No delay Set to 2 seconds Set to 10 seconds	102
SAVE	MYSET1 MYSET2 MYSET3	Stores current setting for quick recall	125

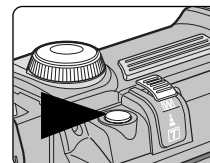
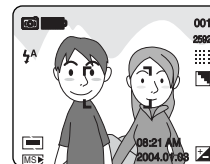
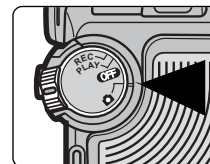
ENGLISH

The Camera : Basic Picture Taking

Taking and Viewing Your First Photo

Taking Still Images: AUTO Mode

1. Insert the memory card (refer to page 84) and connect a power source (refer to page 27).
2. Turn your camera on by setting the Power Switch to  (CAMERA) mode and turn the Mode Dial to select  (AUTO) mode.
3. Frame your subject
 - Frame your subject using the LCD monitor or the viewfinder.
 - Use the Zoom Lever to zoom in or zoom out.
4. Set the focus by pressing the PHOTO button halfway down.
 - Locate your main subject inside the focus area indicated by [] then press the PHOTO button halfway down to focus on your main subject.
 - You can move your camera to the desired framing after the focus is locked.
 - Depending on lighting conditions, the built-in flash may pop up.
5. Fully press the PHOTO button to take the picture
 - The picture is taken and saved into the memory card within few seconds.
 - Taking another picture within this interval is not possible.
 - The Memory Card indicator will blink during the time it takes to save the image.



Taking Still Images: EASYQ Mode

- EasyQ mode is the most convenient, fully automatic camera mode. With one press of the EASYQ button, the camera is automatically set to create the best results under various conditions.
- You can switch to EASYQ mode from any camera modes including  (PLAY) mode. Press the EASYQ button again to return to the previous mode.

Note

- The Auto Power Off feature is designed to save the battery power. If there is no operation for more than 5 minutes, the camera will automatically turn off. To resume camera operation, press the START/STOP button once.

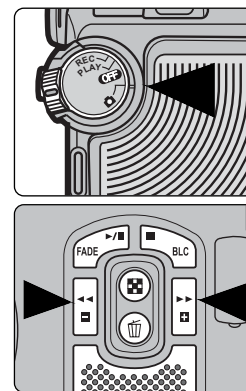
The Camera : Basic Picture Taking

Viewing Still Images

- You can playback and view still images stored on the Memory Card.
- Still images stored on the memory card are all displayed in the same size despite their original resolution using the LCD monitor or viewfinder.
- There are two ways to view the recorded images in Camera  (PLAY) mode:
 - Single: To view an image frame by frame
 - Slide Show: To view all images automatically in consecutive order

Viewing a Single Still Image

1. Turn on your camera by setting the Power Switch to  (CAMERA) mode.
2. Set the Mode Dial to  (PLAY) mode.
 - The last picture taken appears on the LCD monitor.
 - If there is no recorded image on the memory card, "NO STORED IMAGE!" will be displayed.
3. Using the  (FF) and  (REW) buttons, search for the desired still image.
 - To view the next image, press the  (FF) button.
 - To view the previous image, press the  (REW) button.
 - Pressing the  (FF) button when you are on the last image will take you to the first image and pressing the  (REW) button when you are on the first image will take you to the last image.
 - Keep pressing  (FF) or  (REW) to search quickly for an image.



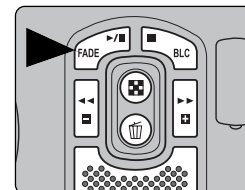
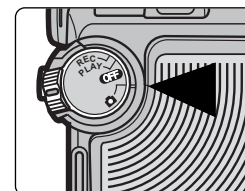
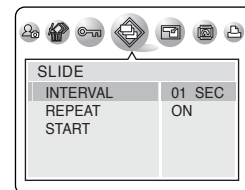
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The Camera : Basic Picture Taking

Viewing a Slide Show

1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
2. Turn the Mode Dial to set to PLAY mode.
 - A stored picture is displayed on the LCD monitor.
3. Press the MENU button.
 - The top menu including (SLIDE) is displayed.
4. Press the LEFT or RIGHT button to select (SLIDE).
5. Press the DOWN or UP button to select INTERVAL then press the RIGHT button.
 - The cursor is located on Interval. Select an interval by pressing the UP or DOWN button.
6. Select an interval by pressing the UP or DOWN button.

The available range is 1 ~ 10 seconds.
7. Press the LEFT button and then press the DOWN button to select REPEAT.
8. Press the RIGHT button and select ON or OFF.
 - The REPEAT option is turned ON or OFF.
9. Press the LEFT button then press the DOWN button.
 - START is selected.
10. Press the OK or MENU button to start the Slide Show. To pause the Slide Show, press the STILL button. To resume the Slide Show, press the STILL button again.
11. To stop the Slide Show, press the MENU button.



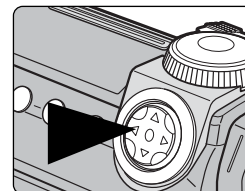
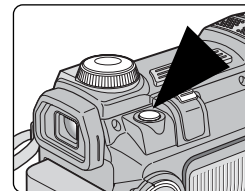
Notes

- Loading time may vary depending on the image size.
- The Slide Show will start from the current picture.
- For motion clips, only the first frame is displayed.

The Camera : Basic Picture Taking

Viewing a Still Image using the Quick Review

- Quick Review is used to view the last recorded still image.
 - To see detailed information on the picture, press the DISPLAY button once.
1. Record a still image using the PHOTO button.
 2. Press the LEFT button to view the picture just taken.
 3. To return to Camera mode, press the LEFT button again or press the PHOTO button halfway down.



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The Camera : Basic Picture Taking

Deleting Recorded Pictures

- You can delete previously stored images either one at a time or all at once.

Deleting One Image in Single Image View

1. Load a memory card that has previously stored pictures (refer to page 96).
2. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
3. Turn the Mode Dial to set the  (PLAY) mode.
 - A stored picture is displayed on the LCD monitor.
4. Choose a stored picture to be deleted by pressing the LEFT or RIGHT button.
5. Press the  (DELETE) button to delete the selected picture.
 - The message “DELETE?” and the available options are displayed.
6. Press the OK button to delete the picture, or press the LEFT button to cancel.
 - If deleted, the next or the last picture stored is displayed. If Delete is cancelled, it returns to the picture screen.

Notes

- When there is no stored picture on the memory card, the message “NO IMAGE!” will be displayed.
- If an erroneous memory card format is found on the memory card, the message “CARD ERROR!” will be displayed.
- If an erroneous image file is found on the memory card, the message “FILE ERROR” will be displayed. It may be caused by copying images from different digital devices.
- Formatting the memory card will delete all the stored images.

The Camera : Basic Picture Taking

Deleting Multiple Images in Multiple Image View

1. Load a memory card that has previously stored pictures (refer to page 96).
2. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
3. Turn the Mode Dial to set the  (PLAY) mode.
 - A stored picture is displayed on the LCD monitor.
4. Press the  button to display 9 pictures on the LCD monitor.
 - Multiple pictures are displayed and the cursor is on the first picture.
5. Press the DISPLAY button to select an image. Press the LEFT, RIGHT, DOWN or UP button to move the cursor. To cancel your selection, press the DISPLAY button again.
 - The selected pictures will be bordered by a thin line.
6. Press the  (DELETE) button to delete the selected pictures.
 - The message "DELETE?" and the available options are displayed.
7. Press the OK button to delete the picture, or press the LEFT button to cancel.
 - If deleted, the next or the last picture stored is displayed. If Delete is cancelled, it returns to the picture screen.

Notes

- Formatting the memory card will delete all the stored images.
- To protect important picture from accidental deletion, activate the image protection (refer to page 131).

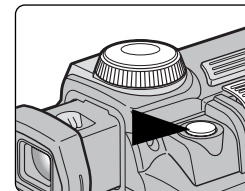
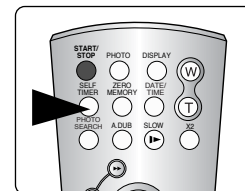
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The Camera : Basic Picture Taking

Delayed Shooting – Self Timer

- Using the remote control, delaying the shutter release (in order to take self-photography and various other camera uses) is available.

1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
2. Turn the Mode Dial to set AUTO, A, S, M, or SCENE mode.
3. Press the MENU button.
 - The top menu including “SELF TIMER” is displayed.
4. Press the LEFT or RIGHT button to select “SELF TIMER” then press the DOWN button.
 - The available options of OFF, 2s SELF and 10s SELF are listed.
5. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied and the corresponding indicator appears on the LCD monitor.
6. Press the SELF TIMER button on the Remote Control until the desired option is displayed on the LCD monitor.
 - 10s : Delays the shutter release by 10 seconds.
7. Frame your subject.
8. Press the PHOTO button on the Remote Control to start the timer.
 - After the time indicated, the shutter is released.



Notes

- Do not obstruct the remote control sensor by putting obstacles between the remote control and camera.
- The remote control range is 4 ~ 5m (13 ~ 17 ft).
- The effective remote control angle is up to 30 degrees left / right from the center line.
- Using a tripod is recommended for delayed shootings.

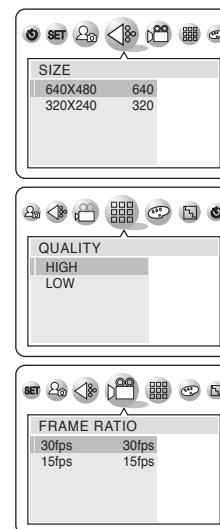
The Camera : Basic Picture Taking

Taking Motion Clips (MPEG) Using the Camera

- You can record a motion clip onto the memory card using  (CAMERA) mode.

Preparation – Setting the Resolution, Quality and Frame Ratio

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Set the Mode Dial to the  (MOVIE).
 - The  indicator appears on the LCD monitor.
 3. Press the MENU button.
- **Setting up the MPEG Resolution**
 1. Press the LEFT or RIGHT button to select  (SIZE) then press the DOWN button.
 - The available options are listed: 640x480, 320x240
 2. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.
 - **Setting up the MPEG Quality**
 1. Press the LEFT or RIGHT button to select  (QUALITY) then press the DOWN button.
 - The available options are listed: HIGH, LOW
 2. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.
 - **Setting up the MPEG Frame Ratio**
 1. Press the LEFT or RIGHT button to select  (FRAME RATIO) then press the DOWN button.
 - The available options are listed: 15fps, 30fps
 2. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.



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The Camera : Basic Picture Taking

Recording a Motion Clip (MPEG) onto a Memory Card

- You can record movies with sound (recorded via the camera's built-in microphone) using the  (MOVIE) mode.
- Before recording a motion clip, insert a Memory Card (refer to page 84).
- 1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
- 2. Turn the Mode Dial to  (Movie).
 - Movie mode indicator  is displayed and it is ready for recording. Recordable time using the memory card is displayed.
- 3. Frame your subject then press the START/STOP button to start recording.
 - The Time Counter starts counting and begins the recording.
- 4. To pause the recording for a while, press the  (PLAY/STILL) button. To resume recording, press the  (PLAY/STILL) button again. To stop recording, press the START/STOP button again.
- You can use the Remote Control for Motion Clip recording.
- 1. Follow Steps 1 ~ 2 above for the normal recording of Motion Clips.
- 2. Frame your subject then press the START/STOP button on the Remote Control.
 - The Time Counter starts counting and the recording begins.
- 3. To stop recording, press the START/STOP button.

Notes

- To use an external microphone, connect a microphone to the MIC jack on the right front side of your camera.
- It is recommended to use a tripod for Motion Clip recordings with the Remote Control. It is also handy for self recordings.
- The recorded motion clip is saved in AVI format.

The Camera : Basic Picture Taking

Viewing a Motion Clip (MPEG)

To Playback a Recorded Motion Clip

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
2. Turn the Mode Dial to  (PLAY) mode.
 - A stored picture or movie is displayed.
3. Press the LEFT or RIGHT button to locate the motion clip to be played back.
 - The MPEG indicator  is displayed when a motion clip is selected.
4. Press the PLAY button to start playback.
 - Playback begins.
5. To pause playback, press the  (PLAY/STILL) button. To resume playback, press the  (PLAY/STILL) button again. To stop playback, press the  (STOP) button.

To Delete a Recorded Motion Clip

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
2. Turn the Mode Dial to set the  (PLAY) mode.
 - A stored picture or movie is displayed.
3. Press the LEFT or RIGHT button to locate the motion clip to be deleted.
 - The message "DELETE?" and the available options are displayed.
4. To delete the motion clip, press the OK button or press the LEFT button to cancel.
 - If deleted, the next or the last picture stored is displayed. If Delete is cancelled, it returns to the picture screen.

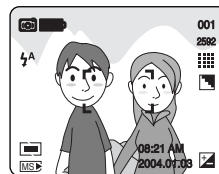
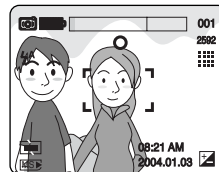
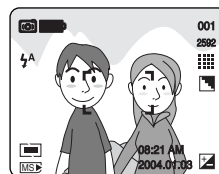
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The Camera : Advanced Techniques

Setting the Focus

- In Camera modes, the automatic focus will not engage unless the PHOTO button is pressed halfway down.
- To get good image quality, please verify the focus is set properly before fully depressing the PHOTO button.
- While the camera is focusing (when pressing the PHOTO button halfway down), a flashing icon (○) will appear on the LCD monitor.
- A sound effect will play once the focus is set.

1. Frame your subject inside the AF focus area on the LCD monitor in order to obtain the clear focus.
2. Press the PHOTO button halfway down to adjust the focus.
 - When the focus is set, a sound effect will play.
 - You can maintain focus by continuing to press the PHOTO button halfway down in order to change your framing. This is useful when your main subject is not located in the center area of your frame.
3. Press the PHOTO button firmly to take the picture.



Notes

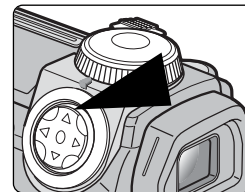
- If the focus is not properly set, release the PHOTO button and then press the PHOTO button halfway down again.
- Use MACRO mode for recording images at closer range under 30cm or 12 inches, or proper focusing will not occur.
- To obtain an intentional blurring effect on the image, use the MF (Manual Focus) button to set the focus.

The Camera : Advanced Techniques

Using the Built-In Flash

- The Flash works in  (CAMERA) modes and allows the user to take brighter pictures in dark locations (i.e. nighttime shooting, indoor and in shaded areas).
- Auto Flash, Red-Eye Reduction, Fill-In Flash, Slow Sync and Flash Cancel modes are available.
- To select a flash mode, press the UP button. It will toggle the flash mode between:
- Auto Flash 

The flash automatically pops up and fires according to the lighting conditions. Pressing the PHOTO button halfway down will detect the lighting condition. Even if it remains raised, the flash will not fire when there is sufficient light.



- Red-Eye Reduction 

The red-Eye Reduction flash fires before the main flash fires and reduces the Red-Eye effect. Red-Eye Reduction flash mode is effective when the subjects are within range of the flash and looking toward the flash. A slight delay occurs after the shutter release button is fully pressed, to allow the Red-Eye reduction to take effect. This flash mode is not recommended for fast-moving subjects or long-distance subjects.
- Fill-In Flash 

Forces the flash to fire despite the lighting condition. To get finer results, it is recommended to use Fill-In flash mode in backlight conditions and for shaded subjects under sufficient lighting conditions.
- Slow Sync 

The shutter speed is set to slow and flash fires at the adjusted shutter speed. Use to capture both subject and background at night or in dim light. Use of a tripod is recommended to prevent a blurred picture. Slow Sync flash mode allows the user to take brighter background as well as brighter subject at night.
- Flash Cancel 

Forces the flash not to fire. Public places such as museums may prohibit flashlight use.

Notes

- The flash does not function in CONTINUOUS SHOT mode or in the Camcorder modes.
- The battery power will be consumed faster with repeated use of the flash.
- To use the flash again, wait until the flash is fully charged (5 ~ 7 seconds).
- To close the flash after use, push the top lid of the flash downwards until it clicks.
- Do not apply excessive force when closing the flash; otherwise it might damage the moving parts.
- The effective flash range is 7 ~ 10 feet.

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The Camera : Advanced Techniques

Setting the Focus Modes

- Choose a focus mode to suit your subject and composition. Auto focusing, Continuous Auto focusing, Manual focusing, and Macro focusing modes are available.
- Focus will be automatically set near the center of the frame for Auto focusing.

Note

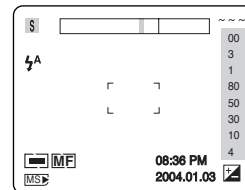
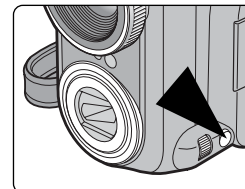
- Focus is set when you push the PHOTO button halfway down. Focus is set on the subject located nearest the center of the frame. To provide sharper, clearer images, SPOT metering and MULTI metering modes are available. Refer to page 112 for further details on Metering Modes.

Auto Focus Mode

- Use this focus mode in most picture taking conditions to obtain the best results. Turning on your camera by setting the Power Switch to  (CAMERA) mode automatically sets the focus mode to Auto Focus.
- There is no indicator for Auto Focus Mode.

Manual Focus Mode

- Allows the user to adjust the focus by manual.
- When Manual Focus mode is set, [MF] is displayed on the LCD monitor.
 1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Turn the Mode Dial to set A, S, or M mode.
 3. Press the MF/AF button until [MF] is displayed to set the focus mode to Manual Focus.
 - [MF] indicator is displayed with a focus bar.
 4. To adjust the focus, press the DOWN or UP button. To apply your selection, press the OK button.
 - Selected focus distance is displayed.
 5. Press the PHOTO button to take photo.
 6. To return to Auto Focus Mode, press the MF/AF button until the [MF] indicator disappears.

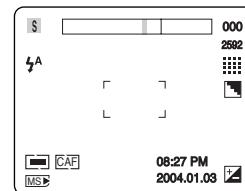
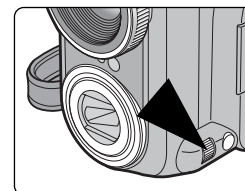


The Camera : Advanced Techniques

Continuous Auto Focus Mode

- allows the user to focus rapidly, whereas the single auto focus gives a less rapid response but saves battery power.
- When Continuous Auto Focus mode is selected, [CAF] is displayed on the LCD monitor.

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
2. Turn the Mode Dial to set A, S, M or SCENE mode.
3. Press the MF/AF button until [CAF] is displayed to set the focus mode to Continuous Auto Focus.
 - The [CAF] indicator is displayed.
4. Press the PHOTO button to take photo.
5. To return to Auto Focus Mode, press the MF/AF button until the [CAF] indicator disappears.



Notes

- EASYQ and AUTO mode selects the AUTO FOCUS automatically.
- Only the Children Setting of SCENE mode supports the manual focusing.
- Be sure to confirm that the focus is set using the LCD monitor or the viewfinder when Manual Focusing is used.
- Continuous Auto Focus will consume more battery power.

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The Camera : Advanced Techniques

Macro Mode

- The Macro Focusing mode allows the user to take a close-up picture of a detailed subject.
- Your camera can focus on subjects as close as 4cm (about 1.57 inches).
- The Macro mode works only in  (CAMERA) modes.

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.

2. Press the RIGHT button.

- The Macro mode indicator  appears on the LCD monitor.

3. Frame your subject and close-up by zooming in or out if required.

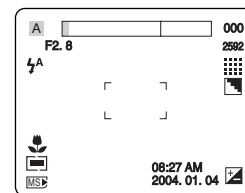
4. Press the PHOTO button to take the close-up picture.

5. To exit Macro mode, press the RIGHT button again.

- The Macro mode indicator  disappears from the LCD monitor.

- Modes and Focusing Distances Supported

Modes	Normal	Macro (W: Wide, T: TELE)	
Distance	80cm ~ Infinity 31.5 inch ~ Infinity	W: 4 ~ 80cm W: 1.6 ~ 31.5 inch	T: 30 ~ 80cm T: 11.8 ~ 31.5 inch



Notes

- Be careful not to cast a shadow over your subject when recording in Macro Mode.
- When you cannot get proper focus on the subject, zooming in or out to obtain clear focus.
- The LCD monitor displays your framing more precisely.

The Camera : Advanced Techniques

Setting the Exposure

- Exposure, shutter speed and ISO sensitivity affects picture brightness and overall picture quality. Longer exposure, slower shutter speed and higher ISO sensitivity brighten the picture. Adjustment of these settings is available when you are using A, S, and M camera modes. You can adjust the overall image brightness by adjusting the Exposure, Shutter Speed and ISO settings.
- Overall brightness of a captured image may appear too dark if large parts of the framed scene are very bright or the background is much brighter than the main subject. Overall brightness of captured image may appear too bright if large parts of the framed scene are dim or the background is much darker than the main subject. Exposure compensation can be achieved by adjusting the Exposure, Shutter Speed, or ISO settings.
- Turn on your camera by setting the Power Switch to  (CAMERA) mode.

Exposure Compensation	A, S, and M modes
Shutter Speed Adjustment	A and M modes
Aperture Adjustment	A and M modes
ISO Sensitivity Setting	A, S, and M modes

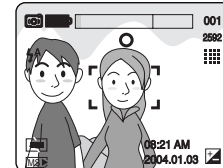
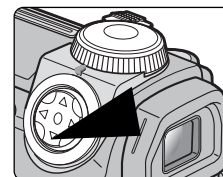
Locking the Auto Exposure: AE LOCK

You can lock the exposure setting for situations where you will be changing your framing of a high-contrasting subject and background.

1. Frame your subject using the LCD monitor then press the AE LOCK (DOWN) button.
2. Re-frame your subject if so desired.
3. Press the PHOTO button halfway down to obtain clear focus on the subject.
 - You may set the focus on a different subject.
4. Press the PHOTO button firmly to take a picture.

Note

- After taking a photo, the AE LOCK is automatically released.

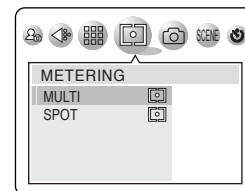


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The Camera : Advanced Techniques

Setting the Auto Exposure Metering Options: SPOT AE or MULTI AE

- MULTI and SPOT AE mode works only in Camera modes.
 - Use this function to adjust the exposure of the subject to obtain better results
 - MULTI AE meters the lighting condition of the overall image by metering the exposure on multiple points.
 - SPOT AE meters the lighting condition of a narrower area in order to have precise exposure control over a specific subject.
 - The METERING menu allows you to select between SPOT AE and MULTI AE for automatic exposure metering control.
1. Turn on your camera by setting the Power Switch to (CAMERA) mode.
 2. Turn the Mode Dial to set to AUTO, SCENE, A, S, or M mode.
 3. Press the MENU button.
 - The top menu including (METERING) is displayed.
 4. Press the LEFT or RIGHT button to select (METERING) then press the DOWN button.
 - The available options of MULTI and SPOT is listed.
 5. Select an option by pressing the DOWN or UP button.
 - The selected option is applied and corresponding indicator appears on the LCD monitor.
 6. Press the MENU button to exit the menu screen.
 - You can apply your selection and exit the menu screen by pressing the OK button instead of MENU button.



Note

- Turning off the camera will reset the exposure metering to MULTI.

The Camera : Advanced Techniques

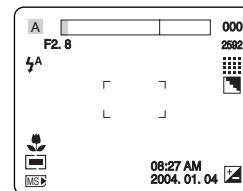
SCENE (Program AE) Modes – Preset Auto Exposure Modes

- Preset SCENE modes are provided to assist the user in taking pictures under various lighting conditions.
- The SCENE modes direct the camera to automatically adjust the aperture, shutter speed and white balance according to the lighting conditions according to preset settings.

The available SCENE modes are:

NIGHT		PORTRAIT	
CHILDREN		LANDSCAPE	
CLOSE – UP		SUNSET	
DAWN		BACKLIGHT	
FIREWORK		BEACH&SNOW	

1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
2. Turn the Mode Dial to set to SCENE mode.
 - The SCENE mode indicator appears on the LCD monitor.
3. Press the MENU button.
 - The top menu including (SCENE) is displayed.
4. Press the LEFT or RIGHT button to select (SCENE) then press the DOWN button.
 - The available options are displayed.
5. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied and corresponding indicator appears on the LCD monitor.
6. Press the MENU button to exit the menu screen.



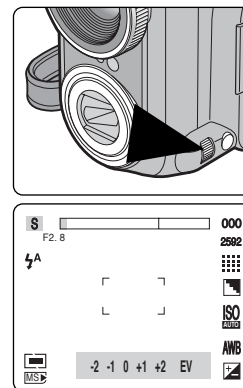
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The Camera : Advanced Techniques

Manual Exposure Compensation

- If the image in the LCD monitor is too bright, choose a negative value for exposure compensation.
- If the image in the LCD monitor is too dark, choose a positive value for exposure compensation.
- The Manual Exposure compensation function works in A, S or M Camera modes.

1. Press the Navigation Wheel once.
 - The  indicator and the Exposure Control Bar appear on the LCD monitor.
2. Press the LEFT or RIGHT button to adjust the Exposure Compensation.
 - Positive compensation brightens the picture, while negative compensation darkens the picture.
3. When you are satisfied, press the Navigation Wheel again.
 - The  indicator remains on LCD while the Exposure Control Bar disappears.



Note

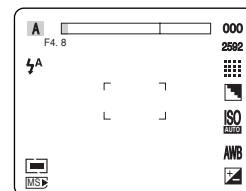
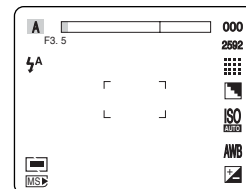
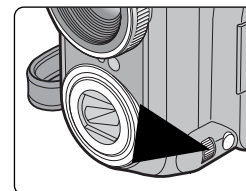
- Do not set the exposure too long under bright lighting conditions, as it may damage the CCD. A longer exposure duration helps brighten the image in dim lighting conditions.

The Camera : Advanced Techniques

Setting the Aperture

- By controlling the aperture, the user may adjust the overall picture brightness.
 - Large apertures require more lighting and soften the background details.
 - Smaller apertures will increase the depth of field, bringing the main subject and the background into focus.
 - Set the Mode Dial to A or M.
1. Press the Navigation Wheel once.
 - The  indicator and the Exposure Control Bar appear on the LCD monitor.
 2. Press the DOWN or UP button to select Aperture Setting.
 - The current Aperture Setting (f-numbers) is highlighted in Green.
 3. Press the LEFT or RIGHT button to set the desired aperture value.

The available Aperture Range: f2.8 ~ f11.0
 4. When you are satisfied, press the Navigation Wheel again.
 - The selected aperture setting is displayed on the LCD monitor and exits the setup screen.



Notes

- A (Aperture) and M (Manual) modes allow the user to make aperture adjustments.
- Maximum and minimum values of the aperture range depend on the lens itself.
- The possible setting range for the aperture varies with zooming.

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The Camera : Advanced Techniques

Setting the Shutter Speed

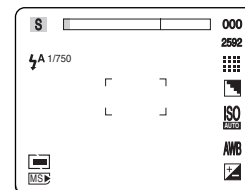
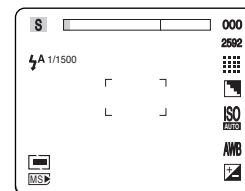
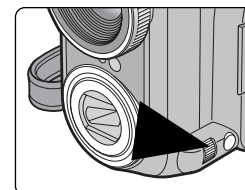
- By controlling the shutter speed and aperture, user may adjust the overall brightness of the picture.
- Slower shutter speeds require more lighting. Faster shutter speeds require less lighting.
- For fast moving subject, a slow shutter setting will produce a motion blurring effect.
- Set the Mode Dial to S or M.

1. Press the Navigation Wheel once.
 - The  indicator and the Exposure Control Bar appear on the LCD monitor.

2. Press the UP or DOWN button to select Shutter Speed Setting.
 - The current Shutter Speed value is highlighted in Green.

3. Press the LEFT or RIGHT button to set the desired shutter speed.
Available Shutter Speed Range: 1/2000 ~ 15 seconds

4. When you are satisfied, press the Navigation Wheel again to exit the setup screen.



Note

- Using a tripod for slow shutter settings is recommended.

The Camera : Advanced Techniques

Setting the ISO Sensitivity

- Sensitivity is a measure of how rapidly the camera reacts to a light source. The higher the sensitivity, the brighter the picture is under the same exposure condition.
- Allowing the flash to fire will help to brighten the picture. However, other settings disable the flash use, set the ISO sensitivity to a higher level.
- Set the Mode Dial to A, S or M.

1. Press the Navigation Wheel once.
 - The  indicator and the Exposure Control Bar appear on the LCD monitor.
2. Press the UP or DOWN button to select ISO Setting.
 - The adjustable ISO control bar appears on the LCD monitor.
3. Press the LEFT or RIGHT button to set the desired ISO mode.

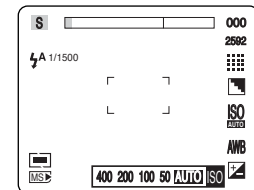
The available options:

AUTO	AWB	Automatically sets the ISO to compensate for various lighting conditions (up to 400)
50	ISO 50	Approximately equivalent to ISO 50, this mode is recommended for bright lighting conditions.
100	ISO 100	Approximately equivalent to ISO100, this mode is recommended for most situations except when lighting is poor or when higher shutter speeds are required.
200	ISO 200	Approximately equivalent to ISO200. From this mode and higher, the image may be grainy.
400	ISO 400	Approximately equivalent to ISO400. The image may be grainy. Sharpening may raise the noise level.

4. When you are satisfied, press the Navigation Wheel again.
 - The selected ISO Sensitivity level is displayed on the LCD monitor.

Note

- ISO Sensitivity is converted relating to the ISO film values.
- Higher ISO sensitivity might produce grainy (noisy) effect on the picture.
- AUTO ISO mode will allow the user to take quality pictures in most lighting conditions.



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The Camera : Advanced Techniques

Setting the White Balance

Setting the Preset White Balance

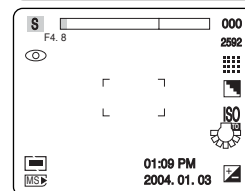
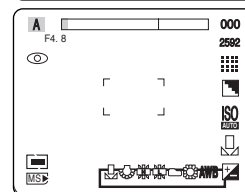
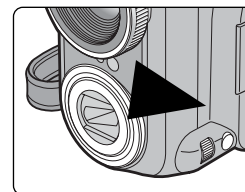
- Digital Cameras capture an image using a CCD (Charge Coupled Device) that takes in lighting information and detects the color.
 - The color balance may vary depending on the lighting conditions; white balance is used to preserve natural colors under different lighting conditions.
 - You can set the white balance in A, S, and M modes.
1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Press the Navigation Wheel once.
 - The  indicator and the Exposure Control Bar appear on the LCD monitor.
 3. Press the UP or DOWN button to select White Balance.
 - The White Balance control bar appears while the current setting is highlighted in red.

						AWB
Manual	Glow Lamp	Halogen	Fluorescent	Cloudy	Sunny	AUTO

4. Press the LEFT or RIGHT button to select the desired White Balance setting.
 - The selected option is highlighted in red.
5. Press the Navigation Wheel again to apply your selection and exit the setting screen.
 - The selected option's indicator appears on the LCD monitor.

Notes

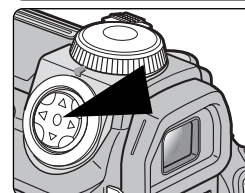
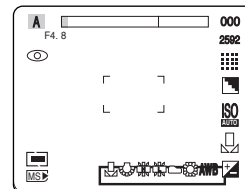
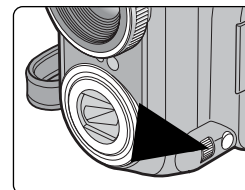
- Setting the White Balance may produce different color balances.
- AWB (Auto White Balance) mode helps to have natural colors under most cases.
- Changing the camera mode cancels the current White Balance setting.
- Using EASYQ mode cancels the White Balance setting.



The Camera : Advanced Techniques

Setting the Manual White Balance

- You can set the white balance in A, S, and M modes.
1. Set the White Balance Mode to  (MANUAL), following steps 1 ~ 4 on the previous page.
 2. Frame your camera on the base color sheet (WHITE) filling the LCD monitor (or view finder) with the color.
 3. Press the OK button to set the White Balance.
 4. The new White Balance setting will be applied to further picture takings.



Notes

- Using a Bright Gray color sheet instead of a White color sheet may help brighten the white balance.
- Using colored sheets instead of a White color sheet will emphasize the complementary color.
- Changing the camera mode cancels the current White Balance setting.
- Using EASYQ mode cancels the White Balance setting.

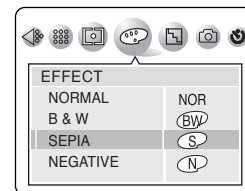
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The Camera : Advanced Techniques

Using Digital Special Effects

- The DSE (Digital Special Effects) function works only in Camera modes.
- Digital Special Effects allows the user to create professional looking effects on their pictures.

2. Turn your camera on by setting the Power Switch to (CAMERA) mode.
3. Press the MENU button.
 - The top menu including (EFFECT) is displayed.
4. Press the LEFT or RIGHT button to select then press the DOWN button.
 - The available options are listed.



NORMAL	No Special Effect is applied
B&W	Changes the image to Black and White
SEPIA	Changes the image to Brown Tones similar to old photos
NEGATIVE	Inverts the Color

5. Select an option by pressing the DOWN or UP button.
 - The selected option is applied.
6. Press the OK or MENU button to exit the MENU screen.

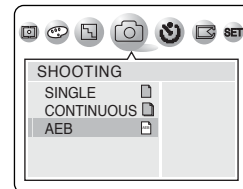
Note

- It takes a few seconds to apply the special effects.

The Camera : Advanced Techniques

Taking Multiple Images Using Auto Exposure Bracketing

- From time to time, determining the best exposure setting for a picture may be difficult and you may not have time to check the results and try again. Auto Exposure Bracketing allows the user to vary exposure compensation settings automatically over a series of photos, “Bracketing” a selected exposure compensation setting.
 - Auto Exposure Bracketing takes 3 continuous shots with the following exposure compensations: -5EV (negative), 0EV (standard), +5EV (positive)
1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including  (SHOOTING) is displayed.
 3. Press the LEFT or RIGHT button to select the  then press the DOWN button.
 - The available options are listed.
 4. Select the “AEB” by pressing the UP or DOWN button then press the OK button.
 - The selected option is applied.
 5. Frame your subject and press the PHOTO button to start bracketing.
 - 3 continuous pictures using exposure bracketing are taken.
 6. Press the MENU button to exit the menu screen.



Notes

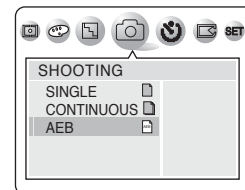
- The Built-In Flash is disabled for Auto Exposure Bracketing and Continuous Shots.
- The Digital Zoom is not available for Auto Exposure Bracketing and Continuous Shots.
- If there is not enough free space to save the 3 pictures, the Auto Exposure Bracketing will not work.
- Using a tripod is recommended for Auto Exposure Bracketing to prevent blurred images.
- AE Lock and Auto Exposure Bracketing cannot be used at the same time.

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The Camera : Advanced Techniques

Taking Multiple Images using Continuous Shot

- Continuous Shot allows the user to take consecutive pictures of a moving object.
 - Continuous recording will occur while the PHOTO button is being pressed.
 - OFF: Records one picture at a time
 - Records pictures continuously up to the storage capacity.
 - When the image resolution is set to 1600x1200 or higher, only 3 continuous pictures can be recorded.
-
1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
 2. Press the MENU button.
 - The top menu including is displayed.
 3. Press the LEFT or RIGHT button to select the then press the DOWN button.
 - The available options are listed.
 4. Select the “CONTINUOUS” by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.
 5. Press the MENU button to exit the menu screen.



Notes

- The Built-In Flash is disabled for Auto Exposure Bracketing and Continuous Shot.
- The Digital Zoom is not available for Auto Exposure Bracketing and Continuous Shot.
- If there is not enough free space to save 3 pictures, Continuous Shot will not work.

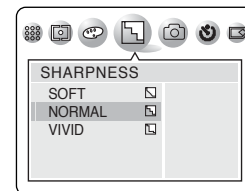
The Camera : Advanced Techniques

Setting the Sharpness

- This option allows the user to obtain sharper images by processing the picture after it is shot.
- The camera processes the picture to enhance the sharpness of the picture; therefore previewing the effects of sharpening before the shot is taken is not possible.

1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
2. Press the MENU button.
 - The top menu including (SHARPNESS) is displayed.
3. Press the LEFT or RIGHT button to select (SHARPNESS) then press the DOWN button.
 - The available options are listed.

SOFT	Smooths the edges
NORMAL	No Sharpening is applied
VIVID	Enhances to sharpen the edges



4. Select an option by pressing the DOWN or UP button.
5. Press the MENU button to exit the menu screen.
 - The sharpness indicator for the selected option is displayed on the LCD monitor.

Note

- Enhancing Sharpness while using the high ISO Sensitivity setting may result in grainy images.

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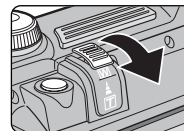
The Camera : Advanced Techniques

Using the Digital Zoom

- A 3x optical zoom and 12x digital zoom are available. The Zoom indicator shows the current zooming status. A divider indicates the border between optical and digital zooming. The digital zoom, digitally processes data from the CCD (Charge Coupled Device, Image Sensor) to enlarge the center portion of the image to fill the frame and may produce a less detailed and slightly grainy picture.

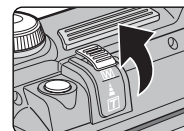
Zooming In

Push the Zoom Lever toward the TELE side, to zoom in until the zooming indicator crosses the border to the TELE side. After reaching the maximum optical zoom level, pushing the Zoom Lever downward even further automatically turns on the Digital Zoom.



Zooming Out

Push the Zoom Lever toward the WIDE side, to zoom out until the zooming indicator crosses the border to the WIDE side. After reaching the minimum digital zoom level, pushing the Zoom Lever even further automatically turns off the Digital Zoom and returns to the Optical Zoom.



Notes

- Digital Zooming may produce grainy (noisy) pictures.
- Saving pictures which use the Digital Zoom may take more time.
- The Digital Zoom is not available for Motion Clips or NIGHT scene mode.
- Do not obstruct the lens movement while zooming.

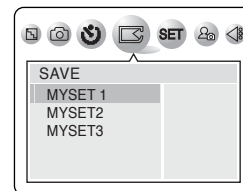
The Camera : Advanced Techniques

Customizing Your Camera – MySET Menu

- MySET menu works only in  (CAMERA) Modes.
- Customize your camera to memorize frequently accessed settings for easier use. MySET allows the user to recall memorized settings to ready the camera in seconds.

Memorizing Your Current Settings

- You can save up to 3 different settings using MYSET1, MYSET2 and MYSET3.
1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
 2. Set the Mode Dial to desired camera mode.
 - The available modes are SCENE(Program AE), A, S and M modes.
 3. Set all the options to be memorized such as exposure, white balance, resolution of image and other picture taking conditions.
 4. Press the MENU button.
 - The top menu including  (SAVE) is displayed.
 5. Press the LEFT or RIGHT button to select  (SAVE).
 - The submenu entitled “SAVE” is displayed.
 6. Press the DOWN or UP button to select MySET1, MySET2 or MySET3.
 - The current settings are saved in the selected MySET memory.
 7. Press the OK button to save then press the MENU button to exit the menu screen.



Note

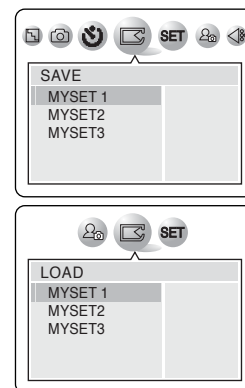
- The settings which can be saved are:
Macro, Self-Timer, Flash, Focus (Manual), Exposure Compensation, White Balance, ISO Sensitivity settings, Picture Size, Picture Quality, Metering, Digital Special Effect, Sharpness, Continuous Shot, Scene and Setup Menu's settings

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The Camera : Advanced Techniques

Loading Your Customized Settings

- To Recall your MySET configuration at a later time, follow these steps:
 1. Turn your camcorder on by setting the Power Switch to (CAMERA) mode.
 2. Set the Mode Dial to MySET.
 3. Press the MENU button.
 - The top menu including (MySET) is displayed.
 4. Press the LEFT or RIGHT button to select (MySET).
 - The submenu including “LOAD” is displayed.
 5. Press the DOWN or UP button to select MySET1, MySET2 or MySET3.
 6. Press the OK button to save then press the MENU button to exit the menu screen.

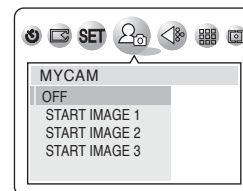


The Camera : Advanced Techniques

Customizing Your Camera – Changing the Start-Up Image

- This function works in  (CAMERA) modes.
- This function changes the starting image that is displayed when the camera is turned on.
- Resized still images saved in “LOGO” size are available to be your new start-up image (refer to page 130).

1. Turn your camera on by setting the Power Switch to  (CAMERA) mode.
2. Set the Mode Dial to any camera modes then press the MENU button.
 - The top menu including the  (MYCAM) is displayed.
3. Press the LEFT or RIGHT button to select  (MYCAM).
4. Press the DOWN button to select your starting image.
5. Press the OK button to save then press the MENU button to exit the menu screen.



Notes

- Starting images should be saved in “LOGO” size.
- Formatting or deleting the still picture on the memory card does not affect the start-up images. Start-up images are saved in the built-in internal memory of the Camera.

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The Camera : Advanced Techniques

Zooming & Trimming Recorded Pictures (Playback ZOOM) While Viewing

- This function allows the user to have a more detailed view of the picture using the LCD monitor.
- Enlarge a portion of the picture to see more detail and move the zoom tool around the picture.

Zooming the Picture

1. Turn your camcorder on by setting the Power Switch to  (CAMERA) mode.
2. Set the Mode Dial to  (PLAY) mode.
 - The last picture taken is displayed.
3. Select a picture to be zoomed by pressing the LEFT or RIGHT button.
 - The selected picture is displayed.
4. Use the Zoom Lever to zoom in or zoom out.
 - A small window appears in the bottom left of the LCD monitor showing the current portion of the full picture.
5. Press the LEFT, RIGHT, DOWN, or UP button to move around the picture.
6. To exit Playback Zoom, push the zoom lever toward the W(WIDE) end until the picture returns to normal size.
 - The small window disappears and returns to normal viewing mode.

Trimming the Picture

1. Zoom in to any portion of a stored image following the instructions above.
2. Press the MENU button.
 - The message "TRIMMING?" appears on the LCD monitor.
3. Press the OK button to confirm the trim, or press the LEFT button to cancel.
 - OK: Precedes with the trimming and saves the trimmed picture as a new file.
 - LEFT: Cancels the trimming and returns to PLAY mode.

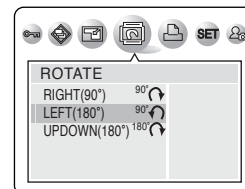
Note

- Trimming an image produces a new trimmed image which it saves on the memory card. If no space is available to store the new trimmed image, it automatically cancels.

The Camera : Advanced Techniques

Rotating a Stored Picture

- This function works only in the Camera  (PLAY) mode.
 - You can rotate a stored picture while viewing it.
1. Turn on your camera by setting the Power Switch to  (CAMERA) mode.
 2. Set the Mode Dial to  (PLAY) mode.
 - A stored picture is displayed on the LCD monitor.
 3. Press the LEFT or RIGHT button to locate the picture you wish to rotate.
 4. Press the MENU button.
 - The top menu including  (ROTATE) is displayed.
 5. Press the LEFT or RIGHT button to select  (ROTATE).
 - The available options are listed: RIGHT(90°), LEFT(90°), and UPDOWN(180°).
 6. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied and automatically exits from the menu screen.



Notes

- RIGHT(90°) rotates the image in a clockwise direction.
- LEFT(90°) rotates the image in a counterclockwise direction.
- Rotated image display will have blank margins on the sides.
- Rotating the picture for display does not affect the stored image quality. Actual pictures are not rotated to protect the image quality.

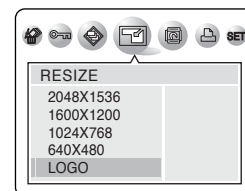
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The Camera : Advanced Techniques

Resizing a Stored Picture

- This function works only in the Camera  (PLAY) mode.
- You can resize stored pictures.
- Only downsizing is available. Enlarging low resolution pictures into higher resolutions is not available.
- Choose this option to scale down your stored pictures.
- This function utilizes JPEG technology.

1. Turn on your camera by setting the Power Switch to  (CAMERA) mode.
2. Set the Mode Dial to  (PLAY) mode.
 - A stored picture is displayed on the LCD monitor.
3. Press the LEFT or RIGHT button to locate the picture you wish to resize.
4. Press the MENU button.
 - The top menu including  (RESIZE) is displayed.
5. Press the LEFT or RIGHT button to select  (RESIZE).
 - Available image resolutions are listed.
6. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied and automatically exits from the menu screen.



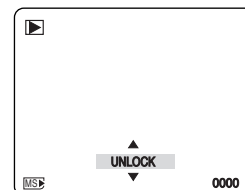
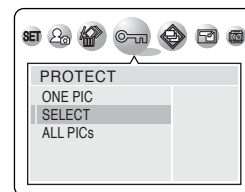
Notes

- You can resize a stored picture to be your start-up logo. Select the resize size “LOGO” for this purpose. Refer to page 130.
- Resizing to LOGO saves a new picture to device internal memory, not to the memory card.
- Only JPEG file types can be resized. TIFF and motion clips cannot be resized.
- Only downsizing is supported. Enlarging a picture is not supported.
- Resizing does not delete the original picture. An additional resized picture is saved on the memory card.
- If there is no space for the additional resized picture, it is not saved and the message “CARD FULL!” appears.

The Camera : Advanced Techniques

Protecting Stored Pictures

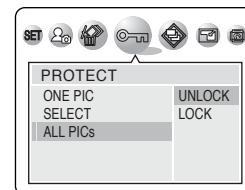
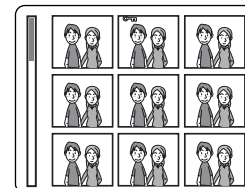
- Selecting PROTECT from the MENU saves valuable image from accidental deletion.
 - You can set or cancel the protection on your pictures in ► (PLAY) mode.
 - You may set a picture to LOCK to protect it, or UNLOCK to cancel the protection.
- 1 Turn your camera on by setting the Power Switch to (CAMERA) mode.
 2. Set the Mode Dial to ► (PLAY) mode.
 - A stored picture is displayed on the LCD Monitor.
 3. Press the MENU button.
 - The top menu including (PROTECT) is displayed.
 4. Press the LEFT or RIGHT button to select the (PROTECT).
 - The submenu of “ONE PIC”, “SELECT” and “ALL PICs” appear.
 5. Select an option by pressing the DOWN or UP button then press the MENU button.
ONE PIC – SELECT – ALL PICs
- To Protect Current Picture
 - Select “ONE PIC”
1. Press the DOWN or UP button to select “ONE PIC” then press the OK button.
 - The available options are displayd: “LOCK” or “UNLOCK”.
 2. Press the DOWN or UP button to LOCK or UNLOCK the picture then press OK button to set your choice.
 - The protection indicator appears for locked (protected) images , or indicator disappears when it is unlocked.



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The Camera : Advanced Techniques

- To Select Pictures to be Protected
 - Select “SELECT”
 - 1. Press the DOWN or UP button to select “SELECT” then press the OK button.
 - The picture selection window appears.
 - 2. Select pictures to be locked by pressing the OK button. To move the cursor, use the LEFT, RIGHT, DOWN or UP buttons.
 - The  indicator appears on the picture.
 - 3. To cancel the protection and unlock the picture, press the OK button on a selected picture.
 - The  indicator disappears
 - 4. When you are done, press the MENU button to exit the protection screen.
 - It will return to the multiple pictures screen.
- To Protect All Images
 - 1. Press the DOWN or UP button to select “ALL PICs” then press the RIGHT button.
 - The available options of “LOCK” and “UNLOCK” are displayed.
 - 2. Select an option by pressing the DOWN or UP button then press the MENU button.
 - Your selection is applied. When all pictures are locked, the  indicator is displayed on each picture.



Note

- Protected pictures will show the  mark when they are displayed.

Miscellaneous Information

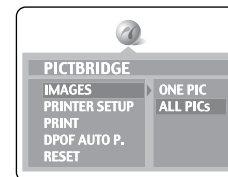
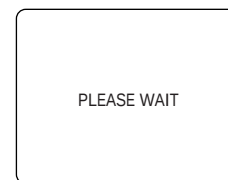
Printing Your Pictures – Using the PictBridge

- By connecting the camera to printers with PictBridge support (sold separately), you can send images from the memory card directly to the printer with a few simple operations using the camera buttons.
- With the PictBridge Support, you can control the printer directly through your camera in order to print out stored pictures. For direct printing of your stored pictures using the PictBridge function, it is required to connect your camera to a PictBridge printer using a USB cable.

Connecting To a Printer

1. Turn your printer power off.
 2. Turn your camera on by setting the Power Switch to (CAMERA) mode.
 3. Set the Mode DIAL to (PLAY) mode then press the MENU button.
 - The top menu including (SETUP) is displayed.
 4. Press the LEFT or RIGHT button to select (SETUP) then press the DOWN button.
 - The submenu including “USB” is displayed.
 5. Press the DOWN or UP button to select USB then press the RIGHT button.
 - The available options are listed: “COMPUTER” and “PRINTER”.
 6. Select the “PRINTER” then press the MENU button.
 7. Press the MENU button again to exit the settings screen.
 8. Connect your camera to the printer using the provided USB cable.
 9. Turn your printer power on.
 - The PictBridge connection screen appears. The message “PLEASE WAIT...” appears and PictBridge menu screen appears.
- You can set following options under PictBridge menu:

IMAGES	Sets the images to be printed
PRINTER SETUP	Sets up various printing options
PRINT	Starts the printing
DPOF AUTO P.	DIGITAL PRINT ORDER FORMAT, refer to page 137
RESET	Recalls the PictBridge Factory Default Settings

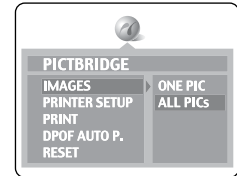


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Miscellaneous Information

Setting the PictBridge

- To set the number of prints, select the IMAGES menu.
- 1. On the PictBridge settings menu, press the DOWN button to select “IMAGES”.
 - The available options are listed: ONE PIC and ALL PICS.
- 2. Press the RIGHT button.
- 3. Select an option using the DOWN or UP button then press the OK button.
 - If “ONE PIC” is selected, the current picture displayed is ready to print. To change the selected picture, use the LEFT or RIGHT button.
 - Adjust the number of prints by using the DOWN or UP button.
- 4. Press the OK button to confirm the number of prints.
 - It automatically returns to the top menu.
- To set other options including PAPER SIZE, LAYOUT, PAPER TYPE, PRINT QUALITY, DATE PRINT, and FILE NAME imprint options, select the PRINTER SETUP menu.
- 1. In the PictBridge settings menu, press the DOWN button to select “PRINTER SETUP” then press the OK button.
 - The available options are listed.
- 2. Press the RIGHT button.
- 3. Select a menu item to adjust by using the DOWN or UP button then press the RIGHT button.
 - The available options of the selected menu are displayed.
- 4. Select an option then press the OK button to confirm.
 - It automatically returns to the top menu including “PRINT”.



Notes

- The actual setup menu screen may differ from these instructions depending on the PictBridge printer's manufacturer. Refer to the printer's documentation for further details.
- Unsupported menu items are displayed on the LCD monitor but not selectable.

Miscellaneous Information

Printing Images

- After selecting the PictBridge settings, print your pictures by choosing the PRINT menu.
- 1. On the PictBridge settings menu, press the DOWN button to select "PRINT".
- 2. Press the OK button.
 - The selected picture with a confirmation message appears.
- 3. To confirm the print, press the OK button. To cancel the print, press the PHOTO button.
 - If confirmed, the message "NOW PRINTING..." appears and starts to print.
- 4. After successfully printing pictures, "PRN. SUCCESSFULLY" appears.



Notes

- If there is no selected image to print, the "NO IMAGE" message appears on the LCD monitor.
- If there is an error in the image, the "FILE ERROR" message appears on the LCD monitor.
- If an unrecoverable error occurred during the printing, the "ERROR" is displayed. Press the OK button to return to the PictBridge main menu.

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Miscellaneous Information

Printing Images Using DPOF Settings

1. Set the DPOF settings as described on page 137.
2. Connect your camera and the printer as described on page 133.
 - The top menu including “DPOF AUTO P” is displayed.
3. Press the DOWN button to select “DPOF AUTO P.” then press the OK button.
 - DPOF printing starts to print images.
4. To cancel the printing, press the PHOTO button.
 - It automatically returns to the step 2 if canceled.

Resetting PictBridge Settings

1. Connect your camera and the printer as described in page 135.
 - The top menu including “RESET” is displayed.
2. Press the DOWN button to select “RESET” then press the RIGHT button.
 - The available options of “YES” and “NO” are displayed.
3. Select an option by pressing the UP or DOWN button then press the OK button.
 - If “YES” is selected, changes made by the user are reset to the default settings.

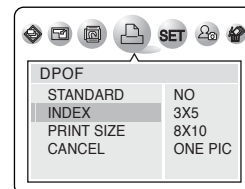
Notes

- PictBridge supporting printers are commercially available.
- Use the USB cable provided with the Camera.
- Use the AC power adapter for your camera during PictBridge Direct Printing. Turning your camera off during the printing might damage data on the memory card.
- Printing still images is supported. Motion clips are not available for printing.

Miscellaneous Information

Printing Your Pictures – Using the DPOF

- This camera supports DPOF (Digital Print Order Format) functionality.
 - DPOF provides versatility to the portability of digital data.
 - You can automatically print images recorded on a memory card with a printer supporting DPOF (not provided).
 - There are 2 ways to make a Print Mark.
 - ONE PIC: You can set a print mark on the image currently displayed on the LCD monitor.
 - ALL PICs: To print a copy of all the stored images in the Memory Card except motion clips.
1. Turn your camera on by setting the Power Switch to (CAMERA) mode.
 2. Set the Mode Dial to PLAY mode then press the MENU button.
 - The top menu including (DPOF) is displayed.
 3. Press the LEFT or RIGHT button to select (DPOF) then press the DOWN button.
 - “STANDARD” submenu is selected. Press the RIGHT button to change the option: to mark one picture, choose ONE PIC, or choose ALL PICs to mark all the pictures stored in the memory card.
 4. Press the LEFT button to return to (DPOF) menu then press the DOWN button.
 - “INDEX” submenu is selected. Press the RIGHT button if you want to print the index page of all the stored pictures, and set this option to YES.
 5. Press the LEFT button to return to (DPOF) menu then press the DOWN button.
 - “PRINT SIZE” submenu is selected. Press the RIGHT button to change the print size.
 6. Select “CANCEL” if you want to reset all the settings already made for DPOF.



Notes

- DPOF supporting printers are commercially available.
- Use the USB cable provided with the Camera.
- Use the AC power adapter for your camera during DPOF Printing. Turning your camera off during the printing might damage the data on the memory card.

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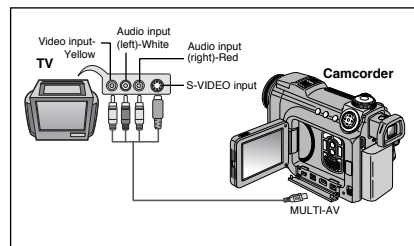
Miscellaneous Information

Connecting to Other Devices – TV and VCR

- You can connect your device to a TV set directly or through a VCR to view your recordings and pictures on the TV screen, using the Multi-AV cable.
- Once connected to a TV set, you can record TV program using your camcorder (refer to page 141).
- Once connected to a VCR, you can copy your recordings to the VCR (refer to page 143).
- You can connect your device to a PC to copy or move your recordings and pictures to the hard disk drive, using the USB cable or the DV cable.
- You can connect your device to other DV-enabled devices using the DV cable.

Connecting Directly to a TV Set

- **To Connect to a TV set**
 1. Connect the Multi-AV cable to your camcorder's multi-AV jack.
 2. Connect the Multi-AV cable to the external input terminal of your TV set by matching the colors of the terminals.
- **To Play Back Recorded Video**
 1. Turn your TV on and select the external input source connected to your camcorder.
 2. Locate the desired position on the tape using the ◀◀ (REW) or ▶▶ (FF) button.
 3. Press the ▶/|| (PLAY/STILL) button of the camcorder to start playback.
 4. To stop the playback, press the ■ (STOP) button.



Notes

- Some TV sets have LINE-IN input terminals instead of External Input terminals. Refer to the manufacturer's instructions for detailed information on connecting external devices.
- If a TV set has an S-VIDEO input terminal, you may use S-VIDEO for better quality.
- The S-VIDEO terminal transmits video only. Connect AUDIO cables for sound.
- If only mono audio input is available for the TV set, use the WHITE terminal.

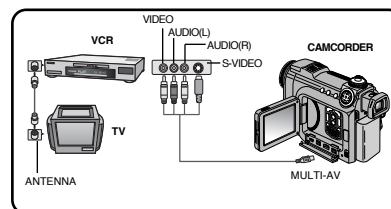
Miscellaneous Information

Connecting to a TV Set Through a VCR

- If there are no input terminals for external devices on your TV set and a VCR is connected to your TV set using a coaxial cable, you can utilize the VCR to connect your camcorder to the TV set.

□ To Connect to a VCR that is Connected to Your TV Set

1. Connect the Multi-AV cable to your camcorder's multi-AV jack.
2. Connect the Multi-AV cable to the External Inputs (LINE-IN) on the VCR by matching the colors of the terminals.
3. Connect the TV and VCR using the coaxial cable. Refer to the Video or TV's instruction book for further connection details.
4. Set the input source of the VCR to the external input source connected to your camcorder.



□ To Play Back Recorded Video

1. Turn your TV on and select the external input source that is connected with your camcorder. Set the TV channel to view the VCR. 3 or 4 is most often used.
2. Locate the desired position on the tape using the ◀◀ (REW) or ▶▶ (FF) button.
3. Press the ▶/|| (PLAY/STILL) button of the camcorder to start playback.
4. To stop the playback, press the ■ (STOP) button.

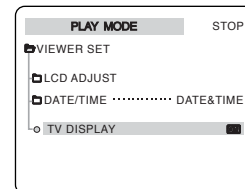
Notes

- If the VCR has an S-VIDEO input terminal, you may use S-VIDEO for better quality.
- The S-VIDEO terminal transmits video only. Connect AUDIO cables for sound.
- If only mono audio input is available for the VCR, use the WHITE terminal.

Miscellaneous Information

Viewing OSD on the TV screen

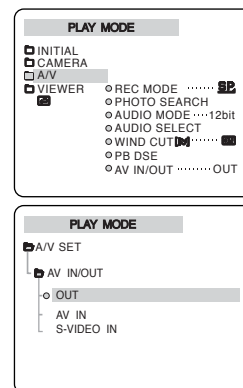
- You can set the OSD (On-Screen Display) menu not to be displayed on the TV.
 - In the VIEWER menu of the camcorder, you can turn TV DISPLAY on or off .
 - Turning TV DISPLAY off does not affect the video transfer to the TV.
1. Turn on your camcorder by setting the Power Switch to PLAY.
 2. Press the MENU button.
 - The top menu including “VIEWER” is displayed.
 3. Press the UP or DOWN button to select “VIEWER” then press the OK button.
 - The submenu including “TV DISPLAY” is displayed.
 4. Press the UP or DOWN button to select “TV DISPLAY” then press the OK button.
 - Each press of the OK button toggles between ON and OFF.



Miscellaneous Information

Recording TV Programs Using the Camcorder

- You can record a TV program using your camcorder.
 - Television programs, movie video tapes, DVD titles, films and other program materials may be copyrighted. Unauthorized recording of copyrighted materials may infringe on the rights of the Copyright owners and against copyright laws.
 - Insert a blank cassette for recording.
 - Connect your camcorder to a TV set using the Multi-AV cable before recording (refer to page 138).
1. Turn your camcorder on by setting the Power Switch to PLAY mode.
 2. Turn your TV on and select the external input source that is connected to your camcorder.
 3. Press the MENU button and select A/V, and select AV IN/OUT using the OK button.
 - The available options are listed: "OUT", "AV IN", "S-VIDEO IN".
 4. Select an option by pressing the DOWN or UP button then press the OK button.
 - The selected option is applied.
 5. Press the MENU button to exit the menu screen.
 6. Press the START/STOP button.
 - The Camcorder is set to PAUSE and AV-IN appears on the LCD monitor.
 7. To start the recording, press the START/STOP button again.
 8. To stop the recording, press the ■ (STOP) button.



Notes

- If the TV set has an S-VIDEO output terminal, you may use S-VIDEO for better quality.
- The S-VIDEO terminal transmits video only. Connect AUDIO cables for sound.
- If only mono audio output is available for the TV set, use the WHITE terminal.
- Set AV IN/OUT to "OUT" after the recording is finished.

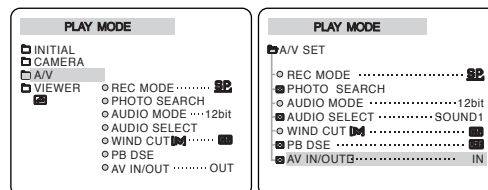
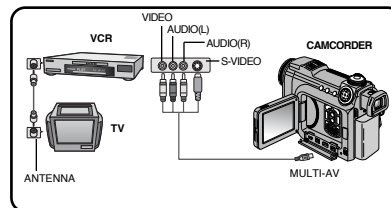
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Miscellaneous Information

Recording VCR Using the Camcorder

- Television programs, movie video tapes, DVD titles, films and other program materials may be copyrighted. Unauthorized recording of copyrighted materials may infringe on the rights of the Copyright owners and against copyright laws.
- Insert a blank cassette for recording.
- Connect your camcorder to a TV set using the Multi-AV cable before recording (refer to page 138).

1. Turn your camcorder on by setting the Power Switch to PLAY mode.
2. Turn your TV on and select the external input source that is connected with your camcorder.
3. Press the MENU button and select A/V, then select AV IN/OUT using OK button.
4. Each press of the OK button toggles between IN and OUT. Set to IN.
5. Press the MENU button to exit the menu screen.
6. Press the START/STOP button.
 - PAUSE and AV-IN appear on the LCD monitor.
7. To start the recording, press the START/STOP button again.
8. To stop the recording, press the ■ (STOP) button.



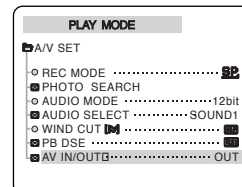
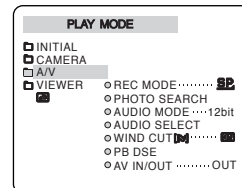
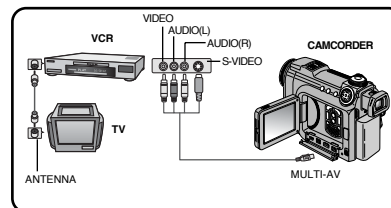
Notes

- If the TV set has an S-VIDEO output terminal, you may use S-VIDEO for better quality.
- The S-VIDEO terminal transmits video only. Connect AUDIO cables for sound.
- If only mono audio output is available for the TV set, use the WHITE terminal.
- Set the AV IN/OUT to "OUT" after the recording is finished.
- Recording from an analog VCR to the camcorder is only possible when the VCR is playing back at normal speed.

Miscellaneous Information

Copying Your Recording to a VCR Tape & DVD Recorder

- You can copy your recordings to a regular blank video tape.
 - Insert a blank cassette in your VCR to copy your camcorder recordings.
 - Insert your recorded cassette in your camcorder.
 - Connect your camcorder to a VCR using the Multi-AV cable before recording (refer to page 138).
1. Prepare your VCR to record from the external input. Refer to the VCR manufacturer's instructions for further details.
 2. Turn your camcorder on by setting the Power Switch to PLAY mode.
 3. Press the MENU button.
 - The top menu including "A/V" is displayed.
 4. Press the DOWN button to select "A/V" then press the OK button.
 - The submenu including "AV IN/OUT" is displayed.
 5. Press the DOWN or UP button to select "AV IN/OUT" then press the OK button.
 - The available options of OUT, AV IN and S-VIDEO IN are displayed.
 6. Select OUT by pressing the DOWN or UP button then press the OK button.
 - Your camcorder is ready to transfer your recording through the Multi-AV cable.
 7. Start the recording on your VCR then press the ►/III (PLAY/STILL) button to start the playback.
 - The VCR begins to copy your recorded cassette.



Notes

- If the VCR has an S-VIDEO input terminal, you may use S-VIDEO for better quality.
- The S-VIDEO terminal transmits video only. Connect AUDIO cables for sound.
- If only a mono audio input is available for the VCR, use the WHITE terminal.

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Miscellaneous Information

Connecting to Other Devices – PC

- You can connect your camcorder to a PC for copying or editing recorded video.
- DV and USB connections are supported.

Connecting to a PC Using a DV (i.Link, IEEE 1394) cable

- This function works only in the Camera  (PLAY) mode.
- Using the IEEE1394 cable (DV cable), you can connect your camcorder to a PC which supports the IEEE 1394 connection.
- Windows Movie Maker and other Video Capturing Software can take input from your camcorder through this connection. Refer to the corresponding video editing software product's documentation for further information on capturing and manipulating the video.
- A Standard DV connection is quite simple. If a product has a DV port (or FireWire), you can transfer data by connecting to the DV port using a proper cable. Be careful since there are two types of DV ports (4pin and 6pin). This camcorder has a 4pin terminal.
- With a digital connection established, both the video and audio signals are transmitted in native DV digital format, allowing high quality, real-time image transfer.

PC System Requirements

- CPU: Intel (or compatible) Pentium III 450MHz or faster PC / G3 or faster Macintosh
- Operating System: Windows 98SE, ME, XP, 2000 or Mac OS (9.1 or later)
- Main Memory: More than 64MB of RAM
- IEEE 1394 Add-on Card or built-in IEEE1394 port

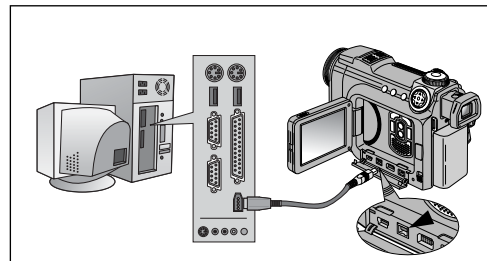
Notes

- Do not connect the camcorder to a PC using both DV and USB cables. It may not operate properly.
- Operation is not guaranteed for all computer environments recommended above.
- The IEEE1394 cable (DV cable) is sold separately.
- Video Capture software is commercially available.
- Most of DV enabled PCs have a 6 pin socket. In this case, a 6-4 cable is required for the connection.
- Most of DV enabled Notebooks and Laptops have a 4 pin socket. Use a 4-4 cable for the connection.

Miscellaneous Information

□ To connect your Camcorder to a PC using DV cable

1. Turn your camcorder on by setting the Power Switch to PLAY mode.
2. Connect the DV cable to your camcorder's DV terminal which is located on the bottom left side.
 - If your PC has a 4-pin DV port (most laptops with DV support use 4-pin terminals), use a 4-pin to 4-pin DV cable.
3. Connect the other side of the DV cable to the DV port of the PC.
 - The DV IN indicator appears on the LCD monitor.



□ To Record Using a DV Connection

1. Run your Video Capturing Software and set the input source to your camcorder.
 - For further details on selecting the input source through the software, refer to the product's documentation.
2. Press the ►/II (PLAY/STILL) button to start the transfer.
 - Recorded video is displayed on the PC screen.
3. Click on the REC button on the PC screen using the left button of the mouse.
4. To stop recording, click the □ (STOP) button on the PC screen.

Note

- When using this camcorder as a recorder, the pictures that appear on the monitor may seem uneven, however recorded pictures will not be affected.

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Miscellaneous Information

Connecting to a PC Using a USB cable

- Using the USB cable, you can connect your device to a PC that supports USB connections.
- A USB cable for USB connection is provided with the product. Use the provided cable for a high speed USB connection.
- You may need to install the driver software.



PC System Requirements

- CPU: Intel (or compatible) Pentium II 400MHz or faster PC / G3 or faster Macintosh
- Operating System: Windows 98SE, ME, XP, 2000 or Mac OS (9.1 or later)
- Main Memory: More than 64MB of RAM
- USB port

To Install the DVC Media 5.1 Program

- Do not connect your device to a PC before installing the program.
 - The following instructions are based on Windows 98SE operating system.
1. Insert the Software CD provided with this product into the CD-ROM drive.
 - The installation screen appears on your PC monitor.
 2. If the installation screen does not automatically appear, click “Run” on the Windows “Start” menu and execute the SETUP.EXE file to begin the installation.
 - If your CD-ROM drive is set to “D:” drive, type “D:\setup.exe” in the RUN... dialog and press Enter on your keyboard.
 3. Click one of the icons listed below to install the selected software.
 - USB Device Driver: USB Removable Disk Driver
 - USB PC Camera Driver
 - Video Editing Software



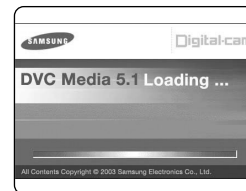
Note

- Do not connect the camcorder to a PC using both DV and USB cables. It may not operate properly.

Miscellaneous Information

DVC Media Software 5.1 Installation

- DVC Media Software CD includes the driver and software for connecting and utilizing Samsung DVC Camera to the PC.
 - During the use of PC, if the program is deleted or error message comes out, you can reinstall it with this CD.
1. Put your DVC Media Software CD into the CD-ROM Drive and automatically it runs the Software installation screen.
 - If it does not run automatically, select the CD-Rom drive in your Explorer and run the Setup.exe file.
 - The Software installing splash screen will come out.
 2. Click the subject you want to install, and the install begins.
 3. After Installing USB Driver and the DVC Media Application, Select the "System Restart".
 - The System will restart automatically.

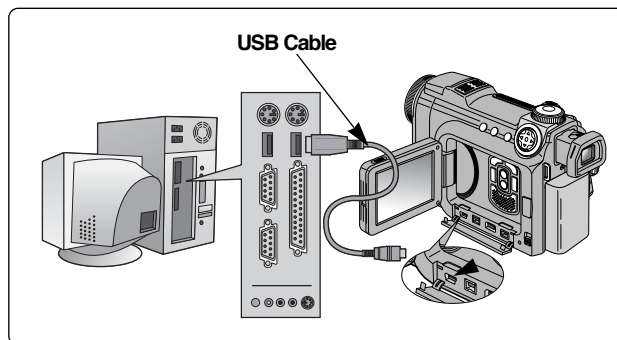


Note

- If the system does not restart automatically, close all the applications and restart your system.

□ To Connect Your Camera to a PC using USB cable

1. After you install the USB device driver, turn on your camera by setting the power switch to (CAMERA) mode.
2. Connect the provided USB cable to your camera's USB port.
3. Connect the other side of the USB cable to the USB port of your PC.
 - If your Operating System is Windows XP, a message indicating new hardware detection appears.



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Miscellaneous Information

□ To Copy Still Images Using a USB Connection

- The PC will recognize your camera as a removable mass storage device.
- Use your Windows Explorer or other file browser to locate your stored images.
- You can copy, delete or move your stored images from the memory card as a normal files found on your hard disk drive(s).

□ To Use Your Camcorder as a PC Camera

- You can use this camera as a PC camcorder for video chatting, video conference and other PC camera applications.
- The screen size of the PC camera function is 160x120 pixels.
- In PC camera mode, buttons on your camera do not function during the connection except the Power Switch, Mode Dial, Zoom Lever and NITE PIX slide button to avoid errors.
 1. Turn your camera on by setting the Power Switch to REC mode.
 2. Establish the USB connection as above.
 3. Run your PC camera application such as Microsoft Netmeeting.

□ To Disconnect USB Connection

- After completing the data transfer, you must disconnect the cable in the following way:
 1. Select the removable disk icon and click the right mouse button to select "Eject".
 2. Select "Confirm" and disconnect the USB cable when the splash pop-up screen disappears.

Notes

- If you disconnect the USB cable from the PC or the camcorder during the data transfer, the data transfer will stop and the data may be damaged.
- If you connect the USB cable to a PC using a USB HUB or with other devices at the same time, it might cause conflict and may not work properly. If this occurs, remove all other USB devices and try the connection again.
- If your PC does not support USB 2.0 transmission, the connection will adapt to the USB 1.1 spec with a slower transfer rate.

Maintenance

Cleaning and Maintaining the Camcorder

- For prolonged use of your device, read following instructions carefully.

After Using Your Camcorder

- For the safekeeping of your device, follow these steps.
 - Remove the cassette (refer to page 48).
 - Turn your camcorder off.
 - Remove the Battery (refer to page 28).
 - Remove the Memory Card (refer to page 84)
- To prevent any damage to the LCD monitor, do not apply excessive force on its moving parts.
- Do not drop or in anyway shock the device.
- For prolonged use of your device, avoid using it in places subject to excessive humidity or dust.
- Do not leave your device in places subject to:
 - Excessive humidity, steam, soot or dust
 - Excessive shock or vibration.
 - Extremely high (over 50°C or 122°F) or extremely low (under 0°C or 32°F) temperatures.
 - Strong electromagnetic fields.
 - Direct sunlight or in a closed car on a hot day.
- The cassette should be stored away from heaters and other heat sources. Avoid storing cassettes under direct sunlight, and avoid electromagnetic fields.
- The removed Battery Packs should be stored away from heaters and other heat sources. Do not store the battery pack with metal objects or sharp objects to avoid accidental damage to the battery pack.
- The memory card should be stored away from heaters and other heat sources. Avoid storing memory cards under direct sunlight, and avoid electromagnetic fields. Before removing the memory card from your device, move or copy your data from the memory card to a PC. Format the memory card periodically.

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Maintenance

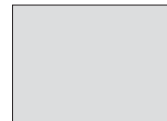
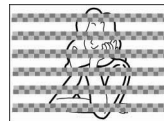
Cleaning the Camera Body and Video Heads

□ To Clean the Exterior of Your Device

- To clean the exterior, use a soft dry cloth. Wipe the body gently. Do not apply excessive force when cleaning, gently rub the surface.
- The LCD monitor surface should not be pressed. Use a soft dry cloth to clean the surface.
- To clean the lens, use an optional blower to blow out dirt and other small objects. Do not wipe the lens with cloths or your fingers. If necessary, use lens cleaning paper.
- Do not use chemicals, alcohol or benzene for cleaning. Otherwise, the finish may be damaged.
- Cleaning should be done only after the battery pack has been removed, and other power sources have been disconnected.

□ To Clean the Video Heads

- Dirty heads might cause problems with noisy recording and playback.
- To ensure the normal operations of the video heads, avoid using in places subject to heavy dust.
- Avoid excessively frequent fast forwarding and rewinding of cassettes to avoid damaging the video heads.
- Excessive use of a cleaning cassette is not recommended.
- Use an optional cleaning cassette for video head cleaning. Periodic check-ups are recommended.
 1. Load the Cleaning Cassette.
 2. Set the Power Switch to PLAY mode.
 3. Press the ►/III (PLAY/STILL) button to start cleaning.
 4. Stop playing after 10 ~ 20 seconds.



(Blue Screen)

Notes

- Some cleaning cassette product stops automatically. Refer to the cleaning cassette's instructions for detailed information. If the problem continues after the cleaning, consult your nearest Samsung dealer or Authorized Service Personnel.
- Do not use wet-type cleaning cassettes.

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 where the power input range is 100V ~ 240V, 50/60Hz.

Use a commercially available AC plug adapter if necessary, depending on the design of the local wall outlets.

Color System

You can view your recordings using the built-in LCD monitor and viewfinder.

However, to view your recordings on a television set or to copy it to a video cassette recorder (VCR), the television set or the VCR must comply with NTSC-compatible and have the appropriate Audio / Video ports. Otherwise, you may need to use a separate Video Format Transcoder (NTSC-PAL format Converter).

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, Mexico, Philippines, Korea, Taiwan, United States of America, etc.

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Troubleshooting

Trouble Shooting

- If your device fails to function as expected, please check the following before contacting service personnel. Refer to the page numbers listed for further details.

Self Diagnosis Display

Display	Blinking	Informs that...	Action
	Slow	The battery pack is almost discharged	Change to a charged one or connect to other power source
TAPE END!	Slow	When the remaining time on the tape is less than 2 minutes	Prepare a new cassette
TAPE END!	No	Cassette has reached its end	Change to a new cassette
TAPE!	Slow	No cassette tape is inserted	Insert a tape
PROTECTION!	Slow	The tape is Record Protected	Change to a new cassette or release the tape record protection
 D,L,C,R	Slow	Camcorder has a mechanical fault	1. Eject the cassette tape. 2. Set to off 3. Detach the battery. 4. Restart the camcorder If problem continues, contact your local service representative.
	Slow	Moisture condensation	See page 11
NO CARD!	Slow	No memory card is inserted	Insert a memory card
CARD FULL!	Slow	Not enough space for saving pictures	Change to a new memory card or delete recorded images
NO IMAGE!	Slow	There are no images recorded to play	Record a new still image
PROTECT!	Slow	Deleting still images is prohibited	Release the protection of the image
FILE ERROR!	Slow	The image file has an error	Delete the image or format the memory card

Troubleshooting

Display	Blinking	Informs that...	Action
CARD ERROR!	Slow	Memory card is formatted by other device or has error in system folder	Format the memory card using the camera menu
NOT FORMATTED!	Slow	Memory card needs to be formatted	Format the memory card using the camera menu

□ If these instructions do not solve your problem, contact your nearest Samsung dealer or authorized service center/personnel.

Symptom	Possible Causes	Measure
No power is supplied	The power is not connected properly The battery is dead The battery is too cold	Connect the AC adapter properly, page 27 Replace the dead battery pack Warm up the battery or move to warmer place
LCD monitor is blank	Viewfinder is on. Multi-AV cable is connected Display option is turned off	Close the viewfinder Remove the cable Press the DISPLAY button to bring back OSD
DATE/TIME is wrong	The DATE/TIME is not set The built-in clock battery has exhausted.	Set the DATE/TIME, page 38 Replace the Li-ion battery for built-in clock, page 24
Cannot Record a video	Protection tab is set to "SAVE" Power Switch is set to PLAY Power Switch is set to  CAMERA	Cancel the protection, page 49 Set the Power Switch to REC Set the Power Switch to REC
Focus does not adjust automatically	Focus is set to manual mode Recording was done in a dark place Lens is covered with condensation	Set focus to AUTO Use strobe or lit the place Clear the lens and check the focus
Cassette tape will not load properly	Cassette is in wrong position The battery is exhausted	Insert the cassette tape properly, page 48 Charge the battery or use AC adapter
The memory card will not load properly	Memory card is in wrong position Something fills in the memory card slot	Insert the memory card properly, page 84 Clear the memory card slot
Colors balance of picture is not natural	White balance adjustment is required	Set proper white balance, page 118

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Troubleshooting

Symptom	Possible Causes	Measure
Digital zoom does not work	Digital special effect is applying	Turn off the digital special effects. page 58
Files stored in the memory card cannot be deleted	Memory card is protected File is protected	Remove the protection tab of memory card Remove the protection on the file, page 131
Images on the LCD monitor appear dark	Ambient is too bright Ambient temperature is too low	Adjust the brightness and angle of LCD Too low temperature might produce dark LCD display due to the LCD characteristics. Not a malfunctioning
Rear of the LCD monitor is hot	Prolonged use of LCD monitor	Close the LCD monitor to turn it off, or turn your device off to cool down.
Play, rewind and fast forwarding do not work	Power Switch is set to REC or  (CAMERA) Mode	Set the Power Switch to PLAY
Memory card cannot be played back (Camera mode)	Power Switch is set to  (PLAY) Mode	Set the Power Switch to  (CAMERA) Mode and set the Mode Dial to  (PLAY) Mode Set the Power Switch to camera modes
No picture is taken when PHOTO is fully pressed	Not enough free memory space is remained Memory card is formatted by different devices	Delete files from the memory card Format the memory card
Built-in flash will not pop up nor fire	Flash is forced to cancel focus is set to infinity AE lock is enabled Taking the motion clips Continuous shot option is turned on Bracket shooting is enabled Blocking the flash lid	Select different flash mode, page 107 Select AUTO, EASYQ, or different MF distance, page 108 Turn off the AE lock Flash is not available for Motion clips Turn off the continuous shot Turn off the AEB, page 121 Clear obstructing object

Specifications

Specifications

Model Name	SCD6050	
Camcorder System		
Video Signal	NTSC	
Video Recording System	2 Rotary heads, Helical Scanning System	
Audio Recording System	Rotary heads, PCM system	
Usable Cassette	Digital Video tape: 6.35mm MiniDV cassette	
Tape Speed	SP: approx. 18.81mm/s, LP: approx. 12.56mm/s	
Tape Recording Time	SP: 60 minutes, LP: 90 minutes (when using DVM60)	
FF/REW time	Approx. 180 sec (when using DVM60)	
General	CAMCORDER	CAMERA
Format	MiniDV	JPEG (DCF)
Dimension (WxHxD)	66 X 96 X 140 (mm)	
Weight (Net)	540g (Except the Lithium Ion Battery Pack and Tape)	
Power Consumption	4.9W (LCD on) / 4.6W (CVF on) for recordings	
Power Source	DC 8.4V, LI-Ion Battery pack: 7.4V	
Power Source Type	Lithium-Ion battery pack, Power supply (100V ~ 240V, 50/60 Hz)	
Built-in Microphone	Omni-directional Stereo condenser microphone	
LCD Monitor		
Size	2.5"	
Pixel	200K, Trans Reflective	
Bright / Color Adjust	O / O	
Rotation Angle	90 + 270 deg	
Mirror	O	
Viewfinder		
Display Device	Color	
Size	0.24"	
Pixel	113K	
Dioptr Adjust	O	

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Specifications

Lens	CAMCORDER	CAMERA
Optical Zoom Ratio	10x	3x
Digital Zoom Ratio	900x	12x
Focal Length (f)	2.7 ~ 27mm	7.7 ~ 23.1mm
F. No (Wide / Tele)	1.4 / 1.8	2.8 / 4.9
Zooming Speed	Variable 4 step	1 step
Filter Diameter	30 Not Available	
0 Lux Recording	Nite Pix / Power Nite Pix	X
Macro	Wide Macro	4~80cm (Wide), 30~80cm (Tele)
CCD	CAMCORDER	CAMERA
Size	1/6" Charge Coupled Device	1/1.8" Charge Coupled Device
Pixel (Max / Effective)	680K / 340K	5.3M/5.1M
Strobo / Flash	X / X	X / O
Image Stabilizer	DIS	X
Auto Focus / Manual Focus	O / O	O / O
Shutter Speed (Auto)	1/60 ~ 1/10,000	2 ~ 1/2,000
Manual Shutter Speed	1/60 ~ 1/10,000 8 step	NightScene Mode, 15 ~ 1/2,000
Auto White Balance	O	O
Metering		TTL Automatic, 80cm ~ infinity
Connectors		
Video output	1 Vp-p (75Ω terminated)	
S-VIDEO output	Y: 1 Vp-p, 75Ω C: 0.2861 Vp-p, 75Ω	
Audio output	7.5 dBs(600Ω terminated)	
DV input / output	4-pin IEEE1394	
USB output	Mini-B type	
External MIC	Ø 3.5 stereo	
Others		
Operating Temperature	0 ~ 42°C / 32 ~ 104°F	
Storage Temperature	-20 ~ 60°C / -4 ~ 140°F	

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Warranty (SEA users only)

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 its 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.