

DECLARATION OF NATHANIEL E FRANK-WHITE

1. I am a Records Request Processor at the Internet Archive. I make this declaration of my own personal knowledge.

2. The Internet Archive is a website that provides access to a digital library of Internet sites and other cultural artifacts in digital form. Like a paper library, we provide free access to researchers, historians, scholars, and the general public. The Internet Archive has partnered with and receives support from various institutions, including the Library of Congress.

3. The Internet Archive has created a service known as the Wayback Machine. The Wayback Machine makes it possible to browse more than 450 billion pages stored in the Internet Archive's web archive. Visitors to the Wayback Machine can search archives by URL (i.e., a website address). If archived records for a URL are available, the visitor will be presented with a display of available dates. The visitor may select one of those dates, and begin browsing an archived version of the Web. Links on archived files in the Wayback Machine point to other archived files (whether HTML pages or other file types), if any are found for the URL indicated by a given link. For instance, the Wayback Machine is designed such that when a visitor clicks on a hyperlink on an archived page that points to another URL, the visitor will be served the archived file found for the hyperlink's URL with the closest available date to the initial file containing the hyperlink.

4. The archived data made viewable and browseable by the Wayback Machine is obtained by use of web archiving software that automatically stores copies of files available via the Internet, each file preserved as it existed at a particular point in time.

5. The Internet Archive assigns a URL on its site to the archived files in the format http://web.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL] aka an "extended URL". Thus, the extended URL http://web.archive.org/web/19970126045828/http://www.archive.org/ would be the URL for the record of the Internet Archive home page HTML file (http://www.archive.org/) archived on January 26, 1997 at 4:58 a.m. and 28 seconds (1997/01/26 at 04:58:28). The date indicated by an extended URL applies to a preserved instance of a file for a given URL, but not necessarily to any other files linked therein. Thus, in the case of a page constituted by a primary HTML file and other separate files (e.g., files with images, audio, multimedia, design elements, or other embedded content) linked within that primary HTML file, the primary HTML file and the other files will each have their own respective extended URLs and may not have been archived on the same dates.

6. Attached hereto as Exhibit A are true and accurate copies of browser screenshots of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each printout.

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7. Attached hereto as Exhibit B are true and accurate copies of the Internet Archive's records of the archived files for the URLs and the dates specified in the following table.

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002	https://web.archive.org/web/20030914203323/http:/www.hauppauge.com:80/manuals/wintvpci.pdf

8. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

DATE: April 10, 2024

Nathaniel E Frank-White

Nathaniel E Frank-White

EXHIBIT A

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in one complete resource

CASIO EXILIM EX-V7

concise review

Design and Handling



Casio has firmly established itself at the 'style' end of the market with the Exilim range; with its super-slim all-metal body the EX-V7 is no exception (it is currently the world's slimmest 7x zoom camera). The materials, build and finish are excellent and like all the Exilims, the camera has quite a luxurious feel. The EX-V7 is something of a departure for Casio from a design point of view; though the rear is very similar to most of the other (past and present) models in the range the front sports a rather Sony-like sliding lens cover (which also acts as the main on/off switch). This is the first Exllim zoom with a non-extending lens, and the first we're aware of to use folding optics (the key to fitting such a big zoom range into such a slim body).

Handling



As with all these slim cameras there's a touch of the 'form over function' to the EX-V7; there is little to grip and little to stop the camera slipping from your fingers if not supported with both hands. The front of the lens being so near to the corner of the camera also means that it's not unusual to see a finger appearing in the corner of the frame when shooting quickly. The shutter release is well positioned, but using the zoom when holding the camera with one hand is tricky. Once you're used to it the handing isn't terrible, but it isn't great either.

Key body elements



The ubiquitous four-way controller is used to navigate menus (along with the 'SET' button in the middle) The left and right keys can be customized to control a variety of functions (including AE compensation, white balance or ISO). The up key is used to cycle through the various display mode options, the down key switches flash mode. To the left are buttons for play mode and menu activation.



As we've come to expect from Casio the screen is excellent; bright, responsive and fairly resistant to glare even in direct sunlight. To the right you can see the unusual zoom slider (up for tele, down for wide).



In this section of the review we would normally be discussing the various connectors dotted around the camera. However the EX-V7 (like most Casios) has no standard connectors on the camera itself, all are provided by the cradle. The only connector on the camera itself is the cradle terminal, beside the tripod mount on the base of the camera.



The supplied cradle performs four functions. Firstly it acts as a charging station for the battery; drop the camera into the dock and the battery begins charging. Secondly it can be used to turn the camera into a 'Photo Stand' which runs a slide show of images on the LCD monitor. Thirdly it provides USB connectivity to a computer or direct-printer. Finally it adds audio/video output (for viewing images/movies on a television).



The EX-V7 has two Exilim firsts: a folded optics lens (which runs up the side of the body) - essential for keeping the camera slim - and a sliding lens cover. The lens cover is lightly sprung and acts as an on-off switch. One minor niggle is that it is a little too easy for the camera to accidentally turn on if you slide it into a bag or pocket, but using a case would solve this.



The top of the EX-V7 is very plain - all you'll find here is the chrome shutter release.



The SD card slot and slim battery slot share a compartment under a hinged door on the side of the body. Battery life isn't bad for a camera in this class, at 240 shots per charge (CIPA standard testing). Cameras this slim have to use small batteries, so rarely offer more than a few hundred shots from a single charge (and many offer far fewer).

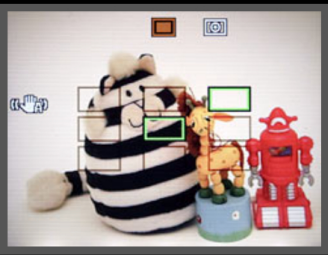
Display and menus

Whereas most cameras in this class offer point and shoot simplicity, the EX-V7 is full of unexpected surprises, including a full manual mode, aperture and shutter priority and an almost overwhelming range of shooting and playback features. Inevitably this means that a lot of the more advanced functionality can only be accessed via menus, but Casio has done a pretty good job of putting a friendly face on the extensive feature set.

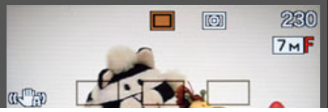
Apologies for the low quality of these screen shots, the EX-V7 does not support video out in record mode, so the screen was photographed directly.

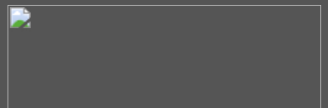


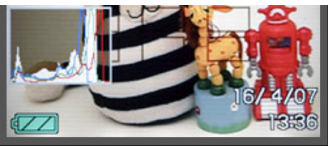
Although you can switch to a more conventional view (with icons scattered around the edge of the frame) the panel layout is cleaner and a lot easier to use. The screen above shows the highest level of information you can have on-screen; you can reduce it if you prefer less clutter.



Half-press the shutter and the display changes to indicate the focus area(s) selected, and the exposure (aperture and shutter speed) chosen (the screen shown is in basic display mode). A nice touch is that the ISO is also displayed - even in auto ISO mode.







Pressing the DISP button cycles through the various overlay options, including - as shown here - a live RGB histogram.

Casio likes to cover every conceivable shooting scenario with its extensive scene modes (known as 'Best Shot' modes), so the EX-V7 has no less than 33, covering everything from the usual portraits, landscapes and night scenes to pets, fireworks and food to special effects and modes for copying documents and text that remove perspective distortion. It is also here where you'll find the modes that offer higher than ISO 800 sensitivity. In each case a brief description is shown on-screen to explain how and when to use it (example) .



If you find the complexity of the EX-V7's various manual and auto modes overwhelming there is an 'Easy' mode that offers a simplified cut-down interface.



Unusually for a camera of this type the EX-V7 offers aperture and shutter priority and full manual exposure. There are, however, some slightly odd ISO limitations (which kind of make sense, but are infuriating for the more advanced user). In Shutter Priority mode you cannot select a manual ISO (it defaults to Auto). This is presumably because there are only 3 possible aperture settings; wide open, closed and closed with an ND filter. Less explicable is that in manual exposure mode you are stuck with ISO 64.



Pressing the 'Menu' button brings up three tabbed menus. The Quality tab is where you'll find menu options for image size, quality, AE-compensation, white balance, ISO, metering mode, sharpness/saturation/ contrast and flash level, plus some of the more unusual options mentioned later in the review, such as Dynamic Range and Portrait Refiner.



The REC tab is where you make more fundamental changes; focus mode, anti-shake, self-timer and so on.



The EX-V7 allows you to choose to use CCD-shift ('Camera Shake') or ISO boost ('Image Blur') Anti Shake, or let the camera decide.



You can assign the left and right arrow keys (on the body) to allow quick access to metering, AE compensation, White Balance, ISO or self timer mode.



Movie mode, with 'time remaining' display.



As in record mode you can choose from three levels of information overlaid on your images when in playback. You can also view your images by the date they were taken

using the calendar mode.



The play menu has all the usual options, plus Casio's range of in-camera editing functions.



These include changing white balance, brightness, color and - as here - lifting the shadows using the Dynamic range expander. In all cases the edited image is saved as a new file.

Although designed primarily for copying artwork we had some fun using keystone correction for straightening out verticals in landscape shots. You also get Casio's Color Correction option for auto correction of copies of old photos (not sure I'll be using that one too often).



Finally print options; as well as the usual DPOF ordering you can combine several pictures into a single layout (this option is also available when shooting).

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Casio Exilim EX-V7 Review, May 2007

Simon Joinson



Based on a production Casio Exilim EX-V7

Announced back in January at the CES show, the EX-V7 is the latest in a long - and generally successful - range of slim, feature-packed Exilim models from Casio. As well as an impressive set of specifications (CCD shift image stabilization, 7x / 38-266mm equiv. zoom, MPEG movies and a wealth of features) and a super-slim all-metal body (under 21mm thick at its thinnest point) the EX-V7 boasts a new version of Casio's image processing engine. This brings several new technologies to the V7; motion analysis (to ensure a higher ISO and shutter speed are used if needed to freeze fast moving subjects), Auto Tracking AF and enhanced noise reduction and tonal control. As the world's slimmest 7x zoom camera the EX-V7 is certainly an enticing product for anyone wanting a bit more lens reach without losing pocketability, but is it any good? Let's find out, starting as ever with the headline features:

- 59.8 mm high, 95.5 mm wide, and 25.1 mm thin (20.8 mm at the thinnest part)
- Cutting-edge, non-protruding 7X internal optical zoom lens (38-266mm equiv.)
- New CCD shift system actually mechanically compensates for camera shake.
- Automatically analyzes the velocity and vector of a moving subject and sets the most appropriate ISO sensitivity and shutter speed.
- "Auto Tracking AF" function follows moving subjects
- Tonal control lets users keep bright areas of the scene bright by limiting the occurrence of dark pixels.
- Offers ability to selectively eliminate noise in designated color regions, such as the sky.
- Boasts faster image processing functions that enable instantaneous color correction or angle adjustment.
- High-quality movies using next-generation H.264 video encoding method
- Silent lens motion enables optical zooming while recording movies in stereo sound.
- Records 16:9 wide-aspect movies compatible with wide-screen TVs.

Casio Exilim EX-V7 specifications

Street price	• US: $350 • UK: £299
Body Material	Metal and plastic
Sensor	• 1/2.5 " Type CCD • 7.41 million pixels total • 7.20 million effective pixels
Image sizes	• 3072 x 2304 • 3072 x 2048 (3:2) • 2560 x 1920 • 2048 x 1536 • 1600 x 1200 • 640 x 480
Movie clips	• 848 x 480 @ 30fps • 640 x 480 @ 30fps • 320 x 240 @ 15fps • with WAV audio • Motion JPEG AVI (LP mode) • H.264 MPEG .MOV (all other modes)
File formats	• JPEG Exif V2.2 • DCF • DPOF
Lens	• 38-266mm (35mm equiv) • 7x optical zoom • F3.4 - 5.3
Image stabilization	CCD shift system
Conversion lenses	None
Digital zoom	up to 4x
Focus	• Contrast Detection AF • Macro • Infinity lock • Manual focus

AF area modes	• 9-point Multi AF • Spot AF • Tracking AF
AF assist lamp	Yes
Focus distance	• AF: 30cm - infinity • Macro: 10-40cm • Manual: 10cm - infinity
Metering	• Multi-pattern • Center-weighted • Spot
ISO sensitivity	• Auto • ISO 64 • ISO 100 • ISO 200 • ISO 400 • ISO 800 • ISO 1600 (using BEST SHOT High Sensitivity mode)
Exposure compensation	• -/+ 2EV • in 1/3 EV steps
Exposure bracketing	-0.5 EV, 0, +0.5 EV
Shutter speed	• Program AE: 1/2 to 1/800 sec • Aperture Priority AE: 1 to 1/800 sec • Shutter Speed Priority AE and Manual Exposure: 60 to 1/800 sec
Aperture	F3.4 / 4.6 / 9.2 auto switching
Modes	• Program AE • Shutter Speed Priority AE • Aperture Priority AE • Manual exposure • Continuous • BEST SHOT
Scene modes	33 BEST SHOT modes
White balance	• Auto • Daylight • Overcast • Shade • Daywhite Fluorescent • Daylight Fluorescent • Tungsten • Manual
Self timer	• 10 or 2 secs • Triple self-timer
Continuous shooting	• Continuous • High Speed • Continuous with flash
Image parameters	Sharpness, saturation, contrast
Flash	• Auto • On • Off • Soft Flash • Red-eye Reduction • Range: 0.1 - 2.8m (wide) 1.0 - 1.8m (tele) • Rapid Flash Range: 0.4 - 2.1m (wide) 1.0 - 1.4m (tele)
Viewfinder	None
LCD monitor	• 2.5-inch TFT • 230,400 pixels
Connectivity	• USB 2.0 Hi-Speed • USB Cradle Connector
Print compliance	PictBridge, PIM, DPOF, EXIF print
Storage	• 11.6MB internal memory • SDHC / SD / MMC card compatible
Power	• Rechargeable Lithium-ion battery NP-50 • Charges via cradle
Weight (No batt)	149 g (5.3 oz)
Dimensions	95.5 x 59.8 x 25.1 mm (3.8 x 2.4 x 1.0 in)

If you're new to digital photography you may wish to read the Digital Photography Glossary before diving into this article (it may help you understand some of the terms used).

Conclusion / Recommendation / Ratings are based on the opinion of the reviewer, you should read the ENTIRE review before coming to your own conclusions.

Images which can be viewed at a larger size have a small magnifying glass icon in the bottom right corner of the image, clicking on the image will display a larger (typically VGA) image in a new window.

To navigate the review simply use the next / previous page buttons, to jump to a particular section either pick the section from the drop down or select it from the navigation bar at the top.

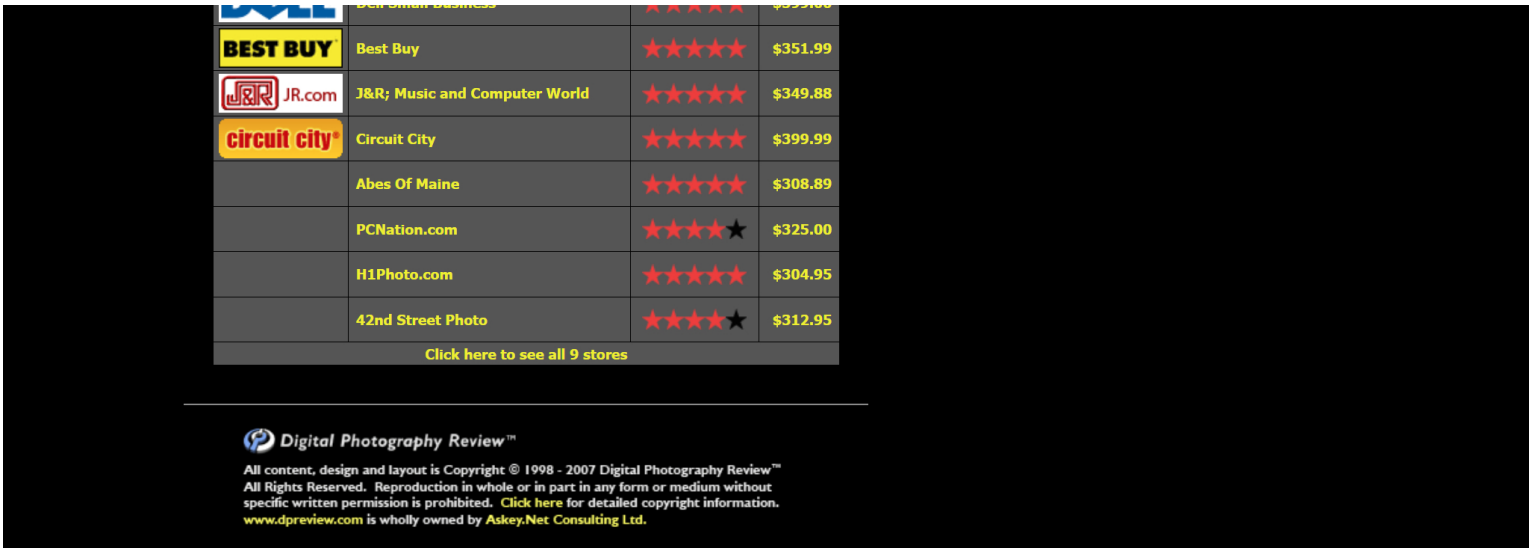
DPReview calibrate their monitors using Color Vision OptiCal at the (fairly well accepted) PC normal gamma 2.2, this means that on our monitors we can make out the difference between all of the (computer generated) grayscale blocks below. We recommend to make the most of this review you should be able to see the difference (at least) between X,Y and Z and ideally A,B and C.



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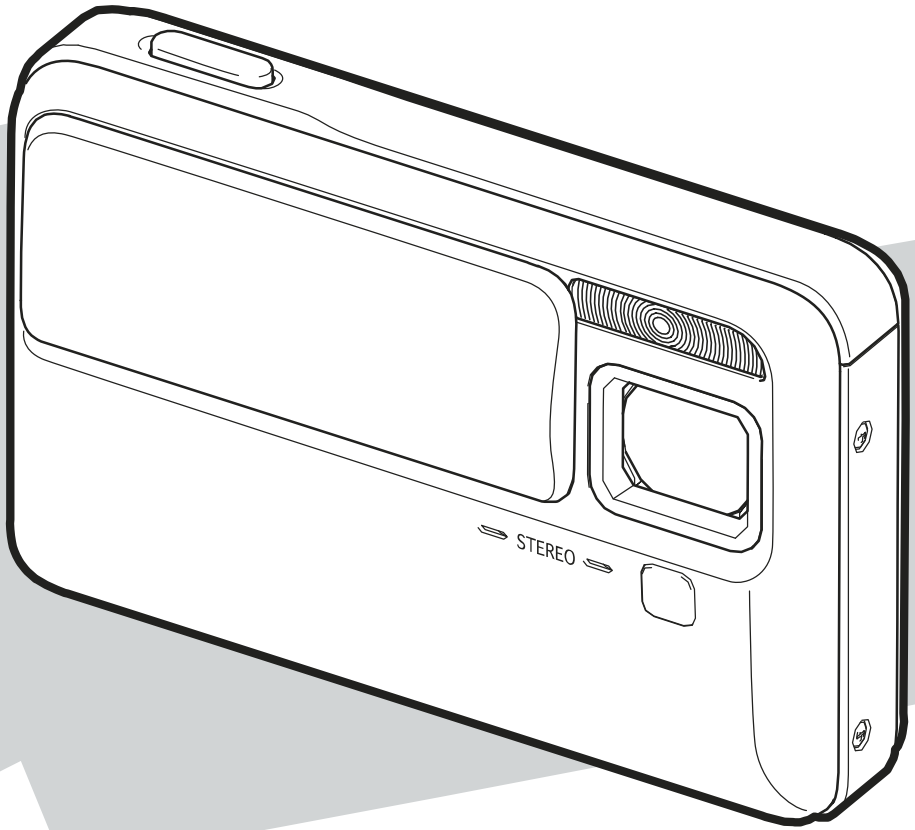
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User's Guide



Thank you for purchasing this CASIO product.

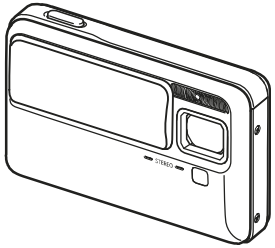
- Before using it, be sure to read the precautions contained in this User's Guide.
- Keep the User's Guide in a safe place for future reference.
- For the most up-to-date information about this product, visit the official EXILIM Website at http://www.exilim.com/.

K825PCM1DMX

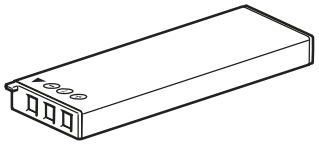
CASIO®

UNPACKING

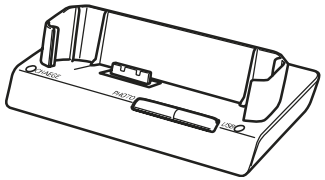
As you unpack your camera, check to make sure that all items shown below are included. If anything is missing, contact your original retailer.



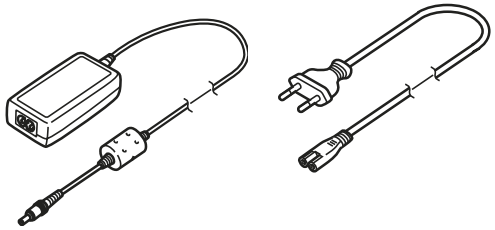
Digital Camera



Rechargeable Lithium Ion Battery (NP-50)



USB Cradle (CA-35)

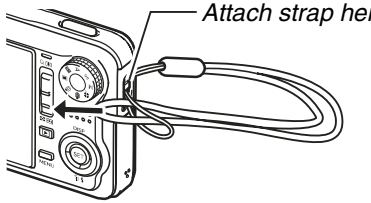


* The shape of the AC power cord plug varies according to country or geographic area.

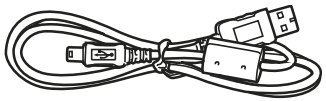
*Special AC Adaptor (AD-C52G)/AC Power Cord **

To attach the strap to the camera.

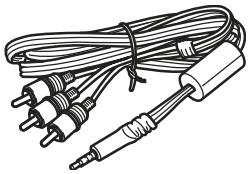




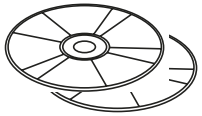
Strap



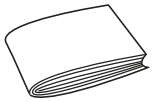
USB Cable



AV Cable



CD-ROMs (2)



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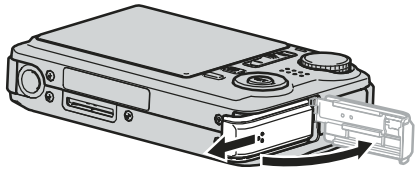
QUICK START BASICS

First, charge the battery

(page 36)

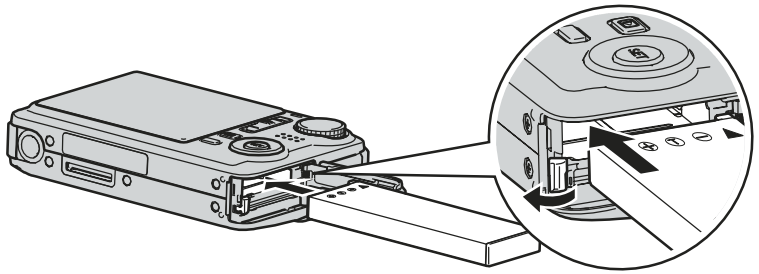
■ Loading the Battery into the Camera

1. **Open the battery cover.**

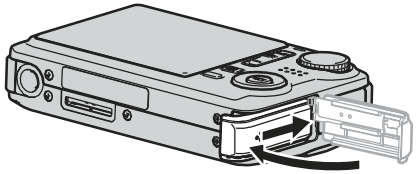


While pressing lightly on the cover, slide it in the direction indicated by the arrow to open.

2. **Load the battery into the camera.**

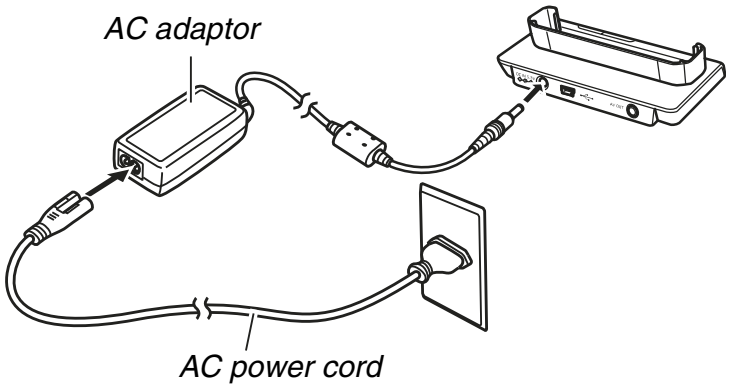


3. **Close the battery cover.**

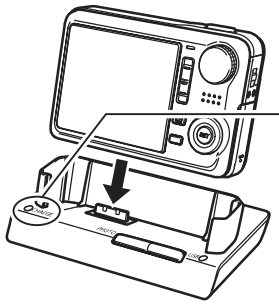


Using the USB Cradle to Charge

1. Plug the USB cradle into a household power outlet.



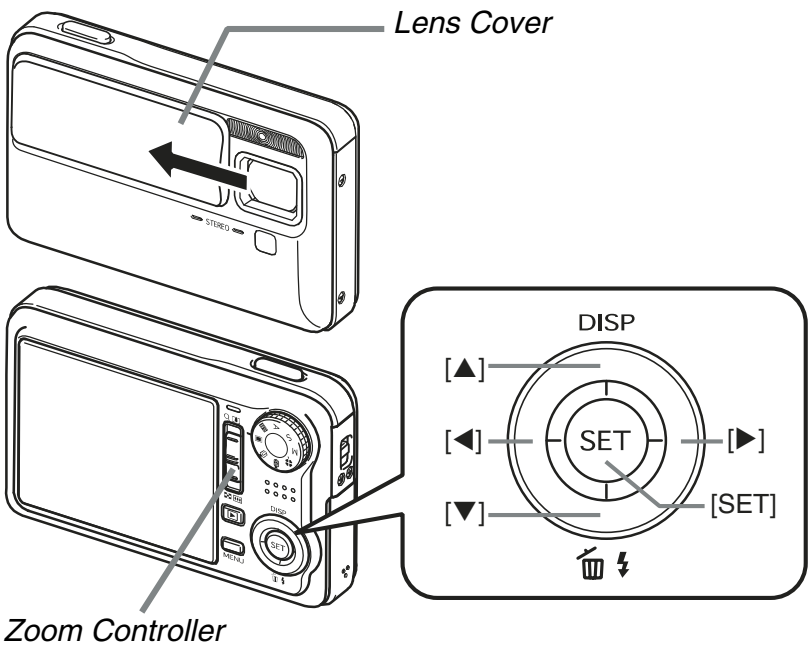
2. Place the camera onto the USB cradle.



[CHARGE] lamp
Red: Charging
Green: Charged (Full)

- *It takes about 150 minutes to achieve a full charge.*

Configuring Display Language, Date, and Time Settings



The settings on this page are required the first time you turn on the camera after purchasing it.

- If you make a mistake when configuring the language, date, and time settings, you can change the settings (pages 198, 201).

(pages 198, 201)

1. **Slide open the lens cover to turn on the camera.**
   - Take care that you do not touch the lens when sliding the lens cover.
2. **Use [▲], [▼], [◀], and [▶] to select the language you want and then press [SET].**
3. **Use [▲], [▼], [◀], and [▶] to select the area where you will use the camera and then press [SET].**
4. **Use [▲] and [▼] to select the city where you will use the camera and then press [SET].**
5. **Use [▲] and [▼] to select the summer time (DST) setting you want and then press [SET].**

6. Use [▲] and [▼] to select the date format and then press [SET].

Example: December 19, 2007

To display the date like this:	Select this option:
07/12/19	YY/MM/DD
19/12/07	DD/MM/YY
12/19/07	MM/DD/YY

7. Set the date and the time.

Use [◀] and [▶] to select the setting you want (year, month, day, hour, minute) and then use [▲] and [▼] to change the setting. To switch between 12-hour and 24-hour format, slide the Zoom Controller.

8. When all the settings are the way you want, press [SET].

9. Close the lens cover to turn off the camera.

- After finishing this procedure, advance to the procedure on the next page.

Using a Memory Card

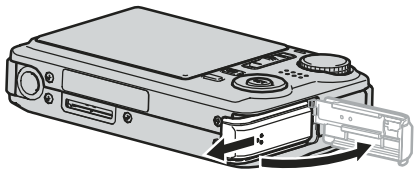
Loading a Memory Card into the Camera

When a memory card is loaded, the camera stores images you shoot on the card.

NOTE

- Though the camera has built-in memory, using a memory card provides additional capacity you can use to store more images, high-quality and large-size images, and longer movies.
- The camera will store images in its built-in memory if there is no memory card loaded. If you prefer to use built-in memory, skip this procedure and go to “Shooting a Snapshot” on page 15.
- For information about memory card capacity, see page 269.

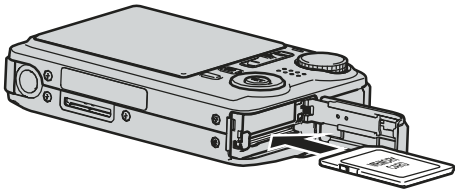
1. Open the battery cover.

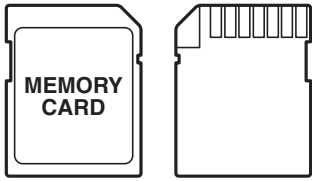


While pressing lightly on the cover, slide it in the direction indicated by the arrow to open.

(page 46)

2. Load a memory card into the camera.

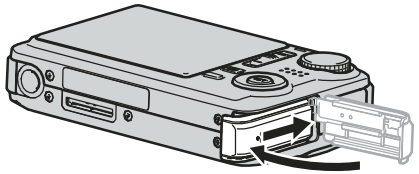




Front *Back*

With the front of the memory card facing upwards (towards the monitor screen side of the camera), slide it into the card slot and press until it clicks securely into place.

3. Close the battery cover.



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Formatting a Memory Card

Before you can use a memory card with your camera, you must format it.

IMPORTANT!

- Formatting a memory card that already has snapshots or other files on it, will delete its contents. Normally you do not need to format a memory card again. However, if storing to a card has slowed down or if you notice any other abnormality, re-format the card.
- Be sure to perform the following procedure on the camera to format the memory card.

1. Slide open the lens cover to turn on the camera.

- Take care that you do not touch the lens when sliding the lens cover.

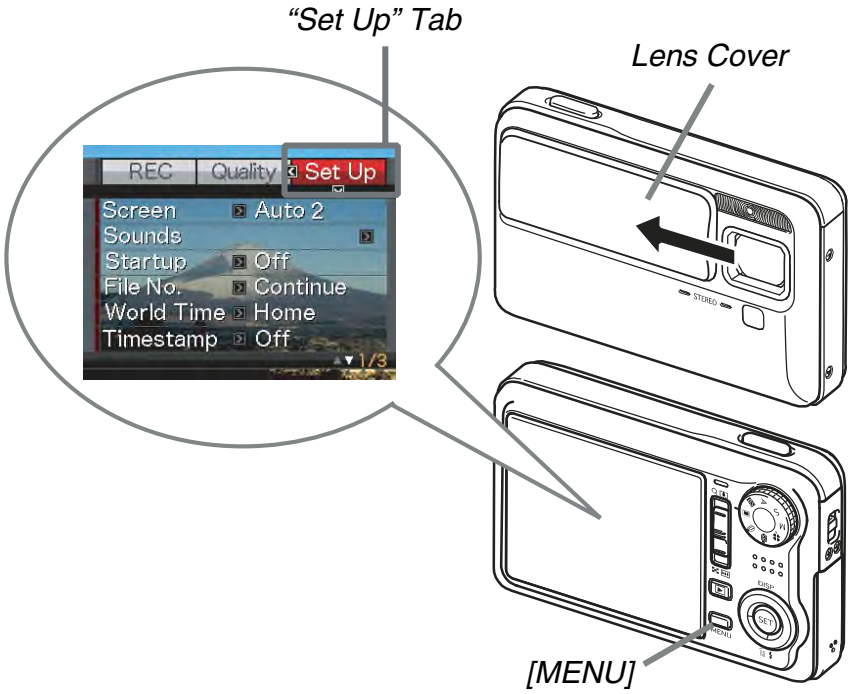
2. Press [MENU].

3. Use [◀] and [▶] to select the "Set Up" tab.

4. Use [▼] to select "Format" and then press [▶].

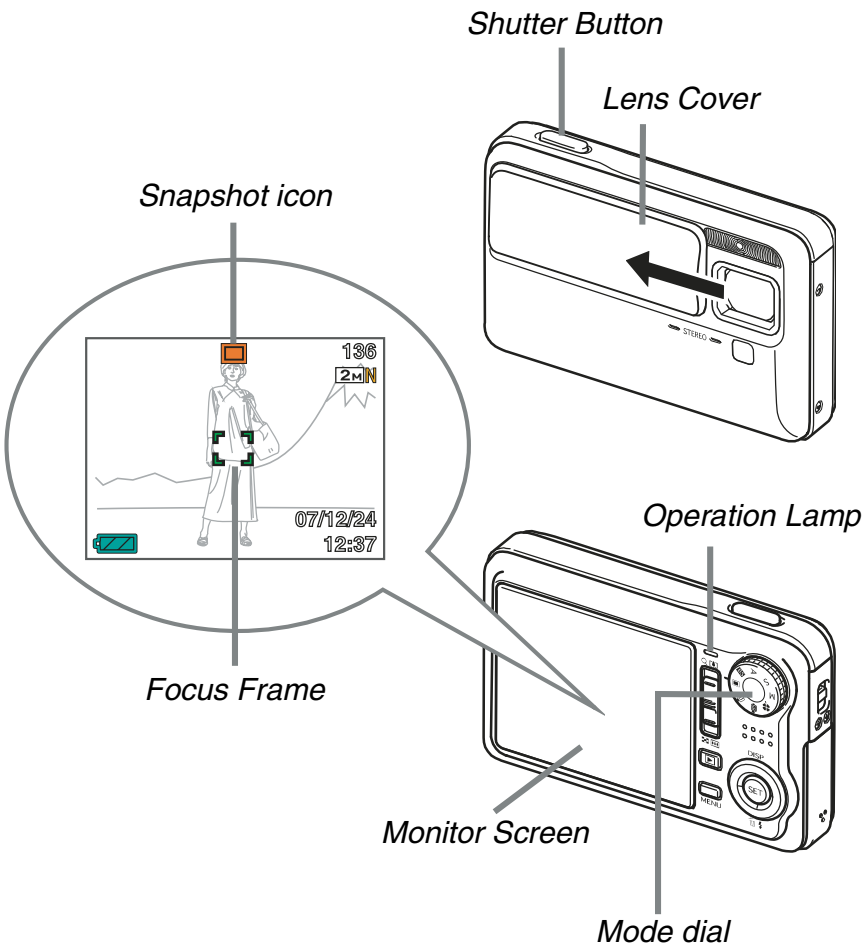
5. Press [▲] to select "Format" and then press [SET].

- To cancel formatting, select "Cancel" and then press [SET].
- Wait until the "Busy... Please wait..." message disappears from the monitor screen before doing anything else.



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Shooting a Snapshot



(page 56)

1. Slide open the lens cover to turn on the camera.

- Take care that you do not touch the lens when sliding the lens cover.

2. Align the mode dial with "■" (Snapshot).

This causes "▭" to appear on the monitor screen.

- If "▶" (PLAY Mode) is on the monitor screen, make sure that the lens cover is open and then press the shutter button or [▶] (PLAY). This will switch to the currently selected REC Mode.

3. Point the camera at the subject.

4. While taking care to keep the camera still, half-press the shutter button.

When the image is in focus, the camera will beep, the operation lamp will light green, and the focus frame will turn green.

5. Continuing to keep the camera still, press the shutter button all the way down.

The recorded image will remain on the display for about one second, and then it will be stored in memory. After that, the camera will be ready to shoot the next image.

Snapshot Image Size and Image Quality

Your camera lets you select from among various image size and quality settings. Note that image size and quality settings affect how many images can be stored in memory.

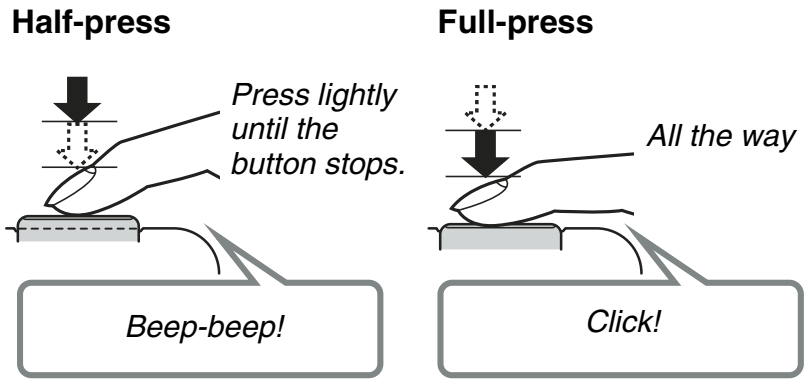
- You can change the image size and quality settings as required to shoot a smaller or lower-resolution image for attachment to an e-mail message, for publishing on a website, etc. You can also select an image size that suits the size of paper you plan to use for printing your images.

For details, see pages 62, 63, and 269.

How do I half-press the shutter button?

The shutter button is designed to stop about half way down when you press it lightly. Stopping at this point is called a “half-press”. When you half-press the shutter button, the camera automatically adjusts exposure and focuses on the subject it is currently pointed at.

Mastering how much pressure is required for a half-press and a full-press of the shutter button is an important technique for good-looking images.



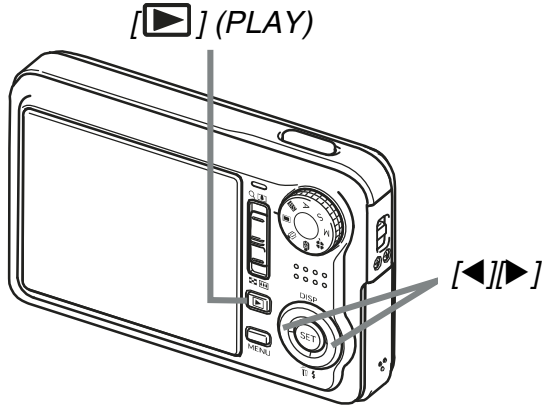
■ Fully pressing the shutter button without waiting for Auto Focus

Fully pressing the shutter button without waiting for Auto Focus to operate will record using Quick Shutter (page 120). Quick Shutter lets you capture exactly the moment you want.

- With Quick Shutter, the camera uses high-speed Auto Focus, which means you can capture quick moving action more easily. Note, however, that some images may be out of focus when Quick Shutter is used.
- Whenever possible, take a little extra time to half-press the shutter button in order to ensure proper focus.

Viewing Snapshots

(page 146)



1. Press [▶] to enter the PLAY mode.

If there are multiple images in memory, use [◀] and [▶] to scroll through them.

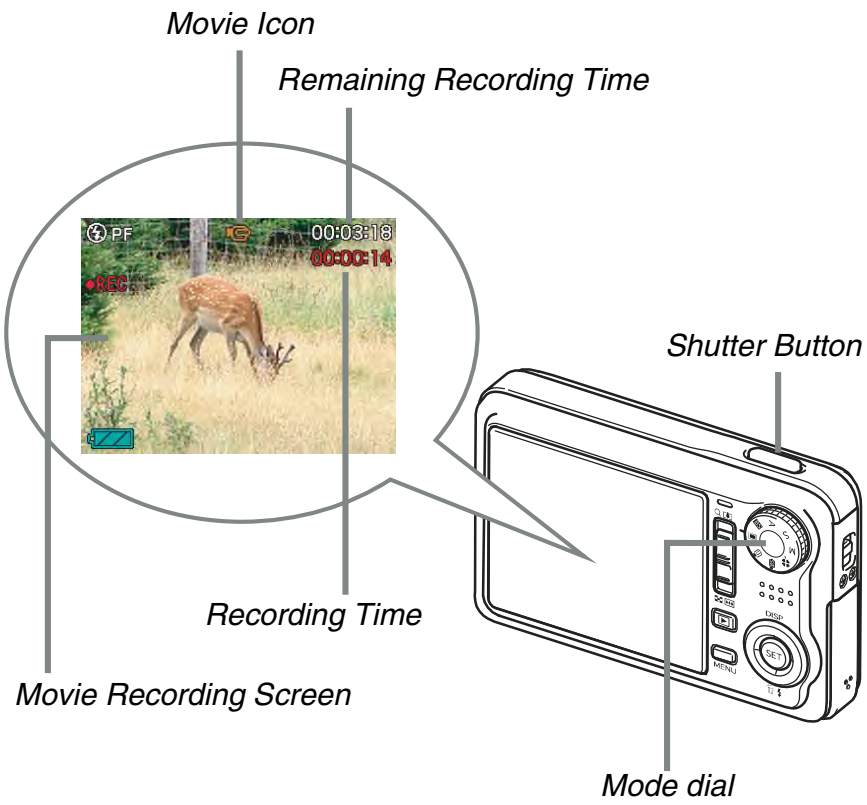
■ To return to a REC mode

You can enter a REC Mode by performing any one of the following operations.

- Press the shutter button.
- Align the mode dial with the desired REC mode.
- Press [▶] (PLAY) (with the lens cover open).

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Shooting a Movie



(page 90)

1. Align the mode dial with "🎬" (Movie).

This causes "🎬" (Movie) to appear on the monitor screen.

- If "▶" (PLAY Mode) is on the monitor screen, make sure that the lens cover is open and then press the shutter button or [▶] (PLAY). This will switch to the currently selected REC Mode.

2. Press the shutter button to start shooting the movie.

- Audio is also recorded during movie recording.

3. Press the shutter button again to stop recording.

Movie Image Quality

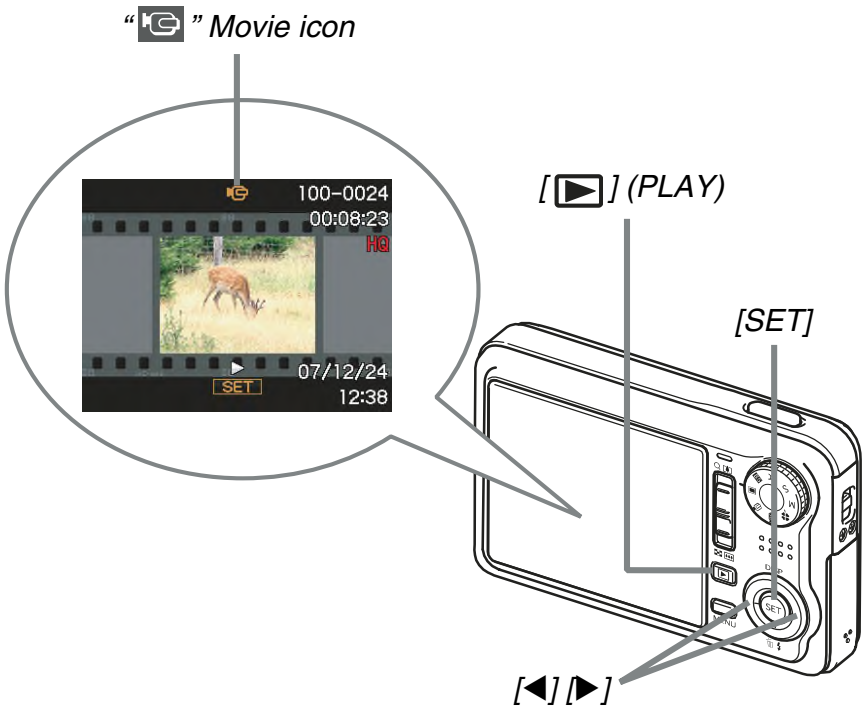
Your camera lets you select from among six image quality settings (UHQ, UHQ Wide, HQ, HQ Wide, Normal, LP) for movies. To get the most out of the imaging capabilities of your camera, use a quality setting of “HQ” (High Quality) or “HQ Wide” or better.

Movie quality is a standard that determines the detail, smoothness, and clarity of the image during playback. Reducing image quality let’s you shoot longer, so you can switch to “Normal”, or “LP” conserve remaining memory capacity if you start to run low.

For details, see pages 90 and 270.

Viewing a Movie

The film-like frame that appears on the monitor screen indicates that this is an image from a movie.



1. Press [ ] to enter the PLAY mode.

(page 148)

2. Use [◀] and [▶] to select the movie you want to play.

When scrolling through images, a movie is displayed on the monitor screen by showing its first frame.

3. Press [SET] to start playback.

The monitor screen will return to the image selection screen in step 2 after the end of the movie is reached.

- During movie playback, you can adjust volume, skip forward and back, and perform other operations (page 149).

To return to a REC mode

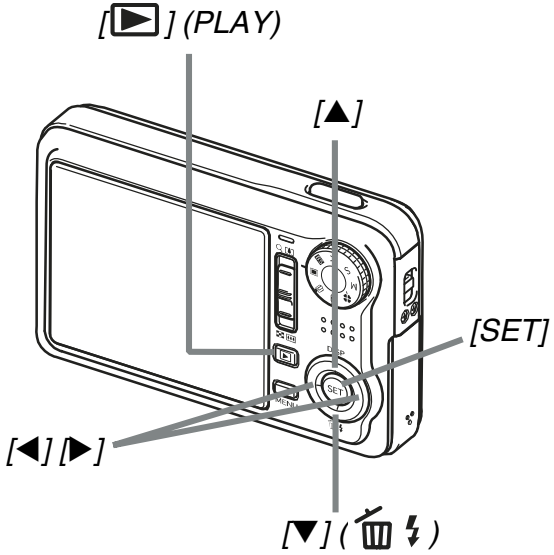
You can enter a REC Mode by performing any one of the following operations.

– Press the shutter button.
– Align the mode dial with the desired REC mode.
– Press [ ] (PLAY) (with the lens cover open).

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Deleting a File

You can use the following procedure to delete files you have transferred to your computer's hard disk, images you have printed, or files you simply no longer need. This frees up memory for recording more images.



(page 192)

1. **Press [▶].**
2. **Press [▼] (🗑 ϟ).**
3. **Use [◀] and [▶] to select the snapshot or movie you want to delete.**
4. **Press [▲] to select "Delete".**
   - To cancel the delete operation, select "Cancel".
5. **Press [SET].**

   This deletes the selected snapshot or movie.
   - If you want to delete more, repeat the above procedure from step 3.
   - To quit the delete operation, press [MENU].

INTRODUCTION

Features

BEST SHOT for beautiful shots simply by selecting a sample image built into the camera

Simply select the scene that is similar to what you want to shoot (Night Scene Portrait, Flower, etc.), for instant camera setups.

Example: Select for beautiful portraits.



A powerful collection of useful recording features

- Reduction of the effects of hand and subject movement using high shutter speeds and an anti-shake feature (page 123)
- High-sensitivity recording avoids dark images, even when the flash is not being used (page 102)
- Quick Shutter, which helps you capture exactly the moment you want (page 120)
- High quality (H.264) movie recording (page 90)

Powerful Print Features

- DPOF feature for easy specification of date stamping and the number of copies (page 211)
- Timestamp feature that stamps the date into the image data (page 137)
- Support for PictBridge and USB DIRECT-PRINT for easy at-home printing on a printer that supports one of these standards, without a computer (page 208)

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Read this first!

LCD Panel

The liquid crystal panel of the monitor screen uses high-precision technology that provides a pixel yield in excess of 99.99%.
This means that some pixels may not light or may remain lit at all times. This is due to the characteristics of the liquid crystal panel, and does not indicate malfunction.

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- Note that the example screens and product illustrations shown in this manual may differ somewhat by the screens and configuration of the actual camera.

Precautions during Use

Take test shots before shooting the final shot.

- Before shooting your final image, shoot a test shot to ensure that the camera is recording correctly.

Avoid Use While In Motion

- Never use the camera to record or play back images while operating an automobile or other vehicle, or while walking. Looking at the monitor while in motion creates the risk of serious accident.

Directly Viewing the Sun or Bright Light

- Never look at the sun or any other bright light through the cameras viewfinder. Doing so can damage your eyesight.

Flash

- Never use the flash unit in areas where flammable or explosive gas may be present. Such conditions create the risk of fire and explosion.
- Never fire the flash in the direction of a person operating a motor vehicle. Doing so can interfere with the driver's vision and creates the risk of accident.
- Never fire the flash too close to the eyes of the subject. Doing so creates the risk of loss of eyesight.

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Display Panel

- Do not apply strong pressure to the LCD panel surface or subject it to strong impact. Doing so can cause the display panel glass to crack.
- Should the display panel ever become cracked, never touch any of the liquid inside the panel. Doing so creates the risk of skin inflammation.
- Should display panel liquid ever get into your mouth, immediately rinse your mouth out and contact your physician.
- Should display panel liquid ever get into your eyes or onto your skin, immediately rinse with clean water for at least 15 minutes and contact your physician.

Connections

- Never plug any devices that are not specified for use with this camera into connectors. Connecting a non-specified device creates the risk of fire and electric shock.

Transport

- Never operate the camera inside of an aircraft or anywhere else where operation of such devices is restricted. Improper use creates the risk of serious accident.

Smoke, abnormal odor, overheating, and other abnormalities

- Continued use of the camera while it is emitting smoke or strange odor, or while it is overheating creates the risk of fire and electric shock. Immediately perform the following steps whenever any of the above symptoms are present.
  1. Turn off the camera.
  2. If you are using the AC adaptor to power the camera, unplug it from the wall outlet. If you are using battery power, remove the battery from the camera, taking care to protect yourself against burn injury.
  3. Contact your dealer or nearest CASIO authorized service center.

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■ Water and Foreign Matter

- Water, other liquids, or foreign matter (especially metal) getting inside the camera creates the risk of fire and electric shock. Immediately perform the following steps whenever any of the above symptoms are present. Particular care is required when using the camera where it is raining or snowing, near the ocean or other body of water, or in a bathroom.
  1. Turn off the camera.
  2. If you are using the AC adaptor to power the camera, unplug it from the wall outlet. If you are using battery power, remove the battery from the camera.
  3. Contact your dealer or nearest CASIO authorized service center.

■ Dropping and Rough Treatment

- Continued use of the camera after it is damaged by dropping or other rough treatment creates the risk of fire and electric shock. Immediately perform the following steps whenever any of the above symptoms are present.
  1. Turn off the camera.
  2. If you are using the AC adaptor to power the camera, unplug it from the wall outlet. If you are using battery power, remove the battery from the camera.
  3. Contact your dealer or nearest CASIO authorized service center.

■ Keep Away From Fire

- Never expose the camera to fire, which can cause it to explode and creates the risk of fire and electric shock.

Disassembly and Modification

- Never try to take the camera apart or modify it in any way. Doing so creates the risk of electric shock, burn injury, and other personal injury. Be sure to leave all internal inspection, maintenance, and repair up to your dealer or nearest CASIO authorized service center.

Locations To Be Avoided

- Never leave the camera in any of the following types of locations. Doing so creates the risk of fire and electric shock.
  - Areas subject to large amounts of humidity or dust
  - Food preparation areas or other locations where oil smoke is present
  - Near heaters, on a heated carpet, in areas exposed to direct sunlight, in a closed vehicle parked in the sun, or other areas subject to very high temperatures
- Never place the camera on an unstable surface, on a high shelf, etc. Doing so can cause the camera to fall, creating the risk of personal injury.

Backing Up Important Data

- Always keep backup copies of important data in camera memory by transferring it to a computer or other storage device. Note that data can be deleted in the case of camera malfunction, repair, etc.

Memory Protection

- Whenever replacing the battery, be sure to follow the correct procedure as described in the documentation that comes with the camera. Incorrectly replacing the battery can result in corruption or loss of data in camera memory.

Rechargeable Battery

- Use only the specified charger unit or the specified device to charge the battery. Attempting to charge the battery by an unauthorized means creates the risk of battery overheating, fire, and explosion.

- Do not expose or immerse the battery in fresh water or salt water. Doing so can damage the battery, and cause deterioration of its performance and loss of service life.
- This battery is intended for use with a CASIO Digital Camera only. Use with any other device creates the risk of the battery damage, or deterioration of battery performance and service life.
- Failure to observe any of the following precautions creates the risk of battery overheating, fire, and explosion.
  - Never use or leave the battery near open flame.
  - Do not expose batteries to heat or fire.
  - Make sure the battery is oriented correctly when it is connected to the charger unit.
  - Never carry or store the battery together with items that can conduct electricity (necklaces, pencil lead, etc.)
  - Never disassemble the battery, pierce it with a needle, or expose it to strong impact (hit it with a hammer, step on it, etc.), and never apply solder to it. Never place the battery into a microwave oven, heater, high-pressure generating device, etc.
- Should you ever notice leakage, strange odor, heat generation, discoloration, deformation, or any other abnormal condition while using, charging, or storing a battery, immediately remove it from the camera or charger unit and keep it away from open flame.
- Do not use or leave the battery under direct sunlight, in an automobile parked in the sun, or in any other area subject to high temperatures. Doing so can damage the battery, and cause deterioration of its performance and loss of service life.
- If the battery charging does not end normally within the specified charging time, stop charging anyway and contact your local CASIO authorized service center. Continued charging creates the risk of battery overheating, fire, and explosion.
- Battery fluid can damage your eyes. Should battery fluid get into your eyes accidentally, immediately rinse them with clean tap water and then consult a physician.

- Be sure to read the user documentation that comes with the camera and special charger unit before using or charging the battery.
- If a battery is to be used by young children, make sure that a responsible adult makes them aware of the precautions and proper handling instructions, and make sure that they handle battery correctly.
- Should fluid from a battery accidentally get onto clothing or your skin, immediately rinse it off with clean tap water. Prolonged contact with battery fluid can cause skin irritation.

AC Adaptor

- Misuse of the AC adaptor creates the risk of fire and electric shock. Make sure you observe the following precautions when using the AC adaptor.
  - Use only the AC adaptor specified for this camera.
  - Use the AC adaptor to supply power only to devices that are specified for use with it.
  - Use a 100 to 240V AC (50/60Hz) wall outlet as a power source.
  - Never plug the power cord into a wall outlet that is shared by other devices, or into a shared extension cord.
- Misuse of the AC adaptor can cause it to become damaged, creating the risk of fire and electric shock. Make sure you observe the following precautions when using the AC adaptor.
  - Never place heavy objects on the AC adaptor or subject it to direct heat.
  - Never try to modify the AC adaptor or subject it to bending.
  - Do not twist or pull on the power cord.
  - Should the power cord or plug ever become damaged, contact your dealer or nearest CASIO authorized service center.

- Never touch the AC adaptor while your hands are wet. Doing so creates the risk of electric shock.
- Misuse of the AC adaptor creates the risk of fire and electric shock. Make sure you observe the following precautions when using the AC adaptor.
  – Never locate the power cord near a stove or other heating device.
  – When unplugging from the wall outlet, grasp the plug on the AC adaptor power cord. Never pull on the power cord.
  – Insert the plug into the wall outlet as far as it will go.
  – Unplug the AC adaptor from the wall outlet before leaving the camera unattended for long periods, such as when leaving on a trip, etc.
  – At least once a year, unplug the AC adaptor from the wall outlet and clean off any dust built up around the prongs.

USB Cradle and AC Adaptor Precautions

- Make sure you always remove the camera from the USB cradle before connecting or disconnecting the AC adaptor.
- Charging, USB data communication, the Photo Stand operation can cause the AC adaptor to become warm. This is normal and does not indicate malfunction.

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Battery Life

- Battery continuous operation times provided in this manual represent the approximate amount of time before the camera turns off due to low battery power when being powered by the special battery under normal temperature (23°C (73°F)). They do not guarantee that you will be able to achieve the indicated level of operation. Actual battery life is greatly affected by ambient temperature, battery storage conditions, the amount of time spent in storage, etc.
- Leaving the camera on can run down battery and cause the low battery warning to appear. Turn off the camera whenever you are not using it.
- The low battery warning indicates that the camera is about to turn off due to low battery power. Charge the battery as soon as possible. Leaving low or dead batteries in the camera can lead to battery leakage and data corruption.

Data Error Precautions

- Your digital camera is manufactured using precision digital components. Any of the following creates the risk of corruption of data in camera memory.
  - While the camera is performing an operation, removing the battery or memory card from the camera, or placing the camera onto or removing it from the USB cradle
  - While the operation lamp is flashing green after turning off the camera, removing the memory card from the camera or placing the camera onto or removing it from the USB cradle
  - Disconnecting the USB cable, removing the camera from the USB cradle, or disconnecting the AC adaptor from the USB cradle while a data communication operation is being performed
  - Using a battery that is low
  - Other abnormal operations

Any of the above conditions can cause an error message to appear on the monitor screen (page 267). Perform the action indicated by the message that appears.

Operating Environment

- The operating temperature range of the camera is 0°C to 40°C (32°F to 104°F).
- Do not place the camera in any of the following locations.
  - In an area exposed to direct sunlight, or large amounts of moisture or dust
  - Near an air conditioner or in other areas subjected to extreme temperature or humidity
  - Inside of a motor vehicle on a hot day, or in an area subjected to strong vibration

Condensation

- Sudden and extreme temperature changes, such as when the camera is moved from the outdoors on a cold winter day into a warm room, can cause water droplets called “condensation” to form on the interior and the exterior of the camera. Note that condensation can cause malfunction of the camera. To avoid condensation, place the camera into a plastic bag before subjecting it to sudden temperature change. Wait until the air in the bag has had enough time to become acclimated to the new temperature before removing the camera. After that, open the battery cover and leave it open for a few hours.

Power Supply

- Use only the special rechargeable lithium ion battery (NP-50) to power this camera. Use of any other type of battery is not supported.
- The camera does not have a separate battery for the clock. The date and time settings of the camera are cleared about 12 hours after power is totally cut off (from both the battery and USB cradle). If this happens, be sure to reconfigure these settings after power is restored (page 198).

Lens

- Never apply too much force when cleaning the surface of the lens. Doing so can scratch the lens surface and cause malfunction.
- You may sometimes notice some distortion in certain types of images, such as a slight bend in lines that should be straight. This is due to the characteristics of lens, and does not indicate malfunction of the camera.

Caring for your camera

- Fingerprints, dirt, and other foreign matter on the lens surface can interfere with proper operation of the camera. Avoid touching the lens surface. To clean the lens surface, use a blower to blow off dust or foreign matter and then wipe with a soft, dry cloth.
- Fingerprints, dirt, and other foreign matter on the flash can interfere with proper operation of the camera. Avoid touching the flash. If the flash becomes dirty, wipe it clean with a soft, dry cloth.
- To clean the camera, wipe it with a soft, dry cloth.

Monitor Screen Images

- The images that normally appear on the monitor screen during image playback are smaller than normal, and so you cannot see all of the detail of the actual image. Your camera has an image zoom feature (page 157) which you can use to enlarge the monitor screen image. You can use this feature for on-the-spot checks of important images.

Other Precautions

- The camera becomes slightly warm during use. This is normal and does not indicate malfunction.

Charging the Battery

Your camera is powered by a rechargeable lithium ion battery (NP-50).

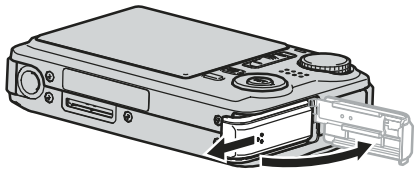
IMPORTANT!

- Use of any type of battery other than NP-50 is not supported.

To load the battery

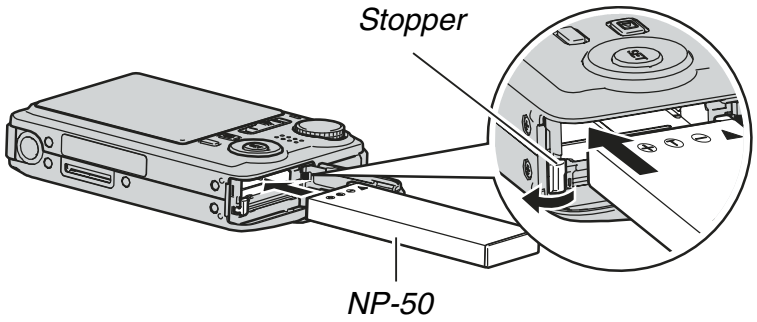
1. Open the battery cover.

While pressing the battery cover, slide it in the direction indicated by the arrow.



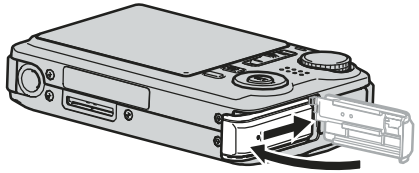
2. Load the battery into the camera.

With the EXILIM logo on the battery facing downwards (in the direction of the lens), hold the stopper in the direction indicated by the arrow as you slide the battery into the camera. Press the battery in until the stopper secures it in place.



3. Close the battery cover.

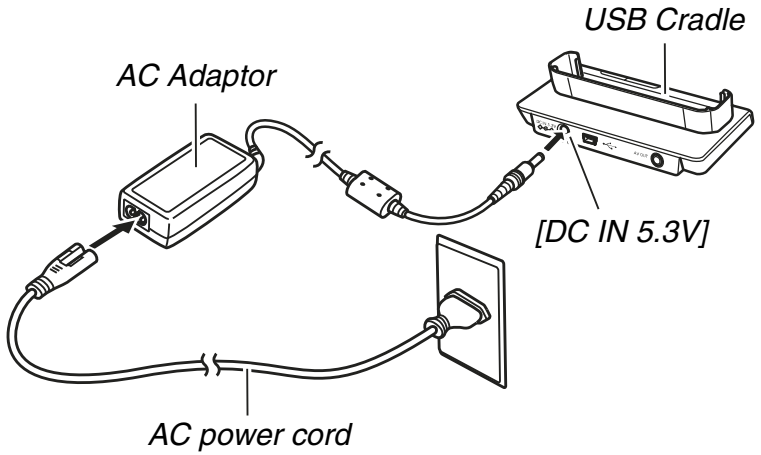
Swing the battery cover closed, and then slide it securely into place as you press it against the camera.



The battery is not fully charged when you use the camera for the first time after purchasing it. Use the following procedure to charge it.

To charge the battery

1. Plug the USB cradle into a household power outlet.



2. Make sure the camera is turned off.

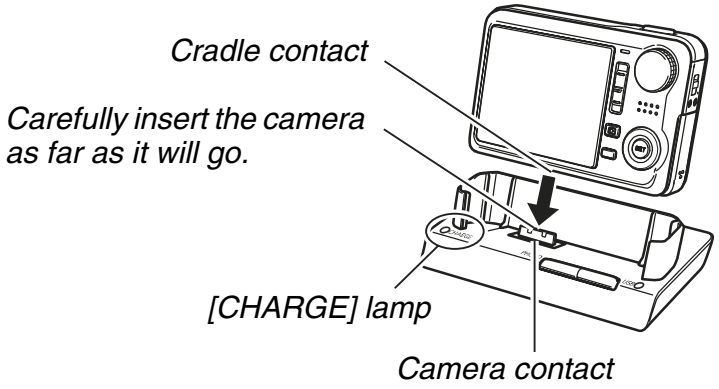
If the camera is on, turn it off by closing the lens cover.

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3. With the camera positioned so the monitor screen is facing towards you as shown in the illustration, place it onto the USB cradle.

The [CHARGE] lamp lights red and charging starts.

- It takes about 150 minutes to achieve a full charge. Actual charging time depends on current battery capacity, remaining power, and charging conditions.



When charging is complete

The [CHARGE] lamp, which was lit red during charging, changes to green.
Remove the camera from the USB cradle and unplug the AC power cord from the power outlet.

If the [CHARGE] lamp flashes green

This indicates that charging cannot be performed because you have just finished using the camera, or because the temperature in your location is too hot or too cold. If this happens, wait until the camera returns to normal temperature. When the camera returns to a temperature where charging can be performed, the [CHARGE] lamp will light red.

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If the [CHARGE] lamp flashes red

This indicates that the camera or battery is faulty, or that the battery is loaded in the camera incorrectly.
Remove the battery from the camera and check if its contacts are dirty. If they are, wipe them off with a dry cloth and then reload the battery into the camera. After confirming that the AC adaptor is plugged into the power outlet and the USB cradle, set the camera on the cradle again.

If an error still continues to occur after you perform the above steps, it could mean that the battery is faulty. Contact your nearest CASIO authorized service center.

IMPORTANT!

- Use only the bundled USB cradle to charge the special rechargeable lithium ion battery (NP-50). The battery cannot be charged using any other type of charger device. Attempting to use a different charger can result in unexpected accident.
- Use only the AC adaptor that comes bundled with the camera. Never use any other type of AC adaptor. Use of the separately available AD-C30, AD-C40, AD-C620, or AD-C630 is not supported.

Battery Life and Number of Images between Charges

See page 273 for details.

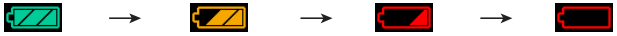
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Battery Power Conservation Tips

- When you do not need to use the flash, select " " (flash off) for the flash setting (page 72).
- Enable the Auto Power Off and the Sleep features to protect against wasting battery power when you forget to turn off the camera (page 45).

Checking Remaining Battery Power

As battery power is consumed, a battery indicator on the monitor screen indicates remaining power as shown below.

Remaining Power	High ← → Low
Battery Indicator	
Indicator Color	Light blue → Orange → Red → Red

" " indicates that battery power is low. Charge the battery as soon as possible.
Recording is not possible when " " is indicated. Charge the battery immediately.

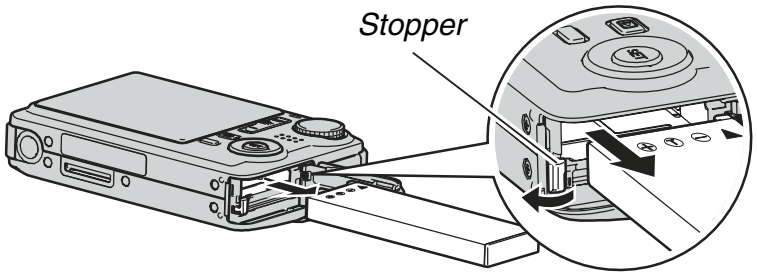
IMPORTANT!

- Due to differences in the power requirements of each mode, the battery indicator may show a lower level in the PLAY mode than what it shows in a REC mode. This is normal, and does not indicate malfunction.
- Leaving the camera for about 12 hours with no power supplied while the battery is dead will cause its date and time settings to be cleared. You will have to re-configure the settings after power is restored.

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Replacing the Battery

1. **Open the battery cover.**
2. **With the camera oriented with its monitor screen facing upwards as shown in the illustration, slide the stopper in the direction indicated by the arrow and hold it there.**
   - This will cause the battery to come out part way.



3. **While still holding the stopper, pull the battery out the rest of the way.**
4. **Load a new battery.**

Battery Precautions

■ Precautions during Use

- Operation provided by a battery under cold conditions is always less than operation under normal temperatures. This is due to the characteristics of the battery, not the camera.
- Charge the battery in an area where the temperature is within the range of 10°C to 35°C (50°F to 95°F). Charging outside this temperature range can cause charging to take longer than normal or even cause charging to fail.
- If a battery provides only very limited operation following a full charge, it probably means that the battery has reached the end of its service life. Replace the battery with a new one.

Storage Precautions

- Though a rechargeable lithium ion battery provides high capacity in a compact configuration, long-term storage while charged can cause it to deteriorate.
  - If you do not plan to use a battery for some time, fully use up its charge before storing it.
  - Always remove the battery from the camera when you are not using it. Leaving a battery in the camera can cause it to discharge and go dead, which will require longer charging when you need to use the camera.
  - Store batteries in a cool, dry place (20°C (68°F) or lower).

Using the Camera in another Country

Note the following precautions.

- The bundled AC adaptor is designed for operation with any power supply in the range of 100V to 240V AC, 50/60Hz. Note, however, that the shape of the power cord plug depends on each country or geographic area. Before taking the camera and AC adaptor along on a trip, check with travel agent about the power supply requirements in your destination(s).
- Do not connect the AC adaptor to a power supply through a voltage converter or similar device. Doing so can lead to malfunction.

Extra Batteries

Taking along extra fully charged batteries (NP-50) is recommended while on a trip in order to avoid not being able to shoot images due to the battery going dead.

Turning Power On and Off

Turning Power On

To turn power on and enter a REC mode

Open the lens cover.

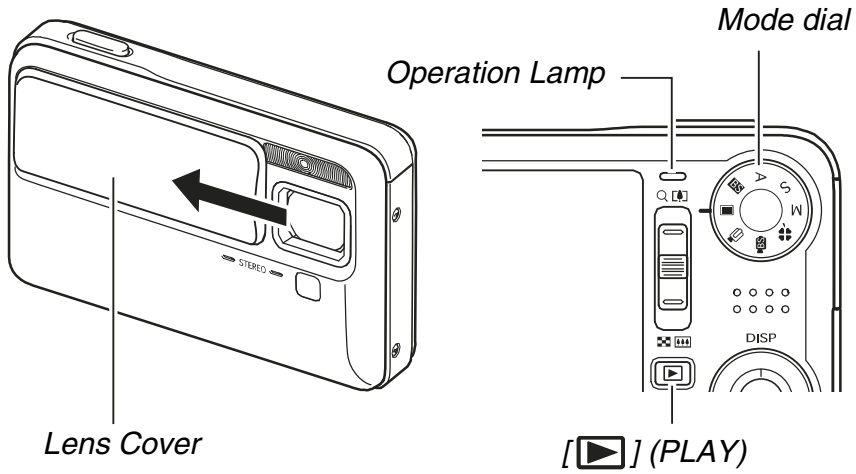
- If the camera is already turned and in the PLAY mode with the lens cover open, you can enter a REC mode by performing any one of the following operations.
  – Press the shutter button.
  – Align the mode dial with the desired REC mode.
  – Press [▶] (PLAY) (with the lens cover open).

To turn power on and enter the PLAY mode

Press [▶] (PLAY).

- If power is already on and the camera is in a REC mode, press [▶] (PLAY) to enter the PLAY Mode.
- Pressing [▶] (PLAY) again with the lens cover closed will turn off the camera.

The operation lamp will be lit green while the camera is turned on.



NOTE

- Auto Power Off (page 45) will turn off power automatically if you do not perform any operation for a preset amount of time. If this happens, turn power back on.

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■ Turning Power Off

Close the lens cover.

- To turn off the camera while the lens cover is closed, press [▶] (PLAY).

NOTE

- You can configure the camera so power does not turn on when you press [▶] (PLAY), or to require that [▶] be held down for some time before the camera turns on (page 204).

Turning On Power for the First Time

The first time you load a battery into the camera, a screen appears for configuring screen text language, date, and time settings. Use the procedure under “Configuring Display Language, Date, and Time Settings” (page 11) to configure the settings correctly.

IMPORTANT!

- Failure to set the date and time will cause the wrong date and time data to be recorded with images.
- If you make a mistake when configuring the language, date, and time settings, you can change the settings (pages 198, 201).

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Battery Power Conservation Features

This camera is equipped with a sleep function and auto power off function to conserve battery power. You can configure these settings in the REC mode as described below.

Feature Name	Description	Settings
Sleep	The monitor screen turns off (goes into a sleep state) if no operation is performed for a preset amount of time. Press any button to turn the monitor screen back on.	30 sec 1 min 2 min Off
Auto Power Off	Power truns off if no operation is performed for a preset amount of time.	1 min 2 min 5 min

- Sleep and Auto Power Off always operate as described below in the PLAY mode, regardless of their current PLAY mode settings.
  - Sleep does not function in the PLAY mode.
  - The Auto Power Off trigger time is always five minutes.

1. **Press [MENU].**
2. **Use [◀] and [▶] to select the “Set Up” tab.**
3. **Use [▲] and [▼] to select the item you want to configure (“Sleep” or “Auto Power Off”) and then press [▶].**
4. **Use [▲] and [▼] to select the sleep or Auto Power Off trigger time and then press [SET].**
   Selecting “Off” for the sleep setting disables the sleep feature.

NOTE

- When both sleep and Auto Power Off have the same time settings, Auto Power Off takes priority.
- Sleep and Auto Power Off are disabled under the following conditions.
  - When there is a connection between the camera and computer or other device via the USB cradle
  - During a slide show
  - During Voice Recording playback or recording
  - During movie recording and playback

Using a Memory Card

You can store images you shoot with the camera on a memory card. It is up to you to purchase a commercially available memory card. In addition to memory card storage, the camera also has built-in memory, which is enough to hold a few snapshots or a short movie. Use built-in memory for test purposes, emergency use, etc.

NOTE

- Images can be copied between the camera's built-in memory and a memory card (page 189).
- The following data is stored in built-in memory. It cannot be copied to a memory card.
  - BEST SHOT mode user image information
  - FAVORITE folder
  - Mode memory settings
  - Start-up screen image

Supported Memory Cards

Your camera supports use of the following types of memory cards.
SD Memory Card
SDHC Memory Card
MMC (MultiMediaCard)
MMC*plus* (MultiMediaCardplus)

- For information about memory card capacity, see page 269.

Memory Used for Storage

Images recorded while a memory card is loaded are saved to the memory card. When no memory card is loaded, images are saved in built-in memory.

- Note that you cannot save images in built-in memory while a memory card is loaded in the camera.

IMPORTANT!

- See the instructions that come with the memory card for information about how to use it.
- Certain types of cards can slow down processing speeds. If you are using a slow memory card, you may not be able to record a movie using the “UHQ”, “UHQ Wide”, “HQ”, or “HQ Wide” image quality setting. Because of this, use of a memory card with a maximum transfer speed of at least 10MB per second is recommended.
- Certain types of memory cards take longer to record data, which can cause movie frames to be dropped. “ ” and “ REC ” flash on the monitor screen during recording to let you know when a frame has been dropped. Use of a memory card with a maximum transfer speed of at least 10MB per second is recommended.
- SD memory cards and SDHC memory cards have a write protect switch. Use it when you need to guard against accidentally deleting data. Note, however, if you write protect a memory card you must then turn write protection off whenever you want to record to the card, format it, or delete any of its images.
- Electrostatic charge, electrical noise, and other phenomena can cause data to become corrupted or even lost. Make sure that you always back up important data on other media (CD-R, CD-RW, MO disk, hard disk, etc.).

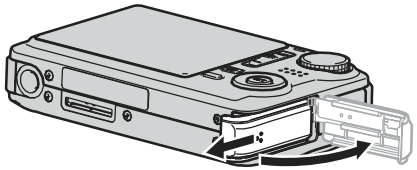
Loading a Memory Card into the Camera

IMPORTANT!

- Make sure you always turn off the camera before loading or removing a memory card.
- Be sure to orient the card correctly when loading it. Never try to force a memory card into the slot when you feel resistance.

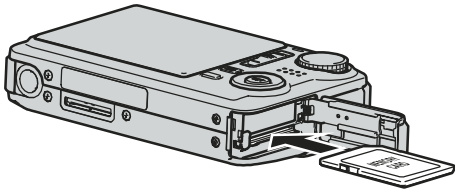
1. Open the battery cover.

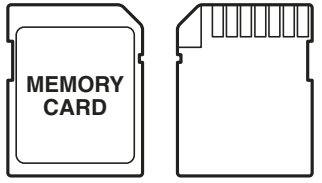
While pressing the battery cover, slide it in the direction indicated by the arrow.



2. Load a memory card into the camera.

Positioning the memory card so its front is facing upwards (towards the monitor screen side of the camera), slide it into the card slot all the way in until you hear it click securely into place.

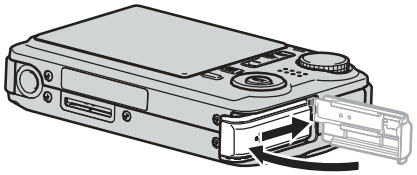




Front *Back*

3. Close the battery cover.

Swing the battery cover closed, and then slide it securely into place as you press it against the camera.

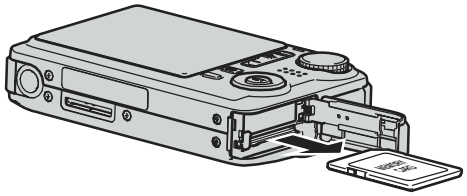


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Replacing the Memory Card

1. Remove the memory card from the camera.

Press the memory card and then release it, so it comes part way out. Pull the card out the rest of the way by hand.



2. Load the other memory card.

IMPORTANT!

- Never insert anything besides a supported memory card (page 46) into the memory card slot.
- Should water or any foreign object ever get into the card slot, immediately turn off the camera, remove the battery, and contact your retailer or nearest CASIO authorized service center.
- Never remove a card from the camera while the operation lamp is flashing green. Doing so can cause the image save operation to fail and even damage the memory card.

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Formatting a Memory Card

Before using a new memory card for the first time, you need to format it. Once you format a memory card, you will not need to format it each time you use it.
Formatting a memory card that already has files on it will delete its contents.

IMPORTANT!

- Note that data deleted by a memory card format operation cannot be recovered. Double-check to make sure that you really want to delete all the contents of the memory card before proceeding with the format operation.
- Even if the file data on a memory card is protected (page 185), formatting the card will delete all its data.
- Be sure to use the camera to format a memory card. Formatting a memory card on a computer and then using it in the camera can slow down data processing by the camera. In the case of an SD memory card or SDHC memory card, formatting on a computer can result in non-conformity with the SD format, causing problems with compatibility, operation, etc.

1. **Load the memory card you want to format into the camera.**
2. **Turn on the camera and press [MENU].**
3. **On the “Set Up” tab, select “Format” and then press [▶].**
4. **Use [▲] and [▼] to select “Format” and then press [SET] to start formatting.**
   After formatting is complete, enter the PLAY mode and check to make sure the “There are no files.” message appears on the monitor screen.
   - To exit the format operation without formatting, select “Cancel”.

Memory Card Precautions

- If a memory card starts to behave abnormally, you can restore normal operation by reformatting it. However, it is recommended that you always take along more than one memory card whenever using the camera far away from the home or office.
- If you experience problems while trying to playback recorded images, try re-formatting the memory card.
- As you record data to and delete data from a memory card a number of times, it loses its ability to retain data. Because of this, periodic re-formatting of a memory card is recommended.
- Make sure that the battery is charged fully before starting a formatting operation. Formatting may not be performed correctly and the memory card may be damaged if the camera powers down while formatting is in progress.
- Never open the battery cover while formatting is in progress. Doing so can damage the memory card.

Using On-screen Menus

The following are menu operations you will need to use to configure camera settings. Take a few moments to become familiar with them.

- See “Menu Reference” on page 255 for information about menu contents.

Example Menu Screen

Press [MENU] to display the menu screen.

- Menu contents are different in a REC mode and PLAY mode. This screen shows a REC mode menu.



Menu Screen Operation Buttons

[◀] [▶]	Select tabs. [▶] is also used to apply a setting.
[▲] [▼]	Select a setting option.
[SET]	Applies the selected settings.
[MENU]	Exits the menu screen.

The following is the procedure for menu operations in a REC mode.

1. In a REC mode, press [MENU].

This displays the menu screen.

2. Use [◀] and [▶] to select the tab where the item you want to configure is located.

Here, we will select the “REC” tab.

3. Use [▲] and [▼] to select the item you want to configure and then press [▶].

Example: Select “Focus” and then press [▶].



4. Use [▲] and [▼] to select the setting you want.

5. Apply the setting.

- Pressing [SET] applies the selected setting and exits the menu screen.
- Pressing [◀] instead of [SET] applies the selected setting and returns to the menu screen. You can then continue configuring other settings, if you want.
- To select another tab, press [◀], use [▲] to return to the tab and then use [◀] and [▶] to switch to another tab.

IMPORTANT!

- Entering the easy mode (page 65) changes display contents to four menu items each, using larger size characters. The easy mode also displays simple onscreen help.

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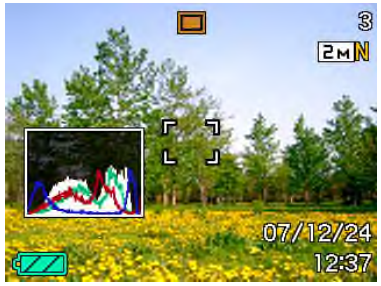
Changing the Contents of the Monitor Screen

Each press of [▲] (DISP) changes the contents of the monitor screen as shown below.

REC Modes



Indicators on

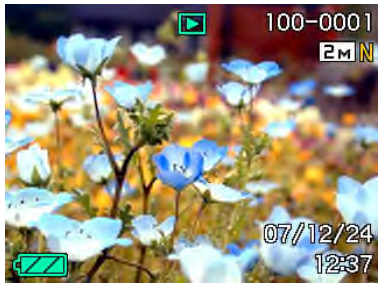


Histogram on



Indicators off

PLAY mode



Indicators on



Histogram/Details on



Indicators off

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IMPORTANT!

- Pressing [▲] (DISP) will not change monitor screen contents during standby or recording of an audio snapshot.
- You can use [▲] (DISP) to turn off the monitor screen only when voice recording in a REC mode. You cannot turn off the monitor screen for any other recording function.
- Pressing [▲] (DISP) in the Voice Recording REC mode toggles the monitor screen on (“indicators on”) and off. While a Voice Recording file is displayed in the PLAY mode, pressing [▲] (DISP) toggles between “indicators on” and “indicators off”.
- When playing back the content of a Voice Recording file while “indicators off” is selected (Voice Recording file icon only on the monitor screen), the monitor screen will go black about two seconds after you press [SET] to start playback. The Voice Recording file icon (indicators off) will reappear after playback is complete.

If you lose your way...

Perform one of the following operations if you find that you have gotten lost while performing button operations during recording or playback.

REC mode

Current Screen	To return to the normal snapshot or movie recording screen, press:
Menu screen	Press [MENU].
“There are no files.” screen	Perform one of the following operations. – Press the shutter button. – Align the mode dial with the desired REC mode. – Press [▶] (PLAY) (with the lens cover open).
PLAY mode screen	

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PLAY mode

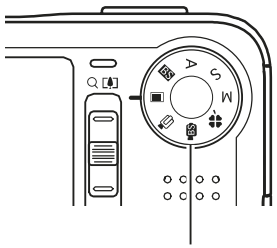
Current Screen	To return to the normal playback screen
Menu screen	[MENU] or [▶]
REC mode screen	Press [▶].
Delete screen	Press [▶]. You could also select “Cancel” and then press [SET].

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SHOOTING A SNAPSHOT

Specifying the Recording Mode

Your CASIO digital camera has eight recording modes, each of which is described below. Before recording an image, use the mode dial to select the recording mode that suits the type of image you are trying to record.



Mode dial

■	Snapshot
BS	BEST SHOT
A	Aperture Priority AE
S	Shutter Speed Priority AE
M	Manual Exposure
	easy mode
BS	MOVIE BEST SHOT
	Movie

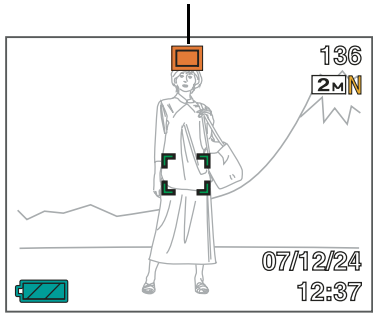
- ■ (Snapshot)
  Use this mode to record still images. This is the mode you should normally use for image recording.
- BS (BEST SHOT)
  Simply select one of a collection of built-in sample scenes and the camera sets up for the scene you selected for beautiful snapshots every time (page 96).
- **A** (Aperture Priority AE)
  In this mode, you select the aperture, and other settings are adjusted accordingly (page 84).
- **S** (Shutter Speed Priority AE)
  In this mode, you select the shutter speed, and other settings are adjusted accordingly (page 86).
- **M** (Manual Exposure)
  This mode gives you total control over aperture and shutter speed settings (page 87).
- (easy mode)
  This mode eliminates troublesome setups (page 65) .
- BS (MOVIE BEST SHOT)
  Simply select one of a collection of built-in sample movie scenes and the camera sets up for the scene you selected for beautiful movies every time (page 96).
- (Movie)
  Use this mode to record movies (page 90).

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NOTE

- The icon of the currently selected recording mode (like "▭" for the Snapshot mode) is displayed on the monitor screen.

Snapshot mode icon

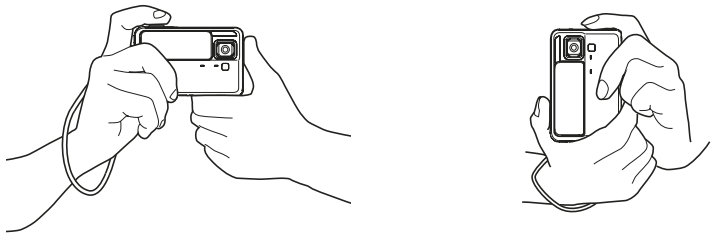


Holding the Camera Correctly

Holding the camera with one hand can result in accidental hand movement. Hold the camera securely with both hands when shooting snapshots.

- To protect against accidentally dropping the camera, attach the wrist strap and make sure it is around your fingers or wrist while you are operating the camera.
- The supplied strap is intended for use with this camera only. Never use it for any other purpose.
- Never swing the camera around by its strap.

Horizontal **Vertical**

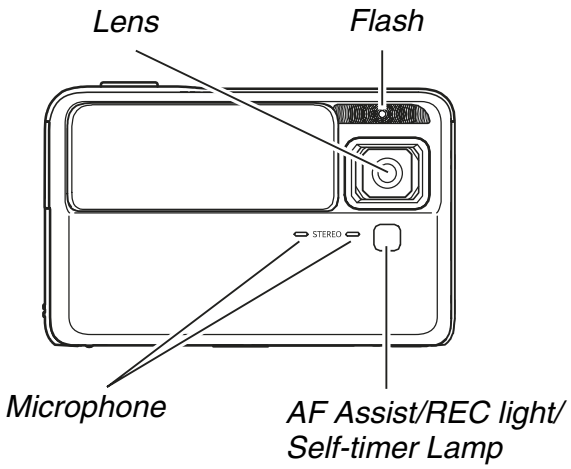


Hold the camera as shown in the illustration, with your arms firmly against your sides.

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IMPORTANT!

- Take care that your fingers and the strap do not cover any of the areas indicated in the illustration.



NOTE

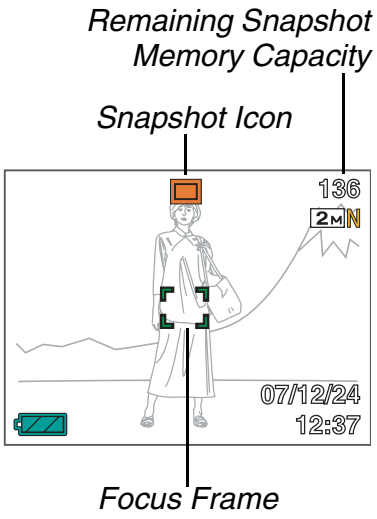
- Good-looking images are impossible if you move the camera when you press the shutter button or while the Auto Focus operation is being performed. Holding the camera correctly, carefully press the shutter button and take care that you do not move the camera as the shutter releases. This is especially important when available lighting is low, which slows down the shutter speed.

Shooting a Snapshot

1. Slide open the lens cover to turn on the camera.

2. Align the mode dial with (Snapshot).

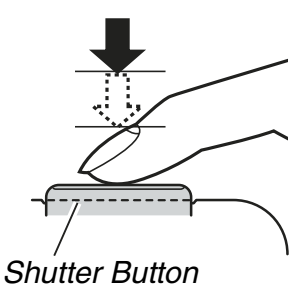
Confirm that the subject (people, scenery, etc.) and the Snapshot icon " " are displayed on the monitor screen.

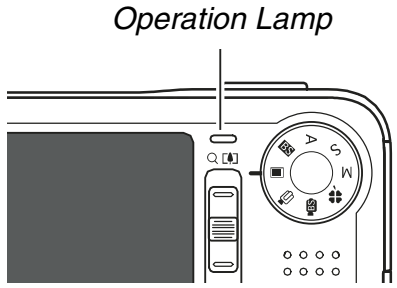


3. Focus the image.

While the focus frame is aligned with the subject, half-press the shutter button.

Auto Focus will focus the image automatically, and the focus frame and operation lamp will turn green. The shutter speed, aperture, and ISO sensitivity also will be set automatically.

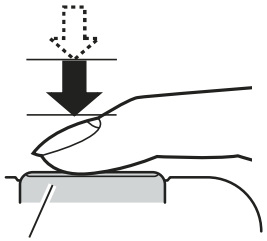




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4. Shoot the image.

When the image is focused, press the shutter button the rest of the way.



Shutter Button

This will shoot the snapshot and save it to the memory card or the camera's built-in memory.

IMPORTANT!

- While the "Anti Shake" setting is "Auto" or "Camera Shake", half pressing the shutter will cause the camera to vibrate and emit an operation sound. This is normal and does not indicate malfunction (page 124).

NOTE

- The aperture value indicates the size of the opening that lets light into the camera. A larger aperture value indicates a smaller opening.
- Shutter speed indicates the amount of time that light is allowed into the camera. A slower shutter speed means that light is allowed in for a longer time. Shutter speed is indicated on the monitor screen as seconds (1/1000 second, etc.)

If the image does not focus...

If the focus frame stays red and the operation lamp is flashing green, it means that the image is not in focus (because the subject is too close, etc.). Point the camera at the subject and try to focus again.

Checking a Snapshot

A snapshot will remain on the monitor screen for a short while after you shoot it and then disappear when the camera gets ready for the next image.
Perform the following operation to view a snapshot after you shoot it.

Press [▶].

This will display the snapshot you just shot.
Use [◀] and [▶] to scroll through other images in memory.

To return to a REC mode

You can enter a REC Mode by performing any one of the following operations.

- Press the shutter button.
- Align the mode dial with the desired REC mode.
- Press [▶] (PLAY) (with the lens cover open).

Fully pressing the shutter button without waiting for Auto Focus

- You can shoot snapshots by pressing the shutter button all the way without waiting for Auto Focus. What the camera does in this case depends on whether Quick Shutter (page 120) is on or off.

When Quick Shutter is turned on

High-speed Auto Focus is enabled, which helps you capture exactly the moment you want. Quick Shutter comes in handy when shooting a fast-moving subject.

- Some images may be out of focus when Quick Shutter is used.
- Quick Shutter is turned on as the initial factory default setting.

When Quick Shutter is turned off

Normal Auto Focus is performed and then the image is recorded.

- If you keep the shutter button depressed, images will continue to be shot without focus.
- Whenever possible, take a little extra time to half-press the shutter button in order to ensure proper focus.

Specifying Image Size

A digital camera image is a collection of small dots (pixels). The size of an image indicates how many pixels it contains, and is expressed as horizontal pixels × vertical pixels. The initial factory default image size setting is 7M (3072 × 2304 pixels). Note that a larger image takes up more memory.

- For information about image size, image quality, and number of images that can be stored, see page 269.
  This setting applies to snapshots only.
- For information about movie image size, see page 91.

1. **In a REC mode, press [MENU].**

2. **On the "Quality" tab, select "Size" and then press [▶].**

3. **Use [▲] and [▼] to select an image size and then press [SET].**

NOTE

- The following information changes on the display during the image size selection operation.
  – Image size in megabytes (M) (5M, etc.)
  – Image size in pixels (2560 × 1920, etc.)
  – Optimum print paper size

Image Size (Pixels)			Print Paper Size
Larger	7M	3072 × 2304	A3 Print
	3:2	3072 × 2048	A3 Print
	5M	2560 × 1920	A3 Print
	3M	2048 × 1536	A4 Print
	2M	1600 × 1200	3.5" × 5" Print
Smaller	VGA	640 × 480	E-Mail

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- Selecting 3:2 (3072 × 2048 pixels) records images with an aspect ratio of 3:2, which matches the standard aspect ratio (3:2) of print paper.
- VGA (640 × 480 pixels) is the optimum size when attaching images to e-mail.
- Print paper sizes should be thought of as rough estimates only (200 dpi print resolution).

Specifying Image Quality

Your camera lets you select “Fine” (maximum image quality), “Normal”, or “Economy” (maximum memory economy) for the image quality setting. The initial setting is “Normal”. Select “Fine” if you want to give priority to image quality, or “Economy” to give priority to the number of images you can store in memory.

- For information about image size, image quality, and number of images that can be stored, see page 269.
  This setting applies to snapshots only.
- For information about movie image quality, see page 90.

1. **In a REC mode, press [MENU].**

2. **On the “Quality” tab, select “ Quality” and then press [▶].**

3. **Use [▲] and [▼] to select the image quality setting you want and then press [SET].**

NOTE

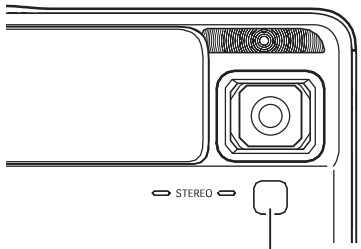
- The “Fine” setting helps to bring out details when shooting a finely detailed image of nature that includes dense tree branches or leaves, or an image of a complex pattern.

Turning Off the AF Assist Lamp

The AF assist lamp emits light that helps the camera focus when you half-press the shutter button under dark lighting conditions. The AF assist lamp does not light when lighting is bright.

The initial factory default setting is AF assist lamp on.

Turning off the AF assist lamp using the following procedure is recommended when shooting the image of a nearby person.



AF Assist/REC light/ Self-timer Lamp

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1. **In a REC mode, press [MENU].**
2. **On the "REC" tab, select "AF Assist Light" and then press [▶].**
3. **Use [▲] and [▼] to select "Off" and then press [SET].**
   When you want to turn on the AF assist lamp, select "On" here.

IMPORTANT!

- Do not look directly into the AF assist/REC light/self-timer lamp or point it directly at a person's eyes.

Using the easy Mode

The easy Mode eliminates troublesome setups and simplifies image recording. This mode is recommended for those who are new to digital imaging.

1. **Slide open the lens cover to turn on the camera.**
2. **Set the mode dial to " " (easy Mode).**
3. **Focus the image.**
   While the focus frame is aligned with the subject, half-press the shutter button.
   Auto Focus will focus the image automatically, and the focus frame and operation lamp will turn green. The shutter speed, aperture, and ISO sensitivity also will be set automatically.

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4. Shoot the image.

When the image is focused, press the shutter button the rest of the way.

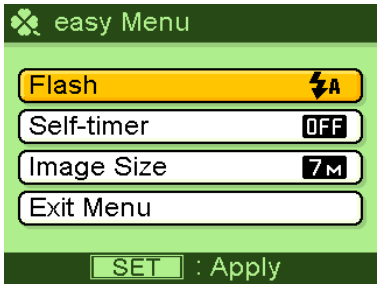
This will shoot the snapshot and save it to the memory card or the camera's built-in memory.

■ Using the easy Mode Menu

In the easy mode, menu display is limited to flash, selftimer, and image size settings. While the camera is in the easy mode, all the other settings on the REC tab menu (page 255) and Quality tab menu (page 256) are fixed at preset optimum values. Any settings you configured on these tabs are not used in the easy mode.

1. Press [MENU].

The easy menu displays larger text than other mode menus.



2. Use [▲] and [▼] to select the menu item you want, and then press [SET].

On-screen pop-up help text provides a brief explanation of each setting.

3. Use [▲] and [▼] to select the setting you want, and then press [SET].

Menu Item:	Available Settings:
Flash	(Auto Flash)* / (Flash On) / (Flash Off)
Self-timer	(10-second self-timer) / OFF *
Image Size	7M * / 3M / VGA

- An asterisk (*) indicates reset default settings.

4. After making the menu settings you want, select “Exit Menu” and then press [SET].

- See the following sections for full details about each setting.
  - Using the Flash (page 72)
  - Using the Self-timer (page 77)
  - Specifying Image Size (page 62)

Snapshot Shooting Precautions

■ Operation

- While the operation lamp is flashing green, never open the battery cover or place the camera onto or remove it from the USB cradle. Doing so can result in incorrect storage of the image you just shot, damage to other images stored in memory, malfunction of the camera, etc.
- If unneeded light is shining directly onto the lens, shade the lens with your hand when shooting an image.

Monitor Screen when Shooting Snapshots

- The image that appears on the monitor screen is for image composition. The actual image will be recorded at the quality set for the image quality setting.
- Subject brightness conditions can cause monitor screen response to slow and can cause digital noise in the monitor screen image.

Shooting Indoors under Fluorescent Lighting

- Minute flickering of fluorescent lighting can affect the brightness or color of an image.

Auto Focus Restrictions

- Proper focus may not be possible when shooting the following types of subjects.
  - Solid color wall or other very low contrast subject
  - Strongly back lit subject
  - Very shiny subject
  - Blinds or other subject with a repeating horizontal pattern
  - Multiple subjects at varying distances from the camera
  - Subject in a dark location
  - Subject that is too far away for light from the AF assist lamp to reach
  - Fast-moving subject
  - Subjects outside the focus range of the camera
- Proper focus may not be possible if the camera is moved while shooting.
- An image may be out of focus even though the operation lamp is lit green and the focus frame is green.
  If you cannot focus properly, try using focus lock (page 119) or manual focus (page 121).

Shooting with Zoom

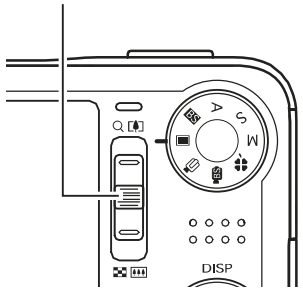
Your camera provides you with 7X optical zoom (which changes the lens focal distance), which can be used in combination with digital zoom (which digitally process the center portion of the image to enlarge it) for total zoom capabilities of 28 - 105.4X.

IMPORTANT!

- Generally speaking, the higher the digital zoom factor, the coarser the image that is recorded. However, digital zoom can be used up to a certain point without causing deterioration of the image.
- Digital zoom is not supported while “Timestamp” (page 137) is turned on.

1. Enter a REC mode.

[ ][ ] Zoom controller

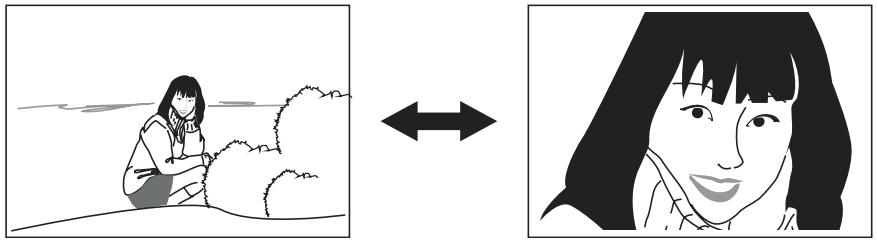


2. Slide the zoom controller to change the zoom factor.

To do this:	Slide the zoom controller in this direction:
Enlarge the subject and narrow the range	[ ] (telephoto)
Reduce the size of the subject and broaden the range	[ ] (wide angle)

– For more information, see “Optical Zoom and Digital Zoom Switch Point” on page 70.

- The zoom controller has two speeds. Sliding the zoom controller further upwards or downwards zooms at high speed.



Wide Angle *Telephoto*

3. Press the shutter button to shoot.

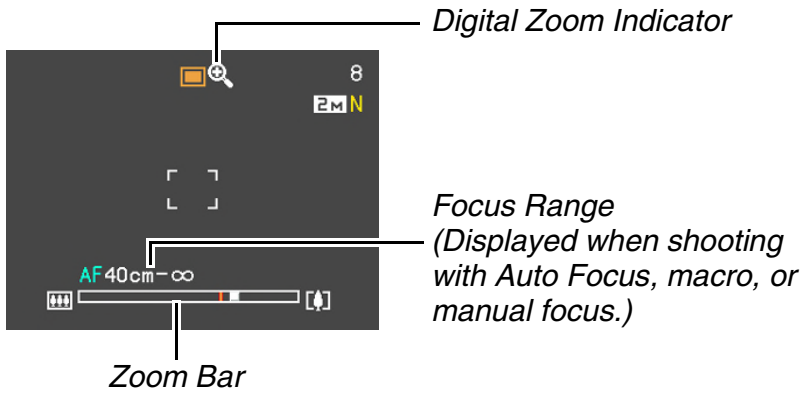
NOTE

- Performing a zoom operation changes the lens aperture.
- Use of a tripod is recommended to protect against hand movement when using the telephoto setting (zoom in).

Optical Zoom and Digital Zoom Switch Point

If you hold the zoom controller towards [ ] in step 2 of the above procedure, the zoom operation will stop when the optical zoom factor reaches its maximum. Momentarily releasing the zoom controller and then holding it again towards [ ] will switch to digital zoom, which you can use to set an even higher zoom factor.

- When the zoom pointer moves past the maximum limit of optical zoom. Also, the zoom bar indicates the approximate zoom factor.

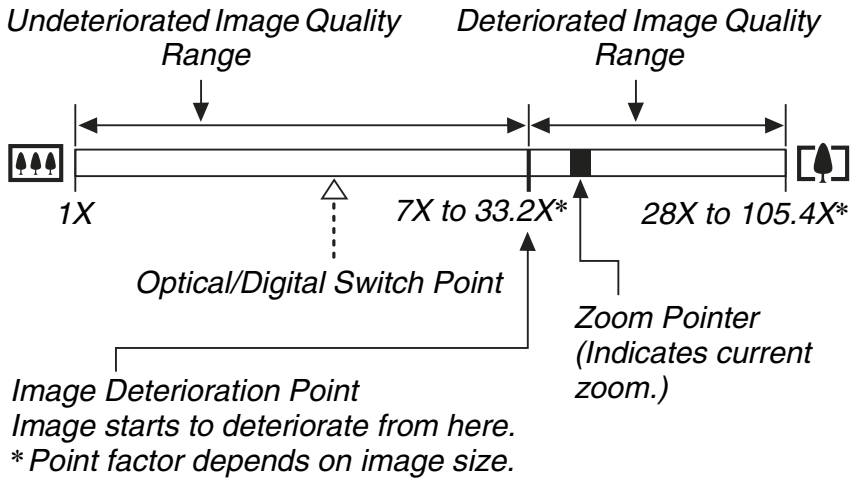


Digital Zoom Indicator

Focus Range (Displayed when shooting with Auto Focus, macro, or manual focus.)

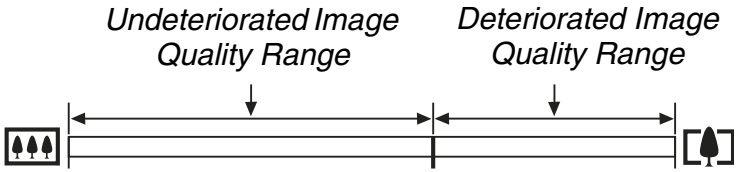
Zoom Bar

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- The image deterioration point depends on the image size (page 62). The smaller the image size, the higher the zoom factor you can use before reaching the image deterioration point.
- Though digital zoom generally causes a deterioration of image quality, some digital zoom without image deterioration is possible with image sizes of “5M (2560 × 1920 pixels)” and smaller. The range in which you can use digital zoom without image deterioration is indicated on the display. The deterioration point depends on the image size.
- When shooting with “Auto Framing”, the image size is fixed at 3M (2048 × 1536 pixels) and the Undeteriorated Image Quality Range is 7X.

● Zoom Values for Each Image Size



7M	1X	7X	28X
3:2	1X	7X	28X
5M	1X	8.4X	33.6X
3M	1X	10.5X	42X
2M	1X	13.4X	53.6X
VGA	1X	33.2X	105.4X

■ Turning Off Digital Zoom

You can turn off digital zoom if you want to use optical zoom only. This will help to avoid deteriorated images due to accidentally switching over from optical zoom to digital zoom when shooting snapshots.

1. **In a REC mode, press [MENU].**

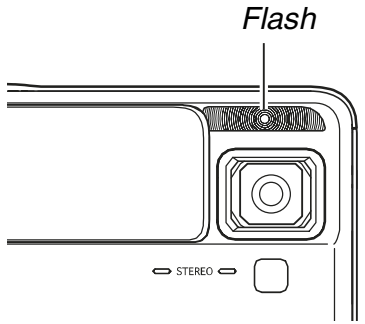
2. **On a "REC" tab, select "Digital Zoom" and then press [▶].**

3. **Use [▲] and [▼] to select "Off" and then press [SET].**

- If you want to show the entire digital zoom range, select "On" here.

Using Flash

Perform the following steps to select the flash mode you want to use.



Flash Setting	Description
Auto Flash	Flash fires automatically in accordance with exposure (amount of light and brightness) conditions. A flash operation is performed in the following sequence in order to reduce red eye in subjects: REC light lights. → Pre-flash fires. → Flash fires. • Initial factory default setting.
Flash Off	Flash does not fire.
Flash On	Flash always fires. • This setting can be used to brighten a subject that normally comes out dark due to daylight or backlight (daylight synchro flash).

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Flash Setting	Description
Soft Flash	Always use soft flash, regardless of exposure conditions. • Use this setting when you want to suppress the flash to avoid reflection, etc.
Red Eye	Flash always fires. A flash operation is performed in the following sequence in order to reduce red eye in subjects: REC light lights. → Pre-flash fires. → Flash fires.

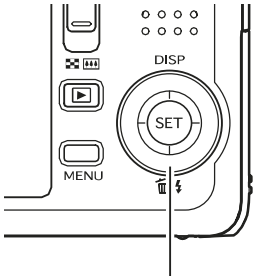
Approximate Flash Range (ISO Sensitivity: Auto)

Wide Angle : 0.1 m to 2.2 m (0.3' to 7.2')
Telephoto : 1.0 m to 1.4 m (3.3' to 4.6')

- The flash range changes in accordance with optical zoom.

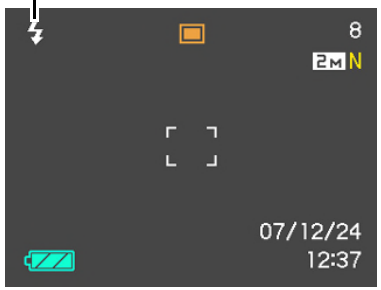
1. In a REC mode, press [▼] ( ).

- Each press of [▼] ( ) cycles through the flash mode settings described below on the monitor screen.



[▼] ( )

Flash Mode



2. Press the shutter button to shoot.

IMPORTANT!

- When using flash, take care that the flash window is not blocked by your fingers or the camera strap.

Red-eye reduction

Using the flash to shoot at night or in a dimly lit room can cause red spots inside the eyes of people who are in the image. This is caused when the light from the flash reflects off of the retina of the eye. When "ꜜA" (Auto Flash) or "👁" (Red Eye) is selected on the flash mode, the REC light and flash will fire, which causes the irises in the eyes of any people in the image to close, which reduces the chance of red eye.

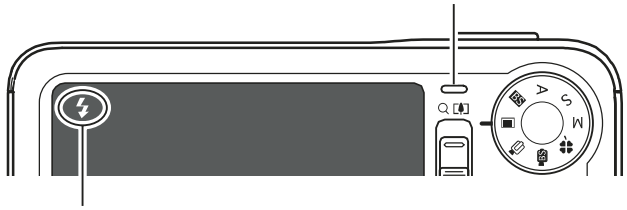
IMPORTANT!

- Note the following important points when using red-eye reduction.
  - Red-eye reduction does not work unless the people in the image are looking directly at the camera during the pre-flash. Before pressing the shutter button, call out to the subjects so they all look at the camera while the pre-flash operation is performed.
  - Red-eye reduction may not work very well if the subjects are located far away from the camera.

Checking the Flash Mode

The current flash mode is indicated on the monitor screen and by the operation lamp when you half-press the shutter button.

Operation Lamp
Flashes orange while the flash is charging.



" ⚡ " indicates flash will fire.

- You will not be able to take another flash snapshot until the operating lamp stops flashing orange, which indicates that charging is complete.

Changing the Flash Intensity

1. **In a REC mode, press [MENU].**
2. **On the "Quality" tab, select "Flash Intensity" and then press [▶].**
3. **Use [▲] and [▼] to select the flash intensity setting you want and then press [SET].**
   You can set one of five levels, from –2 (weakest) to +2 (strongest).

IMPORTANT!

- Flash intensity may not change when the subject is too far away or too close.

Using Flash Assist

The subject in an image will look too dark if flash intensity is not enough to reach a subject that is too far away. When this happens, you can use flash assist to supplement the brightness of the subject so it appears as if flash illumination was sufficient.



Flash assist not used



Flash assist used

Flash assist is turned on as the initial factory default setting. Use the following procedure to turn off flash assist when you do not want to use it.

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1. In a REC mode, press [MENU].

2. On the “Quality” tab, select “Flash Assist” and then press [▶].

3. Use [▲] and [▼] to select “Off” and then press [SET].

When you want to use flash assist, select “Auto” here.

IMPORTANT!

- Flash assist may not produce the desired result for some types of subjects.
- Any of the following can result in the flash assist effect being canceled out.
  - Changing the flash intensity (page 75)
  - Correcting brightness (EV shift) (page 126)
  - Changing ISO sensitivity (page 131)
  - Changing the contrast setting (page 136)

Flash Precautions

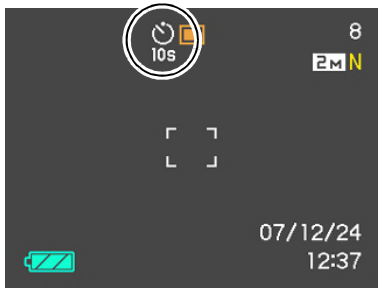
- The desired effect may not be obtained when the subject is too far away or too close.
- Flash charging time depends on operating conditions (battery condition, ambient temperature, etc.) With a fully charged battery, it takes anywhere from a few seconds to 7 seconds.
- Shooting with flash turned off when lighting is dim results in a slow shutter speed, which can cause image blur due to hand movement. Secure the camera with a tripod, etc.
- The presence of outdoor sunlight, fluorescent lighting, or some other light source can cause abnormal image colors.

Using the Self-Timer

With the self-timer, pressing the shutter button starts a timer, and the shutter is released and the image is shot after a fixed amount of time.

Self-Timer Type	Description
10 sec	10-second self-timer
2 sec	2-second self-timer • When shooting under conditions that slow down the shutter speed, you can use this setting to prevent blur due to hand movement.
X3 (Triple Self-timer)	This option shoots three images: one image 10 seconds after the shutter button is pressed, the next image one second after the camera gets ready to shoot after the first image, and the final image one second after the camera gets ready to shoot after the second image.
Off	Self-timer is disabled.

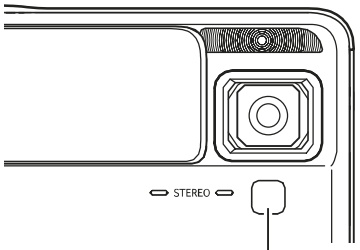
1. **In a REC mode, press [MENU].**
2. **On the "REC" tab, select "Self-timer" and then press [▶].**
3. **Use [▲] and [▼] to select the self-timer type and then press [SET].**
   This causes an indicator identifying the selected self-timer type to appear on the monitor screen.



4. **Press the shutter button to shoot.**

Using the Self-timer to Shoot an Image

- The image is not shot right away after you press the shutter button. Instead, shooting starts after the preset time elapses. The AF assist/REC light/self-timer lamp flashes while the countdown is being performed.
- You can interrupt an ongoing self-timer countdown by fully pressing the shutter button while the self-timer lamp is flashing.



AF Assist/REC light/ Self-timer Lamp

NOTE

- The indicator “1sec” appears on the monitor screen between Triple Self-timer shots. How long it takes for the camera to get ready to shoot again after it shoots an image depends on the image size and quality settings, whether or not a memory card is loaded in the camera, and the flash charge condition.
- No self-timer operation can be performed when recording with the any of the following settings.
  - Normal-speed continuous shutter mode
  - “Layout” or “Auto Framing” BEST SHOT sample scene selected
  - “ Tracking” selected for “AF Area”
- The Triple Self-timer cannot be used when performing the following recording operations.
  - Recording with certain BEST SHOT scenes (Business Cards and Documents, Whiteboard, etc., Old Photo)
  - Recording with High-speed Continuous Shutter or Flash Continuous Shutter

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Using Continuous Shutter

Your camera has three continuous shutter modes.

Continuous Shutter Mode	Description
Normal Speed (Normal-speed Continuous Shutter)	Continually records images until memory becomes full.
High Speed (High-speed Continuous Shutter)	Record up to three consecutive images at high speed.
Flash Cont. (Flash Continuous Shutter)	Use this mode to record up to three consecutive images, firing the flash for each one.

Selecting the Continuous Shutter Mode

1. **In a REC mode, press [MENU].**
2. **On the "REC" tab, select "Continuous" and then press [▶].**
3. **Use [▲] and [▼] to select the mode you want and then press [SET].**

   This enables the continuous shutter mode you selected and displays its icon on the monitor screen.
   To turn off continuous shutter, select "Off".

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Recording with Normal-speed Continuous Shutter, High-speed Continuous Shutter, and Flash Continuous Shutter

1. Press the shutter button to shoot.

- With Normal-speed Continuous Shutter, images continue to be shot as long as you keep the shutter button depressed. Releasing the shutter button stops shooting.
- High-speed continuous shutter and flash continuous shutter can shoot up to three images. Shooting stops if you release the shutter button before three images are recorded.

IMPORTANT!

- The speed of normal-speed continuous shutter and high-speed continuous shutter recording depends on the type of memory card loaded in the camera. When shooting to built-in memory, continuous shutter shooting is relatively slow.

Continuous Shutter Precautions

- Starting a continuous shutter operation causes the exposure and focus settings to be fixed at the levels for the first image. The same settings are applied to all subsequent images.
- Continuous shutter cannot be used in combination with any of the following features.
  - Some BEST SHOT scenes (Business Cards and Documents, Whiteboard, etc., Old Photo, Layout, Auto Framing, Short Movie, Past Movie, Voice Recording)
  - Movie mode
  - "[ ] Tracking" selected for "AF Area"
- When using a continuous shutter mode, keep the camera still until all recording is finished.
- A continuous shutter operation may stop part way through if memory capacity runs low.
- The continuous shutter rate depends on the current image size and image quality settings.
- You can select the flash mode you want with normal-speed continuous shutter mode.
- With high-speed continuous shutter, the flash mode automatically becomes " " (flash off).
- With the flash continuous shutter mode, the flash mode automatically becomes " " (flash on).
- You cannot use the self-timer in combination with the normal-speed continuous shutter mode.

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- Note that the resolution of images recorded with the high-speed continuous shutter mode or flash continuous shutter mode is somewhat lower resolution and more prone to digital noise than images recorded with the normal-speed continuous shutter mode.
- “Auto” ISO sensitivity always is used for the flash continuous shutter mode, regardless of the current ISO sensitivity setting.
- With the flash continuous shutter mode, the flash range is narrower than normal.

Adding Audio to a Snapshot

You can add an audio recording to snapshots, if you want. Use this feature to add a verbal explanation or a description of the mood to a snapshot, or to capture the sounds of the people in the snapshot.

- You can record up to about 30 seconds of audio for a single snapshot.
- Audio is monaural.

■ Turning on Audio Snapshot

1. In a REC mode, press [MENU].

2. On the “REC” tab, select “Audio Snap” and then press [▶].

3. Use [▲] and [▼] to select “On” and then press [SET].

Recording Audio for a Snapshot

1. Press the shutter button to shoot.

This monitor screen will show the image you just shot, along with the "" icon.

- If you do not want to record audio at this time, press [MENU]. This will display the monitor screen for shooting the next image.



Remaining Recording Time

2. Press the shutter button to start audio recording.

3. Press the shutter button again to stop audio recording.

Recording will stop automatically after about 30 seconds if you do not press the shutter button.

- To turn off the audio snapshot feature, select "Off" in step 3 of the procedure under "Turning on Audio Snapshot".

Playing Back Snapshot Audio

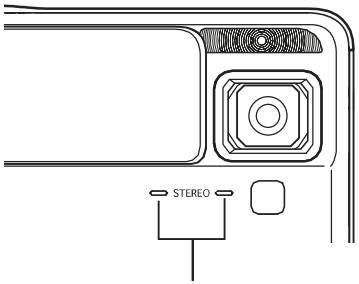
Audio snapshots in the PLAY mode are indicated by the "" icon.

Press [SET] while an audio snapshot is displayed to play back its audio.

- For information about the playback operation, see page 147.

IMPORTANT!

- Take care that you do not block the camera's microphone with your fingers while recording.
- Good recording results are not possible when the camera is too far away from what you are trying to record.



Microphone

NOTE

- After transferring an audio snapshot to your computer's hard disk, you can play back the audio using QuickTime 7 (pages 231, 245).
- The following shows the formats used for storing audio snapshot data.
  - Image Data: JPEG (.JPG extension)
  - Audio Data: WAVE/ADPCM (.WAV extension)
  - Approximate Audio File Size: 165 KB (30-second recording at 5.5KB per second)
- You cannot turn off the monitor screen by pressing [▲] (DISP) while audio recording is in progress.
- Audio snapshot capabilities are disabled while shooting with the Triple Self-timer or with a continuous shutter mode. You can, however, add audio to such a snapshot after you record it (page 179).

Manually Configuring Shutter Speed and Aperture Settings

You can select an exposure mode to control how the camera configures its aperture and shutter speed settings when recording an image.

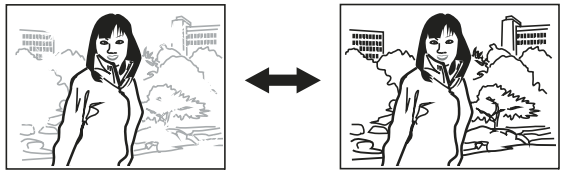
A Mode (Aperture Priority AE)	You set the aperture manually, and the camera sets the applicable shutter speed automatically.
S Mode (Shutter Speed Priority AE)	You set the shutter speed manually, and the camera sets the applicable aperture value automatically.
M Mode (Manual Exposure)	You can set the shutter speed and aperture manually.

- In the S mode and A mode, you can also change the exposure compensation (EV shift) setting.

Shooting with Aperture Priority AE (A Mode)

With aperture priority AE, you set the aperture and the camera sets the appropriate shutter speed automatically. A wider aperture (a lower aperture value) provides a shallow depth of field, while a narrow aperture (a higher aperture value) provides a greater depth of field. The difference between a wide and narrow aperture becomes apparent when shooting with optical zoom telephoto (page 69).

The following shows the ranges for the aperture setting you can configure in the A mode.

Aperture (Zoom at full wide angle)	Wider ⟷ Narrower 
	F3.4 ⟷ F4.6/F9.2*
Focus Range	Narrow ⟷ Wide

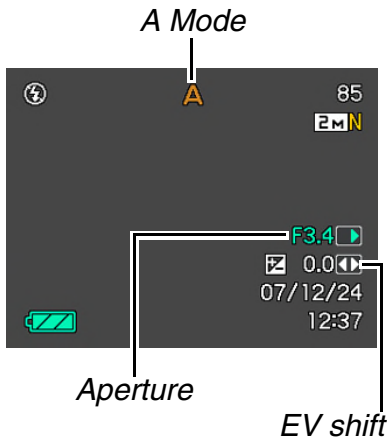
* The camera has a built-in ND filter to limit exposure. F9.2 is the aperture when the ND filter is being used.

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1. Set the mode dial to “A”.

2. Press [SET] as many times as required to select the aperture setting and then use [◀] and [▶] to set the aperture value you want.

- You can also use [SET] to select the EV shift setting and then specify an exposure value (EV shift), if you want.



3. Half-press the shutter button.

The camera will focus the image in accordance with your setting.

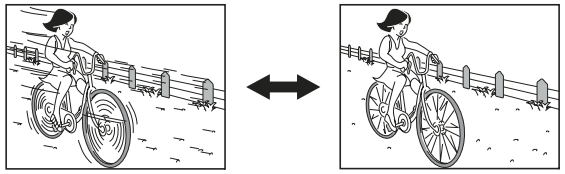
- The shutter speed and aperture value on the monitor screen will turn orange when you half-press shutter button if the image is over-exposed or under-exposed.

4. When the image is focused, press the shutter button the rest of the way to shoot.

Shooting with Shutter Speed Priority AE (S mode)

With shutter speed priority AE, you set the shutter speed and the camera sets the appropriate exposure value automatically. You can set the shutter speed that best matches how much your subject is moving.

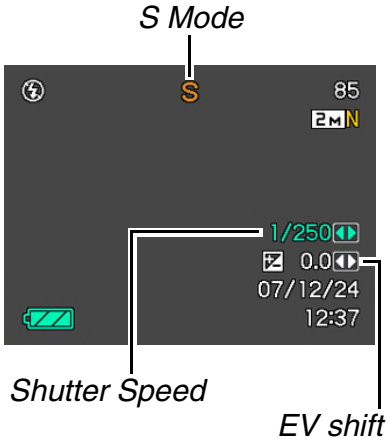
The following shows the ranges for the shutter speed setting you can configure in the S mode.

Shutter Speed	Slower ⟷ Faster 	
	60 seconds ⟷	1/800 second
Movement	Blurred ⟷	Frozen

NOTE

- Shutter speed priority AE is performed as if the “ISO” setting (page 131) is “Auto”, regardless of the current “ISO” setting.

1. **Set the mode dial to “S”.**
2. **Press [SET] as many times as required to select the shutter speed setting and then use [◀] and [▶] to set the speed you want.**
   - You can also use [SET] to select the EV shift setting and then specify an exposure value (EV shift), if you want.



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3. Half-press the shutter button.

The camera will focus the image in accordance with your setting.

- The shutter speed and aperture value on the monitor screen will turn orange when you half-press the shutter button if the image is over-exposed or under-exposed.

4. When the image is focused, press the shutter button the rest of the way to shoot.

■ Shooting with Manual Exposure Settings (M mode)

The following shows the ranges for the shutter speed and aperture settings you can configure in the M mode.

Shutter Speed	Slower	⟷	Faster
	60 seconds	⟷	1/800 second
Movement	Blurred	⟷	Frozen

Aperture (Zoom at full wide angle)	Wider	⟷	Narrower
	F3.4	⟷	F4.6/F9.2*
Focus range	Narrow	⟷	Wide

* The camera has a built-in ND filter to limit exposure. F9.2 is the aperture when the ND filter is being used.

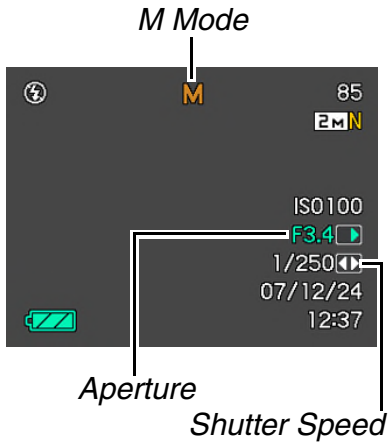
NOTE

- Manual exposure is performed as if the “ISO” setting (page 131) is “ISO 64”, regardless of the current “ISO” setting.

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1. Set the mode dial to “M”.

2. Press [SET] as many times as required to select the shutter speed setting and then use [◀] and [▶] to set the speed you want.



3. Press [SET] as many times as required to select the aperture setting and then use [◀] and [▶] to set the aperture value you want.

- When using manual focus, you can also use [SET] to select “FOCUS” and then use [◀] and [▶] to focus manually.

4. Half-press the shutter button.

The camera will focus the image in accordance with your settings.

- The shutter speed and aperture value on the monitor screen will turn orange when you press the shutter button half way if the image is over-exposed or under-exposed.

5. When the image is focused, press the shutter button the rest of the way to shoot.

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IMPORTANT!

- You may not be able to achieve the brightness you want when shooting an image that is very dark or very bright. If this happens, use the M mode (manual exposure) to adjust the aperture or shutter speed manually.
- Using slow shutter speeds can cause digital noise to appear in the image. Because of this, the camera performs a noise reduction process automatically whenever the shutter speed is 1/8 second or slower. The slower the shutter speed, the greater the possibility that noise will be generated in an image. Because of the time required for noise reduction, it takes longer to record images shot at slower shutter speeds. Do not perform any key operation while an image recording operation is in progress.
- At shutter speeds slower than 1/2 second, the brightness of the recorded image may not be the same as the brightness of the image that appears on the monitor screen.
- Image Blur (page 123) is disabled during in the shutter speed priority AE mode and manual exposure mode. You can, however, turn on Camera Shake, if you like.

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SHOOTING A MOVIE

Movie Image Quality

Before shooting a movie, you should specify a movie image quality setting. Movie image quality is a standard that determines the detail, smoothness, and clarity of a movie during playback. Shooting with the high-quality (HQ) setting will result in better image quality, but it also shortens the amount of time you can shoot.

- Audio is stereo, except when “LP” image quality is selected, when it is monaural.
- Each movie can be up to 10 minutes long. Movie recording stops automatically after 10 minutes of recording.

Image Quality (pixels)		Approximate Data Rate	Frame Rate	Audio
UHQ	640 × 480	6.0 Megabits/ second	30 frames/ second	Stereo
UHQ Wide	848 × 480	7.2 Megabits/ second	30 frames/ second	Stereo
HQ	640 × 480	3.0 Megabits/ second	30 frames/ second	Stereo
HQ Wide	848 × 480	3.6 Megabits/ second	30 frames/ second	Stereo
Normal	640 × 480	1.5 Megabits/ second	30 frames/ second	Stereo
LP	320 × 240	2.4 Megabits/ second	15 frames/ second	Monaural

1. **In a REC mode, press [MENU].**

2. **On the “Quality” tab, select “ Quality” and then press [▶].**

3. **Use [▲] and [▼] to select the quality setting you want and then press [SET].**

- The “WIDE” indicator is on the monitor screen while “UHQ Wide” or “HQ Wide” is selected for the quality setting.

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Movie File Formats

Movies normally are recorded using H.264/AVC MOV format, except for “LP” image quality movies, which are recorded in Motion JPEG AVI format.
Movies you shoot with your camera can be played back on a computer using QuickTime 7.

Movie Size

The following shows the approximate movie file size for a one-minute movie.

Image Quality	Approximate Size
UHQ	43.6 MB
UHQ Wide	52.4 MB
HQ	21.7 MB
HQ Wide	26.0 MB
Normal	10.8 MB
LP	17.9 MB

Shooting a Movie

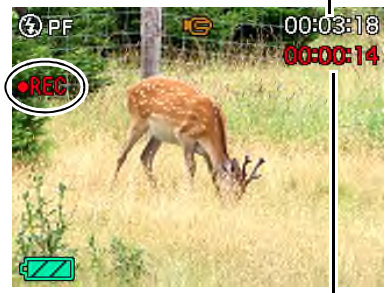
Audio is also recorded while you shoot a movie.

1. In a REC mode, align the mode dial with “ ”.

2. Press the shutter button to start shooting the movie.

- “ REC ” is displayed while movie recording is in progress.

Remaining Recording Time



Recording Time

3. Press the shutter button again to stop shooting.

Each movie can be up to 10 minutes long. Movie recording stops automatically after 10 minutes of recording. Movie recording also will stop automatically if memory becomes full before you stop movie recording by pressing the shutter button.

Shooting with MOVIE BEST SHOT

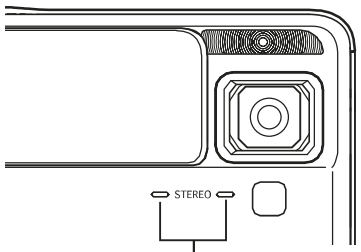
With MOVIE BEST SHOT (page 96), you select the preset scene that is closest to the one you want to shoot, and the camera sets up for it automatically. Selecting the “Night Scene” MOVIE BEST SHOT scene, for example, sets the camera to shoot bright, clear images at night.

Anti Shake Movie Recording

You can also use Anti Shake to reduce the effects of hand movement only while recording a movie (page 123). The effects of subject movement are not limited.

Movie Recording Precautions

- You cannot use flash while shooting a movie.
- The camera also records audio. Note the following points when shooting a movie.
  - Take care that the microphone is not blocked by your fingers, etc.
  - Good results are not possible when the camera is too far away from what you are trying to record.
  - Operating camera buttons while shooting can cause button noise to be picked up in the audio.



Microphone (stereo)

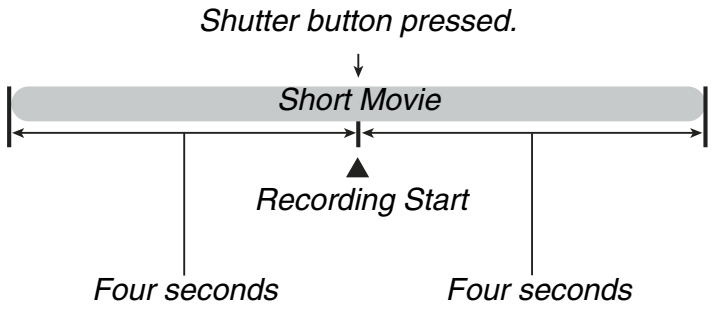
- Shooting a very bright subject can cause a vertical band to appear in the monitor screen image. This does not indicate malfunction. The band will not be recorded in a snapshot, but will be recorded in the case of a movie.
- Certain types of memory cards take longer to record data, which can cause movie frames to be dropped. “ ” and “ ” flash on the monitor screen during recording to let you know when a frame has been dropped. Use of a memory card with a maximum transfer speed of at least 10MB per second is recommended.

- The effects of camera movement in an image become more pronounced when you shoot close up or a large zoom factor. Because of this, use of a tripod is recommended under these conditions.
- When the subject is outside the camera's focus range, focusing is not possible and the image will be out of focus.

Using Short Movie

Short Movie shoots a movie that starts four seconds before the shutter button is pressed and ends four seconds after it is pressed.

- Since four seconds of action before the shutter button is pressed are recorded, Short Movie is a good way to make sure you don't miss the action of kids or other active subjects.
- You can also use MOTION PRINT (page 177) to extract still images of Short Movie scenes.



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1. In a REC mode, align the mode dial with "BS", and then press [SET].

2. Use [▲], [▼], [◀], and [▶] to select the "Short Movie" scene and then press [SET].

This causes " " to appear on the monitor screen. Pressing the shutter button at this point will shoot a Short Movie with a 4-second first part and a 4-second second part.

3. With the camera pointed at the subject, press the shutter button.

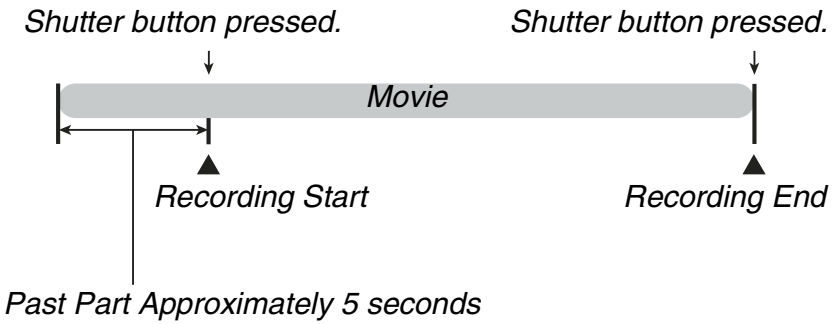
This will shoot a Short Movie that for about four seconds, and then stop shooting automatically. The total length of the Short Movie will be eight seconds (four seconds before the shutter button was pressed plus four seconds after it was pressed). To stop movie recording, press the shutter button again.

IMPORTANT!

- Movie data is continually recorded and stored in a buffer before you press the shutter button. Keep the camera pointed at the subject. Then at the right moment, press the shutter button. When you press the shutter button, the remaining recording time of part two of the Short Movie counts down on the monitor screen.

Using Past Movie

Past Movie is similar to a normal movie, except that it captures about five seconds of whatever happened in front of the lens before the shutter button was pressed to start shooting. Past Movie is a great way to make sure that you never just miss that special moment because you press the shutter button too late.



1. In a REC mode, align the mode dial with "BS", and then press [SET].

2. Use [▲], [▼], [◀], and [▶] to select the "Past Movie" scene and then press [SET].

This causes " " to appear on the monitor screen, which indicates that Past Movie is enabled.

3. With the camera pointed at the subject, press the shutter button.

4. Press the shutter button again to stop shooting.

Movie recording also will stop automatically if memory becomes full before you press the shutter button.

IMPORTANT!

- When Past Movie is selected, the camera continually updates an internal buffer that holds about five seconds of movie images of what has happened in front of the camera's lens. When you press the shutter button, your movie will start with the buffer's current contents and continue from there. Be sure to keep the camera still and pointed in the direction of the subject for some time before you press the shutter button to start shooting.

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USING BEST SHOT

With BEST SHOT, you simply select the sample scene that is like the one you are trying to shoot, and the camera sets up automatically. Even difficult backlight scenes (which result in the main subject being too dark if set up improperly) come out looking great! You can select a sample scene by using the mode dial to select "BS" (BEST SHOT) or "▶BS" (MOVIE BEST SHOT).

Some Sample Scenes

- Portrait



- Scenery



- Night Scene

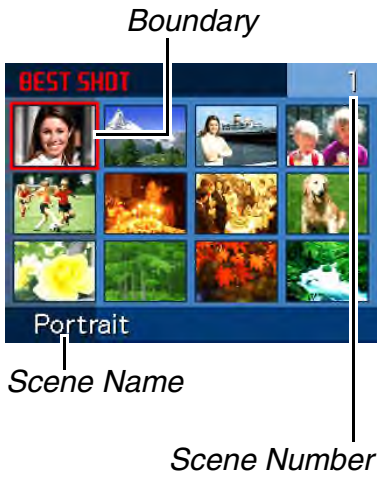


- Night Scene Portrait



■ Selecting a Sample Scene

1. In a REC mode, align the mode dial with "BS" or "▶BS" and then press [SET].



For this type of sample scene:	Select this mode dial setting:
Snapshot	"BS" (BEST SHOT)
Movie	"▶BS" (MOVIE BEST SHOT)

This enters the BEST SHOT mode and displays a screen showing thumbnails of 12 sample scenes.

- The currently selected sample scene is the one with the boundary around it.

2. Use [▲], [▼], [◀], and [▶] to move the boundary to select the scene you want to select.

- Pressing [▲] or [▼] while the red boundary is at the edge of the screen will scroll to the next screen of BEST SHOT scenes.
- Sliding the zoom controller towards [🔭] or [🔍] will display text that explains the settings configured by the selected scene (page 99). Slide the zoom controller towards [🔭] or [🔍] again to return to the scene selection screen.

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3. Press [SET] to apply the settings of the selected scene and return to the recording screen.

- The settings of the scene you selected remain in effect until you select a different scene.
- To select a different BEST SHOT scene, repeat the above procedure from step 1.

4. Press the shutter button.

IMPORTANT!

- Night Scene, Fireworks scenes use slow shutter speeds. Since a slow shutter speed increases the chance of digital noise in the image, the camera automatically performs a digital noise reduction process on slow shutter images. Because of this, such images take longer to store after you press the shutter button. Do not perform any key operation while an image is being stored. Also, it is a good idea to use a tripod to avoid image blur due to camera movement when shooting at slow shutter speeds.
- Your camera includes a sample scene that optimizes settings for auction site images. Depending on your camera model, the sample scene is named either “For eBay” or “Auction”. Images you record using the auction site sample scene are stored in a special folder so you can easily find them on your computer (page 249).
- BEST SHOT scenes were not shot using this camera.
- Images shot using a BEST SHOT scene may not produce the results you expected due to shooting conditions and other factors.
- You can change the camera settings that are made when you select a BEST SHOT scene. Note, however, that the BEST SHOT settings revert to their defaults when you select another BEST SHOT scene or turn off the camera. If you think you will later need to use a particular camera setup you configured, save it as a BEST SHOT user setup (page 100).

Displaying Detailed Information about a BEST SHOT Scene

To display detailed information about a BEST SHOT scene, select it with the red boundary on the scene selection screen and then slide the zoom controller towards [ ] or [ ].



The following are the different operations you can perform while the scene description screen is on the display.

- To return to the scene selection screen, slide the zoom controller towards [ ] or [ ] again.
- To scroll through available BEST SHOT scenes, use [◀] and [▶].
- To select the currently displayed scene and configure the camera with its settings, press [SET].

NOTE

- If you select a scene by pressing [SET] while the description screen is displayed, the same description scene will appear the next time you press [SET] to view BEST SHOT sample scenes.

■ Creating Your Own BEST SHOT Scenes

You can use the procedure below to save the setups of snapshots or movies that you shot as BEST SHOT scenes. After that, you can recall a setup whenever you want to use it.

1. Use the mode dial to select "BS" (BEST SHOT) or "▶BS" (MOVIE BEST SHOT), and then press [SET].

For this type of sample scene:	Select this mode dial setting:
Snapshot	"BS" (BEST SHOT)
Movie	"▶BS" (MOVIE BEST SHOT)

2. Use [▲], [▼], [◀], and [▶] to select "BEST SHOT" (Register User Scene) and then press [SET].

3. Use [◀] and [▶] to select the snapshot or movie whose setup you want to register.

4. Use [▲] and [▼] to select "Save" and then press [SET].

Your BEST SHOT scene will be assigned the name "Recall User Scene", along with a scene number.

IMPORTANT!

- Formatting the camera's built-in memory (page 205) deletes all the user BEST SHOT scene files.

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NOTE

- Registering a snapshot creates a snapshot setup, while registering a movie creates a movie setup. A snapshot setup can be used to shoot snapshots only, and a movie setup can be used to shoot movies only.
- You can check the settings of the currently selected BEST SHOT scene by displaying the camera's setting menus and looking at its settings.
- User BEST SHOT scenes are assigned numbers in the sequence: U1, U2, U3, and so on.
- The following are the settings that are included in a user snapshot scenes:
  Focus, EV Shift, White Balance, Flash, ISO, Metering, Flash Intensity, Flash Assist, Filter, Sharpness, Saturation, Contrast
- The following are the settings that are included in a user movie scene:
  Focus, EV Shift, White Balance, Filter, Sharpness, Saturation, Contrast
- You can store up to 999 BEST SHOT user scenes.
- User BEST SHOT scenes are stored in built-in memory (page 248) in the SCENE folder (snapshots) or MSCENE folder (movies).

Deleting a BEST SHOT User Scene

Perform the following steps when you want to delete a BEST SHOT user scene.

1. **Use the mode dial to select "BS" (BEST SHOT) or "▶BS" (MOVIE BEST SHOT), and then press [SET].**
2. **Slide the zoom controller towards [T] or [W] to display its explanation screen.**
3. **Use [◀] and [▶] to select the BEST SHOT user scene you want to delete.**
4. **Press [▼] (🗑 ϟ).**

5. Use [▲] and [▼] to select “Delete” and then press [SET].

This will delete the BEST SHOT user scene you selected and display the next screen (either the next user scene or the Register User Scene).

6. Use [◀] and [▶] to select another scene and then press [SET].

- This returns to the recording state.

Taking Bright Images without Flash

The BEST SHOT “High Sensitivity” scene makes it possible for you to take natural looking images without using the flash, even when lighting is low



Normal Snapshot (With flash)



Snapshot with High Sensitivity

1. In a REC mode, align the mode dial with “BS”, and then press [SET].

2. Use [▲], [▼], [◀], and [▶] to select the “High Sensitivity” scene and then press [SET].

3. Press the shutter button to shoot the image.

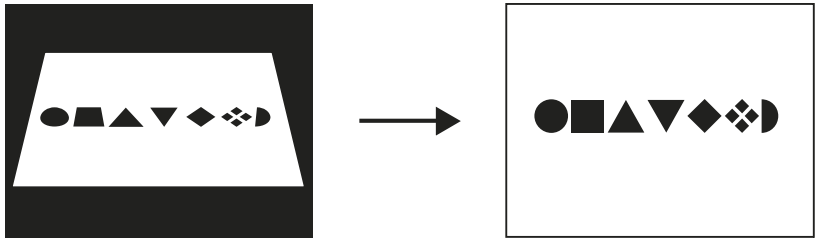
High Sensitivity will remain selected until you select a different BEST SHOT scene.

IMPORTANT!

- High Sensitivity is disabled following an automatic flash operation using the “Auto Flash” or “Red Eye” setting, or while the flash setting is “Flash On” or “Soft Flash”.
- Shooting with High Sensitivity can cause an image to appear somewhat coarser than normal and can cause slight deterioration of image resolution.
- The desirable level of image brightness may not be possible under very dark conditions.
- When shooting with slow shutter speeds, use a tripod to protect against the effects of hand movement.
- The camera sometimes performs an automatic noise reduction operation to reduce digital noise in images recorded under certain lighting conditions. This operation causes the camera to take longer than normal to store the image and be ready for the next shot.

Shooting Images of Business Cards and Documents (Business Shot)

Shooting a business card, document, whiteboard, or similarly shaped object from an angle can cause the subject to appear misshaped in the resulting image. The BEST SHOT Business Shot scenes correct the shape of rectangular objects so they appear natural.



Before Keystone Correction

After Keystone Correction

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BEST SHOT has two Business Shot scenes from which to choose.

- Business cards and documents
- White board, etc.





Selecting a Business Shot Scene

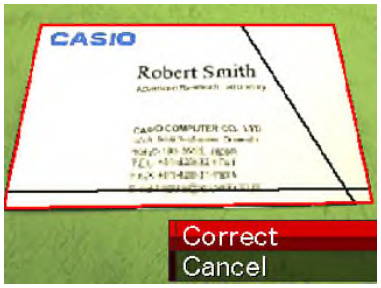
1. In a REC mode, align the mode dial with "BS", and then press [SET].

2. Use [▲], [▼], [◀], and [▶] to select the "Business cards and documents" or the "White board, etc." scene and then press [SET].

Whichever you select will remain in effect until you select a different BEST SHOT scene.

Shooting an Image Using a Business Shot Scene

1. After selecting either of the BEST SHOT Business Shot scenes, compose the image and press the shutter button to shoot.



This displays a screen that shows all of the rectangular shapes in the image that qualify as candidates for keystone correction.

A red boundary will surround the currently selected correction candidate. If there is a black boundary, it means that the black boundary is indicating a second possible candidate. If there is no second candidate (black boundary), jump directly to step 3.

- If the camera is unable to detect any keystone correction candidate at all, the message "Cannot correct image!" will appear on the monitor screen momentarily and then the camera will save the image as-is (uncorrected).

2. Use [◀] and [▶] to select the candidate you want to use for correction.

3. Use [▲] and [▼] to select "Correct" and then press [SET].

This will correct the image and store the resulting (corrected) image.

- To cancel the correction operation, select "Cancel".

IMPORTANT!

- Make sure the entire object you are trying to shoot (correct) is enclosed within the monitor screen. The camera will not be able to detect the shape of the object correctly unless it is enclosed entirely within the monitor screen.
- Correction will not be possible if the subject is the same color as its background. Make sure the object is against a background that allows its outline to stand out.
- Digital zoom is disabled while shooting with a Business Shot scene. However, you can use optical zoom.
- The maximum Business Shot image size is 2M (1600 × 1200 pixels), even if the camera is configured for a larger image size. When the camera is configured to record images smaller than 2M (1600 × 1200 pixels), Business Shot scenes will produce images in accordance with the currently specified image size.

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Restoring an Old Photograph

With Old Photo, you can record the image of an old, faded photograph and then use the camera's built-in advanced digital camera technology to restore it.

■ Before Recording with Old Photo

- Make sure the entire photograph you are trying to record is enclosed within the monitor screen.
- Make sure the photograph is against a background that allows its outline to stand out, and that it fills the monitor screen to the maximum extent possible.
- Make sure that light is not reflecting off the surface of the original photograph when recording it.
- If the old photograph is portrait orientation, be sure to compose the image with the camera in landscape (horizontal) orientation.

NOTE

- When the camera is at an angle to the photograph you are recording, the shape of the photograph may appear distorted in the recorded image. Auto keystone correction corrects for this distortion, which means that a photograph appears normal even if you record it at an angle.

■ Selecting the Old Photo Scene

1. In a REC mode, align the mode dial with "BS", and then press [SET].

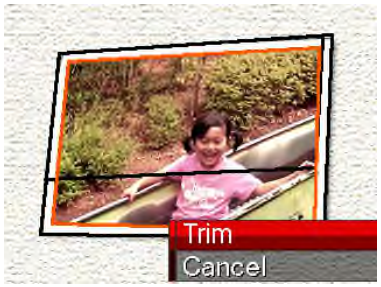
2. Use [▲], [▼], [◀], and [▶] to select the "Old Photo" scene and then press [SET].

"Old Photo" will remain selected until you select a different BEST SHOT scene.

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Recording an Image with Old Photo

1. Press the shutter button to shoot the image.



- This displays a photograph contour confirmation screen and then saves the original recorded image. An error message will appear (page 267), without displaying the photograph contour confirmation screen, if the camera is unable to find the contour of the photograph.

2. Use [◀] and [▶] to select the candidate you want to correct.

3. Use [▲] and [▼] to select “Trim” and then press [SET].

This displays a cropping boundary on the monitor screen.

- To cancel the correction operation, select “Cancel”.

4. Move the zoom controller up and down to zoom the cropping boundary.



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5. Use [▲], [▼], [◀], and [▶] to move the selection boundary to the desired location and then press [SET].

The camera will correct color automatically and save the corrected image.

- If you do not want a border around the resulting image, select and area that is smaller than the original image.
- To cancel the restoration operation at any point and save the image as-is, press [MENU].

IMPORTANT!

- Digital zoom is disabled while recording with Old Photo. However, you can use optical zoom.
- When recording the image of a photograph, the camera will not be able to recognize the shape of the photograph in the following cases.
  - When part of the photograph extends outside of the monitor screen
  - When the subject is the same color as the background it is placed upon
- The maximum Old Photo image size is 2M (1600 × 1200 pixels). When the camera is configured to record images smaller than 2M (1600 × 1200 pixels), Old Photo will produce images in accordance with the currently specified image size.
- Under certain conditions, restored colors may not produce the desired results.

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Recording Snapshots into a Multi-image Layout (Layout Shots)

You can create a multi-snapshot image by recording snapshots into the frames that are arranged in a preset pattern. This lets you create album-like arrangements of related images in a single image. BEST SHOT scenes are available with three frames and two frames.

- Layout (Two Images)



- Layout (Three Images)



1. **In a REC mode, align the mode dial with "BS", and then press [SET].**
2. **Use [▲], [▼], [◀], and [▶] to select "Layout", and then press [SET].**
3. **Use [◀] and [▶] to select a background color.**
4. **Press the shutter button to record the first image.**

   The camera will record the first snapshot and then get ready for the next one.



Frame

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5. Press the shutter button again to record the next snapshot.

- If you are shooting into a three-frame layout, press the shutter button a third time to record the third image.
- Pressing [▲] (DISP) during steps 3 or 4 of the above procedure will toggle between the layout screen (the one with the frames on it) and a screen that uses the entire display area to compose the image you are shooting.
- To clear the currently recorded Layout images and restart an ongoing Layout operation, press [MENU]. Next, continue from step 3 above.
- You cannot save a multi-snapshot image unless there are snapshots recorded in each of the available frames.

IMPORTANT!

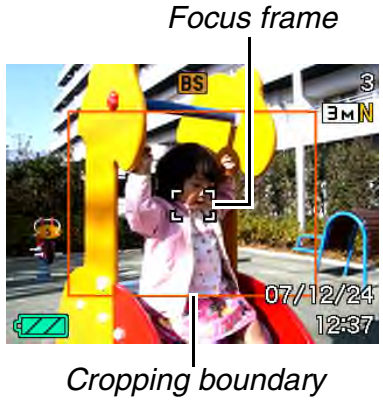
- Only the final multi-snapshot image is saved in camera memory. The individual snapshots are not saved.
- The size of the multi-snapshot image for this operation is fixed automatically at 7M (3072 × 2304 pixels).
- While Layout Shot is being used, the setup of the camera is changed automatically as shown below.
  - ISO Sensitivity: Auto (fixed)
  - AF Area: Spot (fixed)
- The following functions are disabled during Layout Shot.
  - Digital Zoom
  - Self-timer
  - Normal-speed Continuous Shutter, High-speed Continuous Shutter, Flash Continuous Shutter

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Auto Tracking a Moving Subject (Auto Framing)

With auto tracking, a boundary area follows a moving subject, making it easy to snap an image with the subject in the center.

1. **In a REC mode, align the mode dial with "BS", and then press [SET].**
2. **Use [▲], [▼], [◀], and [▶] to select "Auto Framing", and then press [SET].**
3. **Align the focus frame with the subject you want to focus on and then half-press the shutter button.**
   - The focus frame and the cropping boundary will follow the subject as it moves.
   - Focusing of the subject continues to be performed while you keep the shutter button half pressed.



4. **Press the shutter button all the way to record the image.**
   - This will record the area enclosed within the cropping boundary.

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IMPORTANT!

- Only the part of the image within the cropping boundary will be recorded.
- The image size for this operation is fixed automatically at 3M (2048 × 1536 pixels).
- The following functions are disabled during Auto Framing.
  – Timestamp
  – Self-timer
  – Normal-speed Continuous Shutter, High-speed Continuous Shutter, Flash Continuous Shutter
- Auto Framing may not be able to follow a fast-moving subject. If this happens, release the shutter button, re-align the focus frame with the subject, and then half-press the shutter again.
- When shooting with “Auto Framing”, the image size is fixed at 3M (2048 × 1536 pixels) and the Undeteriorated Image Quality Range is 7X (page 71).

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ADVANCED SETTINGS

Changing the Focus Mode

Your camera provides you with the four focus modes described below. The initial factory default focus mode is Auto Focus.

Focus Mode	Description	Focus Range*
AF Auto Focus	Automatic focus when the shutter button is half-pressed.	Auto adjustment (Approximately 30 cm to ∞ (1.0' to ∞)) • Minimum distance position varies with optical zoom.
Macro (Close-up)	Automatic focus for distances that are closer than those for Auto Focus. Used for close-up shooting.	Auto adjustment (Approximately 10 cm to 40 cm (3.9" to 15.7")) • Minimum distance position varies with optical zoom.
∞ Infinity Focus	Focus is fixed at infinity. Use this mode when shooting scenery and other faraway images.	Infinity
MF Manual Focus	Focus is performed manually.	• Focus range varies with optical zoom factor.

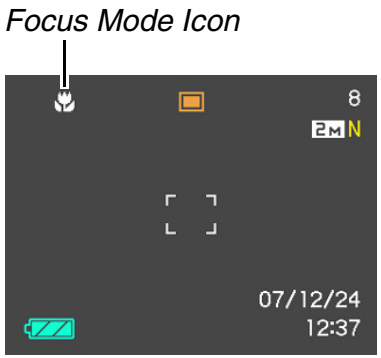
Optical Zoom Factor	Range
1X	Approximately 10cm to ∞ (0.3' to ∞)
7X	Approximately 1m to ∞ (3.3' to ∞)

* "Focus Range" indicates distance from the lens surface.

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Perform the following steps to change the focus mode.

1. **In a REC mode, press [MENU].**
2. **On the “REC” tab, select “Focus” and then press [▶].**

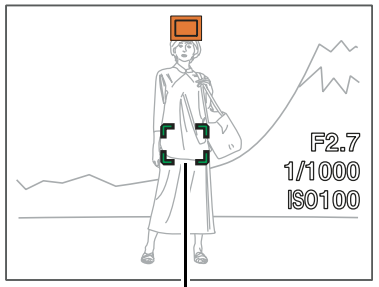


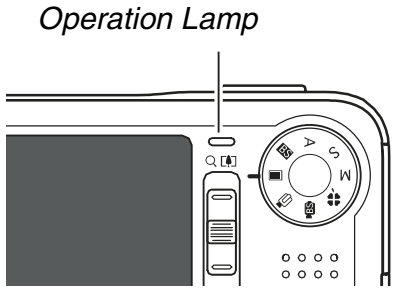
3. **Use [▲] and [▼] to select the focus mode setting you want and then press [SET].**
   - See the following pages of this section for details about shooting with each focus mode.

Using Auto Focus

1. **Align the monitor screen’s focus frame with the subject you want to focus and then half-press the shutter button.**

This camera will perform the focus operation.
You can tell if the image is in focus by checking the operation lamp and the focus frame color.





Status	Operation Lamp	Focus Frame
Focusing Complete	Lit Green	Green
Not Focused	Flashing Green	Red

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2. When the image is focused, press the shutter button the rest of the way to shoot.

NOTE

- When proper focusing is not possible because the subject is closer than the Auto Focus range, the camera will switch to the Macro Focus range automatically (Auto Macro).
- Whenever you perform an optical zoom operation while shooting with Auto Focus, a value will appear on the monitor screen as shown below to tell you the focus range.
  Example: ○○ cm – ∞
  * ○○ will be replaced by the actual focus range value.

Using Macro Focus

1. Half-press the shutter button to focus the image.

The focus operation is the same as that for Auto Focus.

2. When the image is focused, press the shutter button the rest of the way to shoot.

IMPORTANT!

- Use of the flash along with Macro Focus can cause the light of the flash to become blocked, which can produce unwanted lens shadows in your image.

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NOTE

- When Macro Focus cannot focus properly because the subject is too far away, the camera will switch to the Auto Focus range automatically (Auto Macro).
- Whenever you perform an optical zoom operation while shooting with Macro Focus, values will appear on the monitor screen as shown below to tell you the focus range.
  Example: ◯◯ cm – ◯◯ cm
  * ◯◯ will be replaced by the actual focus range values.

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Auto Focus and Macro Focus Shooting Tips

Changing the Auto Focus Area

Use the following procedure to change the metering area used for Auto Focus (AF).

1. **In a REC mode, press [MENU].**
2. **On the "REC" tab, select "AF Area" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

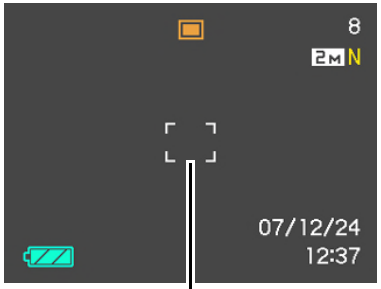
To do this:	Select this setting:
Use a small area in the center of the screen for metering • This setting is best when you want to use focus lock (page 119).	Spot
When the shutter button is half-pressed, have the camera automatically select one or more of nine possible focus frames • If the camera is able to focus on multiple points, all applicable focus frames turn green.	Multi
Half-pressing the shutter button focuses the subject and also starts a focus tracking operation that keeps the focus frame on the subject as it moves.	Tracking

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NOTE

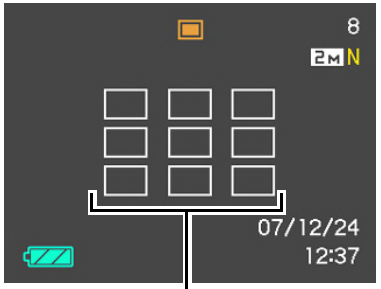
- When you select "[ ] Multi" as the focus area, nine focus frames appear on the monitor screen. The camera will automatically determine the optimum focus frame(s), which will change to green on the monitor screen.

[•] Spot/ [ ] Tracking



Focus Frame

[ ] Multi



Focus Frame

IMPORTANT!

- The following functions are disabled whenever "[ ] Tracking" is selected.
  - Self-timer
  - Normal-speed Continuous Shutter, High-speed Continuous Shutter, Flash Continuous Shutter

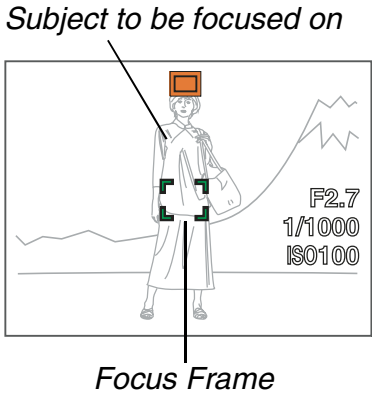
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Using Focus Lock

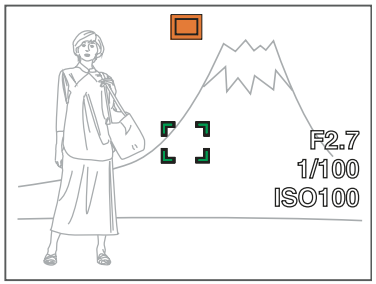
"Focus lock" is the name of a technique you can use when you want to shoot an image in which the subject to be focused on is not within the focus frame in the center of the screen.

- Use focus lock with "[•] Spot" or "[⬉] Tracking" focus.

1. Align the monitor screen's focus frame with the subject you want to focus on and then half-press the shutter button.



2. Keeping the shutter button half-pressed, re-compose the image as you like.



- When "[⬉] Tracking" is selected as the Auto Focus area, the focus frame will move automatically and follow the subject.

3. When the image is focused, press the shutter button the rest of the way to shoot.

NOTE

- Focus lock also causes exposure (AE) to be locked.

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Quick Shutter

If you press the shutter button all the way without waiting for Auto Focus while Quick Shutter is turned on, the camera will record the image using a high-speed focus operation that is much faster than normal Auto Focus. This helps you avoid missing a special moment while you wait for the camera to Auto Focus.

- Some images may be out of focus when Quick Shutter is used.

1. In a REC mode, press [MENU].

2. On the "REC" tab, select "Quick Shutter" and then press [▶].

3. Use [▲] and [▼] to select the setting you want and then press [SET].

To do this:	Select this setting:
Turn on Quick Shutter	On
Turn off Quick Shutter	Off

4. Press the shutter button all the way down without pausing.

Pressing the shutter button all the way without pausing at the halfway type will record with Quick Shutter, without performing the normal Auto Focus operation.

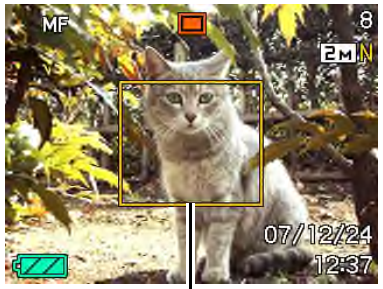
Using Infinity Focus

As its name suggests, Infinity Focus fixes focus at infinity (∞). Use this mode when shooting scenery and other faraway subjects. Infinity Focus also comes in handy when shooting from a car or train window, or when shooting scenery or other subjects that are difficult to focus properly with Auto Focus.

1. **While Infinity Focus is selected as the focus mode, press the shutter button to shoot.**

Using Manual Focus

With Manual Focus, the camera automatically enlarges the subject on the monitor screen, which helps you manually adjust focus. Manual focus can be used for shoot such images as moving trains. Before the train arrives, manually focus on an electric pole or some other object. Then when the train passes the object you focused on, you can shoot without worrying about focus.



Yellow Boundary

1. **While Manual focus is selected as the focus mode, compose the image on the monitor screen so the subject you want to focus on is within the yellow boundary.**

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2. Use [◀] and [▶] to focus the image, as you view the results on the monitor screen.

At this time the image that is within the boundary will enlarge and fill the monitor screen, which aids in focusing.

For this:	Press this button:
Closer focus	[◀]
More distant focus	[▶]

- The monitor screen will return to step 1 if you do not perform any operation for about two seconds.

3. Press the shutter button to shoot.

NOTE

- Whenever you perform an optical zoom operation (page 69) while shooting with manual focus, a value will appear on the monitor screen as shown below to tell you the focusing range.
  Example: MF ○○ cm – ∞
  * ○○ will be replaced by the actual focus range values.

IMPORTANT!

- While Manual Focus is selected as the focus mode, the [◀] and [▶] keys are used to adjust the focus setting. Any other functions assigned to the [◀] and [▶] keys with Key Customize (page 140) are not performed when you press the keys during manual focus.

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Reducing the Effects of Hand and Subject Movement

You can turn on the camera's Anti Shake feature to reduce image blur due to subject movement or hand movement when shooting a moving subject using telephoto, when shooting a fast-moving subject, or when shooting under dim lighting conditions.

Your digital camera is equipped with a CCD shift type camera shake correction feature and a high-sensitivity anti image blur feature. These two features work in concert to minimize the effects of hand and subject movement.

1. **In a REC mode, press [MENU].**

2. **On the "REC" tab, select "Anti Shake" and then press [▶].**

3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

When you want to do this:	Select this setting:
Minimize the effects of both hand and subject movement	Auto
Minimize the effects of hand movement only	Camera Shake
Increase sensitivity to minimize the effects of subject movement only	Image Blur
Confirm the Anti Shake effect on the monitor screen while the shutter button is half-pressed. Recording is not performed when the shutter button is pressed all the way. • Turning off the camera cancels this setting and changes it to the setting that was selected before you changed it to "DEMO".	DEMO
Turn off both features	Off

- Icons appear on the monitor screen to shows which of the above settings are currently turned on.

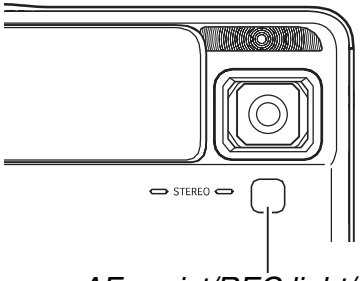
IMPORTANT!

- While the “Anti Shake” setting is “ Auto” or “ Camera Shake”, half pressing the shutter will cause the camera to vibrate and emit an operation sound. This is normal and does not indicate malfunction.
- ISO sensitivity, aperture, and shutter speed do not appear on the monitor screen when you half-press the shutter button while “ Auto” is selected for Anti Shake. They do appear along with the image that is displayed immediately after you record it so you can check them.
- Imege Blur will not work unless the ISO setting (page 131) is set to “Auto”.
- Shooting with Anti Shake can cause an image to appear somewhat coarser than normal and can cause slight deterioration of image resolution.
- Anti Shake may not be able to eliminate the effects of hand or subject movement when movement is severe.
- You can also use Camera Shake to reduce the effects of hand movement only while recording a movie. The effects of subject movement are not limited (page 92).
- Camera Shake may not work well with a slow shutter speed. If this happens, use a tripod to stabilize the camera. Note that the CCD shift type camera shake correction feature does not operate while you are recording on a tripod. Select off for the “Anti Shake” setting or select “ Image Blur”.
- The camera sometimes performs an automatic noise reduction operation to reduce digital noise in images recorded under certain lighting conditions. This operation causes the camera to take longer than normal to store the image and be ready for the next shot.
- Only the “ Camera Shake” setting can be enabled in the S Mode (Shutter Speed Priority AE) and M Mode (Manual Exposure) (page 84). At shutter speeds slower than four seconds, “ Camera Shake” becomes disabled in the S Mode and M Mode.

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Shooting with the REC Light

You can turn on the camera's REC light (AF assist/REC light/ self-timer lamp) when shooting where lighting is dim. You can turn on the REC light while shooting a movie to illuminate your subject.



AF assist/REC light/ self-timer lamp

1. **In a REC mode, align the mode dial with "".**

2. **Press [MENU].**

3. **Select the "REC" tab, select "REC Light", and then press [▶].**

4. **Use [▲] and [▼] to select the setting you want, and then press [SET].**

To have the REC light do this:	Select this setting:
Always turn on the REC light when recording	On
Turn off the REC light when recording	Off

- The " " appears on the monitor screen while the REC light is on.

5. **Press the shutter button to record the movie.**

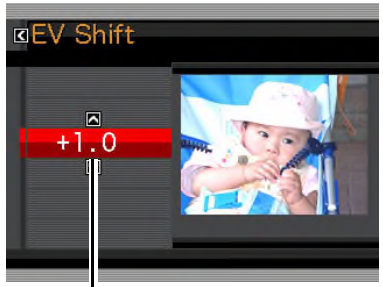
IMPORTANT!

- You also can use [▼] ( ) to cycle through REC light settings (“On” → “Off”) while movie recording is in progress.
- Never look directly into the AF assist light/REC light/self-timer lamp or point it directly into the eyes of others.
- Never point the AF assist/REC light/self-timer lamp in the direction of a person who is operating a motor vehicle.
- The effectiveness of the REC light is reduced in the case of faraway subjects.

Correcting Image Brightness (EV Shift)

You can manually adjust an image’s exposure value (EV value) before shooting it. This feature helps to achieve better results when shooting a backlit subject, a strongly lit subject indoors, or a subject that is against a dark background.
Exposure Compensation Value: –2.0EV to +2.0EV
Unit: 1/3EV

1. **In a REC mode, press [MENU].**
2. **On the “Quality” tab, select “EV Shift” and then press [SET].**



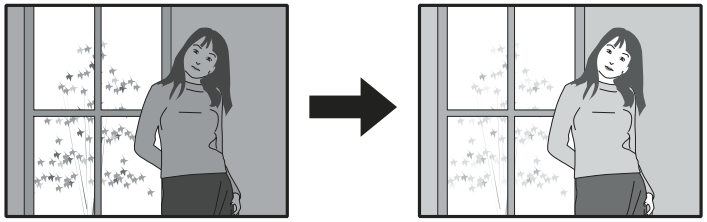
EV Shift Value

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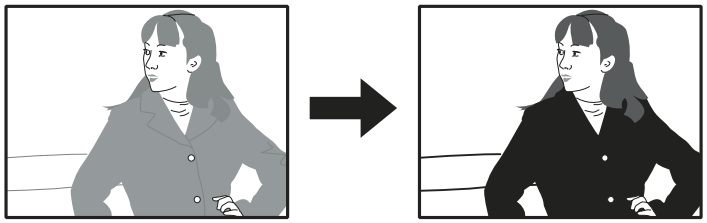
3. Use [▲] and [▼] to adjust the exposure compensation value.

[▲]: Increases the EV value. A higher EV value is best used for light-colored subjects and backlit subjects.

* Increasing the EV value also works well with the BEST SHOT “Backlight” scene.



[▼]: Decreases the EV value. A lower EV value is best for dark-color subjects and for shooting outdoors on a clear day.



To cancel exposure compensation, adjust the value until it becomes 0.0.

4. After the EV value is the way you want, press [SET] to apply it.

The exposure compensation value you set remains in effect until you change it.



EV Shift Value

IMPORTANT!

- When shooting under very dark or very bright conditions, you may not be able to obtain satisfactory results even after performing exposure compensation.

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NOTE

- Performing an EV shift operation while using multi-pattern metering will cause the metering mode to switch automatically to center weighted metering. The metering mode will return to multi-pattern metering when you change the exposure compensation value to 0.0 (page 132).
- You can use the key customization feature to configure the [◀] and [▶] buttons so they control the EV shift (page 140). This comes in handy when adjusting exposure compensation while viewing the on-screen histogram (page 138).

Controlling White Balance

Shooting on a cloudy day can give your subject a blue cast, while shooting under white fluorescent lighting can give your subject a green cast. White balance corrects for different types of lighting so the colors in your images always look natural.

1. **In a REC mode, press [MENU].**
2. **On the "Quality" tab, select "White Balance" and then press [▶].**
3. **Use [▲] and [▼] to select the white balance setting you want and then press [SET].**

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To do this:	Select this setting:
Let the camera adjust white balance automatically	Auto
Shoot outdoors on a clear day	Daylight
Shoot outdoors on an overcast rainy day, in the shade, etc.	Overcast
Shoot in the shadow of a building, in the shade of trees, etc. on a clear day	Shade
Suppress color cast when shooting under white or day white fluorescent lighting	N Day White Fluorescent
Suppress color cast when shooting under daylight fluorescent lighting	D Daylight Fluorescent
Suppress the appearance of light bulb lighting	Tungsten
Manually adjust white balance to suit a particular light source • For details, see “Configuring the White Balance Setting Manually” (page 130).	Manual

NOTE

- When “Auto” is selected for the white balance setting, the camera automatically determines the white point of the subject. Certain subject colors and light source conditions can cause problems when the camera tries to determine the white point, which makes proper white balance adjustment impossible. If this happens, select the white balance setting that matches you shooting conditions (Daylight, Overcast, etc.)
- You can use the key customization feature to configure the [◀] and [▶] buttons so they control the white balance setting (page 140).
- To select “Auto” with the control key (when the control key is configured to select the auto white balance setting), scroll through the settings until “ AWB ” appears on the monitor screen.

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Configuring the White Balance Setting Manually

Under complex lighting conditions, the preset white balance settings may not be able to produce natural looking colors. When this happens, you can configure the white balance setting manually for particular lighting conditions. Note that you will need to have a plain white sheet of paper on hand when performing the following procedure.

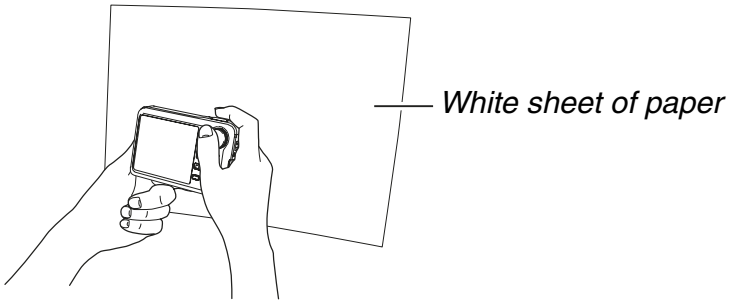
1. In a REC mode, press [MENU].

2. On the "Quality" tab, select "White Balance" and then press [▶].

3. Use [▲] and [▼] to select "Manual".

This will display the subject that the lens is aimed at on the monitor screen using the current manual white balance settings. If you want to use the current settings, jump directly to step 5.

4. Under the lighting conditions you plan to use when shooting, point the camera at a blank white piece of paper so it fills the entire monitor screen and then press the shutter button.



The camera will adjust white balance settings for the current conditions, and display "Complete" when it is finished.

5. Press [SET] to register the white balance settings and return to the shooting screen.

- The white balance setting is retained even if you turn off the camera.

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Specifying ISO Sensitivity

ISO sensitivity is a value that expresses sensitivity to light. A larger value indicates higher sensitivity, which is better for shooting when available lighting is dim. If you want to use faster shutter speeds, you should use a higher ISO sensitivity value. Under certain conditions, a fast shutter speed in combination with a high ISO sensitivity setting can cause digital noise, which makes an image appear rough. For clean, good-quality images, use the lowest possible ISO sensitivity setting.

1. **In a REC mode, press [MENU].**

2. **On the "Quality" tab, select "ISO" and then press [▶].**

3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

To shoot with this level of sensitivity:	Select this setting:
Automatically selected by camera.	Auto
Low ↕ High	ISO 64
	ISO 100
	ISO 200
	ISO 400
	ISO 800

IMPORTANT!

- Using flash with high ISO sensitivity can cause problems with subjects that close to the camera.
- "Auto" ISO sensitivity always is used for movies, regardless of the current ISO sensitivity setting.
- You can use the key customization feature to configure the [◀] and [▶] buttons so they control the ISO sensitivity setting (page 140).
- "Anti Shake" Image Blur (page 123) operates properly only when "Auto" is selected for the ISO sensitivity setting.

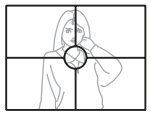
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Specifying the Metering Mode

The metering mode determines what part of the subject is metered for exposure.

1. **In a REC mode, press [MENU].**
2. **On the "Quality" tab, select "Metering" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

Multi (Multi Metering)



Multi-pattern metering divides the image into sections and measures the light in each section for a balanced exposure reading. The camera automatically determines shooting conditions according to the measured lighting pattern, and makes exposure settings accordingly. This type of metering provides error-free exposure settings for a wide range of shooting conditions.

Center Weighted



Center weighted metering concentrates on the center of the focus area to measure light. Use this metering method when you want to exert some control over exposure, without leaving settings totally up to the camera.

Spot



Spot metering takes readings at a very small area. Use this metering method when you want exposure to be set according to the brightness of a particular subject, without being affected by surrounding conditions.

IMPORTANT!

- The metering mode will change to “Center Weighted” automatically if you change the EV shift value (page 126) to anything other than 0.0 while “Multi” is selected. The metering mode will change back to “Center Weighted” when the EV shift value is changed back to 0.0.
- When “Multi” is selected as the metering mode, the icon will not be displayed on the monitor screen when you return to a REC mode information display (page 253).

Reducing the Effects of Underexposure

You can use the procedure below to expand the dynamic range, which makes it possible to capture the bright areas of an image while reducing the chance of underexposure. When shooting a subject that is back lit, for example, an expanded dynamic range minimizes underexposure.

1. **In a REC mode, press [MENU].**

2. **On the “Quality” tab, select “Dynamic Range” and then press [▶].**

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3. Use [▲] and [▼] to select the setting you want and then press [SET].

When you want to do this:	Select this setting:
Suppress underexposure more than “Expand +1”	Expand +2
Suppress underexposure	Expand +1
Do not suppress underexposure	Off

- You can also correct the dynamic range of a photograph you have already shot (page 173).

Enhancing Human Skin Textures

You can use the procedure below to reduce digital noise from human skin in the recorded image and enhance its texture.

1. In a REC mode, press [MENU].

2. On the “Quality” tab, select “Portrait Refiner” and then press [▶].

3. Use [▲] and [▼] to select the setting you want and then press [SET].

When you want to do this:	Select this setting:
Enhance skin texture more than “Noise Filter +1”	Noise Filter +2
Enhance skin texture	Noise Filter +1
Turn off skin texture enhancement	Off

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Using the Camera's Color Filter Effects

The camera's filter feature lets you add color tints to your images as you shoot them. The color effect look just like what you would get by installing a color filter on the lens of the camera.

1. **In a REC mode, press [MENU].**
2. **On the "Quality" tab, select "Color Filter" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

   Available filter settings are: Off, B/W, Sepia, Red, Green, Blue, Yellow, Pink, and Purple

Controlling Image Sharpness

Use the following procedure to adjust the sharpness of subject outlines in your images.

1. **In a REC mode, press [MENU].**
2. **On the "Quality" tab, select "Sharpness" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

   You can specify one of five sharpness settings from +2 (sharpest) to –2 (least sharp).

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Controlling Color Saturation

Use the following procedure to adjust the saturation of colors in your images.

1. **In a REC mode, press [MENU].**
2. **On the “Quality” tab, select “Saturation” and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

   You can specify one of five saturation settings from +2 (most saturated) to –2 (least saturated).

Adjusting Image Contrast

Use the following procedure to adjust the contrast of your images.

1. **In a REC mode, press [MENU].**
2. **On the “Quality” tab, select “Contrast” and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

   You can specify one of five contrast settings from +2 (most contrast between light and dark) to –2 (least contrast between light and dark).

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Date Stamping Snapshots

You can have the snapshot's recording date only, or date and time stamped in the lower right corner of the image.

1. **In a REC mode, press [MENU].**
2. **On the "Set Up" tab, select "Timestamp" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

   Example: December 24, 2007, 1:25 p.m.

To do this:	Select this setting:
Display the date only (2007/12/24)	Date
Display the date and time (2007/12/24 1:25pm)	Date&Time
Display nothing	Off

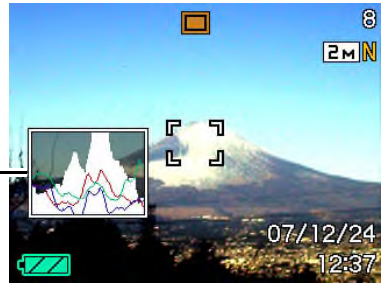
IMPORTANT!

- Even if you do not stamp the date and/or time with Timestamp, you can do so later using the DPOF function and the printing software function (page 214).
- Once date and time information is stamped in a print, it cannot be edited or deleted.
- Use the "Date Style" setting (page 199) to specify the Year/Month/Day format of the date.
- The recording date and time are determined in accordance with the camera's clock settings (pages 11, 199) when the snapshot is recorded.
- Digital zoom is not supported while date stamping is turned on.
- Date stamping is not supported for the following types of images.
  – Some BEST SHOT images (Business cards and documents, White board, etc., Old Photo, Auto Framing)

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Using the On-screen Histogram to Check Exposure

The on-screen histogram that provides a graphic representation of the current exposure of the image. You can also display the histogram in the PLAY mode for information about the exposure levels of images.



1. Press [▲] (DISP) as many times as necessary to display the histogram (page 53).

NOTE

- You can use key customization to configure the [◀] and [▶] buttons so they control the EV shift setting. Then you can perform EV shift while viewing the results on the on-screen histogram (page 140).

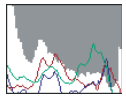
How to Use the Histogram

A histogram is a graph that represents the lightness of an image in terms of the number of pixels. The vertical axis indicates the number of pixels, while the horizontal axis indicates lightness. If the histogram appears too lopsided for some reason, you can use EV shift to move it left or right in order to achieve better balance. Optimum exposure can be achieved by EV shifting so the graph is as close to the center as possible. For snapshots, you can even display individual histograms for R (red), G (green), and B (blue). These lines can be used to determine whether there is too much or too little of each of the color components in an image.

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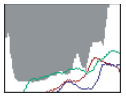
Example Histograms

A histogram towards the left side results when the overall image is dark. A histogram that is too far to the left may result in “black out” of the dark areas of an image, as shown in the nearby image.



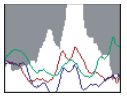


A histogram towards the right side results when the overall image is light. A histogram that is too far to the right may result in “white out” of the light areas of an image, as shown in the nearby image.





An overall well-balanced histogram results when the overall image is at optimal lightness.





IMPORTANT!

- A centered histogram does not necessarily guarantee optimum exposure. If you intentionally want to over expose or under expose the image, you may not want a centered histogram.
- Due to the limitations of exposure compensation, you may not be able to achieve an optimum histogram configuration.
- Use of the flash and certain shooting conditions can cause the histogram to indicate exposure that is different from the actual exposure of the image when it was shot.

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Other Useful Recording Functions

The following functions are also available in a REC mode to help make your digital image more efficient and enjoyable.

- Assign functions to the [◀] and [▶] keys
- Display an on-screen grid for easy image composition
- Review an image you just recorded
- Register initial power up settings
- Reset settings

Using Key Customize to Assign Functions [◀] and [▶]

Key Customize lets you assign any one of the five functions listed below to the [◀] and [▶] keys. Once you do, you will be able to use the assigned functions while shooting snapshots or movies, without going through the menus. For details about each of the functions, see the referenced page numbers.

When this function is assigned:	You can use [◀] and [▶] to do this:
Continuous (page 79)	Change the Continuous Shutter Mode
EV Shift (page 126)	Perform EV shifting for exposure compensation
White Balance (page 128)	Change the white balance setting
ISO (page 131)	Change the ISO sensitivity setting
Self-timer (page 77)	Select the self-timer time

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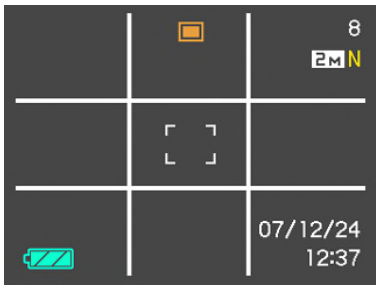
1. **In a REC mode, press [MENU].**
2. **On the “REC” tab, select “L/R Key”, and then press [▶].**
3. **Use [▲] and [▼] to select the function you want to assign and then press [SET].**

   After you assign a function, you can control its setting using the [◀] and [▶] keys.

   Selecting “Off” leaves the [◀] and [▶] keys with no function assigned.

Displaying an On-screen Grid

The on-screen grid can be displayed on a REC mode monitor screen for easy alignment when composing images.



1. **In a REC mode, press [MENU].**
2. **On the “REC” tab, select “Grid” and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

To do this:	Select this setting:
Display the grid	On
Hide the grid	Off

Displaying the Image You Just Recorded (Image Review)

When you purchase your camera, it is initially configured with the Image Review feature turned on. Image Review displays the image you just recorded so you can check it.

1. **In a REC mode, press [MENU].**
2. **On the "REC" tab, select "Review" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

To configure the camera to do this after an image is recorded:	Select this setting:
Display the image for about one second	On
Nothing	Off

Using Icon Help

Icon help displays guidance text about an icon when you select it on the monitor screen while in a REC mode.

- Icon help text is displayed for the following functions: Recording mode, flash mode, continuous shutter mode, white balance, self-timer. Note, however, that continuous shutter mode, white balance and self-timer icon help text appears only when "Continuous", "White Balance" or "Self-timer" respectively is assigned to the [◀] and [▶] keys with the key customization feature (page 140).

1. **In a REC mode, press [MENU].**
2. **On the "REC" tab, select "Icon Help" and then press [▶].**

3. Use [▲] and [▼] to select the setting you want and then press [SET].

To do this:	Select this setting:
Display icon help text next to the icon of a function when you select the function	On
Turn off icon help	Off

IMPORTANT!

- The icons listed below do not appear on the display while icon help is turned off.
  - Flash mode icon (page 72)
  - White balance AWB icon (page 128)
  - Metering mode icon (page 132)

Using Mode Memory to Configure Power On Default Settings

You can configure the camera so it saves certain settings in "mode memory" whenever it is turned off, and restores the settings the next time you turn the camera back on. This keeps you from having to configure the camera each time you turn it off and on.
See step 4 of the setting procedure below for information about the settings you can save with mode memory.

1. In a REC mode, press [MENU].

2. On the "REC" tab, select "Memory" and then press [▶].

3. Use [▲] and [▼] to select the item you want to configure and then press [▶].

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4. Use [▲] and [▼] to select the setting you want and then press [SET].

To do this:	Select this setting:
Save the current setting when the camera turned off, and restore it when the camera is turned back on	On
Restore the optimum default when the camera is turned on	Off

Setting	Mode Memory On	Mode Memory Off
Flash	Setting at power off	Auto
Focus		Auto
White Balance		Auto
ISO		Auto
AF Area		Spot
Metering		Multi
Self-timer		Off
Flash Intensity		0
Digital Zoom		On
MF Position		Focus mode before manual focus was selected.
Zoom Position*		Full wide

* Optical zoom position only.

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Resetting the Camera to Its Initial Factory Defaults

Use the following procedure when you want to return to the camera to its initial factory default settings, which are the ones that are configured when you first purchase the camera. See “Menu Reference” on page 255 for the initial factory default setting for each menu item.

1. **Press [MENU].**
2. **On the “Set Up” tab, select “Reset” and then press [▶].**
3. **Use [▲] and [▼] to select “Reset” and then press [SET].**
   - To cancel the procedure without resetting, select “Cancel”.

IMPORTANT!

- The following are not initialized when you reset the camera (page 257).
  - Home Time setup
  - World Time setup
  - Adjust
  - Date Style
  - Language
  - Video Out

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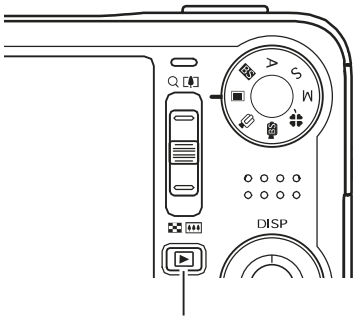
VIEWING SNAPSHOTS AND MOVIES

Viewing a Snapshot

Use the following procedure to view snapshots on the camera's monitor screen.

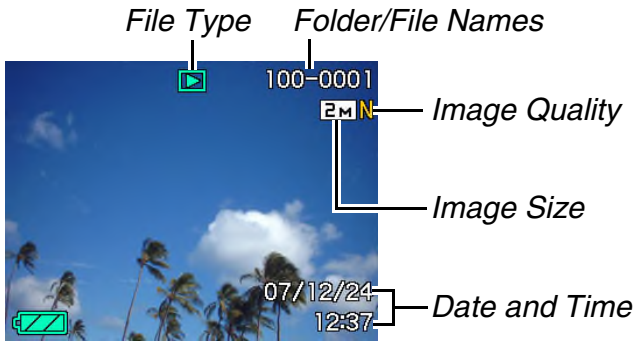
1. Open the lens cover to turn on the camera.

2. Press [▶] to enter the PLAY mode.



[▶]

- This will display one of the snapshots in memory, along with some information about the settings used to shoot it (page 254).



  - The file type icon that appears at the top of the monitor screen depends on the type of file (snapshot, movie, audio only, etc) that is currently displayed.
    - – : Snapshot (page 146)
    - – : Movie (page 148)
    - – : Audio snapshot (page 147)
  - See page 53 information about how to hide the image information and view the image alone.

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3. Use [◀] and [▶] to scroll between images.

Press [▶] to scroll forward and [◀] to scroll back.



NOTE

- Holding down [◀] or [▶] scrolls at high speed.
- The image that initially appears when scrolling may appear to be a bit rough at first, but it will soon be replaced by an image with better definition. Note that if you copy an image from another type of digital camera, only a rough image may be shown on the monitor screen.

To switch to a REC mode

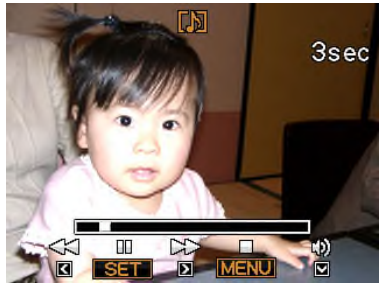
You can enter a REC Mode by performing any one of the following operations.

– Press the shutter button.
– Align the mode dial with the desired REC mode.
– Press [▶] (PLAY) (with the lens cover open).

Listening to the Audio of an Audio Snapshot

You can use the following procedure to play the audio of an audio snapshot. An audio snapshot is indicated by the "♪" file type icon.

1. Enter the PLAY mode and then use [◀] and [▶] to display the audio snapshot whose audio you want to play.



2. Press [SET] to play the snapshot's audio from the camera's built-in speaker.

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Audio Playback Controls

To do this:	Do this:
Fast forward or fast reverse playback	Hold down [▶] or [◀].
Pause or restart playback	Press [SET].
Adjust volume	Press [▼] and then use [▲] and [▼].
Change on-screen indicators	Press [▲] (DISP).
Stop playback	Press [MENU].

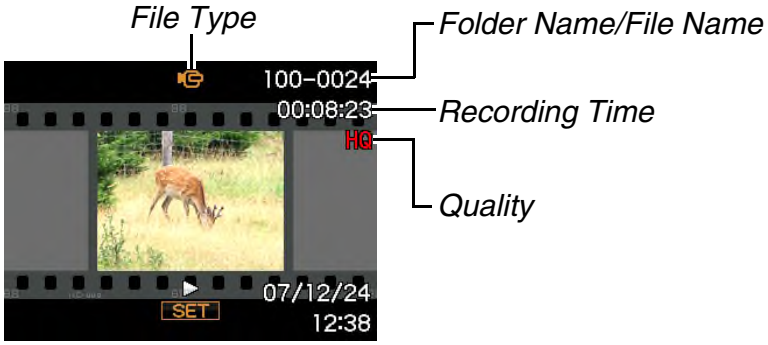
You can adjust volume while playback is in progress or paused only.

Viewing a Movie

Use the following procedure to view a movie on the camera's monitor screen.

1. Enter the PLAY mode and then use [◀] and [▶] to display the movie you want to play.

- Check the file type icon. The file type icon of a movie is "" (Movie) icon (page 254).



The film-like frame that appears on the monitor screen indicates that this is an image from a movie.

2. Press [SET] to start playback.

- The monitor screen will return to the selection screen in step 1 after the end of the movie is reached.

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To switch to a REC mode

You can enter a REC Mode by performing any one of the following operations.

– Press the shutter button.
– Align the mode dial with the desired REC mode.
– Press [▶] (PLAY) (with the lens cover open).

Movie Playback Controls

To do this:	Do this:
Fast forward or fast reverse playback. • Each press of either button increases the speed of the fast forward or fast reverse operation up to three steps.	Hold down [▶] or [◀].
Return from fast forward/fast reverse to normal playback	Press [SET].
Pause or restart playback	Press [SET].
When paused, scroll forward or back frame-by-frame • Hold down either button to scroll non-stop.	Press [▶] or [◀].
Adjust volume • Volume can be adjusted only while movie playback is in progress.	Press [▼] and then use [▲] and [▼].
Toggle on-screen indicators on or off	Press [▲] (DISP).
Zoom in up to 3.5X • While an image is zoomed, you can use [▲] [▼] [◀] and [▶] to move around and view the parts of the image that do not fit on the monitor screen.	Slide the zoom controller in the direction of [T] (🔍).
Stop playback	Press [MENU].

IMPORTANT!

- Playback may not be possible for movies not recorded with this camera.

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Playing Back a Movie with Anti Shake

Use the following procedure when you want to play back a movie with Anti Shake. Anti Shake is particularly useful when you have the camera connected to a TV for viewing, since the effects of camera movement are more evident on a big screen.

1. **In the PLAY mode, press [MENU].**
2. **Select the "PLAY" tab, select " Anti Shake", and then press [▶].**
3. **Use [▲] and [▼] to select "On", and then press [SET].**
   - When Anti Shake is turned on, the area of the monitor screen used for playback is slightly smaller than normal.
4. **After the setting is the way you want, press [SET].**

IMPORTANT!

- A movie that was recorded using "LP" image quality cannot be played back with anti shake.

Playing a Slideshow on the Camera

The slideshow feature lets you play the files stored in memory in sequence, automatically.
You can configure the slideshow so it plays the files the way you want.

1. **In the PLAY mode, press [MENU].**
2. **On the "PLAY" tab, select "Slideshow" and then press [▶].**
3. **Configure the slideshow settings.**
   Use [▲] and [▼] to select an item and then configure it as described below.

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Images (Select the files you want to include in the slideshow.)	• All images: Includes all snapshots, movies, and audio in memory. • ▭ Only: Includes snapshots and audio snapshots only. • 🎞 Only: Includes movies only. • One Image: Includes only one specific image (selected using [◀] and [▶]). • Favorites: Includes snapshots in the FAVORITE folder (page 187).
Time (Specify the time of the slideshow, from start to finish.)	Use [◀] and [▶] to select one of the following times (in minutes): 1, 2, 3, 4, 5, 10, 15, 30, 60.
Interval (Select the interval between slides.)	Use [◀] and [▶] to select a value from 1 to 30 seconds, or “MAX”. – If you specify a value from 1 to 30 seconds, images change at the specified interval, but the audio portion of movies and audio snapshots will continue to play until the end, regardless of the interval setting. – When “MAX” is selected, only the first frame of each movie is displayed, without any playback of the audio.

Effect (Select a special effect.)	Use [▲] and [▼] to select the effect you want. • Pattern 1, 2, 3, 4, 5: Plays background music and applies an image change effect. – Selecting “Pattern 5” changes the “Images” setting to “▭ Only” and disables the “Interval” setting. • Off: No background music plays and no image change effect is performed. The current effect setting is disabled automatically in following cases. – When the “Images” setting is “🎞 Only”, “One Image”, or “Favorites”. – When the “Interval” setting is “MAX”, one second, or two seconds. – When the slide shows changes to or from a movie file or a voice recording file.

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4. Use [▲] and [▼] to select “Start” and then press [SET] to start the slideshow.

The slideshow is performed in accordance with the settings you configured above.

- You can also scroll through images during a slide show by pressing [▶] (forward) and [◀] (back). Note that this operation is not possible when “Pattern 5” is selected for the “Effect” setting.
- During audio playback, you can adjust volume by pressing [▼] and then using [▲] and [▼].

To stop a slideshow

Press [SET]. This will return to the PLAY mode.

- Pressing [MENU] instead of [SET] stops the slideshow and returns to the menu screen.
- Pressing the shutter button instead of [SET] stops the slideshow and switches to a REC mode.

IMPORTANT!

- All button operations are disabled while the slideshow is switching from one image to another. Wait until an image is stopped on the display before performing a button operation. If a button does not work, wait a bit and try again.

NOTE

- Selecting a movie when “One Image” is selected for “Images” and then selecting a movie for the slideshow will cause the movie to play back repeatedly within the time specified by the slideshow “Time” setting.
- In image copied from a computer or an image recorded with a different type of digital camera may remain on the screen longer than the time specified by “Interval”.

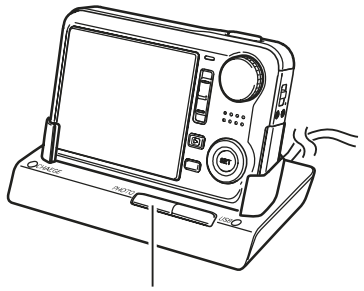
■ Playing a Slideshow on the USB Cradle (Photo Stand)

You can play a slideshow on the camera while it is mounted on the USB cradle. This is a good way to enjoy a long slideshow, without worrying about the camera's battery going dead.

- Configure slideshow settings (page 150) before performing the steps below.
- Connect the bundled AC adaptor to the USB cradle, and plug it into a power outlet.

1. Turn on the camera and place it onto the USB cradle.

2. Press the USB cradle's [PHOTO] button to start the slideshow.



[PHOTO]

The slideshow is performed in accordance with the settings you configured with the procedure on page 150. The camera will turn off automatically after the time you specified with the "Time" setting elapses.

- You can change the slideshow setting by pressing [MENU] while a slideshow is in progress. After configuring the settings, press [MENU] again to restart the slideshow.
- During audio playback, you can adjust volume by pressing [▼] and then using [▲] and [▼].

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To stop a slideshow

Press the USB cradle's [PHOTO] button. This will turn off the camera.

IMPORTANT!

- The battery does not charge while a slideshow is in progress. To charge the battery, stop the slideshow.
- Do not remove the camera from the cradle while a slideshow is in progress. Doing so can cause data to become corrupted.

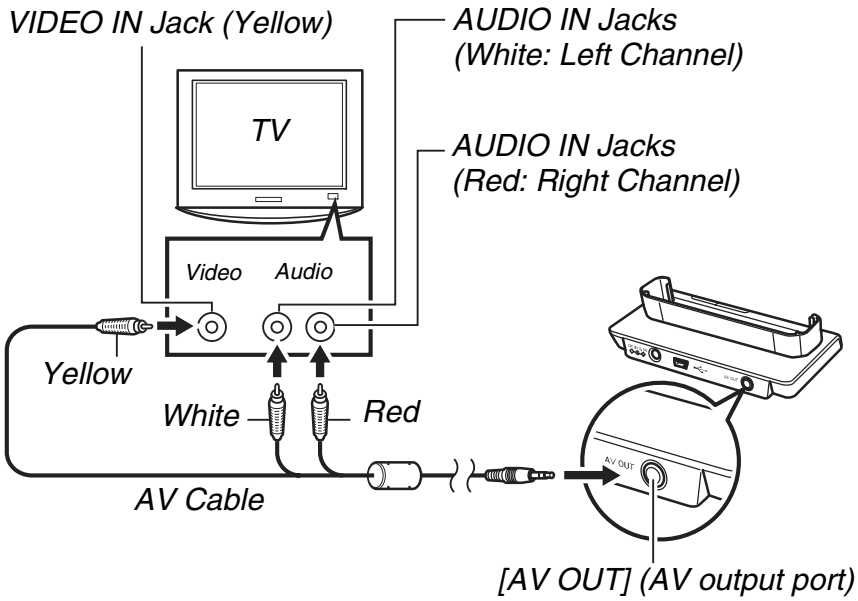
NOTE

- You can connect the USB cradle to a TV and enjoy the slideshow on a big screen. You can also connect to a video recording device and record a slideshow (page 154).

Viewing Camera Images on a TV

Use the procedure below to view snapshots and movies on a TV screen.

1. Connect the USB cradle to a TV.



2. Turn off the camera and place it onto the USB cradle.

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3. Turn on the TV and select its video input mode.

If the TV has more than one video input, select the one where the USB cradle is connected.

4. Press [▶] to turn on the camera and enter the PLAY mode.

When the camera turns on in the PLAY mode, an image will appear on the TV screen.

5. Now you can perform the applicable operation on the camera for the type of file you want to play.

- At this point you could press the USB cradle's [PHOTO] button to start a slideshow (page 153).

To turn off the camera

You can turn off the camera by doing either of the following.

- Press the camera's [▶] button.
- Press the USB cradle's [USB] button.

IMPORTANT!

- When connecting to a TV to display images, be sure that the camera's "▶ Power On" setting is "Power On" or "Hold: On" page 204.
- All icons and indicators that appear on the monitor screen also appear on the TV screen.
  You can use [▲] (DISP) to change the display contents.
- Audio is stereo.
- Certain TVs may cut off part of the images.
- Audio is initially output by the camera at maximum volume. When you first start displaying images, set the TV volume control at a relatively low level and then adjust it as required.

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NOTE

- You can use the camera's USB cradle to connect to a DVD recorder or video deck and record images from the camera. There are various different methods you can use in order to connect to another device when recording images. The following describes one method for connection using the AV cable that comes with the camera.
  - DVD recorder or video deck: Connect to the VIDEO IN and AUDIO IN terminals.
  - USB cradle: Connect to the [AV OUT] (AV output port)
  - Camera: Place onto the cradle

  You can play a slideshow of snapshots and movies on the camera and record it on a DVD or video tape. You can record movies by selecting "  Only" for the slideshow "Images" setting (page 151). When recording to DVD recorder or video deck, you can turn off display information (page 53) so indicators and other information is not recorded along with the image.

  To view the image that is being recorded, connect a TV or other monitor to the DVD recorder or video deck that is connected to the camera. For information about connecting a monitor to the DVD recorder or video deck and about how to record, see the user documentation that comes with the DVD recorder or video deck you are using.

Selecting the Screen Aspect Ratio and Video Output System

You can use the procedure in this section to select either NTSC or PAL as the video output system. You can also specify an aspect ratio of 4:3 or 16:9.

1. Press [MENU].

2. On the "Set Up" tab, select "Video Out" and then press [▶].

3. Use [▲] and [▼] to select the setting you want and then press [SET].

For this type of TV:	Select this video output system:
Standard aspect ratio screen NTSC TV (Japan, U.S., and other countries)	NTSC 4:3
Wide aspect ratio screen NTSC TV (Japan, U.S., and other countries)	NTSC 16:9
Standard aspect ratio screen PAL TV (Europe and other areas)	PAL 4:3
Wide aspect ratio screen PAL TV (Europe and other areas)	PAL 16:9

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IMPORTANT!

- Select the aspect ratio (4:3 or 16:9) that matches the type of TV you plan to use. You may also need to configure the aspect ratio setting on your TV as well. Incorrect aspect ratio settings on the camera and/or the TV can result in abnormal image display.
- Images will not display correctly unless the camera's video signal output setting matches the video signal system of the TV or other video equipment.
- Images will not display correctly on a TV or video equipment that is not NTSC or PAL.

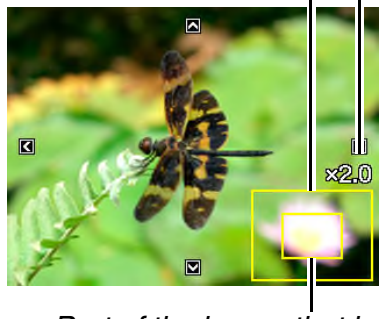
Zooming the Displayed Image

Perform the following procedure to zoom the image currently on the monitor screen up to eight times its normal size.

1. In the PLAY mode, and use [◀] and [▶] to display the snapshot you want to zoom.

2. Slide the zoom controller towards [🔍] (🔍).

You can use [▲], [▼], [◀], and [▶] to move to a different part of the image after zooming.



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To zoom back out, slide the zoom controller towards [▲▲▲] ( ).

- If display indicators are turned on, an indicator in the lower right corner of the monitor screen shows what part of the zoomed image is currently displayed.

To return to image to normal size

Press [MENU].

IMPORTANT!

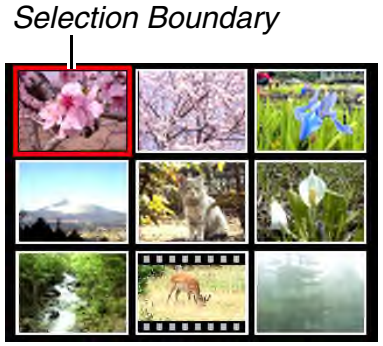
- Depending on the image size, some images may not be able to be zoomed to the full 8 times normal size.

Using the 9-image Screen

You can use the procedure below to display a screen that shows 9 images.

1. In the PLAY mode, slide the zoom controller towards [▲▲▲] ( ).

This displays the 9-image screen with a selection boundary around the last image that was on the monitor screen.



2. Select the image you want.

- Use [◀] and [▶] to scroll between 9-image screens.
- To view the full-screen version of a particular image, use [▲], [▼], [◀], and [▶] to move the selection boundary to it and then press [SET].

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Using the Calendar Screen

Use the following procedure to display a calendar, which shows the first image recorded on each date of a particular month. This screen helps to make searching for an image quicker and easier.

1. In the PLAY mode, slide the zoom controller towards [▲] (▪▪) twice.

This displays the calendar screen.



- You can also display the calendar by pressing [MENU], selecting the “PLAY” tab, selecting “Calendar”, and then pressing [▶] to display the calendar.
- To exit the calendar screen, press [MENU].

2. Use [▲], [▼], [◀], and [▶] to move the selection boundary to the date whose image you want to view and then press [SET].

This will display the first image recorded on that date.

NOTE

- The year and month on the calendar is displayed using the same format as you selected for the “Date Style” setting (page 199).

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IMPORTANT!

- Note following points about how certain editing functions of the camera affect the date with which the image is associated on the calendar screen.

Performing this type of editing operation:	Will associate the resulting image with this date:
Keystone, Color Correction, Resize, Trimming, Copy, Layout Print, MOTION PRINT	The date that the editing operation was performed
Editing the date and time of an image	The date that the original image was recorded

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EDITING IMAGES

Resizing a Snapshot

You can reduce the size of a snapshot and save the result as a separate snapshot. The original snapshot is also retained. You can resize a snapshot to any one of the following sizes.

Image Size (Pixels)			Print Size
Larger ↕ Smaller	5M*	2560 × 1920	A3 Print
	3M	2048 × 1536	A4 Print
	VGA	640 × 480	E-Mail • Optimum size for an image to be attached to e-mail.

* M stands for “Mega”, which means “million”.

1. **In the PLAY mode, press [MENU].**

2. **On the “PLAY” tab, select “Resize” and then press [▶].**

3. **Use [◀] and [▶] to scroll through images and display the one you want to resize.**

4. **Use [▲] and [▼] to select an image size, and then press [SET].**

- When you select an image size, it will start to cycle through the following information:
  Image Size → Number of Pixels → Print Size → .
  The print size indicates the optimum paper size for printing a snapshot of the selected image size.

5. **After you press [SET] in step 4 to resize the image, the monitor screen returns to step 3. From there you can repeat steps 3 and 4 to resize another image if you want.**

To exit the resize operation, select “Cancel”.

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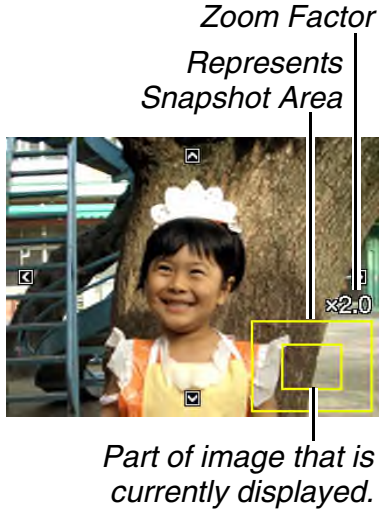
IMPORTANT!

- You cannot resize a VGA (640 × 480 pixels) size image.
- Resizing a snapshot shot with an aspect ratio of 3:2 will cause the left and right sides of the image to be cut off. The aspect ratio of the resulting image will be 4:3.
- The recording date of the resized version of the snapshot will be the same as the recording date of the original snapshot.

Cropping a Snapshot

You can crop a snapshot to trim parts you do not need, and save the result in a separate file. The original snapshot is also retained.

1. **In the PLAY mode, use [◀] and [▶] to scroll through images and display the snapshot you want to crop.**
2. **Press [MENU].**
3. **On the "PLAY" tab, select "Trimming" and then press [▶].**
   - This operation can be performed only while a snapshot is on the monitor screen.



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4. Use the zoom controller to zoom, and [▲], [▼], [◀], and [▶] to move around the zoomed image to display the part you want to extract.

5. Press [SET] to extract the displayed part and save it as a separate file.

- To exit the cropping procedure at any time before you press [SET], press [MENU].

IMPORTANT!

- The image produced by cropping a 3:2 image will have an aspect ratio of 4:3.
- The recording date of the extracted image will be the same as the recording date of the original snapshot.

Keystone Correction

Use the following procedure to correct the snapshot of a blackboard, document, poster, photograph, or other rectangular object that is out of square because it was recorded at an angle. Performing keystone correction on an image causes a new (corrected) 2M (1600 × 1200 pixels) size image to be stored as a separate file.

1. In the PLAY mode, use [◀] and [▶] to scroll through images and display the snapshot you want to correct.

2. Press [MENU].

3. On the "PLAY" tab, select "Keystone" and then press [▶].

This displays screen that shows all of the rectangular shapes in the image that qualify as candidates for keystone correction.

- Note that the above step is possible only when there is a snapshot displayed on the monitor screen.

4. Use [◀] and [▶] to select the candidate you want to correct.



5. Use [▲] and [▼] to select “Correct” and then press [SET].

- Select “Cancel” to exit the procedure without performing keystone correction.

IMPORTANT!

- If the original image is smaller than 2M (1600 × 1200 pixels) size, the new (corrected) version will be the same size as the original one.
- When you display a corrected image on the camera’s monitor screen, the date and time indicate when the image was originally recorded, not when the image was corrected.

Using Color Restoration to Correct the Color of an Old Photograph

Color restoration let you correct the old color of a photograph shot with a digital camera. This function is useful for correcting existing old photographs, posters, etc.

- Performing color restoration on an image causes a new (restored) 2M (1600 × 1200 pixels) size image to be stored as a separate file.

1. In the PLAY mode, use [◀] and [▶] to scroll through images and display the snapshot you want to correct.

2. Press [MENU].

3. On the “PLAY” tab, select “Color Correction” and then press [▶].

4. Use [◀] and [▶] to select the photograph candidate you want.

5. Use [▲] and [▼] to select “Trim”, and then press [SET].

This displays a cropping boundary on the monitor screen.

- To exit color restoration without storing anything, select “Cancel”.

6. Move the zoom controller up and down to zoom the cropping boundary.

7. Use [▲], [▼], [◀], and [▶] to move the selection boundary to the desired location and then press [SET].

The camera will correct color automatically and save the corrected image.

- If you do not want a border around the resulting image, select and area that is smaller than the original image.
- To exit color restoration without saving anything, press [MENU].

IMPORTANT!

- If the original image is smaller than 2M (1600 × 1200 pixels) size, the new (restored) version will be the same size as the original one.
- When you display a restored image on the camera's monitor screen, the date and time indicate when the image was originally recorded, not when the image was corrected.

NOTE

- If you want to record the image of an old photograph with this camera and restore the resulting image, see "Restoring an Old Photograph" on page 106.

Editing the Date and Time of an Image

Use the procedure in this section to change the date and time of a previously recorded image.

1. **In the PLAY mode, use [◀] and [▶] to display the image whose date and time you want to edit.**
2. **Press [MENU].**
3. **On the "PLAY" tab, select "Date/Time" and then press [▶].**
4. **Set the date and the time you want.**

To do this:	Do this:
Change the value at the cursor location	Press [▲] or [▼].
Move the cursor between settings	Press [◀] or [▶].
Toggle between 12-hour and 24-hour timekeeping	Slide the zoom controller towards [ ] or [ ].

5. **When all the settings are the way you want, press [SET] to apply them.**
   - After editing the time and date, display the image to confirm that the date and time are correct.

IMPORTANT!

- The date and time stamped into an image using the Time Stamp feature cannot be edited (page 137).
- You cannot edit the date and time of an image that is protected. Unprotect the image and then edit the date and time.
- You can specify any date in the range of January 1, 1980 to December 31, 2049.

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Rotating an Image

Perform the following procedure to rotate the image currently on the monitor screen. This feature comes in handy with a snapshot that you shot using portrait (vertical) orientation. After rotating a snapshot, you can return it to its original orientation, if you want.

- Note that this procedure does not actually change the image data. It simply alters how the image is displayed on the camera's monitor screen.

1. In the PLAY mode, press [MENU].

2. On the "PLAY" tab, select "Rotation" and then press [▶].

3. Use [◀] and [▶] to select the snapshot whose display image you want to rotate.

4. Use [▲] and [▼] to select "Rotate" and then press [SET].

- Each press of [SET] will rotate the displayed image 90 degrees left.

5. When the displayed image is at the orientation you want, press [MENU].

IMPORTANT!

- You cannot rotate an image that is protected. To rotate a protected snapshot, first remove its protection (page 185).
- Zoomed images cannot be rotated.
- The original (unrotated) version of an image will be displayed on the 9-image screen and the calendar screen.

Combining Multiple Snapshots into a Single Image (Layout Print)

You can use the following procedure to insert snapshots into the frames of a layout and produce a new image that contains multiple snapshots.

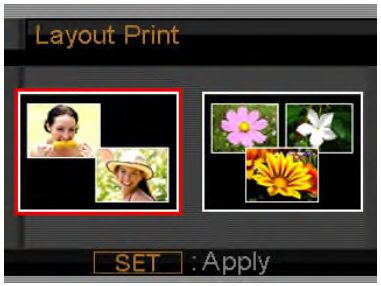
- Layout pattern (Two Images)



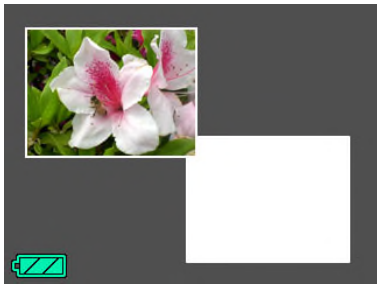
- Layout pattern (Three Images)



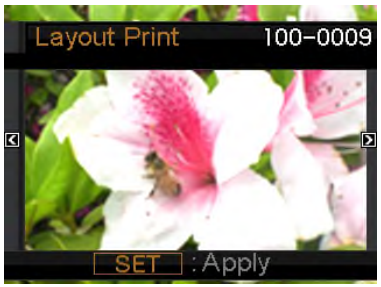
1. **In the PLAY Mode, use [◀] and [▶] to select the first snapshot you want to include in the layout.**
2. **Press [MENU].**
3. **On the "PLAY" tab, select "Layout Print", and then press [▶].**
   - This operation can be performed only while a snapshot is on the monitor screen.



4. **Use [◀] and [▶] to select the type of layout you want and then press [SET].**



5. **Use [◀] and [▶] to select a background color.**
6. **Press [SET].**



7. **Use [◀] and [▶] to select the snapshot for the layout and then press [SET].**

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8. Repeat steps 6 and 7 for all of the other frames in the layout.

The final layout image will be saved after you insert the final snapshot into it.

- Pressing [MENU] returns to the PLAY mode screen without saving the layout image.
- You will not be able to save the new image unless there is a snapshot in all of the layout frames.

IMPORTANT!

- Layout Print is not supported when the image size is “3:2 (3072 × 2048 pixels)”.
- When you display a layout image on the camera’s monitor screen, the date and time indicates when the last image added to the layout was originally recorded, not when the image was laid out.
- The size of the multi-snapshot image for this operation is fixed automatically at 7M (3072 × 2304 pixels).

Adjusting White Balance of a Recorded Image

You can use the white balance setting to select a light source type for a recorded image, which will affect the colors of the image.

1. **In the PLAY mode, use [◀] and [▶] to display the image whose white balance setting you want to change.**
2. **Press [MENU].**
3. **Select the "PLAY" tab, select "White Balance", and then press [▶].**
   - Note that the above step is possible only when there is a snapshot displayed on the monitor screen.
4. **Use [◀] and [▶] to select a white balance setting, and then press [SET] to apply it.**

When you want the image to appear like it was recorded under these conditions:	Select this setting:
Outdoors, fair weather	(Daylight)
Outdoors, cloudy to rain, in tree shade, etc.	(Overcast)
In a location where color temperature is very high, like in the shade of a building, etc.	(Shade)
Under white or daylight white fluorescent lighting, without suppressing color cast	N (Day White Fluorescent)
Under daylight fluorescent lighting, while suppressing color cast	D (Daylight Fluorescent)
Under incandescent lighting, while suppressing color cast	(Tungsten)
Cancel white balance adjustment	Cancel

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- Normally, the initially selected white balance setting on the above menu is the one that was used when you originally recorded the image. If you used the “Auto” or “Manual” white balance setting when you recorded the image, “Cancel” will be selected (page 129).
- If you select the same white balance setting as the one you selected when you originally recorded the image, pressing [SET] will exit the white balance adjustment menu without changing the image.

IMPORTANT!

- Adjusting the white balance of an image creates a new image with the new white balance setting. The original image also remains in memory.
- When you display an image whose white balance has been adjusted on the camera’s monitor screen, the date and time indicates when the image was originally recorded, not when the white balance was adjusted.

Adjusting Image Brightness

Use the following procedure to adjust the brightness of snapshots.

1. **In the PLAY mode, use [◀] and [▶] to scroll through images and display the one whose brightness you want to adjust.**

2. **Press [MENU].**

3. **Select the “PLAY” tab, select “Brightness”, and then press [▶].**

- Note that the above step is possible only when there is a snapshot displayed on the monitor screen.

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4. Use [▲] and [▼] to select the setting you want, and then press [SET].

To get tthis:	Select this setting:
Brighter	+2
	+1
↕	0
	–1
Darker	–2

- To cancel the brightness adjustment operation, press [◀] or [MENU].

IMPORTANT!

- Adjusting the brightness of an image creates a new image with the new brightness level. The original image also remains in memory.
- When you display a brightness adjusted image on the camera's monitor screen, the date and time indicates when the image was originally recorded, not when the brightness was adjusted.

Reducing the Effects of Underexposure

You can use the following procedure to reduce underexposure only, while maintaining the bright areas of an image.

1. **In the PLAY mode, use [◀] and [▶] to select the image you want to correct.**
2. **Press [MENU].**
3. **On the "PLAY" tab, select "Dynamic Range", and then press [▶].**
4. **Use [▲] and [▼] to select the setting you want and then press [SET].**

When you want to do this:	Select this setting:
Apply Dynamic Range to a greater extent than "Expand +1"	Expand +2
Reduce underexposure	Expand +1

IMPORTANT!

- Performing Dynamic Range correction on an image causes the new (corrected) version to be stored as a separate file.
- When you display a corrected image on the camera's monitor screen, the date and time indicates when the image was originally recorded, not when the image was corrected.

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Editing a Movie on the Camera

You can perform the following cut operations on the camera to edit movies you have recorded.

Operation	Description
 Cut (To-Point Cut)	Cuts everything from the current location to the beginning of the movie.
 Cut (Point-To-Point Cut)	Cuts everything between two points.
 Cut (From-Point Cut)	Cuts everything from the current location to the end of the movie.

IMPORTANT!

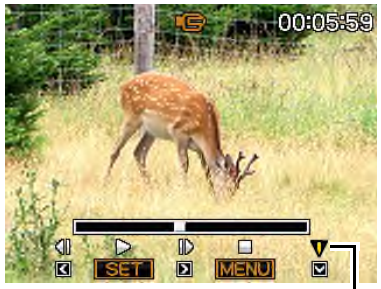
- When you edit a movie, only the result is saved. The original movie is not retained. Once you perform an editing operation, you will not be able to undo it.
- A movie that is shorter than five seconds cannot be edited.
- The movie editing operation is supported only for movies that were recorded with this camera.
- You will not be able to edit a movie if the amount of remaining memory capacity is less than the size of the movie file you want to edit. If there is not enough memory available, delete any files you no longer need to free up more.
- Cutting a movie into two parts or splicing of two movies in to a single movie cannot be performed on the camera.

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1. Play back the movie you want to edit.

2. Press [SET] to pause playback.

- Check to make sure that "▽" (cut icon) is displayed on the monitor screen. If it isn't, press [SET] again.



Cut icon

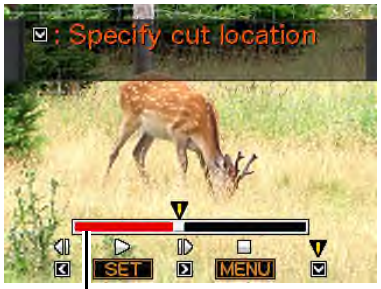
3. Press [▼].

- You could also perform the following steps in place of steps 1 through 3 above.
  ① In the PLAY mode, select the movie you want to edit and then press [MENU].
  ② On the "PLAY" tab, select "Movie Editing" and then press [▶].

4. Use [▲] and [▼] to select the cut operation and then press [SET].

- To cancel movie editing, select "Cancel" and then press [SET]. This will return to the paused movie playback screen.

5. Select the frame (point) where you want to cut the movie.



Cut range (red)

To do this:	Press this button:
Fast forward or fast reverse playback	[▶] or [◀]
Pause or unpause movie playback	[SET]
Scroll paused playback one frame forward or back	[▶] or [◀]

- To cancel the cut operation, press [MENU]. This will return to the screen in step 3.

6. Press [▼] to perform the required cut operation(s).

For this type of cut operation:	Do this:
Cut (To-Point Cut)	Select the point up to which you want to cut and then press [▼].
Cut (From-Point Cut)	Select the point from which you want to cut and then press [▼].
Cut (Point-To-Point Cut)	1. Select the start point of the center segment and then press [▼]. 2. Select the end point of the center segment and then press [▼].

7. In response to the confirmation message that appears, use [▲] and [▼] to select “Yes” and then press [SET].

- To cancel movie editing, select “No” instead of “Yes” and then press [SET]. This will return to the paused movie playback screen.
- The selected cut operation will take considerable time to complete. Wait until the “Busy... Please wait...” message disappears from the monitor screen before performing any operation on the camera. Note that a cut operation can take a very long time if the movie being edited is long.

Creating a Snapshot of a Movie Frame (MOTION PRINT)

MOTION PRINT lets you capture a movie frame and use it to create a snapshot. The snapshot you create can be either of the two formats described below.

9-frame Snapshot (2M 1600 × 1200 pixels)	This format puts the selected movie frame in the center, the four frames that precede it along top and the four frames that follow it along the bottom. 
1-frame Snapshot (VGA 640 × 480 pixels)	This format creates a snapshot using the selected movie frame only. 

1. **In the PLAY mode, use [◀] and [▶] to scroll through images and display the movie that contains the frame you want to use.**
2. **Press [MENU].**
3. **On the “PLAY” tab, select “MOTION PRINT”, and then press [▶].**
4. **Use [▲] and [▼] to select either “9 frames” or “1 frame”.**

5. Use [◀] and [▶] to scroll through the movie frames and search for the one you want to use as the image of the snapshot.

- Holding down [◀] or [▶] scrolls at high speed.

6. After displaying the movie frame you want, press [SET].

- If you selected “9 frames” in step 4, the camera will create a 9-frame snapshot with the frame you selected in step 6 in the center.
- If you selected “1 frame” in step 4, the camera will create a snapshot of the frame you selected in step 6.

IMPORTANT!

- MOTION PRINT is not possible using a movie that was recorded on a different type of camera.

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USING AUDIO

Adding Audio to a Snapshot

The dubbing feature of your camera lets you add audio to a snapshot after you shoot it. A snapshot that includes audio (regardless of whether the audio was recorded on the spot or added later) is indicated by the "[♪]" icon.
You can re-record a snapshot's audio whenever you want.
You can record up to about 30 seconds of audio for a snapshot.

- Audio is monaural.

1. **In the PLAY mode, use [◀] and [▶] to scroll through images and display the snapshot to which you want to add audio.**

2. **Press [MENU].**

3. **On the "PLAY" tab, select "Dubbing" and then press [▶].**

- This operation can be performed only while a snapshot is on the monitor screen.

4. **Press [SET] to start audio recording.**

5. **Press [SET] again to stop audio recording.**
Recording will stop automatically after about 30 seconds if you do not press [SET].

To play back snapshot audio

Perform the steps under "Listening to the Audio of an Audio Snapshot" on page 147.

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Re-recording Snapshot Audio

IMPORTANT!

- Note that you cannot restore the original audio once you delete or re-record the audio of a snapshot.

1. In the PLAY mode, use [◀] and [▶] to scroll through images and display the snapshot whose audio you want to re-record.

2. Press [MENU].

3. On the "PLAY" tab, select "Dubbing" and then press [▶].

4. Use [▲] and [▼] to select "Delete" and then press [SET].

- If you just want to delete the audio of the snapshot without re-recording anything, press [MENU] here and skip the rest of this procedure.

5. Press [SET] to start audio recording.

This deletes the previous recording and replaces it with the new one.

6. Press [SET] again to stop audio recording.

Recording will stop automatically after about 30 seconds if you do not press [SET].

NOTE

- Your camera supports the following audio data formats.
  - Audio Format: WAVE/ADPCM (.WAV extension)
  - Approximate Audio File Size: 165KB (30-second recording at 5.5KB per second)
- See page 83 for recording precautions.

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Recording Audio Only (Voice Recording)

Voice Recording lets you record audio only, without a snapshot or movie.

Using built-in memory only, you get up to about 36 minutes of Voice Recording.

1. In a REC mode, align the mode dial with "BS", and then press [SET].

2. Use [▲], [▼], [◀], and [▶] to select "Voice Recording" and then press [SET].

This causes " " to appear on the monitor screen.

3. Press the shutter button to start recording.

- The operation lamp flashes green while recording is in progress.
- Pressing [SET] during recording will insert a marker into the recording. During later playback, you will be able to jump to the markers in the recording.



4. Press the shutter button again to stop audio recording and return to the screen in step 3.

- Recording also will stop automatically if memory becomes full.

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5. Now you can repeat steps 3 and 4 to record more, or you can exit this procedure by pressing [SET] and selecting another BEST SHOT scene.

NOTE

- You can also play back Voice Recording data on your computer using Windows Media Player or QuickTime.
- Your camera supports the following audio data formats.
  - Audio Data: WAVE/ADPCM (.WAV extension)
  - Approximate Audio File Size: 165 KB (30-second recording at 5.5KB per second)
- See page 83 for recording precautions.

■ Playing Back Voice Recording Data

1. Enter the PLAY mode, and then use [◀] and [▶] to display the Voice Recording file you want to play.

"  " is displayed in place of an image for a Voice Recording file.

2. Press [SET] to start playback.



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Voice Recording Playback Controls

To do this:	Do this:
Fast forward or fast reverse playback.	Hold down [▶] or [◀].
Pause or restart playback	Press [SET].
Jump to a marker in the audio data while playback is paused.	Press [▶] or [◀].
Adjust volume • You can adjust volume only while playback is in progress or paused.	Press [▼] and then use [▲] and [▼].
Toggle on-screen indicators on or off	Press [▲] (DISP).
Stop playback	Press [MENU].

MANAGING YOUR FILES

Files and Folders

Your camera treats each snapshot, movie, and Voice Recording, as a separate file.

You can delete, protect, and copy files as required.

Files are grouped in folders that are created automatically by the camera.

Files and folders have their own unique names, which are assigned automatically by the camera.

- For details about how folders are organized in memory, see “Memory Folder Structure” (page 248).

	Name and Maximum Number Allowed	Example
File	Each folder can contain up to 9999 files named CIMG0001 through CIMG9999. The extension on the file name depends on the file type. • If a folder already contains 9999 files, recording another file will cause a new folder to be created automatically.	26th file name: CIMG0026.JPG *Serial number (4 digits)* *Extension*
Folders	Folders are named from 100CASIO* to 999CASIO* • There can be up to 900 folders. * The BEST SHOT mode (page 96) includes a sample scene that optimizes settings for auction site images. Depending on your camera model, the sample scene is named either “For eBay” or “Auction”. – Images recorded with the eBay scene are stored in a folder named “100_EBAY”. – Images recorded with the Auction scene are stored in a folder named “100_AUCT”.	100th folder name: 100CASIO* *Serial number (3 digits)*

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NOTE

- You can view folder and file names on your computer. For details about how file names are displayed on the camera's monitor screen, see page 254.
- The total number of folders and files that is allowed depends on the image size and quality, and capacity of the memory card being used for storage.

Protecting a File Against Deletion

You can protect an important file to ensure that it cannot be deleted accidentally.

IMPORTANT!

- Note that even if a file is protected, it will be deleted if you perform the format operation (pages 14, 50, 205).

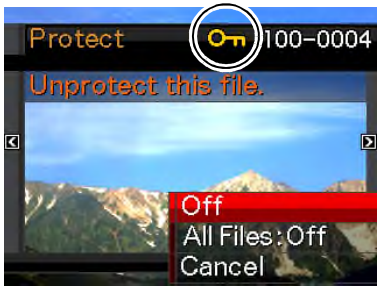
■ Protecting a Specific File

1. **In the PLAY mode, press [MENU].**
2. **On the "PLAY" tab, select "Protect" and then press [▶].**
3. **Use [◀] and [▶] to scroll through images until the one you want to protect is on the monitor screen.**

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4. Use [▲] and [▼] to select “On” and then press [SET].

An image that is protected is indicated by the “ ” icon.



5. Now you can repeat steps 3 and 4 to protect another image or exit this procedure by pressing [MENU].

To unprotect a specific file

Perform the procedure under “Protecting a Specific File”, but in step 4 select “Off” instead of “On”.

■ Protecting All Files in Memory

1. In the PLAY mode, press [MENU].

2. On the “PLAY” tab, select “Protect” and then press [▶].

3. Use [▲] and [▼] to select “All Files : On” and then press [SET].

This protects all files currently in memory.

4. Press [MENU].

To unprotect all files in memory

Perform the procedure under “Protecting All Files in Memory”, but in step 3 select “All Files : Off” instead of “All Files : On”.

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Using the FAVORITE Folder

The FAVORITE folder is located in the camera's built-in memory, and you can use it to store personal snapshots that you do not want displayed during normal PLAY mode operations. FAVORITE folder snapshots remain in camera memory, even if you change to a different memory card.

IMPORTANT!

- The FAVORITE folder can be used for snapshots only. Saving an audio snapshot in the FAVORITE folder will save the snapshot part only.

Copying a File to the FAVORITE Folder

1. **In the PLAY mode, press [MENU].**
2. **On the "PLAY" tab, select "Favorites" and then press [▶].**
3. **Use [▲] and [▼] to select "Save" and then press [SET].**
4. **Use [◀] and [▶] to select the snapshot you want to copy to the FAVORITE folder.**
5. **Use [▲] and [▼] to select "Save", and then press [SET].**
   This saves a copy of the snapshot to the FAVORITE folder.
6. **Now you can repeat steps 4 and 5 to save another image, or press [MENU] twice to exit this procedure.**

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IMPORTANT!

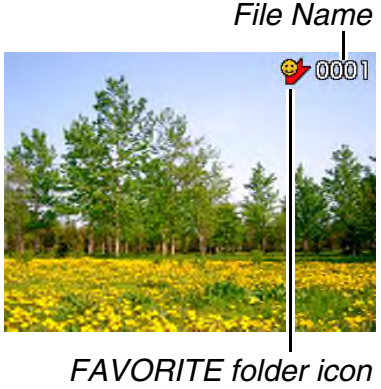
- The snapshot copied to the FAVORITE folder is converted to QVGA size (320 × 240 pixels). A snapshot in the FAVORITE folder cannot be restored to its original size.
- Snapshots in the FAVORITE folder cannot be copied to a memory card.

NOTE

- The number of snapshots that can be stored in the FAVORITE folder depends on the image quality of each one, and how much built-in memory capacity is remaining.

Viewing Snapshots in the FAVORITE Folder

1. **In the PLAY mode, press [MENU].**
2. **On the "PLAY" tab, select "Favorites" and then press [▶].**
3. **Use [▲] and [▼] to select "Show" and then press [SET].**
4. **Use [◀] and [▶] to scroll through the snapshots in the FAVORITE folder.**



5. **After you are finished viewing the FAVORITE folder snapshots, press [MENU] twice to exit this procedure.**

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Perform the following steps to view FAVORITE folder contents on your computer.

1. **Remove the memory card from the camera.**
2. **Place the camera on the USB cradle (which is connected to the computer).**
3. **Perform the required operations on your computer to navigate to the camera's memory and display the FAVORITE folder contents.**

Copying Files

Files can be copied from the camera's built-in memory to a memory card, or from a memory card to built-in memory.
This makes it possible, for example, to perform the following steps and copy a file from your memory card to another person's memory card.

① Copy the file from your memory card to the camera's built-in memory.
② Remove your memory card and insert the other person's memory card.
③ Copy the file from built-in memory to the other memory card.

IMPORTANT!

- You can copy snapshots, movies, audio snapshots, or Voice Recording files you recorded with your camera.
- You cannot copy a snapshot that is in the FAVORITE folder.
- When a copied file image appears on the full-month calendar screen, it is displayed on the date that it was copied (page 160).

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Copying All Files in Built-in Memory to a Memory Card

The following operation copies all files from built-in memory to a memory card. You cannot copy files individually.

1. **Load the memory card to which you want to copy the files into the camera.**
2. **Turn on the camera, enter the PLAY mode and then press [MENU].**
3. **On the "PLAY" tab, select "Copy" and then press [▶].**
4. **Use [▲] and [▼] to select "Built-in → Card" and then press [SET].**

   This starts the copy operation. Wait until the "Busy... Please wait..." message disappears from the monitor screen before performing any operation on the camera.

   - After the copy operation is complete, the last file copied will be displayed on the monitor screen.

Copying a Single File from a Memory Card to Built-in Memory

With this procedure, files must be copied one-by-one.

1. **Load the memory card that contains the file you want to copy into the camera.**
2. **Turn on the camera, enter the PLAY mode and then press [MENU].**
3. **On the "PLAY" tab, select "Copy" and then press [▶].**
4. **Use [▲] and [▼] to select "Card → Built-in" and then press [SET].**
5. **Use [◀] and [▶] to select the file you want to copy.**
6. **Use [▲] and [▼] to select "Copy" and then press [SET].**

   This starts the copy operation. Wait until the "Busy... Please wait..." message disappears from the monitor screen before performing any operation on the camera.

   - The copied image reappears on the monitor screen after the copy operation is complete.

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7. Now you can repeat steps 5 and 6 to copy another file, or you can exit this procedure by pressing [MENU].

NOTE

- Files are copied to the folder in built-in memory whose name has the largest serial number.

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DELETING FILES

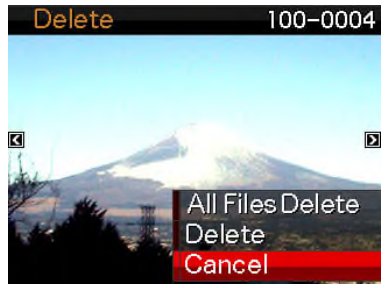
You can delete files you no longer need, or after you transfer them to your computer's hard disk or print them. This frees up memory for new files.
You can delete one specific file, or you can delete all files currently in memory.
Here we will explain the different file delete procedures, including how to delete snapshots from the FAVORITE folders.

IMPORTANT!

- Remember that a file delete operation cannot be undone. Always make sure that you really no longer need a file before deleting it.
- A protected file cannot be deleted. To delete a protected file, first remove its protection (page 185).
- Deleting an audio snapshot deletes both the snapshot and the audio file.

Deleting a Specific File

1. In the PLAY mode, press [▼] ( ).



2. Use [◀] and [▶] to scroll through the images until the one for the file you want to delete is on the monitor screen.

3. Use [▲] and [▼] to select "Delete" and then press [SET].

- To exit the delete operation without deleting anything, select "Cancel".

4. Now you can repeat steps 2 and 3 to delete another file.

- You can exit this procedure by pressing [MENU].

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Deleting All Files

1. **In the PLAY mode, press [▼] (🗑 ϟ).**
2. **Use [▲] and [▼] to select “All Files Delete” and then press [SET].**
3. **In response to the confirmation message that appears, use [▲] and [▼] to select “Yes”.**
   - To cancel the delete operation, select “No” instead of “Yes”.
4. **Press [SET].**
   - This deletes all of the files and displays the message “There are no files.”

Deleting FAVORITE Folder Snapshots

You can delete a single snapshot, or you can delete all the snapshots currently in the FAVORITE folder.

1. **In the PLAY mode, press [MENU].**
2. **On the “PLAY” tab, select “Favorites” and then press [▶].**
3. **Use [▲] and [▼] to select “Show” and then press [SET].**
4. **Press [▼] (🗑 ϟ).**
5. **Use the procedures under “Deleting a Specific File” and “Deleting All Files” to delete the snapshots you want.**
   - You can exit this procedure by pressing [MENU] twice.

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Configuring Camera Sound Settings

Your camera lets you configure the following sound settings.

- Type of sound and volume for shutter release and other operations
- Volume level for movie and Voice Recording playback

■ Selecting the Operation Sound

1. **Press [MENU].**
2. **On the "Set Up" tab, select "Sounds" and then press [▶].**
3. **Use [▲] and [▼] to select the operation whose sound you want to configure (Startup, Half Shutter, Shutter, Operation) and then press [▶].**
4. **Use [▲] and [▼] to select the setting you want and then press [SET].**

To do this:	Select this setting:
Sound one of the built-in sounds (1 through 5)	Sound 1 - 5
Turn sound off	Off

■ Setting the Operation Tone Volume Level

1. **Press [MENU].**
2. **On the "Set Up" tab, select "Sounds" and then press [▶].**
3. **Use [▲] and [▼] to select "Operation".**
4. **Use [◀] and [▶] to specify the playback volume setting you want and then press [SET].**
   - You can set the volume to one of eight levels in the range of 0 (lowest) to 7 (highest).
   - Setting a volume level of 0 mutes the sound.

NOTE

- The volume setting you configure here is also applied to video output (page 154).

■ Setting the Playback Volume Level

You can use this procedure to set the playback volume level for movies and audio snapshots, independent of the operation tone volume.

1. **Press [MENU].**
2. **On the "Set Up" tab, select "Sounds" and then press [▶].**
3. **Use [▲] and [▼] to select "Play".**
4. **Use [◀] and [▶] to specify the operation tone volume setting you want and then press [SET].**
   - You can set the volume to one of eight levels in the range of 0 (lowest) to 7 (highest).
   - Setting a volume level of 0 mutes the sound.

IMPORTANT!

- The volume setting you configure here does not affect the video output (page 154).

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Turning the Startup Screen On or Off

You can configure the camera to display a startup screen of an image you recorded, whenever you turn it on.

- Even if you configure startup screen settings in the PLAY mode, the startup screen does not appear when turn on the camera by pressing [▶] (PLAY).

1. Press [MENU].

2. On the "Set Up" tab, select "Startup" and then press [▶].

3. Use [◀] and [▶] to scroll through the images until the one you want to use as the startup screen is on the monitor screen.

4. Use [▲] and [▼] to select the setting you want and then press [SET].

To do this:	Select this setting:
Use the selected image as the startup screen	On
Turn off the startup screen	Off

NOTE

- The following are the types of images that you can select for the startup screen.
  - Special startup screen images built into the camera
  - Snapshots
  - Audio snapshots (Audio does not play.)
- Only one startup screen image can be in effect at any time. To change the startup screen to another image, simply overwrite the current image with the new one.
- Formatting built-in memory (page 205) will delete the current startup screen image.

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Specifying the File Name Serial Number Generation Rule

Use the following procedure to specify the rule that governs generation of the serial number used in file names (page 184).

1. **Press [MENU].**
2. **On the "Set Up" tab, select "File No." and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

To have the camera do this:	Select this setting:
Remember the numbers used for files. Files will be named using the next sequential number, even if files are deleted or if a blank memory card is loaded. • If a memory card is loaded that already has files stored on it and the largest sequential number in the existing file names is greater than the largest sequential number remembered by the camera, numbering of new files will start from the largest sequential number in the existing file names plus 1.	Continue
Restart the serial number from 0001 whenever all files are deleted or when the memory card is replaced with a blank one. • If a memory card is loaded that already has files stored on it, numbering of new files will start from the largest sequential number in the existing file names number plus 1.	Reset

Changing the Camera Date and Time Setting

When changing the date and time setting, be sure to do so for your Home City (the location where you normally use the camera). If you already have your Home City setting configured correctly, you can use the procedure under “Setting the Date and Time for Your Home City” (page 199) to change the current time setting only, if you want.

IMPORTANT!

- Changing the time and date setting without correctly configuring your Home City setting first will cause all of the World Time (page 200) dates and times to be off.

■ Selecting Your Home City

1. **Press [MENU].**
2. **On the “Set Up” tab, select “World Time” and then press [▶].**
   This displays the current World Time settings.
3. **Use [▲] and [▼] to select “Home” and then press [▶].**
4. **Use [▲] and [▼] to select “City” and then press [▶].**
5. **Use [▲], [▼], [◀], and [▶] to select the area where your Home City is located and then press [SET].**
6. **Use [▲] and [▼] to select your home city and then press [SET].**
7. **After the setting is the way you want, press [SET] to exit the setting screen.**

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■ Setting the Date and Time for Your Home City

1. **Press [MENU].**
2. **On the "Set Up" tab, select "Adjust" and then press [▶].**
3. **Set the date and the time.**

To do this:	Do this:
Move the cursor between settings	Press [◀] or [▶]
Change the setting at the cursor location	Press [▲] or [▼]
Toggle between 12-hour and 24-hour format	Slide the zoom controller towards [W] or [T].

4. **After all of the settings are the way you want, press [SET] to exit the setting screen.**

■ Changing the Date Format

You can select from among three different formats for the date.

1. **Press [MENU].**
2. **On the "Set Up" tab, select "Date Style" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

Example: December 19, 2007

To display the date like this:	Select this format:
07/12/19	YY/MM/DD
19/12/07	DD/MM/YY
12/19/07	MM/DD/YY

Using World Time

You can use the World Time screen to view the current time in zone that is different from your Home City when you go on a trip, etc. World Time displays the current time in 162 cities in 32 time zones around the globe.

Configuring World Time Settings

1. **Press [MENU].**
2. **On the “Set Up” tab, select “World Time” and then press [▶].**
3. **Use [▲] and [▼] to select “World” and then press [▶].**
4. **Use [▲] and [▼] to select “City” and then press [▶].**



- To configure the summer time setting, use [▲] and [▼] to select “DST” and then select “On”.
- Summer time is used in some areas to advance the current time setting by one hour during the summer months.
- Use of summer time depends on the local customs and laws.

5. **Use [▲], [▼], [◀], and [▶] to select the area where the city you want to view is located and then press [SET].**
6. **Use [▲] and [▼] to select the city you want and then press [SET].**
7. **After the setting is the way you want, press [SET] to exit the setting screen.**

Switching between the Home Time and World Time Screens

1. **Press [MENU].**
2. **On the “Set Up” tab, select “World Time” and then press [▶].**
3. **Use [▲] and [▼] to select “World” for the World Time screen, or “Home” for the Home Time screen.**
4. **After selecting the screen you want, press [SET] to exit the setting screen.**

Changing the Display Language

You can use the procedure below to select a display text language.

- The number and types of languages depend on the geographic area where the camera was marketed.

1. **Press [MENU].**
2. **On the “Set Up” tab, select “Language” and then press [▶].**
3. **Use [▲], [▼], [◀], and [▶] to select the setting you want and then press [SET].**

Changing the Brightness of the Monitor Screen

You can use the following procedure to change the brightness of the monitor screen.

1. **Press [MENU].**
2. **Select the "Set Up" tab, select "Screen", and then press [▶]**
3. **Use [▲] and [▼] to select the setting you want, and then press [SET].**

When you want to do this:	Select this setting:
Automatic adjustment of monitor screen brightness in accordance with lighting conditions • Auto 2 adjusts to a brighter setting more quickly than Auto 1.	Auto 1 or Auto 2
Higher monitor screen brightness than the +1 setting • This setting consumes more power.	+2
Relatively higher monitor screen brightness than the 0 setting (for outdoor use) • This setting consumes more power.	+1
Normal monitor screen brightness (for indoor use)	0

Changing the USB Port Protocol

You can use the procedure below to change the USB communication protocol that is used when exchanging data with a computer, printer, or other external device. Select the protocol that suits the device to which you are connecting.

1. **Press [MENU].**
2. **On the "Set Up" tab, select "USB" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

When you want to connect to this type of device:	Select this setting:
Computer or a printer that supports USB DIRECT-PRINT (page 208) With this setting, the computer sees the camera as an external storage device. Use this setting for normal transfer of images from the camera to a computer (using the bundled Photo Loader with HOT ALBUM application).	Mass Storage (USB DIRECT-PRINT)
Printer that supports PictBridge (page 208) This setting simplifies the transfer of image data to the connected device.	PTP (PictBridge)

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Configuring [▶] (PLAY) Button Settings

You can use the procedure below to specify what happens when you press the [▶] (PLAY) button.

1. **Press [MENU].**
2. **On the "Set Up" tab, select "▶ Power On" and then press [▶].**
3. **Use [▲] and [▼] to select the setting you want and then press [SET].**

To configure the button to do this when pressed:	Select this setting:
Turn on the camera	Power On
Turn on the camera when held down for about one second • This setting prevents turning on the camera accidentally when it is being carried in a bag, etc.	Hold: On
Do not turn on the camera	Disable

NOTE

- The initial factory default for this setting is "Power On".
- Change this setting to anything besides "Disable" before connecting to a TV for image viewing.

Formatting Built-in Memory

Formatting built-in memory deletes any data stored in it.

IMPORTANT!

- Note that data deleted by a format operation cannot be recovered. Check to make sure you do not need any of the data in built-in memory before you format it.
- Formatting built-in memory also deletes the following.
  - Protected images
  - FAVORITE folder images
  - BEST SHOT mode user setups
  - Startup screen
- Make sure that the battery is charged fully before starting a formatting operation. Formatting may not be performed correctly and the camera may stop operating normally if the camera powers down while formatting is in progress.
- Never open the battery cover while formatting is in progress. Doing so can cause the camera to stop operating normally.

1. Check to make sure there is no memory card loaded in the camera.

- If there is a memory card loaded in the camera, remove it.

2. Press [MENU].

3. On the "Set Up" tab, select "Format" and then press [▶].

4. Use [▲] and [▼] to select "Format" and then press [SET].

This formats built-in memory.

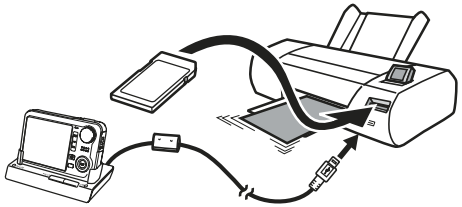
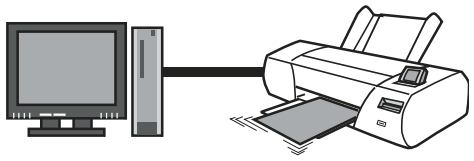
- To exit the format operation without formatting, select "Cancel".
- Entering the PLAY mode after formatting the built-in memory will cause the message "There are no files." to appear.

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PRINTING

Types of Printing

There are three different methods you can use for printing images.

Professional Print Service (page 207)		Take the memory card that contains the images you want to print to a professional print service. • You can use DPOF settings to specify which images you want to print, the number of copies, and date stamp settings before taking the card in for printing.
Printing at Home	Printing on a Printer (page 208) 	Print on a printer that supports PictBridge or USB DIRECT-PRINT, or on a printer equipped with a memory card slot. • You can use DPOF settings to specify which images you want to print, the number of copies, and date stamp settings before printing.
	Printing with a Computer 	■ **Windows Computer** Install the software (Photo Loader with HOT ALBUM) that comes bundled with the camera. See “Using the Camera with a Windows Computer” on page 217. ■ **Macintosh** After transferring the images to your Macintosh, use commercially available software to print. See “Using the Camera with a Macintosh” on page 239.

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Printing Precautions

- See the documentation that comes with your printer for information about print quality and paper settings.
- Contact the manufacturer of your printer to find out if it supports PictBridge or USB DIRECT-PRINT, for new printer versions, etc.
- Never disconnect cables or perform any camera or USB cradle operation while printing is in progress. Doing so can cause a printer error.

Using Professional Print Service

Take a memory card that contains the images you want to print to the professional print service. Before taking in a memory card, you can use the camera's DPOF settings (page 211) to specify which images you want printed, the number of copies, and whether or not the images should include a date stamp.

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Using Your Printer to Print Images

If your printer is either of the types described below, you can use it to print without going through a computer.

– Printer equipped with a card slot for the type of memory card you are using
– Printer that support PictBridge or USB DIRECT-PRINT

Printing on a Printer with a Memory Card Slot

Remove a memory card from the camera and insert it directly into the printer's memory card slot. Depending on what type of printer you are using, it also may be able to read the settings (images to be printed, number of copies, date stamping) you configure with the camera's DPOF settings (page 211). For details, see the user documentation that comes with your printer.

Printing on a Printer that Supports PictBridge or USB DIRECT-PRINT

You can connect the camera directly to a PictBridge or USB DIRECT-PRINT compliant printer and print images without going through a computer.

- The camera's USB cradle also allows easy connection to a printer. Before connecting to a printer via the USB cradle, be sure to perform the following procedure first.

1. Press [MENU].

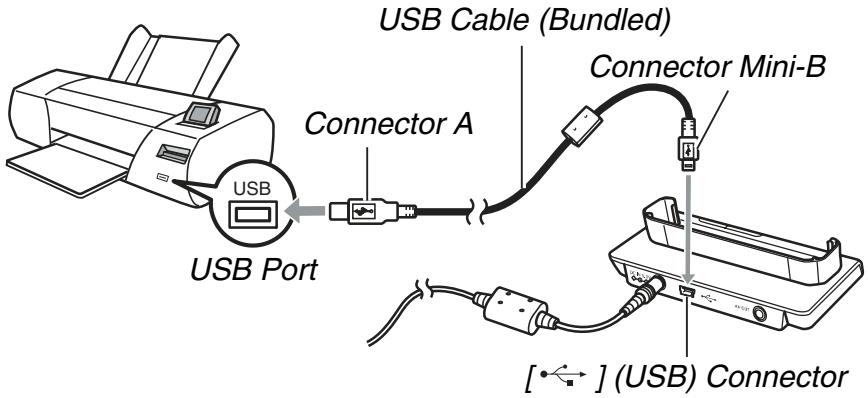
2. On the "Set Up" tab, select "USB" and then press [▶].

3. Use [▲] and [▼] to select the setting that suits your printer and then press [SET].

For this type of printer:	Select this setting:
USB DIRECT-PRINT compatible	Mass Storage
PictBridge compatible	PTP

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4. Connect the USB cable that comes bundled with the camera to the USB cradle and your printer's USB port.



- Also, connect the AC adaptor to the cradle and plug the adaptor into an electrical outlet.
- If you do not plan to use the AC adaptor, make sure that the camera's battery is fully charged.
- Nothing appears on the camera's monitor screen if the camera is on the USB cradle while the bundled AV cable is connected to the cradle. Be sure to disconnect the AV cable from the cradle if you want to use the camera's monitor screen to view images.

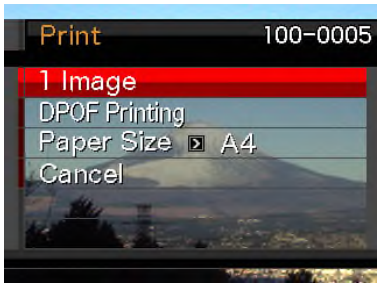
5. Turn off the camera and place it onto the USB cradle.

6. Turn on the printer.

7. Load paper into the printer.

8. Press the USB cradle's [USB] button.

This displays a print menu on the camera's monitor screen.



9. Use [▲] and [▼] to select “Paper Size” and then press [▶].

10. Use [▲] and [▼] to select a paper size and then press [SET].

- The following are the available paper sizes.
  3.5" × 5", 5" × 7", 4" × 6", A4, 8.5" × 11", By Printer
- Selecting “By Printer” prints using a paper size selected on the printer.
- Available paper settings depend on the connected printer. For full details, see the user documentation that comes with your printer.

11. Use [▲] and [▼] to specify the print option you want.

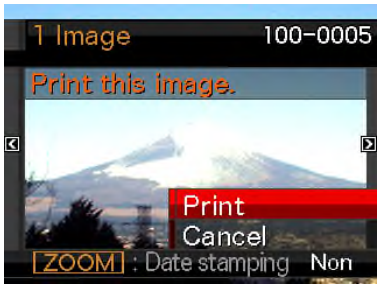
If you want to print a specific image:

Select “1 Image” and then press [SET]. After that, use [◀] and [▶] to display the image you want to print.

If you want to print multiple images:

Select “DPOF Printing” and then press [SET]. Next, use the DPOF settings (page 211) to specify the images you want to select.

- To toggle date stamping on and off, slide the zoom controller. The date stamp will be printed when “On” is indicated on the monitor screen.



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12. Use [▲] and [▼] to select "Print" and then press [SET].

Printing will start and the message "Busy... Please wait..." will appear on the monitor screen. The message will disappear after a short while, even though printing is still being performed. Pressing any camera button will cause the printing status message to re-appear.

The print menu screen will re-appear when printing is complete.

- If you selected "1 Image" in step 11, you can repeat the procedure from step 11 to print other images, if you want.

13. After you are finished printing, press the USB cradle's [USB] button.

This will turn off the camera.

Using DPOF to Specify Images to be Printed and the Number of Copies

DPOF (Digital Print Order Format) lets you specify which images you want to print, the number of copies, and whether date stamping is turned on or off. The settings you configure are recorded on the memory card. After configuring settings you can use the memory card to print on a home printer that supports DPOF or take the memory card to a professional print service. With DPOF, you can configure settings while viewing the actual images on the camera's monitor screen, so there is no need to recall hard-to-remember files names, etc.

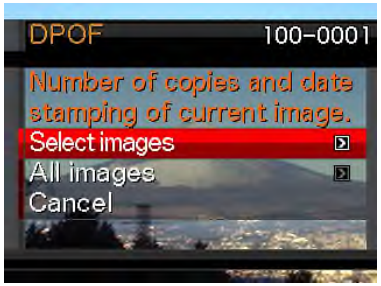
IMPORTANT!

- Some printers may ignore time stamp settings or may not support DPOF at all. Check the user documentation that comes with your printer for details.
- Certain print service providers may not support DPOF or may support different printing protocols. In this case, you will need to perform printing in accordance with the instructions provided by the print service you are using.

Configuring DPOF Settings Individually for Each Image

1. **In the PLAY mode, press [MENU].**

2. **On the "PLAY" tab, select "DPOF Printing" and then press [▶].**



3. **Use [▲] and [▼] to select "Select images" and then press [▶].**

4. **Use [◀] and [▶] to scroll through the images until the one you want to print is on the monitor screen.**

5. **Use [▲] and [▼] to specify the number of copies.**
   - You can specify up to 99 for the number of copies. Specify 0 if you do not want to print the image.

6. **If you want to include the date in the images, slide the zoom controller to turn on date stamping.**
   - To turn off date stamping, slide the zoom controller so "Off" is displayed.
   - Repeat steps 4 through 6 to configure settings for other images, if you want.

7. **After everything is the way you want, press [SET] to save the settings.**

Configuring the Same DPOF Settings for All the Images

1. **In the PLAY mode, press [MENU].**
2. **On the "PLAY" tab, select "DPOF Printing" and then press [▶].**
3. **Use [▲] and [▼] to select "All images" and then press [▶].**
4. **Use [▲] and [▼] to specify the number of copies.**
   - You can specify up to 99 for the number of copies. Specify 0 if you do not want to print.
5. **If you want to include the date in all the images, slide the zoom controller to turn on date stamping.**
   - To turn off date stamping, slide the zoom controller so "Off" is displayed.
6. **After everything is the way you want, press [SET] to save the settings.**

Clear DPOF settings when you no longer need them!

DPOF settings are not cleared automatically after printing is complete. This means that if you perform another printing operation without clearing DPOF settings, printing will be performed in accordance with the last settings you configured. If you no longer need the currently configured DPOF settings, use the procedure under "Configuring the Same DPOF Settings for All the Images" to change the number of copies setting for all the images to 00.

Tell your print service about your DPOF settings!

If you take a memory card to a professional print service, be sure to tell them that it includes DPOF settings for the images to be printed and the number of copies. If you don't, the print service may print all the images without regard to your DPOF settings, or they may ignore your date stamp setting.

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Date Stamping

You can use any one of the following three methods to include the recording date in the printout of an image.

- **Configure DPOF settings on the camera to specify date stamping (page 211)**
  - If an image already has the date or time stamped into it using the camera's Date Stamping feature, turning on DPOF date stamping will cause the two dates to be stamped in the same location. Be sure to turn off DPOF date stamping when printing an image that is stamped with the camera's Date Stamping function.
  - Some printers may ignore time stamp settings or may not support DPOF at all. Check the user documentation that comes with your printer for details.
  - Note that some professional print services do not support DPOF printing. Check with your service before ordering prints.
- **The camera's Date Stamping feature stamps the date and time directly into the image data (page 137).**
- **You can insert dates using the bundled Photo Loader with HOT ALBUM (page 217) software (Windows only).**
- **Request date stamping when ordering prints from a professional print service**
  - Some print services do not support date printing. Check with your service for more information.

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Supported Protocols

Your camera supports the protocols described below.

PictBridge

Camera and Imaging Products Association (CIPA)

USB DIRECT-PRINT

Seiko Epson Corporation

PRINT Image Matching III

Using image editing software and printing on a printer that also supports PRINT Image Matching III makes it possible to use information about shooting conditions that is recorded with the image, and produce exactly the type of image you want.

PRINT Image Matching and PRINT Image Matching III are trademarks of Seiko Epson Corporation.

Exif Print

Printing on a printer that also supports Exif Print (Exif 2.2) uses information about shooting conditions recorded with the image to enhance printed image quality.

Contact your printer manufacturer for information about models that support Exif Print, printer upgrades, etc.

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USING THE CAMERA WITH A COMPUTER

What you can do

Connecting the camera to a computer with the bundled USB cable provides you with the capabilities described below.

View and store images*	You can use your computer to view camera images and for long-term storage of images. • With some versions of Windows you need to install the USB driver that comes bundled with the camera. • Installation of a USB driver is not required for the Apple Macintosh.
Manage, edit, and print images	You can use the software that comes bundled with the camera to perform various operations with the images stored on your computer's hard disk. • Refer to the explanations later in this section and install the required software on your computers.
Transfer images to the camera	On a Windows computer (only), you can transfer images from your computer to camera memory. • You can even transfer images that were not originally recorded with the camera. You can capture (cut) a portion of the image (web page, map, etc.) currently on your computer screen and transfer it to camera memory.

* You can also transfer images to a computer for viewing and storage without connecting the camera, by removing the memory card from the camera and reading the contents of the card with your computer (page 247).

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The procedures you need to perform when using the camera with your computer and when using the bundled software are different for Windows and the Macintosh.

- Windows users should refer to “Using the Camera with a Windows Computer” on page 217.
- Macintosh users should refer to “Using the Camera with a Macintosh” on page 239.

IMPORTANT!

- This camera supports USB 2.0 Hi-Speed protocol. Though it can be used with a computer that supports only USB 1.1 protocol, higher speed data transfer becomes possible when USB 2.0 Hi-Speed is supported. Note that certain computer models, connecting through a USB hub, and other system conditions can slow down data transfer and even cause operational problems.

Using the Camera with a Windows Computer

Install the required software in accordance with what version of Windows you are running and what you want to do.

Objective	Windows Version	Install this software:	See page:
• Viewing images on a computer • Storing images on a computer	Vista/XP/ 2000/Me	– (USB driver not required.)	–
	98SE/98	**USB driver Type B** (USB driver. Be sure to install this driver.)	221
Transfer of images from the camera and management of images on the computer	Vista/XP/ 2000	**Photo Loader with HOT ALBUM 3.1** **DirectX 9.0c** (When DirectX 9.0 or higher is not installed on the computer already.)	229

Objective	Windows Version	Install this software:	See page:
Play movies	XP/2000	**QuickTime 7**	231
Edit movies	Vista/XP/ 2000	**Movie Wizard 3.2 SE VCD** • You also need to install DirectX, Microsoft Windows Media Player, QuickTime 7, and Flash Player separately.	232
	XP/2000	**VideoStudio 10 Plus for CASIO (Trial Version)** • This is the Trial Version of the software, whose use is limited to 30 days following installation. • You also need to install DirectX, Microsoft Windows Media Player, QuickTime 7, and Flash Player separately.	233
	Me/98SE/ 98	– • Use commercial software as required.	–
Transfer images to the camera	Vista/XP/ 2000/Me/ 98SE/98	**Photo Transport 1.0**	233

Objective	Windows Version	Install this software:	See page:
View the User's Guide	XP/2000/ Me/98SE	**Adobe Reader 6.0** (Not required if already installed.)	237
	98	– • If your computer does not have Adobe Reader or Adobe Acrobat Reader installed already, go to the Adobe Systems Incorporated website to download and install Acrobat Reader 5.0.5.	–

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Computer System Requirements for Bundled Software

Computer system requirements are different for each of the applications. Be sure to check the requirements for the particular application you are trying to use. Note that the values provided here are minimum requirements for running each application. Actual requirements are greater, depending on the number of images and the sizes of the images being handled.

USB driver Type B

- Installation is not required in the case of Windows Vista, XP, 2000, and Me.
- Correct operation is not guaranteed on a computer that has been upgraded from Windows 95 or 3.1.

Photo Loader with HOT ALBUM 3.1

HD : At least 2GB
Other : DirectX 9.0 or higher

DirectX 9.0c

HD: 65MB for installation (18MB on hard disk)

Photo Transport 1.0

Memory : At least 64MB
HD : At least 2MB

Adobe Reader 6.0

CPU : Pentium
Memory : 32MB
HD : 60MB
Other : Internet Explorer 5.01 or higher

QuickTime 7

CPU : Pentium or higher
Memory : At least 128MB
OS : Windows 2000 Service Pack 4 / XP

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Movie Wizard 3.2 SE VCD

CPU : Intel Pentium 4, M, D, or Extreme Edition; or AMD Athlon 64 or higher

Memory : 256MB of RAM (at least 512MB recommended)

HD :
- 250MB space available for program installation
- At least 4GB space available for video capture and editing

Other : 1024 × 768 or higher display resolution
You also need to install DirectX, Microsoft Windows Media Player, QuickTime 7, and Flash Player separately.

VideoStudio 10 Plus for CASIO (Trial Version)
*** 30-day trial version**

CPU : Intel Pentium 4, M, D, or Extreme Edition; or AMD Athlon 64 or higher

Memory : 256MB of RAM (at least 512MB recommended)

HD :
- 250MB space available for program installation
- At least 4GB space available for video capture and editing

Other : 1024 × 768 or higher display resolution
You also need to install DirectX, Microsoft Windows Media Player, QuickTime 7, and Flash Player separately.

IMPORTANT!

- For details about the minimum system requirements for each software application, see the “Read me” files on the CD-ROM that comes bundled with the camera.

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Viewing and Storing Images on a Computer

You can view and store images (snapshot and movie files) on your computer by connecting to the camera via its USB cradle.

- Depending on what version of Windows your computer is running, you may need to install the USB driver from the bundled CD-ROM first.

General Procedure

1) If your computer is running Windows 98SE or 98, install the USB driver (page 221). If your computer is running Windows Vista, XP, 2000, or Me, proceed directly to step 2.

2) Use the USB cradle to connect the camera and computer (page 222).

3) View and copy the images you want (page 226).

Installing the USB Driver (Windows 98SE and 98 Only)

Do not try to establish a connection between the camera and computer before installing the USB driver on the computer.

If you do, the computer will not be able to recognize the camera.
If your computer is running Windows 98SE or 98, be sure to install the USB driver.
Do not connect the camera to your computer without installing the USB driver first.

The following operation shows how to install the USB driver on a computer running Windows 98. The procedure for Windows 98SE is slightly different, but the general flow is the same.

1. Set the bundled CD-ROM into the CD-ROM drive of your computer.

- Use the CD-ROM that has “USB driver” on its label.
- This will display the menu screen.

2. On the menu screen, click the “Language” down arrow button and then select the “English”.

- You could also click another language, if you prefer.

3. Click “USB driver B” to select it and then click “Install”.

4. Follow the instructions that appear on the dialog box and click “Next”.

5. When the final screen is reached, click “Finish”.

- Depending on the version of Windows that your computer is running, a message may appear telling you to restart your computer. If your computer displays such a message, restart.

6. To exit the installer, click [Exit] to close the CD-ROM menu and then remove the CD-ROM from your computer.

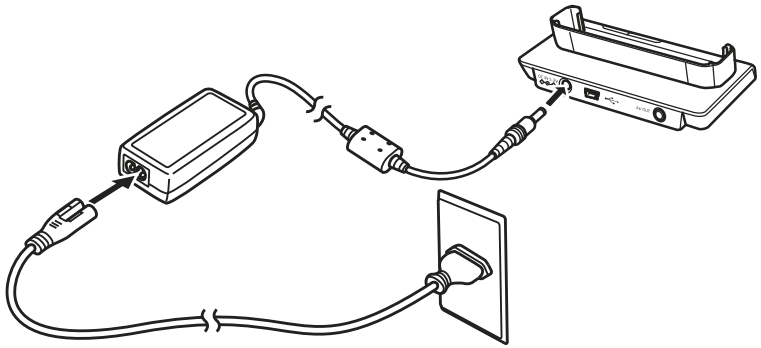
- Depending on what version of Windows your computer is running, your computer may restart automatically. If this happens, the CD-ROM menu may re-appear after the restart. Click “Exit” to exit the CD-ROM menu and then remove the CD-ROM from your computer.

Connecting the Camera to Your Computer the First Time

IMPORTANT!

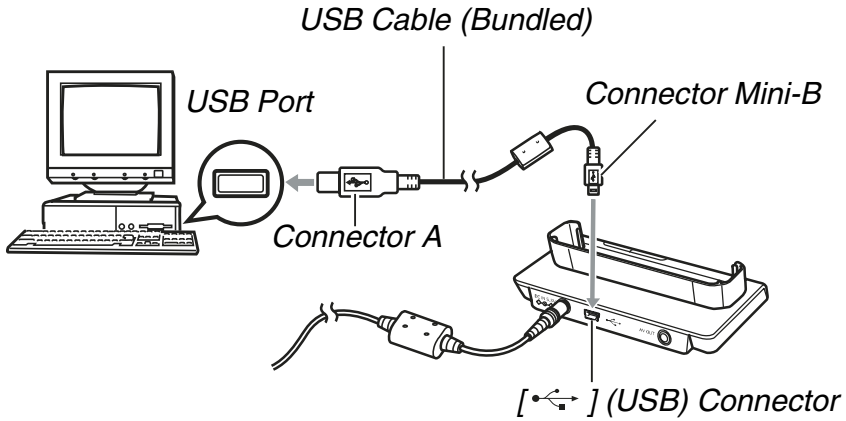
- If you are not using the AC adaptor to power the camera, the battery may go low and cause the camera to turn off while it is in the middle of exchanging files with your computer. Use of the special AC adaptor is recommended to power the camera.

1. Connect the bundled AC adaptor to the [DC IN 5.3V] connector of the USB cradle and then plug it in to a household power outlet.



- If you do not plan to use the AC adaptor, make sure that the camera's battery is fully charged.

2. Connect the USB cable that comes bundled with the camera to the USB cradle and the USB port of your computer.



- Orient the USB plug so it correctly matches the shape of the USB port when you connect them.
- Plug the USB cable into the ports securely, as far as it will go. Proper operation is not possible if connections are not correct.

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3. Open the lens cover to turn on the camera and then press [MENU].

- Do not place the camera on the USB cradle yet.

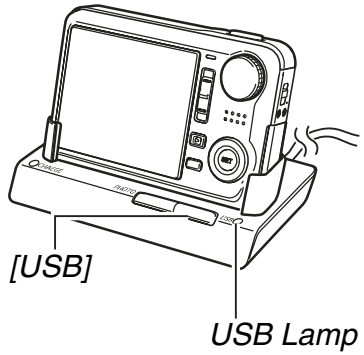
4. On the "Set Up" tab, select "USB" and then press [▶].

5. Use [▲] and [▼] to select "Mass Storage" and then press [SET].

6. Close the lens cover to turn off the camera and then place the camera onto the USB cradle.

- Do not place the camera onto the USB cradle while it is turned on.
- If you plan to transfer images from the camera's built-in memory to your computer, make sure there is no memory card loaded in the camera.

7. Press the USB cradle's [USB] button.



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Camera-Computer Connection

Pressing the cradle's [USB] button puts it into the USB mode, which is indicated by the USB lamp lighting green. In this mode, your computer recognizes the memory card loaded in the camera (or the camera's built-in memory if it does not have a memory card loaded) as a removable disk.

From now on, you will not have to perform steps 3 through 5 in the above procedure when you connect the camera to your computer (unless you change the camera's USB settings for some reason).

- With some Windows setups, you may see a guidance message appear on your display to let you know about the new removable disk. If this happens, simply close the guidance message dialog box.

IMPORTANT!

- Never disconnect the USB cable or remove the camera from the USB cradle without exiting the USB mode first. Doing so can corrupt image data. See "Removing the Camera from the USB Cradle" on page 229 for the correct steps you need to perform to remove the camera from the cradle safely.

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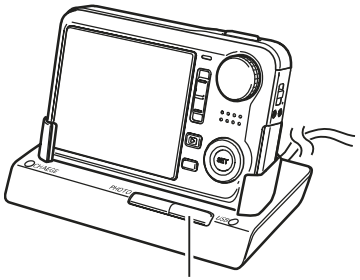
■ Connecting the Camera to Your Computer after the First Time

Since you need to install the USB driver and configure menu settings only the first time you connect the camera to your computer, later connections are much simpler.

1. Close the lens cover to turn off the camera and then place the camera onto the USB cradle.

2. Press the USB cradle's [USB] button.

- Pressing the cradle's [USB] button puts it into the USB mode, which is indicated by the USB lamp lighting green.



[USB]

■ Viewing Camera Images on Your Computer

After connecting the camera to your computer, you can view camera images on your computer screen.

1. Windows XP users: Click "Start" and then "My Computer".
Windows Vista users: Click "Start" and then "Computer".
Windows 2000/Me/98SE/98 users: Double-click "My Computer".

2. Double-click "Removable Disk".

- Your computer recognizes the memory card loaded in the camera (or built-in memory if there is no card) as a removable disk.

3. Double-click the "DCIM" folder.

4. Double-click the folder that contains the image you want to view.

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5. Double-click the file that contains the image you want to view.

This displays the image.

- For information about file names, see “Memory Folder Structure” on page 248.

NOTE

- An image that was rotated on the camera will be displayed on your computer screen in its original (unrotated) orientation.

Saving an Image on Your Computer

In order to work on an image or put it into an album, you must first save it to your computer. To save a camera image to your computer, you must first establish a connection between them via the camera’s USB cradle.

1. Windows XP users: Click “Start” and then “My Computer”.
Windows Vista users: Click “Start” and then “Computer”.
Windows 2000/Me/98SE/98 users: Double-click “My Computer”.

2. Double-click “Removable Disk”.

- Your computer recognizes the memory card loaded in the camera (or built-in memory if there is no card) as a removable disk.

3. Right-click the “DCIM” folder.

4. On the shortcut menu that appears, click "Copy".

5. Windows XP users: Click "Start" and then "My Documents".
Windows Vista users: Click "Start" and then "Documents".
Windows 2000/Me/98SE/98 users: Double-click "My Documents" to open it.

- If you already have a "DCIM" folder in "My Documents", the next step will overwrite it. If you want to keep the existing "DCIM" folder, you need to change its name or move it to a different location before performing the next step.

6. On the "My Document" "Edit" menu, select "Paste".

This will paste the "DCIM" folder (and all the image files it contains) into your "My Documents" folder. You now have a copy of the files that are in camera memory on your computer.

IMPORTANT!

- Never use your computer to modify, delete, move, or rename any image files that are in the camera's built-in memory or memory card. Doing so can cause problems with the camera's image management data, which will make it impossible to play back images on the camera and can drastically alter remaining memory capacity. Whenever you want to modify, delete, move, or rename an image, do so only on images that are stored on your computer.
- Never unplug the USB cable, or operate the camera or cradle while viewing or storing images. Doing so can cause data to become corrupted.

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■ Removing the Camera from the USB Cradle

Windows Vista/XP/98SE/98 Users

Press the USB cradle [USB] button. After making sure that the cradle's USB lamp is not lit, remove the camera from the cradle.

Windows 2000/Me Users

Click card services in the task tray on your computer screen, and disable the drive number assigned to the camera. Next, press the USB cradle [USB] button. After making sure that the cradle's USB lamp is not lit, remove the camera from the cradle.

Transfer of Images from the Camera and Management of Images on the Computer

To manage images on your computer, you need to install the Photo Loader with HOT ALBUM application from the CD-ROM that comes with the camera.
Photo Loader with HOT ALBUM lets you import images from the camera to your computer automatically, to arrange images by recording date, and to display images in a calendar format.

■ Installing Photo Loader with HOT ALBUM

1. Start up your computer, and place the bundled CD-ROM into its CD-ROM drive.

- Use the CD-ROM that has "Photo Loader with HOT ALBUM" on its label.
- Normally, this should cause the menu screen to appear automatically. If your computer does not display the menu screen automatically, navigate to the CD-ROM on your computer and then double-click the "MENU.exe" file.

2. On the menu screen, click the "Language" down arrow button and then select the language you want.

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3. **Click “Photo Loader with HOT ALBUM 3.1” to select it and then click “Read me”.**
   - “Read me” files contain important information about installation, including installation conditions and computer system requirements.
4. **Click “Install” for Photo Loader with HOT ALBUM.**
5. **Follow the instructions that appear on your computer screen to install Photo Loader with HOT ALBUM.**

Checking Your Computer’s DirectX Version

In order to manage images using Photo Loader with HOT ALBUM, your computer also needs to have Microsoft DirectX 9.0 or higher installed. You can check the installed version of Microsoft DirectX using your PC’s DirectX Diagnostic Tool.

1. **On your computer, click “Start”, “All Programs”, “Accessories”, “System Tools” and then “System Information”.**
2. **On the “Tools” menu, select “DirectX Diagnostic Tool”.**
3. **On the “System” tab, check to make sure that the “DirectX Version” is 9.0 or higher.**
4. **Click “Exit” to exit the DirectX Diagnostic Tool.**
   - If your PC already has Microsoft DirectX 9.0 or higher installed, you do not need to install Microsoft DirectX 9.0c from the bundled CD-ROM.
   - If your computer does not have Microsoft DirectX 9.0 or higher installed, install Microsoft DirectX 9.0c from the bundled CD-ROM.

Playing Movies

You can play back movies on a computer that has QuickTime 7 or higher installed. To play back a movie, first copy it to your computer and then double-click the movie file.



1. Start up your computer, and place the bundled CD-ROM into its CD-ROM drive.

- Use the CD-ROM that has “QuickTime 7” on its label.
- Normally, this should cause the menu screen to appear automatically. If your computer does not display the menu screen automatically, navigate to the CD-ROM on your computer and then double-click the “MENU.exe” file.

2. On the menu screen, click the tab for the language you want.

3. Click “QuickTime 7” to select it and then click “Read me”.

- “Read me” files contain important information about installation, including installation conditions and computer system requirements.

4. Click “Install” for QuickTime 7.

5. Follow the instructions that appear on your computer screen to install QuickTime 7.

■ Minimum Computer System Requirements for Movie Playback

The minimum system requirements described below are necessary to play back movies recorded with this camera on a Windows computer.

Operating System : Windows XP/2000
Memory : Pentium M, 1GHz or higher
Pentium 4, 2GHz or higher
Required Software : QuickTime 7
DirectX 9.0c

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IMPORTANT!

- The above is the recommended environment. Configuring this environment does not guarantee proper operation.
- Even if your computer meets the minimum requirements described above, certain settings and other installed software may interfere with proper playback of movies.

Editing a Movie

In order to edit movies on your PC, you need to install Movie Wizard 3.2 SE VCD from the bundled CD-ROM.

NOTE

- The Movie Wizard 3.2 SE VCD application that comes on the bundled CD-ROM can create Video-CDs, but it cannot created DVDs. If you want to be able to create DVDs, you need to upgrade to the commercial version of the software. See the Movie Wizard 3.2 SE VCD “Read me” file on the CD-ROM for information about and what you need to do to upgrade to the commercial version.

■ Installing Movie Wizard 3.2 SE VCD

1. Start up your computer, and place the bundled CD-ROM into its CD-ROM drive.

- Use the CD-ROM that has “Movie Wizard 3.2 SE VCD” on its label.
- Normally, this should cause the menu screen to appear automatically. If your computer does not display the menu screen automatically, navigate to the CD-ROM on your computer and then double-click the “MENU.exe” file.

2. On the menu screen, click the “Language” down arrow button and then select the language you want.

3. Click “Movie Wizard 3.2 SE VCD” to select it and then click “Read me”.

- “Read me” files contain important information about installation, including installation conditions and computer system requirements.

4. Click “Install” for Movie Wizard 3.2 SE VCD.

5. Follow the instructions that appear on your computer screen to install Movie Wizard 3.2 SE VCD.

For more powerful editing capabilities, install the trial version of VideoStudio 10 Plus for CASIO, which is a 30-day trial version.

Transferring Images to the Camera

In order to return images from your computer memory back to the camera, install Photo Transport on your computer from the CD-ROM that comes with the camera.

■ Installing Photo Transport

1. Start up your computer, and place the bundled CD-ROM into its CD-ROM drive.

- Use the CD-ROM that has “Photo Transport” on its label.
- Normally, this should cause the menu screen to appear automatically. If your computer does not display the menu screen automatically, navigate to the CD-ROM on your computer and then double-click the “MENU.exe” file.

2. On the menu screen, click the “Language” down arrow button and then select the language you want.

- Regardless of the language you select, the English version of Photo Transport is installed.

3. Click “Photo Transport” to select it and then click “Read me”.

- “Read me” files contain important information about installation, including installation conditions and computer system requirements.

4. Click “Install” for Photo Transport.

5. Follow the instructions that appear on your computer screen to install Photo Transport.

■ Transferring image files to the camera

1. First, connect the camera to your computer.

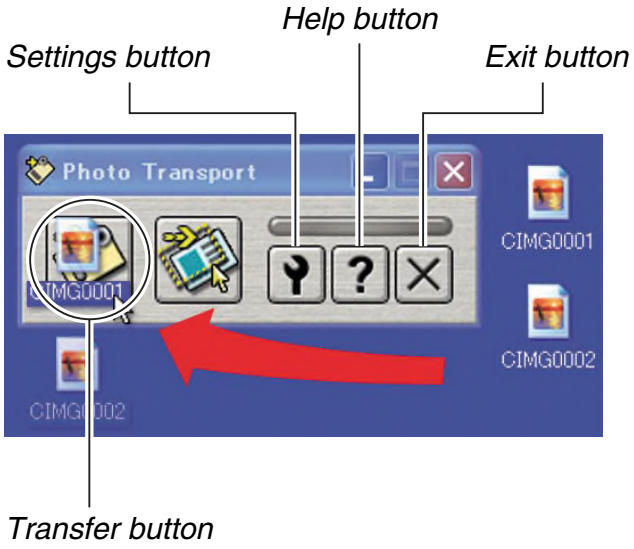
- See page 222 for information about connecting the camera to your computer.

2. On your computer, click “Start”, “All Programs”, “Casio” and then “Photo Transport”.

This starts up Photo Transport.

3. Drop the image data you want to transfer to the camera onto the Photo Transport Transfer button.

Move your mouse pointer to the image file you want to transfer, and then hold down your mouse button. Keeping your mouse button depressed, drag the mouse pointer and the image file along with it to the Photo Transport Transfer button, and then release the mouse button.



4. Follow the instructions that appear on the display to transfer the image file to the camera.

- The image transfer method and detailed image settings used depend on the Photo Transport settings. For details, see Photo Transport help (page 237).

IMPORTANT!

- You cannot transfer movies to the camera.
- Only image files of the following formats can be transferred to the camera: JPG, JPEG, JPE, and BMP. The transfer operation converts BMP files to JPEG format.

Transferring screen captures to the camera

1. First, connect the camera to your computer.

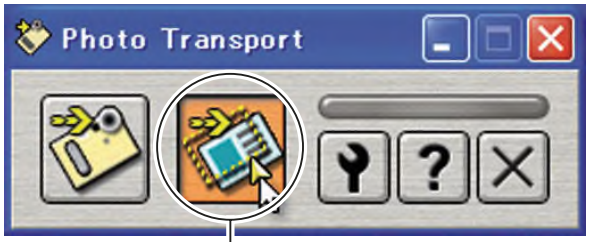
- See page 222 for information about connecting the camera to your computer.

2. On your computer, click “Start”, “All Programs”, “Casio” and then “Photo Transport”.

This starts up Photo Transport.

3. Display the screen whose screen capture you want to transfer.

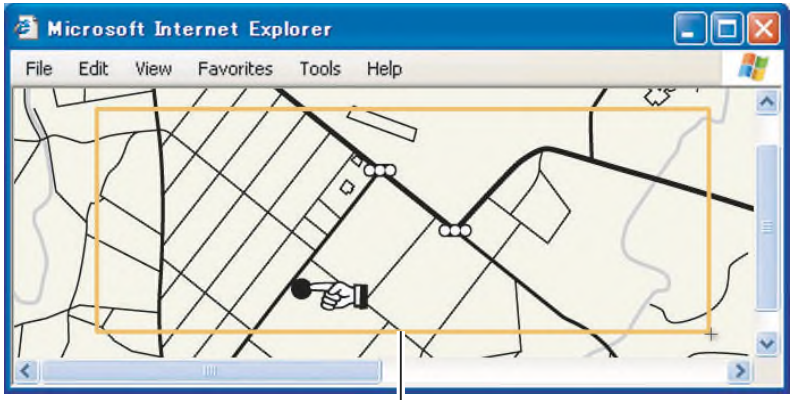
4. Click the Photo Transport Capture button.



Capture button

5. Use your mouse to select the area of the screen you want to capture.

Move your mouse pointer to the upper left corner of the area you want to capture and then hold down your mouse button. Keeping your mouse button depressed, drag the pointer down to the right corner of the area and then release the mouse button.



Capture area

6. Follow the instructions that appear on the display to transfer a capture of the selected area to the camera.

- The image transfer method and detailed image settings used depend on the Photo Transport settings. For details, see Photo Transport help (page 237).

IMPORTANT!

- The transfer operation converts screen captures to JPEG format.

■ Photo Transport Setup and Help

Clicking the Settings button will display a dialog box that you can use to configure image transfer settings, to specify the transfer method, etc. For detailed information about the setup, operational procedures, and troubleshooting, click the Help button.

Viewing User Documentation (PDF) Files

1. Start up your computer, and place the bundled CD-ROM into its CD-ROM drive.

- Use the CD-ROM that has “User’s Guide Included” on its label.
- Normally, this should cause the menu screen to appear automatically. If your computer does not display the menu screen automatically, navigate to the CD-ROM on your computer and then double-click the “MENU.exe” file.

2. On the menu screen, click the “Language” down arrow button and then select the language you want.

3. Click “Manual” to select it and then click the name of the application whose manual you want to read.

IMPORTANT!

- You must have Adobe Reader or Adobe Acrobat Reader installed on your computer in order to view the contents of a PDF file. If you do not already have Adobe Reader or Adobe Acrobat Reader installed, install Adobe Reader from the bundled CD-ROM that has “Adobe Reader” on its label.

User Registration

You can perform user registration over the Internet. To do so, of course, you need to be able to connect to the Internet with your computer.

1. Click the “Register” button.

- This starts up your Web browser and accesses the user registration website. Follow the instructions that appear on your computer screen to register.

Exiting the CD-ROM Menu

On the CD-ROM menu, click “Exit”.

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Using the Camera with a Macintosh

Install the required software in accordance with what version of the Macintosh OS you are running and what you want to do.

Objective	OS Version	Install this software:	See page:
• Viewing images on your Macintosh • Storing images on your Macintosh	OS 9/ OS X	• USB driver not required.	239
Transfer of images from the camera and management of images on your Macintosh	OS 9	• Use commercially available software.	245
	OS X	• Use iPhoto, which comes bundled with your operating system.	–
Play movies	OS 9	• Movie file playback not supported.	245
	OS X	• Movie file playback supported under OS X v10.3.9 or higher when QuickTime 7 or higher is installed.	
View the User's Guide	OS 9/ OS X	• Use Adobe Reader or Adobe Acrobat Reader, which comes bundled with your operating system.	246

Viewing and Storing Images on a Macintosh

You can view and store images (snapshot and movie files) on your Macintosh by connecting to the camera.

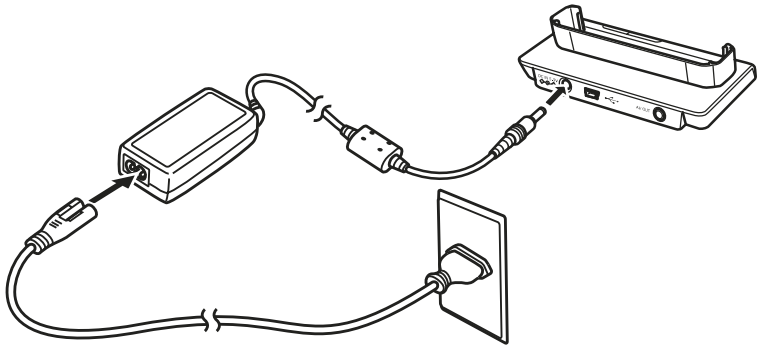
IMPORTANT!

- Connection is not supported to a Macintosh running Mac OS 8.6 or lower, or Mac OS X 10.0. Connection is supported to a Macintosh running Mac OS 9 or OS X (10.1, 10.2, 10.3, 10.4) only. Use the standard USB driver that comes with the operating system for connection.

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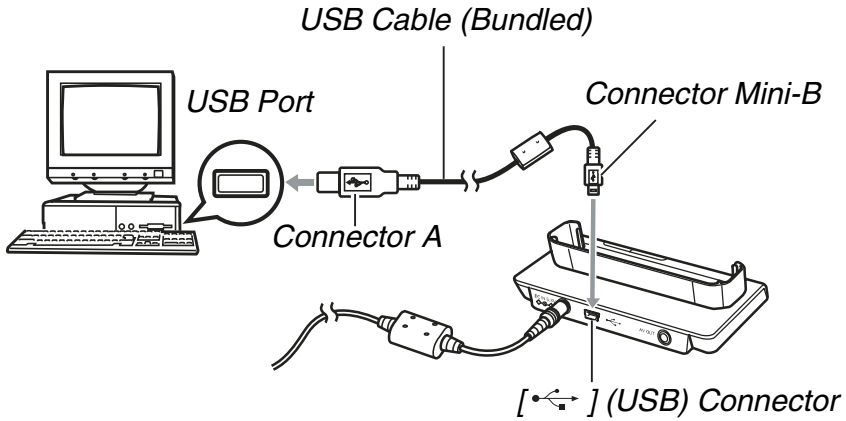
■ Connecting the Camera to Your Computer the First Time

1. Connect the bundled AC adaptor to the [DC IN 5.3V] connector of the USB cradle and then plug it in to a household power outlet.



- If you do not plan to use the AC adaptor, make sure that the camera's battery is fully charged.

2. Connect the USB cable that comes bundled with the camera to the USB cradle and the USB port of your Macintosh.



- Orient the USB plug so it correctly matches the shape of the USB port when you connect them.
- Plug the USB cable into the ports securely, as far as it will go. Proper operation is not possible if connections are not correct.

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3. Open the lens cover to turn on the camera and then press [MENU].

- Do not place the camera on the USB cradle yet.

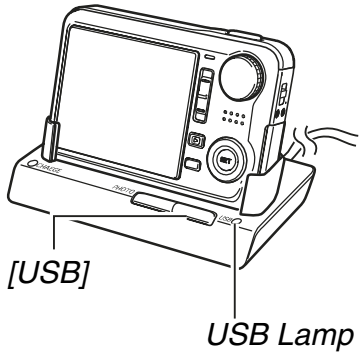
4. On the "Set Up" tab, select "USB" and then press [▶].

5. Use [▲] and [▼] to select "Mass Storage" and then press [SET].

6. Close the lens cover to turn off the camera and then place the camera onto the USB cradle.

- Do not place the camera onto the USB cradle while it is turned on.
- If you plan to transfer images from the camera's built-in memory to your Macintosh, make sure there is no memory card loaded in the camera.

7. Press the USB cradle's [USB] button.



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Camera-Macintosh Connection

Pressing the cradle's [USB] button puts it into the USB mode, which is indicated by the USB lamp lighting green. In this mode, your Macintosh recognizes the memory card loaded in the camera (or the camera's built-in memory if it does not have a memory card loaded) as a drive.
The appearance of the drive icon depends on the Mac OS version you are using.
From now on, you will not have to perform steps 3 through 5 in the above procedure when you connect the camera to your Macintosh (unless you change the camera's USB settings for some reason).

IMPORTANT!

- Never disconnect the USB cable or remove the camera from the USB cradle without exiting the USB mode first. Doing so can corrupt image data. See "Removing the Camera from the USB Cradle" on page 244 for the correct steps you need to perform to remove the camera from the cradle safely.

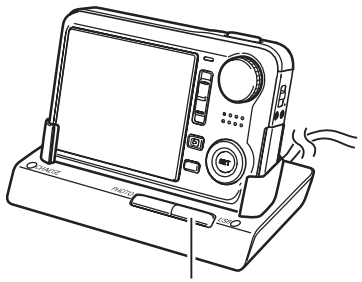
Connecting the Camera to Your Macintosh after the First Time

Since you need to configure menu settings only the first time you connect the camera to your Macintosh, later connections are much simpler.

1. Close the lens cover to turn off the camera and then place the camera onto the USB cradle.

2. Press the USB cradle's [USB] button.

- Pressing the cradle's [USB] button puts it into the USB mode, which is indicated by the USB lamp lighting green.



[USB]

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■ Viewing Camera Images on Your Macintosh

After connecting the camera to your Macintosh, you can view camera images on your Macintosh screen.

1. **Double-click the camera's drive icon.**
2. **Double-click the "DCIM" folder.**
3. **Double-click the folder that contains the image you want to view.**
4. **Double-click the file that contains the image you want to view.**
   This displays the image.

IMPORTANT!

- Do not leave the same image displayed on your Macintosh screen for a long time. Doing so can cause image "burn in".

NOTE

- An image that was rotated on the camera will be displayed on your Macintosh screen in its original (unrotated) orientation.

■ Saving an Image on Your Macintosh

In order to work on an image to put it into an album, you must first save it to your Macintosh. To save a camera image to your Macintosh, you must first establish a connection between them via the camera's USB cradle.

1. **Double-click the camera's drive icon.**
2. **Drop the "DCIM" folder into the folder where you want to store it.**
   This copies the "DCIM" folder to the folder on your Macintosh.

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IMPORTANT!

- Never use your computer to modify, delete, move, or rename any image files that are in the camera's built-in memory or memory card. Doing so can cause problems with the camera's image management data, which will make it impossible to play back images on the camera and can drastically alter remaining memory capacity. Whenever you want to modify, delete, move, or rename an image, do so only on images that have been copied to your Macintosh.
- Never unplug the USB cable, or operate the camera or cradle while viewing or storing images. Doing so can cause data to become corrupted.

Removing the Camera from the USB Cradle

1. **On your Macintosh screen, drag the camera drive to Trash.**
2. **Press the USB cradle [USB] button. After making sure that the cradle's USB lamp is not lit, remove the camera from the cradle.**

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Transfer of Images from the Camera and Management of Images on Your Macintosh

If you are running Mac OS X, you can manage snapshots using iPhoto, which comes bundled with your operating system.
If you are running Mac OS 9, use commercially available software.

Playing Movies

You can use QuickTime, which comes bundled with your operating system, to play back movies. To play back a movie, first copy the movie to your Macintosh and then double-click the movie file.



Minimum Computer System Requirements for Movie Playback

The minimum system requirements described below are necessary to use your Macintosh to play back movies recorded with this camera.

OS : OS X 10.3.9 or greater
Required Software : QuickTime 7 or greater

IMPORTANT!

- The above is the recommended environment. Configuring this environment does not guarantee proper operation.
- Even if your computer meets the minimum requirements described above, certain settings and other installed software may interfere with proper playback of movies.
- Movie file playback is not supported under OS 9.

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Viewing User Documentation (PDF Files)

You must have Adobe Reader or Adobe Acrobat Reader installed on your computer in order to view the contents of a PDF file. If you don't, go to the Adobe Systems Incorporated website and install Acrobat Reader.

1. On the CD-ROM, open the "Manual" folder.

- Use the CD-ROM that has "User's Guide included" on its label.

2. Open the "Digital Camera" folder and then open the folder for the language whose user's guide you want to view.

3. Open the file named "camera_xx.pdf".

- "xx" is the language code (Example: camera_e.pdf is for English.)

Registering as a User

Internet registration only is supported. Visit the following CASIO website to register:
http://world.casio.com/qv/register/

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Reading Files Directly from a Memory Card

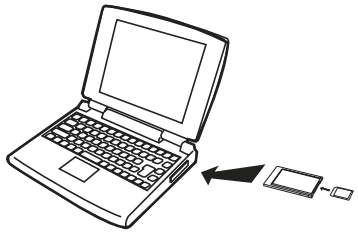
The method you should use to read files from a memory card depends on the type of computer you have. Some typical examples are shown below. After you connect, use the same procedures as those that you use when the camera is connected to your computer via the USB cradle.

■ If your computer has a memory card slot

After checking to make sure that your computer's card slot is compatible with the memory card you are using to store images, insert the memory card into the slot.

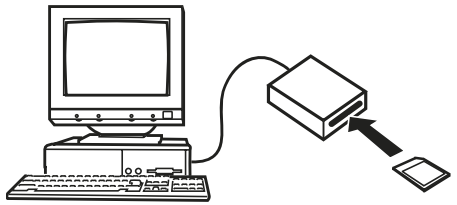
■ If your computer has a PC card slot

Use a commercially available PC card adapter that is appropriate for the memory card. For full details, see the user documentation that comes with the PC card adapter and your computer.

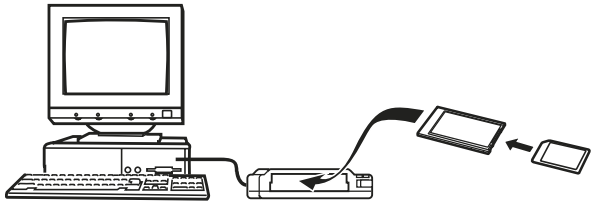


■ Other types of computers

Use either of the method described below.



– Use a commercially available memory card reader/writer that is appropriate for the memory card you are using. See the user documentation that comes with the memory card reader/writer for details about how to use it.
– Use a commercially available PC card reader/writer and a commercially available PC card adapter that is appropriate to the type of memory card you are using. See the user documentation that comes with the PC card reader/writer and PC card adapter for details about how to use them.



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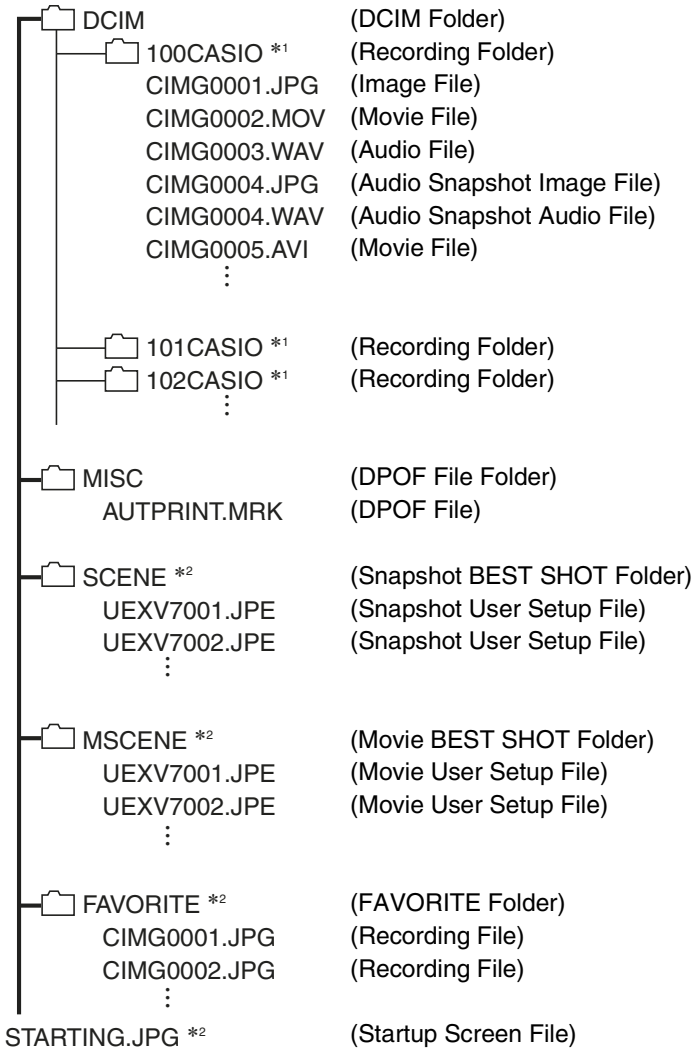
Memory Card Data

The camera stores images you shoot and other data in accordance with the Design Rule for Camera File System (DCF).

About DCF

DCF is a system that defines both image file formats and the structure of the folders that store data. This makes it possible for a digital camera, printer, or other DCF-compliant device to display or print image data from another DCF device.

Memory Folder Structure



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*1 The BEST SHOT mode includes a sample scene that optimizes settings for auction site images. Depending on your camera model, the sample scene is named either “For eBay” or “Auction”.
  - Images recorded with the eBay scene are stored in a folder named “100_EBAY”.
  - Images recorded with the Auction scene are stored in a folder named “100_AUCT”.

*2 Indicates files that can be created in built-in memory only.

Folder and File Contents

- DCIM Folder
  Folder that contains all of the camera files
- Recording Folder
  Folder that contains files recorded with the camera
- Image File
  File of an image shot with the camera. Extension is “JPG”.
- Movie File
  File of a movie shot with the camera. Extension is “MOV” or “AVI”.
- Audio File
  Audio recording file. Extension is “WAV”.
- Audio Snapshot Image File
  Image file of an audio snapshot. Extension is “JPG”.
- Audio Snapshot Audio File
  Audio recording file of an audio snapshot. Extension is “WAV”.
- DPOF File Folder
  Folder that contains DPOF files, etc.
- Snapshot BEST SHOT Folder
  Folder that contains snapshot BEST SHOT user setup files
- Snapshot User Setup File
  File of a snapshot BEST SHOT user setup
- Movie BEST SHOT Folder
  Folder that contains Movie BEST SHOT user setup files
- Movie User Setup File
  Files that contain Movie BEST SHOT user setups
- FAVORITE Folder
  Folder that contains Favorites image files. Size of images is 320 × 240 pixels.
- Startup Screen File
  File for storing the startup screen image. This file is created when you specify an image for use as the startup screen image.

Supported Image Files

- Image files shot with this camera
- DCF-compliant image files

Even if an image is DCF-compliant, this camera still may not be able to display it. When displaying an image recorded on another camera, it may take a long time for the image to appear on this camera's monitor screen.

Built-in Memory and Memory Card Data Handling Precautions

- When saving camera data to a computer hard disk, MO disk, or other medium, be sure to transfer the entire DCIM folder and its contents. Changing the name of the DCIM to a date or something similar after you copy it to your computer is a good way to keep track of multiple DCIM folders. When moving the folder back to the camera, however, be sure to change its name back to DCIM. This camera does not recognize any folder name besides DCIM.
  All of the other folders inside the DCIM folder must also have their original names if you transfer them back to the camera.
- Folders and files must be stored in accordance with the "Memory Folder Structure" shown on page 248 in order for the camera to be able to recognize them correctly.

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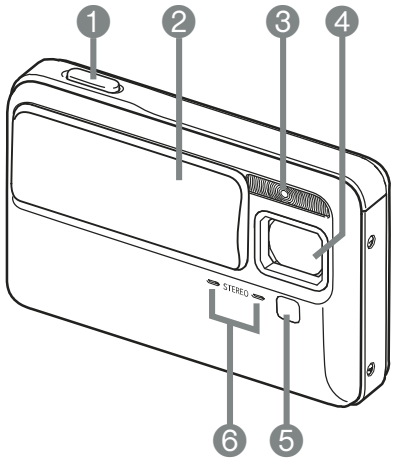
APPENDIX

General Guide

The numbers in parentheses indicate the pages where each part is explained.

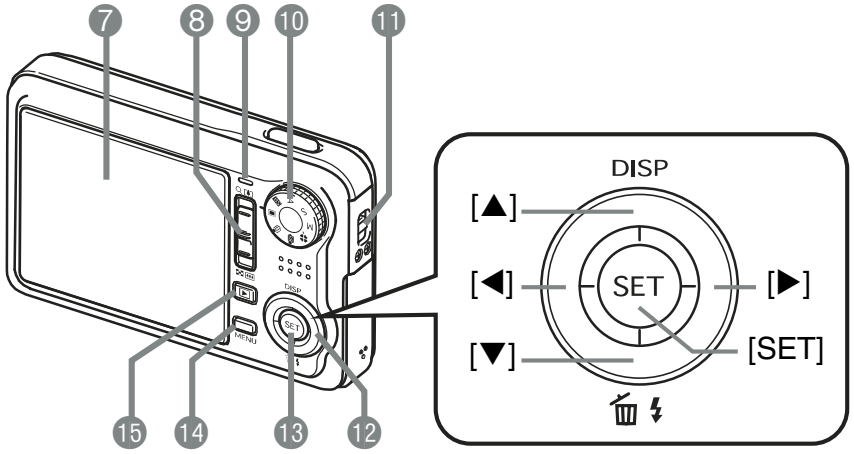
■ Camera

Front



1. Shutter (page 59)
2. Lens Cover (page 43)
3. Flash (page 72)
4. Lens
5. AF Assist/REC light/Self-timer Lamp (pages 58, 64, 77, 125, 258)
6. Microphone (pages 83, 92)

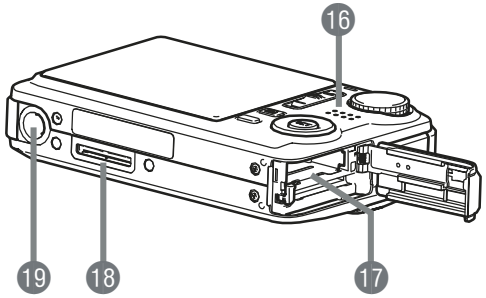
Back



7. Monitor Screen (page 53)
8. Zoom controller (pages 69, 157, 158)
9. Operation Lamp (pages 43, 59, 258)
10. Mode dial (page 56)
11. Strap Hole (page 2)
12. Control Button ([▲], [▼], [◀], [▶])
13. [SET] Button
14. [MENU] Button (page 51)
15. [▶] (PLAY) Button (pages 43, 204)

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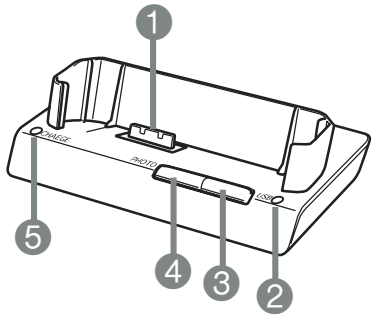
Bottom



16 Speaker (page 147)
17 Battery/Memory Card Slots (pages 36, 48)
18 Cradle Contact (page 38)
19 Tripod Hole
Use this hole when attaching to a tripod.

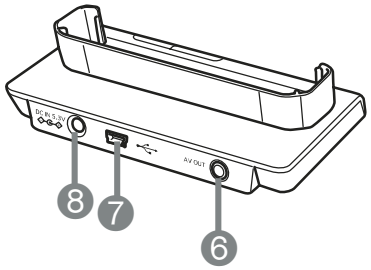
■ USB Cradle

Front



1 Camera Contact (page 38)
2 USB Lamp
(pages 224, 241, 260)
3 [USB] Button
(pages 211, 224, 241)
4 [PHOTO] Button
(pages 153, 155)
5 [CHARGE] Lamp
(pages 38, 260)

Back



6 [AV OUT] (AV output port)
(page 154)
7 [⇠] (USB) Connector
(pages 209, 223, 240)
8 [DC IN 5.3V] (External
Power) Terminal (page 37)

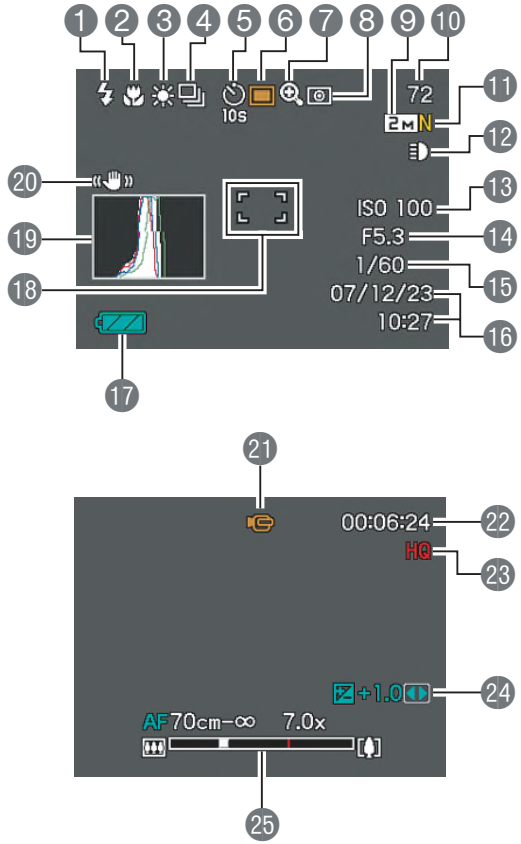
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Monitor Screen Contents

The monitor screen uses various indicators, icons, and values to keep you informed of the camera's status.

- The sample screens in this section are intended to show you the locations of all the indicators and figures that can appear on the monitor screen in various modes. They do not represent screens that actually appear on the camera.

■ Recording Mode



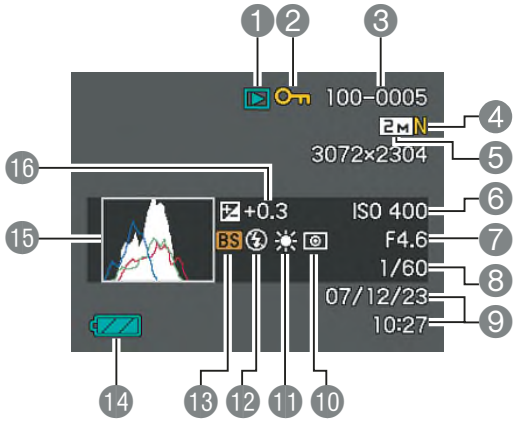
1. Flash Mode (page 72)
2. Focus Mode (page 113)
3. White Balance Setting (page 128)
4. Continuous Shutter Mode (page 79)
5. Self-timer Mode (page 77)
6. Recording Mode
7. Digital zoom indicator (page 70)
8. Metering Mode (page 132)
9. Snapshot Image Size (page 62)
10. Remaining Snapshot Memory Capacity (page 59)
11. Snapshot Image Quality (page 63)
12. REC Light (page 125)
13. ISO Sensitivity (page 131)
14. Aperture Value (pages 60, 84, 87)
15. Shutter Speed (pages 60, 86, 87)
16. Date/Time (page 198)
17. Battery Level Indicator (page 40)
18. Focus Frame (pages 59, 118)
19. Histogram (page 138)
20. Anti Shake Indicator (page 123)
21. Recording Mode
22. Remaining Movie Memory Capacity (page 91)
23. Movie Image Quality (page 90)
24. Exposure Compensation (page 126)
25. Zoom Bar (page 70)

IMPORTANT!

- If the current aperture, shutter speed, ISO sensitivity, or Auto Exposure is not set properly, the setting will turn orange when you half-press the shutter button. This does not apply when the "Anti Shake" setting is "Auto".

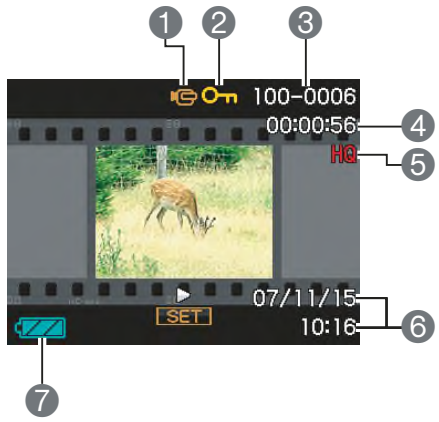
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■ Snapshot Playback Mode



1. File Type (page 146)
2. Protect Indicator (page 185)
3. Folder Name/File Name (page 184)
4. Snapshot Image Quality (page 63)
5. Snapshot Image Size (page 62)
6. ISO Sensitivity (page 131)
7. Aperture Value (pages 60, 84, 87)
8. Shutter Speed (pages 60, 86, 87)
9. Date/Time (page 198)
10. Metering Mode (page 132)
11. White Balance Setting (page 128)
12. Flash Mode (page 72)
13. Recording Mode
14. Battery Level Indicator (page 40)
15. Histogram (page 138)
16. Exposure Compensation (page 126)

■ Movie Playback Mode



1. File Type (page 148)
2. Protect Indicator (page 185)
3. Folder Name/File Name (page 184)
4. Movie Recording Time (page 148)
5. Movie Image Quality (page 90)
6. Date/Time (page 198)
7. Battery Level Indicator (page 40)

Menu Reference

The tables in this section show the items that appears on the menus that appear on the monitor screen when you press [MENU]. The items included on the menus depend on whether the camera is in a REC mode or PLAY mode.

- An asterisk (*) indicates reset default settings.

■ REC Mode

REC Tab Menu

Focus	AF (Auto Focus)* / (Macro) / ∞ (Infinity) / MF (Manual Focus)
Continuous	Normal Speed / High Speed / Flash Cont. / Off*
Self-timer	10 sec / 2 sec / X3 / Off*
Anti Shake	Auto / Camera Shake* / Image Blur / DEMO / Off
REC Light	On / Off*
AF Area	Spot* / Multi / Tracking
AF Assist Light	On* / Off
L/R Key	Continuous / EV Shift / White Balance / ISO / Self-timer / Off*
Quick Shutter	On / Off*
Audio Snap	On / Off*
Grid	On / Off*
Digital Zoom	On* / Off
Review	On* / Off
Icon Help	On* / Off
Memory	Flash: On* / Off Focus: On / Off* White Balance: On / Off* ISO: On / Off* AF Area: On* / Off Metering: On / Off* Self-timer: On / Off* Flash Intensity: On / Off* Digital Zoom: On* / Off MF Position: On / Off* Zoom Position: On / Off*

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Quality Tab Menu

Size	7M (3072 × 2304)* / 3:2 (3072 × 2048) / 5M (2560 × 1920) / 3M (2048 × 1536) / 2M (1600 × 1200) / VGA (640 × 480)
Quality (Snapshots)	Fine / Normal* / Economy
Quality (Movies)	UHQ / UHQ Wide / HQ* / HQ Wide / Normal / LP
EV Shift	–2.0 / –1.7 / –1.3 / –1.0 / –0.7 / –0.3 / 0.0* / +0.3 / +0.7 / +1.0 / +1.3 / +1.7 / +2.0
White Balance	Auto* / (Daylight) / (Overcast) / (Shade) / (Day White Fluorescent) / (Daylight Fluorescent) / (Tungsten) / Manual
ISO	Auto* / ISO 64 / ISO 100 / ISO 200 / ISO 400 / ISO 800
Metering	Multi* / Center weighted / Spot
Dynamic Range	Expand +2 / Expand +1 / Off*
Portrait Refiner	Noise Filter +2 / Noise Filter +1 / Off*
Color Filter	Off* / B/W / Sepia / Red / Green / Blue / Yellow / Pink / Purple
Sharpness	+2 / +1 / 0* / –1 / –2
Saturation	+2 / +1 / 0* / –1 / –2
Contrast	+2 / +1 / 0* / –1 / –2
Flash Intensity	+2 / +1 / 0* / –1 / –2
Flash Assist	Auto* / Off

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Set Up Tab Menu

Screen	Auto 2* / Auto 1 / +2 / +1 / 0
Sounds	Startup* / Half Shutter / Shutter / Operation / Operation / Play
Startup	On (Selectable image) / Off*
File No.	Continue* / Reset
World Time	Home* / World
	Home Time setup (city, DST, etc.)
	World Time setup (city, DST, etc.)
Timestamp	Date / Date&Time / Off*
Adjust	Time setting
Date Style	YY/MM/DD / DD/MM/YY / MM/DD/YY
Language	Changes the screen text language. • The number and types of languages depend on the geographic area where the camera was marketed.
Sleep	30 sec / 1 min* / 2 min / Off
Auto Power Off	1 min / 2 min* / 5 min
Power On	Power On* / Hold: On / Disable
USB	Mass Storage (USB DIRECT-PRINT)* / PTP (PictBridge)
Video Out	NTSC 4:3* / NTSC 16:9 / PAL 4:3 / PAL 16:9
Format	Format / Cancel*
Reset	Reset / Cancel*

PLAY Mode

PLAY Tab Menu

Slideshow	Start* / Images / Time / Interval / Effect / Cancel
Layout Print	–
MOTION PRINT	9 frames* / 1 frame / Cancel
Anti Shake	On / Off*
Movie Editing	Cut (Before) / Cut (Between) / Cut (After) / Cancel*
Dynamic Range	Expand +2 / Expand +1 / Off*
White Balance	(Daylight) / (Overcast) / (Shade) / (Day White Fluorescent) / (Daylight Fluorescent) / (Tungsten) / Cancel
Brightness	+2 / +1 / 0* / –1 / –2
Keystone	–
Color Correction	–
Calendar	–
Favorites	Show* / Save / Cancel
DPOF Printing	Select images* / All images / Cancel

Protect	On* / All Files : On / Cancel
Date/Time	–
Rotation	Rotate* / Cancel
Resize	5M (2560 × 1920) / 3M (2048 × 1536)* / VGA (640 × 480) / Cancel
Trimming	–
Dubbing	–
Copy	Built-in → Card* / Card → Built-in / Cancel

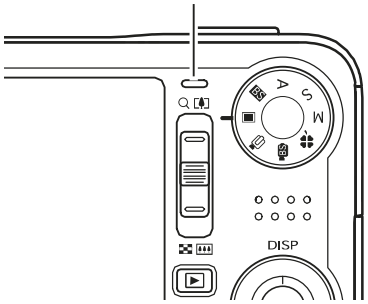
"Set Up" Tab

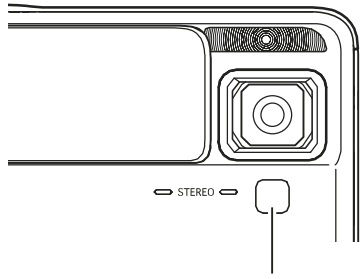
- The contents of the "Set Up" tab are the same in a REC mode and PLAY mode.

Indicator Lamps

The camera has lamps: an Operation Lamp and an AF assist/ REC light/self-timer Lamp. These lamps light and flash to indicate the current operational status of the camera.

Operation Lamp





AF assist/REC light/ self-timer Lamp

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REC Mode

Operation Lamp		Meaning
Color	Status	
Green	Lit	Operational (Power on, recording enabled). / Auto Focus operation was successful. / LCD is off or in sleep state.
	Flashing	Storing movie or processing image. / Image is being stored. / Cannot Auto Focus. / Card is being formatted. / Powering down.
Red	Lit	Memory card is locked. / Cannot create folder. / Memory is full. / Write error.
	Flashing	Memory card problem. / Memory card is unformatted. / BEST SHOT setup cannot be registered. / Low battery alert.
Amber	Flashing	Flash is charging.

AF assist/ REC light/ self-timer Lamp		Meaning
Color	Status	
White	Flashing	Self-timer countdown.

IMPORTANT!

- Never remove the memory card from the camera while the operation lamp is flashing green. Doing so will cause the image you shot to be lost.

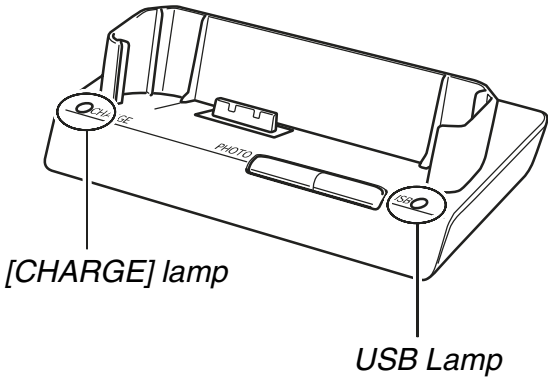
PLAY mode

Operation Lamp		Meaning
Color	Status	
Green	Lit	Operational (Power on, recording enabled).
	Flashing	One of the following operations is in progress: Delete, DPOF, protect, copy, format, resize, trimming, adding audio to snapshot, keystone correction, color correction, MOTION PRINT, movie editing, power down.
Red	Lit	Memory card is locked. / Cannot create folder. / Memory is full. / Write error.
	Flashing	Memory card problem. / Memory card is unformatted. / Low battery alert.

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■ USB Cradle Indicator Lamps

The USB cradle has two indicator lamps: a [CHARGE] lamp and a USB lamp. These lamps light and flash to indicate the current operational status of the cradle and camera.



[CHARGE] Lamp		USB Lamp		Meaning
Color	Status	Color	Status	
Red	Lit			Charging
Green	Lit			Charging complete
Green	Flashing			Charge standby
Red	Flashing			Charge error
		Green	Lit	USB connection
		Green	Flashing	Memory being accessed.

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Finding the Problem and Fixing It

Problem	Possible Causes and Action
Power Supply	
Power does not turn on.	1) The battery may not be oriented correctly (page 36). 2) The battery may be dead. Charge the battery (page 36). If the battery goes dead soon after being charged, it means the battery has reached the end of its life and needs to be replaced. Purchase a separately available CASIO NP-50 rechargeable lithium ion battery.
The battery won't charge.	The battery may not be oriented correctly (page 36).
Camera suddenly powers down.	1) Auto Power Off may have activated (page 45). Turn power back on. 2) The battery may be dead. Charge the battery (page 36).
Power does not turn off. Nothing happens when a button is pressed.	Remove the battery from the camera and then reinsert it.
Image Recording	
Image is not recorded when the shutter button is pressed.	1) If the camera is in the PLAY mode, press [▶] (PLAY) to enter the REC mode. 2) If the flash is charging, wait until the charge operation finishes. 3) If the message "Memory Full" appears, transfer images to your computer, delete images you no longer need, or use a different memory card.
Auto Focus does not focus properly.	1) If the lens is dirty, clean it off. 2) The subject may not be in the center of the focus frame when you compose the image. 3) The subject you are shooting may not be a type that is not compatible with Auto Focus (page 68). Use manual focus (page 121). 4) You may be moving the camera when shooting. Try shooting with Anti Shake (page 123) or use a tripod. 5) You may be using Quick Shutter and pressing the shutter button all the way, resulting in poor focus. Half-press the shutter button and allow enough time for Auto Focus to focus.
The subject is out of focus in the recorded image.	The image may not be focused properly. When composing the image, make sure the subject is located inside the focus frame.

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Problem	Possible Causes and Action
The flash does not fire.	1) If " " (Flash Off) is selected as the flash mode, change to another mode (page 72). 2) If the battery is dead, charge it (page 36). 3) If a BEST SHOT scene that uses the " " (Flash Off) flash mode is selected, change to a different flash mode (page 72) or select a different BEST SHOT scene (page 96).
The REC light and/or flash fires a number of times.	When " " (Auto Flash) or " " (Red Eye) is selected for the flash mode, the flash operation is performed in the following sequence in order to reduce red eye in subjects (page 72): REC light lights. → Pre-flash fires. → Flash fires.
Camera powers down during self-timer countdown.	The battery may be dead. Charge the battery (page 36).
The monitor screen image is out of focus.	1) You may be using Manual Focus and have not focused the image. Focus the image (page 121). 2) You may be using the macro mode for scenery or portraits. Use Auto Focus for scenery and portrait shots (page 114). 3) You may be trying to use Auto Focus or the Infinity Mode when shooting a close-up shot. Use the Macro Mode for close ups (page 115).
There is a vertical line on the monitor screen.	Shooting a very brightly lit subject can cause a vertical band to appear in the monitor screen image. This is a CCD phenomenon known as "vertical smear", and does not indicate malfunction of the camera. Note that vertical smear is not recorded with the image in the case of a snapshot, but it is recorded in the case of a movie.
There is digital noise in images.	1) Sensitivity may have been increased automatically for a dark subject, which increases the chance of digital noise. Use a light or some other means to illuminate the subject. 2) You may be attempting to shoot in a dark location while " " (Flash Off) is selected as the flash mode, which can increase digital noise and make images appear coarse. In this case, change to a different flash mode (page 72) or use lights for illumination. 3) Flash assist or dynamic range may be enabled for snapshots, which can cause an increase in digital noise. Use a light or some other means to illuminate the subject.

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Problem	Possible Causes and Action
An image I shot was not saved.	1) Camera power may have been turned off before the save operation was complete, which will result in the image not being saved. When the battery indicator shows "  ", charge the battery as soon as possible (page 36). 2) You may have removed the memory card from the camera before the save operation was complete, which will result in the image not being saved. Do not remove the memory card before the save operation is complete.
Though available lighting is bright, the faces of people in the image are dark.	Not enough light is reaching the subjects. Change the flash mode setting to "  " (Flash On) for daylight synchro flash (page 72), or use adjust EV shift to the + side (page 126).
Subjects are too bright when shooting images in a seashore or ski area.	Sunlight reflected by water, sand, or snow, can cause underexposure of images. Change the flash mode setting to "  " (Flash On) for daylight synchro flash (page 72), or use adjust EV shift to the + side (page 126).
Digital zoom does not work. The zoom bar indicates zoom only up to a zoom factor of 7.0.	1) Using digital zoom while Layout Shot, Auto Framing, Old Photo, or certain other BEST SHOT scenes are selected causes deterioration of the image. 2) Time stamping may be turned on, which will cause digital zoom to be disabled. Turn off time stamping (page 137).
The image is out of focus during movie recording.	1) Focusing is not possible because the subject is outside the focus range. Shoot within the allowable range. 2) The subject you are shooting may be difficult to focus (page 68). 3) The lens may be dirty. Clean the lens (page 35).

Problem	Possible Causes and Action
Playback	
The color of the playback image is different from what appears on the monitor screen when shooting.	Sunlight or light from another source may be shining directly into the lens when you are shooting. Position the camera so sunlight does not shine directly into the lens.
Images are not displayed.	This camera cannot display non-DCF images recorded onto a memory card using another digital camera.
I can't edit images (layout print, resizing, trimming, keystone correction, color restoration, rotation, white balance, date/time editing).	Note that you cannot edit the following types of imagess. • Images created with MOTION PRINT • Movies • Images recorded with another camera

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Problem	Possible Causes and Action
Other	
The wrong date and time are displayed.	The date and time setting is wrong. Set the correct date and time (page 198).
The messages on the display are in the wrong language.	The wrong display language is selected. Change the display language setting (page 201).
I can't transfer images over a USB connection.	1) The USB cable may not be connected securely. Check all connections. 2) USB driver may not be installed. Install the USB driver (page 221). 3) The USB driver may have been installed incorrectly. Reinstall the USB driver correctly (page 221). 4) The wrong USB communication protocol may be selected. Select the correct USB communication protocol in accordance with the type of device you are connecting (page 203). 5) If the camera is not turned on, turn it on.
Display language setting screen appears when the camera is turned on.	1) You did not configure initial settings after purchasing the camera or the battery may have been left with a dead battery. Check the camera setup (pages 11, 198). 2) It may be a problem with the camera's built-in memory management area. If this is the case, perform the reset operation to initialize the camera's setup (page 145). After that, configure each setting. If the language selection screen does not re-appear when you turn the camera on, it means that the camera's built-in memory management area has been restored. If the same message appears after you turn power back on, contact your retailer or a CASIO service center.

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If you have problems installing the USB driver...

You may not be able to install the USB driver properly if you use the USB cable to connect the camera to a computer running Windows 98SE/98 before installing the USB driver from the bundled CD-ROM, or if you have another type of driver installed.
This will make it impossible for the computer to recognize the camera when it is connected. If this happens, you will need to re-install the camera's USB driver.
For information about how to re-install the USB driver, see the USB driver's "Read me" file on the CD-ROM that comes bundled with the camera.

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Display Messages

Battery is low.	Battery power is low.
Camera Stabilizer is not available	The Camera Shake unit may be malfunctioning. If the same message appears after you turn power back on, contact your retailer or a CASIO service center.
Cannot correct image!	Keystone correction of the image cannot be performed for some reason. The image will be stored as-is, without correction (page 104).
Cannot find the file.	The image you specified with the slideshow "Images" setting cannot be found. Change the "Images" setting (page 151) and try again.
Cannot register any more files.	• You are attempting to save a BEST SHOT scene when there are already 999 scenes in the "SCENE" folder (page 101). • You are attempting to copy a FAVORITE file when the "FAVORITE" folder already contains 9999 files (page 187).
Card ERROR	There is something wrong with the memory card. Turn off the camera, remove the memory card, and then reload it into the camera. If this message re-appears when you turn the camera back on, format the memory card (page 50). **IMPORTANT!** • Formatting the memory card deletes all its files. Before formatting, try transferring recoverable files to a computer or some other storage device.
Check connections!	• You are attempting to connect the camera to a printer while the camera's USB settings are not compatible with the USB system of the printer (page 203). • You are attempting to connect to a computer that does not have a USB driver installed (page 221).
Files could not be saved because battery is low.	Battery power is low, so an image file could not be saved.
Folder cannot be created.	You are trying to record a file while there are already 9,999 files stored in the 999th folder. If you want to record more, delete files you no longer need (page 192).
LENS ERROR	This message appears and the camera turns off whenever lens performs some unexpected operation. If the same message appears after you turn power back on, contact your retailer or a CASIO service center.
Load paper!	The printer ran out of paper while printing.
Memory Full	Memory is full with images you recorded and/or of files saved by editing operations. Delete files you no longer need (page 192).
No Favorites file!	The FAVORITE folder does not contain any files.
Printing Error	An error occurred while printing. • The printer is turned off. • The printer generated an error, etc.

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Record Error	Image compression could not be performed for some reason during image data storage. Shoot the image again.
Replenish ink!	During printing, the printer is running low on ink or is out of ink.
SYSTEM ERROR	Your camera system is corrupted. Contact your retailer or an authorized CASIO service center.
The card is locked.	The LOCK switch of the SD memory card or SDHC memory card loaded in the camera is in the locked position. You cannot store images to or delete images from a memory card that is locked.
There are no files.	There are no files in built-in memory or on the memory card.
There are no printing images. Set up DPOF.	There are currently no files specified for printing. Configure the required DPOF settings (page 211).
There is no image to register.	The setup you are trying to save is for an image that cannot be saved as a user BEST SHOT scene.
This card is not formatted.	The memory card loaded in the camera is not formatted. Format the memory card (page 50).
This file cannot be played.	The file you are trying to access is corrupted or is a type that cannot be displayed by this camera.
This function cannot be used.	You attempted to copy images from built-in memory to a memory card while there is no memory card loaded in the camera (page 189).
This function is not supported for this file.	The function you are trying to use cannot be performed for some reason.

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Specifications

Main Specifications

Product Type . . . . . Digital Camera
Model EX-V7

Camera Functions

Image Files

Format . . . . . .Snapshots:
JPEG (Exif Version 2.2); DCF (Design Rule for Camera File System) 1.0 standard; DPOF compliant
Movies: H.264/AVC MOV format (Motion JPEG AVI format when the image quality setting is “LP”)
Audio: WAV

Recording Media . . . . . .Built-in Memory 11.6 MB
SDHC Memory Card
SD Memory Card
MMC (MultiMediaCard)
MMC*plus* (MultiMediaCardplus)

Storage Capacity

- Snapshots

Image Size (Pixels)	Image Quality	Approximate Image File Size	Approximate Built-in Memory (11.6MB) Capacity	Approximate SD Memory Card* (256MB) Capacity
7M (3072 × 2304)	Fine	4.3 MB	2 images	56 images
	Normal	2.31 MB	5 images	105 images
	Economy	1.57 MB	7 images	155 images
3:2 (3072 × 2048)	Fine	3.73 MB	3 images	65 images
	Normal	2.02 MB	5 images	120 images
	Economy	1.38 MB	8 images	176 images
5M (2560 × 1920)	Fine	2.99 MB	3 images	81 images
	Normal	1.62 MB	7 images	150 images
	Economy	1.12 MB	10 images	217 images
3M (2048 × 1536)	Fine	2.0 MB	5 images	121 images
	Normal	1.15 MB	10 images	211 images
	Economy	720 KB	16 images	338 images

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Image Size (Pixels)	Image Quality	Approximate Image File Size	Approximate Built-in Memory (11.6MB) Capacity	Approximate SD Memory Card* (256MB) Capacity
2M (1600 × 1200)	Fine	1.26 MB	9 images	193 images
	Normal	790 KB	14 images	308 images
	Economy	470 KB	25 images	518 images
VGA (640 × 480)	Fine	330 KB	35 images	738 images
	Normal	190 KB	61 images	1282 images
	Economy	140 KB	84 images	1740 images

- Movies

Image Quality (Pixels)	Maximum Recording Time Per File	Approximate Data Rate (Frame Rate)	Approximate Built-in Memory (11.6MB) Capacity	Approximate SD Memory Card* (256MB) Capacity
UHQ 640 × 480	10 minutes	6.0 Megabits/ second (30 frames/ second)	16 seconds	5 minutes, 35 seconds
UHQ Wide 848 × 480	10 minutes	7.2 Megabits/ second (30 frames/ second)	13 seconds	4 minutes, 38 seconds
HQ 640 × 480	10 minutes	3.0 Megabits/ second (30 frames/ second)	32 seconds	11 minutes, 15 seconds
HQ Wide 848 × 480	10 minutes	3.6 Megabits/ second (30 frames/ second)	27 seconds	9 minutes, 21 seconds
Normal 640 × 480	10 minutes	1.5 Megabits/ second (30 frames/ second)	65 seconds	22 minutes, 28 seconds
LP 320 × 240	10 minutes	2.4 Megabits/ second (15 frames/ second)	39 seconds	13 minutes, 34 seconds

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* The number of image values are approximate and are provided for reference only. The actual number of images you may be able to record may be less than that indicated on the monitor screen.
* Image files sizes are approximate and are provided for reference only. Actual image file sizes vary depending on subject type.
* Based on Matsushita Electric Industrial Co., Ltd. products. The number of images you can save depends on the type of memory card you are using.
* To determine the number of images that can be stored on a memory card of a different capacity, multiply the capacities in the table by the appropriate value.

Delete	1 file; all files (with memory protection feature)
Effective Pixels	7.2 million
Imaging Element	1/2.5 square pixel primary color CCD (Total pixels: 7.41 million)
Lens/Focal Distance	F3.4 to 5.3/f=6.3 to 44.1 mm (Equivalent to 38 to 266 mm on a 35 mm film camera.) 12 lenses in 9 groups, including aspherical lens.
Zoom	7X optical zoom / 4X digital zoom (Image Size: 7M (3072 × 2304 pixels)) (28X total zoom)
Focusing	Contrast Detection Auto Focus Focus Modes: Auto Focus, Macro Focus, Infinity Mode, Manual Focus AF Area: Spot, Multi or Tracking; with AF assist lamp
Approximate Focus Range	(from lens surface) Auto Focus: 30 cm to ∞ (1.0' to ∞) Macro Focus: 10 cm to 40 cm (3.9" to 15.7") Infinity: ∞ Manual Focus: 10 cm to ∞ (3.9" to ∞) Range is affected by optical zoom.

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Exposure Control . . . . . Metering:
Multi-pattern, center weighted, and spot by imaging element
Exposure: Program AE
Exposure Compensation:
–2EV to +2EV (in 1/3EV steps)

Shutter . . . . . CCD shutter, mechanical shutter
Snapshot (Auto):
1/2 to 1/800 second
Snapshot (Manual Exposure/Shutter Speed Priority AE):
60 to 1/800 second
Snapshot (Aperture Priority AE):
1 to 1/800 second
* Shutter speed is different for some BEST SHOT scenes.

Aperture Value . . . . . Auto/Shutter Speed Priority AE:
F3.4 / F4.6 / F9.2* auto switching
Manual Exposure/Aperture Priority AE:
F3.4 / F4.6 / F9.2*
* Using optical zoom causes the aperture value to change.
* F9.2 is the aperture when an ND filter is being used.

White Balance . . . . . Auto, fixed (6 modes), manual

Sensitivity . . . . . Snapshots (Standard):
Auto, ISO 64, ISO 100, ISO 200, ISO 400, ISO 800
* Maximum sensitivity is ISO 1600 when the BEST SHOT “High Sensitivity” scene is being used.
Movies: Auto

Self-timer. . . . . Trigger Times:
10 seconds, 2 seconds, Triple Self-timer

Built-in Flash . . . . . Flash Modes:
Auto, Off, On, Soft Flash, Red-eye reduction
Approximate Flash Range:
Flash Range:
Wide Angle Optical Zoom:
0.1 to 2.2 meters (0.3' to 7.2')
Telephoto Optical Zoom:
1.0 to 1.4 meters (3.3' to 4.6')
• Flash Continuous Shutter
Wide Angle Optical Zoom:
0.4 to 2.1 meters (1.3' to 6.9')
Telephoto Optical Zoom:
1.0 to 1.4 meters (3.3' to 4.6')
* ISO Sensitivity: “Auto”
* Depends on zoom factor.

Recording . . . . . Snapshots (with audio); Macro; Self-timer; Continuous shutter (Normal-speed Continuous Shutter, High-speed Continuous Shutter, Flash Continuous Shutter); BEST SHOT; easy mode; movie with stereo audio (Movie, MOVIE BEST SHOT, Short Movie, Past Movie) ; audio (Voice Recording)

Approximate Audio Recording Times
Audio Snapshot:
30 seconds per image
After Recording:
30 seconds per image
Voice Recording:
36 minutes (when using built-in memory)

Monitor Screen. . . . . .2.5-inch TFT color LCD
230,400 (960 × 240) pixels

Viewfinder . . . . . .Monitor Screen

Timekeeping Functions . . .Built-in quartz digital clock
Date and Time:
Recorded with image data, Time stamp
Auto Calendar: To 2049

World Time. . . . . .162 cities in 32 time zones
City name, date, time, summer time

Input/Output Terminals . . .Cradle contact

USB . . . . . .USB 2.0 Hi-Speed compatible

Microphone . . . . . .Stereo

Speaker . . . . . .Monaural

Power Supply

Power Requirements . . . . . Lithium ion rechargeable battery (NP-50) × 1

Approximate Battery Life

All of the values provided below represent the approximate amount of time under normal temperature (23°C (73°F)) before the camera turns off. These values are not guaranteed. Low temperatures shorten battery life.

Number of Shots (CIPA)[*1]	240 shots
Continuous Playback (Snapshots)[*2]	360 minutes
Continuous Movie Recording	100 minutes
Continuous Voice Recording[*3]	260 minutes

- Battery: NP-50 (Rated Capacity: 950 mAh)
- Recording Medium: SD memory card

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- Measurement Conditions

*1 Number of Shots (CIPA)
In accordance with CIPA standards
Normal temperature (23°C (73°F)), monitor on, zoom operation between full wide and full telephoto every 30 seconds, during which two images are shot with flash; power turned off and back on every time 10 images are shot.

*2 Continuous Playback Time
Standard temperature (23°C (73°F)), one-image scroll approximately every 10 seconds

*3 Approximate continuous recording time

- The above values are based a new battery, starting from a full charge. Repeated charging shortens battery life.
- Frequency of flash, zoom, and Auto Focus usage, and the time the camera is on greatly affects recording time and number of shots values.

Power Consumption	3.7 V DC; Approximately 4.5 W
Dimensions	95.5 (W) × 59.8 (H) × 25.5 (D) mm (3.8"(W) × 2.4"(H) × 1.0"(D)) (Excluding projections; 20.8 mm (0.8") at thinnest point)
Weight	Approximately 149 g (5.3 oz) (excluding battery and bundled accessories)
Bundled Accessories	Rechargeable Lithium Ion Battery (NP-50); USB Cradle (CA-35); Special AC Adaptor (AD-C52G)/AC Power Cord; USB Cable; AV Cable; Strap; CD-ROMs (2); Basic Reference

Rechargeable Lithium Ion Battery (NP-50)

Rated Voltage	3.7 V
Rated Capacitance	950 mAh
Operating Temperature	0 to 40°C (32 to 104°F)
Dimensions	23.5 (W) × 70.1 (H) × 7.0 (D) mm (0.93"(W) × 2.76"(H) × 0.28"(D))
Weight	Approximately 30 g (1.06 oz)

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■ USB Cradle (CA-35)

Input/Output Terminals . . . Camera contact; USB port; external power supply terminal (DC IN 5.3 V); AV terminal (AV OUT: NTSC/PAL standards)
Power Consumption . . . . . 5.3 V DC, Approximately 3.2 W
Dimensions . . . . . 111 (W) × 30 (H) × 71 (D) mm (4.4"(W) × 1.2"(H) × 2.8"(D)) (Excluding projections)
Weight . . . . . Approximately 69 g (2.4 oz)

■ Special AC Adaptor (Inlet Type) (AD-C52G)

Input Power . . . . . 100 to 240 V AC 50/60Hz 83 mA
Output Power . . . . . 5.3 V DC 650 mA
Dimensions . . . . . 50 (W) × 20 (H) × 70 (D) mm (2.0"(W) × 0.8"(H) × 2.8"(D)) (Excluding projections and cable)
Weight . . . . . Approximately 90 g (3.2 oz)

- Power cord precautions for use in Singapore
  The power cord set is not supplied. The power cord used must comply with relevant national and/or international standards.

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CASIO®

CASIO COMPUTER CO.,LTD.
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Shibuya-ku, Tokyo 151-8543, Japan

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FOLDER 002

WinTV®

Installation and Reference Manual

Hauppauge!®

WinTV®

Installation and Reference Manual

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FCC Statement

Radio Interference Statement:

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

- reorient or relocate the receiving antenna.
- increase the separation between the equipment and receiver.
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- consult the dealer or an experienced radio/TV technician for help.

FCC ID: H90WINCAST MADE IN USA

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance to the FCC Rules could void the user's authority to operate the equipment.

CE Statement:

This equipment has been tested and complies with EN 55013, EN 55020 and IEC 801-3 part 3 standards.

CE

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dbx-TV is a trademark of THAT Corp.

6/30/99

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Introduction

This manual is covers all of the WinTV models based on the "PCI Push" technology for displaying TV on your PC's VGA screen. It covers, but is not limited to, the following models:

WinTV

WinTV-dbx

WinTV-radio

WinTV-pci

WinTV-primio

WinTV-radio

WinTV-Theater

References to the WinTV apply to all models. The Windows95/98 driver for all of the WinTV boards will be referred to as the WinTV driver, and the installation CD-ROM will be referred to as the WinTV Installation CD-ROM.

For models which have particular features (such as the chapter on the Radio application), we will note which models these features are available on.

For a description of how the WinTV boards display video on your VGA screen, see the chapter entitled How WinTV Works.

Installing the WinTV boards

The WinTV boards are Plug-and-Play devices designed for Windows95, 98 and NT 4.0. Plug-and-Play simplifies the installation and hardware setup of WinTV by having hardware settings assigned by Windows, instead of needing to set jumpers. This chapter describes how to install these boards and how the automated Plug-and-Play installation procedure works .

Installation overview

To install WinTV under Windows 95 or 98, you will follow these steps:

- ✓ Install the WinTV board in your PC
- ✓ After booting Windows 95 or 98, you will install WinTV's Windows device driver from the WinTV Installation CD-ROM
- ✓ After the Windows driver is installed, you will then install the WinTV application software from the WinTV Installation CD-ROM
- ✓ Finally, if necessary, an updated Windows Direct Draw Driver can be installed from the WinTV Installation CD-ROM

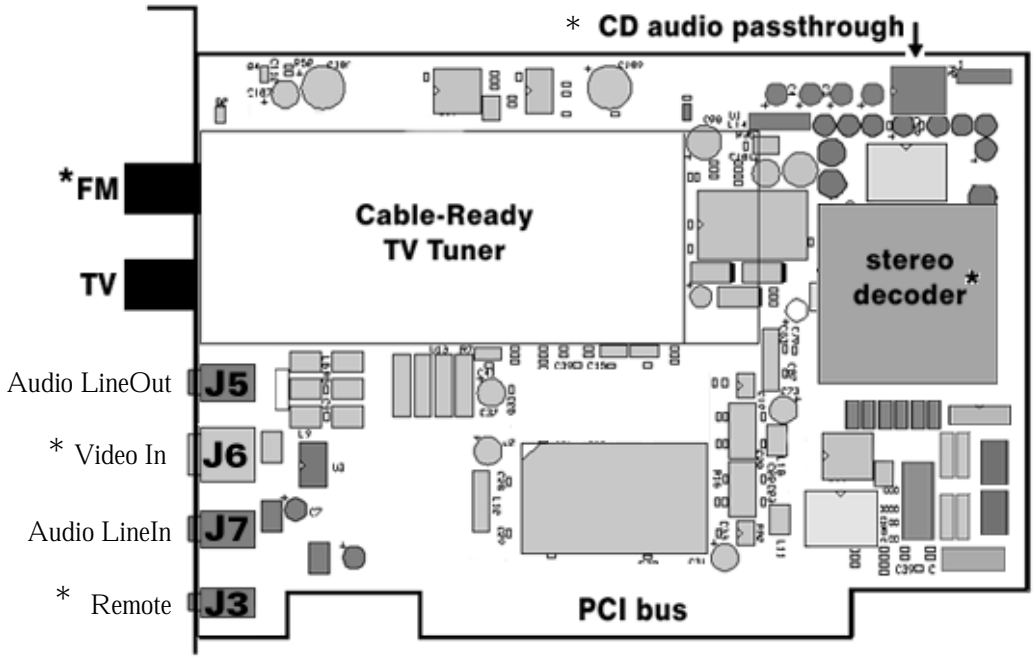
WinTV board diagram

The following diagram shows the main functions and connectors of the WinTV board. Since there are several different models with different features and functions, your board may not have all of the components installed.

Board connections

FM:	FM radio antenna connection (on some models)
TV:	TV antenna or cable TV connection
Audio LineOut:	Audio output 1/8" minijack (connects to sound card LineIn jack)
Video In:	VideoInput jack (S-Video on some models)
Audio Line In:	Audio input 1/8' minijack J2, left and right channel
Remote Control:	Minijack J3 (optional on some models)

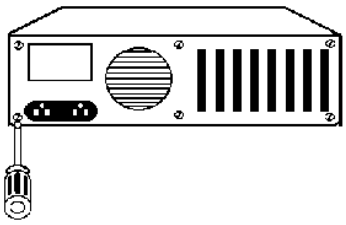
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*Note: not available on all models.
Note: this outline may not reflect the current revision of your WinTV board. For the most up to date information, see the WinTV QuickInstall Guide provided with your WinTV board.

Installing the WinTV board in your PC

Before installing the WinTV board, turn off the power to your PC and remove the cover. Since the WinTV board is sensitive to static electricity, we recommend that before you remove it from its protective anti-static bag, you touch the chassis with your hand to discharge any static electricity.



Once the cover is removed, plug the WinTV board into any free PCI slot.

Note: *The WinTV board cannot be plugged into a 16-bit slot!*

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Note: *The WinTV board must be plugged into a PCI bus master slot. Most PC's allow any PCI slot to be a bus master, though sometimes we find that a PCI slot is not a bus master slot. If so, you can either move the WinTV to another PCI slot, or from the system BIOS you might be able to enable a PCI slot for bus-mastering.*

Now connect the Audio Cable between the WinTV board and your PC's sound card. Plug one end of the audio cable into the Audio LineOut jack of the WinTV. The other end (a 1/8" audio jack) then plugs into the LineIn jack of your sound card.

Note: *Most sound cards have three round jacks on the outside of the PC. They are: Microphone Input, Audio Output and Line Input. The Audio Output would go to your speakers, while the Microphone input might go to a microphone (if you are using one). The LineIn jack is normally indicated on the sound card by the words IN or LineIn stamped into the metal bracket on the outside of your PC. This is where you would plug your WinTV Audio cable.*

Installing the WinTV driver under Windows98

When re-starting Windows for the first time after the WinTV board has been installed, the Add New Hardware Wizard will appear.



Click NEXT.

Select Search for the best driver for your device (Recommended).

Click NEXT.

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When you see this dialog box, insert the WinTV Windows Installation CD-ROM into your CD-ROM drive.

Select CD-ROM drive and click NEXT.

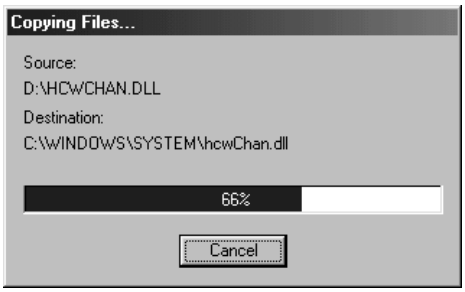


Once the Hauppauge WinTV video driver has been detected, click NEXT.



Note: *Note: If a message stating "*Windows was unable to locate a driver for this device"*, you did not wait long enough for the WinTV* Installation CD-ROM *to be read. Click* Back *and then click* Next *again for the CD to be recognized.*

You will see a number of files being copied to your hard disk drive.



If you receive an error message saying a file cannot be found, browse to the Win98 directory on the WinTV Windows Installation CD-ROM for these files.



Click FINISH.

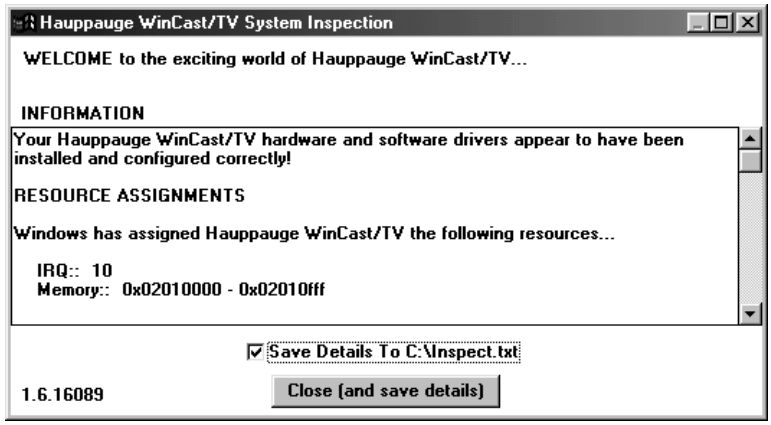
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After the Hauppauge WinTV video driver has been installed, the Hauppauge WinTV Audio Driver will be automatically installed.



After all files are copied, the Hauppauge WinTV System Inspection utility will be run.

Check for the message Your Hauppauge WinTV hardware and software drivers appear to have been installed and configured correctly. If not, refer to the Troubleshooting section.

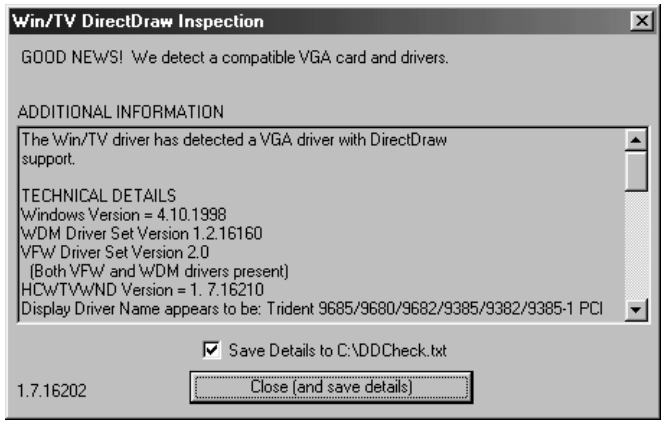


Click on Close (and save details).

Now the Hauppauge WinTV DirectDraw Inspection utility will be run.

Check if the message GOOD NEWS! We detect a compatible VGA card and drivers appears.

Click on Close (and save details).



If you do not see this message, you might need a Direct Draw driver update. See Chapter 2: Using DirectX setup to install an updated Direct Draw VGA Driver.

After the DirectDraw check completes, WinTV Setup will be run.

To use the remote control (optional on some WinTV models) make sure Install the Hauppauge Remote Control Application is checked.

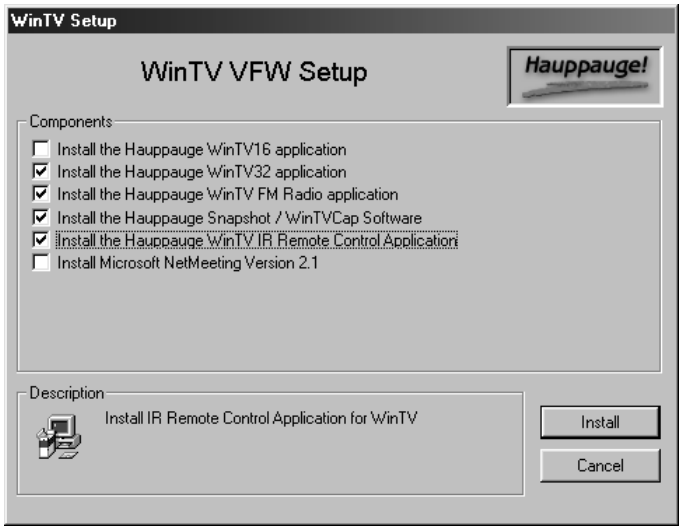
Click Install to install the WinTV32, WinTV-Snapshot and WinTV radio

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applications.

After the Setup program is complete, you will see a WinTV32 icon on your Windows desktop. To run the WinTV32 application, double click on the WinTV32 icon.

On those WinTV models equipped with remote control, after rebooting your PC the Remote Control will be enabled.



Installing the WinTV driver under Windows95 OSR2

Windows 95 OSR2 is a version of Windows95 which is found on many new PC's. OSR2 looks slightly different during the installation of the WinTV driver then the upgrade version of Windows 95.

After installing the WinTV board in your PC, and turning on the power, Windows 95 Plug-and-Play Update Device Driver Wizard will recognize that a new PCI Multimedia Video Device has been seen.

If you do not see the Update Device Driver Wizard, then please refer to the section entitled Installing the WinTV driver under the upgrade version of Windows 95, on page 1-7.

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Now, insert the WinTV Installation CD-ROM. Wait a few seconds for the CD-ROM to be read, then click Next. The next window will appear automatically after Windows 95 has determined that this device is the Hauppauge WinTV.

Note: *Note: If a message stating "*Windows was unable to locate a driver for this device"*, you did not wait long enough for the WinTV* Installation CD-ROM *to be read. Click* Back *and then click* Next *again for the CD to be recognized.*



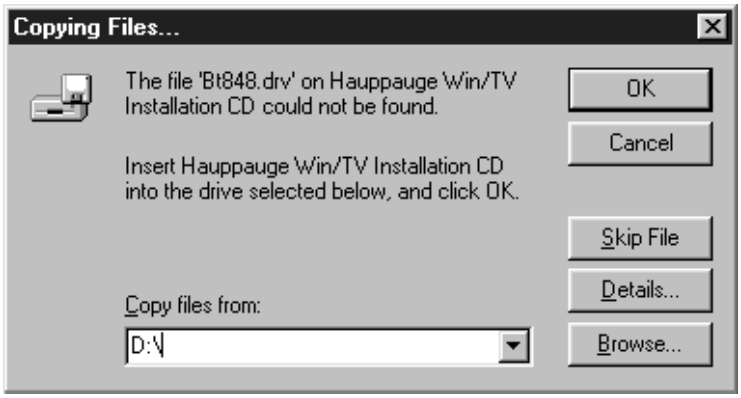
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Click on Finish.

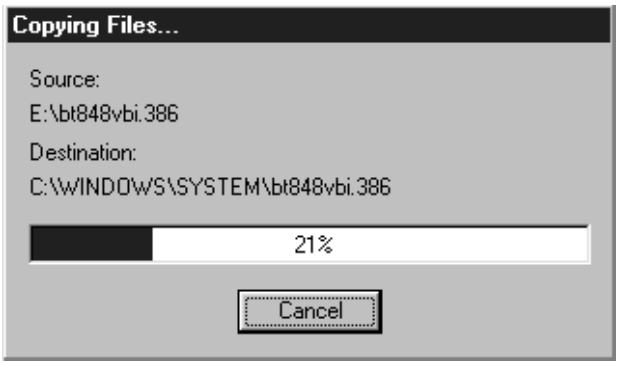
After a few seconds you might be asked to "Please insert the disk labeled WinTV Installation CD".



If so, click OK. Then type in the drive letter of CD-ROM drive. For example, if your CD-ROM is D:\, type:



The driver starts to install. You will now see the progress as Windows 95 installs the rest of the WinTV driver.



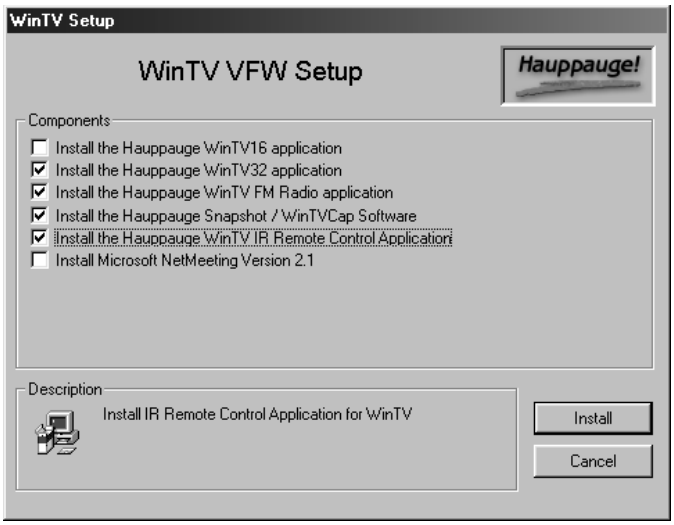
After the WinTV drivers have been installed, a System Inspection program is automatically run which will check your hardware configuration, alerting you to possible hardware conflicts. To see a screen shot of this window, wee page 1-5.

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After checking for hardware conflicts, a **Direct Draw Inspection** program is automatically run which will check to make sure your VGA card has a Direct Draw driver which is compatible with **WinTV**. **See page 1-5 to see a screen shot of this window.**

If you get an error message refer to **Chapter 2: Using DirectX to install an updated DirectDraw driver** for information on updating the Direct Draw driver for your VGA card.

Now you can install the application software from the **WinTV Installation CD-ROM**. Click the **Start** button, then **Run**. Type your CD-ROM driver letter, then SETUP.



You can install the WinTV application, plus any other bundled application which uses the WinTV.

Installing the WinTV driver under the upgrade version of Windows 95

After installing the WinTV board in your PC, turn on your PC. After booting, Windows95 will detect the presence of the WinTV board and will display the message *New Hardware Found*:

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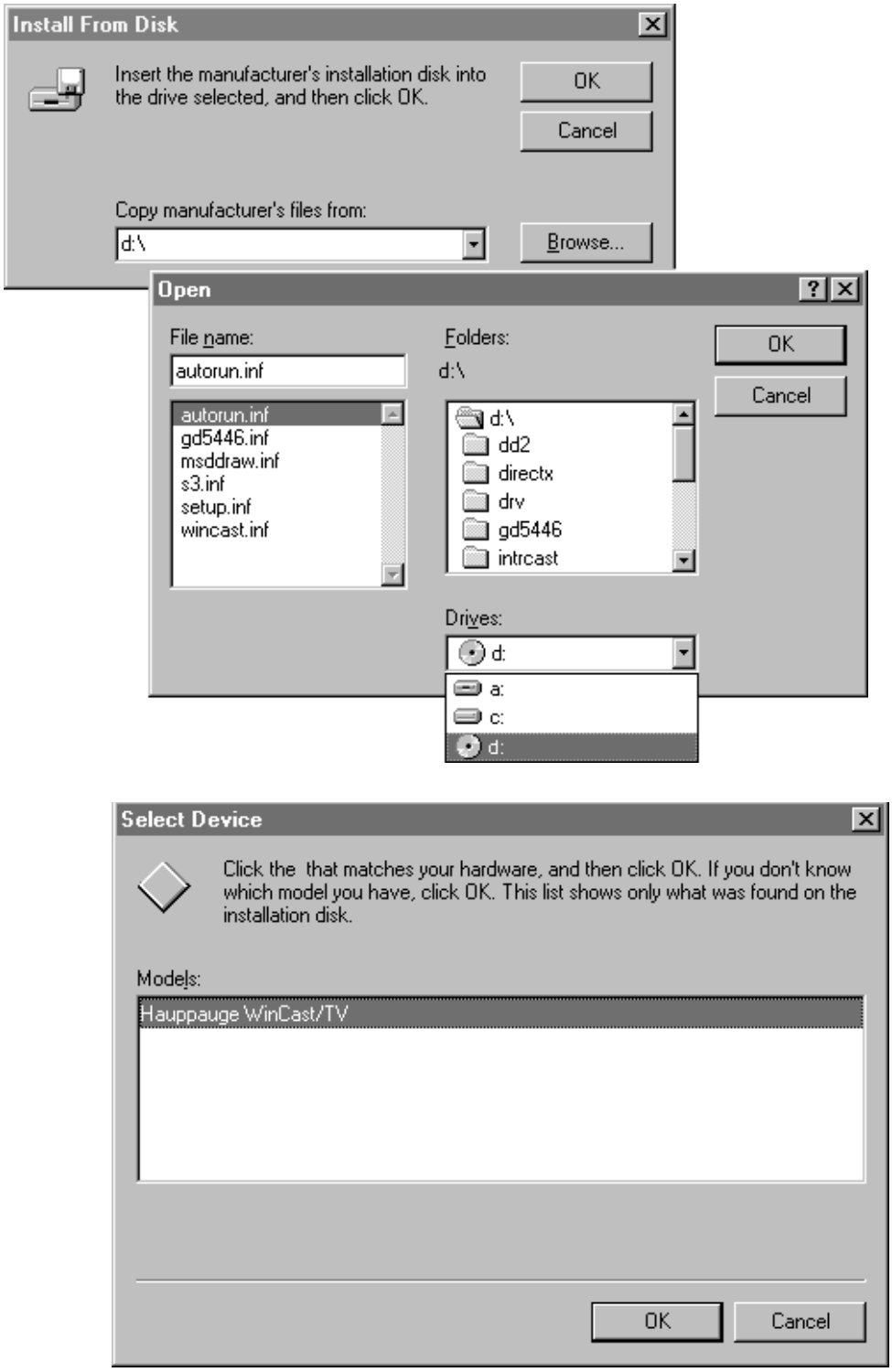
Note: *Note: If you see this message, your PC has the upgrade version of Windows95. Otherwise, see the previous section (*Installing the WinTV driver under Windows95 OSR2*) which describes the WinTV driver installation under the version of Windows 95 which is found on new PC's.*

Click OK. You will then be asked to Install from Disk. Put the WinTV Installation CD-ROM in your CD-ROM drive, type the drive letter of your CD-ROM and click OK. Note: It can take as long as a minute for the WinTV Installation CD-ROM to be recognized by Windows.

If you do not know what drive letter your CD-ROM is, click on Browse and look for the CD-ROM icon.

You will then be asked to select device. Select Hauppauge WinTV.

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Click on OK and Windows95 will load the WinTV driver.

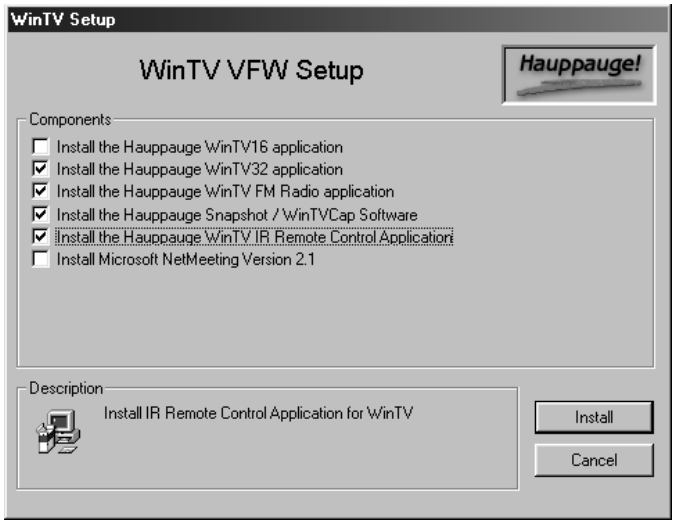
After the WinTV driver has been loaded, a System Inspection program is automatically run which will check your hardware configuration, alerting you to possible hardware conflicts. To see a screen shot of this, see page 1-5.

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After checking for hardware conflicts, a **Direct Draw Inspection** program is automatically run which will check to make sure your VGA card has a Direct Draw driver which is compatible with **WinTV**.

If you get an error message refer to **Chapter 2: Using DirectX to install an updated DirectDraw driver** for information on updating the Direct Draw driver for your VGA card. Note: The VGA color setting should be at least 16 bits per pixel.

Now you can install the application software from the **WinTV Installation CD-ROM**. Click the **Start** button, then **Run**. Type your CD-ROM driver letter, then **SETUP** to install the **TV and Image Capture** application, and the **WinTV-Capture** application.



Primary Surface mode

It is sometimes useful to force **WinTV** to use a mode of operation of your VGA card known as **Primary Surface mode**. This can be helpful in eliminating VGA compatibility problems, or improving picture quality on some VGA boards when used in some resolutions.

To force **WinTV** to use Primary Surface mode, run the program "PRIMARY", which is installed with the WinTV application. Click **Start/ Programs** and then **WinTV**. Double click on **Primary**. Click on **Force Primary** then close the program by clicking on the **X**. The Primary program simply makes a setting in the Windows Registry that tells the **WinTV** application to use the Primary mode of operation.

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This can be changed at any time to "Allow Overlay" by re-running Primary and clicking Allow Overlay.

Note: *When using Primary Surface mode, you will not be able to view live Closed Caption data overlaid on your TV Window when using the Intel Intercast Viewer. However, you will still be able to save the Closed Caption data to a file for later reading.*

Connecting the WinTV board to a VCR, Video Camera or Camcorder

Most VCR's or camcorders have a female RCA jack labeled "Video Out". Most also have a jack labeled "Audio Out". Most video cameras simply have one output connection labeled "Video Out".

To connect the video to the WinTV board, use shielded video cables (not supplied) with male RCA connectors on both ends:

- connect from the "Video Out" jack on your video camera, VCR or camcorder to the Composite Video input jack on the WinTV board.

  Note: Some WinTV models have a yellow RCA jack on the back panel bracket. Others have a high-quality S-Video input jack, which requires a supplied S-Video to Composite video adapter to connect to your camcorder.

To connect the audio from your VCR or camcorder to the WinTV, use a 1/8" stereo minijack extension cable (1/8" male minijacks on each end) and:

- connect the "Audio Output" 1/8" minijack on the VCR or camcorder to the Audio LineIn jack on the WinTV board.

  Note: Some camcorders use RCA connectors instead of 1/8" minijacks to connect the audio. If so, you will need an female RCA to 1/8" minijack adapter. These adapters can be found at most Radio Shack stores.

Connecting the WinTV board to a Sound Card

The WinTV board's audio output should be connected to a sound card using the supplied Audio Cable:

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- plug one end of the Audio Cable into the jack marked LineOut (Audio Line Out jack J4) on the back panel bracket of the WinTV board
- plug the other end of the Audio Cable into your soundcard's LineIn jack.

Note: *Most sound cards have three round jacks on the outside of the PC. They are: Microphone Input, Audio Output and Line Input. The Audio Output would go to your speakers, while the Microphone input might go to a microphone (if you are using one). The LineIn jack is normally indicated on the sound card by the words IN or LineIn stamped into the metal bracket on the outside of your PC. This is where you would plug your* WinTV *Audio Cable.*

Adjusting the Audio Volume

Once the audio cable is connected to your Sound Card, the WinTV application can change the audio volume coming from the WinTV board by adjusting the LineInput sound volume of the VolumeControl program in Windows.

The VolumeControl program is normally installed with Windows or by the sound card installation program, and allows the control of volume from the various sound sources. If you cannot hear sound when running the WinTV application, you might need to check the volume level of LineInput in VolumeControl.

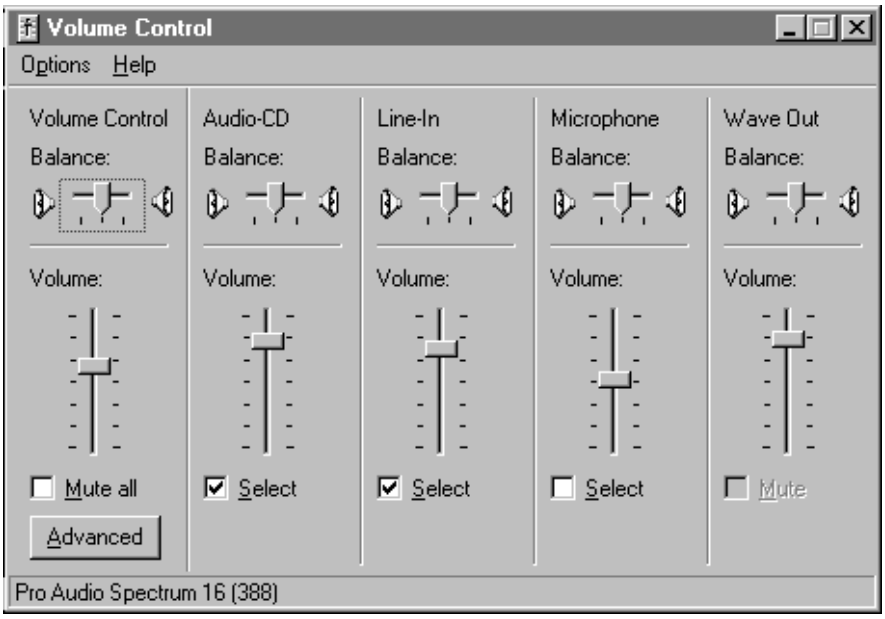
The VolumeControl application is started by clicking either:

Programs/Accessories/Multimedia/VolumeControl

or

Start/Programs/Accessories/Entertainment/VolumeControl

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If LineIn is muted, unmute it to hear audio from the WinTV.

You should see Line-In balance as one of the selections. If not, then click on Options/Properties and under Show the following volume controls check Line-In. Then click OK.

You should now see a selection for Line-In. Make sure the Select box is checked, then raise the volume to about 1/2 of the way to the top. This should be a good starting point for the volume control.

In the WinTV application under the Configure/Audio menu, the Mixer ID should be set at Line-In.

As you adjust the audio volume in the WinTV application, you should see the slide bar in the VolumeControl window rise and fall.

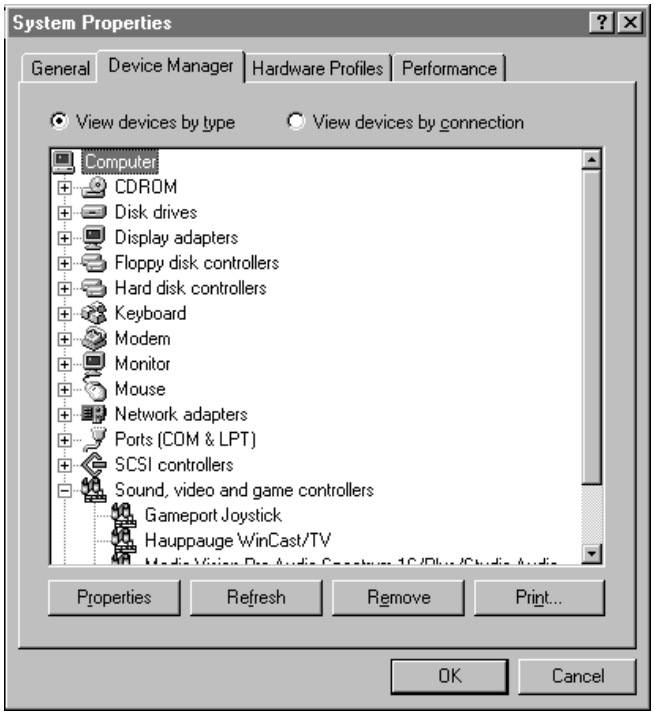
Checking the WinTV Plug-and-Play Setup

After the WinTV board has been installed, you can find out what memory range and interrupt have been assigned by Windows Plug-and-Play by looking at the configuration in the Control Panel. Plug-and-Play will not let you change the Interrupt it has assigned, but you can, if necessary, change the Memory Address chosen by Windows.

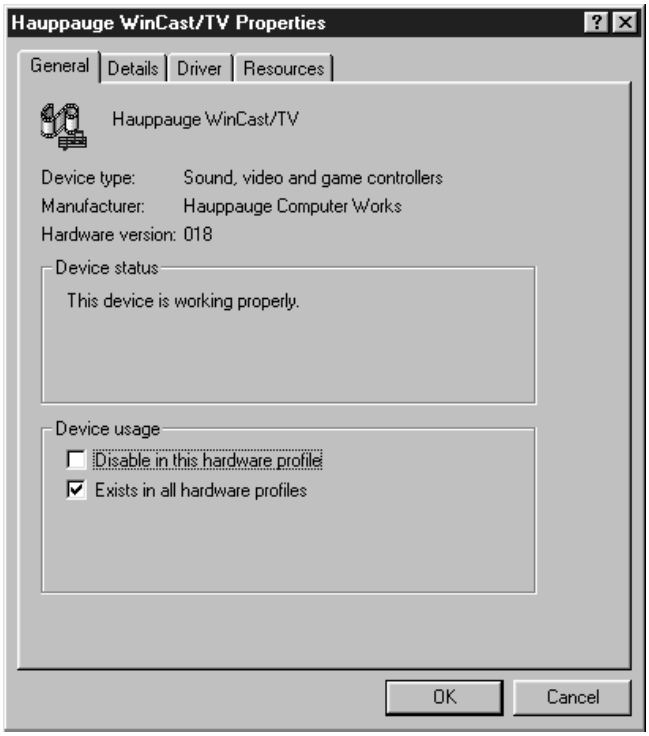
Open up Control Panel by clicking on Start/Settings/ControlPanel. Now open up the System properties setup by double clicking on its icon, then click on

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the Device Manager folder:

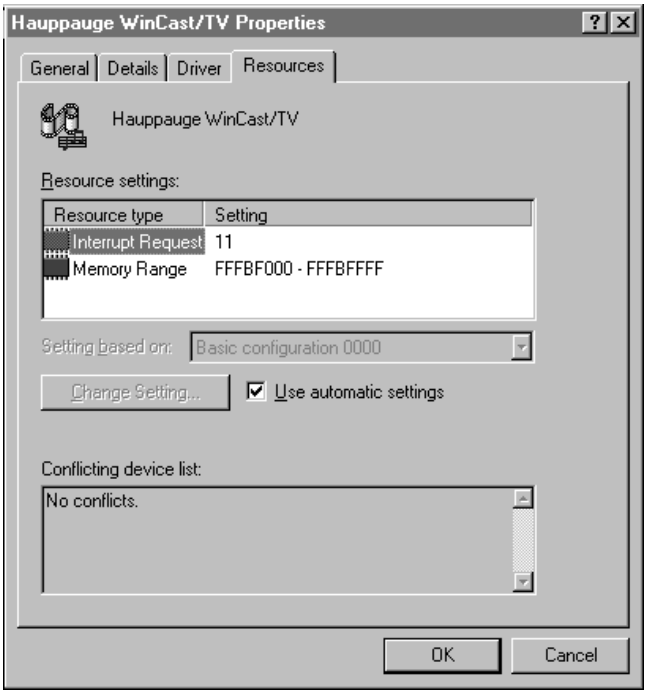


Then select Sound, video and game controllers, then click on Hauppauge WinTV and then Properties:

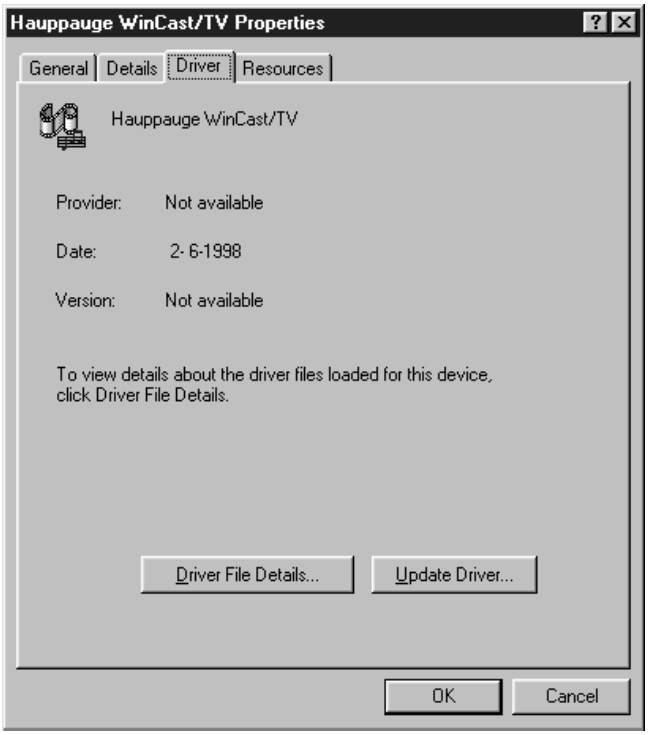


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Click on **Resources** to see which resources Windows95 has assigned to the **WinTV**. Remember: the Interrupt setting cannot be changed (since it is assigned by Windows 95 Plug-and-Play) but the Memory Address can.

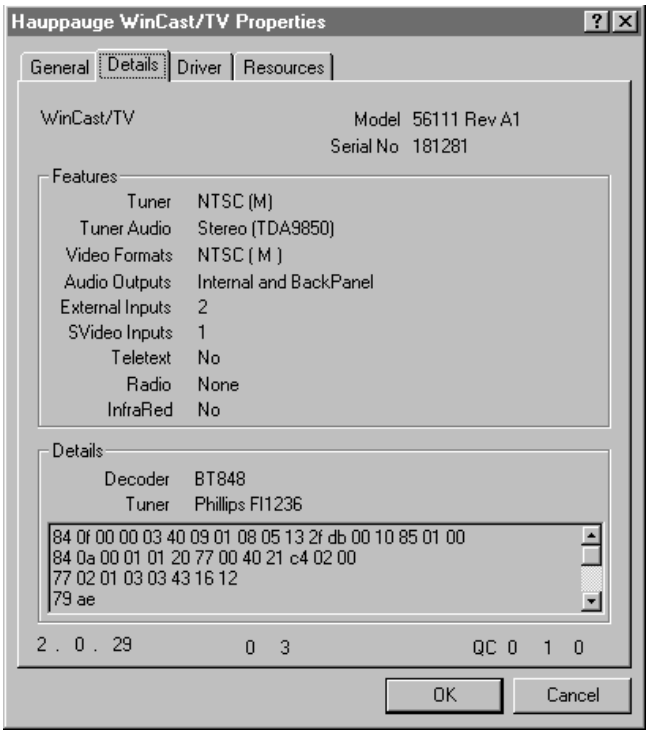


To see which versions of drivers are being used, click on **Drivers**:



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Click the **Details** tab to see the configuration of the **WinTV driver**



This window will show the type of TV tuner, the serial number and revision of your **WinTV** board.

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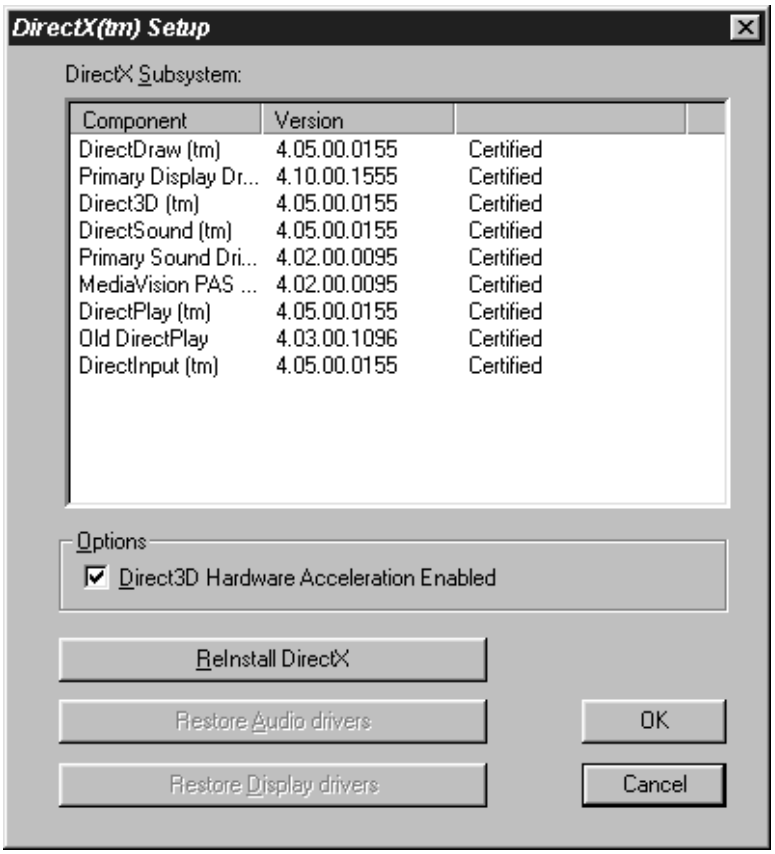
Using DirectX setup to install an updated Direct Draw VGA Driver

To install an updated DirectDraw driver

An updated version of DirectX is installed automatically for Windows95 users. If you would like to re-install DirectX for your VGA card, or if you did not get a "Good News" message after the WinTV DirectDraw Inspection was run, follow this procedure.

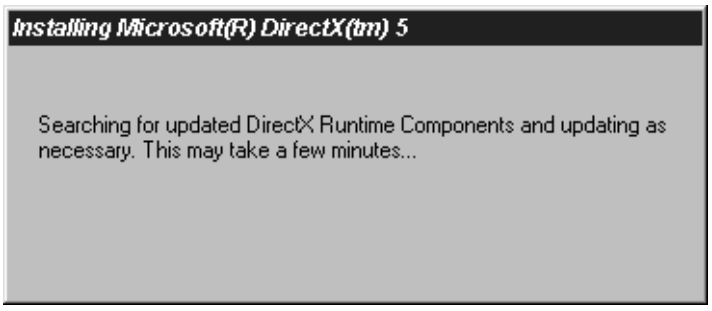
DirectDraw drivers for your PC's VGA card is installed as part of the DirectX setup. DirectX is provided on the WinTV Installation CD-ROM in the DIRECTX directory.

To install DirectX, look in the DIRECTX directory on the WinTV Installation CD-ROM rand double click on DXSETUP. You will then see the following menu:



Click OK.

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The DirectX setup will spend several minutes looking for drivers in your system which can be updated. As it finds drivers, you will see messages such as:



Click on **OK**.

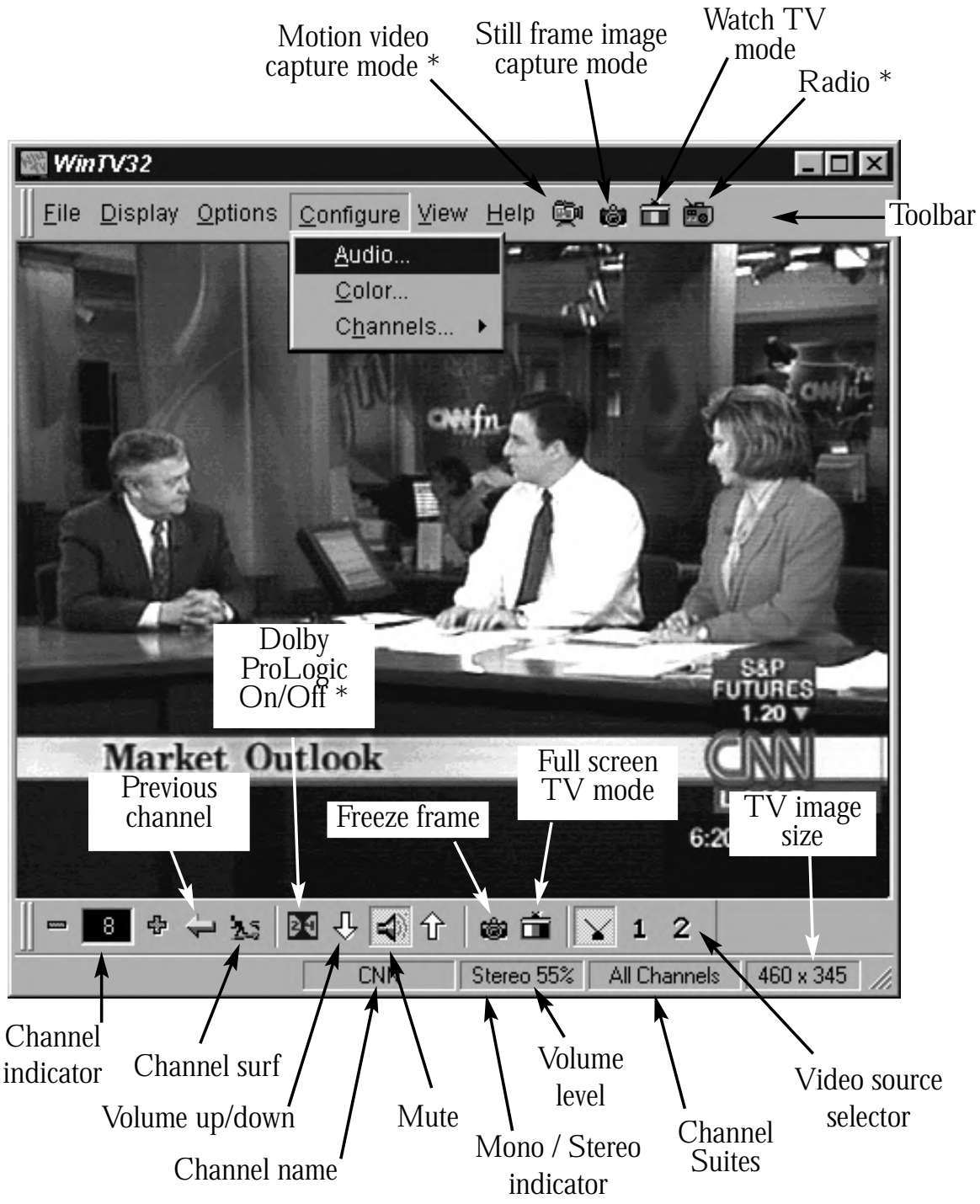
After DirectX has updated all drivers, it will ask you to restart your PC. Do so.



After rebooting, you can check to see if your VGA card driver has been updated by running the DDCHECK program. Click the Start button, then Run then type DDCHECK. Look for the "Good News" message.

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The WinTV32 Application



* on some model WinTV's

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