

Exploring the Canon VIXIA HD Camcorders

At this point, you have probably recorded video and taken some still images with your Canon VIXIA camcorder right out of the box, and have had a chance to see firsthand the high-quality images that it can produce. The Quick Tour section in this book helps you get started using your camcorder right away by introducing some of the basic functionality of the camera. This chapter provides a more in-depth look at what your camcorder has to offer.

Before I dive into menu systems and configuring your camcorder for your personal needs, I give you an extensive tour of the technology behind your camcorder, and the many features at your disposal that enable you to produce beautiful video and still imagery. In this chapter, I also give you the walking tour of your camcorder's layout so that you can become more familiar with where buttons and functions are located.

Cross-Reference

Navigating the menu systems is discussed in detail in Chapter 2.

The Canon VIXIA HD camcorder series offers an array of format options, including SD (Standard Definition), HDV (High Definition Video), and the new AVCHD (Advanced Video Codec High Definition) format, as well as various acquisition methods such as flash memory, hard disk drive, HDV tape, and DVD. First, I discuss the common technology behind the Canon VIXIA camcorder line, then, I get into individual models and their unique features. Knowing the technology and having the ability to effectively navigate your camcorder ensures you are operating your camera as efficiently as possible and getting the best shot possible.

CHAPTER

1

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Recording Quality and Times

Given that some of the camcorders in the VIXIA lineup acquire images to flash memory and the internal hard disk drive, it is important to know how storage capacity translates into the recording time available. Each camcorder in the VIXIA lineup possesses the ability to record video at various qualities. The quality you choose affects the amount of video you can place on a memory card, hard disk drive, DVD, or tape.



Caution

Make sure that you initialize each memory card before using it with your camcorder. Refer to your camcorder's instruction manual to see how to initialize your memory card.

Table 1.1 provides a complete list of recording times for the camcorders in the VIXIA lineup that acquire video by means of flash memory and internal hard disk drive. The approximate recording time for each

camcorder has also been adjusted for recording quality. Maximum recording times for the DVD-based VIXIA HR10 model is located in the VIXIA HR10 section of this chapter. While the VIXIA HV20 and HV30 have the ability to record in either HD or DV quality, they are not capable of adjusting HD quality like the other camcorders. If you want information on the differences in recording time between HD and DV quality for these two camcorders, please refer to your instruction manual.



Cross-Reference

To see how to access the recording qualities of each camcorder, check out Chapter 3.



Caution

When shopping for more memory cards, keep in mind that in order to record in MXP or FXP mode, your memory card has to be rated Speed Class 4 or higher. The SD Speed Class indicates the minimum data transfer rate of SD and SDHC (Secure Digital High Capacity) memory cards. Make sure that you look for the Speed Class logo on the back of the package.

Table 1.1
Approximate Recording Times

Recording Mode	VIXIA Model or Memory Card Size	Recording Time
HXP (This recording mode is specific to the VIXIA HG10 only and is its highest recording quality.)	HG10	5 hours 30 minutes
MXP (Video is recorded in 1920 × 1080 resolution at 24 Mbps.)	HG20	5 hours 30 minutes
	HG21	11 hours 5 minutes
	HF11	2 hours 55 minutes
	4GB	20 minutes
	8GB	40 minutes
	16GB	1 hour 25 minutes
	32GB	2 hours 55 minutes

Recording Mode	VIXIA Model or Memory Card Size	Recording Time	
FXP (Video is recorded in 1920 × 1080 resolution at 17 Mbps.)	HG20	7 hours 50 minutes	
	HG21	15 hours 14 minutes	
	HF10	2 hours 5 minutes	
	HF100		15 minutes (2GB card)
			30 minutes (4GB card)
			1 hour (8GB card)
		4GB	30 minutes
		8GB	1 hour
		16GB	2 hours 5 minutes
		32GB	4 hours 10 minutes
XP+ (Video is recorded in 1440 × 1080 resolution at approximately 12 Mbps. In the VIXIA HG10 model, this record mode is listed as XP.)	HG10	9 hours 30 minutes	
	HG20	10 hours 50 minutes	
	HG21	21 hours 40 minutes	
	4GB	40 minutes	
	8GB	1 hour 25 minutes	
	16GB	2 hours 50 minutes	
	32GB	5 hours 45 minutes	
SP (This is the default recording mode at approximately 7 Mbps.)	HG10	11 hours 30 minutes	
	HG20	18 hours	
	HG21	36 hours	
	4GB	1 hour 10 minutes	
	8GB	2 hours 20 minutes	
	16GB	4 hours 45 minutes	
	32GB	9 hours 35 minutes	
LP (This quality is used for longer record times at 5 Mbps if you are short on storage media. You may find the quality to be less than acceptable when viewing your footage.)	HG10	15 hours	
	HG20	22 hours 55 minutes	
	HG21	45 hours 55 minutes	
	4GB	1 hour 30 minutes	
	8GB	3 hours	
	16GB	6 hours 5 minutes	
	32GB	12 hours 15 minutes	

About the Technology

No matter which VIXIA camcorder you have, you are capable of capturing vivid, attention-grabbing images. The features I discuss in this section are nearly consistent throughout the VIXIA series, and any discrepancies between models are duly noted. Consider this an introduction to the many features you will use throughout this book, as you learn to adapt to various shooting conditions. The features include:

- ♦ **Canon HD video lens.** The lenses vary from 10X to 12X optical zoom in the VIXIA series. This means that you can zoom in and out on a subject with the actual optical glass magnifying the image 10 or 12 times before it reaches the image sensor. The lenses come with three to four pre-set zoom speeds along with variable zoom speed capability, so that you can zoom into long shots of the soccer field or recitals smoothly. Spectra coating technology limits the possibility of lens flares and ghosting.
- ♦ **Full HD CMOS (Complimentary Metal Oxide Semiconductor) image sensor.** This technology has been adapted from the Canon DSLR (digital single lens reflex) family. Each VIXIA camcorder comes with a full HD image sensor, ranging from 2.96 to 3.3 megapixels, capable of capturing images at 1920 × 1080 pixels for true high-definition footage. This sensor also includes noise-reduction technology for shooting in low-light situations; this helps produce a crisper image even when there is insufficient light.

- ♦ **DIGIC DV II image processor.** Canon refers to their image processors as DIGIC (Digital Imaging Core). This processor has the capacity to process video images containing large amounts of information, such as high-definition video. It is responsible for accurate color reproduction in both the video and still images, and also comes equipped with its own noise-reduction capabilities.
- ♦ **Instant Auto Focus (AF).** Because the HD image is crystal-clear, a viewer will quickly notice a subject that is even slightly out of focus. Instant AF uses an external AF sensor to determine the distance between the camcorder and the subject, and quickly adjusts the lens so that the image is in sharp detail. This is a great feature for shooting fast-moving objects. The automatic focus can quickly shift to a new subject without your intervention, letting you focus strictly on the composition of the shot. Although very convenient, this technology can sometimes be fooled when you compose shots with a predominant object in the near foreground and your subject is in the distance. For example, if you are shooting your subject through tall brush or tree limbs, the automatic focus can have difficulty determining what is supposed to be in focus.



The optional wide-angle and telephoto lens converters can sometimes obstruct the Instant AF filter, in which case you will have to set the AF mode to Normal AF in the camcorder menu system.



For more on your camcorder's automatic focus-assist options, see Chapter 3.

- ♦ **9-point AiAF.** Your VIXIA camcorder has the ability to take still photos with resolutions up to 3.1 megapixels. To ensure that your subject is always in focus, no matter where they are in the frame, Canon uses 9-point AiAF (Artificial Intelligence Auto Focus) to decipher which objects to lock on in the frame. This feature evaluates objects in your scene by position and movement to ensure that off-center objects are in sharp focus. This is the default setting under Focus Priority, which appears as Focus Pri in the camera menu system.
- ♦ **SuperRange Optical Image Stabilization.** As the zoom magnification increases when you zoom in on a distant subject, camera shake also becomes magnified. SuperRange Optical Image Stabilization technology detects movement and shifts the lens accordingly to stabilize the shot. This is helpful for hand-held shots where there is the inevitable shake or sway. It is also good for taking blur-free still photos.
- ♦ **Program AE (Automatic Exposure) mode.** In this mode, your camcorder automatically optimizes exposure for a wide variety of shooting conditions. Your options include:
 - **Program.** By default, your camcorder is set to this mode where the camcorder optimizes the aperture and shutter settings for the best exposure for the subject you are shooting. This is a great hands-free option and yields fantastic results.
 - **Portrait.** This mode uses a wide aperture, letting in more light and blurring the background so that the focus is sharp on the subject. The blurring of the background intensifies the more you zoom in on the subject.
 - **Sports.** This mode is great for recording tennis, softball, golf, and so on. However, upon playback, the picture may not appear entirely smooth due to the high shutter speed.
 - **Night.** Your recordings in low-lit places can benefit greatly from this mode. If the lighting is too low, the picture can appear grainy. Motion blurring can also be a factor with fast-moving objects given the lower shutter speed used with this mode.
 - **Snow.** This is a great mode for brightly lit scenes such as at ski resorts, where the sun reflects off the white snow. This is a good option for keeping your subjects from being underexposed against the snow banks.
 - **Beach.** Use this mode on sunny days at the beach to keep your subjects from being underexposed. Given this mode uses a very high shutter speed, the image may not play back as smoothly as in other modes.
 - **Sunset.** This mode enables you to capture a wide, dynamic range of vibrant colors that are associated with a sunset.
 - **Spotlight.** This is a good mode for performances that use a spotlight, such as plays and dance recitals.
 - **Fireworks.** Record fireworks using this mode. You may want to consider using a tripod for both video and still-image acquisition to avoid shake in this particular mode, which uses a slow shutter speed.

- ♦ **Cinema mode.** By using the special scene recording programs, you can give your video a cinematic look, which adjusts color and tonal characteristics so they're similar to film. You can also use this feature in conjunction with the 24 frames per second (or 24p) progressive frame rate, providing film-like motion characteristics to further enhance the cinematic look of your video. This is a great feature if you're an independent filmmaker who wants to capture the aesthetic of film for your work.

Cross-Reference

Cinema mode settings are discussed in further detail in Chapter 2, and the Program AE mode is covered further in Chapter 6.

- ♦ **30p progressive frame rate recording.** In addition to recording in 24p and 60 interlaced frames (60i), the VIXIA HV30, HF10, HF11, HF100, HG20, and HG21 camcorders can also use 30p progressive frame rate recording for Web video. You will want to use this setting if you are compressing your video for the Web at 15 frames per second (fps). Because the video you are shooting is already at 30 fps, pulling out only every other frame gives you better-looking Web video.
- ♦ **Quick Start.** This function is either the physical button located on the VIXIA HR10 and HG10 camcorders or what you can activate by the opening and closing of the LCD panel on the VIXIA HF10, HF11, and HF100 models. The VIXIA HV20 and HV30 do not have a Quick Start function. When you press the Quick Start button, or close the LCD panel, the camcorder goes into standby mode, which conserves your battery power by reducing

power consumption. When you press the Quick Start button again, or flip open the LCD, the camcorder immediately goes back into recording mode. This is a great way to always be prepared for a quick shot, without having to wait for the camcorder to power back up.

- ♦ **Built-in video light/LCD video light.** Some VIXIA camcorders come equipped with their own built-in video light on the front of the camcorder that can aid you when you shoot in low-light conditions. This light is effective up to about 5 feet. Some models use the new LCD video light function that is built right into the camcorder's LCD panel; simply activate the video light function and flip the screen toward your subject.

Cross-Reference

For more on the function and use of the built-in video light, see Chapter 2.

- ♦ **Simultaneous still shooting.** This feature lets you take a still shot, while you are recording video.
- ♦ **Photo grab.** This feature is great for times when you recorded video footage, but also need a still photo of a specific frame of video. When you are playing back the video, you can take a still photo of the frame you want at a 2.0 megapixel resolution. I take a closer look at this feature and how to implement it in Chapter 3.
- ♦ **Histogram display.** When viewing the still photos you have taken, you can choose to display the histogram to see the brightness information of the photo. This can help you make adjustments to exposure for later shots.

♦ **Direct printing with PictBridge.**

The Direct Print functionality of your Canon camcorder makes printing your captured images very simple with a PictBridge-compatible printer. PictBridge is a standardized technology that allows you to print images directly from your camcorder's memory card with the press of the Print/Share button.

♦ **Mini High-Definition Multimedia Interface (HDMI) terminal.** High-definition connections made with the HDMI terminal on your camcorder give you the highest quality playback, transporting both high-definition video and the audio signal with a single cable. You can only make this type of connection with an HD TV. An HDMI cable is not shipped with your Canon VIXIA camcorder. If you want to make a high-definition connection to your high-definition TV, you can purchase an HDMI cable at any computer or electronics store.

♦ **Canon DW-100 DVD burner-compatible.** The optional DW-100 DVD burner gives owners of the AVCHD hard disk drive and flash memory-based camcorders the ability to create HD DVD discs. This burner also allows you to play back your AVCHD DVDs on your television through your camera without the need for an AVCHD-compatible player. This is another good option for storing your video and photos, because you can burn photo DVDs as well as video DVDs. The DW-100 can record in both the AVCHD and DVD-video formats.

Cross-Reference

For camcorders that use AVCHD flash memory and hard disk drives, Chapter 8 covers burning a DVD using the DW-100 DVD burner. You will also learn how to preview AVCHD DVDs on a TV using the DVD burner.

Operating Modes

Each camcorder in the Canon VIXIA lineup accesses the various operating modes differently. Some VIXIA models have a single dial you can move to the various modes; others have a Camera or Mode option on the Power switch where you can access camera and play modes, and by flipping a second switch, choose to record or play back movies or still images. Throughout this book, I will be referring to Camera mode as Movie mode for all camcorders. The following is a list of the VIXIA operating modes:

- ♦ **Movie mode.** This mode is for recording movies.
 - **VIXIA HV20 and HV30.** Set the Power switch to Camera and move the secondary switch to the cassette tape icon position.
 - **VIXIA HG10 and HR10.** Momentarily move the Power switch to the Mode position, and then move the secondary switch to the video camera icon.
 - **VIXIA HF10, HF11, HF100, HG20, and HG21.** Move the Mode dial to the position of the video camera icon.
- ♦ **Still image mode.** You can take still images while in this mode.
 - **VIXIA HV20 and HV30.** Set the Power switch to Camera and move the secondary switch to the memory card icon position.

- **VIXIA HG10 and HR10.** Momentarily move the Power switch to the Mode position, and then move the secondary switch to the photo camera icon position.
 - **VIXIA HF10, HF11, HF100, HG20, and HG21.** Move the Mode dial to the position of the photo camera icon.
- ♦ **Movie playback mode.** You can play back your recorded movies in this mode.
- **VIXIA HV20 and HV30.** Set the Power switch to Camera and move the secondary switch to the tape cassette icon position.
 - **VIXIA HG10 and HR10.** Momentarily move the Power switch to the Mode position, and then move the secondary switch to the video camera icon.
 - **VIXIA HF10, HF11, HF100, HG20, and HG21.** Move the Mode dial to the position of the video camera icon with a play symbol in the middle of it.
- ♦ **Still image playback mode.** This mode is for viewing still images.
- **VIXIA HV20 and HV30.** Set the Power switch to Camera and place the secondary switch to the memory card icon position.
 - **VIXIA HG10 and HR10.** Momentarily move the Power switch to the Mode position, and then move the secondary switch to the photo camera icon.
 - **VIXIA HF10, HF11, HF100, HG20, and HG21.** Move the Mode dial to the position of the video camera icon that has a play symbol in the middle of it.

Many of your camcorder menu options are contingent upon which operating mode you are in. For example, the Cinema mode options are not available while you are in Movie playback mode. For this reason, it is very important to be mindful of which mode you are in so that if you need to record in a hurry, you can do so. As I discuss individual VIXIA models and explore their layouts, I provide clear instructions as to how to navigate between each mode with each specific camcorder.

VIXIA AVCHD Camcorders

AVCHD (Advanced Video Codec High Definition) is one of the newest flavors of HD to hit the market. One of the biggest selling points of this format is that it has the ability to capture more video using less space. This frees you from tape, so you can record footage directly to a memory card, hard disk drive, or DVD. The Canon VIXIA AVCHD camcorder lineup offers a variety of cameras that cater to each of these acquisition methods. The Canon VIXIA HF11, HG20, and HG21 can even record in the highest bit rate in the AVCHD standard, at 24 Mbps, which results in enhanced detail, richer tones, and improved resolution. The AVCHD camcorders include the VIXIA HF10, HF11, HF100, HG10, HG20, HG21, and HR10. In this section, I cover the models in terms of their acquisition methods: flash memory card, hard disk drive, or DVD.

VIXIA HF10, HF11, and HF100

The VIXIA HF10, HF11, and HF100 are remarkably similar in appearance and overall layout. The VIXIA HF10, HG11, and HG100

models each possess a 12X HD video lens with a focal length of 4.8-57mm and an aperture range of f/1.8-f/3.0. The main differences lie in the models' internal storage capacities, and the fact that the HF11 can shoot at the highest bit rate in the AVCHD standard at 24 Mbps.

The VIXIA HF10 and HF11 camcorders use what is known as *dual flash memory*, meaning they record to an internal flash drive as well as an inserted SDHC memory card. The only exception is the VIXIA HF100, which records to SDHC memory cards only. The advantage of these cameras is that you don't have to bother with tape, which is especially beneficial when you are ready to import your footage into a video-editing program. Your images are acquired as files that you can transfer to a computer instead of images captured from tape. If you are an avid user of dSLR still cameras, the concept is very similar. The VIXIA HF11 has a 32GB internal flash drive, while the VIXIA HF10 comes standard with a 16GB internal flash drive. Some of the advantages of using a flash memory camcorder include:

- ♦ **Faster response time.** The read and write times of flash memory-based camcorders are much faster than their tape-based counterparts, meaning that you can start recording faster and have instant access to recording images. This is great in the field as you have the opportunity to review your work and decide if you want to keep it or delete it on the spot.
- ♦ **Reduced risk of data loss.** Flash memory is what is referred to as solid-state storage, which in a nutshell, means it doesn't have moving parts. Inherently these cards are less fragile than tapes and hard

drives, which means memory cards can more effectively withstand being dropped and are much less likely to experience data loss.

- ♦ **Low power consumption.** Because the camcorders do not have moving parts, your camcorder battery doesn't have to expend as much energy. This translates into longer recording times for you.
- ♦ **Media flexibility.** You can change out your memory card for one with a greater capacity, and use a card reader to transfer your files, which frees up your camcorder. You can also use SDHC memory cards in HDTV card slots for immediate viewing.

So, how much recording time do you have if you have a 16GB of flash memory as opposed to 32GB? The answer is, it depends. It depends on which recording mode you are using to shoot your footage. The VIXIA HF11 has five recording modes, while the VIXIA HF10 and HF100 have four. The recording modes allow you to dictate the picture quality of your footage. A good question to ask yourself is why you would ever want to shoot in any other mode other than the highest quality. The higher quality the image, the more space the footage takes on the memory card, meaning that you won't be able to fit as much on your card.

The following sections get you acquainted with the actual layout of the camcorders. Not shown are the tripod socket and the battery release which are located on the bottom of the camcorders.

Left side features

The flip-out LCD panel and nearby features include the following:

♦ **LCD.** Your camcorder is equipped with a widescreen multi-angle LCD panel to monitor your images. The versatility of movement you can achieve with this screen makes it possible to shoot and view your subject from many different angles. It's very easy to get yourself in a shot by placing the camcorder on a tripod and maneuvering the LCD so that you can see what the camera sees. When shooting in bright conditions, the LCD may become increasingly difficult to see. You can adjust the brightness for easier viewing by using the Display/Battery Info button.

♦ **Joystick.** You use the joystick to operate the camcorder's menus, which you access by pressing the Function button or using the onscreen joystick guide. Pushing the joystick to the left, right, up, or down allows you to navigate through and select menu items. You can also use this navigation control to select video and still photos for review. The Set button is at the middle of the joystick. You press it to confirm and save settings after navigating to them with the joystick. The options in the joystick guide change depending on the operating mode of the camcorder.



1.1 The left side of the VIXIA HF10, HF11, and HF100. The VIXIA HF100 body is silver, but the layout is the same.

- ♦ **Remote sensor.** This sensor makes it possible for you to use your camcorder's wireless remote. Point the remote toward this sensor when you press the buttons. While you are in front of the camcorder, flip the LCD panel so that the sensor is pointed at you in order to use the remote.
- ♦ **Function button.** The Function button (appearing as FUNC. on the camcorder) is the gateway into the camcorder menu system. It gives you access to the Function menu, which you use to configure recording modes, playback modes, and the camera setup. To fully master using your camcorder, you must know your way around these menu options.
- ♦ **Play/Pause/Start/Stop button.** Use this button to play back your video and to pause and stop playback.
- ♦ **Fast Reverse/Wide Angle button.** After you have recorded many images to your camcorder, you can use this button to move in reverse between index screen pages that contain your recorded video for review. While recording, you can press this button gently to slowly zoom the camcorder out to a wide field of view. You can choose from three different zoom settings, which affect the reaction time of this button's wide-angle feature, with 1 being the slowest and 3 being the fastest.
- ♦ **Fast Forward/Telephoto button.** After you have recorded many images to your camcorder, you use this button to move forward between index screen pages that contain your recorded video for review. While recording, you can

press this button gently to slowly zoom into a shot. You can choose from three different zoom settings, which affect the reaction time of this button's telephoto feature, with 1 being the slowest and 3 being the fastest.

- ♦ **Stop/Backlight Correction button.**

This button pulls double duty: it enables you to stop playback of your images, and it automatically adjusts for a backlit subject that may be under- or overexposed. Hold down this button when shooting a subject with a strong light source behind it so that the subject doesn't appear too dark.



Chapter 2 shows you how to efficiently navigate your camcorder's menu system and Chapter 6 discusses in detail the implementation of the Backlight correction feature.

- ♦ **Easy/Print Share button.** This button pulls double duty as a flexible recording option and a direct printing option. Each camcorder has two basic modes, Easy and Flexible recording, for recording video and capturing still photos.

- **Easy mode.** In this mode, all you have to do is point, shoot, and operate the zoom while the camcorder takes care of the details such as aperture, exposure, and shutter speed. This is much like the Program AE (P) mode, which your camcorder is set to in its default state. Just press the Easy button to enter easy mode and the button's LED light will turn blue and the easy icon will appear in the LCD screen. This is a good one-touch option if you have previously configured your camcorder settings, but need to quickly shoot

on the go. The Easy button lets you bypass going into the menu system.

- **Flexible recording mode.** Pressing the Easy button again after it has been activated takes you back to the flexible recording mode, where you can personalize your camcorder settings. In this mode you can also choose special scene recording modes such as Portrait, Beach, and Snow to match your shooting conditions.
- **Direct Print.** After you have connected your camcorder to a PictBridge-compatible printer with a USB cable, the Direct Print functionality is as simple as navigating to the picture you want and clicking this button.
- **Direct transfer.** When you have a USB connection from the camcorder to a computer that has the Canon Digital Video Software installed, you can press this button to transfer selected images to the computer hard drive.

Cross-Reference

Chapter 8 discusses using the Direct Print feature in further detail.

- ♦ **Display/Battery Info button.** This button serves two functions: it displays the date, time, battery capacity remaining, and information regarding the time of shooting, and it changes the brightness levels of the LCD. Press the button to toggle off and on onscreen information and hold it down for two seconds or more to change the brightness of the LCD.

- ♦ **Card Open switch.** Slide this switch to the right to open the memory card slot cover.
- ♦ **Speaker.** This is the onboard speaker that emits the beeps that you hear when switching modes and the warning tones you hear when the battery is low. When you review your video in-camera, with no other speaker device attached, it emits the sound of your video.
- ♦ **Memory card slot.** This is where you place the SDHC memory card. If you are removing a card, slide the Card Open switch to the right, then press the memory card once to release it.
- ♦ **Component Out terminal.** Use the Component Out terminal and a component cable to preview your images to a high-definition or standard TV.

Back features

The features on the back of the camcorder include the following:

- ♦ **Access/Charge indicator.** This LED flashes when information is being written to or from the internal drive or memory card. Do not open the memory card slot, disconnect power, or change the position of the Mode dial while this light is flashing or you could lose your data. When the camcorder is charging, this light will flash. When charging is complete, the light remains on.



1.2 The back of the VIXIA HF10, HF11, and HF100. Although the VIXIA HF100 has a silver body, the back of the camcorder is the same.

- ♦ **Mic terminal.** This microphone terminal (located behind a cover) accepts a mini plug from an external microphone. You can use a hand-held microphone or lapel microphone with a mini connector to conduct interviews.

Note

When an external microphone is connected to the camcorder, the Windscreen feature that reduces the sound of wind gusts is automatically deactivated. Make sure that the microphone that you use is properly outfitted with a physical windscreen or sock over it to reduce unwanted wind noise.

Cross-Reference

Choosing external devices such as camera mounted microphones and lights is covered in Chapter 7.

- ♦ **AV Out/Headphones terminal.** The AV Out/Headphones terminal (located behind a cover) performs double duty as analog video and audio out to a TV and as a terminal for connecting headphones to monitor audio. Before using your headphones, you need to change the terminal's function to operate as a headphones output in the System Setup menu. By default, this port functions as an analog out, so if you connect your headphones to this port without configuring it appropriately, be prepared for some loud noise in your ears.

Cross-Reference

For more on how to configure the AV Out/Headphones terminal for headphones use, see Chapter 5.

- ♦ **DC In terminal.** This terminal (located behind a cover) lets you plug in to a power outlet.
- ♦ **Reset button.** This button resets all camcorder settings. If the camcorder is operating abnormally and unusual characters appear onscreen, try disconnecting the power source, then press the Reset button with a pointed item. The Reset button is located behind the inserted battery on the back of the camcorder.

Top features

The features located on the top include the following:

- ♦ **Zoom lever.** Move the zoom lever to the left toward the W icon to zoom out to a wide angle, and move the lever to the right toward the T icon to zoom into a shot. You can choose from three different zoom settings, which affect the reaction time of this lever's zoom performance, with one being the slowest and three being the fastest.
- ♦ **Photo button.** Just as the name suggests, the Photo button allows you to take still photos. Press the button halfway and the focus is automatically adjusted and one or more Auto Focus frames appear onscreen. When you press the button fully, the Access indicator flashes after the picture is taken to indicate that data is being written.

Cross-Reference

For still photo options, check out Chapter 5.

- ♦ **Mini advanced shoe.** Remove the shoe's cover to attach compatible accessories such as shotgun microphones and camera-mounted lights to your camcorder. The device should simply slide into the shoe.

Note

There are two types of accessory shoe mounts in the Canon VIXIA lineup, the Advanced accessory shoe and the Mini advanced shoe. When choosing a camera-mounted microphone or light, make sure that you select a compatible accessory for your specific camcorder. Look for the appropriate device, bearing the Mini Advanced Accessory Shoe or Advanced Shoe logo, to ensure that you are getting an accessory that is compatible with your camcorder.

- ♦ **Power indicator.** This LED light is green when the camcorder is ready to record and turns yellow when it is in standby mode.
- ♦ **On/Off button.** This button toggles the camcorder between off and on.



1.3 The top of the VIXIA HF10, HF11, and HF100

Right side features

You can find the following features on the right side of the camcorder:

- ♦ **Mode dial.** The various operating modes of the VIXIA series are accessed by the position of this dial.
 - **Movie mode.** This mode is for recording movies.
 - **Still image mode.** You can take still images while in this mode.
 - **Movie playback mode.** You can playback your recorded movies in this mode.
 - **Still image playback mode.** This mode is for viewing still images.

♦ HDMI Out and USB terminals.

These terminals (located behind a cover) enable you to connect your camcorder to external devices such as television sets and computers. The HDMI terminal allows you to use a single cable to play back your high-definition video with audio to your HD TV. An HDMI connection gives you the highest quality playback and only works with a HD television set. Use the USB terminal to connect to a computer to transfer your images, or to connect to the Canon DW-100 DVD burner to create (Advanced Video Codec High Definition) AVHCD DVDs and preview them on a TV.

Cross-Reference

Connecting to televisions, computers, and the Canon DW-100 DVD burner is covered in Chapter 8.



1.4 The right side of the VIXIA HF10, HF11, and HF100

Front features

The features on the front of the camcorder include the following:

- ♦ **Instant AF sensor.** This external sensor allows the camcorder to react quickly to a new subject and fast-moving objects. It determines the distance between the camcorder and the subject and quickly adjusts the lens so that the image is in sharp detail. The automatic focus can quickly shift to a new subject without your intervention, letting you focus strictly on the composition of the shot.
- ♦ **Flash.** The flash can help your images by adding extra light when shooting still images in very dim locations. It also features a red-eye reduction function. The flash feature has various states:
 - **Auto.** The camcorder is set to Auto by default. In this state, the flash automatically fires when you take a still photo in low light.
 - **Red-eye reduction, auto.** When the flash automatically fires, the assist lamps come on to reduce the red-eye effect.
 - **Flash on.** In this mode, the flash always fires, regardless of how bright the subject is.
 - **Flash off.** The flash remains off, regardless of lighting conditions.

Cross-Reference

How to implement the flash options is discussed in detail in Chapter 6.

- ♦ **Mini video light.** You can turn on the mini video light to illuminate dark places as you record video or take still photos. One thing to be aware of when using this light is that if you have a wide-angle lens converter or telephoto lens converter attached to your camcorder, you can sometimes see the shadow of the devices onscreen.
- ♦ **Stereo microphone.** This microphone captures sound as you record your movies without the help of extra sound-recording equipment. This microphone picks up a lot of ambient noise in all directions.



1.5 The front of the VIXIA HF10, HF11, and HF100

VIXIA HG10, HG20, and HG21

While the Canon VIXIA HG10, HG20, and HG21 are very similar, there are a few differences of which to take note. Basically, the VIXIA HG20 and HG21 are newer versions of the VIXIA HG10. Each records video footage directly to an internal hard disk drive or SD/SDHC Memory Card. The VIXIA HG20 and HG21 models can record at the highest bit rate in the AVCHD standard at 24 Mbps, while the VIXIA HG10 records up to 17 Mbps. For media storage, the VIXIA HG21 has a 120GB internal hard disk drive, the VIXIA HG20 has a 60GB internal hard disk drive, and the VIXIA HG10 has a 40GB internal hard disk drive. Each of these three cameras have a full HD CMOS image sensor, but there is small difference in the megapixel count, as the VIXIA HG20 and HG21 have 3.3 megapixel sensors, and the VIXIA HG10 has a 2.96 megapixel sensor. Both the VIXIA HG20 and HG21 have a 12X optical zoom and the VIXIA HG10 has a 10X optical zoom. The focal length ranges from 4.8-57mm for the VIXIA HG20 and HG21 and ranges from 6.1-61mm for the VIXIA HG10. All three camcorders have an aperture range of f/1.8-f/3.0. Additionally, the VIXIA HG10 and HG21 both have extendable viewfinders where as the VIXIA HG20 does not have one.

Note

When buying lens filters for these camcorders, be aware that the VIXIA HG20 and HG21 require a 37mm filter size, while the VIXIA HG10 requires a 43mm filter size.

The layout of the VIXIA HG20 and HG21 has been modified from their predecessor, the VIXIA HG10. Previously, the VIXIA HG10's operating mode was determined by the position of the Power switch in conjunction with the position of the Movie/Still image

switch. Now, the process has been streamlined with a one-step Mode dial, located on the back on the VIXIA HG20 and HG21.

The tripod socket and the battery release are located on the bottom of the camcorders and are not shown. The HDMI, AV Out, Component Out, and microphone terminals on the VIXIA HG20 and HG21 are located on the right-hand side of the camcorders and are detailed in the respective section but are not shown. The Reset button for these camcorders is located behind the batteries and is also not shown.

Left side features

The flip-out LCD panel and nearby features include the following:

- ♦ **LCD.** Your camcorder is equipped with a widescreen multi-angle LCD panel to monitor your images. The versatility of movement you can achieve with this screen makes it possible to shoot and view your subject from many different angles. It's very easy to get yourself in a shot by placing the camcorder on a tripod and maneuvering the LCD so that you can see what the camera sees. When shooting in bright conditions, the LCD panel may become increasingly difficult to see. You can adjust the brightness of the LCD for easier viewing by using the Display/Battery Info button, marked Disp/Batt. Info or just Disp.
- ♦ **Viewfinder.** You can use the viewfinder when bright sunlight makes the LCD display difficult to see. Using the viewfinder instead of the LCD screen helps to conserve battery power. The HG20 does not have a viewfinder.

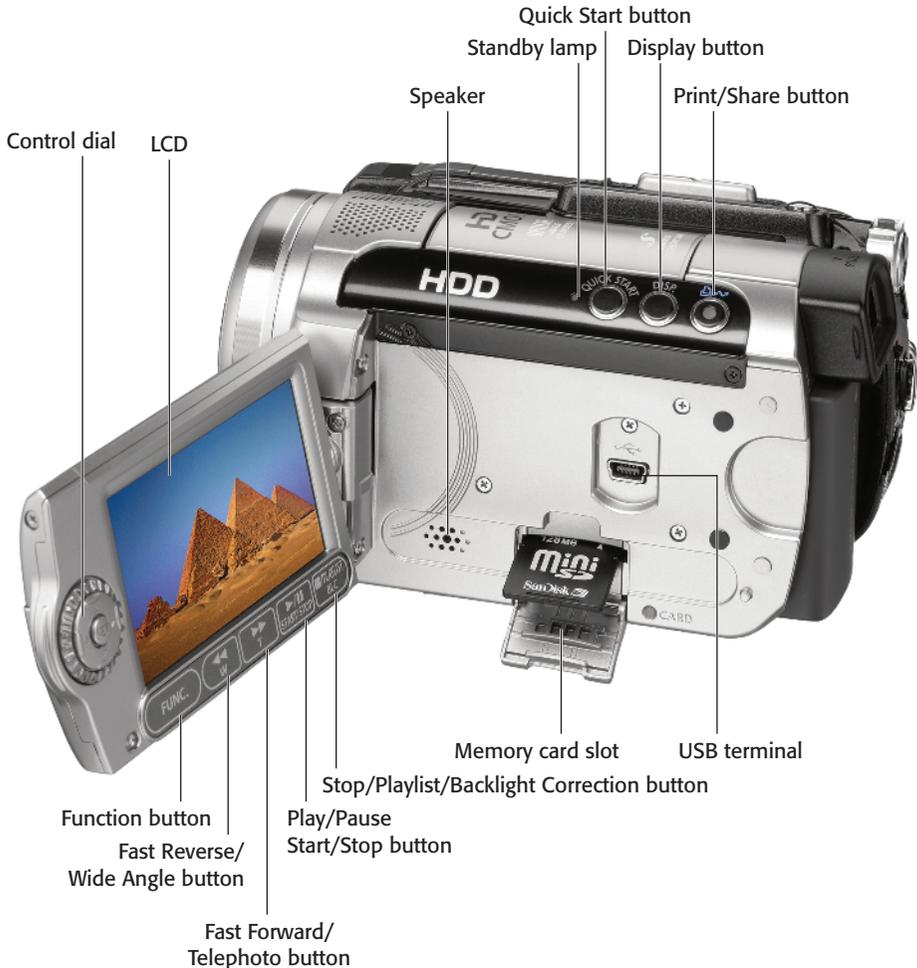


1.6 The left side of the VIXIA HG21. The left side of the VIXIA HG20 is identical.

♦ **Joystick.** You use the joystick and navigation controls to operate the camcorder's menus, which you access by pressing either the Function button or using the onscreen joystick guide (VIXIA HG20 and HG21) or the function guide (VIXIA HG10). Pushing the navigation controls to the left, right, up, or down allows you to navigate and select menu items. You can also use the navigation controls to select video and still photos for review. The Set button appears in the middle of the joystick and navigation controls. After you navigate to settings using the joystick, press the Set button to confirm and save them. You can also press the Set

button to access the onscreen joystick guide, or Function menu as it is referred to in the VIXIA HG10. The options in the guide change depending on the operating mode of the camcorder.

♦ **Remote sensor.** This sensor makes it possible for you to use your camcorder's wireless remote. Point the remote toward this sensor when you press the buttons. The VIXIA HG20 and HG21 have their remote sensor on the LCD panel; when you are in front of the camcorder, flip the LCD panel so that the sensor is pointed at you in order to use the remote.



1.7 The left side of the VIXIA HG10

- ♦ **Control dial.** The control dial of the VIXIA HG10 serves a very similar function as the navigation buttons. You turn the Control dial to navigate menu options.
- ♦ **Function button.** The Function button is the gateway into the camcorder menu system. The Function button gives you access to the Function menu, which you use to configure recording modes, playback modes, and the camera setup.

In order to fully master using your camcorder, you must know your way around these menu options.

Cross-Reference For more on navigating your camcorder's menu system, see Chapter 2.

- ♦ **Play/Pause/Start/Stop button.** Use this button to play back your video and to pause and stop playback.

♦ **Fast Reverse/Wide Angle button.**

After you have recorded many images to your camcorder, you can use this button to move in reverse between index screen pages that contain your recorded video for review. While recording, you can press this button gently to slowly zoom the camcorder out to a wide field of view. You can choose from three different zoom settings that affect the reaction time of this button's wide-angle feature, with 1 being the slowest and 3 being the fastest.

♦ **Fast Forward/Telephoto button.**

After you have recorded many images to your camcorder, you use this button to move forward between index screen pages that contain your recorded video for review. While recording, you can press this button gently to slowly zoom into a shot. You can choose from three different zoom settings that affect the reaction time of this button's telephoto feature, with 1 being the slowest and 3 being the fastest.

♦ **Stop/Backlight Correction button.**

On the VIXIA HG10, this is the Stop/Playlist/Backlight Correction button. It has multiple purposes that enable you to stop playback of your images and also automatically adjust for backlit subject that may be under- or overexposed. Hold down this button when shooting a subject with a strong light source behind it, so that the subject doesn't appear too dark. In the VIXIA HG10, this button also enables you to switch between scenes and playlists during playback.


 Cross-Reference

Learn how to implement the backlight correction feature in Chapter 6.

♦ **Display/Battery Info button.** This button serves two functions: it displays the date, time, battery capacity remaining, and information regarding the time of shooting; and it changes the brightness levels of the LCD. Press the button to toggle off and on onscreen information and hold it down for two seconds or more to change the brightness of the LCD.

♦ **Standby lamp.** This LED flashes when information is being written to or from the hard disk drive or memory card. Do not open the memory card slot, disconnect power, or change the position of the Mode dial while this light is flashing or you could lose your data. The Standby lamp is located on the VIXIA HG10 only.

♦ **Quick Start button.** When you press the Quick Start button, the camcorder is placed into standby mode. This conserves battery power by reducing power consumption without having to completely power down the camcorder. When you press the button again, the camcorder is immediately placed back into recording mode. This is a great way to always be prepared for a quick shot, without having to wait for the camcorder to power back up. The Quick Start button is located on the VIXIA HG10 only, but the VIXIA HG20 and HG21 have a Quick Start function as well. Instead of using a button, the Quick Start function is activated when you close the LCD panel in a recording mode (Movie mode or Still image mode).

- ♦ **The Easy/Print Share button.** This button pulls double duty as a flexible recording option and a direct printing option for the VIXIA HG20 and HG21. Both the VIXIA HG21 and HG20 camcorders have two basic modes, Easy and Flexible recording, for recording video and capturing still photos. On the VIXIA HG21, this button is used for printing only and is known as just the Print Share button.
 - **Easy mode.** In this mode, all you have to do is point, shoot, and operate the zoom while the camcorder takes care of the details such as aperture, exposure, and shutter speed. This is much like the Program AE (P) mode, which your camcorder is set to in its default state. Just press the Easy button to enter easy mode; the button's LED light turns blue and the easy icon appears in the LCD panel. This is a good one-touch option if you previously configured camcorder settings, but need to quickly shoot on the go. The Easy button lets you bypass going into the menu system.
 - **Flexible recording mode.** Pressing the Easy button again after it has been activated takes you to the flexible recording mode where you can personalize your camcorder settings. In this mode, you can also choose special scene recording modes such as Portrait, Beach, and Snow to match your shooting conditions.
 - **Direct Print.** After you have connected your camcorder to a PictBridge-compatible printer with a USB cable, the Direct

Print functionality is as simple as navigating to the picture you want and clicking this button.

Cross-Reference

To learn about the direct print feature in detail, see Chapter 8.

- ♦ **Speaker.** This is the onboard speaker that emits the beeps that you hear when switching modes and the warning tones you hear when the battery is low. When you review your video, in-camera, with no other speaker device attached, it emits the sound of your video.
- ♦ **Memory card slot.** Open the memory card slot cover and insert the memory card. If you are removing a card, open the slot cover, then press the memory card once to release it.
- ♦ **USB terminal.** Use the USB terminal to connect to a computer and transfer your images, or to connect to the Canon DW-100 DVD burner to create AVHCD DVDs and preview them on a television set.
- ♦ **Power switch.** Simply press the Start/Stop button of the VIXIA HG20 and HG21 models to power on the camcorder. The HG10 Power switch serves multiple purposes. One purpose is to activate the camcorder, and the other is to switch operating modes. To turn on the VIXIA HG10 camcorder, hold down the lock button and turn the switch to On. To toggle between operating modes, temporarily move the switch to the Mode position, then release it. This puts the camcorder either into Camera mode, signified with a red indicator, or Play mode, signified with a green indicator.

Right side features

The following features are located on the right side:

- ♦ **HDMI terminal.** This terminal enables you to connect your camcorder to external devices such as television sets and computers. It allows you to use a single cable to play back your high-definition video with audio to your HDTV set. An HDMI connection gives you the highest quality playback and only works with a high-definition television set.
- ♦ **Component Out terminal.** Use the component out terminal and a component cable to preview your images on a high-definition or standard TV.

Cross-Reference

Connecting to televisions, computers, and the Canon DW-100 DVD burner is covered in Chapter 8.

- ♦ **AV Out/Headphones terminal.** The AV Out/Headphones terminal performs double-duty as analog video and audio out to a TV set and as a terminal for connecting headphones to monitor audio. Before using your headphones, you need to change the terminal's function to operate as a headphones output in the System Setup menu. By default, this port functions as an analog out, so if you connect your headphones to this port without configuring it appropriately, be prepared for some loud noise in your ears.

Cross-Reference

To learn how to configure the AV Out/Headphones terminal for headphones, see Chapter 5.

Back features

The following features can be found on the back of the camcorder:

- ♦ **DC In terminal.** This lets you get plugged in to a power outlet.
- ♦ **Reset button.** This button resets all camcorder settings. If the camcorder is operating abnormally and unusual characters appear onscreen, try disconnecting the power source, and then press the Reset button with a pointed item. The Reset button is located behind the battery.



1.8 The back of the VIXIA HG21. The VIXIA HG20 does not have a viewfinder button like this camcorder, as the VIXIA HG20 has no viewfinder.

- ♦ **Power Switch.** You access the various operating modes of the VIXIA series by moving this button to the Mode option.
- ♦ **Mode dial.** You access the various operating modes of the VIXIA series by positioning this single dial on some VIXIA models.
- ♦ **Movie/Still image switch.** The camcorder's operating mode is determined by both the position of the Power switch and this switch.
 - **Movie mode.** In this mode, you are able to record video or play back video.
 - **Still image mode.** You can take still photos and review still photos in this mode.
- ♦ **HDD Access/Charge indicator.** This LED flashes on the VIXIA HG10 when information is being written to or from the internal drive or memory card. Do not open the memory card slot, disconnect power, or change the position of the Mode dial while this light is flashing or you could lose your data. When the camcorder is charging this light will flash. When charging is complete, the light remains in an on state.
- ♦ **Play/Camera mode indicators.** When the camcorder is in Play mode, the LED is green and you can play back movies and still images, depending on the position of the Movies/Still images switch. When



1.9 The back of the VIXIA HG10

the camcorder is in Movie mode, the red Camera mode indicator is on and you can record movies or still images, depending on the position of the Movie/Still image switch. The green Play mode indicator is on when it is in Movie playback mode and Still image playback mode. These indicators are located on the VIXIA HG10 model only.

Front features

You can find the following features on the front of the camcorder:

- ♦ **Instant AF sensor.** This external sensor allows the camcorder to react quickly to a new subject and fast-moving objects. It determines the distance between the camcorder and the subject and quickly adjusts the lens so that the image is in sharp detail. The automatic focus can quickly shift to a new subject without your intervention, letting you focus strictly on the composition of the shot.
- ♦ **Flash.** The flash can help your images by adding extra light when you are shooting still images in very dim locations. It also features a red-eye reduction function. The flash feature has various states.
 - **Auto.** The camcorder is set to Auto by default. In this state, the flash automatically fires when taking a still photo in low light.
 - **Red-eye reduction, auto.** When the flash automatically fires, the assist lamps come on to reduce the red-eye effect.
 - **Flash on.** In this mode, the flash always fires, regardless of the brightness of the subject.



1.10 The front of the VIXIA HG20 and HG21

- **Flash off.** The flash remains off, regardless of lighting conditions.



Implementing the flash options is discussed in detail in Chapter 6.

- ♦ **Stereo microphone.** This microphone captures sound as you record your movies without the help of extra sound-recording equipment. This microphone picks up a lot of ambient noise in all directions.
- ♦ **Mini video light.** You can turn on the mini video light to illuminate dark places as you record video or take still photos. One thing to be aware of when using this light is that if you have a wide-angle lens converter or telephoto lens converter attached to your camcorder, you can sometimes see the shadow of the devices onscreen. The VIXIA HG20 and HG21 do not have a mini video light.



1.11 The front of the VIXIA HG10

- ♦ **Mic terminal.** The microphone terminal accepts a mini plug from an external microphone. You can use a hand-held microphone or lapel microphone with a mini connector to conduct interviews.

Note

When an external microphone is connected to the camcorder, the Windscreen feature that reduces the sound of wind gusts is automatically deactivated. Make sure that the microphone that you use is properly outfitted with a physical windscreen or sock over it to reduce unwanted wind noise.

Top features

The following features can be found on the top of the camcorder:

- ♦ **Zoom lever.** Move the zoom lever to the left toward the W icon to zoom out to a wide angle, and move the lever to the right toward the T icon to zoom into a shot. You can choose from three different zoom settings, which affect the reaction time of this lever's zoom performance, with 1 being the slowest and 3 being the fastest.
- ♦ **Photo button.** Just as the name suggests, the Photo button allows you to take still photos. Press the button halfway and the focus is automatically adjusted and one or more Automatic Focus (AF) frames appear onscreen. When you press the button fully, the Access indicator flashes as the picture is taken.

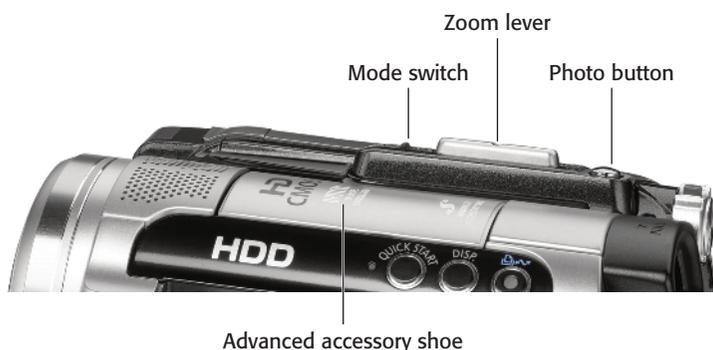
Cross-Reference

Check out Chapter 5 for still photo options.

- ♦ **Mode switch.** The mode switch lets you toggle between automatic (Auto) and the flexible recording options (P).
 - **Automatic (A).** In this mode, the camcorder automatically controls focus, exposure, and other settings.
 - **Flexible recording programs (P).** This mode lets you give priority to specific settings such as shutter speed and aperture, while you manually control others. You can also choose special scene recording programs that optimize your camera for shooting in special shooting conditions such as shooting in the snow, at night, or at the beach.
- ♦ **Advanced Accessory shoe.** Remove the shoe's cover to attach compatible accessories such as shotgun microphones and camera-mounted lights to your camcorder. The device should simply slide into the shoe. There are two types of accessory shoe mounts in the Canon VIXIA lineup, the Advanced accessory shoe, used by the VIXIA HG10, and the Mini advanced shoe, used by the VIXIA HG20 and HG21. When choosing a camera mounted microphone or light, make sure that you select a compatible accessory for your specific camcorder. Look for the appropriate device bearing the Mini Advanced Accessory Shoe or Advanced Shoe logo to ensure that you are getting an accessory that is compatible with your camcorder.



1.12 The top of the VIXIA HG21. The top is identical to the HG20.



1.13 The top of the VIXIA HG10

VIXIA HR10

The VIXIA HR10 is equipped with a 2.96 megapixel full HD 1920 × 1080 CMOS image sensor. The focal length ranges from 6.1-61mm and an aperture range of f/1.8-f/3.0mm. When shopping for lens filters, make sure you choose filters with a 37mm diameter.

The VIXIA HR10 records video footage directly to three types of 8 cm DVD discs: DVD-R, DVD-R DL, and DVD-RW. Before deciding which type of DVD to use, it's important that you are familiar with the characteristics of each disc option.

- ♦ **DVD-R.** You can record only once to these types of discs, and you are not able to edit or delete the recordings you make.
- ♦ **DVD-R DL.** This is what is referred to as a dual-layer DVD, and consists of two recording layers, allowing you to write up to 2.6GB of extra data on a single side. The extra storage space is convenient, but you are still not able to edit or delete the movie files you have recorded using these discs.
- ♦ **DVD-RW.** This option allows you to edit and delete recorded image files. Another advantage to this option is that you can later initialize the DVD to erase all of its contents, and reuse the disc after you have transferred all of your files over to a computer.

The VIXIA HR10 has four recording modes when you shoot in high definition, and three when you shoot in the standard definition format. The XP+ mode, which is high definition, is the highest quality offered by the VIXIA HR10, and XP is the best quality of standard-definition footage. SP is the default

recording mode. The maximum recording time in relation to recording quality and type of DVD used is listed in the following:

- ♦ **High definition with a DVD-R, DVD-RW disc**
 - **XP+ at 12 Mbps.** 15 minutes
 - **XP at 9 Mbps.** 20 minutes
 - **SP at 7 Mbps.** 25 minutes
 - **LP at 5 Mbps.** 33 minutes
- ♦ **High definition with a DVD-R DL disc**
 - **XP+ at 12 Mbps.** 27 minutes
 - **XP at 9 Mbps.** 36 minutes
 - **SP at 7 Mbps.** 45 minutes
 - **LP at 5 Mbps.** 60 minutes
- ♦ **Standard definition with a DVD-R, DVD-RW disc**
 - **XP.** 20 minutes
 - **SP.** 30 minutes
 - **LP.** 60 minutes
- ♦ **Standard definition with a DVD-R DL disc**
 - **XP.** 36 minutes
 - **SP.** 54 minutes
 - **LP.** 108 minutes

The form factor of the VIXIA HR10 is slightly different from the other camcorders of the VIXIA series, largely attributed to the recording media it uses: DVDs. Not shown is the Reset button, located in the battery compartment inside of the LCD cavity, which you use to reset all camcorder settings in the event of unstable performance.

Left side features

The flip-out LCD panel and nearby features include the following:

- ♦ **Quick Start button.** When you press the Quick Start button, the camcorder is placed into standby mode. This conserves battery power by reducing power consumption without having to completely power down the camcorder. When you press the button again, the camcorder is immediately placed back into recording mode. This is a great way to always be prepared for a quick shot, without having to wait for the camcorder to power back up.
- ♦ **Function button.** The Function button is the gateway into the camcorder menu system. This button gives you access to the Function menu, which you use to configure recording modes, playback modes, and the camera setup. To fully master using your camcorder, you must know your way around these menu options.

Cross-Reference

Navigating the menu system is discussed in detail in Chapter 2.

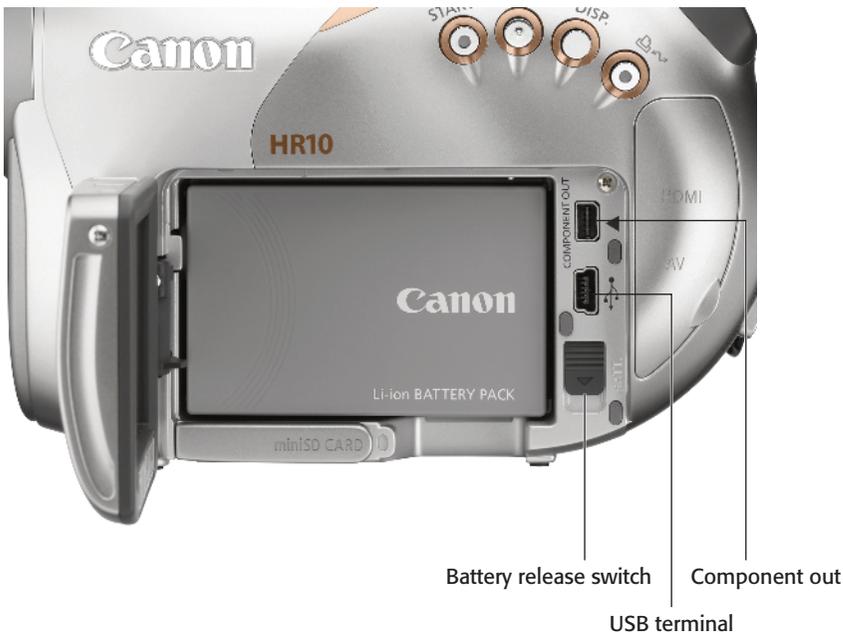
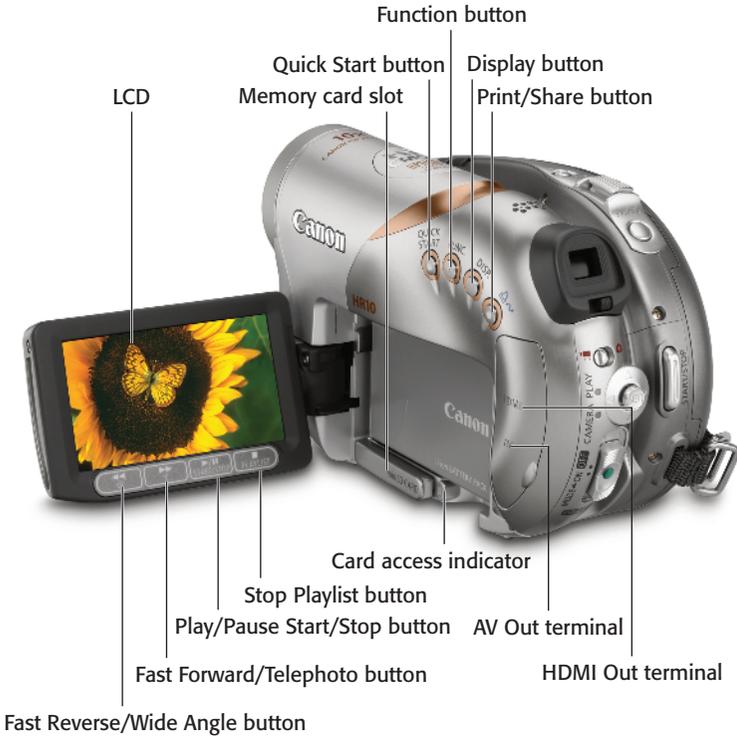
- ♦ **Display button.** This button serves two functions, one for displaying the date, time, battery capacity remaining, and information regarding the time of shooting, and the other for changing the brightness levels of the LCD screen. Press the button to toggle off and on the onscreen information, and hold it down for 2 seconds or more to change the brightness of the LCD screen or the Viewfinder.
- ♦ **Print/Share button.** With a USB connection from the camcorder to a PictBridge-compatible printer, you can choose images and print them directly from the camcorder. With a USB connection from the camcorder to a computer that has

the Canon Digital Video Software installed, you can press this button to transfer selected images to the computer hard drive.

Cross-Reference

For more on direct printing options and transferring images to a computer, see Chapter 8.

- ♦ **LCD.** Your camcorder is equipped with a widescreen multi-angle LCD panel to monitor your images. The versatility of movement you can achieve with this screen makes it possible to shoot and view your subject from many different angles. It's very easy to get yourself in a shot by placing the camcorder on a tripod and maneuvering the LCD so that you can see what the camera sees. When shooting in bright conditions, the LCD panel may become increasingly difficult to see. You can adjust the brightness of the LCD for easier viewing by using the Display/Battery Info button.
- ♦ **Fast Reverse/Wide Angle button.** After you have recorded many images to your camcorder, you use this button to move in reverse between index screen pages that contain your recorded video for review. While recording, you can press this button gently to slowly zoom the camcorder out to a wide field of view. You can choose from three different zoom settings, which affect the zoom speed of this button's wide-angle feature, with 1 being the slowest and 3 being the fastest.
- ♦ **Fast Forward/Telephoto button.** After you have recorded many images to your camcorder, you use this button to move forward between index screen pages that contain your recorded video for



1.14 The left side of the VIXIA HR10

review. While recording, you can press this button gently to slowly zoom the camcorder to zoom into a shot. You can choose from three different zoom settings, which affect the zoom speed of this button's telephoto feature, with 1 being the slowest and 3 being the fastest.

- ♦ **Play/Pause/Start/Stop button.** Use this button to play back your video and to pause and stop playback.
- ♦ **Stop/Playlist button.** This button pulls double duty, enabling you to stop playback of your images, and enabling you to switch between scenes and playlists during playback.
- ♦ **Memory card slot.** Simply open the cover to insert your miniSD memory card.
- ♦ **Card access indicator.** This LED flashes when information is being written to or from the DVD disk or memory card. When you take a still photo, this indicator flashes as the image is being recorded. Do not open the memory card slot, disconnect power, or change operating modes while this light is flashing or you could lose your data.
- ♦ **AV Out terminal.** This terminal serves as an analog out to a television set.
- ♦ **HDMI Out terminal.** The HDMI terminal allows you to use a single cable to play back your high definition video with audio to your HDTV set. An HDMI connection gives you the highest quality playback and works with a high definition television set.
- ♦ **Component Out terminal.** Use the Component Out terminal and a component cable to preview your images to a high-definition or standard definition TV.

- ♦ **USB terminal.** Use the USB terminal to connect to a computer to transfer your images, or to connect to the Canon DW-100 DVD burner to create AVHCD DVDs and preview them on a TV set.



Making connections with external devices is discussed in Chapter 8.

- ♦ **Battery release switch.** Pull this switch down to release the battery from its compartment.

Right side features

You find the following features on the right side:

- ♦ **Disc compartment.** Pull the Open switch on top of the camcorder to open this compartment door and place a disc for recording into the camcorder.
- ♦ **DC In terminal.** This terminal lets you plug in to a power outlet.

Front features

The front features of the VIXIA HR10 include:

- ♦ **Instant AF sensor.** This external sensor allows the camcorder to react quickly to a new subject and fast-moving objects. It determines the distance between the camcorder and the subject and quickly adjusts the lens so that the image is in sharp detail. The automatic focus can quickly shift to a new subject without your intervention, letting you focus strictly on composition of the shot.
- ♦ **Flash.** The flash can help your still photo images by adding extra light when you are shooting in very dim locations. It also features a red-eye reduction function. The flash feature has various states.



1.15 The right side of the VIXIA HR10

- **Auto.** The camcorder is set to Auto by default. In this state, the flash automatically fires when you take a still photo in low light.
- **Red-eye reduction, auto.** When the flash automatically fires, the assist lamps come on to reduce the red-eye effect.
- **Flash on.** In this mode, the flash always fires, regardless of the brightness of the subject.
- **Flash off.** The flash remains off, regardless of lighting conditions.

Cross-Reference

Implementing the flash options is discussed in detail in Chapter 6.

- ♦ **Mini video light.** You can turn on the mini video light to illuminate dark places as you record video or take still photos. One thing to be aware of when using this light is that if you have a wide-angle lens



1.16 The front of the VIXIA HR10

converter or telephoto lens converter attached to your camcorder, you can sometimes see the shadow of the devices onscreen.

- ♦ **Stereo microphone.** This microphone captures sound as you record your movies without the help of extra sound recording equipment. This microphone picks up a lot of ambient noise in all directions.
- ♦ **Remote sensor.** This sensor makes it possible for you to use your camcorder's wireless remote. Point the remote toward this sensor when you press the buttons.

Back features

Features on the back include:

- ♦ **Joystick.** You use the joystick to operate the camcorder's menus, which you access by pressing the Function button or accessing the onscreen joystick guide. Pushing the joystick to the left, right, up, or down allows you to navigate and select menu items. You can also use this navigation control to select video and still photos for review. The Set button appears on the middle of the joystick. You press it to confirm and save settings after navigating to them with the joystick. Also, you can access more menu options by pressing the actual joystick control to access the onscreen joystick guide. The options in the joystick guide change depending on the operating mode of the camcorder.
- ♦ **Camera/Play mode indicators.** When the camcorder is in playback mode, this indicator is green. When in camera mode, the camera indicator is red.

- ♦ **Movie/Still image switch.** The camcorder's operating mode is determined by both the position of the power switch and this switch.

- **Movie mode.** In this mode, you are able to record video or playback video.
- **Still image mode.** You can take still photos and review still photos in this mode.

- ♦ **Viewfinder.** In bright conditions, the viewfinder can sometimes work better for monitoring your shot than the LCD, due to fewer glares. Use the Disp button to toggle between brightness levels of the viewfinder and adjust it for improved viewing.



1.17 The back of the VIXIA HR10

- ♦ **Dioptric adjustment lever.** This lever lets you adjust the viewfinder for your particular eyesight. If the camcorder seems to be having difficulty focusing, adjust this lever while using the viewfinder.
- ♦ **Start/Stop button.** Press the Start/Stop button to begin recording video and press it again to pause recording.
- ♦ **Power switch.** This switch serves multiple purposes. One is to power on the camcorder, and the other is to switch operating modes. To turn on the VIXIA HR10 camcorder, hold down the green lock button in the middle of the switch and move it to the On position. To toggle between operating modes, temporarily move the switch to the Mode position, then release it. This toggles the camcorder between Camera mode, which is signified by a red indicator, or Play mode, which is signified with a green indicator.
- ♦ **Mode switch.** The mode switch lets you toggle between automatic (Auto) and the flexible recording options (P).
 - **Automatic (A).** In this mode, the camcorder automatically controls focus, exposure, and other settings.
 - **Flexible recording programs (P).** This mode lets you give priority to specific settings such as shutter speed and aperture, while you manually control others. You can also choose special scene recording programs that optimize your camera for shooting in special shooting conditions such as shooting in the snow, at night, or at the beach.
- ♦ **Zoom lever.** Move the zoom lever to the left or toward the W icon to zoom out to a wide angle, and move the lever to the right toward the T icon to zoom into a shot. Your camcorder also has the option of choosing three different zoom settings, which affect the reaction time of this lever's zoom performance, with one being the slowest and three being the fastest.

Top features

On the top of the VIXIA HR10 you can find the following features:

- ♦ **Disc access/Charge indicator.** When the DVD recording media is being written to, this indicator stays on. Do not turn off the power, switch camera modes, or take out the DVD while this light is on or flashing, because you can lose data. When you charge your camcorder battery, the indicator blinks, and when charge is complete, the light stays on.
- ♦ **Open disc cover switch.** Pull this switch to open the disc cover.
- ♦ **Photo button.** Just as the name suggests, the Photo button allows you to take still photos. Press the button halfway and the focus is automatically adjusted and one or more Automatic Focus (AF) frames appear onscreen. When you press the button fully, the Access indicator flashes as the picture is taken.

Cross-Reference

Check out Chapter 5 to learn about the still photo options available.



1.18 The top of the VIXIA HR10

- ♦ **Speaker.** This is the onboard speaker that emits the beeps that you hear when switching modes and the warning tones you hear when the battery is low. When you review your video, in-camera, with no other speaker device attached, it emits the sound of your video.

VIXIA HV20 and HV30 HDV Camcorders

Both the VIXIA HV20 and HV30 are tape-based HDV camcorders with 2.96 megapixel full HD CMOS image sensors. Besides the colors, the cameras are nearly identical with the exception of a small list of upgrades to the VIXIA HV30. These upgrades include 30 frames per second (fps) frame mode, an improved LCD panel, and a bigger zoom lever. The 10X HD video lens has a focal length of 6.1-61mm and an aperture range of f/1.8-f3.0. Each camcorder uses a miniSD card to take still photos at a resolution of 3.1 megapixels. If you are purchasing filters for these cameras, both require 43mm filters. The switch that releases the battery and the tripod socket, located on the bottom of the camcorder, are not shown.

Left side features

The flip-out LCD panel and nearby features include the following:

- ♦ **LCD.** Your camcorder is equipped with a widescreen multi-angle LCD panel to monitor your images. The versatility of movement you can achieve with this screen makes it possible to monitor your subject from many different angles while shooting. It's very easy to get yourself in a shot by placing the camcorder on a tripod and maneuvering the LCD so that you can see what the camera sees. When shooting in bright conditions, the LCD panel may become increasingly difficult to see. You can adjust the brightness of the LCD for easier viewing by using the Disp button.

♦ **Fast Reverse/Wide Angle button.**

After you have recorded many images to your camcorder, you use this button to move in reverse between index screen pages that contain your recorded video for review. When recording, you can press this button gently to slowly zoom the camcorder out to a wide field of view. You can choose from three different zoom settings, which affect the reaction time of this button's wide-angle feature, with 1 being the slowest and 3 being the fastest.

♦ **Fast Forward/Telephoto button.**

After you have recorded many images to your camcorder, you use this button to move forward between index screen pages that contain your recorded video for review. When recording, you can press this button gently to slowly zoom the camcorder to zoom into a shot. You can choose from three different zoom settings, which affect the reaction time of this button's telephoto feature, with 1 being the slowest and 3 being the fastest.

♦ **Play/Pause/Start/Stop button.**

Use this button to play back your video and to pause and stop playback.

♦ **Stop/Focus Assist button.** This button pulls double duty: it enables you to stop playback of your images, and it helps you while you manually focus by magnifying the center of the picture so that you can use the focus lever to pull a sharp focus.

♦ **Display button.** This button is for displaying the date, time, battery capacity remaining, and information regarding the time of shooting.

♦ **Light/Print Share button.** Press this light to activate the mini video light in front of the camera for assistance in low-light shooting. This button also enables you to print and transfer images.

- **Direct Print.** After you have connected your camcorder to a PictBridge-compatible printer with a USB cable, the Direct Print functionality is as simple as navigating to the picture you want and clicking this button.

- **Direct transfer.** With a USB connection from the camcorder to a computer that has the Canon Digital Video Software installed, you can press this button to transfer selected images to the computer hard drive.

Cross-Reference

For more on the Direct Print feature, see Chapter 8.

♦ **Speaker.** This is the onboard speaker that emits the beeps that you hear when switching modes and the warning tones you hear when the battery is low. When you review your video, in-camera, with no other speaker device attached, it emits the sound of your video.

♦ **USB terminal.** Use the USB terminal to connect to a computer to transfer your images, or to connect to the Canon DW-100 DVD burner to create AVHCD DVDs and preview them on a TV set.

Cross-Reference

Using manual and focus-assist options are discussed in Chapter 3.



1.19 The left side of the VIXIA HV30. Other than the silver body, the left side of the VIXIA HV20 is identical.

♦ **Card access/Charge indicator.**

This LED flashes when information is being written to the memory card. Do not open the memory card slot, disconnect power, or change the position of the Mode dial while this light is flashing or you could lose your data. When the camcorder is charging, this light flashes. When charging is complete, the light remains in an on state.

♦ **Memory card slot.** Open the memory card slot cover and insert the memory card. If you are removing a

card, open the slot cover, then press the memory card once to release it.

♦ **Focus lever and Focus button.** In situations where the automatic focus may not work well, such as when shooting night scenes, far-away subjects, and through wet windows, you can adjust the focus manually using the focus lever. With the mode switch in the program (P) position, press the focus button, and MF appears in the viewfinder, or LCD. Adjust the focus lever until the image is sharp.



1.20 The left front side of the VIXIA HV30.

- ♦ **Backlight Correction button.** This button is for changing the brightness levels of the LCD panel and for correcting exposure problems when a subject is being shot against strong backlighting. Press the button to toggle off and on onscreen information and hold it down for two seconds or more to change the brightness of the LCD screen.

Cross-Reference

To learn how to implement the backlight correction feature, see Chapter 6.

Right side features

You can find these features on the right side of the VIXIA HV20 and HV30 camcorders:

- ♦ **Tape/Card switch.** The camcorder's operating modes are controlled by the positions of the Power switch and the Tape/Card switch.
 - When you move the switch to the tape side, you can either record video or play back video, depending on the position of the Power switch. When you move the switch to the card position, you can either capture still photos or play back still photos, depending on the position of the power switch.
- ♦ **Mode switch.** The Mode switch lets you toggle between automatic (Auto) and the flexible recording options (P).
 - **Automatic (A).** In this mode, the camcorder automatically controls focus, exposure, and other settings.
 - **Flexible recording programs (P).** This mode lets you give priority to specific settings such as shutter speed and aperture, while you manually control

others. You can also choose special scene recording programs that optimize your camera for shooting in special shooting conditions such as shooting in the snow, at night, or at the beach.

- ♦ **Mic terminal.** This microphone terminal (behind a cover) accepts a mini plug from an external microphone. You can use a hand-held microphone or lapel microphone with a mini connector to conduct interviews.

Note

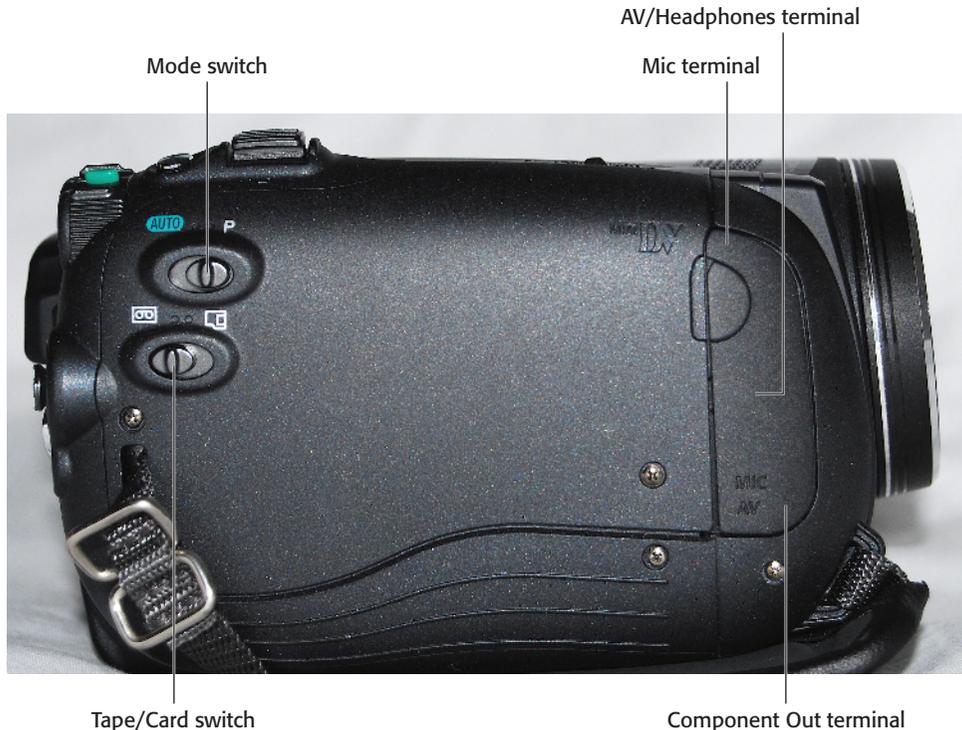
When an external microphone is connected to the camcorder, the Windscreen feature that reduces the sound of wind gusts is automatically deactivated. Make sure that the microphone that you use is properly outfitted with a physical windscreen or sock over it to reduce unwanted wind noise.

- ♦ **AV Out/Headphones terminal.**

The AV Out/Headphones terminal (behind a cover) performs double duty as an analog out to a TV set and as a terminal for connecting headphones to monitor audio. Before using your headphones, you need to change the terminal's function to operate as a headphones output using the System Setup menu. By default, this port functions as an analog out, so if you connect your headphones to the port without configuring it appropriately, be prepared for some loud interference in your ears.

Cross-Reference

To see how to configure the AV Out/Headphones terminal for headphones use, see Chapter 5.



1.21 The right side of the VIXIA HV20 and HV30

- ♦ **Component Out terminal.** Use the Component Out terminal (behind a cover) and a component cable to preview your images to a high-definition or standard TV.

Front features

You can find the following features on the front of the VIXIA HV20 and HV30 camcorders:

- ♦ **Instant AF sensor.** This sensor determines the distance between the camcorder and the subject and quickly adjusts the lens so that the image is in sharp detail. This allows the camcorder to react quickly to a new subject and fast-moving objects. The automatic focus can quickly shift to a new subject without your intervention, letting you focus strictly on shot composition.

- ♦ **Flash.** The flash can help your images by adding extra light when you are shooting in very dim locations. It also features a red-eye reduction function. The flash feature has various states:

- **Auto.** The camcorder is set to Auto by default. In this state, the flash automatically fires when taking a still photo in low light.
- **Red-eye reduction, auto.** When the flash automatically fires, the assist lamps come on to lessen the red-eye effect.
- **Flash on.** In this mode, the flash always fires, regardless of the brightness of the subject.
- **Flash off.** The flash remains off, regardless of lighting conditions.

Cross-Reference

How to implement the flash options is discussed in detail in Chapter 6.



1.22 The front of the VIXIA HV20 and HV30

- ♦ **Mini video light.** You can turn on the mini video light to illuminate dark places as you record video or take still photos. One thing to be aware of when using this light is that if you have a wide-angle lens converter or telephoto lens converter attached to your camcorder, you can sometimes see the shadow of the devices onscreen.
- ♦ **Remote sensor.** This is the sensor that makes it possible for you to use your camcorder's wireless remote. When you press buttons on the remote, point it toward this sensor.
- ♦ **Power switch.** Use this switch to turn the camera off and on, and move between Camera and Play mode. It works in conjunction with the Tape/Card switch to place the camera into its various modes: Movie and Still image.
- ♦ **Power indicator.** The indicator is red when power is on.
- ♦ **Joystick.** You use the joystick to operate the camcorder's menus, which you access by pressing either the Function button or using the onscreen joystick guide. Pushing the joystick to the left, right, up, or down allows you to navigate through and select menu items. You can also use this navigation control to select video and still photos for review. The Set button appears on the middle of the joystick. You press it to confirm and save settings after navigating to them with the joystick. Also, you can access more menu options by pressing the actual joystick control to access the onscreen joystick guide. The options in the joystick guide change depending on the operating mode of the camcorder.

Back features

Features on the back of the VIXIA HV20 and HV30 include:

- ♦ **Dioptric adjustment lever.** This lever lets you adjust the viewfinder for your particular eyesight. If the camcorder seems to be having difficulty focusing, adjust this lever while using the viewfinder.
- ♦ **Viewfinder.** In bright conditions, the viewfinder can sometimes work better for monitoring your shot than the LCD panel, due to fewer glares.
- ♦ **HDV/DV and HDMI Out terminals.** Connect your camcorder to a computer by using the HDV/DV terminal with a DV cable, and preview out to a high-definition television set using the HDMI Out terminal.
- ♦ **Function button.** This is the gateway into the camcorder menu system. The Function button gives you access to the Function menu, which you use to configure recording modes, playback modes, and the camera setup. To fully master using your camcorder, you must know your way around these menu options.

Cross-Reference

To learn how to connect to televisions and computers, see Chapter 8.

- ♦ **DC In terminal.** This lets you get plugged in to a power outlet.
- ♦ **Start/Stop button.** Press the Start/Stop button to begin recording video and press it again to pause recording.

Cross-Reference

Navigating your camcorders menu system is discussed in detail in Chapter 2.



1.23 The back of the VIXIA HV20 and HV30

- ♦ **Reset button.** This button resets all camcorder settings. If the camcorder is operating abnormally and unusual characters appear onscreen, try disconnecting the power source, and then press the Reset button with a pointed item. The Reset button is located behind the inserted battery and is not shown.

Top Features

Here are a list of features you can find from the top view of the VIXIA HV20 and HV30:

- ♦ **Open/Eject button.** Pull back this switch and pull the cassette compartment to the right to insert and eject a cassette tape.
- ♦ **Cassette compartment.** Insert the cassette tape into this compartment.



1.24 The top of the VIXIA HV20 and HV30

- ♦ **Zoom lever.** Move the zoom lever to the left toward the W icon to zoom out to a wide angle, and move the lever to the right toward the T icon to zoom into a shot. Your camcorder also has the option of choosing three different zoom settings, which affect the reaction time of this lever's zoom performance, with one being the slowest and three being the fastest.

- ♦ **Photo button.** Just as the name suggests, the Photo button allows you to take still photos. Press the button halfway and the focus is automatically adjusted and one or more Automatic Focus (AF) frames appear onscreen. When you press the button fully, the Access indicator flashes as the picture is taken.

Cross-Reference

To learn about the still photo options available, see Chapter 5.

♦ **Advanced accessory shoe.**

Remove the shoe cover to attach compatible accessories such as shotgun microphones and camera-mounted lights to your camcorder. The device should simply slide into the shoe. There are two types of accessory shoe mounts in the Canon VIXIA lineup, the Advanced accessory shoe, and the Mini advanced shoe. When choosing accessories, make sure they are for the Advanced accessory shoe. Look for the devices bearing the Advanced Accessory Shoe logo.

♦ **Stereo microphone.** This microphone captures sound as you record your movies without the help of extra sound recording equipment. This microphone picks up a lot of ambient noise in all directions.

