

Exploring the Canon EOS 7D Mark II

In This Chapter

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The Canon EOS 7D Mark II, which evolved from the Canon EOS 7D that was introduced in late 2009, has all the latest bells and whistles Canon has to offer. It's a technological marvel that enables you to take great pictures and capture high-definition (HD) video. The camera has a new processor and an advanced, highly customizable 65-point autofocus system that gives you the ability to capture great images in low light and at a blindingly fast speed of up to 10 frames per second, which is ideal for action photography. You can also create HDR (high dynamic range) images and use the new interval timer to create time-lapse movies. And this camera features a viewfinder that shows you 100 percent of what the lens captures: What you see is what you get. A *dual-axis level* (the equivalent of a spirit level in a tripod) lets you capture pictures with horizon lines that are level. In addition, the camera has built-in GPS, which, when enabled, pinpoints the location



where each image was captured and includes GPS data with the image meta-data. The camera also has a built-in flash system that can be used wirelessly to control external Canon Speedlites.

Getting familiar with all this new technology can seem daunting even to a seasoned photographer. I was impressed, albeit a tad flummoxed, when I saw the first reviews for the all-singing, all-dancing EOS 7D Mark II. Even though I'm a seasoned Canon digital single-lens reflex (SLR) user — my first digital SLR was the EOS 10D — I still had a bit of a learning curve when I first had the camera in hand, chomping at the bit to create some pictures. But it's my job to get down to brass tacks with new technology and show you how to master it. The fact that you're reading this probably means that you want to know how to use all the bells and whistles Canon has built into the EOS 7D Mark II. In this chapter, I familiarize you with the controls, the camera lens, the camera settings, the battery, and the memory cards you use to capture images with the camera.

Getting to Know the Controls

If you're a longtime Canon user, you know that you can do an awful lot with the camera by using external controls, which saves you from poking around inside pesky menus. The camera controls are easy to reach and give you access to many powerful features. Although you may think it seems like a daunting task to know which button does what, after you use the camera for a while, you'll automatically know which control gives you your desired result and then reach for it instinctively, without taking your eye from the viewfinder. But first, you need to know what each control does. I explain the controls you find on the outside of the camera in the upcoming sections.

Exploring the top of your camera

The top of the camera, shown in Figure 1-1, is where you find the controls you use most when taking pictures. The top of the camera is where you change settings like ISO (International Organization for Standards) and shutter speed, choose a shooting mode, and press the shutter button to take a picture. You can do lots of other things from the top of the camera, which in my humble opinion, is the most important real estate on the camera, with the possible exception of the lens. I suggest you get to know the controls on the top of your camera intimately, like the back of your hand. Many photographers, including me, make it a point to memorize where the controls are and access them without taking an eye off the viewfinder. Here's what you find on the top of the camera:

- ✓ **Shutter button:** This button prefocuses the camera and takes a picture. (I discuss this button in greater detail in Chapter 2.)
- ✓ **Multi-Function button:** This button changes the function of a multi-purpose button, and is used extensively when specifying which autofocus

point or zone is used to achieve focus. I show you how and when to use this button when related to a specific task.

- ✓ **Main dial:** This dial changes a setting when you rotate it after pressing a button. For example, after you press the ISO speed button, you rotate this dial to change the ISO speed setting. I show you how to use this dial as it relates to a specific task.
- ✓ **LCD Panel Illumination button:** Press this button when you're in dim or dark conditions and you need to shed a little light on the LCD panel.
- ✓ **ISO Speed Setting/Flash Exposure Compensation button:** This button sets the ISO speed setting or the flash exposure compensation. (See Chapter 7 for more on the ISO speed setting and flash exposure compensation.)
- ✓ **Drive/AF button:** This button sets the autofocus mode. You can choose from three autofocus modes. You also use this button to change the drive mode from single shot to continuous shooting to auto-timer. (I give you the skinny on autofocus modes in Chapter 6.)

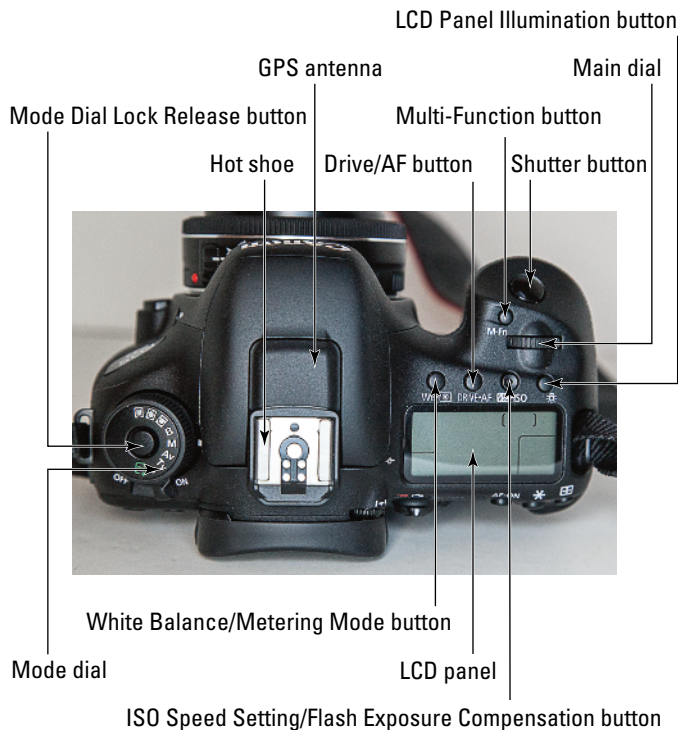


Figure 1-1: Get to know these controls like the back of your hand.

- ✓ **White Balance/Metering Mode button:** This button changes the white balance or metering mode. (See Chapter 6 for more on the metering mode and white balance.)
- ✓ **LCD panel:** This panel shows you all the current settings. I show you how to read the information in this panel in the section, “Deciphering the LCD Panel,” later in this chapter.
- ✓ **Hot shoe:** Slide a compatible flash unit (a Canon flash unit is dubbed a *Speedlite*) that’s compatible with the EOS 7D Mark II into this slot. The contacts in the hot shoe communicate between the camera and the flash unit. (I discuss flash photography in Chapter 7.)
- ✓ **GPS antenna:** The body of this camera is made of magnesium, which is wonderfully durable, but GPS signals have a hard time passing through it, which is why the wily engineers at Canon put the GPS antenna in a little bubble on top of the camera body. Looks kinda like a hood scope on a racing car. Way cool.
- ✓ **Mode Dial Lock Release button:** This welcome feature is a button that when pushed enables you to change from one shooting mode to another. When in the upright and locked position, it’s not possible to accidentally change shooting modes in the heat of battle.
- ✓ **Mode dial:** You use this button to specify which shooting mode the camera uses to take the picture. (I show you how to use this dial to choose specific shooting modes in Chapter 6, and in Chapter 8, I show you how to choose optimal settings for specific picture-taking situations.)

Exploring the back of your camera

The back of the camera, shown in Figure 1-2, is also an important place. Here you find controls to power up your camera, access the camera menu, and much more. The following is what you find on the back of your EOS 7D Mark II:

- ✓ **AF Point Selection button:** This button enables you to change from multiple autofocus points to a single autofocus point (see Chapter 6).
- ✓ **AE Lock button:** This button enables you to lock exposure to a specific part of the frame (see Chapter 6).
- ✓ **AF-On button:** This button, in certain shooting modes, establishes focus (see Chapter 6).
- ✓ **Live View/Movie Shooting switch:** This switch enables you to shoot in Live View mode or to shoot movies, which I explain in detail in Chapter 5.
- ✓ **Start/Stop button:** Push this button to shoot in Live View mode. When you switch to movie shooting mode, this button starts and stops recording (see Chapter 5).

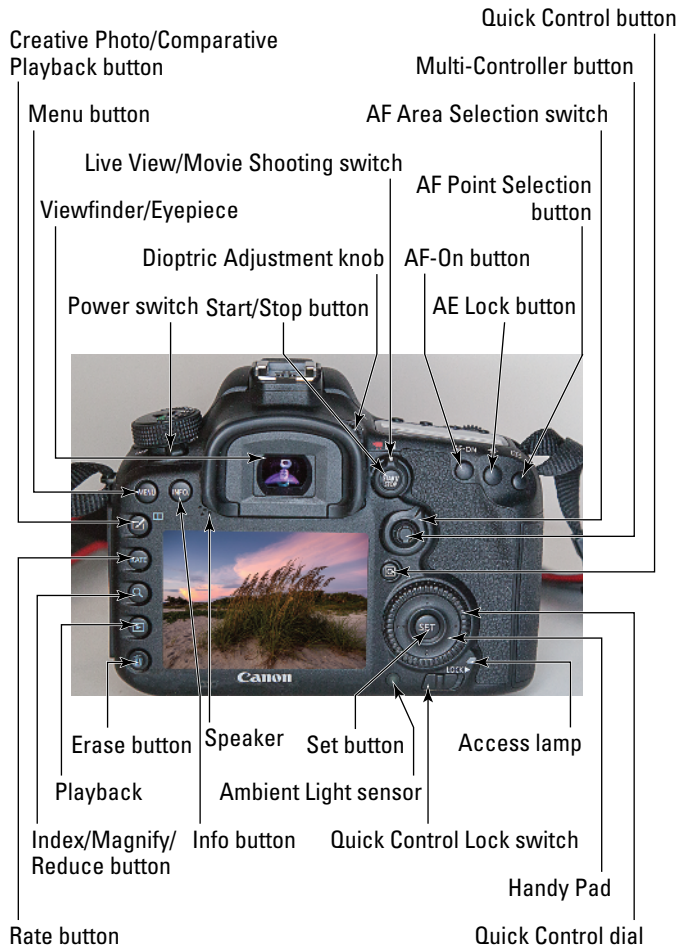


Figure 1-2: Buttons, buttons, and more buttons on the back of the camera.

- ✓ **Multi-Controller button:** Use this button for a myriad of tasks, such as changing the autofocus point, selecting an option when using the Quick Control menu instead of the camera menu, or switching from one camera menu to the next. (I explain this button in detail when it's associated with a specific task throughout this book.)
- ✓ **AF Area Selection switch:** This switch is used in conjunction with the AF Point Selection button to select the desired autofocus point or autofocus zone.

- ✓ **Quick Control button:** Press this button to display the Quick Control menu on the LCD monitor. (I show you how to use the Quick Control menu in Chapter 4.) It is also used in conjunction with the Menu button to quickly switch from one menu tab to another. (I show you how to use this button throughout this book as the need arises when selecting menu commands.)
- ✓ **Quick Control dial:** This dial selects a setting or highlights a menu item. This dial is used when performing various tasks, and I discuss it throughout this book as needed.
- ✓ **Handy Pad:** This convenient touch pad is used to change multiple settings when shooting movies in silent mode (see Chapter 5).
- ✓ **Set button:** Press this button to confirm a task, such as erasing an image from your card or setting a menu option. I show you how to use this button to perform a specific task throughout this book.
- ✓ **Ambient Light sensor:** Used to determine the brightness of the LCD monitor, unless you manually change the brightness. Be careful not to block this sensor when you choose the option to let the camera automatically determine LCD brightness based on the ambient lighting conditions (see Chapter 4).
- ✓ **Quick Control Lock switch:** This switch enables the Quick Control dial. Move the switch to the left to enable the Quick Control dial and to the right to lock the dial. Locking the Quick Control dial prevents you from accidentally changing a setting. You can use a menu command to modify which buttons are locked with this switch.
- ✓ **Access lamp:** Flashes when the camera writes data to the inserted memory card(s).
- ✓ **Dioptric Adjustment knob:** This control fine-tunes the viewfinder to your eyesight.
- ✓ **Viewfinder/Eyepiece:** Use the viewfinder to compose your pictures. Shooting information, battery status, and the amount of shots that can be stored on the memory card is displayed in the viewfinder. The eyepiece cushions your eye when you press it against the viewfinder and creates a seal that prevents ambient light from having an adverse effect on the exposure.
- ✓ **Speaker:** Plays audio when you play back movies.
- ✓ **Power switch:** Okay, this is a no-brainer. This switch powers the camera on and off.
- ✓ **LCD monitor:** Used to display images, movies, camera menus, and the Quick Control menu. (I tell you probably more than you ever wanted to know about the monitor in Chapter 4, and in Chapter 5, I show you how

to use the monitor to compose pictures and movies while shooting in Live View mode.)

- ✓ **Info button:** Press this button to display shooting information on the LCD monitor. You can choose from many different information screens. (I inform you about the different screens in Chapter 4.) This button is also used in conjunction with certain menu commands, which I discuss throughout this book as the need arises.
- ✓ **Menu button:** Press this button to display the last used camera menu on the LCD monitor. (I introduce you to the camera menu in Chapter 2 and refer to the menu throughout this book.)
- ✓ **Creative Photo/Comparative Playback button:** This button is used to engage creative shooting modes such as HDR, or to select a picture style. You also use this button when reviewing images to display two images side by side. I discuss this button throughout this book as it relates to a specific task.
- ✓ **Rate button:** This button is used to rate images. This button can be modified through a menu command to protect images.
- ✓ **Index/Magnify/Reduce button:** When reviewing images, use this button in conjunction with the Main dial to view multiple thumbnails or to zoom out when viewing a single image (see Chapter 4).
- ✓ **Playback:** Used to review images (see Chapter 4).
- ✓ **Erase button:** This button deletes an image. (I show you how to delete images in Chapter 4.)

Exploring the front of your camera

The front of your camera (see Figure 1-3) has a couple controls you can use and other gizmos that the camera uses. Here you'll find a couple of buttons that you use every day and some that access features you rarely use. The following features are on the front of your camera:

- ✓ **Remote control sensor:** Senses the light from an RC-1, RC-5, or RC-6 remote (sold separately) to actuate the shutter.
- ✓ **DC coupler cord hole:** Plug the cord from the ACK-E6 power adapter (sold separately) into this hole to use the camera without a battery.
- ✓ **Depth-of-Field Preview button:** Press this button to preview the *depth of field* (the amount of the image in front of and behind your subject that's in apparent focus) at the current f-stop.
- ✓ **Body cap (not shown):** Use the body cap to protect the interior of the camera when a lens isn't attached.

- ✓ **EF index mount (not shown):** Align an EF lens with this mark when attaching it to the camera. (See the section, “Attaching a lens,” later in this chapter for more information.)
- ✓ **EF-S index mount (not shown):** Align an EF-S lens with this mark when attaching it to the camera. (See the section, “Attaching a lens,” later in this chapter for more information.) You can only use EF-S lenses with cameras equipped with an APS-C (Advanced Photo System Type-C) sensor like the one on your EOS 7D Mark II.
- ✓ **Flash button:** Press this button to pop up the built-in camera flash unit. (I show you how to use flash on your subjects in Chapter 7.)
- ✓ **Lens-Release button:** Press this button when releasing a lens from the camera. I show you how to attach and remove lenses in the section, “Working with Lenses” later in this chapter.
- ✓ **Microphone:** Records audio when recording movies.



Figure 1-3: The front of your camera is an ergonomic wonder.

Finding the perfect camera bag

Your EOS 7D Mark II is a marvelous camera that you are probably going to want to take almost everywhere with you. Plus, Canon has more lenses than the law allows as well as Speedlites for flash photography, the stuff you use to clean your camera, filters, and so on. A good camera bag is a must to cart around all of your gear. Here are some tips for finding the perfect one:

- ✔ **Get a bag that's big enough for the gear you now own and any additional equipment you anticipate buying in the near future.**
- ✔ **Purchase a bag that's comfortable.** Make sure you try the bag on for size in the camera store. Place your camera in the bag and put it over your shoulder. If the bag isn't comfortable, try a different bag. Nothing is worse than a chafed neck after a daylong photography adventure.
- ✔ **Make sure the bag has enough pockets for your stuff.** The bag should have a place where you can pack extra memory cards, spare batteries, and other accessories.
- ✔ **Make sure the bag is sturdy enough to protect your gear.**
- ✔ **Make sure the bag is made so that you can get to your gear quickly.** Nothing is worse than fumbling for a piece of equipment while your digital Kodak moment disappears.
- ✔ **If you have a lot of gear, consider purchasing a hard-shell case that's big enough for all your equipment and a soft bag for day trips.**
- ✔ **Consider purchasing a customizable camera bag.** These bags come with removable partitions that are held in place with Velcro.
- ✔ **If it rains a lot where you live, purchase a water-resistant camera bag or one with a built-in rain cover.** Heavy rain and digital camera gear is a recipe for disaster.
- ✔ **Consider purchasing more than one bag.** I have one bag that has gobs of space for lots of equipment when I go on a hike in search of wildlife to photograph. The bag has outside pockets for water bottles and a place to park my tripod. I also have a bag that's big enough for two small lenses. I use this bag when I go on a photo walkabout in search of interesting things to photograph.

About the multi-function lock

The EOS 7D Mark II has lots of dials and buttons, and then more buttons and levers and switches, oh my. There are times when you don't want to inadvertently change a setting when shooting. All of the buttons on the body of this camera were discussed at the start of the chapter when I discussed the front, back, and top of the camera. Some of the buttons and sliders cannot be accidentally engaged, because you have to move a finger from the standard shooting position. The buttons that can be accessed easily are positioned so that you can quickly access them while shooting. However, there are times when you've got everything just the way you want it for the subject you're photographing and accidentally bumping a button and thereby changing a setting could have disastrous results, especially when you're

photographing something that will never be repeated. Fortunately, the engineers at Canon considered this eventuality and added the multi-function lock to the camera.

The multi-function lock switch is located below the Quick Control dial, and is used to lock and unlock the Quick Control dial. Slide the switch to the right to lock the Quick Control dial. Slide the switch to the left to release the lock and return functionality to the Quick Control dial.



You can also use the multi-function lock switch to lock the Main dial, the multi-controller, and the AF Area Selection lever by navigating to the Custom Function C.Fn3, and choosing the controls you want to lock with the multi-function lock under the Multi-Function Lock menu item. (For more information on Custom Functions, see Chapter 6.)

Deciphering the LCD Panel

The LCD panel on the top of the camera displays a lot of information, such as the shutter speed, aperture, ISO speed setting, white balance, metering mode, and more. Figure 1-4 shows all the possible options that can appear on the LCD panel. However, you'll never see this much information when you take a picture. I show you the type of information you can expect to see on the LCD panel during specific picture-taking scenarios I discuss throughout this book. Here's a road map for the information you'll find on the LCD panel:

- ✓ **White Balance setting:** Displays the current white balance setting. You view the panel when choosing a white balance option. The icon for every possible white balance option is shown in Figure 1-4. (I discuss how to set white balance in Chapter 7.)
- ✓ **Shutter Speed:** Displays the shutter speed, as metered by the camera or set by you that will be used to shoot the next picture. If you're taking pictures with Shutter Priority mode or Manual mode (see Chapter 6), you can use the LCD panel to set the shutter speed.
- ✓ **Aperture:** Displays the f-stop that will be used to take the next picture. You can use this information to change the aperture when shooting in Manual mode or Aperture Priority mode (see Chapter 6).
- ✓ **Shots Remaining/Self-Timer Countdown:** This spot on the panel does double duty. When you're using the Self-Timer, the time remaining until the picture is taken displays here. Otherwise, the display shows the number of shots remaining that you can fit on the memory card you insert in the camera to capture your images. (A *memory card* is the digital equivalent of reusable film. But you probably already knew that, right?)

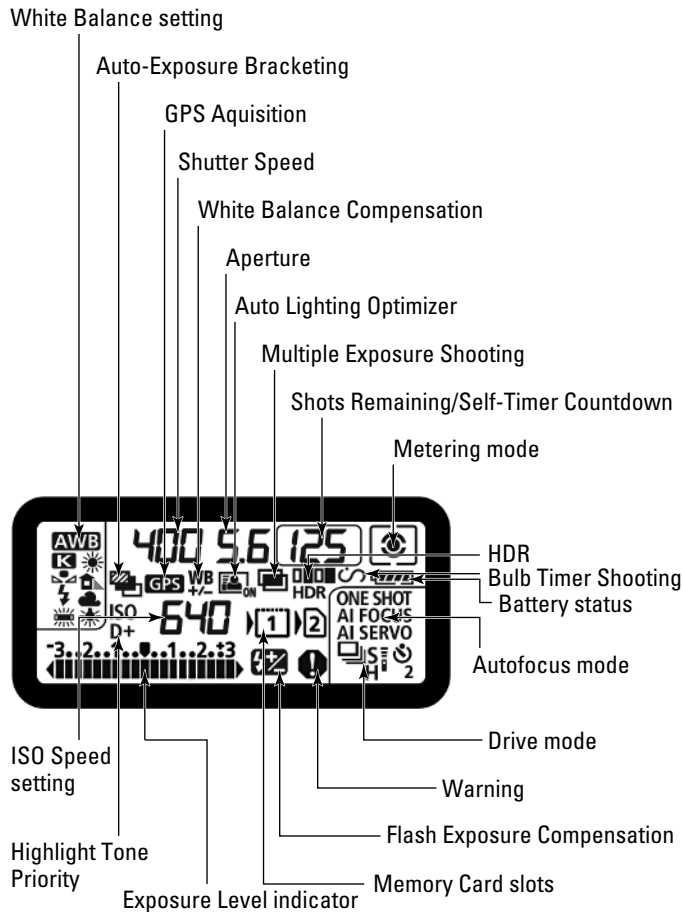


Figure 1-4: You find lots of useful information on the LCD panel.

- ✓ **Metering mode:** This icon displays the currently selected metering mode. I discuss metering modes in Chapter 6.
- ✓ **Auto-Exposure Bracketing:** This icon displays when you've enabled automatic exposure bracketing (see Chapter 6).
- ✓ **GPS Acquisition:** This icon flashes when a GPS signal is being acquired, and stops flashing when the signal has been acquired. (I discuss the EOS 7D Mark II's GPS feature later in this chapter.)
- ✓ **White Balance Compensation:** This icon displays when you bracket the white balance (see Chapter 6).

- ✓ **Auto Lighting Optimizer:** This icon displays when you enable the Auto Lighting Optimizer feature (see Chapter 7).
- ✓ **Multiple Exposure Shooting:** This icon displays when you use the Multiple Exposure feature (see Chapter 10).
- ✓ **HDR:** This icon displays when you use the HDR (high dynamic range) feature (see Chapter 10).
- ✓ **Bulb Timer Shooting:** This icon displays when you use the Bulb Timer (see Chapter 7).
- ✓ **Battery status:** This icon displays the amount of charge remaining in the battery.
- ✓ **Highlight Tone Priority:** This icon displays when you enable the Highlight Tone Priority feature (see Chapter 7).
- ✓ **ISO Speed setting:** The currently selected ISO speed setting displays here. You can also use this information when setting the ISO speed (see Chapter 7).
- ✓ **Memory Card slots:** Shows which memory card slots you are using.
- ✓ **Exposure Level indicator:** This feature is used when setting exposure compensation. After setting exposure compensation, an icon appears on the indicator that shows how much you've increased or decreased exposure. It also displays icons to indicate when you've bracketed exposure. (See Chapter 6 for information about exposure compensation and auto exposure bracketing.)
- ✓ **Flash Exposure Compensation:** This icon displays when you've enabled Flash Exposure Compensation (see Chapter 7).
- ✓ **Warning:** This icon displays when you choose the monochrome (black and white) picture style, when you correct white balance, when one-touch image quality is used, when you set high ISO or multi-shot noise reduction, or when you use spot metering. This is your camera's way of telling you that a mode not suited for every type of photography has been selected. It is a gentle reminder to deselect the option after you've shot the pictures for which these modes were selected.
- ✓ **Autofocus mode:** Displays the currently selected autofocus mode (see Chapter 7).
- ✓ **Drive mode:** Displays the icon for the currently selected Drive mode and whether the camera captures one image when you press the shutter button or multiple images. It also shows when you're shooting in high speed mode or engaging the self-timer (see Chapter 6).

You see examples of different scenarios on the LCD panel throughout this book as I discuss various picture-taking situations.

Decoding Viewfinder Information

The viewfinder, or *information central* as I like to call it, is another place you find a plethora of information. In the viewfinder, you see the image as it will be captured by your camera (see Figure 1-5). Your EOS 7D Mark II has a viewfinder that enables you to see 100 percent of what you'll capture, a feature that was introduced on this camera's predecessor, the EOS 7D. Use the viewfinder to compose your picture and view camera settings while you change them.

Figure 1-5 shows all the possible icons that can be displayed while taking a picture and displays all the autofocus points — you never see this much information displayed while taking a picture. (I show you different viewfinder scenarios when I discuss different picture-taking scenarios throughout the book.) When you peer into the viewfinder, you find the current shooting settings, icons for battery status, shots remaining, and much more. By default, all of the icons shown in Figure 1-5 are not visible until you use a menu command to display or hide information in the viewfinder. Here's the information displayed in your viewfinder (icons that can only be displayed by using a menu command are listed with an O for optional in parentheses):

- ✓ **Viewfinder level (O):** Displays the level in the viewfinder, enabling you to level the camera while looking through the viewfinder.
- ✓ **Autofocus points:** Figure 1-5 shows all of the autofocus points, plus the autofocus zones. You use these icons when selecting a single autofocus point, expanding an autofocus point, and selecting an autofocus zone.
- ✓ **Grid (O):** This icon appears when you enable a grid (see Chapter 7).
- ✓ **Exposure Level indicator:** This is used when manually setting exposure or metering flash.
- ✓ **Shooting mode (O):** This icon shows the currently used shooting mode (see Chapter 6).
- ✓ **White Balance (O):** This icon shows the white balance mode currently in use (see Chapter 7).
- ✓ **Drive mode (O):** This icon shows the drive mode currently being used (see Chapter 6).
- ✓ **Autofocus mode (O):** This icon shows the autofocus mode currently being used (see Chapter 7).
- ✓ **Metering mode (O):** This icon shows the metering mode currently being used (see Chapter 7).
- ✓ **Image format (O):** This icon shows the image format currently in use (see Chapter 3).
- ✓ **Warning:** This icon displays when the camera senses something you need to be warned about (see Chapter 7).

- ✓ **Flicker detection:** This icon displays when the camera senses that you should enable a menu command to reduce flicker (see Chapter 7).
- ✓ **AF Status indicator:** This icon appears when you press the shutter button half-way and the camera is achieving focus.
- ✓ **Battery status:** This icon shows you the amount of charge left in your battery.
- ✓ **AE Lock/AEB in Progress:** This icon indicates that you've locked the autoexposure to a specific point in the frame or that automatic exposure bracketing is being performed (see Chapter 6).
- ✓ **Flash ready:** This icon indicates that the flash has recycled to full power and is ready for use (see Chapter 7).
- ✓ **Flash Exposure Lock/FEB in Progress:** This icon indicates that you've locked the flash exposure to a specific point in the frame or that flash exposure bracketing is being performed (see Chapter 6).

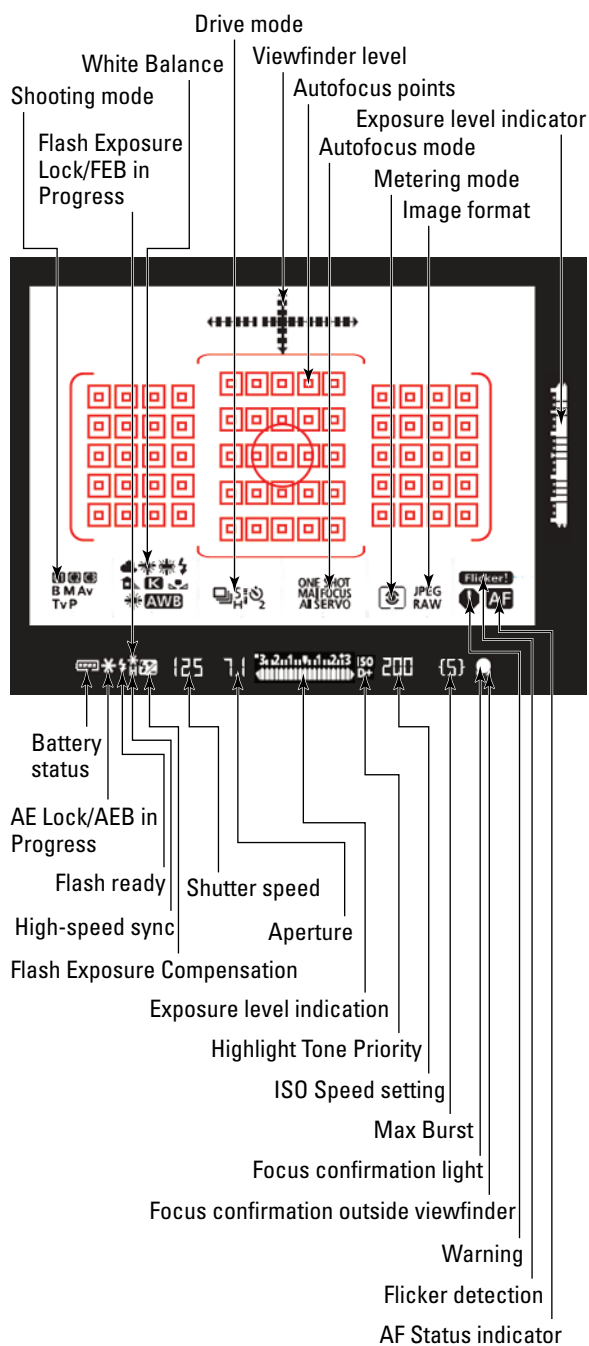


Figure 1-5: The viewfinder displays lots of useful information.

- ✔ **High-speed sync:** This icon indicates that you've changed the Flash mode to high-speed sync (see Chapter 7).
- ✔ **Flash Exposure Compensation:** This icon displays when you use flash exposure compensation (see Chapter 7).
- ✔ **Shutter speed:** Displays the shutter speed that will be used to take the next picture. You can also use this information to manually set the shutter speed when shooting in Shutter Priority mode or Manual mode (see Chapter 6).
- ✔ **Aperture:** Displays the f-stop that will be used to take the next picture. You can use this information to manually set the aperture when shooting in Aperture Priority mode or Manual mode (see Chapter 6).
- ✔ **Exposure level indicator:** This feature is used when setting exposure compensation. After setting exposure compensation, an icon appears on the indicator that shows how much you've increased or decreased exposure. It also displays icons to indicate when you've bracketed exposure. (See Chapter 6 for information about exposure compensation and automatic exposure bracketing.)
- ✔ **Highlight Tone Priority:** This icon displays when you enable Highlight Tone Priority (see Chapter 7).
- ✔ **ISO speed setting:** The currently selected ISO speed setting displays here. You can also use this information when setting the ISO speed (see Chapter 7).
- ✔ **Max burst:** Shows the maximum number of shots you can take when shooting in Continuous mode. If fewer shots are remaining on the card than the maximum burst, the shots remaining display.
- ✔ **Focus confirmation light:** Lights when you achieve focus.
- ✔ **Focus confirmation outside viewfinder:** This icon appears when you enable an autofocus command to display autofocus confirmation outside the field of view. When you enable autofocus confirmation outside the viewfinder, the AF icon does not appear.

In my estimation, the viewfinder is the place to compose your images. If you use the command to display optional information in the viewfinder, it's information overload, which diverts your attention from the task at hand, composing the image. The LCD monitor is the place to go when you need information such as the shooting mode, drive mode, and so on. If you'd like to experiment with the optional viewfinder displays, you can enable them using the Viewfinder Display command, which you find on the Set Up2 menu (part of the Set Up tab). For more information on using menu commands, see Chapter 2.

Adjusting Viewfinder Clarity

If you wear glasses, or if your vision's not perfect, you can adjust the viewfinder clarity, which makes it easier to compose your images and focus manually. After all, if what you see in the viewfinder isn't what you get, you won't be a happy camper. To adjust viewfinder clarity:

1. **Attach a lens to the camera.**
2. **Look into the viewfinder and turn the diopter adjustment knob (see Figure 1-6) left or right until the autofocus points look sharp and clear.**

If the knob is hard to turn, remove the eyepiece cup.



Figure 1-6: A clear viewfinder. All the better to see you with, my dear.

Working with Lenses

The beauty of photographing with a digital SLR is that you can change lenses to suit your creative need, or to suit the particular type of photograph you want to take. When you purchase lenses for your camera, make sure they are for the Canon EF mount. If this is your first digital SLR, read the following sections where I show you how to attach lenses, use image stabilization, remove lenses, and so on. If you already know this stuff, you can skip the following sections and do something interesting like use a macro lens to photograph dust bunnies.

Attaching a lens

The beauty of a digital SLR is that you can attach lenses with different focal lengths to achieve different effects. Your EOS 7D Mark II accepts a wide range of lens from super wide-angle lenses that capture a wide view angle, to long telephoto lenses that capture a narrow view angle and let you fill the frame with objects that are far away. Your camera can use EF lenses and EF-S lenses. The latter are specially made for cameras such as the EOS 7D Mark II that have a sensor smaller than the size of a frame of 35mm film. To attach a lens to your camera:

1. **Remove the body cap from the camera.**

With the camera facing you, twist the cap counterclockwise to remove it. Alternatively, you'll remove the lens currently on the camera with the steps I outline in the upcoming "Removing a Lens" section.

2. **Remove the rear cap from the lens you're attaching to the camera.**

Twist the cap clockwise to remove it.

3. **Align the dot on the lens with the mounting dot on the camera body (see Figure 1-7).**

If you're using an EF lens, the dot on the lens is red and you align it with the red dot on the camera body. If you're using an EF-S lens, the dot on the lens is white and you align it with the white dot on the camera body.

4. **Twist the lens clockwise until it locks into place.**

Don't force the lens. If the lens doesn't lock into place with a gentle twist, you may not have aligned it properly.

EF Index mount
EF-S Index mount

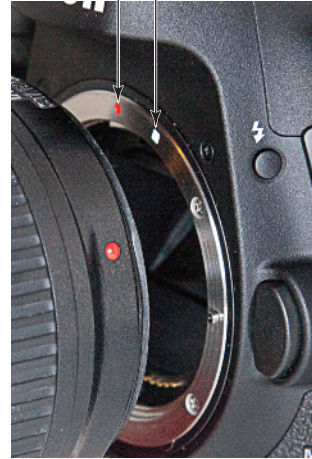


Figure 1-7: Aligning the lens.

Removing a lens

When you want to use a different lens or store the camera body, remove the lens. Removing a lens and attaching another lens can be a bit of a juggling act. To remove a lens from your camera:

1. **Press the lens-release button.**

This button unlocks the lens from the camera.

2. **With the camera pointed at you, twist the lens counterclockwise until it stops and then gently pull the lens out of the body (see Figure 1-8).**



Rotate counterclockwise

Figure 1-8: Removing a lens from the camera.



To minimize the chance of dust getting on your sensor, always turn off the camera when changing lenses. If you leave the power on, the sensor has a slight charge that can attract dust floating in the air. Do not change lenses in a dusty environment because dust may inadvertently blow into your camera. I also find it's a good idea to point the camera body down when changing lenses. Dust on the sensor shows up as little black specks on your images, which is not a good thing.



Never store the camera without a lens or the body cap attached because pollutants may accidentally get into the camera, harming the delicate mechanical parts and possibly fouling the sensor.

Using image stabilization lenses

Many Canon and third-party lenses that fit your camera feature image stabilization. *Image stabilization* is a feature that enables you to shoot at a slower shutter speed than you'd normally be able to use and still get a blur-free image. The actual number of stops you can gain depends on how steady you are when handling the camera. To enable image stabilization:

- 1. Locate the image stabilization switch on the side of your lens.**

On Canon lenses, you'll find the switch on the left side of the lens when the camera is pointed toward your subject (see Figure 1-9). If you're using a third-party lens, look for a switch that reads IS, or refer to the lens manual.



Figure 1-9: Slide this switch to enable image stabilization.

- 2. Push the switch to On to enable image stabilization.**

Image stabilization uses the camera battery to compensate for operator movement. Therefore, a good idea is to shut off this feature when you need to conserve battery power and don't need image stabilization. Note that some lenses have two image stabilization switches: one that stabilizes the lens in a horizontal and vertical plane, and another switch that stabilizes the lens when you pan to follow a moving object.



When using a tripod to stabilize the camera, always turn image stabilization off, otherwise the feature may actually induce image blur when trying to compensate for non-existent camera motion.

Using a zoom lens

The kit lens that comes with the EOS 7D Mark II has a focal length range from 18mm (wide angle) to 135mm (telephoto). You can purchase additional Canon or third-party zoom lenses from your favorite camera supplier. Zoom lenses come in two flavors: twist to zoom, or push/pull to zoom in or out, respectively.

What's my focal length multiplier?

The sensor on your EOS 7D Mark II is smaller than the frame size of 35mm film. Therefore, the resulting image incorporates a smaller area than you'd capture with a 35mm film camera or a digital SLR with a sensor that's the same size as a frame of 35mm film — also known as a *full-frame sensor*. When you use a camera that has a sensor smaller than the 35mm film frame size, you can zoom in closer with a telephoto than would be possible with a camera with a full-frame sensor. Imagine looking through a window that's 4 feet $\times$ 6 feet. You see a large field of view including the sky. If the window is shrunk to 2 feet $\times$ 3 feet, you see less of the scene and sky, which is the same thing that happens when you use a camera with a sensor smaller than the 35mm film frame. Photographers

who have previously shot film with 35mm cameras like to know how their lenses will behave on a camera without a full-frame sensor. They find out by multiplying their camera's focal length multiplier by the focal length of the lens. The focal length multiplier for your EOS 7D Mark II is 1.6. Therefore, a 50mm lens captures the same field of view as an 80mm ($50\text{mm} \times 1.6$) lens does on a 35mm film camera or full-frame digital SLR. When I suggest a focal length, I refer to it as the *35mm equivalent*. For example, if I specify a telephoto focal length that is the 35mm equivalent of 80mm, this is a 50mm lens on the EOS 7D Mark II. The following image compares the difference between what a full frame camera captures and a crop frame camera captures (the area inside the red rectangle).



To use a zoom lens with a barrel that twists to change focal length:

1. **Grasp the lens barrel with your fingers.**
2. **Twist the barrel to zoom in or out.**

To use a push/pull zoom lens:

1. **Grasp the lens barrel with your fingers.**
2. **Push the barrel away from the camera to zoom in; pull the barrel toward the camera to zoom out.**

Using a lens hood

Unless you're pointing the camera directly at a strong light source, a lens hood prevents unwanted light from shining on the lens and causing lens flare. Most lens hoods are equipped with an index mark that you align with a mark on the end of the lens. Align the two marks and then rotate the lens hood counterclockwise until it locks into place. To remove a lens hood, rotate it counterclockwise. To store the lens and the lens hood in a camera case or camera bag, attach the lens hood in reverse.

Introducing the GPS Feature

The GPS (Global Positioning System) feature gives you the option of embedding the GPS coordinates of the location where you photograph an image as image metadata. This metadata can be used in applications that support GPS data such as Adobe Photoshop Lightroom 5. In Adobe Photoshop Lightroom's Map module, images in your Library that have GPS data can be precisely positioned on the world map. The GPS feature also makes it possible for you to create a log of all the places you photographed images. I show you how to use GPS in more detail in Chapter 10.



If you're not using the GPS feature, disable it to conserve battery life.

Exploring Camera Connections

On the right side of the camera, you find two flaps that can be lifted. The flaps are weather-resistant to protect the connections under the flaps. Under the flaps you find a plethora of connections. This is where you connect various

sundry connectors to your camera as shown in Figure 1-10. You have the following connections available on your camera:

✓ **Microphone port:**

Connect an external microphone to this port to capture audio with your video.

When you connect a microphone to this port, the onboard microphone is disabled. This port will capture stereo sound from a stereo microphone.

✓ **Headphone port:**

Connect a headphone to this port to monitor sound when recording movies.

An external is also useful when setting audio levels (see Chapter 5).

- ✓ **PC port:** Connect a flash PC cord to this port when using flash units that are not compatible with the hot shoe on your camera.

- ✓ **Remote Control port:** Connect an N3 type remote control device to this port and you can trigger the shutter remotely.

- ✓ **Digital terminal:** Connect the digital camera provided with the camera to a device with a USB port such as a printer to print on demand from the camera. This port can also be used to download images and movies directly from your camera to computer using the EOS Utilities.

- ✓ **HDMI Out:** Connect an HDMI (high-definition multimedia interface) cable from this port to an HDMI cable on your TV to watch high-definition video or view images on your TV that you captured on your camera.

- ✓ **Cable protector socket:** Insert the provided cable connector into this slot when connecting an interface cable to one of the ports. The cable protector provides support for the cable you are connecting to the camera.

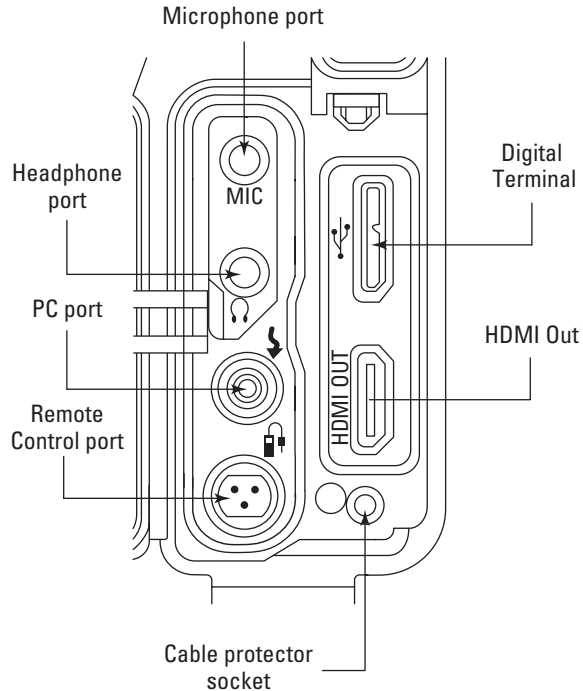


Figure 1-10: Connections from the camera to various sundry devices.

Modifying Basic Camera Settings

Your camera ships with default settings for the country in which the camera was purchased. You also have default settings for the amount of time it takes the camera to power off when no picture taking or menu activity has occurred. You can modify these settings to suit your taste, as I show you in the upcoming sections.

Changing the date and time

Chances are your camera isn't set up for the right date and time when you get it. You can easily change this to the proper date and time by using a camera menu. Yes, consider this your baptism by fire if you've never worked with your camera menus before. To change the date and time:



1. **Press the Menu button.**

The previously used menu appears on the LCD monitor.



2. **Use the Quick Control button to navigate to the Set Up tab, press the multi-controller button to navigate to the Set Up2 menu, and then use the Quick Control dial to select the Date/Time/Zone menu option.**

The menu with the date and time options is displayed on your LCD monitor (see the left image in Figure 1-11).



3. **Press Set.**

The month is highlighted.

4. **Rotate the Quick Control dial to change the number to the current month and then press Set.**

The change is applied.

5. **Rotate the Quick Control dial to highlight the date.**

6. **Repeat Steps 4 and 5 to set the date.**

7. **Continue in this manner to change the year, hour, minute, and seconds to the current time.**

You can also change the format in which the date is displayed by highlighting the default option, pressing Set, choosing the desired option, and then pressing Set again to apply the change. For most users in Central and North America, the default is perfect.

8. **Rotate the Quick Control dial to highlight the Daylight Savings option, press Set, choose the desired option, and then press Set to apply the change.**

With this option, you can enable the Daylight Savings option. If daylight savings is applicable where you live, enable the Daylight Savings option, and the camera will automatically set the time back or ahead according to your time zone.

9. Rotate the Quick Control dial to highlight the Time Zone option, press Set, choose the time zone in which you live, and then press Set.

The right image in Figure 1-11 shows all of the options and is set for a photographer living in the Eastern time zone of the United States.

10. Rotate the Quick Control dial to highlight OK and then press Set.

Your changes are applied. The date and time are added to the metadata of each picture you take.

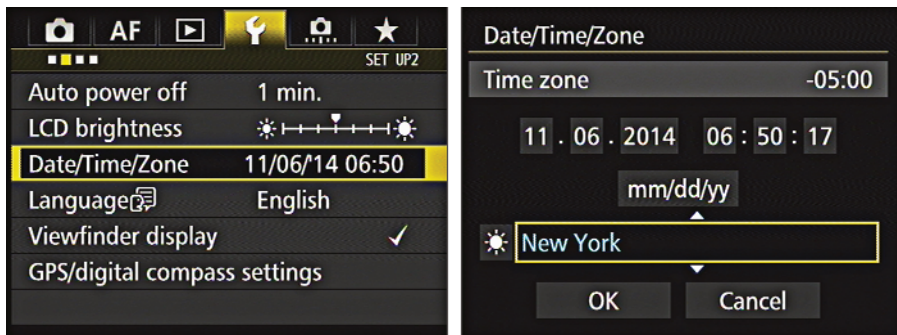


Figure 1-11: Changing the date and time.

Changing the auto power-off time

Your camera powers off automatically after a certain period of non-operation. You can specify a period of time from 1 minute to 30 minutes, or you can disable power-off. However, your camera will automatically power off after 30 minutes of non-activity even if you choose Off. If you choose a power-off time that's of a short duration, you'll conserve your battery. After your camera powers off, press the shutter button and the camera powers on again. To change the power-off time:



1. Press the Menu button.

The previously used menu appears on the LCD monitor.

2. Use the Quick Control button to navigate to the Set Up tab, press the multi-controller button to navigate to the Set Up2 menu, and then use the Quick Control dial to select the Auto Power Off option (see the left image in Figure 1-12).

3. Press the Set button.

The Auto Power Off options display (see the right image in Figure 1-12).

4. Rotate the Quick Control dial to select the desired setting and then press Set.

The change is applied.

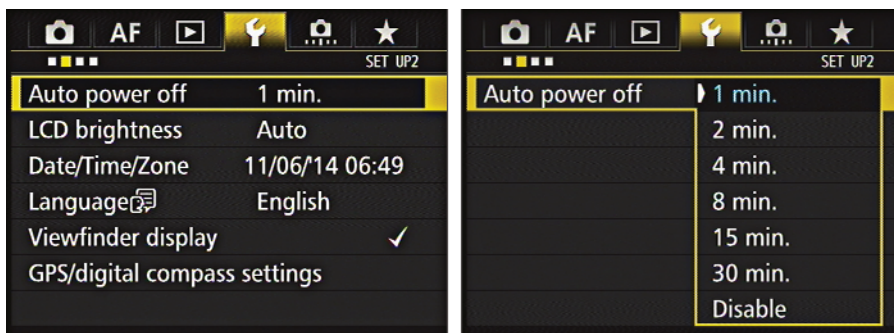


Figure 1-12: Changing the power-off time.



I recommend that you choose the shortest duration for auto power-off that you're comfortable with. This helps conserve battery power. As long as the power button is in the On position, your camera wakes almost instantaneously when you press the shutter button halfway.



To restore the camera to its default settings, press the Menu button and then use the Quick Control button to navigate to the Set Up tab. Next, use the multi-controller to navigate to the Set Up4 menu, choose Clear All Camera Settings, and press Set.

Working with Memory Cards

Your camera has slots for two memory cards: one for CF (CompactFlash) and one for SD (Secure Digital) cards to store the pictures you take. A *memory card* is a mechanical device similar to a hard drive. You insert a new card when you begin shooting and remove the card when it's full. With two cards you have many possibilities. For example, you can capture images in the RAW format on one card, and the same images in the JPEG format on the other card. This is a handy option if you shoot images that needed to be posted online quickly, but then processed to pixel-perfection at a later date.

To insert a memory card:

1. **Open the card cover on the right side of the camera as you look from the back.**

To open the cover, slide it away from the camera until it stops, and then rotate it away from the camera. Note there are two slots. The big slot is for a CF card; the smaller slot is for an SD card.

2. **Insert the card in the slot.**

As shown in Figure 1-13, the card label is facing you.

3. Gently push the card into the slot.

Never force a card because you may damage the pins in the camera and the card. The card slides easily into the camera when aligned properly.

4. If desired, insert a second card into the other slot.

Double your pleasure, double your fun.

5. Close the card cover.

You're ready to shoot up a storm.



You may be tempted to pick up a 32GB or 64GB card, thinking you can store a gazillion images on one card and not worry about running out of room. But memory cards are mechanical devices that are subject to failure and will fail when you least expect it. If a large card fails, you lose lots of images. I carry a couple 16GB CF cards in my camera bag. Although I hate to lose any images, I'd rather lose 16GB worth of images than 32 or 64GB. I advise you to purchase smaller memory cards.



Even though newer memory cards are very reliable, they are subject to Murphy's Law and will fail at the least opportune time such as when you have hundreds of images on a card from your vacation. If your computer cannot read a card, you may be able to save it with a data recovery program, which you can search for online. Many companies let you download a trial version of their data recovery program. It will let you recover and view images, but not save them. If the application enables you to view images after recovery, purchase the full version and you'll be able to download your precious images to your computer. Unless the card is under warranty, throw it away after the data recovery application performs its magic.

Formatting a memory card

Remember back in the Jurassic era of photography when you had to remove film from a camera and send it off to be processed? I do. I know that dates me. But with a digital camera, after you download images to your computer and back them up, you format the card so you can use it again. A good idea is to format your cards before using them again, even if you didn't fill them. Doing this ensures you'll have a full card to work with and won't download duplicate images.



Figure 1-13: Inserting a memory card.

Your camera has two card slots: one for a CF (Compact Flash) card, and one for an SD (Secure Digital) card. In the following sections, I show you how to format each type.

Formatting a CF card

CF cards are big and solid. Photographers have actually driven over them by mistake and the cards survived to store images.

To format a CF card:

1. **Insert the card in the camera, as I outline in the preceding section.**

The CF card goes in slot 1.



2. **Press the Menu button.**

The previously used menu appears on the LCD monitor.



3. **Use the Quick Control button to navigate to the Set Up tab and then use the multi-controller button to navigate to the Set Up1 menu.**



4. **Rotate the Quick Control dial to select Format card and press Set.**

The Format card option is selected (see the left image in Figure 1-14).

5. **Rotate the Quick Control dial to select Slot 1 and press the Set button.**

The menu changes to show the amount of data on the card and displays a warning that all data will be lost (see the right image in Figure 1-14).

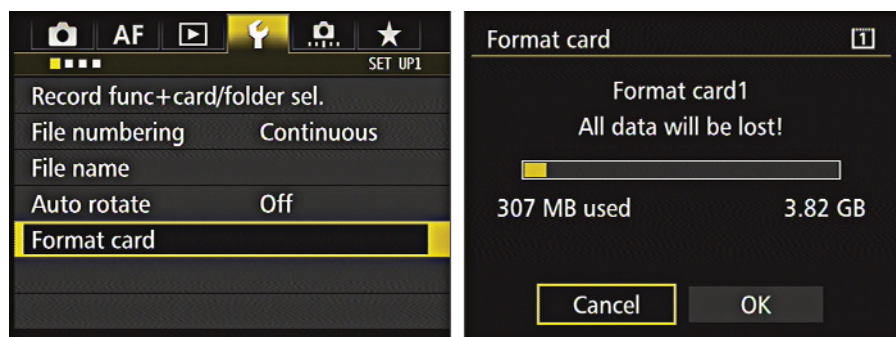


Figure 1-14: Formatting a CF card.

6. **Rotate the Quick Control dial to highlight OK and press Set.**

The card is formatted. After formatting, you have a blank card that's ready to capture images from the camera. If you have two cards in the camera, repeat these steps and select the other card in Step 5. Note that



when you format an SD card, you have different options, which are covered in the next section.

You can't undo formatting a card. Make sure you've downloaded all images to your computer before you format a card.

7. **Press the shutter button halfway to exit the menu and resume taking pictures.**

Formatting an SD card

SD cards are more fragile than CF cards. Canon hedged their bet by including an SD slot on this camera. They figured photographers upgrading to the EOS 7D Mark II may have previously owned cameras that use SD cards. You format SD cards exactly the same as mentioned in the previous section, except you choose Slot 2. The rest of the steps are identical except for the option to perform a Low Level Format.

To enable Low Level formatting, press the Erase button, to select the Low level format checkbox (see Figure 1-15), and then rotate the Quick Control dial to highlight OK and press Set. Use Low Level formatting when the card has been used in another camera, the card is full of images, or a card error message is displayed.

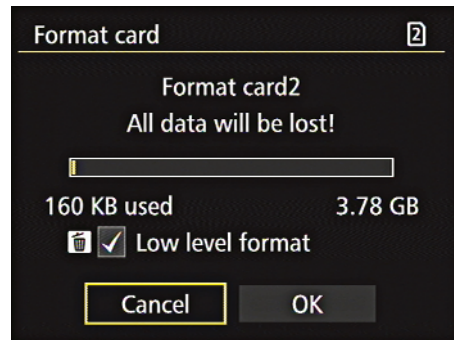


Figure 1-15: Enabling low level formatting on an SD card.

Removing a memory card

When a card is full, remove it from the camera and insert a new one. To remove a memory card:

1. **Open the memory card cover.**

To open the cover, slide it away from the camera until it stops and then rotate it away from the camera.

2. **Push the white button toward the rear of the CF card cover.**

The CF card pops loose from the pins.

3. **To remove an SD card, gently push it.**

The card pops out of the slot.

4. **Gently pull the card from the slot.**

You're now ready to insert a new card and start shooting.

Taking Care of Your Camera Battery

The LP-E6N battery in your EOS 7D Mark II is a rechargeable lithium-ion battery that is engineered for a long life and enables you to capture about 800 images when you use the camera in warm weather. You'll also be glad to know that if you have LP-E6 Canon batteries, they are compatible with the EOS 7D Mark II. When you photograph in colder climates, the amount of images you can capture decreases. Here are some recommendations for getting the best performance from your camera battery:

- ✓ **After you charge a battery, replace the cover so you can see blue through the battery-shaped hole.** This signifies that you have a fully charged battery under the cover, useful information if you own more than one battery.
- ✓ **Remove the battery from the camera after you've finished shooting for the day.** The battery loses a bit of its charge if you store it in the camera.
- ✓ **When replacing the cover over a partially used or fully discharged battery, place the cover so that the blue does not show through the battery-shaped hole.** This is your indication that the battery is partially discharged.
- ✓ **In cold conditions, place the spare battery in your coat pocket.** This keeps it warm and extends the life of the battery charge.
- ✓ **Replace the battery immediately when you see the low battery warning.** If you deplete the battery power completely when your camera is writing data to the memory card, the card may be corrupted.
- ✓ **Never remove the battery when the data access light is blinking.** This indicates your camera is writing data to the card. Removing the battery prematurely can damage the memory card and cause loss of data.
- ✓ **Beware of third-party batteries that fit your EOS 7D Mark II.** They may not be compatible with your camera's battery information system, which means you won't know how much charge remains in the battery. If the battery runs out of charge while the camera is writing data to the memory card, you may damage the memory card, the battery, or both. Batteries that don't work with your camera typically come with their own charging units. Using a third-party battery may also void your camera warranty.

Charging Your Camera Battery

When you notice the battery status icon is red, it's time to charge the battery. Charge the battery using the charger supplied with the camera. You

can recharge LP-E6N and LP-E6 batteries with this charger. To recharge your camera battery, follow these steps:

1. Plug the battery charger into a wall outlet.

If you live in North America, your charger works in a 110-volt outlet. If you travel overseas with your camera, make sure you bring a converter. If you insert the charger into an outlet with the wrong voltage, you'll ruin it.

2. Insert the battery (see Figure 1-16).

After you insert the battery, an orange light appears in the charger. If the light blinks once per second, the battery has 0 to 49 percent charge. When the light blinks twice per second, the battery has 50 to 74 percent charge. When the battery blinks three times per second, the battery has 75 percent or higher charge.

3. Continue charging the battery until the light is green.

The battery has a 100 percent charge.

4. Replace the protective cover over the battery (see Figure 1-17).



Figure 1-16: Charging the battery.



Figure 1-17: Replacing the battery cover.

Cleaning the Sensor

When you power on your Canon EOS 7D Mark II, the sensor is automatically cleaned (see Figure 1-18). The camera accomplishes this by jiggling the sensor to dislodge any dust particles. This works well, but sometimes stubborn particles of dust don't fall off the sensor with the automatic cleaning.

You can, however, manually clean your sensor as outlined in the next section.

Cleaning your sensor on command

If you notice black specks in areas of your image that are one solid color, such as the sky, you have dust on your sensor. Your camera will automatically clean the sensor as outlined in the previous section. However, sometimes that's not enough. If you consistently see dust spots in the same area on several images, you'll be happy to know there's a menu command you can use to clean your sensor, whenever you feel the need, by following these steps:



1. Press the Menu button.

The previously used menu appears on the LCD monitor.



2. Use the Quick Control button to navigate to the Set Up tab and then use the multi-controller button to navigate to the Set Up3 menu.



3. Use the Quick Control dial to highlight Sensor Cleaning and then press Set (see the left image in Figure 1-19).

The Sensor Cleaning options are displayed.

4. Use the Quick Control dial to highlight Clean Now (the right image in Figure 1-19) and then press Set.

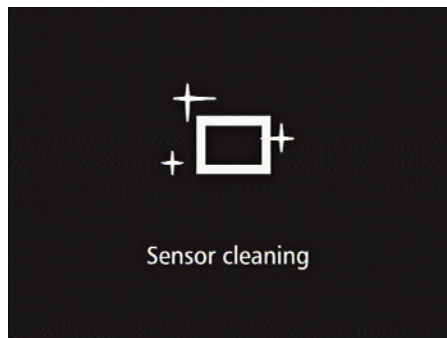


Figure 1-18: Shake it up baby, now. Shake it up baby. Clean me off.

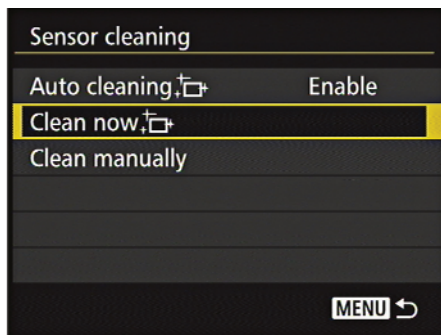


Figure 1-19: Cleaning the camera sensor.

5. **A dialog box appears, asking you whether you want to clean your sensor now.**

OK is selected by default.

6. **Press Set.**

Your camera performs a sensor cleaning cycle.

7. **Press the shutter button halfway to exit the camera menu.**

You're now ready to start shooting with a squeaky-clean sensor.



After using the Clean Now menu command, put a lens on your camera, manually set the focus to the closest distance at which the lens will focus, and then take a picture of the clear blue sky. Open the image in your image-editing program and zoom in to 100 percent magnification. Sensor dust shows as dark spots. If you have stubborn specks of sensor dust on your camera, run the Clean Now menu command a couple of times. If the dust is still there, you can manually clean the sensor (as outlined in the next section).

Cleaning your sensor manually

Your camera has a self-cleaning sensor, and you can run a cleaning cycle whenever you want; however, you may inadvertently get a stubborn piece of dust that develops a magnetic attraction to your sensor and needs to be cleaned manually.

To determine whether you have dust on your sensor, follow these steps:

1. **Switch to Av (Aperture Priority) mode and choose your smallest aperture.**

For further information on using Aperture Priority mode and manually setting your aperture, see Chapter 6.

2. **Switch the lens to manual focus and rack the focus to its nearest point.**

That's right: You want the sky to be out of focus. That way the dust specks will show up as black dots.

3. **Take a picture of a clear blue sky, download the picture to your computer, and review it in your image-editing program at 100 percent magnification.**

If you see black specks in the image, you have dust on your sensor.

The best way to clean dust off your sensor is to blow it off with a powerful bulb blower. Several blowers are on the market with generic names like Hurricane or Rocket. The Giottos Rocket Blaster is shown in Figure 1-20. A good blower is made of natural rubber and features a small opening at the tip that enables you to direct a strong current of air with pinpoint accuracy.

To clean the sensor manually:

1. **Switch to one of the Creative Zone modes and then take the lens off the camera.**

The option to clean manually is not available in the Basic Zones.



2. **Press the Menu button.**

The camera menu is displayed on the LCD monitor.



3. **Use the Quick Control button to navigate to the Set Up tab, and then use the multi-controller button to navigate to the Set Up3 menu.**



4. **Use the Quick Control dial to highlight Sensor Cleaning and then press Set.**

The Sensor cleaning options are displayed.

5. **Use the Quick Control dial to highlight Clean Manually and then press Set.**

A dialog box appears telling you the mirror will lock-up. OK is selected by default. When the mirror locks up, you have access to the camera sensor.

6. **Press Set.**

The camera mirror opens and you have access to the camera sensor.

7. **Point the camera at the ground and place the air blower inside the sensor chamber, being careful not to touch the sensor.**

When you point the camera at the ground, any dust you dislodge off the sensor falls to the ground. Gravity works. Be careful not to touch the sensor with the blower. I use a black felt tip marker to make a spot one-inch away from the tip of the blower. As long as the spot is visible, the blower won't touch the sensor.

8. **Squeeze the bulb repeatedly.**

When you squeeze the bulb, move the blower around so the blast of air hits all areas of the sensor. This increases your chances of getting rid of all the dust.



Figure 1-20: Use a bulb blower to clean your camera sensor.

9. When you've finished blowing dust off the sensor, power off the camera.

When you flip the camera switch to off, the mirror closes. Make sure you put a lens on the camera or a body cap on the camera immediately. After thoroughly cleaning the sensor, you don't want dust getting back in the chamber.

Using sensor cleaning equipment

If you're a DIY (do-it-yourself) kind of photographer, you may want to consider cleaning your sensor with commercially available products. Lots of products — brushes, swabs, and chemicals — that you use to manually clean the camera sensor are on the market. Yes, that does mean you physically touch the sensor with a product. Therefore, the product you choose needs to be made from material that can't scratch the camera sensor. You must also have a very steady hand when using these products.

I've used sensor-cleaning products manufactured by VisibleDust (www.visibledust.com). VisibleDust manufactures a lighted sensor loupe that you place over the lens opening to examine the sensor for any visible dust — hence, the company name. The loupe is made of glass and makes it easy to see any specs of dust on your lens. VisibleDust also manufactures an Arctic Butterfly brush, which runs on two AAA batteries. To use this brush:

1. Push a button to spin the brush.

This gives the brush a static electricity charge.

2. Brush the sensor once with the charged brush.

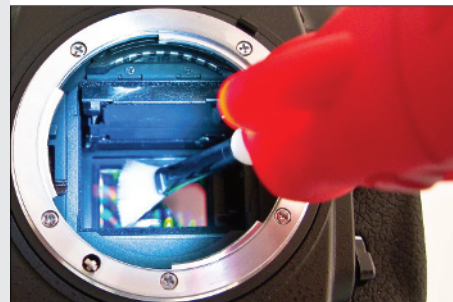
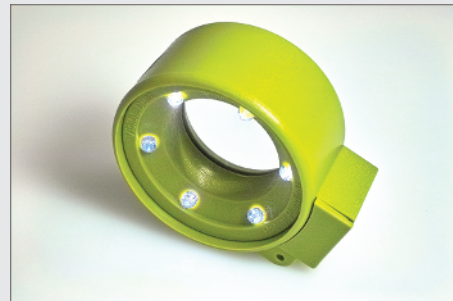
Dust particles are attracted to the brush.

3. Remove the brush from the camera body and then press the button to spin the brush again.

This discharges the particles into the air.

4. Use the brush as needed to remove any dust that may have accumulated on the sensor.

I've used both products with a good outcome on my cameras. For more information, visit www.visibledust.com or ask your favorite camera retailer for information about these products.





Never touch the sensor with the blower. Never use a blower with a CO₂ cartridge. CO₂ cartridges contain propellants that can foul your sensor.

Keeping your sensor clean

The best way to keep your sensor clean is to never change a lens. However, this defeats the purpose of a digital SLR. But if you are meticulous about changing lenses, and follow a bit of sage advice, you'll keep your sensor as squeaky-clean as possible. I first learned about sensor dust when I owned my first digital SLR, the Canon EOS 10D. I was on a business trip/vacation to California. When I was reviewing some images I shot of the Golden Gate Bridge, I noticed some horrible dust specks on the image. Since then I've learned that doing the following minimizes the chances of dust adhering to the sensor:

- ✓ **Power off the camera before changing lenses.** If you leave the power on, the sensor maintains a charge that can attract dust.
- ✓ **Never change lenses in a dusty environment.** If you're photographing in a dry, dusty environment, find a sheltered area in which to change lenses. When all else fails, the inside of your car is a better place to change lenses than in a dry, dusty area.
- ✓ **Never change lenses when it's windy.** In windy conditions, find a sheltered environment in which to change lenses.
- ✓ **Point the camera down when changing lenses.** This minimizes the chances of dust blowing into the sensor.
- ✓ **Have the other lens ready.** When I change lenses, it's a juggling act. I keep the lens I'm going to put on the camera in one hand with the rear cap off. I point the camera at the ground and grasp the lens I'm going to remove with one hand, and press the lens release button with a finger from the other hand. I then quickly remove one lens and replace it with the other. With practice, you can do this quickly and minimize the chance of dust fouling your sensor.



The sensor chamber of your camera is lubricated. Sometimes lubricant can get on the sensor and cause a spot to appear on your images. If conventional methods of cleaning the sensor don't work, send the camera to Canon for sensor cleaning, or to a local camera shop that offers this service.

Accessorizing Your EOS 7D Mark II

Your EOS 7D Mark II is a mechanical and technological masterpiece. But the camera comes with a nice cardboard box, which is great for shipping the camera, but not so great for storing the camera on a day-to-day basis. And

the camera ships with this nice strap that tells the world you're shooting with a Canon EOS camera, but the strap is thin — and with a long telephoto lens, it will feel like you're carrying a brick around your neck. So, first and foremost, you need a decent camera case and you need a good strap. There are lots of other goodies you can invest in that will make using your camera more enjoyable.

Useful Canon accessories

Canon sells lots of goodies in its online store that may also be available from other sources such as your local camera retailer or your favorite online camera store. Here are a couple of items you may consider purchasing:

- ✓ **Extra LC-E6 battery pack:** If you shoot lots of pictures, having an extra fully-charged battery in your camera bag can save the day.
- ✓ **Car Battery Charger CBC-E6:** If you do a lot of remote shooting from your car, this accessory enables you to charge your camera battery from the car's 12-volt outlet, which was formerly known as the receptacle for the cigarette lighter.
- ✓ **BGE 16 battery grip:** This accessory is attached to the bottom of your camera and extends your shooting time. The battery grip houses one or two LP-E6N or EP-6 batteries or six AA batteries. The grip also features a variety of operating controls such as shutter button, Main dial, AF point selection button, AE lock/FE lock button, AF start button, multi-controller, and multi-function button. This is the ideal accessory if you're a high-volume shooter.
- ✓ **LC-5 wireless controller:** This accessory enables you to trigger the shutter of your EOS 7D Mark II wirelessly.
- ✓ **Dedicated Canon flash:** Your EOS 7D Mark II has an onboard pop-up flash unit. If you need a more powerful flash unit, Canon makes several flash units that are compatible with your camera. The beauty of using a dedicated flash is that the camera communicates with the flash unit when you place it in the hot shoe, and can also communicate wirelessly with one or multiple flash units as discussed in Chapter 7. The following flash units will work with your EOS 7D Mark II: 90 EX, 270EX, 320 EX, 430EXII, and 600EX-RT. I discuss flash photography with your EOS 7D Mark II in Chapter 7.
- ✓ **RS-80N remote switch:** This accessory plugs into the side of your EOS 7D Mark II and enables you to trigger the shutter by pushing a button. This accessory is ideal if you use your camera on a tripod. If you press the camera shutter button, vibration is transmitted to the camera, which may cause the image to be less than sharp. The remote switch prevents the vibration.

- ✓ **TC-80N3 timer remote controller:** This accessory also plugs into the side of your EOS 7D Mark II. You use it to trigger the camera remotely, but you can also program this accessory to capture multiple images over a period of time. You determine the amount of time between images. With the camera mounted on a tripod, you can create time-lapse photographs of an object or area and record the climate change, cloud movement, and such. You bring the captured images into a program like Photoshop and create a time-lapse movie. Your camera has a built-in interval timer, but some people prefer using devices instead of menus. If you fall into this group, the accessory may just be the bee's knees.

Useful third-party accessories

Canon makes great accessories for your camera, but there are other accessories you will need, such as tripods, camera cases, camera bags, and so on. Canon does offer some of these accessories, but your friendly author has been at this photography game for some time and offers the following list for you to consider:

- ✓ **Camera strap:** This is the first item I suggest you replace. In fact, I suggest you don't even use the strap that came with the camera. Leave it in pristine condition in its little plastic snuggie. Then, if you ever decide to sell the camera on eBay, you can offer it with an unused camera strap. I suggest you purchase a sling strap such as those offered by CarrySpeed (www.carryspeed.com) or Black Rapid (www.blackrapid.com). A sling strap distributes the weight of the camera and lens over your shoulder and places the camera at your hip. When you need to use your camera, you can quickly grab it from your side and bring it to your eye. The CarrySpeed strap features a mounting system that does not let the strap touch the camera, which could possibly mar the finish. Another great thing about the CarrySpeed strap is the actual strap; it's wide and has a neoprene backing which holds the strap in place. A sling strap comfortably distributes the weight of the camera and lens. If you shoot for long periods of time and with long lenses, a comfortable camera strap is a must-have accessory.
- ✓ **Camera case:** If you end up purchasing lots of accessories for your camera (such as additional lenses, additional batteries, and so on), you'll need a place for your stuff. A hard-shell camera case is the ideal place to store your gear when you're not using it. Pelican (www.pelicancase.com) makes a wide variety of cases that you can customize to fit your gear. Nanuk (www.nanukcase.com) also sells a line of customizable hard-shell cases. I own both and can vouch for the fact that they are quality products.
- ✓ **Camera bag:** A camera bag is a place to put your stuff when you're out on a photo shoot. If you don't own a lot of gear, you can get by with a small camera bag. However, if you do end up owning a lot of gear, plus the obligatory kitchen sink, you'll need a bag that can hold lots of stuff,

or perhaps two bags: one that will hold most of your gear and accessories, and a smaller bag to use when you're going commando (shooting with just your camera, one or two lenses, and a minimum of accessories). My favorite bags are the Speed Freak Version 2 (shown at the top of Figure 1-21) and ChangeUp Version 2 (shown at the bottom of Figure 1-21), both made by Think Tank Photo (www.thinktankphoto.com). The bags are made of durable material, have bullet-proof zippers, and lots of hidey holes for your accessories. LowePro (www.lowepro.com) also makes a good camera bag. A rain hood is another good option to look for when purchasing a camera bag. Rain and digital equipment are like oil and water; they don't mix.



Figure 1-21: A comfortable camera bag is a must for any serious photographer.

✓ **Tripod:** If you shoot landscapes, HDR (high dynamic range), or shoot in low light, a tripod is a useful accessory. A tripod steadies your camera when you shoot at low shutter speeds. When you shoot with a tripod, it's advisable to have a remote-control device to trigger the shutter (as mentioned in the previous section). When you purchase a tripod, buy a device that will support the weight of your camera body plus the heaviest lens you anticipate purchasing or using. Add 50 percent to that figure. If you purchase a tripod that will only handle the weight of your camera and its heaviest lens, you'll run into an issue known as *tripod creep*. This is when the tripod slowly sinks. You also need a sturdy tripod when photographing in windy conditions. Most tripods have a hook underneath the tripod head to which you can attach a sand bag, which helps steady the tripod in windy conditions. You also have to consider the weight of the tripod. If you use your car as a base of operations, or photograph in studio conditions, tripod weight is not that much of a factor. However, if you photograph wildlife and nature and do a lot of hiking, lugging a heavy tripod will quickly wear you out. If this is the case, consider purchasing an aluminum or carbon-fiber tripod. I purchased a carbon-fiber tripod as a gift for my wife and she loves it. The tripod will support her camera plus a 400-mm lens. The light weight makes it possible for her to hike several miles with the tripod and a camera bag in absolute comfort. Another useful option for a tripod is a built-in spirit level. Even though your camera has a built in dual-axis



level, sometimes it's easier to take a quick look at the tripod. A good tripod head is also a must. If you can afford a lightweight tripod with a ball head, you'll have everything you need to capture blur-free photos with ease.

- ✓ **Hot-shoe level:** This is yet another way of making sure your camera is straight. Sometimes I like to get a low vantage point, but don't feel like being prone on the ground. When I run into this scenario, I use a small dual-axis bubble level that slides into the camera's hot shoe.

Even though your camera has a built-in dual-axis level, it will be hard to use in scenarios like this.

- ✓ **Extra memory cards:** Memory cards are cheap. Buy a couple of extra CF and SD cards so you have a fresh card when you're photographing your favorite place, or a place you've never been to before.
- ✓ **Lens-cleaning kit:** Purchase a micro-fiber cloth that is designed to clean optical equipment. You can also purchase lens-cleaning fluid to use in conjunction with your micro-fiber cloth.
- ✓ **LCD protector:** Your LCD monitor is a vulnerable part of your camera. It can be chipped or otherwise damaged. Consider purchasing a screen to protect your LCD monitor from damage. Zagg (www.zagg.com) makes a shield that is transparent and scratch-resistant. As of this writing, a shield is not available for your EOS 7D Mark II, but the EOS 7D shield will cover the monitor nicely.

Accessories for video

Video is a whole different kettle of fish. Digital SLRs were not designed to capture video, so they're not user-friendly for videographers, but on the other hand, digital SLRs can capture incredible video that rivals conventional video recorders. Here are a few options to consider if you're going to create video with your Canon EOS 7D Mark II:

- ✓ **Tripod:** Review the information about tripods in the previous section. You can use the same tripod for still images and video. The only difference will be that you'll need to purchase a fluid ball head like the Manfrotto 504 HD Fluid Video Head. When you purchase a video head, make sure it will support the weight of your camera body, plus the heaviest lens you anticipate using for shooting video, plus 50 percent.
- ✓ **Video shoulder rig:** In addition to shooting from a tripod, you can shoot video using a rig that mounts the camera on your shoulder, or you can purchase a device that will hold the camera steady while you move. There are lots of rigs available in all different price ranges. My advice is to get one you can afford and one that will hold your camera steady. This may involve considerable research. I don't personally own a video rig, so I'm not in a position to make a recommendation. However, if you visit an online camera store like B&H Photo (www.bhphotovideo.com)

or Adorama (www.adorama.com), look at the various models that are available. If there are reviews posted by users, read them as well. When you've narrowed it down to a couple of devices, call the camera store and ask them for their opinions.

- ✓ **Video viewfinder:** When you shoot video with your EOS 7D Mark II, the LCD monitor is your viewfinder. However, the LCD monitor can be difficult to view in bright light. Therefore, a video viewfinder is a useful accessory. Hoodman (www.hoodmanusa.com) makes an affordable video viewfinder called the Hoodloupe. You can combine this with an item called Hoodstrap that will mount the Hoodloupe to your camera to create a fairly inexpensive video viewfinder.
- ✓ **High-speed memory card:** When you capture video with your EOS 7D Mark II, your camera is capturing video at the rate of 24 to 60 frames per second. A standard memory card may not be able to keep up with the fast frame rate. For video, it's recommended that you use a card with a data-transfer rate of 90 Mbps. Sandisk (www.sandisk.com) offers a memory card series called Extreme Pro that is ideal for capturing video.

Keeping the Camera Body Clean

You've invested a considerable amount of money in your EOS 7D Mark II and accessories. To maintain your investment, and to keep the camera in top operating condition, you need to take care of your purchase. As mentioned previously, you can clean your lenses with a lens-cleaning fluid and micro-fiber cloth. However, you should never use a solvent on your camera body. When you want to clean your camera body, wet a soft cloth and then wring it almost dry. Gently rub the cloth over the camera body to remove any residue from skin oil or airborne pollutants. Some areas of your camera (such as the Quick Control dial) have ridges that are traps for dirt and debris from your skin. You can clean these areas with a soft toothbrush. It is also recommended that you clean your camera body with a soft, almost-dry cloth whenever you're photographing near the ocean when there's a salty mist in the air.

