Exploring the Nikon D700

The Nikon D700 is considered one of Nikon's pro-level performance camera models and, therefore, has many more buttons, dials, and knobs than most consumer and mid-level cameras. This makes it faster and easier to access the controls that are used most, especially for advanced or professional photographers. To use the same functions in consumer cameras such as the D60 and D90, you need to navigate the menu functions, which can cost precious time when you are in the midst of shooting. Instead of pressing the Multi-selector ten times to find the correct option in the menu system, you simply press one button and rotate a dial — it's quick and easy

With its many buttons and dials, the D700 can be daunting, especially if you are upgrading from a consumer camera, are new to photography in general, or are switching camera brands. This chapter helps you become familiar with the D700's various features, as well as the LCD control panel and viewfinder displays.

D700 FX-format CMOS Sensor

The FX-format CMOS (Complimentary Metal Oxide Semiconductor) sensor is arguably the most important part of the camera and the main reason why many photographers buy the D700. For quite a few years, Nikon has been using APS-C sized sensors (which they call DX-format) in all their cameras. They are about 24mm × 16mm and because they are much smaller than a standard frame of 35mm film, lenses are subject to a "crop factor." This causes the lenses to perform differently than they have on film cameras. Finally Nikon released the D3, their first "full-frame," or FX, dSLR, meaning that the sensor is the same size as a standard frame of 35mm film. This allows lenses to perform exactly as they had with film

cameras, giving you the same angle of view. Unfortunately, the D3 was a bit expensive, out of the price range for most amateurs. Surprisingly, not long after the launch of the D3, Nikon released a dSLR that is essentially a D3 in a D300-sized body at nearly half the price. This amazing 36×24mm, 12 megapixel CMOS sensor gives almost no noise, even at ISO settings up to 6400.

> **Cross-Reference** *For more information on DX sensors and lenses, see Chapter 4.*

From analog to digital

Believe it or not, digital image sensors are actually analog devices that capture light just like emulsion on a piece of film. When the shutter is opened, light from the scene that you're photographing, whether it be sunlight or flash, travels through the lens and is projected (hopefully in focus) onto the sensor. Each sensor has millions of pixels, which act as a receptacle that collects individual photons of light. A *photon* is a quantum particle of light, which is a form of electromagnetic radiation. The more photons the pixel collects, the brighter the area is; conversely, if the pixel doesn't collect a lot of photons, the area is dark.

Each pixel has a photodiode that converts these photons into minute electrical charges that the Analog/Digital (A/D) converter reads. The A/D converter renders this analog data into digital data that can be utilized by Nikon's EXPEED imaging processor.

CMOS versus CCD

About half of Nikon's dSLRs use Charge Coupled Device (CCD) sensors, although Nikon appears to be moving away from this technology by putting a CMOS sensor in the consumer level D90. Although CMOS and CCD sensors do the same job, they do it differently and each type of sensor has its own strengths and weaknesses.

CCD

The name Charge Coupled Device refers to how the sensor moves the electrical charges created by the photons that the pixels have collected. The CCD sensor moves these electrical charges from the first row of pixels to a *shift register* (a digital circuit that allows the charges to be shifted down the line) and from there, the signal is amplified so the A/D converter can read it. The sensor then repeats the processes with each row of pixels until every row of pixels on the sensor has been processed. This is a pretty precise method of transfer, but in digital terms it's quite slow. It requires a large amount of power, relatively speaking, so it uses more of the camera battery, which equals fewer shots per charge. CCD sensors have a higher signal to noise ratio; which makes them less prone to high ISO noise than CMOS sensors and enables them to provide a higher image quality.

CMOS

Just like a CCD sensor, a CMOS sensor has millions of pixels and photodiodes. The main difference between the CMOS and CCD sensor is that each pixel has its own amplifier and it converts the charge to voltage on the spot. It's much more efficient to transfer voltage than it is to transfer a charge; therefore, CMOS sensors use less power than CCDs. Multiple channels of sensor data can also be sent out at the same time, so the CMOS sensor can send the data to the A/D converter much faster. CMOS chips are also cheaper to manufacture than CCDs.

Pixels

The more pixels the sensor has, the higher the resolution of the sensor. However, packing more pixels onto a sensor means that although the resolution is higher, each pixel becomes less effective at gathering light because its much smaller. A larger pixel is more effective at gathering photons; therefore you get a wider dynamic range and a better signal-to-noise ratio, which means less inherent noise and the ability to achieve a higher ISO sensitivity.

One of the reasons that Nikon chose to use a lower resolution sensor on their full-frame sensor than their competitors do is to keep the pixel size larger, thereby allowing better low-light capability. The D700 and D3 sensor has a pixel size of 8.5 microns, which is the largest pixel pitch of any digital sensor on the market at this time.

Micro-lenses

In addition to having larger pixels to gather more light, camera manufacturers place micro-lenses over the pixels. These micro-lenses collect the light and focus them onto the photodiode much the same way the camera lens focuses the image onto the sensor. By making the micro-lenses larger, Nikon has decreased the gaps between the pixels, increasing the effective light gathering ability of each one.

Interpreting color

The light-sensitive pixels on the sensor only measure the brightness in relation to how many photons it has gathered, so the basic image captured is, in effect, black and white. To determine color information, the pixels are covered with red, green, or blue colored filters. These filters are arranged in a Bayer pattern. (Dr. Bryce Bayer was a scientist at Kodak who developed this pattern.) The Bayer pattern lays the filters out in an array that consists of 50 percent green, 25 percent blue, and 25 percent red. The green filters are luminance (brightness) sensitive elements and the red and blue filters are chrominance (color) sensitive elements. Twice as many green filters are used to simulate human eyesight given our eyes are more sensitive to green than to red or blue.

The camera determines the colors in the image by a process called *demosaicing*. In demosaicing, the camera interpolates the red, green, and blue data for each pixel by using information from adjacent pixels. *Interpolation* is a mathematical process in which sets of known data are used to determine new data points. (I like to call it an educated guess.)

Key Components of the D700

If you've used a Nikon dSLR before, you should be pretty familiar with the basic buttons and switches that you need to do the basic settings. In this section, I cover the camera from all sides and break down the layout so that you know what everything on the surface of the camera does.

Although you can access many features with just the push of a button, oftentimes you can change the same setting using menu options. The great thing about the buttons, however, is that they give you speedy access to important settings — settings you will use often. Missing shots because you are searching through the menu options can get irritating fast, which is one of the key reasons

most people upgrade from a consumer model camera to a professional-grade camera like the D700.

> **Cross-Reference** For information about specific menus and their functions, see Chapter 3.

Top of the camera

The most important buttons are on the top of the D700. This is where you'll find the buttons for the settings you'll tend to change most frequently. I've also included is a brief description of some of the features you will find on the top of the lens in this section. Although your lens may vary, most of the features are quite similar from lens to lens.

✦ **Shutter Release button.** In my opinion, this is the most important button on the camera. Halfway pressing this button activates the camera's autofocusing and light meter. When you fully depress this button, the shutter is released and a photograph is taken. When the camera is set to CL or Ch, pressing and holding this button takes a sequence of photos. When the camera has been idle and has "gone to sleep," lightly pressing the Shutter Release button wakes the camera up. When the image review is on, lightly pressing the Shutter Release button turns off the LCD control panel and prepares the camera for another shot.

✦ **On/Off switch/LCD illuminator.** This switch turns on the camera. It's concentric with the Shutter Release button. You push the switch all the way to the left to turn the camera off. When the switch is in the center position, the camera is turned on. When you push the spring-loaded switch all the way to the right, the top-panel LCD illuminator turns on. This enables you to view your settings when in a dimly lit environment. The LCD illuminator turns off automatically after a few seconds or when the shutter is released. In Custom Settings menu (CSM) f1, you can also specify that this switch be used to display the Shooting info display on the rear LCD screen.

✦ **Exposure mode button.** This button is used in conjunction with the Main Command dial and allows you to change among the different exposure modes. You can choose Programmed Auto (P), Shutter Priority (S), Aperture Priority (A), or Manual (M) modes. This button also doubles as a format button when you press it down in conjunction with the Delete button. Pressing and holding down these two buttons simultaneously allows you to format your CompactFlash (CF) card without entering the Setup menu.

✦ **Exposure Compensation button.** Pressing this button in conjunction with spinning the Main Command dial allows you to modify the exposure that is set by the D700's light meter or the exposure you set in Manual exposure mode. Turning the Main Command dial to the right decreases exposure, while turning the dial to the left increases the exposure. This button also doubles as the camera reset button when used in conjunction with the Quality button. Pressing these buttons at the same time restores the camera to the factory default settings.

✦ **LCD control panel.** This displays many of the main camera settings. I cover this panel in detail later in this chapter.

✦ **Focal plane mark.** The focal plane mark shows you where the plane of the CMOS image sensor is inside the camera. The sensor isn't exactly where the mark is; the sensor is directly behind the lens opening. When doing certain types of photography, particularly macro photography using a bellows lens, you need to measure the length of the bellows from the front element of the lens to the focal plane. This is where the focal plane mark comes in handy.

✦ **Hot shoe.** You attach an accessory flash to the camera body here. The hot shoe has an electronic contact that tells the flash to fire when the shutter is released. There are also a number of other electronic contacts that allow the camera to communicate with the flash to enable the automated features of a dedicated flash unit such as the SB-600.

✦ **Release Mode dial.** Rotating this dial changes the release mode of the camera. You can choose from Single shot, Continuous Low mode, Continuous High mode, Live View, Self-timer, and Mirror up. To rotate the dial, you must press the Release Mode dial lock release.

✦ **Release Mode dial lock release.** This button locks the Release Mode dial to prevent it from accidentally being changed.

✦ **Quality button.** Press this button and rotate the Main Command dial to change the file format that your camera is saving in as well as the quality of the JPEG if you are shooting that format. You can choose from RAW, TIFF, JPEG, or RAW + JPEG. Your JPEGs are saved at Fine, Normal, or Basic quality. Rotating the Sub-command dial while pressing this button allows you to change the size of the image when the camera is set to save in TIFF, JPEG, or RAW + JPEG. Rotating the Sub-command dial when the camera is set to save RAW files has no effect.

Cross-Reference   *For more information on image quality and size settings, see Chapter 2.*

✦ **ISO button.** Press this button and rotate the Main Command dial to change the ISO sensitivity. The higher the ISO setting, the less light needed to make an exposure. The ISO value is displayed on the LCD control panel while the ISO button is pressed. The ISO value is also displayed in the viewfinder. To learn more about ISO, see Chapter 2.

✦ **White Balance button.** Press this button and rotate the Main Command dial to choose from one of the predefined white balance (WB) settings such as Daylight, Incandescent, or Fluorescent. You can also choose to set your own WB (PRE) or choose a specific color temperature (K). White balance is used to compensate for the effect that different colored light sources have on your photos. Adjusting the WB gives your images a natural look. When the D700 is set to a predefined WB, holding the button and rotating the Sub-command dial allows you to adjust the WB by making it cooler (right) or warmer (left). For more on white balance settings, see Chapter 2.

✦ **Focus ring.** Rotating the focus ring enables you to manually focus the lens. With some lenses, such as the high-end Nikkor AF-S lenses, you can manually adjust the focus at any time. On other lenses, typically older and non-Nikon lenses and consumer-level AF-S lenses, you must switch the lens to Manual focus to disable the focusing mechanism.

✦ **Zoom ring.** Rotating the zoom ring enables you to change the focal length of the lens. Prime lenses do not have a zoom ring.

> **Cross-Reference** *For more information on lenses, see Chapter 4.*

✦ **Focus distance scale.** This displays the approximate distance from the camera to the subject.

Back of the camera

The buttons that mainly control playback and menu options are on the back of the camera, although there are a few that control some of the shooting functions. Most of the buttons have more than one function — a lot of them are used in conjunction with the Main Command dial or the Multi-selector. You will also find several key features, including the all-important viewfinder and LCD screen.

Image courtesy of Nikon, Inc.

1.1 Top of the camera controls

Zoom ring
Focus ring
Focus distance scale
Release Mode dial lock release
Quality button
White Balance button
Release Mode dial
ISO button
Hot shoe
LCD control panel
Exposure mode button
On/Off switch/LCD illuminator
Shutter Release button
Exposure Compensation button
Focal plane mark

✦ **LCD screen.** This is the most obvious feature on the back of the camera. Nikon's 3-inch, 920,000-dot liquid crystal display (LCD) screen is, so far, the highest resolution LCD on the market today (the D3 and D300 share this feature). The LCD screen is where you review your images after shooting, or compose them using Live View. The menus are also displayed here.

✦ **Viewfinder.** This is what you look through to compose your photographs (unless you're using Live View). Light coming through the lens is reflected from a mirror up to a pentaprism that reflects the image through the viewfinder to your eye, enabling you to see exactly what you're shooting (as opposed to a rangefinder camera, which gives you an approximate view). Around the viewfinder is a rubber eyepiece that serves to give you a softer place to rest your eye and to block any extra light from entering the viewfinder as you compose and shoot your images. Looking in the viewfinder you will also see a control panel; more on this later in the chapter.

✦ **Eyepiece shutter lever.** Flipping this lever closed closes a shutter over the viewfinder. You can use this option when you are shooting without looking directly in the viewfinder (for example, with timed exposures on a tripod or when you're using Live View). This stops light from entering into the viewfinder and fooling the camera's exposure meter, causing it to underexpose. You must also close this lever to remove the eyepiece.

✦ **Diopter adjustment control.** Just to the right of the viewfinder is the Diopter adjustment control. Use this control to adjust the viewfinder lens to suit your individual vision differences (not everyone's eyesight is the same). To adjust this, look through the viewfinder; if the viewfinder display, focus points, and AF area brackets aren't quite sharp, pull out the button and turn the Diopter adjustment control until everything appears in focus. When you are satisfied with the results, be sure to push the button back in.

✦ **Metering Mode dial.** You use this dial to choose the metering mode: Matrix, Center-weighted, or Spot metering. This dial is concentric with the Auto-Exposure/Autofocus lock (AE-L/AF-L) button.

✦ **AE-L/AF-L button.** The AE-L/AF-L button is used to lock the Auto-Exposure (AE) and Autofocus (AF). This button can be customized to perform several different functions in CSM f7.

✦ **AF-ON button.** The Autofocus On button activates the AF mechanism without your having to press the Shutter Release button. When in Single Focus mode, the AF-ON button also locks in the focus until the button is released.

✦ **Main Command dial.** You use this dial to change a variety of settings depending on which button you are using in conjunction with it. By default, it is used to change the shutter speed when you're in S and M mode. It can also be used with the ISO, QUAL, and WB buttons.

✦ **Multi-selector.** The Multi-selector is another button that serves a few different purposes. When the D700 is in Playback mode, you use the Multi-selector to scroll through the photographs you've taken, and you can also use it to view image information such as histograms and shooting settings. When the camera is in Shooting mode, you can use the Multi-selector to change the active focus point when the camera is in Single-point or Dynamic-area AF mode.

✦ **Focus selector lock.** You can use this switch to lock the active focus point so it's not accidentally changed if the Multi-selector is pushed. Slide the switch to the L position to lock the focus point.

✦ **AF Area Mode selector.** You use this three-position switch to choose among focus modes: Single-area AF, Dynamic-area AF, or Auto-area AF.

✦ **Info button.** Press this button once to view the Shooting info display, which displays the current camera settings. Press this button twice to enter the Quick Settings Display, which allows you to quickly change a few options such as Noise Reduction, Picture Controls, and color space.

✦ **CF card access lamp.** This lamp lights up to let you know that data is being transferred between the camera and the CF card. Under no circumstance should you remove the CF card while this lamp is lit.

✦ **Playback button.** Pressing this button displays the most recently taken photograph. You can also view other pictures by pressing the Multi-selector left and right.

✦ **Delete button.** When reviewing your pictures, if you find some that you don't want to keep, you can delete them by pressing this button, marked with a trashcan icon. To prevent the accidental deletion of images, the camera displays a dialog box asking you to confirm that you want to erase the picture. Press the Delete button a second time to permanently erase the image.

✦ **Menu button.** Press this button to access the D700 menu options. There are a number of different menus including Playback, Shooting, Custom Settings, and Retouch. Use the Multi-selector to choose the menu you want to view.

✦ **Protect/Help button.** The Protect button has the icon of a key on it. The primary use of the Protect button is to lock the image to prevent it from being deleted. You can only access this function when the camera is in Playback mode. When viewing the image you want to protect, simply press this button. A small key icon will be displayed in the upper-right-hand corner of images that are protected. Pressing the Shutter Release button lightly brings you back to default shooting mode. When you're viewing the menu options, pressing this button displays a help screen that explains the functions of that particular menu option.

✦ **Thumbnail/Zoom out button.** In Playback mode, pressing this button allows you to go from full-frame playback (or viewing the whole image) to viewing thumbnails. You can view thumbnails either four images or nine images on a page.

✦ **Zoom in button.** When reviewing your images, you can press the Zoom in button to get a closer look at the details of your image. This is a handy feature for checking the sharpness and focus of your shot. When you're zoomed in, use the Multi-selector to navigate around within the image. To view your other images at the same zoom ratio, rotate the Main Command dial. To return to full-frame playback, press the Zoom out button. You may have to press the Zoom out button multiple times depending on how much you have zoomed in.

✦ **OK button.** When you're in the Menu mode, press this button to select the menu item that is highlighted.

Front of the camera

The front of the D700 (lens facing you) is where you find the buttons to quickly adjust the flash settings as well as some camera focusing options, and with certain lenses you will find buttons that control focusing and Vibration Reduction (VR).

Image courtesy of Nikon, Inc.
1.2 Back of the camera controls

Right front

The right front of the camera has the following controls:

✦ **Built-in flash.** This option is a handy feature that allows you to take sharp pictures in low-light situations. Although it's not as versatile as one of the external Nikon Speedlights, such as the SB-800 or SB-600, you can use the built-in flash very effectively and it is great for snapshots. However, I don't recommend using this without first getting a pop-up flash diffuser. The best feature of the built-in flash is you can also use it as a commander unit to trigger Nikon CLS-compatible Speedlights wirelessly for off-camera use.

> **Cross-Reference** *For more on using flash, see Chapter 6.*

✦ **Flash pop-up button.** Press this button to open and activate the built-in flash.

✦ **Flash mode button.** Pressing this button and rotating the Main Command dial on the rear of the camera allows you to choose a flash mode. You can choose from among Front-Curtain Sync, Red-Eye Reduction, Red-Eye Reduction with Slow sync, Slow Sync, and Rear-Curtain Sync. Pressing the Flash mode button and rotating the Sub-command dial, located just below the Shutter Release button, enables you to adjust the Flash Exposure Compensation (FEC). FEC allows you to adjust the flash output to make the flash brighter or dimmer depending on your needs.

Built-in flash
Flash pop-up button
Flash mode button
Flash sync terminal cover
10-pin remote terminal cover
Lens release button
Focus mode selector

Image courtesy of Nikon, Inc.
1.3 Right front camera controls

✦ **Flash sync terminal cover.**
Underneath this rubber cover is the flash sync terminal. This terminal, also known as PC sync, allows you to connect a PC cord to trigger an external flash or studio strobe.

✦ **10-pin remote terminal cover.**
Underneath this rubber cover is the 10-pin remote terminal. This terminal allows the camera to be connected to a variety of accessories. Some of these include the Nikon MC-30 remote shutter release cord and Global Positioning System (GPS) devices.

✦ **Lens Release button.** This button disengages the locking mechanism of the lens, allowing the lens to be rotated and removed from the lens mount.

✦ **Focus Mode selector.** This three-way switch is used to choose which focus mode the camera operates in: Single AF (AF-S), Continuous AF (AF-C), or Manual (M) focus. Keep in mind that your lens may also have a focus mode switch and that it must be in the A or M/A position to work with the AF-S or AF-C modes.

Left front

The left front of the camera has the following controls:

✦ **AF-assist illuminator.** This is an LED that shines on the subject to help the camera to focus when the lighting is dim. The AF-assist illuminator only lights when it's in Single Focus mode and when the camera

is in Auto-area AF mode, or when in Dynamic- or Single-area AF and the focus point is set to the center position. This illuminator also shines when the Speedlight is set to Red-Eye Reduction mode. The light shines on the subject, causing the pupils to contract, which reduces the red-eye effect. When the self-timer is activated, this light blinks to count down the timer. It's recommended that you remove your lens hood when using this feature because the hood can block the light reducing the effectiveness.

✦ **Sub-command dial.** You use this dial, by default, to change the aperture setting when in Aperture Priority and Manual exposure mode. You also use it to change JPEG file size when used with the QUAL button and to fine-tune white balance when used with the WB button. When you use the Sub-command dial in conjunction with the Flash mode button, you can adjust the Flash Exposure Compensation (FEC)

✦ **Depth-of-field preview button.**
While using the camera's default settings, pressing this button stops down the aperture of the lens so you can preview how much of the subject is in focus (the depth of field). The image in the viewfinder gets darker as the aperture decreases. You can also customize the Depth-of-field preview button in CSM f6 or in the Quick Settings Display.

Cross-Reference *For more information on apertures, see Chapter 5.*

Image courtesy of Nikon, Inc.
1.4 Left front camera controls

AF-assist illuminator
Sub-command dial
Depth-of-field preview button
Function button

✦ **Function button.** You can customize the Function (Fn) button to perform different functions depending on user preference. You can use it to set exposure, flash, WB bracketing, flash value (FV) lock, and a number of other settings. You can set the Function button in CSM f4.

Cross-Reference *For more information on the CSM, see Chapter 3.*

Sides and bottom of camera

The sides and bottom of the camera have places for connecting and inserting things such as cables, batteries, and memory cards.

Right side

The D700's various output terminals are on the right side of the camera (with the lens facing you). These are the connections you use if you would like to view your images straight from the camera as a slide show on your television. Or you may have a high-definition (HD) monitor in your studio and use the Live View function along with Camera Control Pro 2 to view your images in HD before you even release the shutter. You can also attach an AC adaptor for those long studio shoots that require plenty of juice without worrying about the batteries giving out on you. The output terminals are

✦ **Standard video out.** You use this connection, officially called Standard video output, to connect the camera to a standard TV or VCR for viewing your images on-screen. The D700 is connected with the EG-D100 video cable that is supplied with the camera.

✦ **HDMI out.** You use the HDMI (High-Definition Multimedia Interface) output terminal to connect the camera to an HD television (HDTV). The

camera is connected with an optional Type A HDMI cable that you can purchase at an electronics store.

✦ **DC power in.** This AC adapter input connection allows you to plug the D700 into a standard electrical outlet using the Nikon EH-5 or EH-5a AC adapter. This allows you to operate the camera without draining your batteries. The AC adapter is available separately from Nikon.

✦ **USB 2.0 port.** This is where the USB cable plugs in to attach the camera to your computer to transfer images straight from the camera. You can also use the USB cable to connect the camera to the computer when you're using Nikon's optional Camera Control Pro 2 software.

Left side

The CF card slot cover is on the left side of the camera (with the lens facing you). Slide this cover back and the door springs open. Insert the CF card with label side facing toward the back of the camera. Press the card firmly in until the grey button pops out. To eject the card, firmly press the grey button until the CF card is loose.

Bottom

The bottom of the camera has a few features that are quite important:

✦ **Battery chamber cover.** This covers the chamber that holds the EN-EL3e battery that is supplied with your D700.

✦ **Tripod socket.** This is where you attach a tripod or monopod to help steady your camera.

HDMI out

Standard video out

USB 2.0 port

DC power in

Image courtesy of Nikon, Inc.
1.5 The D700's output terminals
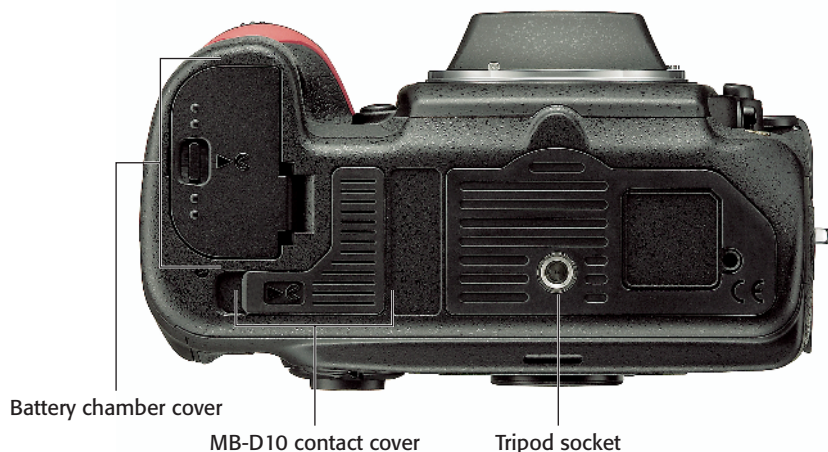
Image courtesy of Nikon, Inc.
1.6 The bottom of the D700

Battery chamber cover

MB-D10 contact cover

Tripod socket

✦ **MB-D10 contact cover.** This rubber cover is used to protect the contact points for the optional MB-D10 Multi-power Battery Grip that attaches to the bottom of the camera. The MB-D10 allows you to use a variety of battery types as well as to control the camera when holding it in the vertical position.

Viewfinder Display

When looking through the viewfinder, you see a lot of useful information about the photo you are setting up. Most of the information is also displayed in the LCD control panel screen on the top of the camera, but it is less handy on top when you are composing a shot. Here is a complete list of the information you get from the viewfinder display.

✦ **Framing grid.** When this option is turned on in CSM d2, you will see a grid displayed in the viewing area. This helps with composition. Use the grid to help line up elements of your composition to ensure that things are straight (or not).

✦ **AF-area brackets.** These brackets give you a rough estimate of where the group of 51 AF points is located. Anything in the frame outside of this bracket cannot be locked into focus. Switching to DX mode gives you wider range of AF coverage due to the reduced frame size.

✦ **12mm reference circle.** These curves located at the top and bottom of the AF-area brackets give you an idea of how much of an area of the frame is used for Center-weighted metering. The curves show you an area of 12mm,

which is the default circle size for center-weighted metering. Note that although you can change the size of the area for center-weighted metering (CSM b12), this display does not change.

✦ **Focus points.** The first thing you are likely to notice when looking through the viewfinder is a small rectangle near the center of the frame. This is your active focus point. Note that the focus point is

only shown full time when the D700 is in the Single- or Dynamic-area AF setting. When the camera is set to Auto-area AF and Single Focus, the focus point isn't shown until you half-press the Shutter Release button and focus is achieved. When the D700 is in Auto-area AF and set to Continuous Focus mode, the focus point is not displayed at all.
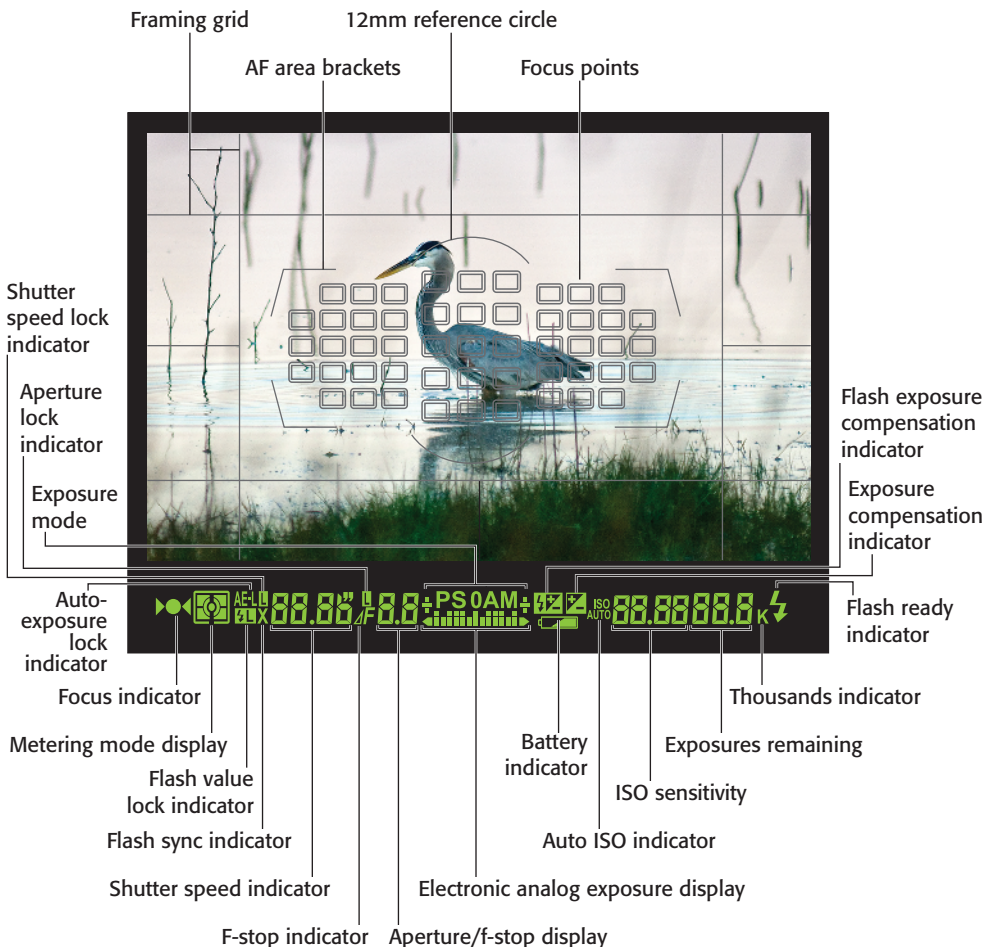
1.7 Viewfinder display. Note that this figure displays all possible focus points. Only the active focus points will be visible in actual shooting conditions.

A black bar with LCD readouts on it appears below the image portion of the viewfinder. Not only do you find your shooting information here, but also depending on the settings you've selected, other useful indicators appear as well. From left to right these items are

✦ **Focus indicator.** This green dot and arrows lets you know if the camera detects that the scene is in focus. When the camera attempts to autofocus, the arrows located to either side of the dot blink. The left arrow or the right arrow may blink simultaneously or one at a time, depending on where the camera is trying to focus. When focus is achieved, the green dot lights up; if the camera is unable to lock focus, both arrows blink. When you are focusing manually, you can use the arrows as a guide to find focus. When the arrow on the left is lit, your focus is falling between the camera and the subject. If the arrow on the right is lit, the focus is falling behind the subject. If the camera is unable to detect enough contrast to determine if the subject is in focus, both arrows blink.

✦ **Metering mode display.** This display shows which metering mode you are in: Spot, Center-weighted, or Matrix.

✦ **AE lock indicator.** This tells you that the auto-exposure meter is locked. Depending on your settings, the AE-L/AF-L button may be pressed or the shutter is half-pressed. When this is locked you can recompose the image while maintaining the correct exposure for the subject.

✦ **FV lock indicator.** When the FV lock indicator is on, it means you have locked in the flash exposure value. The flash value can only be locked when the Function (or Preview or AE-L/AF-L) button has been set to do this.

✦ **Shutter speed lock indicator.** This indicates that your shutter speed has been locked to prevent accidental changes. You can lock your shutter speed in CSM f8.

✦ **Flash sync indicator.** This indicator is displayed as an X. This comes on when you set your camera to the flash sync speed limit that is set in CSM e1. This is only available when in Shutter Priority or Manual mode. To set the camera to the preset sync speed, dial the shutter speed down one setting past the longest shutter time, which is 30 seconds in S and bulb in M.

✦ **Shutter speed display.** This shows how long your shutter is set to stay open. Rotating the Main Command dial when in S or M mode can change the shutter speed.

✦ **Aperture lockindicator.** This indicates that your aperture has been locked to prevent accidental changes. You can lock this aperture setting in CSM f8.

✦ **Aperture/f-stop display.** This shows what your current lens opening setting is. You adjust aperture by rotating the Sub-command dial when in M or A mode.

✦ **Exposure mode display.** This tells you which exposure mode you are currently using: P, S, A, or M.

✦ **Electronic analog exposure display.** Although Nikon gives this feature a long and confusing name, in simpler terms, this is your light meter. When the bars are in the center, you are at the proper settings to get a good exposure; when the bars are to the left, you are overexposed; and when the bars are to the right, you are underexposing your image. You can reverse this in CSM f12. This feature is especially handy when using Manual exposure. This display also doubles as the virtual horizon indicator. When the camera is tilted to the right, the bars are displayed on the left. When the camera is tilted to the left, the bars are displayed on the right. When the camera is level, a single bar appears directly under the zero.

✦ **FEC indicator.** When this is displayed, your Flash Exposure Compensation is on. You adjust FEC by pressing the Flash mode button and rotating the Sub-command dial.

✦ **Exposure compensation indicator.** When this appears in the viewfinder, your camera has exposure compensation activated. You adjust exposure compensation by pressing the Exposure Compensation button and rotating the Main Command dial.

✦ **Battery indicator.** When this icon appears, your battery is low; if it is blinking, your battery is dead and the Shutter Release button is disabled.

✦ **Auto ISO indicator.** This is displayed when the Auto ISO setting is activated to let you know that the camera is controlling the ISO settings. You can turn on Auto ISO in the ISO sensitivity settings located in the Shooting menu.

✦ **ISO sensitivity display.** This tells you what the ISO sensitivity is currently set to.

✦ **Exposures remaining.** This set of numbers lets you know how many more exposures can fit on the CF card. The actual number of exposures may vary according to file information and compression. When you half-press the Shutter Release button, the display changes to show how many exposures can fit in the camera's buffer before the buffer is full and the frame rate slows down. The buffer is in-camera RAM that stores your image data while the data is being written to the memory card. This also shows the WB preset recording information as well as your exposure compensation values.

✦ **Thousands indicator.** This lets you know that there are more than 1,000 exposures remaining on your memory card.

✦ **Flash ready indicator.** When this is displayed the flash, whether it is the built-in flash or an external Speedlight attached to the hot shoe, is fully charged and ready to fire at full power.

Control Panel

The monochrome control panel on top of the camera displays some of the same shooting information that appears in the viewfinder, but there are also some settings that are only displayed here. This LCD control panel allows you to view and change the settings without looking through the viewfinder. The settings are as follows:

✦ **Shutter speed.** By default this set of numbers shows you the shutter speed setting. This set of numbers also shows a myriad of other settings depending on which buttons are being pressed.

- **Exposure compensation value.** When you press the Exposure Compensation button and rotate the Sub-command dial, the exposure value (EV) compensation number is displayed.

- **FEC value.** Pressing the Flash mode button and rotating the Sub-command dial displays the FEC value.

- **ISO.** The ISO sensitivity appears when you press the ISO button. Rotating the Main Command dial changes the sensitivity.

- **WB fine-tuning.** Pressing the WB button and rotating the Sub-command dial fine-tunes the white balance setting. A is warmer, and B is cooler.

- **Color temperature.** When the WB is set to K, the panel displays the color temperature in the Kelvin scale when you press the WB button.

Cross-Reference *For more information on white balance and Kelvin, see Chapter 2.*

- **WB preset number.** When the WB is set to one of the preset numbers, pressing the WB button displays the preset number that is currently being used.

- **Bracketing sequence.** When the D700 auto-bracketing feature is activated, pressing the Function button displays the number of shots left in the bracketing sequence. This includes WB, exposure, and flash bracketing.

- **Interval timer number.** When the camera is set to use the interval timer for time-lapse photography, this displays the number of shots remaining in the current interval.

- **Focal length (non-CPU lenses).** When the camera's Function button is set to choose a non-CPU lens number when the Function button is pressed, the focal length of the non-CPU lens is displayed. You must enter the lens data in the Setup menu.

✦ **Shutter speed lock indicator.** This lets you know that your shutter speed is locked to prevent accidental changes. The shutter speed can be locked in CSM f8.

✦ **Flexible program indicator.** This asterisk appears next to the Exposure mode when you're in P, or Programmed Auto, mode. It lets you know that you have changed the default auto-exposure set by the camera to better suit your creative needs.

✦ **Exposure mode.** This tells you which exposure mode you are currently using: P, S, A, or M.

Cross-Reference *Flexible program mode is discussed more in depth in Chapter 2.*

✦ **Image size.** When you're shooting JPEG, TIFF, or RAW + JPEG files, this tells you whether you are recording Large, Medium, or Small files. This display is turned off when shooting RAW files.

✦ **Image quality.** This displays the type of file format you are recording. You can shoot RAW, TIFF, or JPEG. When shooting JPEG or RAW + JPEG, it displays the compression quality: FINE, NORM, or BASIC.

✦ **WB fine-tuning indicator.** When the white balance fine-tuning feature is activated, these two arrows are displayed. You can fine-tune WB by pressing the WB button and rotating the Sub-command dial.

✦ **WB setting.** This shows you which white balance setting is currently selected.

✦ **Exposures remaining.** By default, this displays the number of exposures remaining on your CF card. When you half-press the Shutter Release button to focus, the display changes to show the number of shots remaining in the camera's buffer. In preset WB, the icon PRE appears when the camera is ready to set a custom WB. When using Camera Control Pro 2 to shoot tethered to a computer, this appears as PC.

✦ **Thousands indicator.** A K appears when the number of remaining exposures exceeds 1,000. This is not to be confused with the K that may appear in the WB area, which is used to denote the Kelvin temperature.

✦ **Flash mode.** These icons denote which flash mode you are using. The flash modes include Red-Eye Reduction, Red-Eye with Slow sync, Slow Sync, and Rear-Curtain Sync. To change the flash sync mode, press the Flash mode button and rotate the Main command dial.

✦ **Multiple exposure indicator.** This icon informs you that the camera is set to record multiple exposures. Set multiple exposures in the Shooting menu.

✦ **F-stop/Aperture number.** At default settings, this displays the aperture at which the camera is set. This indicator also displays other settings as follows:

• **Auto-bracketing compensation increments.** The exposure bracketing can be adjusted to over- and underexpose in 1/3-stop increments. When the Function button is set to Auto-bracketing, the number of EV stops is displayed in this area. The choices are 0.3, 0.7, or 1.0 EV. The WB auto-bracketing can also be adjusted; the settings are 1, 2, or 3.

• **Number of shots per interval.** When the D700 is set to Interval Timer shooting, the number of frames shot in the interval is displayed here.

• **Maximum aperture (non-CPU lenses).** When the non-CPU lens data is activated, the maximum aperture of the specified lens appears here.

✦ **F-stop indicator.** This icon, which appears as a right triangle, appears when a non-CPU lens is attached to the camera.
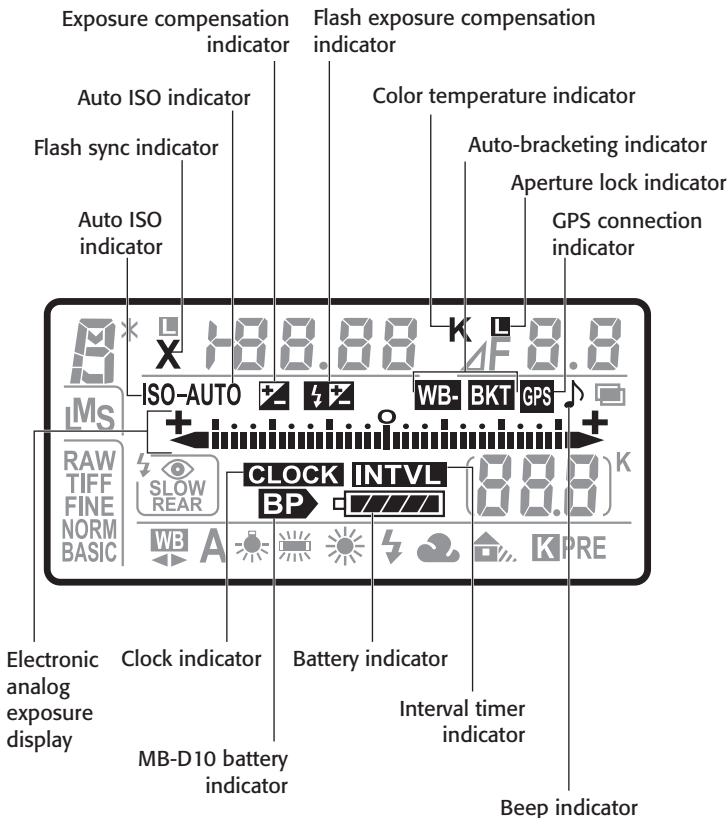
✦ **FEC indicator.** When this is displayed, your FEC is on. Adjust the FEC by pressing the Flash mode button and rotating the Sub-command dial.

✦ **Exposure compensation indicator.** When this appears in the control panel, your camera has exposure compensation activated. This will affect your exposure. Adjust the exposure compensation by pressing the exposure compensation and rotating the Main Command dial.

✦ **Flash sync indicator.** This indicator is displayed as an X. This comes on when you set your camera to the sync speed that is set in CSM e1. This is only available when in S or M mode. To set the camera to the preset sync speed, dial the shutter speed down one setting past the longest shutter time, which is 30 seconds in S and bulb in M.

✦ **Auto ISO indicator.** This is displayed when the Automatic ISO setting is activated to let you know that the camera is controlling the ISO settings. You can activate Auto ISO in the Shooting menu.

✦ **Clock indicator.** When this appears in the control panel, the camera's internal clock needs to be set. You can find the Clock settings in the Setup menu.

✦ **MB-D10 battery indicator.** When the MB-D10 battery grip is attached and the camera is using the battery installed in the grip, this icon is displayed.
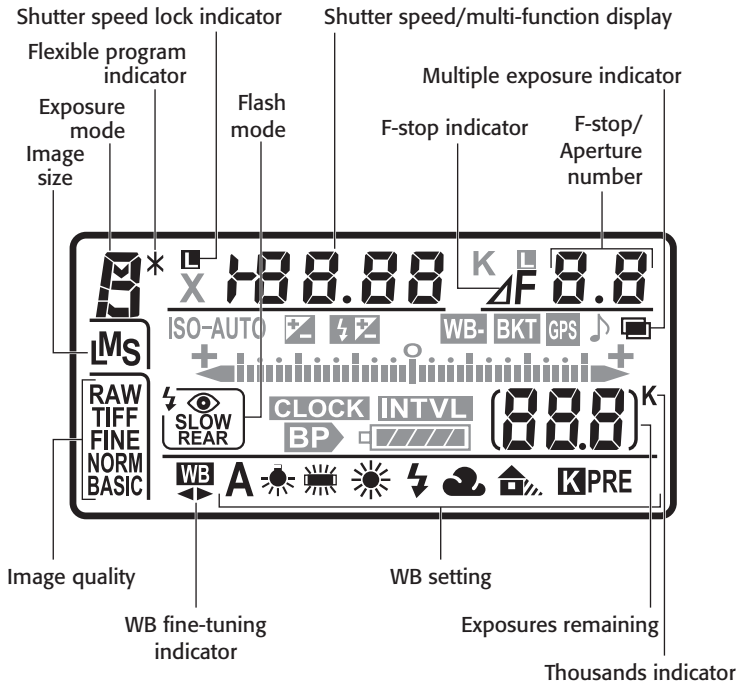
1.8 The LCD control panel display 1

✦ **Battery indicator.** This display shows the charge remaining on the active battery. When this indicator is blinking, the battery is dead and the shutter is disabled.

✦ **Interval timer indicator.** When the camera's Interval Timer option is turned on, this appears in the control panel. You set the Interval timer in the Shooting menu.

✦ **Electronic analog exposure display.** This is your light meter. When the bars are in the center, you are at the proper settings to get a good exposure; when the bars are to the left, you are overexposed; when

the bars are to the right, you are underexposing your image. This is displayed when the camera is set to M mode. When it is in P, S, or A mode, this is only displayed when the current settings will cause an under- or overexposure.

✦ **Beep indicator.** This informs you that the camera will beep when the self-timer is activated or when the camera achieves focus when in Single Focus mode.

✦ **GPS connection indicator.** This icon appears in the LCD control panel when a GPS system is connected to the D700's 10-pin connector.

Exposure compensation indicator

Flash exposure compensation indicator

Auto ISO indicator

Color temperature indicator

Flash sync indicator

Auto-bracketing indicator

Aperture lock indicator

Auto ISO indicator

GPS connection indicator

Electronic analog exposure display

Clock indicator

Battery indicator

Interval timer indicator

MB-D10 battery indicator

Beep indicator

1.9 The LCD control panel display 2

✦ **Auto-bracketing indicator.** When in Auto-Exposure or flash bracketing, this appears on the control panel; when using WB bracketing, a WB icon also appears above the icon. You set auto-bracketing in CSM e5.

✦ **Aperture lock indicator.** This informs you that your aperture setting is locked to prevent accidental changes. You can lock the aperture in CSM f8

✦ **Color temperature indicator.** When this indicator is shown, the WB is set to Kelvin.
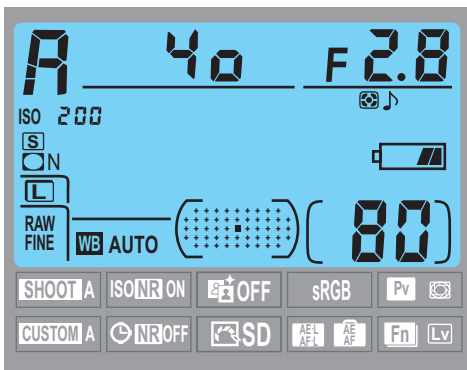
Shooting Info Display

The Shooting info display is shown on the back LCD screen when you press the Info button found underneath the AF-area mode selector (where the CF card door latch used to be for you D200/300 users).

The Shooting info display definitely comes in handy when shooting on a tripod, but other than that, I don't find myself using it very often. I just find it easier to glance at the LCD control panel to find what I need. A drawback to this display is that it depletes your batteries faster because the display is shown on the large three-inch LCD screen.

That being said, the Shooting info display does show quite a wealth of information. It shows everything that is available in the viewfinder display, the control panel, and a few other things that aren't found anywhere else.

Here's a complete rundown of everything that appears on the Shooting info display:

✦ **Exposure mode display.** This tells you which exposure mode you are currently using: P, S, A, or M.

✦ **Flexible program indicator.** This is an asterisk that appears next to the exposure mode when in P mode. This lets you know that you have changed the default auto-exposure set by the camera to better suit your creative needs.
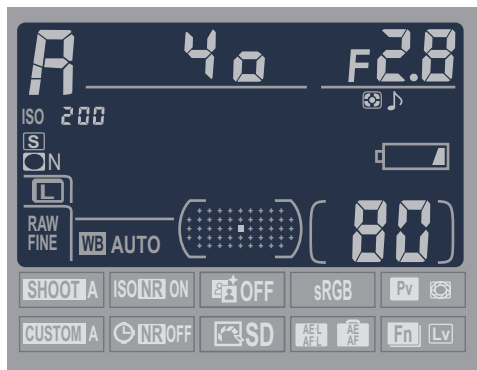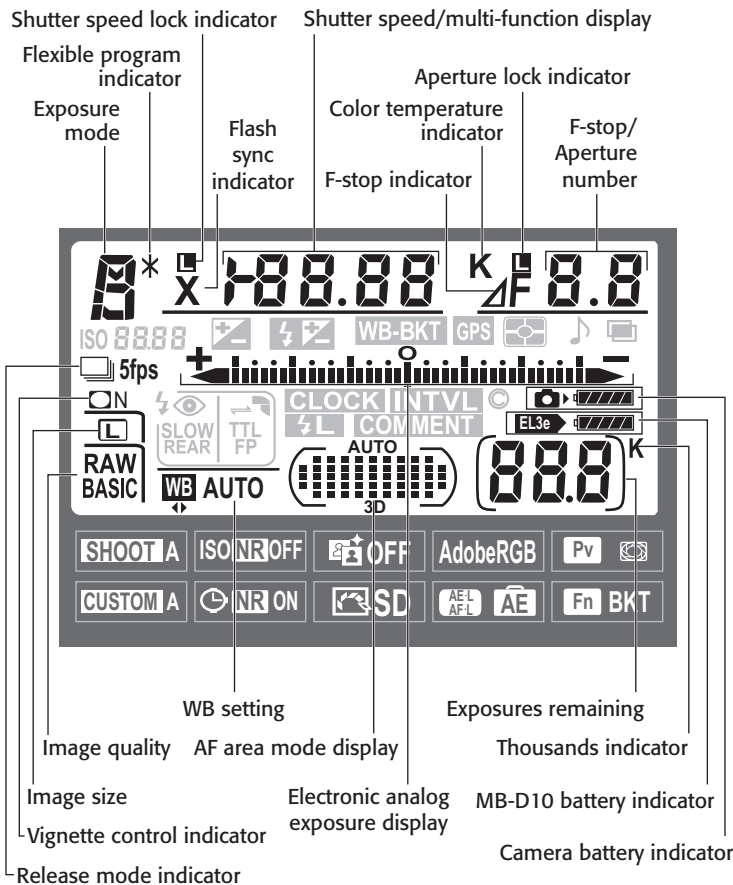
1.10 The Shooting info display automatically changes from light to dark depending on the brightness of the ambient light, or you can set it manually in CSM d7.

✦ **Shutter speed lock indicator.** This lets you know that your shutter speed is locked to prevent accidental changes. The shutter speed can be locked in CSM f8.

✦ **Shutter speed.** By default, this set of numbers shows you the shutter speed setting. This set of numbers also shows a myriad of other settings depending on which buttons you press.

- **EV value.** When pressing the Exposure Compensation button and rotating the Sub-command dial, the EV compensation number is displayed.

- **FEC value.** Pressing the Flash mode button and rotating the Sub-command dial displays the FEC value.

- **ISO.** The ISO sensitivity appears when you press the ISO button. Rotating the Main Command dial changes the sensitivity.

- **WB fine-tuning.** Pressing the WB button and rotating the Sub-command dial fine-tunes the white balance setting. A is warmer, and B is cooler.

- **Color temperature.** When the WB is set to K, the panel displays the color temperature in the Kelvin scale when you press the WB button.

- **WB preset number.** When the WB is set to one of the preset numbers, pressing the WB button displays the preset number that is currently being used.

- **Bracketing sequence.** When the D700 auto-bracketing feature is activated, pressing the Function button displays the number of shots left in the bracketing sequence. This includes WB, exposure, and flash bracketing.

- **Interval timer number.** When the camera is set to use the interval timer for time-lapse photography, this displays the number of shots remaining in the current interval.

- **Focal length (non-CPU lenses).** When the camera's Function button is set to choose non-CPU lens numbers when the Function button is pressed, the focal length of the non-CPU lens is displayed. You must enter the lens data in the Setup menu.

✦ **Color temperature indicator.** When this indicator is shown, the WB is set to Kelvin.

✦ **f-stop indicator.** This icon, which appears as a right triangle, appears when a non-CPU lens is attached to the camera.

✦ **Aperture lock indicator.** This lets you know that your aperture is locked to prevent accidental changes. The shutter speed can be locked in CSM f8.

✦ **F-stop/Aperture number.** At default settings, this displays the aperture at which the camera is set. This indicator also displays other settings as follows:

- **Auto-bracketing compensation increments.** The exposure bracketing can be adjusted to over- and underexpose in 1/3-stop increments. When the Function button is set to Auto-bracketing, the number of EV stops is displayed in this area. The choices are 0.3, 0.7, or 1.0 EV. The WB auto-bracketing can also be adjusted; the settings are 1, 2, or 3.

- **Number of shots per interval.** When the D700 is set to Interval Timer shooting, the number of frames shot in the interval is displayed here.

- **Maximum aperture (non-CPU lenses).** When the non-CPU lens data is activated, the maximum aperture of the specified lens appears here.

✦ **Electronic analog exposure display.** This is your light meter. When the bars are in the center, you are at the proper settings to get a good exposure; when the bars are to the left, you are overexposed; when the bars are to the right, you are underexposing your image. This is displayed when the camera is set to M mode. When in P, S, or A mode, this is only displayed when the current settings will cause an under- or overexposure.

✦ **Camera battery indicator.** This displays how much of a charge is left in the EN-EL3e battery in the camera.

✦ **MB-D10 battery indicator.** This shows the remaining charge on the battery that is being used in the MB-D10 grip (if attached). This also displays the type of battery that is installed in the grip.

✦ **Thousands indicator.** A K appears when the number of remaining exposures exceeds 1,000. This is not to be confused with the K that may appear in the WB area, which is used to denote the Kelvin temperature.

✦ **Exposures remaining.** This number indicates the approximate amount of exposures you can store on your CF card. This display also shows the lens number of the saved Non-CPU lens when that option is set to a function button.

✦ **AF-area mode display.** This icon shows you which AF-area mode you are in. For more information on AF-area modes, see Chapter 2.

✦ **WB setting.** This displays the icon of the current WB setting. When fine-tuning has been applied to the default setting, two small arrows appear beneath the WB icon to remind you.

✦ **Image quality.** This tells you the type and quality of file that is being written to your CF card as you take photos. The options are RAW, RAW+JPEG, JPEG, and TIFF. Change this by pressing the QUAL button and rotating the Main Command dial.

✦ **Image size.** This tells you the resolution size of the file when saving to JPEG or TIFF: Large (L), Medium (M), or Small (S). Change this setting by pressing the QUAL button and rotating the Sub-command dial.

✦ **Vignette control indicator.** This icon is displayed when the option vignette control is turned on. Additionally, next to the icon is the amount of vignette control being applied: High (H), Normal (N), or Low (L).

✦ **Release mode indicator.** This informs you of the release mode that's currently selected for the camera: Single or Continuous. When the camera is set to Continuous shooting, the maximum frame rate is also displayed.

✦ **Flash sync indicator.** This indicator is displayed as an X. This comes on when you set your camera to the sync speed that is set in CSM e1. This is only available when in Shutter Priority or Manual mode. To set the camera to the preset sync speed, dial the shutter speed down one setting past the longest shutter time, which is 30 seconds in S and bulb in M.
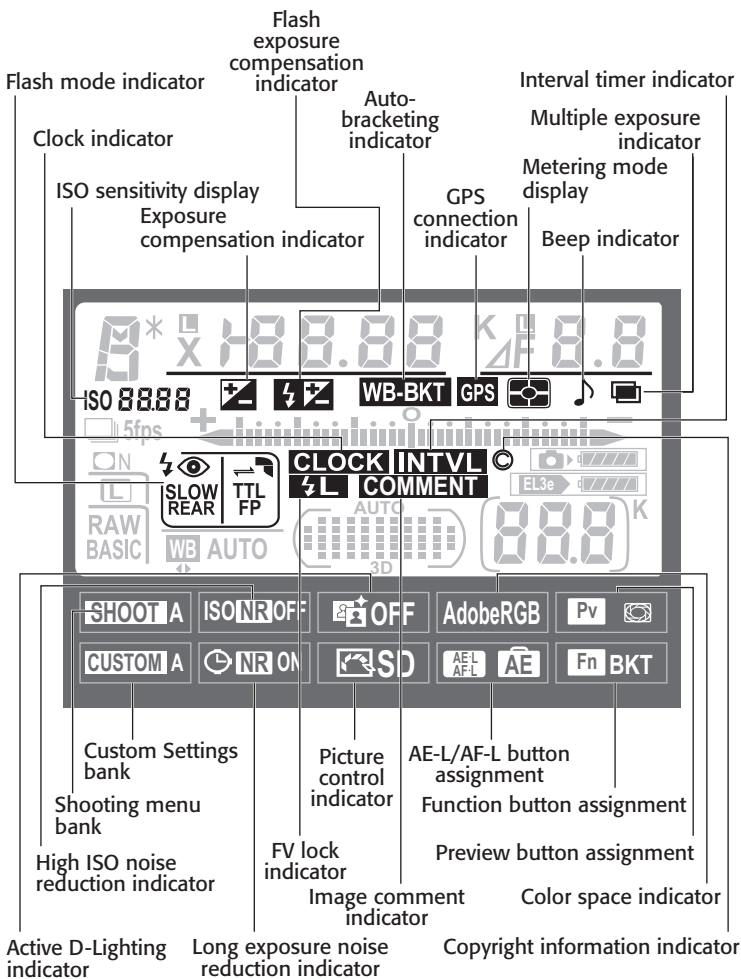

1.11 The Shooting info display 1

✦ **ISO sensitivity display.** This shows your ISO setting. ISO Auto appears when the Automatic ISO setting is activated to let you know that the camera is controlling the ISO settings. You can activate Auto ISO in the Shooting menu.

✦ **Exposure compensation indicator.** When this appears in the LCD control panel, your camera has exposure compensation activated. This will affect your exposure. Adjust the exposure compensation by pressing the exposure compensation and rotating the Main Command dial.

✦ **FEC indicator.** When this is displayed, your Flash Exposure Compensation is on. Adjust the FEC by pressing the Flash mode button and rotating the Sub-command dial.

✦ **Auto-bracketing indicator.** When in Auto-Exposure or flash bracketing, this appears on the control panel; when using WB bracketing, a WB icon also appears above the icon. You set auto-bracketing in CSM e5.

✦ **GPS connection indicator.** This icon appears in the LCD control panel when a GPS system is connected to the D700's 10-pin connector.

✦ **Metering mode display.** This display shows which metering mode you are in: Spot, Center-weighted, or Matrix.

✦ **Beep indicator.** This informs you that the camera will beep when the self-timer is activated or when the camera achieves focus when in Single Focus mode.

✦ **Multiple exposure indicator.** This icon informs you that the camera is set to record multiple exposures. Set multiple exposures in the Shooting menu.

✦ **Interval timer indicator.** When the camera's Interval Timer option is turned on, this appears in the control panel. Set the interval timer in the Shooting menu.

✦ **Copyright information indicator.** This icon appears when the optional copyright information has been entered and activated. You can find copyright information in the Setup menu.

✦ **Image comment indicator.** This icon is shown when the image comment option is enabled. You can add an image comment in the Setup menu.

The following items on the Shooting Menu Display can be accessed and changed by entering the Quick Settings Display. You can enter the Quick Settings Display by pressing the Info button while the Shooting Menu Display appears on the rear LCD. For more information on the Quick Settings Display, see Chapter 3.

✦ **Active D-Lighting indicator.** This icon alerts you to the status of the Active D-Lighting option. The settings are Auto, High (H), Normal (N), Low (L), and Off.

✦ **Color space indicator.** This tells you the color space that you are saving your files in: Adobe RGB or sRGB. For more information on color space, see Chapter 3.

✦ **Preview button assignment.** This tells you which custom function is assigned the Depth-of-field preview button.

✦ **Function button assignment.** This tells you what custom function is assigned to the FUNC. button.

✦ **AE-L/AF-L button assignment.** This tells you what custom function is assigned to the AE-L / AF-L button.

✦ **Picture Control indicator.** This icon shows which Picture Control setting is activated. For more information on Picture Controls, see Chapter 2.

✦ **Long exposure noise reduction indicator.** This lets you know if Long Exposure NR is activated.

1.12 The Shooting info display 2

✦ **Custom Settings bank.** This item lets you know which Custom Settings bank you're using: A, B, C, or D. For more information on Custom Settings banks, see Chapter 3.

✦ **Shooting menu bank.** This item lets you know which Shooting menu bank you're using: A, B, C, or D. For more information on Shooting menu banks, see Chapter 3.

✦ **High ISO noise reduction.** This lets you know if the High ISO NR is activated. The options are HIGH, NORM (Normal), LOW, or OFF.

✦ **FV lock indicator.** This icon is shown when the FV lock is activated. FV lock can be assigned to the Preview, FUNC., or AE-L/AF-L button.

✦ **Flash mode indicator.** This area shows you the flash mode the camera is using. This option is shown only when the built-in flash is raised or an accessory Speedlight is attached. When an accessory Speedlight is attached, an icon is displayed in the top-right corner of this box. Additionally, this option shows you if the Speedlight is in Through-the-Lens mode (TTL), Repeating flash mode (RPT), Commander mode (CMD), and High Speed FP Sync mode (FP). For more detailed information on flash modes and Speedlights, see Chapter 6.

✦ **Clock indicator.** This icon flashes when the cameras internal clock is not set. You can set the clock in the Setup menu.