

Initial Hardware Considerations

Supplement to Mastering the Nikon D7000

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<http://www.rockynook.com/book/203/mastering-the-nikon-d7000.html>

Attaching and Removing a Lens

You may have purchased your camera as a kit or just the body alone. From looking around on the Internet I generally see three camera/lens kit combinations being offered, as follows:

- Nikon D7000 and the AF-S Nikkor 18–55 mm f/3.5–5.6G VR
- Nikon D7000 and the AF-S Nikkor 18–105 mm f/3.5–5.6G ED VR
- Nikon D7000 body only

In this book you'll see pictures of my D7000 with the AF-S Nikkor 18–105 mm f/3.5–5.6G ED VR lens because this is, by far, the most-used lens for new users. I am quite impressed with the quality of the images created with this camera and lens combination.

In case this is your first DSLR camera, I included a few pictures that show how to attach and remove a lens. It seems hard the first time you do it, but after that it's quite easy. If you know how to attach and remove a lens, just skip this section.

One of the powerful things a DSLR like the D7000 can do is use a variety of lenses to achieve various subject looks or perspectives. If you've never put a lens on a DSLR, please read this carefully so you won't damage the lens or camera body.



Figure 1.1 – Remove the lens and body caps

Nikon ships the camera without the lens attached when you buy the camera/lens kit. Instead, there's a body cap and lens cap that must be removed before you mount the lens to the camera body. In figure 1.1 you see the camera and lens out of their boxes but with both caps still attached (red arrows). Leave the camera turned off while attaching or removing a lens. I've never damaged a camera's electronics by leaving it on during lens changes, but there's always a first time. I don't recommend that you take chances with an expensive camera or lens.

Now, let's remove the caps and prepare to attach the lens to the camera.



Figure 1.2 – Caps have been removed

There are two types of lens caps provided with Nikon lenses. First is a dark cap, with a Nikon logo, as shown on the lens in figure 1.1. A second type is a see-through, white cap (not shown) that has no logo. To remove the dark-style cap you'll turn it clockwise about 1/4 turn and pull straight out. To remove the see-through, white cap simply twist in any direction and pull straight out. The dark-style cap uses the bayonet mount of the lens to attach, while the white cap is simply pressed on. To remove the camera's body cap, press and hold the Lens Release button and turn the body cap clockwise until it stops; then pull the cap straight out. It uses a bayonet mount with three ears, just like a lens.

Dust Is Bad!

Blow away any dust you see on the front of the camera or on the rear of the lens so it won't get inside the camera body and end up on the sensor. Dust can cause a spot on all subsequent pictures if it gets on the sensor, so always change lenses in a dust-free area when possible.

Attaching the Lens

It isn't hard to attach a lens to the camera, and when you've done it once, you'll have no problems in the future. So, let's mount the lens .

The lens attaches to the camera using a Nikon F bayonet-style mount that's been in production for more than 50 years. Nearly any lens ever made for a Nikon film SLR or DSLR will mount on your camera. The exception is non-AI manual-focus lenses from the late 1960s and early 1970s. This type of lens can damage the camera's Meter coupling lever. If you are unfamiliar with non-AI versus AI lenses, please learn about them before you mount an older manual-focus lens on your camera. You are safe with virtually all Nikkor manual-focus AI and AI-S lenses, plus the Nikkor autofocus AF and AF-S lenses.

One of the reasons the Nikon D7000 is so desirable is that it's not picky about lenses. Some cameras turn off their light meters when you mount an older non-CPU lens, but not the D7000! It can use several of its shooting modes with manual focus lenses from the 1970s to the present. You can acquire older single-focal-length (prime) Nikkor lenses on Internet auction sites and in some cameras stores at very reasonable prices.

Basically, you are not limited to just the latest lenses out with the D7000. With its built-in autofocus motor it can power older autofocus (AF) lenses; many of which have premium optics, yet cost less than the new AF-S styles. Now, let's consider how to mount an AF-S Nikkor 18–105 mm lens.



Figure 1.3 – Mounting the lens on the camera, step by step

Notice in the first image of figure 1.3 that the lens has a white dot (A) that must line up exactly with a corresponding white dot (B) on the camera body. The lens must be inserted into the front of the camera—in the direction the arrow shows in the first image—until the two dots are close together, as shown in the middle image of figure 1.3. When the lens is fully inserted into the bayonet mount and the dots are lined up, slowly turn the lens counterclockwise (rotate left) until the white dot on the lens (A) is under the K of the Nikon logo on the front top of the camera. The dot on the lens will then be straight up and just below the Nikon logo, as shown in the last image of figure 1.3.

Do not force the lens to turn. If it doesn't turn easily to the left, make sure that you've fully inserted the lens into the body before you start turning it toward the locking position. When you get the white dot on the lens in the up position (A is up, as in figure 1.3, third image), you'll hear an audible snap as the lens locks to the body.

Removing the Lens

To remove the lens, press and hold the Lens release button, turn the lens clockwise until it stops, and then pull it straight out. The Lens release button is the big D-shaped button to the right of the lens mount. You can clearly see the Lens release button in all three images of figure 1.3. It's to the right and below the white dot on the camera body (B).

The picture in figure 1.4 shows a fellow removing his lens by holding the camera close to his body, pressing the Lens release button, rotating the lens, and pulling it out of the camera body.

Following is a series of steps that describe this safe way of removing a lens, while protecting the lens and body from being dropped. Try this method and see if it works for you. I've been using it for over 30 years now and have never dropped a lens or body while changing lenses. If this won't work for you, simply invent your own way of holding the camera while changing lenses .



Figure 1.4 – Safely removing the lens from the camera

Here are the steps to remove a lens:

1. Hold the camera body in your left hand with your fingers reaching around the front. You'll grasp it on the side that has no grip, and your fingers will cover the rubber [Connector cover](#) on the end. Your middle finger will naturally fall over the [Lens release button](#).
2. Press the grip side of the camera into your body to stabilize it. The camera's rear [Monitor](#) will face the left side of your body and the palm of your left hand.
3. Press and hold the [Lens release button](#) with the middle finger of your left hand.
4. Using your right hand, turn the lens clockwise until it stops, then pull it straight out of the camera body.

If you are a left-handed person, this method will work for you. Cameras are designed for right-handed people, so a lefty may find this awkward the first few times. I suggest you keep trying to learn it, since this method allows you to hold the camera and lens very securely while changing the lens. It would be a shame to drop and break either the lens or camera body. If this list of steps doesn't work for you standing up, try sitting down. Or, just set the camera down, press and hold the Lens release button, rotate the lens to the right, and pull it out of the body.

Lens Controls

While examining the lens for later use, you'll notice several controls that you will need to use (figure 1.5). Many AF-S Nikkor lenses, and even aftermarket lenses, have similar controls, although the names might vary slightly.



Figure 1.5 – (1) Zoom ring, (2) focus ring, (3) autofocus switch, and (4) VR switch

1. **Zoom ring** – This ring is the most-used control on the lens. You'll use it constantly to zoom in and out from the widest to the longest focal length, and any point in between. On this lens, the 18 mm setting is a wide-angle setting, which allows you to take group portraits or get sweeping landscape shots. The 105 mm setting is a short telephoto position. Use the 105 mm setting to pull a subject closer and fill the image frame. You can use the Zoom ring to select the exact focal length that you need to make the best image composition. As you turn the Zoom ring, you'll see the numbers turn with it. The numbers shown on the lens in figure 1.5 are 18, 24, 35, 50, 70, and 105. Each represents a focal length in millimeters (mm). Place any number from 18 to 105 next to the white dot on top of the lens for a focal length position. In between the numbers are other focal lengths. Let's say you turned the lens to halfway between 18 and 24 mm. That is about 21 mm, as expected. It's constantly variable as you turn the zoom ring.
2. **Focus ring** – The Focus ring is not often used on a camera with autofocus, which is why it's so small. However, for things like closeup (macro) shots, it is sometimes easier to turn off the autofocus and focus manually so you can control exactly where you want to place the sharpest point of focus. Study the A–M switch, next in this list, before you use the Focus ring. On some lenses, the zoom and focus rings are reversed.
3. **A–M switch** – The AF-S Nikkor 18–105 mm lens has an A/M switch on the side. This particular lens allows you to fine-tune the focus manually with the Focus ring after the lens has autofocused. The A setting is called *autofocus with manual override* by Nikon, and the M setting is simply called *manual mode*. On some Nikon lenses you may find an M/A–M switch instead of an A/M switch. It works basically the same way. Any of these lenses may or may not allow you to manually fine-tune the autofocus when in the A mode. Lower-cost lenses, like the AF-S Nikkor 18–55 mm, usually won't. The way to be sure is to *carefully* attempt to turn the Focus ring, and if you feel resistance, **stop immediately**. Basically, the A setting on the AF-S Nikkor 18–105 mm lens causes the camera to autofocus for you, but you can fine-tune the focus manually afterward. The M setting is completely manual focus, which puts you in control of all focus operations.

4. **VR ON/OFF switch** – VR stands for vibration reduction. Lenses with the VR moniker are able to compensate for small shaky movements while pictures are being taken handheld, potentially resulting in much sharper images. They have a special lens element that moves to compensate for small camera movements. I don't mean you can wave your camera around like a fire hose and still get sharp images. What I mean is that the lens will try to compensate for natural hand shakiness, allowing you to use slower shutter speeds and still get sharp images. According to how shaky you are while handholding, you may take pictures with shutter speeds up to three or four stops slower, depending on the VR type of the lens. There are currently two types of VR lenses on the market: VR and VR II. The more advanced form of VR—called VR II—has algorithms that notice when the camera is very still, and disable VR. Why use vibration reduction when the camera isn't vibrating? Nikon says you should be okay when shooting on a tripod with VR II turned on. However, I always flip the switch off anyway, unless I'm using a shaky tripod. The older-style VR can cause some seriously weird effects when the camera is on a stable tripod. Check the specs of any new lens you buy to determine if it has standard VR or VR II. The VR II technology adds an additional stop of vibration reduction, so you could handhold up to four stops slower, instead of three. VR II is found on the more pricey lenses in the Nikkor lineup. An easy way to tell if you have VR or VR II is by how many extra slow stops you get. If the sales literature says three stops, it is VR. If it says four stops, it is VR II. **Note:** On some lenses the Zoom ring and Focus ring are reversed. Many lenses have the Focus ring near the front of the lens, instead of near the camera body.

Charging the Battery

If you're like me, you'll open your camera's box, attach the lens, insert the battery, and take your first picture. Wouldn't it be a better idea to wait an hour to charge the battery, and then take the first picture? Sure it would, but I've never done that, and I bet you won't, either. Nikon knows this and doesn't send out new cameras with dead batteries. Most of the time the battery has enough power to set the time and date then take and review a few pictures. Think about it: how would you test a brand new battery? You'd charge it and see if it will hold a charge. Nikon is not in the habit of sending out batteries that are untested, so most of the time you can play with your new camera for at least a few minutes before charging the battery. I've purchased nearly every DSLR Nikon has made since 2002, and not one of them has come with a dead battery.

When my latest camera arrived, the battery was about 68 percent charged. I used the camera for an hour or two before I charged the battery. However, if you insert the battery and its charge is very low, such as below 25 percent, it's a good idea to charge it before shooting and reviewing lots of pictures. You may be able to set the time and date and test the camera a time or two, but go no further with a seriously low battery.

Included in the box with the camera is the Nikon Battery Charger MH-25. The battery will fit into the charger in only one direction, as shown in figure 1.6. An orange indicator light on the charger will blink until the battery is fully charged. When the blinking stops and the light stays orange, the battery is ready for use.

The D7000 uses a 7.0 volt Nikon EN-EL15 lithium ion (li-ion) battery pack. Although this type of battery doesn't develop the memory effects of the old nickel cadmium (NiCD) batteries from years past, there can be a problem if you let it get too low. *A li-ion battery should not be used to complete exhaustion.* It has a special protection circuit

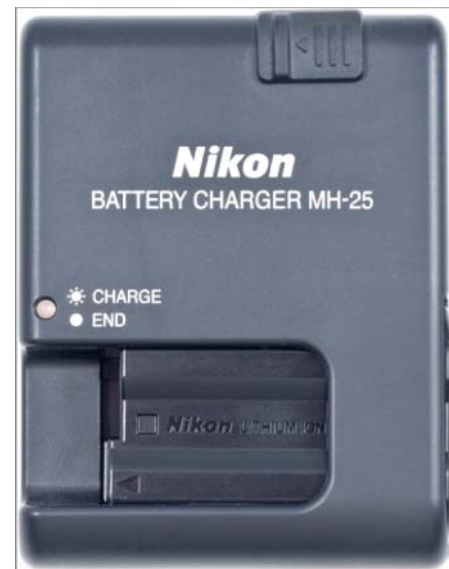


Figure 1.6 – Charging the EN-EL15 battery with the MH-25 charger

that will disable the battery if one of the cells goes below a certain key voltage. You'd probably have to run it all the way down and then store it in the camera for a few weeks to actually cause the battery to disable itself. However, a good rule of thumb is this: when your camera's li-ion battery gets down to the 25 percent level, recharge it. I don't let mine go below 50 percent for any extended use. Optimally, you should hold yourself back from turning on the camera until after the battery is charged. That'll give you time to read more of this chapter and even check out the User's Manual.



Figure 1.7 – Examining and inserting the battery

In the first picture of figure 1.7 the battery-chamber cover on the bottom of the camera grip is open, and the battery is partially inserted in the correct orientation. Push it all the way in until the yellow battery-retention clip snaps into place, then close the Battery-chamber cover (battery door).

The yellow battery-retention clip, shown in the second picture of figure 1.7, holds the battery in place even when the Battery-chamber cover is open. To remove the battery, open the Battery-chamber cover and push the batteryretention clip toward the door hinge. The battery will pop out when you have done it correctly.

Use only a Nikon brand EN-EL15 battery pack in your camera. This particular battery has a special circuit that talks to the camera and enables the 0–4 Battery age scale shown on the Battery info screen (figure 1.8). It tells you when a battery has outlived its usefulness and should be disposed of—going beyond telling you just when it's low on power.

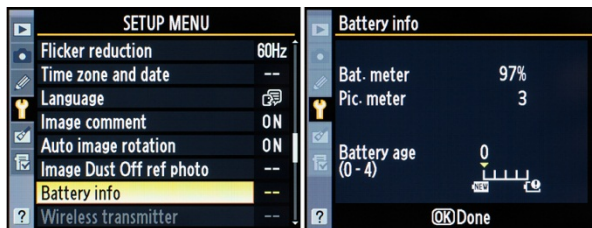


Figure 1.8 – Battery info screen

In figure 1.8, you can see a picture of the Battery info screen. Notice that it shows the Bat. meter , which tells you the amount of charge the battery has left as a percentage. The Pic. meter shows the number of images taken since the battery was last charged and inserted. Finally, the Battery age scale graphically displays the life of the battery and whether it needs to be replaced. It uses a scale of 0–4, or five steps. The Battery age scale has nothing to do with the amount of power that the battery currently contains. It shows how much useful life the battery has left until you need to recycle it and buy a new one.

My Recommendation: A genuine, new Nikon EN-EL15 battery for the D7000 is usually less than US\$60 when purchased online. Why buy a cheap aftermarket battery made who knows where and use it to power the circuits of your expensive camera? How can you be sure that a cheap non-Nikon battery has the correct circuit for Battery info communication? How can you know that the cheap cells won't short-circuit and burn your camera

to a cinder? Li-ion cells are somewhat finicky and require careful manufacture and charging control. I only trust the real thing—a Nikon brand EN-EL15 battery—to power my expensive camera.

When you first insert the battery into a factory-fresh Nikon D7000 you will notice that the word CLOCK flashes on the camera's upper LCD Control panel. If you don't see CLOCK flashing, then your camera has already been set up for initial use.

Using Memory Cards

The D7000 uses one or two secure digital (SD), secure digital high capacity (SDHC), or secure digital extended capacity (SDXC) memory cards. Figure 1.16 shows the Memory card slot cover in an open position, with two memory cards partially inserted. Of course, you'll need to format these cards in the camera before writing images to them. It is a good idea to format the cards each time you are finished transferring its stored images to your computer or storage device. That keeps each card fresh and ready to be used without memory errors. See the section in chapter one called, **Camera Functions for Initial Configuration** (Format memory card), for the page number of memory card formatting instructions.



Figure 1.16 – Dual memory cards partially inserted