

The “Wet Method” of Sensor Cleaning

Here’s the part of the procedure that’s dangerous—actually touching the sensor with a swab. If the swab is dry—or if there’s any grit on the swab or on the sensor—you could scratch the plastic filter that sits in front of the sensor. It’s then necessary to replace the sensor assembly, a major repair and a major expense.

In Fig. 4, we’re lifting the filter from the front of a Nikon D100 CCD (not something anyone would do except for research—taking apart the CCD destroys the unit). Note that the CCD is built into an IC. Perhaps you can now see why it’s so expensive to replace the CCD—the replacement unit includes the CCD package and the control board. For obvious reasons, you never want to disassemble your own camera. Cleaning the sensor, fortunately, requires no disassembly.



The filter sits a slight distance from the sensor. Dust on the filter then casts a tiny shadow onto the CCD or CMOS—that’s why you get black spots on the image. It’s also why the effects show up more at the smaller lens apertures where the shadows are sharper.

The SensorWand...

To illustrate the cleaning technique with the SensorWand, we’ll use the Nikon CCD shown in Fig. 4—it may be a little easier to see what we’re doing. The basic technique has been explained on other sites using different tools. Moisten the wrap at the tip of the SensorWand with 2 or 3 drops of Eclipse™ or Sensor Clean™. Again, avoid touching the moistened area with your fingers. Then place the tip of the SensorWand at one corner of the sensor, Fig. 6; here we’re using the upper left-hand corner as a starting point. Make sure you start at the edge of the sensor—you don’t want to leave dirt at the edge. The chisel-shaped tip of the SensorWand allows you to position the pad fully in the corner.



Fig. 7

Hold the SensorWand at a slight angle, tilted in the direction that you’re going to move it across the sensor. Now gently but steadily slide the SensorWand across the sensor in the horizontal direction, Fig. 7. Since the SensorWand supports the full width of the Pec*Pad, you don’t need much pressure. Normal writing pressure may be the best guideline.

When you can no longer tilt the SensorWand in the direction of travel, just bring the SensorWand perpendicular to the sensor. Or tilt the SensorWand slightly in the opposite direction. Move the pad a little past the right-hand edge of the sensor (to make sure you pick up the dust at the edge). Work fairly quickly to complete the cleaning before the Eclipse™ evaporates from the



Fig. 8

Pec*Pad. Now—and only now—lift the SensorWand from the sensor.



Fig. 9

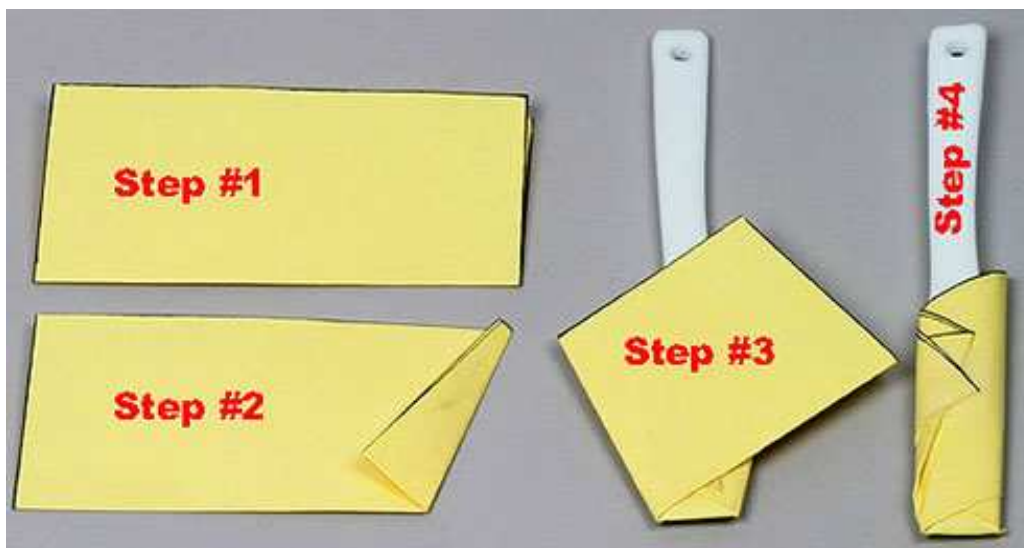
Flip the SensorWand 180°. If the width of the SensorWand matches the width of the sensor, the cleaning should be complete. In Fig. 7, the sensor is slightly wider than the tip of the SensorWand. So, for the second pass, we’ll overlap the swipes. One technique is to flip the SensorWand 180° to use the clean side of the pad. Then start the SensorWand at the lower left-hand corner, Fig. 8. Again slide the SensorWand horizontally across the sensor, moving slightly past the

right-hand edge.

Alternately, after you make the first swipe, you can move the SensorWand to the lower right-hand corner of the sensor. Tilt the SensorWand to the left and slide it across the sensor from right to left, Fig. 9. Notice that we didn't flip the SensorWand 180°—by tilting the SensorWand in the direction of travel, we're using the clean edge. Again move the pad slightly past the sensor edge at the left-hand end while bringing the SensorWand perpendicular to the sensor. We've seen a similar technique suggested on a couple of sites.

If you want to swab the sensor again, use a new Pec*Pad. But don't keep swabbing in pursuit of perfection—danger lurks every time you touch the sensor. Microscopic specks that may show in a test probably won't be apparent in a normal image. And, even if you do get the sensor perfectly clean, some specks may reappear soon after you've used the camera.

Wrapping Your Wand



First, I must re-emphasize the need to do this on a clean surface, the cleaner your work surface the better your results can be anticipated. For illustration purposes only, I'm demonstrating the steps to wrap your own wand with a piece of yellow paper instead of the Pec*Pad™ you should be using. **DO NOT** touch with your hand, the area of the Pec*Pad™ that will be coming in contact with the sensor. Body oils can be transferred to the sensor this way.

1. Fold the Pec*Pad™ in half
2. With the folded edge facing you, take the right hand side and fold about 3/4" to the left at a 30° up angle.
3. Place the SensorWand™ inside the first fold and take the left hand corner and everything up to the tip of the SensorWand™ to the right at a 30° up angle.
4. Take the corner facing farthest right and wrap it tightly around the SensorWand™ watching to not deform the tip. Place a piece of Scotch tape or a rubber band around the Pec*Pad™ to hold it in place.
5. Push the SensorWand™ into the Pec*Pad™, creating a nice tight squared off tip. Be very cautious not to tear the pad and expose the wand tip.



Please also see www.cleaningdigitalcameras.com