

Sharpness IS ESSENTIAL

TOOLS AND TECHNIQUES FOR PERFECT FOCUS | BY WILLIAM SAWALICH



Perfect sharpness doesn't necessarily mean that every element in the frame is in precise focus, but rather that what should be in focus, is in focus. In this image, the photographer intentionally chose to use a shallow depth of field, rendering the man slightly out of focus, but keeping the woman sharp. That's great, as long as it's an intentional creative decision and not an error of misfocus.

If you're going to make money with your photography, you absolutely have to make sure your images are sharp. I don't mean the kind of sharpness that comes from postprocessing; I'm talking about the real thing: tack-sharp focus, no motion blur, no camera shake.

Cameras are so good these days, the smallest flaws are evident. While there may be room for interpretation in com-

position or exposure, unless you're going for a deliberate blurry effect, the one constant in professional pictures is sharpness. Here are the tools and techniques to meet that professional standard for sharpness.

SHUTTER SPEEDS & TRIPODS

One of the most basic sharpness techniques is using fast enough shut-

ter speeds when handholding a camera. Did you know there's a correlation between focal length and minimum handholdable shutter speed? If you're using a 50mm lens, the slowest shutter speed you should use is 1/60 sec. As your focal length increases, so should your minimum shutter speed. In general, the bare minimum shutter speed is 1/focal length, as in 1/100 sec. with a 100mm lens, 1/500

sec. with a 500mm lens and so on. This also tells you that with a wide-angle lens you can handhold at even slower shutter speeds. When sharpness matters and you're handholding your camera, shutter speed is everything.

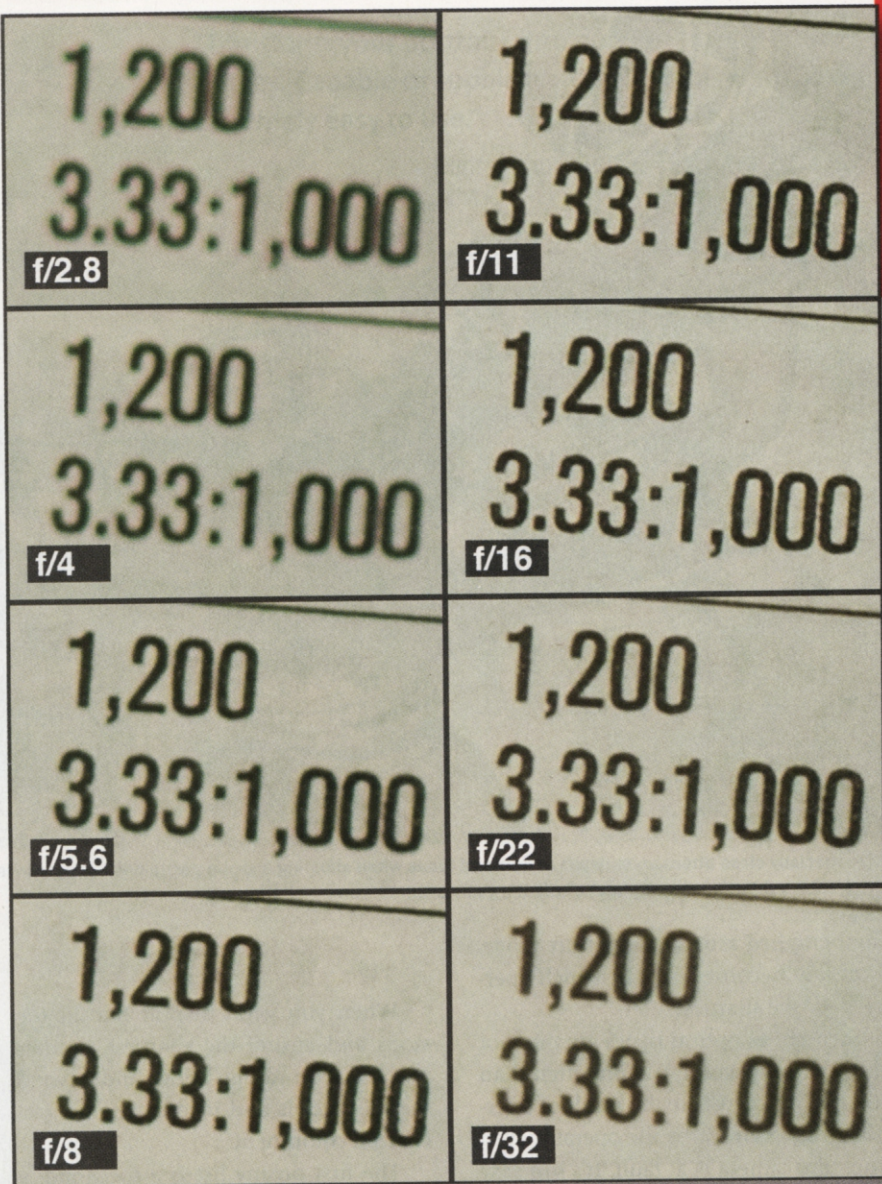
Speaking of handholding, the best way to get sharp pictures is to avoid handholding whenever possible. When I was a young photographer, I scoffed at tripods, discounting their ability to help me outside of long exposures that mandated stability. But after years of professional experience, I'm now convinced that even when I'm working with fast shutter speeds or strobes (which have their own motion-stopping characteristics), tripods simply help make every picture sharper. Handholding is for situations when mobility is a must. Otherwise, put your camera on a tripod and watch your pictures get sharper.

CABLE RELEASE & MIRROR LOCK-UP

Putting your camera on a tripod is only part of removing your hands from the camera-shake equation. The cable release is all too often relegated to use for long exposures, but in fact, camera shake can be even more pronounced with relatively fast shutter speeds.

It's this same logic that makes mirror lock-up useful for short exposures, too. With a camera on a tripod, mirror lock-up helps to eliminate the camera shake that's caused by the moving mirror. (The word "reflex" in single-lens-reflex camera is shorthand for the reflection off the mirror that covers the sensor. It swings up and out of the way just before the shutter opens to expose the sensor. And, believe it or not, its vibrations are sometimes visible.) I've taken to employing mirror lock-up—accessed in the menu settings of most DSLRs—whenever I'm photographing a stationary subject like a tabletop product, an architectural image or a landscape. Once enabled, it requires two pushes of the cable release, the first to raise the mirror and the second to release the shutter.

Much as the self-timer doubles as a poor-man's cable release, a camera's Live View mode can stand in for mirror lock-up. In order to view the live feed from the sensor, the mirror is locked up and out of the way. So when you trip the



Shoot a test chart with all of your lenses to determine which apertures are sharpest for each.

shutter in Live View mode, you've also utilized mirror lock-up. The other benefit of Live View is the ability to enlarge the scene considerably to check fine focus on the LCD—another great way to improve sharpness.

OPTIMUM APERTURES & OPERATOR ERROR

Let's assume you're following all of the basic rules for serious sharpness such as using a tripod, cable release and mirror lock-up. What else can you do with your camera to make sharper pictures? Well, when it comes to choosing apertures, do you know you shouldn't base your decision on depth of field alone?

Many photographers oversimplify

f-stops: "I want it all sharp, so I'll use the smallest aperture to maximize depth of field." But that's missing the bigger picture: Some apertures are inherently sharper than others.

The sharpest aperture of any lens is somewhere near the middle—often, around $f/8$ or $f/11$ —while the extremes, like $f/2$ and $f/22$, are noticeably less sharp. When pinpoint sharpness is more important than a specific depth of field, choose an aperture that's two to three stops from wide open and enjoy the sharpness.

You can test for the sharpest aperture on any lens by photographing a homemade test chart. I like the fine print of a newspaper, pinned to a wall and



Pay especially close attention to depth of field and focus when shooting a group portrait. If one person isn't sharp, it diminishes the entire photo. Be sure to check each subject's eyes—if they're soft, it's game over.

photographed across the aperture range. It quickly becomes evident which apertures are the sharpest.

Sometimes optical issues are the root of unsharp images, but more often than not, fuzzy pictures are the result of operator error. I still blame the operator even when the camera is at fault. It's too easy to rely on autofocus even when photographing a stationary subject. On autofocus, the camera refocuses with every shot even if the camera is locked down on a tripod and the subject is inanimate. By focusing manually, the photographer can eliminate automatic refocusing and maintain pinpoint sharpness from shot to shot.

Other situations also beg for manual override, like when low light will fool the autofocus system or when a fast-moving subject is too quick for the camera to catch up. Both of these causes, coincidentally, were presented to me within the last week when two different people asked me to diagnose fuzzy photos. They were out of focus, plain and simple, because they relied on autofocus in tricky situations when manual focus would have worked better.

SPECIAL TOOLS TO MAXIMIZE SHARPNESS

When you want to pull out all the stops and ensure the sharpest pictures possible, you can go above and beyond the basic tools and invest in some specialized equipment.

The first on my list is a focus aid, a device that slips onto the viewfinder of my DSLR and enlarges the view up to 2.5 times. This finder magnifier helps minimize operator error and makes it more likely that you'll focus exactly where you should. If the price tag of a finder magnifier is too high (they're usually in the \$200 range), there are less expensive options, like affixing a loupe to the camera's LCD to check focus from the back of the camera. A similar effect can be achieved by enlarging the preview in Live View mode or simply by tethering your camera to a laptop or tablet in order to check focus via enlargement.

If tripods, cable releases and mirror lock-up all sound impractical, it's likely because you handhold your camera regularly. For handheld shooters, the best investment for sharpness is an optically stabilized lens. Vibration reduction or

image stabilization—whatever name you know it by—does the same job; it adds two to four stops of stability, which means you can handhold your camera at slower shutter speeds and work in lower light while still capturing sharp pictures.

If the sky's the limit on your sharpness budget, why not invest in a camera that's built differently to deliver sharper images? Look for a camera without an anti-aliasing filter on the sensor. Also referred to as a low-pass filter, it's used in DSLRs to prevent moiré, a distracting noise pattern that occurs when the pixels in a sensor align just right with fine textures and patterns in the real world. The anti-aliasing filter does its job by subtly blurring the image, so a camera without this filter (many are now available) will necessarily produce sharper shots. It might also prove problematic because of increased moiré, but for many photographers on a quest for maximum sharpness, the compromise is worth it. DP

Learn more about low-pass filters and some of the current cameras that omit them at dpmag.com/cameras/slrs/the-low-pass-filter.