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PHOTOGRAPHY FOR ENGRAVERS

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A crucial part of being a professional hand engraver is having quality photos of your engraving. You're a mouse click away from a customer leaving your web site and good photos greatly increase your chances for business.

Hiring a professional product photographer is a good option, but oftentimes we finish a job and simply don't have the time to send a piece off to a photography studio. Have no fear because the digital age has made it considerably easier for you to shoot photos of your work and get professional results.

There are many ways to light and photograph your engraving. What I show in this article is not the best way or only way, but it has worked for me for many years and it can work for you as well. Driving a car is far more complicated than taking pictures of engraving, so if you can drive you can learn to shoot quality photographs. There are a few things you need to know that will greatly impact the quality of your photos, so hang in there with me as I explain them.

This isn't something you need to study and memorize, and you can refer back and use the QUICK START GUIDE at the end. If you will make the commitment to learn and apply what you read here, I promise that it will be well worth your effort.

LIGHTING

In any type of photography, light is everything. The most expensive cameras and lenses will deliver the most pitiful photos in poor lighting.

ILLUSTRATION 1 was photographed with a \$3000 camera in normal room light in my studio. As you can see, there are terrible reflections on the polished surface of the knife and the engraving detail on the pendant cannot be seen at all. Despite the high-end camera & lens, stray reflections make this photo a terrible failure.

ILLUSTRATION 2 was shot with a \$200 point & shoot camera and shows the same knife and pendant on the same background, but illuminated with a studio softbox. The shiny surfaces of the pendant and knife reflect the white underside of the softbox which results in a beautiful surface with no unwanted reflections, and the engraving on the pendant can be clearly seen. The moral of the story is that proper lighting is far more important than fancy and expensive camera equipment!

Invest in good lighting first, then upgrade your camera later.

When photographing an engraved gun or knife the thing to remember is that you're taking a photo of a mirror. The polished surfaces of the metal will reflect its surroundings (as in ILLUSTRATION 1), so it should reflect white (ILLUSTRATION 2). If you learn only one thing from this article, this is probably THE most important thing. Laying the object on the workbench or kitchen table and expecting to get a quality photo is next to impossible, as the object will be reflecting everything in the room. This is especially true for highly polished items. ILLUSTRATION 1 is a perfect example of what I'm talking about and a good example of how NOT to take a photo.

Photographers use a variety of methods to create white surfaces that will be reflected onto polished articles. One of the most common is known as a softbox (ILLUSTRATION 3). A softbox is an enclosure made of black nylon that houses a light which becomes diffused as it projects through the softbox's white bottom. Softboxes create soft, diffused light, and provide the white surface that will be reflected onto a shiny object's surface. For gun and knife engravers a softbox can get you in the game and deliver photos better than you ever dreamed possible.

The article is placed on a pleasing background and is placed facing up at the white bottom of the softbox which is suspended above. Curved surfaces picking up stray reflections can be 'filled' with white by positioning a white card or sheet of paper near problem areas. For gun and knife engravers, a softbox can provide wonderful illumination. For curved objects like bracelets or other curved and polished jewelry articles, a light cube can be the best bet.



ILLUSTRATION 1



ILLUSTRATION 2

Another lighting option is the light cube. This is a white nylon 'box' which is illuminated by lamps on the outside. An object placed inside the box reflects the white surfaces with little or no stray reflections. Cubes and domes are especially common in jewelry and watch photography and perform very well. For flatter items such as guns and knives, the softbox is fairly simple and can deliver outstanding results.

A NOTE ABOUT LIGHT

A couple of things to keep in mind about lighting are

- 1.) The size of the light source
- 2.) The distance of the light to the subject.

Softboxes are designed to house various electronic flash units. While there's nothing wrong with flash photography, using either tungsten photoflood bulbs or fluorescent fixtures provide what-you-see-is-what-you-get lighting. A homemade bracket and ceramic fixture with a photoflood bulb is probably the least expensive way to go and has worked well for me for over 20 years (see a description and instructions on www.iGraver.com). Photoflood bulbs are extremely hot (500w) and have a short life of 4-6 hrs of use. I'm now using Westcott TD5 daylight balanced fluorescent softboxes (24"x36") which are cool and have bulbs that last thousands of hours. This is more expensive than my previous home brew photoflood setup, and well worth it. (ILLUSTRATION 6)

Special stands are used to suspend softboxes and home made stands are also an option. ILLUSTRATION 3 shows my softbox setup. Note that the camera is mounted on a tripod and shooting at an angle. Home made softbox-type diffusers can be built by the do-it-yourselfer, but after going that route I prefer the commercially made units as they are sturdy, easy to move around, and diffuse light better with no hot spots.

Your body casts a strong shadow on a sunny day because the sun is a pinpoint of light. On an overcast day your body casts a soft shadow because the overcast sky is acting as huge softbox with the sun behind it, and this creates soft shadows and wrap-around light. Making sense? When photographing your engraving, keeping the softbox close to the subject creates soft shadows.



ILLUSTRATION 3

NATURAL LIGHT

Shooting a photo of your engraving on the patio table on a sunny day gets extremely poor results. If shooting outside, an overcast day gives you a much better chance of good photos in natural light. Keep in mind that the article you're photographing will pick up stray reflections of the house, trees, etc. You're at the mercy of the weather, but when conditions are right it can work. Position the article so it reflects the white overcast sky without stray reflections like trees, etc.

BACKGROUNDS

They should be simple and neutral in color. One thing that's worked well for me is a piece of matte glass from my local glass shop. I place a sheet of white paper under it for a soft, neutral background as in ILLUSTRATIONS 1 & 2. You can also use heavy mat paper used in picture framing as a background. Black, green, and red velvet can also make nice backgrounds. Just be aware that

color and patterns can be distracting and you're much safer by keeping in simple. As you gain experience you might want to try rustic wood, leather, or other setups to create artistic photos of your engraving.



ILLUSTRATION 4

ILLUSTRATION 4 is a knife E.C. Prudhomme engraved for me in 1980. I placed the knife on a 99-cent sheet of scrapbooking paper from my local craft store. Adding few tools from my workbench made an interesting composition that enhances Prudhomme's engraving. A vignette was added in Photoshop to slightly darken the outside edges and draw the viewer's eye to the knife. Good light from a softbox and a few minutes of setup results in a photo worthy of publication.

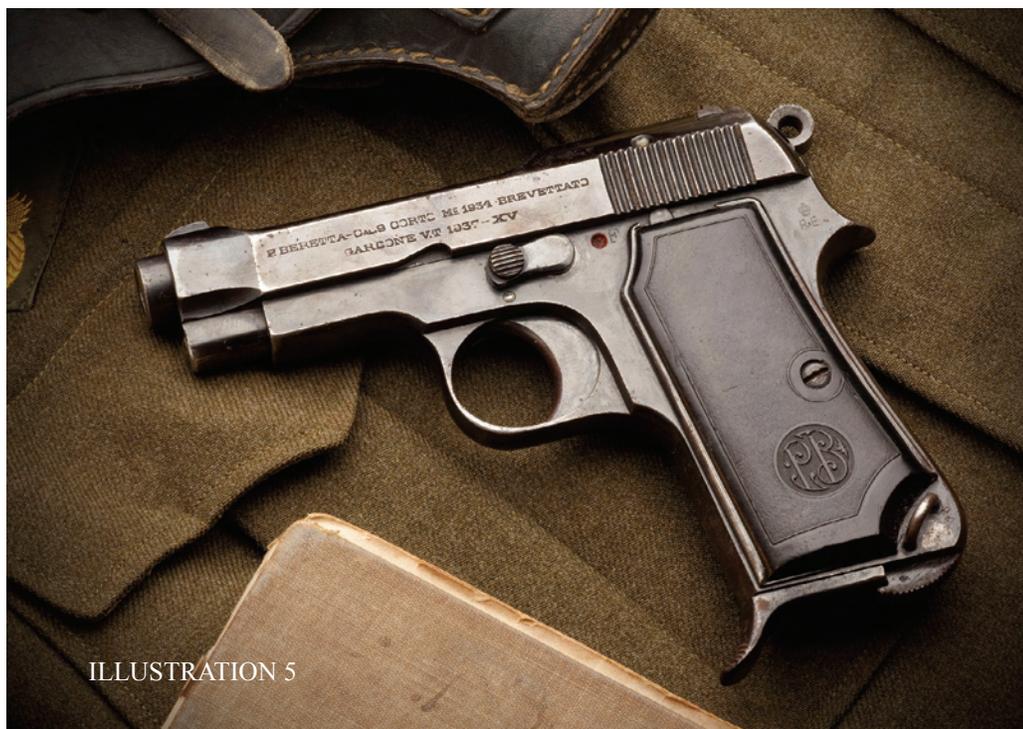


ILLUSTRATION 5

ILLUSTRATION 5 features a Beretta auto my uncle brought back from WWII. For a background I used a WWII Army coat, the gun's holster, and an old book. With good light from the softbox my simple setup renders a nice photo of this classic pistol.



ILLUSTRATION 6

only 1000% better in many ways. DSLRs have a full range of functions from manual to fully automatic and interchangeable lenses make them extremely flexible. I use Canon products but Nikon is just as good. When you get serious about photography, a DSLR is the way to go. Not only can you get spectacular photos of your engravings, but it's also a great camera for wildlife, portraits, landscapes, and more. Photos shot with DSLRs also have a greater chance of being published because of the sharpness and sheer quality that DSLRs delivers.

POINT & SHOOT cameras can produce good results and are a lot less expensive. They do not have interchangeable lenses but with good light, patience, and practice, you can get decent photos, especially for your web site or for posting on forums. The sensor, lens, and feature set will determine how good the photos will be and what size prints can be made. This is a good way to get your feet wet as long as you understand that point & shoot cameras do have limitations.

MACRO LENSES for DSLR cameras are close-focusing lenses which allow you to shoot up to 1:1. They come in various focal lengths such as 60mm, 100mm, 180mm, etc. Any of these focal lengths will work. The longer the focal length the more working distance you will have between the camera and the subject, and the 'flatter' the view with less distortion than shorter focal length (wide angle) lenses. While I prefer to use Canon lenses for my photography, the Sigma 150mm macro lens does a very acceptable job and is less expensive than Canon or Nikon lenses, and is available in both Canon and Nikon mounts.

THINGS YOU NEED TO KNOW

You can't make a serious attempt at engraving without knowing basic graver geometry, sharpening, etc, and you can't make a serious attempt at photography without knowing some of the basics. This is important information so hang in there and refer back as needed.

TRIPODS - You **MUST** use a tripod when photographing your work as it will be next to impossible to get critically sharp photos at the slow shutter speeds you'll be using. Avoid department store tripods as they are pitifully poor. A sturdy tripod that will support a DSLR camera and lens will cost a minimum of \$100-\$150. You get what you pay for. More money gets you smoother controls and greater stability, but you don't have to spend a fortune. Pay a visit to your local camera shop and they'll be happy to show what will work for the gear you have and the types of photos you'll be shooting.

CAMERAS & LENSES - DSLR (digital single lens reflex) cameras are finally affordable for consumers. They are the digital equivalent of 35mm film SLR cameras of the past,

LIGHT METER - All modern cameras have built-in light meters which measure light and set the camera's ISO, aperture, and shutter speed automatically when you depress the shutter button. What you need to know is that shooting in full-auto mode and letting the camera make ALL the decisions will rarely render the best results. The preferred mode will be AE, or Aperture Priority.

APERTURE - The lens opening through which light travels. The size of this opening is indicated by "F-stops". The lower the F-stop number the wider the lens opening and the higher the F-stop number the smaller the opening. What you need to know is that smaller openings (i.e. f22) provide greater depth of field than larger openings (i.e. f2.8).

DEPTH OF FIELD - The amount of a scene in a photo which has acceptable sharpness. This is determined by the lens aperture or F-stop.

A point and shoot camera (left)
A Digital SLR (Right)



mean smoother photos with less grain or ‘noise’ and high ISO can render grainy photos. The amount of high ISO grain is not the same for all cameras. Professional cameras will deliver exceptionally high quality high-ISO performance as opposed to consumer cameras. High ISO allows for faster shutter speeds to freeze action and prevent blur. What you need to know is that when shooting from a tripod you should use the lowest ISO setting to reduce grain and maximize the quality of the image. Shoot high ISO to freeze action at the ballpark.

WHITE BALANCE

- The color of light captured by the camera’s

SHUTTER SPEED - Think of the shutter as a theater curtain that opens and closes in the blink of an eye, exposing the sensor to light from the lens. The speed of this opening and closing can vary from several minutes to thousandths of a second. What you need to know is that longer shutter speeds can mean photos ruined by motion of the subject or by camera shake. In the case of photographing engraving, a sturdy tripod will solve the problem of camera shake when using slow shutter speeds. Using the camera’s self-timer will allow the camera and tripod to stabilize before the shutter fires.

sensor varies from blue to yellow. The color of light is called color temperature and is rated in degrees of kelvin (K). If you’ve noticed that the color of your photos taken outside look natural and the ones taken inside are yellow, it’s because the color

SENSORS AND MEGAPIXELS - What used to be film is now a small, light sensitive device that converts the optical image into a digital signal. Sensors are comprised of millions of pixels (megapixels), each of which captures a tiny bit of image data. The more megapixels the larger the physical size of the photo with more captured detail and smoother tonal gradations. What you need to know is that more megapixels can render higher quality photos and the ability to crop and still have a digital file large enough for print. While the number of megapixels isn’t everything in photography, you can be certain that in most cases more is definitely better.

ISO - What used to be called “ASA” back in the film days is the camera’s setting that increases or decreases the sensor’s sensitivity to light. Lower ISO numbers



temperatures are different. The bad news is that incandescent lights produce yellow light. The good news is that setting the camera's white balance fixes the problem, and it's quite easy to do. You have a couple of options, one is in the white balance settings in the camera which allow you to specify daylight, fluorescent, incandescent, flash, etc. Sometimes these settings are fairly accurate and sometimes not.

The best method is to photograph a white sheet of paper under the same light you're using to illuminate your engraving, and then set a custom white balance using the photo as a reference. You can do this via the menu settings in most cameras (see your manual). What you need to know is that you must not rely on the camera to produce accurate colors and care must be taken to get a correct white balance before you start shooting. And don't skip this important step thinking you can make quick fixes in Photoshop later. Get it right from the start and if you need to make slight corrections later you can (to a certain degree).

YOUR CAMERA'S FLASH - Use it for the kid's birthday parties but disable it for photographing your engraving. It will produce harsh light, strong shadows, and your photos will look like they were taken with a flash as opposed to natural light.

AUTOMATIC MODE - In automatic mode the camera makes all the decisions regarding aperture, shutter speed, white balance, and ISO. This is usually fine for casual shooting but rarely will produce the quality we're looking for when photographing our engraving. What you need to know is to avoid this mode and use aperture priority mode for best results.

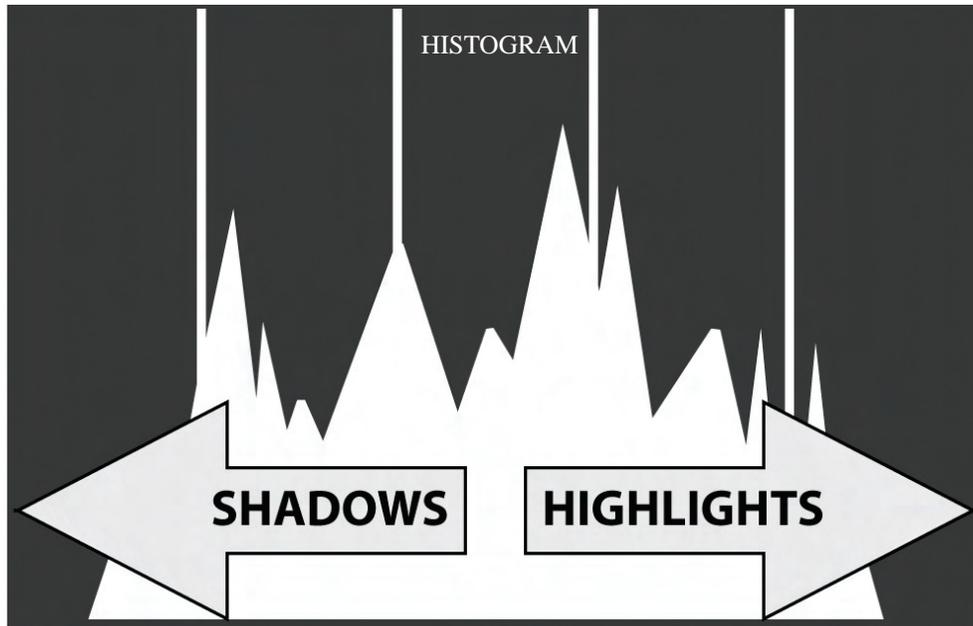
APERTURE PRIORITY MODE - In aperture priority mode the user sets the aperture for appropriate depth of field and the camera sets the shutter speed to allow the correct amount of light to reach the sensor. What you need to know is that aperture priority, or 'AV' as it appears on many camera dials, is best for shooting engraving. Also keep in mind that lenses have a sweet spot for sharpness which is rarely at the smallest aperture. Sometimes we have no choice and must shoot at the smallest aperture in order to keep the entire object in focus. Try different aperture settings and use only what you need. If f8 produces adequate depth of field then f22 is not necessary. As you increase the aperture number to get more depth of field, the camera will slow the shutter speed accordingly for proper exposure. Remember that camera shake will ruin photos so use a tripod!

Note that consumer point-and-shoot cameras have a very limited F-stop range.

SHUTTER PRIORITY MODE - In this mode the user determines the appropriate shutter speed and the camera allows the aperture setting to 'float' or change for the correct amount of light to reach the sensor. What you need to know is that shutter priority provides no control over depth of field since the aperture setting (which controls depth of field) is decided by the camera. Avoid this mode for photographing your engraving.

RAW vs. JPG - The JPG format is a photo compression algorithm that makes files smaller by discarding bits of information. The more compression, the smaller the size at the expense of photo quality. All digital cameras process the pictures you take by compressing them and saving as JPG. For casual shooting this is usually fine. For art photos and critical photography, shooting in RAW is the preferred method. The bad news is that RAW files must be tweaked in photo editing software to maximize their sharpness, color, and contrast and then saved as JPG. The good news is that RAW files are uncompressed and YOU make decisions on how the photo should look before saving to JPG as opposed to allowing the camera to decide for you. RAW files have many times more data to work with as opposed to a compressed JPG. This equates to much greater latitude when making adjustments and corrections, plus the RAW file is your 'digital negative' which remains untouched. What you need to know is that shooting in JPG might work depending on your conditions and equipment, but shooting RAW will always give you much greater control over the finished product. Some cameras will shoot RAW & JPG simultaneously. If the JPG is suitable then you're good to go. If not, then you have a RAW version that you can adjust in Photoshop. RAW images look flat and dull compared to JPGs, and adjustments must be made to bring them to life. It's well worth the effort.





where it is and use it to avoid the dreaded blinkies!

POST PROCESSING

- The personal computer is the photographer's digital darkroom. After the shot has been made, color, contrast, and many other things can be adjusted, cropped, and corrected in Photoshop. Adobe Photoshop comes in two varieties which are the less expensive Photoshop Elements and the full blown Photoshop used by professional photographers and graphics artists. Photoshop Elements is a good way to start and is available in both PC and Mac versions, and also comes bundled with many cameras and photo printers. What you

HISTOGRAM - One of the greatest things since sliced bread, and available on most digital cameras. The image histogram is a graphical reference showing the tonal distribution in your photos. The left side of the horizontal axis indicates shadows and dark areas, and the right side indicates highlights. While you can't always tell if a photo is under or overexposed by viewing it on the camera's display, the histogram will show you. This is an extremely valuable tool. What you need to know is that when overexposure occurs, the horizontal axis will be shifted to the right edge of the histogram. Not using the histogram (or Blinkies) is like not watching the gas gauge or speedometer in your car.

need to know is that nearly all digital photographs require a bit of tweaking, sharpening, and cropping. Fortunately there are hundreds of free tutorials online which will teach you to use software for photo editing. It's easy and it's fun. Ω

BLINKIES - Commonly called a "highlight warning", this feature is available on many digital cameras and must be enabled in the menu settings. When enabled, overexposed areas will blink on and off on the camera's display when reviewing the shot. Overexposure is a cardinal sin in photography. When blinkies show clipped areas in the photo, nothing can be done to repair it because there is no data in the clipped areas that can be recovered. What you need to know is that clipping of small specular highlights might be OK, but overexposing larger areas means you must compensate by increasing your shutter speed to allow less light to reach the sensor. Your camera's Exposure Compensation feature allows for quick and easy adjustments. Learn



QUICK START GUIDE

-Turn on light and place item under softbox.-Mount the camera on a tripod, set the ISO to the lowest setting (around 100).

-Set the camera to AV (aperture priority) mode.

-Set the aperture to f8.

-Enable the self timer to allow the camera to settle before it fires the shot.

-Turn off the lens autofocus and focus manually.

-Make and set a custom white balance using a white sheet of paper.

-Shoot some test shots and increase the aperture to f16, f22, etc if portions of the object are not in focus and more depth of field is required.



A collage of photos arranged in Photoshop.....But that is another article for another issue!!!

