Copper Plate Preparation

Beveling the Edges
You want to make the edges of your plate safe to handle. They should be deburred to take off any sharp edges and beveled and filed so that they are smooth and do not accept ink. If the edges are rough they can easily take ink and the edges of your plate will print. Debur with deburring tool. Pulling tool toward you, pull tool along edge of plate. A ribbon of copper should peel off the edge as you go. Do each edge about 3-4 times or until the edge is uniform. Do each side and then flip over and repeat process on the back side. If you don’t have a deburring tool you can use a file. When using a file, use strokes directed away from you instead of back and forth. A file only cuts one way. Once the edges are beveled smooth them out with some fine sandpaper (600) wrapped around the file or a sanding block.

Polishing the Plate
There are many ways to polish the surface of a copper plate. Polishing the plate will remove any minor scratches from the plate. The more that you polish the plate the brighter white your plate will print. If you wish to have an all over plate tone then you can spend much less time with the polishing step. You will start the polishing process by using a material that will remove the deepest scratches and then work your way through a series of finer and finer polishing agents. Sandpaper, steel wool, Putz Pomade and Wright’s Silver Polish are some of the polishing agents you can use. Remove any deep scratches with the scraper and follow up with burnisher and oil. Next go to the sandpaper and sand the plate. You can use just one grade of sandpaper or work your way all the way up to 1500 sandpaper. End with Putz Pomade and Wright’s Silver Polish.

Degreasing/Deoxidizing
Before coating the plate with your ground you must degrease the plate to remove oil and residue so that it can accept the ground. Wear glove for the degreasing steps to prevent your hands from leaving oil on the plate. You will be alternating between 2 solutions; Whiting to degrease the plate and a vinegar salt solution to de-oxidize it. Hold the plate polished side up and wet the plate. Sprinkle some whiting on the plate and use a blanket scrap to form a paste on the plate. Massage this whiting paste into the entire plate. Rinse both front and back of plate thoroughly. Next spray the salt vinegar solution on to the plate to deoxidize it and rinse the plate. Repeat the degreasing process with the whiting once again. Rinse the entire plate thoroughly. Blot the plate on clean newsprint. You can also use a hair dryer or fan to quickly dry the plate. Keep plate covered with newsprint until you are ready to apply the ground.

Applying the Ground: Option 1 (Universal Hard Ground)
This is the quickest and easiest method for putting a ground on a plate. Set up near the hot plate. Put down some paper (newsprint, kraft paper, yellow book pages) underneath your plate. Use a foam brush and coat plate. Try not to go over the same area twice. Just a few strokes should cover the plate. Shift plate carefully to the hot plate (holding by edges of paper). Let sit on not plate briefly (30 seconds - 1 minute) until the brush strokes even out. Take off hot plate and allow to cool undisturbed.

Applying the Ground: Option 2 (Hard Ball Ground)
Using the ball ground will give you a very luxurious flexible ground to draw through. It takes more time than using universal hard ground. Preheat hot plate to 250⁰. Place the thermometers on the hot plate. Adjust the temperature of the hot plate so that the surface temperature registers under 200⁰ and above 150⁰. Put plate on hot plate. Take the lump of hard ground and push into surface of plate leaving behind dabs of the ground spaced out across the entire plate surface. Take a rubber brayer that has good spin and a nice even surface. Roll out the ground on the plate, starting out faster and then slowing down as your coat evens out. Avoid rolling over the edges. If you roll over the edge you will create lines in your plate. Once you have a nice even coating take the plate off of the hot plate with a metal spatula. Allow to sit undisturbed on the metal counter until it has cooled off.

Drawing into the Ground
Use an etching needle to remove the ground. Avoid touching the plate with your hands. Use a bridge or put paper underneath your hands to keep any oils or acids from your skin getting on to the plate. Keep your tools sharp. Angle the tool so it doesn’t catch on the ground. You want to just remove the ground but not dig into the metal. For dark
areas use a pattern like stippling or crosshatching. Do not remove too much ground in dark areas, keep some ground in between the lines.

**Backing the Plate**
Cover the plate with contact paper or packing tape. Attach a long tail of duct tape to use as a hanger in the etching tank. Before etching you will want to touch up any areas you don’t want to etch including the edges of the plate, where the ground hasn’t adhered. I like to use a litho crayon along the edge of the plate to prevent this area from etching. You can also use a Sharpie to touch up small areas.

**Etching the Plate/Step Etching**
Gently lower the plate into the tank. Use clothes pins to attach the tape hanger to the side of the tank. Have a plan in mind of how long you would like to etch various areas of your plate. You will want to etch different parts of your drawing for different amounts of time to achieve different depths and values of lines. This is easily done by progressively painting over areas of your drawing with an acid resistant stop-out ground and returning the plate to the acid to etch unprotected lines further. There are a variety of materials you can use to protect areas from etching. Liquid hard ground, sharpie marker, and litho crayon can all be used to protect areas from etching.

**Removing the Ground**
Use SoySolv and a rag to remove the ground. Please put rags in fire-proof container when finished. You can use some denatured alcohol and a clean rag to clean off the SoySolv residue. Please wear gloves and respirator when using solvents.

**Scraping and Burnishing**
If you need to make corrections or remove lines from the plate you must scrape and then burnish them away. To remove a mark start by scraping. Hold the scraper almost parallel to the plate using the flat part of the blade. Move the blade across the area you want to remove in all directions. You should see metal fragments coming off the plate. Be careful when removing metal debris as it can scratch your plate. When you are finished with the scraping you must soften the scrape marks by burnishing. Put down a little 3-in-1 oil in the area you want to burnish. Use the curved area of the tool and make tight circular motions. After burnishing polish the plate with Putz pomade and finish with Wright’s Silver polish.

**Ink Mixing**
Use etching ink. Soften the ink with a vary small amount of E-Z wipe or Setswell.

**Inking Plate**
Use the cardboard chips or the small rubber inking wedges to apply ink to the plate. Cover the plate with ink and then wipe away as much of the excess ink as possible. Get a large piece of tarlatan to wipe the plate. Push the ink into the lines with the tarlatan using a twisting downward motion. Next carefully remove excess ink from the edges of the plate using a clean rag. Next gently wipe the plate with the tarlatan using a light circular motion. Keep rotating the tarlatan wad to clean areas as you go. The last step is to use either the palm of your hand or yellow book pages to give a last wipe.

**Printing**
Your hands should be clean for these next steps. The press must be set to the proper pressure and the blanket set needs to be placed on the press bed. You should put your paper in the water bath before printing. Paper needs to soak for at least 20 minutes before printing. Once you are ready to print take the paper out of the bath and use the blotter paper and the rolling pin to blot the paper. Place your registration template on the press bed. Carefully place your plate on the registration template. Get you paper and lay it on top of the plate. Place a protective sheet of newsprint over you paper. Place the blankets on top of everything and roll through the press. Repeat this process for each print. When finished printing clean ink out of line with Mineral Spirits and wrap up plate.