

BRASS PLAQUES

Custom Brass Plaques Made Easy

By Chris Wantuck

Serial number data plates, manufacturer identification plates, body number tags, firewall ID plate, or just a simple tag showing date of manufacture or restoration, these are the plaques that distinguish your collectible from others. This type of detail shows the quality that has been expended during the auto's restoration or preservation. True, serial number tags in exquisite quality for specific brands are available from a few established vendors that require simply engraving the auto's serial number, but what to do if a blank plate doesn't exist or the desired design is truly custom. This article looks at one method of making custom brass plaques that is within reach of most, using a home personal computer with graphics capability, a Laser printer, and materials available from select vendors.

The method discussed here is borrowed from the electronics industry that they use to make something called printed circuit cards (PCB). For those not familiar with PCB's, they are the basic part of virtually all electronic devices. Cell phones, televisions, your home computer, car radio, and even the clock radio on your night stand has a PCB. PCB's combine metal conductors and electrical components onto an insulated 1/16 inch thick rigid material which is usually made of fiberglass or some glass and epoxy mixture (called glassy epoxy). It is the method of how these metal conductors are applied to PCB's that we're interested in. A design pattern (or mask) is applied to a PCB that has a full thin metal outside layer and through an acid etching process all the unwanted metal is removed, leaving the desired pattern. Making custom brass plaques will use this same method. A pattern is applied directly to an already sized and polished brass plate and then is immersed in a warm acid solution to remove the brass

metal from everywhere except the desired pattern. Afterwards, the brass plate is cleaned and a number of finishes can be considered. Figure 1 shows an enlarged cross-section view of what the final brass plaque looks like after the unwanted area has been etched away.

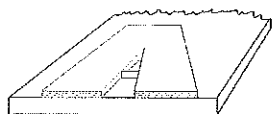


Figure 1

The process begins by designing and preparing the desired pattern on a one-to-one scale. This can be made using the home computer and simple programs like Microsoft Powerpoint or graphics programs such as Corel Draw or Paint Shop Pro. Depending on the complexity of your pattern, you may also need to include graphics from a source that appears in a source like a magazine ad. If you were making a plaque for an orphan auto like a Knox that used an unusual font, it's possible the only source maybe a period advertisement or some manuscript. An extra step maybe to use one of the special font programs that include many hundreds of letter styles that are not already included in Microsoft programs. Certainly, a photo of a sample will greatly aid in your recreating the pattern. In any case, have the graphics avail-

able, preferably as a scanned item and remember this is strictly a black and white process. No shades of grey can be included. In this pattern, you'll layout the plaque exactly as you want paying attention to font style of the letters, spacing, and any trim or edging that you want to appear. The last step in the pattern process is to print it out on special Blue Press-n-Peel Mylar film available from a vendor called Techniks, Inc. However, the final pattern must be printed in **reverse**.

Figures 2 and 3 show the patterns for two different types of plaques being made while this article was written. Figure 2 is a creation for Metro-CCCA member Ralph Marano using Packard script and style and Figure 3 is a fictitious plate for "the Knox". Your design may include details like blank spaces where letters or numbers will be engraved or stamped in afterwards, as Figure

Figure 2

3 depicts. Print out the pattern onto regular plain paper and examine the pattern carefully. Is the spacing between letters or words correct? Are line and letter "thicknesses" acceptable? Make any changes to your pattern and save as the master. One last step before you print the pattern on the special film is to **reverse** the pattern. This process transfers the image from the back side of the film, so the pattern must be printed reversed so that when transferred to the brass metal, it will be appear correctly. Reversing the pattern is usually a simple function on the computer program used to make the pattern. Printing on a Laser printer embeds the Laser toner material onto the Mylar film and for this reason Inkjet type printers cannot be used. Laser printers apply the toner at temperatures around 300-325 degrees. Applying or transferring the pattern from the Mylar film to the metal will require similar temperatures.

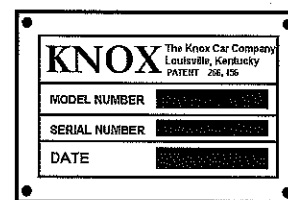


Figure 3

Prepare to apply the pattern to the metal by heating the metal. The suggested method is to warm it in a household oven where the temperature can be monitored and controlled, starting at 350 degrees. Experience has shown that one eighth inch thick brass greatly absorbs heat, so time in the oven can easily take two hours or more. The suggested plaque should be 1/16 inch thick which will be durable yet thin enough to easily apply the pattern.



Photo 1

Thicker metals will likely be harder for first timers. When warmed, place it on a scrap piece of flat wood or other rigid insulator and immediately apply the pattern to the metal. Using a household clothes iron and starting in the center, heat transfer the pattern to the metal

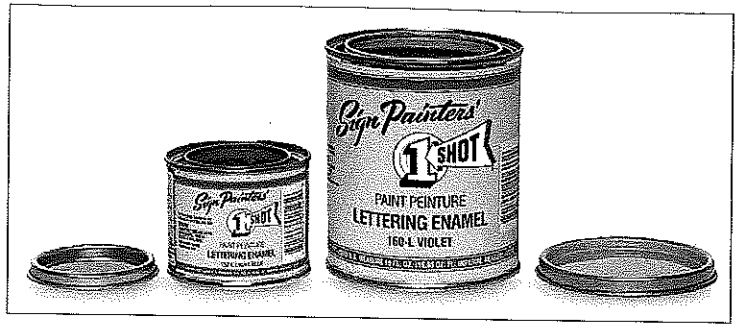
paying attention to all the lines, edges, and characters of your pattern (see Photo 1). After several minutes of using the iron and making sure all the pattern has been covered with the iron, immediately shock the metal under cold water. The shock in temperature is part of the release process for the Press-n-Peel film. When cool, remove the film in one easy but firm motion. The successful transfer will look like the plaque in Photo 2. In the event the pattern did not transfer correctly, the metal can be cleaned with petroleum distillates and the process repeated. Poor transfers are usually attributed to



Photo 2

surface preparation and temperature of the metal. If however, only a few areas did not transfer, they can be filled in with the industrial version of a Sharpie brand pen. The inks in the industrial version Sharpie will resist acids like the printer toner and are available at Staples or other comparable office supply store. Now on to the acid dipping process.

The brass plaque must now be etched in the acid bath to remove the metal material around the pattern. The simplest method is to use a solution of Ferric Chloride which is intended for copper and copper alloys like brass. This is available in a liquid solution from Mouser Electronics or over the counter at local Radio Shack stores. Your local hobby shop may also carry it in either crystal or liquid form. The acid should be used in a plastic or glass (not metal) container or tray just large enough for the plaque and warmed to 140 degrees. Colder (room temperature) solutions will also work, just considerably longer. A simple method of warming the solution is to place the container into a larger water filled tray (which can be metal or Pyrex glass) on a hot plate. The acid filled tray must be occasionally agitated to allow the acid to move over the plaque and remove the metal. A mandatory safety precaution is the wearing of protective gloves and air respirator. Check the progress by inspecting the depth of the etched area without disturbing the pattern. A 4 X 6 inch 1/16 inch thick brass plate will



probably take about 60 minutes. Once etched, rinse with cold water. From here, a number of finishes are possible.

Completing your brass plaque will depend on what finish you want to achieve. The etched area can be painted a black dark color using a thinned sign painters enamel (sign painter's enamels flow easier than standard enamels) such as 1-Shot brand enamel paint. 1 Shot also offers hardening and flattening additives to achieve the desired results. While undoubtedly applying the background paint that some may get on the pattern area, it can be cleaned up as it is physically higher (taller) than the etched area (again refer to Figure 1). Rubbing the top of the pattern area with a flat block should clean the pattern area without disturbing the lower etched area. Another finish is to immerse the plaque in a brass antiquing or darkening solution available from furniture suppliers like Van Dykes Supply. This finish requires you to apply this solution before you wipe off the pattern using a petroleum distillate or lacquer thinner. Another finishing suggestion is to have the plaque nickel plated and then apply the sign painters enamel paint. Photo 3 shows the completed Marano & Sons plaque with the etched area painted.



Photo 3

1. Blue Press-n-Peel Mylar - TECHNIKS, INC. PO Box 463, Ringoes, NJ 08551 Fax: 908-788-8837 www.techniks.com Techniks@techniks.com
2. Ferric Chloride - Mouser Electronics, Inc. 382 Rt 46 Suite 1 & 2, Budd Lake, NJ 07828 (800) 346-6873 Local: (973) 448-0050 Fax: (973) 448-3753 <http://www.mouser.com>
3. Enamel Paint - 1 Shot brand sign painter's enamel available from artist supply stores. ONE SHOT LLC, 5300 W. 5th Avenue, Gary, IN 46406 Phone: 219-949-1684 Fax: 219-949-1612 <http://www.1shot.com/>