

# ALUMINUM DIALS AND NAMEPLATES

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Small lithographic plates may be employed for custom dials and nameplates to dress up prototype and experimental models of electronic equipment.

**M**ANY a fine piece of prototype amateur, experimental, or even custom-shop equipment is marred by a poorly made dial or nameplate—reflecting very little credit on the builder who has expended so much time and effort in constructing the instrument itself.

Admittedly, if there is no commercial nameplate meeting the requirements, the easy and usual recourse is to a grease pencil, "Labelon," or "Eveready" tape. Yet, if we consider how commercial nameplates are made, it becomes apparent that a process exists whereby quality dials and nameplates can be made without difficulty right on the workbench.

Commercial nameplates—be they of anodized aluminum, etched aluminum, or just plain paper—are generally made through either screen or offset printing. For our purpose only the offset process will be considered.

In the offset process a lithographic (litho) plate is prepared on which the characters or background are represented with ink (or special resist). The ink is transferred by a "transfer blanket" to the material used as a nameplate.

It is the litho plate, usually made of aluminum or zinc, which gives us the basis for "custom-made" aluminum nameplates. Basically, a litho plate is a piece of aluminum coated with a photo-

sensitive diazo compound. When a litho plate is exposed to light through a negative and then developed, the diazo areas which are not exposed are dissolved and removed by the developer. The exposed diazo compound remaining on the plate has the ability to absorb ink. Normally, the plate is inked, locked in an offset press, and then used to print nameplates.

If a fast-drying ink is combined with the developer, the litho plate is developed and inked simultaneously. When the ink is dry, the litho plate itself can be used as a dial or nameplate. The inked litho plate appears as the usual nameplate—aluminum characters with a color background or colored characters with an aluminum background. The plate, being the approximate weight of foil, can be trimmed with scissors, shears, or a paper cutter.

The processing of a litho plate is *not*

similar to nor as difficult as the processing of photographic printing paper. The processing of a litho plate is performed under subdued room illumination. As for developing-inking, a small quantity of developing ink is poured on the exposed litho plate and rubbed in with a damp sponge. That is all there is to it. The process is quick and inexpensive. In less than five minutes an entire 8"x10" plate of nameplates can be made at a cost of under three dollars.

While a negative is necessary for the preparation of a litho plate, the usual photographic negative is not needed. The original dial or nameplate drawing can be used as the negative. In this instance a reverse nameplate is produced. Fig. 1 is the original drawing of an instrument dial. By using the drawing as a negative, a completed dial appears as in Fig. 2. For sharp characters, the drawing must be prepared on a very thin material since the amount of "spill" of the exposing light source is a direct function of the thickness of the drawing base. A .0025 matt-surface, polyester drafting film will give the sharpest reproduction.

The artwork can be prepared in many ways. Fig. 4 shows an instrument dial lettered with LeRoy (*LeRoy* or *Letter-guide* produce the neatest lettering). Maximum density is achieved in the lettering by using an acetate drawing ink.

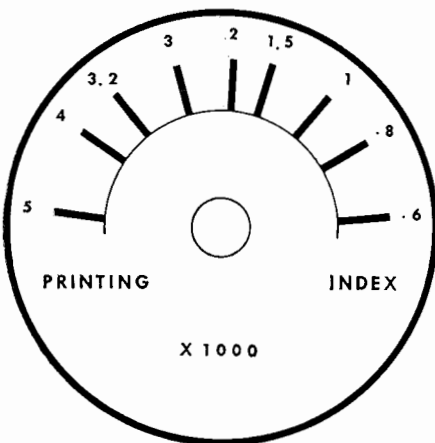


Fig. 1. The desired dial drawing, prepared by combination of adhesive letters and ink.

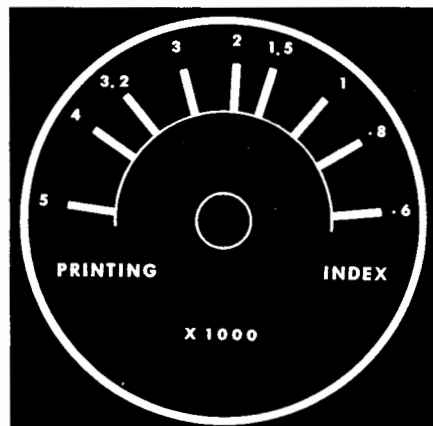


Fig. 2. The use of the drawing as a negative produces this negative dial directly.

Fig. 3. Print-quality nameplates are made by using adhesive letters and lines.

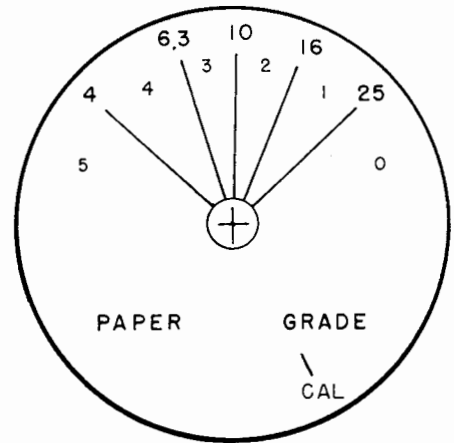


Fig. 4. Dials may be made with LeRoy lettering. Intermediate negative produces positive.

It is very important in working directly from the drawing that the characters be a dense black. As the inking of the drawing varies from light to dense black, this disparity will be even more pronounced on the nameplate.

If print-quality characters are desired, the letters and lines can be done with adhesive characters similar to *Artype*. In this instance the characters are arranged as desired and then pressed against the polyester film. The completed drawing appears "professional" and produces quality of the type illustrated in Fig. 3. For complex dials, adhesive characters can be combined with inking—in which case the adhesive characters should be applied after the inking. The dial shown in Fig. 1 is such a combination.

When the drawing is completed it is placed face up on a litho plate and locked in a printing frame or covered with a piece of weighted glass. The plate is then exposed for two minutes by a No. 2 photoflood placed 12 inches from the drawing. After exposure, developing ink is rubbed over the plate until the desired density is obtained. A water rinse removes the excess ink and the nameplate is completed.

For positive dials, Fig. 1, an intermediate negative must be used. A lithographic film is necessary for maximum contrast, however a high-contrast film such as Contrast Process Ortho will give adequate results. If you are unable to make your own negatives, the local litho supplies dealer can recommend a negative processor.

The nameplate can be mounted either with screws or contact adhesive although the latter will give the easiest and firmest mounting, particularly on curved surfaces.

While it is possible to assemble the necessary supplies from various sources, much time and effort can be saved by purchasing a Nameplate and Panel Kit. These kits sell for around seven dollars and contain the required supplies: 8x10 litho plates, developing ink, three sets of adhesive letters, printing glass, and mounting adhesive. Such kits are available from some of the larger electronic parts dealers, *Allied Radio* for one, and from the *Keil Engineering Co.*, 4356 Duncan Ave., St. Louis 10, Mo. ▲