SILKSCREENING

By Ed Hedemann and Kate Donnelly

A silk screen printer is a device that allows a person to do mass printing on unusual objects (e.g., large posters, thick boards, banners, irregular surfaces, T-shirts). It is also a cheap way to print up a small run of posters. And it can be a very satisfying and creative way to express yourself.

Basic Operation

A silk (or other material, such as polyester) piece of cloth is tightly stretched over a wood frame. A stencil with the design you want transferred to your poster (or whatever) is adhered to the bottom of the silkscreen. The stencil and the silkscreen is placed flat over a blank poster. Ink is put on the silkscreen and spread over the area where the poster is positioned with a squeegee. The ink passes through the areas where the stencil allows, in a very uniform way.

Constructing the Printer

Cut up a 2" x 2" piece of wood, such that when you nail together the frame your inside dimensions match those of your poster (e.g., 17" x 22"). Next take a piece of 10x10 silk mesh (e.g., 25" x 30"), which can be purchased at an art supply store, and stretch it very tightly over the frame with the help of one or two other people. Then tack down one side (a tack every inch or two), then the opposite side, then the other two sides—making sure the screen is well-stretched and tight. The screen should overlap around the edge of the frame to better hold the screen (otherwise it may tear away from the tacks).

Then cover the frame with paper tape to further secure the screen on the frame. This also strengthens the frame and minimizes snags. Cover the wood completely. Shellac the frame and allow the shellac to extend about ¼" onto the screen—making sure the frame is completely sealed from any liquids (paint or solvent). Allow to dry overnight.

Attach two hinges (with removable pins) to the frame and a piece of wood (e.g., ½" plywood). The bottom of the screen must be flush with the board. The removable pins allow silkscreening on thick items such as boards. The part of the plywood touching the screen should be very smooth to prevent snagging—which would be disastrous.

Making the Stencil

There are several ways to make stencils. The simplest is cutting out a stencil on a piece of paper. However, this stencil is only good for two or three dozen posters. Another method involves painting directly on the screen with a screen filler (which can be obtained in an art supply store). Wherever you apply the filler, ink will not flow, since in both these methods you are creating a “negative.”

You can also paint on the screen in a “positive” sense by first drawing your design with a lithographic tusche or crayon. Next cover the screen with the screen filler (it won’t mix with the lithographic tusche). Then dissolve the lithographic tusche with turpentine, which leaves only the screen filler.

You can also use a hand cut screen printing film (e.g., Ulano S3S-Stasharp). This film is composed of two layers: a colored (e.g., green), very thin layer and a thicker (e.g., 3 mil) clear plastic backing sheet. To the stencil, tape the film—colored side up—on top of your
design. Then, using an exacto knife with a swivel blade, cut along the design. Caution: do not bear down with the knife—just drag it along the surface ever so lightly. You just want to cut the colored layer without denting the clear backing sheet, which may cause problems in adhering the film later. Remember, you are creating a negative. So once you have finished cutting, peel off and throw away that part of the colored layer you wish to have ink flow through and print. As with any of the handcut methods, detail—especially small print—is difficult to cut.

To adhere this stencil to the silk screen, place the film on the plywood board, colored layer up. Then place the screen directly on top. Next, with a cloth lightly soaked in the adhering liquid (e.g., lacquer thinner for the Ulano S3S-Stasharp) lightly rub over the entire screen to try to adhere the thin colored layer to the lower side of the silk screen. Careful: if you rub too hard or with too much adhering liquid the stencil will dissolve, but if you don’t put on enough liquid the stencil will not adhere. Since the adhering liquid is also a solvent of the stencil, you want to dissolve just enough so that the stencil blends somewhat with the silk mesh. Later, the adhering liquid will be used to dissolve and remove the stencil from the screen.

Now lift up the screen and carefully attempt to peel off the heavy clear backing from the underside. This should leave on the thin colored layer. If the peeling process seems to be pulling off the colored layer as well, put it down and rub some more with the adhering liquid.

The best method—particularly for detailed work and half-tones—is to create a stencil photographically. With this method you need to prepare your art work in camera ready form, as for an offset press. There are places which will create a photo stencil on a silk screen for about $30. If you wish to do it yourself, any library has a number of books on silk screening, or send $3 to The Silkscreen Project, St. Mark’s Church-in-the-Bowery, Second Avenue and 10th Street, New York, NY 10003, to get a copy of For the Could-Be Artist, which gives a simple explanation of this and other methods.

**Printing**

Now that your stencil is made, you are ready to print. But first you must mask off (with newspaper and masking tape) the edges of the stencil and other areas on the underside of the screen you don’t wish to print. Use screen filler to fill in pin holes and other small areas. Now glue or tape cardboard guides on the plywood base so you can position each poster exactly where you wish to print. Then lower the screen on the blank poster, spoon the ink (which can be purchased in any art supply store, usually by the quart) along one edge of the screen, and spread the ink evenly across the screen, pulling the squeegee firmly towards you. As one poster is taken out to dry, another blank one can be put in its place to repeat the process. Do not stack posters until thoroughly dry. If you have

*Positioning blank poster before lowering screen. Photo by Karl Bissinger.*
Using the squeegee to spread the ink. Photo by Karl Bissinger.

a lot of posters, pinning them to a clothes line is best.

When you have finished, clean the screen immediately with paint thinner. If the paint were allowed to dry, the screen would be ruined. Besides paint thinner, come prepared with lots of rags. Make sure all the paint is removed from the holes of the mesh. However, it is OK if the strands of the silk are no longer white, but colored by the ink. To remove the stencil, again use lots of rags but with the adhering liquid (often lacquer thinner). Rub both sides of the screen simultaneously to completely remove the stencil.

For multicolor jobs, each additional color requires a separate run through the printer. Depending on the job, you may have to have separate stencils (and maybe more than one screen) for each color. Or you could print several colors with one stencil by masking off appropriate areas for each run.

T-Shirts

Silkscreening T-shirts is pretty much the same process. However, you need textile ink, and mineral spirits to clean up. There are two kinds of textile ink: plastic, which sits on top of a shirt like a decal, and the other is like a dye. The former, once heat-cured, will never come off even if the shirt falls apart. While the latter will fade with time and washing. Beware of ink bought in art stores; some brands such as “Speedball” are awful. “Naz Dar” is an example of a good brand. A quart of ink will last for around 20 dozen shirts.

When you are ready to print, place cardboard or newspaper inside the shirt to prevent ink from leaking onto the back of the shirt. Make sure the shirts are laid out flat with no creases in the shirt or newspaper. Practice on scrap cloth, since each shirt is a big investment. You can have someone bring each stuffed shirt to the silk screen printer, or you can spread your shirts around the room, and take the unhinged screen around to each shirt. Sell rejects at cost to minimize the expense of mistakes.

One common problem occurs when the ink dries on the screen. This will cause some part of the image not to come out. Once you start to screen, keep going at a steady pace. If it gets too dry you may have to clean the screen and start over. If you must pause in the screening process, leave a thin layer of ink on the screen (a thin layer would dry more quickly). But never leave ink on a screen very long when not using it. To heat-cure the shirts, iron on both sides for 3 minutes or put in the dryer for 30 minutes.

T-shirts can be bought blank, but only in dozens of each size. Union-made T-shirts are next to impossible to find, and do not come in 100% cotton (they are available in 50% cotton and 50% polyester). Jim Yocum of Yocum Knitting (Stowe, PA 1964) has a union made 50/50 shirt with a union label. If you have trouble finding wholesale T-shirts locally, Eisner Brothers (72 Orchard Street, New York, NY 10002) will ship anywhere and has only a one dozen (same size and color) minimum order.

Silkscreening T-shirts is pretty much the same process, except you need to use textile ink, and shirts are more expensive than posterboard.