From the Workbench of Allen Miller ...

Ah, Sweet Mystery of Hot Glue

Restoring a pipe organ requires the use of hot hide glue, no question about it. In fact, any pneumatic recovering done with cold or white glue (such as Elmer's Glue-All) you may simple consider as scrap!

L to R: Glue pot with hot glue in jar.

WHY?

Because hot glue is soluble in water, facilitating removal of the old covering when the pneumatics have to be done over again . . . and, if we are to preserve the organ, they will have to be done over again at some time in the future.

With that out of the way, the purpose of this article is to make the use of hot glue less of an obstacle to proper recovering of pneumatics.

Hot glue, as we call it, is composed of animal matter, usually skin or hide, ground up and ultimately boiled down and dissolved in water. It is sold in dry granular form by the pound, and kept dry, will last indefinitely.

These granules actually dissolve best in COLD water. When preparing a fresh batch of glue or adding to the glue pot, the raw granules should first be soaked in cold water, the colder, the better. If you prepare the glue ahead of time, you can soak it in two to three times its volume of water in the refrigerator overnight and it will swell up to several times its original volume.

As it name implies, hot glue must be used HOT. The correct temperature is 140 degrees Fahrenheit. There are several ways to obtain this heat, most of which involve placing the glue in one container within another container filled with water, such as a double boiler. Clever technicians have rigged up all kinds of affairs, but nothing beats a real, honest-to-goodness glue pot.

Available from pipe organ supply houses, glue pots are available in sizes from one quart up. A one quart glue pot is the best size for pneumatic work, and will cost about $70.

The normal glue pot does not have a water jacket as old pots did, but relies upon close thermostatic control. There is a liner and close-fitting inner pot, both made of stainless steel.

A bent-wire brush support usually fits tightly within the inner liner. This wire is not made of as good a grade of stainless steel, and will rust and discolor the glue. I thus recommend replacing the wire support with a fitted length of ¼" dowel if you plan to keep the glue in the inner liner.

While the pot is intended for direct mixing of the glue, there is a better way. That is to prepare the glue in a peanut butter jar which will fit within the inner pot with enough clearance for a "jacket" of water surrounding the jar. If you use this method, you may use the wire brush support as it will not be sitting in the glue. It will also help hold the jar in place.

As you can imagine, hot glue is the perfect breeding ground for mold and probably other things we don't want to know about. If the glue is kept in a glass jar, it can be covered and kept in the refrigerator when not being used. You can also keep two or more jars with thick and thin glue ready for different types of jobs.

One argument heard against hot glue is that it takes time to prepare, and it is never ready at the critical moment when you open up a chest and find a blown pneumatic. In reality, you can have the glue ready by the time you have found a piece of leather and cut it to size.

Assuming you have prepared the glue ahead of time by soaking it in cold water, the quickest way to get it ready to use is in a microwave oven! Thirty to forty seconds is usually enough for a small batch. With a bit of stirring, and perhaps another shot in the microwave, you can use the glue for a

Glue pot set up conventionally with wood brush support. Cover is flipped over showing notch relief for brush.

L to R: Glue jar, inner pot, brushes, one-quart glue pot, water jar.

few minutes without even setting up the glue pot at all. You will probably go this route if you only have one or two small pneumatics to recover and the microwave oven is handy.

Otherwise, place the jar in the glue pot and surround it with water slightly above the level of the glue in the jar. Be aware that the water will evaporate out of the glue, and also out of the surrounding pot. Have a jar of water on hand to replace what is lost by evaporation.

If you insert the brush support over the top of the jar, it will serve to hold the jar in place, and you will use it to wipe excess glue off the brush before you use it. This keeps you from messing up the top edge of the jar.

If you keep the glue covered when not actually in use, there will be far less water evaporation. You could make a "working" cover for the glue jar with a small hole (1" to 1.5") or at least twice the size of your brush. I usually make a plywood cover for the pot with a notch in the underside for the brush. If you keep the brush either in the glue (a bit messy), or suspended between the dowel and the cover, it will stay hot and damp and not get hard between uses.

You will find the water jacket handy when you need to clean hardened glue off the brush. At the end of the day, you can clean out the glue contaminated water and wipe off the outside of the jar and the inside of the glue pot.

Using this manner, the glue pot will remain as "new" as the day you bought it.

White pig bristle makes the best glue brush. For pneumatics, I use a #2 to #4 artist's brush. I usually cut the handle off to about 6" in length. A bristle "utility" brush ½" wide will do most other work, and can often be found in a hardware store.

Thin pneumatic leather requires thin glue, while heavier leather and felt requires heavy glue. You will also find that you have to work quickly to get the materials stuck together before the glue starts to get cold. Since hot glue is very tacky, it sets up faster than cold glue, and you will soon find that your pneumatic work will actually go faster and easier than it ever would with cold glue.

When hot glue was used for woodworking, it usually was impossible to spread the glue on the work before it started to set up. This was particularly difficult in a cold factory. Artisans thus used steam-heated cabinets to preheat the wood before gluing it up. Keep this in mind if you are having problems with the glue setting up too fast. You can warm up the pieces of wood from your pneumatics in advance and give yourself an extra margin of time.

Lest there be any question, I do not recommend hot glue for everything. The rule of thumb is that if it is something which might have to come apart again, use hot glue. If it is a wood joint which should be glued permanently, use a yellow carpenters' glue. If it is a problem joint, such as a crack or edge joint in a wide board glued up of two pieces, use epoxy. If you are gluing felt and leather together to form a valve pad, use PVC-E, which always remains flexible. Glue this to the pallet with hot glue, however, so it can be replaced.

Once you have started using hot glue, you will realize why it is still used widely by organ builders. And, if you use hot glue, the next person who recovers the pneumatics won't be swearing at you.