

THE REPAIR SHOP

THE KIRMSER FLUTE PAD PREPARATION METHOD

FOR THE COMPLETE OVERHAUL OR REPAD OF A FLUTE

by Lars Kirmser

One of the more frustrating aspects of providing quality flute repair is acquiring a good quality pad. A pad that is appropriately firm, has a blemish-free (double) skin, and is consistent in all dimensions. It has been my experience that even with the better, more expensive pads, one may still expect to come across some inconsistencies.

Faced with this problem back in the mid 70's (when I opened my first repair business) I began to experiment with various techniques to prepare flute pads. After pre-treating pads with a number of liquid preparations (silicone, egg white, egg yolk, etc.) and arriving at no significant improvement, I experimented with a controlled pressing of various brands of flute pads. My first experiments were to lightly pre-moisten pads and pack them tightly in metal tubes separated by metal washers. The tubes were just a bit larger than the O.D. of the pad. Once the pads were packed tightly, I baked the tubes at low heat in a conventional oven for approximately 45 minutes. I then allowed them to cool and removed them. My initial impression was that the pads were improved somewhat. The less expensive pads showed the greatest improvement, however, after I installed all brands into a pad cup, I experienced the same frustrating inconsistencies as before. It seemed like a great idea, but no such luck.

My next strategy was to figure out a way to treat the pad *after* I installed it in its respective pad cup. Using the same approach, I installed the untreated pad into its cup with washers so that it exceeded the rim of the cup by approximately 0.015". I then wiped the surface of the pad with a moist pipe cleaner folded in half. I used only enough moisture to induce the smoothing of the wrinkled pad surface (don't apply too much water!). I then heated a $\frac{3}{4}$ " flat washer over my alcohol lamp for about 10 seconds and placed the washer over the pad and clamped it with a 4" spring clamp of moderately light clamping pressure; making sure that the washer

was carefully placed and that an identical amount of pad was exceeding the pad cup all the way around. I then allowed the pad to remain clamped overnight. The next day I removed the washers and discovered by all indications that this process seemed to be quite effective. The result was a very firm pad that was precisely flat and even all around, and consistent in the amount it exceeded its pad cup rim. So far, so good! The real proof came only after I had padded several flutes using this process and then monitored their pad's condition over time. As it has turned out, this technique has worked marvelously for me over the past 25+ years, on all brands and levels of flutes. I have found that a relatively average brand of double skinned pad can be made to equal or even exceed many of the more expensive brands. Presently, I use the Ferrees B38 Deluxe Yellow-Skin flute pad for most of our routine repads and overhauls. On average, I will repad 3 flutes per week (6 per week during the months of July, August and September). Using this process, I will average from 75 to 90 minutes per flute repad. I charge \$150 for a student flute repad, and will have it in the shop for 3 or 4 days. Below, I have provided you with a pictorial chronology of this technique.



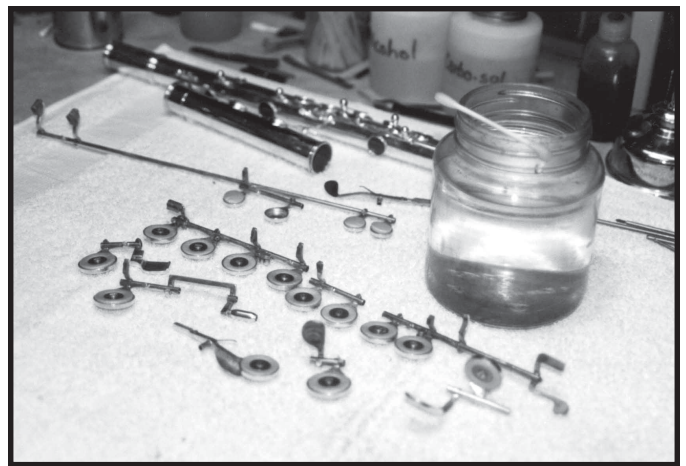
I begin by removing the old pads and washers from the key cups. Take note of the thickness of the old pad and the thickness of the washers used.



Temporarily install all the keys back onto the flute. Center and level each key cup with respect to its tone hole. This you will do in preparation for determining the exact distance each new pad must exceed the key cup to allow them to set evenly on their respective tone holes. This will generally be the same for all keys (except the High C and Trill key pads of course). The wrap-around G[#] and the thumb B may exhibit some variation from the other keys, however, as it turns out, most domestic manufacturers will use a precise distance of 0.015" on all the pad cups. You will notice in the above photo that I have placed a standard machinist's feeler gauge between the pad's cup and its tone hole to establish this distance. The correct thickness is when the pad cup touches the feeler gauge evenly at all quadrants.



The pads and washers have been placed in each pad cup. It is at this point that I verify that the pad exceeds the key cup by the prescribed amount. It should be just a bit more than the thickness of the feeler gauge thickness to allow for some shrinkage when we iron the pads. After you do this a few times, you will get a "feel" for establishing the correct amount of pad exceeding the cup.



The washers have been installed and the pad skins have been lightly moistened to eliminate the wrinkles.



The metal washers and spring clamps have been assembled in preparation for ironing. It is important that you use very clean, and very flat washers for this step. (I will buff them with white compound, and clean them off from time to time) I use a stainless steel $\frac{3}{4}$ " automobile fender washer on the pads of the main body section and $\frac{7}{8}$ " washers on the pads of the foot joint. These washers may be purchased from most hardware stores. As to the clamps, use ones which have a relatively gentle compression. Do not use clamps possessing overly hard clamping pressure. For example, if you clamp your index finger and experience unbearable pain, your clamps are probably too heavy. On the other hand (finger), if you are able to resist removing the clamp for a second or two, you are probably in the ballpark. In addition, all of the clamps must exhibit relatively equal clamping pressure when compared to one another.



Begin by heating the washer over an alcohol burner for approximately 10 seconds then, carefully center it on the pad face. Apply the clamp so that an identical amount of pad is visible between the pad and cup rim throughout the pads entire radius (this is really important!).



As each key is clamped, set it aside overnight.



I remove the clamps and washers the following morning, and then allow the keys to set for at least one hour. After that time, I will then proceed with the reassembly and adjustment of the flute. The reassembly process was outlined extensively in Issue #15 (pp. 40 - 47).

I would appreciate feedback from those of you who try this technique. You may email your comments to me at musictrader@musictrader.com

How to Win Customers and Hold Them

Give them better quality repair horns. The high quality plated finishes you see on new horns are now available to your repair department. You can now complete your repair jobs with the finest plated finishes in the country.

We plate nearly 400,000 band instruments for a dozen different manufacturers each year, and your repair horns will get the exact same treatment as the manufacturer's new horns. They will also get the same guarantee.

Let us have your horn for a week, and you will see what a fine plating job really looks like. You have your choice of bright plating in Gold, Silver, Nickel, and Stainless Nickel.

Send for your new price list.

*Anderson
Silver Plating
Co., Inc.*

541 Industrial Parkway
Elkhart, Indiana 46515
P.O. Box 961
Telephone: (219) 294-6447