

THE REPAIR SHOP

APPLYING ADJUSTMENT CORKS, FELTS AND SILENCERS

by Lars Kimser

PRETREATING CORK STOCK

Thirty six years ago (1962), when I first apprenticed as a repair technician, we were accustomed to using a combination of heat and stick shellac as the primary method to affix adjustment corks, felts, and silencers to the keys and levers of instruments. However, with the advances of today's excellent contact cements, this outdated method has long ago gone by the wayside. There are a number of contact cements available to the technician these days, but my personal favorite is the cork cement that Leblanc Corp. sells in their accessory catalog. Nevertheless, there are any number of brands which may be used to pretreat cork for repair purposes. Repair supply companies carry an assortment of contact cement suitable for this purpose. Below is the sequence I use for pretreating sheet cork:

1. Select an assortment of common cork thicknesses and pre-cut them into strips of around 1" X 4".
2. Lay these cork strips on a piece of waxed paper and apply 2 or 3 even coats of rubber contact cement to each cork strip, allowing each coat to dry thoroughly before proceeding.
3. After the final coat of contact cement has dried (10 minutes), the cork strips may be cut up into smaller more convenient sizes and stored in airtight baby food jars until needed.

INSTALLING ADJUSTMENT OR BUMPER CORKS

1. Remove the keys/levers from the instrument.

Unhook the springs prior to backing the screw(s) out

2. Remove all traces of the cork and adhesive from the key(s).

A triangular scraper works well for this step

Note the relative thicknesses of the old corks as you remove them; replace the key-to-body corks with material of a slightly greater thickness. Rule of thumb: If the cork is touching the body of an instrument it will be of a thicker stock (requires regulation). If the silencer is lever-to-key, it will be very thin, and act only as a silencer (usually does not require further adjustment).

3. Select a piece of pretreated cork of the correct size and thickness.

Select a piece that is slightly thicker and slightly larger than is required to cover the key foot or lever.

In most woodwind repair situations 1/64", 1/32", 1/16", 3/32" and 1/8" are the most commonly utilized cork thickness. (1/4" may be required on occasion)

4. Heat the key foot or lever over an alcohol lamp for approximately 5 to 10 seconds (but not too long!).

Since some woodwind keys are fabricated from pot metal, excessive heat may cause them to actually melt, and be permanently damaged.

5. Apply the piece of treated cork to the key foot or lever. Hold it firmly and evenly against the key for a few seconds, allowing the adhesive to set-up.

Pressing the hot key part against a clean, moist cloth will expedite the cooling and subsequent setting-up of the adhesive.

Be cautious not to press the hot key part so hard against the wet cloth that dirt and/or cloth marks are pressed permanently into a lacquered finish.

6. Trim and bevel the sides of the new cork with a sharp single-edged razor blade.

In performing this step, draw the razor toward the key part so as to avoid the possibility of pulling the new cork off.

Some repair technicians will rub their razor on a piece of soap periodically, giving it a lubricated, smooth cut, as well as allowing it to keep its sharp edge longer.

After trimming the key part, gently rub your finger against the new cork to be sure that it is adequately affixed to the key.

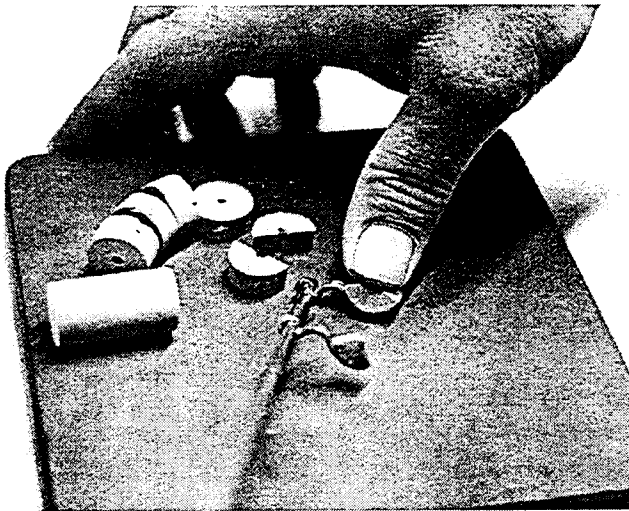
7. Reinstall the key(s)/lever(s)

Rehook the spring(s) and adjust tension as necessary.

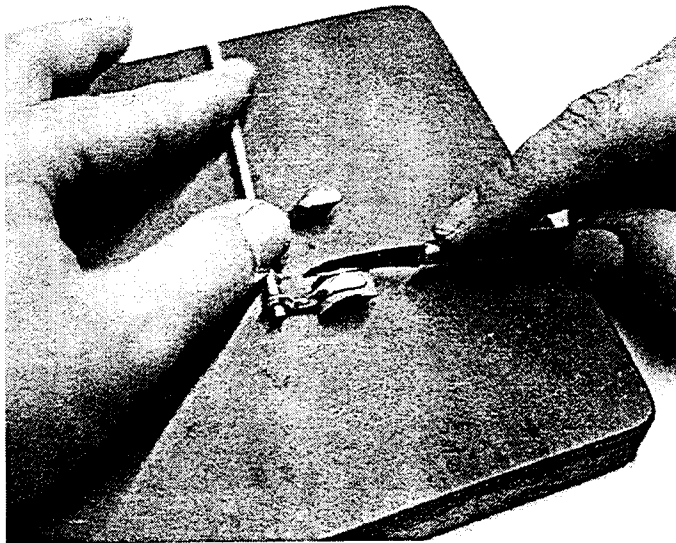
Adjust the cork thickness as necessary.



A professional looking 'corking-job' will have a clean, sharp and beveled appearance



Pressing the pretreated round cork into place after the key has been heated over a torch



Rough-trimming the trill cork with a sharp razor knife



Final sanding and shaping the cork with a sanding stick

INSTALLING FELTS

It is generally best to use felt in places where a means of mechanical adjustment is provided or where close adjustment is secondary. The use of felt is also effective where a dampened 'feel' is desirable. Occasionally manufacturers provide a means by which felt-covered key feet may be adjusted. This may be facilitated by the use of a threaded extension on the tone arm upon which a felt disc is affixed. (e.g. Paris Selmer Saxophones and the old Buescher '400' series).

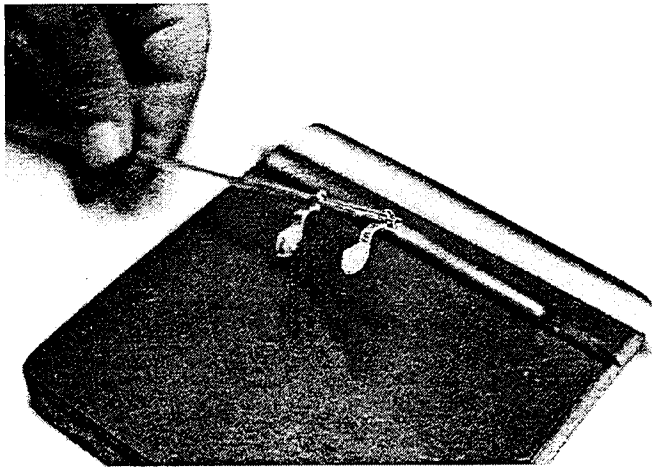
Many repair technicians prefer felt silencers on the key feet of the right and left hand stacks of saxophones. Felt eliminates the irritating key-bounce that results occasionally from using cork. Not only does felt reduce the chances of this key-bounce, it also helps to eliminate the key noise produced by a bouncing key mechanism. All in all, felt provides a superior 'feel' but has the distinct disadvantage of not being able to be adjusted easily, as does cork.

There are instances where felt may be utilized in conjunction with cork. If this can be done (e.g. saxophone right hand stack) you are able to benefit from the 'feel' of the felt and the adjustment potential of the cork. Usually, this technique is performed by adhering a round felt disc directly to the body of the instrument beneath the cork on the key foot. Because of the limited distance with which the key foot is designed to travel, it is advisable that a *very thin* felt disc be used.

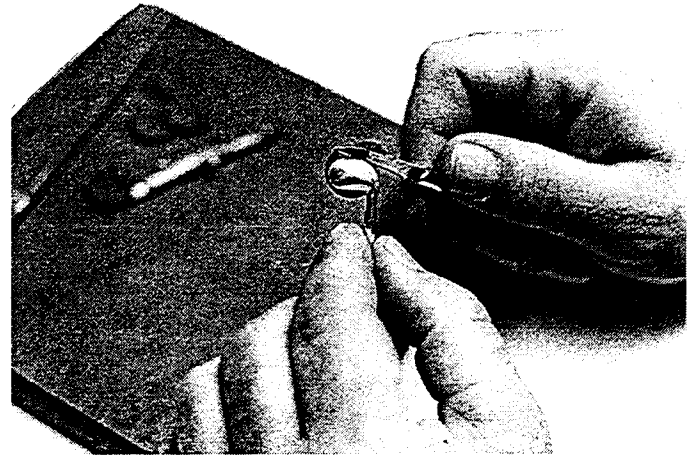
In instances where the use of cork is mandatory and the keys continue to 'bounce', try using a slightly thicker cork size and compress the cork with your flat nose pliers prior to the final adjustment. This technique will tend to 'soften' the cork somewhat. In an instance where sheet felt is used and is a bit too thick, the overall thickness can be reduced somewhat by rubbing it with a hot keyslick. Do not use excessive heat, as this will melt the felt, causing it to be overly hard and subsequently noisy. Hard felt can be softened a bit by carefully probing its surface with a needle spring.

It is not practical to pretreat felt with an adhesive. Instead, I recommend that a rubber-based contact cement be evenly applied to both the key and to the piece of felt just prior to being used. After the adhesive on the key and felt dries and becomes slightly tacky to the touch, affix the felt piece to the key. Some technicians like to use hot glue sticks for adhering felt to keys. Be careful not to put so much adhesive on the felt that it penetrates through to the opposite side of the felt, causing it to eventually stick to the body of the instrument. The felt may then be trimmed with a sharp single edged razor blade in much the same fashion as previously described for cork.

There are times when dark shellac can be used for felt. However, shellac will usually render a very hard surface due to the shellac permeating through the felt when in a liquid state. Shellac will also break loose from the key easily, owing to its brittle



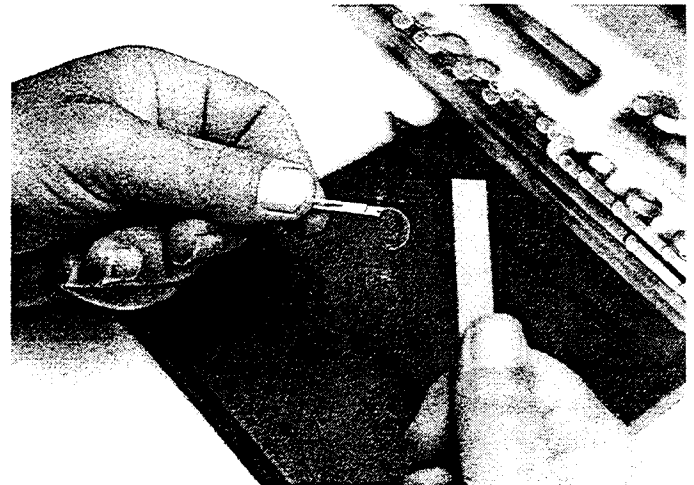
The finished trill cork



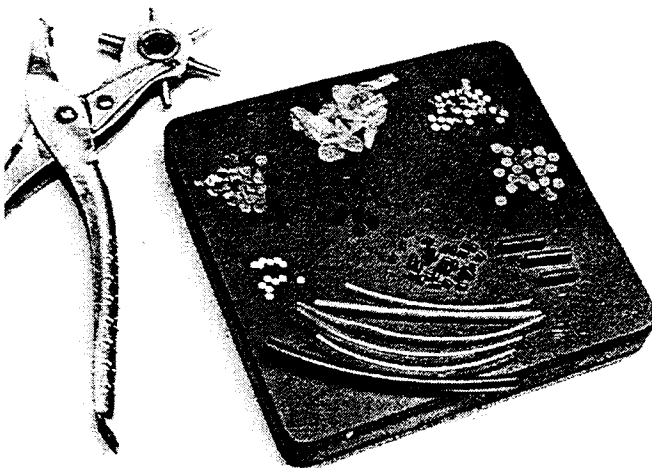
Trimming off the extra felt with a sharp razor knife

nature. If at all possible, use a good quality contact cement or hot glue stick on sheet and cylindrical felt when applicable. As to felt color, make an effort to match the felts already on the instrument, or in cases where an overhaul is performed, select the color that was originally used by the manufacturer.

The following illustrations will show various materials and methods in which they can be used in instrument repair. Rubber-based contact cement is recommended as the adhesive for silencers unless otherwise stated.



Final dressing of the felt with a sanding stick



Several examples of 'silencers' that are utilized in the repair shop

INSTALLING SILENCERS

Inasmuch as adjustment corks and felts are in one-respect silencers, I wanted to include this section, to describe those materials that may also be used to silence the mechanism where the criteria for adjustment is not specifically a part of func-

tion. Eight materials come to mind when dealing with silencing a musical instrument key mechanism. They are: 1. Gold beaters skin, 2. Paper, 3. Cork, 4. Leather, 5. Cardboard, 6. Felt, 7. Plastic tubing, and 8. Teflon sheet or tube. All of these materials are used routinely in the course of instrument repair. The primary difference is that these materials are usually much thinner and are generally intended as a means to eliminate noise.

You will note that at no time do I recommend the use of self-adhering foam (synthetic cork). Not that the foam is in itself a particularly bad material (albeit very hard to sand and shape). The disturbing elements are how unstable the adhesive becomes over a short time, and how hot climates cause the silencer to shift or fall off the key entirely. If you do use this material, be sure to use plain foam and apply contact cement.