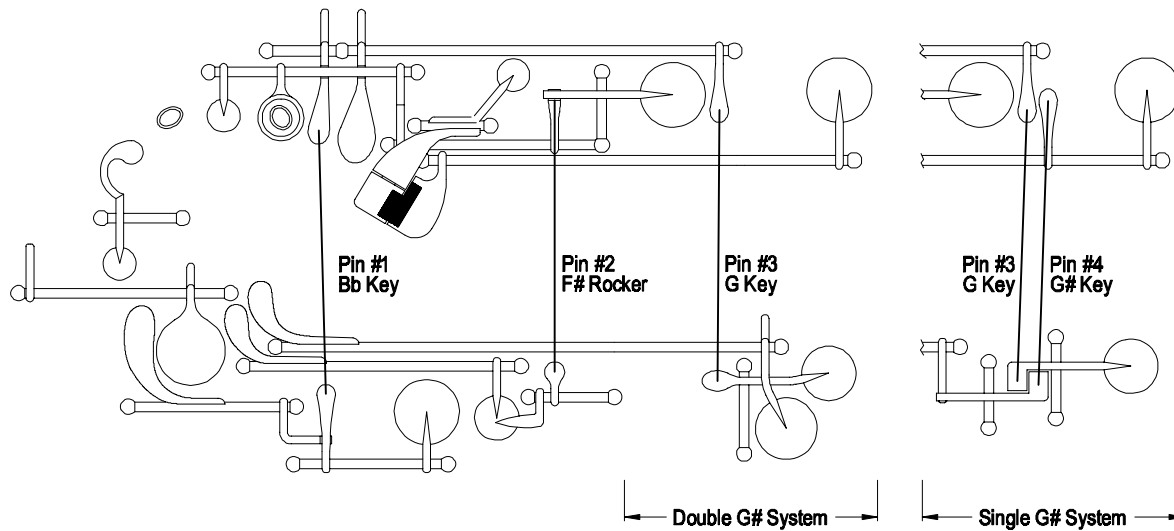


Boot Joint Through-Bored Pins

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One of the first problems with these simple items is naming them. They are variously called, pins, action pins, action rods, push pins, and those are just a few of the simple names. Some attempts at naming these pins require more multiple sentences!

These are the pins that pass through the boot joint to transfer the action of a key on one side of the boot to a key on the other side.

The existence of these pins is made possible because of the two boot joint bores. The holes for these pins pass through the solid wood between the bores.

Making pins

Many materials have been used over the years, including glass, wood, metal, hard rubber, plastic and even Q-tip shafts. As long as the diameter of the material does not bind in the pin hole it will work.

The best choice of materials should be light in weight, quiet and unbreakable. I recommend the use of 3/32" nylon rod. It is both practical and desirable to keep some of this on hand in one foot lengths.

There are no absolute lengths for these pins. They should be individually made to fit the situation. Be sure to round the edges at the end of the pin.

Usage

Boot joints require either three or four pins, depending on which G# system the particular bassoon has.

Pin #1: The first pin operates the B \flat trill key. The B \flat pad and the primary B \flat spatula are both on the thumb side of the boot joint. The B \flat trill key is on the finger side of the boot. This pin functions to get the action from the finger side to the thumb side.

The length of this pin must not be too long. If the pin is too long it may cause the B \flat pad to be held open.

Two problems relate to how the B \flat trill key is sprung. Various makers and repairers have different opinions on whether this key should be sprung to be held up or sprung to be depressed. When the key is sprung depressed against the B \flat pad two problems occur. First, if too much tension exists the B \flat pad could leak. Second, the B \flat trill bounces when the thumb spatula is depressed causing noise. If the B \flat trill is sprung up these problems are reduced.

Pin #2: The #2 pin is for the F# Rocker. Proper adjustment of this pin is very important. If done incorrectly the high G vent hole can be opened causing performance problems.

Always make sure that there is a small amount of free play between the pad cup of the F# key and the F# rocker. Any tension at this point passes through the boot joint, lifts the arm of the low F spatula and lifts the high G ring key allowing the high G vent to leak. When this occurs you can expect complaints about tuning problems with the C to ensue.

Pin #3: The third pin is part of the G key. When the G key is depressed the pin is pushed through the boot joint to close the pad on the A tone hole to sound a G.

This pin is the only pin which cannot have any free play. Part of its function is to set the pad height over the A tone hole.

Pin #4: The fourth pin exists only on bassoons that have a single hole G# system. This pin is pushed

through the boot by a rocker key operated by the thumb G# key.

Other pins: The unusual articulated A≡/B≡ trill key uses an additional pin. This key involves a reverse-sprung mechanism for the B≡. When activated the G spatula operates a pin that closes the B≡ simultaneously with the A tone hole normally operated by the G key.

While there are other keys that use a pin through the boot joint they are well into the “extremely rare” category.

Corking problems of pins

Pins can create special problems for corking keys. They tend to penetrate through cork ruining any adjustment that had existed. It is necessary to cork the keys at the ends of the keys with materials that resist penetration by the pins. Ultrasuede is successful for this purpose. Certain types of leather (not including pad leather) are also good for this.

Another corking related problem occurs when the pin digs into the material and binds against the side of the pin hole. This usually occurs when the end of the pin is sharpened to any degree. The end of the pin should be essentially squared off with the corners of the end rounded. Don't point or excessively round the end of the pin.

Leaking pin holes

Occasionally, pin holes will be drilled to close to one of the bores causing a leak to occur. These leaks can be very frustrating to locate as they are not the type of place we think to look for finding leaks.

There are several methods of finding such a leak. They all involve removing all of the keys and they all require some method of evaluating the leakage either by a leak testing machine or by check for a vacuum by mouth.

The simpler approach is to first put adhesive tape over each of the tone holes. If the boot effectively seals then place tape over each end of the pin holes. When this proves successful you know that the leak is coming from the pin holes. Then open each hole, one at a time, until the culprit is found.

The cure is simple. With a pipe cleaner coat the pin hole with super glue. Super glue is highly effective at soaking into very small spaces and sealing them. After the glue is hardens clean out the hole with a small round file and repeat the procedure. Afterwards be sure that the pin moves through the hole easily. File it out if need be.

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