

## Fear Of Organ Pipes: Learning To Tune It Out

Matthew Caulfield

The mechanical and pneumatic parts of a band organ don't scare me. If something goes wrong with a valve or if a drum pneumatic needs its fabric replaced, I can fix the problem. But I have always taken a hands-off approach to the musical parts of an organ. If a pipe doesn't speak or speaks slowly (assuming it is getting the air it needs), I live with the problem. If the organ is in need of a general tuning, better call the tuner.

In 2001 Seabreeze Park (NY) management called in a local organ tuner to tune the Verbeeck Wurlitzer 165, because it hadn't been tuned but once since its installation by Johnny Verbeeck in July of 1996. But by the time Rochester weather had turned warm enough to represent the mean temperature that the organ would operate under during most of the season, the park was operating seven days a week. That gave a very small window—a couple of hours in the morning—for access to the organ in tuning mode, with swell shutters removed, tuning roll on the tracker bar, and peace and quiet for the tuner. It took the tuner several trips to accomplish his work, and each time the organ had to be back and ready to play for the public by 12 noon.

In the spring of 2002 the organ seemed to need another general tuning, or at least a tuning touch-up. And additionally one of the six trombones wasn't playing, a failure that seriously flawed the organ's performance. Encouraged by Bill Black,

who tunes his own band organs, and having watched Durward Center tune the Glen Echo Wurlitzer 165, I decided to buy a little Korg electronic tuner and see what I could

do myself to improve the organ's sound before asking park management to call in the tuner again.

To make a long story short, it took two attempts, but on the second attempt I got the organ so that John Norris, the Seabreeze official with the best ear for music, said "It sounds as good as it ever has." I don't fancy myself an organ tuner by any means, but I have learned a few things about the tuning process, which I can pass along here.

First, start with the melody ranks and get them in tune. It is most convenient to start with the front-most rank or ranks. In the 165 organ the eight melody ranks are twinned: there are four registers, each controlling two ranks. That means that with any one note, two pipes are always sounding together, even with three of the four registers off. I ended up using lightly-crumpled toilet paper to silence the mouth of one of the two pipes when it was necessary to isolate one pipe for tuning. The toilet paper was light enough not to disturb the position of any violin freins. It also allowed wind to escape from the pipe mouth without the pipe's actually speaking. Theoretically it must be better to tune a pipe when it is speaking with a normal flow of air through it rather than with the extra air that it might



Figure 1. Seabreeze Park's Wurlitzer 165 22-note melody section. Most of the eight ranks are visible with the violins displayed in front.

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Figure 2. A view of some of the open melody pipes. Note the tuning slides.

be fed, if its sister pipe in the same channel had its mouth completely plugged.

Second, wear some kind of hearing protection. Organ tuning is hard on the ears, particularly when working with the high notes. For me the lower the note and the lower the octave, the easier that tuning the pipe seems to be. The piccolo rank and its companion flageolet rank are always the hardest of the flue pipes to work with.

Third, if you have a tin ear, trust your tuner. Durward Center, who has the advantage of a lot of experience and a good musical ear, tunes the first melody rank by tuner (I believe he also uses a Korg), then tunes all the other ranks against that one by ear alone. He listens to the “beat” and raises or lowers the pitch of the pipe he is tuning until the “beat” is gone. If two pipes sounding the same note are not in tune with each other, there will be a more or less rapid fluctuation in the volume of sound the two pipes together produce. This fluctuation, or “beat,” gets slower and slower, until it virtually disappears, as you bring the two pipes into tune with each other.

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My first, and not very successful, attempt at tuning used Durward’s method. On my second attempt, I used the Korg throughout the registers, generally muting one of the two pipes on the register, tuning the other, then unmuting the companion to tune it to the other by the “beats.” In some cases, the pipes were both “on the money” or close enough that I could work without muting one pipe.



Figure 3. A view of the saxophone (reed) pipes with the companion viola (open freined) pipes behind.

Fourth, remember the rule “raise to lower, lower to raise.” This works for moving the tuning slides on open flue pipes, for stoppers on stopped pipes, and for tuning wires on reed pipes. Raising the slide, the stopper, or the tuning wire will always lower the pitch, while lowering them will raise the pipe’s pitch. With tuning wires, it takes very little movement to affect the pitch a lot. Wurlitzer saxophone pipes, which are reed pipes, have both tuning wires and slides on the resonators.

I made the mistake of trying to tune the saxophones by using the slides, because I was rather afraid of “fooling around” with the tuning wires. You have to pull the tuning wire straight up or tap it straight down rather than wiggle it from side to side in coaxing it to move. The wiggling does bad things to the lie of the tuning wire on the reed, I found out. While on the National Carousel Association UK tour in September 2002, I got the chance to talk with Andrew Whitehead about band organ tuning. He told me—and Durward Center later confirmed this—that the tuning slides should be used to adjust the timbre of

the saxophones, giving them the proper saxophone sound; tuning the pipes to proper pitch should be done on the wire.

Fifth, keep track of what pipe and what note you are working on. More than once I began to “tune” the wrong

pipe, a neighbor to the pipe that was actually speaking. If that is a pipe you have already tuned you are just wasting good work and have to go back and re-tune that one. It helps to have an assistant to move the tuning roll and to keep track of where you are in the process.

Sixth, dirt is the enemy of pipes, particularly of reed pipes. If a pipe doesn’t speak properly, use a soft brush to clean its mouth, if it is a flue pipe, or a crisp \$10 bill to clean the reed surface, if it is a reed pipe. Reeds are ticklish



Figure 4. The organ’s trumpet (reed) pipes with resonators facing the floor.

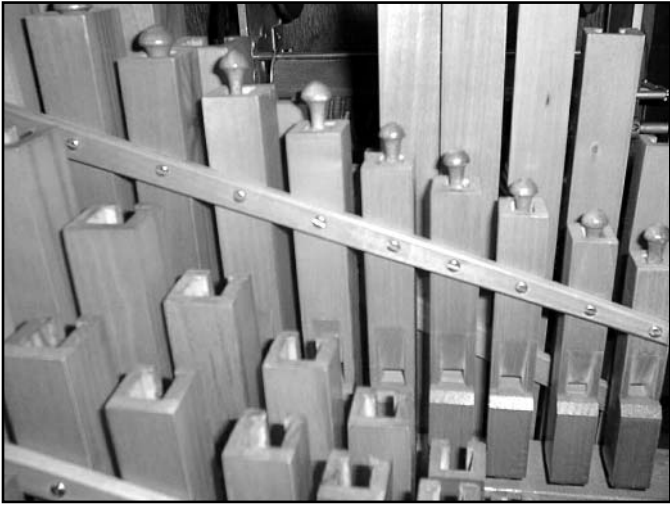


Figure 5. The seventh of eight melody ranks, the stopped flutes, with open flutes behind.

things to work on, because for the pipe to function properly the reed and shallot have to be the right length, the reed has to have the right curl, and both reed and shallot have to be clean and wedged tightly into the boot.

I found that a couple of saxophone reeds were slow to speak. With their resonators removed, they spoke properly, but when fully assembled the problem returned. I hesitated to take the reed assembly apart and to make changes, but the choice was to experiment myself or to send the problem pipes off to an expert for adjustment. So feeling there was little to lose, I tried various things—letting the reed/shallot extend farther out of the boot, polishing the reed tongue and the shallot face (the shallots on the Seabreeze organ have leathered faces), even playing with the curve of the reed—which I felt might be dangerous territory for a novice. But it was mostly by flattening the curve of the reed that I solved the problem and got the pipes to speak promptly. Comparison of the reeds on the offending pipes with others that spoke properly had seemed to show that the reed gap on the offending pipes was ever so slightly larger than on the others; so I was persuaded to tamper with reed curvature. It took a few tries before succeeding though..

Seventh, if it is necessary to remove a pipe from its anchorage, as it was in working on the saxophones, make sure that there are no screw holes in the sides of the pipe that go through the pipe wall. If they do, it is essential to cover the holes before attempting to tune the pipe. Any hole or crack that affects the air-tightness of the pipe wall alters the sound of a pipe. In the same vein, it is not a good idea to blow a pipe with your mouth, because the breath is both warm and moist.

Finally, there is some good advice in the 1930 Seymour Simons tune *Tie A Little String Around Your Finger*. Only,

make sure the string is tied around whatever tuning tools you are likely to drop down into the organ between pipe ranks, where it will take valuable time and some dexterity to snake them back up and out to where you can grasp them in your hands. It isn't good form to leave the organ you have tuned littered with lost mute sticks or brushes.

There are a few issues on which I am deliberately silent here, knowing that I am not competent to address them. The basic one is to what pitch and temperament system a band organ should be tuned. In attacking the Seabreeze Verbeeck 165—and more experienced tuners reading my thoughts here may feel that “attacking” is the right word—I went with what Johnny Verbeeck had established.

Another issue is the question of tuning one of the four violin ranks celeste or deliberately slightly off-beat, an idea that was discussed by Bruce Clark in the *Mechanical Music Digest* (<http://mmd.foxtail.com>—1998.01.24.11) and can be read about in the MMD archives.

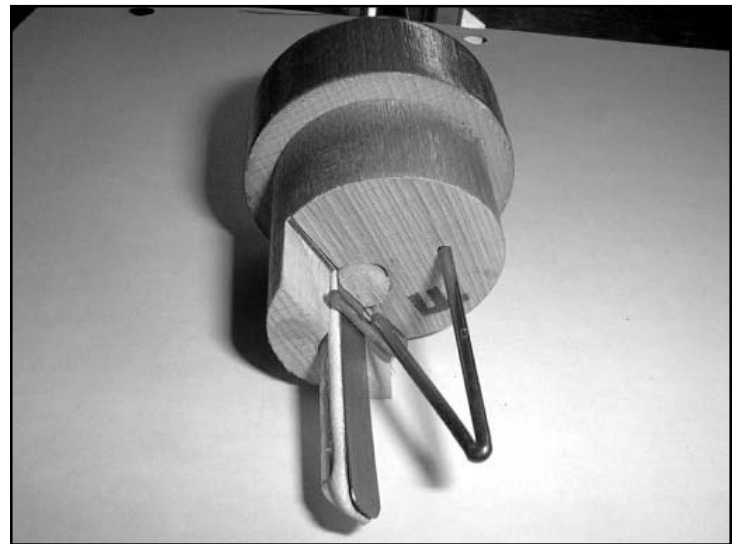


Figure 6. A view of the saxophone reed assembly removed from its boot.

Finally, except for adjusting the curve a couple of reeds, I did nothing that approached pipe voicing or alteration of pipe mouths. One violin pipe did present some off-tones which seemed to be caused by the position of its frein. I experimented with some tiny adjustments of frein position—up, down, in, out—and finally brought it to pure violin sound. I gained zero understanding of frein function from this.

But I have lost my fear of organ pipes!

The author invites corrections or comments regarding what he has written from others having tuning experience. His email address is: [mc707@rochester.rr.com](mailto:mc707@rochester.rr.com)

Matthew Caulfield is a frequent contributor to the *Carousel Organ*. His knowledge of Wurlitzer organ music is exceeded only by his love of the organ itself.