



## Small Shop - Big Results

Rx for Mice—Pulling Out All the Stops!

Part 2: Heavy-duty Cleanup – the Keybed

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**Preface: In this second phase of cleaning up the mess that mice had made in the Walworth upright which is the focus of this article, mistakes were made related to health issues. Specifically, the danger of contracting Hantavirus Pulmonary Syndrome from dust borne virus was not addressed, in that the author at the time was unaware of the connection between mouse urine and the virus. Understand that in describing the methods we used to clean the affected areas, I am not advocating that anyone mimic our approach. Safer, alternative methods for accomplishing the same results will be featured as “Safety Tips” as the narrative of our restoration efforts are told. Please heed the warnings givin concerning safe procedures. Had I known of this hazard at the time the work was done on this piano, more attention would have been paid to taking recommended precautions. Next time, I’ll know better. Chuck Behm**

With the Walworth upright which was in our shop for restoration swept cleaned of the piles of rodent debris (as described in the first installment of this article), it was obvious that the further attention to areas which had been exposed to the mouse colony was still needed. A simple “airing out” was not doing the trick. The big room of the shop in which the piano was located reeked every morning after the windows had been shut up over night. Even during the day, with every window and door of the shop thrown open to the spring air while Dave worked on stripping parts and I worked on the piano action, the air in the vicinity of the piano was vile. Neither of us could stand to pass by the case of the piano without holding our breath.

When Dave had finished with stripping and sanding all of the miscellaneous parts to the piano and it was time to turn his attention to the case proper, a decision needed to be made. I had Googled® the problem of mouse odor in pianos, and had come up with a list of proposed solutions to the problem. Various posters on a website devoted to home remedies had suggested white vinegar, citrus spray, charcoal briquettes, ammonia water, crumpled newspapers, baking soda, diluted chlorine bleach and finally, my favorite, old socks stuffed with freshly ground coffee.

They all seemed quaint, with chances for success on a par with the likelihood of being able to put out a 4-alarm fire with a squirt gun.

Commercial neutralizers were also available, each one thoroughly effective (according to the companies selling the products), but all products I was unfamiliar with. My trust level for such a “quick-fix” approach was low, especially after reading one

contributor to the home remedy website who had tried “Brand X” and had found that while it did work for a while, the odor eventually returned. Since this piano was headed for a lakeside lodge well north of the Twin Cities once it was completed, I really didn’t want to have to deal with the problem a second time once it had left the shop.



*Photo 1: Dave removes the keybed.*

We needed to fix the problem, and fix it right. A simple masking or neutralizing of the odors seemed to me to be a half-way measure. What I wanted to do was to remove the odors altogether. With that in mind, I had Dave remove the keybed (Photo 1) from the piano for special treatment. Among the parts affected, the keybed was the worst offender.

**Safety Tip: Even at this early stage of the process, more precautions should have been taken. At the very least, while moving the keybed from point A to point B, Dave should have been provided with a negative pressure respirator and a pair of rubber, latex, vinyl, or nitrile gloves to wear. When finished, Dave should have washed his gloved hands in a disinfectant or chlorine solution and then washed his bare hands in soap and water.**

**Source: CDC: Recommendations and Reports  
July 26, 2002  
Hantavirus Pulmonary Syndrome—United States:  
Recommendations for Risk Reduction**

At this point, Dave raised the inevitable question, “Do we really need to do this?” This type of question comes up frequently in conversation, at least in our shop. Do we really need to strip, sand and shellac the backs of all the case parts that don’t show? Do we really need to pay so much attention to the alignment of the becketts when restringing?

Do we really need to buff the heads of every last screw (even those going into the brackets holding the pedal mechanisms) for every part we take out and put back in again? And it's not just Dave asking—I question what we chose to do, and what we chose not to do on a regular basis. The lyrics to "Against the Wind" frequently come to mind:

"I've got so much more to think about  
Deadlines and commitments  
What to leave in, what to leave out." Bob Seger

The issue to me is that when cutting corners starts to become the norm, whether it's in a small two man shop such as ours, or in a huge factory turning out thousands of pianos, it's a slippery slope. Once quality takes a back seat to making a quick buck, once you start leaving steps out, the result is going to be a 'cheap' piano. I know what's right, and doing the best work one is capable of always feels right to me. So as I stand at the buffing wheel, polishing every last screw in the loaded muffin tin, it's with a tranquil heart—it's right. If extra work means better quality, I prefer to leave it in.

On a job such as this, I shot a price, gave an idea of some (but not all) of the work we would be doing, and with an assurance from me that we would do our best work, we shook hands on the deal. It's possible that using a chemical to neutralize the odors might have worked in this situation, but looking at the mess of stains covering practically every square inch of the keybed (Photo 2), I didn't want to take that chance. There was a handshake involved, and I intended to honor that commitment. Leaving the stains in the keybed for future technicians to see was not our best work.



*Photo 2: This just wouldn't do!*

It was Friday afternoon and we were done working for the week. The keybed was laid out on a bench ready to tackle Monday morning. Sanding would be the order of the day I was sure—lots of sanding. God bless 3M.



*Photo 3: Monday AM.*

Monday morning as I made coffee in the kitchen I could hear the hum of a sander outside coming from the direction of the shop. Glancing out the window over the sink at the shop I saw Dave's bicycle parked by the shop door and I knew what was up. Always one to dive right into whatever job was at hand, Dave had the bull by the horns.

As of Friday, we really hadn't decided who would tackle the keybed, but seeing Dave all suited up (Photo 3) and having at it, who was I to argue? I said my good morning, left a donut for him on a ledge on the opposite side of the shop (away from the dust) and retired to another room, shutting the double, air-tight doors behind me. Peeking in at a mid-way point to check on Dave's progress I was struck by the intensity of the smell, and seeing the clouds of dust had thickened, I made a quick foray into the room to turn on the air cleaners over each of the benches.

The sanding took the better part of an hour, with Dave going through sheet after sheet of 60-grit paper. The result was remarkable. When he was finished, the keybed looked factory-fresh.

**Safety tip: Although the gear that Dave was wearing was a good first step, it would not provide adequate prevention against an air-borne virus. Dave's intention was simply to avoid breathing the foul-smelling dust. As such, when I came into the room to say good morning, he took the mask off for several minutes to visit, and I wasn't wearing a mask at all! So much for any real protection.**

**A better course of action in this situation would have been to first kill the virus by liberally spraying the area with a solution of diluted bleach, allowing that to thoroughly dry for several days, and then sanding out the stains while wearing more adequate protective gear. Granted, this would take considerably more time, but it would have made the procedure much safer.**

**I'm certain that had live Hantavirus been present in the urine-soaked wood of the keybed, both Dave and I would have contracted the disease. Please use precautions!**



*Photo 4: Cleaning up quite nicely.*

After vacuuming, the keybed looked great (Photo 4), but still had a hint of a lingering odor—perhaps 10% of what it was to begin with. At this point, thinking that the old-fashioned “airing out” might now be order, I drilled a couple of 3/8” in one end of the keybed, drove a couple of 16 penny nails into a ceiling joist by a window, and hung it up where the spring breeze could blow past it every day. The convention was coming up in Grand Rapids, and I needed to prepare for it, so for a period of several weeks nature took its course. . .



*Photo 5: Vacuuming up the remaining odor.*

Upon returning to the shop after the convention, I checked out the progress of the keybed. A scent which was merely unpleasant remained—a faint shadow of its former self. To finish the job I put the keybed on a bench once again and covered it with approximately 10 pounds of baking soda. After letting it sit for 2 weeks I vacuumed it off (Photo 5) and repeated the process. When the second dose of soda was cleaned off there

was, to my nose at any rate, absolutely no trace of odor. Ah, the sweet smell (or absence thereof) of success!

With other aspects of the restoration well under way, the keybed was at last returned to the piano (Photo 6). In the time since it had been originally taken out of the instrument new pinblock panels had been installed, the soundboard had been repaired and refinished, and the piano had been restrung and repinned. Action restoration work was in full swing.



*Photo 6: A big improvement over what it looked like before.*

The piano was nearly ready to be put back on its feet again, and once the floor was returned to the case, and new casters installed, it was in fact set back up. The last remaining step was to seal in any chance molecule of odor to prevent it from ever escaping the piano and finding its way to the nose of the owner (Photo 7).



*Photo 7: A clear coat to form an odor barrier.*

Two coats of shellac, followed by one of polyurethane, and it was a done deal!  
Piece of cake!

Next on the agenda—the keyframe. The mice used it to sharpen their teeth. Will we be able to fix it? Stay tuned!

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