

PIANO TECHNICIANS' Journal

Official Publication of the Piano Technicians Guild

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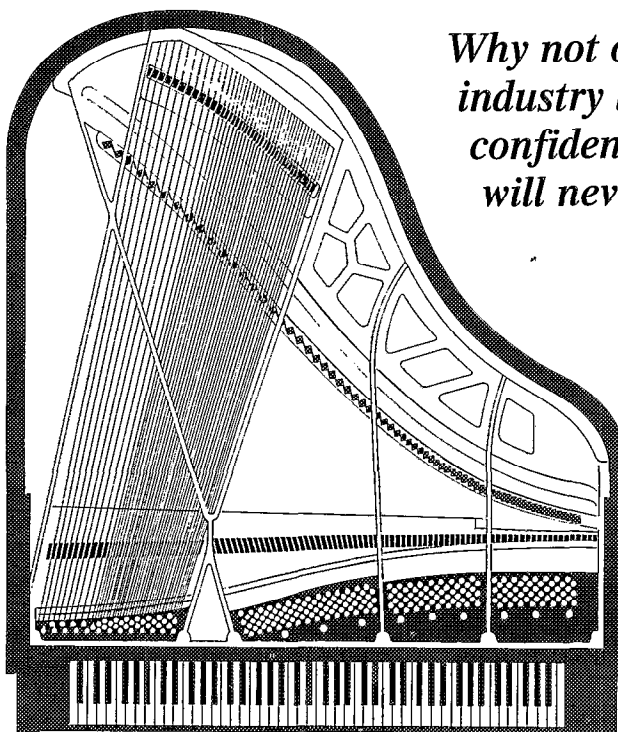
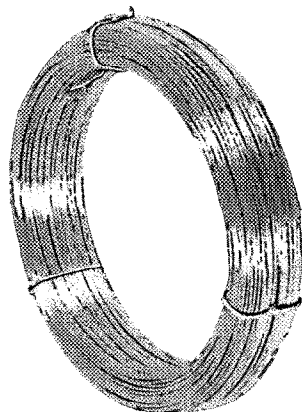
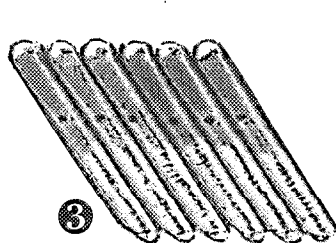
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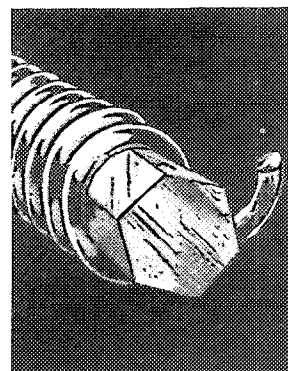
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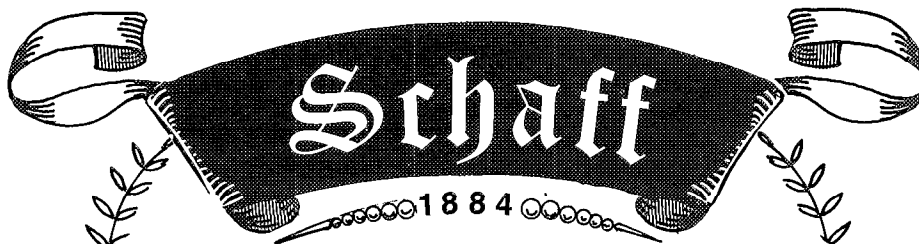
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David Hanzlick, CAE
Publisher/Executive Director

Steve Brady, RPT
Editor

Jim Coleman Sr., RPT
Del Fandrich, RPT
Newton Hunt, RPT
Contributing Editors

Joe Zeman
Director of Communications

Sandy Roady
Director of Member Services

Jerri Dowdy
Assistant to the Executive Director

Catherine Wilane
Director of Finance

Midge Sheldon
Advertising/Merchandising Coordinator

Home Office
Phone: 816-753-7747
FAX: 816-531-0070
E-Mail: ptg@ptg.org

Editorial

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205 McGraw Street • Seattle, WA 98109

Fax: 1-206-285-7610 • E-Mail: sbrady@u.washington.edu.

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EDITORIAL PERSPECTIVE

PTG — Why?

By Jim Coleman, Sr., RPT
Contributing Editor

In 1950 I attended my first piano technician convention in Los Angeles. Jack Caskey and I were the youngest technicians in attendance. We both played trumpet in the full orchestra which played during the banquet hour. It was an exhilarating experience, being able to attend so many wonderful classes. Some of the greats who freely shared their expertise were: C.B. Davis, Percy Gatz, Harry Hughes, Leslie Hoskins, Cecil Short, Charles Frederick Stein, Bill Hupfer, Don Morton, Fred Odenheimer and many others. After a class or two, where I learned some really neat stuff about the relationship between key dip, let-off, and aftertouch, I was so impressed that I filled out an application form for membership.

In those days there was a very cursory test given before membership was granted. In my case it was just setting a temperament on a barroom piano. After half an hour, the examiner came back in to check my tuning. He grunted a couple of times and said more or less: "Son, that's not all that bad, you could work a little more on evening your 3rds, but you'll do just fine, you're in." He didn't show me where I was wrong, he didn't give me any suggestions as to what I could do to fix it. I was disappointed in the standards, and as disappointed in how poorly I had done on the test, but I was more disappointed in that the membership standards were so low that I could be a full member at even the low level of expertise I had at the time.

I had subscribed to the journals of both of the competing technician groups, and I continued to learn everything I could from any source. In 1953 I was able to attend another convention which was held in Houston, Texas. Once again I greatly benefited from the teaching and stimulation of outstanding technicians who so freely gave of themselves.

This time I had an experience which eventually had a very moving effect upon me. Between classes, I was sitting in the lobby of the hotel and I could overhear a conversation just around the corner from me. It was Leslie Hoskins (the *Journal* editor) and Alfred Howe (author of *Scientific Piano Tuning*). Leslie said: "You know, it's a shame that some of these

young men cannot see the benefits of this organization. They don't seem to realize that it takes many years of dedication of many people to put on a convention like this in order that they might receive the kind of training and assistance offered them here. One would think that they would see the need to get in and support such an effort as this by becoming members of the organization."

Neither of these men knew that I was there, for I was out of their sight, but those words hung in my mind. I determined then that as soon as the two competing organizations would get together, I would join and give all my support. You see, even back in those days there were some of the same disagreements about how a technician organization should function. One idea was that we should just get as many as possible to join so that we will have a stronger power base to do the things we would like to do. The other idea was that the organization should uphold a high standard in which the public could have confidence. In both of these organizations there was a strong will to offer continuing education in this field; however, I felt that it was dishonest to proclaim to the public that the organization was composed of members who had passed rigorous tests and were well qualified to service pianos of any type.

In 1957, after much careful negotiation, both organizations agreed to become one. That year John Travis and Erroll (Put) Crowl became co-presidents. By 1958, I wrote to the headquarters to inquire about membership. Instead of an application for membership, I received a membership card and an invoice for the pro-rata dues remaining for that year. No examination, no tests, not even a slap on the back and a welcome home, brother. (Never fear, I have passed many self-imposed tests since then.)

After this, I decided that since I hadn't been able to contribute toward change from without, I should try from within. Beginning in 1961, invitations to teach piano tuning at conventions began

Continued on Next Page

Please submit tuning and technical articles, queries, tips, etc., to me:

Steve Brady, Journal Editor
205 McGraw Street • Seattle, WA 98109
Fax: 1-206-285-7610
E-Mail: sbrady@u.washington.edu

coming, and continued to come every year, except four, to the present time. I am still repaying my debt of gratitude for all those years when I was on the receiving end. Another opportunity came in 1977 when president Don Morton called upon Dr. Sanderson and me to develop a new Tuning Testing program. For over a year we presented tests at every seminar available until we had given about 300 tests. Based on these results, we were able to present to the governing Council a proposed new testing procedure which was noted for its objectivity and fairness. The passing grade was to be that which 80 percent of the present members could pass. Since that time certain parts of the test have been tightened up just a little. Examiner training has kept pace with the expressed need for exams. No longer can a person be denied membership merely for not being able to spell inharmonicity correctly, or because the examiner did not like his personality. The exam is such that an examiner could not skew the electronic reading one way or another to hurt an examinee because the examiner does not know in advance which way a tuning pitch average will come out until after the readings are already taken. Any attempt at shaving cents on some notes might actually end up

helping rather than hurting the score.

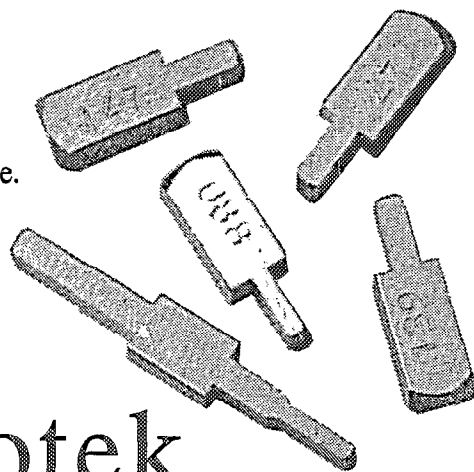
The same basic issue among our Guild politicians still remains. Shall we push for higher standards so that we will have only an elite group of members, or should we have such a loose organization that membership means little to the piano owning public? These are weighty questions, and struggling with them for more than 35 years certainly attests to that. Personally, I'm glad that I was let in even when not fully qualified, for it did give me the chance later to help raise the standards and be a part of an association which really does want to be an instrument for improvement for all in this field. I wouldn't have been offended to have been called a "provisional" member or some other such designation in the early days until such time as I had been able to demonstrate my proficiency in piano service.

It doesn't take a rocket scientist to figure out that with all the effort toward piano technical education which PTG provides, we *really are* committed to excellence. We are not just a group of money-grubbing people, but we take our Code of Ethics seriously in that we strive to provide the best service possible under the existing circumstances. ☐

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COVER ART

This month's cover features the Finchcocks manor house in Kent, England. Finchcocks is the home of a magnificent collection of early keyboard instruments, the subject of Journal Editor Steve Brady's article beginning on Page 23.

PIANO TECHNICIANS Journal

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Piano Technicians Guild Board of Directors

Marshall B. Hawkins, RPT
President
P.O. Box 386 • Oxon Hill, MD 20745
(301) 567-2162
E-Mail — DQEV60A@prodigy.com

David P. Durben, RPT
Vice President
1233 5th Street, N. • Fargo, ND 58102
(701) 241-7066
E-Mail — 75254.2414@compuserve.com

Gracie L. Wagoner, RPT
Secretary-Treasurer
1307 S. Maple St. • Sioux City, IA 51106
(712) 276-3176
E-Mail — GRACIERPT@aol.com

James S. Birch, RPT
Northeast Regional Vice President
56 Nashville Road • Bethel, CT 06801
(203) 744-4842
E-Mail — JimBirch@aol.com

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Southeast Regional Vice President
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(301) 441-3555
E-Mail — 105243.371@Compuserve.com

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South Central Regional Vice President
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Rolf von Walthausen, RPT
Central East Regional Vice President
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(513) 541-8492
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7811 Westgate • Lenexa, KS 66216
(913) 631-8227
E-Mail — k.swafford@genie.com

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(602) 966-4055
E-Mail — JCPIANOMAN@aol.com

Ward Guthrie, RPT
Pacific NW Regional Vice President
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Preparing for the Future

As we cross the threshold to still another new calendar year, there is much in store for those who continue to seek excellence in what they do. Each year during the early months, people are busy mapping out the plans and projects they have in mind for the months ahead. Just as individuals proceed in this manner, organizations likewise follow many of the same trends.



Marshall B. Hawkins,
RPT
PTG President

In our organization as in many, many groups around the world, the term Long Range Planning has taken the spotlight in recent years. The fact that Long Range Planning holds as prominent a position as it does, speaks well for preparing for future development. It is important, however, never to forget that in planning and establishing goals there are always

intermediate goals as well as short-range goals that require our attention as well. At the beginning of any new year it is vital that we remember that the period we are about to face was at one time the future and hopefully figured strongly in a long range plan in some manner at that particular point in time.

The chief method we have devised to further the ideal of individual fulfillment within the organization is education within our profession. In our understandable preoccupation with perfecting the instrument of education, it is possible to overlook the broader objectives which education was designed to achieve.

If past activities included specific objectives for 1998, it may be desirable to

reflect on those plans in order to adjust for any accomplishments which may already have been achieved. What we must reach for is a concept of perpetual self discovery, perpetual reshaping to realize one's best self, to be the person we could be and hence the organization we envision. We need to plan our personal goals and align them with the goals of the profession we have devoted a large portion of our lives to — whatever it may be.

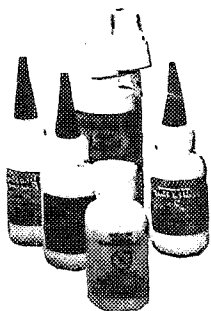
This concept far exceeds formal education in scope. It includes not only the professional intellect, but the emotions, character, and personality. It involves not only the surface, but deeper layers of thought and action. It involves adaptability, creativeness and vitality.

Within this calendar year there are still short term goals to reckon with for all of us. You may wish to concentrate your energies in a different manner if past activities or goals fell short of the mark. While this month marks the midpoint of our 40th Year, in a few short months we will be in Providence, R.I., to celebrate not only the end of our 40th Year but to enthusiastically continue with our annual institute of piano technology.

A profession is a personal thing that man acquires. It cannot be inherited. It cannot be bequeathed. Only he who, having made the acquisition, puts to use that knowledge and skill with all his ability and complete dedication of purpose can be truly called a professional.

— R.E. Onstad

I hope that 1998 is a year of positive accomplishment for you individually and for our organization as well. ■



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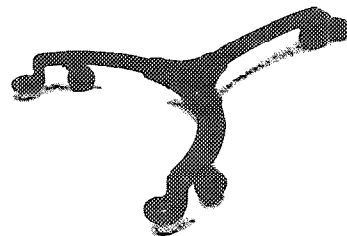
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Constants in a World of Change

Managing technological change has become a central part of modern life. The pace of technological advancement is dizzying for technophiles and technophobes alike. It's sobering to think, as

experts tell us, that 80 percent of the technology we will use in 20 years has not yet been invented.

As the piano industry looks toward the future, we need to look very carefully at the role of the piano, an instrument that relies on centuries-old technology, in an age where technological generations are often measured in months rather than decades. The Piano Technicians Guild, too, must examine our role in serving our members and the industry.

As we look toward the future, we can take comfort in the writings of noted futurist John Naisbitt. Naisbitt offers the valuable insight that as high technology becomes increasingly pervasive (high tech), the more people want to be connected with the constants of a world they understand (high touch).

This relationship between the rise of high tech and the need for high touch can be seen in many ways in the increasing interest in local and regional handicrafts, history, customs and cuisines, the popularity of organic foods, the rise of alternative approaches to health, and the interest in the whole notion "voluntary simplicity" as an approach to life.

In my own office, I appreciate having a computer and Internet access. Yet I also enjoy my collection of ancient typewriters, including an L. C. Smith from the 1930s, a bookcase my grandfather made in Normal Training class before World War I, and a wooden table that was used for decades in the production of Kimball pianos.

I don't pretend to understand how my computer uses electrical impulses to record these words. I do understand, though, how the force of my finger striking a typewriter key sets in motion a series of events that ends with letters being printed on paper. High tech is sometimes unsettling; high touch soothes.

The piano is a "high touch" instrument of the first order. The piano produces a beautiful sound through a complex, yet seemingly simple, process of a felt hammer striking a string. The sound and feel of the piano simply cannot be replicated

through electronic means.

The constant of the piano as a traditional fixture in the home is an added reason for encouragement as is recent research showing that the study of this "high touch" instrument measurably increases the cognitive skills of children. The same cannot be said for the "high tech" computer.

From an organizational standpoint, technology presents many challenges; among them is the question of how to serve the needs of members who are technological wizards as well as members who have no interest in plugging in or logging on.

Another challenge is how to use the advancing world of high tech to create a world of high touch — through technologies like e-mail and listservs that bring people together in ways that were not possible even a few years ago. These technologies have made communication an instant and nearly cost-free process and have made our planet a much smaller and potentially richer place for human relationships. Imagine — high tech creating the environment for high touch.

In addition, the world wide web and our own web page (www.ptg.org) — provide a rich selection of resources to the member of the public who is interested in pianos and piano music as well as to our members. Prior to this technology, there was no way for an organization to make information so widely available at such a small cost. Again, high tech is helping to create a medium for high touch between the piano technicians and the public that appreciates the piano.

The Guild, of course, does not rely exclusively on the world of cyberspace to create and strengthen our sense of community. Our local chapters can, and do, fulfill a need for interaction and fellowship within the context of continuing professional development. Members who have not made a connection with their local chapters are missing a rewarding opportunity for learning, fellowship and mutual support.

The Annual Convention and Technical Institute also strives to provide opportunities for technicians from North America and around the world to meet face-to-face with people they may have met only through the electronic medium.

The 41st Annual Convention and Technical Institute (Providence, R.I., July 8 - 12, 1998) will examine the interaction of high tech and high touch with the theme "Tradition & Technology."

So, whether you are successfully riding the crest of the technological wave or feel swept away by it, plan to explore the theme and share your perspectives on the piano in Providence. ■



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Tips, Tools & Techniques

Key Bushing Knife

This little knife will shave several minutes off the time needed to bush a set of keys using the double caul method. Make it yourself from a piece of half-inch dowel about two inches long and a piece of hardwood about 2" x 1/4" x 3/8".



Cut a 1/4" groove across the center of the dowel, kerf the piece of hardwood down one side, and glue the other side into the groove across the dowel. Sand a radius into the end of the hardwood piece so that it matches the radius of the dowel (see plan in Figure 1). Fit a razor blade into the kerf as shown, securing it with a shim or some hot-melt glue as needed.

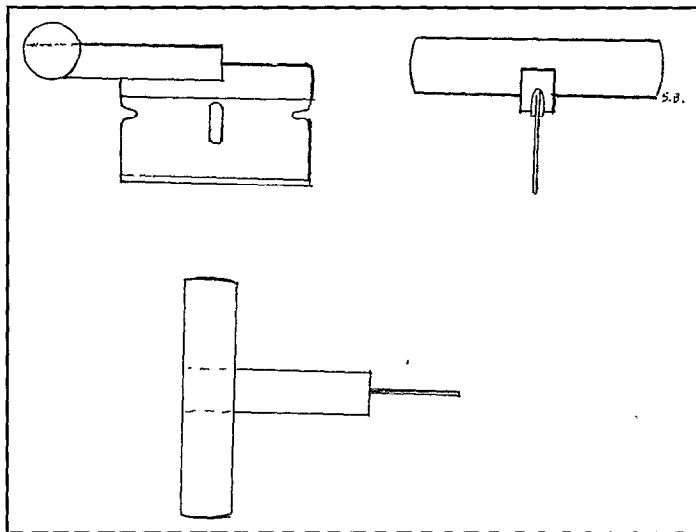


Figure 1

Hold it in the hand you use to insert the cauls so that the blade projects between your ring and pinky fingers (see Figure 2). After inserting the caul, maintain slight tension on the bushing cloth and the knife will trim it clean in one pass.

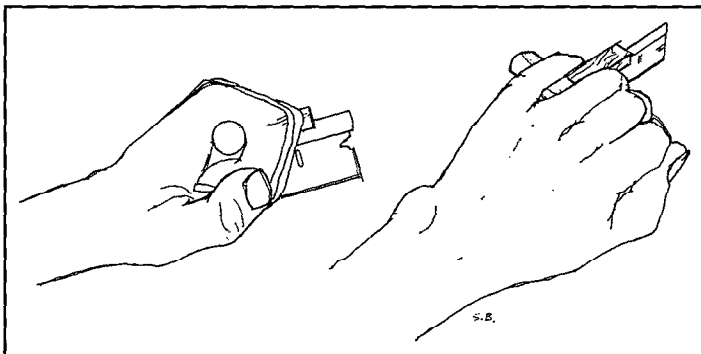


Figure 2

You can do an entire rail without setting the knife down. It works equally well in either hand. Be careful answering the phone!

— Ed Sutton, RPT
Wichita, Kansas

Hail to the Handy Wipe™!

Anyone who has serviced pianos in the field over time has received tidbits of good advice. Some of us have developed little rituals, like not eating sliced tomatoes on your sandwich at lunch because it always ends up on your shirt — or never eating Kentucky Fried Chicken™ two days in a row!



One I heard last year on "pianotech" that never occurred to me was the idea that piano technicians would be far healthier if they washed their hands after servicing every piano they tuned — particularly during the cold and flu season. I had never really given much consideration as to where people put their hands before tickling the ivories or pictured sneezing clients at the keyboard! The idea of treating every keyboard as a vector of infection makes a good argument for cleaning the piano keys on every piano *before* tuning it. I diligently followed this advice last winter and remained cold and flu-free. Even suggesting that your clients wash their hands before and after playing their own pianos will also keep them healthier!

A convenient way to accomplish this is to use those disposable wet nappies that are marketed for cleaning everything from your hands to baby bottoms. They come individually packaged under several brand names, like Wet Ones™, or in small boxes or travel size packets that fit in a tool case. You can even clean piano keys with these and it doesn't hurt to wipe off your steering wheel occasionally either! Many handy wipes are specialized — some odor and alcohol free, others have aloe and lotion to keep your hands from drying out. Some glass cleaners come this way, and are great for cleaning those high gloss polyester finishes. And of course, there is even a special Shout™ handy wipe for taking that tomato out of your silk shirt!

— Carol Beigel, RPT
Washington, DC Chapter
(Reprinted from Alpha Bits, newsletter of the Washington, DC Chapter.)

Replace the Whole Rail

There is a very common problem among pianos that are several years old that have Pratt Read S2 actions with broken hammer butt springs. Many of us have run across this, but I can tell from calls I get that while it is a familiar problem, the "cure" is not so well known. I have in my career had several calls from technicians (who had not received prior authorization, by the way), wanting to charge me warranty charges for replacing 88 separate hammer butt springs.



The problem with these S2 hammer butt spring rails lies in a length of felt that was glued on them just behind the coil of the spring. Its intended purpose was to silence the spring. The felt was supposed to have a neutral pH, but was instead acidic. You can guess the rest. When the felt was glued to the rail, the moisture from the glue acted as a vehicle to carry the acid onto the springs. Please notice that I said *springs* — all of them.

Continued on Page 16

The 2nd GPA
Dublin International
Piano Competition
Dublin, Ireland
*All Six Prize Winners
selected Kawai.*

The 42nd ARD International
Music Competition
Munich, Germany
First Prize Winner selected Kawai.

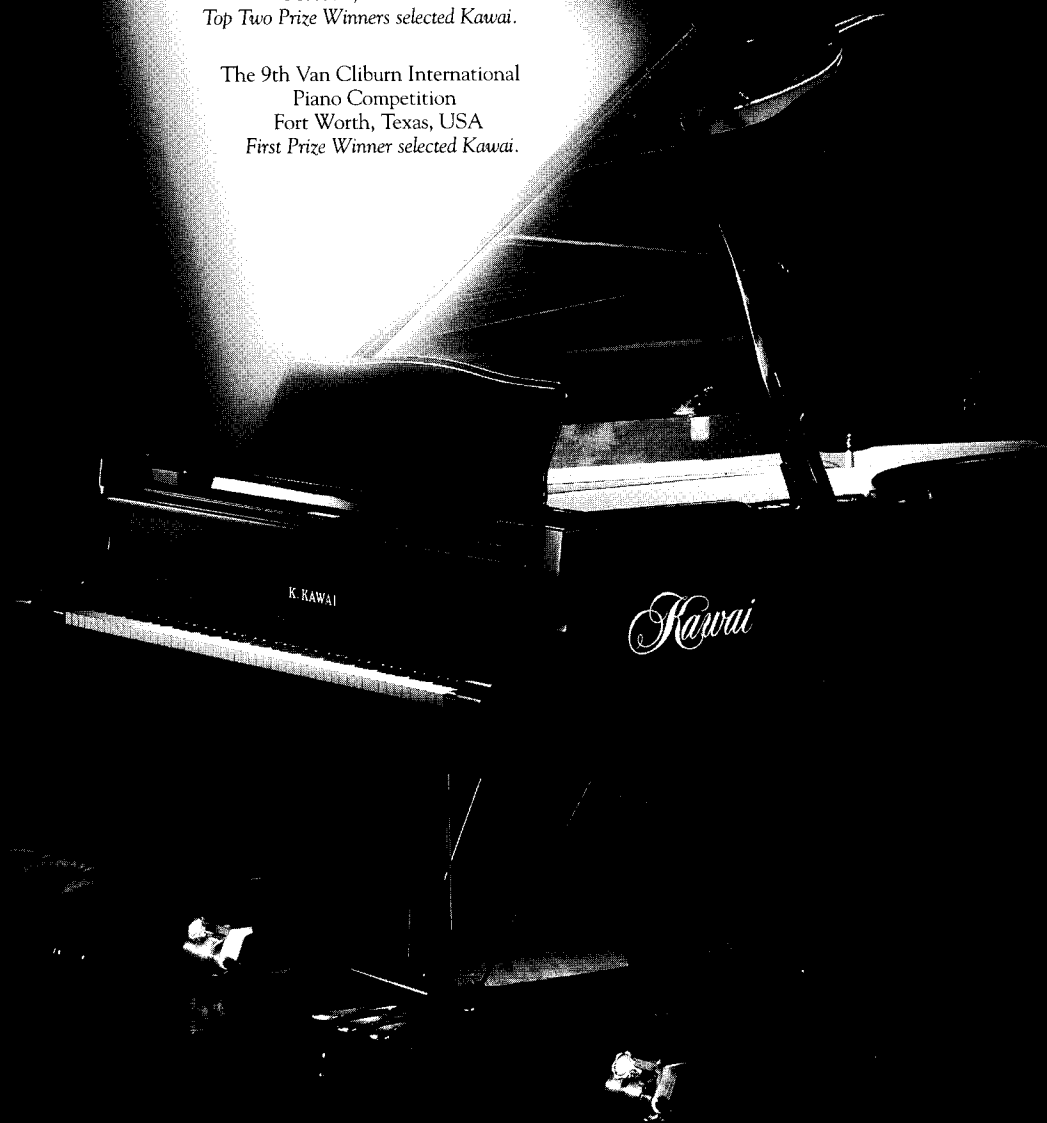
The 45th Ferruccio Busoni
International Piano Competition
Bolzano, Italy
First Prize Winner selected Kawai.

The 11th Santander
International Piano Competition
Santander, Spain
First Prize Winner selected Kawai.

The 2nd Hamamatsu
International Piano Competition
Hamamatsu, Japan
First Prize Winner selected Kawai.

The 10th International
Tchaikovsky Competition
Moscow, Russia
Top Two Prize Winners selected Kawai.

The 9th Van Cliburn International
Piano Competition
Fort Worth, Texas, USA
First Prize Winner selected Kawai.



It's becoming a familiar refrain.

Baldwin Spinet Grommets

Q I have to go and replace the rubber grommets on a late 1970s Baldwin spinet. It has little plastic nuts on the spinet wires, then a felt washer, then the rubber grommets that stick into the key fork (see Figure 1). They have hardened and are now clicking badly.

Does anyone know the size of the plastic nut that adjusts the lost motion? I haven't seen the piano for a year, but I think they are about 1/4", possibly less. I want to be sure I have the right tools. I plan to stick a nut driver into a battery operated drill or screwdriver and spin the nuts off, replace the rubber grommets, and then spin them back on.

Anyone have a better way of changing these out, and how long have you found this operation to take? Thanks!

— Bill Simon
Phoenix, AZ

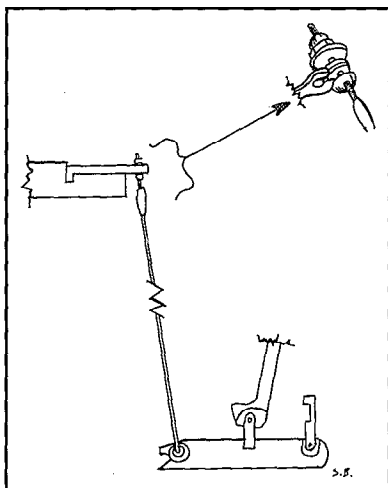


Figure 1 — Baldwin-style drop-lifter wire, grommets, and wippen.

A **ROGER JOLLY:** A fast, simple solution is as follows:

- 1) Use a 1/4" X-celite nut driver with the universal lugs ground off in a hand drill. The center of the shaft is hollow and will give plenty of clearance for the pick-up wire.
- 2) Remove and reinstall grommets.
- 3) Screw on nuts by hand a couple of turns and clip grommet back into finger.
- 4) Use drill to drive the nuts to approximate position. If you watch the hammer carefully while doing this, stop as soon as it begins to move.
- 5) Adjust nuts by hand for correct lost motion.

When using a drill it is important to have the grommets clipped back into the pickup finger to avoid undue stress at the wippen.

PS: It's a little over an hour's work after your first attempt. I would also order six spare nuts from Baldwin with the set of grommets as I have had the odd one break.

Hope this helps.

A **TOM SEAY, RPT:** Rather than spin the plastic nuts on and off, you might try unhooking the wire lifter from where it connects to the wippen.

- 1) Remove wire carefully from wippen and back of key.
- 2) Slide the old grommet down and off the wire.
- 3) Put new grommet onto wire and slide up into place.
- 4) Connect the lifter wire to the key.
- 5) Carefully push the lifter wire back into the wippen.
- 6) Adjust for lost motion.

I've done this job both ways and for me, it was much faster to use this method.

Broken Action Bracket

Q This afternoon, while screwing down the stack to the keyframe, one of the action brackets broke as if it were made out of sand. I had noticed that the brackets were just full of cracks and that one of the brackets was already broken at the screwhole where it is screwed to the hammer flange rail. The metal seemed to be very soft so I tried to be careful screwing the stack down, but alas, the metal just fell apart.

One thing I thought was interesting is that the break is *not* through the screwhole, it is behind it. The entire screwhole is intact with about 1/8" to spare before the break point.

Does anyone have a suggestion on how to repair this monstrosity and what to use? Is there a "glue" for metal? Should I torch the piano and tell the customer my dog ate it? Oh, Lord, I need help. Thanks in advance to anyone who can tell me what to do and how well it works.

— Cindy Crombach, RPT
Rochester, NY

A **ZEN REINHARDT, RPT:** A couple of questions ... What kind of piano does this action belong to? About how old is the piano? I know that Young Chang had a problem with the metal brackets the better part of 10 years ago and are quick to send out replacement brackets. If indeed this piano was built by Young Chang, call Phil Glenn at 800-421-9846.

The trouble with crystallized metal is that there is really nothing you can do for it; you'll have to replace the parts in question. As you've already noted, the stuff is very weak and brittle. The parts you're dealing with are probably a little swollen looking, something that happens with crystallization — all the more reason to replace the parts, if possible. I remember once hearing an explanation that the crystallization occurs when the alloy from which the part was made didn't cool properly after casting — I'll have to look into that one again. Anyway, it is a problem that has turned up from time to time in metal fabrication, much less so now than 40 or 50 years ago before they understood what was going on.

Good luck!

A **DEL FANDRICH, RPT:** Forget all the advice you're going to get about how to repair these things. If they are pot metal, none of that stuff is going to work. They're rotten to the core and, as you've discovered, the "metal" is like sand. It has crystallized and all the king's men and all the king's horses are not going to be able to put them back together again.

You might be able to get new brackets from APSCO. A few years ago, this problem was fairly common. We probably replaced half a dozen sets of these brackets. Kind of like plastic elbows. I haven't heard of a case for quite some time, now. If worse comes to worse, send me a sketch of the offending monsters and I'll see if one of the left-over sets that I have sitting around might fit.

No, don't give it to your dog. He/she is probably worth more than the piano.

Good luck.

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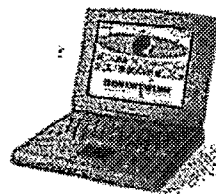
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Q&A/EDITOR'S ROUNDTABLE

Continued from Page 12

A **BOB DAVIS, RPT:** This sounds suspiciously like the "pot-metal" action brackets used on some grands (Marshall & Wendell was one) a number of decades back. What make do you have? If that's what you have, these brackets are available from supply houses. The reason they need to be replaced instead of repaired is that they actually swell with age and oxidation, and mess up your ability to regulate the action.

Minimum Charge

Q Here's a question to think about. First, a scenario. A customer calls you to fish pencils out from behind the fallboard of a grand piano. You know that the job will take less than five minutes to perform, but you are also mindful of your own expenses associated with performing any service call so you charge a Minimum Charge, based on, say, an hour of your time. Do you...

- a) Grab the money and run upon putting the case parts back together when you've been in the house for all of five minutes?
- b) Do little things for the piano such as dusting the soundboard or tweaking the action to fill up at least some of that hour?

What I'm interested in knowing about is how people balance job "efficiency" with the customer's sense of "getting their money's worth."

— Zen Reinhardt, RPT
Ann Arbor, MI

A **JIM BRYANT, RPT (FLORIDA):** I only have one service charge and that is the amount equal to a regular tuning appointment. For that charge I feel that I owe attention to the piano and customer above and beyond pulling the pencils, or marbles, or grandmother's diamond ring out of the inner workings. Generally I will do something like touch up the unisons if they are a regular customer or some minor regulation if they are not. I have never felt comfortable running into the house, removing whatever, and running back out. If there are those who do feel comfortable with that, I have no argument with them.

If I leave the piano a little better than I found it, I feel okay about earning my fee. Sometime, though, it turns into just an education session with the owner on their piano in particular or pianos in general. If that is the route that is taken, I feel good about that, too. It is amazing the number of times that a simple service call, like removing a pencil or two, will months later turn into a regulation job or occasionally a rebuild.

A **FANDRICH:** I've been out of field servicing for quite a while, but ... I charged a Standard Service Fee (that is, I did not have a fee for "tuning" a piano) that entitled my customer to two hours of my time less an amount for travel. During this time I would do whatever I could do to make the piano play and sound better. If the piano were a half-step flat, then it got a pitch raise and a tuning. If it were a piano I serviced on a regular basis, it got a touch-up tuning and whatever else I could do for it. A little hammer work, a little regulating, some pedal adjustment, cleaning, whatever. Each piano would obviously have differ-

ent requirements. I always felt better when I left knowing that I had done as much for the piano and its players as I could. My customers appreciated the performance of their pianos and the fact that there were almost never any extra charges.

So, if this were one of my regular customers (and I do mean *regulars*) I would have worked the call into my schedule and not charged anything unless they lived way out of town or something. I would have written it off as PR.

I'd have to go with "b)," strictly from a good business standpoint. Do what you can do in the time you have factored into your basic service charge. You might also explain to your customer that: "Well, as long as I'm here and you're paying me for an hour anyway, I may as well go ahead and touch up a few of these unisons that are out, and perhaps I can fix that ... whatever." I would guess that they would be so surprised by your approach that after they come out of shock they'll be your customer for life. It's just a matter of being a professional at what you do rather than an opportunist.

I would have no quarrel with anyone doing "a)," since I don't think it would be unethical or immoral. But you'll get and keep more "good" customers with "b)."

A **WARREN FISHER, RPT:** My minimum service covers the first half-hour and a half-hour travel time. There are always adjustments needed on any piano. Lost motion occurs monthly on some of mine. I work the half-hour out and list what I have done on the invoice to document my efforts.

A **ROB KIDDELL, RPT:** Here's where screening is important. If it's a regular customer and you know there are children using the piano you can suspect what the problem is and you know it can be taken care of in five minutes, so you can do it as you fly by on your way to a tuning. She'll offer to pay, but you impress her by declining. However, maybe you were reminded when you took off the fallboard, about the condition of the parts, the need for regulation, etc. So here's the perfect opportunity to put in a plug for that work, or for installing a Dampp-Chaser, etc., or because you just glossed the keys to make sure they were all working, to say that while the tuning is okay, it's getting a bit edgy and maybe we should make a tuning appointment now?

On the other hand, if this is a new client your screening process discovers why she called you. Why couldn't her regular tuner come to retrieve the pencils? Oh, she couldn't find the phone number — or the tuner didn't respond to her message, or she hasn't been too happy with the last couple of tunings? What a great opportunity for you! In this case I would tell her that you'd like to make an emergency service appointment, at which time you would take care of the pencils and other small problems and tune the piano.

If she balks at this, saying that the piano was tuned only a few months ago, I would tell her that you have a minimum charge for service calls (my minimum is about two-thirds of my tuning fee and I expect to stay less than 45 minutes, usually a half-hour maximum).

This will make some people grumble, so I like to reserve the right to make a decision on site to assess a very minimal charge (like \$25) for some small service where I know I'm building a new client relationship, I won't commit to that on the phone, but I have found it to be very helpful in the field,

Continued on Page 16

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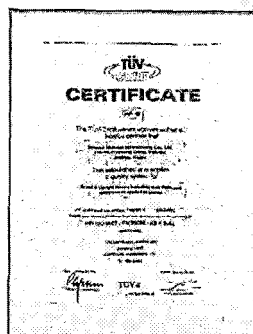
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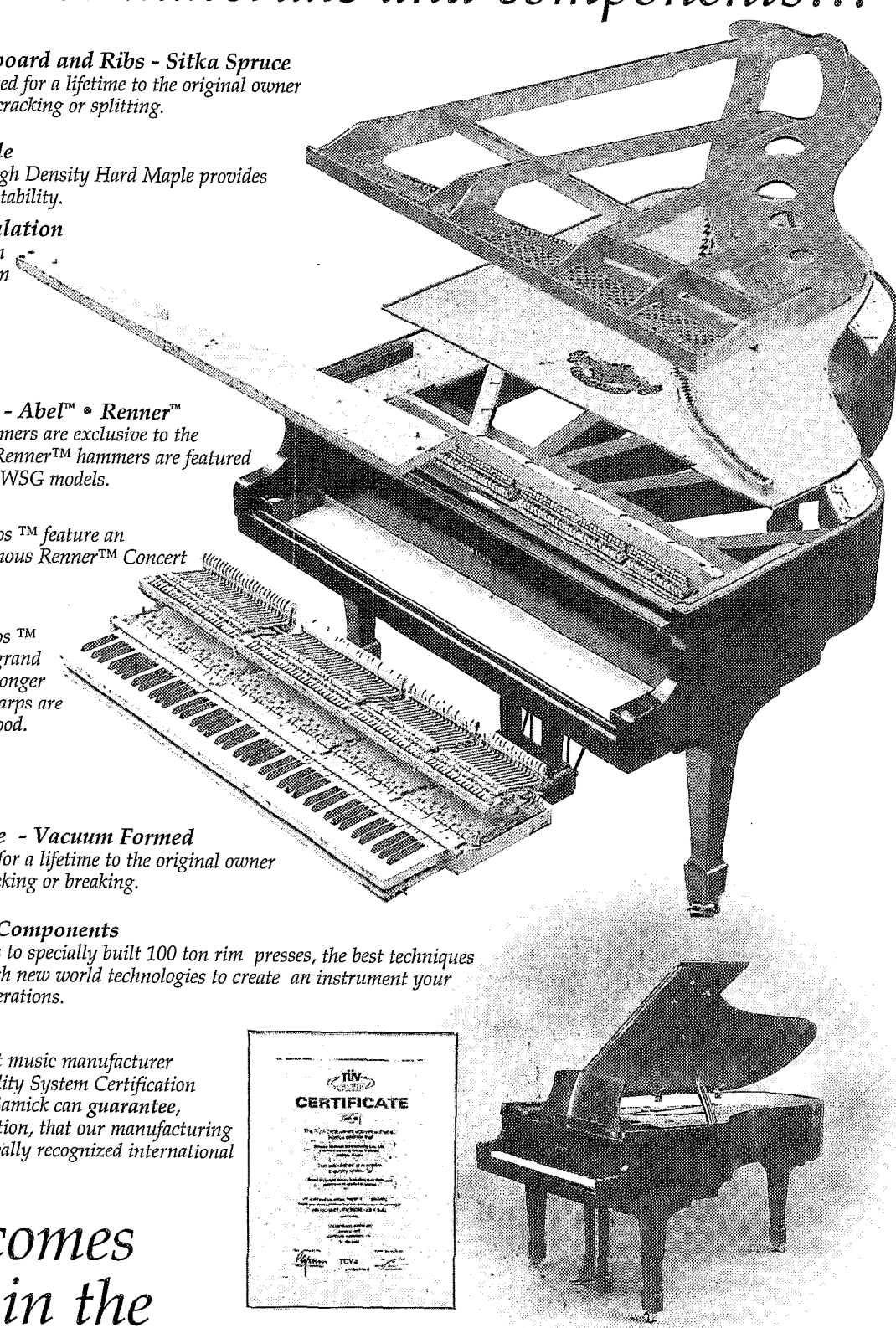


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Q&A/EDITOR'S ROUNDTABLE

Continued from Page 14

to charge less than people expected, but still enough so it wasn't a freebie. Depends on how far I have to travel, and maybe how ugly I feel that day.

A **TOM COLE, RPT:** This is a good question. Once, I responded to a customer's call for help: an older Steinway grand that needed an immediate pencilectomy so that her child could return to practicing. I came out that afternoon and removed the fallboard without dropping the cheek blocks on the hardwood floor. Meaning that this was not a user-serviceable area of the piano. If they had an early Kawai or something with an easily removable fallboard, I would have told them over the phone what to do and save them the service charge. After retrieving the pencil and replacing the case parts, I handed her a bill for \$25, which I thought was very minimal, and she was noticeably taken aback, like, "I'm a regular customer and you're going to charge me for this?" She paid the bill and I haven't tuned her piano in several years.

Since that time, I let people know that if I make a special trip, there is a minimum charge, but if they can wait until I'm in the area, I'll do it for free. Also, while I'm there, I'll give the instrument a quick check and touch up the unisons if any are out (piano tuned recently) or discuss with the owner the need for tuning, regulating or repair.

Another thing I learned the hard way.

REINHARDT: Many thanks for the responses to date. The origins of this question were based on reports from customers about: "That last tuner only did (fill in the blank), and charged me *that* (fill in the blank)," and the occasional comment along the lines of "Why kill yourself for an hour when you can get the job done in five minutes?"

My interest in the feedback from all of you is primarily for the purpose of advising the newcomers. I'd like to be able to base my "teaching" efforts on a consensus rather than on just my own experiences. Many thanks again.

For the record, I'm one who advocates giving the customer their money's worth. There is a Japanese proverb that essentially reads, "Promote happiness and the money will follow." It's true. Sometimes the money is in future work on that piano, sometimes in another piano, sometimes a combination of all of the above and then some — and sometimes in the form of a tip tucked under the cover of my appointment book. ☐

Letters

Tuning Low Bass with SAT

I just had to put my two cents worth in, since I was surprised that no one mentioned the idea of touching the center of the low bass note string that was in question as to being able to tune it with the SAT.

I used to do it any time I had the slightest doubt of the pitch of a low bass. Just find the center node of the string and touch it lightly and there you have the pitch one octave higher. It sure took the guess work out of worrying about the correct partial.

Naturally, I would check with the note one octave higher to be sure my ears were not playing tricks on me, and go on and tune with my trusty SAT as usual.

—James Drago, RPT ☐

Tips, Tools & Techniques

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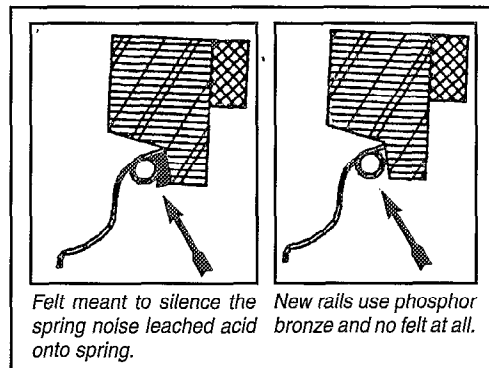
If you run across one of these rails, and one or more springs are green and/or broken, *do not replace the individual springs. All* the springs need to be replaced, all right, but the easiest way to do that is to replace the entire spring rail.

Most companies who used or use the S2 still have new spring rails to replace the defective ones, and some still authorize a labor reimbursement even though almost all of these pianos are now out of warranty.

The replacement rails have no felt behind the spring (as

it turns out, the spring didn't make noise anyway), and the springs are now made of phosphor bronze. Should you find this problem in a piano that came from a manufacturer who no longer exists, Pratt-Win in El Paso,

Texas, can custom make a new one for you. Just call them at (915) 778-4907 for details.



—Jon Light, RPT

Reprinted from Indy 440 newsletter, Indianapolis chapter

Get a Grip!

I was recently going through some back issues of the *Journal* when I came across a letter from Mitch Kiel in the March 95' issue that dealt with wrapping bicycle tape around the handle of his tuning hammer to cushion it.

The word "bicycle" leaped out at me. I immediately turned off the light bulb over my head and ran down to my local K-Mart where I purchased a pack of racing bike handlebar covers. These foam rubber tubes come four to a pack for about \$5. I soaked them in warm soapy water as per instructions. I then slipped one on the nylon handle of my Schaff hammer. It went on quite easily. I set it aside to dry and then proceeded to put them on my other hammers — the handles of these hammers are wood. I found that a bit of VJ lube helped in putting the covers on those.

For my impact hammer I split the tube, placed it around the shank and taped it down with electrician's tape.

The covers give my hammers a nice "cushiony" feel. After a day of tuning, the area between my thumb and forefinger would be sore. This no longer happens with the covers. A bit of tuning hammer "feel" is lost at first, but it comes back as you get used to the covers. They do help me "get a grip" on my tunings.

—Dave Farrar
Dayton, Ohio ☐

Replacing Steinway Double Flanges

By Curtis Spiel, RPT
Seattle Chapter

Old Steinway uprights often present the piano technician with a serious challenge: double flanges with verdigris. In the relatively mild climate where I live, many of these instruments are in otherwise excellent condition, but the verdigris problem has rendered them unplayable. I have found replacing the flanges to be the only satisfactory cure for the uprights. Various chemical and/or heat treatments often work well with grand actions because gravity is much more effective at returning the hammer to rest than is an upright hammer butt spring. The slightest sluggishness returning will make the upright action unplayable to even a beginning pianist.

Of course, it is easier to say, "Replace the parts!" than it is to actually do it. The first time I tried it, well, by the time I had gotten it right I had spent far more time than I had imagined. The hammer and damper alignment is critical in all piano work, and with both hammer hung on the same flange it can be an endless, frustrating job to complete. However, armed with the usual tools of our trade plus a jig made of plywood, four 3/8" by 4" bolts with twelve matching nuts and eight flat washers, masking tape and pen, I have found this job to be both satisfying and profitable. As an added bonus, this jig

can be used for hammer and damper replacement.

A word about parts. Renner and Tokiwa are currently making double flanges for Steinway uprights. Both are of excellent quality. The Tokiwa flanges are asymmetrical from the screw hole to the center pins; the distance from the center of the screw hole is 12.4 mm to the hammer butt center pin and 11.3 mm to the damper center pin. The Renner flanges are available either in that configuration or with a measurement of 11.7 mm from the center of the screw hole to the center pins on both sides. Check which parts are in the piano and order appropriately. The width of the forks is the same for both parts, and some original hammer butts are narrower than the forks, so that some parts do not fit

snugly. This is, unfortunately, just something you will have to live with. I have found that if the wippen pinning is firm and the wippens are traveled well, this is not a terrible problem.

The first thing is to determine if the job is worth doing. If the piano is untunable or the hammers and other action parts too worn to use, then it is time to consider further work beyond just replacing the flanges. Be sure to check the action rails. Sometimes there are cracks in the brass or there are too many stripped screw holes to make repairs practical. For now, though, I will just consider flange replacement, because hammer and butt or action rail replacement provide enough problems to warrant an article of their own. Once you have deter-

mined to go ahead with the job, procure the parts, pick up the action, and begin. I find 12 hours are needed for this job plus additional time to regulate the action. I schedule a follow-up visit to check for glitches about a month to six weeks after delivery, where I usually find a couple of small things to correct. I find this follow-up adds to the peace of mind of both the customer and myself.

Before taking the action from the piano, you should measure and note the hammer blow distance in both the treble and bass

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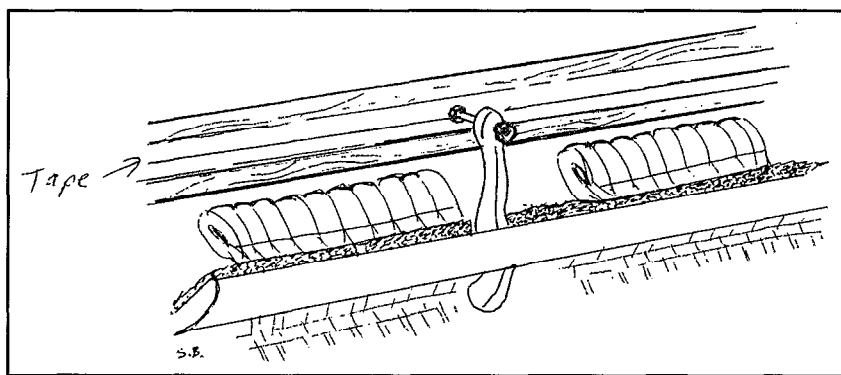


Figure 1 — Jig for marking string positions shown from front.

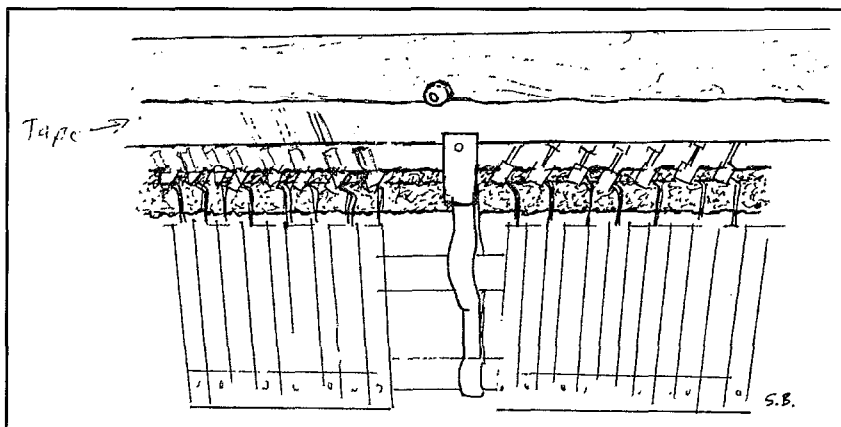


Figure 2 — Jig for marking string positions shown from back.

Replacing Steinway Double Flanges

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sections. You will be locating the jig to duplicate these measurements.

Once you have the action at your shop, the first thing to do is check the position of the springs on the hammer butt. You may find that the new flanges will position the butts slightly differently so the spring rail may need to be repositioned to correct this. After you have noted this position, remove the spring rail and put it aside. Now you make the jig.

The jig is representing the position of the strings relative to the action. Mine is made of 1/2-inch plywood 55 inches by 3 inches. You are going to duplicate two lines with this jig, that of the hammer strike point and the damper contact point. Locate the jig so that the bottom almost brushes the top of the dampers and drill four 1/2-inch holes in line with the action bracket bolt holes (see Figures 1 and 2). Push the bolts through the action bracket holes and clamp them to the brackets by running one of the nuts all the way against the bracket. You did buy bolts threaded all the way to the head, didn't you? Now run a nut onto each bolt, followed by a flat washer on each bolt, then hang the jig on the bolts followed by the remaining washers and nuts (see Figure 3). Position the jig parallel vertically to the action brackets by wedging something (I use folded up business cards) between the washers and the plywood, then adjust the jig to the hammer blow distance you earlier noted. Of course, the bass and treble hammers are in a different line, so you will need to complete one section entirely before moving on to the other. Pull the damper lift rod up to where the dampers are even with the back of the jig, and secure it. Run two lines of masking tape, one on the back of the jig to mark the position of the dampers and one along the front where the hammers hit. Now carefully mark the position of every string cut on each hammer and damper. Mark only the treble




Figure 3 — Side view showing configuration of nuts on bolt.

section now, as you will be moving the jig to a new position based on your hammer blow measurements of the bass section when you have finished installing, traveling and spacing the treble. Take care to show the sweep of the strings with your marks. This is especially critical in the tenor and bass sections where the hammers and dampers are angled. Accuracy in this step will mean far less time and trouble with final alignment when you return to the piano.

Now it is simply a matter of removing and replacing parts. Remember to only remove parts in the treble section for now, as you have not marked the bass section yet. Be sure to number the damper levers and hammer butts before you remove them. When reassembling the action with the new flanges leave off the dampers for now. You will install them after the hammers are spaced and traveled. Now is also a good time to replace bridle straps, damper lift rod bushings and any other things you agreed upon when you sold the job. Do not file the hammers, though, as you will be needing the string cuts for alignment purposes. I find it efficient to space and travel hammers to the marks on the jig as I install each hammer butt and flange. It always

seems, especially with traveling, that I find some errors in my work when I have the whole action assembled, and again when I install the action back in the piano, so don't worry about absolute perfection at this stage. You will have ample time to refine this later. Once you have finished with the hammers you may install the dampers and regulate them to their marks. The new flanges will probably have changed the damper lift, which you will be regulating later. Just worry about the lateral alignment making your best guess of the string sweep based on your careful markings. Once you have completed the treble, repeat the process in the bass section after moving the jig to the hammer blow distance you measured for this section.

Now you are ready to return to the piano. Notice that you have not reinstalled the hammer spring rail yet. The damper regulation is much easier without it, so leave it out for now. Be sure to take it and all the hardware that go with it along. Be sure to take along material to make spacers, and you may even end up having to plug the screw holes and drill new ones to get the spring position correct. You may want to test fit the rail in your shop before returning to the piano, but it really is worthwhile to remove it again to regulate the dampers.

Once back at the piano, it is simply a matter of checking your work, correcting any problems, regulating the action and dampers to compensate for the new parts, and replacing the spring rail. In most cases I find the action needs a thorough regulation anyway, so be sure to include the time necessary for this in your original bid. As I said earlier, I plan on a follow-up visit in a few weeks, as some things invariably drift around a little. This stop rarely takes more than an hour, so schedule this visit with your customer, and you are done! 

World Class JUNK

By Susan Kline, RPT
Eugene, OR Chapter

The Self-reliant Owner

There are people who really would prefer to fix everything themselves, including their pianos. What are we to do about them, when they call us up?

I can envisage many answers from many people, in this admirable calling that will so flexibly allow us to pursue it in ways *exactly* analogous to our own natures. Each of us can decide such questions in ways we find comfortable, since luckily, piano tuning was standing unnoticed behind the door when tedious, inescapable "progress" depersonalized most of the other professions. A gratifying aspect of piano work, for me, has been the feeling that I am always there because people want me to be there. I jealously guard this enchanting feeling of being welcome against anything that might threaten it. Therefore, when some independent souls call me and want to work on their pianos themselves, I shy away from forcing my services on them if there is a practical alternative.

Caveat

The very first thing I ask myself, in all cases, is, of course, "Can they do it without danger to themselves or their instrument?" I consider hazards that might give me pause if I were doing the work myself, such as:

- power tools that might run amok
- edged tools treated with too little respect
- fumes, biohazards (i.e., Hantavirus, etc.), poisonous substances
- onlookers who might put themselves in harm's way.
- heavy lifting by unfit people, large objects that might be left in unstable positions or dropped at unfortunate times.

I then make an added safety margin which I call the "turkey allowance." As the old saying goes, "Nothing is really fool-

proof: that's because fools are so ingenious."

If the procedure still seems harmless, or would be harmless after a few basic warnings, then I proceed with all deliberate speed to further questions: "Would they be capable of doing it well?" and "Do I really *want* to do it all myself, anyway?" Usually self-reliant people are calling to get parts, but they also need advice and instructions. A little teaching is often not impractical; some repairs and adjustments could be done by a methodical 10-year-old, if properly instructed.

On occasion, I have sent out parts to people I've never even met. There was a gentleman who took a spinet to a series of revival meetings he held, and he needed two double rubber-wheeled casters. I asked him enough questions to be sure he knew how to move and tilt the piano, and that it already had been fitted out with similar casters, then sent them. There was a very elderly gentleman who had a spinet with breaking plastic elbows, and no (but *no*) money. I sent him a dozen snap-on elbows and instructions about installation and lost motion, charged him \$5 for the time and postage, and got a glowing, triumphant letter of thanks. Two years later I sent him a few more.

When Things Go Well

Consider an actual example: an "independent spirit" with a house full of clutter from thrift stores, and a yard decorated with same in quite madcap style, who had the

usual wretched spinet with hardened grommets, the little square kind of grommet with perished black rubber all over it. The "piano" (to stretch a term) was rattling away, he wanted the kids to take lessons, he had almost no money — more power to him! The grommets were turned deep onto wires with achingly fine threads. Just the thought of all that twisty-turny made me dizzy — I remembered the spinet in a church with the

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Technical break —

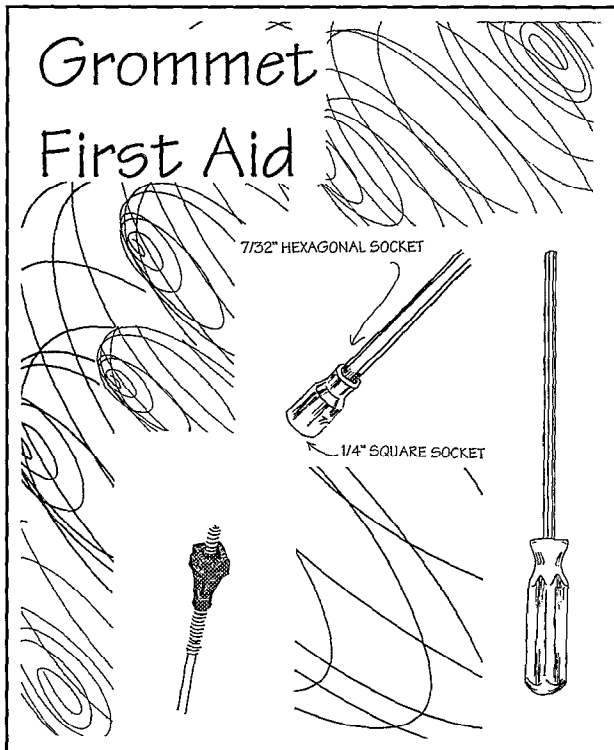
I bought a screwdriver style Allen key with a generous plastic handle, which also happens to open the Everett upright cases that are held on by Allen screws. I have a set of hex sockets, 1/4" drive. By reversing one, sticking it on the Allen key, and setting the 1/4" opening over the square grommet I could comfortably put some "come hither" on it. If it was too far down the wire for the socket and Allen key to fit, I put the socket all the way over it without the Allen key, and turned it by hand or with vise grips. (*tedious*)

If anyone else has a good approach to removing and installing these square grommets, especially one using a power tool, I'd be *glad* to hear about it.

World Class Junk

Continued from Previous Page

same problem, the job I hopelessly underquoted, when I wrecked my hands until I figured out a way to grab the things. (See sidebar.) Mind, these weren't the grommets with separate hexagonal nuts on the J-shaped wire [Editor's Note: See the Q&A column in this issue — SB], where you could sneak only the grommet off through the "basement exit." These were the ossified one-piece type, where nothing but unwinding them would do.

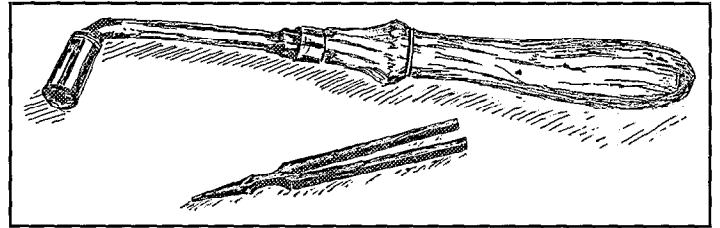


So I talked to the fellow, who seemed reasonably capable and very eager, lent him the Allen key (he had socket wrenches), sold him a set of grommets, gave him a short lesson, and stood back.... When he had finished, I visited again, checked over the regulation (I had told him about lost motion), tweaked a few notes, congratulated him, tuned it, and gave him a very modest bill for two short visits and a set of grommets, plus a tuning.

On the Other Hand ...

There was a middle-aged woman who lived above a store and had built her own furniture. (Well, you *could* sit in the chair, eat off the table.) Her father had been a tuner, I can guess what kind, and she had his basic tuning tools, and an old white-painted upright that wasn't sounding too good. A genial, enthusiastic soul, she described to me how she had said, "What the heck?" and started turning away. When she stopped turning and called me, she had broken six strings in the treble (fortunately she started the treble before the bass). This sounds kind of drastic, but the piano had really been very kind to her, since I found a number of strings in the middle octaves that she had tuned up to a major sixth high! The concept of having strings in groups of three at the same pitch had also escaped her.

This was back east, in Ontario, and the pinblock was on the very verge of hopelessness to begin with. By the time new strings were installed two of the pins were past the verge, totally. I was new to the profession, and, of course, the woman was nearly indigent. I didn't dare drive in oversized pins, since the neighboring pins were ... *infirm* might be a polite description. I ended up tying two loops, and so two notes turned into bichords, but the



instrument was playable.

She gave me her father's tuning hammer and fork. "I think you should have these," she said, and I could only agree.

Intermediate Ground

One night I got a frantic call from a music teacher. Could I please, *please* come tune the next morning, before his students' recital? I could, as it happened. He also performed in clubs, and sometimes he was up against pianos that were almost never tuned, so he owned a tuning hammer, just for use in extremity.

You can probably fill in the rest: he knew he had a good ear, and there was the piano and the tuning gear. The piano wasn't far out, all he had to do was....

He described to me what happened then, the raveling process as what he imagined were tiny changes gradually led to drastically accelerating deterioration, and the cold sweat of panic set in. He was not a person without resources of character. He pulled himself together by brute force, and made himself sit completely still for a moment, breathing deeply. Then slowly and methodically he worked it through all over again. He ended up with a bad tuning, but not an atrocious one, and a new understanding of his limitations. He kept the tuning hammer, and I showed him how to tune unisons in case he needed to when performing away from home.

The Pastor

It seems to me that self-reliant people also tend to be cheerful. The pastor certainly was. His piano, the old family upright he had grown up with, had 13 broken treble strings, but he was still quite sparkling, and insatiably curious. He had it all taken apart when I arrived, and told me that he and his brothers used to take the case apart when they were kids. As I worked on it I noticed that it also looked quite interesting when one played it, since the sides of the keys were bright orange. Yes, they had painted them when they were kids. They thought it would look neat. They had also put in the thumbtacks that accounted for the broken wire. He had taken them out later (far too late to do any good).

He watched me carefully the whole time I worked,

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SOUNDBOARD

DAMAGE — THE MECHANICS OF FAILURE

A GUIDE TO

SOUNDBOARD

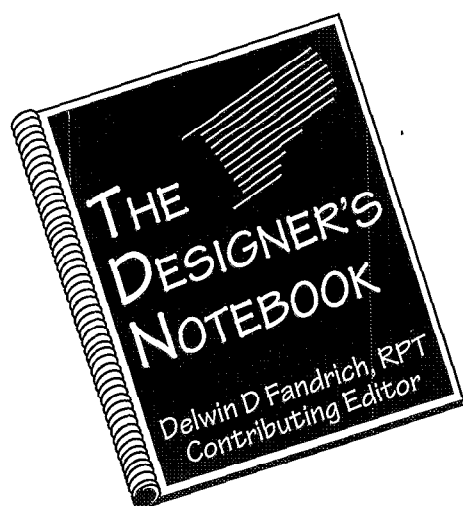
CRACKS &

OTHER

MALADIES

— PART II

By Delwin D Fandrich
Contributing Editor



INTRODUCTION

We continue our discussion of Soundboard Maladies by looking at why and how structural defects such as compression ridges, cracks and other maladies develop. To understand these problems we must first understand how soundboard crown is developed and what affect the method of crowning has on the wood used to form the soundboard panel.

NOTE: Some of the concepts and terms used in this article were introduced in the two articles on Wood as An Engineering Material that were published in earlier Journals. Please refer to those articles for any additional background information you may need.

WHY DO SOUNDBOARDS CRACK?

Now, we're finally ready to tackle the problem of soundboard cracks. Structural failures occur in soundboards for reasons that are as old as the piano itself — at least the “modern” piano — and they probably involve the invention and development of crown in the soundboard. So first, a little history.¹

Like many other great discoveries, the whole concept of soundboard crown — at least its importance to the acoustic response of the piano — was probably discovered by accident. During the late 1800s the design of the “modern” piano was rapidly evolving from its more lightly strung and lightly built predecessors. The technology for mass-producing the piano was also evolving during this time, bringing with it the practice of preheating the soundboard panel and the rib set.

Considering the complexity of the piano, there are very few fasteners used during its assembly. Most everything is glued together and until well into the 1900s there was only one type of glue available to piano builders: animal hide glue. Within certain limitations, hide glue is a good adhesive although it is a bit awkward to handle and work with in a production shop. Especially with large assemblies. Restricted to hide glue, factories looked for production methods that both conformed to the requirements of the adhesive and gave them the production speed they needed. One method that developed was to preheat the wood members before applying the glue.

Ribbing a soundboard is not a difficult task but it can be rather cumbersome — especially using a go-bar press and animal hide glue which has to be applied very hot and then kept hot until all alignment and clamping is completed. Preheating the wood simplified the process, making it both more efficient and reliable. Prior to applying the glue, both the ribs and the panel were placed in a heated room or a hot-box and brought to a temperature of approximately 120 degrees F. Applying the glue to these hot surfaces kept it from prematurely cooling and gelling while the ribs were positioned and the go-bars were wedged into place.

The process was simple and efficient, but there was a downside. When wood cells are heated, they give up moisture. As they lose moisture they shrink in size, mostly in diameter, very little in length. As the wood cells shrink, the panel dimensions also change. It becomes smaller, with most of the shrinkage taking place in the cross-grain plane. So by the time the ribs were actually glued on, the hot, dry soundboard panel was physically smaller than it had been at normal room temperatures. While in this heated state, one side of each rib was given a liberal coat of very hot hide glue and the ribs were quickly clamped in place. The assembly was then returned to the normal factory atmosphere, whatever that may have been on any given day — cold or hot, dry or humid. As the wood cooled, it began to resorb the moisture it had given up to the hot box and the wood fibers expanded once again — or at least they tried to. With the ribs now glued across — grain to the back of the soundboard panel, however, they were no longer able to freely expand. So, instead of physically expanding, the swelling wood fiber created an increasing amount of internal compression and a stress interface developed between the expanding soundboard panel and the restraining cross-grain ribs. The result was

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The Mechanics of Failure

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inevitable: the whole thing warped. These warped soundboard assemblies could have presented quite a problem — and probably did — except that one day some long-forgotten piano maker discovered that the instruments built with the warped soundboards sounded better than those made with the flat ones. And the rest, as they say, is history.

By the late 1800s this process was used by most — if not all — piano builders. It was also fairly well understood that soundboard crown was desirable and that it was the natural result of ribbing the soundboard panel while it was quite dry — or at least while it was very hot. In 1909, William Braid White described the process as follows: "It is usual to glue the ribs upon the surface of the board first — that is before the bridges — and good practice dictates that the surface of the board be dried out in a hot-box for at least 24 hours before either of these processes take place. If this is carried out properly, the resultant shrinking of the wood will be taken up after the board has become thoroughly cooled, and if the process is repeated when the board is glued into the framing of the instrument, the result will be to endow it with a natural 'crown,' or arch, caused by the re-active swelling that takes place after the artificially induced shrinking.... In general, we shall be well advised in remembering that the prime function of ribbing is to increase the tension of the board and its elasticity, and thus promote the power of resonance."² He goes on to describe the process of assembling the soundboard to the rim: "The gluing of the soundboard to the framing is a process that demands the greatest skill and care. It is essential that the board be warmed, and that the glue which is used be in just the proper condition: neither too thick nor too thin, and, above all, boiling hot. If the fastening is to be done when the board is in the shrunken condition described above, and with the required skill and care, it will be found that the fibres [*sic*] of the wood have been squeezed together so as to raise the center part of the board somewhat above the level of the edges. This gives what we have denominated the 'crown,' and is important as affecting the durability and resisting power of the entire board."³

By 1916, Samuel Wolfenden, among others, understood the necessity for altering this process somewhat. He also understood that the soundboard assem-

bly had to be made to act as a spring. His "formula" (which contains most of the elements of a well-designed soundboard assembly) was to "... arch the bars to about the usual curvature, keep the board warm at, say 100 degrees to 120 degrees F. for a few hours to shrink [it]. Place it on a frame or board hollowed out a trace deeper than the curve of the bars, and while the board is hot, glue the bars down. When the pressure is released, the rounding will be rather greater than the original curvature of the bars, and the board in a condition of considerable compression, which it will retain and which will increase a little.... The whole structure thus becomes a highly elastic spring."⁴

COMPRESSION—CROWN

The basic process described by White is still used by some piano builders today, although most have evolved toward the method described by Wolfenden. The main differences being the introduction of the pre-crowned rib and the curved rib caul. He was also able to back off on the temperature of the preheated soundboard panel a bit, although even his process allows for temperatures up to 120 degrees F. As described, both processes set up the conditions that can lead to structural soundboard failures. Of the two, however, the process described by White places the most stress on the soundboard panel so it is the one we will examine most closely. For lack of a better term, I have coined the phrase "*compression-crowning*,"⁵ to describe this method of crowning or "bellying" soundboards.

The process controls and specifications may be a bit more sophisticated today, but the results are essentially the same. The soundboard panel is still

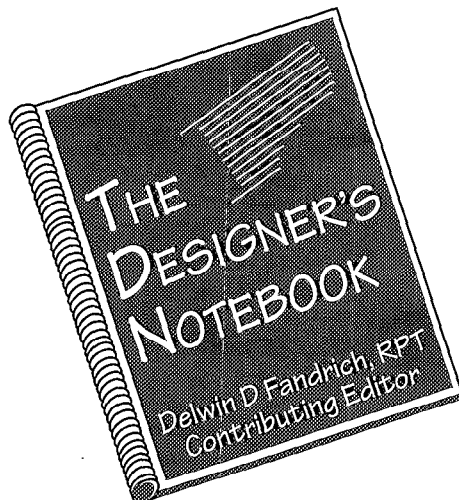
heated and held at some elevated temperature until it is extremely dry, but nowadays the temperature is carefully adjusted to maintain the wood at some specific equilibrium moisture content (EMC). Typically this will be between 3.5 percent and 4.5 percent depending on the season — it will be lower in the winter, higher in the summer. Drying the wood to an EMC this low shrinks the wood cells (fibers) considerably and significantly reduces the width of the soundboard, i.e., in the dimension perpendicular to grain. The ribs — and usually the bridges — are glued to the board while it is in this dried-out and shrunken state although in most cases animal hide glue is no longer used. It is also still common practice to glue the whole assembly into the rim while it is quite dry. When the assembly is once again exposed to the factory's normal environment, the wood fibers resorb moisture from the ambient air and they begin to expand back to their original size. The ribs (and to a much lesser extent, the rim — see the sidebar accompanying Part I of this series) act to prevent the panel from expanding and the swelling wood fibers creates the internal compression which forces crown into the assembly.

THE NATURE OF WOOD

As many beautiful-sounding pianos have proven, when carefully executed, compression-crowning can work quite well. No matter how carefully controlled, however, the process can be problematic. It is a very difficult procedure to control accurately. The amount of crown in any particular soundboard will be dependent on a number of complex variables that are hard even to identify, let alone control. Although much effort is made to fix the precise moisture content of the soundboard panel when it is ribbed, its moisture content on any given day subsequent to bellying will vary considerably. (This is true no matter how the soundboard is bellied, of course, but the effect on the performance of the piano is greater when the soundboard is compression-crowned.)

Wood is a natural material and, as such, it is subject to many physical variations — not all of which are visible to the eye or even measurable in any practical sense. Although the annular ring density can be counted, it is not possible to find boards in which the ring density is truly uniform. There are always going

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A Visit to Finchcocks

By Steve Brady, RPT
Journal Editor

During a recent trip to England, I was fortunate enough to visit the early keyboard instrument collection at the Finchcocks estate in rural Kent. An hour or so from London by train and taxi, Finchcocks nestles in the hilly terrain around Goudhurst. The stately Georgian mansion was built in 1725 and has been altered very little since it was built.

Since pianist and early keyboard enthusiast Richard Burnett acquired the property in 1970, the Finchcocks mansion has housed a growing collection of early keyboard instruments, which now numbers about 90, more than 30 of which are fully restored and in playing condition. The collection includes examples of instruments from each phase of the piano's ancestry — from the clavichord and harpsichord to the mid-19th century. The busy Finchcocks staff now hosts tours, weddings, concerts, recording sessions, and provides early instruments for films such as the recent spate of film versions of Jane Austen's novels.

Upon our arrival at Finchcocks, my wife and I were greeted by staff members and then treated to lunch with Richard Burnett and his wife, the writer Katrina Hendrey. Burnett, a pleasantly eccentric 64-year-old with a ready, infectious grin, demurred when I called him a pioneer in the early-music movement, and smiled sheepishly when I mentioned that I had enjoyed playing his recording of Mozart's *Rondo alla Turca* (played exuberantly on a piano with bassoon stop, bass drum pedal and bells) for my piano technology classes. It took a moment for the Burnetts to identify the exact recording I had, since, as they explained, the Finchcocks recording catalog now includes over 60 titles on the Amon Ra label, many of them featuring Richard at the piano. Finchcocks, Katrina noted, is a *living* museum: "We encourage people to play the instruments; that's what they're for!"

Following lunch, we embarked on a tour of the collection with Richard and his head curator, William Dow leading the way. Dow, an intriguing mixture of craftsman and scholar, describes

his profession as "a sort of hobby that got out of hand." Now 50 years old, Dow became intrigued with instrument-building at age 15, when he built an electric guitar with his father. When, as a university student a few years later, he bought an old square piano to restore, his obsession with musical instruments began to take a serious turn. Having worked as a self-employed harpsichord maker for three years, he then attended a restorers course at Nurnberg, Germany before joining Burnett and instrument maker Derek Adlam in the firm of Adlam Burnett in 1975. Until the dissolution of Adlam Burnett in 1980, Finchcocks housed not only an early instrument collection, but a workshop for the construction of early keyboard replicas as well. Bill Dow is the only technician remaining from the Adlam Burnett days, and he now oversees the restoration and ongoing maintenance of the Finchcocks collection.

The Zumpe square pictured in Photo 1 with Richard Burnett and William Dow represents an important milestone in the history of the piano, because it was the first type of piano to be commercially successful. Built into a case which was essentially that of a clavichord, and containing the simplest action mechanism possible,

the Zumpe square was inexpensive enough to be affordable to the masses. The action did not contain a true escapement; the hammer was propelled towards the strings by a rigid "jack" projecting from the key, and continued flying upwards when the motion of the key was stopped by contact with a padded rail.

The first vertical pianos were both more expensive and less reliable than the small squares. The early "upright grand," like the one shown in Photo 2, was basically a grand piano turned on end. The tuning pins on this type were just above the keyboard, while the hammers struck the strings from behind. Pianos like this were popular in the late 1700s and early 1800s, as were instruments like the Southwell upright in Burnett's collection, in which the strings run from side to side, resulting in a less towering

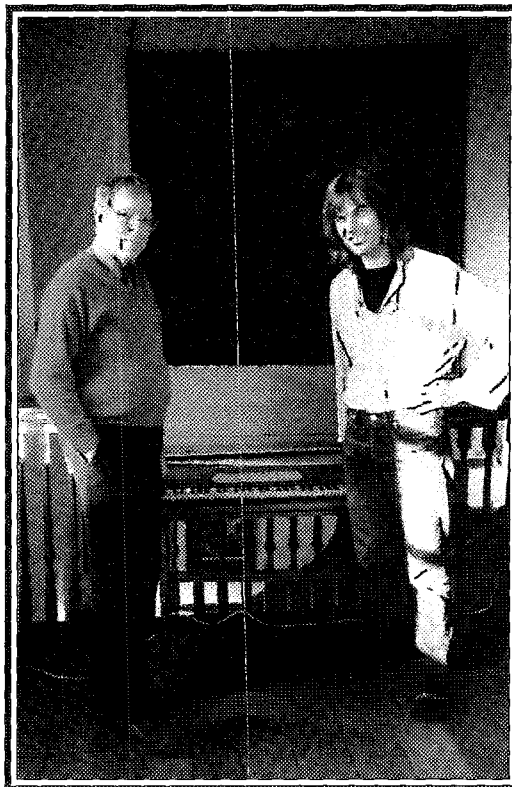


Photo 1 — Richard Burnett and William Dow flank a 1769 square by Johannes Zumpe.

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A Visit to Finchcocks

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instrument. In all these designs, the strings went no lower than the keyboard.

It was in 1800 that two different builders (Hawkins and Muller) had the idea of letting the strings go all the way to the floor, thus reducing the height of their vertical pianos tremendously. Two examples of this type of piano appear in the Finchcocks collection, the first by Jean-Henri Pape (Photo 3) and the second by Sebastien Mercier. In both these examples, the strings are all running in a severe diagonal direction, but the bass is not cross-strung.

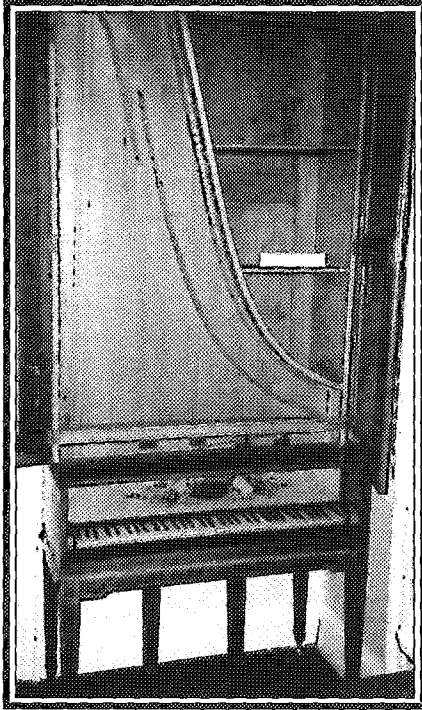


Photo 2 — Upright grand by Muzio Clementi, ca. 1800.

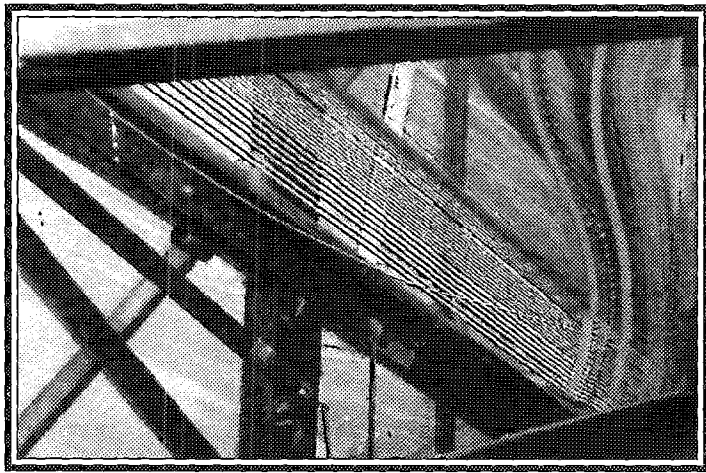


Photo 3 — Piano-console by Jean-Henri Pape, showing extreme diagonal stringing and extensive use of metal bracing.

Pape patented cross-stringing in 1828, but the idea did not become popular immediately.

The Mercier piano is of a style called "Dog-Kennel," so-named because of a cutout in the bottom center of the case, through which a canine could retreat to its home in the wall. Although this feature is not shown in the photo, the piano's interesting hinged front is shown in its opened position, facilitating work on the strings and the rear part of the action.

Among the numerous grands in the collection are a few with special features which may interest modern

technicians. Typical of the "Viennese" school of piano building are the 1826 Conrad Graf and the ca. 1815 Johann Fritz. Both instruments use the Viennese action, with the hammer mounted on the key rather than on a hammer rail, and with the hammer extending from its

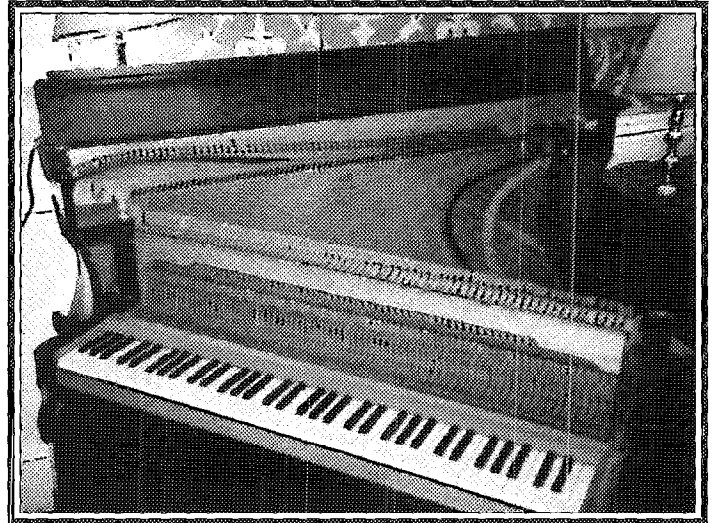


Photo 4 — Dog-Kennel piano by Sebastien Mercier, with hinged front opened to facilitate service.

pivot back toward the keyboard. The Graf piano has a soundboard cover, a feature common in early pianos on the continent. Sometimes called a "dust cover," this panel more likely was used to alter the quantity and quality of sound instead of simply protecting the soundboard and strings from dust. In some instruments the cover was decorated and in some, like this one, it was left unpainted. The cover is suspended on hooks threaded into the rim.

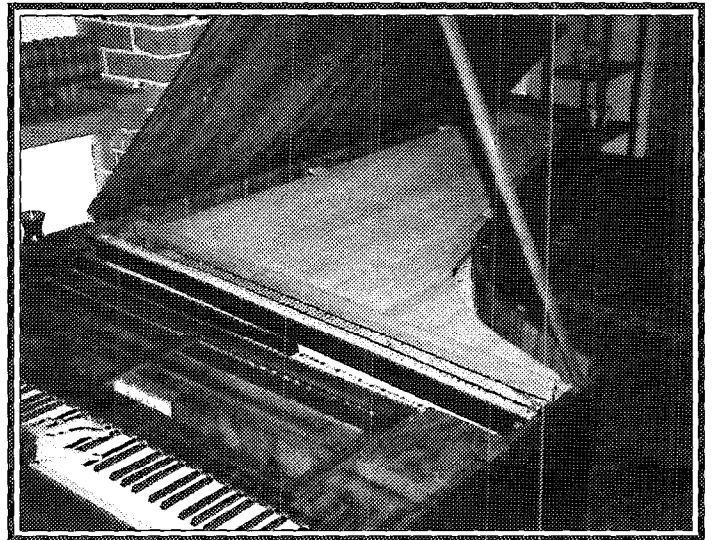


Photo 5 — Piano by Conrad Graf showing soundboard cover.

Near the end of our tour Richard sat down to demonstrate the Viennese grand by Johann Fritz (ca. 1815), playing the Mozart rondo which I had mentioned earlier. This instrument features a "bassoon"

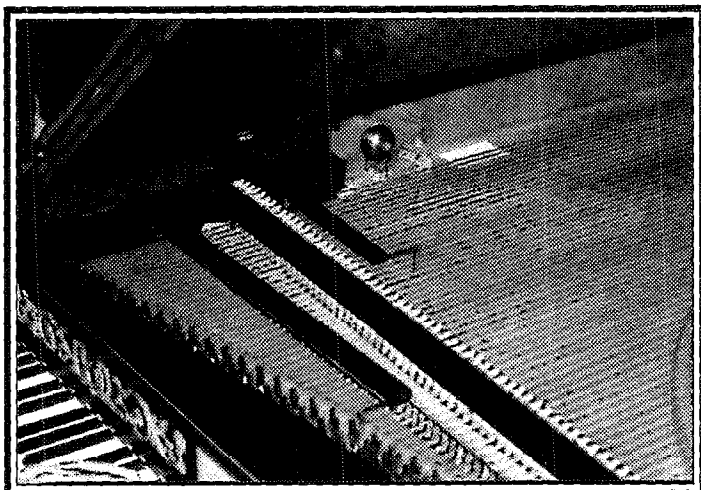


Photo 6—Johann Fritz grand, ca. 1815, showing mechanisms for bell and bassoon effects.

stop, plus bass drum and bell (or cymbal) pedals—paraphernalia emblematic of the European fascination with “Turkish music” during the Classic period. In Photo 6, this bell mechanism can be seen at the bass-side rim, while the “bassoon” mechanism — simply a piece of parchment held by a horizontal bar — can be seen above the bass strings. The idea was that the buzzing caused by bringing the parchment in contact with the bass strings sounded something like a bassoon. The bass drum pedal activates a padded “thumper” which strikes the underside of the soundboard.

One of the many differences between pianos of the Viennese and English schools was that the Viennese builders seemed to value crisp, clean damping in their instruments, while the English pianos tended to have slower damping with more after-ring. One technical reason for the slower damping of the English pianos is that they were generally triple-strung and used flat damper felts throughout, whereas the Viennese pianos usually were double-strung, at least up to the mid-treble, and utilized the more efficient wedge dampers for the double-strung unisons. (The late Liennese pianos are mostly triple string, e.g., the Grafs are bichord only from CC-EE.) Certainly Mozart, when writing his father about J.A. Stein’s pianos in 1777, indicated that he liked a piano with positive damping: “... I must give my preference to those of Stein, for they damp the resonance much better ...” than other Viennese pianos he had liked previously.

Richard Burnett feels that the inefficiency of damping in the English pianos was, at least in part, intentional. In support of this theory, he says “Clementi featured it.” Sitting at one of the Clementi grands in his collection, Burnett demonstrated a device Clementi called the “Harmonic Swell.” As seen in Photo 7, the piano has a second bridge a few inches behind the normal one. The non-speaking string lengths between the two bridges are normally prevented from vibrating by a felt-padded bar. Burnett played a few bars in the normal mode, then stepped on the far-right pedal, which raised the damping bar from the back-lengths of

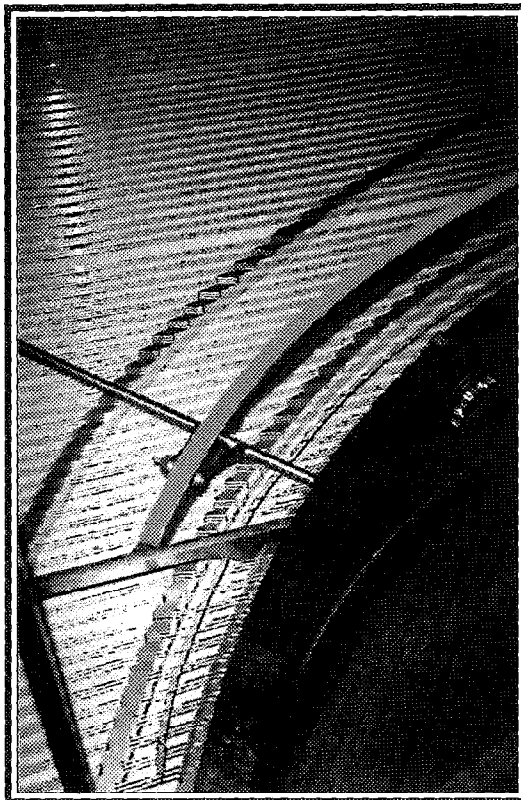


Photo 7 — Harmonic Swell mechanism on 1822 grand by Muzio Clementi

from a true *una corda* to *due corda* to *tre corda*, and, in the case of pianos like the Clementi, to the Harmonic Swell. Burnett considers Haydn’s later piano sonatas to have been written with the English grands in mind.

The pianos described and pictured here represent just a fraction of this fine collection, but I hope they will whet the reader’s appetite and stir some interest in the rich history of our favorite instrument. As mentioned before, Burnett’s collection includes some harpsichords and clavichords, as well as some excellent mid-19th-century pianos by Erard, Pleyel, and Broadwood, but I’ve concentrated here on the “middle ground” of the collection.

The early music movement, growing with an almost evangelistic zeal, has become a force to be reckoned with. Some so-called purists would insist that music must be played not only on the historical instruments for which it was written, but with the instruments tuned in “period” temperaments as well. But, despite Burnett’s obvious fondness for the early pianos, he doesn’t consider himself of the purist ilk at all. “I’m not besotted with the idea that you have to play these older instruments all the time,” he says earnestly. “Their real value lies in what they can teach us about the composers’ intentions for the music.”

the strings, causing what he calls a “wash of sound” which dramatically increases the loudness and resonance of the tone. Many English grands were equipped to produce an astonishing range of tonal colors and effects, ranging

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The Mechanics of Failure

Continued from Page 22

to be some variations. There is no way to easily measure the resilience of the earlywood fiber or to determine precisely how each board in a panel is going to respond to variations in moisture content. Because of these and the many other variables found in wood, it's impossible to predict exactly how much crown — hence, how much springiness — one is going to get from one board to the next. Since no two soundboard panels are going to respond exactly alike to the compression-crowning technique, there are often not-so-subtle variations found in the character of tone produced by otherwise identical pianos. Note that this does not necessarily imply a judgment of “good tone” in some instruments or “bad tone” in others, but simply that there can be a considerable variation in the harmonic structure of the tone from one to the next. The discerning pianist will readily notice this difference when comparing two seemingly identical new pianos and finding that they sound noticeably different.

It's not the piano that sounds different, but the soundboard that is responding differently to the vibrating energy in the strings. Were you able to switch soundboards between these two pianos, you would find that the sound would follow the soundboard. (Yes, I realize there are also differences in the piano hammers and the way they are “voiced,” but hammers are voiced to accommodate the reality of the soundboard.)

Perhaps the most serious problem with compression-crowned soundboards is their uncertain performance life. Even under the best of conditions, the amount of compression that is required to form and maintain the desired crown in the soundboard assembly places severe stresses on the wood fiber within the panel. In fact, to work at all, it is necessary to create and maintain levels of wood fiber compression that approach — and sometimes exceed — their allowable strength limits.

This limiting parameter is reported — at least as it applies to piano soundboards — as *compression perpendicular to grain at the fiber stress proportional limit (fspl)*. For the types of wood normally used in soundboards this figure is quite low; 410 psi (pounds per square inch) for Engelmann spruce, 430 psi for eastern white spruce and 580 psi for Sitka spruce. This is the maximum amount of compression stress perpendicular to the grain line that an average specimen of

wood can withstand without having at least some of the wood fiber undergo permanent deformation. And this for only brief periods of time; the figure must be de-rated considerably as the *duration of stress* — the amount of time that the material is under that load — increases.⁶ Nearly all performance ratings for wood are derived from specimens that are subjected to tests that last for minutes. Piano soundboards are expected to last for years, if not forever. For an anticipated duration of stress of even ten years, the compression perpendicular to grain limit for spruce must be derated by about 50 percent.

Wood is known to *creep* under load. When first loaded, a wood member deforms elastically. If the load is not so great as to cause immediate damage, and if it is removed quickly enough, the wood member will return to its original shape. If the load is maintained over time, however, even a light load will cause some amount of time-dependent deformation to occur. Now if the load is removed, the specimen will not return to its original shape. It will be permanently deformed. This deformation is called creep. Noticeable creep takes place even at low stress levels if the time under load is long enough. If a constant load is applied to a wood member, and if that load is sufficiently high and the time under load long enough, structural failure will eventually occur. This failure is called *creep-rupture*.

If, instead of a constant load or stress, a specific amount of deflection, or deformation, is imposed and maintained on a wood member, the initial stress relaxes at a decreasing rate to about 60 percent to 70 percent of its original value within a few months. This reduction of stress with time is called “stress relaxation.” The amount of creep

is much greater perpendicular to grain than it is parallel to grain.

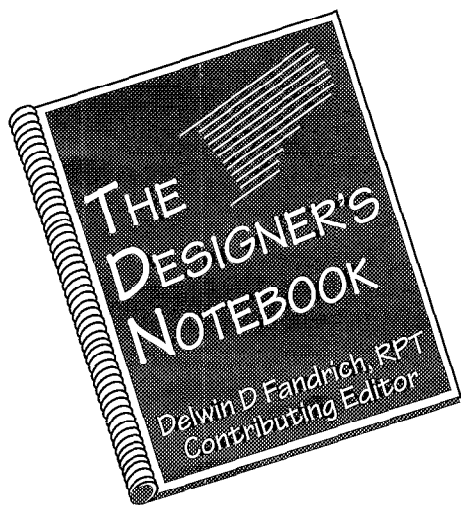
We do not commonly place piano soundboards in large vises and squeeze them together edge-wise, or perpendicular to grain. The effect of the expanding wood fiber in a restrained panel as its moisture content increases, however, gives exactly the same result. For example, let's assume that we have an unrestrained soundboard panel that measures 1,000 mm wide (across grain) at \approx 4 percent EMC and that this panel would swell to 1,020 mm wide at \approx 14 percent EMC. It wouldn't matter to the wood fibers if we let the panel expand first and then put it in our vise and squeezed it back to 1,000 mm or if we put a set of restraining ribs on it and prevented it from swelling in the first place. The resultant compression stress and fiber deformation would be the same.

If the amount of stress is not too great and the duration of stress is not too long, then the wood fibers will return to essentially their original shape and dimension when it is removed. If we take this panel out of our vise after only 10 or 15 minutes, we'd probably not notice much difference in its width. However, if we were to leave it in our vise for two or three months, some portion of that elastic deformation will become permanent. This is called compression set. In our example above, if we left our panel in the vise for a year and then took it out and measured it, we might find that it was only 1,010 mm wide at \approx 14 percent EMC. After five years in the vise it might measure only 1,006 mm wide at \approx 14 percent EMC. In this example, the effect of compression set will have reduced the width of the panel by 14 mm.

Once any amount of compression set has taken place, and the wood once again loses moisture, the wood will attempt to shrink to a size somewhat smaller than it was originally. It will be smaller by the amount of the compression set that has occurred. If we were now to reduce the moisture content to \approx 4 percent we would find that its width would be only 986 mm, 14 mm narrower than it was before the experiment started. Along with some width, a little bit of resiliency will also have been lost.

During the normal life and function of the compression-crowned soundboard assembly, there will be periods of time when the compression stress is greater than the wood cells can physically tolerate without suffering some permanent deformation or compression

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The Mechanics of Failure

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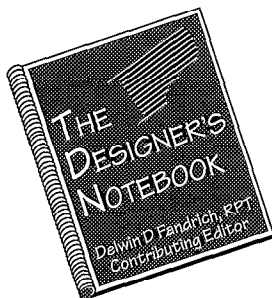
set. The two limiting factors are the amount of compression stress and time. A soundboard panel subjected to borderline levels of compression stress over just one or two seasons may not show any visible signs of damage, but the effect of compression set is cumulative over time. If we only expected piano soundboards to last a year or two, most of this would never be a problem. Even five or 10 years would not be too much to ask for. But we expect these things to last forever! And the sad — but certain — reality is that they can't and they don't.

Of the various physical problems that are associated with compression-crowned soundboards, the three most common are cracks, compression ridges and loss of crown. Well, there's also a fourth if you want to include the various ribs that come loose as the animal hide glue joints fail. These joints usually come apart first immediately adjacent to a panel joint and then work their way in toward the center of the individual boards.

In the last installment of this series, we'll examine these failures and find out what, if anything, can be done about them.

Notes

- 1 And a bit of conjecture. There is no way to "prove" — certainly not in the legal sense — any of what follows. These ideas have been gleaned from what little has been written in American literature about the practice of crowning soundboards as well as from conversations



I've had with several old bellymen who had learned their jobs — and the traditions surrounding those jobs — from their predecessors. Many times these were men they were related to — fathers, uncles, grandfathers, etc.

- 2 In this context, I suspect that Dr. White is using the word "tension" as we would now use the word "stress." Stress is defined as "an applied force or system of forces that tends to strain or deform a body," or "the internal resistance of a body to such an applied force or system of forces." We'll leave the concept of "the power of resonance" for another day.
- 3 *Theory and Practice of Piano Construction* by William Braid White, 1909, Edward Lyman Bill, Publisher.
- 4 *The Art of Pianoforte Construction* by Samuel Wolfenden, 1916, Unwin Brothers, Limited, Publishers.
- 5 This process has also been referred to by Stephen Birkett (a Canadian fortepiano builder and early piano researcher) as "crowning by differential wood movement," a descriptive, if somewhat cumbersome appellation.
- 6 Duration of Stress. "Duration of stress" is the time during which a load acts on a wood member either continuously or intermittently. Time under intermittent loading has a cumulative effect. If a wood

member is loaded for only three months of the year, the effect on the wood fibers after four years will be the same as it would be if it were loaded continuously for one year. If the load placed on a wood member is sufficiently high, and if the duration of stress is long enough, the part will eventually fail. This failure is called creep-rupture. ■

World Class Junk

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and asked many questions. As I was nearly done, he shyly asked me if he could put in the last string, and I, of course, said yes. He did a fine job.

The Fussy-eared Pianist

Bless them, the pianists who know and care if notes are out of tune, the ones who say they are driven crazy by sour unisons. Would you want to pay for a whole tuning when only two notes are bothering you? They ask me to get them tuning hammers, and I order them student hammers and rubber wedges. The only thing I insist on is that they receive the mini-lesson that I feel they need to get. I tell them what happens to notes when they are moved too far, especially when they are raised too far. I explain about stability, and take them through the process of tuning a unison a few times. I warn them that their unisons may not hold worth a diddle. I warn them that they will be better off leaving the temperament alone, and sticking to unisons and octaves.

I've never had such a customer postpone a regular tuning because I had gotten them a tuning hammer. When I returned to tune, and asked about it, they almost always have told me that they tried tuning some notes, but that they couldn't get them to stay very well, so they gradually stopped trying.

So, no harm done. They learned a bit, they became much less fussy than they had been, someday the tuning hammer may prevent some tuning pins from being rounded over by a pair of vise-grips, and who knows? One of these people may not gradually stop trying, and may become a piano tuner. One of my customers did. ■

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— Joe Zeman, Director of Communications

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— Catherine Wilane, Director of Finance

My Everyday F to F Bearing Plan

By Daniel Ressler
Nimpo Lake, BC

It is told of an early piano tuner that to his long-suffering wife's entreaty not to burn the midnight oil he simply murmured, "Oh, this temperament — this beautiful temperament!" No doubt he had just discovered a new bearing plan. Although in our day few discoveries remain to be made in piano tuning, deductions might gain by revision, and we can present our principles in an exacting and clear mathematical form. These elaborations are not difficult to understand if they are taken one point at a time, together with an explanation of the reasoning on which they are based. I have tried to set down the matter plainly, so that an aspiring tuner might find greater confidence in his ability to set the temperament. This being my aim, I have cribbed without a blush from fellow tuners, who I trust will feel complimented by this wider distribution of their thoughts.

Tuners experiment with various bearing plans in their quest for greater efficiency. The strategy of stacking major thirds as an initial framework to guide the circle of 5ths and 4ths has been used by many successful tuners, but the advantage of this bearing plan is that a second, inner stack of major 3rds directly guides the tempering of all 4ths and 5ths as they are formed. Solving the problem of a gradual increase in beat rates as major 3rds are played up the scale, in the beginning, enables a tuner to proceed tempering 4ths and 5ths without fear that great surprises will appear later, requiring touch up tuning over again.

The augmented chord F, A, C#, F is the initial stack of major thirds. Next, an augmented triad G B, D# forms a second inner stack of major thirds. This is followed by tempering all fifths and fourths down the whole tone scale, E, D, C, Bb, Ab, and finally F#, all tuned in order. Checks by major thirds and sixths confirm these fourths and fifths at each step.

Letting the piano indicate its own beat rates, depending on its individual inharmonicity, rather than attempting to enforce standard beat rates, gives superior results. That is why no beat rates are quoted in this bearing plan, but instead correct relations or proportions of beat speeds are insisted upon. An additional bonus is that, when tuning to a pitch other than standard pitch, the bearing plan re-

mains equally accurate without any changes.

Starting the first stack of thirds from A requires establishing three variable tones, F33, C#41, and F45. Starting from F requires establishing only two variables, A and C#, which can be performed more easily and rapidly. The pitch of A is practically identical either way. To lay bearings from F to F, it is most efficient to start from a standard pitch F tuning fork.

As reasonable as these methods may appear, do they stand up to exacting scrutiny? Let us consider this style of temperament from a mathematical standpoint.

If x is the beat rate of F33-A37, then the fifth partial of F33, designated as 5F33, plus x , equals the fourth partial of A37: $5F33 + x = 4A37$.

When four beats of the wide major third F33-A37 occupy exactly the same amount of time as five beats of the wide major 3rd A37-C#41, the beat rate of A-C# is $5/4x$. This rhythmic proportion can be envisioned as playing FA in the first measure, and A-C# sharp in the second



measure. The fifth partial of A is $5/4$ times the fourth partial. Also, the fifth partial of A, plus the beat rate of A-C#, equals the fourth partial of C Sharp. So far, we have: $5/4 (5F33 + x) + 5/4x = 4C\#$.

Likewise, when four beats of the wide major 3rd A37-C#41 occupy exactly the same amount of time as five beats of the wide major 3rd Db41-F45, the beat rate of Db-F is $5/4$ times that of A-C#. The fifth partial of C# is $5/4$ times its fourth partial. The fifth partial of Db, plus the beat rate of Db-F, equals the fourth partial of F45. Furthermore, since, for calculation purposes, frequency doubles one octave higher, the fourth partial of F45 may be expressed as the eighth partial of F33, which gives:

$$\begin{aligned} 5/4 (5/4 (5F33 + x) + 5/4x) + 5/4(5/4x) &= 8F33, \\ 125/16F33 + 75/16x &= 8F33, \\ x &= 16/75(3/16F33), \text{ and to} \\ x &= 1/25F33. \end{aligned}$$

As already explained, the beat rate of A-C# is $5/4$ times that of F-A and the beat rate of Db-F is $5/4$ times that of A-C# so all three beat rates can now be expressed in terms of the frequency of F33.

$$F33-A37 = 1/25F33$$

$$A37-C\#41 = 5/4(1/25F33) = 1/20F33$$

$$Db41-F45 = 5/4(1/20F33) = 1/16F33$$

F45 is tuned beatless to the F tuning fork at standard pitch, so that the beat of Db17 and the tuning fork is at the same speed as the beat of Db17-F45. F33 is tuned to the pure octave F33-F45, so that Db29-F45 beats at the same speed as Db29-F33. A37 is set to the wide major 3rd F33-A37 estimated at the beat speed of syllables in a quickly recited phrase: "From Chicago to Milwaukee." C# is brought to the one and only point at which the wide major 3rd A-C# beats at the same speed as the wide major 3rd Db-F, then slightly lowered, so that four beats of A-C# occupy exactly the same amount of time as five beats of Db-F. A37 is checked. Does four beats of F33-A37 occupy the same amount of time as five beats of A37-C#41? A37 and C#41 are readjusted until the stacked 3rds to actually rise in 4:5 ratios. When the initial stack of major 3rds is tuned in this way, the beat rates and partial frequencies stand in the mathematical relations outlined above.

Plugging in values at standard pitch, starting from F's, A and C# fall in at +0.108 cents sharp.

One-tenth of one cent deviation means that the pitch of A is practically identical to starting from an

A tuning fork. This shows that the initial framework of stacked 3rds starting from F as outlined here is a good method to begin laying the bearings.

This bearing plan relates every tone exceptionally clearly back to the starting pitch for verification. For example, tempering C# double-checks the tempering of A, all in relation to the F's.

Next, to pinpoint B! Temporarily tune E44 to the pure 3:2 fifth A37-E44, confirmed by the 10th equals 6th test, C28-E44 beating at exactly the same speed as C28-A37. Also, temporarily tune F#34 to the pure 3:2 5th F#34-C#41, confirmed by the 10th equals 6th test, A25-C#41 beating at exactly the same speed as A25-F#34. E and F# will be retuned. B is first brought to the one and only point at which the wide 4th F#-B beats at the same speed as the wide fourth B-E, then slightly lowered, so that three beats of F#-B occupy exactly the same amount of time as four beats of B-E. These two 4ths beat about twice the normal speed.

Temper G so that the wide major 3rd G-B beats halfway in speed between the beat rates of F-A and A-C#. Likewise, tem-

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My Everyday F to F Bearing Plan

Continued from Previous Page

per D# so that the wide major 3rd B-D# beats halfway in speed between the beat rates of A-C# and Db-F.

In mathematical terms, regarding the temporary tunings of E and F# as pure 3:2 5ths, the third partial of the lower tone of the 5th equals the second partial of the upper tone of the 5th. Three beats of F#-B to four beats of B-E translates to: $4(3B-4F\#) = 3(3E-4B)$, which simplifies to $12B-16F\# = 9E-12B$, and to $24B = 16F\# + 9E$.

If x is the beat rate of F33-A37, then $5/4x$ is the beat rate of A-C#, and their average is the beat rate of G-B: $G-B = 1/2(x+5/4x) = 9/8x$.

If $5/4x$ is the beat rate of A-C#, then $25/16x$ is the beat rate of Db-F, and their average is the beat rate of B-D#: $B-D\# = 1/2(5/4x + 25/16x) = 45/32x$.

The relationship of B-D# to G-B is: $45/32x + 9/8x = 45/32 + 8/9 = 360/288 = 5/4$.

Thus, when G-B and B-D# are properly tuned they can be checked by the 4:5 ratio of eight beats of G-B occupying exactly the same amount of time as ten beats of B-D#.

When the second, inner stack of 3rds G-B and B-D#, is tuned as outlined, the beat rates and partial frequencies stand in the above mathematical relations. Plugging in values at standard pitch, from the F's, A, and C# previously determined, the cents deviations of G, B, and D# are: G, -0.027; B, +0.113; and D#, +0.143 cents. This shows that tuning the second, inner stack of 3rds as outlined here is a good method to continue the bearings.

At this point, a tuner of great experience may be tempted to assert that the bearing plan used is inconsequential, because he gets good results no matter which bearing plan he uses; or, that when one gains experience, you'll find it less bothersome to tune every tone directly, instead of retuning any tones, as F# and E are taken to establish B above. Aspiring tuners, unfortunately, take such comments as condemnation of the strategies which could help to improve their work. We should refrain from such comments. Instead, we should foster tuning progress by encouraging others to do their best!

Complete the bearings by 4ths and 5ths in proper ratios. E is tempered to the one and only point at which two beats of the narrow 3:2 5th A-E occupy the same amount of time as three beats of the wide 4ths B-E. The 10th-6th test of 3:2 5ths, the 6th slightly faster, confirms that 5ths in the bearings are narrow. The 3rd-6th test of 4ths, the 6th slightly faster, confirms that

Table of Partial Frequencies and Beat Rates

CENTS	TONE	PARTIALS				BEAT RATES, IN BEATS PER SECOND			
		2ND	3RD	4TH	5TH	5TH	4TH	M3RD	M6TH
0	F33		523.8	698.5	873.1	0.6	0.8	7.0	7.9
0.111	F#		555.0	740.0	925.0	0.6	0.8	7.3	8.4
-0.027	G		588.0	784.0	980.0	0.6	0.9	7.9	9.0
0.126	G#		623.0	830.7	1038.3	0.7	0.9	8.2	9.3
0.108	A		660.0	880.1	1100.1	0.7	1.0	8.7	
0.073	Bb		699.3	932.4	1165.5	0.8	1.1	9.2	
0.113	B		740.9	987.8	1234.8		1.1	9.8	
-0.012	C	523.2	784.9	1046.5	1308.1	1.2	10.5		
0.108	C#	554.5	831.6	1108.8	1386.0		10.9		
0.042	D	587.3	881.0	1174.7					
0.143	Db	622.3	933.5	1244.6					
0.112	E	659.3	988.9	1318.6					
0	F45	698.5	1047.7	1396.9					

Table 1

4ths are wide. In terms of partial frequencies: $3(3A-2E) = 2(3E-4B)$, which simplifies to $9A-6E = 6E - 8B$, and to $9A + 8B = 12E$.

E is further checked by the major 3rd A-C# beating at nearly the same speed as the major 6th G-E.

Similarly, D is tempered to the one and only point at which two beats of the narrow 3:2 fifth G-D occupy the same amount of time as three beats of the wide fourth A-D. The math is alike, $9G + 8A = 12D$; and so is the inside third outside sixth check, G-B beating at nearly the same speed as F-D.

C is tempered so that three beats in the wide 4th G-C occupy the same amount of time as four beats in the wide 4th C40-F45. In terms of partial frequencies: $4(3C-4G) = 3(3F-4C)$, which simplifies to $12C-16G = 9F-12C$, and to $24C = 16G + 9F$. C is then checked by increasing beat rates in the adjacent major 3rds B-D#, C-E, Db-F.

Bb is tempered so that three beats of the narrow 5th Bb 38-F45 occupy the same amount of time as four beats of the wide 4th Bb-Eb. In terms of partial frequencies: $4(3Bb-2F) = 3(3Eb-4Bb)$, which simplifies to $12Bb-8F = 9Eb-12Bb$ and to $24Bb = 8F + 9Eb$.

Bb is then checked by increasing beat rates in the adjacent major 3rds A-C#, Bb-D, B-D#.


Ab is tempered so that three beats of the narrow 5th Ab-Eb occupy the same amount of time as four beats of the wide 4th Ab-Db. The math is like Bb above, $24Ab = 8Eb + 9Db$, and so is the check, G-B, Ab-C, A-C#.

F# is tempered so that three beats of the narrow 5th F#-C# occupy the same amount of time as four beats of the wide 4th F#-B. The math is like Bb above, $24F\# = 8C\# + 9B$, and so is the check, F-A, F#-A#, G-B. Playing all of the major 3rds and 6ths from F to F will quickly reveal need for improvement, if any tones have slipped.

Mathematically, all that remains is to lay out a table of partial frequencies and beat rates which result from following this bearing plan at standard pitch, to clarify the previous formulas by plugging in values, and to show the closeness of these results to theory when this bearing plan is carefully tuned. Beat rates are differences between the coincident partials involved. Discrepancies are due to rounding. More decimals are available from your calculator, if they are desired.

Table 1 lists the results of following the bearing plan instructions. It can be compared with theoretically correct equal temperament, or with the results of following different instructions. The conclusion here drawn is that the methods outlined here stand up to exacting mathematical scrutiny. When carefully tuned, this bearing plan is conducive to a high level of accuracy.

F to F Bearing Plan Summary

- I. F45 — to the tuning fork. Db17 and the fork = Db17-F45.
F33 — F-F pure. $3=10$, $4=5$.
A — "from Chicago to Milwaukee."
C# — 4F-A:5A-C#, and 4A-C#:5D6-F.
- II. B — Temporarily tune E to A-E pure, test 10th = 6th.
Temporarily tune F# to F#-C# pure, test 10th = 6th.
E — and F# will be retuned. $3F\#-B:4B-E$.
G — F-A, G-B, A-C#, halfway between.
D# — A-C#, B-D#, Db-F, halfway between. $4G-B:5B-D\#$.
- III. E — 2A-E:3B-E. A-C#, G-E nearly equal.
D — 2G-D:3A-D. G-B, F-D nearly equal.
C — 3G-C: 4C-F. B-D#, C-E, Db-F increase in beat speeds.
Bb — 3Bb-F:4Bb-b. A-C#, Bb-D, B-D#.
Ab — 3Ab-Eb: 4Ab-Db. G-B, Ab-C, A-C#.
F# — 3F#-C#:4F#-B. F-A, F#-A#, G-B. 

The Listening Art

By Anita T. Sullivan
Eugene, OR Chapter

Piano tuning is a listening art. This means somewhere along the way an island of sound is being created, which will rise from its surrounding sea of silence. Much in the same way, a concert or a recital happens, with the listening audience sitting quietly in their chairs and the windows shut against jack hammers, automobiles, and other attempts to invade an important temporary quiet space.

However, the assumption about piano tuning is that the tuner needs peace and quiet because she is trying very hard to be exact. Inside her head is an accurate memory of the spot under the old oak tree where the treasure is buried, and each time she wends her way back, blindfolded, through the landmarks on the map, unerringly ending up in the very, very same place as before: a piano is once again *tuned*.

The truth is a piano tuner does not need silence because she needs to hear something precise; she needs silence because she needs to hear something *imprecise*. And imperfection is a lot harder to get right than perfection. It all depends on what you're listening *for* and what you're listening *against*. When you're tuning a piano, in theory you're dealing with something like Plato's ideal forms — in this case, ideal unisons, 5ths, 3rds and octaves. Tuning theory tells you to listen to them first in their perfect state, and then to deviate just a teeny bit from that perfection in order to make the whole tuning come out right. But actually, after you've tuned about a thousand pianos you don't do that anymore. Instead, you listen for the exact degree of inexactness and you head for that goal instead. In fact, your ear is trained to hear such an incredibly high level of inaccuracy that after a while you realize the perfect doesn't exist at all; it's only an idea, it never, never actually makes its way into the real world. This is a stunning revelation.

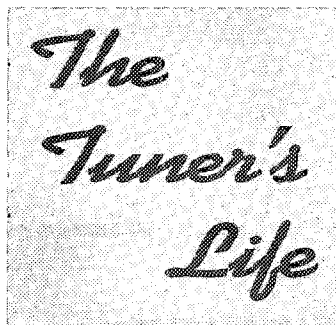
The piano tuner is practicing the fine art of High Almost. An almost which comes closer and closer to — what? Not to perfection: perfection is no longer a goal. Instead, she is constantly refining her technique of achieving the highest possible level of true inaccuracy. And it is beautiful, this inaccuracy.

If the art of tuning were taken as a model for the art of life, then I would be giving advice which is opposite to normal: "Plunge into the vortex," I would say. "Intonation is primary; the fine distinctions are the important ones; without them, the larger ones cease to exist."

Reality comes to us in many ways: through our physical senses, but also in our dreams and through many spiritually visceral receivings which I cannot name. And we have learned a sifting procedure which sets up priorities for what we receive. We are taught to fall in love because we both like to play tennis, not because perhaps something inside us makes a slight flourish every time we see afternoon sunlight glint upon the down-stroking wing of a crow. We follow the larger patterns instead of the small ones, thinking in that way to find certainty. But tuning pianos is like the geese going over in the fall, or the actions of butterflies. These things are thought of as extra. What the butterflies are doing is what we could be doing. We know how; the knowledge is in our intuitions, but we pay no attention. Listening through silence into fine inaccuracy is the tuner's peculiar way of understanding and confirming the world. ■

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THE PUZZLER

By
Dan Levitan,
RPT

Unfortunately, the Journal's long lead time precludes publishing reader mail at the same time as a puzzle's solution. However, interesting mail regarding puzzles will be printed when possible, even at the expense of the puzzle editor's dignity. Ideas and suggestions for future puzzles are always welcome, subject, of course, to whatever modification the whim of the editor may deem necessary. Puzzle mail (snail mail only) may be sent to Daniel Levitan, Puzzle Editor, 530 First Street #6, Brooklyn, NY 11215.

Puzzler #8 —

An Intermittent Tightness at the Front Pin

It was hard to remember when he'd felt a sloppier, more fly-away action on a grand. The hammer pinning was so loose that you could almost see the shanks wobble from side to side, and the keys were totally shot — loose at the front and balance, and chucking badly to boot. Unfortunately, the client was a pretty serious musician, and, to make things worse, though she obviously didn't have a lot of money, she had been very pleasant both on the phone and in person. She was the kind of person you wanted to do a little extra for, and when he found himself with 15 minutes to spare after tuning he tried to think of something he could do to improve the feel of the action even a little bit.

Ordinarily he was averse to turning front pins, but this seemed like an appropriate time. He found his spacing tool and removed the key slip. He was very careful not to go too far — he didn't want any keys to hang up when the weather turned. He did the naturals first, and played a bit. It felt quite a bit improved, he thought, so he went ahead and did the best he could with the sharps as well. He replaced the key slip and packed up. His client tried out the piano and was impressed not only by the solid tuning but by the improvement in the touch.

A week or so later the client left a message on his machine. Some keys had been sticking ever since he left. It was intermittent, so she hadn't wanted to call at first, but now she was sure there was something wrong. "It had never done this before his visit," she said — and oh, how he always hated to hear those words!

He called her back. What keys were sticking? It seemed they were all naturals, mostly in one

section in the middle of the piano. Yes, then he knew what was wrong. He apologized and made an appointment for a return visit in two days.

Back at the piano, he went directly to the key slip. He was sure he must have reinstalled it in such a way that it was rubbing the key fronts. But now, at the piano, he saw that there was plenty of clearance. Even leaning against it, it was hard to see how it could hang the keys up. This was surprising — about as surprising as a first peek inside an old Chickering action.

He checked the front pins. He'd seen plenty of tight front pins, and there was no doubt in his mind that, even though he had turned them, these were still amply loose. He sat down and played a little bit, and sure enough, after a little while he noticed a few keys sticking; not consistently, but definitely. One or two even stayed below the level of the rest. They were all naturals, and all in the midrange. When he examined them more closely, though, he found that he couldn't get them to stick again. He pulled the action and spent 15 or 20 minutes going over it, but for the life of him he couldn't see anything wrong or get any note to stick long enough to track down the problem.

Finally he decided to try straightening out the front pins. He did, reinstalled the key slip, and played for a while without getting any keys to stick. He apologized again, and asked the client to be sure and call if the problem recurred.

He didn't hear from her, so after a few months he called back. The action was doing fine.

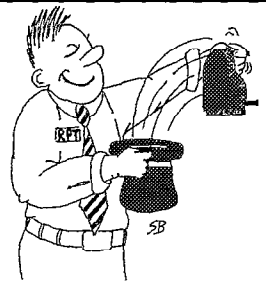
What had happened? ■

Solution to Puzzler #8—An Intermittent Tightness at the Front Pin

Remember that the keys were not only worn at the front, they were also chucking badly. He turned the front pins to remove play at the front bushing, but the loose balance pin holes allowed the keys occasionally to move forward or backward, causing an uneven and, therefore, narrower section of front bushing cloth to stick against the turned front pin. This happened only with naturals, and in the center, mimicking a key slip problem, because he hadn't been able to turn the sharp pins as far as the naturals; and because the key wear in general was worst in the center.

Grand Illusions ...

THE PAGE FOR Serious CASES



Why I Charge So Much

By Joe Mehaffey

Every so often, I'll get a customer who asks me, "Why do you charge so much?" Here's what I tell them; feel free to use any of these.

- The falling bond market
- I'm still mad about Tonya Harding
- To pay for that hole I made in your wall
- Because your piano is dog meat
- I'm sending it all to the Hare Krishnas
- I want to make a big pile of dollar bills and roll around in it naked.
- You have such a trusting face
- My parents abused me, and I've made a personal decision to gouge all my customers — as part of the healing process
- I'm behind in my boat payments

- I'm too drunk to remember
- I've got a \$200-a-day epoxy habit
- I owe the Mafia fifty "large"
- The unbridled greed of the Reagan/Bush years

- The Clinton health plan
- Pencil-necked social-engineering enviro-maniacs
- High-pitched voices that only I can hear

You're a Bunch of Ingrates

By Doug McKay

Some of you have written in to complain about our Valley Hi Polyester Repair Kit™. To quote one actual letter:

This so-called repair kit consists of nothing more than a magic marker and a skinny booklet. How can you justify charging two-hundred dollars for that?

That's a reasonable question. If you were in the manufacturing business, you'd know that the cost of materials represents only a tiny fraction of the final retail cost. There's research and development, retooling, set-up, workman's compensation, pension plan, hair styling, massage, mud bath, and Jacuzzi. And you're not just paying for "a skinny booklet." You're paying for the years of experience that went into that booklet. And if you think that professional typesetters, graphic artists, and printers work for free, well, think again.

How Do We Do It?

Our customers often ask us, "If all your center pins, voicing needles, and bridge pins are made by hand, how can you afford to sell them at such a reasonable price? It's simple. We pay our employees fourteen cents a day, and pass the savings onto you.

But why would anyone work for those wages? Again, it's simple. *We've got dirt on each and every one of our employees.* We know what they've done and we've got the pictures and documents to prove it. So if any of them complain, or try to leave the company, they're dog meat.

Ernie's ®. We're the tiny guys.

Stuck in a dead-end job? Get into the exciting world of AUTO DETAILING

Here's what "Franz" (not his real name) has to say: "I used to tune pianos. Then one day I realized that I was never going to be able to afford a Mazda Miata. So I just quit. Now I'm a car detailer! I started out as a sponge guy. And if I keep at it, someday I'll be a compressed-air guy!"

"P.S. I still can't afford a Miata, but at least I get to clean them!"

American School of Auto Detailing
P.O. Box 69049, San Francisco, CA
94115

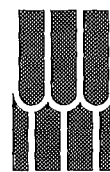
Joe Mehaffey and Doug McKay may be contacted in c/o RPT Mark Stivers, Sacramento Valley, CA Chapter

PIANOMAN Adventures

by Alan Hallmark



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Know Your Costs

Robert W. Beck, RPT
Member, Economic Affairs Committee

How often have you participated in discussions that initiated the statement, "I made \$85,000 last year," or "This is the best income year of my career!" Probably often enough. However, it is usually unclear what is really being said. It is common to consider gross income as the measure of success, while deluding ourselves about the real economic state of our business.

Over the years, I have been party to many boastings about "large" incomes and stunning "increases" over previous years. Rarely have I heard the statement that reportable income is what we're discussing! Remember that reported income is the basis for mortgage loans, Social Security payments, credit lines, auto loans and many other sources of credit! The purpose for making this observation is to clarify that business people must resist the temptation to amplify success or dwell solely on gross income figures. In other words, "know your costs!"

What are our costs? What is the real profit from our efforts at year end? This answer lies in some real-hard boiled analysis. Let's take auto expense. The IRS will allow 31.5 cents total deduction per mile. I smile when I think that of all estimates of cost this, by definition, must be the world's most conservative! How many of us can drive a reasonably presentable vehicle, at today's costs, for 31.5 cents a mile? More importantly, how many of us have really calculated the total costs of insurance, depreciation, repairs, fuel, etc.? This exercise might prove to be an eye opener. What about taxes, phone and advertising expense? What about materials, supplies, tools and equipment? Collectively, items like these cut a very big slice out of gross income. The most important considerations, however, are the quality of life

ones. High on the list is the matter of savings and retirement security. Are these matters being adequately handled? Do you have adequate life, health and liability insurance coverage for the wide range of business and personal risks? Will education needs for children be met? Is there any discretionary income left for the "pleasures of life?" Are you building equity in a home or required to rent? Do you have a business plan for the next three years? How many hours per week do I work? Yes, there are many such questions. But, the real test lies in our willingness to really know our costs. Resist the temptation to look for comfort in gross income figures, by developing an accurate, complete and honest profit and loss evaluation system for your business. Once you really know your cost base, then and then only can

you talk success — or better yet experience success!

Today, the job is very much easier with the wide availability of competent computer software. However, traditional manual means still work very well! Each business is unique and thus demands some degree of customization. But without hiring a professional accountant (more expense!), the independent technician can do much to maintain and increase *real* profitability with a basic accounting system. While there is virtually unlimited help and advice available from our PTG, local libraries and business publications, the real issue is the desire and the will to really "know your costs." This approach may well be the turning point for your business profitability and your future well being. ■

Industry News

Have You Ever Heard a Clavichord Being Played?

You will probably answer the above question with a question "What's a clavichord?" You don't have to be embarrassed about it because it happens to be a keyboard instrument that was fashionable when Bach wrote his music, and even before that. In fact, Haydn wrote most of his piano pieces on a clavichord.

These days the only place you can see and hear a clavichord played is in the Museum of the American Piano, located at 211 W. 58th St., New York, NY. The clavichord is a small oblong instrument made entirely of wood except for the strings and tuning pins. It has a very sweet personal tone, and I emphasize "personal" because from more than 20 feet away you will probably have difficulty hearing it.

One of the reasons why it was a favorite with many of the composers was that you could create a "*bebung*." By

changing the pressure on the key with your finger, after it has been played, the string will give a vibrato. This can be considered a form of expression, unobtainable on the organ or the harpsichord.

The clavichord is part of a new exhibit given at the Museum of the American Piano entitled "The History of Keyboards to 1820." The wonderful thing about this exhibit is that every instrument exhibited is demonstrated while a lecture is given. The most intriguing part of all is that this is probably the smallest exhibit anywhere to be found, yet it features pianos not to be found anywhere else.

The Museum of the American Piano, founded by Kalman Detrich, opened its doors to the public in 1984. It is a non-profit organization recognized by the State of New York, Board of Regents. Its purpose is to collect early pianos of historical, technical or musi-

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New & Noteworthy in Providence, R.I.

By Evelyn Smith, RPT
Institute Director

CONVENTION PROVIDENCE, R.I.

It's a simple formula for success — listen to what people say they want and give it to them, and add creative new ideas and innovations to the mix. This formula works for successful piano service businesses, and it works just as well for PTG Institutes.

The Institute Committee has listened carefully to your suggestions, so we'll bring back some of the hits from previous years such as the business roundtables, mini-classes, hands-on regulating and applied skills classes, one-on-one tuning tutoring, hearing tests, and Dr. Bruce Hoadley, the wood technologist.

But in case you were wondering what new things we've got up our sleeves for next summer, here's a sample of what you can expect:

- Since New England is at the heart of the traditions of piano making and rebuilding, we'll feature the tour of the Mason and Hamlin factory and the "Gallery of Rebuilders" described in last month's *Journal*.
- We'll have a special group of rebuilding classes, including a new rebuilding applied skills class where you can get hands-on practice to improve your craftsmanship.
- To help piano technicians reap the benefits of computer technology, the Cybercafe will let you learn about the business and technical uses of computers.
- Not only will you be able to get your hearing tested, you can also be fitted for a pair of musician's ear plugs.
- A physical therapist who has worked with

piano technicians' aches and pains will present a class and offer private consultations.

In addition, there will be many new classes never taught before at an annual Institute, such as:

- Muting Master Class, by Dan Levitan; ways to keep time spent handling mutes to a minimum
- Bringing Up Baby: Raising the Small Grand to Customer's Expectations, by Allan Gilreath; making the best of your

time and your customer's money

- The Essential Piano Technician, by Dan Reed; basic to intermediate tips for general service of typical home pianos
- Benchwarming to Player: How to Get Past First Base and Score a Home Run, by Norman Cantrell; in-home player piano service.

Keep your eyes on the web site (www.ptg.org/1998/conv/) and future issues of the *Journal* for more new class highlights.

Successes from the past, plus new and innovative ideas — come check out the winning formula for the Providence Convention and Institute. ■

Welcome to the Convention Page

This new addition to the *Journal* from the Institute Committee will be a monthly feature and will run during the six months before each annual Institute. Featured on this page will be descriptions of new class offerings, previews of the convention site, innovative events and much more. We'll explain the realities of seminar planning and how we deal with them. We'll welcome your questions and comments, and print them on this page in future issues.

This year's Institute will take place in Providence, R.I., July 8-12, 1998, and will be directed by Evelyn Smith. She will be assisted by committee members John Ragusa, Dale Probst, Laura Kunsy, and Wally Brooks.

The Institute Committee performs one of the Guild's most important functions. What exactly does the Institute Commit-

tee do? Glad you asked. Assisted by the Home Office, the Committee collects, sorts, and analyses information from past Institutes and regional seminars. (Regional seminar directors can help by sending brochures to Institute Committee members) The Director assigns subjects and categories to assistants, and we're off on the long road to planning your next annual Institute.

Check out our Web Page at <http://www.ptg.org/1998/conv/> and send us your questions and comments. If you're not online, just write Evelyn at 1041 S. Aycock St., Greensboro, NC 27403.

Our aim is to provide a top-flight educational experience in a congenial atmosphere. Plan now to join us there.

— John Ragusa, RPT
Assistant Institute Director ■

The City of Providence

After arriving in Providence this July, and having settled into your hotel room, take a few minutes to walk around a bit, to see just what a beautiful spot this year's Convention and Institute is in. Yes, you're in the heart of downtown Providence; and Providence is going to change your notion of just what a city can be.

Directly across the street from the hotel and Convention center is Waterplace Park, a one-acre oasis created by uncovering and featuring the rivers previously running under the streets, and now connecting downtown with Narragansett Bay. Kayaking and canoeing are encouraged; or, if you like, you can charter a genuine Venetian gondola for a 45-minute tour, offering a truly unique view of the city. For those preferring to stay on land, guided walking tours of some of the oldest architecture in the country are available through the Providence Preservation Society. Our Host Chapter Committee will have all the maps and information for you, however you like

to travel.

Rhode Island has the second highest per capita population of artists in the country, and the City of Providence has been an active patron of the arts, helping artist collectives make good use of abandoned buildings, and sponsoring the Artrolley for monthly free tours of galleries and visual-arts sites throughout the city; not the least of which is the Rhode Island School for Design Museum, featuring one of the most extensive collections of Japanese art in the country, and much more.

Thanks in a large part to Johnson & Wales University and its culinary arts program, as well as the city's natural cultural diversity, Providence has some of the best restaurants in New England, attracting people from the Boston area as well as throughout Rhode Island. In the past six years, Esquire magazine has ranked five Providence restaurants in its list of the

Continued on Next Page

On Becoming an RPT

By George W. Campbell, RPT
Heart of Texas Chapter

[*Editor's Note: George W. Campbell, RPT, passed the RPT examinations this fall many years after completing the Grayson Community College program in Piano Technology. Mr. Campbell shares his thoughts on the importance of the Guild, his friendships with other technicians, and the value of the Guild in his professional life. In a ceremony at the Texas State Conference, David P. Durben, RPT, PTG Vice President, presented his own RPT lapel pin to Mr. Campbell.*]

I don't wear jewelry. Not even my wedding ring. But I am wearing my RPT lapel pin every day. I am proud to be a part of a professional organization like the PTG.

I am grateful for friends like R.L. Coberly, Lawrence Goetsch, Danny Boone, Charles Fry, John Perrine, Jack Wyatt, Jim Geiger, Gary Neie, Mary Smith, Tom Seay, and Ed Guerra who took a special interest in me and gave freely of their knowledge and time to prepare me for

the testing process and to administer the test. I am grateful for the efforts of many people who organized seminars and conventions where instruction of the highest caliber was available.

The degree of cooperation achieved by the Guild is a source of amazement to me. The help that I was given is not unusual. People repeat this process nationwide. I am aware that the politics of our association sometimes get sticky. This is not too surprising. Many of us are rather independent by nature. Two technicians might disagree openly in a business meeting, and the next time

you see them they will be giving tips to each other.

The first few years after I graduated from the Grayson County College Piano Technology course I didn't think about the PTG. I wasn't against it, I was just too busy to go to another

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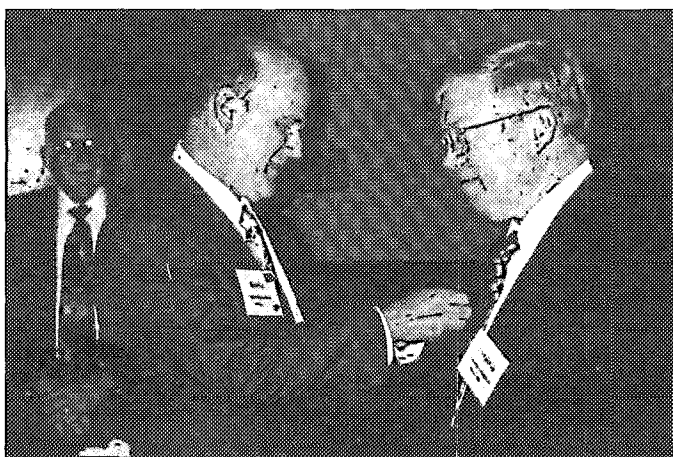
The City of Providence

Continued from Previous Page

"Top 25 Best New Restaurants in the Country." And many of these are within a 10-15 minute walk from where you'll be staying. Our Chapter has been preparing maps for you that will include all the geographic and culinary information you'll need, to enable you to take some time to do some exploring on your own.

Providence '98 promises to be the Convention and Institute that we'll be talking about for years to come. With the region's well-known history of piano manufacturing, world-class technicians, excellent concert venues — all in the setting of this small New England city at the head of Narragansett Bay — this is one event that you won't want to miss. Start planning now to make it — Providence awaits.

— David Flanders, RPT ■



In a ceremony at the Texas State Conference, David P. Durben, RPT, PTG Vice President, presented his own RPT lapel pin to new RPT George W. Campbell.

Industry News

Continued from Page 34

cal significance and to restore them to original playing condition.

— Kalman Detrich, Executive Director

Baldwin Names New Exec To Oversee Ops At Piano Plants

Loveland, OH — The Baldwin Piano & Organ Co. (NASDAQ:BPAO) recently announced the appointment of Randolph Marks as executive vice president piano operations, a new position. Marks, 46, will supervise all manufacturing activities at Baldwin's piano plants in the U.S. and Mexico.

Commenting on the appointment, Karen L. Hendricks, chairman, chief executive officer and president, said, "We are fortunate to have attracted Mr. Marks away from his consulting firm to work full-time for Baldwin. Randy is

well-equipped to achieve our manufacturing goals. As Baldwin's chief manufacturing consultant for the past 18 months, he has been a driving force in our plant revitalization initiative since its inception. He also brings a level of knowledge and experience in international markets that will be invaluable as the company moves more aggressively into the export trade."

For the last 15 years, Mr. Marks served as the managing director of InterAmerican Holdings Co., (IAH), a diversified consulting organization with expertise in manufacturing and operational restructuring and international market development. During his tenure with IAH, Mr. Marks provided senior-level advisory work to companies as diverse as Louisiana Pacific, Ace Hardware, Thomas Built Bus, and Packaging Corporation of America.

Baldwin currently employs some 1,400 workers at six locations, including corporate headquarters in Loveland,

Ohio, and five manufacturing facilities in Arkansas, Mississippi and Mexico.

Steinway Announces Share Repurchase Program

Waltham, MA — Steinway Musical Instruments, Inc. (NYSE:LVB) recently announced its Board of Directors has authorized management to make discretionary repurchases of its ordinary common stock up to a limit of \$25 million.

Such purchases would be made with corporate funds from time to time in the open market or otherwise at such prices as the company considers advisable and in compliance with SEC regulations. Shares purchased would be held as treasury shares to be used for corporate purposes.

Contact: Steinway Musical Instruments, Inc., Dennis M. Hanson, 781-894-9770. SteinwayMP@aol.com ■

Piano For A Richer Life

On the last Sunday in September of this year, the Quad Cities chapter of PTG took part in the third annual Piano Celebration. We have formed in our area, a SPELLS site, which is called "Piano For A Richer Life." Our chapter has been instrumental in organizing this group and is a member of it. Four local piano dealers and two music teachers organizations are also members of the organization.

Piano For A Richer Life, therefore, assumed the responsibilities of planning the Celebration.

As in previous years, we were presented at our three major shopping malls from 12:00 to 5:00 p.m. This year we had two pianos at two of the malls, and all five pianos were busy all afternoon being played by piano students and pianists of all ages, including local celebrities, and well known people.

There was some newspaper publicity prior to the event, and we also had some television coverage.

Our chapter had members at each of the locations to answer questions

about pianos. Of course, we had PTG literature available.

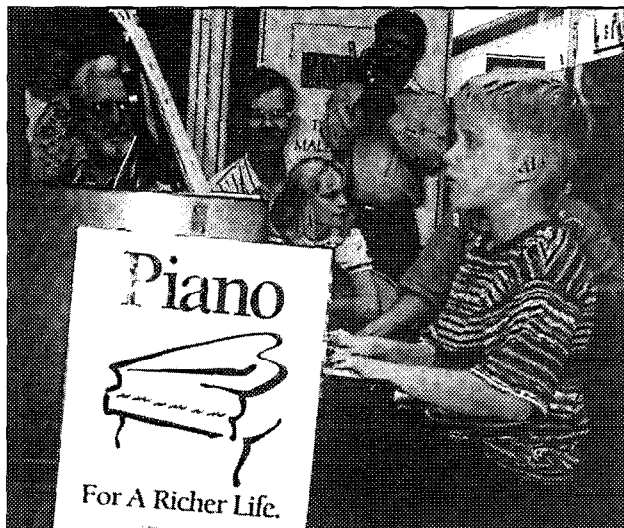
Piano For A Richer Life had designed an attractive brochure pertaining to piano playing, and also had T-shirts for sale. These shirts proudly proclaim that the wearer plays the piano. Anyone who played in the Celebration had the opportunity to buy a shirt at a big discount. These will become walking billboards for playing the piano wherever they are worn.

Each year we learn some things to do and some things to not do. We expect that next year's Piano Celebration will be even better.

Our SPELLS group is planning a piano appreciation day in the schools this coming February. Twelve elementary schools will

be selected for this day.

It has been very rewarding, I might even say exciting to observe and be a part



Playing the Piano during the Piano For A Richer Life piano celebration in the Quad Cities.

On Becoming an RPT

Continued from Previous Page

meeting.

As time went by I realized that I needed to be part of a professional organization. No piano technician in my area was a member of the Guild. The average level of piano service needed to improve. There was the need for a standard to try to meet or perhaps to exceed. There was the need for ongoing training. There was the need for a formal way to interact with the piano makers, retailers, and teachers. There was the need to learn who provided goods and services to the trade. I needed to talk to another piano tuner. The PTG was the way. Thank you for allowing me to be a part of the PTG.

From the Vice President

It is a familiar refrain; a new RPT thanking the many friends who helped him achieve his goal of passing the RPT exams. It's a refrain we would all like to hear more often. After all, the mentoring, cooperation and selfless giving of members helping other members is what makes individuals

come back for more.

George Campbell's story is one that speaks directly to my heart, because it is my story as well. The need for professional association and a closer connection to our industry was what brought me to PTG, and is a need that most of us have felt at one time or another. So it was especially meaningful to me to be given the honor of pinning that emblem on George's lapel.

In his letter, he identifies the core qualities that make PTG an organization worthy of our support. We should also recognize that as a key part of our mission is to raise the standards of our profession, so the RPT test and testing process is our primary method of measuring our success. In this way, the test becomes important not only to the student, but to the teachers as well.

Personal pride, a sense of accomplishment, the increased confidence in one's skills, these are all great reasons for challenging the RPT tests. But you enrich us all when you do this, and for that I thank you, George Campbell.

— David P. Durben, RPT
PTG Vice President ■

of this SPELLS group. We have four competing dealers, technicians, and teachers, working together on the same projects. I have felt for some time the branches of the piano industry can no longer afford to operate as though they are separate, but must learn to cooperate with one another. Piano For A Richer Life is an indication that it can indeed happen.

— Richard Hassig,
Quad Cities Chapter ■

CONTACT

Getting in Touch with the PTG Home
Office Staff Just Got Easier
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Staff Now has a Direct E-mail
Address to Better Serve You

ptg@unicom.net —

General E-mail to the PTG Home Office, or
Jerri Dowdy, Assistant to the Executive
Director

hanzlick@unicom.net —

David Hanzlick, Executive Director

sroady@unicom.net —

Sandy Roady, Director of Member Services

msheldon@unicom.net —

Midge Sheldon, Advertising/Merchandising
Coordinator

joezeman@unicom.net —

Joe Zeman, Director of Communications

cwilane@unicom.net —

Catherine Wilane, Director of Finance

PTG Museum needs Member Support

In the years to come, our PTG Museum will be an even more prized part of our organization than it is now. The idea of a PTG Museum has always been an important goal to me since I saw that other groups were attempting to preserve their individual histories in "museums," no matter how small they were. No one else is attempting to save the history of ASPT, NAPT and PTG. We must do it, and you can help.

If you happen to see, hear about, or know about items such as old, unique tools, special manuscripts, out of print publications or anything which would be about the history of that which we do, please think of protecting it for life in our PTG Museum. This can most certainly include interviews on video with those who have played most important roles in our organization so that those stories become part of our PTG history.

You can see by the pictures here that we already have some treasures which may have been all but lost through the years if we did not protect them for all who are to come. We have many of the Golden Hammers which are bequeathed to the museum when the award winner dies. Take a closer look at the Golden

Hammer. Isn't that beautiful craftsmanship to preserve for years to come?

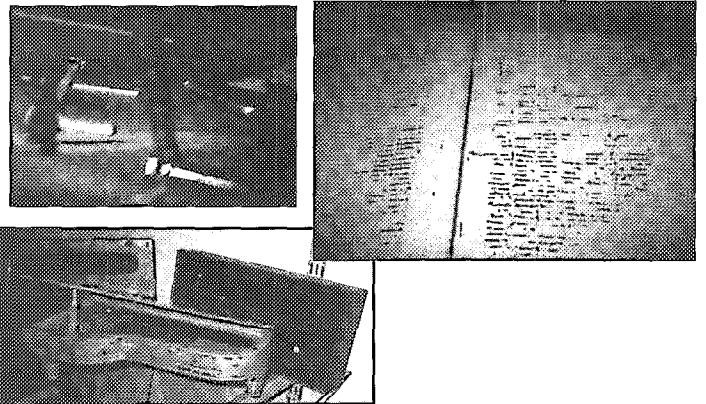
The PTG Museum, now, certainly can't be opened to the public, but maybe one day as it grows and there are funds available, possibly it will be there for all to visit and enjoy. It is certainly open to the membership of PTG. If you are in Kansas City, a visit to the PTG Home Office and Museum would be most enjoyable and an eye opener for those who have not paid much attention to the PTG Foundation and its activities.

PTG members can help with the work of the PTG Foundation to fund scholarships and the PTG Museum by making donations of any amount to the PTG Foundation. If you know of someone who has the penchant for helping with donations to small organizations such as the PTG Foundation,

please pass that information on to the Home Office, or inform that individual or corporation of our existence. PTG members can bequeath their \$1,000 death benefit to the Foundation by signing a simple form.

Our goal in the PTG Foundation is to have the donations one day reach an endowment which will fund PTG Foundation scholarships and maintain the PTG Museum. Please take a "look" at the PTG Museum and get on board with us to help us grow.

—Nolan P. Zeringue, RPT



From the PTGF President

Stepping On Out

This year, the Piano Technicians Guild Foundation is striving to be more visible, more responsible and more productive.

PTGF has increased its visibility. Members of the PTGF Board have contributed articles to the *PTG Journal* and we have seen the first ever "Foundation Page" there. PTGF members have attended several Regional Seminars. Items have been donated as "door prizes" and Board members have been able to speak at banquets. Many donations and much interest has resulted. Future *Journal* articles will highlight our Associate Scholarship and the Scholarship offered to the Music Teacher's National Association.

With the help of Ron Berry, we now have a Foundation "Web Page" on the Internet at: <http://www.ptg.org/ptgf/>. Here you will find donations listed similar to the list found in our *Journal* Directory, the mission statement of the PTGF and a list of the Board of Directors. There is also the opportunity to pur-

chase *The Piano Action Handbook*, the *Calculating Technician* and *A History of Midwest Piano Manufacturing* at member and non-member prices. We are also working on making the book, *A History of Midwest Piano Manufacturing*, available outside of PTG.

This mid-year report is an attempt to be more self-disclosing to the PTG Board of Directors and members, alike. We want you to understand what we are doing and what we are trying to accomplish.

We have attempted to increase the awareness of the general public about the existence of the PTG Foundation. Our first ever corporate donation was received this year and we are in the process of creating a category of "Corporate Donor" along with the existing categories of Patron, Contributor and Supporter. We have begun work on reorganizing our donation structure to encourage member and non-member donations.

We have relieved the Home Office

of some of the paperwork that our organization generates. Most notably, sending thank-you letters to donors and informing the members who have been honored or families of members who have been memorialized by donations.

A recent article in *Piano Today* entitled "A Modest Proposal" mentioned the "7/8" Bösendorfer keyboard owned by Cynthia Woods and housed in our PTGF Museum in Kansas City, MO. This article offered the opportunity for a letter to the editor and if printed, would increase the awareness of PTGF to the public and possibly increase our non-member donations.

Our hope is that every PTG member will know who the Foundation is and what we do. We hope our scholarships and grants will be a help to our profession and that we can be actively involved in preserving the history of piano technology for future generations.

—Laura Kunsky, RPT
President, PTGF

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Introducing New Benefits For PTG Members

Individual & Group Major Medical

Both individual and small group (2+employees) medical plans are available.

These plans offer a wide range of comprehensive benefit choices that allow for individual design.

These benefit plan options and choices include:

- Deductibles from \$250 to \$5000
- Coinsurance from 50/50% plans up to 90/80%
- \$0 Accident deductible
- Doctor visit copays
- Prescription drug card
- Maternity & wellness options
- Life insurance for self & dependents

The cost of the plans depends on state of residence, age and family size.

Long Term Care (LTC)

As Americans live longer and healthier lives, the need to plan for long-term health care is becoming increasingly important. Long-term care insurance provides long term security for you and your family by protecting your income, savings, your estate and your independence.

Typically, LTC insurance will pay 100% of a selected daily benefit after an elimination period is satisfied. This benefit is paid for periods as short as two years or for a lifetime while confined in a long term nursing care facility.

Home Health Care (HHC)

This type of insurance pays benefits in the same way as LTC except the benefits are paid for services in the comfort of your own home. Most people prefer to recover from an illness at home instead of a nursing home. With confinement at home instead of in a LTC facility the cost of HHC insurance is less costly than LTC insurance.

Individual Disability Income

What if your income suddenly stopped for a month . . . a year . . . or the rest of your life . . . due to a disability from an accident or illness? How prepared are you?

- The chances are 1 out of 20 you will have a disabling accident this year.
- The chances are about 1 in 4 you will be disabled for one year or longer before age 65.
- Disability is the cause of nearly half of all home foreclosures.

To rely on Social Security alone for disability protection may not be a wise choice. Social Security may only pay a fraction of your lost income.

Individual Disability Insurance is the only source of income that will pay you for your time when no one else will and the only source of income that starts when you need it.

First Occurrence Cancer Cash Plan

Cancer treatment is expensive. The American Cancer Society estimates hospital and medical costs represent only 40 percent of the true total cost of cancer treatment. Therefore, 60 percent of cancer related costs are non-medical and not covered by major medical or hospital insurance policies.

With First Occurrence Cancer Cash Plan, when a person is diagnosed with internal cancer or malignant melanoma for the first time, this policy will pay one-time cash benefit selected from \$10,000 up to \$50,000. This benefit is paid in addition to any other insurance coverage you may have.

In addition each calendar year it pays \$75 for each of the following screening tests: Mammogram, Prostate Specific Antigen (PSA), Flexible Sigmoidoscopy, Colonoscopy, Ovarian Cancer Blood Tests (CA-125), Pap Smear, Chest X-Ray, Hemocult Stool Specimen.

POSCARD

The POSCARD is a point of service combination of *discount plans* that provides individuals and families with tremendous savings for Dental Care, Vision Care and Prescriptions.

You can save as much as 75% for certain dental care procedures and up to 20% or more depending on your prescription. The Vision Care discounts are provided nationwide with the LENS CRAFTERS facility in your neighborhood. You pay only \$20 for your exam with substantial savings for lenses and frames and 15 percent discount on non-disposable contact lenses.

No Deductibles • No Claim Forms • No Maximum Benefits • No Waiting Periods • No Age Limitations • Pre-Existing Conditions *Are* Covered.

The American Worker Plan

The American Worker is a limited benefit insurance and health benefit discount program combined into one package at a very affordable cost.

Full comprehensive health insurance is expensive. However, contrary to popular opinion, there are other sources for health care services in the event of a catastrophe. The American Worker is just one of these alternatives.

Along with other optional benefits this program provides in-hospital cash benefits and reimbursement for doctors visits, accidents, diagnostic testing and laboratory fees. You can also increase the standard package. The discount part of the plan offers cost-savings for dental care, prescriptions, vision care, chiropractor care and hearing services.

This is a powerful package for valuable family protection at a very affordable cost.

Call Ralph S. Passman & Associates, Inc. at (800) 255-6029 for details and proposals for any of these new benefit programs.



Richard Edward (Eddy) Vranizan Jr., long-time piano technician and member of the Salt Lake Chapter, died on October 23, 1997 in Salt Lake City, Utah (born: June 1, 1918), from complications of pneumonia. Eddy was a charter member of Chapter 35 of the American Society of Piano Technicians (June 1, 1954) and a charter member of the PTG; one of the original Salt Lake City Chapter members in 1958.

As a teen-ager he became blind from a progressive disease of the eyes. But for Eddy that never seemed a disability. He often told other piano tuners, "I have an

Richard Edward (Eddy) Vranizan Jr.
June 1, 1918 —
October 23, 1997

advantage you don't have. When the lights go off I continue working." He was a graduate of the blind piano technicians school in Vancouver. During the 40s he played jazz bass and piano in many local dance bands and did not give up his membership in the Musicians Union until 1991.

In the early 70s he and I both tuned in the Astin-Weight piano factory sitting perhaps ten feet away from each other. He lived around the corner from me and we

occasionally exchanged needed parts with each other. There was little he could not do; both with pianos and his own private life. He re-shingled his own roof and cut his own lawn by placing small radios in strategic places as position beacons. When tuning alone in a church, he would have the custodian show him the room where each piano was, place a small radio on each one, and dismiss the custodian.

Eddy Vranizan was a remarkable person. I will miss him.

— Jim Hill, RPT
Salt Lake City, Utah Chapter

Passages

Pauline Glumac
San Pedro, California
October 29, 1997

Dennis Gorgas
Seattle, Washington
October 29, 1997

William Harry, RPT
Holden, Massachusetts
November, 1997

In Memory

Frank Martz, RPT
Los Angeles, California
October 22, 1997

George Schreiber, RPT
Milwaukee, Wisconsin
November, 1997

Richard Schubert
Atlanta, Georgia
November 6, 1997

Edward Vranizan, RPT
Salt Lake City, Utah
October 23, 1997

Calendar of Events

January 9-10, 1998

ARIZONA STATE SEMINAR
Arizona State University, Tempe, AZ
Contact: Rick Florence (602)926-4328 or
(602)965-6760
119 E. San Angelo Ave., Gilbert, AZ
85234

February 20-22, 1998

CALIFORNIA STATE CONVENTION
Pomona Valley, Riverside, CA
Contact: John Voss (909)794-1559
2616 Mill Creek Rd., Mentone, CA 92359

March 19-22, 1998

CENTRAL WEST REGIONAL SEMINAR
Clarion Hotel Airport, Wichita, KS
Contact: Marty Hess (316)744-0564
3900 N. Parkwood, Wichita, KS 67220

March 26-29, 1998

PA STATE
Hotel Brunswick, Lancaster, PA
Contact: James Bittinger (717)681-9191
2087 Franklin Road,
Washington Boro, PA 17582

April 23-26, 1998

PACIFIC NW REGIONAL
Banff Centre, Banff, Alberta Canada
Contact: Chris Gregg (403)226-1019
or Fax (403)226-2430
11444 Coventry Blvd., Calgary AB
T3K 4B1 Canada

May 1-3, 1998

FLORIDA STATE SEMINAR
Marrion Hotel, W. Palm Beach, FL
Contact: Tom Servinsky, (561)221-1011
5271 SE Nassau Terr., Stuart, FL 34997

May 16, 1998

NEW MEXICO SPRING SEMINAR
Piano Store (Vintage Piano Workshop)
Albuquerque, NM
Contact: Les Conover (505)255-0658
4805 Central, NE, Albuquerque, NM
87108

July 8-12, 1998

PTG ANNUAL CONVENTION & INSTITUTE
Westin Hotel, Providence, RI
Contact: PTG Home Office
(816) 753-7747
3930 Washington, Kansas City, MO
64111

All seminars, conferences, conventions and events listed here are approved PTG activities. Chapters and regions wishing to have their function listed must complete a seminar request form. To obtain one of these forms, contact the PTG Home Office or your Regional Vice President.

Once approval is given and your request form reaches the Home Office, your event will be listed six-months prior and each issue until the month in which it is to take place.

Deadline to be included in the Events Calendar is at least 45 days before the publication date; however once the request is approved, it will automatically be included in the next available issue.

**PTGAuxiliary
Executive Board**

**PHYLLIS TREMPER
President**

413 Skaggs Road
Morehead, KY 40351
(502) 783-1717

E-mail:
f.trempe@morehead-st.edu

**CAROLYN SANDER
Vice President**

527 Knob Creek Road
Shepherdsville, KY 40165
(502) 922-4688
Fax (502) 922-9452

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Recording Secretary**

34 Jacklin Court
Clifton, NJ 07012
(201) 473-1341

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WISENBAKER
Corresponding Secretary**

1103 Walton
Houston, TX 77009
(713) 864-6935

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20 North Laurel Street
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AUXILIARY EXCHANGE

DEDICATED TO AUXILIARY NEWS AND INTERESTS

The Truth About Winter Babies

My hunch was right! There really are not many "winter babies" as the pediatricians call them. We have 13 of our members with January birthdays. Winter babies had to be a hardy lot to withstand the rigors of harsh winters, limited farm produce, the lack of indoor heat and plumbing in the days of yore. This data was a rough guide for the people who developed those horoscope charts in the days of yore.

Our niece, Barbara Huether, a winter baby, arrived on January 3rd and, as a young girl and later a career woman, chose not to celebrate her natal day. There were too many Yuletide events and parties to herald the New Year and often cold and dismal weather to be bothered with a birthday. Her mother wisely asked "When would you like to celebrate your day?" Barbara elected a day in THE spring. In scanning our roster of Auxiliary members I've come up with the names of some other people who share dates with our associates.

Leila Jones of Missouri who celebrates her day on the 4th shares it with the actress Dyan Cannon, born at Tacoma, Washington in 1937. Norman Baugenter, former Governor of Utah was born in Granger, Utah in 1933. Floyd Patterson, boxer, was born in Waco, Texas in 1935. Lynette Hollingsworth, of Ohio and Carol McNabb of California can share a birthday cake with Nancy Lopez, golfer, who was born in 1957. The writer E. L. Doctorow who was born in NYC arrived in 1931. And then there's Tom Mix of the old cowboy movies; he was born in 1880 in Driftwood, Pennsylvania!

Alpha Tolbert shares her January 8th birthday with a few celebrities. Jose Ferrer of Santurce, Puerto Rico, was the celebrated actor who portrayed Cyrano de Bergerac, Peter Arno the famous New Yorker cartoonist and that hero of many, Elvis Presley of Memphis, TN are January 8th babies.

Jean Long of Ware, Herts, England and Paul Cook of Topanga, CA celebrate their day on January 10th along with Rod Stewart, musician, born in Glasgow in 1945, and Gisele Mackenzie of Winnipeg, Manitoba, Canada, born in 1927. Pat Benatar, singer, was born in NYC in 1953. Barbara Fleming of California shares her January 12th birthday along with Kristie Allen the TV actress who was born in Wichita, KS in 1955. Joe Frazier, another boxer, was born in Beaufort, SC in 1944. The famous Viennese actress Luise Rainer, renowned for her roles in "The Good Earth" and "The Great Ziegfeld" was born in Austria in 1912.

Sandy Eisenhart of South Carolina celebrates her big day on the 13th along with Gwen Verdon, actress, born in Los Angeles in 1926, the star of "Damn Yankees!" also Frank Gallo, artist and sculptor, was born in Toledo, Ohio in 1936. Edward Madigan, former US Secretary of Agriculture in the Bush administration was born in Illinois in 1936. Charlene Sheppe of Charlene, Virginia (who was named first, you or the town?) celebrates her natal day January 15th along with the famous physicist Edward Teller who

was born in Budapest, Hungary in 1908. Another great man born on Charlene's date, the Radio and TV writer, humorist Goodman Ace. He was born in Kansas City, MO in 1899 and died March 25th, 1982, shortly before his death he asked that his tombstone be inscribed: "No Flowers please, I'm allergic." Lloyd Bridges, the actor of "Seahunt," and "Roots" was born in San Leandro, CA in 1915. Alice Stone of Shanghai and now California celebrates on the 16th along with the former musical comedy star of stage and screen, Ethel Merman, who was born in Queens, NY in 1909. Dizzy Dean the major league pitcher for the St. Louis Cardinals was born at Lucas, AR in 1911. The famous French industrialist Andre Michelin was born on this date in Paris, France in 1953. He and his brother were the first to use demountable pneumatic tires on cars.

Joan Schwendner lights up her birthday cake with a few celebrated people. On her day, January 17th, Betty White, TV actress on the Mary Tyler Moore Show, "The Golden Girls" and such TV offerings was born in Oak Park, IL in 1924 and Benjamin Franklin, author, patriot, scientists and printer was born in Boston in 1706. Another big brain was Robert Hutchins, American Educator, civil liberty activist and later chancellor of the University of Chicago! He was born in Brooklyn, NY in 1899.

Patricia Schultz of Woodbury, NY celebrates her day on the 23rd. She, too, is in stellar company with high achievers. John Hancock, first signer of the Declaration of Independence, was born at Braintree, MA in 1737. Elizabeth Blackwell, first woman to be awarded a Doctor of Medicine degree, was a native of Bristol, England and born in 1849. Princess Caroline of Monte Carlo, Monaco was born in 1957. We all know about her — a beautiful and intelligent woman.

Mary Rosenburrough of Marshalltown, Iowa was born on the 30th of January, our 13th winter baby. Some of Mary's associates are Vanessa Redgrave, the famous English actress, who was born in London in 1937. Boris Spascky, journalist and genius at the chess board was born in Leningrad, Russia, in 1937. Our US Secretary of Defense in the Bush Administration, Richard B. Cheney, was born in Lincoln, Nebraska in 1941.

As a little reward to all of you readers who waded through all this material, I'll reward you with information that actor Paul Newman of Westport, Connecticut celebrates his B-day on the 26th and Skitch Henderson, band leader who was born at Malstad, MN celebrates on the 27th. Some pretty smart, courageous, talented and well-known individuals saw the light of day as "winter babies."

— Agnes Huether
Recording Secretary



Phyllis Tremper
PTGA President

"Have a very Happy New Year and hope to see all of you in Providence, R.I. this coming July."

— Phyllis Tremper
PTGA President

CLASSIFIEDS

Classified Advertising rates are 40 cents per word with an \$8.00 minimum. Full payment must accompany each insertion request.

Closing date for placing ads is six weeks prior to the month of publication.

Ads appearing in this publication are not necessarily an endorsement of the services or products listed.

Send check or money order (U.S. funds, please) made payable to
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Kansas City, MO 64111-2963.

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PIANO TUNING BUSINESS established 15 years. Denver-Boulder, CO area. Write: Seller, P.O. Box 9689, Denver, CO 80209-0689.

REYBURN CYBERTUNER State of the art piano tuning software from authorized distributor and author of its user manual, Mitch Kiel, RPT. Reyburn CyberTuner version 2.0 just released, includes Custom Equalizer (simple graphical interface lets you individually adjust stretch at A1, A2, A3, A5, A6 and A7—totally amazingly cool), Limits (automatically senses scale problems and adjusts octave widths as needed—spinets and short grands never sounded better), Pitch Raise (at every note, automatically measures and calculates overshoot using optimized overpull percentage from 4% to 38%), Pianalyzer (specialized spectrum analyzer displays pitch, inharmonicity, sustain, and volume for partial 1-8, 10, and 12 for any note, great for voicing and scale design), PTG-approved for scoring RPT tuning exam (a CTE's delight—auto-measures and records an aural tuning in 12 minutes or less), creates an editable spreadsheet and graph of any tuning, unlimited storage, and more. Read a review of RCT 1.0 in Jan. 1997 Journal. Reyburn CyberTuner 2.0 \$795 (Macintosh only). Upgrade from RCT version 1. x \$149. **READY-TO-USE COMPLETE PACKAGES STARTING AT \$1595** (Includes portable Mac computer & RCT 2.0). Try RCT at no risk with our 30-day money back guarantee. Mitch Kiel, RPT, 11326 Patsy Drive SE, Olympia, WA 98501.

360-264-5112. mitchkiel@reyburn.com
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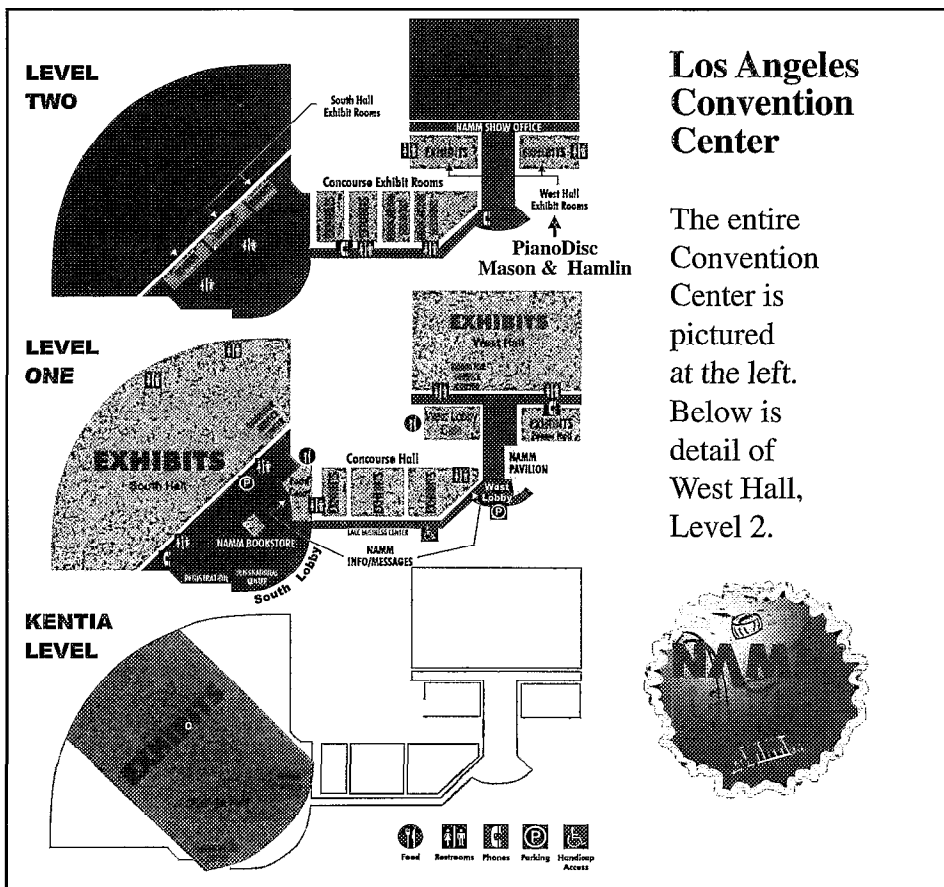
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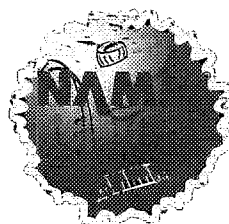
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News From The World of MSR/PianoDisc



Los Angeles Convention Center

The entire Convention Center is pictured at the left. Below is detail of West Hall, Level 2.

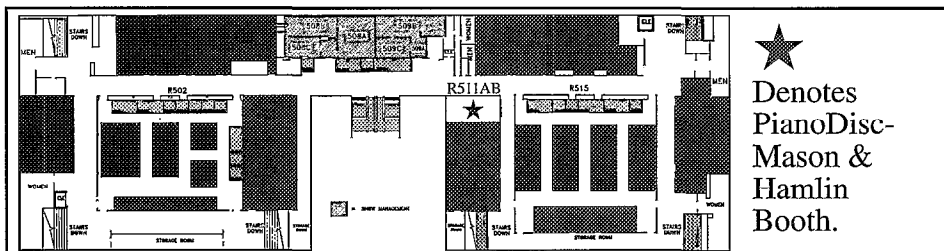


Don't miss PDisc training at '98 PTG conventions

PianoDisc will be participating in several PTG state conventions in 1998. At press time, plans are in effect to exhibit and conduct classes at the California, Pennsylvania and Florida state conventions, as well as the national convention in Rhode Island.

One class we'll offer should appeal to every technician, whether they're interested in learning how to install the PianoDisc system or not: "How to do routine service on a piano with PianoDisc." The three hour class gives an overview of the system, and is designed to help familiarize technicians with how to deal with pianos outfitted with PianoDisc when they encounter them in the field.

For example, we discuss how to remove the piano's action without destroying the record strip or solenoids; how to deal with the system's wiring; what may be touched and what should be avoided. No credit is given toward PianoDisc certification, but the information given in the class will be helpful to technicians who subsequently attend our installation training classes. Participants will receive product brochures, wiring diagrams and a PDS-128 Plus User's Guide.



You'll Love LA!

Yes, you read that right! **You'll love L.A.** — this coming Jan. 29 - Feb. 1, 1998 at least — if you attend the Winter NAMM show at the Los Angeles Convention Center. How can we be so sure you'll love it? Because we're going to pull out all the stops this year and make our booth (511 A&B) the most spine-tingling, eye-

popping and hair-raising place it's ever been, every minute of the show. And frankly, we're betting everybody else will do the same.

So, if seeing new products and dynamite demonstrations, plus getting royal treatment appeals to you, check us out at Winter NAMM.

MSR/PianoDiscTM

**4111 N. Freeway Blvd.
Sacramento, CA 95834**

Sales: 916/567-9999

Tech Support: 916/567-9999
or 619/258-1460

Fax: 916/567-1941

E-mail: @pianodisc.com

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Tech Gazette

Yamaha Service

January 1998

Last month, we featured the robotic machine that secures the plate to the backframe, then shapes the backframe so that the case parts will fit precisely.

Insertion of Tuning Pins

In this article, the next operation to be completed is the insertion of the tuning pin bushings. Tuning pin bushings are used in every Yamaha piano made at Yamaha Music Manufacturing (YMM). Bushings help tuning stability by adding support to the pin and keeping the tuning pin from "flag poling." Also, the bushings provide the centering position for the tuning pin drilling machine, because the center of the bushing has a "dimple" machined into it to which the drill bit aligns itself.

All tuning pin bushings must be driven into the plate. There are roughly 230 bushings in every piano. Taking that into consideration, there are thousands of bushings that must be put in place every working day.



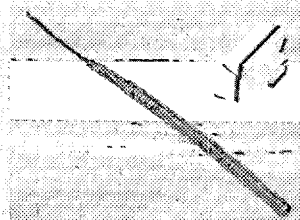
At YMM a computer controlled machine automatically inserts a plate bushing into each hole in the plate. The bushings are fed into the insertion machine, via a pneumatic tube, which originates at a special "sorter." What is unique about the bushing sorter is its ability to know

when the bushing is "dimple" side up. Each bushing passes over a plate that is serrated on one side. If the bushing is right side up, the bottom will cross over the serrations. If the dimple side is down, the bushing drops back into the sorter; only the bushings with the "dimple" side up proceed to the bushing insertion machine.

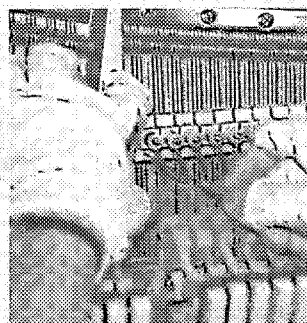
The YMM "Tip of the Month"

This is one of those "Why didn't I think of that tool?"

Simply, it is the end of a bass string, fashioned so that the copper winding becomes the handle and the core wire extends to become the tool. The wire can be sharpened to become a "spear" (notice how the



technician is straightening the damper during the gluing process) or it can be filed into a "V" to be used to release or



replace springs in the action. Also, the wire can be bent to become a tool that would be used to set hammer-to-string distance, back check distance, etc.

Stay tuned for next month's information from Yamaha Music Manufacturing.