PIANO TECHNICIANS
Journal
Official Publication of the Piano Technicians Guild

April 1995

Vol. 38 • #4

Inside: Chinese and former Eastern-bloc pianos make prominent appearances at the 1995 NAMM Show.

The Baldwin Piano

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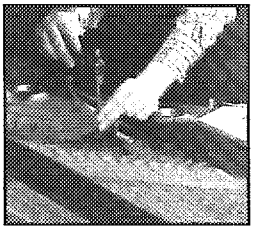

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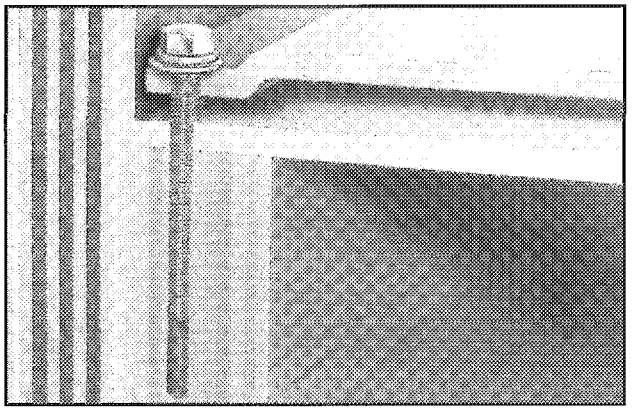

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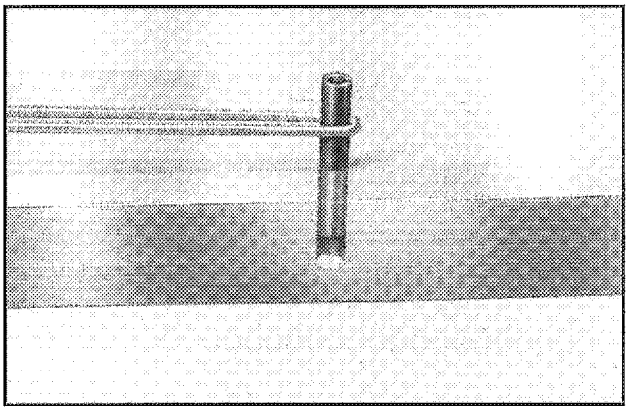

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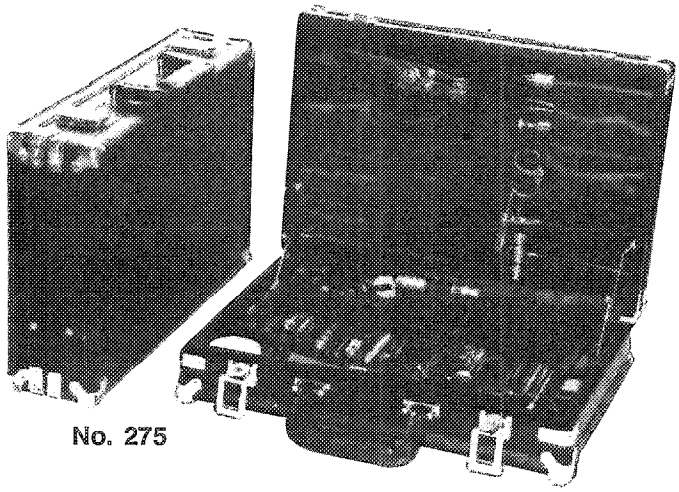

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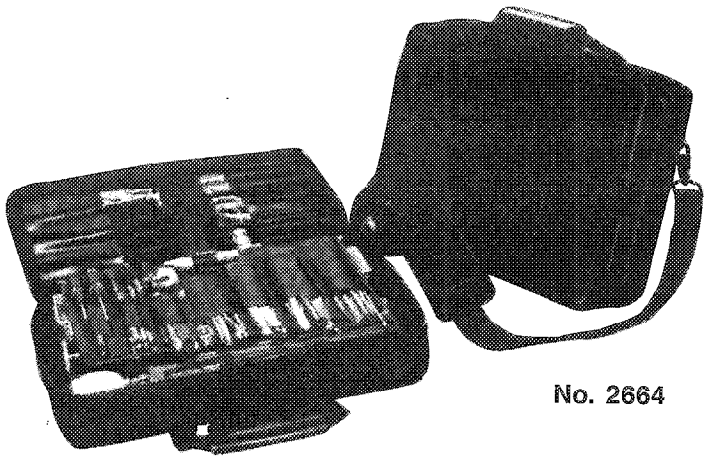

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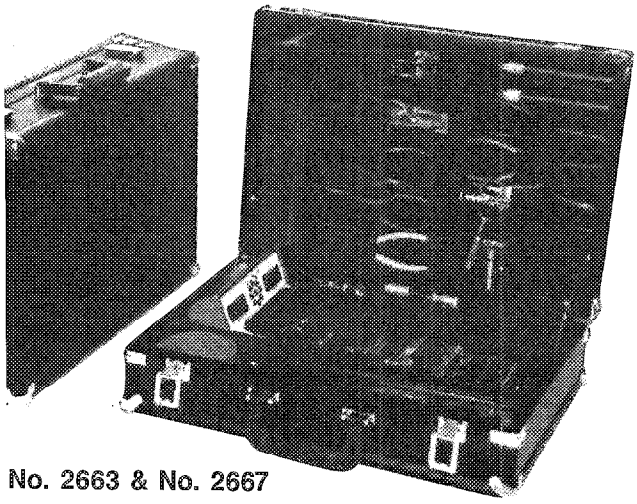

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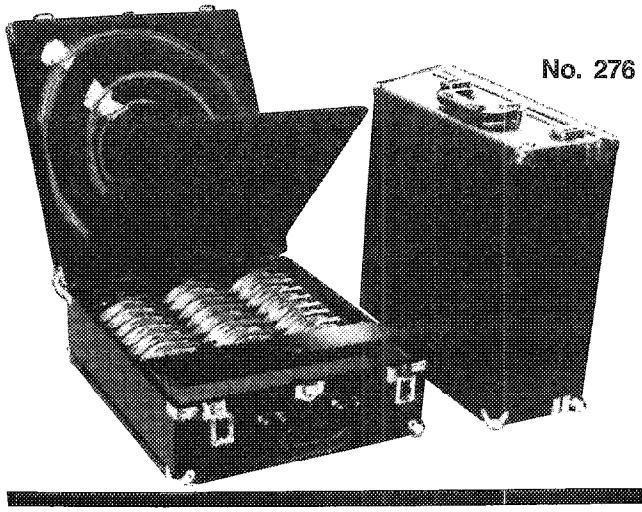

No. 276

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Editorial Perspective

Competitors or Colleagues?

Steve Brady, RPT
***Journal* Editor**

One of my fondest memories dates back to my first year or so out of piano technology school. I was working for a piano dealer in Phoenix, doing primarily warranty tunings and service. After tuning a new console in a customer's home one day, I took the piano for a "test drive" with one of my two memorized pieces. The piano sounded pretty good, but I noticed one note in the treble section had a peculiar "woody" kind of sound which reminded me sort of, but not quite — of the sound you get with a loose hammer head or maybe a shot flange bushing. I checked carefully for bad glue joints and worn bushings, but absolutely nothing seemed to be loose or worn out. Finally, without a single idea left about what the problem might be, I called Jim Coleman Sr. to see if he had any ideas. He said he'd be happy to come out and look at the problem with me and see what he could find.

At the appointed day and time, Jim and I walked into the house together and opened the piano. Jim played the notes in the area I had indicated, and was able to hear the offending note. He retraced the steps I had already taken, agreeing that nothing seemed to be wrong with the pinning or gluing. My eyes widened as he proceeded to remove the hammer assembly from the offending note and switch it with an adjacent one. He again played several notes in the area. Lo and behold, the noise had moved to the adjacent note. "Well," he said, "now we know for sure that the problem is in this hammer assembly." He removed the bad action assembly again and examined it closely while applying funny little twisting and flexing movements to the hammershank. He then removed the neighboring hammer assembly and repeated the flexing and twisting ritual to that hammershank. Picking up the bad one again, he said, "It looks like we've got a rubber shank. Let's replace it and see what happens." We replaced it, and the note sounded fine with the new shank.

As we were packing our tools, Jim explained that, once in a while, a shank will just not be rigid enough to sound like the ones around it. He showed me that you can hear the difference if you drop a handful of shanks on a hard surface, one at a time; most of them have a bright, clear tone, but the occasional "rubber" shank sounds dull and unfocused by comparison. I asked him what I owed him for the consultation.

"Nothing!" he said.

"Are you serious?"

"Of course. And someday, you'll have the opportunity to help a young technician in the same way. We're all colleagues in this business," he said.

■ ■ ■

Now, let me list the things I learned from Jim that day. Obviously, I learned how to diagnose a tough problem by switching parts to "zero in" on it. I learned about "rubber" hammershanks. Most importantly, I learned what it means to be a colleague.

It seems to me that one of the greatest things about the Guild is that it brings us together as colleagues. Sure, we are competitors at one level, but on another, we can be friends and compatriots in this difficult business. I can't count the number of times I've consulted with my colleagues over the

years; sometimes adding my opinion to theirs, sometimes seeking their advice. In some cases the client pays for the "consult," in others, I swap consultations with my fellow technicians. And yes, from time to time I astonish a newcomer with the reply: "You don't owe me a thing."

■■■

Although Dan Levitan has had the title, Contributing Editor, next to his name for the past two issues, his articles in those issues had already been written and submitted, so he didn't get a chance to introduce himself until now. He brings to this new task a keen intellect and a great enthusiasm for tuning. Check out his new column in this issue, and learn what makes Dan tick.

■■■

PACE lesson writers Bill Spurlock and Michael Travis have the month off to catch up with their lives. The PACE lessons will return next month.

PIANO TECHNICIANS
Journal
Volume 38 • Number 4 • April 1995

COLUMNS & COMMENTS

DEPARTMENTS

IN ADDITION

FEATURES

Alas, This is the End

Oh, Tuner Bartz scorned extra parts
Piano ills to mend.
If a wippen broke, this lazy bloke would
Take one off the end.

On extra jacks, and butts, and springs
Most tuner types depend.
But not this mug; he'd simply shrug, and
Take one off the end.

Then one sad day he up and died,
And Heavenward did ascend.
It was his fate to get there late. They
Put him on the end.

Gabriel looked at him and said
"Our quota's full, my friend.
Of all these hicks, you're in a fix. Three
Guesses where you'll end."

Saint Peter, he cried out with glee:
"Your sins you can't amend.
When Satan craves a few more knaves, we
Take one off the end!"

-Leslie Hoskins

Leslie Hoskins was Executive Secretary of the American Society of Piano Technicians and served as editor of the Journal and its predecessors.

COVER ART

The "Pyramid" style Imperial Bosendorfer concert grand shown on our cover was not displayed at the 1995 NAMM show, but perhaps it should have been. Artisans spent eight months matching the feathered mahogany veneers that adorn the instrument's case. Purchased by an individual in Wisconsin, this one-of-a-kind piano is a true masterpiece.

Education Is The Key To PTG

PTG President
Leon Speir, RPT

A central function of The Piano Technicians Guild is to provide educational tools for its members. Educational tools insure that the craft is perpetuated, that technicians have high quality training, and that the public receives quality piano care. Traditional opportunities for education that were once available in the piano service field have vanished. Previously many technicians received training in factories; now most of those factories are closed. Many surviving manufacturers have severely cut their technical staff and training programs. Training schools that once enjoyed large enrollments now have very few students, or they have closed completely. Many RPTs who were once willing to be mentors are now reluctant to offer their services.

Because educational opportunities are severely limited, many people are now looking to PTG for their training and continuing education. Does the PTG have a responsibility to meet this demand? Since its formation in 1958, PTG has continually provided education for both members and non-members through the *Journal*, the Annual Institute, regional and state seminars, and at chapters. Throughout its history — including the time when schools were flourishing and piano sales were high — PTG has provided tools for learning at all levels of expertise.

Is PTG involved in education? The answer is, quite simply, yes, and has been since its inception. Recent directives from the PTG Council and Board have identified education as a primary function. The PTG Mission Statement expresses the following: *To provide continuing education to promote professional competency.* PTG has an organizational responsibility to meet the educational demands of its members!

Educational offerings that currently exist include the *Journal*, the Annual Technical Institute, state and regional seminars, chapter technical programs, marketing, manufacturer/dealer relations, and publications. Additionally, PTG has created a comprehensive course on Vertical Regulation. Development of this course was a direct response to the adoption of the "Resolution on Educational Goals" as presented to the 1993 Council Session.

Coordinating all the educational offerings is the challenge we are now facing as more tools are provided for learning. The current tools are effective; these same tools can be more effective if they are coordinated to focus on specific learning objectives. As PTG matures as an organization it's vital also to mature in the way we approach educational offerings. Education is a very big part of who we are.

Leon Speir

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Our aspiration for perfection also extends to our service to technicians and customers. That's why we offer a 12-year full warranty on all pianos as well as a limited lifetime warranty on actions and case parts. We also maintain a staff of full-time service personnel and a full inventory of replacement parts to support you.

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Nodes and Inharmonicity

Dear *Journal,*

I have been reading with great interest the articles on tuning and temperament in the latest *Journals.* Much has been written about how inharmonicity affects our work, especially in small pianos with short strings. Quite a bit has been said about the relative smoothness and low inharmonicity of large grands, too. But, there hasn't been a good explanation of where inharmonicity really comes from! Why are upper partials always sharp? Why does the treble tune "sharp," and bass "flat." Here's how I learned it: the nodes are where it's at.

As a student, I was horrified to learn that vibrating strings don't subdivide equally into neat segments at 1/2, 1/3, 1/4, and so on. I'd spend the first half of the class learning just that! The math was so simple and elegant; it proved that there was order in the Universe, and all was right with the Music of the Spheres. String motion is complex, but straightforward; the vibrating string subdivides into equal segments, splitting the string motion into equal segments at 1/2, 1/3, 1/4, 1/5, ad infinitum, right? The second partial of A-440 is going to be 880 cps in every piano we ever tune, right? What was wrong with the idea? Our teacher smiled an evil smile and whispered: "Inharmonicity."

The problem is that piano strings are not esoteric mathematical constructs nor scintillating rivulets of thought. They are physical objects that respond to physical input in the real world, and so, the nodes. A string doesn't subdivide into three neat perfect segments at the third partial, i.e., three vibrations of equal length perfectly dividing the length of the fundamental, the string actually divides into three equal parts, with a small node between each piece of the subdivided string. The node is a tiny, almost infinitesimal thing. It is the point where each vibrating piece of the partial meets its neighbor along the vibrating length of the string, and it is a dead space where the two meeting vibrations cancel each other out. On either side of the node is motion, but at each intersection of motion along the string length, or each segment of each 1/2, 1/3, 1/4, 1/5, etc., partial segment of the string, the wire is not moving; it can't vibrate in two directions simultaneously! So, each partial segment loses a tiny fraction of length to the node, and shorter length means higher pitch. The higher the partial we discuss, the more nodes there are; a fundamental has no nodes, the second partial has one node, the third has two, the fourth has three, and so on.

The nodes are where inharmonicity is born. The point is simple; each partial above the fundamental must be shorter and sharper than theory suggests because a piano wire is not a "perfect" vibration medium. The higher the partial we discuss, the more nodes there are, so partials become sharper and sharper in pitch as we travel up the overtone series. This description of inharmonicity explains why small pianos sound the way they do to our trained ears: "Twang!" The increasing sharpness caused by inharmonicity is especially evident in spinets and short grands. The short string length causes the "nodes" to be larger, in proportion to string length, for each partial, so each octave, no matter what "octave stretch" system is used, is wider and sharper in a small piano with short strings. This increasing sharpness of the partials is less evident with a longer string for any given note, like the low tenor strings on a small spinet versus a nine-foot grand. Why? Because the longer sting's partials don't lose as much length, in proportion, to that same vibrations node, and thus vibrate much more closely to the theoretical ideal. Plain wire vibrates more cleanly than wrapped strings in the deep bass — instead of those double-wrapped atrocities at high tension we must attempt to tune in tiny spinets and undersized grands; higher tension also increases the "size" of the node by making the wire more rigid.

Think of the smoothness and gentle

Lighten Up!

My suggestion: put some humor in the *Journal.* Every publication I take: *Lions, Smithsonian, Autosport,* etc., has it. Lately, the *Journal* gives the impression we don't have time for humor. I know we're important, but ... .

The enclosed poem seems to fit today, just as it did in 1931. Les Hoskins was a serious and dedicated supporter of the profession, but he still could laugh once in a while!

Ken Serviss, RPT

[*Editor's note: The poem Ken sent appears on the* Table of Contents *page. Thanks for sending it in, Ken.*]

Ditto . . .

I would like to submit one suggestion for your consideration. Last week at the California State Convention one of the highlights was the reading of limericks submitted. I don't remember who won first place but there were several good ones. Could we have a contest in the *Journal* for who comes up with the best limerick associated with our trade?

Sid Stone, RPT

[*Editor's note: Okay, you asked for it, we'll do it! Let me think about appropriate prizes, and I'll announce the rules next month.*]

increase of the beat rates in a large grand — not so in that 35-inch spinet you tuned yesterday, is it? Tunings in a spinet can be very frustrating! The compromises in spinets allow us to create a — usually — reasonable clear sounding piano, but the tunings cannot be compared to the results obtained by servicing a good quality grand of decent dimensions. Honestly!

I hope that this explanation of inharmonicity helps others to understand why pianos tune the way they do — tempered and equal — but not perfect.

Respectfully,

Jeffrey T. Hickey, Associate
Eugene Chapter of PTG

P.S. My approach for "laying the bearings" in small pianos is similar to Mr. Ballard's in the September 1994 issue. I build a set of contiguous thirds from F to F, or A to A, if wrapped strings force me higher, and fill in the blanks. If my fourths and fifths are too rapid, fourths way past one beat per second and fifths much faster than the mystical three beats in five seconds, I alter the speed of the thirds and try again. Occasionally — and with apologies to Michael Kimbell; remember the Waeoliwinick spinet? — I will add one tuned note to the bottom of my "ladder," the next note needed is a major third below your temperament octave . . . it gives you an added check point for your speeding thirds and racing fourths (you get two tuned octaves, and another major third in your "ladder"). It's not necessary to build the entire temperament before discovering your beat rates won't work. Once the contiguous thirds are in place for an octave, the fourths and fifths will show their colors rapidly. Usually, a small piano will want a faster set of thirds than a big grand, and that seems reasonable when you know where that inharmonicity comes from!

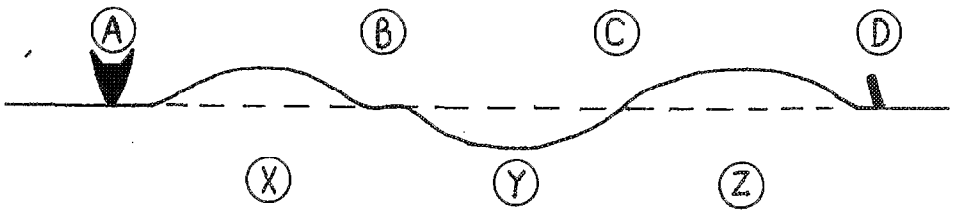
Dan Levitan replies:

Mr. Hickey describes one popular explanation of the origin of the inharmonicity of piano wire that has been advanced by a number of authorities in the field, including W.V. McFerrin ("The Piano — Its Acoustics", Tuners Supply Co., 1972, p. 39) — that the nodes take up a certain amount of the length of the wire, making the string effectively shorter. A good case can be made for this being true at the two nodes found at the string terminations. In the accompanying highly abstract diagram of a piano string vibrating at the third partial, node A is at the capo and node D is at the bridge. The wire, not being perfectly flexible, cannot bend exactly at the termination, and the small area of stiff wire just inside the terminations therefore shortens the effective vibrating length of the wire.

That the same is true for the other nodes is not so clear. The drawing of node B, similar to McFerrin's, depicts the situation that Mr. Hickey describes — the node has some minute actual length which shortens the vibrating segment. To vibrate in this way, though, the wire has to make two extra bends, which seems to me unlikely if the whole problem in the first place is the stiffness of the wire. I find it easier to believe that the string would instead vibrate in the normal way as at node C, and this kind of node takes up none of the effective length of the segment.

Consider also that inharmonicity caused by node width would not produce the geometrical increase in partial sharpness which we habitually measure in piano strings. Unless the width of the nodes were to increase geometrically at higher partials, we would instead see a lessening in the degree of increase in the sharpness of the partials as they ascended the harmonic series, because the amount of decrease in vibrating segment size becomes progressively smaller and smaller.

The precise physical explanation of inharmonicity may not be completely understood, but it seems more likely that it is due to the resistance of the stiff wire to bend at the antinodes, X, Y, and Z, which makes the wire return to its rest position more rapidly, thereby decreasing its period of vibration and so increasing its frequency. This explanation also accounts for the geometrical increase in sharpness of the partials, both because of the greater number of antinodes and because of their smaller size and consequent greater resistance to bending. Regardless of the exact mechanism, inharmonicity is almost certainly caused by some quality of the wire related to its rigidity, as Mr. Hickey points out. Everything else being equal, thicker wires are more rigid, and more inharmonic; shorter wires are also more rigid and more inharmonic. Higher tension, however, does not increase inharmonicity, as Mr. Hickey says. Rather, higher tension lowers inharmonicity, probably by overcoming some of the wire's stiffness. And wound strings just below the plain wire section tend to have less inharmonicity than their plain wire neighbors, not more as Mr. Hickey implies. The reason wires are wound is to increase their flexibility by the use of a smaller core diameter wire, at the same time preserving their mass by the addition of a heavy winding.



Retain the Retainer?

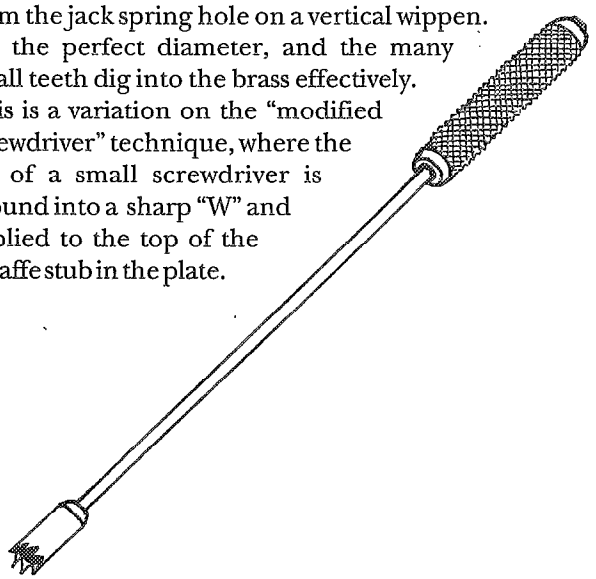
From Gerald Foye, RPT

Typically, cheek blocks on grands are secured with a fastener from underneath, through the keybed. Some use a machine bolt with a retainer, the retainer being a thick threaded washer that keeps the bolt from dropping out when the cheek block is removed. While the concept is good, the mechanics often is not. The problem is that when tightening the bolt to secure the cheek block, the washer will often bottom out against the cheek block making the bolt tight, while the cheek block itself is not tight. When this condition is encountered, it is best to discard the retainer since it is more of a nuisance than a convenience.

Broken Agraffe Tricks

From Steve Russo, RPT

To extract the threaded stub of a broken agraffe, try using a jack spring hole reamer, the one you use to clean old glue from the jack spring hole on a vertical wippen. It's the perfect diameter, and the many small teeth dig into the brass effectively. This is a variation on the "modified screwdriver" technique, where the tip of a small screwdriver is ground into a sharp "W" and applied to the top of the agraffe stub in the plate.



More Broken Agraffe Tricks

From Fred Allen, RPT

On rare occasion, neither the modified screwdriver nor the left-handed drill bit will work. If there is a nasty spill on the plate that contaminates the agraffe hole, the resulting rust from the cast iron will truly freeze the agraffe threads in place. In that case, I use the tiniest drill bit I can find and drill many holes all around the perimeter of the stub, so that it will just crumble or drop out. Not a pretty sight, but it works!

Making Ivory Wafers

From Bill Smith

When ivory wafers are not available from supply houses, or at times they do not work as they should, why not make your own? Ivory wafers should be very white, and when clamped and heated, should liquefy and somewhat seep out from underneath the ivory. Start with about eight- to 10 ounces of liquid hot hide glue in the glue pot. To the hot glue, slowly add enough dry titanium dioxide powder to make it white. Add the powder slowly, stirring until the brew appears smooth. The powder does thicken the glue, so at this time add enough water to thin the glue to make it watery. Have ready some thin cotton fabric, white cotton bed sheet works fine, torn or cut into 7" by 7" squares. Immerse two squares into the glue/titanium dioxide mixture, stirring and soaking them for a minute or so. Take the soaked squares out of the glue and place them on a Teflon cookie sheet and immediately squeegee off the surplus glue. This should be done before the glue starts to gel. A rubber kitchen spatula can be used as a squeegee. The wafer will dry in about an hour and will readily peel off the Teflon sheet. You can accelerate the process by using a hair dryer.

The wafers can then be cut into 1" by 2" pieces for heads or 1/2" by 4" pieces for tails. A paper cutter or scissors works great. The glue mixture will make approximately eight 7" by 7" wafers.

The dry powder titanium dioxide can be obtained from some paint stores and art supply outlets. The last supply I got was a one-pound jar. Some places refer to it as "titanium white."

Cont. on Pg. 12 — Tips, Tools & Techniques

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Symphonies, operas, music halls, festivals, artists and celebrities put their trust in **KAWAI**. The world's foremost pianist, Martha Argerich, performs on a **KAWAI**. Whether it's the *Aspen Music Festival, San Francisco Opera* or International Piano Competitions such as the *Frederic Chopin International,* Warsaw, Poland; *Arthur Rubinstein International,* Jerusalem/Tel-Aviv, Israel; *The International Music Competition of Japan*, Tokyo, Japan; *Sydney International,* Sydney, Australia; *Dublin International*, Dublin, Ireland; *International Pianoforte*,Cologne, Germany; *International Piano Competition "F Busoni"*, Bolzano, Italy; *Concours International "Vienna Da Motta"* Lisbon, Portugal;*Gina Bauchauer International Piano Competition,* Salt Lake City Utah; Santander International Piano Competition, Santander, Spain; Munich International Music Concour, Munich, Germany; *"George Enesco" International Piano Competition,* Bucharest, Romania; *The International Piano Competition of Taipei,* Taipei, Taiwan; *Hamamatsu International Competition,* Shizuoka, Japan, there is a **KAWAI** on center stage . . . also the winner of the prestigious *Van Cliburn Competition* won with **KAWAI**, not to mention Pop Artists and there even is a **KAWAI** In Chopin's Birthplace in Poland. **KAWAI** is the choice of the world's foremost pianists.Play **KAWAI...** play the best you can play.

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TT&T, Continued from Pg. 10

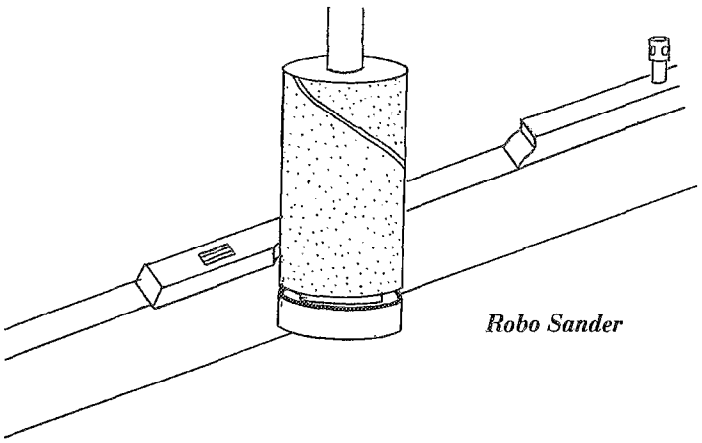
TT&T

Robo Sander!

From Yvonne Ashmore, RPT

This is a drum sander with a guide bearing similar to a router bit guide bearing. Available in several sizes from 1" diameter up to 3" diameter, it is used in a drill press to sand flush to anything in contact with the bearing. It is the best thing I have ever used to sand new key buttons off flush with the keystick (see illustration). Also, after installing new sharps, if you turn the key upside down and let the bearing ride against the side of the new sharp it perfectly trims any extra wood on the keystick down flush to the new sharp.

I had to modify mine before I got full use out of it. The bearing was originally a little bit larger than the drum sander, so the sander could not truly sand flush. I temporarily removed the washers between the bearing and the drum, which allow the bearing to move freely, and tightened up the bottom nut so the bearing could not spin freely. Next, I chucked it into the drill press and let it run at slow speed while I cut the diameter of the plastic bearing down with a file and sandpaper. After that I put everything back together, and it worked great.



Robo Sander

This tool is available through most of the woodworking catalogs. If you don't have a catalog, call Grizzly Tools, 1-800-541-5537, or Woodworkers Supply of New Mexico, 1-800-645-9292.

TT&T

Different Octave Test

From Fred Tremper, RPT

I imagine that most tuners use the M3-M10 check to determine the correctness of an octave. When the M3 and M10 are equal-beating the octave is just; when the M10 beats faster it is expanded, and when it beats slower the octave is contracted. While this test is certainly valid, there is another I often use.

Let us assume we are checking the octave A3 to A4, where A4 is the constant. Play the fifth D4-A4 and lower the D4 until a convenient beat rate is heard. Yes, you will have an expanded fifth between D4 and A4 and a contracted fourth between A3 and D4. If the A3-D4 and the D4-A4 are equal-beating, the 4:2 octave is just; if the A3-D4 beats faster it is contracted; if it beats slower it is expanded. Of course, you will have to retune the D4 when the time comes.

I maintain that this check is often clearer than the M3-M10 test. The reason is that in this check the third partial of D3 is used, rather than the fifth partial of F3, which is used in the M3-M10 check. Generally speaking, the lower number partials beat stronger than the higher ones.

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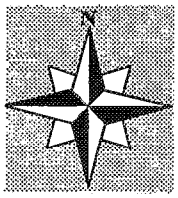

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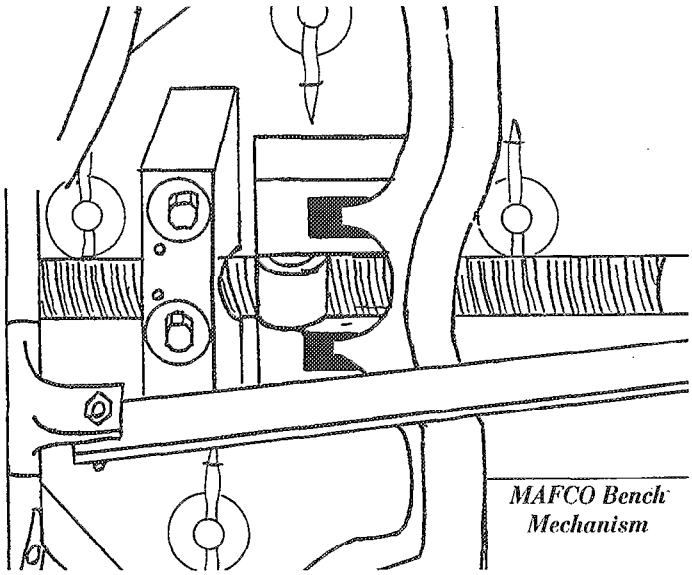
Q — *Bench Tuning?*

Here at Wichita State University, we have the usual assortment of artist benches. Some from MAFCO, some from Jansen, and some from 'whoknowswhere.' My question concerns the MAFCO benches. They are noisy! Almost all of the ones here 'clunk' if the pianist shifts weight from side to side. I can see where the play is in the mechanism which allows this to occur but I haven't figured out what to do about it. Has anyone come up with a solution which works well for them? Does anyone have ideas that they haven't tried yet but seem like they ought to work? I'd appreciate some help on this one!! (Yes, I tightened everything!)

Alan Crane, RPT



MAFCO Bench Mechanism

A — *From Newton Hunt, RPT*

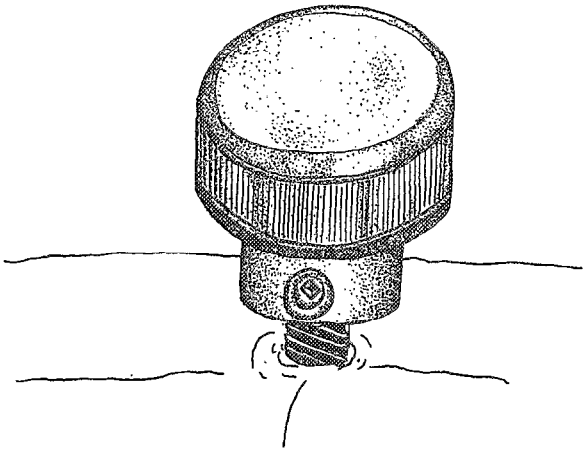
If this is the bench I think it is, there are two blocks of wood near the ends of the central shaft that have two hexbolts holding them to the under platform.

There are also long nails through the blocks that need to be extracted. The blocks can then be firmly pushed towards the center and the bolts tightened. I have also taken steel plates and drilled them for the bolts, which allows more secure tightening.

If this is the type that has a small central metal retainer with four screws to maintain level, the screws work loose and need to be tightened until they strip out and new, larger screws installed. At some point hardwood plugs need to be installed to hold the retainer properly.

A — *From Paul Kupelian, RPT*

I've had similar problems with my benches here as well. First, make sure all the screws and bolts are tight. The trick is to also check the side hand rollers. Check to see if they have a hex nut. If there is one, loosen it up and then push the handle in all the way and tighten. This should take care of the play.



A — *From Ken Sloane, RPT*

If there is still play after pushing in the handles all the way, add a washer.

Q & A Continued on Pg. 16 — Benches

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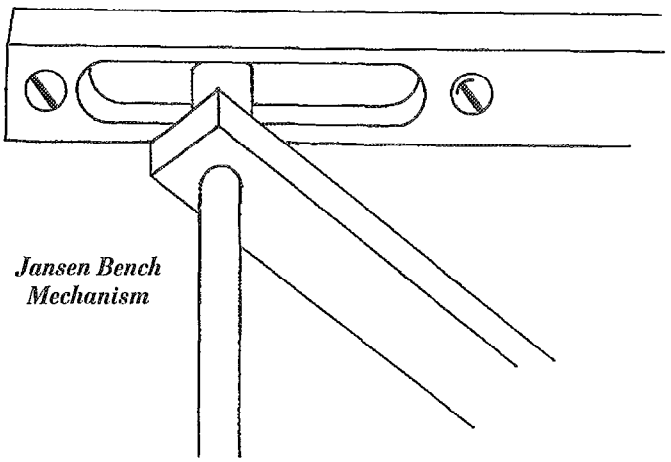
Benches, Continued from Page 14

A

From Conrad Hoffsommer, RPT

Must be everyone has had problems with benches. Even after tightening everything, including the thrust collars you find on some models, I still had wobble and noise. For a Jansen bench, I got a supply of the bearing sleeves that run in the tracks, and replaced the original brass ones — which either had flat spots or were worn clear through — with steel ones. Then I put grease on the tracks to slow down future wear. I got the sleeves after calling Jansen and describing the problem. Nice people to deal with.



Jansen Bench Mechanism

A

From Michael Wathen, RPT

You can also return your Jansen artist benches to Jansen for renovation. They will re-upholster the top and rebuild the mechanism for about $125. Call Jansen at 1-800-236-2437 before sending a bench. I think it's a good deal.

A

From Steve Brady, Journal Editor

I think it's a great deal. A client of mine recently paid over $200 just to have an artist bench re-upholstered. Prices in our area for only re-upholstering begin at just under $100. Thanks to members of the Pianotech listserver group for this question and answers.

Q

Methods for Determining Value?

What methods are used to determine the value of a piano for insurance purposes? I've recently had two requests for information concerning replacement or repair of pianos that were damaged in house fires. I am particularly interested in finding out if appraising a piano's worth is a service that many piano technicians routinely offer to insurance companies. Is there a difference between determining the market value of a piano and determining its replacement value?

David Vanderhoofven

A

From Steve Brady, Journal Editor

For a general background on methods of appraisal, read Joseph Meehan's short series on the subject, beginning in the May 1983 issue of *PTJ*. You might also check out my article in November 1988, and Don Galt's in January 1976. My experience is that insurance companies will sometimes contact a piano technician to provide an appraisal when there is damage to a piano.

When a piano has been in a fire, one must be very careful to allow for the possibility that damage from smoke and heat may actually be hidden, that is, it may not become obvious for several years. Excessive heat and humidity, both of which are usually present when a piano is in a fire situation, can compromise every glue joint in the instrument, and yet everything may well look fine when the piano is first examined. The point is that the piano's life expectancy may have been reduced, and this needs to be reflected in the appraisal of its value. I don't have any magic figure to plug into the formula, but perhaps a 20- to 40 percent reduction in value (taken from its normal appraised value) wouldn't be far off the mark.

There is a difference, for insurance purposes, between "market value" and "replacement value." Market value of a piano means what the actual, used instrument is worth right now, in its present condition. Replacement value usually means what a new piano of similar type, size, and quality would cost if you were to "total" the insured piano and replace it with a new one. This value can be obtained from a dealer or from the Ancott Music Product Directory, Acoustic Piano Edition. This guide is published twice a year and is

Continued on Pg. 18, see Insurance Appraisal

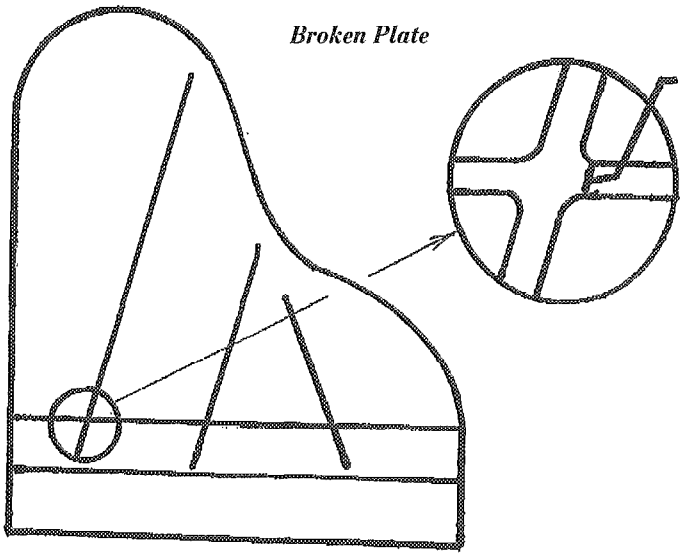
Insurance Appraisal, Continued from Pg. 16.

available from Ancott Associates, P.O. Box 46532, Cincinnati, Ohio 45246. Homeowners insurance policies will specify whether the coverage is for replacement value or not. When you do an appraisal for insurance purposes, you should include both an "appraised value" and a "replacement value."

Q *Broken Plate Repair?*

How do you repair a broken plate? My customer has a "Lauter" grand with a break in the plate located as shown in the sketch below.

Broken Plate



Can this repair be made with the plate in the piano, either by a weld or a bolted brace?

Donald Lykins, RPT

A *From Robert W. Beck, RPT*

Now self-employed as an independent technician, Bob Beck has worked for more than 35 years in the industry. Beck was formerly Director of Manufacturing at Steinway & Sons, and has enjoyed consulting work with a number of piano companies.

Repairing broken plates can be successful, but is rarely attempted. This is due to the prevailing opinion that gray iron piano plates "can not be welded," or that other mechanical repairs will not be reliable. The piano in question here has a break where it is perhaps the most repairable — at least by iron welding techniques. There are no holes, agraffes, pins or other complicating structures. The first choice would be to weld the crack with the plate in the piano and under tension! This sounds preposterous at first, but bear with me.

The first consideration is the most difficult; locating a competent iron welder. This is not always easy, especially in more rural areas. However, if a welder with iron welding experience can be found locally, then the majority of the problem is solved. If the welder does not have adequate facilities, the piano should be moved to your shop or the shop of an associate. I do not recommend welding in the customer's home under any circumstances!

The first step is to protect the area surrounding the repair with flame proof material, such as asbestos cloth. Any flexible flame proof material will work, especially if it has some insulation value as well. Obviously, removal of any dampers or other parts in close proximity to the repair is required.

Next, hacksaw the crack into a "V" shape as best as is possible, with the top about 1/4" wide, tapering to closed at the bottom. The offset in the crack that may exist should be allowed, as this is the needed stress relief. If the plate shows obvious stress from improper nose bolt adjustments or plate set, then these problems should be corrected first. This subject is understandably outside the scope of this Q & A format.

After the crack is prepared as described, welding can begin. Arc welding is required, with the use of high nickel content iron welding rods. The main consideration is keeping the surrounding iron as cool as possible. This minimizes expansion as well as protects the iron from chemical and structural change. Low temperature, gradual building of a mass of iron weld is the trick. This explains why brazing of iron often fails — too much heat is required.

After the V-shaped crack is full of weld and cooled, grind the surfaces flush to the original shape and dimensions. Grinding stones and mandrels for hand held drills are commonly available at large tool suppliers. Clean all surfaces well. Next, fill the iron surfaces with lacquer body putty and sand smooth. Repeat as often as required to conceal grinding marks and irregularities. Then apply bronzing lacquer. Re-sand if necessary, and re-bronze. Finish up with a good clear gloss lacquer top coat. The original protective materials can now be carefully removed.

I use aerosol spray cans wherever possible for convenience. The color will rarely match, but if you confine the area, it will be acceptable. If a more demanding color is required, you will have to compound the bronzing lacquer from different powders available from the supply houses, or companies like Mohawk. Spray equipment is then required. I have never been successful brushing bronzing lacquer.

After the work is completed, tune to pitch and hammer the area of the repair with a large rubber mallet. This introduces a bit of controlled extra shock to the repair and helps test its integrity. If all holds as expected, return the piano and explain to the customer that you cannot guarantee the result, but the prognosis is excellent! I have seen this repair technique used many times with total success. The issues that remain are cost, feasibility and justifications. These are individual considerations and will always elude the "rule books." However, my experience has been favorable, and plate manufacturers have been using weld repairs for many years. Hopefully, the subject of plate repair will get more consideration in the years ahead.

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NAMM Show Review

Chinese and Former Soviet-bloc Made Pianos Make Key Appearance at NAMM

By Steve Brady
Journal Editor

As a preface to this report, let me say that I will be departing from some of the usual practices in reporting on this NAMM show, held in January. I'm afraid we may have wrongly given the impression to some of our manufacturer friends that the purpose of the NAMM show review article was to include the names of every single piano-related company that exhibited at the show. Such is not the purpose of this article.

The mission of the *Piano Technicians Journal* is to provide technical material for the continuing education of our readers, as well as industry-related information that they may find timely and interesting. With that in mind, I'll try in this article to outline some of the trends in the piano industry which I noticed at the NAMM show, and to let our readers know about some of the new and interesting — new and interesting to me, of course — technical developments that I saw there.

■ ■ ■

The most prominent trend in the piano industry today is the increasing emergence into the world market of low-priced pianos from China and the former Soviet bloc countries. I personally counted at least four different Chinese companies exhibiting at the show, and four different companies from the former Soviet Union. These pianos are primarily low-end "starter" instruments: low in price and low in quality. How low are the prices? Well, the lowest wholesale price I saw at the show was on a Belarussian vertical with the stencil name "J. Robertson & Son" at $499! How low is the quality? In general, it is commensurate with the prices.

Belarussian made J. Robertson.

After playing some of the lesser-quality pianos from the Eastern-bloc factories, it was like a breath of fresh air to sit and play the Estonia 6'3" and 9' grands. Built in Tallinn, Estonia, these pianos were quite nice to play, possessing excellent tonal depth and color resources. Any rough edges in the factory workmanship seem to be at least partially mitigated by the quality of their close-grained Russian spruce soundboards, Delignit pinblocks, Roslau strings, and Renner actions. Add to that the fine prep work on these show pianos, which, according to reports from technicians, is very much needed, and you have an enjoyable instrument. This 200-year-old company is setting up dealerships in the U.S. for the first time since the cold war. At this writing, the Estonia pianos continue to be controversial among technicians, and many of those who have had experience working on them still find them to be poorly constructed, but my observation at the NAMM show was that Estonia is making a real effort to improve its product.

Fandrich & Sons

The Chinese pianos have begun showing up in a remarkable number

Chickering

of "stencil" names. What is noteworthy is that Darrell Fandrich has begun producing a hybrid upright piano incorporating a Chinese-built back and case with a Renner-built Fandrich Vertical Action. Fandrich assembles the pianos in his Seattle, Wash., workshop, and sells them under the name "Fandrich & Sons." For those with a larger budget, Fandrich installs his action in the German-made Wilhelm Steinberg pianos as well. Fandrich Design, Inc. is also reportedly negotiating with the Brazilian maker, Fritz Dobbert, to have the Fandrich action produced in one or more of Dobbert's models.

According to Darrell Fandrich, the respected German maker Klaus Schimmel will be selling a limited number of his verticals with the Fandrich action. At the NAMM show, Schimmel was showing an improved 8'4" grand, the flagship of the Schimmel line. Recent improvements include scaling changes to achieve a more even tonal response and provide more "guts" to the sound.

Baldwin had a number of new developments in its product line on display at the NAMM show. The best news for us technicians was the elimination of the model B and C "Classic Series" grands. In their place, Baldwin has re-introduced the Chickering line with two grand piano models. The grands use the actual Chickering plate castings, which are heavier than the plates used in the "Classic" grands which they replace. The rim structure has been improved as well. The Chickerings also incorporate the "Accu-Just" hitch pins and the plate-mounting system used in the "Artist" series grands, as well as scaling improvements, thicker damper heads, solid spruce soundboards, and a 19-ply pinblock.

Baldwin has gotten into the Chinese stencil piano market with their new "Kranich & Bach" line of consoles. The line consists at this time of one model in either cherry or black, and the pianos are produced by the Beijing Piano Company. Other changes in the Baldwin vertical lines include a new "Classic" spinet series, Models 555 and 556, featuring a 37 1/2" back and a solid spruce soundboard, and an improved lock assembly — separate locks for both lid and fallboard — on the Hamilton studio upright.

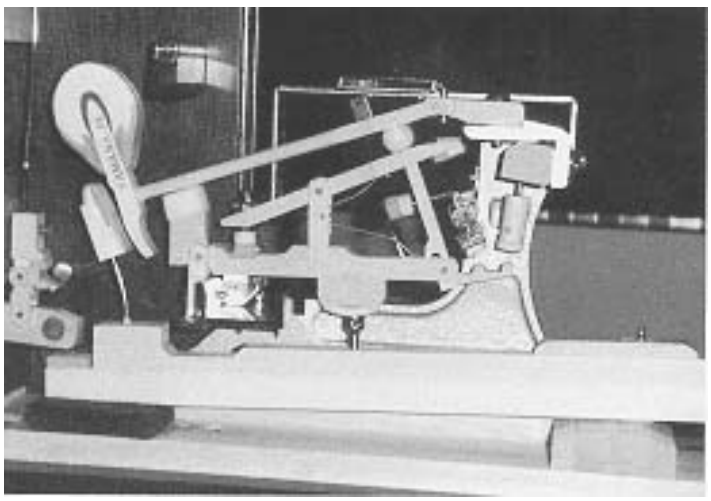
Young Chang has recently introduced maple soundboard liners in their vertical pianos, and is planning to incorporate maple rims in their grands, but hasn't yet implemented the change in the grand piano line. According to Don Mannino, Young Chang technical services manager, Young Chang hopes to achieve both better tonal sustain and more reliable glue joints by changing to maple liners and rims. Mannino also said that a damped fallboard should appear on the company's grand pianos later this year.

In keeping with the emergence of China as a force in the piano world, Young Chang will open a piano factory in mainland China in April. After about three years, the China plant should be producing about 30,000 pianos per year, boosting Young Chang's worldwide production totals to about 168,000 units, the largest of any piano company in the world. The new Chinese factory will produce a different line of pianos, as yet unnamed, using Young Chang designs and supervision.

Young Chang recently tripled the size of its Tacoma, Wash., lumber processing operation. At this facility, logs are air-dried, initial milling is done, the wood is then kiln-dried before being shipped to Korea for more kiln-drying.

The Charles R. Walter piano

Cont. on Pg. 24, see NAMM Show



Yamaha "Silent Piano" Action

NAMM Show

Continued from Page 23

Steinway Grand Piano

company has recently purchased a factory building after years of leasing factory space. The "new" building, which is now being prepared for use, will open in June. Walter cites a more convenient layout — the space is all on one floor — and a slight increase in total space, as some of the many "pluses" to this move.

Another major trend which seems to be taking the piano world by storm is the "Silent Piano" concept. Yamaha has had vertical pianos with this feature for several months and introduced its new "Silent Grand" at the NAMM show. While the early silent verticals had a rather severely compromised let-off — something like 5/8" — Yamaha has improved on that by 50 percent in later models. The new silent grand is a marvel of engineering. Normal let-off is unaffected when the piano is in regular acoustic mode, and when the lever is switched to block the hammershank on its way to the string, a second let-off rail swings into place. This rail acts upon a second "bump" on the jack tender to provide let-off before the hammershank runs into the stop rail.

Yamaha has revamped its grand piano line, doing away with the venerable "G" series. The bottom of the grand piano line is still the GH1, but now the rest of the grands are all "C" series: the 5'3" C1, the 5'8" C2, and the remainder of the C series as before. Yamaha is introducing newly designed hammers in the four smaller grands, C1 through C5, and an improved scaling in the three larger grands, C5 through C7. Yamaha's ultra high-end grands, the 6'3" Model S4, the 6'11" Model S6, and the CFIII concert grands are built in a separate factory.

Kawai's "AnyTime" piano is similar to the Yamaha "Silent Piano." Although the mechanism used in the NS-20 version is different from the "shank stopper" used in the Yamaha verticals, the basic concept is the same; a piano that can be changed to a digital electronic instrument at the throw of a switch. The Kawai product features a moving rail with individual buttons to stop the hammer by contacting the catchers when the rail is moved into position. In addition to digitized piano sound, the Kawai system provides digitized vibraphone and harpsichord sounds, as well as MIDI in, out, and through, and reverb.

The Kawai model GE-2 (5'7") has been replaced with the new 5'8" model GE-3. Kawai also had their impressive model EX and model RX-A grands on display at the show. From rim-bending to final voicing, each of the 30 to 40 EX concert grands produced each year are built by one person. The 6'5" RX-A is also built on a limited, non-assembly-line basis, with only 60 to 70 produced each year.

PianoDisc has developed a new retrofit system to turn regular pianos into "silent" pianos. Named "QuietTime," this system can be installed in "virtually any 88-key acoustic piano," according to PianoDisc. This system also includes harpsichord and organ sounds, special effects such as Chorus, Reverb and Pan and key ranges (transposition). "QuietTime" can be integrated with PianoDisc's other products.

Steinway displayed grand and vertical pianos with the "QuietTime" installation from PianoDisc. Steinway also exhibited two brand-new grands with Victorian-style cases (see photo). These two are part of a limited run of about 150 that have already been sold out to dealers. My first thought on seeing these pianos was: "What a great-looking rebuilding job!" But they are thoroughly new pianos in newly designed "old" cases.

All Steinway grand action parts are now manufactured in New York. The "improved parts" maintain the current (post-1984) knuckle position, but with a redesigned repetition/wippen assembly which works better with the post-1984-knuckle hammershanks. Extended hammer tails and taller backchecks provide better repetition than before. According to

Theuringen Klaviaturen makes keyboards

Michael Mohr of Steinway, all these improvements have resulted from suggestions we, piano technicians, have made.

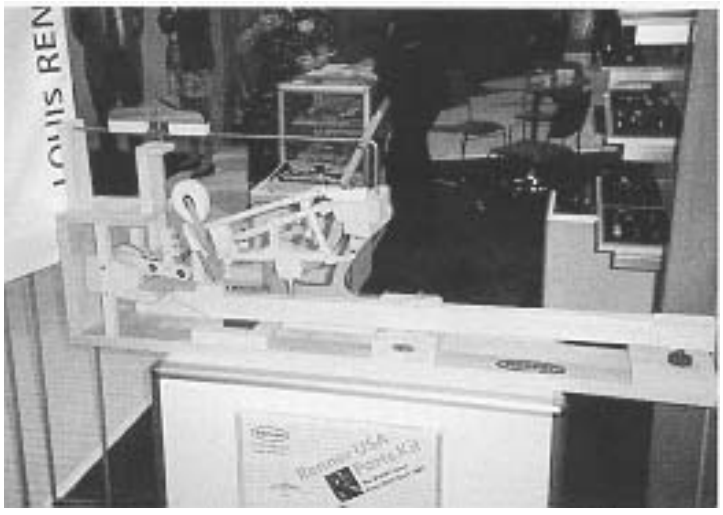
Steinway's subsidiary, Boston, features grand pianos which are now all equipped with Kawai synthetic ivory key coverings. They also have the "slow" fallboard feature and a number of scaling improvements. The Boston UP-118 upright is now manufactured in North Carolina, which, according to Gary Conte of the Boston Company, should result in a significant price reduction for that model.

Fazioli was back with its line of premium-grade grand pianos. Continuing to turn out superlative instruments, Fazioli plans to show off its 10'2" concert grand at the PTG Annual Convention in Albuquerque in July.

Kimball displayed a new line of console pianos, with a total of 11 new console models. Also new are two studio uprights designed for home, rather than institutional use. These studio pianos use the same backs as the institutional line, with Sanderson scaling and Langer actions, but with a more graceful look intended for the home.

Samick is introducing a new Model 150, a 4'11" grand, to replace the 4'7" model. At the NAMM show, Samick displayed a number of new colors & finishes in their grand piano line.

I was interested to find out that, in addition to the Kluge keyboard company, which has become well-known to us in recent years, there is another German maker of high-quality piano keyboards. Theuringen Klaviaturen makes keyboards for many fine German pianos, including Bluethner, Bechstein, August Foerster, and Wilhelm Steinberg. They also produce vertical piano keyboards and "tropicalized" grand piano keyboards for Steinway's Hamburg factory.



Renner's jumbo grand action model

Renner was at the show with an impressive array of tools and supplies for the quality-conscious technician. They also had a jumbo-scale grand action model, for use in teaching classes, with a touchweight of several pounds!

Dampp-Chaser is introducing a new system called the Backside Vertical 11-Part System, BSV11PS. Designed to fit player pianos and Steinway upright pianos that need to be humidity-controlled from the back of the piano, the system consists of four dehumidifiers, two humidifiers, two low-water lights, filler tubes, and a cover. Dampp-Chaser said initial test results of the system have been excellent. The new system will fit in vertical pianos that the 5-part Vertical System would not fit.

■■■

My general impression of the Chinese-built pianos is that their quality has improved somewhat over the initial examples we saw just a few years ago. However, they still have a long way to go before they can be classed with the better pianos and called worthy of a long-term investment. In most cases, these pianos are being promoted as "entry-level" or "starter" instruments. The question in my mind is whether one of these pianos would last long enough and retain enough resale value even to qualify as a wise decision for a first-time buyer. Only time will answer that question, but we have all seen the development of some Japanese and Korean pianos into serviceable medium-to-high-quality instruments after, in many cases, shaky beginnings. Let's hope that the Chinese piano makers will follow the same course. Most of the "Soviet" pianos seem to have even farther to go.

And what can we make of the recent interest in quiet keyboards on real pianos? One might be tempted to ask why people would want to spend all that money on getting a good-sounding piano, only to turn off the acoustic sound and listen to digital samples through a headset. I guess the real point here is that many people do seem to have good reasons, and these pianos are selling well. There is a market for them, and who are we to question the reasons? Many of these hybrid instruments represent the best of both the acoustic and the electronic worlds, and what's wrong with that?

Photos by Steve Brady

Yet Another Temperament Sequence

By Daniel Levitan, RPT
Contributing Editor

Last month marked the end of my series of articles about inharmonicity and its effects on the beat rates of temperament intervals. This month I'm returning to these pages on a slightly different basis, as Steve Brady, the *Journal's* new editor, has asked me to take on the contributing editorship in tuning for the next year.

Now why does the Journal *need a contributing editor for tuning in the first place?* Hasn't everything that can be said about tuning already been said over and over again in these pages? Isn't good tuning mainly a matter of setting solid unisons? And anyway, won't we satisfy our clients more, not by fussing to produce a marginally better tuning which they probably won't even appreciate, but by paying more attention to evening out the voicing, touching up the regulation, chasing down squeaks and buzzes, or doing any one of the hundreds of things that make a piano more musically satisfying?

Well, yes, when we service a piano, we're there to maintain, not to mention improve, its overall level of musicality, and so we are all constantly involved with the complex issues of tone and touch as well as with tuning. Still, tuning is a big part of what makes a piano sound as it should, and most of us in this business spend an awful lot of time turning tuning pins. And yes, good unisons are our bottom line; which is all the more reason for us to learn as much as possible, not only about how to set a solid unison, but also about all the aspects of the tuner's art. The greater our knowledge of tuning, the more quickly and accurately we can do the preliminary steps, allowing us more time for setting those unisons.

But those of us who love tuning don't need any excuses to write or to read about tuning; for us, it is simply endlessly fascinating. For others of us, tuning is a necessary evil to be finished as quickly as possible. I hope in these articles to communicate something of what it is about tuning that interests and excites those of us who love it, and who don't feel that the last word has yet been written, or will ever be written, on the subject.

One aspect of tuning that is the subject of much current debate, among pianists as well as technicians, involves the relative merits of aural and electronic tuning. My feeling is that the product, the tuning, is what counts, not the method by which it was produced. I do hope that we can all agree that the widespread availability of sophisticated tuning devices has had a tremendous impact, for the better in my opinion, on the art of aural tuning. In particular, anyone seriously interested in understanding tuning today has to acknowledge a great debt to the work of Dr. Sanderson in the field of electronic tuning. In return, it's clear that this deeper understanding of the processes involved in aural tuning has led to great improvements in the art of tuning electronically.

Having said that, let me note that, for a variety of reasons, I tune almost exclusively by ear, and so it's inevitable that my greater experience as an aural tuner will affect the kinds of subjects I'll be addressing in this column. Please don't take this to imply a prejudice against the use of electronic tuning devices. Many tuners whose aural tuning I know to be of the highest quality use them routinely, integrated, for the most part, with their aural technique. I should also note that, though I don't use it for tuning per se, I frequently haul around my trusty Sight-O-Tuner, which I've found to be an invaluable tool for research and exploration. I will be glad if, in the coming year, I can help in any way to help bridge what I see as an artificial gap between aural and electronic tuning.

Another topic which seems to be on many tuner's minds these days is inharmonicity.

It seems to me that our understanding of inharmonicity and its effect on tuning is still in its infancy. Perhaps over the course of the coming year we can all work to try to advance that understanding a bit. Your letters on that, or any other subject, are more than welcome — they are encouraged.

Now for this month's subject. Very few who have served as contributing editor in these pages have managed to resist the temptation to, at some point or other, trot out their favorite temperament sequence. I certainly don't intend to vary from that tradition. In fact, I intend to get it over with right away. So, without further ado . . . .

My Favorite Temperament Sequence

I like this sequence for several reasons. For one, its perfect symmetry appeals to my sense of esthetics. For another, I'm fond of homemade tools, like most technicians, and so I'm partial to it just because I made it up myself. Finally, I've found that this sequence accommodates better than most the inharmonicity of a particular piano, as well as to various artistic distortions of the temperament. On a nice big grand, just about any old sequence will do, and on these pianos you can sometimes just dive in and tune intervals in an almost random order and still come out on the money. The smaller the piano, though, the more I find myself relying on this

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sequence.

A disclaimer: I don't pretend that if you follow this sequence exactly, you will inevitably arrive at a satisfactory temperament. In fact, I don't believe that such a sequence exists or is even possible. Aural temperament tuning is no more or less than educated guesswork, and at some point every sequence relies on assumptions about the piano at hand that may or may not be true. The more you know, and the more experience you have, the more quickly and confidently you will be able to arrive, using whatever sequence, at a temperament that meets your standards.

I think of this sequence as having three stages. In the first, the size of the temperament octave is set. In the second, the rates of progression for the temperament intervals are established. And in the last, the remaining notes are filled in and adjustments are made as necessary to the previously tuned notes.

One unique feature of this sequence is that in each stage all notes are tuned in pairs, with the exception of the last note, B3. Both notes of a pair are tuned, checked, and adjusted if necessary before more tuning is done.

An overview of the whole sequence, as set between notes F3 and F4:

Stage 1: Setting the size of the temperament octave: F4 and F3
Stage 2: Establishing the rates of progression
Part 1:
Step 1: Set A#3 and D4
Step 2: Set C4 and G#3
Part 2: Set A3 and C#4
Stage 3: Filling in and adjusting.
Part 1:
Step 1: Set F#3 and D#4
Step 2: Set E4 and G4
Part 2: Set B3

And now, a detailed explanation of each of these steps. To keep things relatively simple I'll assume that our temperament section is entirely on plain wire strings.

Stage 1: Setting the size of the temperament octave. F4 and F3

I like to set the octave first because it's the temperament interval whose exact size concerns me more than any other. Thirds and sixths, as far as I'm concerned, can beat at whatever speed they want, and progress in beat rate speed as quickly or slowly as they feel like, as long as the progression is smooth. Since inharmonicity makes fourths less noisy at the higher levels of coincident partials, I'm willing to live with fourths of just about any size from pure to quite wide, as long as they progress smoothly. Fifths I tend to be a bit more fussy about — inharmonicity makes them sound noisy at the higher levels even when they are not very narrow at the 3:2 level. However, there are times when I find I want a temperament octave on the narrow side, say a 2:1, and then my fifths do come out narrow and a bit noisy. I find that as long as they are consistent, though, and progress smoothly, they usually don't grate on my musical sense enough to make me want a wider octave.

The octave is a different story. The octave is the only interval in the temperament area that is supposed to be pure, and I want as much control as possible over how it sounds. Also, depending on how severe the inharmonicity is, the time of year, the anticipated next service, the musical use of the piano and many other considerations, I may decide to tune within a temperament octave that is anything from a narrow 2:1 to a wide 8:4. So I set the octave first and let the other intervals be determined by that octave size.

I like to set my temperament within the octave F3-F4. I like the consistency of always working in the same octave, no matter what the piano. Much higher than that, and I find the minor thirds and major sixths difficult to hear. Much lower, and I'm always running into bass strings and short, fat highly inharmonic plain wire.

So the first problem is: how to find an F? For those who use an A fork, the standard way to do this is to tune A4 to the fork, tune the octave down to A3, and guess at the beat rate of the major third, F3-A3. Or, in a simpler procedure that results in a slightly sharper temperament, tune A3 directly to the fork and then guess at F3-A3.

For those who use a C fork, one approach might be to tune C5 to the fork, tune the octave down to C4 and guess at the beat rate of the fifth, F3-C4.

In both these cases, the original note tuned to the fork may have to be altered after the temperament has been set. This means that the temperament as a whole will have been set slightly sharp or flat to true A-440. Don't lose any sleep over it.

I like to cut to the chase and tune F4 directly from an F fork. I've found that this results in an A4, depending on inharmonicity and octave size, anywhere from right on to two cents sharp of 440Hz — in other words, half a beat, or A-440.5. This half a cycle in a home situation doesn't bother me. In a recording studio or concert hall, I use an A fork, but these pianos are usually large enough that inharmonicity is not much of a factor, and I can count on my guess at the speed of F3-A3 being pretty close.

The next step is to choose an octave size and tune F3. Many tuners like to tune the temperament octave that splits the difference between 4:2 and 6:3. Whatever your preference, I'd like to suggest that you occasionally tune a temperament within a pure 4:2 or a pure 6:3 octave. Working with these two octave sizes helps clarify the way that the beat rates of the temperament intervals depend on the octave size, and sharpens one's sense of what beat rates to expect for a variety of scales

and octave sizes.

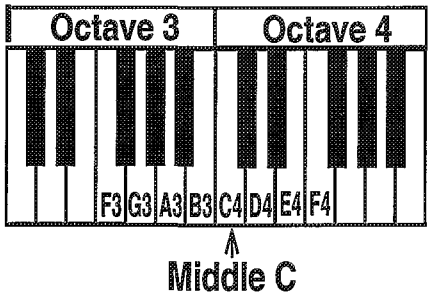
Once you have set the outer notes of the octave, don't change them. They are the two fixed points between which you're going to build your temperament. It does sometimes happen, though, that after you've finished the temperament everything is perfect except all the intervals whose lower note is F3, or whose upper note is F4. In that case, my advice is, don't think twice — change the F3, or F4.

Stage 2: Establishing the rates of progression

In this stage, notes A#3 and D4, C4 and G#3, and A3 and C#4 are tuned as pairs. You can start with any pair you want. If you have a definite idea of how you want the major thirds to progress, start with the pair A3 and C#4. Many tuners like to set these so that the beat rates of the contiguous major thirds — those pairs of major thirds in which the upper note of the lower third is the same as the lower note of the upper third — beat more or less in the ratio of 4:5, as they do in an ideal, non-inharmonic temperament. As I mentioned last month, even a temperament section that has increasingly greater levels of secondary inharmonicity towards its lower end — a temperament section, in other words, whose contiguous major thirds would be expected to beat more in a 2:3 or 3:4 ratio — can be distorted to sound more like theoretical equal temperament if the notes in the middle of the temperament are slightly sharpened, forcing the progression closer to 4:5. Keep in mind, though, that once you have established the progression of the major thirds in your temperament, you have effectively set the rates of progression for all the other intervals as well. Depending on the rate of change in inharmonicity across the temperament, this may or may not result in a temperament whose notes divide the octave into twelve equal steps. It all depends on what you like.

Part 1:

I usually start with the other two pairs of notes, A#3 and D4, and C4 and G#3. I find that starting with these notes gives me more control over the degree of temperament distortion. In tuning the first pair, A#3 and D4, you will be tuning the highest fifth in the temperament, A#3-F4; the lowest fourth, F3-A#3; the highest minor third, D4-F4; and the lowest major sixth, F3-D4. You will also be tuning a major third just above the middle of the temperament, A#3-D4. In tuning the second pair, C4 and G#3, you will be tuning the lowest fifth in the temperament, F3-C4; the highest fourth, C4-F4; the-



lowest minor third, F3-G#3; and the highest major sixth, G#3-F4. You will also be tuning another major third, this one just below the middle of the temperament, G#3-C4.

By setting the beat rates of intervals at the highest and lowest points in the temperament, in other words, you will be establishing the rates of progression for the fourths, fifths, minor thirds and major sixths.

Step 1: Set A#3 and D4

You might start by tuning A#3, which forms a fourth with F3 and a fifth with F4.

There is an interesting relationship among the three intervals, the octave F3-F4, the fourth F3-A#3, and the 3:2 fifth A#3-F4. Consider the standard tests for these intervals: the 4:2 octave test (major third, C#3-F3, and major tenth, C#3-F4); the 4:3 fourth test (major third, C#3-F3, and major sixth, C#3-F4); and the 3:2 fifth test (major sixth, C#3-A#3, and major tenth, C#3-F4). Notice that when the temperament octave is a pure 4:2, it follows from these tests that the 3:2 fifth, A#3-F4, must beat at exactly the same rate as the 4:3 fourth, F3-A#3. If we tune the fourth one beat wide, in other words, then the fifth must of necessity beat that same one beat narrow at the 3:2 level.

If the temperament octave is wider than 4:2, and the octave has positive inharmonicity, as almost all temperament octaves do in smaller pianos, then the 3:2 fifth will always be wider than the fourth. This follows from the same tests, because if the octave is wider than 4:2, then the major tenth, C#3-F4, beats more rapidly than the major third, C#3-F3. When the octave is highly inharmonic — when, for example, a 6:3 octave leaves the major tenth beating quite a bit more rapidly than the major third — it is often the case that the fifth is so much wider than the fourth that, unless we tune the fourth outrageously large, the fifth is forced to be wide of pure.

As a rule of thumb, tune the fourth about one beat wide if you are working with a 4:2 temperament octave. If you are working with a 6:3 octave and the temperament octave has moderate inharmonicity, tune the A#3 as a 3:2 fifth, A#3-F4, making it pure as a good first guess. If you are working with a 6:3 octave and the temperament octave has high inharmonicity, make the 3:2 fifth generously wide. Of course, all these fifths will still be narrow at the 6:4 level. Getting a feel for typical sizes of the fourth and fifths when the octave is both 4:2 and 6:3 will help you eventually make a good guess at the size of these intervals for any size temperament octave, whether it be smaller than 4:2, larger than 6:3, or a size that splits the difference between 4:2 and 6:3.

Next, tune D4, which forms major sixth with F3 and a major third with A#3. (It also forms a minor third with F4, but this interval is too fast, for my ears at least, accurately to hear.) In tuning D4 as a part of these intervals, don't worry about setting correct beat rates. Rather, ask

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yourself what beat rates you can live with. If the temperament section has greatly increasing inharmonicity towards its lower end, and you begin by tuning D4 as a major third with A#3 to beat at nine or 10 beats per seconds, you will likely find that the major sixth F3-D4 seems too slow. You can make the major sixth faster if you like, but since you can't move the F3, you'll have to sharpen the D4. This will make a faster major third A#3-D4. If that major third now seems too fast, you'll have to sharpen A#3, making the fourth F3-A#3 wider and the fifth A#3-F4 narrower. The question is, which of these compromises do you prefer? You're the artist. You decide. All of them can all be made to work in the temperament. Your choice depends on your own musical taste, your experience, and on exactly how wide a fourth must be, or how slow a major sixth must be, or how different a progression of intervals must be from the theoretical rate, before you consider it unacceptable.

Step 2: Set C4 and G#3

Now tune the next pair of notes, C4 and G#3. You might start with C4, which forms a fifth with F3 and a fourth with F4.

Again, there is an interesting relationship among the octave, fifth, and fourth here, which is best understood by considering the temperament when it is set within a pure 6:3 octave. When the octave is a pure 6:3, then the 4:3 fourth, C4-F4, beats at exactly the same rate as the 6:4 fifth, F3-C4. Again, this follows from the standard temperament tests for the 6:3 octave (minor third, F3-G#3, and major sixth, G#3-F4); the 6:4 fifth (minor third, F3-G#3, and major third, G#3-C4); and the 4:3 fourth (major third, G#3-C4, and major sixth, G#3-F4).

If the temperament octave is narrower than 6:3, and, again, if there is positive inharmonicity in the octave, then the 6:4 fifth will always be narrower than the fourth. This follows

Yet Another Temperament Sequence

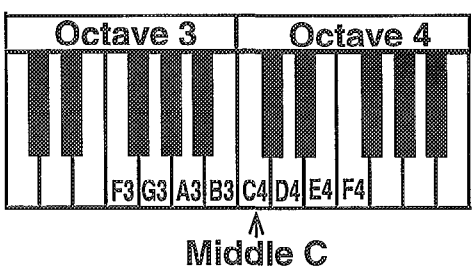
from the same tests, because if the octave is narrow at the 6:3 level, the minor third, F3-G#3, will beat more quickly than the major sixth, G#3-F4.

Interesting as it is, for me, this relationship is not so useful as the earlier one, because I tend to follow the fifths more at the 3:2 level than the 6:4.

I find it most practical to tune the C4 as a 3:2 fifth with F3, keeping in mind the size of the 3:2 fifth, A#3-F4, and the degree to which the secondary inharmonicity of temperament increases towards its lower end. *(See the March 1995 article to find out how to determine this.)* If it does increase, then make a good first guess for the lower fifth by tuning it narrower than the upper one. If the secondary inharmonicity remains more or less constant, then tune both fifths about the same.

You might want to compare the two fourths, F3-A#3 and C4-F4, as well. Don't be too upset to find the upper fourth quite a bit wider than the lower, especially if there is a big increase in secondary inharmonicity towards the lower half of the temperament octave.

Now tune G#3, which forms a major third with C4, a major sixth with F4, and a minor third with F3. Again,



don't look for "correct" beat rates — just the ones you think you can live with. Check how the beat rate for G#3-C4 compares with that of A#3-D4. The typical sticking point for G#3 is when the major third, G#3-C4, seems about right, at eight or nine beats per second, the major sixth, G#3-F4, seems too fast. If you want to slow the sixth, you'll have to retune G#3 a bit sharper, since you can't change F4. This will slow the third G#3-C4, and to regain the speed of that third, you'll have to sharpen C4 as well.

When you do, you may find that the 3:2 fifth F3-C4 is now wider than the 3:2 fifth A#3-F4. Don't be alarmed — this simply means that you have distorted the temperament a tiny bit by sharpening the middle notes of the temperament. (Remember that you sharpened D4 and A#3 in the last step in order to preserve an acceptable beat rate for the major sixth and third.) The choice is yours. My advice is that if you want an equal temperament that really divides the octave into twelve equal steps, pay attention to the progression of the fifths, and don't worry if the lowest major sixth, F3-D4, seems too slow, and the upper major sixth, G#3-F4, seems too fast. If, on the other hand, you want a slightly distorted temperament that sounds more like theoretical equal temperament, let yourself sharpen those middle notes. Of course, you may decide, as in most of the compromise situations we tuners are always running into, to choose a middle course. But it doesn't hurt to experiment with both extremes of distortion, from none to total, to get a feel for what the range of possible beat rates for that temperament.

Step 3: Set A3 and C#4

Now tune the chain of contiguous major thirds, F3-A3, A3-C#4, and C#4-F4. The beat rate of A3-C#4 is easy to get; it should fall between the already tuned adjacent major thirds, G#3-C4 and A#3-D4. The location of this third vis-a-vis the rest of the temperament is

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also easy to determine. Use as your guide the two adjacent fourths G#3-C#4 and A3-D4. Move the major third A3-C#4 up and down within the temperament by tuning the two notes in tandem, retaining its beat rate, until the upper fourth, A3-D4, beats at the same rate or slightly faster than the lower fourth, G#3-C#4.

If you have decided to rely on your 3:2 fifths and are trying for a temperament section that is more or less equal and undistorted, you may, in certain pianos, be uncomfortable at the slowness of the major third F3-A3 that results. After all, if the major sixth F3-D4 seems too slow, as in Step 1, and the fourth A3-D4 is nice and wide, then the major third F3-A3 is necessarily going to seem very slow. Similarly, the major third C#4-F4 may seem unnaturally fast. Again, it's your call. If you don't think you can live with it, change it! Sharpen the middle third, A3-C#4, and compensate the other notes accordingly.

However, as I mentioned earlier, if you have feelings as strong as this about the rate of progression of your thirds, it might make more sense to tune them first; just after you've set the octave, and then tune the other two pairs of notes in this stage of the temperament, A#3 and D4, and G#3 and C4, using the A3 and C#4 as your guides.

Stage 3: Filling in and adjusting

Part 1:

In this part of the sequence, you are not only filling in the notes still to be tuned, you are also getting feedback on the accuracy of your earlier guesses. You may want to do some backtracking and readjusting, depending on how far off the mark you are and how fussy you wish, or can afford to be. A particularly good clue is the progression of 3:2 fifths. Each of the notes in this part of the sequence forms a fifth — as well as a variety of other intervals — with a previously tuned note. As you test the 3:2 fifths, if you find they are running narrow of the two you tuned in the last stage, chances are you set those earlier ones too wide. If you go back and narrow those first two fifths a hair you'll find you're able to widen the rest of the fifths a bit. Conversely, if the other fifths run wide, you could probably improve things by widening the first two.

Step 1: Set F#3 and D#4

Tune F#3 as a major third with A#3, faster than F3-A3 but not faster than G#3-C4. Check the minor third F#3-A3. Check the 3:2 fifth F#3-C#3.

Tune D#4 as a major sixth with F#3 to fit in the progression established by F3-D4 and G#3-F4. Check, if you can, the minor third C4-D#4. Check the fourth A#3-D#4. Check the 3:2 fifth G#3-D#4.

Step 2: Set E4 and G3

Tune E4 as a major third with C4, slower than C#4-F4 but not slower than A#3-D4. Check, if you can, the minor third C#4-E4.

Check the 3:2 fifth A3-E4.

Tune G3 as a major sixth with E4 to fit the progression established by F3-D4, F#3-D#4, and A#3-F4. Check the minor third G3-A#3. Check the fourth G#-C4. Check the 3:2 fifth G3-D4.

Part 2: Set B3

Tune B3 to fit the rest of the temperament. I like to tune it first to balance the two major thirds G3-B3 and B3-D#4, then check the fourths F#3-B3 and B3-E4 and the minor thirds G#3-B3 and B3-D4. In theory, it fits perfectly! In practice . . . .

In practice, yes, you can get a smooth progression of beats in just about any case, but you may have to sweat for it. It's instructive to do this occasionally, when you have the time, because the beat rates that eventually work may surprise you, and they will give you valuable information for the next temperament. Yes, there are more important things in this world than note-perfect temperaments, but gather data when you can. The better your temperament, the quicker you'll get through the octaves, because you'll have fewer conflicts and you'll be able to rely on your progressions of sixths, and tenths, and seventeenths, and twenty-fourths, and twenty-thirds, and whatever else you use, and the more time you'll have for those unisons, and those one or two bright hammers, and that click, and that squeak — not to mention lunch.

We've been working in a temperament section that's all plain wire. All too often, that's not the case. Wound strings in the temperament can be an annoyance, because they slow us down and confuse things. On the other hand, they can be attractive if you have a few extra minutes and like a challenge. Think of them as adding another level of interest to the temperament.

Unfortunately, the variety of scales of smaller pianos sometimes makes each temperament with wound strings seem like a unique case, and it's often hard to apply what you've learned from one piano to another. One thing that's helpful to keep in mind is the rule of thumb that an interval whose lower note is wound and whose upper note is plain tends to have lower secondary inharmonicity than its immediate neighbors that have either both plain strings or both wound strings. Remember that higher secondary inharmonicity tends to narrow an interval. So, if you're trying for as equal a temperament as possible, expect that there will be jumps at the wound/plain breaks; as the intervals descend out of the plain wire, the wide intervals will speed up and the narrow ones will slow down as secondary inharmonicity decreases at that point.

If, on the other hand, you decide you want an even progression of beat rates, expect to have to slightly flatten the notes just above the break to compensate. After that, hang on, try to keep your wits about you . . . and good luck!

More on Pitch Raising . . . .

By Mark Peele, RPT, Tucson

> *"If you were to tune the unisons (as you go), you would cause the bridge to roll and twist much more than if you turn only one pin at a time."* — Paul Monroe, October 1994 *Journal*, page 43.
>
> *". . . many tests and experience of many tuners, both aural and electronic, have established that tuning unisons as you go is superior to tuning center strings only, and then bringing in all the unisons."* — Dr. Al Sanderson, October 1994 *Journal*, page 15.
>
> *Pitch Raising is like a box of chocolates; you never know what you're gonna get.* — F. Gump.

Over the years there have been many *Journal* articles on pitch raising. Methods are offered, along with reasons we must "over-shoot" in order for the pitch to settle at A-440. The October 1994 issue has two such articles, one by Paul Monroe, page 42, and a column by Dr. Al Sanderson, page 14.

After reading each article, two things become apparent. The procedure each man uses is completely opposite from the other. More importantly, each man believes that the other's method is the poorest way to pitch raise. How is it possible that two experts in our field "see" things so differently?

Before continuing, let me say that many of my methods and techniques were learned from George Defebaugh, and for many years I raised pitch using his method. Basically, it's one string per unison passing up and down three times, bass section last. Paul Monroe uses this method. He justifies using this approach because it prevents the bridges from rolling. He offers bridge roll as the *only* thing contributing to "anticipated drop." (Paragraph 5) Also included is a bridge cross section (Fig. 1).

Let's take a journey through a typical piano as it's being pitch-raised. Start at note one. On a medium upright or grand, the first 30 or so bass notes are mounted on a bridge mounted on an apron glued to the soundboard (Fig. 2). The bridge can't roll. In fact, if an aproned bridge rolls in any direction, it is down and *away* from the speaking length. As the pitch is raised, the down bearing pressure increases slightly, and the apron acts as a lever to flex the glue joint backwards at the soundboard. This explains why we so often see cracked soundboards under the apron or directly in front of it.

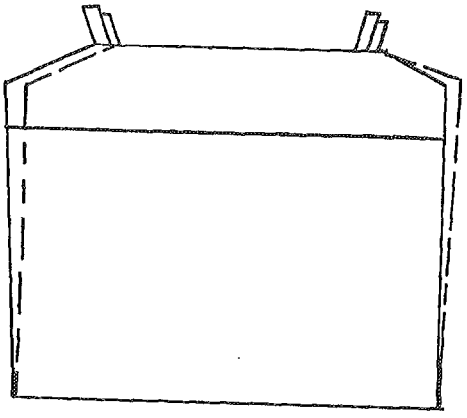


Figure 1

Moving into the tenor, we find another apron. This is very common for eight- to 10 notes. It can't roll. So, let's look at tenor sections without aprons and the midsection.

Viewing the front of an open upright piano, one sees the bridge snaking up and to the right at about a 45 degree angle. The strings span the bridge and stretch up toward the tuning pins at about a 10 degree angle to the right. So, on average, let's say the angle between the bridge and strings is about 35 degrees. Two mid-size grands in my shop measured out at 27 degrees and 32 degrees. It's immediately apparent that Figure One, October 1994, doesn't apply. Vector analysis — Physics 101 — shows the actual pulling force is primarily along the bridge's length (Fig. 3). A cross section of the bridge under the string (Fig. 4) shows a different picture as the actual path of the wire is diagonally across a large portion of the bridge. Moreover, the bridge pins on the speaking length side are always angled so the side-bearing force is exerted directly against any rolling tendency the bridge might have.

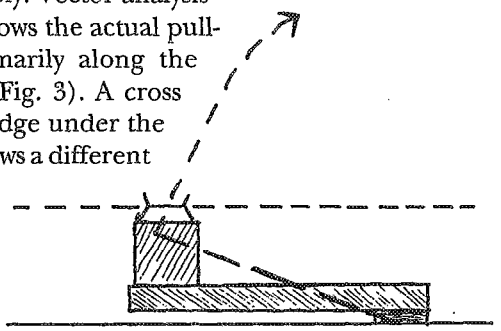


Figure 2

On up into the treble, we finally see the bridge turning toward perpendicular to the strings (Fig. 1). But up here two things happen. First, the soundboard and ribs become extremely stiff, giving the bridge a firm, solid foundation that inhibits rolling. Second, the wire now has gotten so thin it offers little resistance to squirming past the bridge pins.

Well, if bridge roll isn't the primary reason to over-compensate during a pitch raising, what is? Let's see what Dr. Sanderson says. He lists four methods of pitch-raising. If bridge roll is really a factor, Dr. Sanderson's best method (No. 4.: Unisons as you go), would be the most unstable. The bridge would roll the most using this method. Last spring I watched my colleague, Neil Flint, do a "one-to-88" Accu-Tuner pitch-raise. It was the most stable and accurate I'd ever heard.

or DO Bridges Really Roll?

Dr. Sanderson describes a piano as "squishy soft." What better way to cover the myriad of changes occurring during a pitch raise.

Let's try and track down the changes.

The first is the wire itself. When you increase the tension, it stretches, especially newer wire, and as a result, it goes flat. During a pitch raise, all the kinks in the wire — V-bar, hitch pin, etc. — move toward the tuning pins and must straighten. This takes time, especially in the heavy gauges. New bends must form at all those bearing points further dropping the pitch. This supports the "unisons as you go" approach. If they are all cranked up together, they will all drop together.

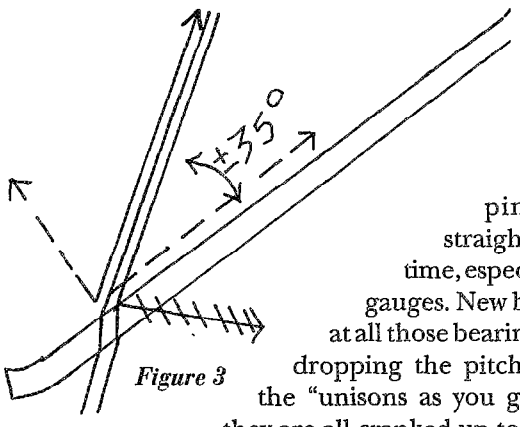


Figure 3

The plate itself has much more flex than one would think; and does "squish down" under the increased tension. Anyone who has ever restrung a piano with "midscale" plate supports under the plate struts (Fig. 5) knows what I mean. These can sit 1/4" or more from each other before the strings are chipped to pitch, but they gradually move together as the plate/back squishes down.

Another factor is the actual deflection of the wire through the bridge pins and under the V-bar. The greater the angle at these points, the more unstable will be the pitch raise and subsequent tuning. A case in point: an Aeolian-made Mason & Hamlin B.B. (1970s). The treble strings angle up about 30 degree at the V-bar, making the piano almost untunable. I have two of these at the college where I work, and I must do about three pitch raises every August before the pianos finally stabilize and decide where they want to be. This pitch raising problem has nothing to do with the bridges.

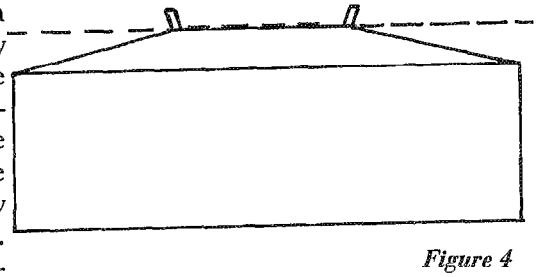


Figure 4

I can't say for sure that rolling bridges do not contribute something to pitch drop, but they certainly aren't the only factor. The bridge-to-soundboard connection is much the same on all pianos — glued and screwed — but I've found quite a variance in how different pianos react to pitch raising. A five-year-old Spinet that had one free tuning four and one-half years ago will need to be pitch raised more than an 80-year-old upright, even though both are 50 cents flat.

Field experience and knowing all the factors contributing to "anticipated drop" will make us more efficient at pitch raising.

I've always used the 33 percent sharp rule, but adjust this more or less according to various factors.

The factors include:

1. *The age of the wire, especially wire five years old or younger that has not had about 10 tunings. Increase pitch raise.*

2. *Small pianos want a little more. This may be because they are generally made cheaper and have less structural integrity. Off-brands follow the same reasoning.*

3. *Number of plate struts. Bass sections always have two, but the tenor/treble may have two, three or four. The more the better for stability.*

4. *Size and construction of back supports. Wood? Metal? Refer to 2.*

5. *Wire deflection at bridge pins and V-bar. Greater angles increase static friction. This is where bridge roll may apply.*

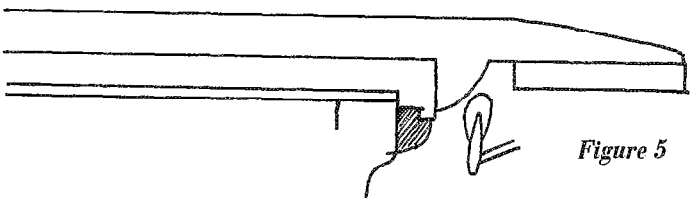


Figure 5

All I can say about my own pitch raising approach is that it works for me. I use a combination of machine and aural methods. After strip muting the middle section, I use a Sight-O-Tuner to set the temperament — plus 33 percent in the lowest plain wire. This wire is the slowest to react, so I tune it first. It takes about five minutes to do the entire midsection — unisons one string at a time. I give up a little on accuracy, but pick up a lot on speed. Proceeding to the treble above the break, I tune "unisons as I go," stretching according to the machine. The smaller wire reacts more quickly. I taper off the stretch at the top. I do the bass last — unisons as I go. Pull the octaves past pure by ear. Ear tuners should do the bass last. The approximately 45 bass strings are supported by two plate struts, whereas the approximately 180 treble strings are usually supported by only three struts — grands can have four or five. The Accu-Tuner program has a built-in compensation for this that allows pitch-raising from note one.

In the final analysis, pitch raising is a guessing game, and I believe the Accu-Tuner eliminates a lot of the guesswork. Then again, the Accu-Tuner doesn't "know" the age of the wire or the design of the plate. So we need to use all the tools available to us: our eyes, our ears and the machines. It's tricky, but anyone can become accurate at pitch-raising with a little patience and a lot of experience.

The Tuner

By Paul Monroe, RPT

This article is directed toward the beginning tuner and for the RPT to review. The subject of this article is about tuning stability and some of the items other than hammer technique that contribute to instability.

First of all, if you have read previous articles of The Tuner, you have read that a piano will not stay in tune when any of the plate screws are not tight. Be sure to check all plate screws prior to setting up for tuning.

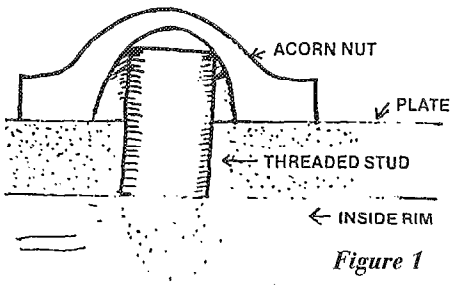


Figure 1

Most plate screws on vertical pianos are readily accessible on the top of the plate. Use the screwdriver bit especially adapted for use with your tuning lever. For those screws on the bottom of the plate that prevent use of the tuning lever, use a crescent wrench, vise grips or closed-end wrench in place of the lever. The only exception may be player pianos where the bottom plate screws are not accessible without removing some of the player mechanism.

On grands you will note that some plate screws are slotted and some have hex head screws. Others have acorn nuts. For the latter of these three, be aware that if the threaded stud that projects through the plate into the nut is snug in the inside portion of the acorn nut, you cannot tighten anymore without stripping the threads. (See Figure 1)

The hex head bolts or screws vary in size and I suggest you carry a few sockets and a ratchet wrench with an extension to tighten these screws. You will find that some grands will have two different size hex-head screws.

To help you keep your sockets contained in one convenient place use a bolt with a washer under the head, place the sockets over the bolt and secure the other end with a washer and nut.

There are a few grands that have the end plate screws next to the spreader bar located under the music desk slides. Remove the desk slides to get to the screws. Your socket or screw driver blade will not do the job until you remove the slides.

Occasionally on grands the lid is in the way when you try to tighten the plate screws near the bass strings. In these instances replace your tuning lever with a crescent or the same tool you used to tighten the bottom screws on the vertical plate.

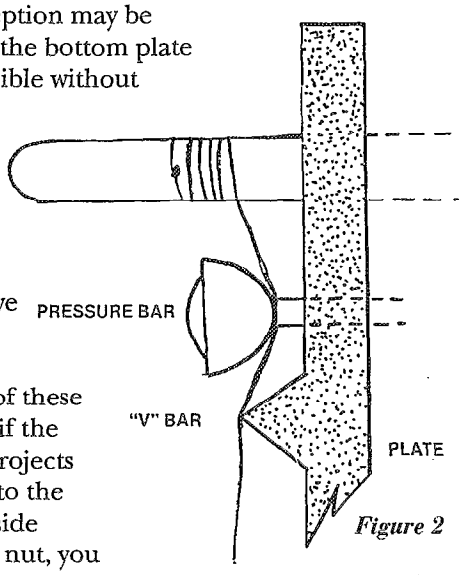


Figure 2

Should you find a plate screw that will not tighten, remove it and repair the hole. For the beginner, I suggest you use an ice cream stick, split down the middle and cut to the same length as the threads on the plate screw. Drop the small tapered end into the hole and push it to the bottom of the hole. ***DO NOT*** remove more than one plate screw at a time.

Loose pressure-bar screws will contribute to instability. Be cautious, however, if you find a loose pressure-bar screw. The angle of the wire passing from the pressure bar over the V-bar is critical and pre-determined in the piano design and should not be changed, at least not by an apprentice or beginner. Excessive angle increases tuning difficulty. (See Figure 2) If you find a screw that won't tighten, use the same repair procedure as noted above for plate screws.

Twist in a tuning pin will cause instability. How do you twist a tuning pin? Simply by rotating the tuning pin with your tuning lever. The top of the pin turns and the body of the pin in the pin block holds firm. Due to the good memory in the material of the pin, it will always return to its original position. To preclude leaving a tuning pin with a twist, develop a hammer technique that will tell you if the pin is turned or twisted. Also, develop a technique to remove the twist. A good beginning to develop this technique is to have good sensitivity in your finger tips on the tuning lever. You can eventually develop a sensitivity to know exactly how much twist you have put in to the pin and exactly how much compensation is needed to remove it.

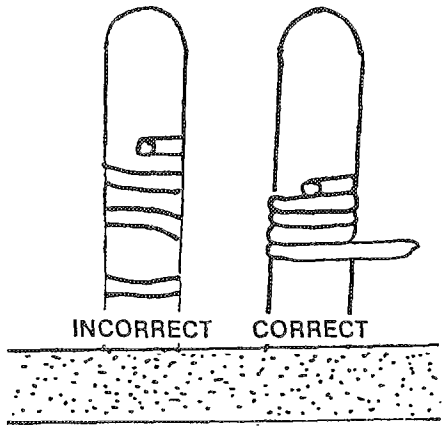


Figure 3

Tuning pin coils if not properly set will cause tuning instability. The coils must be tight against each other, not just because it looks good, but because they need to be tight against each other to hold. (See Figure 3)

If you find the coils are not tight, place a coil tightener under the coil. Loosen the tension on the string, usually about a quarter will do, pull up on the coil tightener, hold it and tighten the tension on the string. Next, use a tool that will not mark the

The Tuner

coil and tamp down the coil to make it tight. This last step is as important as the first.

Tuning pins not set properly can cause tuning instability. What is a becket? Refer to the illustrated book "Piano Parts and Their Functions" compiled by Merle Mason, page 68. It reads as follows: "Becket: A short, bent-over wire in the tuning pin coil of a piano string, designed to reach through the hole in the tuning pin and to serve as an anchor for the coil and that end of the string." (See Figure 4)

The becket must be tight in the becket hole as you see in the illustration. The portion of the wire that comes out of the hole and proceeds around the pin must be tight against the wall of the pin. To make it tight use coil tightener. Tighten the becket when the string is up to pitch and notice the drop in pitch after you have tightened it snugly around the wall of the tuning pin.

Tuning pin bushings. As you know, there are pianos manufactured with and without tuning pin bushings. If you break one during replacement of a tuning pin, remove the broken bushing, clean the tuning pin hole and replace it with a new one of the same size. Check your catalogs for the sizes available. Place the new bushing in the hole and gently tap in with a ball pin hammer. Make sure it goes in straight and even. If the piano was designed to use tuning pin bushings, then it is necessary to have them all in place in order to have a stable tuning.

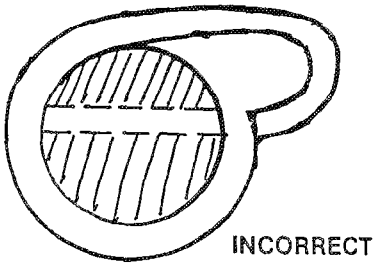
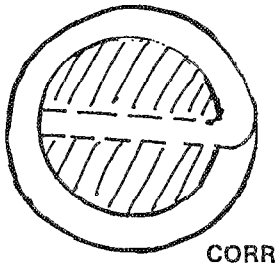


Figure 4



Bent tuning pins. The experienced tuner knows this creates all kinds of problems and instability. When I see beginning tuners pull or push a tuning lever from or toward the soundboard, I wonder if they really know what they are doing, not only to the tuning pin hole but the tuning pin as well. The word for the beginner is, turn the tuning pin so the movement is around the center axis of the pin. This will help you prevent bending the pins.

The term "bending the pin" means something entirely different to the experienced tuner. To him, it means placing a little tension on the pin either in an upward direction or downward direction on a vertical piano. My word of caution to the beginner at this point is to say that until you have developed a technique to turn the pin on its axis, you will not have sufficient experience to "bend" the pin the same as the experienced tuner.

The hitch pin. When you have replaced a string, be it plain wire or a wound string, you should have a procedure that covers all the necessary technical work. Include the tuning pin discussed above, spacing, setting the wire firmly on top of the bridge, and setting the string firmly around the hitch pin. (See Figure 5) Use a wood dowel, a hammershank or a piece of soft brass. Place it on the string around the hitch pin and tap with a small ball peen hammer. If the string or loop, in the case of wound strings or individually tied strings, is not firmly fixed into place your tuning will be unstable.

Another factor that can contribute to tuning instability is the height of the tuning pin. This can occur when you or another technician replaced a string and didn't drive in the tuning pin to match the original height established at the factory. If the tuning pin is too high, the bottom of the coil will separate. This condition does not provide the proper angle from the tuning pin to the next contact point such as the pressure bar.

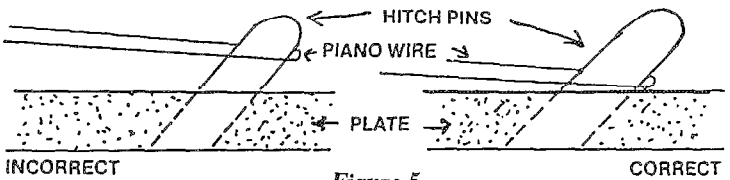


Figure 5

There are many other factors that contribute to an unstable tuning for the beginner such as a rolling bridge, excessive cant in the bridge, grooves in the capo bar or v-bar, worn agraffes poor pinblock, cracked soundboard that is separating from the ribs, and the list goes on and on. We will continue to learn more and more as we continue in our profession and that leads to the following:

The information you have just been reading was obtained by attending chapter meetings, local seminars, and state and annual conventions. This isn't merely a relay of information. It is information learned, tried and proven. Your most valuable asset as a member of the Piano Technicians Guild is the free flow and exchange of information that will allow you to improve and become good in your profession. Don't let the opportunities pass you by. Only you can be the loser. ***PARTICIPATE.*** Sharing is one of the greatest gifts. It also is one of the best means to be happy in what you do. Happy Tuning.

TECHNO*stuff*

Richard Anderson, RPT • Chicago Chapter

Belligerent Buzzing Bass String Blues

Discovering a buzzing bass string has got to rank right up there with having a string break on my list of things I hate during tuning. You can't just ignore it and hope they don't play down there very much. And it's not fun climbing into the piano to twist the string when there's a significant chance that the string will break when you start monkeying with it, or that twisting won't work. It's even less fun trying to explain to the customer why it takes so much money, so much time, and so many trips to order, replace, and stabilize just one string.

When you consider that a bass string is just one piece of wire wrapped around another, and the whole thing has to vibrate relatively fast under quite a lot of tension, it's surprising they work so well much of the time. Bass strings have to be one of the most under-appreciated piano parts.

Making a bass string is an art in itself. The winding has to be wrapped at just the right feed rate, angle, and tension to work. In my shop I run across a buzzer about once every 10 new sets (about 500 strings). That's pretty good spinning, folks.

Why do bass strings buzz? Mostly because the winding is loose (usually at the ends) and vibrating against the core. If you can tighten the end of the winding, you'll get rid of the buzz.

Here's a procedure that works well for me: Twist, Crimp, and Tamp.

Twist

Reduce tension on the string by 1/2 to 3/4 of a turn of the tuning pin. Pressing on the string as you release the tension, or otherwise aiding the unwrapping the coil off the pin, will help avoid breaking the core wire. You need to reduce the tension just enough to be able to slip the string off the bridge and hitch pins. Don't take so much tension off that the string won't stay on the hitch pin after you twist it.

Lift the loop off the hitchpin and twist the loop end one or two turns in the direction of the winding, and return the string to the hitchpin and bridge pins. Think of the end of the winding as a finger pointing in the proper direction for twisting. I find that a small vise grip is just the tool for the job. Clamp it on the loop body before you slip the loop off the hitchpin. It makes a great handle for twisting and slipping the loop back on the pin.

If you find a string that was twisted the wrong way on installation, make sure you twist a couple turns past "neutral" in the right direction.

Crimp

After twisting, but before re-tensioning, crimp each end of the winding to the swedging (that flat spot on the core wire under the end of the winding). I use miniature pliers, and try to twist and crimp at the same time. Sometimes the end of the winding ends up on the underside of the string, just do the best you can.

Tamp

Grip the core wire loosely with your pliers right next to the end of the windings and tap the pliers with something into each end of the windings as if you're trying to reduce the length of the winding. The idea is to snug up the ends of the winding on the core wire.

Now retention, tidy up the coil, and retune. This procedure works about 90% of the time for me. If it fails, try repeating the procedure in reverse (tamp, crimp, and twist) which seems more logical anyway.

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Transplanting A Tuner

The Tuner's Life

By Audrey Karabinus, RPT, Seattle

Three years ago I undertook what has been the greatest adventure of my life: moving to Seattle from Chicago. My business had flowered and branched in Chicago for 10 years. How would I recreate a family of clients after relocation? This type of move presents questions that radiate as roots do and that may also have dirt attached. As with any other major change in life, there is no road map. Research can turn up some information but cannot reassure us regarding the unknowable and unpredictable. This article will describe and summarize what I learned about closing a business and starting up business in a new place.

[Editor's note: This is the first article in what I hope will be a regular feature in the Journal. *Instead of having a regular author, articles appearing in "The Tuner's Life" will be selected from contributions including case studies and other human-interest subjects which might help us better understand ourselves and our "tuner's lives."]*

The Decision

I was fortunate from the outset in that I was clear about two things: First, I wanted to be in Seattle. This is different from wanting to be away from a place, although I cannot expound on the beauties of Chicago, and second, I wanted to make a living in much the same way I already did, as an in-home tuner, regulator, and improver of pianos, with only the usual visions of increasing the proportion of satisfying instruments in my file. Once I knew my own mind on the matter, circumstances presented opportunities and obstacles, but not impossibilities.

Research became a key word. For many, researching and deciding may be interlocked. If the information coming in indicates that higher priorities would be dashed to smithereens, plans could be changed. If research had told me I could not remain solvent, I would have faced a choice between doing what I wanted and remaining solvent. But it looked to me as if I could keep my head above water. I cannot speak to those of you with dependents. However, when family is involved you have additional input and criteria for the decision, additional commitments and possibly the additional support of a partner's income and connections to others.

The Research

My research supported planning. I had started visiting Seattle years ago to visit family. I had posed as a piano owner and called technicians from the yellow pages to scope out regional differences in pricing. (Don't tell them, I don't think they noticed.) I had been on the local chapter's newsletter mailing list for years. I had been networking with technicians from the area at annual conventions for a couple of years. I had thought about other aspects of my life and looked at what the region had to offer in those ways. I had talked to people who had moved from Seattle to Chicago and from Chicago to Seattle to gather their experiences and observations.

> ***"At the two and one-half year mark, the possibilities I had envisioned three years before had begun to take shape, the shape of life to come!"***

The specific considerations of cost and income production were vital to sketching economic "dry run" scenarios for a working budget. This included the costs of moving stuff, the anticipated gap in income, a period of reduced income, start-up costs, the predicted rate of finding work, and income from the sale of the old business.

I held down my moving costs by shipping things ahead to a willing receiver who stored my amazing quantities of vastly valueless goods in a garage. I did not have any substantial furniture, even a piano of my own, to ship. I disassembled my workbench and a few shelves, and packed those into the hatchback I eventually drove to Seattle. UPS had the best shipping rates, hands down. I had also chosen them for their package tracking capabilities. Ironically, when they reported one of my boxes was damaged and were awaiting my instructions, I called a couple of central stations to track it down, and they could not locate it. Tracking down the box, I inadvertently discovered an obscure rule that I'm sure no ordinary delivery person even knows: shipping household goods is not allowed. So if the box had been missing, a claim from me would never have held up because I broke their rule. Fortunately, they had unwittingly delivered the damaged box to its happy storage garage.

Other things to take into consideration were the mega differences in local taxes and licensing requirements, various insurance rates, distances and traffic expected between jobs, and the absence of toll roads but the cost of ferry rides.

Selling the Business

How much was the old business worth? Would I sell it whole or parcel it? If I advertised it for sale, would I lose clients in advance who were anticipating my departure? What if I changed my mind before I actually moved? What would be the point, in time, of no return? Through talking with some colleagues I learned that one way to value a file is by one-half of a year's income. More exact, I thought, given the constantly changing nature of many clients' commitment to their pianos, was to value each client at one-half the value of one tuning. Some clients are clearly much more active and create more referrals than others. However, this may aver-

The Tuner's Life

Transplanting A Tuner

age out. The reminder procedure on my file was up to date and relied on phoning people to check in and nudge them toward a tuning. This indicated a group less disciplined and less valuable than those who perpetually call in before the technician has caught up.

My file was a highly personalized collection of very interesting people who were geographically, sociologically and psychologically diverse. I wanted my clients and my buyers to be happy together, but I could not find the perfect match. Those I favored as buyers already had some work established and were looking for specific types of additions to their files. So I decided to parcel my file tailored to the needs and locales of my buyers. Different terms were developed in each case regarding price and whether or not the sale would be contingent on the client "rolling over."

I notified the clients about a month before the sale date, enclosing a good-bye and thank-you letter along with a letter of introduction for the technician I was referring them to. I arranged for introductory meetings with institutional clients to assure continuity of care and ease any concerns raised by my employers and the buyers. The sale date was also the date I stopped working the file, so there was no crossover of jurisdiction. The contracts included agreements to not compete within a given radius and number of years, and provided for interest set aside in the cases of contingent and installment payments. I filed tax form 8594 (Asset Acquisition Statement) and requested that each buyer do the same. I reported installment sale income on 6252, and still do, and down payments and completed sale income on 4797 (Sales of Business Property) and then schedule D. Since I had no "basis" in the file, it was all taxable income. For the buyers, the expense became part of the basis of their client file. Only the interest allotted from payments to me was deductible on the purchasers' schedule Cs. That interest was taxable income for me, on schedule B. Tax fanatics, you may rest now. I filed 16 pages of federal tax forms that year, and state forms in both states! It was the apex of my accounting avocation!

On The Move

On the highway I had all loose ends tied up behind me: no phone, no address, nobody needing anything from me, no appointments, no connections, and no regrets. I drove toward the great unknown of the future enjoying the mountains and wildlife. That was a wonderful and unique 10 days! I traveled alone. I kept a calling card account for the nightly check-ins with friends who were instructed to call the police if they didn't hear from me on certain days!

A New Start

The computer came out of the box first. I located my tools long before I found my socks. I had catalogued my 30 boxes of tools and supplies quite thoroughly. I had carried the master catalogue in my wallet across country, and mailed a copy ahead to meet me in Seattle just in case! The box containing the item I needed was rarely on top.

> ***"Research became a key word. For many, researching and deciding may be interlocked."***

For the first five months, I was grateful to be moved and happy for anything that looked or smelled like work. I was not expecting anything, and I was afloat. I was not paying rent for two months while friends housed me, nor did I cover certain overhead benefits for myself that I looked to add back later.

The climate difference had subtle but undeniable impact on the nature of piano service needs in the new area. I had thrown out my umbrella-damper guide rail easer as useless in Chicago; I bought one in Seattle. I do more regulating, voicing, lubricating and repinning, instead of pitch-raising and patching up brittle parts. I rarely refer a piano out for rebuilding, whereas I used to lecture at least once a week about loose tuning pins and the Midwestern heating seasons. I made other adjustments to accommodate the addition of dealer preps to my business. I updated some tools and bought supplies I had put off getting before shipping things west.

After exhilaration and expansion came a period of about 15 months of burn out. When I think of all the things I did anticipate and plan for, I realize this was the one "X" factor I could not have foreseen, and it was the toughest one to work with. At this stage of start-up, more than 50 percent of my work was subcontracting to dealers. The dynamics and economics were frustrating. Everything took extra energy. Clients didn't know me, and I did not know their pianos. I had great response from advertising, but I still had to pay for it. Every piano needed an extra something-or-other, because it was new, or new a year ago and not tuned for as long, or because it had been neglected and busier technicians had passed the work on.

I was short on money all the time. My sold business was not generating quite as much in contingency turn-over sales as I had hoped. I understand from others that this is quite common. During this period the contentedness with the early sacrifices waned, and I longed for my previous lifestyle. Even though I was drained, when new clients asked me, "How do you like it here?" I could honestly say, "I'm glad I moved." It was not *that* long ago that I was starting up for the first time, when my skills were green and, well, we won't go into that. Experience works for you. Also, watching business ebb and flow over the years helped me not worry over the lulls as much.

After about two years, a period of re-expanding began. I was fortunate to have my rest and recuperation interrupted by changes: a new relationship, a modern computer, and a move to a new — old — house where shop space will be ample. Tiredness took on a different tone. Finances began to stabilize as I went to work for myself more and more often. I was able to start guiding and selecting my work. At the two and one-half year mark, the possibilities I had envisioned three years before had begun to take shape, the shape of life to come!

Changing Environment: What Do We Do About It?

Part II

By Beverly Kim, RPT
Marketing Committee

Last month, I began a series with a basic overview of the increasing diversity in our lives. Diversity includes all of us; it is not something that is defined by race or gender. It extends to age, personal or business background, education, role and personality. It includes lifestyle, sexual orientation, geographic origin, even seniority. A commitment to value our diverse population is a commitment to value everyone. I would like to continue recognizing the importance of the diversity in our complex society and its effects on our business practices.

Trends In Transition

During the past year, we've had some sobering presentations at business round tables and at the PTG Business Craft Seminars. We've heard statistics about the downturn in new piano sales, the decrease in the number of students taking music lessons, the transition to electronic keyboards, etc., etc. These conditions may have resulted from some larger societal shifts.

For example, look at the change in the work force. According to Workforce 2000, 60 percent of all women are working outside the home. This means there are not as many women at home during the day. Employees are transferred, laid-off or terminated at alarming levels, resulting in the average length in a single home being seven years. Add to this the military base closures and it's not hard to understand the interest in more mobile, lighter weight electronic keyboards.

The last census indicated that we can expect the largest increases in the Asian and Hispanic populations, i.e., the fastest growing parts of our communities may have different resources, values and familiarity with piano playing. The National Piano Foundation reported that 51 percent of Americans had pianos in their homes when they were growing up. Only 20 percent own pianos now.

Although we have more two income households, our patterns of spending and saving have changed dramatically. The time available for music lessons and practice may be dictated by carpool schedules; the money used for instrument rental might be diverted to computer games; the emphasis on a liberal arts/cultural appreciation may be directed toward fields with greater or more secure financial rewards.

The realities of the 1990's include a global market, with more products and competition. We have experienced the creation of the communications universe and information highway, digital and electronic keyboards that don't need tuning, fewer people at home during the work week, more non-English speaking neighbors and clients. These changes in our environment occurred without our input, without our permission or approval, yet we must adapt . . . It's unlikely anyone could still ask, "So what?"

The End Of Assimilation

Perhaps a more relevant question to ask is, "Why can't I keep doing things the same way?" It would be nice if we could wait for all of these changes to just mold themselves around the existing status quo rather than forcing us to do the changing. In the past, the assimilation model was so acceptable that many people took it for granted. Assimilation ensured unity and common purpose; without it there would be chaos. However, the melting pot metaphor just doesn't work for three reasons. You can melt together people of European background, but the same can't be done with people of other racial groups. Their differences don't melt so easily. Second, most people are no longer willing to be melted down. And third, the increase in our diverse groups requires an increase in our tolerance for individuality. So we are faced with a client pool of

Boomers, X-ers, and The PTG

We've all heard of baby boomers and Generation X-ers, but few of us have taken the time to consider what those terms really mean in terms of sheer numbers of people and the economic impact on our own lives.

Of the 258 million people in the United States, almost 15 percent are under the age of 10. Slightly fewer are ages 10 to 19. More than 23 percent are 20 to 34, almost 26 percent are 35 to 54, and more than 20 percent are 55 and over. The age groups changing most rapidly are those 35 to 54 and the under-10 categories. We're now in the midst of a "baby boomlet." Birth rates rose steadily from 1984 through 1990 and have remained at a higher level since then.

These trends are reflected in musical tastes. Of the dollar value of expen-

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unassimilated diversity.

We might recall the days of the brass rails and double flanges. Those designs served a purpose during their time, but newer more adaptable designs and materials have taken their place. The term "obsolete" is floating about my head. I'd rather that the term be associated with piano parts rather than piano technicians.

Another way to look at our situation is to think in terms of a symphony instead of a melting pot. The complete, full sound of the symphony is achieved only when each section retains its own character, rather than melting together into noise or sound. Instead of having everybody "moosh" into one big stew, each instrument and section must retain its own characteristics, tone, timbre and musical range. This produces the rich complexities that pleases our ears.

Overcoming Resistance To Change

By now, I hope I've presented enough reasons to cause some reflection of our own communities and perhaps, even our own expectations, attitudes and assumptions about running a successful piano service business. Even with pages and pages of facts, it's difficult to make any changes in our practices or behaviors unless we identify some compelling reasons to do so.

■ ***Insufficient motivation.*** Beyond the usual arguments for the legal, moral or social reasons, let's think about what it takes to manage a good business in our changing environments. How else do we reach/market ourselves to new groups? What changes must be made to increase our appeal to a broader population? What need can I fill? And so on.

■ ***Loyalty to assimilation.*** We all need to do some adapting, yet we want to keep our own integrity and individuality. That balance, and the respect of others who are struggling to find their own niche in society will help us manage our changing business practices.

■ ***Narrow definition of diversity.*** As I stated in the beginning of this article, diversity includes everybody. It's not us/them, but "we."

■ ***The "isms."*** Racism, sexism, and other "isms" still plague us and we must acknowledge our own biases before we will change them.

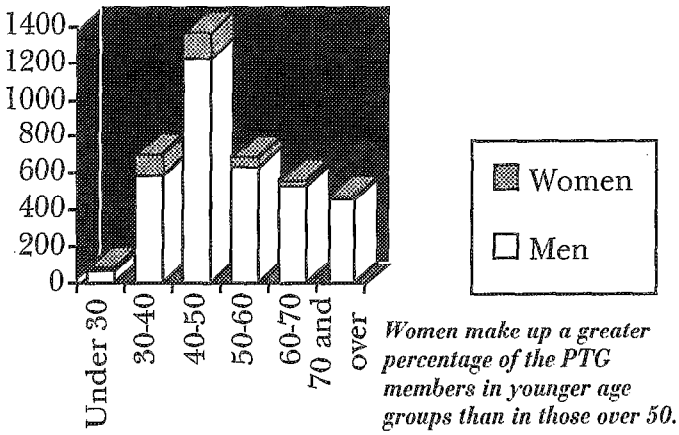
■ ***Desire to avoid risk.*** It's when we extend our boundaries and limits that we develop new skills and step up to new levels of success.

■ ***Lack of a strategic perspective.*** Having an idea of the kind of business we want to have and knowing where we are going are essential to a productive and profitable business.

Finding a way to be an effective piano technician is our next step. In the next two months, we will discuss the importance of the business plan and customer service.

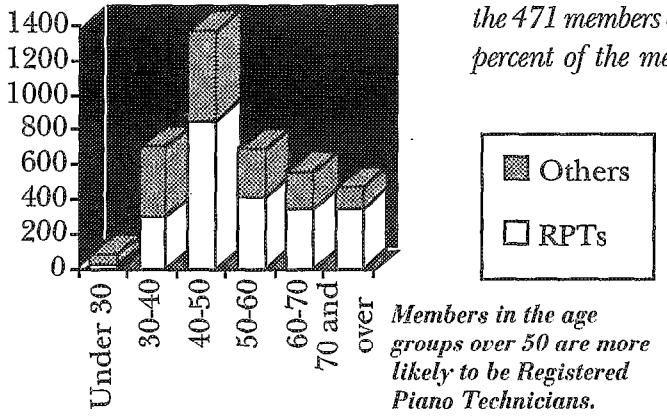
The Face of PTG Is Changing

Who are we? If you were to draw a picture of the typical PTG member, it would be of a male Registered Piano Technician, undoubtedly of European ancestry. He might live in California — 13 percent of PTG members do — he has probably completed college, and his home-service piano business probably grosses between $30,000 and $50,000 per year. He's over 45 years of age, has been a PTG member for more than 10 years, and has probably attended at least one convention during that time.



Women make up a greater percentage of the PTG members in younger age groups than in those over 50.

A scan through PTG's membership directory produces many names that do not fit the profile. And the makeup of our organization can be expected to change in the future — just as our society is changing. For instance, although women make up nine percent of PTG's total membership, 14 percent of the 782 members under the age of 40 are women. Among the 471 members over the age of 70 — 12 percent of the membership — less than two percent are women.



Members in the age groups over 50 are more likely to be Registered Piano Technicians.

If we think in terms of averages and statistical probabilities, we miss a great deal. Obviously there will be significant dif-

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Marketing Ourselves

Boomers,

Cont. From Pg. 42

ditures on compact disks, tapes and records, the "rock" category has steadily declined since the 80s, while "urban contemporary", "country", and even "classical" have increased.

At the same time, 1988 to 1993, the number of public school music teachers has declined from 1 to 522 students to 1 to 467 students. The percentage of personal consumption spent on video games and related products has increased from .07 percent to .1 percent, and home computer sales have increased from 4.5 million units per year to 7.8 million. During that same period, sales of new pianos decreased from 141,697 in 1988 to 99,721 in 1993.

According to a Gallup Poll survey commissioned by the National Association of Music Merchants, the number of households in which at least one member plays a musical instrument declined from 51 percent in 1978 to 45 percent in 1994. Pianos and guitars are the most popular instruments played, but even here, they appeal to different audiences. Males are more likely to play the guitar and drums, while females tend to prefer the piano, organ or flute. While the piano appeals to all ages, guitar players tend to be between the ages of 18 and 49. Organ players are more likely to be over the age of 50.

Changing,

Cont. From 43

ferences in attitudes and experiences between the 12 percent of the membership who are over 70 and the almost 20 percent who are under 40. And yet, both groups have much to contribute to the mix. When we say that the average age of PTG members is over 45, and we base our assumptions on that statistic, we discount the potential contributions from those who vary significantly from the average.

Industry News

Chung Named VP, GM of Kawai

Brian Chung was named Vice President and General Manager of Kawai America Corporation, effective Dec. 1, 1994, with the retirement of 19-year veteran John Rajcic.

In addition, two other major promotions have taken place.

Mike Papa, former National Sales Manager for Professional Products was promoted to National Marketing Manager, Electronics Division.

Dan Ivanovich, the Piano Division Regional Sales Manager for Southern California, was promoted to National Sales Manager, Acoustic Piano Division.

Chung has been with Kawai for nearly seven years, focusing on the development of Kawai's portable keyboard business and, more recently, digital pianos and ensembles. His background includes a marketing MBA from the Kellogg Graduate School of Management at Northwestern University, a jazz grant from the National Endowment for the Arts, and studies in classical piano and conducting in England as a Rotary Foundation Scholar.

"Brian has been a valued member of the Kawai management team for many years," said Jun Ando, Kawai's Executive Vice President. "I am confident that his many talents will only enhance our company."

In his nearly 20-year tenure, John Rajcic's distinguished career played a major role in the development of Kawai America. Rajcic was a significant contributor in the formulation of the company's philosophy and image, embracing the participative management model. His leadership was instrumental in establishing Kawai as a powerful presence in the marketplace, as well as in the company's expansion, including the implementation of Kawai's first American piano assembly plant in Lincolnton, N.C.

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Write Now, Ask Me How . . .

Chapter Newsletters — From Postcards to Publishing on the Desktop

By Bill Ballard, RPT
Chapter services Committee

I'd like to talk to you about your chapter newsletter, and specifically about writing for it. We'll examine the value of chapter newsletters to our organization, and why we benefit from robust newsletters. I'll also list the subject areas which make up a good newsletter, so as to simplify your first steps. Then, as an exercise in writing, I'll show one approach to producing a technical presentation review. Hopefully, by the end of this article, you'll be looking for a pencil and paper.

The Monthly News

There's a real variety among our newsletters. Some chapters may get a simple postcard announcing the upcoming meeting. Plenty of others have outgrown that, and in a page or two, the newsletter will communicate the meeting notice, do a skeleton sketch of the last meeting, and paste in a cartoon. By the time the newsletter hits four pages, it's in full maturity. Now it might include stand-alone technical articles, a classified ad section, running by-lines, and perhaps some poetry. By this time, you are looking forward to its arrival each month with the same anticipation as the *Journal.*

Newsletters accomplish a lot. Even while they educate and entertain you, they are forming the chapter network. Consider that while chapter meetings have a rough average attendance of about 40 percent, the newsletters are received by 100 percent of the chapter membership and then some! Arriving as they do through the mail, newsletters have one big advantage over chapter meetings, namely, that they can be enjoyed at the convenience, even leisure, of the member. The

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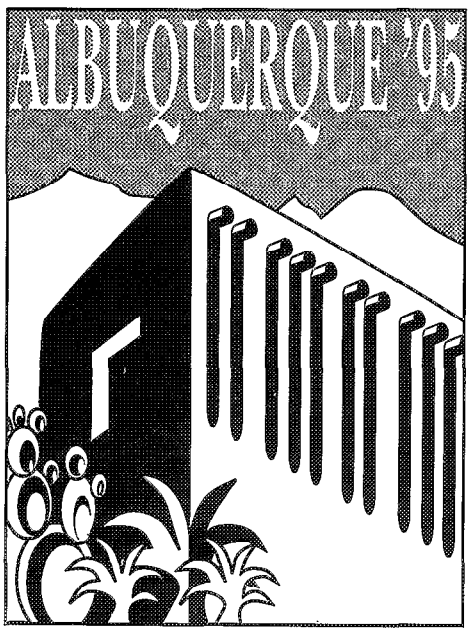
Albuquerque — The Wild West

Fred Strum, RPT
Host Chapter Chair

In this article I will write about the "Wild West" in New Mexico, and about the settlement of the state by English speaking people, leading up to present time.

The Hispanic and Indian peoples lived in virtual isolation for over two centuries, until the coming of the Santa Fe Trail. In the 1800s, American merchants who had heard of the Spanish settlements in New Mexico finally found a route over which they could carry goods for trade by pack train, and later by wagon. This route became the Santa Fe Trail, leading from Independence, Missouri to Santa Fe. It was by no means an easy route, with scarce water, rough terrain, and danger of Indian attack, but the rewards were great enough that more and more traders braved the dangers to transport goods back and forth.



Many of them liked New Mexico so much that they decided to settle there, so that eventually there was a fairly large English speaking population.

In 1848, following the Mexican-American War, New Mexico became a part of the United States. With U.S. rule came increasing American immigration into the area, leading to the period of long cattle drives and U.S. Army conflicts with warlike Indian tribes (not Pueblo Indians) that we know from the movies as the "Wild West." Many famous episodes from those times occurred in New Mexico. The Lincoln County Wars, with the subsequent pursuit and slaying of Billy the Kid by Sheriff Pat Garrett took place in and around Lincoln, N.M., about 150 miles southwest of Albuquerque. A museum and several historic buildings commemo-

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The Wild West, In Albuquerque

Continued from Previous Page

rate those events.

U.S. Army forts were established at several points in New Mexico to protect settlers from raids by Apache, Navajo, and Comanche Indians. Some of the most famous events in the conflict between the U.S. Army and Indian tribes occurred during campaigns to defeat and capture Geronimo, much of which took place in southern New Mexico.

The completion of the Santa Fe Railroad, largely along the old Santa Fe Trail, led to increased settlement throughout the state. Many rich mineral deposits were found, leading to a thriving mining industry, which, along with later oil and gas wells, produced much of the material wealth in the state. In the 1940s, a top secret lab was established in Los Alamos, which designed and tested the first atomic bomb. The first successful test took place at the Trinity site within the White Sands Missile Range (in southwestern New Mexico, but closed to the public most of the time). Los Alamos National Laboratory is still a thriving community of the sharpest scientific minds in the country, though their pursuits have turned increasingly to peaceful ends.

The lure of New Mexico has drawn many artists and writers over the years. Georgia O'Keefe and D.H. Lawrence are two of the most famous who drew inspiration from New Mexico. Movie stars and other well known people have been attracted to New Mexico in recent years, including Shirley McLaine, Ted Turner and Jane Fonda.

New Mexico is still isolated from the rest of the world, but it is increasingly modern and in step with the rest of the country. Still, it is a land of tremendous contrasts. While in Acoma Pueblo, people live with no electricity or running water, and grow corn without irrigation (as did their ancestors for untold centuries), in Rio Rancho, Intel Corporation is building the most modern of manufacturing plants for that most modern of appliances: the computer. While in small New Mexico villages, Hispanic farmers adhere to old religious ways, and gather each year to clean their irrigation ditches and re-plaster their churches with mud, at Sandia National Laboratory in Albuquerque, research into the latest applications of laser technology takes place. And somehow or other, to those of us who live here, that seems like a very normal way of things.

Next month, in "Geology in Living Color." I'll talk about how New Mexico came to be such a beautiful state.

The Annual Institute: Who Needs It?

Fred Fornwalt, RPT
Institute Director

As I write from my home in Altoona, in West Central Pennsylvania, my horizons are geographically defined by the Allegheny Mountains. The sun rises over Brush Mountain to the east, and sets behind the mountains to the west, what lies in-between is my world — my "comfort zone."

I've managed to build and maintain a nice business here, as did my father before me, so why do I need the PTG Annual Institute? I have more than enough customers to keep me busy for quite some time — I maintain a high percentage of repeat business, and get a lot of referral customers — so why did I need the PTG Annual Institute?

To go to the Institute, I must take time away from my business — time when I could be earning a living. I must leave my "comfort zone," where everything seems to be going pretty well, so why do I need the Annual Institute?

Albuquerque, N.M., the site of this year's Annual Institute is a land of wide open spaces, big sky, expansive horizons and miles and miles of miles and miles. A land of unlimited horizons — what better place to look for inspiration? — to break out of the "comfort zone" — to let the "Land of Enchantment" work its magic on you and your professional career. The institute is a place where you can look for the possibilities; where you can "benchmark" your skills against your colleagues, and learn from the best in the world.

Who needs the Annual Institute ?

Entry Level Technicians: Basic level and general classes provide a good foundation for further growth. PACE classes provide basic hands-on skills under the watchful eyes of skilled and experienced instructors.

Intermediate Level Technicians: Brush up and refine basic skills. Measure progress. Set a course for future growth. Practice hands-on skills in the Pace Academy. Network with factory representatives, suppliers and other technicians. Learn about new tools to make work easier, faster and more accurate.

Advanced Level Technicians: Refine skills and broaden your knowledge base. Challenge and energize yourself and your career. International speakers, new topics, and symposium classes will do you a world of good.

The true experts in this field long ago realized that they don't know all the answers — there is always something new to learn, a new angle to try, a new challenge to face. That's why piano technology is such an exciting and challenging field.

College Technicians: One full day of classes and forums addressing challenges unique to this specialized area.

Independent Technicians: Since small business is the fastest growing segment of today's economy, a strong line-up of business related topics will make you better able to not only cope but thrive in today's business climate. Learn about time management, bookkeeping, marketing, profits and taxes and much more.

Visually Impaired: One full day of classes addressing important challenges and concerns of the visually impaired.

Who needs the PTG Annual Institute? The world of pianos does, and the world is coming to Albuquerque July 19 - 23. It would be a real shame if you were left out, because we need you too!

Write Now, Ask Me How . . .

Continued From Page 45

member may not be able to fit the monthly chapter meeting into her or his schedule, but the newsletters can be picked up at any time.

Whatever connections are being formed among chapter members at the meetings, the newsletters make sure that the others not present are included in the chapter's business.

Not only do newsletters make this kind of connection, but they cover a wide range of business. A good newsletter will lay out the next few months' technical presentations, so that you may put in your datebook that monthly meeting you don't want to miss. It may be the only place where you'd hear of something happening personally to a fellow member. It's certainly the fastest way to tell the rest of the chapter about a piano you have for sale. Finally, because of the many kinds of information distributed in their pages, the newsletters are the chapter's historical record.

The Reasons

Newsletters are a vital service, provided by the chapter for their membership, and that's why I'd like to interest you in newsletter writing. I know you're as busy as a one-armed piano tuner, and I also know better than to give you some pitch for a "glitzy, high-paying career in chapter newsletter writing." But there are those of you who like to read a chapter newsletter, and don't mind putting your hand in there to keep it alive and well. For you, I'll offer some more practical reasons for helping with the newsletter's care and feeding.

The same way firewood warms you twice, once in the stacking and then in the burning, the writing process increases your absorption of the subject material. If you happen to be the type, like me, for whom simple knowledge of a fact is not complete without the ability to explain it to someone else, the writing process is made for you. As the words crawl onto the page, your mind is searching and exploring the many ramifications and cross-connections found in those words.

You might also have an imagination that needs an outlet. Go for this one, and your fellow chapter members will have their own vicarious appreciation of your fun.

However, if all of this doesn't attract you to chapter newsletter writing, I will make reference to the glamorous side of chapter newsletter writing. If there is one, it's the vaunted pages of the *Piano Technicians Journal.* Newsletters are the sandlot leagues for the *Journal,* supplying not just individual articles, but also training the writers among us for higher journalistic standards and greater assignments.

> ***"Consider that while chapter meetings have a rough average attendance of about 40 percent, the newsletters are received by 100 percent of the chapter membership and then some!"***

Imagine your thrill on the day when you open a new *Journal* to see your tech tip or short essay, which had been noticed in your newsletter by the *Journal* editor. In the November 1992 *KeyBed,* Connecticut Chapter newsletter, the otherwise demure editor had to cluck, "The *KeyBed* has made it to the big time! Selected articles from several newsletters were reprinted in the October *Technical Forum,* yours truly included. I will be having an autograph session soon. Look for dates and cities in your area in upcoming issues.

Nuff said? Of course you can write. It's as easy as whistling. "You know how to whistle, don't you, Steve?" Lauren Bacall said to Humphrey Bogart. "Just put your lips together and blow."

The Subjects

There is the text-book way to do this, namely, sitting down with Strunk and White's "The Elements of Style." In fact, if you wanted to be good and professional about it, you should hit the books. A more anecdotal text book is the recent "Bird by Bird: Some Instructions on Writing and Life" by Anne Lamott. However we have a newsletter to put out and a more practical approach is needed. I will simply list things your newsletter might cover.

The minimalist bare bones newsletter is the postcard with a meeting announcement and directions, usually done by the chapter secretary. There is ongoing debate as to whether something this curt should arrive two weeks or three days before the meeting, but regardless of the timing, you have your marching orders.

The critical jump between that and a single page with address panel on the back is made by someone who wants the chapter to be represented by more than the postcard essentials. Sometimes this is the secretary, but usually it's a chapter member with desktop publishing capability on a computer who steps forward.

Business is first on the list, namely, a summary of the previous month's business meeting; that is, a summary suitable for a public document. Also mentionable can be a paragraph of important agenda items for the upcoming business meeting. Any chapter activities should be featured as well. The chairman of the chapter's rebuilding project can report on the piano's progress as of the last session,

and lay out the jobs, skills or tools needed for the next session.

Associate training sessions are an important part of a chapter's growth, and general interest in them can be developed by a good monthly report. If the chapter is working on a regional seminar or even a one-day event, reading about it in the newsletter provides a sense of accomplishment for the people involved, and an update for those not involved. The ability of a newsletter to list the next three (or maybe six) months' chapter technicals is a sign of a program chairman hard at work. More importantly, however, it allows the membership with a limited time for chapter meetings to plan their attendance several months into the future. Such announcements also increase attendance by drawing in neighboring chapter members.

Larger, more developed chapters may even have chapter libraries and tool pools to report on. Often the chapter's president will have an official byline. A very useful corner of the newsletter is the one listing the chapter executive board and chairpeople of prominent committees.

That's all business though. On the personal side, the newsletter is the one to tell us something about the life or death of a chapter member on the other side of the state. A newsletter editor may also use a few paragraphs to portray an individual member whom we've talked small with at many a meeting, without ever discovering earlier careers or other talents. The Boston Chapter's newsletter, *Biograph*, has taken this a step further, allowing the individual to do this as a self-portrait. Andy Warhol may have fantasized that in the future, everybody would be famous for fifteen minutes. For chapters whose newsletters are now doing this, the membership networks are enhanced as, one by one, the members are revealed in a larger dimension.

What's a newsletter without tech tips. The joke is circulating: "How many piano tuners does it take to change a light bulb. Ten: one to turn the bulb out and in, and the other nine to tell how they would have done it differently." It's no joke. More often than not, the tip will be something you'd never even thought of. That's valuable. The tip could also be a new tool or even a new catalog from the day's junk mail.

> ***"Why should you be interested in chapter newsletter writing. The newsletter is the chapter's monthly newspaper and historical record. It keeps all the membership up to date, not just those at the monthly meetings."***

Probably the easiest piece of writing you could do is a classified ad, either for the piano you want to sell, or for the one your sister is looking for. Class ads also cover tools, materials, and services for the trade, such as key recovering and rebushing, string scaling and piano moving. Terms will vary by the newsletter, from single appearance to indefinite repeating, and from being a privilege for members only to a nominal charge for nonmember ads.

Then there's humor. This is usually constrained to a regular identifiable byline, such as "Joseph Mehaffey's" exploits in *The* (Sacramento, Calif.) *Valley Technician*, and "Mr. Piano Guy" from *The* (Seattle, Wash.) *Tuner's Beat.* But tread carefully the fine line between a fanciful piece and what is supposed to be the chapter's official newspaper. I had a well-loved chapter member, "Houndog" Dempson, a resident of the state pen, who was twice voted Man of the Year by the New Hampshire Freedom of Enterprise Council, for "diligence and perseverance in a climate of excessive governmental regulation." But then I submitted a story about the casino "Houndog" had run concurrent to our chapter's 1987 regional seminar, next to the hotel's boiler room. Our boy had netted five times our gross, with the proceeds promptly transferred offshore. For this I received an abrupt promotion from editor to editor/publisher by the out-going publisher whose sense of humor had been stretched to the ripping point.

Still, there's nothing wrong with a little April Foolery. Imagine the surprise of those members not at the March meeting — or most others for that matter — when they read in the April issue of a resolution passed in the March business meeting that universal piano care would best be served by a network of city "hospitals" and town "clinics" and house calls were to be discouraged. Finally, a picture is worth a thousand words. If you're as lucky as the Richmond, Va., chapter, you'll have a cartoonist among you showing how a tuner's day really goes.

How to pick from this list? Your chapter might take a tip from the Boston chapter. At the end of each meeting, the president assigns writers for the class review, a tech tip, and the biograph. All I know is what I read in the paper, but according to the newsletter, the arrangement has been running smoothly for a couple of years. So smoothly, in fact, that the editor is free to pen some exquisite poetry. To paraphrase Lauren Bacall, you know how to write, don't you?

Write Now

For a fledgling writer, the first advice is obvious, to tackle small pieces, to sit down with it regularly if not frequently, and not to be bothered if the first drafts look wretched. As for implements, my main means is the computer. Its word processor is small, 490k, but still allows me word counts, character and paragraph styles, minimal column and graphics layout and minimal foot-noting. The last three aren't required for writing copy. However, I do miss a good outliner function, for re-arranging thoughts and paragraphs. At a certain point, I'll move the text to my battleship-sized word processor for this important step.

Computer age or no, I still come back to the old pad and mechanical pencil for initial sketches. My computer and word processor don't take this personally because many's the time they've watched me take a first or second draft out of the printer and over to the comfortable chair in a quiet corner to create the next draft.

One other tip I'd add comes in handy for longer pieces. Although I may already be working from an outline, the transitions between paragraphs or larger sections might still be rough and abrupt. Furthermore, the areas in the outline which haven't even appeared in the first draft are a problem because, regardless of the outline's specified order, I have no inkling of how the subject is going to "flow" there. That's when the entire draft, whatever it may contain, gets worked over, from beginning to end. The beginning portion gets a polishing, while later sections need heavier editing or even roughing out. However, in the process, the flow is released from the beginning once more, and where the text doesn't yet exist on paper, my imagination carries the flow on towards the end.

You may have noticed that in the list of subject areas, the class review was passed over. I saved it until now because the evolution of my handling of the class review could sum up the long and short of newsletter copywriting. For me, as a writer, the class review was always the biggest challenge, not the hardest part of the newsletter but the one deserving greatest attention. Why not make the chapter newsletter as rich in technical information as the *Journal*, I thought, and the class review is the first source for that. Don't overlook the benefits for the instructor either. Once the review of his class has appeared in your newsletter, others outside the chapter membership, from neighboring newsletter editors and program chairpeople all the way up to the *Journal* editor will find out about the class. The write-up of Bill Garlick's "Panic-Stricken Regulation" (*PTJ* September 1991) originally appeared in the New Hampshire chapter's *Granite Action*. Promotion is always better when you don't have to do it yourself, but should the instructor need, he can even send a copy of the review to a program chairperson whom he's trying to interest. At a minimum, the instructor has a written version of what may only have been an oral delivery. If you're really hot with an outliner, the instructor's material might end up in an order more coherent than he'd ever imagined. You can base a class review on sheer recollection, but it had better be sooner rather than later. The only thing more annoying for an instructor than not being reviewed is suspecting that the reviewer dozed through 50 percent of the class and didn't understand another 30 percent. You can improve on this by taking notes, especially on the class outline handed out by the instructor. Each of the key words and phrase scratched down on the fly will easily expand to a sentence or two. The outline itself should keep all the information orderly and in proportion.

However, nothing beats the full-blown class paraphrase. You start with an actual recording of the class which goes into your car tape deck. On your daily itinerary, you listen to the recording with a separate cassette or microcassette recorder in hand. As the instructor goes through his rendition of the class, you dictate your version of it directly into the recorder in your hand.

Frequently, the material may be so well put that you'll simply hold the recorder to the car speaker, but most of the time you'll take a paragraph of his and paraphrase it into one or two sentences. That evening, your version gets transcribed into the word processor. Yes, this does involve a measure of stops and short rewinds of the tape deck as you drive, and this technique doesn't work well unless your service days involve some two hours of drive time, as mine do.

But this technique is for hard-core Ninja Writers. Putting the first draft together this way, I could stretch a class description to 2,500- to 3,000 words. In fact, the seven installment series of tuning articles for the *Journal*, "Between You, Me & the Tuning Pin," all came from a written description of a single class in 1989 in which I tried to tell in two hours, everything I knew about tuning. I might advise that this can turn into binge-writing. Try to maintain minimal contact with your family should it happen.

The Final Word

Why should you be interested in chapter newsletter writing? The newsletter is the chapter's monthly newspaper and historical record. It keeps all the membership up to date, not just those at the monthly meetings. With computer mailing lists and desktop publishing, the newsletter can flourish to quite an impressive level. You should write for the newsletter because your editor needs the help. Mainly, you should write because it's fun.

You do know how to write, don't you? Just put pen to paper and tell a story.

Let's Get Gross. . .
. . . See The Big Picture

Admit it: piano tuners are weird.

- *We have a compulsion for detail that borders on the fanatic. (Who else cares if paper punchings are stacked sequentially?)*
- *We love to compartmentalize. (Six separate boxes for brass rail repair parts, color-coded and shelf-life dated).*
- *We listen to sounds that normal folk can't hear and even my dog won't answer to. (Woof?)*
- *We usually work alone. (Or wish we could)*

These qualities that attract us to piano work, if unchecked, can work against us. Too often we become bedazzled by details and lose sight of the grand (!) task at hand. This is especially dangerous during the RPT exams.

This month, we'll help you create some mind-models for maximizing success in the exam room.

Go? No Go?

Fifteen years before I picked up a tuning hammer, I received my first lesson about piano technology from a rusty blue 1964 Volkswagen Beetle.

Bug engines are air-cooled and run hot. I read that I should adjust the valve clearances once every month or else exhaust valve No. 3 might overheat and break off.

To make the job easier and more accurate, I went to the auto parts store and bought a special measuring tool called a "go/no go" feeler gauge. It's a set of about 20 metal strips, graduated by .001". To measure a valve clearance gap of, for example, .050", you insert the strip that has a thickness of .049" at the tip and .051" at the middle. (Notice that nowhere on the .050" gauge is anything .050" thick.) If the gap is correct, the .049" tip slides in easily and the .051" middle won't go in at all.

The valve clearance is now set to .050", plus or minus .001".

But pianos are not Volkswagens (yay). Because pianos are unstable, because situations change, and because we make several passes before we're through, piano technicians routinely use variable limits of acceptability.

You already do this. When pitch raising, you quickly tune the piano sharp — raise both the upper limit and the lower limit — to a very wide range of acceptability, commonly between 25 percent or 35 percent overpull. Why such a wide tolerance? Because it's quicker and you know the strings will settle unpredictably. On your final pass, you tune to a narrower tolerance — for example, within a few cents.

The same principle applies to intervals. For example, we have been taught to tune the octave A3-A4 slightly wide (usually .5 bps maximum at the 4:2 level). Tuning that same octave pure (beatless) is barely acceptable. We're told never to leave it contracted. Our limits of acceptability are plus .5 bps and minus 0.

But wouldn't it be better if everything was set perfectly? Isn't zero tolerance the highest standard? Of course. So why are we forced to use limits of acceptability?

Time. It's the ultimate finite commodity, especially if you're taking the exam.

RPT exam time limits are deliberately set to crowd you. If there were no time limits, it would be much easier to score well and the value of the exam as measuring device would be nullified.

Master tuning, with the goal of obtaining a "perfect" tuning, typically takes one CTE and two RPTs three to five hours. I know of one master tuning that took over 12 hours; however, the lone survivor is still confined to a padded [anechoic] cell.

The trick is to choose the best balance of time vs. accuracy for each situation.

Sometimes the choice is easy to make: Will the tone improve more if I file the hammers or polish the pedals? Sometimes the choice is not so easy: Will Customer Fred be happier with tight unisons or with correct pitch? Sometimes both options stink: Should I skip paying my taxes or my mortgage?

If you're inexperienced, as are most examinees, it's hard to prepare for — or even recognize — situations that offer a choice, and even harder to make the right decision.

What can you do to help make choices that will maximize your RPT exam success?

The answer: ***PRIORITIZE.***

Prepare

Take lessons from a good teacher, read PTG's Source Books, get pre-screened, and practice, practice, practice. Create a plan for your education and a schedule to follow during your exam.

Remember

During your exam, remember to follow your plan. Don't try anything new.

Inform yourself

Keep aware of your progress during your exam. Continually ask yourself questions like: "Am I following my plan? How much time is left? How close is this tuning/regulation? How much better does it need to be?"

Outside-In

First get it in the ball park, then you can aim for home plate. Keep shrinking your limits of acceptability. "O" also stands for optimization, which is a process, not an event.

Continued on Page 52

EXAMINATIONS & TEST STANDARDS COMMITTEE

Movin' On Up!

Mitch Kiel, RPT

Continued From Page 51

Redo

Keep moving. Go over your work many times. Make multiple passes through a shrinking circle of refinements until your time runs out.

Insure

There are a few things you must make sure are correct. Two examples: the pitch of A4 must be very close to 440, even if it screws up the octave; and you must get a minimum of 80 in all sections of both the tuning and technical exams.

Tell the Truth

As your time winds down, take an objective look at your work. Become an examiner for a minute and be honest about how good a job you've done. Search for flaws.

Idealize

When your exam tuning (or regulation) is getting pretty good, ask yourself: "What would I do to make this a perfect tuning (or regulation)?" Search for flawlessness.

Zero In

If time allows, try to hit a bull's eye on your Idealized goal.

End

As the last few minutes tick away, stay calm. Don't start to make last-minute changes you won't have time to complete.

Prioritize Your Troubleshooting

Efficiency in piano work usually means fixing the biggest and most dangerous problems first. To do this, you should keep control of your flexible limits of acceptability and learn some methods to quickly differentiate between big and little errors.

Fortunately, it's relatively easy to find and repair jumbo-size boo-boos. Then — and only then — should you proceed to nit-pick the details.

Don't get lost in complexity — get gross before you get small!

The Tuning Exam

In the tuning exam, your goal is to get a minimum score of 80 for all sections.

This implies you should first look for gross errors using quick and obvious aural checks, then examine your errors using more sophisticated tests to determine whether the error is flat or sharp, by how much, and the ramifications of how other intervals might be affected if you move that note.

Two intervals that combine ease of use and sensitivity are fourths and fifths. Especially in octaves 3, 4, and 5, inexperienced examinees should use fourths and fifths early and often in their troubleshooting routine.

As gross troubleshooting tools, fourths and fifths have many advantages:

- They're one-handed.
- Fourths are expanded and fifths are contracted — upper and lower limits.
- Each is extremely sensitive if used contiguously with itself; also valuable if used together to divide an octave.
- Because they're slow-beating, you don't have to count beats or compare parallel intervals. If quiet, OK. If noisy, not OK.

A caution: Don't hurry when listening to a slow beating interval. Give the beat some time to develop.

Oftentimes, tuning exam errors in octaves 3, 4, and 5 are detectable using nothing but fourths and fifths. In fact, examiners utilize these intervals right away during midrange aural verification. Personally, I've never heard a multiple-point error in the middle of the keyboard that didn't have either a screaming fourth or fifth — often it's both. Examinees are usually dumbfounded that they've left such obvious errors. What happened? They'd fallen into the Pit of Fixation and gotten ensnared by the Dragon of Esoterica. They'd forgotten that the simple stuff, although boring, should always come first.

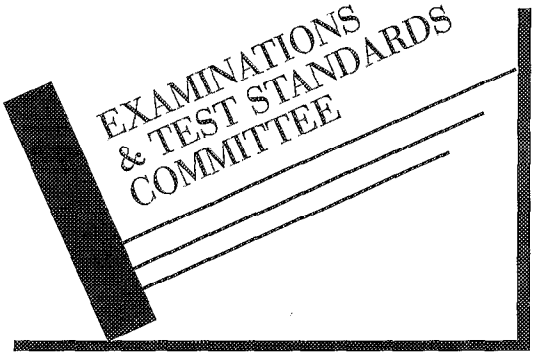
If you use fourths and fifths, you'll keep yourself from making silly mistakes. At that point, you'll be in a position to hone in on "perfection" using more sophisticated checks.

But please don't take this hint about fourths and fifths out of context. Using these intervals for gross troubleshooting does ***NOT*** mean that you should neglect all the other checks. Be sure you use all the aural checks you can; you'll need every one of them to score well on the exam and to succeed in the more demanding real world.

The Technical Exam

There are some gross errors on the technical exam that are very easy to spot and correct, and some errors that are embarrassingly bone-headed but all too common.

- Read the ruler right. If you're given a regulation specification, be sure you transfer that measurement correctly. If your ruler is hard to read, get a new one; it's too easy to make a mistake under pressure.
- It sounds silly, but remember to tighten all the screws, including grand keyframe to jig body, and hook up the bridle tapes.
- Some regulation adjustments are so easy to set it's only carelessness to blame for points off. Most common example: sloppy alignment of the hammer to the string.
- Aftertouch is the bottom line and the Big Kahuna. If your aftertouch is wrong, you definitely have a mistake somewhere in your regulation. If aftertouch is correct — and especially if aftertouch is the same in all three notes in the vertical regulation section — you just might be OK (or at least well-compensated).



In Memory . . .

Helmut Titz, RPT
March 18, 1910
January 30, 1995

It is with great regret I report the passing of my friend, Mr. Helmut Titz, of Kelowna, B.C., Canada. Helmut was born in Austria in 1910 and as a young man studied violin and piano in Vienna and Prague. He became an accomplished musician and also studied piano technology and worked in various piano factories in Germany. He played professionally in orchestras and bands as well as on his own before emigrating, with his wife, Maria, to Canada in 1952.

They settled in Saskatoon for a few years where Helmut taught music lessons and tuned pianos until moving to North Battleford where they bought a music store in a small shopping center. Helmut continued to teach music as well as tune pianos in the surrounding areas. He credited much of the success of the music store to his wife, Maria. They sold many different makes of pianos and were among the first in Canada to sell the Yamaha line of pianos and organs. In 1971 they sold their music store and moved to Kelowna B.C., where Helmut continued with his teaching and tuning. Helmut was a fine tuner. He joined the Guild in 1977, and loved this trade which he enjoyed up to within a few days of his death, January 30, 1995, at age eighty-five.

Helmut and I attended several PTG Conventions and often got together to exchange "I tuned a piano for this lady" stories. So long, Helmut. You will be missed but not forgotten by your many friends.

—Steve McCann

Mark R. Hunting, RPT
June 1958
February 1995

Mark was more than a consummate Piano Technician among us; he was our friend and mentor. He was a good-humored person who radiated enthusiasm and good will. He had attained a skill level and a grasp of what living was about in a few short years that few of us do in a lifetime. To say that Mark will be missed is an understatement; we are still in shock and too devastated to fully grasp our loss and the loss to our profession.

Mark devoted his best efforts to all the pianos in his care. An artist himself, he keenly appreciated the importance of the instrument's condition, whether it was to be played by a young student or a world-renowned performer. Mark was building a shop to better serve his clients; the growth of his reputation and his business required it. We were trying to find a time for me to help build his shop and for him to look at my personal piano with an eye to making it better without completely rebuilding it. Sadly, Mark was taken from us before we could do those things.

Mark was active in the Guild and served us well, most recently as chapter Vice President and Program Chairman. If he were not at every meeting, certainly his influence was. He not only had all the programs lined up for the rest of this year, but also had provided a list of subjects that were used for many of last year's programs as well. When Mark did a program for us it was memorable for being well prepared and delivered. He was truly a Piano Technician's Technician, a most esteemed colleague, and a great friend.

—Garland O. Goodwin, RPT

In Memory . . .

GARY NELSON
DALLAS, TX

STAN KWASIBORSKI, RPT
DETROIT-WINDSOR, MI

New Members In February

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225 ARRIS CRES.
MITCHELL, ON N0K 1N0
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31 LAWRENCE PKWY.
TENAFLY, NJ 07670

080- SOUTH JERSEY

MIKE BINGHAM
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TOMS RIVER, NJ 08753

STEVEN M. OGLESBY
309 CHURCH STREET
LAKEHURST, NJ 08733

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222 CENTRAL AVENUE
PLEASANTVILLE, NY 10570

142- BUFFALO, NY

SEAN BYRNE
995 LAKEVIEW ROAD
FORT ERIE, ON L2A 5Y9
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320 HIGH STREET
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PITTSBURGH PA 15206

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DENVER, CO 80224

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MANHATTAN BEACH, CA
90267

926 ORANGE COUNTY, CA

JOHN C. STEWART
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SILVERADO, CA 92676

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TINA J. ROBY
6204 GUNTER WAY
SAN JOSE, CA 95123

956 SACRAMENTO VALLEY, CA

TERENCE R. MILLER
1418 MUIR STREET
NAPA, CA 94559-4336

Reclassifications To RPT . . . . . .

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OSWEGO, NY 13126

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DULUTH, MN 55804

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PHOENIX, AZ 85039

931 *SANTA BARBARA, CA*

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1310 THURSTON #5
RACINE, WI 53405

REGION 7

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FRANK W. SPRAGG
P. O. BOX 3565
SALEM, OR 97302

985 *PUGET SOUND, WA*
RYAN W. SOWERS
418 QUINCE STREET, NE
OLYMPIA, WA 98506-4043

EVENTS CALENDAR

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 PTG Home Office or your Regional Vice President.

Once approval is given and your request form reaches Home Office, your event will be listed through 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.

April 8
East Tennessee One-Day Seminar
Heritage Music Company, Knoxville, TN
Contact: Jim Ellis
114 West Newkirk Lane
Oak Ridge, TN 37830
615-483-9534

April 21 - 23
Florida State Seminar
Orlando, FL
Contact: Robert Carr
320 West Rich Avenue
Deland, FL 32720-4120
904-736-0551

April 22
Tuning Historical Temperaments
Boulder, CO
Contact: Frank French
P.O. Box 4034
Boulder, CO 80303
303-499-9150

April 27 - 30
NEECSO
White River Junction, VT
Contact: Ed Hilbert
40 Pleasant Street
Bristol, VT 05443
802-453-3743

May 5 - 7
Central West Regional
St. Louis, MO
Contact: Ken Jones
42 Cynthia Court
Florissant, MO 63061
314-839-1220

May 12 - 13
Utah Intermountain Seminar
Snowbird Ski & Summer Resort
Salt Lake City, UT
Contact: Dennis Fife
70 So. Orchard Drive
North Salt Lake, UT 84054
801-292-4441

July 19 - 23
PTG 38th Annual Convention
& Technical Institute
Hyatt Regency / Albuquerque, NM
Contact: PTG Home Office
816-753-7747

October 5 - 8
NEW YORK STATE—NYSCON
Howard Johnson Plaza Hotel
Oakville, ON CANADA
Contact: John Lillico
605-200 Queen Mary Drive
Oakville, ON L6K 3L1
800-469-7266

AUXILIARY EXCHANGE

Dedicated To Auxiliary News and Interests

In Loving Memory . . .

Pearl Kreitz, wife of Richard Kreitz, lost her battle with cancer on January 24, 1995.

She taught typing and shorthand for eight years at the former Reading Business Institute. She graduated from this school and was valedictorian of her class. She was last employed for 24 years as export coordinator by the former Beryllium Corp., now NGK Inc. of Reading, until her retirement.

I met Pearl in 1956 and we became good friends after we accompanied our husbands on a tour of the Steinway Factory in 1958. Pearl and I joined the New York Auxiliary for a bus tour of New York City. We joined the Auxiliary at that time as members of the Philadelphia Chapter.

Dick and Pearl always planned part of their vacation around the PTG Convention, attending almost all of them.

The Reading Auxiliary Chapter (now Reading-Lancaster) was formed in December 1971 and it was only fitting, Pearl became our secretary. She was elected Recording Secretary of PTGA in 1992 and served almost two years until she became ill. She loved to shop and go traveling. Whenever we saw her, we could always count on Pearl to arrive with lots of pictures of her latest trip or of her granddaughters.

In addition to her husband, she is survived by her son, Robert, two granddaughters and a sister.

On January 27th, members of PTG bid a sad farewell to a loving and caring friend.

— *Kathryn Snyder*

Educational Opportunities A Draw At NCRC

The North Carolina Regional Conference once again succeeded in drawing a large and enthusiastic crowd to the four-day extravaganza held this past November at the Radisson Hotel in High Point, NC. Conference Director Evelyn Smith, RPT, and the Central North Carolina Chapter played host to over 150 participants representing 26 states and 32 chapters of PTG. Thirty-four non-members also took advantage of this educational opportunity to advance their skills, with several applying for membership at the conference.

The opening day of the Conference showcased the new PTG BusinessCraft Seminar — a full house of 34 RPTs and Associates took advantage of this special opportunity to enhance their business skills. Members of SCORE, the Service Corps of Retired Executives, gave their insights as to how successful businesses operate, while PTG's Executive Director, Larry Goldsmith, and RPT members Bill Spurlock and Fern Henry gave specific tips on building a prosperous piano service business.

There were many excellent classes presented during the conference — 20 new classes of 27 in all were taught by the best instructors PTG has to offer. Deserving special mention were a hands-on workshop which included five work stations where top technicians gave specialized instruction in grand regulation, finish touchup and repair, vertical regulation, grand touch weight analyses, and string repairs. A musician/technician forum featured Scott Jones of Steinway and artist Barbara Lister-Sink, who led audience discussion on creating a common language/communication between artist and technician. In an exhibitor's showcase, exhibitors presented classes and their wares that would enhance anyone's toolbox.

Richard Ruggero, RPT, was one of the instructors at the North Carolina State Conference in November.

Piano manufacturers represented by four area dealers included Baldwin, Becker, Boston, Brentwood, Mason & Hamlin, Kawai, Samick, Steinway & Sons, and Young Chang. Eighteen exhibitors filled the 2,500 square feet of show space with an abundance of the finest items and services available to the professional piano technician. The spouse program, arranged by Jane Duncan, provided its participants with shopping excursions and tours of the Furniture Discovery Center and the Peterson Doll Museum.

Next year's conference plans are well under way — 1995 director Richard Ruggero, RPT, and the Research Triangle Chapter promise this to be an event you won't want to miss. Mark your calendar for Nov. 2-5, 1995, and join us at the Durham, NC, Omni Hotel for a November PTG tradition that will sharpen your skills and keep you "On the Cutting Edge."

— *Alan Hallmark*

Secretary Power

By Judy Rose White

Just who was the first secretary? I really don't know--perhaps some prehistoric caveman. The cultures and religions of the world as we know and understand them are and have been dependent on some mortal's secretarial skills. If it were not for the secretarial work of Thomas Jefferson in recording the ideas of our founding fathers, our American History would be quite different.

Each day there are people (maybe you) who are expected to listen and then efficiently and politely moderate, edit, organize, record, and transmit information to another source. Neutrality and efficiency along with a calm demeanor are among the assets this person needs to display. Are you ever in the role of secretary? You have the power of effecting your business.

CLASSIFIEDS

Classified Advertising rates are 35 cents per word with a $7.50 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 Piano Technicians Journal, 3930 Washington, Kansas City, MO 64111-2963.

FOR SALE

SANDERSON ACCU-TUNERS from Authorized distributor. Consignment sale of used Accu-Tuners and Sight-O-Tuners or new Accu-Tuner customers. Call for details. Rick Baldassin, 801-292-4441.

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SANDERSON ACCU-TUNERS NEW & USED. BOB CONRAD 800-776-4342.

KORG MT1200 TUNER. $295 (list $375) Hears A0-C8. Plays C2-B5. Shows pitch, note, octave. Can program calibration, temperament. KORG AT12 TUNER. $175 (list $250). SONG OF THE SEA. 47 West Street; Bar Harbor, ME 04609; 207-288-5653. Brochures.

STEINWAY M AMPICO 1926, walnut, needs restoration. Make offer or trade. 516-588-6446 DANTE PIANO.

BALDWIN MINIATURE PIANO. Measures H33"xW28"xD18". Brand new prototype, four octaves, mahogany. Cost $30,000+ to build, will accept $6800 plus shipping. Pictures and details on request. Call David, 501-253-5221.

GRAND PIANO STRING covers. Are you ready for an item that can keep the piano clean, prevent corrosion, improve tuning stability, make your clients happy and make you money besides? Custom made, it rests above the strings, covering soundboard, tuning pins and plate for complete protection inside the piano. Made from finest quality woven wool, available in black, brown and white. Personalized name applique also available. No inventory or investment required. For free brochure and samples call: Edwards Pianos, 408-426-1295, 145 S. River Street, Santa Cruz, CA 95060.

THE PIANO BOOK — THIRD EDITION. The standard consumer reference in the piano business. Latest edition includes new, updated brand reviews. $16.95 paperback, $26.95 signed hardcover. Add $2.50 s/h. Buy in quantity for your customers and save — request discount schedule. Brookside Press, P.O. Box 178-J, Jamaica Plain, MA 02130. 800-545-2022, 617-522-7182.

HAMMER BORING GUIDES. All metal, weigh 15 lbs. Accurate and easy to use. $180.00. Instructions and photo available on request. Kent Gallaway, 709 Thorne, Ripon, WI 54971; 414-748-3265.

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HANDCRAFTED SOUNDBOARDS BY NICK GRAVAGNE. Ready to install crowned boards or semi-complete. Your choice. Ordering and installation instructions $15.00. 20 Pine Ridge; Sandia Park, NM 87047; 505-281-1504.

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WONDERWAND: Try the Tuning Lever you read and hear about. Enjoy Less Stress; Better and Faster Tunings: $65.00 p.p. Charles P. Huether, RPT, 34 Jacklin Court, Clifton, NJ 07012

"SALE OF PIANOS" — All models and styles. Specializing in players, art case and conventional pianos. Floor ready and as is pianos available. We also specialize in one of a kind and hard to locate pianos. Call collect Irv Jacoby 216-382-7600. Jay-Mart Wholesalers — Pianos since 1913.

COMPONENT DOWNBEARING GAUGES (bubble type) give readings in degrees (string angle) and thousandths of an inch (dimension). Available at supply houses. Box 3247; Ashland, OR 97520

BOLDUC SOUNDBOARDS now available! The best rebuilders know the superior quality of Bolduc Pinblocks. Now you can experience this same superior quality with Bolduc Soundboards. Call for prices and details. Pianotek Supply Co., 1-800-347-3854 or Fax: 810-545-0408

HAND PLANE YOUR RIBS - Quickly and easily with a fine handmade reproduction of an Antique Molding Plane. Saves TIME & MONEY - (max. rib width 1 3/8). Solid hardwood, 1/8 hardened tool steel. $85 plus $5 shipping & handling. Other custom tools available for rebuilders and technicians. Write for more information. MA residents add 5% tax. Checks payable to: Dana Mazzaglia, Box 18, Groveland, MA 01834.

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PIANO SCALING SOFTWARE for IBM & compatible computers. Plot inharmonicity, tension, break %, loudness/sustain, hammer contact, and more. 18 graph types, automatic bass rescaling, string winding data sheets, detailed users manual and money back guarantee. $80.00. Write or call: Tremaine Parsons, Box 241, Georgetown, CA 95634, 916-333-9299

STEINWAY B, 7ft., Hamburg, Germany, #395776. Artist owned and selected from factory. Pristine condition and maintained to the highest standards. $32,000. 513-948-1367.

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RELIABLE ACCU-TUNER NOTESWITCH! One year guarantee! Includes coiled cable, thumb switch and attaching hardware. Fits all tuning hammers. $49.00 includes s/h. Dean Reyburn, RPT, Reyburn Piano Service; 2695 Indian Lakes Road, Cedar Springs, MI 49319, 616-696-0500

MASON & HAMLIN 6'1" Grand, Piano Disc, mahogany - $16,900; Steinway 7' Grand, art case, circasian walnut - $30,000 o.b.o.; Chickering Grand Fancy Square Tail, mahogany - $6200; Wm. Knabe Grand, walnut - $4695; Steinway "O" model Grand, mahogany - $16,000; (GE-1) Kawai, high gloss ebony - $6300; Yamaha 5'10" Grand, walnut - $6800; Mason & Hamlin, mahogany, "A" - $10,800; Knabe Grand, 5'8", mahogany - $3695. Refinishing, refurbishing and tuning. Call for complete listing: Schroeder's Pianos, 13119 Downing Avenue, Paramount, CA 90723; 800-923-2311.

NEW FROM SPURLOCK SPECIALTY TOOLS—*Soundboard shims to match* my custom carbide bit and soundboard routing system. 39" and 78" lengths and three widths. Quality quarter-sawn Canadian white spruce made by Andre Bolduc. Spurlock Specialty Tools, 3574 Cantelow Rd., Vacaville, CA 95688, 707-452-8564.

400 FINE GRAND PIANOS. Largest selection in USA. Need piano technicians. Victor's - Miami, FL.; Ph. 305-751-7502.

PIANOS - Yamaha and Kawai grands $1850 and up. 23 Steinway grands and verticals. Large quantity of used American grands from $700 up. We buy pianos. Ed's 504-542-7090.

New from PROTEK: Prolube Spray Lubricant. Protek Prolube is an advanced state polymer lubricant. Designed around the successful CLP formula, Prolube is for higher friction areas like the keybed and frame, shift and sostenuto mechanisms. Great for front and balance rail keypins and anywhere you would use a spray lubricant. Provides long lasting durable lubrication with virtually NO ODOR! With the addition of Prolube along with C.I.P and M.P.L.-1, Protek offers safe, high tech task specific tools for every lubricating need. Ask for Prolube at the supply house you do business with.

REPAIR CHIPPED IVORY IN 20 MINUTES. "AcryliKey" ivory restoration system produces a strong, color-matched, nearly invisible repair. Kit contains material enough for 50+ repairs plus pigments, mixing utensils, sanding pads, and complete instructions. $39.95 ppd. Richard Wagner, RPT; 7709 S.W. Pfaffle, #40; Tigard, OR 97223; 503-624-7360.

PIANOS FOR SALE. Grands, consoles, spinets. Excellent reconditioned brand name pianos. Floor ready-wholesale prices. Also available, "as-is" pianos. Any quantity. Call or write Piano Wholesalers, 5817 Wickfield Drive, Parma Heights, OH 44130. Call *us first!!* 800-438-3814

NEW STRETCH CALCULATORS for Sight-O-Tuner users, $10 p.p.; Richard Weinberger; 18818 Grandview Dr.; Sun City West, AZ 85375.

HELP WANTED

TUNER/TECHNICIAN WANTED. Milwaukee area. Excellent opportunity for full-time employment with growing piano dealership/RPT. Work will include tuning, repairs & rebuilding. RPT or equivalent preferred, but will consider all applications. Very competitive pay plus benefits. Please send resume to: Carlson Pianos, 3701 Durand Ave., Racine, WI 53405.

SERVICES

STRAIGHT SIDES, SQUARE FRONTS and crisp notches are the benchmarks of our quality key recovering. Tops with fronts $100 plus return shipping and insurance. Call or write for free list of our key and action restoration services. Yvonne Ashmore, RPT and Associates, 12700 La Barr Meadows Road, Grass Valley, CA 95949, 916-273-8800

KEY BUSHING: We use over 20 different sizes of Spurlock Precision Cauls. Send the micrometer measurement of the key pins and we will give you a perfect fit. Both rails high quality felt $75.00 or leather $80.00 plus return shipping and insurance. Write or call for free price list of our key and action restoration services. Yvonne Ashmore, RPT and Associates, 12700 La Barr Meadows Road, Grass Valley, CA 95949, 916-273-8800

ADD ADDITIONAL $'s to your income. Rebuild player pianos for your clients. Send us the player parts. You restore the piano and we will return the mechanism in restored condition. We guarantee our work. For more details, call or write: Jim Brady, 2725 East 56th Street, Indianapolis, IN 46220, 317-259-4307

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SOUNDBOARDS INSTALLED, topsides rebuilt. Bridge-conformed, scale-diaphragmized boards with truly quartersawn ribs (sitka, eastern, or sugar pine). You send us the case, we'll return you a piano. Quality's the bottom line. David G. Hughes, RPT. 410-429-5060. Baltimore.

REFINISH PIANO HARDWARE in nickel, brass, or chrome. Metal finishing specialists for over thirty years. Parts shipped back to you in 2-3 weeks. Rush jobs can be accommodated. Whitman Company, Inc. 356 South Ave., Whitman, MA 02382. 1-800-783-2433.

PIANO HARDWARE REFINISHED. Lacquer finish or nickel plate finish. Craftsmanship and finishes are guaranteed to factory specifications. Delivery 2-4 weeks. Brass on Ivory, 302 Linden Avenue, Edgewater, MD 21037; PH. 410-798-6536.

RESTORATION OF CARVED WORK, turnings, inlays, and marquetry, including repair of existing work and reproduction of missing pieces. Edwin Teale; 18920 Bridgeport Road; Dallas, OR 97338; 503-787-1004.

52 PIANO KEYS RECOVERED— .075 tops with fronts (molded plastic) - $95.00; .050 pyralin - $100.00; .060 pyralin - $105.00. Gloss sharps (3 1/2") - $50.00. Keys rebushed: premium cloth - $75.00; leather - $95.00. Other services available. Call or write for price list. FREE return freight on prepaid orders of $50.00. Walker Piano Service, 554 State Route 1907, Fulton, KY 42041, 1-800-745-6819.

SIGHT-O-TUNER SERVICE: Repairs, calibration & modifications. Fast, reliable service. Richard J. Weinberger; 18818 Grandview Drive; Sun City West, AZ 85375. PH. 602-584-4116.

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WELL-TEMPERED TUTOR. Learn to tune by ear with your Macintosh computer. Use pre-programmed temperaments or create your own. If you have trouble hearing beats, this program can isolate the beats for you. Score yourself with the PTG exam. Twenty-one historical temperaments also available. Demo disk available. Mark Anderson, RPT: 510-524-0390 (California). Great teaching tool!

NILES BRYANT OFFERS TWO HOME STUDY COURSES: Electronic Organ Servicing: Newly revised. Covers all makes and models — digital, analogue, LCT's, synthesizers, etc. Piano Technology: Tuning, regulating, repairing. Our 87th year! Free booklet; Write or call NILES BRYANT SCHOOL, Dept. G, Box 19700; Sacramento, CA 95819 — (916)454-4748 (24 hrs.)

BILL GARLICK SEMINARS-Upgrade your skills at intensive six day resident seminars at Bill's home. Applications are invited for upcoming seminars in tuning, grand action regulation, historic tunings, harpsichord maintenance. Tuition includes instruction and use of facilities, private bedroom (share baths), breakfast and lunch. Write or call for information. Bill Garlick, RPT, 53 Weeks St., Blue Point, NY 11715; 516-363-7364.

THE RANDY POTTER SCHOOL OF PIANO TECHNOLOGY — Home Study programs for beginning students, associate members studying to upgrade to Registered Piano Technician, and RPT's wanting to continue their education. Tuning, repairing, regulating, voicing, apprentice training, business practices. Top instructors and materials. Call or write for information: RANDY POTTER, RPT; 61592

WE HAVE week-long, hands-on training seminars in tuning and regulating each summer. Next session June 18-25 at Northwestern College in St. Paul, Minnesota. Call for registration information. RANDY POTTER SCHOOL, 503-382-5411.

VIDEOS

INSTRUCTIONAL VIDEO TAPES. Victor A. Benvenuto. Piano tuning, $50.00*; Grand Regulating, $50.00*; Grand Rebuilding, $100.00 (2)*; Key Making, $50.00*; Soundboard Replacement, $29.95*. (*Plus S/H). The Piano Shoppe, Inc., 6825 Germantown Avenue, Philadelphia, PA 19119-2113; Ph. 215-438-7038, Fax, 215-848-7426

SELL MORE REBUILDING JOBS with 20-minute video "Rebuilding Your Piano," $24.95. Other customer-oriented videos: "The Anatomy of a Piano: How Your Grand Piano Works" with John Serkin, 75 min., $34.95; "Piano Buyer's Guide," $19.95; add $2.50 s/h. Brookside Press, P.O. Box 178-J, Jamaica Plain, MA 02130. 800-545-2022, 617-522-7182.

PIANO TECHNOLOGY EDUCATIONAL MATERIALS. Vertical Piano Regulation by Doug Neal, $115; Plate & Pinblock Installation by Cliff Geers (2 reel set), $148; Wood Repairs by Cliff Geers, $68. Soundboard repair by Cliff Geers, $86; Grand hammer replacement by Cliff Geers, $86. Add $5 per order for shipping and handling. Questions? Call 712-277-2187. Mail orders to PTEM, 3133 Summit, Sioux City, IA 51104

WANTED

WANTED!! DEAD OR ALIVE: "Steinway uprights and grands." Call collect, Ben Knauer, 818-343-7744.

ACCU-TUNER!!! TECHNICIAN WANTS TO BUY new or used Accu-Tuner. Call Paul (310)49TUNER.

PIANOS! PIANOS! PIANOS! !!!Free phone appraisal!!! Buying all types of usable pianos. Cash or bank check on pick up. Won't hesitate on price. Call us first for fast professional service. "Steinway, Mason-Hamlin command specialty prices." Jay-Mart Wholesale, P.O. Box 21148, Cleveland, OH 44121. Call Irv Jacoby collect 216-382-7600

JAY-MART WHOLESALERS — !!!Free phone appraisal!!! Buying all types of usable pianos. Cash or bank check on pick up. Won't hesitate on price. Call us first for fast professional service. "Steinway, Mason-Hamlin command specialty prices." Jay-Mart Wholesale, P.O. Box 21148, Cleveland, OH 44121. Call Irv Jacoby collect 216-382-7600.

WANT TO BUY PIANO TUNING BUSINESS in rural/semi-rural area, within 3 hours drive of NYC. Near excellent skiing and hiking preferred. L.I. RPT wishes to relocate. 516-928-8123.

ANTIQUE GRAND PIANOS WANTED: Any restorable condition. Top prices for pre-1850, wood-frame grands in original condition. Ed Swenson; P.O Box 634; Trumansburg, NY 14886; 607-387-6650; Fax: 607-387-3905.

WANTED: SMALL PIANOS such as the Wurlitzer Student Butterfly or other small types. Call collect:Doug Taylor, 607-895-6278. I'll pay shipping!

STEINWAY & MASON HAMLIN WANTED !! "Dead or alive." $$$ Grands, uprights, consoles—any size, cabinet style or quantity. Cash and immediate removal. Finders fee for successful purchases. Call us first !! 800-438-3814 toll free or write to be listed in our worldwide data banks. Piano Wholesalers, 5817 Wickfield Drive, Parma Heights, OH 44130. Call us first !! 800-438-3814.

KEY COVERING MACHINE call or write Bruce Ryndflietz; 339 West Nicholai St.; Hicksville, NY 11802; PH. 516-822-5936.

DISPLAY AD INDEX

Piano Discussions™

April 1995

News From The World of PianoDisc

PDS 128 sets industry standard

Industry experts who are familiar with the range of products available agree that the PDS 128 packs more features, is more flexible and has more possibilities for the reproducing piano consumer than any product of its kind on the market. Consider the following facts that lead to this conclusion:

- Major piano retailers from across the nation have proudly and publicly endorsed PianoDisc as their product of choice. PianoDisc's PDS 128 is available from more than 600 retail establishments nationwide and in over 30 countries around the world.
- Major piano manufacturers from America, Asia and Europe unanimously endorse the PianoDisc PDS 128 as the system of choice for their customers. From Baldwin and Steinway & Sons in America to Bosendorfer and Pfeiffer in Europe and Samick and Young Chang in Asia, manufacturers all agree that PianoDisc is an ideal tool to spur piano sales, particularly grands.
- With sales for 1994 substantially exceeding those of '93 (which were phenomenal), PianoDisc has set the standard for reproducing piano excellence, according to industry insiders. One touch record and playback, software upgradability and the best compatibility with all marketed software for reproducing pianos all assure dealers and customers alike that PianoDisc is the best value for the money on the market today.

PianoDisc Installation Training

• April 18-22	• July None
• May 9-13	• August 8-12
• June 20-24	• Sept. 12-16

Continuing Education Series

• May 4-5	• June 15-16

Tuition for the Installation and Continuing Education seminars is **free**, but a $60.00 refundable deposit is required for confirmation. The PianoDisc Continuing Education Series seminars are restricted to PianoDisc certified technicians in good standing. For more information about attending a PianoDisc Installation Training seminar or a Continuing Education seminar, call PianoDisc during our office hours (see below).

PianoDisc

4111 North Freeway Blvd.
Sacramento, CA 95834
Phone: (916) 567-9999
Fax: (916) 567-1941

Tech Support: (619) 258-1460 (916) 567-9999

Our telephone lines are open daily (except weekends and holidays) from 8 AM-5 PM Pacific Time.

Tech training is better than ever

What many have considered the best technician training program in the industry, just got even better. With a number of recent innovations, including a new individual note detail calibration method, PianoDisc felt the need to expand its training by one day. The current class length of five days is a better fit with the material which needs to be covered. "There just wasn't enough time with the old schedule," says one instructor.

"An investment of five days will reap big rewards for a technician who wants to add to his skills and increase his business," says a company official. "PianoDisc installation skills have opened up income possibilities for technicians across the country. Some of our techs are even making international service calls."

Judging by the phenomenal increase in sales PianoDisc has experienced year after year, the number of certified technicians will have to grow to keep pace. Opportunities exist for even more technicians in many areas of the country.

So, if you've considered taking the class, but hesitated, think again, and harder. Our classes are taught right in the factory. You'll receive a tour of our operations, and all the latest information to help make your PianoDisc installation skills first rate. On top of that, the classes are free, the lunches are free and the knowledge you gain could lead to substantial profits. Call today and reserve your class space. And remember what they say about he who hesitates.

UL and FCC: why do they matter?

PianoDisc's Quality Assurance Director, Tom Rogers, wants to remind everyone that PianoDisc is in fact a UL approved product and is both Class A and Class B approved by the FCC. "PianoDisc's PDS 128 is in full compliance with all safety guidelines and legal regulations imposed by those agencies," says Mr. Rogers.

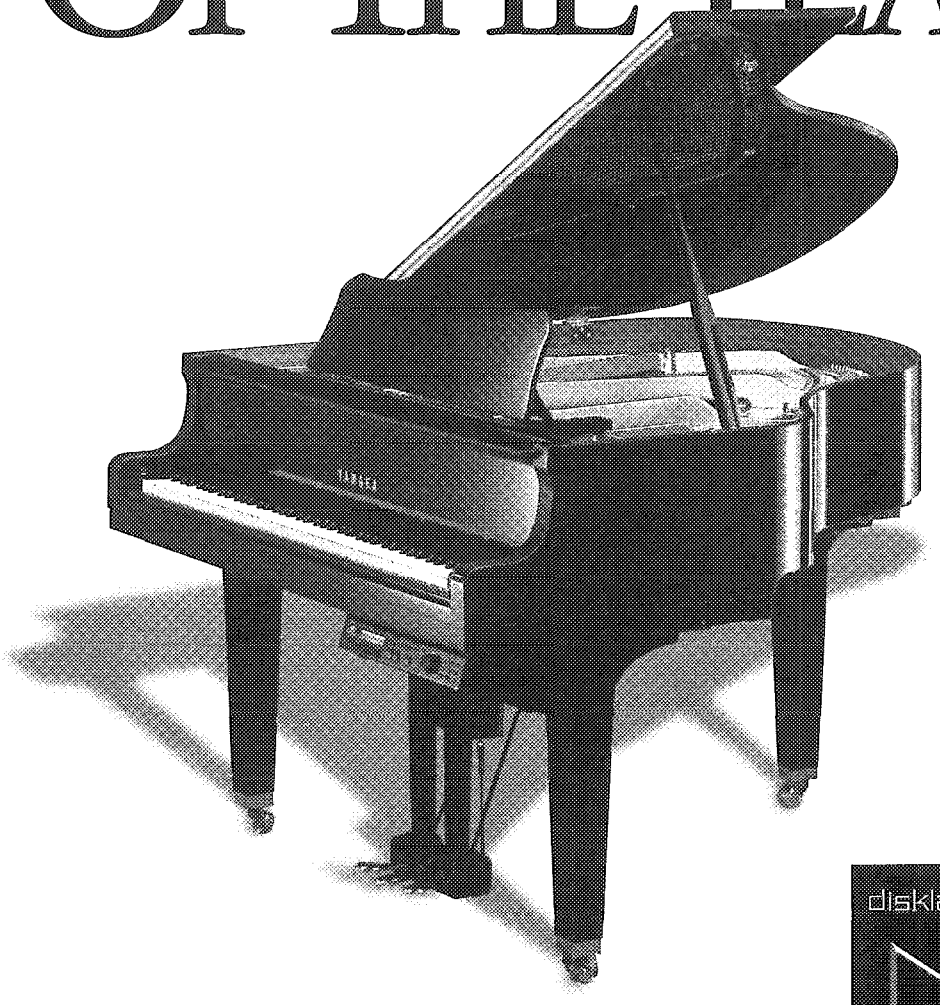
Following is a summary of what UL and FCC approval is actually meant to do and what it could mean to PianoDisc dealers, technicians and customers.

UL (Underwriter's Laboratories) approval. This distinction is very important. UL approval is an almost universally recognized independent certification that an electronic device meets very stringent safety standards. Some states and cities have laws which specifically prohibit the sale of electronic devices within their jurisdictions which do not have UL approval. For PianoDisc customers UL approval is an assurance of safety and quality; for dealers and installers virtually guarantees complete compliance with all local fire and safety regulations anywhere in the United States.

FCC Class A and Class B approval. This is also very important. FCC regulations exist to prevent electronic devices from interfering with essential or emergency radio communications. Class A approval is for commercial use, Class B is for residential use. Some examples of communication problems which could occur with non-FCC approved devices are: interference with police or fire radio frequencies; interference with cordless telephones which might prevent placement of a 911 call; interference with emergency television or radio broadcasts, etc. Electronic devices which are not FCC approved may be subject to fines and other penalties from the Federal Government.

When considering the purchase of an electronic device, look carefully for the UL and FCC approval labels (the rules require that they be affixed somewhere on the device). And beware of products that aren't approved by these agencies — they could end up being more trouble than they're worth!

1994 KEYBOARD PRODUCT OF THE YEAR



Dealers have chosen the Yamaha Disklavier Piano as "Keyboard Product of the Year." It just goes to show that great craftsmanship, great technology, great dealers and great salespeople can make things happen.

YAMAHA®