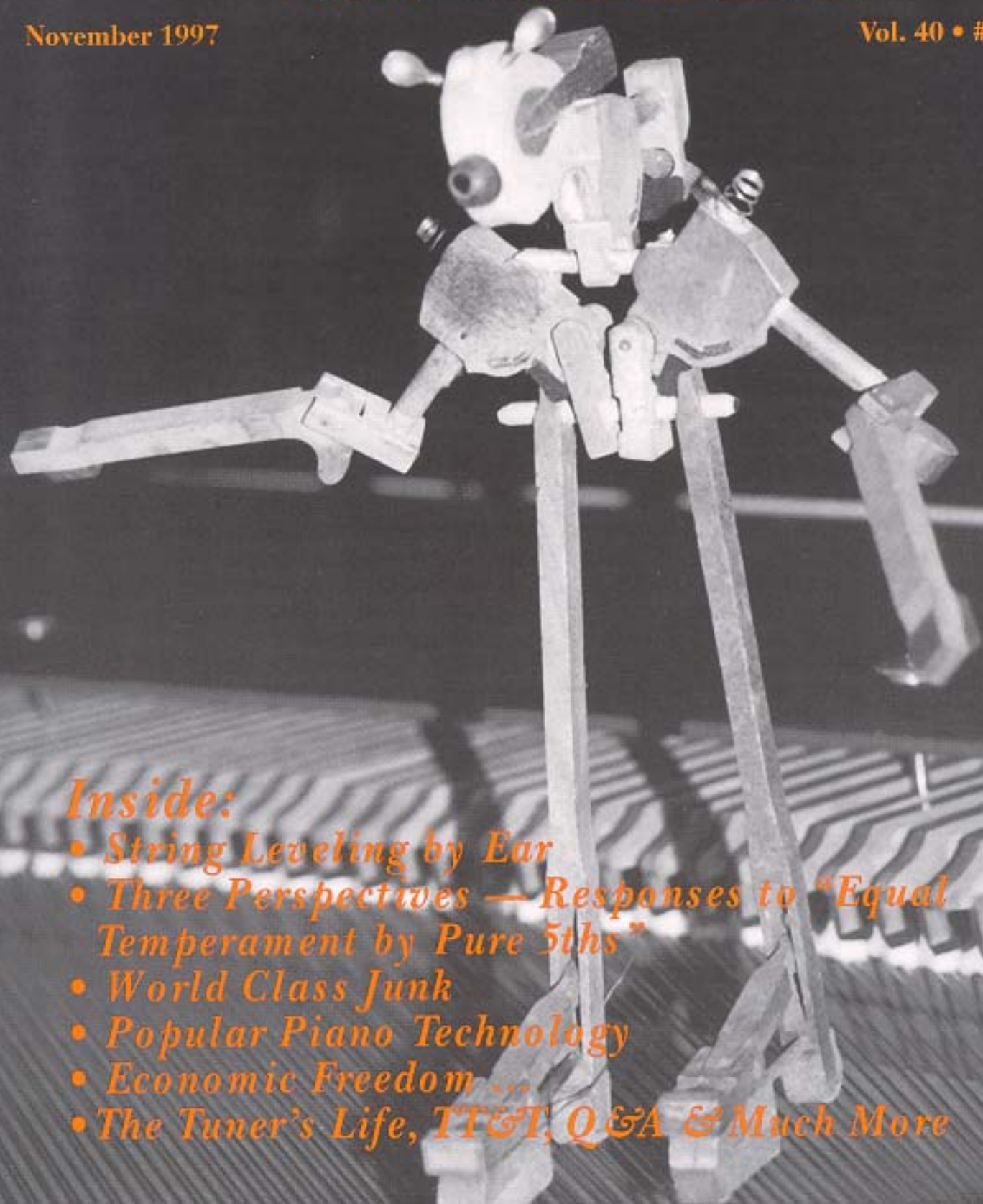


# PIANO TECHNICIANS Journal

*Official Publication of the Piano Technicians Guild*

November 1997

Vol. 40 • #11



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- *String Leveling by Ear*
- *Three Perspectives — Responses to "Equal Temperament by Pure 5ths"*
- *World Class Junk*
- *Popular Piano Technology*
- *Economic Freedom ...*
- *The Tuner's Life, TT&T, Q&A & Much More*

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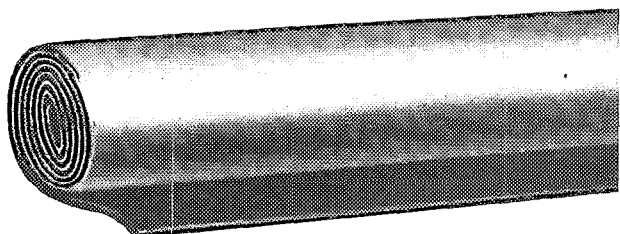
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## Editorial Perspective

### Tuning With a British Accent

By Steve Brady, RPT  
*Journal* Editor

I found my copy of this interesting book quite by chance at a used bookstore in Portland, Oregon. The author, a now-retired veteran of over 50 years as a piano tuner-technician and instructor, has packed the volume with loads of practical information on a variety of topics.

The book's primary focus is the art of diagnosis in piano work. In the author's words, most school training of piano tuners "is directed to 'How to do' rather than 'How to find out what has to be done.'" Accordingly, Booth provides a basic philosophy and plan of action for service calls. He develops this theme in a number of case

histories in the book's first chapter. Following this first section are chapters titled as follows: "Repairs," "D-Type Spring and Loop Grand Piano Actions," "Miniature Pianos," "Unusual and Specialist Instruments," "Pianos with Problems from New," "Humidity," "Tuning: Adding the Professional Touch," and "Setting Up the Business." Most of these chapters also incorporate the "case history" approach, so the book is quite readable and engaging.

While some North American readers may be put off by the British nomenclature ("baize" and "wing springs," to name just a couple of items), and may not relate to some of the piano makes mentioned (Challen, Eavestaff, Allison, and Sames, to mention a few), many of Booth's principles are instructive and valuable. Although the likelihood of running across an Eavestaff Minipiano on this side of the Atlantic is fairly small (I've worked on two in 25 years in the business) the information in the chapter on Minipianos is very useful for those cases.

I would have to say that the information in the book comes from a traditional, rather than a cutting-edge, perspective. For in-

stance, epoxies and CA glues are not mentioned at all. The author seems to distrust animal glue (referred to in the book as "hoof and horn"), but he doesn't state what his own preference in adhesives is. Modern humidity con-

trol is mentioned only in passing; the author generally recommends the use of a large container of water under or in-

side the piano to "humidify" an old instrument.

Regarding electronic tuning aids, Booth states: "There have been many electronic tuning aids on the market over the past 25 years or so, and overall they have not made the impact on the trade that they might have had if sufficient prototype testing had been done." It's difficult to believe that this sentence was written in 1996, but perhaps this shows how little we know about the tuning profession in Europe. State-of-the-art tuning aids like the Sanderson Accu-Tuner and the Reyburn CyberTuner aren't mentioned in the book, but devices unheard of here, such as the Mk. 6 and the Vista II, are. I think Booth misses the point about electronic tuning aids when he says, "... if every instrument we had to tune were a 9' grand then tuning by this means would be simple, requiring only a modicum of manual dexterity and little experience to perform the task." All I can say to this is that in my experience as a teacher of tuning, I've found that most people are

able to master the "what it should sound like" long before they mas-

*Continued on  
Next Page*



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*A review of Pianos, Piano Tuners, and Their Problems, by George W. Booth. London: Janus Publishing Company, 1996. Hardbound, 208 pages, numerous black & white photos, bibliography, index.*

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

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Seattle, WA 98109  
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Continued from Previous Page

ter the hammer technique and mechanical ability necessary for solid tuning. Perhaps after 50 years of tuning, Mr. Booth has forgotten how hard the "manual dexterity" was to learn.

The most entertaining section of the book for me is the last, on setting up business. Booth makes some excellent observations here about how the tuning profession has changed over the years, and he relates a number of charming anecdotes about his experiences. He gives advice about

pricing, tools, insurance, and advertising, and concludes with a few words about the "peaks and troughs" or the vagaries of our profession.

To read this book is to be reminded that the piano tuning fraternity is wide, that it is filled with pianos, people, problems, and techniques totally foreign to us. And yet, one realizes again how many similarities there are — that our profession is, indeed, a fraternity — that piano tuning is a single language, a language spoken with many different accents. 



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# PIANO TECHNICIANS Journal

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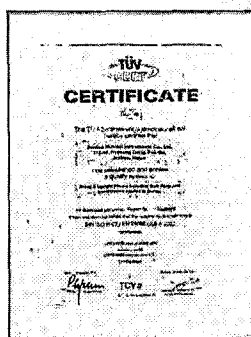
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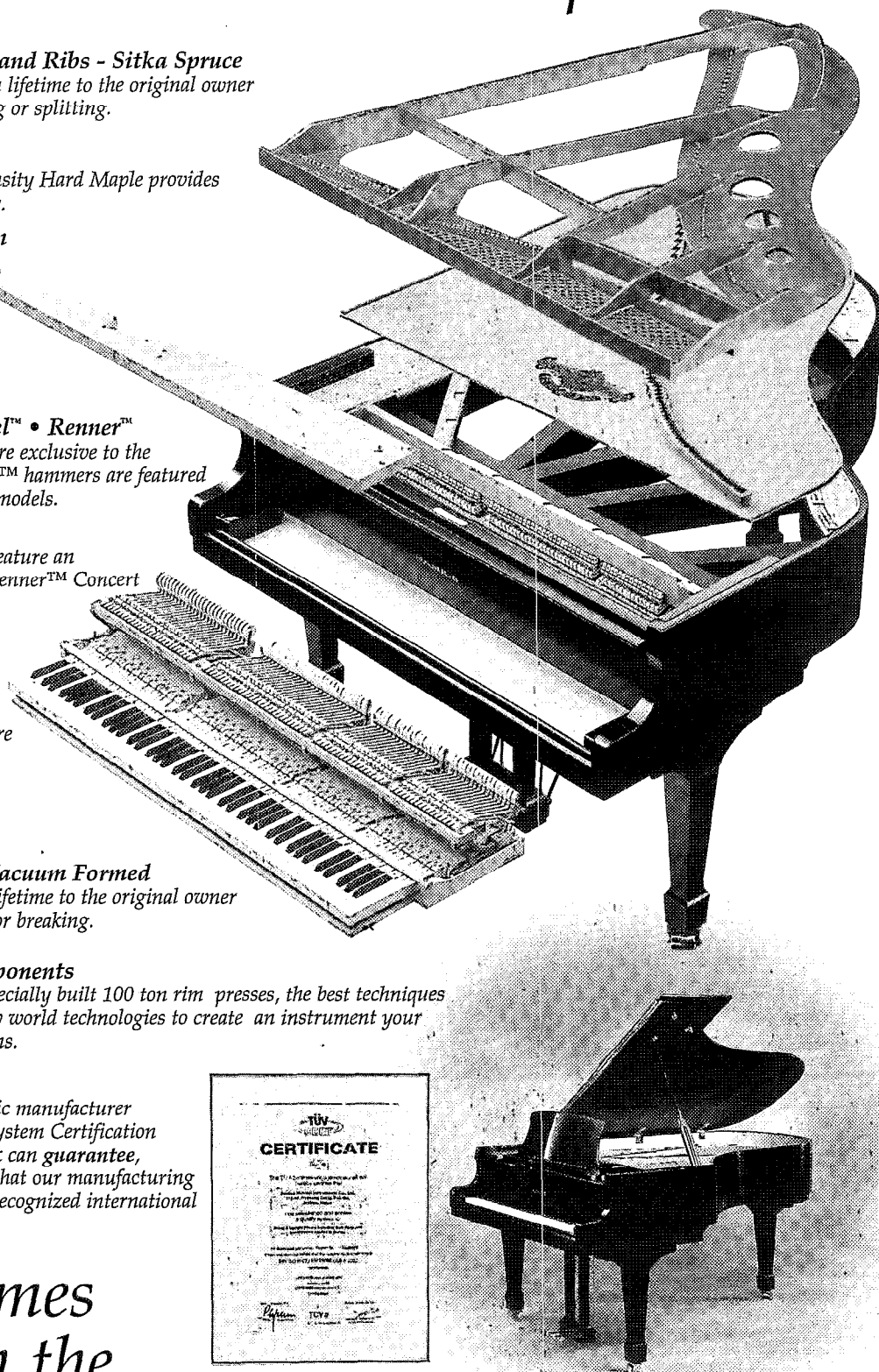


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# President's Message

## A Season (& Reason) to be Thankful

On a daily basis most of us more than likely take a great deal for granted. We go about our business living and doing our business very freely without the need, it seems, to give thought to how free we really are. In our countries we are so fortunate to be able to operate a practice without being watched, harassed and/or prevented from carrying on the business practice of our choice. Piano

technology as practiced by independent operators has for many years provided a solid opportunity to develop substantial practices which continue to serve the piano owning public and the field of music.

Each year when the month of November rolls around it is only natural for the Thanksgiving holiday to come to mind. For many the thought of Thanksgiving revolves around the dinner table on the holiday. The view of the turkey and all of the trimmings along with the accom-

panying festivity is a welcome site and one to be appreciated and enjoyed.

There is without a doubt a fantastic number of things for which we should be thankful outside of the field of piano technology. It is my hope that each person reading this piece will take the time this holiday season to think about all there is to be thankful for, and in addition to thinking about all there is to be thankful for, take the time to enjoy and realize all we have in our respective countries for which to be thankful. It is my aim here, however, to touch on some areas in our field we should not miss during this time of thanksgiving.

I have always enjoyed reading our *Journals* from years past. When revisiting articles written some years ago I find myself not only enjoying them again, but actually mentally visiting that time period. Remembering the authors and the general atmosphere surrounding that period of time I find, for the most part, very satisfying. I am thankful for having been around during the time some of the articles were written and thankful to be able to enjoy them once again.

When revisiting the *Journals* there is the opportu-

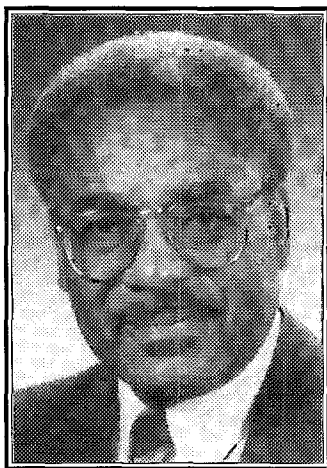
nity to see the difference in the PTG of today as compared to some years back. It is easy, I think, to see the differences. Some things are definitely improved and in some areas it seems as if we have reversed our progress. That is not good. Nonetheless, we should be thankful for the improvements and at the same time be alert for opportunities to improve even more in the future.

As we move ever closer to the 300th anniversary of the piano, we as piano technicians should certainly be thankful that Bartolomeo Cristofori invented the instrument which we on a daily basis interact with as a means of providing our livelihood. While he called it a keyboard instrument that can be played soft and loud (*gravicembalo col piano e forte*), we live in a time that sometimes leaves out the piano part of the instrument. As piano technicians, however, we have the opportunity on a regular basis to return the instrument to what it was intended to be, a good sounding piano forte. As we all know, it can produce a range of sound from the faintest *pianissimo* to the loudest *fortissimo* when well voiced and well regulated. For that we should be thankful.

We must also be forever thankful to Sebastien Erard for inventing the double escarpment we know so well, along with many great builders such as Pleyel, Broadwood, Steinway, Knabe, Chickering, Mason and Hamlin, Bechstein, Bluthner, Schimmel, Baldwin, Kawai, Yamaha and others who produced and are continuing to produce the pianos.

Although the piano is one of the youngest of musical instruments, it has in spite of its youth outstripped all other instruments in the number of solo compositions written for it. Its popularity in the home and in the concert hall results from its versatility. Its range of more than seven octaves is greater than that of any other instrument except a large pipe organ. Let us not forget to be thankful for Bach, Haydn, Mozart, Brahms, Beethoven, Chopin, Liszt, Schubert, Schumann, Debussy and Ravel, to name only a few of the many composers who produced such a vast amount of literature for us, our clients and the listening audience to enjoy.

You know this could go on and on. So I invite you to continue to think about other aspects within this field of piano technology such as the many people who have helped you in your development for which you must certainly be thankful. Please internalize these thoughts, share them and indeed, be thankful.



Marshall B. Hawkins, RPT  
PTG President

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selected Kawai.*

The 42nd ARD International  
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*First Prize Winner selected Kawai.*

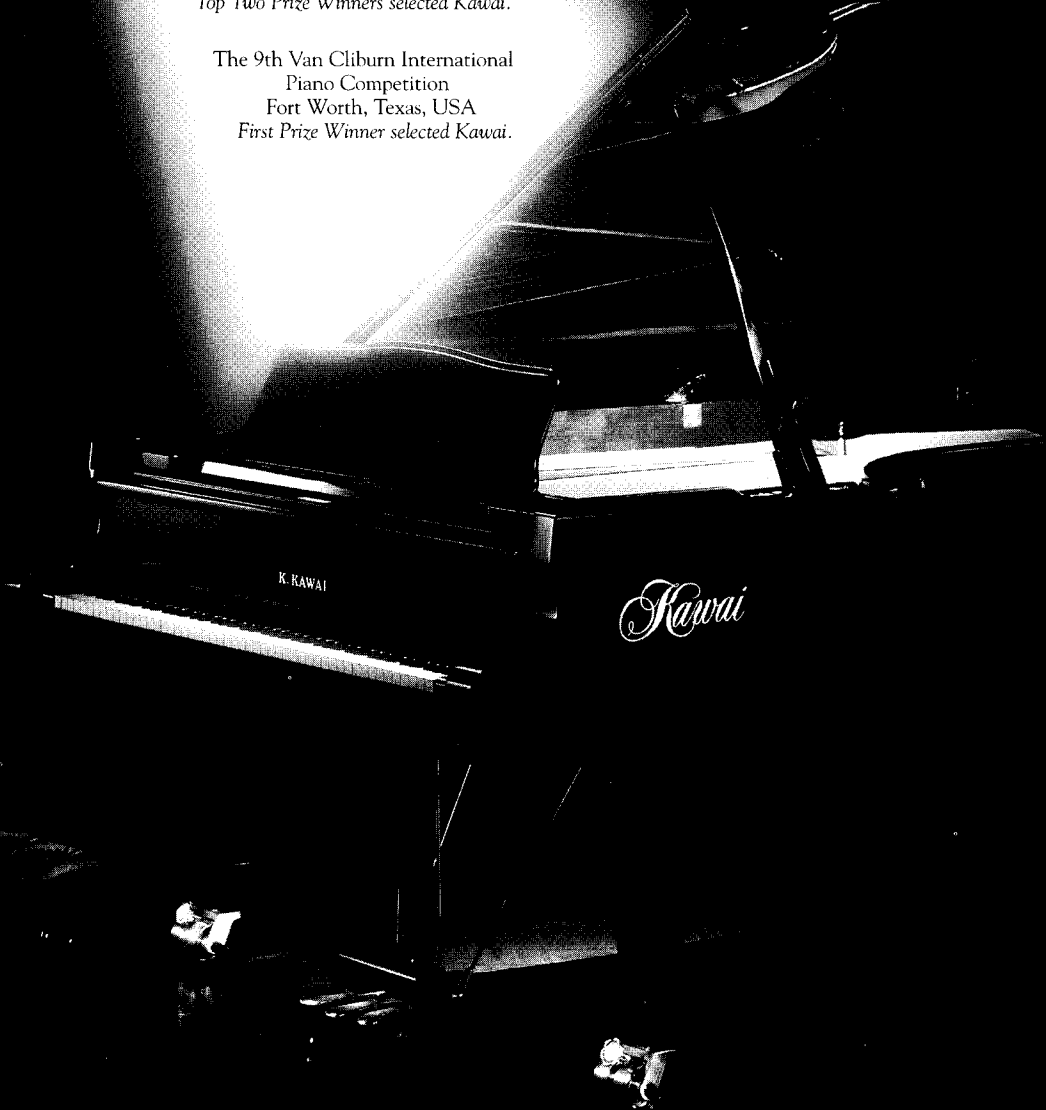
The 45th Ferruccio Busoni  
International Piano Competition  
Bolzano, Italy  
*First Prize Winner selected Kawai.*

The 11th Santander  
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*First Prize Winner selected Kawai.*

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

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

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



*It's becoming a familiar refrain.*

# Tips, Tools & Techniques

## TT&T

### Two Tips for Installing "Quick" Repair Parts

In old beater pianos, sometimes you must replace let-off buttons and hammer springs with the quick replacements available from supply houses.

With both of these replacement items you use a very tiny screw to mount the part. Now the tips:

1. You need to make a tiny hole in the rail to attach either part. Use a wire mute handle to poke the hole.

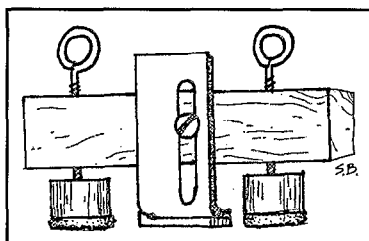


Figure 1 — Repair bracket for missing let-off button.

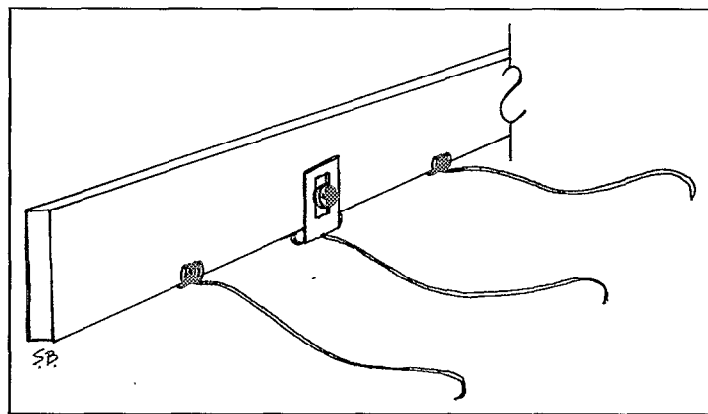


Figure 2 — Quick-replacement hammer butt spring.

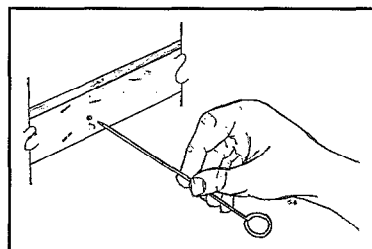


Figure 3 — Wire handle from rubber wedge mute, showing pointed end.

2. Next, put the small screw in the part and then use a small piece of paper or cardboard to hold the screw in place while aligning the part and inserting the screw into its hole. Put a very tiny hole in the paper or cardboard first.

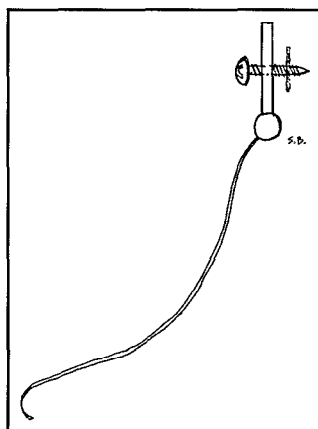


Figure 4 — Small piece of paper or cardboard keeps screw from falling out.

— Francis Elmer  
Greenbay, WI

## TT&T

### In An Emergency Don't Break The Glass

I was called by a new customer to service a piano in a church for a concert on Sunday. The Friday appointment had me looking at a Baldwin Studio and found me facing some problems left by someone else.

The problems were not new, the first being that three hammer butts needed new center pins. The second was more challenging. The "tooner" before me had broken a bass string (two-string unison), did not repair or replace it, and never even had the courtesy of leaving it down on the bottom board.

"Tooners" who break strings and then just walk away are a very sore spot with me. It's becoming all too frequent. These people say, "I don't have time. Leave it to the other guy." And the other guy is me. Such a practice is unethical and does not speak well of people who are supposed to represent some higher standards as members of our PTG.

Anyway, back to the problem. Since there was no string to use in measuring the diameter, and not having a caliper or micrometer with me, I was faced with a dilemma. The interior opening of my bass string measuring gage is closed at both ends. This means that the good string would have to be removed from the hitch pin in order to get a reading. Well, obviously when that string is re-installed it would be going out of tune in a hurry. Certainly not acceptable for a concert.

What to do? When all else fails — *think!* I carry a Vise Grip® long nose pliers in my kit. Without removing good string, I adjusted the vise grip to conform to its diameter. Then I just matched that to a universal string and that problem was solved. A front rail punching between the new universal and the adjoining string subdues the sound of the universal until I can get back to retune it.

So, in an emergency, don't break the glass. Instead — *think!* Another good lesson for me of turning adversity into a learning experience.

—Dennis Kurk, RPT

(Reprinted from Soundboard Buttons, newsletter of the Twin Cities Chapter)

## TT&T

### Movable Platform For Vertical Piano

The staff at the Veteran's Home in Yountville, California had a novel solution to a common problem. Faced with a piano that had fallen over backwards too many times (...once), they built a small platform for every vertical piano they had. Very stable, as the pianos are *bolted* to the unit through the bottom board.

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Continued on Page 14



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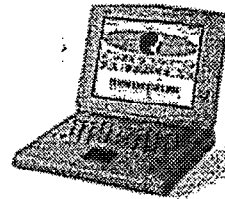
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## Q & A/EDITOR'S ROUNDTABLE

### Q: *Split Bridge In Upright Piano*

I need some help with a Steinway upright bridge. I am recapping the top treble section of the bridge, (top 18 unisons) The condition of the original cap was so badly split (chowdered!) that it was very difficult to locate the bridge pin holes in my Mylar pattern. I made my best guess on the top five or six notes. The split actually extended well down into the root. Upon repairing the root of the bridge, I think I may have altered the position of my reference holes to locate the Mylar pattern.

I have the new cap material in place, I've set the bearing, and I'm at the point where I should be marking the location of the pin holes. Using the reference points on the new cap and pattern, I measured the speaking length for C-88 at about 1/8" shy of two inches.

I marked chalk lines to show the location of the center string of each unison, and my pattern shows the pin location as dead on the lines or just touching the right side. But the line of the three pins per unison is not perpendicular to the speaking length of the strings.

Should I take the opportunity to set C-88 at dead on two inches? If I slightly move my pattern to allow two inches for C-88, do I also move everything else? And should I consider making the notches perpendicular to the strings, or am I getting too caught up in theory? Since the condition of the original cap was so poor, should I use some other method to locate bridge pins? Thanks for any help you can give.

— Gordon Large, RPT  
Mt. Vernon, ME

**A:** *Brent Fischer, RPT:* Try precision calipers to square up the notches by placing one foot on your center string impression and then draw a circle on your pattern, the outside foot dimension is measured from an original sample. If you are using a clear Mylar-type material, a circular impression will be left on the pattern which will make eyeballing a perpendicular angle to the pressure bar real easy. Try using a six-inch straight edge to accomplish this task. I have just recently altered the bridge on a Steinway C which has staggered unisons in the first treble section. The concept is mostly the same as what you seem to have there. The string line coming from the tuning pin should be patterned close to where it comes off the new pin/string placement.

I have a limited scale design background. I try to achieve a distance of 1 31/32" on Steinway grands, and I am not sure of the upright specs. Just make sure the pattern sits in such a position as not to compromise an acceptable side-bearing angle throughout the section.

To me a deviation of small proportions on note #88 is negligible if the execution of drilling the pin holes and notching the bridges is accurate and consistent. Hope this helps.

**Ed Foote:** Gordon writes: "Should I take the opportunity to set C-88 at dead-on two inches?" No, if you do, there is a good chance you will break strings, trying to get to pitch. The large

Steinway uprights of the 1890's had C-88 lengths of 1 7/8", (at least both of mine do). Longer string per pitch means more tension if the strings are original size. There was a piano mechanic around here that changed these things, I have seen his writing on the plate, "high scale, tune flat"!

He asks, "And should I consider making the notches perpendicular to the strings, or am I getting too caught up in theory?"

Make them perpendicular.

Finally, "Since the condition of the original cap was so poor, should I use some other method to locate bridge pins?"

You may want to use a thread stretched from around the hitch pin to the string's rest on the plate termination bar. If you punch-mark the center string position, directly under the thread where it crosses the front and back notch marks, the opposing angles of the bridge pins will provide enough offset for sidebearing. If you just have to have more sidebearing, make the locator-pin pricks on either side of the thread.

After having all the center string pins located, you should devise a three-prong tool, (some of the voicing tools are perfect!), and mark the trichord pin position for each note, front and back, using your marks from the thread-located center holes. This is where you can work on the perpendicular alignment, no theory needed, just a close eye and the occasional thread to help keep the alignment right.

Good luck, and really, two inches is too long for C-88.

**Jon Page, RPT:** I have plexiglass blocks with six bridge pins drilled in. There are several executions for length and width. Once the center line and string length are established, the center two pins are lined up and the block struck. All pins are mapped perpendicular to the string.

**Vince Mrykalo, RPT:** If this S&S upright in question is a 45" studio, the speaking length at note 88 is slightly more than 2" (they use 12.5 gauge there). I concur with Ed Foote that the old ones are 1 7/8" speaking length at 88.

### Q: *Hammer Drop Problem*

I am trying to finish up regulating a 5'8" Kimball grand which is about 12 years old and has been used at a local college. It was an unplayable mess when I took on the job and I have now a very nice feeling and playing instrument. I have regulated many grands and this is the first time I have run into this problem.

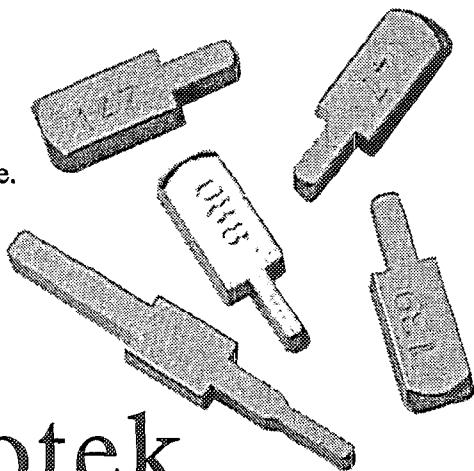
The action works just fine and I have the let off set at 1/8". Hammer height from strings at rest is just under 1 7/8" and dip is a tad over 3/8". Escapement is fine, and the jack is about 1/8" from the repetition lever felt when the key is pushed down. The repetition spring has none too little or too much tension. The problem lies with the drop screw adjustment. In order to adjust the drop to half the let-off, I have to bring the drop screw up as high as I can get it which doesn't seem right. I feel that I may be overlooking something but I don't know what. The aftertouch seems just right. Any ideas will be deeply appreciated.

— Jan Otto  
Chelsea, Michigan  
Continued on Page 12

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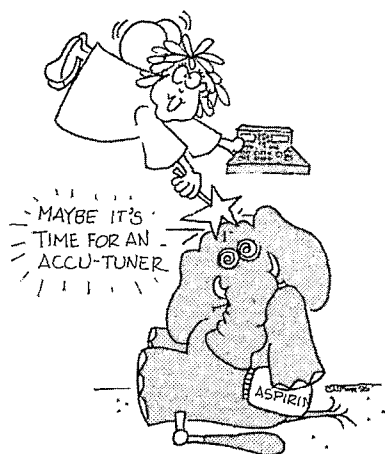
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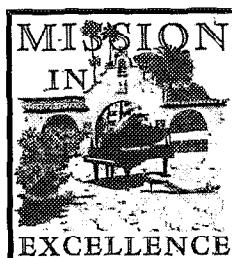


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# Q & A/EDITOR'S ROUNDTABLE

Continued from Page 12

**A:** ● **Tom Seay, RPT:** It sounds as if you have done a good job of regulating this action. If the drop is okay and the tops of the drop screws clear the bottom of the pin-block when you remove the action, I wouldn't worry about it. The problem is that the felt or leather on the top of the balancier which contacts the drop screw is too thick. You can remove the wippens and replace the cloth with thinner material, but if the drop is regulated to your satisfaction, I wouldn't bother with it.

**Frank Weston:** I just ran into the same problem on a 1926 M&H "A" which was rebuilt about 40 years ago. The person who did the rebuild used action cloth that was too thick on the end of the balancier on which the drop screws bear. This might be your problem also. My solution: If the drop can be made correct and the action fits in the piano with the current configuration, end of problem. Otherwise replace the cloths/leathers under the drops.

**Zen Reinhardt, RPT:** How's the repetition on that piano? Can you strike the key rapidly (seven to nine times per second) and have it play solidly every time? If so, then I wouldn't worry about the depth of the drop. How well and how consistently the action plays are what the pianists are going to be concerned with, and for the most part, I doubt they would care what the action looks like as long as it feels right.

**Joel Rappaport, RPT:** Jan Otto has gotten some very good answers about this situation. I would like to throw out one more point to keep in mind: hammers worn past their acceptable point.

As hammers wear and are filed, then the action regulated again, the let-off buttons and drop screws must be raised along with the hammer line. One of the criteria we have for determining if the hammers need to be replaced is if the drop screws are so far up that they: 1) are at the top of their travel and can't go up any more; and/or 2) the tops of the drop screws scrape the bottom of the pin block as the action is pushed in.

"Another critical factor in this evaluation is the hammer bore point. This is the point along the hammer molding where the shank enters and is determined during hammer boring. It is not an adjustment we can easily make. If the bore point is too high on the hammer, the effect is the same as an overly-filed hammer, even when the hammer is new. All the action parts, including the let-off button and drop screw will have to be put higher than they should be. There is not a lot we as technicians can do about this except remove the hammers, plug the holes and redrill or start over with a new set of hammers."

**Ralph Martin:** I was reading your message when the North Florida electricity glitched as usual and I lost all the messages.

Hammer wear can definitely affect the blow distance, but even under college abuse I think the problem will be more

likely to be one of adjusting the drop which will entail, of course, a re-regulation. I believe, once done, the drop screws will fall somewhere in the center of the adjustment range.

If you'd like to post the model number (assuming you haven't already) I will send Kimball's recommended blow distance for that particular piano. Possibly someone else has already done this. I've no way of knowing.

---

## The Final Word

---

The problem is finally solved as of last week. After making calculations, I found the hammer bore to be incorrect and will be shimming up the hammer rail. I would have never thought of incorrect hammer bore on my own — thank heavens for this news group.

— Regards, Jan Otto

---

## Q: Mink Oil For Grand Knuckles?

---

I am posting a question from a colleague who does not have Internet access. He would like to elicit opinions from this distinguished (extinguished?) group on the use of mink oil as a lubricant for grand knuckles. Apparently, a technician told him that this was absolutely the best thing to use, much better even than powdered Teflon. Opinions?

Many thanks!

— Tom Seay, RPT

School of Music, The University of Texas at Austin

**A:** ● **Les Smith:** Hi, Tom! Long time. Forget mink oil. The stuff sold today is about 1/6 mink oil and the rest is animal fat, like beef tallow. It doesn't last; instead it dies out quickly and makes the knuckles noisier than ever. It will also leave a noticeable odor in the piano. Stick with the powdered Teflon.

**David Ivedsen, RPT:** Any kind of oil is inappropriate for knuckles as it will attract dust from the air and make a mess. It also tends to make the depression from the jack into the knuckle more pronounced and quicker as it softens the buckskin. Dry lubricants are the way to go, the best in my opinion is the micro-fine Teflon from Spurlock. I don't use anything else!

**Jim Bryant, RPT:** Tell your friend that mink oil is great on baseball gloves, shoes, and minks, and that is where it belongs. This type of oil leaves a gummy residue and will eventually cause problems, i.e., nap-matting, depressions forming and hopefully, eventual sterility of the technician who used it. Dry lubricants only on the knuckle, please. Dry Teflon® will do fine. Some use graphite; me, I use wine—but not till the work is done! ☞

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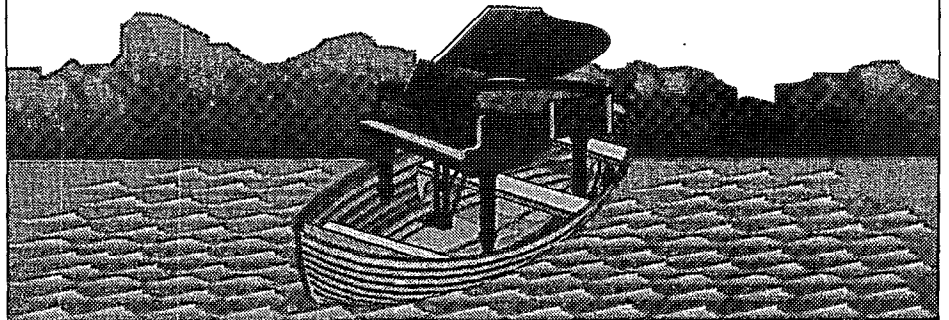
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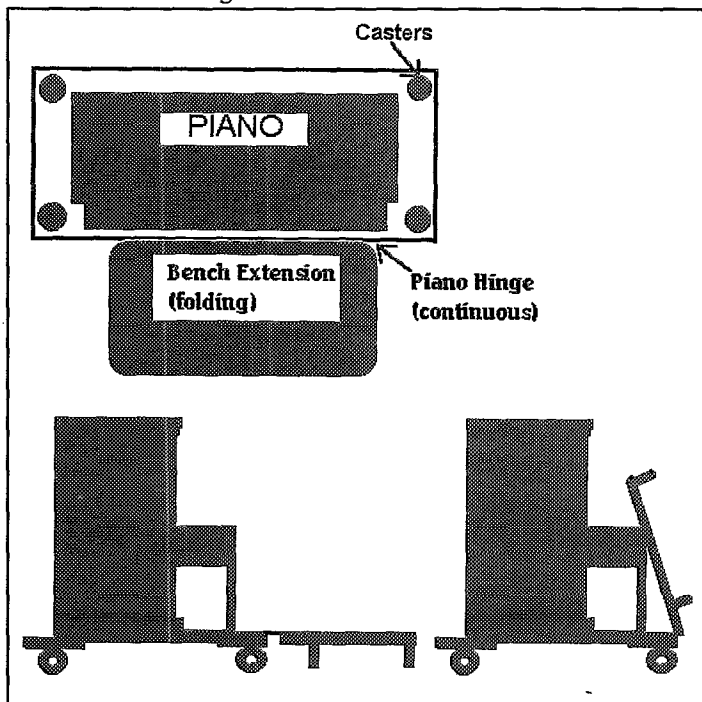
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**From Your Home Office Staff**

# Tips, Tools & Techniques

Continued from Page 8



to side. You want the casters you're mounting to be *outside* the piano's own dimensions.

2. Mount your favorite heavy duty caster set on it. Mount them at the corners of the plywood and they'll be *outside* the area the piano will fit on. This provides better stability than a standard caster set mounted on the piano by providing a much greater 'foot' for the piano's weight.
3. Run 2x4s to frame edges, and run more as bracing under the piano. Be very free with those deck screws and lag bolts. With a 5"-tall caster set, you're creating a platform whose bottom edge is riding about 1" above the floor. Right?
4. Attach a 50+" piano hinge centered on the key side of the platform and attach a rectangular piece of plywood for the bench! It should be long enough to reach slightly above the keys when folded up (and the bench will fit under the keyboard — well protected). No casters on this extension. 2x4 legs so folding extension is same height as platform when opened.

a) When opened, it served as the "brakes" for the platform. Depending on the weight of your piano players ... hmmm. Although not installed on the units I saw, you might consider proper brakes on two of those platform casters. Eh?

b) When folded up, it protected the edge of the keyboard/key slip and created a distinct "*not flat place!*" which warded off casual use of the piano as a convenient storage place. A bonus is protected bench storage held in a folded position by a bungee cord from folded extension across the top to the handle at the back of the piano.

The whole thing is painted with the same color as the walls in the building, and carpeted with gray patterned indoor/outdoor stuff. One had carpet that matched the room where the piano usually resided, a strange institutional floral pattern. You have room enough on the platform for a singer or conductor, with space for a page-turner, too. It's not as bulky as it sounds, and provides a very stable platform for the piano and

player. Since the original casters are still on the piano (but defeated by the bolts through the bottom) and the bench is the same height as the piano, you'll have to admit that it doesn't change the players perspective/geometry with the instrument!

If you have a drama department, show this to your set designer/builder. He/she will exclaim; "Oh! You need a 6" movable riser with folding thrust! No problem!"

— Jeffrey Hickey, RPT  
Eugene, OR Chapter

## TT&T

### Selling The Pitch Raise

The next time you have to break the bad news to someone about a pitch raise, try this. Say, "Mrs. Jones, your piano is 50 cents flat! Do you want me to tune it where it is or tune it correctly to A-440 pitch?"

Then shut up and let her think about the statement. Say nothing until she answers, asks a question, says "Hell, no!" or whatever. If she asks a question, answer it and shut up again!

This does several good things for you:

1. It gives her a choice between something and something rather than between something and nothing!
2. It tells her that you (the expert) consider it incorrect to tune the piano flat!
3. It makes her really think about her piano. Something she has probably never done before!
4. If she asks one question, 95 percent of the time she will buy the pitch raise. (Of course, don't ask if you really don't want to fool with the darn thing.

Try it. You'll like it!

— Warren Fisher, RPT  
New Orleans, LA Chapter

## Letters

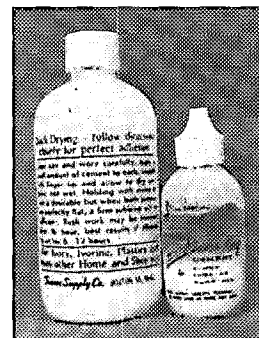
### Have You Seen This Glue?

Enclosed is a photo of the front and back views of bottles of "Hale White Liquid Piano Key Cement." I was fortunate to inherit this bottle from a former colleague. This product is no longer made, and I am searching for an equivalent. This glue is excellent for replacing missing ivories, and the following properties make it particularly well suited for quick in-home key-top repairs:

1. It dries to a solid *white* color, which is necessary under translucent ivory.
2. As the bottle directions state, it is a *contact* cement so it does not need clamping.
3. It is a *forgiving* contact cement — small positioning corrections can be made before it dries completely.
4. It dries *quickly*; the piano can be played by the time I have put away my tools.
5. This cement *works*. None of the ivories I have replaced have ever come off.

I hereby ask all colleagues and all supply vendors to please tell me if any equivalent glue is made which has all five of the described properties. Is there a generic name for this cement? Please respond through this *Journal* or call me at (707) 441-1017.

— Carman Gentile,  
Redwood Chapter





# String Leveling By Ear

**By Clair Davies, RPT  
Bluegrass, Kentucky Chapter**

The recital was excruciating. I winced all the way through it. The fault wasn't in the new hammers or the new soundboard I'd just put it. It was the darned *una corda*! The guy was in love with the soft pedal and couldn't keep his foot off it. In pianissimo passages when he was trying to be his most expressive the big piano sounded just like a cheap spinet.

This was several years ago and I had just done my first soundboard installation in a nine-foot Steinway and my reputation was on the line. The professor, a fine player and actually one of my favorite people, was turning my budding fame to infamy. It was a defining moment. I realized I had better stop ignoring the left pedal and figure out how it worked.

## Diagnosing Un-level Strings

If only "*una corda*" ( "one string," in Italian ) were an accurate description of the left pedal's function! Everything would be all right if the hammer struck only one string when shifted, but it struck two strings. The heart of the problem was clearly in the hammer fit with those two strings. A hammer that has been fitted to un-level strings will not fit well when shifted. This will naturally cause the tone of the *una corda* to be stringy and uneven.

Now I was up against it.

Level strings were basic to the voicing of the soft pedal and I dreaded string leveling. The traditional method of leveling strings had always left me feeling dissatisfied. I just couldn't tell anything by feeling the strings with a finger tip, and as far as I knew there wasn't any other way.

I was still in a muddle, when one day, while trying to lay a small ruler across the strings in a place where I could actually see under it, I suddenly thought to set the ruler on end on just a single unison, then pluck the strings and listen (see Figure 1). The strings in contact with the end of the ruler buzzed. The string that was low rang free. All I had to do was raise the low string until it buzzed too. String leveling by ear!

I've used this trick for several years now and it really works. The end of a six-inch machinist's ruler does the job perfectly, although a piece of keytop material will also do, as will the edge of the butt end of a rubber bass wedge. No down pressure should be used, of course, and the leveler should be lightweight. A wire can be deflected to some degree with surprisingly little force, even when under great tension. If you use a heavy string leveler, you won't have any leveling to do.

I don't worry about trying to keep the string leveler perfectly and absolutely perpendicular. It's not necessary to get all the strings in the piano into one plane and level with the earth. The only requirement is that the strings in each unison be in line with one another. A well-fitted hammer will then fit the strings when shifted, because its top will be in a parallel plane. Any small lack of squareness in the hammer top is insignificant as long as the hammer top is parallel to the plane of the three strings.

## Leveling the Strings

For pulling on the string, I

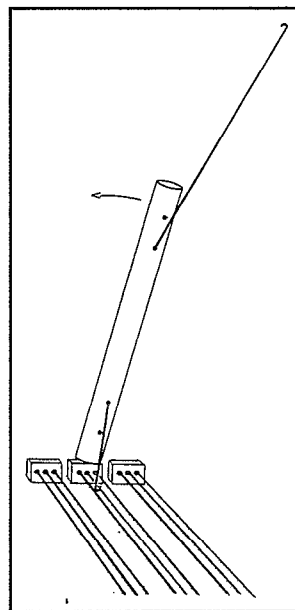


Figure 2 — Low-effort string hook in use.

have a new string hook, which incidentally is a real shoulder-saver. Essentially a second-class lever with a mechanical advantage of four to one, it calls for only a light touch, which results in a great deal more control.

As seen in Figure 2, the end with the short wire works against the top of the agraffe. The end with the long wire bears against the top of the capo. Taller capos may require a second tool with a longer wire, but the dimensions given here work well on Baldwin and Steinway. A dowel 3/8" wide-by-4" long and gauge 22 wire

are the only materials needed (see Figure 3).

It's wise to raise pitch before leveling strings. Otherwise, there should be no concern about the strings going out of level with playing and ordinary tuning. They change much less than you'd think.

Regarding the use of string hooks, I'd always heard they can put a kink in a string and cause false beats. I'd never detected that kind of change after using a string hook, so I decided to test this old bugaboo by pulling on several strings really hard, then removing them from the piano and

*Continued on Page 22*

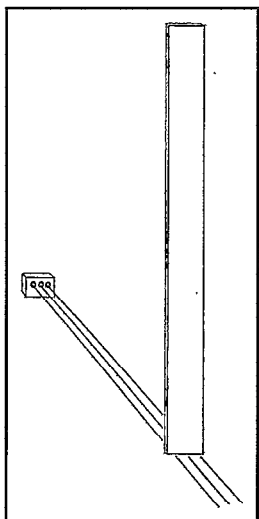


Figure 1 — Checking for level strings with metal rule.

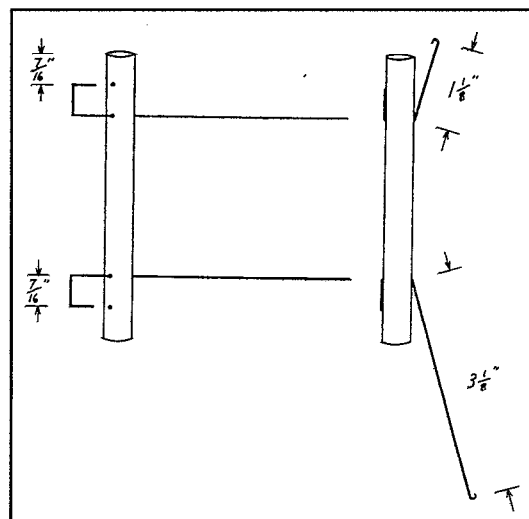


Figure 3 — Plan for low-effort string hook.

# Three Perspectives —

## On Jim Coleman's "Equal Temperament by Pure 5ths"

[**EDITOR'S NOTE:** Since Jim Coleman's article appeared in the August, 1997 issue of PTJ, I've received these three article-length responses which represent different slants on the subject. I'm grouping the three articles together here in the interest of easier reference later. — SB]

### ***Pure 5ths, Stretched Octaves, & Well Temperament***

**By Bill Bremmer, RPT  
Madison, WI Chapter**

#### ***Equal Temperament by Pure 5ths***

My first thought after reading Jim Coleman's article, "Equal Temperament by Pure 5ths" (see *PTJ*, August 1997), was that this is the very idea which was promoted 10 or so years ago by Lucas Mason in his book called *The New Tuning*. This was also one of the observations made by Michel LaChance RPT, in the "First Responses" article.

Interestingly enough, I agree with much of Mason's thinking although I end up rejecting the idea in the end and would not tune a piano his way under any circumstances. His book was reviewed by the *Journal* back then and as I remember, the consensus at the time was that this was really nothing "new" and that Mason's book was largely self-serving. I have always felt that PTG members rejected Mason's thinking mostly because he was and still is not a member of our organization more than for any other reason.

In fact, I had been influenced by Mason's book and was inclined to tune much the way Coleman advocates in his article when I attended my first seminar at the Steinway factory with Bill Garlick, RPT, in June of 1986. He admonished me at the time that this would produce a "very bright sound." I responded that this was precisely what I was seeking to accomplish. He countered that there might well be some situations in which a more contracted sound might be preferred.

When I heard the piano in the recent recording, Gershwin Plays Gershwin, I found the piano to be so harmonious that I wondered if a temperament other than Equal had been used. When I asked the tuning technician, Mike Miccio, RPT, of Brooklyn, New York, he said that it had been an aural tuning in Equal Temperament but pur-

posefully added that he did not use the extreme amount of stretch used by many of the other technicians he knew.

Let me state categorically that I am totally in love with both the sound of a pure 5th and of the stretched octave. The first and seventh octaves in particular can, and should be stretched far more than most conventional tuning theory and teaching provides for, on virtually every piano from spinet to concert grand. However, pianos vary widely in their scale designs and resultant inharmonicity as well as their surroundings and the purposes for which they are used.

The "aggressive style" (referred to in the "Responses") of Steinway Hall technicians works well for them in their usual practice. They are most often working with a large concert grand with higher inharmonicity than any other high quality piano. They are trying to project a sound into a large space. The melodic quality of highly stretched upper octaves is essential to creating the unique sound that their instruments have. Indeed, if one were to tune such a piano so that the seventh octave would not show "errors" (on the sharp side) on a hypothetical RPT Exam, one would produce a very unappealing, "flat" sounding instrument. Insisting upon tuning this way would undoubtedly result in very dissatisfied clients. One would not stay employed long in such an environment even though a very strong case could be made that the piano is being tuned "correctly" according to a consensus of the industry.

It makes sense to me that in a large hall on a piano with high inharmonicity one would want to take advantage of the properties that the piano has to emphasize its brilliance and projection, particularly if it is a solo or concerto instrument, and the music to be played is highly complex using the entire keyboard. The limitation, however, of the "New York Stretch" (as we here in Madison have come to call this approach) is that this kind of very powerful—bordering on harsh—sound is just not appropriate for all pianos. One of the responses suggested that it may be useful for a low inharmonicity piano (Why? To introduce dissonance where inharmonicity does not require it for the sake of more sound or resonance?), but I suggest that it actually would run contrary to such a piano's very nature. How often have you heard the suggestion, "Let the piano tell you..." with regards to both temperament and octave stretch?

***"The melodic benefit and enhanced projection of the upper octaves will be of little consolation to the player of church hymns and other close harmony, middle-of-the-keyboard styles from Renaissance to rock-and-roll and beyond."***

There is one statement in Coleman's article which deserves to be cast in stone because of its unwavering truth: "There are always trade-offs when one attempts to favor one interval above others." This is true regardless of the temperament used and regardless as well to the extent the octaves are stretched.

It was pointed out in this

discussion that the inevitable result of a wider octave and less narrow than the theoretical-2-cent 5ths are wider 3rds. Wider 3rds are harsher 3rds. When playing more intimate music on a smaller piano with relatively low inharmonicity in a more intimate setting, the "New York Stretch" may sound quite distasteful and, therefore, be quite inappropriate. My own experience has told me that the client may proclaim that "every chord sounds sour." The melodic benefit and enhanced projection of the upper octaves will be of little consolation to the player of church hymns and other close harmony, middle-of-the-keyboard styles from Renaissance to rock-and-roll and beyond.

A few years ago at a PTG Annual Convention, I took some interval size readings from an RPT Exam Master Tuning purely out of empirical interest. The piano was a Yamaha C5, an instrument of moderate inharmonicity. A copy of those findings appears in Table 1. I noted at the time that the tempering of the 5ths was considerably less than the theoretical two cents, even though some difference from theoretical was expected. This tuning was undeniably Equal Temperament, not "approaching a Marpurg I" (as was mentioned in the "First Responses") or anything else. Except for the seventh octave, this piano was tuned very much in line with the "ideal stretch" talked about in your article. The single octaves in the midrange would have had a beat of .5, approximately.

This is what I would call "barely perceptible to the contem-

***"There is one statement in Coleman's article which deserves to be cast in stone because of its unwavering truth: 'There are always trade-offs when one attempts to favor one interval above others.' This is true regardless of the temperament used and regardless as well to the extent the octaves are stretched."***

porary ear." In an ongoing musical context, a beat of .5 per second would be virtually impossible to hear unless the musical context displayed such an octave by itself for a sustained musical moment of solo piano. A 1.5-bps 5th, however, would be more noticeable in more circumstances. In my view it borders on dissonance and, therefore, is quite questionable as to appropriateness in general use.

## ***Historical Temperaments in Modern Tuning***

I have been an advocate and faithful practitioner of the historical temperaments for many years. From the very beginning of my experience with these alternatives I have dealt with the complicating factor of inharmonicity and the question of how much stretch is appropriate in the octaves. Professor Owen Jorgensen, RPT, states quite succinctly: "Inharmonicity has the same effect on the historical temperaments as it does on Equal Temperament."

At the Annual Convention in Dearborn, I had the opportunity to tune two pianos in two different temperaments for an Historical Temperament Recital for which Professor Jorgensen was the performing artist. He requested one piano be tuned in 1/4-comma Meantone with minimal stretch and the other in Thomas Young #1 Well Temperament with optimal stretch.

Since I had devised a way to program the Sanderson Accu-Tuner (SAT) to produce any kind of Meantone Temperament, I used my scheme for the 1/4-comma variety, which worked perfectly. In order to create a "minimal stretch," I simply programmed in the same figures I had calculated for each note in the third, fourth and fifth octaves. The values for each note in these octaves were all read on octave five. The results were 4:2 octaves between notes in the third and fourth octaves and 2:1 octaves between notes in the fourth and fifth octaves. I also chose the piano with the lowest inharmonicity for this tuning, a Kawai seven-foot grand. The results were octaves much narrower than is usually expected or executed under general circumstances.

The piano indeed had a very contracted sound nearly devoid of the usual resonance we expect to hear from the modern piano. It made the modern-sounding Kawai Grand, which had been tuned in the usual Equal Temperament and which I had just listened to previous to the tuning for the concert, sound strangely different. It was the kind of sound one might expect from an antique instrument. Professor Jorgensen played music on it, however, that was three hundred years old. This very still, quiet sound was appropriate for the music. To play the same music in any other temperament, including Equal Temperament would have produced a very busy and vibrating resonance which would have run contrary to its solemnity.

There was an important observation that I made while tuning this temperament when I reached the sixth octave. I had to sacrifice the purity of my 10ths and 17ths, which theoretically should have been as pure as their 3rd counterparts in the third, fourth and fifth octaves. If I had tuned 10ths and 17ths in the sixth and seventh octaves that were pure or even close to being pure, my double and triple octaves would

*Continued on Next Page*

<b>Interval Size Readings</b> (Cents deviation from Just Intonation)			
<b>Root (Theoretical)</b>	<b>-2.0</b>	<b>+14.0</b>	<b>-16.0</b>
<b>Note</b>	<b>5ths</b>	<b>3rds</b>	<b>mi3rds</b>
C	-1.5	13.7	-16.0
C#	-0.8	14.3	-15.6
D	-1.3	13.8	-15.9
D#	-1.2	14.4	-14.8
E	-1.0	14.1	-15.7
F	-1.6	13.8	-15.7
F#	-0.7	14.0	-15.5
G	-1.0	14.6	-15.8
G#	-1.2	13.8	-15.3
A	-1.4	14.1	-15.6
A#	-1.1	14.0	-15.5
B	-1.8	13.5	-15.7
Piano Make & Model — Yamaha C5 Temperament Type — Equal (RPT Exam Master)			

# Three Perspectives —

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have been narrow. I decided that narrow octaves could never be appropriate.

In fact, because of the piano's inharmonicity, even though it was relatively low, it was quite impossible to tune perfectly pure 3rds and result in a correctly rendered temperament. Just as theoretical values assigned to Equal Temperament intervals cannot result in a correctly tuned Equal Temperament in a real situation, theoretical values for a 1/4-Comma Meantone Temperament must be adjusted according to the amount of inharmonicity a given piano actually has in order to effect a true rendering of that temperament. As this temperament (which has 3rds which are theoretically 0 cents wide) was adjusted for inharmonicity, those 3rds became .8 cents wide. This is an amount that is virtually imperceptible to the ear but which was accurately provided for and distributed in the temperament with the SAT.

It is interesting to note that all of the music played in this temperament remained in the middle of the keyboard. It rarely, if at all, crossed into areas of the keyboard where the 10ths and 17ths lose their apparently pure sound.

When tuning the other piano, a Samick 7 foot grand, with moderate but considerably higher inharmonicity than the Kawai, I treated my octaves quite differently. I used the same approach that I have used with Equal Temperament in the past but because this was an historical Well Temperament, by definition a combination of pure and tempered 5ths, the resultant width of my stretched octaves varied radically from note to note. My octaves were indeed tempered, an idea which has been under discussion in the *Journal* lately and which Coleman addressed in his article with the rhetorical question, "Is there a law of nature which says that octaves must be pure?"

Contrary to a piano technician's natural tendency to attempt to create evenness and uniformity in all aspects of this work, I believe there to be a law of nature which dictates that no octave can ever be entirely pure because of inharmonicity. Even when attempting the ultimate in equality within a temperament, which the current consensus in the industry apparently believes to be the ideal compromise for the modern piano (a notion which I believe to be mistaken and misguided and which will ultimately give way to something more interesting), the octaves must vary in width across the entire piano and even from note to note because of inherent unevenness in scale design and its accomplice — inharmonicity. Whether there is a perceptible beat or difference in beating may well be another question. Naturally, we must consider that a very slow beat in an interval will be perceived by the ear to be nonexistent.

This leads to the question of whether a 5th can truly be pure. I do not believe so for the same reason that an octave cannot. There are at least two sets of audible coincident partials for each 5th in the midrange. Inharmonicity dictates that if one set is perfectly in tune, then the other must be out. Whether there is a perceptible difference between two 5ths taken out of context and tuned one way or the other is another matter. Where this decision will make

a difference is in the total outcome of the tuning. One may choose a higher or lower set of partials or a compromise between the two, just as one does with octaves, to influence the final outcome.

## My Method of Stretching Octaves

For a good twenty years now I have used a surprisingly simple method which is easy to learn and put into practice and produces the results you and my large and varied clientele seem to like very much. Once the first two octaves in the midrange have been tuned (the width here determined by the amount of actual inharmonicity), I begin to compare the double octave with the 12th (octave and a 5th). I use what Professor Jorgensen would call an "equal-beating" compromise. The double octave is widened to the point where it beats equally with the minimally narrowed 12th. This beating is most often very slow and so is generally imperceptible as discussed earlier.

This results in fine-sounding double octaves but more importantly, eliminates an obviously narrow and intolerably beating 12th. I believe that the latter is the one sound which the contemporary ear cannot bear. With this compromise, both intervals sound apparently in tune. As discussed earlier, a very slow beat will be perceived as pure.

When tuning aurally, I use the sostenuto pedal to hold open the dampers to the notes of these large intervals while I tune them. If the piano has no sostenuto pedal, the damper pedal can be used to hold open all of the dampers after the notes are played. There is simply a little more "background" sound which does not really interfere with this technique. In verticals, I place the strip mute in the entire treble section and under the dampers in the lower part of it. The use of a damper pedal is then not necessary.

When using the SAT, it is set for the note to be tuned. Then the note two octaves below and a 12th below are played while the cents deviation is adjusted to the point of equilibrium of the lights rotating clockwise and counterclockwise. This produces exactly the same results as the aural equal-beating method.

In the case of a Well Temperament where some 5ths are pure and others are tempered, the double octave associated with a pure 5th will naturally be stretched less than the double octave associated with the tempered 5th. If the compromise seems too difficult, e.g., if the point of equal beating results in a double octave that is intolerably too wide, then the 12th may be compromised. This, however, I have never really experienced. I would never reduce a widened double octave just to make it sound "pure" at the expense of a 12th that would as a consequence beat noticeably on the narrow side. I can tolerate extra width in the double octave in order to improve the narrow 12th.

One can of course take this a step further and actually favor the 12th over the double octave. This will result in the "inside-out 5th" that was referred to in the discussion. I have absolutely no qualms about it. A slightly wide 5th in itself is simply not an objectionable sound. Indeed, any Modified Meantone Temperament has at least two of them in the temperament octave. When the octaves are

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stretched, the 12th must be widened even more just to make the double octave pure. It is also a natural consequence, even in Equal Temperament, particularly with a higher inharmonicity piano having its octaves stretched seemingly radically, that 5ths at some point in the upper and lower octaves become widened.

This, of course, is in spite of the fact that a 5th, with any width whatsoever, runs seemingly in direct opposition to the basic need to temper the 5ths on the narrow side in order to accommodate the comma that exists between the 5ths and the octave, as stretched as it may well be. It is one of the more enigmatic fine points of tuning a modern piano.

When I tune a piano in the 1/7-comma Meantone Temperament, which has only a slight "wolf" (a slightly beating wide 5th occurring between Ab and Eb), I manipulate my octave stretching to eliminate this dissonance in all but the temperament octave. The Ab, which has the largest deviation from theoretical Equal Temperament to the flat side, is stretched as much as the ear might well tolerate (perhaps on the order that Coleman suggests with the "Equal Temperament by Pure 5ths"). The Eb which has the largest deviation to the sharp side is tuned strictly in 2:1 octaves. This compromise process is inverted in the bass. This draws the wide 5th together in the outer octaves and thus removes the perceptible dissonance. All other octaves are stretched according to the equal beating method.

Some of my colleagues who also tune the historical temperaments seem to think that my method of octave stretching "distorts" the temperament. I have to counter with the fact that it does so no more than octave stretching "distorts" Equal Temperament. On one hand, it could be said that only theoretical Equal Temperament is true Equal Temperament.

Being that inharmonicity prevents the theoretical from even being possible, Equal Temperament on the modern piano will always be some kind of stretched-out version of it to one degree or another. Even the most contracted rendering of it on the piano with the lowest inharmonicity will inevitably result in octaves, 3rds and 4ths which are wider and 5ths and minor 3rds which are less narrowed than theoretical just as my rendering of the 1/4-comma Meantone could not contain 3rds or octaves which were perfectly pure. The proportions remain the same and thus the basic characteristics of any given temperament are preserved regardless of how much stretch is applied. If "pure" 5ths can still produce an Equal Temperament then any similar manipulation of any historical temperament is just as valid.

## Conclusion

In summation, I must respectfully disagree that an octave beating 1.5 bps in the midrange (with the exception of the compromise I mentioned for the 1/7-comma Meantone Temperament mentioned earlier) is acceptable. The exception might be in the case where one is trying for the very biggest, brightest sound on a large concert grand with the highest inharmonicity. Even then, close harmony in the midrange will necessarily be strained.

To me, a better solution to a better sound from the modern piano is to abandon the idea that Equal Temperament is the best compromise. Since 1992, I have cultivated a particular pattern of Victorian Temperament which I have come to call "Equal-Beating Victorian." The scheme I use has four pure 5ths (upper or lower coincident partials are an option and decision to make). There are two 5ths which are tempered slightly less than in Equal Temperament. The remaining six 5ths are

tempered more than Equal Temperament to some degree or another. There are 24 major and minor triads each of distinctly different color and none which are exactly the same as in Equal Temperament. There is a very fine gradation of these around the cycle of 5ths. No 3rd is so pure as to sound "dead" while none is so wide as to sound intolerably harsh to the contemporary ear. All triads contain the ear-pleasing phenomenon known as "equal beating" (there is none in Equal Temperament). There are many other examples of equal beating within the temperament.

This all leads to a very harmonious resonance from the piano while retaining the very important historical precedent of key color which makes a piano tuned in Equal Temperament sound "unfocused" by comparison. There are wide 3rds in this temperament, wider than in the Equal Temperament by Pure 5ths, but these are distributed to the bottom of the cycle of 5ths where they belong and actually enhance the singing tone and/or intensity of the music. It has been observed in recent years that the use of a mild Historical Temperament such as any Victorian, Well Temperament, some Modified Meantones, the 1/6- and 1/7-comma Meantones all enhance the expressiveness of the modern piano and virtually all music played upon it including virtually all contemporary styles.

## A Challenge

Someday, if not at the next Convention, I would like to try something similar to what Jim Coleman and Virgil Smith have recently done. Take two pianos as identical as possible—two Yamaha C7s for example. Someone can tune one in Equal Temperament by Pure 5ths (or regular Equal) and I'll tune mine in Equal-Beating Victorian. No one in the audience will know who tuned which instrument. Pianists will play samples of the same music on both. The audience will be asked which piano they liked better and also which piano they think is tuned which way. The results could be very interesting.

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# Reflections on The Pure 5ths Temperament & The Orlando Tune-Off

By Virgil Smith, RPT  
Chicago Chapter

I would like to add my response to Jim Coleman's article on "Equal Temperament with pure 5ths." I was greatly encouraged reading the article and the responses, for I sensed a serious attempt to bring machine tuning up to the same high standard of the Steinway tuners and other top aural tuners who tune octaves without matching coincident partials.

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I see the possibility of this having a positive influence on other areas of our tuning program, such as tuning instruction, a new PACE tuning program, and improving the tuning exam so that one tuning to this high standard would not fail the exam. I feel that an aural tuning alone should be superior to a machine tuning alone, but that the machine plus the ear should equal or even improve on an aural tuning once there is a clear understanding of what the final result should be. I was indeed flattered that my aural tuning was cited several times in the article.

I see no problem in tuning with pure 5ths and having a slight beat in the octave on the sharp side. I know of no law that says octaves must be beatless, although that is my preference and goal in tuning. Many of us tuned for years with a beat on the flat side of the octave when we made 3rds and 10ths the same speed, in fact it was not too long ago that tuning instructors at the annual convention were teaching tuning this way, and these were excellent tunings. Many still tune leaving a slight beat in the octave on the flat side. A few years ago at the annual convention Steve Fairchild did a tuning with very smooth beat progressions in every interval, but there were obvious beats in the octaves. I was critical at the time, but I now realize that was a fine tuning. If a tuning with a beat in the octave on the flat side can be a good tuning, why can't a tuning with a beat on the sharp side be a good tuning? So we have tunings with a slight beat in the octave on the flat side, tunings with beats in the octave on the sharp side, and tunings with the octaves beatless, all good tunings, but with a different overall sound that can be heard. I was impressed at the tune-offs by how many could hear differences in very similar quality tunings. Dean Reyburn has programmed nine different possible acceptable octave stretches into his Cybertuner, and he feels each one is appropriate for specific situations. All these octave stretches may be acceptable, but is one superior to all the others? Did the tune-offs answer that question or do we need more research and tune-offs?

The piano Jim tuned in the Orlando Tune-Off was tuned with pure 5ths and noticeable beats in the octaves, and that may have been the reason that tuning received the fewest votes. It received a normal share of votes when fragments of pieces were played, but when all the possibilities of one note were played four notes at a time, it received few votes. In Chicago Jim programmed the Cybertuner to match my octave stretch, and used his superior tuning skills to win, but in Orlando he stretched his octaves more than I did on the one piano. Because of Jim's superior tuning skills I felt fortunate to come as close as I did, and I was *prepared to lose again in Orlando*. I may have had a slight advantage because the piano that received the most votes was the same piano that I had tuned and used for my classes, and the previous tunings had stabilized enough for me to do a more accurate tuning in the allotted time. On the other hand, a student had practiced tuning for hours the night before preparing for an exam on Jim's piano which must have made it very unstable. I was encouraged when after it was revealed who tuned which pianos, one of the most respected members of the Guild whose judgment and opinion I value very highly, told me that he voted for the winning piano all 13 times. Another individual said he picked out my two pianos immediately.

In Jim's article and all the responses there was no evidence that any of the writers were aware of the best kept secret in the

tuning world. This secret has kept many associate aural and visual tuners from developing the necessary tuning skills to pass the tuning exam. For a long time I thought I was the only one who knew it, it was never mentioned in the *Journal*, and no other tuning instructor taught it. I am now finding many who know it and are using it exclusively in their tuning. The secret is that the ear is able to hear beats in two different ways: 1) between matching coincident partials, and 2) between two different pitches with all the partials of both notes sounding as the ear hears them naturally. It is a mystery why this truth has been ignored by so many for so long. Dr. Sanderson may have provided the last missing piece to the beat hearing puzzle. He maintains that some individuals hear beats in both ways, some hear only beats between matching partials, and some hear beats only between the two whole sounds. I know many hear beats between the two whole sounds, everyone in my two tuning classes could hear them. Many who hear beats naturally between the two whole sounds have been able to train their ears to hear beats between partials as well, but others have great difficulty in learning to hear partials, while some hear beats easier between partials than they do between the whole sounds. Evidently some hear beats between partials, but do not hear beats between two different pitches. This all seems to confirm what Dr. Sanderson is saying.

I am wondering how much difference there is between what the ear hears naturally, and what it can be trained to hear. If those who don't hear beats between matching partials can be trained to do so, why can't ears that don't hear beats between two different pitches be trained to do so? I hear beats only between the notes as I hear them naturally as a musician, I hear partials only by ghosting. I feel I could train my ear to hear beats between partials but have not thought it necessary because I could hear the natural beats between notes. Though aural tuning is possible hearing beats either way, I see a distinct advantage for both aural and visual tuners who are able to hear the natural beats between the notes. Fine tuning is much simpler and less complicated because one does not have to train the ear to hear single matching partials or learn and deal with the complicated partial relationships. Hearing the sound as our customers do is also an advantage in tuning and voicing. There is a tremendous disadvantage for visual tuners if they cannot hear beats between the two natural pitches because they must evaluate their tunings with the same technique the machine uses, and it is difficult to equal or improve on what the machine can do using the same technique.

Evidently some feel that all beats originate from single matching partials no matter how we hear them. If this were true, only a few tuners would have to learn to tune with partials, for most every tuner I talk to hears beats like I do, even though they may think they are hearing beats between partials. I suspect that some instructors are hearing beats between the two notes, but telling students they have to learn to hear partials to hear beats. That the beat between the two notes of an interval is not the same as that between the matching coincident partials is easily seen by comparing the slower natural beats of the 4th and 5th with their faster beating partials. Of course the natural beat between the two notes of the octave involves all the partials of both notes, and should not be confused with the beats between the various sets of matching partials — it is the one beat I eliminate to achieve beatless octaves. This eliminates having to calculate how much octave stretch to employ, because of inharmonicity the natural stretch occurs when the octave is beatless after the unison is tuned. It is easy to distinguish between beats heard between matching

partials and beats heard between the two pitches of an interval. A beat between partials involves one partial from each note and one pitch, a beat between the two notes of an interval involves all the partials of both notes and two different pitches. The arrangement of partials and beats in tempered intervals are two factors that provide color in music, but the ear would not be able to enjoy this color if it were not for its unique ability to hear all the partials of a note as one sound and pitch.

How does all the above relate to tuning with pure 5ths? Are the 5ths made pure by eliminating the beat between the two whole sounds, between the 3:2 partials, or the 6:4 partials? The difference in the octave stretch between the three ways will be slight at the temperament area, but could be considerable four octaves higher. The beat in the octave would be less noticeable if the two whole sounds were tuned pure. The 5th is almost pure on some pianos when the octaves are stretched enough to make them beatless when the unisons are tuned.

I prefer pure octave tuning to pure 5th tuning, because of the increased warmth and resonance in the overall sound when single, double, triple, and quadruple octaves are all beatless. My customers notice how easily the piano responds and sings no matter how softly it is played. There does not seem to be as much sympathetic vibration when octaves are stretched less or more than this. I have one customer who objects to the very fast beating 17ths in the treble when I stretch the octaves this much, so I stretch a little less for her. She hears the slight beat in the octave and the little loss of resonance, but prefers that to the fast beating 17ths. It is impossible to line up octaves this way unless above the temperament one compensates for the fact that one string of a three string unison sounding alone gives off a higher pitch than the three strings sounding together. The reason so many tuners are not hearing this is that it cannot be heard between matching partials, but it is easily heard when dealing with the beat between the two notes of the octave. The single string is tuned with just enough beat on the sharp side so that the octave is beatless when the unison is tuned. Because of this phenomenon it is a real challenge to have every octave above the temperament absolutely beatless. Only when every octave is beatless when the unison is tuned is it possible to tune the notes in the top octave so they line up beatless with every note below with the same letter name, making beatless single, double, triple, and quadruple octaves. Tuning can be much more accurate if unisons are tuned immediately. It does not make sense to tune a note to a note with only one string sounding when the pitch will be different with the three strings sounding. I don't consider the pitch established on any note until more than one string is sounding. Does the fact that the difference in pitch between one string of a unison sounding alone and the three strings sounding together cannot be heard when tuning octaves with partials mean that eventually aural tuning with single coincident partials will become obsolete? Compensating for this difference in octave tuning makes much more natural stretch in the upper octaves. Jim found that he had to use number eight of Dean Reyburn's octave stretch patterns to match my natural octave stretch in the Chicago tune-off. This was much more than he normally stretched his octaves. His tuning with pure 5ths would probably be Dean's number nine tuning. Number 1 stretch would have the 3rd and 10th beating the same speed, and I am urging Dean to list the other stretches in terms of what is heard in the overall sound. Evidently number eight will come the closest to producing beatless octaves when the unisons are tuned, and an obvious difference in beat speed between the 3rd, 10th, and 17th with a common bottom note.

I am inclined to agree with the Steinway tuners that their tunings would probably not pass the PTG tuning exam. I doubt if any of Jim's or my tunings in the tune-offs would pass the exam, because we both stretched our octaves much more than the average consensus tuning does. I had a student in one of my classes who claimed he tuned just like I do and failed the exam. Fortunately, I took the present tuning exam before I was stretching the octaves as much as I do now. How many of Dean's nine acceptable octave stretch tunings would pass the exam? Is it possible to establish one octave stretch tuning as the ideal for the consensus tuning and for taking the exam, or can an exam formula be established that would accept several different octave stretch tunings? What about a consensus tuning done with or without adjusting for the difference in pitch between one string sounding alone and the three strings sounding together? It may be advisable to rethink and perhaps rework our exam program in light of these questions.

Obviously, there is still much ground to cover in the tuning field. I am optimistic, and feel that if we continue our discussion, writing, and sharing, we will see definite improvement in our understanding of tuning, and the development of tuning skills that will result in many more associates passing the tuning exam.

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## ***Coincident Partial, Interval Inharmonicity, & the Pure-5ths Temperament***

***By Daniel Levitan, RPT  
New York City Chapter***

I'd like to throw in my opinions on Jim Coleman's recent terrific article on tuning equal temperament by pure 5ths and all the interesting responses.

Right off the bat, I'd like to propose that from now on, in any serious discussion of tuning theory, anyone who talks about a "pure 5th," or a "narrow 5th," or a "wide 5th," will be beaten senseless with a cork bridle strap. Just as the inharmonicity in pianos prevents us from referring, except in the most general sense, to a "pure octave" — instead, we have to distinguish among the 2:1, 4:2, 6:3, 8:4, and so on so inharmonicity also gives us a variety of different kinds of 5ths, and they cannot be treated as equivalents. The 5ths that Jim refers to in his article seem to be 3:2 5ths; at least, the tests in his sequence, the M6-M10 tests, check 5ths at that level. In other words, this is a temperament with pure 5ths at the 3:2 level. This may make his approach more palatable to some, since it's dollars to donuts that almost all these same 5ths are still going to be narrow at their other levels of coincident partials — 6:4, 9:6, 12:8, and so on.

Under conditions of positive interval inharmonicity, which is the norm in a piano, higher levels of coincident partials become increasingly narrow. By now, most tuners are familiar with this phenomenon in the case of the octave — we expect, for example, that over most of the piano an octave that is pure at the 4:2 will be narrow at the 6:3 level and above.

*Continued on Next Page*

# Three Perspectives —

*Continued from Previous Page*

In exactly the same way, a 5th that is pure at the 3:2 level is usually narrow at all its other levels. So in reality Jim's temperament is not really built on pure 5ths — not unless we feel that the 3:2 level is the only level that is worth paying attention to.

And that is far from the case. It's only at our peril that we ignore the higher levels of coincident partials in the 5th. Even though the only other 5th we routinely test is the 6:4 5th (with the m3-M3 test), the other levels are very much present and very much audible. We must not fall into the trap of thinking that we can safely ignore whatever intervals or partial levels aren't in our everyday repertoire of tests. The fact that we have no really convenient tests for the 9:6, 12:8, and other 5ths is an accident that has more to do with the rate at which intervals happen to beat in the middle of an equally tempered piano than with which levels of coincident partials of the 5th make important contributions to the overall sound of the interval. Here is where intuitive tuners like Virgil Smith have an advantage. They are not led by a slavish dependence on tests to focus on certain partial levels and downplay — or worse, ignore — all the other partial levels that contribute to the sound of the interval. By focusing on the whole sound of the interval they give all the levels their just measure of attention, and so wind up stretching the piano beyond the degree that a tuner who only listens to the lower partial levels would tend to do.

Tuning in such a way that our 4ths — and now I am referring to 4:3 4ths, because that's the level we usually test them at — are made wider than theory dictates, in order to allow ourselves to stretch out our 4ths, makes perfect sense if we consider the effects of interval inharmonicity on the whole partial structure. A 5th that is one beat narrow at the 3:2 level will have a series of higher coincident partials that are increasingly narrow. A 4th that is one beat wide at the 4:3 level will also have a series of higher coincident partials that are increasingly narrow, but since, in the 4th, we start with a wide interval, these higher coincident partials will actually first become pure and then start to go narrow. In other words, there is a lot less noise in the partial structure of a one-beat-wide 4:3 4th than in that of a one-beat-narrow 3:2 5th. Try it for yourself and see.

In addition, the coincident partials of the 5th lie lower, and so more of them are audible and, therefore, contribute to the overall sound of the interval. So it makes good sense to stretch out the 4ths to help the 5ths — the fourths can take it, and the 5ths need it.

Of course, stretching 4ths and 5ths

***"So in reality Jim's temperament is not really built on pure 5ths—not unless we feel that the 3:2 level is the only level that is worth paying attention to."***

will inevitably result in stretched octaves. That's not a problem. There are many high partial levels in the octave that, again, we never test, but they really do contribute to the overall sound of the interval. The wider the octave is at the lower levels, the better the upper levels will sound. Not only that, the inharmonicity of double and triple octaves is generally greater than that of the single octaves, and stretched single octaves allow these expanded octaves to be wider. In the treble, for example, we only test the double octave at the 4:1 level, but a double octave pure at the 4:1 level can be very noisy at the 8:2, 12:3, 16:4, and higher levels. For this reason, I don't feel that we should expect our M3-M10-M17 sequences to beat equally. If they do, we have a pure 4:1 double octave that is probably noisier, due to beating at the higher levels, than is necessary or desirable.

A couple of caveats: the bigger the piano, the less the interval inharmonicity, and so the tighter the tuning that can be accommodated. (Not should be — can be.) Also, across the wound/plain break in even the smallest pianos we can expect to find intervals with no, or even negative, interval inharmonicity. And, there are times when a tight tuning is called for, for example, to accommodate the player's taste, or when the piano is being played with a non-inharmonic instrument such as an organ.

The fact is that inharmonicity is always there in every piano we tune, and its effect is ultimately to give us a range of tuning styles that will work. Yes, we can justify tuning pure 4:2 octaves, but we can also justify tuning pure 8:4 octaves in the same piano under different conditions. It all depends on what we want, or what we think we want, or what we think our clients want. That's where our experience and skill can give us the control to fit our tuning to the circumstances. We can justify tuning narrow 3:2 5ths, or we can justify tuning them pure. (In fact, I've tuned many pianos in which every 3:2 5th in my temperament was generously wide). We are not just technicians, and we are not just artists; we are craftspeople, and as such we should take full advantage of the opportunity to combine science and art, and technology and taste, in the work we do. ■

## String Leveling By Ear

*Continued from Page 15*

taking a good look. I found extra sharp bends where the strings passed through the agraffes, but I had trouble finding where the hook had even made contact. I sure didn't find anything I could call a kink.

The rest of the story about voicing the soft pedal can be found in the excellent new Steinway service manual. (When all else fails, read the instructions!)

Briefly, a tiny chamfer on the left edge of the hammer and a short throw of the shift pedal will cause the two strings of the una corda to make

contact neatly between the regular three grooves. Muting off then with the fingers and listening to the sound of single strings allows discrete needling of five individual grooves, thereby giving maximum control of tone production in both positions.

Spending some time on what first appeared to be an insurmountable problem was well worth the trouble. Sitting in recitals I occasionally hear things I'd like to fix, but there's no more wincing when I see the artist put his left foot in motion. ■

**W**hile I was still in school, finishing a piano technology course, out of the blue another student asked me, "How do you keep from making a sitz-mark on the bench?" (mentally: "Why ask me? What makes you think I'm an expert?") However, I had already begun coping with this sticky detail the way I still do. After once or twice getting stuck to a bench covered with layers of wax and dirt on a muggy, warm day, I started asking for a bath towel. I fold it in half and drape it over the bench. I never yet have met a

customer without a bath towel. Rocket science, isn't it? Some customers already have a towel folded on the bench when I arrive, now. So nice, to have self-training customers.

Of course, some benches do just fine without a towel. If you can imagine sitting on a bench on a warm day wearing shorts, and not sticking to it, fine ... but on bare wood, even if you won't adhere, a towel is comfortable, and you can scoot around on it.

Benches have other foibles. There is the creaking bench, which complains audibly when you sit down on it, and the bench with the sides breaking out, the tottery bench with loose legs, the bench with too much music (and often very exotic articles) in it — most such benches can at least be made comfortable, even if some are not totally curable.

There is the tiny round four-legged stool, usually fragile, that I resolutely refuse to sit down on. I look for a sturdy dining room chair. (I've never broken anything by sitting on it yet, and I don't mean to start.)

In order, then:

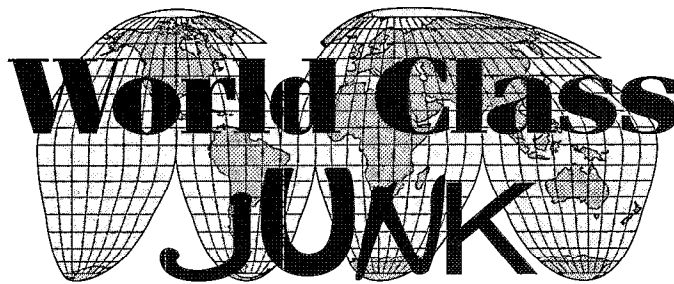
## The Creaking Bench

The creaking bench became extremely common when the polyester finishes appeared. Something about the polyester finish makes a loud noise when rubbing against itself. Most of these benches have hanger bolts which are tightened through steel corner braces to hold the legs on. Mostly people try to quiet these benches by vigorously overtightening the bolts, often to incredible excess, yet they remain noisy. Sometimes when one takes a leg off and looks at the contact surfaces the whole area is dented and the finish cracked by the brute effort employed.

A trick which works, passed on during a Guild meeting years ago (sorry, I forget whom to credit), is to lubricate the parts wherever they contact each other. Just a very small smear of Vaseline™ or VJ lube is all that is needed. Look for signs of minor abrasion and a faint, powdery residue, and smear a little lube there. I've never had to repeat the treatment.

The prime areas are of course the sides of the legs at the top, but don't forget where the tops of the legs contact the underside of the lid, or where the sides of the bench contact the lid. It is also possible to glue pieces of leather to the top rim of the bench, if contact with the lid does not seem even. Uniform support for the lid prevents it from flexing, and from contacting one area before another, which also can reduce noise.

As you work through the four legs, you can try sitting on the



By Susan Kline, RPT  
Eugene, Oregon Chapter

# Bench Marks (How To Avoid Them)

bench, seeing how you're doing. It's fun to hear the noises abate one by one, and often one can attain true blissful silence at the end of the process.

By the way, the same approach will get rid of "pedal" groans which are really shiny polyester kick boards rubbing against cases during pedaling. Once again, look for a fine powder, and rub a little VJ lube there. You can diagnose by seeing if the noise goes away when the kick board is off, and returns when you replace it. Sometimes the dowel area on the bottom of the kick board needs lubrica-

tion also.

## The Bench with Broken Rails

Once again we are talking about benches with hanger bolts, and often benches that take a lot of abuse, such as those in schools. Put under strain, the sides, especially the short sides, split at the ends of the screws which hold the corner braces in (see Figure 1).

In the original system, tightening the legs pulls on the sides and tries to pull the wood apart. Using a time-honored corrective and preventive repair for institutional benches, the wood is

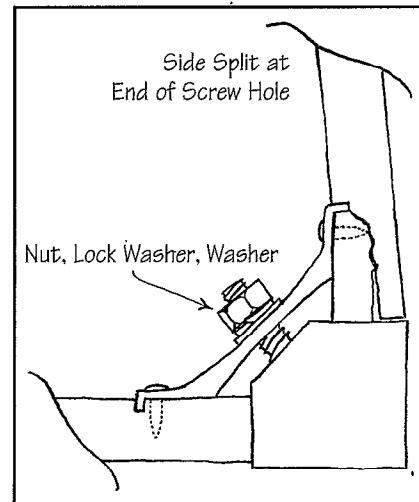


Figure 1

compressed instead. It works like this:

If the side is split, pry loose the bottom of the bench, undo the remaining screws, and remove the side. Epoxy the pieces back together as neatly as possible. If the side is not yet split, simply remove the corner braces.

Now, drill through the screw holes, first clamping a block of wood to the outside to keep from breaking

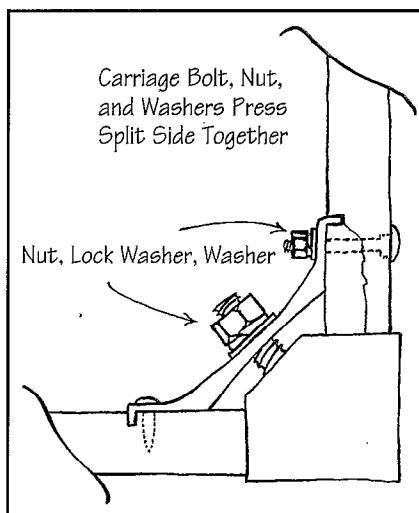


Figure 2

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# Bench Marks

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out splinters. Replace the corner braces, install small carriage bolts through the holes, with washers and lock washers on the inside of the bench. You may need to ease the tops of the holes to accommodate the square area on the inside of the carriage bolt head (see Figure 2).

Do a neat job and snug everything up, and the leg attachments will press the wood of the sides together instead of pulling them apart. You of course will see the carriage bolt heads, though they will at least be symmetric. Try to find fairly decent looking ones, no larger than necessary. Brass would be nice, if you can find them.

## The Tottery Bench

Obvious: keep a crescent wrench with you, and tighten all loose benches that you can before using them, as a matter of habit. Check for fasteners that are failing, and correct them if possible. (Leather works well in enlarged screw holes: details later.) Keep spare washers and lock washers and nuts handy, as well, and replace the old ones in benches where they are missing or damaged, or where the thumbscrews have broken. It only takes a few minutes to make things secure. I always tell the owner what I've done, or ask to do it beforehand, if they seem very fussy.

If I meet benches where the doweling is failing or there are major structural problems, I usually just talk to the owner about it, and steer them to a good furniture repair place if they don't think they can reglue or repair it themselves. I warn them that continually flexing loose doweled joints isn't good for the contact surfaces involved, so repairs should not be put off indefinitely.

## The Overfilled Bench

I summarily remove a large wad of music, or whatever, and leave it in a prominent place, or hand it to my customer. I explain that the top of the sides is a cut-off point for loading the bench, and that more will ruin the lid hinges or drive out the bottom panel. If it is too late, and the bottom panel is already sagging, I carry a small hammer and one-inch nails in the car. If the sides are hardwood, I drill tiny pilot holes, a little smaller in diameter than the nails. (I hate bending over nails.) I angle nails slightly, to prevent them from splitting the sides. Once again, it doesn't take long.

## And If The Owner Doesn't Like Sticky Benches, Either?

They can use a towel, or a throw, or whatever, or I give them the easy instructions that follow (apprenticeship with a seamstress not a prerequisite):

- Measure the bench length and width, and determine whether it is a comfortable height for playing. Go to a fabric store, or somewhere else that sells foam rubber. Choose a thickness of foam (1" to 4") that will not cause the bench to end up too high. Have the place cut it to the dimensions of the top, or, if you must cut it yourself later, an electric carving knife works well.
- Acquire some suitable upholstery fabric. Remnants often work okay. Get enough to cover the piece of foam rubber and overlap a little in back.
- Put the upholstery fabric, wrong side up, on the floor, and position the foam on top of it. Mark all the way around the edge, making sure that whatever you choose to mark with won't show through to the good side.

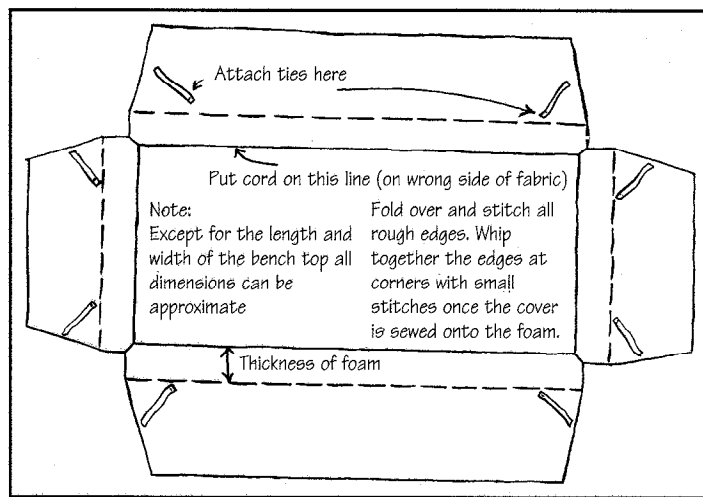


Figure 3

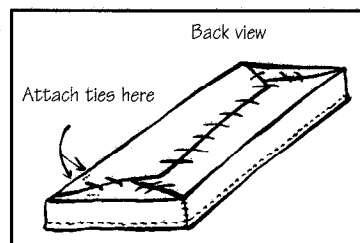


Figure 4

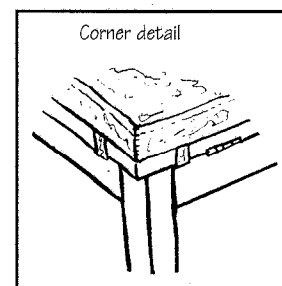


Figure 5

- Cut out the corner squares, not quite to the line. Fold over the raw edges, and stitch.

## Elegant Option

- Take a thick piece of twine or cord, place it on the line (wrong side of fabric), possibly pinning or basting it a few places to keep it in position. Fold the fabric over it tightly, and pin. Stitch (on the right side, now) with a sewing machine right next to the twine, using the zipper foot so you can get in close. The edge will now look very nice, and will stay crisp and neat.
- If you feel vigorous and able, take some of the fabric you cut from the corner areas and make 1/2" ties of it, by stitching it into a tube, wrong side out, and then turning the tube inside out. Otherwise, just get some ribbon or twill or webbing. Make or cut eight pieces, about 8 inches long. Stitch them securely to the underside of the bench cover, near the edge, about four inches from each corner, angling them so they will make a 45 degree angle across the corner when installed.
- Now fold the cover around the foam rubber, the short sides first, and sew together (baste, large stitches) with needle and thread. It doesn't have to be neat, since it won't show, just reasonably snug. In case the cover needs cleaning later, large stitches will be easier to cut through so the foam lining can be removed.

## Install

- Run the ties around the edges of the bench lid, and secure with safety pins (can mar the inside of the bench, though) or by sewing them together with a few big stitches, or (better) by sewing small pieces of Velcro on them.
- Believe me: **This is not hard.** All you've done is take a foam pad, swaddle it in upholstery fabric, and tie it onto the bench with strings. Try it, it's fun. Once you've done it, it won't be hard to tell your customers how.



# Popular Piano Technology

## Cracked Pianos

By Ernie Juhn, RPT  
Long Island-Nassau Chapter

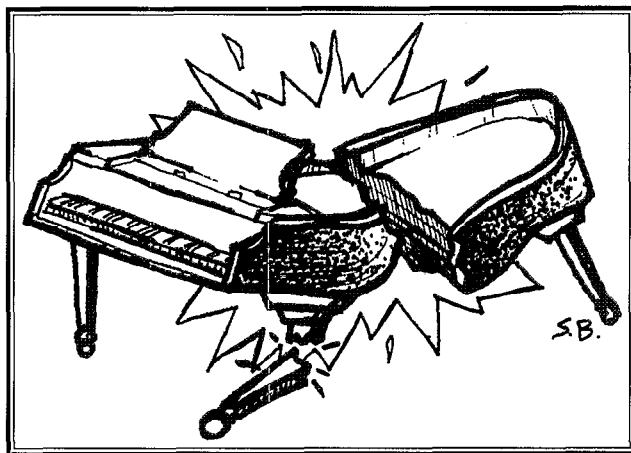
In this final article of my mini-series on popular piano technology I will try to untangle some of the facts and myths often faced by tuner-technicians. Before we embark on our journey into the twilight zone of vagueness, let us just quietly reminisce about a couple of phrases. "I was told that my piano is worthless because it has a cracked tuning board." "Right now you can't tell one note from another on my piano — it needs tuning." At this point you can add a few of your own phrases.

It seems to me that the subject is confusing enough to people who are not trained in piano technology and they have perfectly good reasons to be ignorant about it. I do, however, believe that piano tuner-technicians should have no problems separating serious problems from harmless cosmetic flaws or problems which can be repaired by a skilled technician.

### Cracked Soundboards

Let's start with a cracked soundboard. First we have to get one thing straight, a crack is by definition an opening. I mention this for one specific reason: often something develops on piano soundboards which looks very much like a crack but is in reality just the opposite — it is a pressure ridge. I would go as far as stating that if you cannot push a thin piece of paper into it, it is not a crack. On the other hand, if you can see light shine through that opening, it is a crack — for sure.

Obviously, there are all kinds of degrees of the above-mentioned "surefire" tests. Now comes the crucial question: how serious is a cracked soundboard? If we examine the situation logically, we may



conclude that pianos are here to produce music and in many cases it is true that a soundboard crack cannot be heard. It is, of course, also true that a soundboard crack can be audible. One possibility is if the crack is just wide enough to produce a vibrating noise. Obviously, if ribs became unglued the combination of the two problems will exaggerate noises. Needless to say that glue, shims and know-how can take care of any of the above mentioned problems. This would probably also be a good place to mention the newly developed "miracle glues and fillers" which certainly are a consideration in some cases.

Matters become somewhat more

complicated when it comes to answering a few specific questions. Should a small, non-audible crack in a soundboard be fixed? How important is it to fix it? What if the small non-audible crack becomes a large and/or audible crack? Wait until it happens or fix it now? What if the customer is happy with the piano, should this "small non-audible crack" be pointed out? I will volunteer some of my own answers (but not all).

I have always maintained that unless we are dealing with crucial problems, a happy customer should remain happy after a service call. Not only does it not accomplish much to convert a satisfied customer into an unhappy one, it is also almost certain that the technician will lose the client. If, on the other

hand, the problem is one of major consequence, the story changes dramatically. The technician does have a moral obligation not only to point out the problem, but also do something about it. In the case of a new piano, steps can be taken to remedy whatever the problem may be. It is my experience that if handled properly, reputable dealers and/or manufacturers almost always are eager to resolve legitimate problems.

At this point I might mention that the technician should always use diplomacy as much as possible. After all, a piano is often quite an investment and being told that a defect exists could upset a customer considerably. If, on the other hand, a serious problem is resolved expeditiously and professionally, there is a pretty good chance that the technician will keep the customer.

### And Then

#### There Is A Crack In The Plate

I guess most of us, at some point in our careers, may have crossed paths with a cracked plate. Some technicians have adopted the "hands-off" attitude with all and

*Continued on Next Page*

## Popular Piano Technology

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every cracked-plate situation. There are, however, some rather reputable technicians, who live to tell about successfully repaired cracked plates. Speaking from experience, some instruments with repaired plates have lived a long and useful life. I have seen successfully welded plates and also mechanically "braced" plates. The mechanical repair is usually performed by bolting braces to the plate, often from the top as well as from the bottom. Welding has been known for some time but the secret seems to be expertise more than anything. Let me quote some facts given to me by Bob Beck, RPT, of the New Jersey Chapter. A welder with experience in gray iron casting is a must and high quality nickel rods should be used. A technique called "brazing" should never be employed. Bob also told me that the available (optional) "chemical analysis" greatly helps in the decision whether or not the repair is practical. While there still is no guarantee of success, I understand that the risk has been greatly minimized in the hands of a welder with knowledge of piano technology. One final thought about welding piano plates. Common sense tells us that this approach is only practical on "better" instruments.

### Bridges

This article would not be com-

plete without some information on cracked bridges. The most common kind undoubtedly are cracks in the bridge pin area. Many bridges have caps and recapping is the answer. At this point (again) it should be mentioned that with the advent of "miracle glues" and fillers, acceptable repairs have been performed routinely by many technicians. Considering the value and type of the piano should be the deciding factor in that case.

### The Most Common Misnomer: A Cracked Pinblock

Almost all pinblock problems are not "cracks." Pinblocks usually consist of several laminations and it is the separation of these laminations that frequently causes tuning pins to become loose. Yes, the separated laminations can crack, but that is a different story. Another problem causing loose tuning pins would be improperly drilled or just simply poor-quality pinblocks. In both these cases the tuning pins will become loose sooner or later.

### Cracked Miscellany

A few words about cracked upright hammer butts and grand hammer flanges. As we all know, they do crack. I have seen successful repairs of these parts performed with the new state-of-the-art glues. Some older pianos may use a different style of action parts which are no longer available. If replacement

parts cannot be found, some of the less conservative methods could be the only solution.

When speaking about cracked piano parts, and I am certainly excluding the furniture end of the instrument, there are still some rather "popular" kinds of cracks. Obviously, we have cracked ivory. Some excellent articles have been written on the subject. Cracked key buttons are often overlooked. Technicians are frequently puzzled by a slightly spongy feeling when playing certain keys. There is a chance that the key is "almost" cracked. What I mean by that is that the crack is not "fully developed" and the problem might be somewhat difficult to diagnose. Again, the cure is obvious and many ingenious methods have been described in the past. Don't forget the availability of miracle glues, especially in the case of an "almost cracked" key or key button.

As a rule, modern tuner/technicians can certainly feel that they are a lot better off than their counterparts of generations ago. Better glues, adhesives, and fillers—as well as more specific knowledge of welding practices in the case of cracked plate problems—contribute greatly to reliable and speedy service. ■

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# Kids & Pianos

*By Anita T. Sullivan*

**B**eside me in a small rocking chair a six-year-old girl moves solemnly back and forth, munching on two pieces of celery and peanut butter. She has already told me the names of all her cats. On the floor behind me her younger brother's four guinea pigs rustle softly in their large wire cages. The dog is whining pitifully outside the door, where he has just been unaccountably exiled to the patio. In the next room I can hear the happy growl of afternoon cartoons entertaining the three-year-old brother who just finished helping me put 88 keys back into the piano, one by one. Everyone is occupied: I am finally ready to begin tuning the family piano.

Children can be one of the best parts about being a piano tuner, as long as you're not in too much of a hurry. Their curiosity is exciting. "What you doing?" was the favorite question of one tiny boy, a question he would repeat relentlessly, every time I made a single move. At that particular house I was having a struggle with the loud pedal, and I was on the floor with my head inside the piano, trying to get my vise grips around a rusty nut. "Is he bothering you?" asked the child's mother. "No," I said, as cheerfully as possible, "But I'm having trouble answering all his questions!" "Join the club!" she laughed.

Some kids, like Parzival in the medieval romance, have been taught to be polite and not to ask questions. Some will even walk right past without so much as a sidelong glance at the fascinating tangle of sticks and wires suddenly available for them to see — their piano's anatomy. "How can they resist?" I always wonder. It's so neat to find out that each key is over a

foot long, and works like a see-saw, making lots of important things jiggle inside the piano case.

"What's that?" "What are those things for?" "How do you work that?" Those are the questions I love to hear. Unlike the plumber or the person repairing the washing machine, or cleaning the carpets, the piano tuner is often doing something which kids can watch — or even take part in — without being too much of a nuisance. Sometimes they learn something about leverage, or about acoustics. Occasionally they are even helpful.

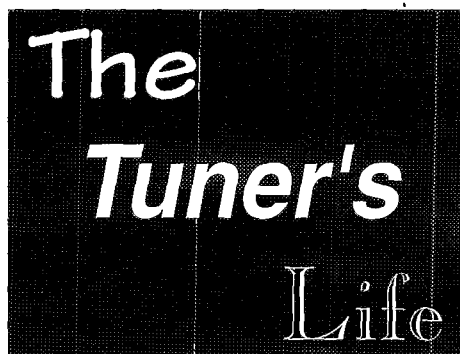
The tuning fork is a special attraction. A child will see me striking it on my knee and poking it up beside my ear in a kind of silent mime. Then I say, "Want to listen?" strike again, and hold it up to the side of his/her head. The face lights up in amazement. Such a clear sound from so small an object! Many kids can't keep their hands off it after this introduction. If I find my fork missing from the piano bench where I usually lay it down, I will likely hear a delighted child racing around the house whanging it against a variety of hard objects in a frenzy of acoustical experimentation.

Having the piano tuned is a rare enough occurrence that for some children it may stimulate a

special creative project. One child, at the end of my tuning, presented me with a drawing of a grand piano (I was tuning an upright) which she had done from memory, and which was quite recognizable. If you've ever tried to draw a grand, you will know what a tricky lot of perspective problems it presents. Another child, watching carefully as I reshaped the felt piano hammers with my sandpaper file went into the kitchen for a plastic bag and began collecting the pieces of fluff as they fell off. I will never know what he did with them.

On occasion the tuner's visit can be sheer entertainment. On a winter Monday morning when an ice storm the night before had taken the electric power away from the entire town of Alsea, the piano tuner was a fine substitute for school and Nintendo™. The kids gathered around the piano in the darkened room, some offering to hold the flashlight, others helping lift the fallboard out onto the floor. For about an hour I was the center of attention for these house-bound urchins, while their mother, left without hot water or lights, curled up on the sofa by the window reading a book.

Adults will ask arcane questions about the overtone series, or the temperament, or how much tension there is on the soundboard, but children see the piano as a large mechanical toy, which satisfies — legitimately — in one blow, both the urge to make noise and to push buttons. Through the eyes of children, I think the character of the piano has grown to include a corny, innocent magical strength it would never be able to hold onto if just the adults were at home when the piano got tuned. ■



# ECONOMIC FREEDOM ...

THE DAY YOU GO TO WORK BECAUSE YOU WANT TO — NOT BECAUSE YOU HAVE TO

By Beverly Kim, RPT  
Puget Sound, WA Chapter

The objective of this article is to review a plan for prioritizing finances and to motivate us toward taking personal responsibility for implementing a plan. Why do we need to do this? Because fewer than four percent of the American population can retire at age 65 with the same level of comfort they had before retirement without relying on corporate pension plans, part-time work or charity. Planning for our financial security for the future is important because of two primary reasons: compounding interest and inflation.

## Inflation

Look at Table 1 to review the powerful impact of inflation:

Years to Retire	Inflation Rate			
	3%	5%	8%	10%
10	1.34	1.63	2.16	2.59
15	1.56	2.08	3.17	4.18
20	1.81	2.65	4.66	6.73
25	2.09	3.39	6.85	10.83
30	2.43	4.32	10.06	17.45

Table 1

Example: Ms. Pianotech currently requires \$2500 per month to maintain her standard of living; she plans to retire in 20 years. If she assumed that the average rate of inflation would be 5 percent per year, she would need (\$2500 x 2.65) or \$6625 per month to maintain her standard of living. In other words, what requires \$30,000 per year today, will require \$79,500 in 20 years. Twenty years ago, that same lifestyle required \$11,320.

## Compound Interest

The opposite side of inflation is compound interest. It can work in our favor or against us, depending on how we arrange our finances. Table 2 compares the growth of two investors. One invests for eight years, the other starts investing eight years later. The difference in the amount invested and the net value is a powerful example of using or losing because of compound interest. Investor B *never* catches up to Investor A. *The message is: start as soon as possible because we can never recapture lost time* (See Table 2).

The key to eliminating stress is to have a context or framework. "People don't plan to fail, they fail to plan," said Venita VanCaspel, financial advisor. We must recognize that there will come a time when we may not want to or cannot (physically) continue working on pianos. Hence, we have to prepare ourselves and protect our family finan-

cially when or if this occurs. You have to decide where you are going, where you are and how to get from here to there. One way to think about finances is to organize the priorities into immediate and future needs.

Immediate needs, after food, housing, taxes, etc. might be prioritized as follows: (1) cash reserves of 3-6 months' expenses. A healthy reserve pays for short term illness,

## The Power of Compound Interest

Year	Investor A		Investor B	
	1st Day Contrib.		1st Day Contrib.	
1	\$4,000	\$4,360	0	0
2	\$4,000	\$9,112	0	0
3	\$4,000	\$14,293	0	0
4	\$4,000	\$19,939	0	0
5	\$4,000	\$26,093	0	0
6	\$4,000	\$32,802	0	0
7	\$4,000	\$40,114	0	0
8	\$4,000	\$48,084	0	0
9	0	\$52,412	\$4,000	\$4,360
10	0	\$57,129	\$4,000	\$9,112
11	0	\$62,270	\$4,000	\$14,293
12	0	\$67,875	\$4,000	\$19,939
13	0	\$73,983	\$4,000	\$26,093
14	0	\$80,642	\$4,000	\$32,802
15	0	\$87,900	\$4,000	\$40,114
16	0	\$95,811	\$4,000	\$48,084
17	0	\$104,434	\$4,000	\$56,772
18	0	\$113,833	\$4,000	\$66,241
19	0	\$124,078	\$4,000	\$76,563
20	0	\$135,245	\$4,000	\$87,814
21	0	\$147,471	\$4,000	\$100,077
22	0	\$160,684	\$4,000	\$113,444
23	0	\$175,146	\$4,000	\$128,014
24	0	\$190,909	\$4,000	\$143,985
25	0	\$208,091	\$4,000	\$161,205
26	0	\$226,819	\$4,000	\$180,074
27	0	\$247,232	\$4,000	\$200,640
28	0	\$269,483	\$4,000	\$223,058
29	0	\$293,737	\$4,000	\$247,493
30	0	\$320,173	\$4,000	\$274,128
31	0	\$348,989	\$4,000	\$303,159
32	0	\$380,398	\$4,000	\$334,804
33	0	\$414,633	\$4,000	\$369,296
34	0	\$451,950	\$4,000	\$406,893
35	0	\$492,626	\$4,000	\$447,873
36	0	\$536,962	\$4,000	\$492,541
37	0	\$585,289	\$4,000	\$541,230
38	0	\$637,965	\$4,000	\$594,301
39	0	\$695,382	\$4,000	\$652,148
40	0	\$757,966	\$4,000	\$715,201
<b>TOTAL</b>	<b>\$32,000</b>	<b>\$757,966</b>	<b>\$128,000</b>	<b>\$715,201</b>

Portfolio appreciates at nine percent. Contributions made on January 1 of each year.

Table 2

vacation, insurance deductibles, etc.; (2) medical insurance; (3) long-term disability (40 - 60 percent of adjusted gross income); (4) life insurance (1-3 times annual income); and (5) tool insurance. Medical insurance and long-term disability policies, like one's auto insurance, offer different coverages and deductibles. The larger the deductible, the lower the premium. Remember that one can become disabled more than once, while one will die only once.

## Why Save?

"Future needs" or "retirement" planning is increasingly important. Why? As stated earlier, most of us are not saving enough. Americans currently save less than four percent of their annual income, down from 11 percent in the 50s, 60s and 70s. Also, the Social Security eligibility age will probably go up, as will the tax rate. Meanwhile, the benefit amounts will likely diminish. One way to check on your current Social Security balance is to call (800) 772-1213.

Want more reasons to save? We will spend about 1/3 of our lives in retirement age and the lifestyles of "retirees" is getting more active. Just think about the senior tennis leagues, senior golf tournaments, elderhostels, AARP, etc. Life expectancy is going up, which is good news/bad news. While we will live longer, it will take more money. Many financial planners now project that we will need about 75 percent of our current income (adjusted for inflation) to maintain our current lifestyles.

## Retirement Planning Strategy

Retirement planning requires an overall strategy. Here are five steps which make up a good one:

- (1) Take stock, i.e., complete a net-worth statement and calculate your current expenses. This is where you are now.
- (2) Do some serious thinking about your vision or picture of retirement. This, too, can be calculated and adjusted for inflation.
- (3) Open a retirement account such as a Money Purchase Plan, Pension, IRA, SEP, KEOGH, etc. to accumulate funds in a tax-deferred environment.
- (4) Invest as much as possible in these plans.
- (5) Get help to organize and maintain your plan.

Let's look at each of these steps. Step 1: Some of us calculate net-worth statements whenever we apply for mortgages, loans or monitor our assets. Most of us already have a pretty good idea of our current expenses. However, we need to keep in mind that our future needs will require about 70 - 80 percent.

The next step necessitates some serious thinking. What does your picture of retirement look like? How many years before you retire? How much can you save each month? What source(s) of income do you want to depend on when you retire? What will be different about your lifestyle?

Step 3 involves the use of a tax-deferred investment vehicle. In today's environment, you must remember that we are taxed three times on our money: each year when we earn it, each year on its growth, and finally, each year when we take distributions. The benefits of deferring taxes

cannot be over-emphasized. Table 3 indicates the difference in value between accounts that grow in tax-deferred environments, versus those that are taxed each year.

IRA Growth Table				
Tax Bracket				
Years	15%	28%	33%	Tax Dfr'd
10	\$27,363	\$21,531	\$19,390	\$31,875
20	\$89,231	\$64,683	\$56,476	\$114,550
30	\$229,114	\$151,171	\$127,410	\$328,998

Table 3

If someone invested \$2,000 at 10 percent growth rate, after 10 years, he/she would have \$27,363 in the account if he/she were in the 15 percent tax bracket. However, if the funds were in a tax deferred vehicle, the account would be worth \$31,875. That's \$4,512 more! As one's tax bracket increases, the benefits of a tax-deferred account becomes increasingly valuable.

Step 4 involves saving and investing. Some planners suggest saving very aggressively by simplifying current expenses as much as possible. We must continue to put aside as much as we can as soon as possible. Everyone has different values and emotions about money. Studies have shown that people have a greater fear of losing money, than a joy from making money.

To minimize risk in investing, here are some things to consider: Start early and continue saving/investing. This increases one's "time horizon," or the amount of time to keep money working. The longer the time horizon, the more one can tolerate market volatility and the more one has to benefit from the returns. One common problem that many incur is to underestimate the amount of time the money must be invested. Remember that we will spend almost one third of our lives in retirement and our resources must sustain the last survivor.

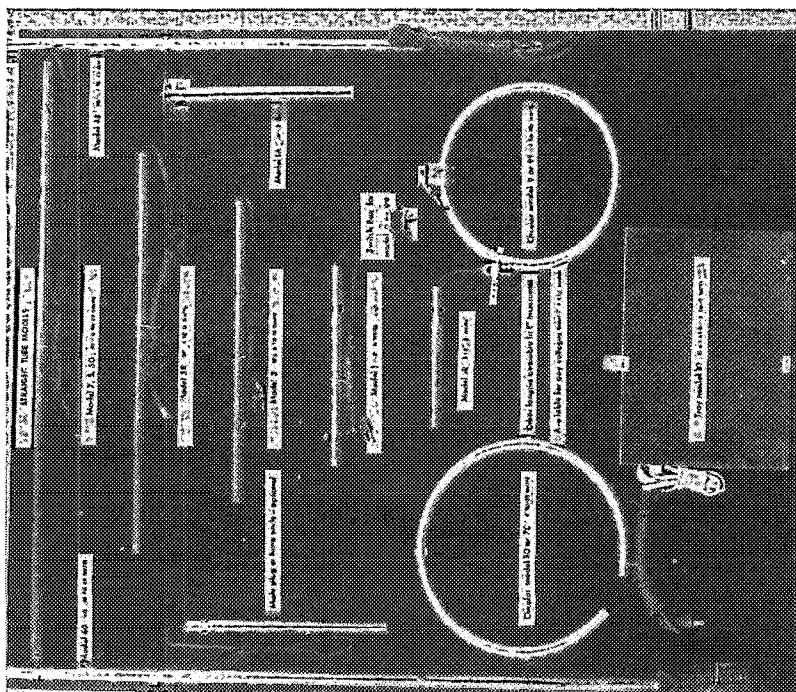
Another strategy is to adopt a steady savings plan. This may include paying yourself first, investing automatically, splitting your next increase, investing your tax return, or "dollar cost averaging." Incorporating any or all of these ideas will diversify your money management and reduce risk.

Finally, get help from professional financial advisors, financial publications, or both. There are many, many resources available to us — many of which are absolutely free. For information about the PTG Insurance plans, contact Insurance Management Corporation at (800) 279-7500, ext. 657, for Tool, Bailees & Liability Coverage, contact Jerry Kiser (425) 486-4334. Go to the library and wander through the shelves under catalog number 332.024. Roam through the publications and magazine sections for copies of *Consumer Reports*, *Forbes*, *Kiplinger's Letter*, *Money Magazine*, *The Wall Street Journal*, etc.

We have to take a long-term view. Remember, the best day to plant an acorn was 20 years ago; the next best day is today. ☐



## WIDE VARIETY OF DAMPP-CHASERS



Dampp-Chaser units are available in the proper size and shape to fit various products in the musical and electronic fields, visitors to the National Association of Music Merchants were informed in one of the D-C displays at the recent gathering at Chicago.

## BALDWIN ANNOUNCES TWO NEW APPOINTMENTS



Joe Daurer, new District Sales Manager (Left) F.X. "Fran" Shannon, new Director of Purchases (Right)

The Baldwin Piano Company recently announced the appointment of Joe Daurer as District Sales Manager in the Southeastern area, and the appointment of F. X. "Fran" Shannon as Director of Purchases.

Joe Daurer, widely-known for his work and varied career in the piano industry, assumed his new position as District Sales Manager, September 1.

F. X. "Fran" Shannon has been with The Baldwin Piano Company for 17 years, and has served in Engineering, Industrial Engineering, Purchasing, Defense Administration, and Quality Control Departments, prior to his appointment as Director of Purchases.

"Fran" Shannon, a Lieutenant Colonel in the Army Reserves, is active in civic affairs, a Cub Scout Master, member of the Engineering Society of Cincinnati, Vice Commander of Military Order World Wars, and a member of the Board of Trustees of the Indian Hill Fire Department.

Shannon lives at 6805 Sorrel Lane, Indian Hill, Cincinnati, Ohio, with his wife and three sons.

## GIFT SUGGESTION

You can make some fellow tuner your friend for life by giving him a subscription to the PIANO TECHNICIANS' JOURNAL at Christmas time. It is expected that the January, 1958 issue will be the first number of the new, combined magazines, and everybody will want that issue so that their files can start from the very first.

### ENTER A GIFT SUBSCRIPTION NOW

6 mos. ....	\$3.00
12 mos. ....	\$6.00
24 mos. ....	\$10.00

Send all orders to the PIANO TECHNICIANS GUILD, 1121 West Drew Ave., Houston 6, Texas.

## SERVING TUNER-TECHNICIANS TOO ...

Each month Dr. Wm. Braid White, the outstanding technical authority on the piano, conducts his "Technician's Department" in PTM . . . PTM is published with the recognition that the tuner-technician is an integral part of the music industry.

## PIANO TRADE MAGAZINE

**\$2 for 1 year (12 issues) \$3 for 2 years (24 issues)**

**20 E. Jackson**

**Chicago, Illinois**

**STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233)**

Of The Piano Technician, published monthly at Pasadena, California for October, 1955.

1. The names and addresses of the publisher, editor, and business managers are:  
Publisher, The American Society of Piano Technicians, 1121 West Drew Ave., Houston 6, Texas.  
Editor, Leslie J. Hoskins, 2208 Floral Drive, Whittier, California.  
Managing editor, Leslie J. Hoskins, 2208 Floral Drive, Whittier, California.  
Business manager, Allan E. Pollard, 1121 West Drew Ave., Houston, Texas.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.) Owned by a Not for profit Corporation. There is no stock.  
The American Society of Piano Technicians, Inc., 1121 West Drew, Houston 6, Texas.  
President, Erroll P. Crowl, 33 Island Ave., Athol, Mass.  
Vice-President, C. Raymond Feaster, Scottsburg, Ind.  
Treasurer, Ben Markham, 701 Burres St., Houston, Texas.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state) There are none.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

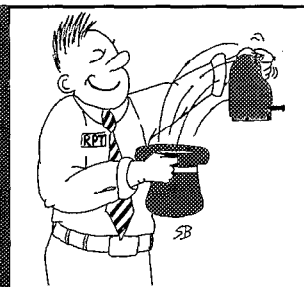
5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.)

Leslie J. Hoskins, managing editor. Sworn to and subscribed before me this twenty-seventh day of September, 1957.

C. W. BURGE,  
Notary Public in and for the County of Los Angeles,  
State of California.  
(My Commission expires June 12, 1961).  
(Seal)

# Grand Illusions ...

## The Page for Serious Cases



### THE PUZZLER

By  
Dan Levitan,  
RPT

UNFORTUNATELY, THE JOURNAL'S LONG LEAD TIME PRECLUDES PUBLISHING READER MAIL AT THE SAME TIME AS A PUZZLE'S SOLUTION. HOWEVER, INTERESTING MAIL REGARDING PUZZLES WILL BE PRINTED WHEN POSSIBLE, EVEN AT THE EXPENSE OF THE PUZZLE EDITOR'S MONTHLY IDEAS AND SUGGESTIONS FOR FUTURE PUZZLES ARE ALWAYS WELCOME. SUBJECT, OF COURSE, TO WHATEVER MODIFICATION THE WHIM OF THE EDITOR MAY DEEM NECESSARY. PUZZLE MAIL (JUAL MAIL ONLY) MAY BE SENT TO DANIEL LEVITAN, PUZZLE EDITOR, 530 FIRST STREET #6, BROOKLYN, NY 11215.

#### Puzzler #6

##### A Reluctantly Replaced Action

She heard a rattling sound just like, she thought, a loose flange screw. Hammer, repetition, or damper? She depressed the key, held the damper up, and played the note a few times. No noise. The damper rattled as she let it drop back into place. Well, she thought, I guess it's time to pull the action.

She marked the offending damper with chalk and pulled the action. She found her damper and, holding the underlever up out of the way, tightened the flange screw. Indeed, it had been quite loose. I'd better tighten them all, she thought, and, after cleaning the chalk off the damper head, she spent a few minutes tightening the whole set, holding a section of underlevers at a time out of the way with her left hand, using her capstan tool hooked under the setscrews.

She played the sustain pedal a few times and watched the underlevers rise and fall. Something bothered her about the feel of the sustain pedal. She reached down and tugged it from side to side. It felt loose. She depressed the other two pedals; they felt nice and tight. I should take a look at that sustain pedal, she thought, before it gets worse.

She lifted the pedal rods out of their cups, backed out the six screws, and pulled

the assembly out. The sustain plate screw was loose, but the cloth seemed to be in good condition. She tightened the plate screw, checked the other two screws, reinserted the assembly, screwed it into place, and replaced the pedal rods.

She placed the action back into its cavity and pushed it in halfway. Depressing the sustain pedal to lift the underlevers out of the way, she pushed the action home. But it wouldn't go home. She pulled it back out slightly and tried again, but it still wouldn't go. I must have left something in there, she thought, so she pulled the action out and set it aside. But there was nothing of hers on the key bed — no flashlight, screwdriver, or anything else that didn't belong. She played the sustain pedal and watched all the underlevers rise and fall in a nice, straight line. She checked for errant leg or lyre cam screws poking up through the key bed. Nothing. This is mysterious, she thought — mysterious as the access to a fancy old Wurlitzer console.

She reinserted the action, but still it hung up. She looked at the pin block. There was ample clearance for the drop screws, but just to make sure, she ran a piece of thin cardboard between the screw and block. Plenty of room.

It took her another minute to realize what had happened. What was it?

#### Solution to Puzzler #5

##### — A Ringing in the Bichords

The Swede had used one screwdriver to loosen the bass

damper guide rail screws and the other to push the guide rail into the correct position, holding it there while he then retightened the screws. He knew from experience that it's not uncommon in a new piano, especially one with loose screws and that has been transported a long distance on its side, for the damper guide rail to come loose and move slightly. The result is often that the bichord dampers will all hang up on the same side; that is, they will follow, for example, the left-hand string when it is pushed down, but not the right. Repositioning the guide rail, whether left-to-right, front-to-back, or both, usually restores the factory regulation.

#### Solution to Puzzler #6

##### — A Reluctantly Replaced Action

key bed  
ject when she checked the  
perceived it as a foreign ob-  
-ism, she had not at first  
normal Steinway mecha-  
However, being part of the  
leased the sustain pedal.  
-re-  
the key bed, and had stayed  
pens, tight in its bushing in  
and was, as sometimes hap-  
sustain to piano in her pi-  
damper flange screws. The  
while she tightened the  
underlevers out of the way  
sustain to lift the  
was unable to use the  
and from the fact that she  
assembly was put together,  
from the way the pedal as-  
that much was clear both  
working on was a Steinway.  
The piano she was

#### Looking Out For Number One

By Doug McKay

I never have liked to ask a customer for a tool, even a screwdriver. So I've always come to the house with every tool I could possibly think of. And I got a cellular phone because I didn't like asking the customer if I could use her phone. But I always had to ask to use the bathroom. Until now.

I can hear my reader saying to himself, "He brings a porta-potty into the house with him?! Disgusting!" Quite the opposite. My Tuner's Throne eliminates all embarrassing smells, sights, and sounds.

First I say to the customer, "Thanks, but I won't be using your bench. I brought my own." I wheel in the Throne, which looks a lot like a standard black bench. Then I sit down and pull up the rubber skirt, attaching it around my waist. Inside the skirt, I quietly pull down my pants. Then I'm ready to do as God intended.

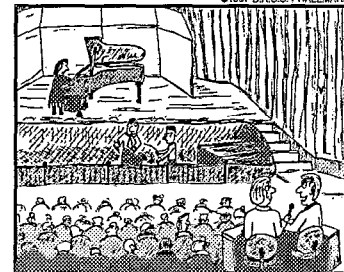
Inside, there's a carbon filter for the smell, acoustical foam for the noise, and kitty litter for the product. You can warm the seat, or turn on magic fingers. There's even a little tube that comes out to clean your nether regions with warm water. If you're interested in the details, visit the Valley Hi Piano Supply web site. The Throne sells for \$449.95.

The Tuner's Throne hasn't interfered with my work at all. If anything, I'm more relaxed and do better work. But if you use one, I wouldn't recommend standing up quickly.

#### PIANOMAN Adventures

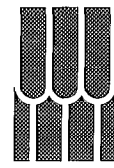
by Alan Halmick

If piano concerts were broadcast like NASCAR time trials. . . ©1997 B.A.S.S. / HALLMARK



"Uh Ho! He blew out a bass string heading into that last arpeggio Bill. . . The technicians are ready in the pit, but if he stops now, he'll be well over a minute for the 'Minute Waltz'."

# PTG Review



PIANO  
TECHNICIANS  
GUILD

Dedicated To PTC News • Interests & Organizational Activities

## All New Providence Convention & Institute on the Web

Next time you're surfing the World Wide Web, check out the PTG's new Convention and Institute Web site at [www.ptg.org/1998/conv/](http://www.ptg.org/1998/conv/). Click on to this site for all the latest about what's being planned for you July 8 - 12, 1998 in Providence, R.I.

Enjoy the full color photos of the state-of-the-art Rhode Island Convention Center, luxurious adjoining Westin Hotel, and pedestrian-friendly downtown Providence.

Read about the attractions of historic Providence, recently showcased in the *New York Times* and *US Airways* magazine as the best small city in New England. Check out the maps to see how easy it is to get to and get around in this city, conveniently located only minutes from beautiful beaches, the Newport mansions and the tourist spots of Boston.

Most importantly, of course, you can stay abreast of convention and institute highlights and special class offerings as they are finalized. We won't let any cobwebs grow on this web site — we'll update this site monthly with the latest news about what Providence has in store.

The Web site, linked to the PTG Home Page at [www.ptg.org](http://www.ptg.org), also has a FAQ (frequently asked questions) page and the most current information available on registration, fees, class descriptions and schedules, instructors, exhibitors and more.

The 1998 Convention Web site is produced and maintained by the Reyburn CyberTuner team of RPTs Dean Reyburn and Mitch Kiel. ■

## Industry News

### Dampp-Chaser Marketing Programs Expanded With New Manager

**Hendersonville, NC** — To maximize the company's global leadership position in piano climate control, Dampp-Chaser Corporation recently recruited Teresa Severin as Marketing Manager to develop marketing vehicles in both domestic and foreign markets.



Teresa Severin

Ms. Severin brings 20 years experience in the implementation of marketing strategies for a broad spectrum of business in manufacturing, retail, and service industries. Formerly the owner of a Virginia marketing firm, she managed the development of corporate identity, direct response promotions, printed sales tools, advertising campaigns, marketing newsletters and trade show presentations.

"With our new strategies, we are creating a success model which piano technicians can easily follow," said Dampp-Chaser President Gayle Mair. "Every brochure, manual, newsletter, catalogue and video will more effectively arm technicians with the knowledge and confidence to both merchandise and install our cli-

mate control systems."

Dampp-Chaser Piano Climate Control Systems consist of a dehumidifier, a humidifier, and a sensing control, the humidistat. Through a continuous cycling action, the system maintains an average humidity level of 42 percent inside the piano. Major piano manufacturers recommend the systems to enhance tuning stability and extend the instrument's life. Worldwide, over 250,000 pianos are protected by Dampp-Chaser Climate Control Systems.

### Baldwin Piano Names Stephen Brock Executive Vice President

**Loveland, Ohio** — The Baldwin Piano & Organ Company (NASDAQ:BPAO), the nation's best-selling piano manufacturer, today announced the promotion of Stephen P. Brock to the position of executive vice president and general manager of the firm's Music Division. Mr. Brock, 42, was formerly senior vice president, marketing and sales of Baldwin's Music Division.

In his new position, Mr. Brock will have immediate profit-and-loss responsibility for the Music Division of the 135-year-old company, which last year accounted for \$83 million of Baldwin's total annual revenues of \$115 million.

Commenting on the appointment, Baldwin Chairman and CEO Karen L. Hendricks said: "Since Steve Brock ar-

rived at Baldwin some two years ago, he has energized our piano marketing effort with his drive, strategic thinking, and leadership abilities—especially strengthening Baldwin's products and programs to its sizable dealer network. His strong background in music, as well as marketing, has been a particular asset and we're delighted to extend this to all aspects of our music business."

Prior to joining Baldwin, Mr. Brock spent over a decade with Procter & Gamble in a variety of marketing and advertising positions. When he resigned to join Baldwin in June, 1995, he was marketing director, worldwide strategic planning for the company's major laundry category.

Baldwin's new executive vice president began his professional career in 1979 on the business side of the classical music industry with the well-known Cincinnati Opera Company, the nation's tenth largest opera company. He served successively as public relations director, marketing director and, finally, administrative manager, supervising all business and managerial activities at the Company.

Mr. Brock holds a Master of Fine Arts in Opera Performance from Pittsburgh's Carnegie-Mellon University and a Bachelor of Music in Music Education degree from the State University of New York. ■

### Orlando a Hit for Foundation

Dear Fellow Members:

Well the 1997 40th anniversary of the Piano Technicians Guild in Orlando, Fla., is over, but the memories of tools and more tools, I will never forget. This year in the Piano Technicians Guild and The Piano Technicians Foundation Booth we had a very exciting time. Everyone had an opportunity to bid in a silent auction or purchase outright the tools of the master technician and our teaching mentor, Fred Drasche.

As you all know, Fred is the retired "guru" of Steinway and donated all of his tools to the Foundation. Some of these specialty tools even puzzled other master craftsmen members of our organization, and it was not until Fred told us the secret use that we really learned the secrets.

Fred even donated his black tool case which looked like a doctors case. Back in the days when doctor's actually made house calls, Fred told a story about going to a customer's home and being escorted up to the patient's room. When the patient started to tell Fred her ailments, Fred said, "Oh, no I'm not a medical doctor. I'm a piano doctor."

In addition to Fred's tools we also had a tremendous contribution and donation from Bill Smith, our famous member who carves animals and birds from piano hammers. In addition to being the master craftsman of the Golden Ham-

mer Award, Bill contributed 18 different carvings to the foundation which were also sold.

"The History of Midwest Piano Manufacturing" by Jack Greenfield was on sale for the first time and is receiving great approval.

This year the Guild and Foundation have earned more because of the generosity of the above mentioned RPT members and friends of our organization.

I would like to urge all members who have tools, manuscripts, books, etc. to consider donating these to the Foundation for future sales at annual or regional conventions. We would also like to urge and remind you that the \$1,000 death benefit insurance policy can also be donated to the Foundation. If you as a member collaborate in the sale of pianos with a local dealer or rebuilder and choose not to accept a commission for your services, members are donating these commissions directly to the Foundation in that individual's name.

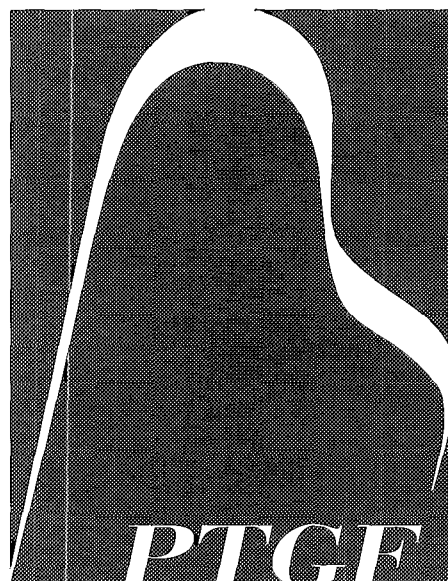
Thank you again for all of your past support and we look forward to more exciting sales to benefit the Foundation in the future.

— Roger H. Weisensteiner  
Director Emeritus

Piano Technicians Guild Foundation



Steinway & Sons recently became the first company to join the list of Patrons of the Piano Technicians Guild Foundation with a donation in honor of Fred and MiMi Drasche.



### The PTG Foundation Needs Your Help!

The history of PTG and its predecessors is in danger of being lost. As part of its mission, the PTG Foundation has taken on the task of preserving that history.

The work of collecting, organizing and preserving our past must be an ongoing part of our present. Your donation of money or historical materials will allow us to continue this important work. You may also designate the PTG Foundation as the beneficiary of your PTG death benefit. Contact the Home Office for details.

Honor a mentor, friend or associate, either living or deceased, with a tax-deductible contribution. Three contribution levels have been established:

- Patron (\$100 or more)
- Contributor (\$50-\$99)
- Supporter (\$35)

To make a contribution, or for more information, contact:

**PTG Foundation**  
3930 Washington  
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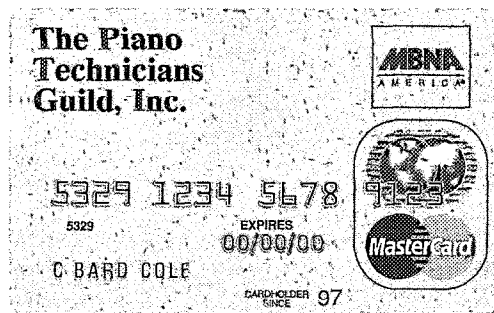
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GAI8

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# NEW RPTs

## *Congratulations to Associates passing the test in September*

### **Region 2**

301 Atlanta, GA

Charles H. Cook  
230 Marsh Street  
Griffin, GA 30223

325 Northwest Florida

Gregory A. Pollard  
1210 Shipley Drive  
Niceville, FL 32578

### **Region 1**

062 Toronto, ON

Francis D. Dube  
1446 Bancroft Drive  
Sudbury, ON P3B 1R5  
Canada

### **Region 1**

031 New Hampshire

Dana A. Fligg  
10 Cottage Street  
Ashland, NH 03217

041 Maine

Pamela A. Jenkins  
P. O. Box 405  
W. Southport, ME 04576

142 Buffalo, NY

Kuang C. Wang  
125 Ivanhoe Road  
Buffalo, NY 14215

151 Pittsburgh, PA

William J. Hardie  
436 Virginia Avenue  
Ambridge, PA 15003

William G. Sorenson  
Rt. 12, Box 385  
Morgantown, WV 26505

195 Reading-Lancaster, PA

Michael F. Bruno  
1033 West Kings Highway  
Coatesville, PA 19320

### **Region 2**

228 Blue Ridge, VA

Edward T. D'elicio  
3028 Proffit Road  
Charlottesville, VA 22911

# NEW MEMBERS

## SEPTEMBER • 1997

301 Atlanta, GA

Steven M. Hartley  
270 Burgess Lane  
Martin, GA 30557

Michael V. McHenry  
808 Pinehurst Drive  
Woodstock, GA 30188

322 Northeast Florida

Daniel T. Mulhern  
105 Ancilla Lane  
Ponte Vedra, FL 32082

### **Region 3**

727 Northwest Arkansas

Sharyn K. Sisson  
116 N. Woodland Drive  
Conway, AR 72032

### **Region 4**

441 Cleveland, OH

Clark A. Sprague  
1378 Clatberg Road  
Greenwich, OH 44837

### **Region 6**

851 Phoenix, AZ

Thomas G. Pike  
2834 E. 3365 S.  
Salt Lake City, UT 84109

905 South Bay, CA

Agostino Arcidiacono  
212 Euclid Avenue, #108  
Long Beach, CA 90803

941 San Francisco, CA

Matthew C. Callahan  
329 Florence Avenue  
Oakland, CA 94618

945 Golden Gate, CA

Frank R. Bidingier  
1050 Harness Circle, Apt. 35  
San Ramon, CA 94583

### **Region 7**

841 Salt Lake City, UT

Floyd L. Barlow  
P. O. Box 841492  
Hildale, UT 84784

972 Portland, Or

Caryn E. Backman  
1503 4th Street  
Tillamook, OR 97141

## *In Memory*

**Jack Smaha**  
*Nebraska*

## Bylaws Deadline is Dec. 31

The deadline for submitting Bylaws amendments for consideration by the 1998 Council of the Piano Technicians Guild is December 31, 1997. All proposed amendments must be received by the chair of the Bylaws Committee on or before December 31, 1997.

Please send your proposed amendments to:

Robert Smit, PTG Bylaws Chair

111 Harkness Dr., Whitby, Ontario L1R 2G1,  
Canada

Phone: 905-576-2174, or Fax: 905-720-0496

E-mail rsmi9040@aol.com

## Awards Nomination Deadline Notice

Nominations for 1998 awards are due Dec. 31, 1997. According to PTG Regulations and Codes suggestions for Hall of Fame, Golden Hammer, Member of Note nominations are solicited through a form in the bimonthly Leader Letter. The chapter nomination form has to be completed and a resume of the nominee sent to the Awards Committee Chairman Ben McKlveen, RPT, at 6448 Graceland, Cincinnati, OH 45237 no later than Dec. 31, 1997.

## Events Calendar

February 20-22, 1998

### CALIFORNIA STATE CONVENTION

Pomona Valley, Riverside, CA

Contact: John Voss (909)794-1559

2616 Mill Creek Rd, Mentone, CA 92359

March 19-22, 1998

### CENTRAL WEST REGIONAL SEMINAR

Clarion Hotel Airport, Wichita, KS

Contact: Marty Hess (316)744-0564

3900 N. Parkwood, Wichita, KS 67220

March 26-29, 1998

### PA STATE

Hotel Brunswick, Lancaster, PA

Contact: James Bittinger (717)846-3589

43 N. Clinton St, York, PA 17404

April 23-26, 1998

### PACIFIC NORTHWEST REGIONAL

Banff Centre, Banff, Alberta Canada

Contact: Chris Gregg (403)-226-1019

Fax: (403)226-2430

11444 Coventry Blvd, Calgary, AB T3K 4B1

May 1-3, 1998

### FLORIDA STATE SEMINAR

West Palm Beach, FL

Contact: Tom Servinsky (561)221-1011

5271 SE Nassau Terr, Stuart, FL 34997

All seminars, conferences, conventions events listed here are approved PTG activities.

Chapters and regions wishing to have their function listed must complete a seminar request form. To obtain one of these forms, contact the PTG Home Office or your Regional Vice President.

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

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# AUXILIARY

## E X C H A N G E

**Dedicated To Auxiliary News and Interests**

## *Repetitive Use Syndrome*

*From time to time I will be giving space to another writer whom I believe has something of value to contribute to these pages. This month I give it to my daughter-in-law, Dr. Kyla Womack-Tremper. Kyla is a DC (Doctor of Chiropractic) who practices in the Chicago area. I hope you will pass her message on to your family members.*

*—Phyllis K. Tremper,  
President, PTGA*

Until only a few years ago whenever a sensation of pain or burning appeared, it had to be associated with the occasion of some particular trauma. If, however, there were no trauma that could be associated with the symptom, its cause was baffling.

The term Repetitive Use Syndrome (RUS) has now entered the vocabulary of the medical profession. RUS describes the repetitive activity a person does over the years, an activity that then creates the symptom. This activity can be almost anything, most often work, but it can even be a hobby.

RUS is a problem that occurs over time. It is a painful nerve problem that interferes with the use of the hand or arm. A sensation runs from the neck, down the arm, across the elbow, and into the wrist. Continually repetitive hand, elbow or shoulder movements can cause tendons to become inflamed or bones to become misaligned. When tissue or bone puts pressure on the nerve, the symptoms occur.



*Phyllis Tremper  
PTGA President*

The overuse of the wrist, elbow or shoulder is common to many professions. It can occur in typists, or those who work in construction trades who constantly use hammers and screwdrivers. Those who are engaged in certain types of musical activity such as piano or violin playing—or piano tuning—are also susceptible. Some common results are Carpel Tunnel Syndrome, Tennis Elbow, and Thoracic Outlet Syndrome (Thoracic Outlet is an area from the web of the neck to the shoulder). These syndromes are evidenced by irritating pressure on the nerves. The most common areas affected by RUS are the joints, especially the wrists.

The first symptoms to occur may be numbness, tingling, or burning in the affected areas. Pain can often

be present. Eventually a weakness develops. Sometimes the first sign is the loss of grip strength—the inability to hold a glass of water or the hand becomes sore and tired when writing a letter. In the late stages there is often a loss of muscle tone.

There are many treatments for RUS: surgery, acupuncture, physical therapy. Studies have shown that the least invasive approach is by chiropractic treatment, and it is often the most effective. A Doctor of Chiropractic (DC), as do other physicians who treat the body as a whole, considers a patient's general health. We focus not only on the specific problem but also on lifestyle. In treatment it is important to find the cause of discomfort and then to make changes in the way the patient performs his or her activity. We make these evaluations on an individual basis, of course.

Is it possible to avoid RUS? Yes, often simply by taking several short breaks or by changing positions, such as adjusting the height of a chair. Often all that is needed is a change of tools, or the use of different tools—perhaps a lighter hammer or an electric screw driver.

Chiropractic care is a natural method of health care treatment. It treats the cause of physical problems rather than merely their symptoms. Chiro-

*Continued on Next Page*

# Writing Poetry

I have always admired people like Jan Blees who seem capable of talking in poetry — it flows out of their pen so well. Why can I not

do that? It looks so easy. My mother wrote a Thanksgiving Day poem years ago before she married (see accompanying poem). My

## Thanksgiving Day

*Puddin's in the kettle,  
Turkey's in the pot,  
All the folks are comin',  
Gee, but there's a lot.*

*We sit down to the table,  
And Pa returns the thanks,  
Then ever' one begins eatin',  
For the victuals are in banks.*

*Pies are in the pantry,  
Ma cooked 'em days ago,  
Now the treat's a-comin',  
Everything's just so.*

*Now everybody's gone home,  
Gee, what a day I've had,  
I'm sorry that the day's gone,  
But my tummy—it feels bad.*

— Grace Goodwin Frady

## Fall Notes

I am sure Fall has come to your part of the United States as it has to where I live in Kentucky. I never knew Kentucky autumns were so beautiful until I married my husband, Hans, who comes from a part of the world famous for evergreen forests, not deciduous woodlands as we enjoy in Kentucky. Now as never before, through the eyes of my husband, I “see” how absolutely breathtaking Fall has touched the colorful hills that surround our home. We are in awe of the beauty nature gives us each day if only we will look and appreciate.

Fall brings so many things to look forward to in our lives. I love to sift through fallen leaves selecting some of the brightest ones to dry flat — later to be used for table decorations around baskets of mums. What fun, too, are the Fall holidays of Halloween and, of course, Thanksgiving.

Fall is the time of the year that I begin to winterize my home as well as my life — catching up on scrapbooks and correspondence, rearranging cluttered closets, enjoying outdoor gardening without the summer heat, and, best of all, counting my blessings and feeling lucky to be alive to savor such a beautiful season of the year.

Don't forget you will be hearing from me soon when I mail out notices for the 1998 Auxiliary dues. Remember no membership cards are issued anymore. Your canceled check is your receipt.

In the meantime, enjoy the Fall color, your family's Thanksgiving and the anticipation of the Christmas season.

— Carolyn Sander  
Vice President, PTGA

uncle writes poetry as well as a newspaper column “Back Tracks” for a local newspaper. My youngest sister writes poetry and songs and sings them. Why can I not be creative in that way, too? There appears to be something in the genes. Why can I not do that? I ask the question, but I know the answer. Everyone in my fourth grade class was assigned the project of writing a poem. I started off okay, I guess. I thought of a word that seemed like it would be easy to find another word to rhyme with it. I started my poem with “Butter, butter.” As far as I can remember, that is as far as I ever got. I could not think of anything to go with it. My mind drew a blank on coming up with something else instead. What was apparently presumed to stimulate creativity had the very opposite affect on me. My creative juices froze up and have stayed frozen.

Last November, I started mulling over all this. I decided it was time to overcome that trauma. I tried my hand at it again starting just where I left off in the fourth grade. The following is the completion of my first poem:

Butter, butter.  
I'm all in a flutter.  
Assigned by the teacher  
To write a feature

A poem and not prose.  
What rhymes with rose?  
It's only taken me 47 years  
After all my fears.  
An “A” do I get?  
Or am I not finished yet?  
OK, I'll finish the rhyme  
If you'll give me a dime.

— By Beva Jean Wisenbaker

Last June, I decided I did not like part of the poem so I corrected it and added to it a little bit. The above is the amended version.

This week I began thinking about that poem again. I am thankful to be over that hurdle, but do I have to stop there? If I wrote one poem, why can I not write more? I have given it a whirl. I have written four poems to or about my husband, Martin. Today I contemplated what I might do for PTGA. Here is the result:

PTGA  
PIANO people gather -  
TECHNICIANS and  
spouses together.  
GUILD members go to  
classes.  
AUXILIARY is mostly  
lasses.  
— By Beva Jean Wisenbaker

I may never be a Jan  
Blees, but I have laid my  
heart bare. I hope my  
dilemma and resolution will  
be an inspiration/encouragement to someone else.


## Repetitive Use Syndrome

Continued from Previous Page

practic care is based on a simple but powerful premise: With a healthy lifestyle and normally functioning nerves, joints and spine, the body is better able to heal itself. The total body approach to wellness helps decide the best treatment of the problem.

— Kyla Womack-Tremper, DC

# FOR SALE



**REYBURN CYBERTUNER** State of the art piano tuning software from authorized distributor and author of its user manual, Mitch Kiel, RPT. Reyburn CyberTuner version 2.0 just released, includes Custom Equalizer (simple graphical interface lets you individually adjust stretch at A1, A2, A3, A5, A6 and A7 totally amazingly cool), Limits (automatically senses scale problems and adjusts octave widths as needed spinets and short grands never sounded better), Pitch Raise (at every note, automatically measures and calculates overshoot using optimized overpull percentage from 4% to 38%), Pianalyzer (specialized spectrum analyzer displays pitch, inharmonicity, sustain, and volume for partial 1-8, 10, and 12 for any note great for voicing and scale design), PTG-approved for scoring RPT tuning exam (a CTEs delight auto-measures and records an aural tuning in 12 minutes or less), creates an editable spreadsheet and graph of any tuning, unlimited storage, and more. Read a review of RCT 1.0 in Jan. 1997 Journal. Reyburn CyberTuner 2.0 \$795 (Macintosh only). Upgrade from RCT version 1. x \$99. **READY-TO-USE COMPLETE PACKAGES STARTING AT \$1595** (Includes portable Mac computer & RCT 2.0). Try RCT at no risk with our 30-day money back guarantee. Mitch Kiel, RPT, 11326 Patsy Drive SE, Olympia, WA 98501. 360-264-5112. mitchkiel@reyburn.com OR www.reyburn.com

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**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 ORION DRIVE; BEND, OR 97702; 541-382-5411. See our ad on page 3.

## WANTED



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

**WANTED:** Very old Chickering Grands to restore. PTG member, technician would appreciate your referrals. Contact Michael W. Hart, P.O. Box 268, Corbin, KY 40702 (606) 528-8760.

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**WANTED** by PTG member/technician. A copy of the book "Historical Pianos." Please call 606-528-8760.

### CAN YOU HELP !!

**SPENCER BREWER'S** Piano Repair Shop in Redwood Valley, California, burned to the ground September 9, 1997. Spencer lost everything, a 20-year collection of tools and piano parts. Anyone who can help replace what was lost, please call Spencer at 707-485-7664 or write; PO Box 420, Redwood Valley, CA 95407.

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# Vertical Regulation Curriculum

The Piano Technicians Guild presents this vertical piano regulation curriculum as yet another contribution to excellence in our craft. There is surprisingly little written material available on this subject, despite the fact that vertical pianos far outnumber grands.

This short course is designed for a three-day instructional event. Since it is a flexible curriculum, it can be modified by the instructors to adapt to the skill level of the technicians enrolled. It can, of course, also be used as a basic textbook in formal training programs of all types.

PTG's Mission is, in part, to promote the highest possible professional standards for its members by providing continuing education to promote professional competency. In developing this Vertical Regulation Curriculum, PTG seeks to provide its members improved educational offerings so that they may be able to offer the highest quality service to their clients. To that end, this publication is dedicated to the piano technicians who will use it, whether as teacher or student.

## *Vertical Regulation Curriculum Package Prices*

- 1 INSTRUCTOR'S MANUAL AND 4 STUDENT WORKBOOKS .....\$100
- 1 INSTRUCTOR'S MANUAL AND 10 STUDENT WORKBOOKS ...\$200
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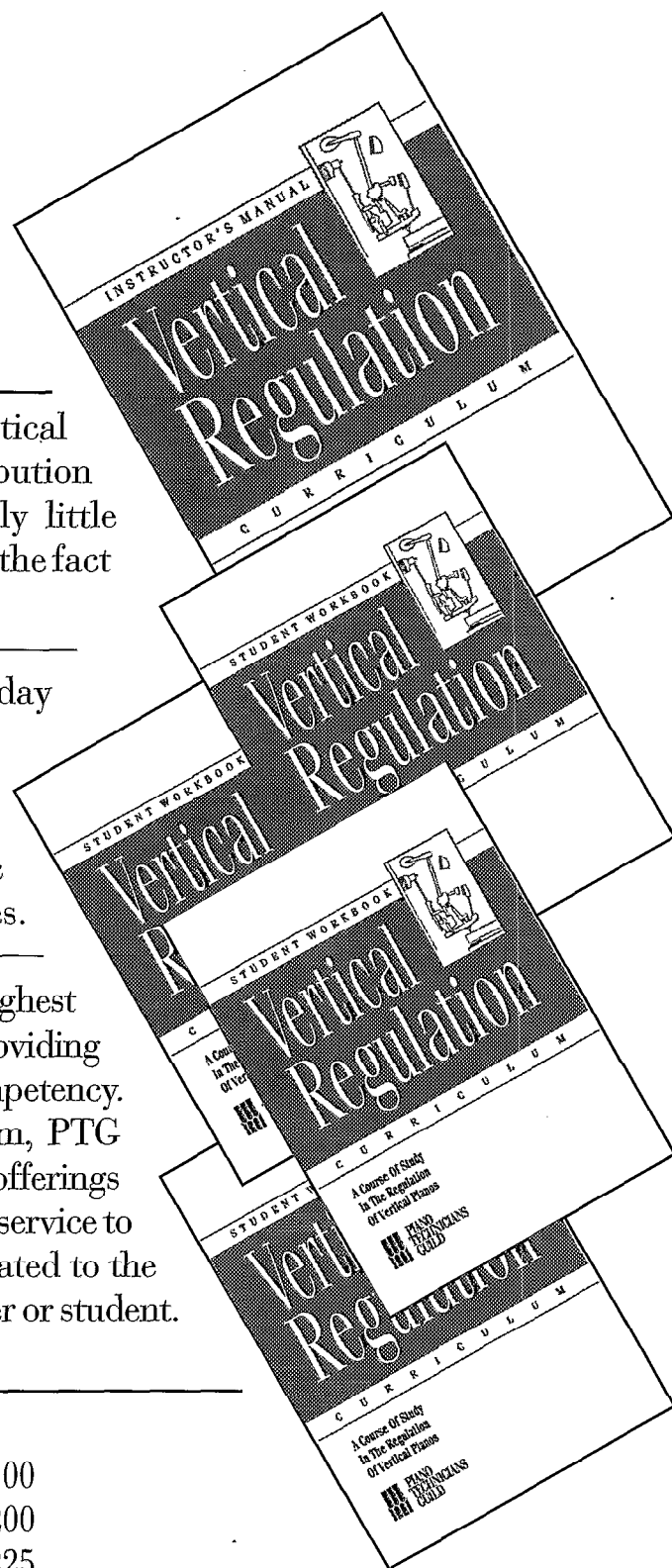
## *Individual Books*

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STUDENT WORKBOOKS

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## To Order the Vertical Regulation Curriculum

Contact the PTG Home Office at  
3930 Washington, Kansas City, MO 64111,  
or Call 816-753-7747,  
or Fax 816-531-0070,  
or E-Mail [ptg@ptg.org](mailto:ptg@ptg.org)

# PianoDisc<sup>TM</sup>

November 1997

News From The World of MSR/PianoDisc

## PianoDisc used in PBS TV biography of Harry Truman

PianoDisc played an important (although largely off-screen) role in a film made for the PBS television series, *American Experience*. The four-and-a-half hour film chronicles the life and presidency of Harry S Truman.

History tells us that our 33rd president was well-known for his love of music. He was an enthusiastic pianist, in fact, who began playing at a young age, and continued to do so his entire life. The filmmakers used PianoDisc to help illustrate his early years of playing and practicing the piano.

Initially, a pianist was brought in to record the same song several times, using PianoDisc's TFT record system. Each recording was progressively better, at a higher skill level than the last. Then filming began, with PianoDisc playing the just-recorded song back as cameras filmed the exterior and interior of the piano.

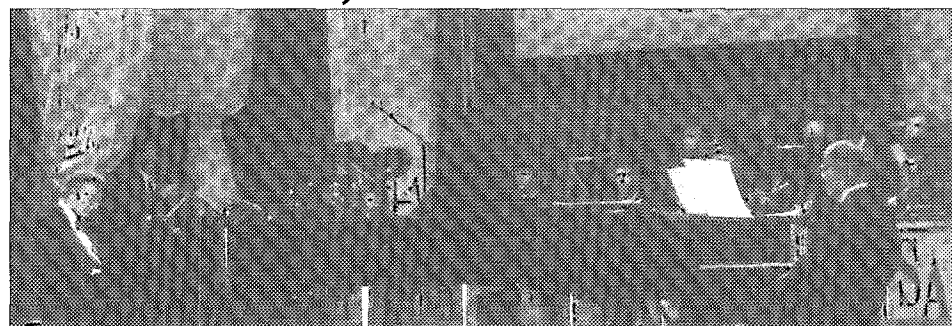
Amanda Pollak of David Grubin Productions (makers of the film), explained how the resulting footage is used: "The piano (played by PianoDisc) was used to evoke his youth — years he spent learning to play the piano. By showing the improvement in his skill as a pianist, which you hear in the music, we hoped to convey his growth and maturity as a person.

"We filmed the interior of the piano, the hammers going up and down, then young hands on the keyboard. The sequence is about a minute long, but very effective in capturing this time in his life."

The piano used in the sequence was provided by longtime PianoDisc dealer/installer **Bill Renard of Computer Klavier Works** of Dobbs Ferry, New York. The piano had to look appropriate to the 1890s, the era depicted, and be outfitted with a modern player system to perform as the sequence required. Renard had the perfect instrument: a beautiful Steinway C (circa 1910) with PianoDisc installed.

Asked to sum up the experience of working with PianoDisc, Ms. Pollak gave a glowing report: "It worked out **beautifully!** It did everything we wanted and it was quite easy to operate. And your dealer could not have been more helpful or cooperative! No question about it, anytime we need a player piano in the future, **PianoDisc** will be our choice, and **Bill Renard** the person to call!"

## Hi-Ho, Steverino!



## PBS to air Steve Allen's 75th birthday special: Maher hosts; tributes by Leno, Letterman, Koppel

PianoDisc Artist Series star **Steve Allen** is celebrating his birthday in spectacular style this year — with an all-star tribute filmed for television by PBS. The special, honoring "the most talented man in America's" 75th birthday, is scheduled for airing nationwide on November 28th.

Host for the hour long show is "Politically Incorrect" star **Bill Maher**. The program features Maher interviewing Allen; the Steve Allen Big Band playing several of his hit songs; occasional breaks for hilarious clips from some of Steve's television shows. Then there are the tributes from some of the biggest names in Hollywood like **Steve Martin**, **Billy Crystal** and **Phil Hartman**. All tell about growing up watching Steve Allen and the impact he had on their lives and their comedy. Allen's heirs in the late night talk show realm, **David Letterman** and **Jay Leno**, both acknowledge his influence on their shows today. **Ted Koppel** ex-

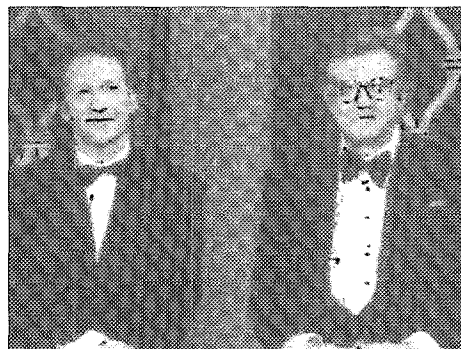
plains what Steve Allen has meant to him. **Rodney Dangerfield**, **Jackie Mason**, **Richard Kiley** and many others recall their experiences with Allen over the years. As funny and heartfelt as all the tributes are, **Milton Berle's** is the most unique. He informs the audience that he has known Steve Allen longer than anyone else in the room — because he once baby-sat him!

The finale has **Jayne Meadows** (Mrs. Allen) joining the festivities. Her interview segment with Maher and her husband is the perfect end to a very special evening. Be sure to watch this wonderful program honoring the amazing Steve Allen — comedian, composer, pianist, author and genuinely nice man.

## PianoDisc factory classes will be "hot ticket" in '98

Piano technicians eager to add PianoDisc Certified Technician to their lists of professional credits will find more competition for classroom space than in previous years. Our factory-held Installation Training Classes will be a regular "hot ticket" item in the coming year. The reason? They'll only be offered once a quarter in 1998, beginning with a February 2nd-7th session.

"So many technicians have taken the introductory class, that our focus has had to shift to Continuing Education," explained PianoDisc President Gary Burgett. "In addition to our factory classes, we'll conduct some in other locations in the coming year. Interested technicians should contact us soon regarding dates and locations."



Host **Bill Maher** and **Steve Allen** during a break in taping of the PBS special.

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# Tech Gazette

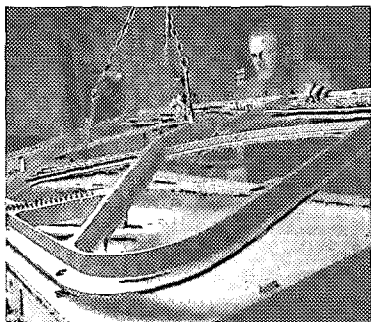
Yamaha Service

November 1997

**Last month**, we saw how YMM attaches the soundboard to the liner by the use of the high-frequency "soundboard to backframe" press, designed and manufactured by Yamaha.

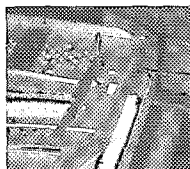
## Attaching Plate to Backframe

**In this issue**, the next step in the Yamaha strung backframe line is to attach the cast iron frame (or plate) to the backframe and soundboard assembly. Although this is a robotic line, a highly skilled technician is still required. The V-Pro process utilized by Yamaha creates plates that are much more accurately cast than sand cast plates, although there may be slight differences between the individual plates. This means that each plate must be individually adjusted to be precisely positioned in reference to the bridges on the soundboard. When correctly positioned, the strings line up with the bridges and the "v-bar" is the proper distance from the bridges, creating proper string length, etc. Also, the elevation of the plate must be controlled to allow for proper down bearing.

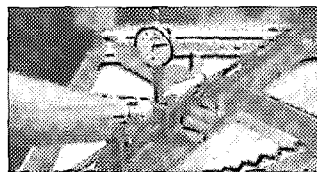


When the plate is positioned on top of the soundboard, it can be moved slightly from side to side and up and down until the exact measurements between the bridges and v-bar segments are established. Even a sixteenth of

an inch out of correct position will create a later problem. For example, if the plate is a little too close to the top of the piano, the strings would be longer than engineered. Thus leading to inferior tone and excessive tension, as the longer strings would have to be tighter to establish proper pitch.



A similar procedure is necessary to establish the height of the plate in reference to the bridges to create the proper down bearing. Down



bearing measurements are checked all along the bass and treble bridges and the plate raised or lowered to match the engineering specifications.

Once all of the positioning criteria is met, a few holes are drilled by hand and the screws inserted to secure the plate. The vast majority of the screw holes will be bored and the screws inserted and tightened to the specified torque automatically by a computer controlled robotic machine.

(Pictures and story next month).



## The YMM "Tip of the Month"

When a new piece of veneer is glued onto a piano case part, it is sometimes very difficult to cut the veneer at the edge of the part without having it splinter or cause a problem along the parts edge. Simply, lay the part face down on the new veneer (after the glue has dried) and use a sharp knife do deeply scribe a line along the edge of the part (be careful not to cut all the way through). Pick up the part and bend the veneer "back over itself" so that the scribe line opens. The veneer will "break off" cleanly and with a slight bit of sanding you will have a perfect edge that will not splinter. Although this technique works well, you should practice the procedure a number of times before implementing it in the field.

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