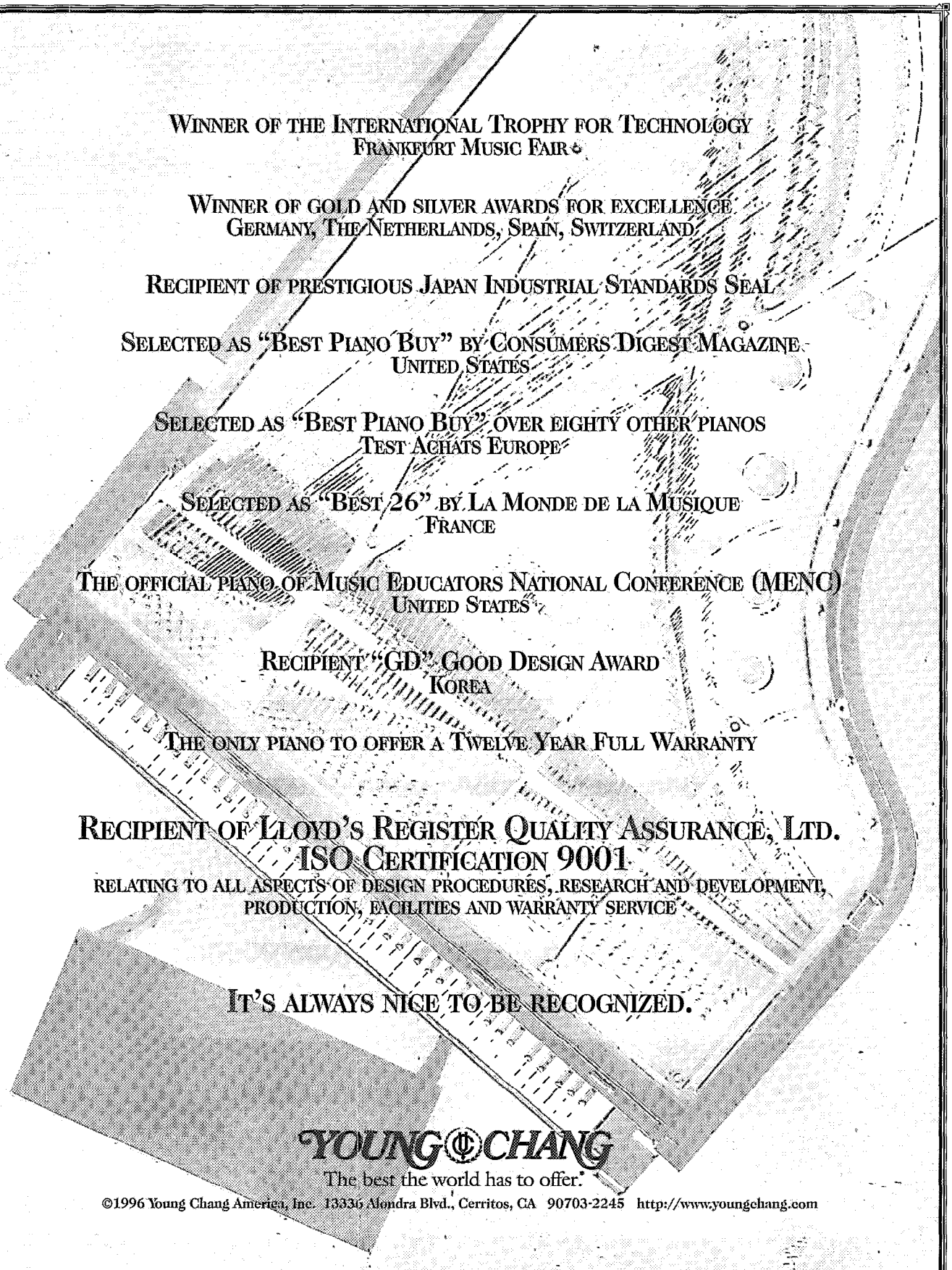
PIANO TECHNICIANS

Journal

Official Publication of the Piano Technicians Guild

September 1996

Vol. 39 • #9



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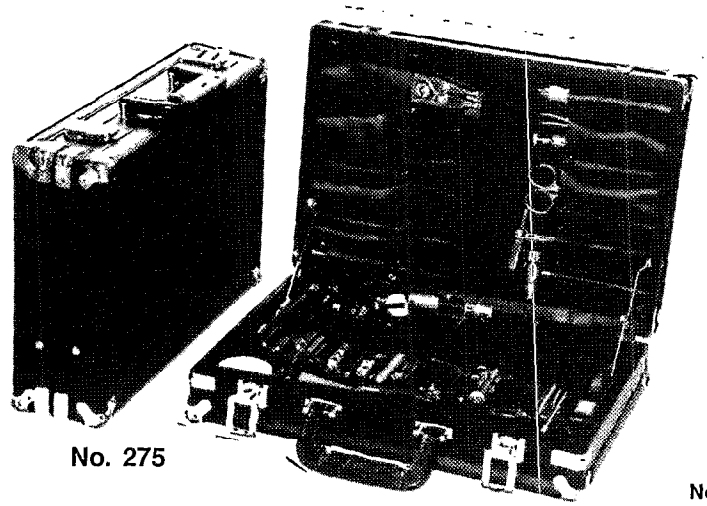

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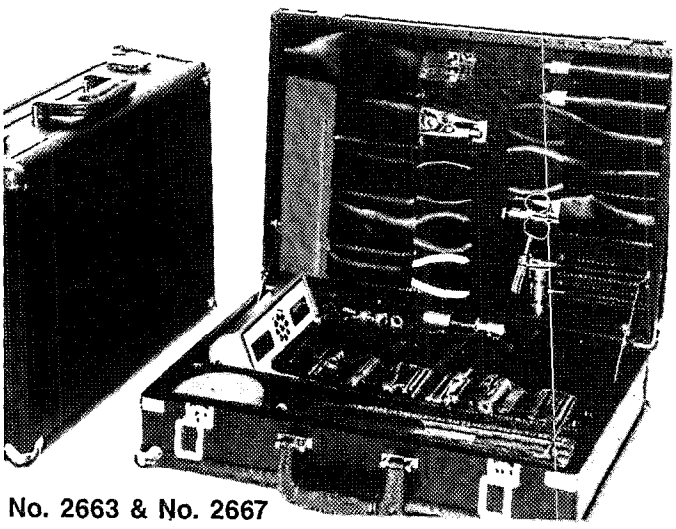

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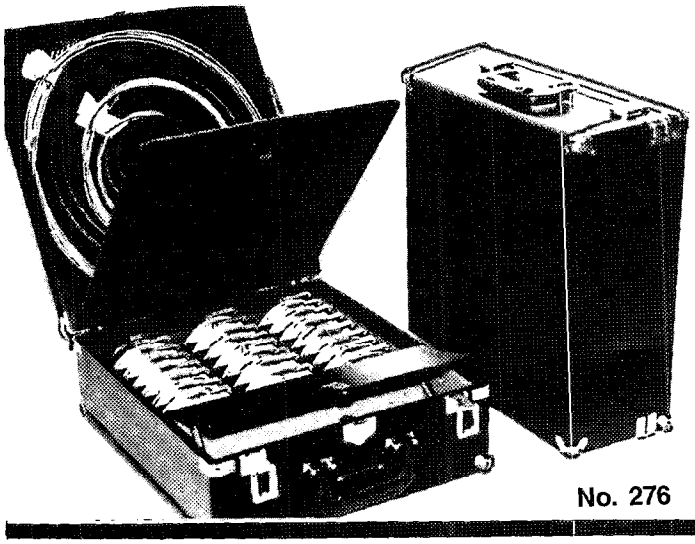

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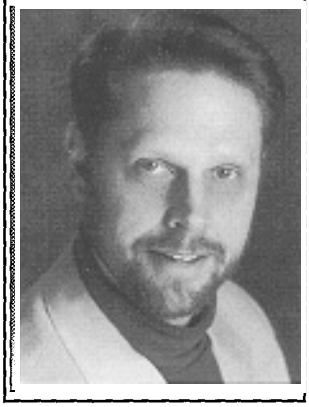
Editorial Perspective

The More Things Change ...



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

While browsing some *Journal* issues from 1966 recently, I found reference made to a "Joint Piano Industry Committee," consisting of representatives from the National Piano Manufacturers Association, the Piano Technicians Guild, and the National Association of Music Merchants. The author of the article reported that "the purpose of the Joint Piano Industry Committee has not been codified into a group of specific goals, but can best be described as a search for honorable and practical means to improve the piano industry ..."

The article went on: "Such a committee provides an ideal climate in which to become acquainted with the problems in each sector of the industry, to examine the impact of various possible courses of action on each other, and to understand in what ways they can realize their individual objectives by helping each other. Certainly none can hope to gain in the long run by working at cross-purposes or by seeking expedient answers to immediate situations that will only create bigger and more serious problems later on."

"Too often, for instance, piano manufacturers, dealers and teachers fail to encourage piano service. Too often, piano teachers and technicians fail to help manufacturers or dealers by condemning worn-out pianos. Too often, dealers, manufacturers and technicians fail to encourage or point out the importance of consistent and competent instructors. Too often, criticism of someone's actions or policies is voiced without knowing both sides of the story. Too often, technicians forget that dealers need to be able to depend on their services.

"The technician who fails to take advantage of every opportunity to promote piano sales or piano study fails in his responsibility to the piano industry and its future, even though, at the moment, it adds nothing to his pocket book. His advice in these matters is all the more effective if the recipients know he will not benefit directly. For this reason, he has the added responsibility of being informed and fair in the advice he gives.

"Just as truly, a manufacturer, a dealer or a teacher can help the piano industry by promoting adequate piano care and learning what adequate care consists of."

Does any of this sound vaguely familiar? Does the acronym "SPELLS" ring a bell? The kicker is that this editorial carried the title, "A New Name — An Old Problem." And this was 30 years ago. As the saying goes, "the more things change, the more they stay the same." A friend of mine who successfully made the transition from being a piano salesman to being a piano technician summed up the mutual lack of respect between dealers and technicians: "Dealers and salespeople think technicians are 'losers,' and technicians think dealers and salespeople are missing the 'ethics' gene."

The lack of cooperation which plagues the piano industry is nothing new — it was old news 30 years ago. What's different now is the urgency of the problem. If the dwindling piano industry is to survive for another 30 years, it's crucial that we all pull together to promote the piano generally — and piano education, piano sales, and piano service specifically.

Please submit tuning and technical articles, queries, tips, etc., to me:
Steve Brady, Journal Editor
Address: 205 McGraw Street
Seattle, WA 98109
Fax: 1-206-285-7610
E-mail: sbrady@u.washington.edu

FEATURES

COVER ART

RPT Don Valley uses a string seater to seat strings on an upright piano. Check out his article on restringing upright pianos beginning on Page 33.

COLUMNS & COMMENTS

DEPARTMENTS

IN ADDITION

PIANO TECHNICIANS
Journal
Volume 39 • Number 9 • September 1996

Fall Time to Begin Anew

PTG President
Marshall B. Hawkins, RPT

While the month of September may be the beginning of the last third of the calendar year, let's not think of it as coming to the end of the year. Why not use September as a springboard into, what is for many, the busiest time of the year.

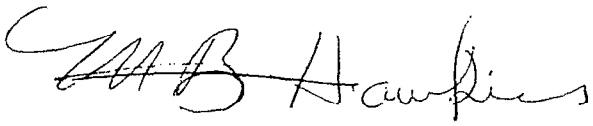
When we come into the Fall months, many set their sights on the new freshness in the air. When the school year begins it seems to bring a certain freshness to life anyway. By the same token most of our chapters begin their activities for the new association year, and what a great place to start.

As your chapter moves forward with its plans and goals for the coming quarter, individually, we can use this period to really interact with fellow colleagues in relation to our own business. Your business format for the months just ahead must surely be clearly imprinted in your mind. Chapter meetings provide a wonderful opportunity to not only exchange new ideas but to also pass on your enthusiasm about the future and receive in return those positive vibes out there just waiting to be picked up on. Doing this will certainly enhance your own drive and provide additional insight as you continue to fine-tune your own business. Remember, while you are in business for yourself, you are definitely not by yourself. So, be sure to take full advantage of all the opportunities there are. Communicating and networking at chapter meetings is only part of what makes PTG so special.

If you were in Dearborn there is more to talk about than you will have time for, so perhaps a meeting after the meeting at your favorite gathering spot will be in order. Whatever you do, don't let the enthusiasm of an exceptional institute be lost without sharing with those who were absent. For the teller, precious moments will be revisited. Even though your Board of Directors was involve in meetings most of the time, we could not miss the excitement of what was going on and the general enthusiasm of people talking to each other between classes and during the various other functions which occurred. For both the teller and the listener alike, the beginning salvo of energy and resolve is being launched toward our 40th year celebration in Orlando.

As this message is being written plans are underway for the Convention Planning Meeting in Orlando this month. Just as those involved in the planning for July, 1997 must be about making things happen which will cause that affair to come off successfully, so must you plan your business accordingly to make sure your presence in Orlando next July comes off successfully as well.

In closing, let me sincerely thank those who have sent such kind letters of support and encouragement.



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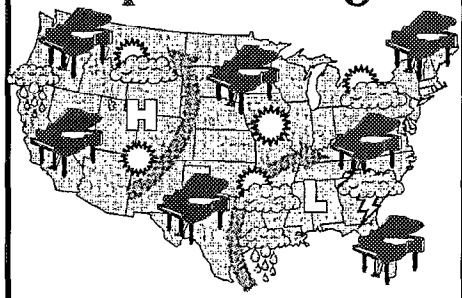

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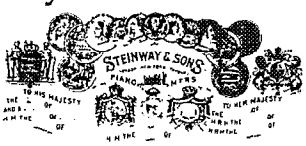

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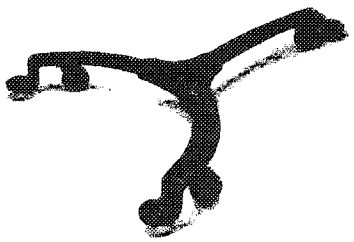

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Dealers and Us

Recently a tuner in our area detailed his disappointment with the purchase of a long-established piano store by a national chain. He made clear that the sale was, in his opinion, bad for competition, bad for the customers in the area, and bad for the industry — leading to a host of poorly rebuilt pianos being serviced by unethical, out-of-town, underpaid techs and ... well, a host of doom and gloom. I strongly disagreed with his opinion! In particular, his obvious disgust with dealerships (in general) seemed inappropriate for a tuner/technician living in the modern retail world.

The sale of the store to a national chain was simply a business transaction, not a failure of the American Dream! Congratulations are in order, not condemnation, as the sale of a successful business will allow the former owners to get a piece of the Dream now ... not years in the future. The simple fact is this: businesses are in the business of making money! The prime mover behind the sale was dollars and cents. It always will be. Period.

The reason that so many piano builders are making "cheaper" pianos is, again, profit. Our job, as Guild members, is (certainly!) to encourage the industry to maintain high levels of excellence. The best place to do that is ... from within the dealership. We have to acknowledge the fact that not everyone has the money for a high-class piano (insert your favorite brand), but that doesn't mean that selling low-end models is evil or vicious — or even wrong. It's an acknowledgment that not everyone has the bucks to start with a six-foot grand! It allows a dealership (in the business of making money, not creating "art") to offer an affordable piano for as many people, i.e., revenue producing family units, as possible. Good for them! What is wrong is that the low-end pianos are becoming — no, too many just are — unworkable boxes that vaguely resemble pianos. The way to fix that is to complain to the builders! When a piano hits the dealership, and is totally flawed send it back! If you're not working for a dealership, you don't have the option, do you? When pianos arrive and require hours and hours of regulation, or rebushing of keys, or other major service, you send that bill to the factory! You make it clear to the dealer that the problem is the factory's, and they won't pay, they'll turn it back on the builder every time. They (the dealers) are making money, too! I have convinced a dealer to stop carrying truly worthless piano brands, by making the economics clear — sell this piano and it will never go away, it will have you paying for service calls for ever, is this profitable? The builders cannot ignore increasing "after shipment" problems, either. They, too, will heed the profit line, and quality will improve, or they will close the doors. It is a matter of economics for the builders to build "problem-free" pianos to the dealerships. Again, this is done (best) from inside the dealership network.

My own attitude towards dealerships is very positive. I'm glad they are there! I welcome new customers from dealerships, and new pianos to tune, and encourage my relations with dealers as much as possible. I heavily discount first-time service calls, and I promote a positive image for each dealership I work for (no "favorites" in the customer's home, I'm there for each store that sends me). I am always aware that I represent the dealership every time I tune a store-sold piano. When I walk through the door, I am the store in the eyes of the customer. We are the only contact the customer has after the sale, and we are there year after year after year. True? What's the gain? I tune for almost every dealership in the state ... that's economics, too. I don't walk in on a low-quality piano (new or used) and insult the owner's new pride and joy — ever — but I will encourage the customer to upgrade as soon as possible (it does work, you know). Most reputable dealerships offer full trade-in on used instruments for a period of years, and near full trade-in on new for the same period. If I do have a major problem with a piano, I tune the piano, congratulate the new owner on their fine purchase and immediately corner the dealership's owner or manager with the problem. I've never had a dealership tell me to get lost or ignore the problem. They are keen on maintaining a good relationship with the customers, too! After all, they will likely be buying another piano in the future ... and a poor contact with the initial purchaser will always send them somewhere else, right? It's a matter of economics, dollars and cents, every time, but that can work for us, too!

I always work hard to make a new piano buyer happy, I share their joy in their new piano and the world of music they have entered. Most first-time owners aren't players, they've purchased the piano for their children as an investment in the future, and it's up to us to make them convinced they've done the right thing ... as they have. People will buy the best piano that their budget will allow, and once we enter the picture (year after year after year) our job is to educate them, and help them to either improve their instrument or replace it with a better quality instrument in the future, but (for me) it's always a positive approach. I explain the advantages of longer string length, the efficiency of direct-blow vs. drop action, a better quality string or hammer, the difference between grand and vertical, etc. Dealerships are a part of that picture, always will be, as a vital part of the piano-playing (and selling) world. We need them as much as they need us! That's economics, too. It works!

—Jeffrey T. Hickey, RPT

More on Protecting Hearing While Tuning

This letter should have been written months ago, but time is limited and spare time is also mostly combined with work. Your "Roundtable" in the January issue motivated me to start using ear protection.

I have written an article for the European piano tuners' magazine, *Europiano*, mentioning the "Roundtable" discussion and arguments. They are not included in this letter.

In July 1995 I took the exam to apply for membership in the Piano Technicians Guild in the USA, either as a RPT or, if possible, as a CTE. The tuning test is divided into 8 categories. As an average in 7 of the categories I scored 98.3 percent, but for the top octave only 88 percent — mainly the top five notes being too high or to low without any sort

Continued on Page 12

The 2nd GPA
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First Prize Winner selected Kawai.

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Tchaikovsky Competition
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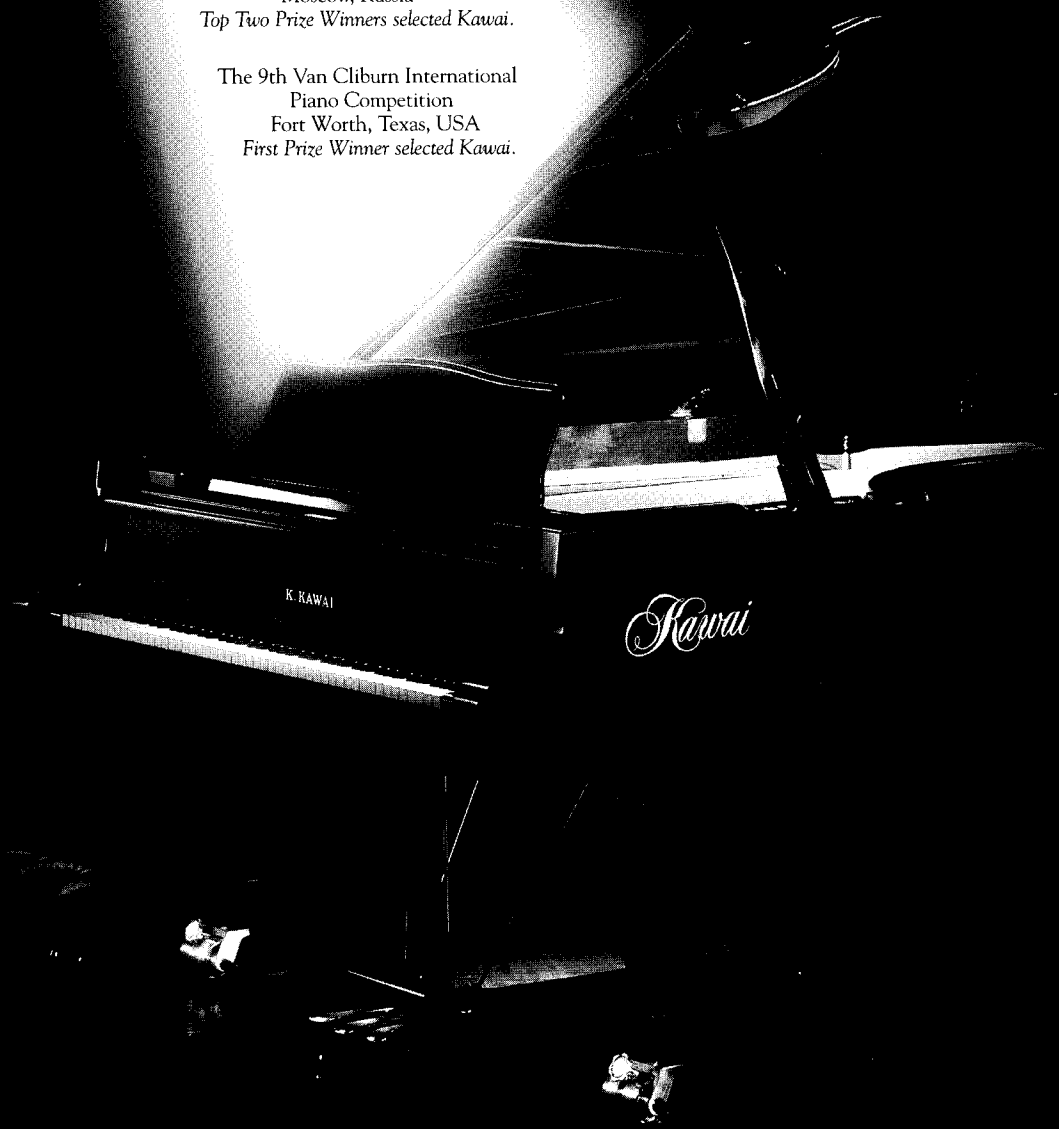
Top Two Prize Winners selected Kawai.

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



It's becoming a familiar refrain.

TT&T I Glove You, Man

When restringing a piano, especially during the hot, humid part of the year, it's desirable to protect the music wire, bass strings, and tuning pins from the perspiration and skin oils found on your hands. In the method I use, it's my left hand which normally handles the wire and tuning pin threads the most. I have used white cotton gloves for this, but don't like the loss of "feel" which comes along with a thick cotton glove. A good solution for me has been to wear a

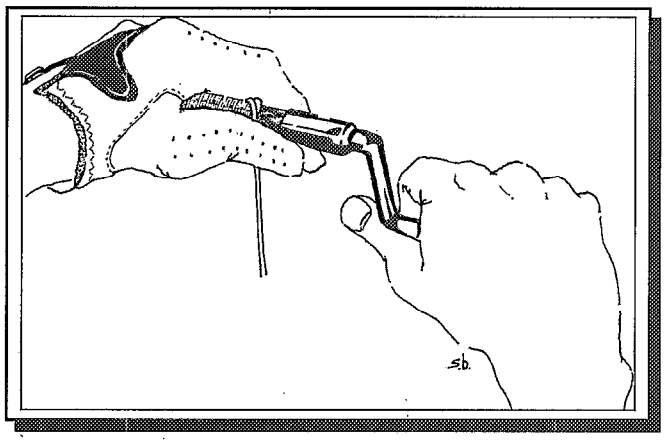


Figure 1 — Making coils on tuning pin, wearing golfer's glove on left hand.

golfer's glove on my left hand. Golfer's gloves don't come in pairs; they are sold as single items for either the left hand (for right-handed golfers) or the right (for left-handed golfers). The synthetic fabric or cabretta leather used for golf gloves is very thin yet tough, enabling me to feel what I'm doing, and still protect the metal parts from potential corrosion, while protecting my thumb where it bears against the wire when making coils (See Figure 1).

— Steve Brady, RPT

TT&T Mini-Scalpel

Tom Cobble showed me a neat trick. He takes a single-edge razor blade and, with a pair of pliers, breaks a piece of the sharp edge to make a mini-scalpel blade. He then super glues (is there no end of things one can do with super glue?) the blade to a slot cut in a hammer shank to complete the tool. Tiny scalpel ready to go for pennies!

— Bob Bartnik, RPT
(Reprinted from *The Richmond Update* newsletter.)

TT&T Soundboard Crown Sticks

Susan Graham introduced me to this tool in one of her classes years ago. It's made of common piano supplies and it stores easily and compactly when not in use. To make it, assemble two pairs of hammer shanks by joining them with the brass repair sleeves available from supply houses. Then take two more brass repair sleeves and crimp them on one end, leaving just enough of a hole on the end for a length of string to slide through (See Figure 3). Thread about a four-foot length of string through the crimped sleeves, then push the sleeves over the ends of the hammer shanks.

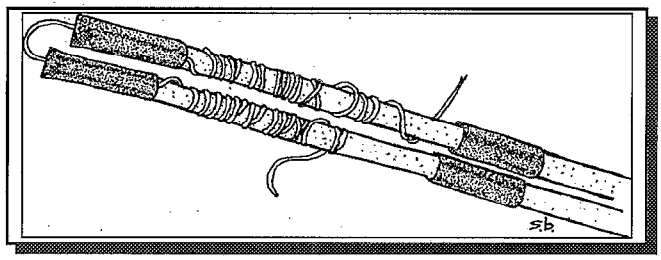


Figure 2 — Crown sticks assembled and rolled up.

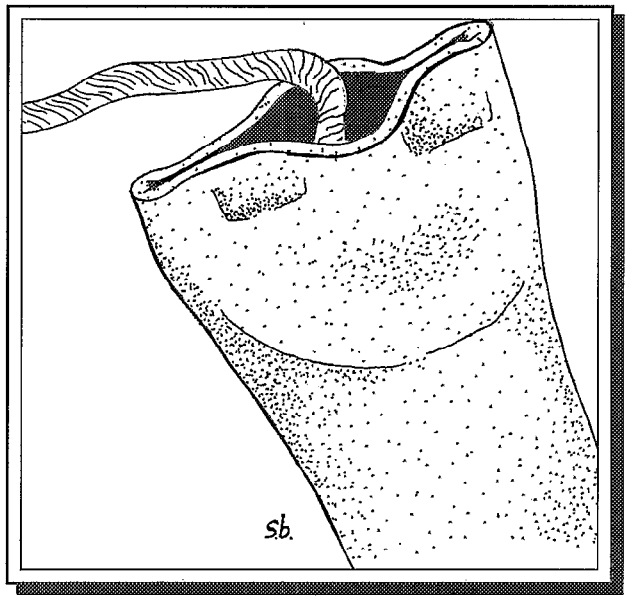


Figure 3 — Detail showing crimped end of brass sleeve.

To use, pull the paired shanks apart, exposing about three feet or more of the string between the shanks. Push the ends of the crimped sleeves against the underside of the soundboard just alongside the longest accessible rib (See Figure 4). Now observe the middle of the string to see whether there is a gap between it and the soundboard. Usually, on a strung piano, you would expect to see a gap of about 1/8" or so, indicating the presence of crown.

Continued on Page 12

Letters

Continued from Page 8

of pattern.

The way the exam was performed gave me the feeling that the result was correct for what I was able to perform on that day. Maybe I had started to experience a hearing loss? I have been tuning pianos for 37 years, and I have always tried to be very careful with my ears, avoiding all sorts of noise without protection.

To find out I went to a hospital in December 1995 to do a hearing test. The test showed that I could hear all the way up to 18,000 Hz without any trouble. Except for the area between 2,500 Hz and 4,500 Hz where I had a reduction of some 40 dB.

Before I took the hearing test I talked with Dr. Al Sanderson about his experiences with loss of hearing and what sorts of overtones we use in the upper octaves. His answer is as follows: "You need to be able to hear up to the fundamental pitch of C88 to tune it with any of the tests you mentioned. Some hearing loss at that pitch, about 4,300 Hz, is all right as I know from personal experience. I was able to tune C88 by ear without a hearing aid with a loss of about 20 dB at that pitch. With a loss of 30 or 40 dB, it is very difficult, if not impossible, to tune the last few notes."

With this in mind I wrote a letter about "the Art of Tuning" to the hospital to explain my problems. Quoting from this letter: "Another aspect is the loudness. I should hear at least 4,500 Hz with a reduction of not more than 20 dB. With a loss of 25-30 dB it is practically impossible to tune the upper notes correctly, a problem for many old tuners even if they are able to hear much higher than C88. Note F81 has in theory 2,637.2 Hz, in practice between 2,670 Hz and 2,690 Hz. Note C88 has in theory 3,951.2 Hz, in practice between 4,300 Hz and 4,500 Hz on instruments with bad mensuration. I feel I have problems from 2,700 Hz to 5,000 Hz."

The hospital only tested some frequencies (My loss in dB in ( ) .) : 1,000 Hz (5dB), 2,000 Hz (8 dB), 3,000 Hz (40dB), 4,000 Hz (45dB), 6,000 Hz (15 dB), 8,000 Hz (6 dB), then every 1,000 to the top which all had a reduction of 6 - 8 dB. I would like to have a new test marking every 100 Hz between 2,000 Hz and 6,000 Hz to really establish my hearing loss.

Comparing the results from the test with my letter led the doctor to have a long conversation with me about tuning and related arts. He added that from his experience most of the hearing loss occurred one octave higher than the actual frequency making the damage. If many tuners get this sort of hearing loss it must be a hazard of the trade.

It should be unnecessary to state that I have started to use ear protection with a reduction of 15 dB when I tune. The brand name is High Fidelity ER-15. I am satisfied so far. I am less tired, and much of the disturbing noises in the background, like chatter and small talk, disappear.

How clever are we to protect something that should last for a lifetime? Our ear is made to hear the noise of a leaf falling to the ground and all frequencies up to 20,000 Hz. Most of the sound connected to speech is from 4,000 Hz and downwards. Many people go to concerts where the sound is artificially amplified to a level of madness and/or spend a lot of money to buy a Hi-Fi for their homes or cars. How many are walking around with a small sound (tinnitus) in their ear? How often do you have to repeat a question to your colleagues: "What did you say?"

We are named "Homo sapiens" — the "thinking man." Why don't we think about using a small amount of money to protect our ears?

— Odd Aanstad, RPT

Tips, Tools & Techniques

Continued from Page 10

To store the sticks, just pull the string through the crimped sleeves until there is only about an inch or less remaining between the shanks, then roll up the excess string ends on their respective shanks, as shown in Figure 2.

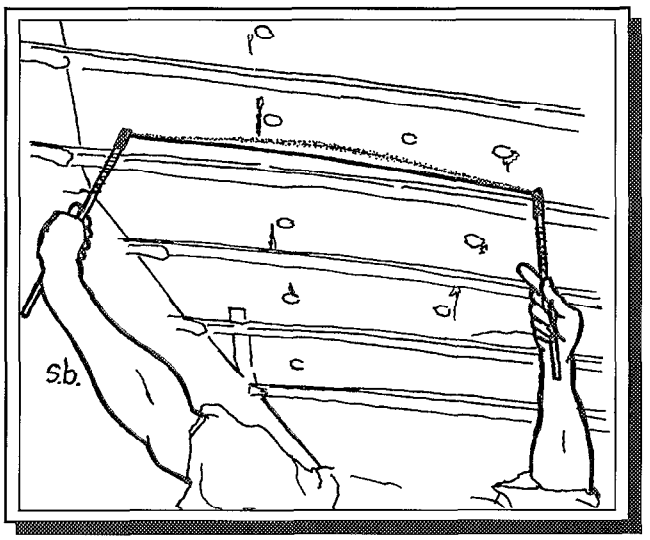


Figure 4 — Crown sticks in use.

— Ward Guthrie, RPT

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Q: Fitting The Pinblock

I was taught, and still believe, that the leading edge of the pinblock should be well-fitted to the plate flange. By "well-fitted" I mean there should be no space or gaps between the pinblock and the plate's pinblock flange anywhere, but at the very least there should be solid contact at least every two or three inches. When I'm hired to inspect a rebuilt piano for a potential buyer, this is something I check very closely. With the action out, I use a feeler gauge to feel for gaps. A flashlight and mirror are handy here, too. If I find any space at all, in my opinion the rebuilding is compromised; however, I have heard other technicians say that certain well respected piano makers have never fit their pinblocks. Obviously, these manufacturers must not believe it to be critical. Does fastening the pinblock to the inner rim with screws or dowels and glue mean the flange fit is unimportant? If so, why does any manufacturer bother with the time-consuming process of obtaining a good pinblock-to-plate flange fit?

Regardless of how certain new pianos are built, it still seems to me that a conscientious rebuilder should do everything possible to insure that the pinblock doesn't move under the enormous string tension found in modern pianos.

Finally, what do you suggest for a new or rebuilt piano with a pinblock that is poorly fitted to the plate pinblock flange that does have tuning stability problems? (Assuming other factors contributing to tuning instability have been addressed.)

— *Christine Lovgren, RPT*

A: From Contributing Editor Del Fandrich, RPT

Stresses On Pinblock

The average piano has approximately 225 strings attached to an equal number of tuning pins arrayed across its compass. When the piano is tuned to its normal pitch of A=440 Hz, these strings will be stretched to a combined total tension of somewhere between 35,000 and 45,000 pounds. Modern pianos are constructed such that the load from these strings will predominantly be supported by an iron casting — the piano plate — at both ends. The tuning pin/pinblock arrangement (See Figure 1) is used at one end and the hitch pin at the other. The problem in this case is how to get the stress from the string, through the tuning pin and finally to the plate in a manner that will provide adequate rigidity to ensure good tuning stability.

Fortunately, the tension stress of the strings is distributed more or less evenly across the full width of the pinblock/plate flange arrangement. For purposes of illustration, let's use the ***imaginary*** piano, an outstanding 7-foot piano using a four-section plate design — bass, tenor, low treble and high treble — with approximately the same number of unisons in each section. The ***imaginary*** piano has a total string tension of 40,000 pounds, hence each section will have to handle 10,000 pounds of stress. In examining the ***imaginary*** piano we find that the plate's pinblock flange extends down from the tuning pin panel 1.0" and it is 50.0" wide. This gives us a potential total pinblock/plate flange contact area of 50.0 in.^{2} or 12.5 in.^{2} per section. If the pinblock to plate flange fit were perfect the load distribution along the mating surface of this pinblock would be about 800 lbs/in.^{2}. Since the average compression strength of most pinblock panels is in the neighborhood of 2,000 to 3,000 lbs/in.^{2}, this amount of long term stress doesn't seem to be too high. But ...

The world is rarely perfect and neither are pianos. Piano plates are rarely divided as evenly as that of the ***imaginary*** piano. Usually, the center — tenor — section will carry the bulk of the load. There are generally more unisons through this section and the average unison string tensions is usually somewhat higher than the overall average. Still, unit area loads would be less than 1,000 lbs/in.^{2} in a typical piano with a perfectly fitted pinblock. Unfortunately, as any rebuilder knows throughout the history of piano building, pinblocks have rarely been fitted perfectly to plate flanges — there may have been one built back in 1897 and another in 1921 or '22. So, if we were to assume that in the ***imaginary*** piano the pinblock contacted only half of the plate flange this would raise the unit pressure of the pinblock against the plate flange to something close to 2,000 to 3,000 lbs/in.^{2}. And even this would, by most standards, be considered an above-average fit. More typically we find that a pinblock will have only 5 percent to 25 percent of its leading surface *in actual contact* with the plate flange. This means that — again, at the actual points of contact — the unit pressures could easily be up to 16,000 lbs/in.^{2} or more. Unless...

Supporting The Pinblock

Perhaps the pinblock/plate flange interface doesn't have to absorb all of this load all by itself. Fortunately, it doesn't. There are a number of techniques a piano builder can use to transfer the tension stress from the strings to the plate and, to some lessor extent, to the rim. Among these — more or less in their order of importance — are:

The pinblock/plate flange, as already discussed.

The plate screws. The plate screws do somewhat more than simply hold the pinblock against the plate pinblock panel. Lacking a good pinblock/plate flange fit they can support some of the load from the strings. Let's assume that in the ***imaginary*** piano there are 25 #18 x 1 1/2" oval head wood screws holding the pinblock to the plate. If all of the 40,000 pounds of string tension must be held by these screws, then — assuming they are evenly distributed — each screw would have a shear stress of 1,600 pounds on it. Since this is well within the capabilities of even the cheapest imported screw we should have nothing to worry about. Right? Well, maybe. It may be a shear load to the screw, but what about the pinblock? The pull of the strings against the tuning pins and the pinblock will be attempting to slide the block along the plate surface toward the plate flange. This means that the wood on

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the back side of the screw will be under compression. Unfortunately, there is not a lot of surface area here to support this load. Making things a bit less bad is the fact that the screws should be holding the pinblock very tightly against the plate panel and there will be a fairly high amount of friction between the two helping to hold the block somewhat stable against the plate — always assuming, of course, that the pinblock screws are kept consistently tight.

Plate bushings. Although plate — or tuning pin — bushings were developed to speed up and improve the process of drilling the pinblock during manufacture by guiding the drill bit toward the center of the hole through the plate, there are many who believe that they also help to stabilize tuning by supporting the tuning pin closer to the string coil. And I suspect that they do help at least a little bit for the first couple of years. The problem is that the wood fiber of the bushing is rather badly treated by being crushed between two unyielding metal surfaces — the plate and the tuning pin — both from the effects of swelling due to moisture absorption and from the effect of the tuning pin "flagpoling" during the tuning process. It is unlikely that the bushing will be able to provide much support to the individual tuning pin after the first couple of weather cycles and the first half-dozen or so tunings.

Pinblock end supports. While it is apparent that most piano designs assume that the bulk of the string tension stress be supported by the plate via the pinblock flange — else why is the flange even there? — at least some of this stress will be transferred to the rim. How effectively this is done may also have an effect on tuning stability. There are several common methods of fixing the pinblock to the rim of the modern piano. The simplest method is to first bed the pinblock to the plate and simply screw the ends to the inner rim using very long screws. This is the method practiced by Baldwin. In addition to the screws the ends can also be glued to the inner rim, sometimes being supplemented by a couple of dowels. In some pianos, most notably Steinway, the pinblock is doweled and glued to both the inner rim and the stretcher and the bedding done after the block is in place. While this latter method is certainly the more elaborate and impressive of the two, I'd be hard pressed to declare that it performs any better in actual practice. Any of these methods will work well when done properly. *(I should note here that the conscientious rebuilder will competently duplicate — and perhaps improve on — the pinblock installation method and fit used by the original builder. This is not an area in which it is permissible to take short cuts.)*

Plate Installation and Tuning Stability

There are yet several more design features that can affect the tuning stability of a piano and should be examined before condemning the pinblock fit. Some that come readily to mind are:

The plate design and method of installation. This would include the cross-section area, shape and placement of the longitudinal plate struts. This is particularly critical at the bass/tenor break. There is a lot of stress concentrated at this point and it is important that the plate be designed to adequately withstand it.

The fit of the horn wedge if there is one. The so-called "horn" and wedge located below the X at the bass/tenor break as used by Steinway and others is an excellent method of transferring stress from the plate to the belly brace structure. A rebuilder will very rarely forget to install this wedge — a dangerous omission to be sure.

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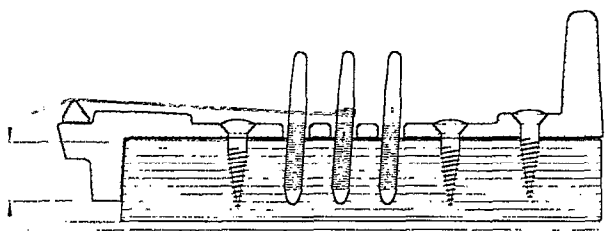
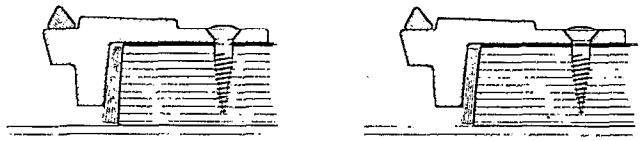


25 mm *Pinblock should contact the plate flange through this region.*

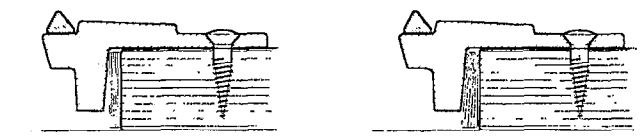
The tension of the strings against the tuning pins will try to pull the pinblock toward the left and against the pinblock flange. Because the strings attach to the tuning pins some distance above the pinblock surface, the forces involved will also try to rotate the pinblock counterclockwise. Ideally, an array of plate (or pinblock) screws will hold the pinblock firmly against the plate tuning pin panel and plate flange preventing the pinblock from shifting or rotating but, by themselves, they can do little to provide good long-term tuning stability. If the pinblock is not in firm contact with the plate flange it is then free to "float" and some degree of tuning stability will inevitably be lost.

While the pinblock to plate flange contact is only one of several methods available to the piano builder to provide good pinblock--and ultimately tuning--stability, it is by far the most effective and reliable.

Figure 1.
A cross-section drawing of a typical grand piano plate and pinblock assembly.



A) In this example the pinblock is cut to the same angle as the plate draft angle (usually somewhere between three and seven degrees--five in this drawing) on the plate flange. In this case the plug should not be tapered since a tapered wedge (left) will provide solid contact only along the bottom edge of the plate flange. The straight plug (right) installed as described in the text will provide better support.



B) In this example the pinblock is cut square but the draft angle of the plate flange is still five degrees. No attempt has been made to mate the pinblock to the flange. In this case the plug should be wedge shaped as shown on the right. A straight plug (left) will only provide support along the top edge.

Figure 2.
Wedges or plugs must be shaped to provide maximum contact area between flange & pinblock.

Q10-Pblk.CAD

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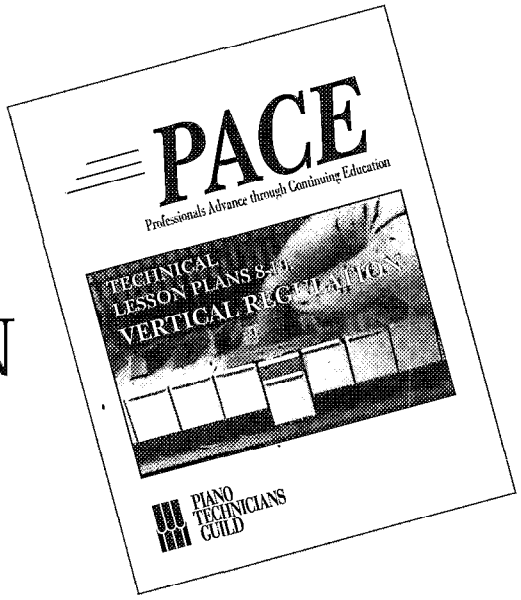

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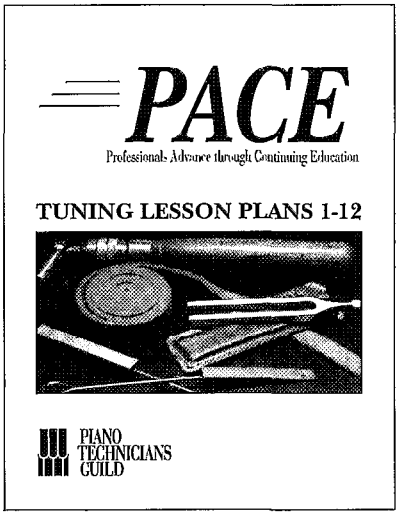

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The integrity of the plate support system along bass end. It never ceases to amaze me how cavalier some piano builders are about this. In the treble, where the strings are short, the plate struts are short and rigid and the pinblock is deep with lots of gluing surface, there will frequently be two or three large screws — sometimes supplemented by two or more dowels — holding the pinblock in place. In addition there will often be a couple of screws going through both the plate and the pinblock well down into the inner rim. Overkill to be sure. Yet at the bass end of more than one piano the plate and pinblock are held to the rim with only one screw. For the most part the builders seem to get by with this, but it does make me wonder.

Plate screw integrity. To reduce the cost of manufacture some builders — most notably some of the Asian imports — are using what is referred to as *"select hardwood"* in the rims of their pianos. This appears to be a light red wood of the *Shorea-Lauan-Meranti* group. We have to be extremely careful in removing soundboards from these pianos because the wood used in the inner rims is often softer than the spruce that is glued to them. I strongly question the recommendation given by many instructors that one should begin any piano prep service procedure by tightening all of the plate rim screws and/or bolts. Many of these *select hardwood* rims simply do not have the structural integrity to withstand very much of this screw or bolt tightening.

There's Strength In Numbers

Fortunately, most pianos we are asked to rebuild were designed such that they do not depend on any one of the above techniques to support the stress of the string plane. They are able to use a combination of the above systems to provide a stable termination for the strings and provide adequate tuning stability. Indeed, as Ms. Lovgren pointed out in her letter, several "well respected piano makers" do not fit, or bed, the pinblocks of their pianos to the pinblock flange cast into their plates. If the pinblock is not bedded against the plate the string tension stress must be borne in part by the tuning pins bearing against one side of the plate bushings, by the pinblock screws, and by the end attachment points of the pinblock. This appears to be adequate in many cases since most of these pianos do exhibit at least adequate tuning stability. Does this make proper pinblock bedding unimportant? Have we just been wasting our time all these years? I think not. Of course it is important that the pinblock be properly bedded to the plate flange! That these builders have been fortunate in that only a few of their pianos exhibit tuning instability problems is not adequate justification for failing to perform this operation correctly. Especially considering how easily this step can be done in production. It is not difficult to design plates with pinblock flanges that are straight from treble to bass with only a small cutout at the low tenor for agraffe clearance. It is very easy to fit pinblocks to these plates — even in high production with virtually no hand fitting — so they will have some minimal, but still very useful, amount of contact. I can think of only one reason for not bedding pinblocks to pinblock flanges. It saves a few — a very few — *dollars* or *yen* or *won* during manufacture. Fortunately, the redundancy of the other systems mentioned above seems to take up the slack in most cases. Alas, there are always those pesky exceptions....

Bedding Pinblocks — The Hard Way

So, what to do with the exceptions. There are several things you can do — short of tearing the piano back down and doing the job properly — that seem to work with poorly fitted pinblocks. A couple of the procedures I've heard about can get pretty messy, however. The most extreme process I've heard of so far involved removing the action and lid, turning the piano over on its top and pouring epoxy into the gap. Sadly, the epoxy had to be left thin enough to pour and it displayed a most aggravating tendency to seep along the top of the pinblock and run out of a number of the plate's tuning pin holes complicating an otherwise innovative solution to the problem. I will describe the method I prefer for wedging floating pinblocks. If others would like to submit their own better ideas, I'm sure Steve would be more than happy to print them in a future *Journal* article.

Once you have determined that a gap actually exists between the pinblock and the plate flange and you've decided that it's a problem you need to do something about, the logical next step is to fill it up. The goal is to remove as much of the open space between the pinblock and plate flange as you can and provide a solid contact between the pinblock and the plate flange over as much of the surface area as possible. The easiest and most straightforward method I've found to fill this gap is to insert hardwood wedges between the pinblock and the plate flange.

In my opinion, the best material to use for these wedges is — guess what — pinblock stock. If you don't do rebuilding yourself you should be able to get this material from any rebuilder in your area. There is always some scrap left over after every pinblock installation. If you can find some densified material such as Delignit, Falconwood or Baldwin pinblock stock, so much the better, but the regular stuff works well also. It is not enough just to drive a few hardwood wedges into the gaps so I developed the following technique of epoxy bonding them into place.

Before trying to put any wedge into the gap between the pinblock and plate flange you must try to determine the proper shape, or taper, of the wedge needed. The wedges should be shaped to provide as much contact area as possible to both the pinblock and the plate flange. See Figure 2. The thickness and shape of the wedges can be determined by inserting feeler gauges into the gap. You can also get an idea of how much to taper the wedges — if at all — by rocking the feeler gauge back and forth slightly. Often the wedges will have to be slightly thicker on the bottom than they are at the top. You can then use this information to cut the required wedges for your job. An easier way, though, is to select from a prepared stash of a couple of hundred wedges of various sizes, thicknesses and shapes. These should vary in thickness from paper thin to three or four millimeters. Some should be tapered, some straight. Some are 10 mm wide, some are wider — up to 50 mm or so. Get yourself a real mixture. This way you can pick and choose among a fairly wide variety to get the best fit.

You'll have to use your own judgment here, but I believe it is usually best to drop pitch on the piano before beginning even the process of dry-fitting the wedges. Often the thickness of the gap will increase slightly as the pitch comes down

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on the piano. Once pitch is down, begin dry-fitting your wedges so that they fit very snugly between the pinblock and the plate flange. You should be able to get them almost all the way up to the top of the gap by hand but a slight tap of the hammer should be needed to seat them fully when the time comes to actually install them. I find it is helpful to number them since the gap thickness generally varies from one end of the block to the other and this will enable you to easily restore them to their proper order after you drop them all over the floor and get them out of sequence. You should use as many wedges as you can. Remember, you're trying to duplicate the pinblock fit that would have been there had the job been done properly in the first place.

Once you have dry-fit all of your wedges, it's time to permanently install them. You can install them using a good quality aliphatic resin (Titebond II, etc.) glue, but my personal preference is to seat them using epoxy. Begin by mixing a matrix using just enough wood flour filler to thicken the epoxy[1] so that it is not runny but is spreadable — a mixture the consistency of warm peanut butter will be about right. One by one, spread a thin coat of your epoxy matrix on one side of the wedges and insert them into their respective positions tapping them home as you go. The epoxy, of course, goes to the pinblock side of the gap.

Yes, I know, some of the epoxy will work its way around and come into contact with the plate. Don't worry about it. When it comes time to disassemble the piano for rebuilding years from now the pinblock will still come loose fairly readily. Of more consequence is the need to keep any glue or epoxy drips off of the keybed and the damper assembly. Make sure you adequately protect these areas with newspaper before you begin. Also, please protect your hands from the uncured epoxy resins. Either wear rubber or plastic gloves or use a barrier cream while you're working with the stuff and clean your hands carefully with an appropriate cleaner — ***not acetone or lacquer thinner*** — when you are through.

Even if you use one of the faster hardeners, the epoxy will not reach its full strength and hardness for at least 24 to 48 hours, so plan to come back in a day or two to finish up. Trim off any tails that extend below the pinblock using a coarse file or rasp or some 50-grit sandpaper wrapped around a wood block. Brush or vacuum out all of your leftover dust and chips, put the action back in and tune away. The pinblock should now be bedded to the plate flange at least as well as most piano builders are able to do on their best days — even those who are still conscientious about this process.

It will surely take several tunings to restore string stability, but the end result should be a much more stable piano than the one you started with.

1 — The ***System Three*** epoxy we use in our shop comes from ***System Three Resins, Inc.; P.O. Box 70436; Seattle, WA 98107. Phone 517-684-7286.*** Another good, albeit somewhat more expensive, system is the ***West system*** from ***Gougeon Brothers, Inc.; 706 Martin Street; Bay City, MI 48706. Phone 800-333-5514.*** Both of these companies offer excellent catalogs (free) and instruction manuals ($5 or $10 and well worth it) for using their products. Call them direct for further information.

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By Newton Hunt, RPT
Contributing Editor

Sometimes we encounter a situation where new key-front bushings are desirable but near impossible and key replacement is also untenable. If, after examining the front mortises of the keys, it is determined that a rebushing job would be inferior to the desired results then mortise replacement is a viable alternative to trying to rebuild the current mortises. Some of the determining factors are:

- Mortise shoulders too rounded over
- Key wood too soft, too dry or otherwise unbushable
- Mortises too irregular in width
- Too much wood removed from previous rebushings
- Mortises just too big for thick bushing cloth
- Destroyed mortises
- Cannot be unbushed because of glue used.

Once the decision has been made to re-mortise, the first thing to do is to order a set of hardwood key buttons from a supplier who can assure you of the exact dimensions of the mortise. Test the fit on the keypins in the key frame. Any fit that is too tight is just that, too tight, and the set should not be used. It is just too difficult to ease bushings set in hardwood, and the softwood key buttons are just too fragile, as will be seen later.

Tools Needed:

- Calipers, electronic or mechanical
- Band or table saw
- Clothes iron
- Knife
- Router with table
- 3/4" dado cutter
- Clamp
- Safety glasses and ear plugs
- Drill press
- Drum sander
- Small, sharp hand saw
- Drill bits of differing sizes
- Plug cutters.

Materials Needed:

- Hardwood key buttons (unfinished preferred)
- Edge-banding wood strips
- Glue
- Sandpaper.

Items to Make:

- Scoring block
- Alignment tool.

The Procedure

By using a piece of wood of the right thickness with 100-grit paper glued to both sides, key bushings can be filed, then ironed with a hot metal tapered caul to make a small difference in fit of the bushing. To go from a .136" mortise to a .147" opening is going to be difficult and time consuming, hence the necessity that the buttons fit near perfectly.

Lay out the cut lines on the key buttons so that the bushed mortise will be centered, but about .030" to .035" narrower than the 3/4" dado to be cut out of the key. Go to the power saw and cut off the larger waste side of the buttons. Be careful not to drop the narrowed strips because they will break at the bushed mortise.

Heat your iron to the "wool" setting and iron on a strip of edge-banding material to smooth the cut edge and especially to reinforce the strip against breaking. This will take up half of the .030" to .035" narrowed first cut.

Trim both edges of the edge-banding to a slight bevel to prevent interference with the next steps. Be careful because the strips are still fragile.

If the buttons have a finish, now is the time to remove it, and if you wish to reduce the thickness of the buttons to the depth of the factory dados, this can be done at the drill press by using a drum sander and a stop block set at the right distance to get the thickness desired (See Photo 1).

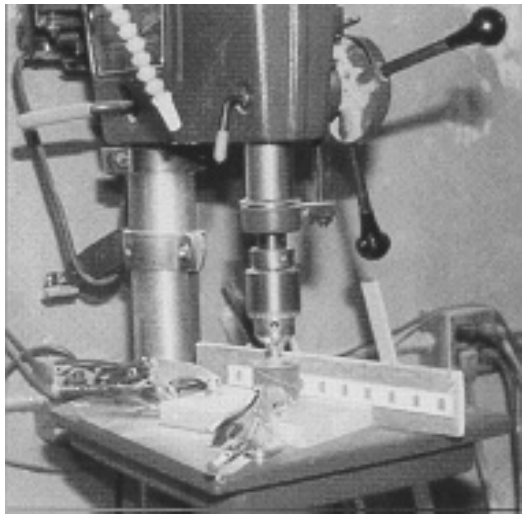

Photo 1 — Reducing key button thickness with drum sander on drill press

Return to the saw, reset the fence to cut the mortise strips to .020" to .025" narrower than the 3/4" router dado cutter bit. Be aware that there may be some warping of the strips due to stress relief and the sealing of the end grain of one of the sides.

Iron strips of edge-banding material onto the second cut side and trim as before. If you have a different wood, walnut, maple or mahogany, use it to help maintain orientation of the piece going into the key. At this time the strips should be at .075" wide or two to three thousands thinner than the router dado cutter.

The strips are now fully reinforced and should not break if dropped, but I would not care to challenge their strength by excessive flexing of the strips. The first time I did this type of procedure, I did not use edge-banding strips and I had no end of trouble with the strips breaking because of their fragility.

Making the Scoring Block

It is essential to make sufficient cuts into scrap wood strips to exactly set the depth and location of the intended cut. Depth of cut is the thickness of the strips and location is taken from the key front. The final cut in scrap will be used to fashion a scoring block. With the scrap block held against a key, mark the bevel of the head to the bottom of the key and cut off the excess material along that line. It need not be perfect for it is only for quickly orienting the block to the keys. It may be wise to have two or three of these blocks just in case of accidents. Glue fine-grit sandpaper onto both sides of the scoring block for ease of use and to help prevent movement.

On a bench, hold the scoring block to the side of a key so that the front of the block aligns with the front of the key (See Photo 2). Use a sharp knife or pencil to mark both sides of the dado and on both sides of the key. Use the knife to cut deeply into the side of the key at the marks.

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Key-Front Mortise Replacement

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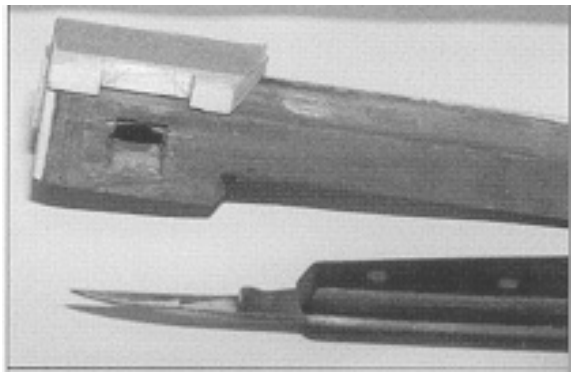

Photo 2 — Scoring block in position for marking side of key with sharp knife.

These cuts help prevent breakout (tearout) of the sides of the key and leaves a neat clean cut.

Once the key is marked and scored, take it to the router. On the router table, please note the block screwed into the miter gauge with sandpaper facing (See Photo 3). This block allows for the steps of the heads to tails of the key and also for the spread angles as well. The sandpaper helps prevent the key from being moved to the left by the action of the cutter itself and also helps provide a clean straight cut. The stop block to the right locates the key position on the miter gauge.

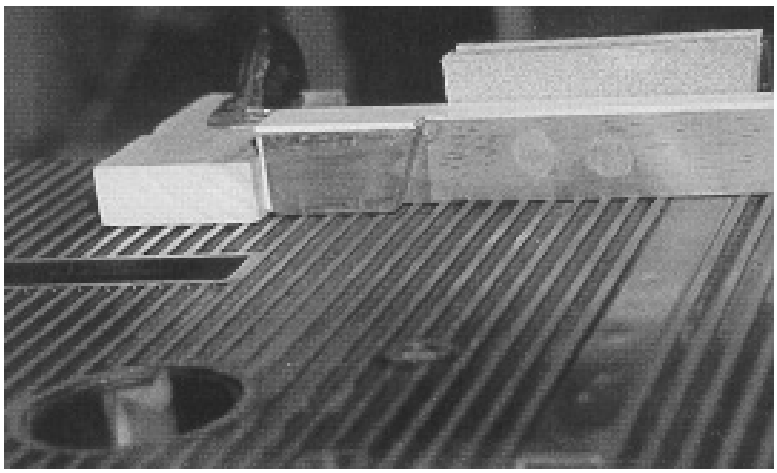

Photo 3 — Router table, showing sandpaper facing on block screwed into miter gauge.

Carefully align the key to the stop block and hold the key firmly down and against the sandpaper then pass the key over the cutter (See Photo 4). Keys need not be unbushed for the dado cuts.

The use of a pedal switch eliminates having to grope for the router switch. Pedal switches are available from many woodworking catalogs and from Sears. Your own safety comes before all else and the safety of the keys comes just below that. Protect your eyes and ears and thoroughly know your machinery and how to work with it safely. Before each cut look at your fingers and at the cutter. Fingertips do not grow well from stubs.

Before cutting the sharps it is advisable to reinforce the front of the key. This will be extremely fragile and even though the key end will not be visible to anyone except yourself, I would recommend one of the following procedures:

- Using super thin CA glue, soak the end grain of the sharp to securely bond the grains together. Or,
- Using a power nailer, inject a short nail into the tip of the key to hold the wood together. Care *must* be taken to not place a nail in the path of the cutter. That truly will wreck a key.

Making the Alignment Tool

With the calipers, measure the width of the remaining part of the key mortise. Find a key pin the same size as those in the front rail of the key frame. Clamp a small, 1/2" thick block of hardwood to the table of the drill press. Set the table height to the greatest possible distance to allow the drill and the plug cutter to cut through the block. Drill a hole through the block the same size as the pin. Without removing the block from the table, drive and glue the pin into the block of wood. Use a 1/4" or 3/8" plug cutter to cut the pin free of the block.

You now have a tool to align the new mortises in the key left to right. If the wood cylinder around the key pin is too large to fit into the mortise of the key it can be filed and sanded to size by chucking the pin into the drill press. Take care not to over-sand or to round off the edges. If you are secure about the strength of your glue joint you can remove wood from two sides of the pin to make it possible to remove the tool from the key by rotating it 90 degrees and lifting it out (See Photo 5).

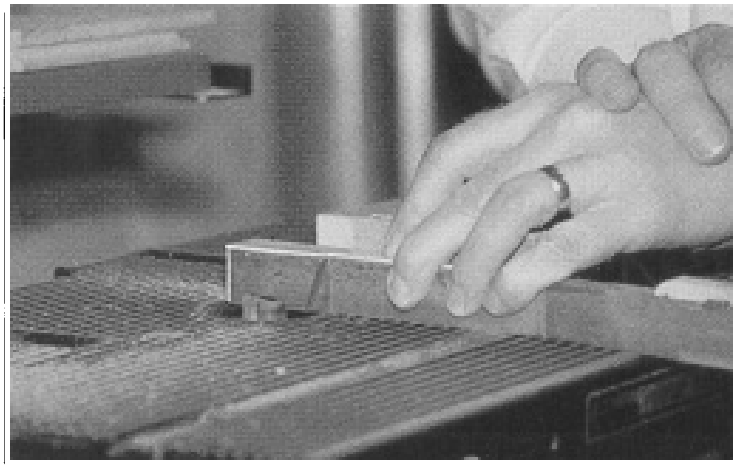

Photo 4 — Making dado cut on router table.

Installing the New Mortises

I would suggest remortising the sharps first because they are narrower than the naturals. By using every other mortise of the strips wider pieces will be available for the naturals. Some of the pieces will not completely fill the dado in the naturals — unsightly but not otherwise essential.

Insert the alignment tool into the key mortise so that it is centered, left to right and front to back and so that it is perpendicular to the bottom surface of the key.

I would recommend hot hide glue for the mortises because it sets quickly if the mortises fit loosely and also because the joint can be undone if needful.

If you modified the alignment tool, put glue in the dado and fit the new mortise into the dado so that the alignment tool remains perpendicular (See Photo 6), then remove the tool and tap the mortise in place with a light hammer. If you have a loose fit, then hold the new mortise in place until the

glue jells and set the key aside until the glue hardens before cutting off the excess.

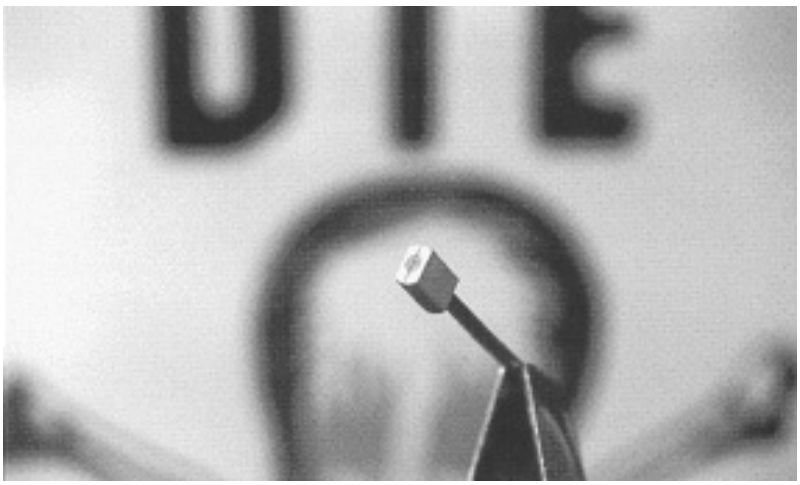

Photo 5 — Alignment tool modified by removal of wood from two sides.

If you did not modify the alignment tool, insert it into the key mortise as described earlier and place a new mortise in the dado, and mark the mortise and key for alignment. Remove the new mortise, remove the tool, put glue into the dado, replace the mortise so the pencil marks align and tap the mortise into place.

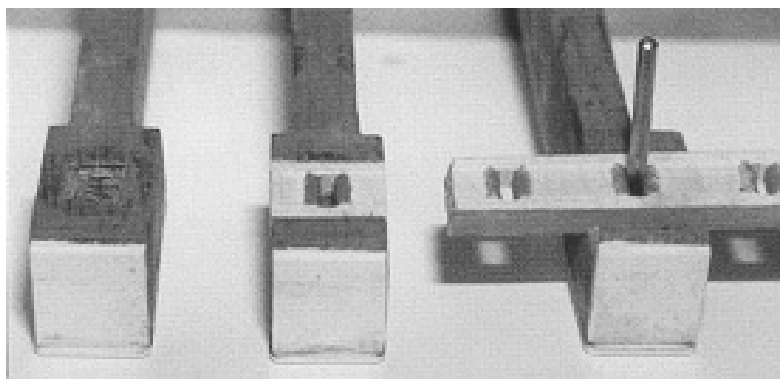

Photo 6 — Alignment tool in use, aligning new mortise stock in key.

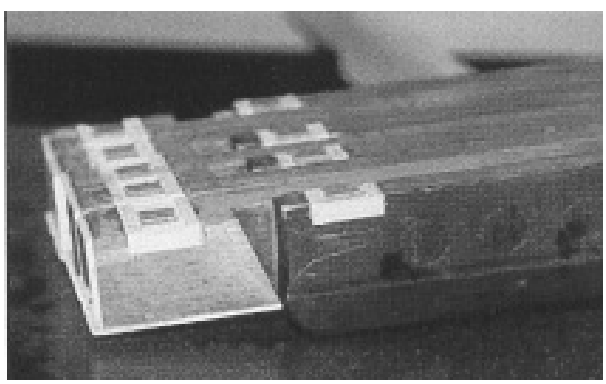

Photo 7 — Keys with new mortises installed.

Using a small sharp saw (I prefer a Japanese saw), remove the mortise overlaps as close to the key as possible.

Finishing Up

Make sure the long axis of the oval of the key pin is perpendicular to the front of the front rail, the pins and capstans are polished and lubricated, and the key bushings are lubricated. Replace the keys in the frame one at a time, and ease the bushings and key centers as needed before replacing the next key.

For polishing I prefer "Flitz®" available from Pianotek, and for lubrication I use "Slide-All®" available from most supply houses.

Preliminary spacing of the keys can be done with the key spacer placed on the pin *under* the front felt punching to prevent scoring the pins. Final spacing needs to be done after the keys are leveled and tilt removed.

This is a tedious procedure but is far less costly than replacing an entire set of keys. By carefully planning and executing the above procedures you can come out with a fine set of remortised keys (See Photo 7) that do not need rebushing.

Touch-up Tuning Revisited

By Chris A. Trivelas, RPT
Contributing Editor

In the last article on touch-up tuning we focused on the procedure. In general terms, this consists of identifying and eliminating the weakest part of the tuning (usually unisons first), then identifying and eliminating the next weakest part, etc. This procedure comes out of a different approach to piano work than what has been the dominant approach in recent years. That approach will be the topic of the next article. But for now, we are at the point of having described a procedure for touch-up tuning, and the next question is: when do we use it?

Touch-up tuning is a tool, and, like any tool, it can be used well or misused and cause damage. In particular, it can be used as another option for delivering the best possible service under the circumstances, or it can be used as an excuse for laziness. The latter is not what I am advocating. Vise-grips® are valuable tools, but we don't use them to turn tuning pins.

"Touch-up tuning is a tool, and, like any tool, it can be used well or misused and cause damage ... Vise-grips® are valuable tools, but we don't use them to turn tuning pins."

In the previous article, we focused on the concert preparation situation. This is where the demands of high quality and limited preparation time often collide. But when is it appropriate to use touch-up tuning in our more daily work? Consider the following scenario:

The Piano to be Sold

You have been called to do a tuning. When you arrive, you are told that the piano is only being tuned so it can be sold. Of course, the piano needs tuning, but it's not too hideous, and some of the hammers are bobbling, the music shelf screws are stripped out, and there are some ugly scratches on the lid. Remembering our code of ethics, you might think to yourself, "I want to render the best possible service under the circumstances and keep the best interests of my client in mind." The client's interests are now primarily financial; ease of sale at the highest fair price. This means your job is to effect the largest improvement possible with the least expense to your client. The touch-up tuning procedure is now an important tool because it is almost certainly more in the client's interest to touch up the scratches in the case, repair the music desk, eliminate the most obvious flaws in the regulation — and not do a complete tuning, particularly since it will need tuning again after it is sold and moved.

"It should be obvious that if the cost of the work (even if it is just a tuning) is more than the increase in market value, the client has lost money and his or her interests have not been well served."

This is a situation where the market value of the piano must be kept clearly in mind. The cost of the work you do must be less than the resulting increase in market value. It can be equal to the increase if it makes the piano easier to sell. It should be obvious that if the cost of the work (even if it is just a tuning) is more than the increase in market value, the client has lost money and his or her interests have not been well served.

There are many possibilities here. On a cheap piano, you may tell the client that a tuning would be a waste of money. In this case, a brief touch-up tuning and pedal lubrication and adjustment for a minimum service charge may be in the client's best interests. But on a very valuable (but neglected) piano, it could easily be the case that putting a thousand dollars worth of work into the piano could increase the market value by several thousand dollars. In this high-end case, a full tuning would, of course, be included. But in many situations where the piano is to be sold, a touch-up tuning along with elimination of the worst non-tuning flaws may well be in the best interests of the client.

The Second Piano

The second piano can present several kinds of opportunities to use touch-up tuning. If the second piano is not used anymore, some clients may refuse to spend the money to keep it tuned, even after you have tactfully informed them that the piano should be tuned whether it is used or not. If this is the case, they may still be willing to have you touch up the tuning as a less expensive way to

maintain or at least monitor the condition of the second piano. When enough time has gone by, or the pitch has changed drastically enough, a full tuning should be easier to sell.

After doing a tuning at an institution such as a school or a church, someone often finds out that a piano has just been tuned and wants the piano in their department tuned as well. When I return to tune the second piano, I always touch up the tuning on the first piano tuned. In this case I usually don't even charge for it, even though it would be perfectly valid to do so. But I receive other benefits. It is a very inexpensive way to make a gesture of good will and show my concern for quality control. Word is very likely to get around, and other members of the institution will be more likely to call me when their pianos need work, so it is excellent advertising. In addition, it is an excellent way to check on the stability of my previous tuning. As mentioned in the recent "Tuning Stability Etudes" article, it is uncommon in our work to get timely feedback on stability and I take every opportunity to do so.

The Impossible Last Minute Call

One of your best clients calls in desperation and needs a tuning right away. Often when this happens you can clear a space in the schedule, but not this time. Perhaps the schedules just won't match up, perhaps you have been working too much already and the thought of one more tuning sends you into a tailspin. On the other hand, you really don't want to send one of your best clients to another tuner. The client doesn't want that either — it was you they called, after all. But then again, if you are too accommodating they will be more likely to do this to you again. Why not offer the option of a touch-up tuning? This could keep your stress level within reason and give the client at least a significant improvement over their present situation. They still have the choice of trying another technician, but I have yet to hear of anyone taking it when offered the touch-up alternative.

Making Space for a Demonstration

It sometimes happens that a client will be very conscientious about tuning the piano regularly, but be unaware that pianos need other kinds of maintenance and perhaps shocked by the cost when told. Sometimes all the talking in the world will not convince the client of how much better his or her piano can be. If it has been regularly tuned and has held well, it is possible to do a touch-up tuning and use the rest of the time and tuning fee to do a demonstration of how much difference a little regulation, or lubrication, or bass string rolling or voicing can make. The client will not perceive this demonstration as "extra" work, since they were already expecting to pay the tuning fee.

You must be careful in this situation, though. For every 99 people who are astounded and grateful at how much better their piano could be, there will be one who liked it better the old way. It is very important to listen to the client as well as the piano. If there is any doubt, proceed in small increments and, if possible, reversible increments.

Touch-up Service for Professionals

Occasionally, I am surprised to come to a tuning for a professional musician and find just a unison or a couple of unisons way out of tune. Perhaps a string had broken last time and I had forgotten to schedule a return visit to touch it up, or a string may have slipped. It can happen to any tuner. No professional musician should have to put up with this. And I certainly don't want them to associate my name with that out of tune unison while waiting for the next regularly scheduled tuning time to come around. I encourage them to call me when any unisons become really obnoxious. Of course, I check the rest of the tuning when I arrive to touch up the offender. This is a service which can be charged for separately, or can be folded into other service, or chalked up to advertising. And, if handled well, it can be very effective advertising. For myself, I am unlikely to charge separately for this service within a year before or after a rebuild or other major work done on that piano. But I also include in the price of the rebuild a couple of extra service calls for such occasions.

The Non-Tuning Service Call

Finally, touch-up tuning can be a face-saving smoother of this awkward situation: you have been called not for a tuning, but to eliminate a buzz. Naturally, when you arrive the piano refuses to buzz or malfunction at all. You should, of course, charge for your service call, but I suggest that it is not a good idea to risk leaving the client feeling like they got nothing for their money. Even a few minutes spent touching up the tuning can leave everyone feeling a whole lot better about the situation.

"This is a service which can be charged for separately, or can be folded into other service, or chalked up to advertising."

As I said in the previous article, touch-up tuning is a reassembly of the previous tuning and not to be considered equal to a real tuning. It should be used only with the client's knowledge and consent. This being said, I like to think of touch-up tuning as another tool in my kit. There are times when it is the best tool for the situation, and at those times it is a valuable tool indeed.

We started this discussion with the observation that touch-up tuning consists of identifying and eliminating the weakest link, then identifying and eliminating the next weakest link, etc. Underlying this procedure is a view or basic metaphor for the piano which is different from the one predominating in our industry in recent years. In the next article I would like to focus on these basic approaches to the objects of our affection and frustration, hopefully to show the strengths and limitations of each. Stay tuned!

Plate Cosmetics

Steve Brady: We begin our discussion today with the question of what to use for finishing or "gilding" the plate when rebuilding a piano. I've seen beautiful plate finishes produced by quite a number of methods — and quite a few ghastly jobs produced by the very same methods. What are some of the products and methods people like to use? I notice Bob Davis waving his hand from across the table.

Bob Davis: We have used Mohawk bronzing powders, but they had a high minimum order and slow service, so we have recently switched to U. S. Bronze powders, which we ordered from Bob Corey, P. O. Box 73, Merrick, NY 11566; (516) 485-5544. They will send you a sample folder with twenty-five color swatches in it. There seems to be three basic colors: rich gold (greenish), pale gold (pinkish) and copper (orange). The permutations are simply different mixes and different particle sizes. We use the lining grade (fine) and mix our own.

It's amazing how they change depending upon the light, and the flatness of the surface. It's very hard to tell from a small sample what the effect on a whole plate will be, and whenever I make a new mix, I have to spray two gold coats and a clear coat on a piece of sheet metal of goodly size, and make sure the light is either strong daylight or the mix of daylight and incandescent most likely to be in the plate's final home. Our booth has fluorescents, which really bring out the greens. Pure incandescent is misleading, too, on the red side.

We base most of our mixes on rich pale, which is pre-mixed. It can be leaned greenward or pinkward with rich or pale. To three or four parts of it, we might add one part of orange. Bösendorfer plates are obviously quite coppery.

A few caveats:

1. Clear coating will not only improve the gloss, but will slow down the tarnishing, and I consider it vital whether doing a whole plate or touching up. (You can see factory plates where the touch-ups turn brown after a few years).
2. Because of all the different directions you have to spray, and because it's not rubbed out, it's better to use a little retarder in the lacquer to avoid orange peeling.
3. Too much orange and green makes brown or tan.
4. If you goof and get dust in the clear coat or something, you can sand it if you need to, but because most plates are lumpy, it's very easy to sand through to the gold, and if you do, you'll have to gold coat again.
5. Too much powder and the gold coat is brittle and easy to ding while you string. Some plates seem to have a brittle Japanning coat no matter what I do.
6. It seems to make a small but noticeable difference whether you use water, clear or amber lacquer, the amber being a little warmer.

By Steve Brady, RPT
Journal Editor

I have heard that Steinway is using Roman gold now. I wish I knew what they were using in the 20s. If one sands off the (amberish) varnish, the plate looks yellowish or ochrish, rather than brassy or bronzy. I think it's cool, and I can't duplicate it.

Chris Trivelas: I believe that Steinway sells their current plate color in spray cans. I discovered a good facsimile of the 1920s color a couple of years ago when trying to restore an old Steinway to "original" condition. This is a paint called "Jaguar Cylinder Head Gold," available at Autosport Seattle, 2121 Westlake, Seattle, WA 98121, (206-621-1940). This place sells parts and supplies for British automobiles. I think the color is a very good approximation of the original plate color and it is compatible with clear-coat lacquer, but the best thing about this paint is that it's very forgiving; it can be touched up easily and nearly invisibly. Even after the clear coat has been applied, you can touch up a ding by sanding through the clear coat and down into the base coat, then touching up with the color and clear-coating over it.

Brady: Having tried everything from spray cans to brush-on finishes to bronzing powders, I was struck by the practicality of a suggestion made by one of my students. She suggested using an automotive finish such as Emron®. After all, she said, this stuff is formulated to be tough enough to withstand constant expansion and contraction, but hard enough to resist flying gravel.

I checked it out and found a brand and color that I liked very much. I use a product called Delstar®, and it's available at some auto body supply stores. This material is not a nitro lacquer but an acrylic enamel with what looks like metal flake added for the "gold" look. It must be sprayed in an area with good ventilation. Before using, you mix the two parts in a given ratio, then add a few drops of accelerator. A complete supply of these things costs about $50 (including a quart of clear coat) or so, and is enough to do at least two or three plates. I found that after applying three coats of the gold enamel, the finish had enough depth (equivalent to an automotive metal flake finish) that I didn't even need to add the clear coat. When stringing the piano, I experienced less chipping and dinging than ever before.

Of course, this type of finish is a far cry from the original plate finishes of yesteryear, but not so different from what some manufacturers are using in current production. I find the automotive acrylics to be deeper and more lustrous — as well as tougher — than most old plate finishes, but the choice between them and the thinner, flatter-looking paints found on old plates is really a question of philosophy; some rebuilders strive to make a restored piano as close to the original as possible, while others use modern materi-

als and technology in an attempt to produce an instrument superior to the original — in some cases, closer to current production. Both philosophies are valid.

For painting raised plate lettering, I like to use auto touch-up paint (brush-on type). A small container of Universal Black will be enough to do a couple of plates, and the black is very dark and opaque — much better than using a permanent marker. The container comes with an applicator, which is good for the larger letters, or you can use a small artist's brush for the finer details.

David Vanderhoofven: After refinishing a piano plate with bronzing powder, I am faced with the dilemma of how to affix the serial number and other assorted numbers to the plate. My first thought was to transfer the numbers to the plate using rub-on transfer characters, then to put a final clear coat of lacquer over the top of the numbers. Unfortunately, the rub-on numbers will not adhere to the plate. The thought of hand-lettering strikes fear into my heart! Should I:
(a) pay a sign painter to letter the plate
(b) use a stencil
(c) use a decal? (Do the decal manufacturers such as Decals Unlimited make items like this?
(d) cross my fingers and hope that the numbers will "magically" appear on the plate by themselves some night while I sleep!?!

John Minor: I would try very light sanding with 320- or 400-grit, wet-or-dry sandpaper just in the area where you intend to rub the transfer letters. Also, you should have a coat of clear on before attempting this.

Ron Berry: I use a large rubber stamp, available at office supply stores. The numbers are on a belt that goes around the stamp so you can set any combination of numbers. Stamp pad ink works fine but then you need to put a clear coat over it. These stamps come in a variety of sizes. It is possible to find letters as well but they are not as easy to find.

Richard Anderson: Ron Berry suggested using rubber stamps for lettering plates. I use 3 different stamps. A medium-sized, six-band numeral stamp for serial and case numbers. A large three-band letter stamp for model designation. And a small six-band pricing stamp for wire sizes (it has a 1/2 mark). Use "Slink Ink®" by JustRite, available by special order from an office supply. It is an "opaque industrial ink for marking nonporous surfaces." It is very opaque and very thick. It will make a factory-looking mark that doesn't need clear coating.

Marcia Davis: This is in reference to David Vanderhoofven's question concerning rub-on letters for plate serial numbers. I have also included some information about painting the raised letters.

There are several brands of rub-on letters that work very successfully, and some that are more troublesome. Geotype® and Letraset®, from the local blueprint shop, work wonderfully and don't seem to have a shelf-life problem.

There are many typefaces to choose from. In addition to pages of letters, you can get entire pages of numbers (as opposed to a page of letters with a few numbers at the bottom). Zip-a-Tone®, from the local art supply store, works fine, but seems to stick less well after some time on the shelf. It does not have an appropriate numbers-only page. Stenso® (by Dennison) and Chartpak® bubble or run when finish coats are applied, and therefore I would not recommend them. The peel-and-stick-type letters are thickish, and will stick up noticeably. Since they are plastic material, I would feel uneasy clear-coating over them.

Decals Unlimited makes a decal including one each of the string numbers, but if you mess up one string number, you must buy another set. The pages of numbers from the blueprint shop cost about ten dollars each, and will number dozens of pianos.

The following method of application works well for us:

Wash, patch, sand, undercoat and gold-coat the plate in your usual manner.

Put down a light clear coat on the areas to be numbered. The clear coat serves two purposes: *1)* the numbers stick better to a surface that doesn't have bronzing powder in it and *2)* it is much easier to remove an incorrect or crooked number without damaging the gold. Don't sand where the numbers will go, because you risk damaging the gold surface, you risk leaving dust to which the numbers won't adhere, and the sanding scratches may show through the final clear coat.

Use masking tape for a guide line at the bottom of the numbers.

With a razor blade, cut out the numbers you will need. In the cases where we want to number the string sizes, we get a page of 12 point numbers and a page of 8 point numbers. The whole numbers go on in 12 point. We make the 1/2's from the 8-point with the long line of the "7" being the slash.

Fix each digit of the serial number in position with a tiny piece of masking tape. String numbers can be held sufficiently well with the thumb.

Rub on with a plastic burnisher, the rounded front end of a keytop, etc. (gently remove any mistakes with your fingernail and take off any remaining sticky marks with paint thinner).

Remove the masking tape right away.

Mist clear coat over the letters and let dry a while.

Clear coat the whole plate.

After the clear coat has dried, paint on the raised letters with sign painter's enamel (we use One-Shot® brand which we get at a place that sells auto painting supplies). Others have suggested various types of markers, but we haven't found these as opaque as the enamel. Set up with cotton swabs and toothpicks for tiny mistakes, and a rag and paint thinner for bigger mistakes, and a couple of sizes of good-quality small brushes for various widths of line. (No coffee that morning).

I hope this covers your questions about rub-on numbers. We think they are very dressy looking, and have used them for about 15 years without problems.

Vanderhoofven: I was recently looking over my expenses, and thought you might like a follow-up to my original question. I followed the excellent suggestions, and ordered the rubber stamps and Slink Ink® and stamp pad as suggested. I thought you might like to know the cost for these items.

- Medium Sized 6-band numeral stamp (Special Order) $44.05
- Small 6-band pricing stamp (with 1/2 size) 8.20
- 2 ounce bottle of Slink Ink® 6.20
- Industrial quality ink pad 9.85

Total $68.30

These items were not cheap, but they did the job perfectly! I would recommend this system for lettering

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Number Please

By Bill Ballard, RPT
New Hampshire Chapter

The piano's serial numbers lie on the plate, bold and proud as on the day the factory placed them there. If, during a restringing, we rebronze the plate, plate numbers become our responsibility. This article hopes to cover the ways of applying new plate serial numbers (and accompanying model designations), and in particular the technique I use for dry transfer letters.

Plate numbers are but one of the groups of lettering we have to apply to a plate. The string scale numbers, of course, are a cinch thanks to Decals Unlimited (although there is a famous shop in my neighborhood making them up from individual digits off a page of 6-point type). Also the black enamel outlining of the raised letter patents and logos cast into the plate are really best done as they originally were, with an artist brush, straight edge and the sharp eye and skilled hand of an office door letterer.

Consider Your Choices

Plate serial numbers are a different story, and the ways of dealing with them range from the irresponsible to the exquisite. We can, of course, let them disappear under the bronze. Most respectable factories did make sure to stamp the serial number onto the keyframe and other fly parts of the case. Bronze over the serial numbers of a piano from the "other kind of factory" and this historical index is not necessarily gone, but certainly a pain to find again. Eyebrows may also raise with the suspicion that the piano may have been stolen and used for transportation in a bank robbery.

There is, of course, the "conservator's approach" (quotes here indicating purported conservation), in which the model and serial number info are masked during the rebronzing and uncovered for the clear coat. (Frequently, this kind of rebuilder also skips the clear top coat to "fix" the bronze). You could call "antique patina," the dingy appearance of a century old plate finish which now appears in small windows of the fresh bronze. But, this is to suggest an antique value of that patina, which immediately begs the question of whether the original finish of the entire plate should have been conserved with a simple coat of clear. This is, by the way, the plate finish option I offer with my economy restringing or "re-block."

I did try for a while hand-painting them with an enamel felt tip marker carved to a chisel point. In my experience, the medium of chisel-point poster markers really belongs to the people who do it well, you know, the subway car decorators. I was no happier with black enamel on rubber stamps. My frustrations doing the tiny scale numbers were great enough that I never ponied up for the larger size stamper appropriate for serial numbers. (It seemed to require the precise film thickness of enamel on the stamper's type, the precisely even touch-down on a frequently undulating plane of the casting, and the precise pressure to insure proper transfer of the enamel without squashing the imprint. Are my complaints precise enough?) When you buy your rubber stamper, try to avoid the sans-serif condensed Helvetica, which has the appearance of routing instructions on an interoffice memo.

I've also seen serial numbers laid in raised-letter vinyl appliques (with florescent red, no less). This falls shamefully short of the original factory's challenge: clean and professional typography, and virtually flat on the surface. The only medium for this I know is dry transfer letters. Why is this medium a clear winner? The quality is high, and enough fonts are available to imitate the variety of typefaces originally used among the factories. Moreover, with a little care, the process yielding these results is quite easy.

The Winner

Dry transfer, of course, is how most of us do our soundboard decals. There's no gluing the transfer in place with semi-dry varnish. All you have to remember after burnishing the transfer on is to cover or "fix" it with a clear (although one famous manufacturer leaves its scale and serial numbers open to scratching off). Unfortunately, the source for our favorite soundboard and fallboard decals isn't tooled up to produce serial numbers for each individual piano being rebuilt. We have to come up with them ourselves. Fortunately, sheets of individual dry-transfer letters are still available. (Who uses them in this day of high-resolution laser typesetting, I don't know.) The shelf life is indefinite. I buy a new sheet for each job so that I'll still have my stash long after they've joined IBM Selectric typewriter ribbons in the darkness of the obsolete.

Sheets of dry transfer are 12-1/2" by 16" and for a page of 36-point type (conventional serial number size) the sheet will have 5 to 15 of each letter (in both upper and lower case) and 5 to 10 of each number. The count depends on the width of individual characters in this particular font. If the mega-office stores and the mail-order catalogs carry them, you're likely to find them in limited number of fonts (the old "why can't you get by with Helvetica/TimesRoman/Bookman" selection). Obtain the manufacturer's address from one of the sheets and you're into a whole world of typography, including architectural, engineering and model railroad graphics. My source is C-Thru Graphics (6 Britton Ave., Bloomfield CT 06002, Phone.860-243-0303, or 8737 Shirley Ave., Northridge CA 91328). In their catalog, my favorites are Century SchoolBook (#69), Bodoni Bold (#25), Fortune Bold (though available in 36-point only as projection type, #P152 36). Alfonse (#11) would look good on the stage piano at the old Filmore West.

Hands-On Time

Here's the how-to. Briefly put, you will: cut individual characters out of a sheet, with

Plate Cosmetics

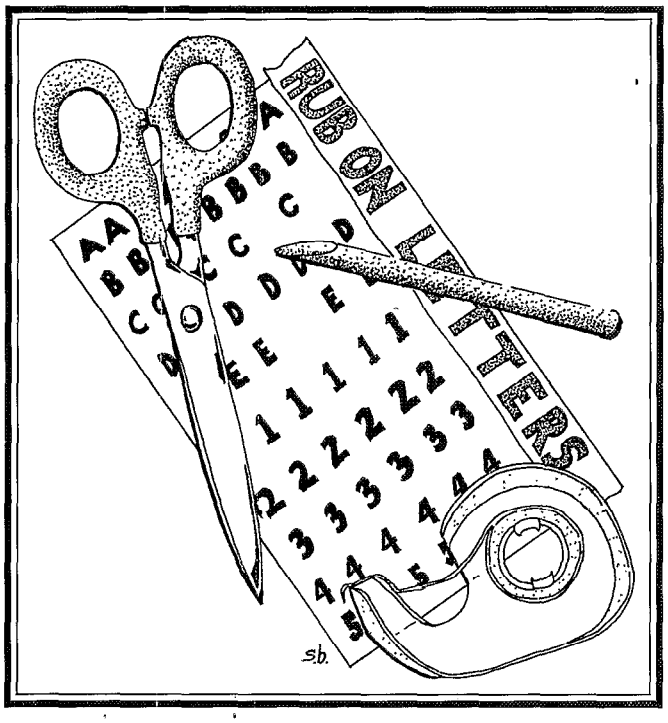
Continued from Previous Page

the numbers on piano plates during the refinishing process.

Brady: Since this "conversation" took place last year, I've received an article on the subject from Bill Ballard of the New Hampshire chapter. With Bill's ample good humor, I felt it would make an appropriate conclusion to this edition of the Roundtable, so here it is in its entirety.

indexing baselines, align the pieces and fix as a group, and apply the letters to the plate.

For tools, you will need (in approximate order of use): the sheet of transfer letters in your favorite font, an Exacto Knife or razor cutting edge, a cutting mat or at least a smooth clean surface of medium hardness and resilience, a 1x4" piece of clear Mylar® (You will fold this with a 1/4" margin running along the 4" edge. Form a sharp crease so that the mylar looks like something a cowboy would sprinkle tobacco in. On the 1/4" flange or margin, you will scribe six marks or punches, starting 1/2" from one end and going at 0.40" intervals. This will lay out six evenly spaced points within 2" and centered in the 4" edge), a toothpick or some other soft implement for nudging around pieces of clear plastic, a 4-inch strip of scotch tape, standing by and a burnisher. (You can use the rounded edge of a plastic keytop if need be, but unless the casting is thoroughly smooth, you'll want the professional model with nylon blade on one end and steel ball-point at the other. These are available from transfer suppliers and graphic arts catalogs.)



Aligning is the hard part, but at six or seven numbers per serial number, you'll get plenty of exercise. Model designations rarely have more than two characters.

Your first step actually starts the first time you cut from a sheet. Lay the sheet out on the cutting mat and on top of a row of numbers, lay a straight edge of 1/2" to 9/16" width (maybe some of that beautiful hornbeam) so that its top is barely flush with the top of the numbers. Run the knife blade along the bottom edge, slitting the page along a straight line a standard distance below the bottom of the letters. This slit should extend no further than the row of characters itself, and certainly not off into the page's margin. You'll be doing this for every row of letters and numbers and these margin need to be intact in order to hold the page together.

The next step is to get a count for each of the numbers you'll be needing for this serial number. (If this is piano #7777777, you may need another sheet.) This count might break down as follows: 2@ "2", 2@ "7", 1@ "1", and 1@ "6". Now cut these numbers (and letters) out from the sheet. You'll be thankful for the initial slitting of the rows. They provide a baseline parallel to and at a constant distance from actual baseline of the characters themselves. They also mean that the snipping of individual character pieces from the strips of rows can be done casually, with no particular accuracy at all. As these character pieces are cut loose from the strips, they can be laid directly into the 4" mylar holder. When it comes to symmetrical characters (8, 0, o, etc.), pay attention to what's the front and back side. (Usually the front will be glossy and the back, matte. You may want to trim extra margins from the sides of these pieces to allow more elbow room during the kerning, or spacing, of these pieces.

Your individual character pieces should now be laying with their baselines in the crease of the Mylar® holder, with the Mylar® holder flat on a desktop. The tops of these pieces should not be extending beyond the 3/4" width of the back half of the holder. The holder automatically provides for the vertical alignment of these pieces. The next step is the horizontal alignment, or kerning. In general a group of six numbers in a serial number will not be wider than two inches. Shuffle the individual pieces around with the toothpick, using as a starting point the six equally spaced index marks on the Mylar® holder and varying from that as your eyeball dictates. (Yes, folks, the best kerning is still manual.) I did say that this was the hard part, but you may find this an anticlimax.

When you're satisfied with the horizontal and vertical alignment, press down on the top 1/4" edge of the holder to lock the pieces in place. Reach for the four inch strip of clear scotch tape, and lay it directly on top of the row of individual pieces, so that the top half of their height is covered. Apply the tape with a minimal pressure which will contact the pieces but not the holder. The tape has now fixed the group of pieces into a single strip.

If you haven't prepared the plate's surface, now's the time. (The manufacturers of transfer letters and refinishing materials will have their own instructions. A quick scrub with 4/0 steel wool followed by an alcohol wipe works well for me. The first loosens any grit and scuffs the surface. The second picks up steel wool fibers, dust and other particles as well as cleaning out any contaminants.

Remove the strip from the holder and take it over to the finished plate. As you position the strip, you should make the baseline parallel to the front stretcher, not the plate flange. The latter is not always parallel to the majority of case parts. It also happens to be of the same bronze as the area onto which the serial numbers are being applied. The stretcher of sharply contrasting black, walnut or mahogany, is a much better visual reference. For this reason, I generally lay on the serial numbers with the plate in the rim.

With the strip positioned as you like, tack it down with the end portions of the tape. Now you're ready to transfer the numbers from their clear backing to the plate by rubbing with a burnisher. You'll do most of your work with the ball point. Although you may from time to time lift the bottom edge of the strip up slightly to see which letters have transferred and which remain on the original backing, at no time should the strip shift in its location. The last step is to seal or fix these decals with a quick coat of clear acrylic from a spray can. Acrylic is the choice here because it won't melt the lettering or the plate finish as does clear nitro lacquer. Masking the area off need be no fancier than sheets of newspaper laying around to form the small window around the area containing the serial numbers. With practice, the whole process should take 20-30 minutes and looks stunning.

Tuning The Octave

By Bill Clayton, RPT
Charlotte, NC Chapter

One day I was watching a respected colleague trying to tune an A3-A4 octave on a Baldwin 243 piano using his Accu-Tuner. No matter what he did, he didn't like the result. I asked to give it a try aurally. Using his Accu-Tuner he measured the result as being wide of a 2:1 octave but narrow of a 4:2 octave. "That can't be right," he said, and continued his search.

Since then I have expanded my research on the octave to explain the above result as well as to try to redefine what we, as tuners, really hear when we properly tune octaves.

I have often wondered just what we should try to hear when we tune an octave. Reading articles in the *Journal* would lead one to believe that from C3 to C5 we should be trying to compare either the fourth and second partials, the sixth and third partials, or some compromise between the two. Various tests are then given to help determine where the octave lies in relation to the partials.

We are also led to conclude that the width of an octave is related to the partials in the manner of a 2:1 octave being the most narrow, then 4:2, and 6:3 the widest.

I suppose if one tunes only concert-quality instruments, the above descriptions hold true. But I, and most of you, have to live in the real world and tune pianos of various makes and quality of scaling. This reality then makes the above information nice to know, but not very practical when working on the not-so-perfect real pianos which make up the bulk of our business.

Using an Accu-Tuner, I have done some very simple research into octaves and partials which has led to the following conclusion: from C3 to C5 we tune 2:1 octaves *all the time.* I am sure there are those who will disagree with this conclusion and will present some good arguments against it. And I must admit that I am just beginning to learn what makes a tuning good.

When we tune 2:1 octaves we make them a little wide, perhaps one-half beat per second (bps) wide on average, varying from a perfect 2:1 to as wide as three-quarters of a beat.

A convenient interval to use to test this theory is the A3-A4 octave. Tune A4 to A4 at 0.0 cents, then tune A3 to A4 at -4.0 cents. This will produce a strong 2:1 beat of 1 bps which will be much more prominent than any beats which may be present in the 4:2 or 6:3 partials. Then reduce the 2:1 octave deviation to -3.0, -2.0, and -1.0 cents and notice what happens. The octave will improve. However as you approach a perfect 2:1 octave the 4:2 and 6:3 partials could become bothersome. Generally, but not always, the best-sounding octave will be a 2:1 octave with about one-half beat stretch.

Consider the following examples taken from real pianos:

Yamaha CF III

1st note partials		2nd	4th	6th
1st note & ¢ deviation	A3	0.0	2.6	9.1
2nd note & ¢ deviation	A4	0.0	1.9	7.2
2nd note partials		1st	2nd	3rd

What I did in each example was to tune each octave to a perfect 2:1 relationship as indicated by the 0.0 in the first column and then measure the indicated partials. In order for stretching of the 2:1 octave to occur, according to conventional wisdom, the 4th and 6th partials of the lower note, A3 in the above example, must be larger than the 2nd and 3rd partials of the upper note, A4. The difference at the 4:2 level is only .7 cents and at the 6:3 level 1.9 cents. Therefore, a match anywhere from the 4:2 to the 6:3 level would be tolerable. Therefore, conventional wisdom applies.

Yamaha G1

	2	4	6		2	4	6
A3	0.0	2.8	9.1	C3	0.0	-1.2	4.1
A4	0.0	3.1	8.1	C4	0.0	.3	3.5
	1	2	3		1	2	3

At A3-A4 the 4:2 octave is .3 cents narrow of the 2:1, while the 6:3 is 1 cent wide. But at C3-C4 the 4:2 is 1.5 cents narrow and the 6:3 only .6 cents wide. Both octaves could be tuned a cent or so wide of the 6:3 level and sound good.

Lester 38"

	2	4	6
E3	0.0	0.2	4.0
E4	0.0	2.3	5.1
	1	2	3

This example shows that both the 4:2 and 6:3 levels are more narrow than the 2:1.

Baldwin 243

	2	4	6		2	4	6		2	4	6
C3	0.0	0.7	7.9	D3	0.0	2.2	8.7	A3	0.0	6.1	15.6
C4	0.0	4.3	7.9	D4	0.0	2.5	6.8	A4	0.0	1.0	5.3
	1	2	3		1	2	3		1	2	3

Looking at the A3-A4 octave, we can see a 5.1 cent difference at the 4:2 level which would, if matched, produce 1 1/4 bps at the 2:1 level, and a 10.3 cent difference at the 6:3 level, which would produce 2 1/2 bps at the 2:1 level. Both are unacceptable.

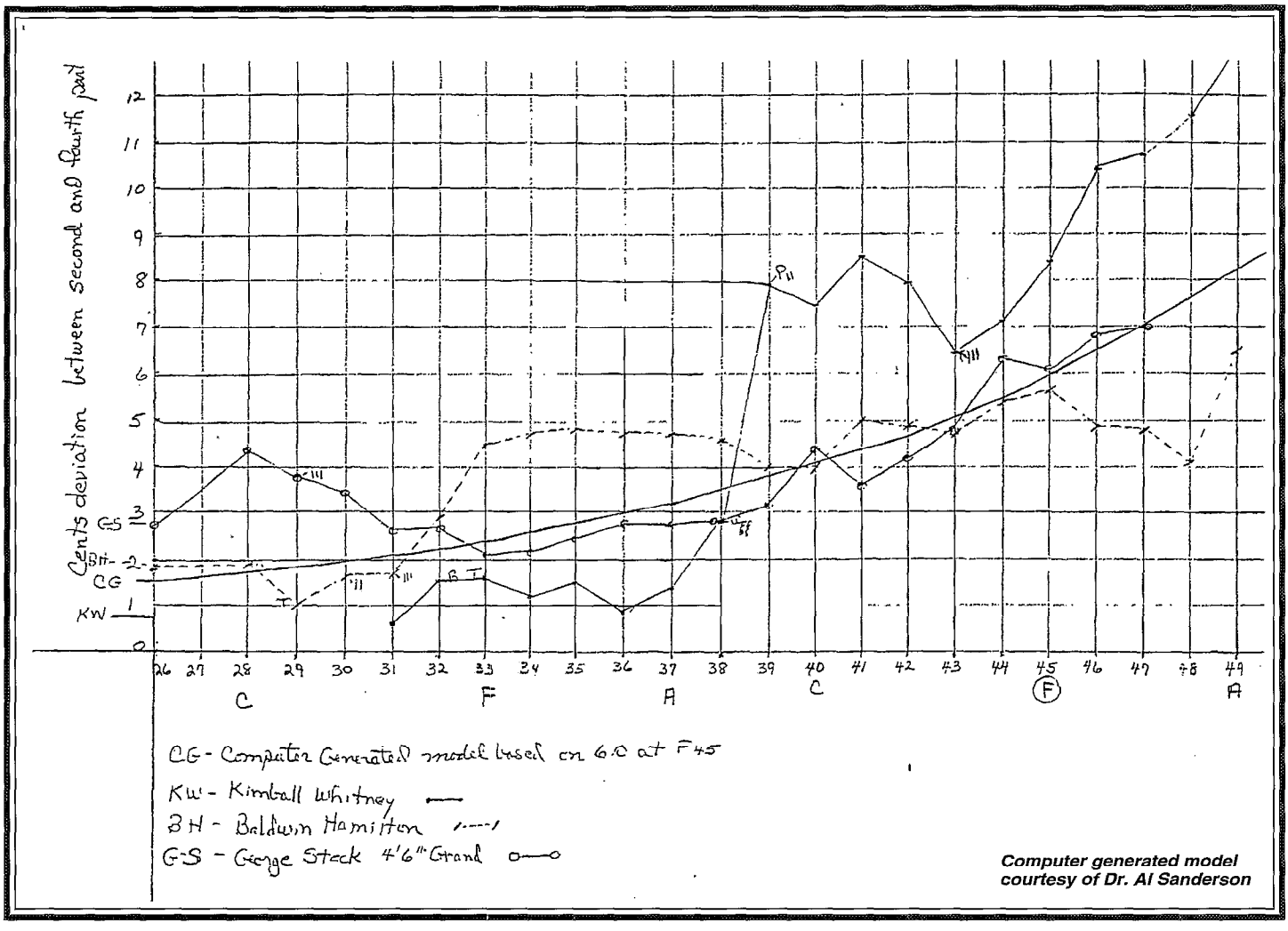
Since we tune to A=440, the A3-A4 octave is our starting point and the tuning of this octave sets the overall sound quality of the finished tuning. The 243 must be tuned narrow of the 4:2 partials at the A3-A4 octave in order to produce good results. Again, the 2:1 octave from 1 cents to 3 cents wide works best.

The D3-D4 octave tunes close to the 6:3 partials while the C3-C4 octave needs to be a little wide of 6:3.

This all goes to demonstrate that, within our normal temperament range, the rules of conventional wisdom apply for some intervals, and can vary on the narrow or wide sides for other intervals. And the variations, from wide through normal to narrow, can all occur within the temperament range of the same piano. No wonder tuning can be so complex.

The only interval that remains constant in octave tuning is the 2:1. It is always tuned somewhere from pure to a little wide of pure — to suit your individual taste. The same cannot be said of the other intervals we use as references. Therefore, we tune only 2:1 octaves.

The best way to tune an octave is to take it wide of pure and then bring it back toward pure so that it sounds good. If the 4:2 or 6:3 partials happen to coincide, that is OK, but if they don't, that's OK too. The last thing we should do is think an octave should conform to some preconceived mold of matched partials and then force the octave into that mold using various tests or visual aids. For good octaves use your ears and common sense. Just listen.



Computer generated model courtesy of Dr. Al Sanderson

What's In a Name?

By Wm. Swackhamer, RPT
Redwood, CA Chapter

"Please give special attention to C4. It really does not sound right to me."

When you get that directive, ***be careful!*** Are you aware that C4 can be any one of three different keys, depending on which system of key identification is being used?

If you are a traditionally trained technician, who identifies keys by numbering them from 1 to 88, C4 is the lowest C on the piano. However if you are an electronics-using technician, then middle C is C4, the fourth C from the bottom of the piano. On the other hand, a conservatory trained pianist probably believes that C4 is the one that is one octave below the highest C on the piano!

All technicians are aware of the traditional system of key identification, as every key on the piano is stamped with its number in the factory. However, many pianists do not know anything about this because these numbers can only be seen when the fallboard is removed.

The scientific system used on electronic devices is not as well-known, but it is also a very easy system to understand. The lowest C on the piano is C1 and the octave going up from it is the first octave: C1 D1 E1 F1 G1 A1 B1. The next C starts the second octave: C2 D2 E2, etc. The next C is C3, middle C is C4, etc., up to the highest C which is C8.

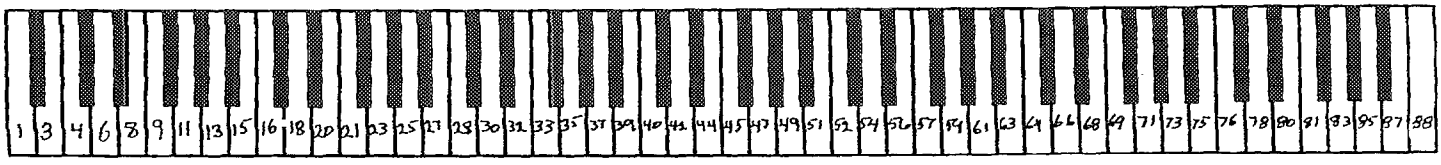
The only problem with this system lies in the lowest three keys on the piano. Since the octaves all start with C, these lowest three keys are A0 A#0 and B0. Be careful, because this means A1 and B1 are not the lowest A and B keys!

The most complicated system of key identification is the one used by professional musicians. It is sometimes called the "Helmholtz Pitch Notation" because Hermann Helmholtz used it in his book, *On the Sensations of Tone.* In this system the octave which starts at middle C is written using small letters and one prime: c' d' e' f' g' a' b'. This is referred to as the "one lined octave". The next octave up is the two-lined octave: c'' d'' e'' f'' g'' a'' b''; next octave is the three-lined octave: c''' d''' e'''; next is c'''' d'''' etc., etc., up to the highest key on the piano which is C''''. Most musicians refer to these octaves as c one, c two, c three etc. and the highest c is c five. (Therefore C4 is that C one octave from the highest key on the piano.)

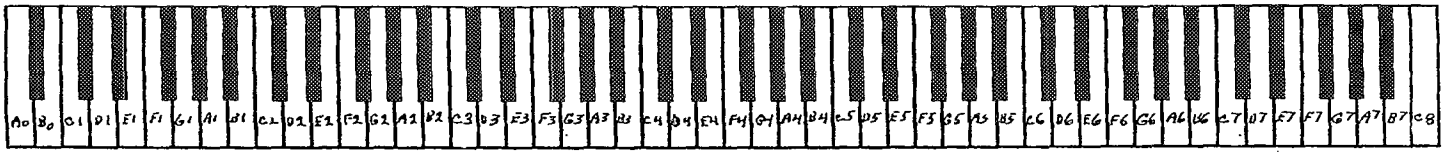
The octave below middle C is the "Small" octave, written with small letters without a prime: c d e f g a b up to c' (c' being middle C).

The octave below that is the "Great" octave, written with capital letters: C D E F G A B (then comes the c d e f, etc., of the small octave.)

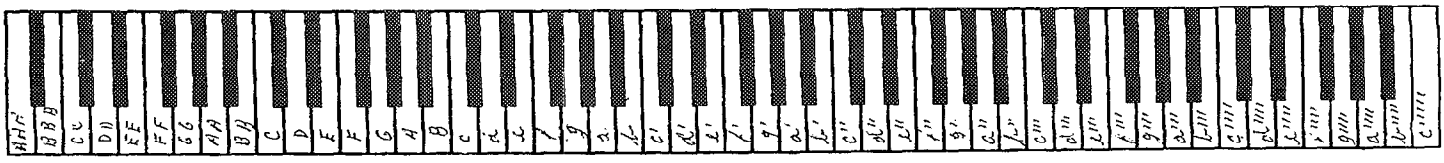
Next down is the "Contra" octave, written CC DD EE FF GG AA BB, and the lowest keys on the piano are in the "Double Contra" octave: AAA BBB, etc.



Traditional



Electronic



Helmholtz

Behold The Upright

By Don Valley, RPT, MM
Western Carolinas Chapter

"Stringing the Back"

Choices. Decisions. Judgments. These become necessary in all phases of rebuilding. But it seems none are quite so dramatic as in the area of stringing. Does it really need to be restrung? Perhaps the bass is the only area needing it. Should I stick with original blued pins or change to plated pins? How can I tell what size pin to use this time? Can I improve on the scale now in the piano? These and many more questions surface when faced with stringing choices.

To Do or Not To Do

In many pianos that have had consistent service and care over their lifetime, the quality of the string tone may be such that you would give your client the choice to restring or not. When you have determined the vitality of the tone is complete from string #1 through #88, then the decision to retain what is still good may be a wise one. You must remember, however, the strings — as good as they seem — will not be as resonant and pleasing as the new ones because even metal ages and changes tonally, becoming more strident as time goes on.

What if only the wound strings show a noticeable deterioration in quality and "ring?" Then, the option arises of replacing only those. However, you must consider carefully whether or not the new ones will blend evenly with the original treble strings. In addressing this with the client, make it clear that all you can do here is speculate — take an educated guess.

In making preparation for the total restringing procedure, you have already done certain tasks. A brief review of these may be helpful here since a considerable amount of time has passed. Before unstringing, a pattern of the wound strings was made. Sample strings were chosen from that area to send with the pattern to the string maker. The scale for the rest of the piano was determined either by finding it in a source listing piano scales or by measuring one string of each unison as the unstringing progressed. Many times the scale is written in the webbing area of the plate or on the bridge notches. If it is clear, this is also a dependable source.

Rescaling

This is a choice you must make. If you suspect you may be able to improve the evenness of the scale, and if you are into this sort of thing, you can have some fun experimenting here. For the most part, the scales used, especially on the higher quality pianos, are well worth duplicating. One little annoyance frequently discovered is that the factory stringer seemed to have no hesitation about changing string sizes beyond the specified scaling details. Whether he ran short of wire, jumped ahead by mistake, or arbitrarily chose to do so is mere speculation. The possibility of such errors is a good reason for measuring each unison with a micrometer.

Further reviewing, a sample of the tuning pin was kept when the de-stringing took place. This was kept for reasons of length. Note of any stringing peculiarities has been made on a paper or file folder where you have been keeping notes throughout your tear-down and rebuilding. Such peculiarities would be single-tied strings, looping across two hitchpins rather than one, etc.

Photo 1

The plate has been finished and dressed (hitch-pin punchings installed and cloth glued in place at bearing points, etc.). The pressure bars have been cleaned and smoothed. You are ready to begin the stringing procedure. Notice, we have ***not*** reinstalled the upper bearing bar as yet. I prefer to string with it off, not drawing the strings tight over the V-bar. When the treble is restrung, replace it, space the strings, and draw them tight.

Continued on Next Page

Behold The Upright

Continued from Previous Page

Select Your Tools

1. String coil crank; 2. coil maker; 3. tuning hammer; 4. coil lifter; 5. pin driver; 6. hammer; 7. screwdriver; 8. pliers; 9. wire cutters; 10. leveler; 11. string seater 12. spring clip (See Photo 1).

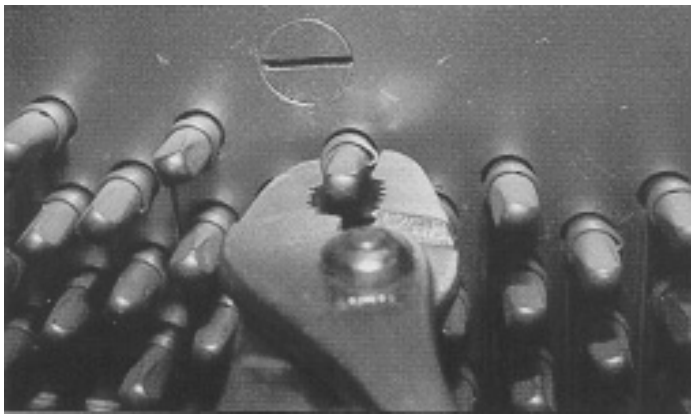


Photo 2

With the piano on its back — on a piano tilter — I advise starting from the extreme treble because you will not be working against strings and pins you have just installed. If your sample tuning pin from the old set is #2, you should go two sizes larger with a #4. Keep the length the same. Whether or not you choose to stay with the original type is a judgment call. Some restorers always use blued if the original was blued. Except for the fact that the piano may be a rare antique and restoration is the purpose, I see no virtue in keeping a hard line in pin finish.

You will probably be starting with #13 wire. In cutting your first piece, and thus the rest throughout the piano, measure from the hitchpin to the tuning pin hole and add the width of four fingers. Double this measurement and allow for a few extra inches as well. This will give you a wire length long enough to start with one tuning pin, loop it around the hitch pin, come back to the second pin and maybe cut a few extra inches off as well. Do not be stingy with your wire. Cutting a few inches off is less expensive than having to redo certain ones because the wire is too short.

With the wire cut, place a tuning pin in the coil maker. Insert the end of the wire into the becket hole to the opposite side. ***Do not*** allow any wire to extend beyond the edge. Set the crank onto the pin, turning it clockwise 2 1/2 turns. Remove the pin and wire. Place it into its pinblock hole. Tap it lightly with a hammer to set it. Using your pin driver and hammer, drive the pin into the block down to where about 1/4" of pin is exposed below the lowest wind of wire.

Pull the wire through the bridge pins to the hitch pin; loop it around and bring it back through the bridge pins up to the second pin hole. With the width of four fingers as a measurement beyond the pin hole, cut the excess wire away. With another pin in the coil maker, insert the wire as above and proceed through the steps given above. You will repeat this procedure until the piano is fully strung.

At this point, because we have yet to install the bearing bar, you will want to tighten the wire only enough to retain some semblance of a coil. The final adjustments will be made only after the bearing bar is in place.

For efficiency, a few suggestions may help your speed and reduce the error factor. *1)* Cut just enough lengths of wire to complete the size you are working on, this will tell you just when you must change sizes. *2)* Lay out just the right number of tuning pins for the section; this will also tell you when your wire size must change. *3)* Lay your tools down in frequency of order so that you could shut your eyes and pick each one up. This will happen quite naturally as you "get on a roll" in your process. *4)* Keeping a cloth under your tools and string cans will keep the plate from getting chipped.

Assuming you now have completed stringing the treble portion, the bearing bar must be installed. As you place it, set the screws as well with a few finger turns. Now, using a cordless screwdriver, drive the screws most of the way in. Using the measurements taken when you removed it, position the bar exactly there. A half turn per screw all the way up and down the bar is the proper method in order to avoid breaking a screw or reaming out a hole.

With the coil lifter and string spacer tool, start back at note #88. Place the tuning hammer on the first pin and the coil lifter under the lowest coil. While lifting up on the coil, turn the tuning pin just to the point that the coil will stay in place. Now take the pliers and squeeze the wire firmly into the becket hole (See Photo 2). Next, with the string spacer (the other end of the coil lifter), go to the V-bar and pressure bar spacing the string so it is straight from the bridge pin to the tuning pin. You can frequently determine position by marks already indented into the V-bar. Also, for this task, you may find it better to do after each of two unisons is complete.

Once you have positioned the string, securing the coil and aligning accurately; tighten the coil a little more before taking your hammer and pin setter and seating the pin to proper height, leaving 3/16" between the plate and the lowest point of the coil. This is assuming you have the desired three coils around each pin. At this point, the reason for turning 2 1/2 turns of wire before driving the pin shows up; the initial 2 1/2 turns allows for the slack left that will be pulled in when drawing the string up to final position and pitch. Chipping the piano as you go will also save some time later on. Of course, some judgments must be made according to the size of the stringer's hands as to whether to continue to use the width of four fingers or adjust that "measurement item" to arrive at proper end results. Only you can be the judge.

In the event you have inconsistent coil wrappings, you may adapt your pin setter by adding to one side a length of stick such as a wooden coffee stirrer or popsicle stick. Glue a piece of key bushing cloth around its lower end. Tape the stick to extend such a length beyond the end of the setter that when the bushing cloth touches the plate, the pin is set at proper depth into the block. This will insure level height to the tops of your tuning pins throughout the piano (See Photo 3).

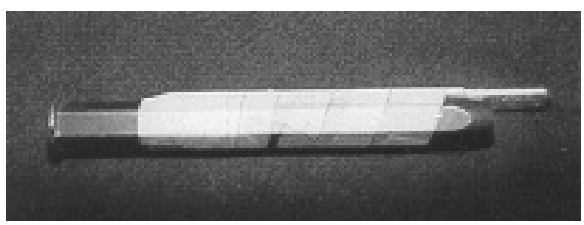


Photo 3

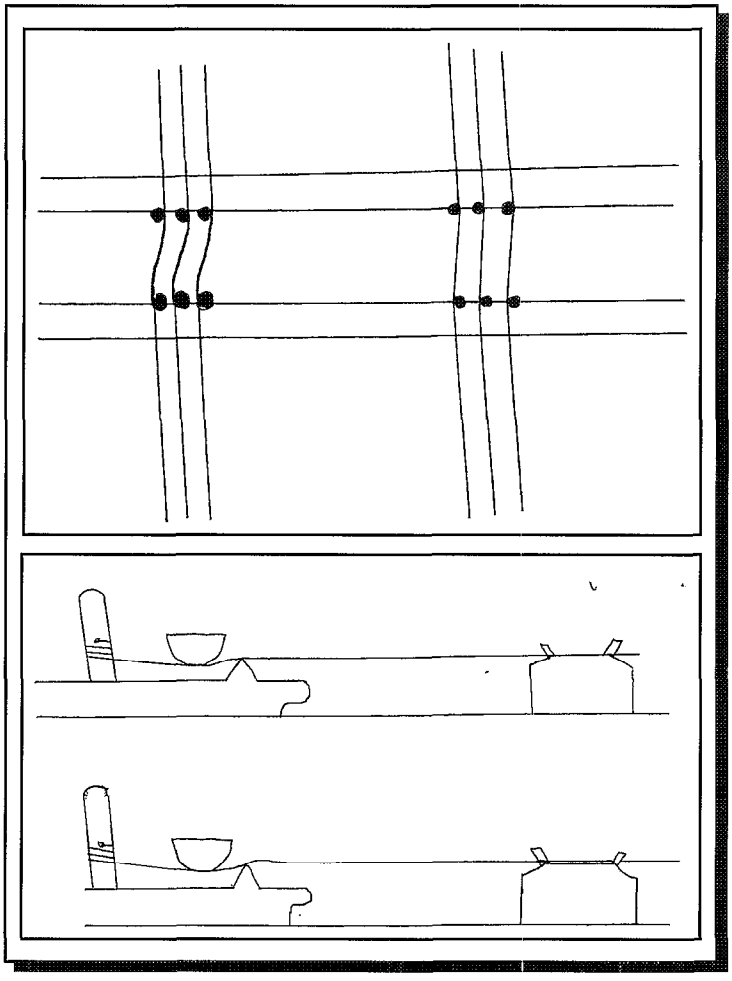


Figure 1

With the strings in the treble section complete, a couple of additional procedures must be taken care of prior to over-stringing the bass. These are the leveling of the strings from the V-bar, the seating of the strings on the bridge, and the aligning of the strings positively from the pins to their terminations (See Figure 1).

With the strings at approximate pitch (assuming they have been chipped), use the leveler at the V-bar, pressing down firmly as you roll it away from the bar (See Photo 4). The object is for the string to be level from the bar to the bridge and not continue to rise somewhat before coming down to that plane. Because of the stiffness of piano steel, this is a necessary procedure. You will be pleasantly surprised at how it adds to tuning stability. However, a warning! If the strings are not up to pitch, and this is performed prior to pulling it up, you will be unpleasantly surprised to hear the false beats in your strings because of the extra "kink" in the speaking length! 'Nuff said?

Follow up this procedure with the string seating tool. This is made of brass. The reason for brass is that it is a softer metal than steel and will not nick and scratch the steel. You may make your own tool from most any piece of brass you might have laying around somewhere. Using the string indentation in its end, tap downward outside both bridge pins. You are not wanting to seat the strings down into the wood of the bridge - just down ***to*** the wood. The "tap" should be lightly with the butt of the hand or very lightly with a small hammer. Now, pressure the string to the side of each bridge pin giving it a direct angle off the pin so it moves straight from the pin to the V-bar or the hitch pin without taking that gradual curve prior to becoming straight. This procedure will get rid of some of those ugly little idiosyncracies before you ever hear them.

Stringing The Bass

This area goes quickly and is really a duplicate of what the treble section is about, except with fewer steps. You do not have the pressure bar to deal with, so you can bring your strings right up to pitch, tighten the coils, and establish the pin height as you proceed.

Your set of strings is usually sent in a plastic sleeve. It is comfortable to work with them in one of two ways. *1)* Lay the sleeve on a table or bench next to your piano and expose the hitchpin end. Cut the copper securing wire making sure it is angled enough that strings cannot work off by themselves. You can start with the smallest string, pulling them off one by one as you string. *2)* On a pole or wall of your shop where you will be stringing, drive two 16 D nails about 8" apart. Cut the heads off the nails. Cut the copper securing wire so you can begin with the largest string removing it and hanging it on the nail. Proceed in order until you need to shift to the next nail. Continue until all strings are hung. They are in proper order for stringing.

Starting with the smallest string, attach it to the hitch pin, securing it with a spring clip. Lace it through the bridge pins. Take it over the bearing bar and to the tuning pin hole. Perform the same procedure from here through the 2 1/2 turns on the pin. ***Before driving the pin,*** turn the pin one turn in the direction of the copper wrapping and then proceed to finish with this string. Do this for each of the bass strings. When the section is done, use your leveler and the seating tool as you did for the treble section. Now your stringing job is complete and the tone of the piano with all those other new parts has complete integrity.

The next article, #18, in the *Behold The Upright* series will be the final one. The process of stripping and finishing the piano will complete our discourse.

Photo 4

Success or ... Success

By James M. Reeder, RPT
Lansing, MI Chapter

How does one explain the feeling of satisfaction that comes with the successful completion of a project? How much more is that good feeling of success, when one's career is "off and running," so to speak; customer relations are excellent, pianos need servicing and *you* are wanted and needed — your self-confidence has never been better. It has become easy to go to work in the mornings!

Do you know someone who can fit this example? Are you this person?

Role Models

I remember when I was that fledgling piano tuner. I was encouraged by my friendly piano tuner. He even helped me purchase a good Hale tuning hammer, William Braid White's book on piano tuning, and the other equipment that is necessary to tune a piano.

He asked me if I could hear the beat ...,"You know what the beat is, don't you?" "Of course," I told him, "I can hear it." I could hear thirds, fourths, fifths, sixths, and sevenths, too.

"So," he continued, "One needs a temperament octave to go by, like a model, yes, a model octave to go by. To get it you must start with C, middle C, and tune through the circle. You know, fourth down, fifth up, fourth down, fifth up, until you complete the circle?"

I didn't see any circle. I did hear the beat, but what should I do with it? This person was my role model. The piano was my favorite instrument. I was a budding pianist, or so I thought ... and he fixed them!

But, that old clunk, the one that I "tuned?" I couldn't figure out what was wrong when most of the strings slipped even more when I "tuned" them. Well, he told me when I told him I had "worked on it a little bit," that the old clunk was not tunable. You know it — the pins were loose!

My role model proceeded to tell me all of the things that you would tell a young neophyte just about to embark on a new career. "It might take three or four years." I went to college — studied piano. Piano tuning did not end there for me. I eventually did read William Braid White's book, and by the end of that first summer, with a modest amount of practice and tutorage, I tuned my first piano. It was tiring. No one really tells you exactly what you must listen for or not to listen to. When listening close, I could hear so many interesting things that from a distance seemingly were not there. It was a new experience!

Then you had those spinets ... Henry F. Miller, the beatless ones, the Acrosonics, the stiff necks, all of them were mute eaters, nasty critters. I was a student, I could play "Valse Oublieé," etc., but I did learn to do a good job repairing uprights, lots of uprights. Old man Schaffer saw to it that I stayed in that position for a long, long time.

That first fall I began to charge for my tunings, $15. Everyone else was charging $16. All of this happened in Washington, D.C. I eventually tuned for many Senators and Congressmen, Francis Clark, Andres Segovia, and various other resident musicians and pianists, and even a number of bars and restaurants downtown including the infamous Monocle. I even visited a piano in a whore house. There were lots of beds everywhere.

I learned the short cuts to Virginia (back streets with no traffic lights), developed a good sized clientele, married my girlfriend, and moved back to Michigan.

So how did your career in piano work begin? What have you learned that makes you successful? First off, I learned that if I wanted to have work:

1. I had to do a good job.

2. I had to be aware of my place or status, my work or position, knowing that I must serve my clientele.

3. I had to be a likable person.

4. I had to expand my expertise.

5. I had to maintain a high professional level on standard.

6. I had to be willing to work hard.

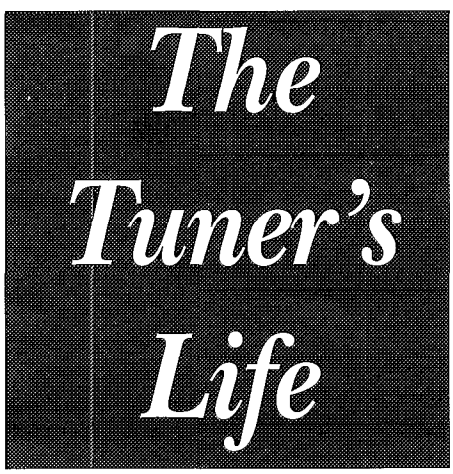
7. I had to like my work.

I wanted to expand my knowledge. I began to restore pianos (I hope my work has improved since my first one, a Stieff Grand in the music building). From pinblock replacement, through bridge recapping to soundboard replacement, I love it all. But, of course, I want to do more, want to learn more. Maybe someday I will stop learning, but I hope not.

Let us explore some points to enhance our professional image.

1. Dress

Is dress important? I once thought it to be very important, but is it? Because many people can be offended by one's mode of dress, I still find it wise to be conservative. I think we can be conservative and still retain our individual characteristics.



2. Conduct and Personality

Be yourself as long as you do not show disrespect and offend.

If you find that being yourself and at the same time are offensive and do not wish to clean up your act, get out of the business.

3. Other Areas

Punctuality is generally not a problem, since if you are late you lose if the customer decides you are not worth waiting for. However, a missed appointment without notification is a misdemeanor in the piano tuning business. There are always

emergency situations, but the telephone is a marvelous communications device. Take one with you.

Light fingers, non-truths or truths that should not be voiced, especially about our competition, can lower or destroy our professionalism. How can one build without this foundation?

4. Work Standards

All of us have areas in which we excel and other areas that could be improved. When we neglect the areas that need to be improved we miss the challenge that will make us excel into a total technician. Being professional means excelling in as many areas as we are able — or the areas of our choice and passing work to others who excel in the areas we do not.

As we gain experience, growth should take place. Being in a rut tends to be boring. Growth keeps life and one's profession full of vitality.

Decisions

A piano tuner and technician has to be able to make decisions. In fact, he or she must make hundreds each working day, maybe thousands. Just think about it. Not being able to reach a decision or to make a choice will put you out of business! The normal tuning of a piano gives one about the same amount of mental fatigue and stress as that of an eight-hour clerical worker's day. Some of us tune four or more pianos each day. Decision making may be the key to survival!

Example

I have seen (heard) during a tuning the same note being tuned, detuned and tuned again four or five times, not just one note but all 88 notes. The fact is, the tuner seemed to be agonizing over each note. How stressful it must be to be in this type of agony! Decision making was hard for this particular person. Each of us is different, of course. We cannot expect otherwise than to expand our skills the way that works best for each of us, and there are exceptions when decisions just can't be made.

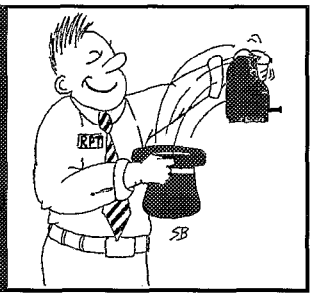
I remember one such example. A wretch of a piano that was determined to make it miserable for every tuner. A mid-sized grand. Came here by way of a trailer, trailing behind an auto all the way from California. It had little gremlins manipulating each of its tunings pins so that they would not set. I called it "jelly block." Pin setting was impossible. This was a piano that seemed to try to destroy my decision-making and self-confidence, but I left it standing alone in someone's living room. However, when thinking back, that was where one good decision was better than thousands of bad ones.

Self-Confidence

Self-confidence comes with experience and training, or rather, training and experience. Any other way seems presumptuous and egotistical. One must be self-confident to achieve his or her goals. Professionalism exudes a certain amount of self-confidence. Self-confidence is when one comes to a brick wall and knows that going around is a better way than through, or when one comes to a piano and knows with one touch of the tuning hammer to the pins there needs to be an alternative measure taken in that instance. Success or... success.

Grand Illusions ...

The Page for Serious Cases



How to Get and Keep Customers

By Doug McKay

As my brother used to say, "It's a lot easier to keep them than to catch them." Actually, he was talking about June bugs. They're slippery as heck, but once you catch one, you can tie a thread around its legs, and it can't get away. It just flies around in a circle until its legs fall off.

Customers are the same way. They're hard to get. But not impossible — and here are a few methods you might not have thought of.

- Call up a total stranger at dinnertime. Ask, "Would you be interested in switching your long-distance carrier?" When he says no, ask, "Okay — how about a piano tuning, then?
- Call 911 and say that your house has been robbed, it's now on fire, and both your legs are broken. When the police, firemen, and paramedics arrive, give each of them your business card and a brochure on piano care.
- Hijack a bus. Announce that you will blow it up unless everyone gets their piano tuned.

Keeping a customer, though, is easy. How? Blackmail. When you schedule a tuning, make sure you leave plenty of time for rooting through the closets and drawers. You will almost always find *something* incriminating. When you do, take a photograph, and include a copy with your reminder letter.

Occasionally you will fail to find any dirty secrets. Not to worry! Use the following technique:

Call up the customer to schedule a return appointment. If she says no, pause a moment, then say: "I *know* what's going on." "Going on —?" Pause longer. "It would be a shame if *anyone found out.*" This usually works. You may find it more efficient to bypass the tuning and simply demand money. To sum up: when you get your customers, hold on to them tightly. But not so tightly that their legs fall off.

Doug McKay and Tunertronics may be contacted c/o Mark Stivers, RPT, of Sacramento, California.

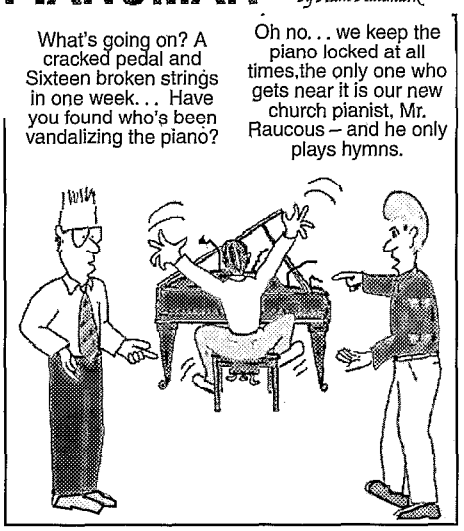
NOISES: Their Causes and Cures

Noise	Probably Cause	Cure
Buzzing	Loose rib	Re-glue rib
Whistling	Poor termination at agraffe	Pull up string
Scratching	Cat wants to come in	Open door
Wheezing	Bronchitis, asthma	Inhaler
Moaning	Back pain	Ibuprofen
Barking	Dog wants to play	Throw ball
Whining	Tuning fee too high	Take check, run to car
Ba-da-BOOM!	Drummer	Tell better jokes
Series of thumps	Piano rolling down stairs	Run to car
Loud explosion	Piano bomb	Flak jacket, helmet

Number Five in a Series: You Can Fix Your Piano!

PIANOMAN Adventures

by Alan Hallmark



PTG Review
Dedicated To PTG News • Interests & Organizational Activities
PIANO TECHNICIANS GUILD

Bolero Aquires Share of Baldwin

Investors hold 5.5% of Baldwin Shares

Industry News

Hilton Head Island, SC — Bolero Investment Group, L.P. and its General Partner, Kenneth W. Pavia, have recently announced that they have acquired a 5.5 percent stake in Baldwin Piano & Organ Co. Baldwin manufactures and markets a full range of keyboard instruments featuring the Baldwin, Wurlitzer and Chickering trademarks. Mr. Pavia reports that the shares were acquired as an investment which he views as having significant potential for increased value.

Mr. Pavia said he "believes that as Baldwin continues to conform itself to the business requirements of the 1990s, its shareholders will enjoy an above average reciprocity of advantage."

Bolero and Pavia announced that they intend to review their investment on a continuing basis. The investment group shall evaluate, among other factors, the availability of shares for purchase and the price levels of such shares; general market and economic conditions; ongoing evaluation of the company's business, financial condition, operations and prospects; the relative attractiveness of alternative business and investment opportunities; the actions of the management and the Board of Directors of the company; and other developments in determining its future activities relative to its investment in Baldwin Piano & Organ Co.

In Memorial ...

Don R. Peterson

Don R. Peterson of LeRoy, Mich., died Thursday, June 6, 1996 at his home. He was 67. For several years he was an Associate member of PTG.

Don tuned pianos for more than 25 years, and enjoyed going to annual PTG conventions. He was a field representative for Michigan Milk Producer's Association for 28 years, retiring in 1988.

He started and directed the Cadillac Area Youth for Christ during the late 1950s, and served on the board until his death. He and his wife, Gladys, recently built a nine-hole golf course on their property in LeRoy. His many friends remember his cheerful disposition and hearty laugh.

— Lorelle Nelson, RPT

Willard Sims

Willard Sims, 74, died on Friday, July 5, 1996 after a three month struggle with a series of strokes. He had been in and out of the hospital since early March.

Born in Indianapolis in 1922, he moved with his family to Cincinnati in 1937, where he attended Hughes High School. He enlisted in the Army in 1942 and served as a supply sergeant until he was discharged at the end of the World War II in 1945.

His first job after his military service was with a Motorola Radio distributor. Familiarity with things electronic ultimately led him to the Baldwin Piano and Organ Company where, in 1947, he began repairing and installing Baldwin Organs. In the late 1960s he advanced into technical service, first with organs and later with pianos.

In 1970, through the auspices of the Baldwin Company, he and Cliff Geers joined the Piano Technicians Guild and began the revitalization of the moribund Cincinnati chapter. In 1971, Willard was part of a team of Baldwin experts that taught a class on grand action rebuilding at the annual convention in Portland, Ore. The collaboration with Cliff Geers continued until Cliff's retirement in the late 70s, and the Baldwin team, under Willard's direction augmented with several Cincinnati chapter members, continued as a popular attraction at conventions and seminars.

With the growing popularity of service schools run by major piano manufacturers during the 1970s, Baldwin began its own educational effort. Willard hired Jack Krefting as his assistant in technical service, and the first Baldwin seminars were begun at the grand factory in Conway, Ark. The curriculum was designed by Bob Erlandson, from Omaha, and many instructors from around the country were used, including Joe Saas, Susan Graham, Ned Dodson, Bob Russell, Sr. and Ellen Sewell.

Willard's loyalty to his company was legendary. He was a kind, dependable and delightful friend. He had a wonderful sense of humor, and a great love for pianos; he was an "inclusive" person and, as such, was a very low key and persuasive teacher. These personality traits combined to make him a personification of the Baldwin corporate image; he was "Baldwin" to the public and Baldwin was Willard. He retired after 42 years of service in 1989, when Baldwin moved all of its manufacturing and service operations to Arkansas.

He was a 50-year member and Past Master of N.C. Harmony Lodge #2, Past President of the Masonic Temple Company in Cincinnati, Past President of the First Masonic District Officers Association and a member of the ancient Accepted Scottish Rite.

He is survived by his wife, Virginia; four children, Willard Jr., John H., Carol and Lois; and three grandchildren. Memorial contributions can be made to N.C. Harmony Lodge #2 Scholarship

Continued on Next Page

In Memorial ...

Continued from Previous Page

Fund, 317 East 5th St., Cincinnati, Ohio 45202 or to the American Diabetes Association, Cincinnati Chapter, 2805 W. McMicken Ave,, Cincinnati, Ohio 45225.

— Ben McKlveen, RPT

Eggert A. Skjoldager

Eggert A. Skjoldager was entered into rest on Wednesday, June 26, 1996 at Eden Hospital in Castro Valley, California at age 93. He was a resident of Castro Valley for 10 years, a native of Copenhagen, Denmark. Eggert was a piano technician for 32 years. He enjoyed reading and gardening. He ushered for Faith Lutheran Church in Castro Valley.

Eggert is survived by his wife of 34 years, Margaret L. Skjoldager; a daughter, Dorothy Michel of Elk River, Minn.; two sons, Leona Skjoldager of Elk River, Minn., and Don Skjoldager of Castro Valley, Calif. He is also survived by one sister, Lilli Skjoldager of Bornholm, Denmark, and six grandchildren and eleven great-grandchildren.

Donations may go to the Faith Lutheran Church on Redwood Road in Castro Valley, Calif. Arrangements made by the Neptune Society of Northern California, Castro Valley Branch.

To all our friends in PTG and PTGA:

Thank you for your many expressions of sympathy and support in the recent loss of our grandson, Jordan Bower. Jordan, who was 17, was a member of the Montoursville, Pa., High School French class, and a passenger on TWA Flight 800 lost off Long Island July 17. Your cards, letters, calls and especially your prayers were greatly appreciated.

— The Bittinger Family

IN MEMORY

Donald R. Loftus
Eugene, OR

Ben F. Carlton
Puget Sound, WA

Associates Pass The Test

REGION 1

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823 CHESTNUT RIDGE
ROADSPRING VALLEY, NY 10977

195 *READING-LANCASTER, PA*

CLYDE M. HOLLINGER
34 TWIN BROOK ROAD
LITITZ, PA 17543

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2495 DOROTHY DRIVE
MARIETTA, GA 30060

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CALHOUN, GA 30701

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DANIEL R. REMBOLD
3914 SULPHUR SPRINGS RD.
MURFREESBORO, TN 37129

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CAMANCHE, IA 52730

581 *MINN-KOTA, ND*

MARK CRAMER
430 7TH STREET
BRANDON, MB R7A 3T1
CANADA

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CLAUDE P. ALEXANDER
34 CASSLAND ROAD
VICTORIA PARK, LONDON E9 7AN
ENGLAND

FRANCO R. SKILAN
5350 STROHM AVENUE, UNIT 3
NORTH HOLLYWOOD, CA 91601

REGION 7

993 *CENTRAL WASHINGTON*

HARRY O. WHITAKER
3411 LOOK ROAD
ELLENSBURG, WA 98926

New Members In July

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061 OTTAWA, ON

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35 SOMERSET AVENUE
MASSENA, NY 13662

111 LONG ISLAND-NASSAU, NY

LEE S. CLARKE
54 WICKEY AVENUE
WESTBURY, NY 11590

118 LONG ISLAND-CRISTOFORI, NY

RIK FAIRCHILD
42 SAYVILLE BLVD.
SAYVILLE, NY 11782

165 ERIE, PA

RICHARD J. KRAUT
435 PARKSIDE DRIVE
ERIE, PA 16511

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525 MCCARTY ROAD
FREDERICKSBURG, VA 22405

274 CENTRAL N. CAROLINA

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GREENSBORO, NC 27410

301 ATLANTA, GA

CHRISTINE M. POPE
619 BOULEVARD HEIGHTS
CALHOUN, GA 30701

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ORTONVILLE, MI 48462

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WARREN, MI 48092

493 WESTERN MICHIGAN

MARK D. LOCKERBY
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BITLEY, MI 49309

532 MILWAUKEE, WI

BRIAN D. JORGENSEN-DICKMAN
4300 N. MAIN STREET
RACINE, WI 53402

601 CHICAGO, IL

DAVID S. MEERSMAN
11007 S. LYMAN AVENUE
CHICAGO RIDGE, IL 60415

625 CENTRAL ILLINOIS

DWIGHT D. DENZER
6858 MECHANICSBURG ROAD
SPRINGFIELD, IL 62707

JAMES T. HAMMOND
544 S. FIFTH STREET
FAIRBURY, IL 61739

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553 TWIN CITIES, MN

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HUTCHINSON, MN 55350

VIRGINIA P. SUNDBERG
6357 RED HAWK TRAIL
LINO LAKES, MN55014

571 SOUTH DAKOTA

CURTIS BAUER
420 SPRUCE STREET
RAPID CITY, SD 57701

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350 DOUGLAS FIR CIRCLE
RENO, NV 89511

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LOS ANGELES, CA 90046

926 ORANGE COUNTY, CA

GERALD S. PELL
909 CALLE NUEVO
SAN CLEMENTE, CA 92673

931 SANTA BARBARA, CA

PERRY W.BENENATI
305 N. VOLUNTARIO
SANTA BARBARA, CA 93103

951 SANTA CLARA VALLEY, CA

BARBARA R. GIBSON
P. O. BOX 77284
MOUNTAIN VIEW, CA 94043

956 SACRAMENTO VALLEY, CA

DONALD L. DUSENBURY
9035 POLLY AVENUE
ORANGEVALE, CA 95662

REGION 7

001 CALGARY, AB

LACHLAN D. MCDONALD
264 DEERVIEW DRIVE, SE
CALGARY, AB T2J 6K1
CANADA

841 SALT LAKE CITY, UT

ROBERT C. DOBSON
10888 SO. 300 W.
SO. JORDON, UT 84095

MATTHEW K. JUDD
1220 S. 600 E.
BOUNTIFUL, UT 84010

974 EUGENE, OR

JODI L. HICKEY
3596 PINE STREET
NORTH BEND, OR 97459

EVENTS CALENDAR

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

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

Once approval is given and your request form reaches Home Office, your event will be listed through the month in which it is to take place.

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

September 21, 1996

PUEGET SOUND
Pacific Lutheren University,Tacoma, WA
Contact: Ryan Sowers, (360)705-4160
418 N. Quince St. Olympia, WA 98506

September 28, 1996

PAMONA VALLEY
Cal Poly Pomona
Contact: John Voss, (909)794-1559
2616 Mill Creek Rd. Mentone, CA 92359

October 3-6, 1996

NYSCON - ONTARIO-PROVINCE
Rochester South Holidome, Rochester, NY
Contact: Robert Edwardsen
716-586-1360 or 1-800-4-NYSCON
Rochester, NY

October 25-27, 1996

NORTH CAROLINA REGIONAL CONFERENCE
Sheraton Airport Hotel, Charlotte, NC
Conference Director:
James Baker, RPT (704)366-8466
Registration Contact:
Lewis Spivey, RPT (919)937-4777
15 Rachel Drive, Nashville, NC 27856

October 31 - November 3, 1996

TEXAS STATE ASSOCIATION CONVENTION
Inn on Lake Travis, Austin, TX
Contact: Mike Pope, (512)869-4707
3307 Rocky Hollow Trail, Georgetown, TX 78628

January 3-4, 1997

ARIZONA STATE SEMINAR
Tempe, Arizona
Contact: Rick Florence, (602)926-4328
119 W. San Angelo Ave, Gilbert, AZ 85234

February 21-23, 1997

CALIFORNIA STATE CONVENTION
Radisson Hotel, Sacramento, CA
Contact: Yvonne Ashmore, (916)273-8800
12700 La Barr Meadows Rd, Grass Valley, CA 95949

March 14-16, 1997

PACIFIC NORTHWEST
West Coast Tyee Hotel, Olympia, WA
Contact: Mitch Kiel (360)264-5112

AUXILIARY EXCHANGE

Dedicated To Auxiliary News and Interests

Welcome Back & Looking Ahead

Greetings to all members of the PTG Auxiliary. I'm back again!

Thank you all for electing me as your President once more in Dearborn, at the last convention in July. Didn't we have a great time? I heard from members and also PTG members that this was the best convention ever! How do they do it? It gets better and better every year. I trust that all of you who were not in Michigan this summer will make plans to attend next summer's convention in Orlando, Fla. Now talk about things to do and places to go! Bring the whole family this time, and plan on staying a week or so after the convention. There is so much to see there that you can not possibly do it all in the one free day that we have to sightsee.

I am going to the planning meeting in Orlando on September 21, and staying with a friend for a week before returning home. I will be researching all the entertainment that you would like. However, I do not believe that I will be planning a "tour" per se, as I am sure each one of you will want to do something different. So, I am going to look into buses to take you to the separate features and bring you back to the hotel. Also, I will look into a group rate if enough of you want to go to one place for the day.

Phyllis Tremper
PTGA President

Please drop me a post card and tell me your pleasures. I would like to do what the majority wants, but if I don't hear from you, I'll have to make arrangements according to what I "think" you want.

Also, I would like a "Letters to the Editor" column this year. If you have questions about the Auxiliary, on how to join, what we do, and what our function is, please write to me. This column is for you. However, remember, I have a two-month prior to issue deadline.

Since Paul used a motto during his tenure and we all liked it, I would like to use one, too. Mine will be, "Put a little music in your life!"

As a trained musician, I practice every day and listen to our NPR classical music station. Since our group is affiliated with people who tune pianos and make musical sounds every day, shouldn't we all ***Put a Little Music in Your Life?***

May I please introduce you to the new board for 1996-97! Paul and I have been here before, but we have several new members I'd like you to meet.

Have a great summer and let's hear from you!

Continued on Next Page

Members of the 1996-97 Piano Technicians Guild Axiliary Board of Directors are: from left, Paul Cook, immediate past president; Carolyn Sander, vice president; Beva Jean Wisenbaker, corresponding secretary; Carol Bussell, recording secretary; Marilyn Raudenbush, treasurer; and Phyllis Tremper, president.

Welcome Back & Looking Ahead

Continued from Previous Page

Vice President — Carolyn Sander

This year I am excited about moving into another "season" of my life. In June I retired after 30 years in education, and our youngest daughter is college-bound in the fall. However, most of my time (as many of you know) is busy keeping my husband, Hans, out of trouble!

Occasionally, I have time to enjoy my hobbies of growing perennials, arranging bouquets, and watercolor painting. I am ready to travel the world, pull more weeds in the flower beds, read the paper in the morning instead of at 11:00 at night, write the memoirs of my father, and learn to be computer literate in 1996.

PTGA has given me many memories these past 20 years, and I am happy to serve the Auxiliary for another year as your vice president.

Treasurer — Marilyn Raudenbush

From the small state of New Jersey, I have been elected your PTGA Treasurer.

As my husband is a full time RPT, I am involved in our piano business, as the office manager and shop coordinator. I am active in the SEPA Chapter, PTGA and PTG.

Because of my deaf granddaughter, I am very involved in the deaf community. I interpret for "Mercy," so she can be part of many programs in the hearing world, such as Girl Scouts, church, etc. I even dream in sign language! How my life has changed!

As your treasurer, I intend to serve you with accountability.

Corresponding Secretary — Beva Jean Wisenbaker

I was born in Humble, Texas just north of Houston, but we moved to Horatio, Ariz., when I was seven and just before the end of first grade. I was in the National Honor Society in high school. I returned to Humble after graduation and obtained a job with Houston Lighting & Power Co., where I worked for five years.

I moved to Waco, Texas, where I worked full-time for the Baylor University Library while attending classes part time. Martin Wisenbaker and I were married after one semester. We concentrated on his receiving his degree first, so I took only one class when we could afford it.

We moved to Houston after Martin graduated, and I had been with the library five years. I transferred to the University of Houston. Martin was working now, but I continued taking only one class at a time. I received a B.S. degree in Home Economics. I was a member of Phi Upsilon Omicron, a national home economics honor society and Phi Kappa Phi, a national honor society. It took me 16 years to obtain my degree since I worked at it so slowly, but I enjoyed it all.

I never did more than my student teaching, since Martin decided to go into piano work full-time on his own just at the time I graduated. Had I known that he would do that, I would have majored in business administration, to give me the basics to handle the office end of his business. I do all our tax forms, accounting, appointment making, and all other office-related work. My personality is more suited to doing office work than teaching anyway, so everything has worked out well.

My hobbies are reading and crocheting. I collect bells, cook books and angels. (Editor's note: You never see her without a camera around her neck, either!)

Recording Secretary — Carol Bussell

I was born, raised and educated in the Finger Lakes of New York State. I received my B.S. at Cornell University in education and my M.S. at Ithaca College in educational communications.

A perpetual renaissance person, I thought I'd add piano tuning to my many arts and education accomplishments by enrolling at Chautauqua Institution's full-time summer piano technology course. I discovered it was a serious profession, practiced by some of the nicest and most ethical professionals in the marketplace.

I met Bob Bussell at the annual convention in Indianapolis in 1984. It was at a carefully and strategically planned "chance" discussion over tools in the Exhibit Hall that shy Bob asked me for our first date. Three years of flowers, trips and phone calls later, I said goodbye to my beloved lakes and hills and chose to marry Bob.

We are now a family with three daughters: ages 8, 6 and 2. My contributions to the family business are sales and bookkeeping. My two most significant activities are my Christian walk including home schooling the girls and Origami (paper folding) in jewelry making and teaching..

And what happened to all those tools I bought wisely and well at the convention in 1984? A piano technician couldn't ask for a better dowry!

Immediate Past President — Paul Cook

I was born at a very early age, at the Hollywood Presbyterian Hospital in Southern California. I was graduated from Hollywood High School and from U.C.L.A, where I majored in land surveying. This gave me the knowledge and skills to run our family's business, C.W. Cook Co. I have worked in the company for the past 31 years, providing services in land surveying, civil engineering, land use consulting, computer graphics and animation. We currently employ about 20 people. Founded by my grandfather in 1911, we are celebrating our 85th year of continuous operation, making C.W. Cook Co. the oldest land surveying company in Los Angeles.

I have one boy, Jim (30), two girls, Lori and Cindy (each 28) and five grandchildren, soon to be six (due mid October.)

My wife, Claudia, and I are the ones you read about in the *Journal* who were married by a piano tuner, who is also an ordained minister, aboard a United 747 on our way to Hong Kong. Life with Claudia and the Piano Technicians Guild has been one huge party after another.

My hobbies are grandchildren, computers, photography and my parrot "Chewy." I also love collecting "gadgets" and travelling.

Condolences ...

The PTG Auxiliary would like to express condolences to Celia and Richard Bittinger and family for the loss of their step-grandson in the accident of TWA Flight 800 out of New York last month. He was from a small town of 5,000, Montoursville, Pa., and was traveling with the French Club from the high school to Paris. The town lost many students on the plane and is still in a state of shock. Please know our thoughts and prayers are with you at this time.

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VIDEOS

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Contact PTG Home Office by October 18 to be included in the December '96 issue.

DISPLAY AD INDEX

Piano Discussions™

September 1996

News From The World of MSR/PianoDisc, Knabe, Mason & Hamlin

Mason & Hamlins, Knabes score hit at Summer NAMM and PTG

Nashville and Dearborn, in the summer, may not be at the top of everybody's list of ideal destinations, but after this July's Summer NAMM and PTG Convention, they're sure tops with us! While the cities and events were very different, universal was the tremendous response to the two Mason & Hamlin grands we showed, plans for our Knabe PianoDisc pianos, and, of course, MSR's amazing PDS 128 Plus player system and a greater than ever GT-360 QuietTime. Show-stoppers all!

Summer NAMM

One of the highlights of Summer NAMM was the guest appearance in the booth of our fabulous Artist Series star, Floyd Cramer. As usual, the charming keyboard genius delighted show attendees, chatting and signing autographs for hours. He even played a few bars for us in that signature, note-slurring style that is the basis of the "Nashville Sound" — the one made famous during the Golden Age of Country Music. What a thrill to hear the multi-award winning superstar play for the first time on our Model A and Model BB Mason & Hamlin grands! Floyd's impression? "I like them!"

Floyd Cramer plays a Mason & Hamlin as Mary Cramer and MSR's president Gary Burgett look on.

As if that weren't enough, after the show, Floyd and his wonderful wife Mary showed us what "Southern Hospitality" is all about by treating our entire show crew to dinner. What a perfect end to a tremendous Summer NAMM.

PTG Convention

In short order our attention focused on PTG and it turned out to be every bit as successful as NAMM had been. The highlight of the convention this time turned out to be the attendees themselves, and their support for our acquisition of Mason & Hamlin. "We had so many people stop by the booth to wish us well! It was just incredible! They all want to see us restore this wonderful American piano line," commented company president Kirk Burgett.

The PianoDisc service seminar was well attended, as usual. Instructor Don Dusenbury reported tremendous response to the day-long session. The QuietTime showcase drew the largest crowd of any at the convention, with standing room only. A high point of that was a QuietTime demonstration by none other than New Jersey technician Ed Dryburgh. "Ed showed off QuietTime like a professional! He doesn't work for the company but he did a lot better than either Mark Burgett or I could have," admitted Dusenbury. "He just loves the system."

Another high point of PTG was the addition of Paul Monachino to our booth. Paul has been connected with Mason & Hamlin pianos since 1946, and convention goers enjoyed discussing piano history with this knowledgeable man. He's a source of more than just information for us, though, and we'll profile Paul in an upcoming issue.

All in all, Dearborn may have been our most successful PTG ever. The goodwill and interest of everybody we talked to made it that way. We're excited and confident about our future, and it's wonderful to know that so many PTG members are too.

Meet us on the Internet at www.pianodisc.com

Our Traditions

Knabes challenged in the 20th century

When the American Piano Company (which made Knabes after the death of Ernest Knabe) consolidated with the Aeolian Piano Company in 1932, it literally staggered the piano industry. The new company was simply the biggest in the world. Its huge manufacturing complex in Rochester, NY even had its own foundry.

The years up until about 1938 were good ones for the Knabe line. The instruments were superb and highly regarded. World War II, however, forced a change in not only the world, but Knabes as well. Due to a serious shortage of parts (the result of their suppliers being forced to make parts for the war effort instead of for pianos) the company stopped production. After the war, rising costs and labor issues caused the Knabe line to be rethought. The result was a piano that was still a good, quality instrument, but not the Knabes of old. It was a compromise that kept the pianos going, made them competitive, and helped to give them a decent market share until the 1960s. After that, a general decline in piano sales hit Knabes particularly hard.

Next month: Knabes face the future

TRAINING SCHEDULE

• September 23-28 • October 21-26
• November 18-23

CONTINUING EDUCATION

• Sept. 30-Oct. 2 • October 28-30
• December 2-4

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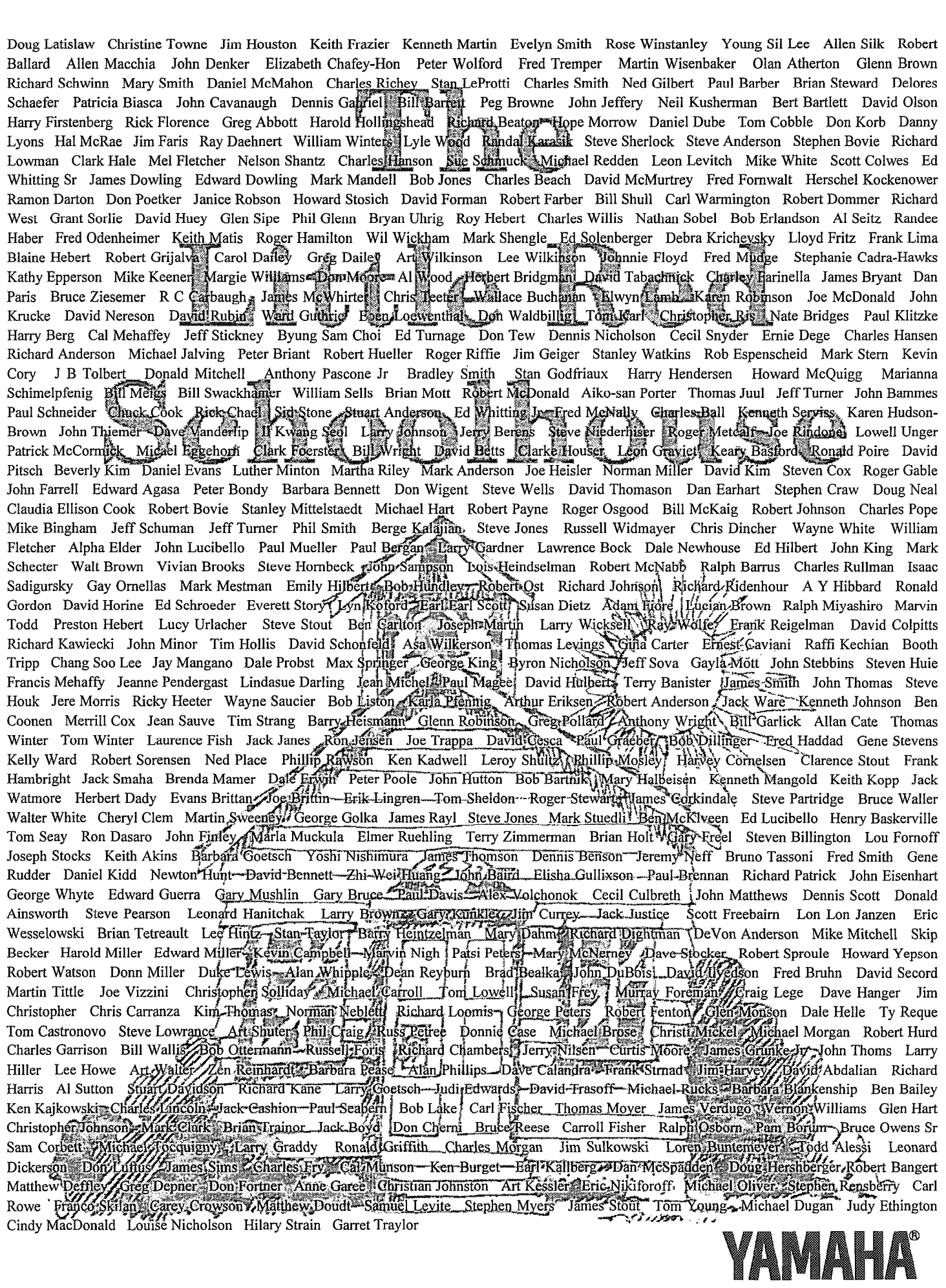

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