

A detailed close-up photograph of the internal mechanism of a piano, showing the hammer flange, repetition spring, and other mechanical components. The image is in warm, golden-brown tones, highlighting the textures of the wood and metal.

PIANO TECHNICIANS' Journal

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September 1999

Vol. 42 • 80

Joe Pramberger

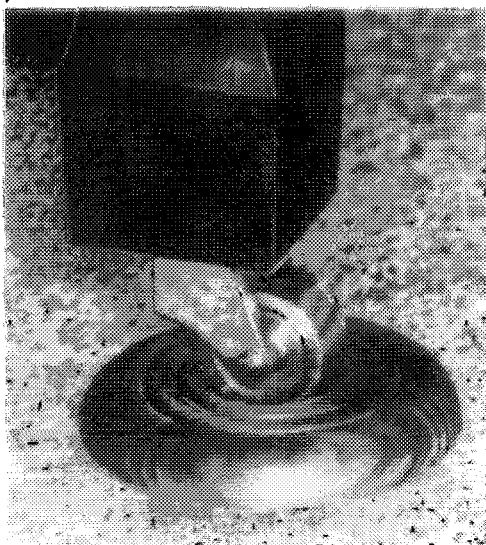
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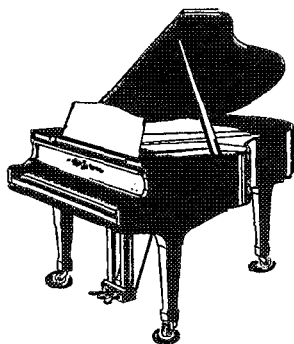
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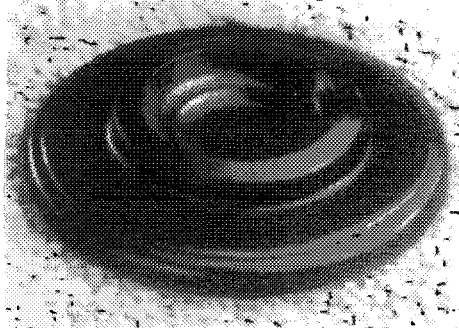
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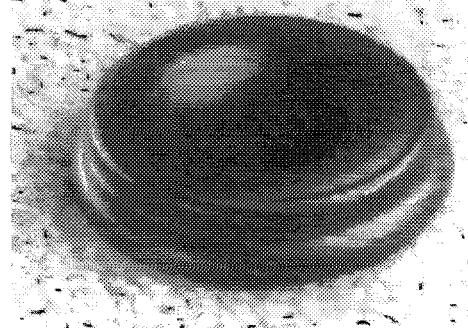
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GUEST EDITORIAL

Thanks for the Tips

Back in the March issue, I asked readers to send me technical and tool tips for use in the "TT&T" section of the *Journal*. I'm glad to report that many of you have responded with useful material, and my "TT&T" file is now happily bulging. It may be some time before *your* tip appears in print, but in due time it probably will.

An editor can never have too much material to choose from and I think it makes sense to assume that the more submissions an editor receives, the more selective he or she can be, and the higher will be the quality of articles which are finally selected for publication. With that in mind, I'd like to address everyone who has ever thought, "I should really write an article for the *Journal* about this," or "Geez... I could do better than that!" Realizing that I'm now speaking to nearly

everyone who has ever read the *Journal*, I'd like to encourage you to act on those thoughts by writing an article about some tuning or technical topic.



Steve Brady, RPT
Journal Editor

More and more, we lean toward material submitted either by e-mail attachment or on computer disk, simply for speed of processing and copy-editing and to minimize the chance of errors creeping in. At the very least, an article should be typewritten (double-spaced, please) for ease of reading. If an idea in your article needs to be illustrated, we have three options. First, we can use photos of any kind; color prints, black & white prints, slides and some

digital photo file formats are all welcome. Second, you can provide a rough sketch which can be redrawn by our new staff illustrator, John Hartman, RPT. Finally, you can just describe in words what the drawing should show and John can take a shot at drawing it "from scratch."

The announcement in March of the opening for a *Journal* illustrator drew inquiries and applications from eight individuals, most of whom are piano technicians and most of whom have had professional training as artists. Many applicants submitted excellent drawings as proof of their ability and it was difficult to make a decision. It's gratifying and very interesting to see what a range of talents and interests we have among our readership.

By way of introduction, John Hartman is an outstanding piano rebuilder who may be familiar to many of you as an instructor at conventions and regional seminars. What you may not know is that John trained as a graphic artist before becoming a piano technician. His drawings began appearing in the *Journal* with the July issue of this year.

The other position which I advertised in March was that of Assistant Editor. Nine people expressed interest and again I was astonished at the qualifications held by some of the applicants. One had a Ph.D. in English literature, another had worked as a professional technical writer and editor in another industry and others had editorial experience with the *Journal*. Again, the final decision was extremely difficult, but I believe that in Bob Hohf, RPT, we have a valuable addition to the *Journal's* editorial board. Bob has proven his ability as a piano rebuilder and as a contributing editor and writer of extensive articles for the *Journal*. He will begin work in his new assignment this fall and his primary work — managing and editing the "TT&T" department — will be on display beginning with the January, 2000 issue.

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

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Meanwhile, her regard for you as a professional has grown. In her eyes, you have taken her average-sounding piano (or highly unstable piano) and converted it to an instrument of which she is proud, an instrument that is dependable and predictable.

More than ever, she trusts and respects your opinion. So, when you suggest ways you can make even more improvements through regulation and voicing, she is more receptive to your proposal. (A written proposal is more effective. For a proposal example, buy the PTG's *Business Resource Manual*, \$20.)

Remember, the Climate Control System you recommended did just what you said it would do. When you explain how voicing or regulation will make a noticeable improvement to the sound and yield greater enjoyment, *she will follow your advice again!*

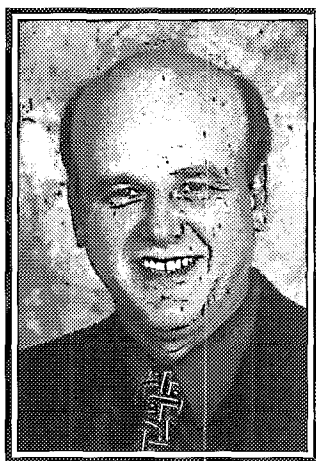
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IF YOU VALUE THE PIANO

Change Can Bring Adventure, With the Right Attitude

Last month I wrote about the possibility that a failed plan can offer a unique opportunity to one who is ready to accept the failure and open his/her eyes to other options. I would like to expand on that a little and explore one facet of such an occurrence — that facet being change.

There are times when each of us will be adversely affected by change, and if we find ourselves on the “losing” side of change often enough, we may become fearful of it and we may learn to mistrust anything that doesn’t fit into our neatly ordered routine. After all, there is much solace to be found in things that are familiar, in old friends that assure us of our place in life and perhaps even our value as a person. This is okay as far as it goes and as long as we don’t become closed off to the possibilities that lie outside our realm of experience.



David P. Durben, RPT
PTG President

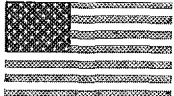
In America especially, and indeed in every culture that has ever existed among humankind, there always has been the search for a fountain of youth. I believe that in order to be open to change, one must have an open mind that will not be limited to past experiences and surroundings. We must be capable of active thought processes that keep us young and enable us to embrace a wide perspective of the world around us. Curiosity is one of the primary, fundamental requirements for keeping an active mind — one of the essentials for a youthful, healthy life. We must be actively seeking the keys to understanding our ever-changing world.

No one lives forever, but we all know people who have grown “old” before their time, and we all know people who have lived to the fullest every day of their lives. I believe it is a matter of choice that every individual is given along with their free will and that the choice that serves both the individual and society best is the one that embraces change and the opportunities that accompany it.

What I really want to offer is that change can be a good thing, especially if we are willing to accept it. It is in fact inevitable, so rather than resist change I believe we should explore the possibilities that are offered by change, with an eye toward making it a valued part of our lives. Indeed, with an open mind and an optimistic attitude, change can become a wonderful, exciting part of our lives. It can keep us fresh, keep our horizons forever expanding and make each day an adventure with infinite opportunity for growth.

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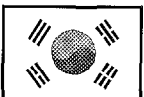
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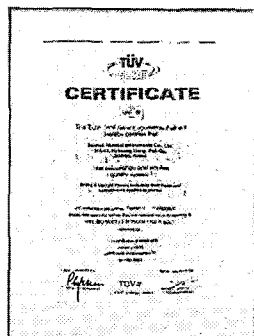
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Letters to the Editor

More on Y2K

The more apocalyptic popular press portrays Y2K as being the demise of the world as we know it after midnight, January 1, 2000. The reality is rather different since the effects, such as they are, will be spread out over quite a while. The problems for the most part only occur when a non-compliant computer program or system is asked to make a judgment that involves dates spanning 1/1/2000.

The difficulties that computer programmers have in correcting the problem were brought home to me after my recent return from a trip to Europe. In going through my credit card bills I had to cope with the American representation of July 15, 1999 as 07/15/99, the English as 15/07/99 and the European as 99/07/15! The English/American confusion can be tricky particularly early in the year. At least the European system clearly is different with the columns going from the largest unit to the smallest in a logical manner, sometimes extending through hours (to 24), minutes and seconds.

In reading an article in a computer journal I noticed the expression "pivot year." This I did not immediately understand but I had a sinking feeling. The article confirmed my fears. The logic of the "pivot year" is that computers were not in common use until about 1940, therefore all dates prior to 1940 are *de facto* incorrect and must therefore be in the first century of the next millennium. This enables a Y2K program to still retain the two digit representation of the year for a little longer and instead of having to find and modify all references to dates merely modifying the process dates to incorporate logic to add 100 to years prior to 1940. This is much cheaper to do and will last well into the reign of the next marketing manager or budget controller.

The effects of this decision are to put off the problems created by Y2K to the date 2040 at which time the Armageddon for that particular program may take place, but not on my watch. Compounding the problem is the decision of each software manufacturer to pick its own pivot year, so problems will be spread out over many years. The article published "pivot years" for several different well-known programs and they varied from 2015 to 2040. While the upgrade rat race will ensure that all programs in use should be compliant by that time, that does not mean that all data bases will have been modified to use four digits to represent the year. Some of the "pivot dates" were not even a whole number of leap years, either.

I regret that the immediate economics of the non-solution will carry it through for many consumer programs. There is nothing we can do other than to be eternally vigilant with our bills, etc., for the foreseeable future. While we cannot control the programs that others use on our behalf, always having non-computer cross check of all transactions will help to weed out Y2K over billings.

— Chris Day, Associate Member
Boston, MA Chapter

The Seven-Year Rule

I think the seven-year theory [EDITOR'S NOTE: See my editorial in the June, 1999 issue. — SB] is basically true with a

major factor you are leaving out: the *area* that you are in. Like in real estate: Location, Location, Location.

In my case I had a business in western New York State for six years and sold it. I also have had a business in western North Carolina for nearly seven years. Same tech, same business practices, etc. My business here is not a third of my business there. Not everyone is in an *educated* urban area. If one tried to work only on high-quality grands in most areas, they would have 20 pianos to service!

I have come to the conclusion that a "good piano business area" has the following:

- an educated middle class with school age children (kids taking piano lessons).
- good schools, university near by (they value education).
- active piano dealer and private piano teachers.
- interest in music in the area.
- a "normal" working town. (This is different from a retirement resort town that claims it like the "arts" but really likes playing golf).

— Bob Belmont, Associate Member
Western Carolinas Chapter

Steve Brady replies: *Thanks to Bob for the excellent points he makes here. The seven-year rule obviously is dependent on location as well as technical and business skills. For those contemplating relocation, the factors Bob lists can help ensure a fertile field for your labors.*

Plastic Action Parts

I read, with interest, Don Mannino's article promoting Kawai's use of ABS plastic parts in the June 1999 issue. I am left with two questions:

1. My concern with plastic parts is limited to flanges. I believe that when I tighten a wooden flange screw, the screw compresses the wood. Wood, being naturally elastic, pushes back making a very secure fastening. I fear that if I apply high pressure to an ABS flange, it may crack and that the customer, rightfully, would blame me for the damage. Are my concerns unjustified?

Undoubtedly, wooden parts are much more expensive to manufacture. Kawai, over the years, has steadily increased its use of plastic parts. During the same time, the prices on pianos have risen significantly. Are we being "sold" on this innovation to improve the quality of pianos and affordability to the public or to increase the profits of the manufacturer? Why aren't pianos with plastic parts less expensive than comparable models with wood parts?

— Steven L. Cohen, Associate Member
Baltimore Chapter

Don Mannino replies: *The idea that a plastic flange will not withstand screw pressure is a common misunderstanding and is one of the main reasons for Kawai's testing of the parts. Anyone who has seen old wood hammer butt flanges which have crushed, with the flange ears twisting and binding on the birds-eye, knows how wood reacts to pressure from tight flange screws over the years. In the 20- to 30-year-old Kawai ABS actions I have seen, the screws are still solid and tight from the factory and need no re-tightening and the flanges have no cracks.*

The assumption that wooden parts are dramatically more expen-

Continued on Page 17

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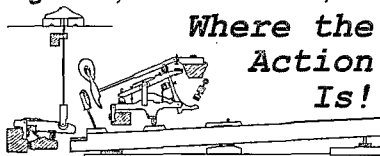
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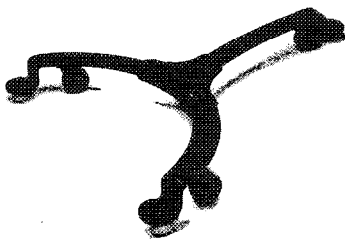


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Keeping Cords Neat

To keep your portable electrical cords from turning into an explosion in a spaghetti factory, try folding them back on themselves several times and slipping a coupling for plastic water pipes over them (see Figure 1). For a couple of dollars you can get a handful of couplings in several sizes at your local "Home Depot" type store.

T1&T

— John Dewey
Central Illinois Chapter

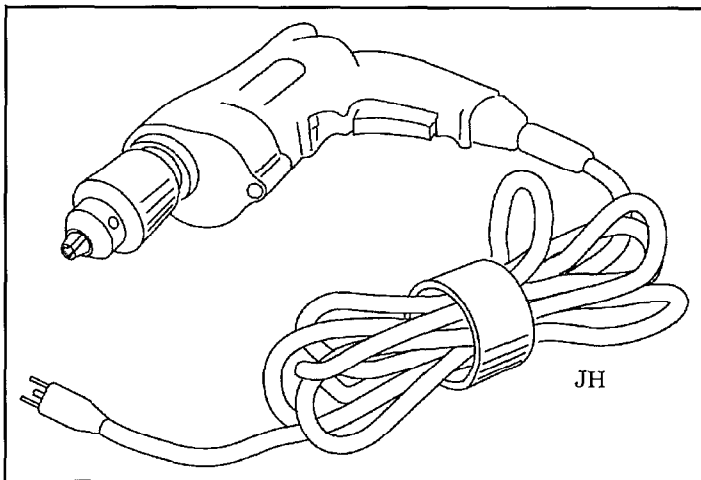


Figure 1 — Power drill cord shown folded into plastic pipe coupling.

Quick Fix for Bottom-Board Squeak

It was a small 30-year-old console with a very loud squeak in the sustaining pedal. Suffice it to say that after 45 minutes of removing and installing the action several times, tightening screws, lubricating parts and doing everything else I could think of, the squeak was still there. Baffled, I rechecked everything and eliminated every other possibility of a squeak. But the squeak was still there.

T1&T

Luckily, I remembered an article by Susan Kline, published in the *Journal* a few months back, where she used an old hymnal to prop up the bottom board on an old upright to stop a squeak. So I got a piece of 5/8" thick scrap wood and placed it directly under the bottom board underneath the pelican spring for the trapwork ... instant success! No more squeak. I told the customer that the next time the piano was moved, I could tilt the piano on its back and tighten the bottom-board screws, but until then, the problem is solved.

— David A. Vanderhoofven, RPT
Kansas City, MO Chapter

Aid for Leveling Strings

Here's a bit of cross technology that enables you to have a black and white picture of differences in string height. (The cross is from my years as a graphic designer.) On a grand pi-

ano, lay a piece of tracing paper on the area of strings that you want to know about (see Figure 2). Holding the back of the paper with the fingers of one hand, swipe a graphite stick from the anchor hand toward you along the string line. And there you have it. The darker the impression of the string, the higher it is. You can get these sticks (I recommend 2B) at any good artist-supply store. When the graphite stick becomes grooved, just grind it down on fine sandpaper backed with glass. Tracing paper is not absolutely required, but you do get a better image with less pressure. This also can be used on uprights, but of course you have to remove the action.

T1&T

— Clair Dunn
Vermont Chapter

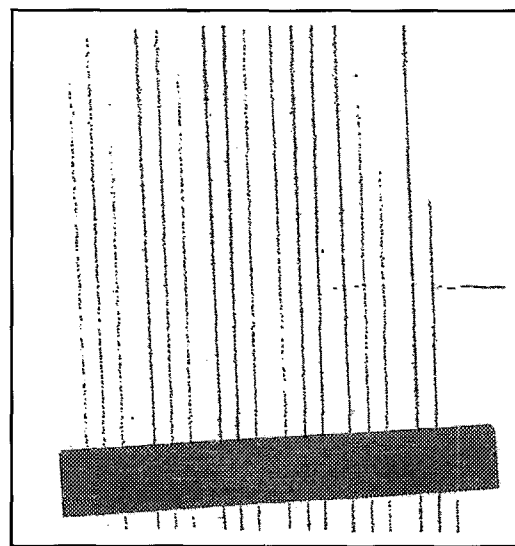


Figure 2 — Piece of tracing paper laying across strings.

Heavy Touch on Old Upright

What causes heavy touch in an old upright piano? The center pins were not tight. The let-off rail was adjusted properly. The let-off was within 1/8". The keys depressed at 50 grams and returned at 26 grams.

T1&T

I fixed this problem with a #2 lead pencil. The graphite had worn off the tops of the jacks. Now the action responds when playing softly; before it felt like the keys had bottomed out when the let-off point was reached, so it required more effort to play and the piano would not play softly.

We should not get "hung-up" over downweight and upweight without also considering how many grams it takes to go through let-off. In this case, it now takes 65 grams to achieve let-off and the piano plays like a dream come true. What a difference a pencil makes!

— Ken Churchill, RPT
Orange County, CA Chapter



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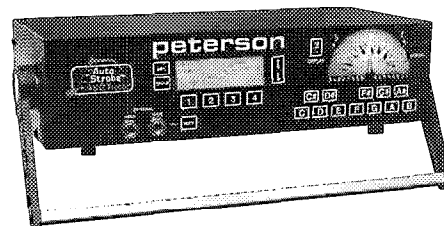
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Frequency Accuracy?

I have been tuning aurally for most of the time I've tuned. When I first started out I got a chrome-plated steel tuning fork. It's not very loud, but it seems to be stable. I've heated it up to well over 100 degrees and put it in the freezer to cool it down and measured as best I could in both extremes. It doesn't move much, perhaps one and a half cycles from one end of the extreme to the other.

At work amongst the tuners, we have three tuning forks, and three "machines," none of which are over-\$200 machines. My personal observations to date lead me to believe that the forks are all very close to each other. However, the machines are quite different, one actually tunes a piano sharp enough to hear audible beating when played with another piano tuned with a fork.

How does one determine which A=440 is right? Is there an easy way to do that without finding an electronic frequency counter? I'm just trying to figure out if real tuning fork accuracy is possible in a real world. To what do we pay homage as the "ultimate" standard measuring device? Whose "ultimate" standard measuring device is right, if they don't agree? If I find one person with an SAT and one with an RCT and the A=440s aren't the same, which one is right?

I've been reading about the "big test" and what's involved. It all starts with the basic premise that we start at A=440, but whose A=440?

— Brian Trout
Quarryville, PA

A **Robert Scott:** The ultimate frequency standard is the National Institute of Standards and Technology, formerly called the National Bureau of Standards. This government agency maintains a group of Cesium atomic clocks in Fort Collins, CO. These clocks are accurate to better than one part in 100,000,000,000, or, in piano tuning terms, 0.000000017 cents. This standard is disseminated in a number of ways. You can check their web site at <http://www.bldrdoc.gov/timefreq> if you are interested.

For practical piano-tuning purposes, it usually is safe to trust the work of Sanderson, Reyburn, etc. (Off-brand \$200 devices, or something in the guitar-tuner class may not be that accurate.) When a SAT is manufactured, I am sure that its internal quartz crystal frequency reference is calibrated to some standard that ultimately is based on the NIST source. With the RCT, I believe Dean calibrates the Mac version when he sends out a complete package. And when he sells the software only (such as in a Windows version) he supplies a little A=440 quartz reference so that you can calibrate your own particular laptop. Although the separate quartz tone source supplied with the RCT is inexpensive, it still may be very accurate. After all, providing a single accurate tone reference is the only job it has to do.

The frequency of a quartz crystal oscillator varies with temperature, but not nearly so much as a tuning fork. There are things that a designer can do to stabilize the frequency, such as include compensating elements (usually capacitors) that have opposite temperature characteristics from the quartz crystal, and so cancel out most of the frequency variations. The SAT is, no doubt, temperature-compensated like this.

However, crystal stability is not really an issue for piano tuning because the piano strings will vary with temperature at least 10 times as much as even the poorest quartz crystal. The biggest errors in quartz frequency sources come from initial calibration. That is why even cheap sound cards in computers, once they have been calibrated, become excellent secondary frequency standards (at least for musical applications).

Some people have used the dial tone as a pitch reference. It seems that in many areas of the USA, the dial tone is a major third (F-A). Some years ago I tried to get our local telephone company to commit to what the accuracy of that A=440 was, but they could give me no assurances that any particular accuracy would be maintained.

If you would like to set up a secondary frequency standard in your shop without any cost at all, there is a program called CalSound that is part of the TuneLab package, available for free on my web site <http://www.wwnet.net/~rscott>. The CalSound program allows you to calibrate the frequency reference in your computer's sound card using time-of-day. Most local telephone companies offer precise time-of-day ("At the tone, the time will be....") Or, if you really want to go to the source, you can get precise time-of-day from NIST's short-wave radio station, WWV, on 2.5, 5, 10, 15, and 20 MHz. By comparing time over an 8-hour period, CalSound can provide a frequency accuracy of about 0.03 cents. The longer the calibration period, the more precise the calibration. Once you have set up a computer with CalSound, you can use it to check tuning forks, SATs, RCTs, oh, and by the way, you might also want to use it to tune a piano.

Newton Hunt, RPT:

Your fork is likely off. Check the temperature by placing it against the side of your neck, which is most thermally sensitive and most easily reproduced. You want the fork to be cool, not cold, against your neck. You should check the temperature of the fork every time you tune. Compare the fork to the SAT and file the ends of the tines if it is flat. If the fork is sharp then file it at the inside base of the tines. Place the fork on a piano plate or heavy steel plate to cool down to room temperature between filings. Continue this process until the frequency of the fork and the SAT agree with each other. Then your fork is in tune.

Continued on Page 14

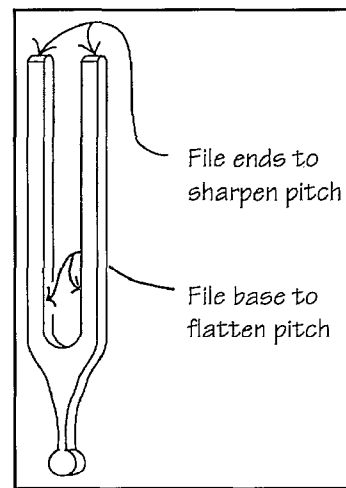


Figure 1 — Filing ends of tines to raise pitch of tuning fork.

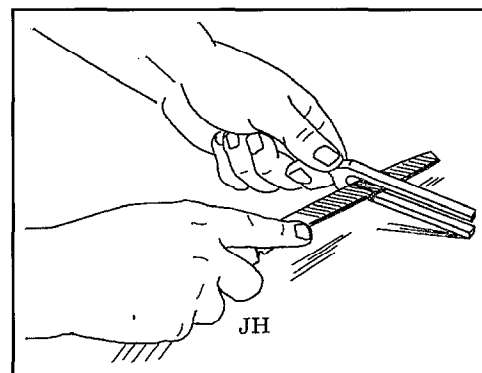


Figure 2 — Filing inside base of tine to lower pitch of tuning fork.

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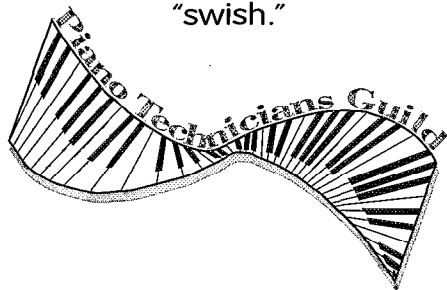
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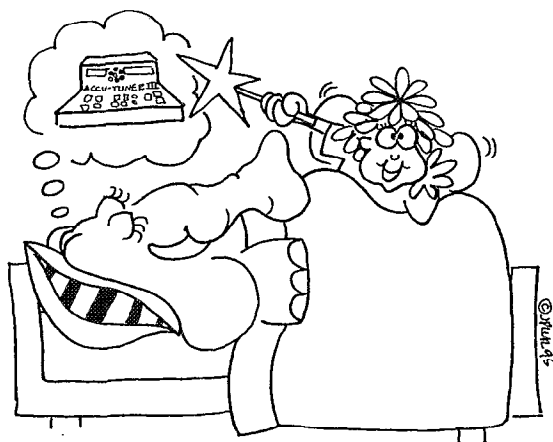
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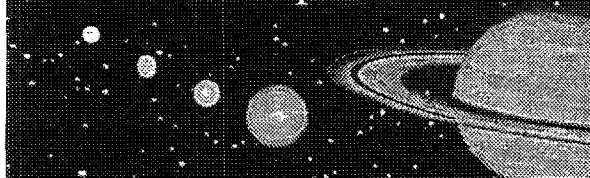
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Q&A/ROUNDTABLE

Continued from Page 12

Ron Nossaman, RPT: The low-end, cheapest of all possible "tuning machines" are just slightly better than kazoos as pitch sources. On the other hand, if you compared the pitch calibration of the SAT, RCT and TuneLab, I suspect you would find that they agree very closely. A few years ago, our local PTG chapter checked their forks against the SATs the members had at the time and the only absolute agreement was among the SATs. I seem to remember my old Accu-Fork being close, too, but the fork I carry for tuning was a tad off, as were most of the others. The collective local membership now has at least one each of the big three ETDs, so maybe it's time to try it again and find out. In any case, a TuneLab download might be a good place to start prospecting.

Concert Instrument Maintenance

I have been tuning for a concert hall for eight years. They purchased a new seven-foot Kawai eight years ago. The building gets quite humid in the summer and although a Damp-Chaser assists stability, the strings have begun showing signs of corrosion. The piano probably has seen more than 400 tunings. While tuning for the last concert, I broke a string at the becket for the first time. Annual maintenance consists of an eight-hour day at the beginning of each season to regulate, voice, shape, lubricate, seat strings, etc.

- 1) Do concert instruments, due to extreme frequency of tuning, show weakness at friction points and/or weak points more rapidly?
- 2) Should a concert instrument, used in a hall or for recording, be in need of new strings every decade or so? I'm thinking that as the strings tarnish and become more brittle the purity of the tone generated is compromised.
- 3) As the strings show signs of age, should I be preparing the administration to budget for this in a couple of years? Thanks.

—Dave Renaud, RPT
Quebec, Canada

Jim Coleman, Sr., RPT: Concert instruments wear flat marks on the strings especially at the v-bar. Yes, the strings should be changed that often, especially the capo bar area. Tarnish is not so much the problem as the wear.

I always worry about those who seat strings too vigorously. If marks are left on the string, it's too vigorous. If the bridge is further indented, it's too vigorous. This is not a judgment of you, but for the information of the many others who read this. I often have seen kinks in the wire near the bridge pins. That is damage.

Very light hammer shaping each year with good string fitting helps to preserve the tonal clarity.

Jim Bryant, RPT: With the help of another technician, I just completed restringing a 12-year-old Hamburg Steinway D. The main problem was not tonal quality but that string breakage was becoming much more frequent. We discussed options with the Symphony and they decided to go ahead and restring the entire piano.

There was nothing wrong with this piano's tonal quality. There are two Steinway Ds in this venue and this one is chosen

most often by visiting artists. The tone of the old strings was clear and clean as well as having a deep, rich bass. All in all, this was a very good example of what a Steinway D can be. Yet when we tuned the piano after string replacement the tone was *much* clearer and cleaner ... with a bass to die for. What did we change? Nothing but the strings (Sanderson bass strings) and tuning pins. Putting on new strings very definitely improves the tone of a piano that is used/tuned on a very frequent basis. I would say that eight to 10 years on one set of strings in a demanding venue would be appropriate. Besides, it gives you an opportunity to clean the soundboard, check "all" the bridge pins, inspect the v-bar and do those things which you believe are needed without a bunch of wire in the way.

Ron Nossaman, RPT: Pull a few front bridge pins out of an old bridge next time you get the chance and take a look. There will be a pear shaped "scrub" track on them where the string rode. Decide for yourself if that's a good enough string termination for you and replace them, or not, as you choose. With all the mileage given to perfecting the agraffe hole and v-bar shape, it seems that technicians should be mildly concerned about the condition of the bridge pins, too.

I don't see the frequency or the total number of tunings having a lot to do with the problem. I think the total height of the bridge pin groove is related to the number and severity of humidity swings as the shrinking/swelling bridge carries the string up and down the pin as the bridge top cumulatively crushes under the string. The scrub tracks in the front bridge pins are deeper than those in the back ones (check it out), so I would blame the depth on the intensity of play.

Brian Trout: On some pianos the bridge pins stick up above the bridge far enough that they could be tapped into the bridge another 1/32" - 1/16", bringing the string into contact with a heretofore unscathed bridge pin surface. Some wouldn't be high enough, but perhaps it may be an option to a few. It would certainly be a lot less work.

Nossaman: True, but that's just half of the "fix." The same shrink/swell cycles (along with the playing mileage) that scrubbed the track in the bridge pins also mashed the top of the bridge under the string so that the bridge top under the string is no longer flat. To flatten the bridge top and regain the clean string termination against the bridge cap at the edge of the notch as well as at the pin you've got to pull the pins and plane the bridge top flat again. Tapping bridge pins down seems to be a better option than tapping strings down on bridges to minimize wild strings in the killer octave, but it's a crude and temporary expedient rather than a real fix, since it addresses the symptom rather than the cause. Incidentally, the scrub track on a bridge pin seems to be in the .015" - .025" range in height, by my measurement, so you wouldn't have to drive the bridge pin very far to get a fresh string contact surface.

Mike Imbler: Ron, it does seem like you have isolated the effect of playing by noting the difference between the front and rear bridge pins. I'm not clear, though, why you are discarding the effect of rendering due to tuning. It would seem that some performance pianos are tuned more frequently than there are humidity swings. Are you perhaps noticing a shape

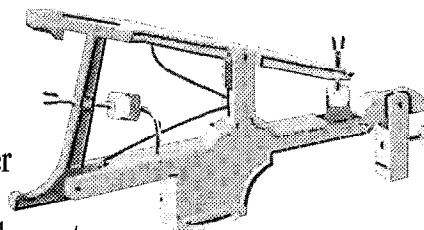
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Q&A/ROUNDTABLE

Continued from Page 12

in the groove that would indicate vertical movement rather than the horizontal shape rendering would produce?

Nossaman: It's just a matter of numbers. In a performance piano, how many times is a string hit (and a speaking length termination stressed) between tunings, even if the piano is tuned before every performance? The height of the bridge pin skid mark would be determined by the number and severity of humidity swings, but the difference of the depth between the rear and the front pin would be primarily the result of play. There should be slightly more wear at the v-bar and agraffes as a result of tuning, but it would be negligible compared to impact damage from play. I would expect that in a performance piano you would see skid tracks in the bridge pins that are proportionally deeper in relation to the height than in a home instrument. I would attribute that to play more than tuning frequency, again, because the string is played more, and possibly harder, than it is tuned.

Ron Overs: We maintain two Steinway Ds at the Australian Broadcasting Corporation in Ultimo, Sydney. Occasionally, these pianos are tuned up to four or five times per week. We have found that the capo bars on these pianos deteriorate more rapidly than for other high-use pianos that are tuned perhaps four times per year. We blame the cutting action of the wire during tuning especially when the bars are soft. This deterioration also leads to the development of string noise. When the 1986 Steinway D was rebuilt again last year, after being reshaped, the capo and duplex bars were hardened. The damage sustained between the 1993 restringing and last year on the bars was incredible.

The friction between the front and rear rows of bridge pins always will result in less load on the rear pins when the string pulls through to the speaking length from the back length and consequently less damage. Further, a higher string offset angle (as it crosses the bridge) and a higher bridge pin inclination angle, also will increase the load on the pin. A string offset of 10 degrees combined with a string tension of 175 pounds will result in a lateral force of over 30 pounds to be exerted on the bridge pin.

I echo Jim Coleman's sentiments that technicians tapping the strings down on the bridge is a major cause of damage to string termination points. When we rebuilt the 1986 D in 1993, the strings had been tapped down previously (by another technician). The string speaking lengths met the bridge wood nearly 3mm in front of the pin.

Many manufacturers appear to be careless about maintaining a uniform bridge pin angle and string offset angle. We use the same specification for all re-bridged instruments, i.e., 10 degrees of string offset and 20 degrees of bridge pin inclination from the vertical. We believe the implementation of these figures will prevent the strings from climbing the bridge pins.

Nossaman: I don't believe it's possible for strings to climb bridge pins if there is zero or positive bearing on the bridge, if the bridge pins are inclined over about 10 degrees (I like about 15), and the bridge top level or a positive bearing angle to the speaking length. What I see is bridge tops grooved by dimensional changes in the bridge with humidity swings, tapping of strings by technicians and possibly to some degree by

play. Since the point of side bearing on the pin doesn't correspond with the downbearing point on the bridge, the pins can flagpole from side to side during play and produce false beats. That's why touching the side of the speaking length pin of a string with false beats with a screwdriver usually will clear up the beat as long as you hold it. Tapping or pushing the string down on the bridge temporarily may keep the string down on the bridge and appear to clear up the false beat, but it won't stay there. Increasing the bridge pin angle would hold the string down on the bridge better because it vectors more of that side bearing down to the bridge top, but the trade off would have to be accelerated deformation of the bridge top at the notch, wouldn't it?

I note that the grooves left by strings in bridge tops are nearly equally deep front and back. I think the wood movement of the bridge with humidity swings is pushing the string up and down the bridge pin and crushing the edges of the notches in the process as well as accounting for the fact that the track left on the bridge pin is taller than would be accounted for by the diameter of the string involved and the depth of wear.

Fine Points of Drilling Bridges

For those of you who make bridges, I'd like to hear what kind of drill bits you're using to drill the bridge pin holes and the technique you use.



I've been laying out the pattern on the fresh cap, marking it first with a pencil mark and then with a very sharp awl (not deep, just a mark I can see, perhaps 1/32" deep) and proceeding to drill by hand with the standard drill bit from APSCO.

I don't have much trouble keeping the angles right, but from time to time, I seem to have a bit of trouble with the bit wandering off the mark. Most people are impressed with the work, but it's not *perfect*, which is really what I'm shooting for. I've seen perfect, but with that drill bit wandering, it's a tough thing to achieve.

What can I do to keep the wandering bit to a minimum? Do I need a brad-point bit? Do I need a pilot hole to guide the bit? Are there special bits that would do a much better job than the standard APSCO bit? Is there a technique that has eluded me?

It's just a little thing, and for the most part if I just went on making them like I do, people likely would still think they're great. But my own drive and desire to do the best work possible haunts me. Any advice?

— Brian Trout
Quarryville, PA




Ron Nossaman, RPT: I have tried brad point and hand sharpening bits to steeper angles, but have settled on my regular old set of number drills. I use an old nail set, ground down to just under the diameter of a #6 pin, and pointed a little steeper than the grind on a standard jobber's bit. I punch the bridge top to the depth of the point, maybe 1/16". The bit centers in the punch mark better this way than anything else I've found (making no claim to anything like perfection).

Q&A/ROUNDTABLE

Robert Goodale, RPT: What kind of drill are you using? I suggest using a Foredom high-speed unit with a long flex cable. The speed will be to your advantage in piloting the hole. The Foredom tool is kind of a professional Dremel™ sort of a thing. They are expensive, but not if you plan to keep it for a lifetime and do serious work with it.


Jim Krentzel, RPT: Drill bits tend to drift if the bit is placed on a dimpled mark when the drill is started. When small bits are used the bit tends to drift even more. A more correct method of drilling would be to start the drill in mid-air, then begin drilling while the bit is turning. Go from one hole to the next without stopping the bit. Stop the drill only when it's necessary to change positions.

[**EDITOR'S NOTE:** In addition to these ideas about drilling bridges, be sure to check out Bob Hohf's excellent article on bridge layout and drilling in this issue. — **SB**] 

Letters to the Editor

Continued from Page 8

sive is also a misconception. Quality polymers like ABS are rather expensive, and although the process of molding ABS parts is much easier and less wasteful than milling wood, the entire process from mold design, equipping a factory and making the parts with the expensive ABS material ends up with a part only slightly less expensive than the similar wood part. For example, a replacement Kawai wood wippen assembly (with carbon/Polyacetal jack) costs \$5.73, while an otherwise identical ABS wippen costs \$5.58.

The larger cost saving is in labor because the ABS parts are more accurate and therefore reduce the amount of time spent assembling, traveling and spacing the action parts. If you compare the retail prices for comparable pianos with and without ABS action parts (which is easy, since Kawai makes both types under different brand names), you will find that this cost savings is passed on to the consumer so the consumer wins both ways — better quality, more consistent action at a slightly lower cost. 

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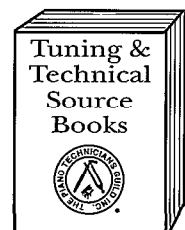
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A Guide to Bridge Recapping – Part VII

“Oh, devilish tantalization of the gods!”

—Ahab turning away in frustration after gazing at Queequeg, whose indecipherable tattoos recorded the secrets of the Universe, in *Moby Dick*.

Being of a philosophical bent, Boyd was similarly frustrated. He knew that the piano was one of the greatest products of human imagination – right up there with the clock. Both the piano and the clock bored deep into the underpinnings of the Universe, and yet each presented the world with a face that was ultimately inscrutable. Just as days do not add up to years, intervals do not add up to octaves. True order seemed just a hairsbreadth away, and yet, even after eons of cajoling, the Universe simply refused to cooperate and fall into place. Humankind’s solution to both the problems of time and tone were simply to divide them into 12 and call it done. These compromises had opened the door to communicating the greatest of all musings and meditations, but the fact remained that both systems were fundamentally *fudged*. Didn’t this somehow diminish their greatness? Or was the imposition of orderliness upon that which is fundamentally disorderly the true measure of human ingenuity? Boyd just didn’t know.



What Boyd did know was that he spent an awful lot of his waking hours in a state of deep meditation, staring into the face of the piano. Tuning fine instruments did that to him. There was something mystical about the play of the partials in the air and manipulating them in such a way that they could be used to express some of our profoundest ideas. He could *hear* it happening. He could *look* directly at the strings, bridges and soundboard while it was happening. So why couldn’t he *see* how it worked? Was understanding this instrument really asking too much? Well, Boyd said to himself, things could be worse: after all, he might be a monomaniac like Ahab, on a collision course with his destiny. All this thinking had made Boyd tired, so he decided to spend the rest of the afternoon enjoying the early Spring woodland flow-ers.

By Bob Hohf, RPT
Contributing Editor

Laying Out the Unisons

Actually, in spite of the difficulties in relating cause and effect, some very important insights can be gained by studying the bridge-string configurations in pianos while listening intently during tuning. Although in a system as complex as that found in pianos, there are likely to be several different possible causes for any given tone problem; or there may be several conditions that are insignificant by themselves, but together can add up to a significant tone dysfunction. Careful observation of many pianos over time often can shed some light on general tendencies that can help to relate cause and effect. One common problem involving

string alignment is illustrated in Figure 1. This condition is so common that nearly every piano displays this sort of misalignment to a greater or lesser degree. In Figure 1, all the bridge pins are offset toward the bass relative to the upper string termination on the plate (agraffes or capo bar) and the hitch pins. There are several possible causes of this misalignment: either of the templates originally used to locate the bridge pins or the hitch pins may not have been aligned properly when the holes were marked, or the position of the plate may have shifted relative to the bridge during fitting or assembly.

What effect this misalignment has on piano tone is somewhat open to speculation. I have heard it said that unisons offset from a straight line are no cause for concern. However, I believe that this con-

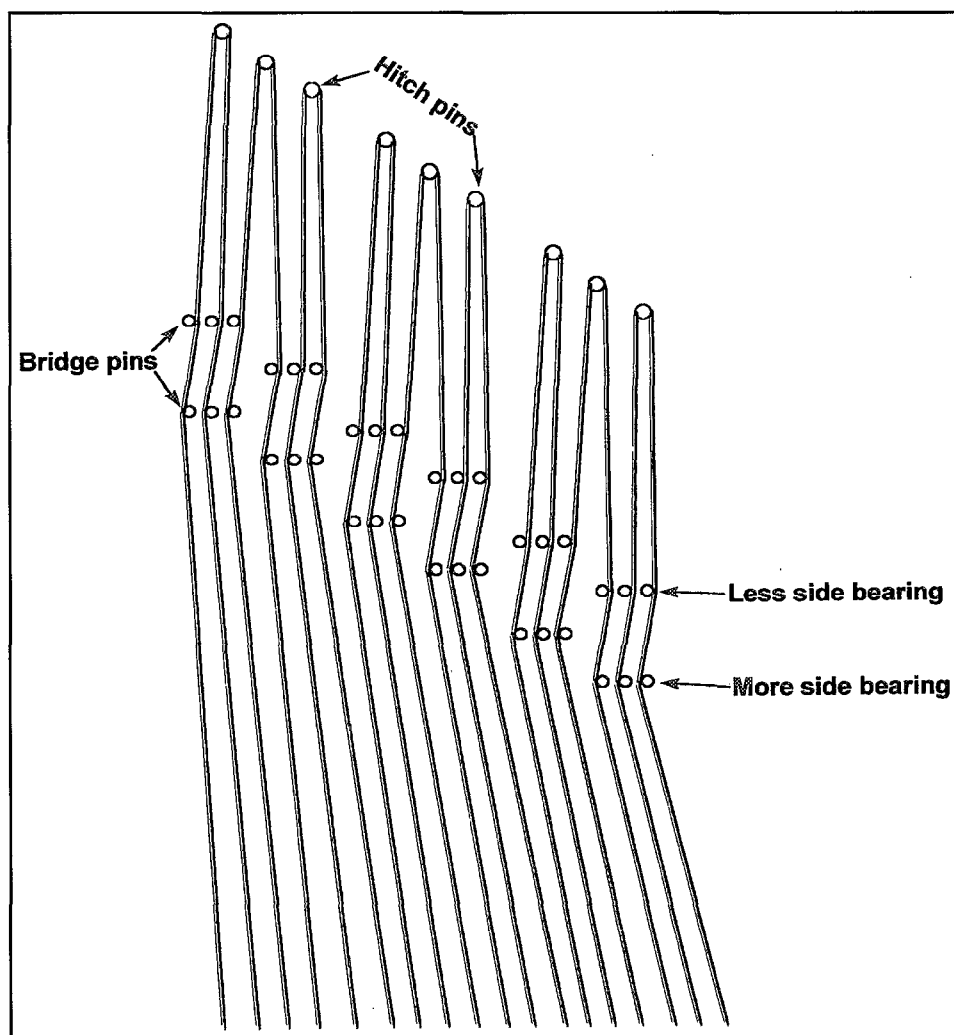


Figure 1

figuration frequently is responsible for a tone that displays a precipitous initial decay followed by slower diminishing of tone.¹ Also, the increased front sidebearing coupled with the angled bridge pin (the angle of the pins is not shown in Figure 1) causes a wedging action that greatly increases the downward force of the string at the bridge termination of the speaking length. This force often exceeds the elastic limits of even the hard maple used in bridge caps and results in crushing the wood. I believe that the crushed wood then can *selectively dampen* the high partials produced by the string while still transmitting the lower partials. This weakness of high partials is often especially pronounced in the top two treble sections in pianos. Decreasing the crushing effect of the strings at the bridge termination can increase the strength of high partials whether this decrease is accomplished by creating less downbearing at this point or by decreasing the sidebearing by realigning the unisons on the bridge. Less crushing

force on the wood also may be the mechanism that makes the Wapin Bridge System effective.² In the Wapin System the bridge pins at the front bridge termination are installed vertically, eliminating the wedging action of the string into the bridge.

Figure 2A shows how the misaligned unisons are offset from the straight line connecting the plate termination of the center string of a three string unison and its respective hitch pin. Figure 2B shows the configuration where the center line of the unison goes directly through the centers of the bridge pins resulting in equal sidebearing, front and rear. It should be noted that the forces of the front and rear sidebearing in Figure

2B are equal and *opposite*, creating a cumulative force on the bridge which is complex and counter-clockwise. The individual forces of each string on its bridge

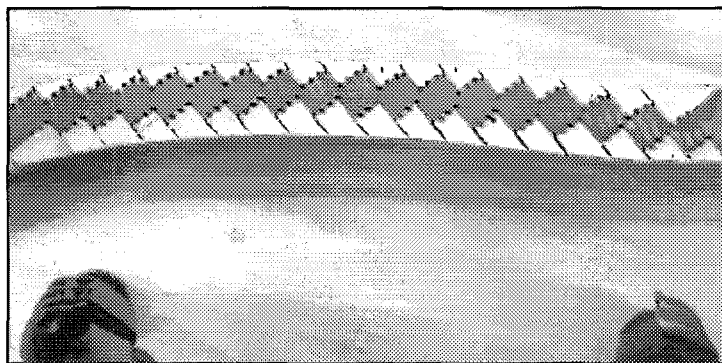


Photo 1

pins do not cancel each other along the length of the bridge, but are cumulative in this style of bridge construction.³

Photo 1 shows another common configuration of unisons on a bridge in section 3 of a four-section piano. In this photo, the lowest unisons are located at the rear of the bridge and the highest unisons at the front with the others arrayed in a diagonal pattern. The purpose of this layout is to create smooth transitions in the increments of string lengths between the sections. However, it also has the effect of creating an imbalance in the forces of downbearing. Concentrating the downward force exerted by the strings at the front of the bridge on one end of the section and at the back of the bridge on the other end will tend to put a twisting stress on the bridge. How great a stress is hard to say. But, consistent with my attitude that unnecessary stresses generally are detrimental to tone production, I believe that the unisons should be located in the center of the bridges. I am aware that this is a trade-off and that the smooth transition of string lengths between sections is somewhat compromised. As an aural tuner, I have listened very carefully to pianos where I have set the unisons in the center along the entire bridge length, and have never been able to detect any unevenness. I also have asked a tuner who tunes several of my pianos with an ETD to look for unevenness, and he has not reported a problem.

Whether these issues have real significance or are simply perceived problems is up to the individual rebuilder to decide. The method of laying out unisons on bridges presented here is not contingent on the promotion of any particular theories. Rather, it can be adapted to

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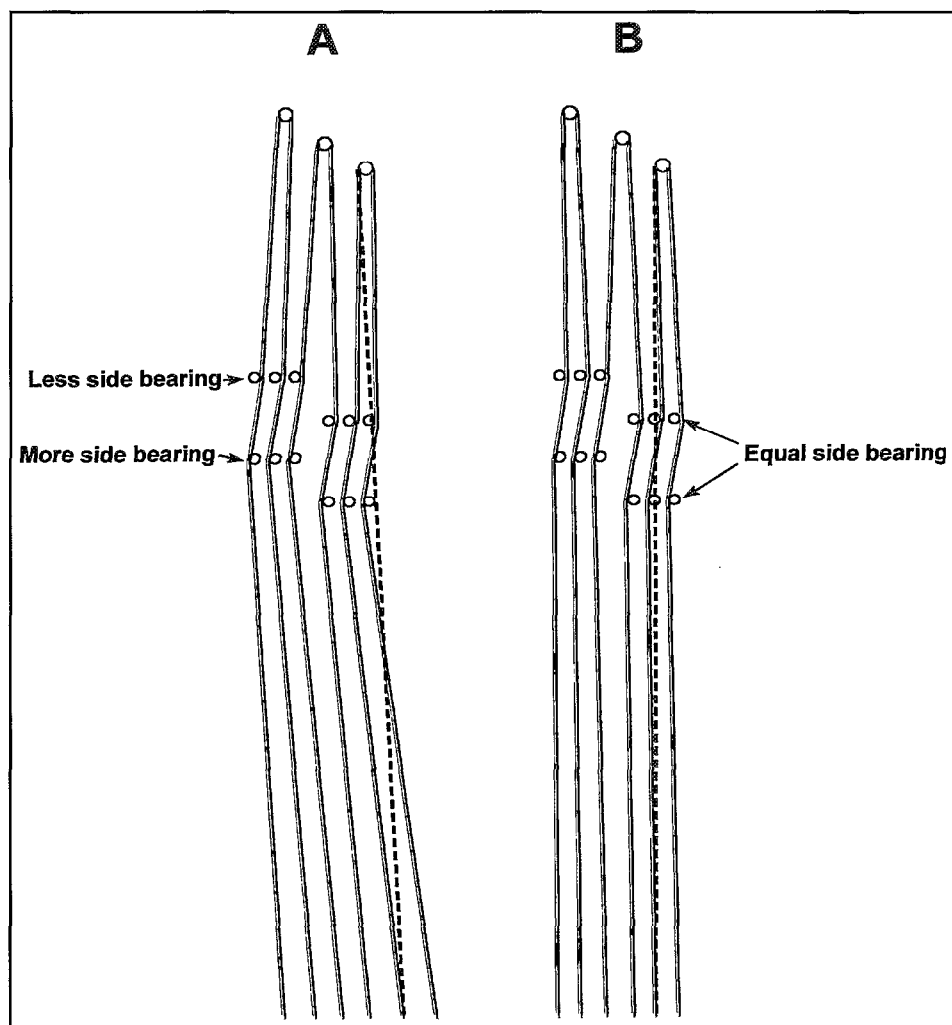


Figure 2

A Guide to Bridge Recapping

Continued from Previous Page

implement any purpose that a rebuilder may wish to pursue. I have found over the years that the theories behind my work and the procedures used to implement the theories are constantly changing. It is important to have methods which are adaptable to changing ideas instead of methods that shackle one to a particular repair.

The Method

Before beginning to lay out the positions of the unisons on the new bridge caps, it is necessary to trim the caps flush to the bridge body. I leave this step to this point of the process because the bridge caps are thinner after the downbearing is set, so there is less material to remove. A little extra width on the untrimmed caps has no effect on setting the downbearing, but the final width of the caps must be set before locating the unisons. Trimming the caps is awkward work because of the location of the bridges out near the center of the soundboard. However, if the original fitting of the caps was carefully done, there will be very little excess to be removed. Usually this amounts to 20-30 minutes of hard work.

I use a Sargent #52 scraper to trim the caps flush. This tool has a heavy wooden handle and a cast iron body with a heavy blade that is removable for sharpening. The orientation of the handle relative to the blade is adjustable in all directions. This allows the tool to be adjusted so that the blade can be pulled in any direction along the work. As far as I know, this scraper is no longer being made. I found mine at a flea market along with several extra blades. I am sure that similar tools can be found at flea markets or by contacting tool collectors.

After the new caps are trimmed flush, set the plate back into the piano and tighten it down with enough pinblock and rim screws so that it is in its final position. Next, using a fishing line, mark the string locations as in Photo 2. I mark every

bichord and unichord string on the bass bridge and the center string of every trichord unison on all bridges. If there are wound bichords on the treble bridge

ter strings and loop the fishing around it. Then thread the line over the nut and under the capo bar and pull it tight around the correct side of the hitch pin.

Once the string locations have all been marked on the bridges, remove the plate and mark the center of each string line as shown in Photo 3.

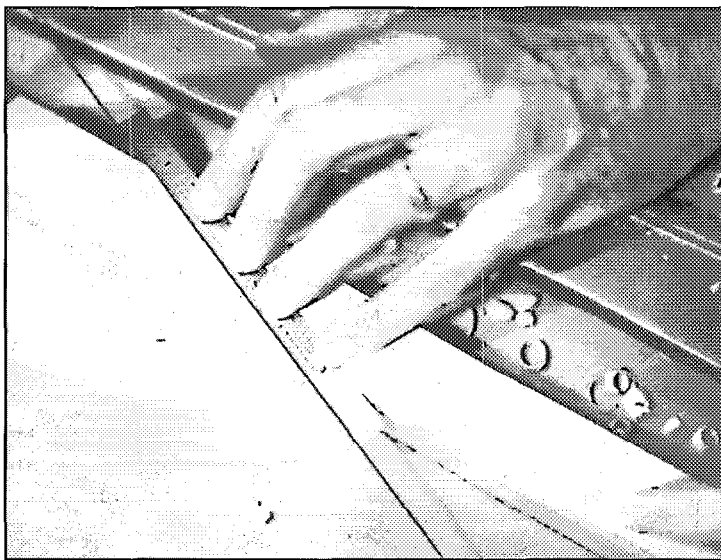


Photo 2

I mark all the strings. This marking must be done very carefully since a mistake can cause the eventual misalignment of one or more unisons.

Marking the string locations on the bridge is greatly simplified by marking the center strings on the plate as described in an earlier article.⁴ In the high treble sections that usually have no agraffes to positively locate the plate terminations of the speaking length, I insert a dowel the size of a tuning pin into the plate hole for the cen-

ters so that the sides of the squares can be used for accurate marking. First scribe a line down the center of the square, then

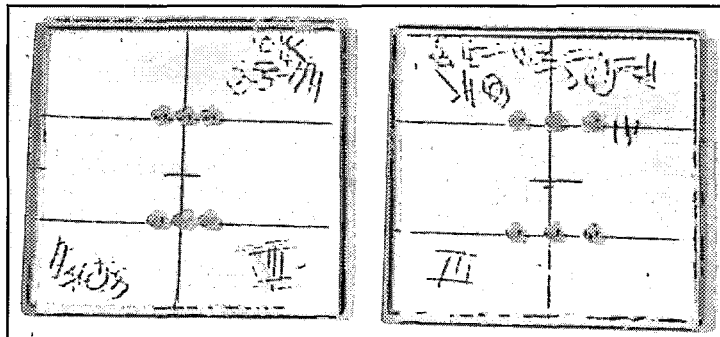


Photo 4

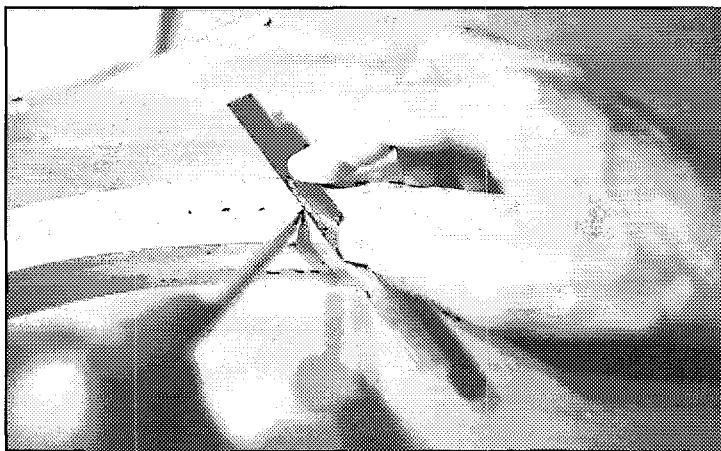


Photo 3

scribe two parallel lines perpendicular to the first line. The distance between the two parallel lines should correspond to the spacing between the front and rear bridge pins on the Mylar template made of the original bridge layout.⁵ Also mark the center of the single perpendicular line. The scribed lines should be distinct and deep enough to find with the point of a center punch. Using the pin spacing from the Mylar template, mark the bridge pin locations on the two parallel lines. The pins for the center string should be located at the intersections of the lines. This will create adequate sidebearing by offset-

ting the strings one bridge pin diameter. Carefully center-punch the pin locations and drill with a #48 drill for #6 bridge pins. The bridge pins should be loose enough to slide in the holes but tight enough that there is no side play. Put bridge pins into the holes with the scribed side of the template down and try the template out by placing it on a piece of scrap wood and tapping the pins. If there is any unevenness of spacing or alignment, discard the template and start over. Drilling accurate holes in the plexiglas is difficult and it may take several tries to produce one good template. Do not rush this step because accurate locations of the bridge pins in the bridge is a sign of a professional job and one good template can be used to mark many pianos.

Pay very close attention to changes in pin spacing as recorded in the Mylar template. For every change, make a new plexiglas template and be sure to use the proper template when laying out the bridge. The standard rule of thumb is to create side bearing by offsetting the strings by the diameter of one bridge pin diameter. This rule may be applied effectively in most sections of the stringing scale. However, in the high treble and the

lowest bass this rule may create too much side bearing and cause cracks to form in

rately aligned with the pencil lines on the bridge cap. Notice that I have cut off the pins to short stubs for more accurate marking. I also have found that marking the front bridge pin locations first, then turning the template around and using the same holes to mark the rear pins, produces a more uniform job. This procedure makes it easier to make the small spacing changes necessary where the bridge pins of adjacent unisons are so close together that they will interfere with each other in the bridge body. These problem areas may be corrected by sliding the template up or down the centerline of the unison

slightly before marking, then, if necessary drilling the holes for the affected pins at an angle so that the pins will not collide inside the bridge. I like to make these cor-



Photo 5

the bridge caps. For the high treble I have made a template that offsets the strings a little less than one pin diameter. This provides positive termination of the speaking length while decreasing the possibility of cracking the cap. We will discuss the bass below.

In Photo 5 I am using the appropriate template to mark the front bridge pins in section 2 of a piano. The lines scribed into the bottom of the template can be very accu-

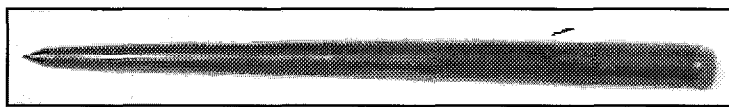


Photo 6

rections on the rear side of the bridge so that there is no effect on the speaking length side.

With the trichord unisons marked on the treble bridge, it is a good time to mark the vertical, "chopped" portion of the bridge notches. This is the edge of the notches that extends from the treble-most bridge pin to the front of the bridge for the front pins, and the bass-most pin to the rear of the bridge for the rear pins. This edge is made by chopping the long fibers in the wood grain of the bridge cap. This edge must be made at such an angle that the strings do not contact the notching as they leave the pins and pass over the relieved part of the bridge. I find that cutting this part of the notch at a 96-degree angle to the line defined by the three bridge pins provides adequate string clearance in all sections of the bridge. To mark these edges make a template out of Mylar with one of the corners cut at 96 degrees. Figure 3 shows the template in position for marking the notches. The bridge pin hole locations marked in the cap at this point are small and clearly defined and allow very accurate marking of the notches.

However, the small impressions in

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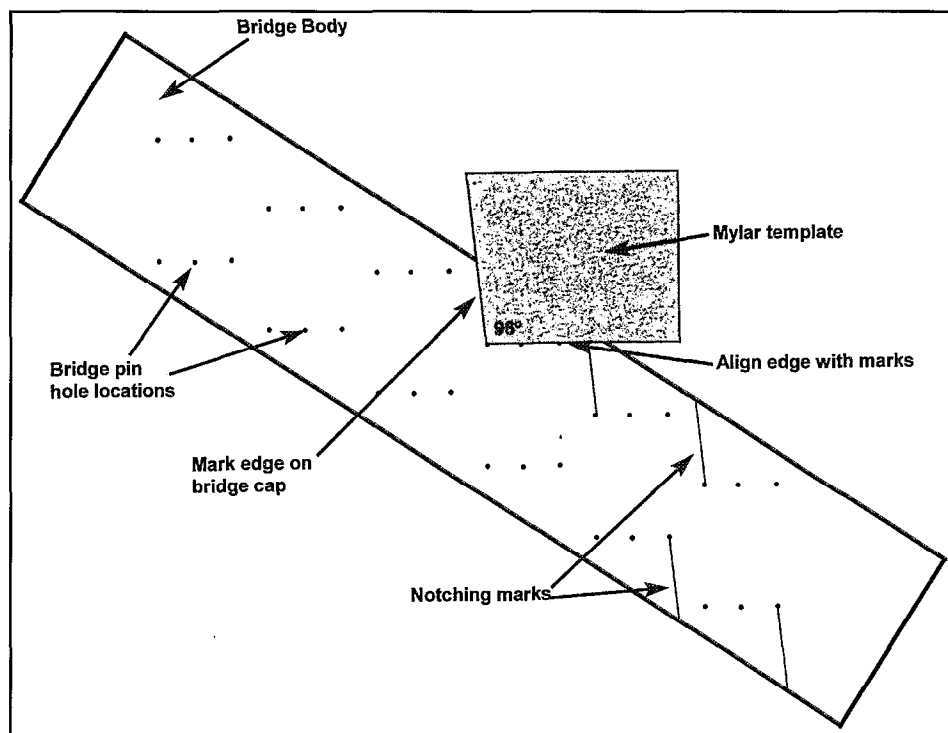


Figure 3

A Guide to Bridge Recapping

Continued from Previous Page

the cap left by the bridge pins mounted in the plexiglas template are not secure enough to prevent the drill bit from wan-

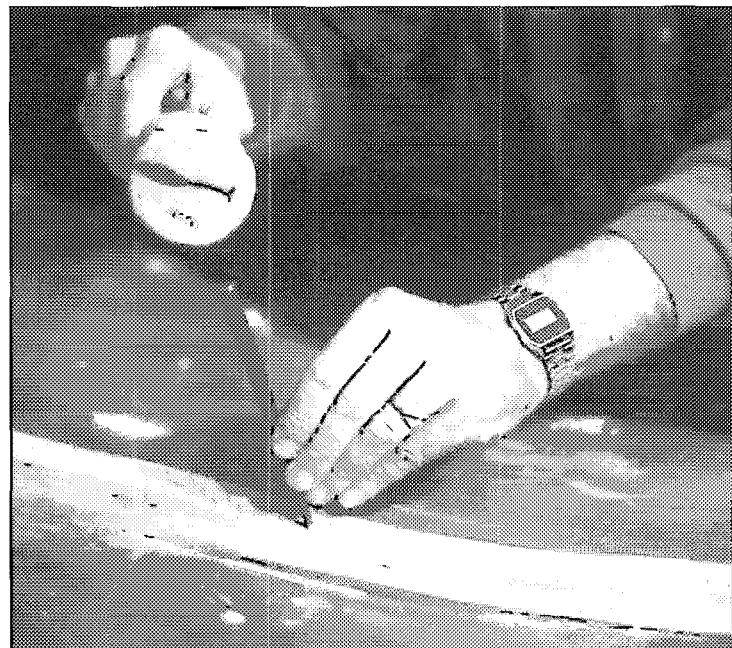


Photo 7

dering while drilling the bridge pin holes. First the impressions must be deepened by using a sharp pointed center punch such as the one pictured in Photo 6. Note how the point of this punch has been ground to a much sharper point than a conventional center punch. This point extends the marks for the bridge pin holes deep into the bridge cap, firmly anchoring the drill bit as it begins the top of the hole and assuring that the pins are located according to your layout rather than irregularities of the wood density. With the point of the punch held firmly in the shallow marks and the tool oriented at the same angle as the bridge pins, give it a firm tap with a mallet as in Photo 7. Care must be taken that the punch is not driven so deep that the top of the impression is bigger than the diameter of the bridge pin drill bit.

Once the hole locations have been accurately punched, the new bridge pin

holes can be drilled. Review your notes on the disassembly of the piano and determine what bridge pin size, or sizes, is used in each section. Chart 1 lists the standard bridge pin sizes and their corre-

sponding recommended drill bit sizes. Photo 8 shows drilling bridge pin holes. The standard angle of the bridge pins is 17 degrees. I have a 1/4" thick wooden guide with one angle cut to 17 degrees that I refer to periodically during the drilling operation in order to maintain consistency. Notice the depth stop on the drill bit in Photo 8. I made the stop by wrapping the bit with plastic tape, then

trimming the tape to the proper distance from the tip of the bit. The back side of the stop presses against the jaws of the drill chuck to keep it from slipping up the drill and changing the depth of the holes. The holes should be drilled to the depth where the pins bottom in the holes when pounded in leaving enough pin exposed to grind flat for a professional look. I recommend using 1" bridge pins.

Marking Notched

Bass Bridges

The above marking method can be used for all trichord unisons whether on the treble or bass bridge since trichords are always terminated

on the bridges by individual notches. However, bichords and unichords are sometimes terminated by individual notches and sometimes by a continuous bevel for all the unisons. In the case where bichords are notched, marking the bridge pin locations is made somewhat more complicated by the fact that a bichord has no center string. Therefore, another method must be used to locate the center of the unison. Marking the center of the bichord unisons is illustrated in Figure 4. Every string of the bichords and unichords already has been marked on the bass bridge. Mark the center of every bichord string line, then connect the marks for the bichord pairs. The center of that line is the center of the unison. Photo 9 shows a bichord template marked to locate notched bichords. The pin spacing was taken from the original Mylar template. The center of the unison is located by scribing a line parallel to the pairs of pins and halfway in between. The center of the unison is scribed on this line at half the distance between the pairs of pins. When marking the bridge pin locations on the bridge cap, align the bichord center scribed on the plexiglas template with the center marked on the bridge, then rotate the template until the line connecting the front and rear pins is parallel to the corresponding string line on the bridge cap.



Photo 8

Bridge pin size	Bridge pin diameter	Drill size	Drill diameter
#6	.076"	#48	.076"
#7	.086"	#45	.082"
#8	.096"	#42	.093"
#9	.109"	#36	.106"
#10	.135"	#30	.128"

Chart 1

Since the lines drawn on the bridge cap are the *actual* string locations, and the template spacing is taken from the original Mylar, the two lines often do not coincide. However, any force discrepancies created by offsetting one of the strings of the unison will be cancelled by the offset of the other string. Marking the notches and deepening the marks is done the

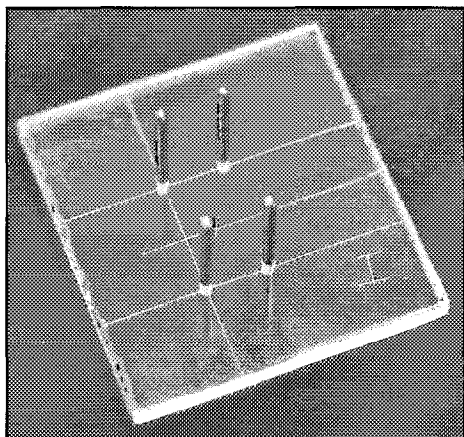


Photo 9

same way as shown in Figure 3 and Photo 7.

Unichords rarely are notched, but Photo 10 shows a plexiglas unichord template. This template is simply aligned with each unichord string line on the bridge cap and its center. Often the large diameters of both the unichord bridge pins and the string cores creates excessive sidebearing. On the lowest five or six

strings it is a good idea to rotate the centerline of the template away from the string line on the bridge cap counter-clockwise a little, while holding the unison centers aligned. This will relieve the excessive sidebearing.

The above method of marking out notched bass unisons *centers* the unisons front-to-rear on the bridges. As discussed above, this may change the speaking length of the strings. While I believe, within limits, that this has no audible effect on the strung piano, in rare cases the speaking length in the bass may be changed enough to cause bridge pins to interfere with the windings of some strings. Before marking out the bass bridge, always check the old bass strings to anticipate any such problems. If there is a problem, there are two choices: either abandon the idea of centering the unisons on the bridge and alter the procedure to duplicate the original bridge layout, or rescale the bass to accommodate the new string lengths. Which way to go is up to the individual technician, but I favor centering the unisons and rescaling the bass, with the possible exception of cantilevered bridges as mentioned below.

Marking Unnotched Bass Bridges

Most bass bridges either have no notches at all or have notches on only the bichord unisons. On these bridges the unnotched

unisons terminate at a bevel that bisects the bridge pins on a line parallel to the edge of the bridge. Laying out the bridge pin locations on these bridges is simple: referring again to the Mylar template draw lines parallel to and at the appro-

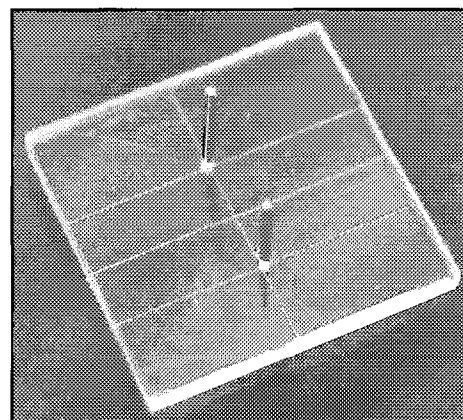


Photo 10

priate distance from the bridge edges. This layout is shown in Figure 5. The points where the lines intersect with the string lines define the bridge pin locations. Carefully punch the intersections of the lines with the sharp pointed center punch. Again, it is a good idea to relieve the sidebearing a little on the lowest five or six unichords to decrease the chance of cracking the bridge.

On cantilevered bass bridges, I feel far less strongly about the issue of centering the unisons on the bridge. All cantilevered bridges (at least ones that have positive downbearing) exert a levering action where the bridge attaches to the soundboard. This levering action is largely unaffected by the front-to-rear positioning of the bridge pins. Therefore, little is gained by moving uncentered unisons to the center of the bridge. And if centering the unisons changes the speaking length enough to require rescaling the bass, such a change might be counterproductive. However, in my experience, I have never seen a situation where centering the unisons on a cantilevered bass bridge prevented installing stock bass strings.

In the course of laying out bridges, it is not at all uncommon to encounter anomalous configurations or alignments in pianos. Dealing with these situations can tax a rebuilder's ingenuity and frequently will require altering the procedures outlined here. In the context of this article, it is impossible to prepare rebuilders for the types of problems they may encounter. But, to those with expe-

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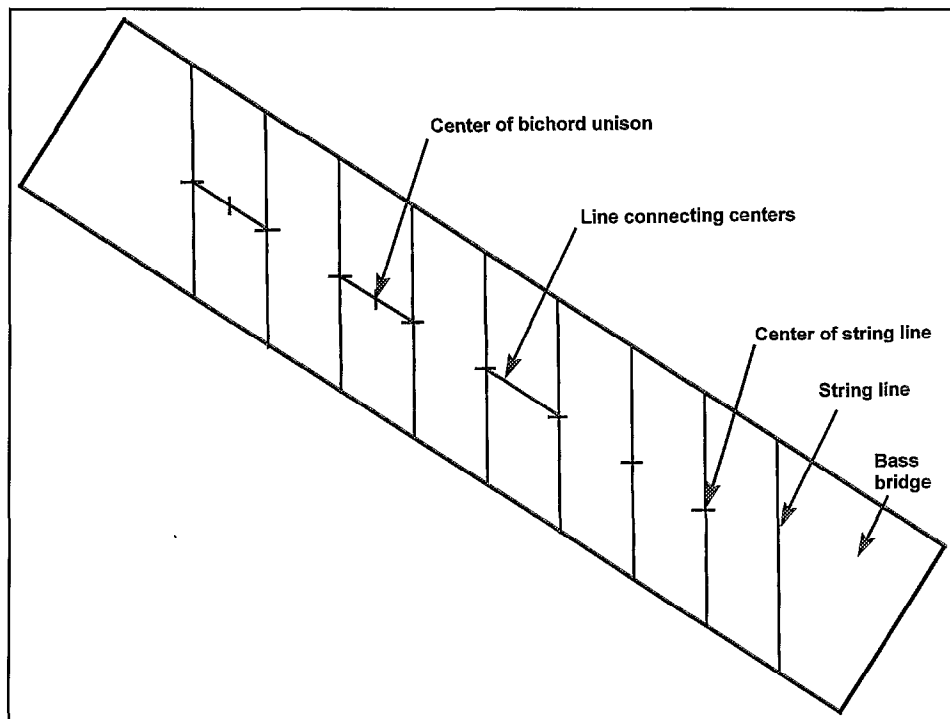


Figure 4

A Guide to Bridge Recapping

Continued from Previous Page

rience in rebuilding pianos, doing what is necessary to "make it work" will be nothing new.

For those accustomed to duplicating the original pattern of locations on the bridges, the method of marking out bridges from scratch as outlined here may seem tedious and time consuming. I would estimate that it adds three or four hours to every job. It also requires making new damper guide rails to accommodate the new unison locations.⁶ If one feels that the original configuration is unquestionably the best, then following the procedures outlined here is a waste of time. However, if any changes are made in the alignment or elevation of the plate, or if the overall shape of the piano has altered under the influence of many decades of immense string tension, then even a perfect original bridge layout will have been compromised. A bridge that has been laid out from scratch can easily be compared to the original layout by means of the Mylar template. The discrepancies in even fine pianos can provide cause for deep reflection.

Notes

1. Speculation on how this effect is related to misaligned unisons is too involved to present here. Perhaps this might be the subject of a future article.
2. Bob Hohf, "Performance and Innovation - The Wapin Bridge on CD," *The Piano Technicians Journal*, January 1999, p. 31.
3. I have tested this using a "monochord" I have built to check such things. Actually, my "monochord" can be strung with several trichord unisons at once. I have made sample bridges with pins that I have fit onto the strung unisons. The force required to maintain side bearing on my sample bridges was considerable. A bridge that is not anchored to a soundboard wants to spin counter-clockwise like an airplane propeller as the result of the

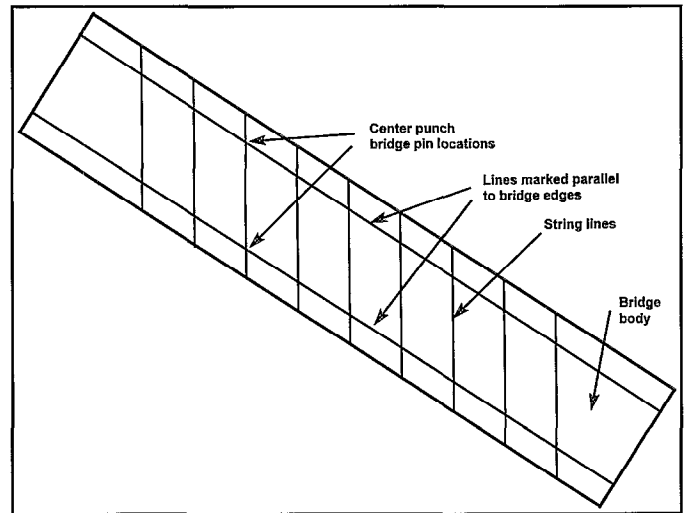



Figure 5

forces of sidebearing.

4. Bob Hohf, "A Guide to Recapping Bridges, Part III," *The Piano Technicians Journal*, May 1999, pp. 19-23.
5. Ibid.
6. A procedure for making new damper guide rails will be described in a future article. 

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Bedding the Keyframe — Part II

By Brian De Tar, RPT
Portland, OR Chapter

Onward & Upward

Well, here we are again. It's great to see you back! Did you play around with any of the steps from last month? Did you create your own "MindMap" to help you remember the steps? If you did, way to go! Maybe some of you would be willing to share your MindMap with us. If you didn't create the opportunity yet, your adventure still awaits you!

As promised, this month we'll discuss each step in detail. Remember: it'll take much longer to read this article than it will to actually do the work!

Procedure:

On Yamaha Disklaviers:

1. Turn off the power at the control unit, and/or unplug the Disklavier from the wall. This will prevent electrical damage to you or any of the components. I certainly don't want anything to happen to you — I still have one more article in this series for you to read! The power switch is located on the control unit.
2. Remove the control unit. The control unit must be removed to gain access to the treble end cheekblock screw. To remove it, simply remove the four screws (two on each side) from the control unit bracket. On MarkII grands, it's not necessary to remove the bracket itself. On MarkIIXG grands, the bracket and control unit are removed as a whole by removing the one screw located on the left side of the bracket and merely loosening the two screws located on the right side of the bracket. When this is done, slide the bracket/control unit forward and down to remove.
3. Remove the fallboard, cheekblocks and keyslip, not necessarily in that order! Nothing new here, we do it the same way we always do!
4. Disconnect the keyboard connector. This is done by spreading the "ears" of the connectors outward toward the sides and gently pulling the connector out. The connector is located in the action cavity and is mounted to the rim on the bass end of "Wagon Grands" and the treble end on all other models.
5. Slide the action out. Please, oh please, don't break off the first and last hammers!
6. **Disklavier Wagon Grand Only:** The hammer sensor rail must be removed to gain access to the glide bolts as well as have access to the bottom of the hammer rail. This is due to the circuit board attached to the hammer sensor rail. To remove the hammer sensor rail, first unplug the connectors located on the bass and treble end of the hammer sensor rail. This is done by spreading the "ears" of the connectors outward toward the sides and gently pulling the connector out. Next, locate and loosen the screws in the "keyhole" on the hammer flange rail. Next locate

and loosen the screws holding the other side of the sensor bracket. They're located on the hammer side of the action brackets by the wippens. Make sure the "platform" that these screws go into do not turn when you loosen the screws. If they do, simply tighten the small (7mm) nut located at the bottom of these platforms. After the screws are loose, lift the key side of the hammer sensor rail slightly, it can now be lifted free of the action. Set it somewhere safe ... we don't want it to get bent!

7. Proceed to step 3 below:

On All Other Non-Player Grands:

Remove fallboard, cheekblocks and keyslip. Same way we always do!

1. Slide the action out far enough to gain access to the action bracket screws.
2. Loosen the action bracket screws approximately 1/4 turn. Loosen the angled screws on the front center action brackets *first*, and then loosen the remaining action bracket screws. Listen for a little "click" when you loosen these screws. This verifies that the keyframe has expanded or contracted a bit from changes in humidity, or was not on the keybed (or other "flat" surface) when the action bracket screws were tightened. By loosening and then later tightening these screws in the piano we eliminate any "flex" or tension between the keyframe and action stack.
3. While the action is still out, lift it up to gain access to the hidden (if present) glide bolts located on the underside of the keyframe. When lifting the action up, be careful not to scratch the stretcher with the drop screws! Turn the hidden glide bolts approximately 1/4 turn clockwise to raise them out of the way. This allows you to adjust the primary glide bolts without interference from the hidden glide bolts.
4. Slide the action back into the piano. Always make sure you lift the front of the keyframe slightly when placing the action back in the piano. Because the glide bolts extend past the bottom of the keyframe, they can gouge the front of the keybed if you're not careful. By placing the action back in the piano with the bracket screws still loose the keyframe is allowed to conform to the keybed. If the action bracket screws are tightened when the keyframe is not being supported evenly, there is a probability that the keyframe will be locked in a position that is different than the keybed. This makes solid bedding difficult, if not impossible. This condition also can be caused by changes in humidity.
5. For this step, you will need a long screwdriver

Continued on Page 28

'It's a thrill to be an *All Steinway School* because I really feel that I'm working with the best.'

— Enrique Rosano
Chief piano technician
University of Arizona School of Music

When Enrique Rosano fell in love with the incomparable Steinway sound as a 7-year-old, he couldn't possibly imagine that 40 years later he would be an important part in the purchase of nearly 100 of these exquisite musical instruments.

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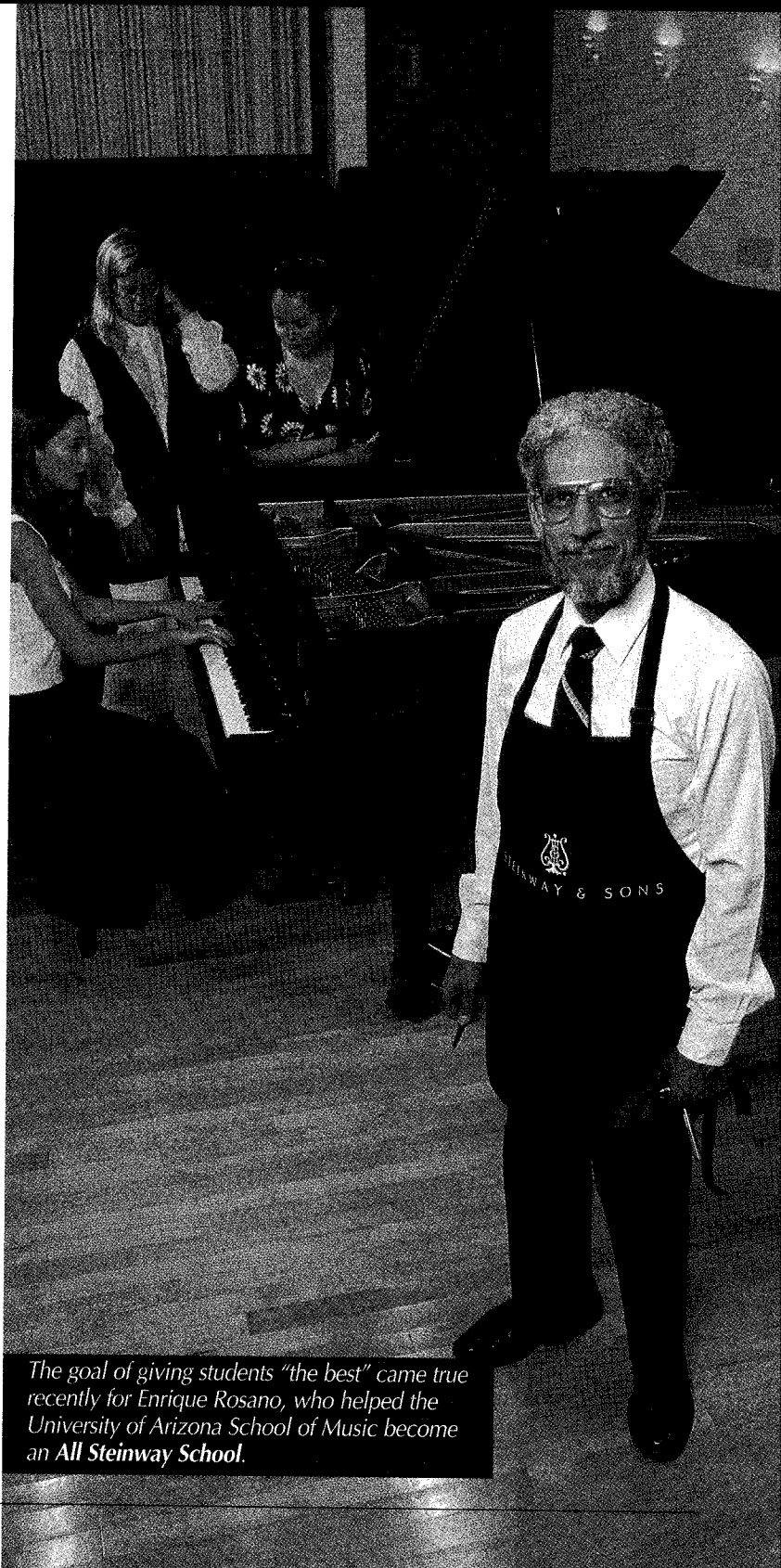
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The goal of giving students "the best" came true recently for Enrique Rosano, who helped the University of Arizona School of Music become an *All Steinway School*.

Ear Training: Hearing Inside the Brain

**By Ed Sutton, RPT
Contributing Editor**

In the first article in this series I wrote that the best suggestion I had for a person trying to improve tuning skills was: *Close your eyes while listening*. Once I began using this as a conscious technique while tuning, my experience of tuning underwent a dramatic change: it became much easier. I don't mean that I tune all the time with my eyes closed, but rather that I've learned to use closing my eyes as a way of changing the way my brain is working. I believe that closing the eyes and listening literally "turns up" the energy in parts of the brain that process sound and "turns down" the energy in parts of the brain that aren't concerned with hearing, especially those concerned with vision. Rather than trying to prove this with quotations from scientific literature, I prefer simply to appeal to the personal experience of the interested reader. Take a few minutes to explore your inner landscape and you will know right away whether or not these ideas have any meaning for you.

There are many hearing places inside your skull. With your eyes closed, think of some favorite sounds and remember them, as clearly as you can. Don't just think of musical sounds, think of voices, animal sounds, the creak of a familiar chair and so on. Do the very best you can to hear the sound in your mind. Now notice if your eyes move as you search for and focus on the memory. (Trained musicians should focus on memories of sound, not of scores!) There will probably be a place where your eyes go where you can best call to mind a particular sound. Imagine many sound memories and get a sense for where your eyes turn when you think about sounds.

Now, with your eyes still closed, remember the shape of the head of a tuning pin. Notice if your eyes move as you search for the visual memory. Is it the same place they went when you focused on sound? Explore some visual memories and get a sense of where your eyes go to find them.

What happens if you try to remember a sound while holding your eyes in the best place for recalling a visual

memory, or if, after recalling the sound to memory, you turn your eyes over to the visual place?

A body of experimental evidence is gradually being discovered which indicates that the way we turn our eyes causes different parts of our brain to become more active. We solve visual problems with one part of our brain and sound problems with another. Most people resolve details of sounds with the left hemisphere of the brain, and visual problems with the right. Looking to the *left* increases the activity in the *right* hemisphere, looking to the *right* increases the activity in the *left* hemisphere.

In addition, most people can hear the details of sound a little better with one ear than the other. This will tend to be the ear on the side where you turn your eyes when imagining sounds, if you haven't suffered hearing damage. Test this when setting pitch to a tuning fork. You'll probably find you can hear beats and focus on the right pitch levels with your "dominant" ear.

If you are using visual display

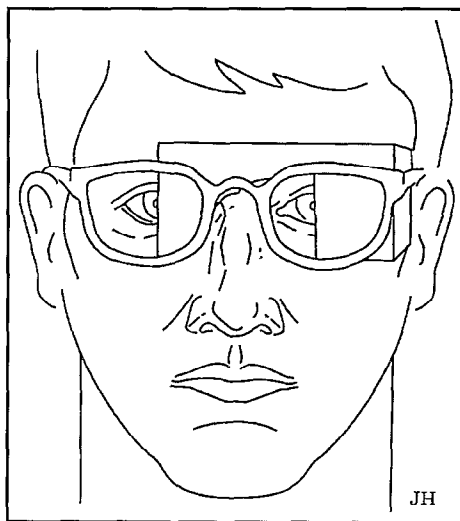


Figure 1 — Slip-in cardboard shield to restrict vision to one side.

tuning devices to learn how to tune, you need to consider the possibility that the act of looking at the display may be preventing you from hearing to the best of your ability. Where do you habitually place the VTD when you tune? Which way do you look to see it? I believe we must accept the fact that to some degree, seeing and hearing can be exclusive activities. I'm not opposed to the use of VTDs, but I agree with Steve Brady's editorial view

that a tuner-in-training would do well to delay using a VTD for many years, until the ability to hear is well established.

Although I believe the use of any good tool is valid, I also believe that tuning is ultimately a hearing art and that a fine tuner must be adept and confident in hearing. In my experience, closing the eyes and listening is the most important technique for gaining that confidence and it doesn't take that long to become adept in turning up the hearing centers of the brain, once one becomes aware of them.

If you particularly are interested in this approach, it is possible to explore at least one step further using simple methods. Dr. Fredrick Schiffer, a psychiatrist working in Massachusetts, has been exploring the use of dual brain theory and techniques in psychotherapy. In his book *Of Two Minds* he presents both clinical and laboratory evidence that simply wearing goggles that only allow a person to see to the right or left side causes measurable changes in the metabolism of the brain and related changes in thought processes in about 70 percent of his test subjects.¹ I originally believed it might be interesting to see if his method would produce a difference in my experience of learning music on the piano, an area in which I need all the help I can get. Pianists often study by practicing right and left hands separately; why not try practicing right and left brains separately? It was a natural next step to try tuning this way.

Dr. Schiffer gives his patients safety goggles that have been partially taped to only allow vision to one side. Since I already wear glasses, I cut a slip-in cardboard shield to do the same thing. It can be reversed to allow vision only to the left or right sides.

While I can't report an experience as dramatic as Dr. Schiffer's patients, I feel my experiment was worthwhile. With the goggles open to the right side I found the experiences of practicing music and tuning pianos to be somehow calmer, smoother, more focused and optimistic than my previous experiences. After about a week, I found the change was pretty well

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Ear Training: The Overtone Series

Continued from Previous Page

incorporated into my way of working and I only needed to remember the feeling in order to return to the focused state the goggles helped induce. Practice-room tuning has its advantages; you probably wouldn't want to tune for a customer while wearing funny glasses!

If you find yourself having a strong emotional response to the goggles, you may want to delay the experiment and get a copy of Schiffer's book.

Notes

1. Schiffer, Fredric. *Of Two Minds: the Revolutionary Science of Dual-Brain Psychology* (New York: Free Press, 1998). ■

Bedding the Keyframe

Continued from Page 25

- (approximately 12"). You can find a screwdriver of this length at Sears and many Home Depot stores. Snap-On also has one that works, but they can be hard to locate! Tighten all the accessible action bracket screws. With the action *in the piano*, insert the screwdriver between the string unisons down to the screws in the action bracket. You can reach most of the rear screws as well as one or two of the front screws in the bass section on larger grands.
6. Slide the action out just far enough to gain access to the remaining screws. Remember to tighten the angled, locking screws (keyboard side of the action) last. Again, tightening the screws with the action in playing position ensures that there is no flex in the keyframe and that it is truly mated to the keybed.
 7. Slide the action back into the piano. Again, make sure you lift the front of the keyframe slightly when replacing the action back in the piano!

Well, I used up this month's space pretty quickly. We must be havin' fun now, right? Additionally, we have arrived at the point we've all been waiting for: Bedding the Keyframe. That is what we came here for, isn't it? A little "Cliff Hanger" here is healthy. Right? Why not take some time now and try out what you have learned so far? For those of you that did a MindMap, did the preceding information change what it looked like? Isn't it interesting how gaining new information has the ability to change or reframe our perspective of things? That's one of the most powerful aspects of "Being Human"!

Next month we'll jump right in with key height and learn all about this "*lift and tap*" stuff, plus "The Rest Of The Story" (Paul Harvey). Then we'll send you on to the beginning of your next adventure, Bedding the Keyframe!

- Until then, a couple more De Tarisms to ponder:
- "Mistakes are nothing more than *opportunities* to do it *different* the next time!"
 - "Mediocrity is cumulative, so is Excellence!"

Oh, by the way, you probably should go ahead and put the action back in and button it up ... wouldn't want to leave all that temptation around for the kids, now, would we?!

See you next month! ■

GUIDE TO RESOURCES IN PIANO TECHNOLOGY 2000

Preparations for the 2000 issue of the "Guide To Resources In Piano Technology" has begun.

This publication contains listings of the products and services available to piano technicians in the field. Services are organized by category, with the provider listed under each appropriate category. Each provider is also listed in a quick-reference telephone directory—alphabetically—including telephone, fax, e-mail and website as well as their 800 number and a contact person.

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If you would like to be included in the next issue of the *Guide To Resources In Piano Technology*, or would like additional information, please contact the Home Office at:

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Curiosities: A Spector Upright

By Susan Kline, RPT
Eugene, OR Chapter

At first glance it was a normal small upright, from the 1930s (See Photo 1).

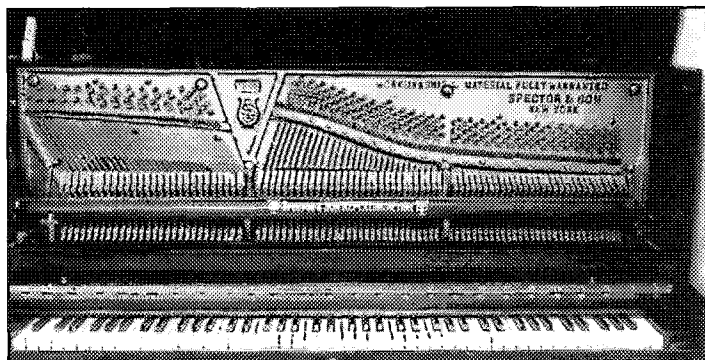


Photo 1

Spector and Son was not a brand I recognized, but the action looked fairly well-made. Plain dark case ... then I opened it and saw that it had been restrung. The coils were not exactly to factory specs (See Photo 2).

There was something strange about this piano's

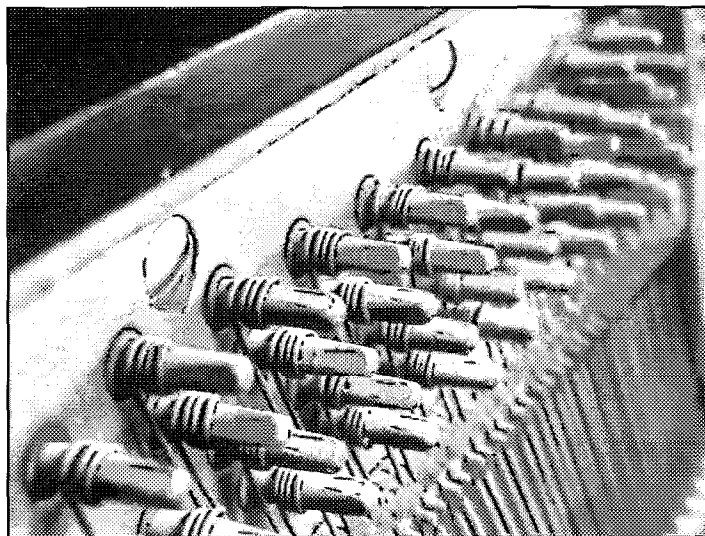


Photo 2

proportions. I pulled off the kickboard and looked down below. I found that it had been cut off at the knees. The case had been shortened from the keyboard up and *the plate had been shortened* below the keyed! Unlike a mirror-front from the post-World War II period, where a big upright had been made to *look* like a stupid console, this piano was actually about six inches shorter than it had begun in life!

The horns that normally would support the keyed dangled in air six inches below it (See Photo 3). The

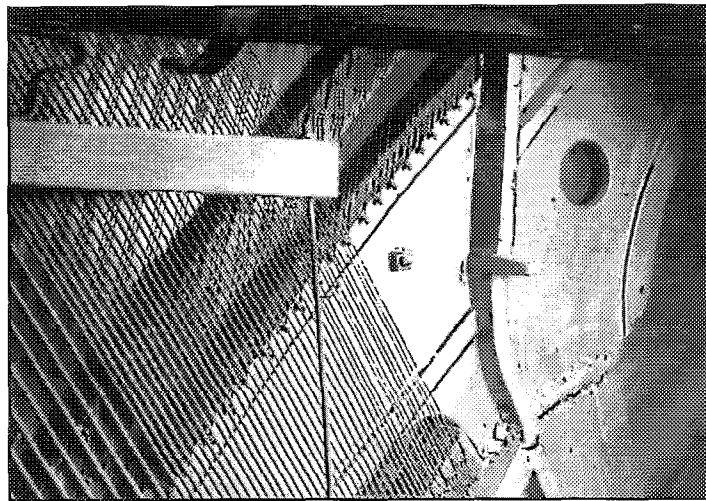


Photo 3

plate had been welded so that the bass bridge was closer to the bottom of the piano than it had been before (See Photo 4).

The bass strings, which appeared to be original, had had their backlengths shortened and a simple twist was

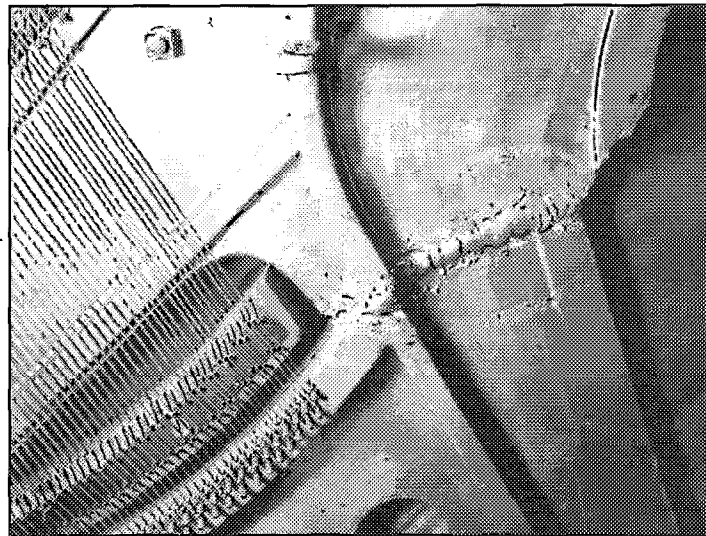


Photo 4

substituted for the original loops (See Photo 5). Oddly enough, they held pitch with this very basic termination.

The treble bridge took its usual downward sweep, then abruptly decided that a horizontal posture was better (See Photo 6).

The bridge pins weren't too happy about this. The hitch pins also showed evidence of a great struggle with very interesting workmanship (See Photo 7).

Confronted with this Spector (I almost said Specter),

Continued on Next Page

Curiosities: A Spector Upright


Continued from Previous Page

wild conjectures flooded my mind. Was this like a mirror-front cut-down because some benighted soul had wanted a smaller piano? I started making inquiries of my customer. Her family had bought this piano when she was a small child and she knew that it had not changed size since. It had been her piano since about 1938 or 1939. This ruled out the 1950s, when case-chopping was the fashion. Therefore, this drastic rebuild had taken place when the piano wasn't even very old.



Photo 5

Laying aside any snide comments about craftsmanship, an incredible amount of labor was expended on this instrument. I could see no sign that it had suffered an accident. I am left with a mystery. Did the plate crack? It was tunable and more or less playable, but of course the scaling was poor. The *Journal* has many readers from a lot of places. Has anyone else seen a similar upright-shortening? That is, did some glutton for work make a *habit* of doing this to uprights? And if so, why?

[EDITOR'S NOTE: Although I haven't seen an upright cut down in this fashion, I have seen a late 19th-century Bösendorfer grand which had been the victim of a similar procedure. — SB] 

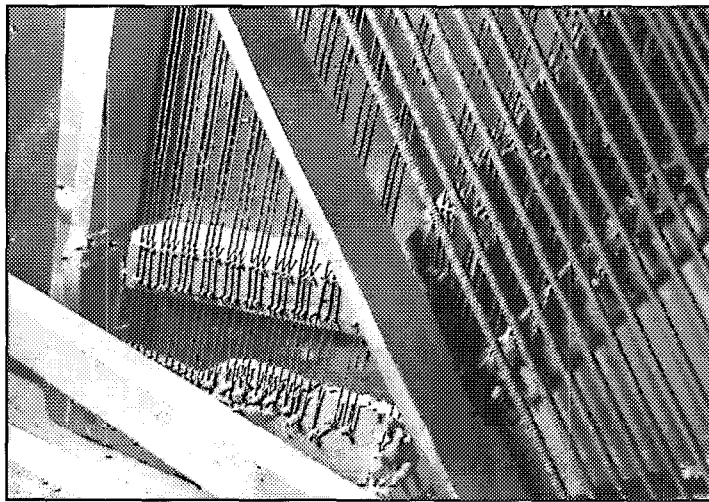


Photo 6

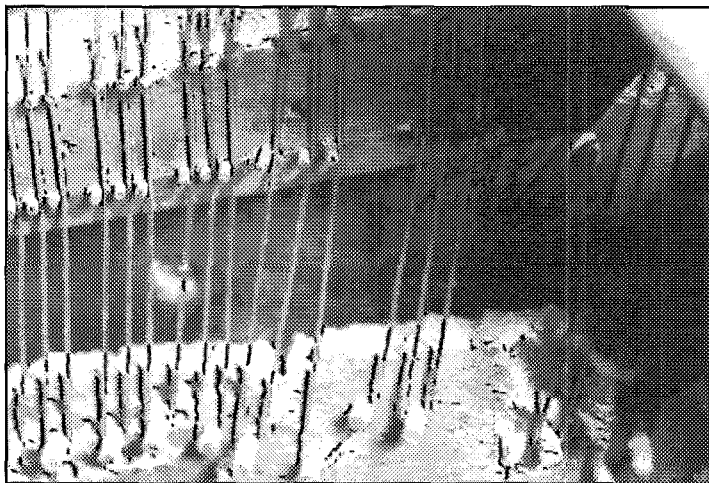


Photo 7



A PIANO TECHNICIAN'S GUIDE TO FIELD REPAIRS

By Stephen H. Brady, RPT

The repair procedures described in this manual are among those most commonly required in an average piano service practice. The aim of this book is to provide the basic information necessary for a technician to improvise other repairs based on the methods and techniques found in the book.

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By David Patterson, RPT
Toronto, ON Chapter

The Bartolomeo Chronicles

Bartolomeo puts a damper on things

After only a few moments, Bartolomeo knows much about the family and its piano usage. He unwittingly profiles them into a category; he has seen similar situations. The family spent hard-earned money on a piano with the dream of having the child advance to the highest level of achievement. The persistent child has progressed to Grade 10, managing to complete pieces that only Bartolomeo is aware represent remarkable feats. He is the only one considering the child's accomplishments in light of the handicap: perhaps a semitone-low pitch reading, maybe a 1/4" let-off or a 1/2"+ dip.

But the cause of wonder in this case is an entire set of dampers that lift immediately when the key is first pressed. The resulting stiff and cumbersome feel is a feature that presumably was built-in at the factory. So no one is aware of the child's long and unnecessary labors on an instrument not designed to be used in this present condition. The piano obviously has never been subjected to the efforts of the dreaded spoon bender.

Bartolomeo's spoon bender, though, remains in his kit as he quickly removes the lowest 70 or so keys. Reaching his hand under the action so that his palm is against the wippen felt and his finger against the back (string) side of the highest damper lever, he pushes on the damper lever while activating the wippen/hammer/damper assembly with his other hand. The force is transferred to the spoon and bends it away from the spoon felt. Then he again activates the note to see at what point the damper begins its lift. If it's at 50 percent, he slides his hand to the next note and repeats the process. If it's not at 50 percent, he continues bending and checking the first spoon until it is exact.

The job can be completed in very reasonable time. When finished, he wants the previous (0

percent) immediate lift to occur at 1/2 (50 percent) of the hammer travel – or any other desired percentage. He is careful to not push too hard and thus create a note lifting later than 50 percent. All notes lifting at 50 percent to 100 percent are marked by undoing the bridle strap at the beginning of the job or as he is going along. Pulling down upon the wippen for these offenders bends the spoon back toward the spoon felt by forcing it against the wippen screw. The technique is safe on all but the very oldest pianos.

Having seen perfect 50 percent jobs "settle" in at a ragged 60 percent or higher, Bartolomeo recalls that the steel spoon has a spring-like behavior, not unlike a backcheck. Therefore, to solidify the exactness of the work on the bent spoons, he duplicates playing conditions by holding a few dampers in place and thumping their corresponding wippens to the equivalent of a few *fff* blows. In reality this modification winds up built into the original one-note-at-a-time process.

Any other damper concerns are, of course, handled before spoon bending since lift with the key is a final procedure. When a general ringing on is detected, he will play staccato full chords, first regular and then quickly covering up the bass strings with his hands. Bleeding sound from the long strings will appear to be leaking from the entire keyboard, due to the harmonics present in strings. This test reveals the need for new damper felt or damper springs or both.

Individual ringing may be more suited to checking basic damper bend setup. He pushes inward on bass strings to watch the dampers follow the strings. Assuming the sustain pedal is not overzealously regulated, dampers not moving with the strings probably have the fore-and-aft bends set wrong.

Quick damper setup being essential to quality work on verticals, Bartolomeo struggled at first to take the frustration out of the job. He had difficulty mastering this important basic until he learned that the supply house tool was only the raw material for his modifications, and that he must create *his* tool according to his technique: bending the shaft, turning the head, twisting the head, filing the mouth, deciding precisely how many hammer shanks away the tool must be inserted to grab the wire right at the wood every time and make an absolutely parallel bend. During setup of damper lift from the pedal, any movement not perpendicular to the string will deregulate the damper side-to-side.

With the damper work clear in his mind, Bartolomeo eliminates much suffering on his part and that of his clients.

Next month, Bartolomeo enjoys a factory approach...

Knowing When to Quit

By Sam Powell, RPT
Washington, DC Chapter

We all have to learn life's lessons for ourselves, but I would like to share an experience which might speed up someone's learning curve just a little.

About 10 years ago a customer called me to work on her piano with the comment that no one else had ever been able to satisfy her. I puffed out my ego's chest and announced in so many words that she had finally called the right technician. Well, needless to say, it was a painful lesson to learn; if all of these other fine technicians hadn't been able to satisfy her, I couldn't either. She was a customer beyond satisfaction. She lived off of pain and misery and "inadequate" piano technicians were one more proof in her mind that the world truly was a rotten place. And in the end, I was as bad as all the rest.


Ten years later I got a call from another customer to come in and tune his piano. When I arrived, he announced to me that the piano had just been tuned about a month ago and he hoped I could do a better job than the last guy. Flags started to go up in my mind. I looked inside the crusty, 70-year-old Starr grand and examined a thoroughly worn out instrument that had just been refinished. When I asked who had refinished his piano he named an unfamiliar firm who had done the job for \$850. "That's very cheap," I said. "I know," he replied, "Schaeffer Piano wanted \$850 a foot to refinish it." The flags got bigger.

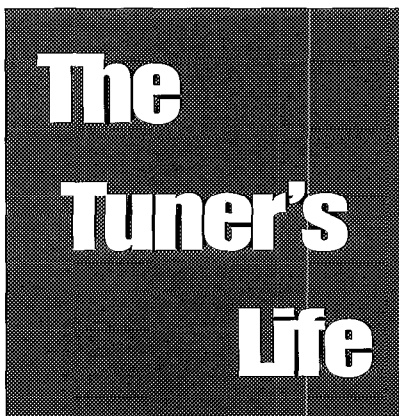
"Where is the lock strip?" I asked. "I made him take it back because he did a bad job on it," he responded. More flags went up. "Who was the piano tech who tried to tune it before?" I asked. He showed me the name of a tuner in my PTG chapter. More flags started going up and I thought back quickly to my experience 10 years earlier. When I asked what his specific complaints were, he pointed out a couple of notes which had borderline loose tuning pins and had

slipped just slightly. The pitch error could have been from improper pin setting or maybe the tuning pin actually slipped slightly. I wouldn't know for certain until I tried myself. "Was there anything else you did not like about the previous tuner?" I asked. "He came in here and right away started telling me my piano was worn out and needed all kinds of action work," he responded. By now red lights and bells were going off all over the place.

I briefly considered sitting down and giving this piano my best shot. Maybe I could do a tuning good enough to satisfy him, but the chances were slim. Even in perfect tune this piano had a worn out set of hammers and was a dog in any case. My mind kept racing back to my earlier impossible-to-satisfy customer. I had the choice of giving up my fee right then and there and walking out, or losing it later on a call-back. I looked up at the customer and in the kindest way possible said, "I'm afraid your previous tuner was right. This piano is untunable and I feel fairly certain that I cannot make it sound any better than the last guy. It is a waste of your money and my time to try. And when I fail to do the impossible you're going to tell the next tuner that I cannot do a good tuning. It will cost at least \$7,000 to fix this piano correctly and I am afraid you have wasted your \$850 refinishing fee. Please give me a call if you want me to help you find a good piano to replace this one with."

As I settled down behind the wheel of my car I called my wife on my car phone to let her know I was headed to my next customer, the

owner of a 6'2" Mason and Hamlin I had rebuilt 10 years ago and tuned regularly since. Why not be where you are appreciated? If you find yourself in a similar position in the future, think carefully about this story before you proceed. Personal experience is the best teacher, but it doesn't have to be the only one. 





The 2000 PTG Convention

By Andrew Margrave, RPT
President, Northern Virginia Chapter

It is never too soon to begin preparations for a PTG Annual Convention. With the Kansas City convention about six weeks into the past as this article appears, it is more than high time to begin focused preparations for attending the PTG Annual Convention in the Year 2000.

The Host Chapter for this convention is the Northern Virginia Chapter. The site is the Washington, DC, metropolitan area, specifically in a Northern Virginia suburb known as Crystal City. (The name Crystal City has nothing to do with any bizarre uses of crystal.)

PTG Conventions in the Washington, DC, area always have been milestones. There was held the very first PTG Convention, in 1958, and the 25th Anniversary convention in 1982. Now, for the first convention of a new millennium, PTG returns to the metropolitan area of our Nation's Capital. Thus PTG returns to its geographical roots, where its founders created a new organization of some 1,000 members, approximately a hundred of whom are still with us.

These PTG founders, men and women of high standards in every way, were special people well worth remembering, especially as we face another milestone convention where PTG began. In bringing two rival groups together to form one, new,

unified organization, they went against the natural tendency of a professional association to break up. Many are the professions with more than one association, because eventually the personal, political and philosophical discord became too great for one organization to manage successfully.

Our PTG founders understood and embodied the paramount significance of character, without which nothing else ever counts for anything positive. Not for them were the destructive and trendy notions of today, such as unearned privilege; self-esteem without accomplishment; religious affectation unsupported by virtue; power without accountability. Those of us of significantly younger generation, like myself, cannot hope to match the class, vision, wisdom and all-around character of our PTG founders, but we can be inspired by their examples and legacy.



The Nation's Capital and its surrounding suburbs are rich in tourist attractions, such as art galleries, museums and monuments, many in Northern Virginia. This topic would require many articles to be done even partial justice. Suffice it to say for now that people from all over the United States save up money for years to fund a journey to the Washington, DC, metropolitan area.



This article appears in the *Journal* during September, National Piano Month. This month-long highlighting of the instrument that we service professionally is, in 1999, a prelude to the following year's Piano 300, an

event intended as a key hallmark of next year's PTG Convention.

Piano 300 marks and celebrates the three hundredth anniversary of the time when an Italian named Bartolomeo Cristofori — which means "Bartholomew Christopher" in English — formulated the idea of inventing, constructing and putting into practical use a new and unprecedented kind of musical instrument. This instrument would have strings struck by hammers, in the manner of a hammer dulcimer, but with the ground-breaking difference that the hammers would be driven by keys propelled by the player. Thus was born the keyed hammer dulcimer, which Cristofori named "*gravicembalo col piano e forte*," Italian for "keyed dulcimer with soft and loud." Eventually the appellation became "piano-forte" and later "piano." Cristofori's noble invention has been, for more than two centuries, the flagship musical instrument of civilization, a known and treasured commodity in nearly every corner of the globe. It has touched and influenced more lives than any other man-made musical instrument. It is a piano whether or not it has a cast-iron frame, whether it is a grand or some other design, regardless of its compass, regardless of its brand name. It cannot and never will be counterfeited electronically with genuine and legitimate success. We all have a priceless opportunity next year to experience Piano 300, yet another reason why the 2000 PTG Convention is indeed a milestone to remember, as were the previous two conventions in the Washington, DC, metropolitan area. ♪

Foundation Focus

PTG the Foundation Beneficiary

Oh, how glad I am that all this new-fangled stuff had not been invented when I was president of PTG. I had just gotten used to dialing the telephone when they came up with push buttons. Now most all communication is done with computers; I'm so confused with hard drive, soft drive, Internet, on-line, in-line, and a myriad of other hard-to-understand phrases and numbers ending with ".com." I did buy an Accu-Tuner™ a few years ago and can now set up my own tuning program – and sometimes on the first try.

So this message to the *Journal* concerning the Foundation is sent the old-fashioned way, typed by wife and hand delivered by the trusty postman.

Look in Webster's *New Collegiate Dictionary* and you will find that "Foundation" will have several meanings, all the way from "a base on which something stands" to "a preparation for applying Mam'selle's makeup." In the case of PTG, I think that the one that best

applies is "an organization or institution established by endowment with provisions for future maintenance." Our Foundation was first thought of in the early 1980s with a gift of \$750 from the disbanded Piano Travelers organization. The idea was then and still is, an entity with the sole purpose of support for PTG. Our funds were to come from our members and friends and anyone else interested in music.

The Foundation has received several gifts from individuals and from manufacturers and suppliers of pianos and parts. Believe me, these gifts are greatly appreciated. The Foundation Press has been most helpful. Those authors and suppliers will long be remembered for their talents and their willingness to give.

Let's face it, brother and sister piano tuners, are we supporting the Foundation as we should? Some time ago Shorty Wagner died and one of his children called me and wanted to know about memorial gifts for Shorty. I suggested

the Foundation. Many people showed their love of Shorty by financial contributions to the Foundation. That is a practice we could and should follow.

Now you really don't have to wait for someone to die to make a contribution. You could make a gift in honor of a living person, or you could just send \$100 and become a patron, or a greater amount and become more than a patron.

Let's face it, brother and sister piano tuners, PTG is really the beneficiary of the Foundation.

Loosen up.

— Ernie Preuitt, RPT
Past PTG President

The Future & the Past in Foundation's Sites

How privileged we are to have had leaders in the past with foresight to start a foundation with the worthy mission of supporting scholarships, grants and the care of PTG history. As the foundation board became more accustomed to how and what our foundation could accomplish for the good of PTG, the ideas began flowing and they are limitless. It takes time to work out the ideas, make assurance that they conform to the bylaws, accept them and put them into practice.

The purpose of the articles you have read in the *Journal* is to make all members aware of the presence of the Foundation and to solicit your support. One of the most difficult tasks facing the Foundation Board is fund raising to support the grants and scholarships that are presently in place. The desire is to expand our projects and create new ones. The problem is the lack of funds and that is where you members enter the picture.

Wouldn't it be great to have additional funds available for those Associate members that want to upgrade to RPT, but do not have the funds to do so. Not only the cost of the exam, but the cost of

transportation for those members remote of any test center.

As the Auxiliary representative to the Foundation Board, I find a similarity to the function of both organizations and that is to support the PTG. Obviously the tasks are different, but the goals are the same. Spouses of RPT members, as a rule, help out in the businesses of their spouses. In like manner, the Foundation can be of great assistance, not only in recording and keeping the history of PTG alive, but in the development of future leaders.

Some of you out there are not aware that a former PTG Board member, the President of the Foundation and member of the Institute Committee, started her walk up the ladder by receiving a grant to upgrade to the RPT status. Wouldn't it be great to have 10 people do the same thing each year? With your help we can.

How exciting it is to be aware of and have knowledge of how each individual member of PTG and PTGA can be a part of enriching and advancing the goals of our PTG Foundation. I'm excited and I hope you are too.

— Christine Monroe

"The Piano Technicians Guild Foundation is formed to support the goals of PTG by preserving and displaying historical materials and providing scholarships and grants for piano performance, study and research."

The PTG Foundation Needs Your Help!

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

The work of collecting, organizing and preserving our past must be an ongoing part of our present. Your donation of money or historical materials will allow us to continue this important work. Contact the Home Office for details.

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

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

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

PTG Foundation
3930 Washington
Kansas City, MO 64111
(816) 753-7747

Yamaha Consultant LaRoy Edwards Honored With Lifetime Achievement Award

BUENA PARK, CA.—Yamaha Corporation of America honored consultant LaRoy Edwards with its first Lifetime Achievement Award given to an individual employed by Yamaha. Edwards received the award at the company's Keyboard Division Annual Kick-off

Meeting held April 17-21 in Palm Springs, CA. Yamaha Piano Marketing Manager Ray Reuter and Yamaha Senior Vice President Terry Lewis presented the award to Edwards for his innovation and commitment to Yamaha demonstrated through the years. Currently working as a consultant, Edwards conducts sales and technical seminars for technicians, dealers and sales personnel.

"I've always said that I have the best job because I have the liberty to develop programs that address the current needs of the company and customers," says Edwards. "I could break the mold to come up with appropriate solutions, and I am fortunate to be part of a corporation that trusts its managers enough to be creative in tackling any project at hand. I am honored to receive this award."

Edwards joined Yamaha in 1962 as Piano Service Manager and has been an integral member of the Yamaha team ever since. Edwards authored several Yamaha training guides and programs, including the Yamaha Service Bond Assurance Program and The Seven Keys to a Fine Piano. He also contributed greatly to the Features, Advantages & Benefits handbook, The Disklavier As a 4-in-1 Piano demonstration guide and the Disklavier Field Service Manual.

During his tenure as a Yamaha consultant he also sold Yamaha acoustic and Disklavier pianos as owner of his own dealership.

Edwards created the Little Red Schoolhouse nearly 30 years ago and the program remains the longest-

running piano technology course of its kind, providing comprehensive instruction on grand piano regulation to select technicians. Edwards' extensive technical knowledge led him to help establish the Yamaha piano service department as the best in the industry.

Edwards also has taught other technical programs for dealers and the Piano Technicians Guild (PTG) internationally while writing several articles published by the PTG. As a

traditional brochure by allowing users to dig as deep as they want into learning about Yamaha pianos. Think interactive multi-media product brochure and you'll get the picture—AND the sound.

The Windows® and Macintosh® CD ROMs, loaded with exciting video clips, photo images, 3D models, graphics and narration, aim to provide in-depth product knowledge offered in a fun and entertaining vehicle. Both are available through Yamaha's web site at <http://www.yamaha.com>.

The imaginative "Yamaha Pianos Traditional & Innovation—An Interactive Product

long-standing member of the PTG and currently serving as President of his chapter, Edwards has been the recipient of many of the organization's prestigious awards, including Member of Note for outstanding service to the tuning profession; the Golden Hammer for outstanding service and dedication over many years; and the Hall of Fame for sharing his talents, time and loyalty to the profession.

"LaRoy's accomplishments have been tremendous," says Yamaha Senior Vice President Terry Lewis. "Not only has he created service programs unique to the industry, but he also has created marketing programs that remain a cornerstone for Yamaha."

Yamaha Offers Interactive CD Rom Selections for High-tech Product Information

BUENA PARK, CA.—Since 1996, Yamaha Corporation of America has been utilizing technology to alter the format of informational materials available for those interested in Yamaha pianos. Yamaha's successful use of CD ROMs, featuring its acoustic and Disklavier pianos, provides an illuminating view of the quality construction that goes into each Yamaha piano and offers detailed information on the various features found in each product line. This unique format provides a great deal more information than is feasible in a

Tour" CD ROM includes a video sequence, "Seven Keys to a Sound Investment," that teaches the Yamaha customer exactly what to look for in a quality piano. The CD ROM also takes the viewer through the multitude of features found in Yamaha grand pianos. From the soundboard's ribs and bridges to the center pins in the piano's action, the viewer will learn about Yamaha quality components with amazing detail. Further enhancing the experience, the user can select and rotate a grand piano to view it from every angle. The CD ROM also features a tour of the manufacturing facility, showing how Yamaha handcrafts the world's finest pianos.

The "Interactive Disklavier" CD ROM demonstrates the wonder of technology behind the Yamaha Disklavier, a computerized digital/acoustic hybrid piano. Users can discover the technology behind the Disklavier's advanced fiber optic recording and playback system as well as take a tour of the Disklavier's many performance capabilities through videos and informational graphics. More than a piano, this CD ROM explains how the Disklavier, with its advanced tone generator, is capable of performing an entire symphony. The Disklavier is a piano of unlimited potential and the CD ROM provides a comprehensive look into this unique instrument.

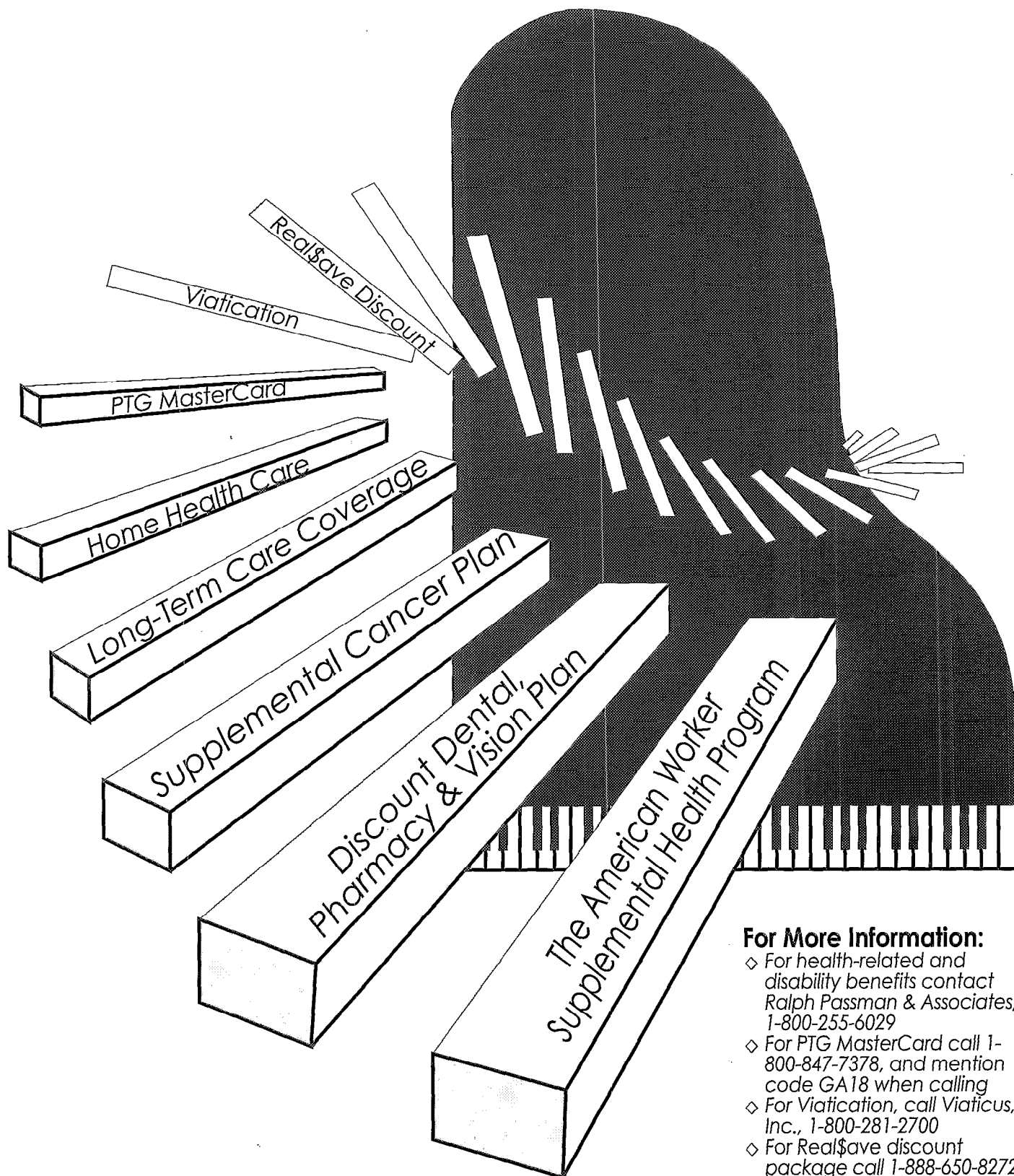
For more information about Yamaha product CD ROMs, please write Yamaha Corporation of America, Keyboard Division, P.O. Box 6600, Buena Park, CA 90622-6600, call (714)522-9011, or visit www.yamaha.com. ■

Industry News



The Privileges of Membership

Because members' personal and professional circumstances change over time, the products and services offered by PTG must change as well. The number of membership benefits available through PTG recently expanded with one idea in mind: to meet members' needs by providing quality products and services at a competitive cost.



For More Information:

- ◇ For health-related and disability benefits contact Ralph Passman & Associates, 1-800-255-6029
- ◇ For PTG MasterCard call 1-800-847-7378, and mention code GA18 when calling
- ◇ For Viatication, call Viaticus, Inc., 1-800-281-2700
- ◇ For Real\$ave discount package call 1-888-650-8272

Passages

Ronald W. Orr, 60
1938 - 1999

Mr. Orr, musician, piano teacher and technician, was born December 7, 1938 in Apollo, PA, a son of Blaine D. and Stella Aikens Orr, and lived in this area most of his life. He was a self-employed piano technician/rebuilder and was a concert tuner for many nationally-known artists. He was a 1956 graduate of Mount Carmel High School and was a member of the Youngstown Chapter of the Piano Technicians Guild where he served as president, vice president and secretary. He taught classes at the national and state technicians conventions. He was a member of the Automatic Musical Instrument Collectors Association, was a member of the Ron Orr Combo and taught piano and hand organ lessons for many years. He was a member of Trinity Church.

Besides his wife, the former Marilyn Suc Mills, whom he married March 5, 1965, he leaves two daughters, Mrs. Linda Jean Timmons of East Liverpool and Mrs. Michelle Aznavorian of Thaxton, VA; four sons, Dr. Ronald W. Jr. of Cleveland, Michael R. of Shreveport, LA, John A. of Germany, and Kevin R. of Niles; a brother, Robert D. of Brooksville, FL; two sisters, Mrs. Evelyn Talbot of Rogers and Mrs. Patricia Meeker of Troy, OH; and 13 grandchildren.

Contributions may be made to The Trinity Church Organ Restoration Fund, P.O. Box 190, East Liverpool, Ohio 43920.

Jimmy Gold, RPT
1929 - 1999

Jimmy Gold, RPT died Sunday May 3, 1999 in Lawton, OK.

Mr. Gold was born in Hobart, OK, January 6, 1929. He was a 32nd degree Mason in the Duncan Masonic Lodge #60, a member of the Shriners, Order of the Eastern Star and International Musicians Union. He and his wife Barbara were married in September of 1949.

As a Registered Piano Technician member of the Piano Technicians Guild, Jimmy served the Texoma Chapter as treasurer for many years. He was chapter CTE and was the host for the chapter's annual summer fish fry. He served the region as RVP. His work on the Top of Texas seminar led to the formation of the Texas State Association Annual Seminar. He is the namesake of the Texas State

Association special service award because of the example of he gave to all of us. His years of selfless dedication to the Guild were an inspiration to countless members who have gone on to serve the Guild in local state and national venues.

His wife, Barbara, a daughter, Danell Busby, three grandchildren and three great grandchildren survive him. A son, James F. Gold, preceded him in death.

Scott Joseph Olson
1951 - 1999

Scott Joseph Olson, 47, died May 21, 1999, at St. Patrick Hospital.

He was born on December 12, 1951 in Chicago to Duane and Joyce (Moore) Olson. He attended grade and high school in Williston, ND. He continued his education at the University of North Dakota-Williston and the University of Montana, where he majored in music. Scott is survived by his son Tonnes Joseph of Polson; mother Joyce Olson of Victor; father Duane Olson and wife, Jo Swingedorf, of Missoula; and grandfather Ray Moores of Victor.

Scott was an Eagle Scout. He had a lifelong interest in railroads and was an avid model train collector. Scott was a very gifted musician and played in many bands over the years.

During the past 20 years, Scott worked much of the time as an electronic and pipe organ technician. He also tuned pianos and was a member of the Piano Technicians Guild.

Scott spent many hours with the Carousel for Missoula. He helped supervise the construction of the pipe organ, installed it, tuned it and maintained the organ until his death. He truly was the "Gavimon."

A memorial service was held May 27th at Grace United Methodist Church. Memorials may be sent to the Carousel for Missoula.

George Lewis Baker
1956 - 1999

George Lewis Baker was born on April 1, 1956 at Fort Lewis, WA. He grew up in California and graduated from high school in 1973, then enlisted in the Navy as a Hospital Corpsman. The last year of his enlistment was in service with the 7th Marine Regiment at Camp Pendleton.

He married Dianne Jamieson in 1975. They have four children: Elizabeth Heppler, Matthew, Adam and Joel. From 1977 to 1997, George worked as a restorationist on automatic musical instruments and antique cars. Many examples of his craftsmanship are in museums and private collections across the country, including the San Diego Aerospace Museum, the Marine Corps Recruit Depot Museum, Fort Sam Houston Medical Corps Museum, Air Force Museum in Colorado Springs and many others. He also restored the oldest original UPS delivery car, a 1927 Model T Ford, which is displayed at UPS Corporate Headquarters in Atlanta, GA.

In late 1996, George formed *All About Pianos*, with his partner, Louis Spencer-Smith. The business has blossomed and involved the Baker family. Kawai America Corporation recognized the company as its top piano dealer in a small market for 1998, in only its second year of operations.

Pursuing life-long learning, George was able to speak on nearly any subject and used this trait to expand his relationships with people he met. He had a great love for his fellow man and sincerely encouraged people to learn more, try harder, be better. Always the Samaritan, George was quick to help those in need with his time, talents and resources.

One of his passions was the Boy Scouts. He renewed the Belgrade Ward Troop 650, making sure the boys had proper uniforms and many activities. Because of their reputation, the troop was featured in *Boys' Life Magazine* in January 1998. George believed that the principles of scouting could and do help the boys grow to honorable manhood and instill the traditional values that built America.

A humbling outpouring of support came to George when he first became ill and is continuing. His family expresses their heartfelt gratitude for all the prayers, support and donations.

**In
Memory**

RAYMOND CARLSON, RPT
MINNEAPOLIS, MN

NEW MEMBERS

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117 Long Island-Suffolk, NY

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4 Musket Court
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122 ... Capitol Area, NY

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144 Rochester, NY

Nicholas Sasano
220 Red Rock Road
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Douglas A. Kirk
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981 Seattle, WA

William B. Santo
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Seattle, WA 98111

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AUXILIARY

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Summer Reflection



Phyllis Tremper
PTGA President

As I write this on July 4th, 1999, we have reached the pinnacle of the summer holidays. The summer rises with Memorial Day, reaches high noon at the Fourth of July and sets with Labor Day. Summer goes so quickly and yet it is supposed to be the hazy, lazy days of summer that you relax and let life go by on a slow and peaceful rhythm of time. Reminds me of our life here on earth. Childhood, middle age and senior citizen.

In childhood, when you were sitting in geometry class during a final exam, why did the minutes just creep by, hardly ever moving on? Then in middle age, when the kids were learning to walk and talk, time stood still for one swift moment. But as you back, you see that the children grew up over night. Now as a senior citizen, time is flying by so fast one can not believe the day. First the morning sunrise and before you know it, the sun is setting and what have you accomplished? Are there still 24 hours in a day or have they deleted a few hours when your back was turned?

Now is the hour when one must write down the things that you have done in your life. What one thing did you do for yourself? For yourself alone? Take stock of life. It's not too late to start a new program of volunteering, walking, exercising, helping a neighbor, starting a new diet, writing a letter to a long forgotten friend, helping at the hospital, teaching a young person to read or an adult for that matter. There are many things in this world that one can do to make life

worthwhile. It's never too late.

Next month, we will cover the convention in Kansas City. For those of you who can not attend, watch these pages for pictures and coverage of the Auxiliary program. I wish that all of our members could be on hand at the home office, but I guess that is wishful thinking. We will be starting some new programs for the new millennium, so watch your mail for the newsletter.

This will be the last convention of the twentieth century. We will not only make a wish on New Year's Eve for a new year but for a new millennium. Isn't that exciting? If you have any ideas on how to make this organization better, please write to me during the year, or call. I am always interested in new ideas and how to implement them. For instance, we had the Auxiliary Tour on Thursday this year and the Council meeting on Friday. Did you like it? Did you meet new members during the tour that you had not known before so that you could visit with them on Friday during the Council session and the luncheon?

Next year in Washington, D.C., at the first convention of the new millennium, we will have so much to cover, we won't know where to begin. I haven't been there for quite some time, so I'm sure all is changed. I want to see the new memorials that have risen and all of the government buildings. It should be a great tour. If you couldn't join us this year, please see your way clear to join us next century! We miss you. Always remember to add Music to Your Days, as *Music is the Spice of Life*.

— Phyllis K. Tremper,
PTG Auxiliary President

Piano Technicians Guild Auxiliary Board of Directors

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everyone can start
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new ending.

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OCTOBER 2, 1999

OHIO STATE/CENTRAL EAST REGIONAL

Grave Piano & Organ, Columbus, OH
Contact: Kim Fippin, (614)890-2197
275 Foxtrail Pl.
Westerville, OH 43081

OCTOBER 8 - 10, 1999

TEXAS STATE ASSOCIATION

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Contact: James Geiger (254)867-9589
3924 Kendall Lane
Waco, TX 76705

OCTOBER 29 - 31, 1999

NORTH CAROLINA REGIONAL CONFERENCE

Radisson Hotel, High Point, NC
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3455 McConnell Rd
Greensboro, NC 27405

FEBRUARY 18-21, 2000

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

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

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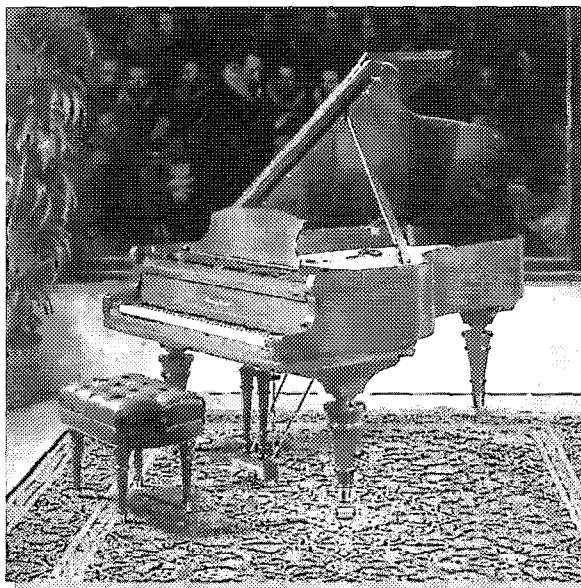
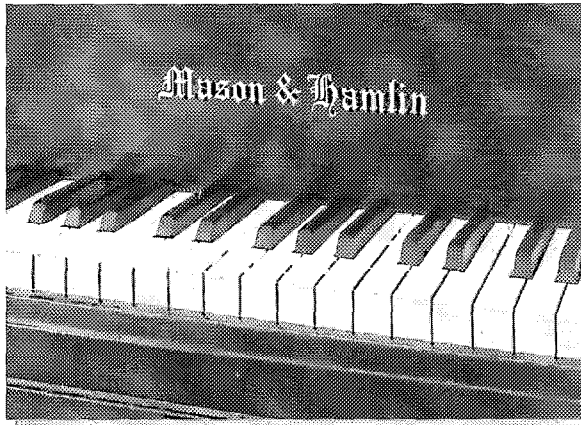
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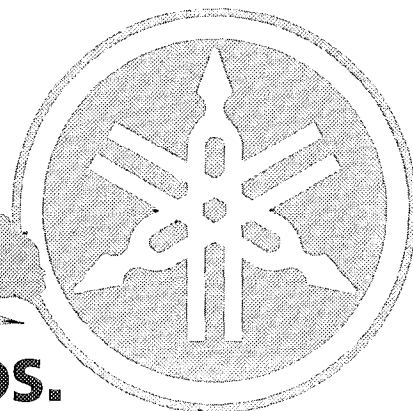
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THE GAZETTE

September 1999

YAMAHA



Gray Market Yamaha Pianos.

By Bill Brandom, Yamaha Piano Services Manager

At Yamaha, we have always tried to provide quality service and part support for new and used Yamaha pianos which were originally manufactured for sale in this country. As you are probably aware, "gray market" (or pianos originally manufactured for sale in Japan) used Yamaha pianos are being brought into the United States by independent importers and sold to piano dealers across the country. These pianos have caused service support problems that Yamaha Corporation of America is not responsible for. As a result, Yamaha Piano Service will not provide service assistance or part support for these "gray market" pianos.

Service Assistance — To begin with, there is no "Yamaha" warranty of any kind on these "gray market" pianos. This is an important consideration because these well-used imported pianos were made for use in Japan — a much more humid environment than the average American home. As a result, these pianos may develop serious problems such as loose tuning pins, cracked soundboards and bridges. In addition, action problems such as warping, misalignment of parts, glue joint failures, sluggish response, and "sticking" key problems are also common.

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Bill Brandom

"Our commitment at Yamaha Corporation of America is to provide the best service and part support we can for our customers who have purchased pianos made for and sold in the United States, through our authorized Yamaha Piano Retailers."

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