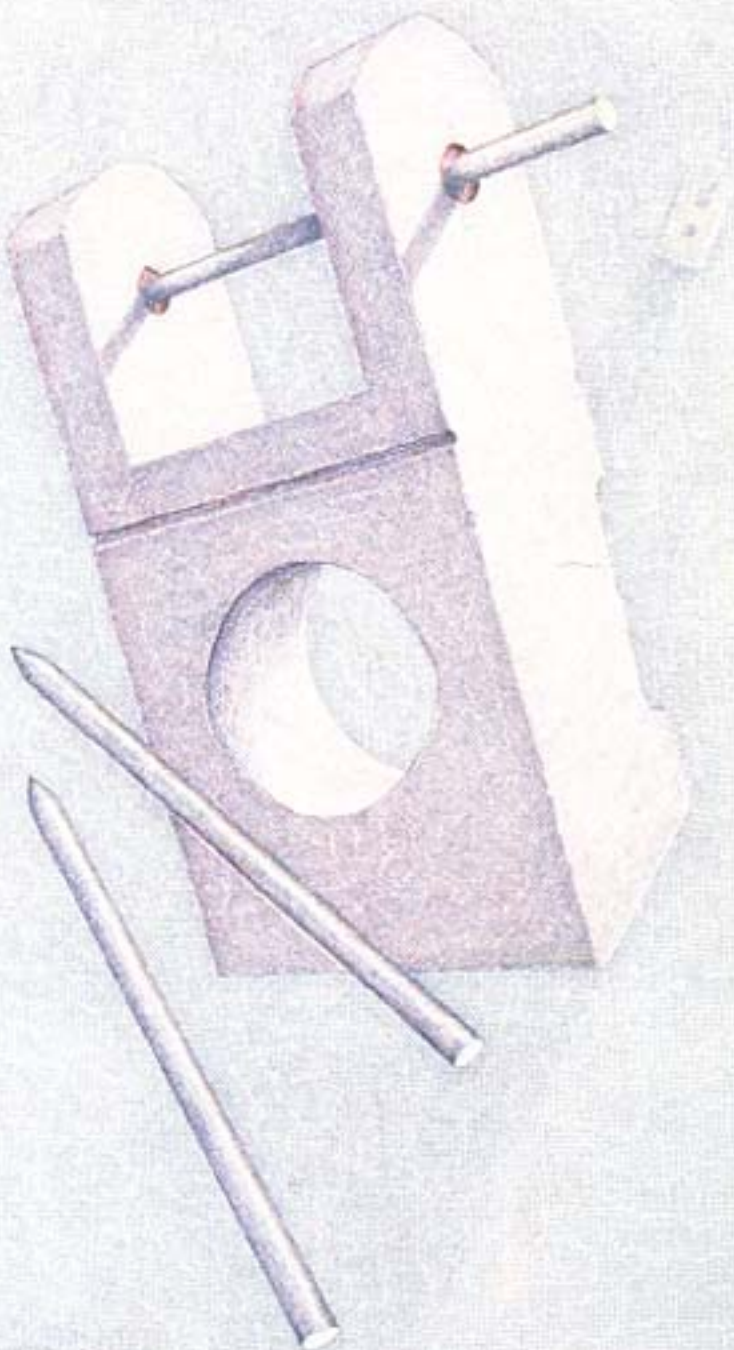
PIANO TECHNICIANS

Journal

JULY 1990



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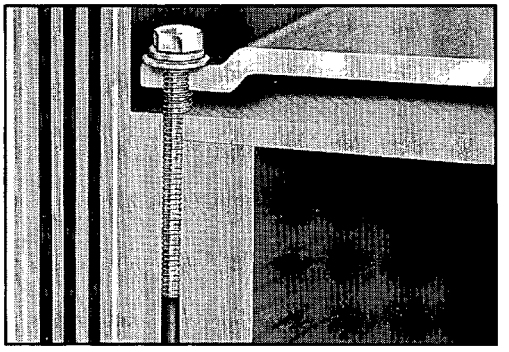

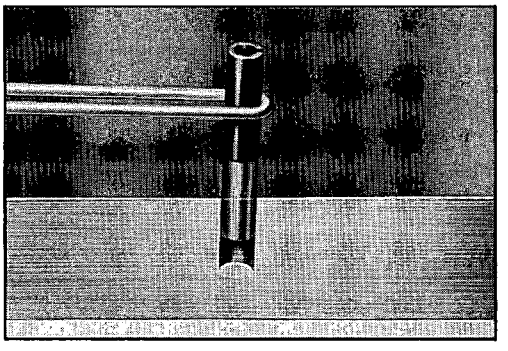

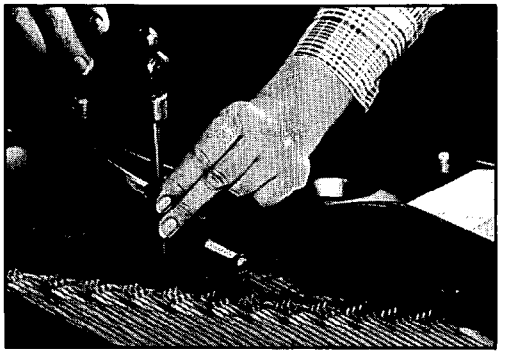

Second in a series of informative ads on piano tone published by Baldwin Piano & Organ Company exclusively for the benefit of piano technicians.

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For more information contact Kent Webb, Technical Service Manager; for parts contact Linda Gann, Baldwin Piano & Organ Company, Highway 63 South, Trumann, AR 72472 — Phone: (501) 483-6116

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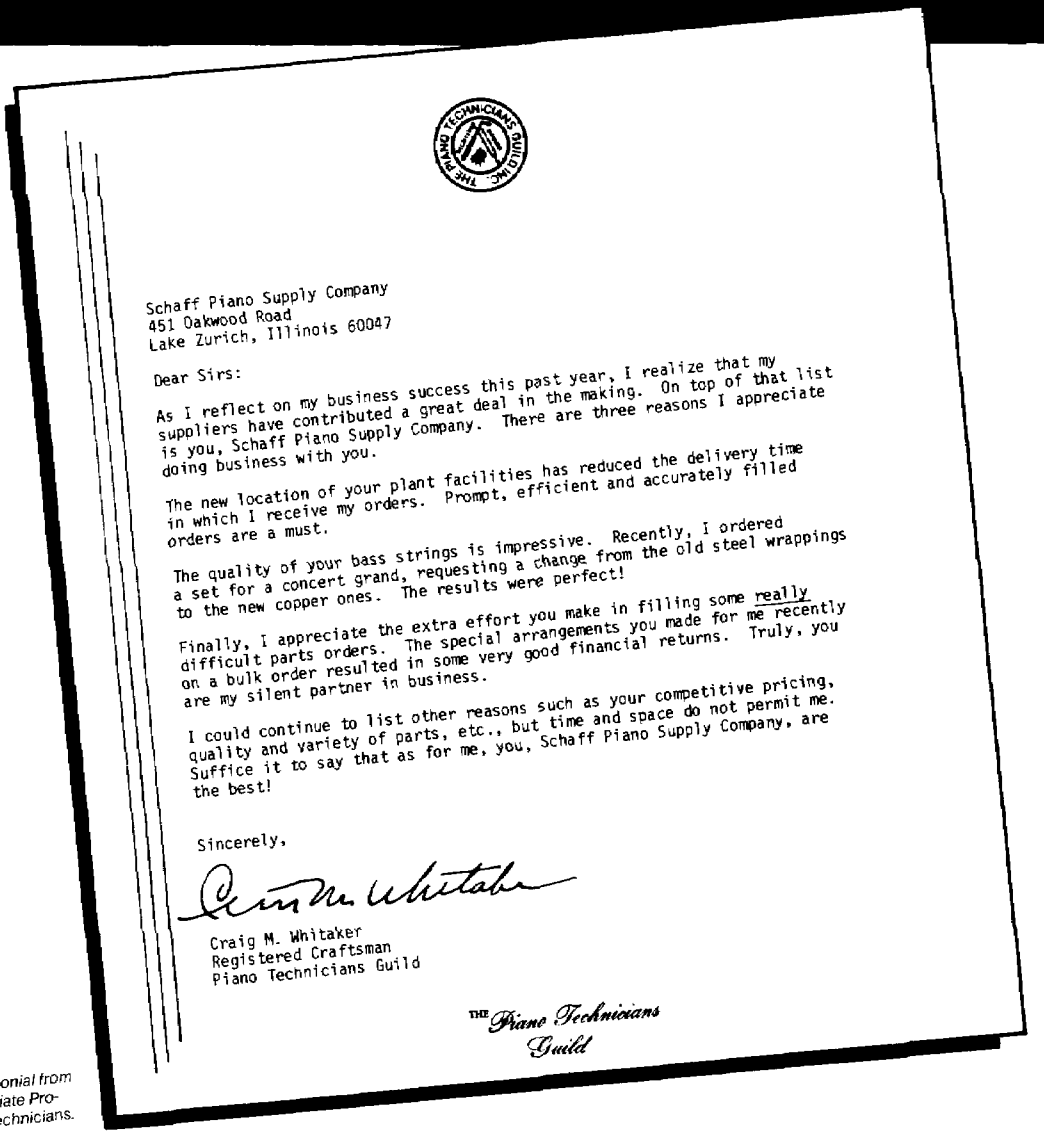

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Craig M. Whitaker
Registered Craftsman
Piano Technicians Guild

THE Piano Technicians Guild

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PIANO TECHNICIANS
Journal

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PRESIDENT'S MESSAGE

Goodbye

Ronald L. Berry, RTT
President

This column will be my last President's Message. It seems amazing that two years have gone by already. Serving as an officer in PTG has been a most rewarding experience. It has given me the chance to learn organizational skills which will serve me well in the future. Working for PTG is rewarding because our members have so much concern for the organization; they appreciate what you do and they let you know it. I know that our paid staff has found this to be true, that while we are demanding in what we expect and are sure to say so when things aren't right, we also say so when things are going well.

Before my election in St. Louis, the Board found out that Larry Goldsmith was resigning from Martin Fromm and Associates. I remember thinking, "I hope I don't have to spend my Presidency putting together a new Home Office." Well, as you know, that decision was made and the transition went very smoothly thanks to Larry Goldsmith, Mary Kinman, and Sandy Essary. Looking back now it is obvious that it was the right decision. The two management changes that have happened while I was on the Board have allowed us to keep the dues the same for the last nine years without any lessening of service. PTG is now in a strong enough position to consider money making ventures like our own technical academy or the publication of technical literature. It is not uncommon for associations to subsidize their activities with profit making ventures.

Before coming on Board, I was Examination Committee Chairman when the new tuning test had just become official. I have seen all the tests undergo revisions and become standardized, meaningful tests.

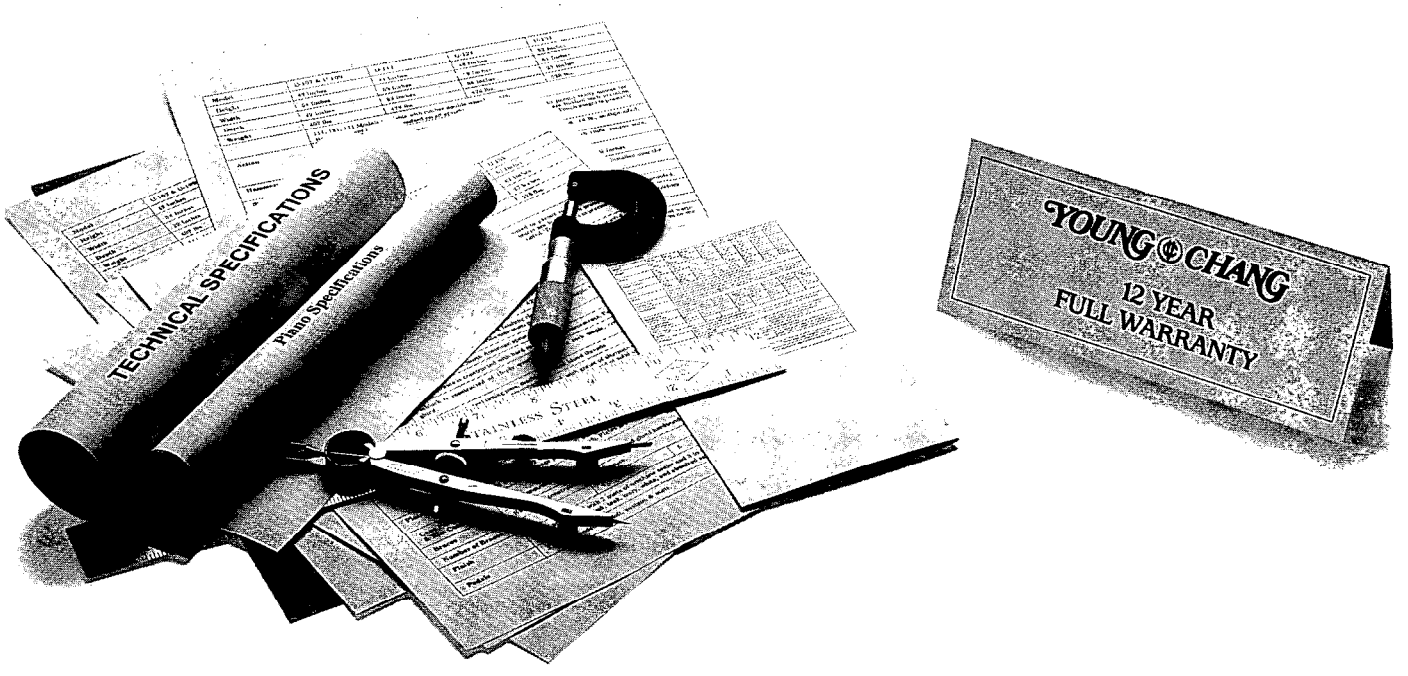
While my time on the Board has been very satisfying and rewarding, I look forward to a time of less intensive involvement to give me a chance to catch up on some family and business matters.

I have seen a change in Board members over these years. They have become people with far more background in the organization and even more commitment to the Guild. I feel confident in the people who are coming along to fill the various Board positions. PTG will be in good hands.

I want to thank those who have been on the Board with me, especially Nolan Zeringue and Bob Smit for their constant support. No one can do a job like President alone. Having the other officers to bounce ideas off is most valuable. I also want to thank those who served on committees during my Presidency. Many committee jobs require time commitments equal to a Board position and luckily we have capable people willing to fill them.

Thanks for your confidence in me by electing me President. For those of you considering running for a Board position, I can only say that the rewards far outweigh the detriments, and I would heartily encourage you to do it. I'm proud to have been a part in the direction of this great organization and to have followed some of the great people whose vision got us to where we are today.

While most manufacturers offer proof of performance in feet and inches, we offer our proof in years.



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For technical information on Young Chang grand and vertical pianos, write to me, Alan Vincent, Director of Technical Services at Young Chang America, 13336 Alondra Blvd., Cerritos, CA 90701. Or call (213) 926-3200.

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From The Home Office

Associations Advance America

Larry Goldsmith
Executive Director

What's the value of voluntary cooperative activity in America? A recent American Society of Association Executives survey of 5,500 various-sized trade, professional and cause-related organizations turned up some startling figures:

- The associations surveyed spent $8.5 billion in 1989 to offer educational opportunities to their members and the public. This exceeds spending on higher education by any state except California.
- The associations surveyed spent $14.5 billion in 1989 in setting product, service and professional standards. Nearly 24 percent of professional associations set professional standards for members and 15 percent certify them, spending $5.7 billion in 1989 to do so.
- Only a third of the surveyed associations appropriate money to political activities like political action committees or lobbying efforts. Professional organizations — the Guild fits into this category — average only two percent of their budgets for political activities.
- Associations contributed 100 million hours in 1989 to community service, often using members' skills for the greater common good.
- Americans belong to an average of 2.2 associations.

Now, here's the kicker: high though these numbers may be, the survey of 5,500 associations represents only a small part of association activities. One source lists 23,000 national associations and an additional 64,000 state, local and regional associations. The Internal Revenue Service lists 960,000 tax exempt organizations in the United States.

Obviously, one can't accurately extrapolate the total value of volunteer contributions from this — associations are simply too diverse — but you get the general idea. If the overall net direct and indirect economic impact of the 5,500 randomly selected associations surveyed is $48 billion, what's the real total? Where would our society be without organizations like the Guild? Sort of gives you a warm feeling, doesn't it?

Economic Affairs

Piano Management, A Marketable Skill

Daniel Bowman, RTT
Richmond, VA, Chapter

One of the reasons many tuners never get ahead decisively despite respectable technical skill is their failure to grasp and then push (market) the concept of "piano management." "Piano management" in this article is the art of overseeing the care of pianos with the awareness that pianos have a definite "life cycle" and certain service procedures are required at certain stages of that cycle. The piano manager decides whether and when to provide what services from routine service, to major maintenance, to replacement. The opposite of piano management is to just call the tuner (the cheapest one, of course) for tuning and small repairs when someone "can't stand it any more." Piano management does have relevance to everyday home pianos and has obvious relevance to large music institutions such as university music departments. But in this article I want to relate piano management to smaller institutions like private schools, churches, retirement/nursing homes, and small college music departments with perhaps two to 20 pianos. These smaller institutions value their pianos but do not realize *how much* they value them until there is an embarrassing piano crisis. They value their pianos, but have no one on their staff technically qualified to do piano management. The technician whosees the significance of these last two statements should be getting a conspiratorial glint in his eye.

From my experience, I would suggest there are three essential ingredients to successful piano management:

1. An annual written report

As I began servicing institutional pianos, I soon realized that verbal communication of my endless string of technical recommendations was not working. Therefore, I began sending an annual report to the institution, synchronized with its annual budget process, containing recommendations for major piano service that goes beyond the annual routine tuning and small repairs budget. There are several good reasons why annual written recommendations work better. First, you want to avoid a constant stream of verbal reports and explanations of problems which can only become confusing and annoying to your contact person. You don't want him/her thinking, "Every time that technician comes in here, he/she is telling me something else is wrong with our pianos." As you service the pianos throughout the year, make notes about service procedures to be recommended in your next report. Second, it is the institution's budgeting process that you have to deal with for the kind of money we're talking about here. And remember, budget planners need orderly, systematic, cogently written recommendations. Third, written recommendation is the professional way; it instills confidence.

Fourth, you yourself can do more orderly, long-range planning and scheduling. Those big jobs have to be cultivated on a long-range basis. The institution may not always follow through with your recommendations, but I'll wager that you will be pleasantly surprised if you write out your recommendations as clear business proposals to be considered at their budget planning time.

2. A master piano management plan

Next I found that neither my recommendations nor the institution's response to them could be technically and fiscally sound when made in a vacuum, but had to be guided by a clear understanding of what the institution wanted. A master "piano management plan" is needed to set priorities and goals to guide piano maintenance decisions by both the institution and technician and to serve as the institution's commitment to the cost. The institution already understands that if it wants office equipment, computers and automobiles; each needs a service/maintenance/replacement policy and corresponding budget. So it is with pianos. I like to point out that since there is, in the lifetime of a piano, a long "gray period" between first appearance of annoying problems and final arrival at total unworkability, the institution does have some discretionary leeway to decide what level and rate of piano maintenance is "good enough for us." However, without some kind of planned, systematic commitment to the expense of maintaining a workable piano inventory, the pianos will inevitably deteriorate to the point of sudden and embarrassing crises. Without planned, directed expenditures for piano care there will be unplanned, ill-timed emergency expenditures for stopgap remedies with unsatisfactory results.

3. Solid (reliable, accurate) technical data on each piano

Finally, I realized that this master plan can be only as good as the technical data on which it is based. Therefore, an accurate technical evaluation of each piano is needed. These individual reports will then become the basis for the Piano Master Plan. Here, the piano manager must think like an appraiser. What service is required to get this piano into the desired state of workability? What will the work cost? Will the end results, the use by the owner, the value of the piano, and the remaining usable lifetime justify the cost? In all this you must be honest with yourself about your own technical ability. Be prepared to refer some or all of the work to a technician competent for the job in question. Be prepared to call in a consultant. *If* decisions about major reconditioning and especially rebuilding versus replacement of grands is at stake, I strongly

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PTG's Texas Roundup

1990 Institute Program

Dick Bittinger
1990 Institute Director

The May and June articles on the Dallas Institute should really have you excited, but just in case you are still undecided, perhaps I can help you make up your mind! Please call the Hyatt Regency-Dallas (214) 651-1234 now for your hotel reservation, and attend the PTG Annual Convention and Institute.

This can be a business and vacation all in one, so bring your family along with you. Speaking of business, here is a list of Institute classes on business that relate to the piano trade: Controlling The Liabilities Of Your Business — *Janet Leary;* Dealing With Dealers And Manufacturers — *Randy Potter;* Market Builders — *Pat Spithill;* Renting Pianos For Fun And Profit — *David Rostkoski;* Retirement Taxes And You — *Tom May;* Some Aspects Of Selling — *Bob Mair and Steve Smith;* Practical Appraisal And Evaluation — *Bob Russell;* Troubleshooting The Piano Service Business — *Janet Leary.*

Don't forget the Manufacturers' Symposium class after the Closing Luncheon, from 2:30 to 4:00 p.m. with Willis Snyder as the moderator. No one should leave this Institute with a question unanswered, and this is the place to get your answer. So plan on attending this session.

There has been an instructor change. George Defebaugh called and had to cancel his participation in the institute because of illness. However, Jim Coleman has worked with George many times in the past, and will do the tuning class using the same title.

You technicians who teach piano or other musical instruments might find the Teachers Committee session titled Piano Teachers And Their Trade on Wednesday morning in Regency A, quite interesting. I'm sure you will be able to share and relate to many problems and stories.

As I have mentioned in past articles, for some workshop classes you will need your own tools such as regulation, repinning, tuning, and voicing tools. If you attend the tool sharpening class, bring along a dull screw driver and a knife, plus your shop apron; especially for the Polyester Touch-up and Refinishing class.

Doesn't that sound like a well-rounded program for the Dallas Roundup? You really wouldn't want to miss all of this, so we will see you all in Dallas, TX, to put our brand on you!

More Dallas Attractions

Thom Tomko
Dallas Chapter President

We're only days away from the Dallas convention, so I will try to fill you in on a few more night spots and attractions Dallas has to offer.

For those of you who plan to stick around after the convention to have fun at our vacation spots, the following is for you. Located off the old Dallas-Ft. Worth tollway, now known as highway 30, you'll find an array of amusement parks and attractions. Here's a list of a few you will find:

Arlington Stadium — Home of the Texas Rangers and Nolan Ryan. On July 6-8, the Rangers will host the Boston Red Sox. It's quite likely the pitching matchup of Ryan and Clemens will take place, so get your tickets early.

Six Flags Over Texas — You'll find the world's tallest wooden roller coaster, and the 143-foot Texas Giant. The park features over 200 rides, plus shows and attractions.

Wet 'N' Wild — This water recreation park has flumes, water slides, pools, waterfalls, and river rafting.

Ripley's Believe It Or Not/The Palace Of Wax — Wax figures displayed in environmental sets and galleries filled with oddities, curiosities, and illusions gathered from around the world by Robert Ripley.

Grand Prairie Wildlife Safari — A drive through a nature park with hundreds of exotic animals in natural surroundings. (It's a wonderful drive through attractions in an air-conditioned car.)

Besides the West End District, Dallas has other avenues for night life. Upper and lower Greenville Avenue have many nightclubs, restaurants, and antique stores, but I find McKinney Avenue and its trolley line a lot of fun, and a bit closer to the convention site. You can take the shuttle

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THE TECHNICAL FORUM

Soundboard Repair And Refinishing Part VI: Finish

Susan Graham
Technical Editor

In the discussion of finish removal and surface preparation for refinishing a soundboard, I briefly mentioned use of strippers but did not comment about bleach. I would not bleach an entire soundboard, and have not had good results using it to eliminate stained areas. Wood bleaches are very harsh — even more than strippers. Concern about damaging glue joints and/or the cell structure of the wood itself is therefore greater. Spot-bleaching produces a bleached-looking stain rather than stain-free spruce. As with strippers, I welcome comments from experienced technicians regarding use of bleach.

Why do we put finish on wood? One reason is beauty and cleanliness, of course. Raw wood, however nicely sanded, is dull-looking; dust adheres to the exposed fibers, making the appearance worse. Raw wood also has no stain resistance. A good finish also retards the degree to which ambient humidity changes affect the moisture content of the wood. Although no finish completely "waterproofs," they slow down the passage of moisture both in and out of the wood. If you ever doubt this, try putting a heavy finish on only one side of a flat board and then expose the board to a high humidity situation (stand it in the corner of the bathroom — your spouse will be delighted). I'll never forget the sight of a room full of round cocktail tables made of two-inch thick lumber, artfully charred and heavily varnished on the top surface but left bare on the underneath. The room overlooked a river: in the dampness, the tops had all warped upward into rather expensive wooden butterflies as the bare wood took on moisture and expanded.

Since pianos are not exposed to heavy weather (we hope), it is not necessary or appropriate to apply extremely heavy finishes to the soundboard. Although piano soundboards are not analogous to violins, in which the finish can have a dramatic effect on tone, it is still a good idea to refrain from loading the board with excess material. In this business we also consider the future, and would not want to apply some indestructible finish which would be nearly impossible to remove should the board require another refinishing. (Refinishers are finding that some of these modern finishes on cases require aviation-industry strippers or the use of a paint burner for removal.)

This leaves us with the old standbys: shellac, varnish and lacquer. Even these are greatly changed as synthetic resins and oils replace the traditional spirit or china wood oil varnishes, and lac bug shells disappear from lacquer. More changes are due in the future as environmental protection laws become more stringent. The varnish I have used for years, McCloskeys 0092 High Gloss, is due to be changed to comply with California air quality control standards: it will contain more solids and will not be thinnable with mineral spirits (the person with whom I spoke at the company did not know when this change was due to take place, but assured me that the change will be clearly indicated on the packaging). Simple but valid advice: Always read instructions on the can (even for familiar products). Try samples of unfamiliar products before putting them into use.

Before going further, let me say that my basic liberal arts education didn't include much in the finish materials line. As usual, I don't mean to pose as an expert, merely as a basic piano technician who's worked out a few things in years of practice. Most woodworkers' magazines publish frequent articles on finish and finish application; follow them to keep current. Further information is available in books and magazines in your local library (a few suggestions are listed at the end of this article) and by developing information-swapping relationships with other technicians and refinishers.

Let's consider those three finish materials: shellac, varnish and lacquer.

Shellac is an alcohol-based compound: the solids are made from the secretions of the Laccifer lacca insect. Hardware and paint stores usually sell shellac ready mixed in orange or white, usually in a three-pound cut. The "cut" refers to the proportion of solids to solvent. Shellac is also available in dry form — crystals (actually more like flakes) and buttons. Garrett Wade Co. (1-800-221-2942) carries three grades: button, orange flakes and blonde. Tuner's Supply carries orange flakes. The grades range in quality and shelf life, ranging from very dark and raw "button" to very pure, colorless white. The finer the grade, the shorter the shelf life: since white shellac, even in crystal form, has a shelf life of only a few months, it is almost always sold already mixed as a liquid.

Any time you use shellac which has been stored, test it on scrap before applying it to actual work (premixed cans are dated). If shellac has expired, adding more thinner won't make it dry — only thin and gummy. I have seen advice to strain reconstituted shellac through filter paper to remove any wax residue: if adhesion problems are occurring, this might be worth a try.

Shellac has poor water and alcohol resistance but is very quick drying and

seals surfaces to prevent stains or pitch from bleeding into the top coat. Like lacquer, shellac cures by evaporation: the solvent flashes off, leaving the solids. The quick drying time makes it less susceptible to dust problems, and it is relatively cheap. As a soundboard finish, it is generally used only as an undercoat for varnish: bond between shellac and varnish is mechanical, so good sanding is a must. Shellac is also the material used in French polishing, which in its true form is a multi-step, time-consuming handrubbed finish yielding an absolutely beautiful result—but only a crazy person would attempt to French polish a soundboard. (What we do with our wads of cheesecloth and "finish restorer" is really quite a different thing).

Varnish was the finish material of choice for years in the piano industry. It consists of a "drying oil" solvent and a resin: traditionally, natural resins combined with tung (or china wood) oil or linseed oil. Old-timers spoke of "long oil" and "short oil" varnishes: The oil to resin ratio determined various qualities of the varnish: how hard it dried, how glossy, how durable, etc. Spar varnish, for instance, is a "long oil" compound: very durable, very slow drying and inclined to darken. Traditional piano varnishes were "short oil": faster drying, less flexible, but harder and therefore able to be rubbed up to a gloss finish.

Varnishes dry by chemical reaction with oxygen. Successive coats do not melt the preceding ones, so the bond between coats is mechanical (requiring careful sanding between each layer). The various styles of varnish have varying requirements for drying and recoating: read label directions carefully. I find it a good policy to allow more drying time than called for; especially before recoating, but even before resuming work (such as stringing) around a newly-finished piece.

There are now a host of varnishes, some combining natural and synthetic materials and some entirely synthetic. Alkyds are a synthetic resin combined with a natural oil; phenolics are similar but the resin is much tougher and moisture resistant (modern spar varnish). Polyurethanes are really more a plastic than a resin, although combinations of the two are frequently produced. As mentioned, I use the McCloskey's 0092 High Gloss, and have also had good reports on Pratt & Lambert's gloss. Good quality, interior varnishes with as simple and traditional materials as possible seem the most appropriate and trouble-free.

Although they sometimes are thinned and sprayed, varnishes are usually applied by brushing, and are quite slow drying. This makes them vulnerable to dust problems — an inconvenience in a production shop. However, brush application means they can be mechanically contained (it isn't necessary to mask off bridge tops, cases, etc.) and they are relatively easy and safe to apply in small shops.

Shellac and varnish are sometimes referred to as "cold" finishes. Lacquer, on the other hand, is a "hot" finish: it dries very quickly and, like shellac, each successive coat melts the one underneath and bonds chemically. Lacquer is almost always sprayed: it can be brushed, but brush marks are a hazard due to the quick drying. Lacquer builds in a very thin coat, and several successive coats are necessary for depth. Since each coat dries quickly, this is not too great a disadvantage. Quick drying time also means that dust has less time to settle and adhere to a wet surface. Safety precautions appropriate for spraying must be carefully observed. Lacquer continues to harden over time and is a slightly less flexible finish than varnish.

With either lacquer or varnish the appropriate undercoat is critical. Lacquer sanding sealer has solids added to help fill pores in the wood and accelerate build-up. It is slightly cloudy, but this is not a problem on light-colored spruce. Since the solids are often a stearate (soap), sanding sealers should not be used under varnish since adhesion will be very poor. Many varnish manufacturers recommend using a thinned coat of the varnish itself as a sealer coat — although some modern varnishes should not be thinned even for this purpose. I have used a thin wash coat of shellac as an undercoat for varnish for years: it works well and has a relatively quick drying time. I seem to get better results with orange shellac crystals than with the premixed white. This does darken, however, which is sometimes a shame with a nice white board. On the other hand, the slight color can help blend in repairs and, if thin enough, imparts a warm tone to the board rather than a noticeable orange. Shellac as an undercoat should be very thin: if too thick it looks streaky, and adhesion of the top coat is very poor.

Perhaps the biggest drawback of shellac under varnish is that the bond between them is only mechanical: the shellac coat must be sanded to provide a "tooth" for the varnish to grip. If the shellac is thin enough, there is also some penetration of the varnish into the wood itself, which aids adhesion. Bad adhesion may not be a problem if only one coat of varnish is applied, but if a second top coat is necessary it may lift the first and result in a nasty mess. Adhesion problems can also become apparent in later years.

Before any finish is applied, the board has been sanded to a fare-thee-well, including one or more wettings with clean water to raise the grain. Some advocate using medium-fine steel wool after wood has been wet and allowed to dry: the wool fibers tend to grab the raised grain and pull it free rather than bending it back down again. Then the piece is fine sanded. This wetting procedure helps to eliminate marks from cross-grain sanding or other small flaws or indentations.

Speaking of indentations, if you use a rag on a soundboard steel to clean off dust under strings, be sure to pad the end of the steel with duct tape or to wrap the rag over it. This end is a blunt instrument: the marks it makes will not be visible immediately, but will show later as dark "bruise" lines on the board.

If you have removed moldings around the board for sanding, they can be replaced either before or after finish is applied. After the shellac coat, I apply one heavy top coat of varnish. Since it tends to puddle, I leave moldings off and finish them separately. Tape off the surface they will be glued to provide penetration for the glue.

Sanding produces a considerable quantity of dust. This dust is the enemy of finishes. If it remains on the surface or in the pores, it can produce roughness or a cloudy appearance. Particularly in the case of varnish, which dries excruciatingly slowly, dust settling out of the air and drifting in ephemeral clouds off light fixtures, up through nose bolt holes, etc, creates that dreaded stucco effect in what was a perfectly smooth, liquid coat of finish.

You probably needed to vacuum or remove dust and particles of old finish several times during sanding just to see what you were doing and to keep from grinding them back into the board. Now, however, it is time for serious cleaning. One thing which will help settle the dust so it can be gathered and removed is moisture. I use a plastic spray bottle to mist water all around the shop: shelving, lights (if they are hot, don't get them too wet) and especially the floor. Brooms and paint brushes are used to collect the big piles of dust off the obvious surfaces. If you are going to spray with lacquer, this may be enough cleaning and all that is necessary is to use a silicone and wax-free tack rag on the board itself.

If you're planning to brush on varnish, you need to be a little more compulsive. I start at one end of the shop and open the big double doors at the other end and use compressed air to "sweep," blasting off the high surfaces of ceiling and light fixtures, working my way down along the shelves, benches and down to the floor. This includes blowing out the piano itself, being particularly careful to get around bridge pins and under relieved or cantilevered bridges, into plate bolt holes (it is actually best to tape these off) and the beams under the board. I mist again, and then go off and do something else for a while to let things settle. If your shop heating system includes fans (many "space heaters" do), shut them off and leave the lights on to keep the room heated. Water and oil-filled electric radiators do not create this problem (installing them also halved my electric bill). Anything which keeps air moving should be shut off or sealed. This includes that leaky door sill or window frame you've been meaning to get to (duct tape it). Use a tack rag to clean up the bridges, soundboard, inner rim and top edge of the case, and use it once more before you apply finish.

If you use shellac as an undercoat, either thin it from the can or mix up crystals in advance (in denatured alcohol). Experiment on a small section of the board which will be hidden when the plate is reinstalled to find a thickness which will flow readily, give you the color (if any) you desire, and seal the wood without building up much of a coating.

It isn't necessary to use your fine China bristle brush with shellac. In fact, since the easiest way to clean a shellac brush is with warm water and ammonia, use of a good natural bristle brush is counterindicated (hot water causes the natural hair to "explode" just like wool fibers do). Use an inexpensive synthetic ("latex") brush; the foam brushes don't hold this thin material very well.

Brush on shellac as quickly and evenly as possible. As with any finish, brushing along the grain is advisable. Brush into a wet area: lay on each brushload of finish leaving a strip of dry wood at first and pulling the freshly applied material across it into that which has been sitting on the board for a minute or two. Apply it as evenly as possible but don't fuss over it too much. Shellac dries so quickly the brush will grab and leave marks: better to take care of slight unevenness with sanding after the coat has dried.

If you are spraying lacquer, you must set up adequate ventilation: exhaust fans (with some sort of baffle to prevent them from pulling material away from the work too quickly). Be sure to use a sanding sealer compatible with the top coat, and use a good quality thinner with both. Read the can for directions on thinning and spray pressure. The material needs to be thin enough to spray and flow well, but not so thin it dries before it reaches the surface — and not thinned with materials which dry so quickly they contribute to the problem of blushing (picking up moisture from the air). Overspray is a problem: the case and bridges must be masked (you don't want finish material on the tops of the bridges).

A good spray gun is imperative. I understand that several companies (Binks, for one) are making a new style of gun which practically eliminate overspray: these are very expensive but it may be possible to have the supplier retrofit your current gun. Airless sprayers are also said to yield good results with minimal overspray.

Practice spraying before you tackle a board. Play around with distance and angle of the gun, amount and brand of thinner, temperature and ventilation of the shop. Although I don't spray boards, I do plates with lacquer and bronzing powder, and find that just the noise of the compressor makes the job more anxiety provoking than it need be (so I wear ear protectors along with all the other protective gear).

Lacquer needs to be flowed on wet, but not so wet it sags. The problem of "orange peel" — roughness of the dried coat — is often due to spraying from too far, allowing the material to dry in the air before it contacts the surface. Excessive thinning or incorrect spraying pressure can also be at fault.

Although the coats bond chemically, it is a good idea to sand lightly between them to smooth the surface and remove any small bits of dust. Be sure to allow more than adequate drying time between coats, and overnight after several successive coats have been applied.

By way of contrast to spraying lacquer, applying varnish is almost meditative. Fine sand the shellac top coat so it is even and a little abraded for adhesion. Tack up the dust and then go off and let things settle again (ideally, overnight).

When you go back to varnish, damp down the floor again and wear a synthetic fabric so you don't shed fibers (yes, I'm serious). Tack off the board and case again, and also the top of the varnish can before you open it. Soundboards are done with gloss varnish, which should not be stirred. You want to avoid working up bubbles. A good natural bristle brush, preferably broken in (but well-cleaned) is the traditional implement. However, those cheap foam brushes work awfully well and there is something freeing to the spirit about throwing away a brush (a fairly small antical indulgence and it releases no thinners into the atmosphere).

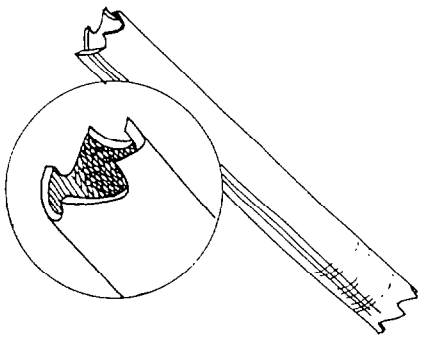
It's advisable to put varnish into a separate container so you don't transfer any dust the brush picks up back to uncontaminated stock. If you want to get real fancy, put a "strike wire" on the can — run a nail or length of wire from side to side at the top of the can to give yourself a place to press excess varnish out of the brush.

I varnish bridge notches first, using a small foam brush and being careful not to puddle varnish around the bridge pins. The bridges have not been shellacked, so the varnish is absorbed and will not yield as glossy a surface, but I don't want to load the bridge or gum up the pins. Bridge notches also harbor dust, so wipe the surface of the board alongside the bridge after you're

done with the notches and start with a fresh supply of varnish and a new (larger) brush.

Varnish wants to go on wet: stop just short of leaving puddles. Modern varnish self-levels quite well, so don't work it over too much (this tends to create troublesome air bubbles). Some use a pour-and-spread technique. I apply the material in fat brushloads, brushing it on with the grain leaving dry areas between each strip, brushing across the grain to spread and applying a little pressure to work it into the wood, and then finishing off with light pressure following the grain and flowing it into the wet coat. Get it on and leave it alone, but arrange a light so you can sight down the surface and find dry spots and put a little more finish on them with a wet brush (rather than trying to pull material which has already started to dry over them). If you see air bubbles, don't be too concerned — they will probably disappear more readily if you leave them alone. Foreign objects are a problem: tiny specks of dust or bristles from the brush. Brush bristles are best retrieved by stabbing at them with the brush itself so they jam into the fibers and can be picked up. Specks may be best left alone. If you want to pick them up, don't use your fingers, which will leave craters; try something small and pointed like a tweezers or a small artists' brush or the splintered end of a matchstick.

Once you're satisfied that the board is covered, get out of there and don't



slam the door. Varnish cures by reacting with air and it takes its own sweet time about it. Accelerating the cure with heat lamps may be asking for trouble: if the surface skins over, oxygen transfer is slowed and the surface may be more liquid than it appears — for days. Avoid putting anything on the board or even wiping dust off with a rag for at least twenty-four hours. High humidity or very thick coats will require longer. Read those cans!

Speaking of cans, don't space out and put a can of varnish (or anything else) down on a piece being refinished. Cans sitting on shelves pick up all sorts of contaminants and you may end up with an interesting pattern of interlocking rings where nothing will adhere.

We could go on and say a few words about rubbing out top coats, but it is an activity I avoid so I need to do a little research. Speaking of research, here are a few suggestions for books and magazines on the subject:

Fine Woodworking (magazine), The Taunton Press, Newtown, Conn. 06470-5506

"How To Do Your Own Wood Finishing" Jackson Hand. (published by Popular Science division of Times Mirror Magazines, now out of print but often available in libraries.)

"Adventures in Wood Finishing" George Frank. (also a Taunton Press publication)

And now, a little tidbit for us all....

Especially the patient souls out there who *never* get involved in soundboard work of any sort and who've been left out in the cold as far as the past few months of the Technical Forum go. Here's a little item I got from Isaac Sadigursky and promptly forgot until I got suckered into repairing an artists' bench which "just needed a couple of screws." Well, the reason it needed a couple of screws was that the original ones had all broken off in the wood — and I have bad luck with the evilly-misnamed easy-out type extractor. This little gem from Bryco, Inc., 2407 Arden Drive, Champaign, Illinois 61821, is used in a reversible drill to drill down into the wood around the screw and pull it out in a little plug of wood. The hole can be neatly filled with a length of dowel and redrilled for a new screw. It is tolerant of being slightly off-center and quite durable. It works on up to a number eight screw and leaves a 1/4" bore: there may be other sizes available by contacting the company. Thanks, Isaac!

TUNING UP

The High Treble

Rick Baldassin
Tuning Editor

You may recall that last month, our discussion centered around octaves five and six, or what we commonly call the treble section. This month, we will discuss octave seven, or the high treble.

In tuning the treble, we were attempting to create a framework which satisfied as best possible the demands of the 4:2 and 2:1 octaves, as well as the 4:1 double octave. It was stated that if a 4:2 octave was tuned from notes F3 to F4, and a 2:1 octave from F4 to F5, that a 4:1 double octave is tuned between F3 and F5. This was very satisfactory, until we looked at the composition of notes F4-F5-F6. With a 2:1 octave from F4 to F5, and another 2:1 octave from F5 to F6, the 4:1 double octave between F4 and F6 will be flat. With some juggling, a plan was set forth whereby the single octaves were stretched slightly beyond pure 4:2 and 2:1 (such that the tests would be unequal beating) to a state resembling figure 1.

The aural tests would for the most part beat in unequal fashion, and would be as follows:

F3-F4:	M3<M10	(4:2+)
	P4>P5	(4:2+)
F4-F5:	M10<M17	(2:1+)
	P5>P12	(2:1+)
	M3=M10	(4:2)
	P4=P5	(4:2)
F3-F5:	M3<M17	(4:1+)
	P4>P12	(4:1+)
F5-F6:	M10<M17	(2:1+)
	P5>P12	(2:1+)
F4-F6:	M3<M17	(4:1+)
	P4>P12	(4:1+)

It was further stated that once this framework was set forth, there should be a good relationship between the M3 (5:4), M6 (5:3), M10 (5:2), and M17 (5:1). There is a common test note for each of these intervals. For the F octaves listed above, the test note would be C#4. The test was to first listen to C#4-F4 (M3), C#4-A#4 (M6), C#4-F5 (M10), and C#4-F6 (M17). The progression should generally be as follows: M3<M10<M6<M17

Depending on the inharmonicity and how much we are able to stretch, in some pianos the fifths become pure or nearly pure, such that the M6=M10. In this case, the progression might be:

M3<M6=M10<M17

In most pianos, the above framework is achievable, and a good compromise can be reached between the demands of the single and double octaves. If F6 was the top note of the piano, it would make life more simple. Enter note F7.

With note F7 now in the picture, we need to look at the relationship between F5-F6-F7. In the above example, F5-F6 is tuned as a 2:1+ octave. If you are lucky and the inharmonicity cooperates, by stretching this octave beyond 2:1 as much as you can tolerate, it might be to the point of matching 4:2. In this case, tuning a 2:1 octave from F6 to F7 would give a 4:1 double octave between F5 and F7. In most pianos, the inharmonicity creates more difference between the 2:1 and 4:2 levels of the F5- F6 octave. This means when the octave is stretched beyond 2:1 as much as we can tolerate, the 4:2 level is still narrow (4:2-). This being the case, with a 4:2- octave from F5 to F6, and a 2:1 octave from F6 to F7, the double octave between F5 and F7 will be flat (4:1-). In a good piano, a slight stretching of F6-F7 will allow us to make the double octave pure. The framework would be as in figure 2.

The aural tests would be as follows:

F5-F6:	M10<M17	(2:1+)
	P5>P12	(2:1+)
F6-F7:	M10<M17	(2:1+)
	P5>P12	(2:1+)
F5-F7:	M3=M17	(4:1)
	P4>P12	(4:1)

Electronically, with the tuner set on F7, the display should stop when F5 is played, roll slightly flat when F6 is played, and stop when F7 is played.

The better scaled pianos will accommodate this procedure. But what of the rest?

So far, by slight manipulation of the 2:1, 4:2, and 4:1 relationships, we have been able to achieve a good compromise between them. Sometimes, however, because of the scaling or inharmonicity of the instrument, this simply is not possible. What happens is that the difference between the 2:1 and 4:2 levels of the F5-F6 octave become so great that the octave cannot be stretched beyond the 2:1 level far enough to make the above compromise possible, and still have the octave sound acceptable, even to us big stretchers. With F6-F7 stretched beyond 2:1 as much as possible, you wind up with something like figure 3.

The aural test would be as follows:

F5-F6:	M10<M17	(2:1+)
	P5>P12	(2:1+)
F6-F7:	M10<M17	(2:1+)
	P5>P12	(2:1+)
F5-F7:	M3>M17	(4:1-)
	P4<P12	(4:1-)

Electronically, with the tuner set on F7, the display would be sharp on F5, flat on F6, and stop on F7. One technique is to actually split the difference between the amount F5 shows sharp, and the amount F6 shows flat. If the difference is not too great, this is a good solution. The single octave F6-F7 is wide, but tolerable, and the double octave F5-F7 is narrow, but tolerable. If the difference between the readings becomes too great, it is possible that this compromise can leave both the single octave F5- F6, and the double octave F5-F7 sounding bad. In this case it is probably better to leave one of the two sounding bad, rather than both.

The choice comes down to whether you want to favor the single octave F6-F7, or the double octave F5-F7. Each method has its strong and weak points. Favoring the single octave creates a strong reinforcement of note F7 by note F6 which is undamped, and rings sympathetically. The more in tune this octave is at 2:1, the more reinforcement occurs. The down side is that the 2:1 tuning leaves the treble sounding flat when arpeggios are played, and the beat rates of the progression of M17ths tend to level off, or even reverse. Double octave tuning creates a better sounding treble for arpeggios, and better maintains the progression of M17ths, but can leave the F6-F7 octave beating far beyond the point where we are worried about positive reinforcement any more.

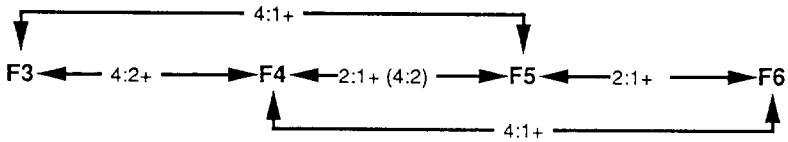


figure 1

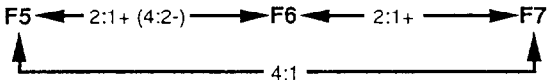


figure 2

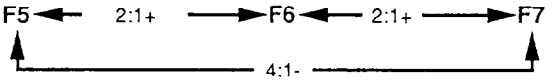


figure 3

Some have advocated that perhaps the situation in which the piano is being played should help us to know which way to turn. If the piano is being played in a home where the listeners are more likely to be in close proximity to the instrument, then single octave tuning would be favored. If the piano is in a concert hall, where the listeners are farther away, then double octave tuning would be favored, as the beats in the single octave would not be heard, and the "edge" that the octave takes on helps it to carry in the hall. Psycho-acoustics come into play. Supposedly, humans hear the treble flat, so we should tune it sharp to compensate. Violinists are said to play sharp in their upper register.

The PTG exam specifies single octave tuning in the high treble, so at least for this one tuning, you won't have to fret over which way to do it. Tune the high treble octaves so that they sound as clean as possible, such that the M10=M17 and P5=P12 (or electronically such that with the machine set on octave seven, the lights stop when both the upper and lower note of the octave are played). For the exam, do this and don't look back. Don't even listen to the double octaves in the high treble. The rationale behind this is that since there is such a wide divergence of opinion as to how much the treble should be stretched, the exam specifies how much, and the examinee simply has to demonstrate the ability to do such. From a practical standpoint, it is about the only way the section could be aurally verified, because once you allow some stretching, where do you draw the line?

The fact that the exam specifies single octave tuning does not mean that the PTG endorses this type of tuning. It is my experience that more technicians dislike single octave tuning than like it. Almost all of the concert technicians I know tune double octaves. When asked about the beats in the single octaves, these technicians reply, "They sound good to me." And I would have to agree with them. Concert instruments are generally scaled well enough to make double octave tuning possible. But there are cases where even I can't take the single octave sound. Since I generally prefer double octave tuning, in these cases I tune such that the double octave is flat by as much as I can tolerate, and live with the single octave which may be wider than I would like, rather than tuning the octave as wide as I can tolerate, and living with a double octave that is narrower than I can tolerate.

In essence, I tune double octaves with good sounding single octaves as long as the piano will let me. If this becomes impossible, I revert to the "sharp single octave-slightly flat double octave" compromise. If I can split the difference, fine. If not, then I leave the double octave flat by the maximum tolerable amount, and live with the single octave.

If you are used to tuning single octaves, the octave quality which results from this type of tuning may be hard to swallow. But in time, you will get used to it, just like you got used to the taste of sour cream on your baked potato.

For further information on treble tuning, please read Michael Travis' article on passing the tuning examination, and the second part of Richard West's article on treble tuning.

Until next month, please send your questions and comments to:

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Vertical Piano Damper Replacement: Part II

Bill Spurlock
Sacramento Valley Chapter

Last month I presented methods of diagnosing ringing dampers, designing and making special replacement dampers for problem areas in the piano, and preparing damper felt for installation. This month I will conclude with a unique method of adjusting the damper heads followed by damper felt installation. That's right — I prefer to adjust the heads *first*, before they have any felt on them, and *then* install the felt. To understand why I do this job "backwards," let's first look at the problems we face when trying to adjust dampers in the usual manner.

What's So Hard About Adjusting Dampers?

In the factory situation, damper wire bending (for even pedal lift and proper seating to the strings) is done with the damper felts already glued onto the wooden heads. Although this is skilled work, it is made reasonably easy because the actions do not have hammers, shanks, hammer rails or spring rails at that stage. Thus the worker has good tool access and visibility, to say nothing of the skill acquired through doing the same job on dozens of the same model pianos each day.

When we try to do major wire bending on a complete action, we face a much more difficult job. After threading a bending tool through hammers, shanks, and butt springs, we may find that the tool does not engage the wire at the best spot to accomplish the desired bend. In addition to limiting tool access, these other action parts limit visibility so we cannot easily see when the damper is seating squarely to the strings. Besides not being able to get our tool where we want it or to see what we are doing, we get to enjoy this work while bending forward over the keyboard, straining our backs.

Although the side-to-side bends (to center the damper over the unison) are simple enough, the fore and aft bends are more complicated because each bend has two effects: it changes the angle or flatness of the damper on the strings, and it also changes the timing of the damper lift with the pedal, as shown in figure 1. When we first make a bend at the base of the wire to make a damper lift evenly with its neighbors, we are also changing the tilt of the damper head, which upsets the parallel mating of the damper and strings. When we then make a bend at the top of the wire so the felt will lay flat on the strings, we have also changed the position of the bottom of the damper lever so it no longer lifts evenly. Compounding the problem is the difficulty of visually judging when a spongy piece of damper felt is actually laying flat against the strings. Thus we end up chasing back and forth between these two adjustments and either taking way too long or settling for a mediocre job.

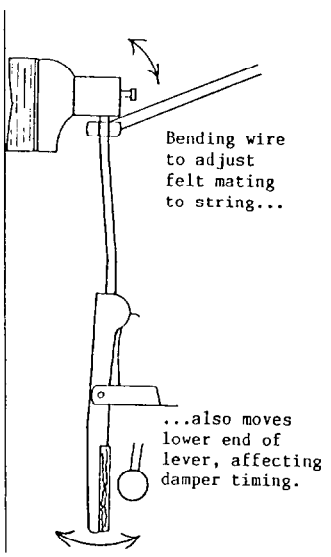

figure 1: effects of wire bending

To get around all of these problems, I prefer a method of adjusting the heads before the felt is glued on, with the action on the bench. This method eliminates most of the tool access and visibility problems, leaving only minor touch-up and spoon bending to be done after the felt is installed.

Overview Of Procedure

As explained above, any fore and aft wire bend affects both the flatness of the damper seating and the timing of damper lift with the pedal. Evenness of pedal lift results from the lower ends of all damper levers being in a straight line, so as the lift rod moves, it engages all the levers at once. Therefore we can eliminate this one variable and guarantee even pedal lift by fixing all damper levers in a line. We can can do this simply by propping the lift rod up so all levers rest on the rod while the wires are bent to position the heads the correct distance from and parallel to the strings. This bending is done on bare wooden damper heads, so the variable of spongy damper felt is also eliminated. A few sample damper heads are first adjusted with the action in the piano (with the pedal rod propped up), using wooden gauge blocks in place of damper felt, so parallel alignment of the heads can be most easily seen. The action is then removed to the workbench where the lift rod is again propped up and elastic thread "straightedges" are strung between the sample heads. All other heads are then adjusted to match these samples. The action is then placed back in the piano, where the felt is installed and final adjustments made.

When the piano is in the customer's home, rather than in my shop, my procedure is to do the diagnostic work at the piano, then bring the action to the shop for old damper felt removal and any other necessary service. If I determined during my diagnosis that special dampers would be needed to correct problem areas, I would make them up in

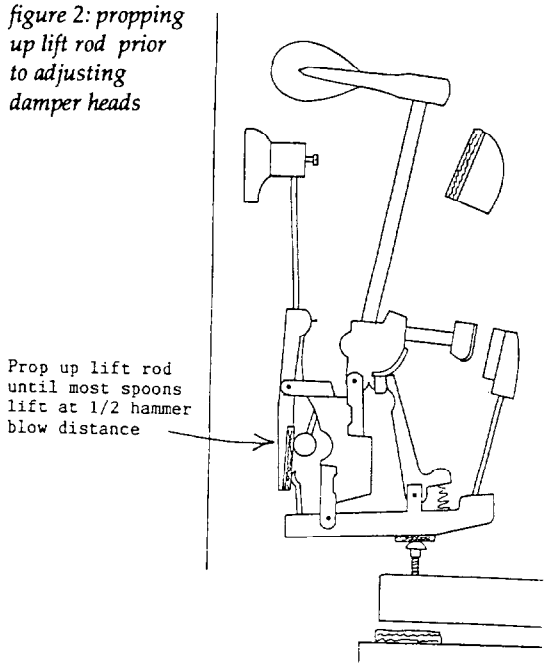

figure 2: propping up lift rod prior to adjusting damper heads

the shop. I would then return to the customer's home and do all adjustment, felt installation, and final "tweaking" as explained here. I find that besides giving me better results and being physically easier, the method detailed below takes me less time than doing all of the wire bending with the action in the piano.

Procedure

After completing your diagnosis, old felt removal, repair of damper levers, springs, etc. and preparation of new felt, proceed as follows:

Step 1: (action back in the piano) If you are re-using the original heads, check that they are even in height, using a straightedge. If you are replacing heads, duplicate the original felt height. Make sure there will be at least 1/8" of space between the hammers and damper felts when the dampers are lifted and the hammers are against the strings. In the bass, make sure there will be clearance between each damper and the next hammer to its right. Make sure each damper head is rotated square to the strings as viewed from above. Space the heads side-to-side so they are centered over and parallel to the unison strings.

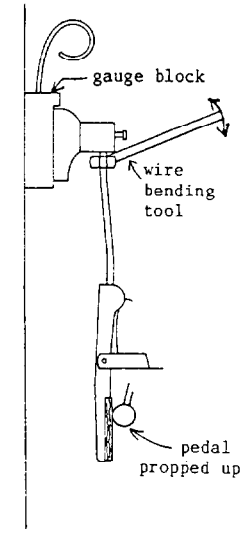

figure 3: gauge blocks used to set sample dampers

Step 2: Select the damper felt you will be using. Make up four wooden gauge blocks of eight, 10, 11.5, and 13 mm thicknesses, and choose one to match each of the various felt types: for bass dampers, put a new bass damper in place (no glue) between a damper head and strings and choose a gauge block that will hold a neighboring head an equal distance from the strings. In other words, choose a gauge block that will represent the dimension of the damper felt to be used. (The dimensions above apply when replacing felt only. When using damper felt that comes already mounted on wood blocks, you will need a much thicker gauge block.) Test both a monochord and a bichord, and modify the above block dimensions by sanding or adding card stock if necessary. Select a gauge block to match the tenor trichord felt in the same way, and also for the flat dampers. Most sets of flat dampers are tapered in both length *and* thickness, so you will need one gauge block for the first tenor flat damper and another for the last treble flat. These gauge blocks will be used to accurately set the sample damper heads in the piano.

Step 3: Determine how far to prop up the damper levers with the pedal when adjusting the samples. This will determine where the levers will be later when the damper felts are installed and resting against the strings. When the job is done, the lower ends of the levers must rest far enough away from the action rail that when the pedal is released, the lift rod can get back away from them. Otherwise, ringing dampers will result. However, they should not be so far away from the rail that the spoons have to be angled outward severely causing them to dig into the lever felt. Normally, it is easiest to just gradually prop the pedal dowel up until most spoons begin to engage when the hammers are halfway to the strings, as shown in figure 2. This setting will minimize later re-adjusting of the spoons. The dowel can be propped between a wedge and the bottom board; my preference is to use a turnbuckle between the damper lift rod and the top action post, since this is easiest to adjust and will not slip.

Step 4: With the damper rod propped up in the desired position, carefully adjust your sample damper heads using the gauge blocks chosen in Step 2. Normal samples would be the first and last bass damper heads, one head which will have trichord felt, the first and last heads to have flat felt and one around note 55. Spend time to get the samples consistent, so the gauge blocks just fit between the heads and strings without moving the heads back, and so the heads sit parallel to the gauge blocks, as shown in figure 3.

Step 5: Place the action on the bench, and prop the lift rod up with the turnbuckle between the lift rod and a bolt placed in the action bracket, as in figure 4. The position of the rod is not important, as long as all the levers are resting on the lift rod rather than on the spoons. Do not prop up the lift rod using a rubber mute between the action rail and the rod; this puts a horizontal force against the rod, distorting it into a different shape than normal. The turnbuckle exerts force vertically, in the same direction as the damper lift rod, and therefore gives the most accurate result.

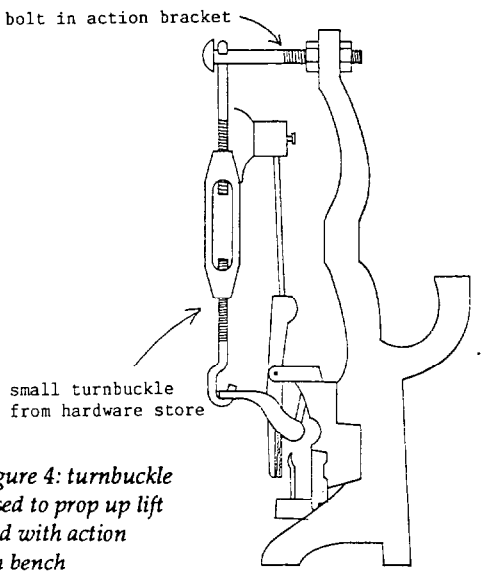

figure 4: turnbuckle used to prop up lift rod with action on bench

Now set up a "straight edge" between samples by running two strands of fine elastic thread (from a fabric store) between each pair. Fasten the thread to the side of each sample head with masking tape, and space it slightly away from the face of the head with a piece of busi-

NEWSLETTER

Volume I, Number 1
July 1990

INTERNATIONAL ASSOCIATION OF PIANO BUILDERS AND TECHNICIANS

President's Message

Ronald L. Berry, RTT

Why is there an IAPBT? Is there any real reason for technicians from around the world to get together? Don't the same reasons we have our own organizations apply to an international organization? So why do we have our own organizations? Isn't it for exchange of ideas and friendships among people in our own business? It is true that language barriers make it harder to exchange ideas but they don't prohibit it. Showing someone how you do a particular job comes across even without language. But if it were only for exchange of technical information, the IAPBT would probably not exist. It is the friendships with other technicians that keep an organization like IAPBT going. It is the vehicle to get people together so that cross cultural exchanges can happen. Piano manufacturing is certainly an international business and for technicians to have a better understanding of other countries makes us better people as well as better technicians. Of course, factory visits are valuable to technicians wherever they are. They teach us about how pianos are put together and often give us methods for being more efficient in the rebuilding shop, (although I can hardly picture buying some of the robots I saw at Yamaha for a one man rebuilding shop).

This business is different from most others in that we truly become close friends with our competitors. (Remember that 95% of us in the U.S. are self-employed and are not tied to the sales of one piano manufacturer.) There are many technicians in other cities which are closer to me than some of my own family members. For me the PTG is family in a very real way. Expanding this around the world enriches us all. One very important aspect of the piano tuning business is that technicians

Continued on next page

IAPBT: A Brief History

Charles P. Huether, RTT, MIMIT

Associations of piano technicians have a long history, but they are primarily groups organized in particular countries. Certain far seeing individuals, recognizing the value of international communication worked quietly and with dedication over the years to develop a world wide inter-organizational association. In Europe this was achieved with the formation of Europiano. However, as the name implies, it is reserved for organizations on the continent of Europe.

In 1979, after many years of quiet contact and preparation a group of visitors, members of the Japan Piano Technicians Association met with members of the Piano Technicians Guild at their annual convention in Minneapolis, USA. In a day long meeting they reached an agreement to form a truly international organization of Technicians Associations and worked out a simple set of Bylaws. The International Association of Piano Builders and Technicians was born.

Don Morton (PTG) and Nobuo Tanaka (JPTA) were elected co-presidents. It was agreed that a meeting would be held every two years and arrangements were set in

Continued on page 3

Invitation To Seoul

A letter was received from Chen Sik Chang, President of the Korean Association of Piano Technicians. He said that they had all learned a lot and appreciated the meetings in Kyoto. They want to see more of this kind of meeting. He takes this opportunity to invite everyone to come to the 1991 meeting in Seoul when everyone can be together again. They will try hard to make this meeting the best they can and will prepare lots of events. They feel that meeting with other technicians will make everyone better technicians.

President's Message...

are happy with their work and take pride in it. Many people in other lines of work hate their jobs, but piano technicians often feel lucky that someone will pay them to do something they love to do.

There are more tangible things that an international organization can do. By networking with each other about the kind of promotions we do we can share our ideas. I would like to see us standardize and compile piano nomenclature in all our various languages. This work has been done in Europe and that format can be useful for us to follow. In North America currently, efforts are under way in Quebec and Mexico. The Quebec French is different enough that they are working on their own set of terms apart from those used in France. In Mexico, likewise, they are compiling a set of Spanish terms. By adding other languages to this effort we can help bridge the language barriers that exist between us.

This organization belongs to all of us. Give us your ideas for what you think needs to be done and how we can do it. Letters to the Editor are always encouraged. IAPBT has gotten off to a good start and its role will become more and more important as the world continues to shrink.

The 6th IAPBT meeting in Kyoto, Japan was a large success. Representatives from Japan, Korea, Taiwan, and the United States were present for the Council session. At that meeting a Bylaws amendment was passed to remove the limit to the number of Board members. Now each member organization is entitled to one director and those organizations with more than 1500 highly qualified members are entitled to two directors. The size of the Board will grow as more organizations become members.

The Board of Directors was elected and is as follows:

Ronald Berry, USA, President
Bo Jung Lee, Korea, Vice President
Kenzo Utsunomiya, Japan, Secretary/Treasurer
Kazuyki Oghio, Japan, Director
Edwin Hilbert, USA, Director
Ling Ho (Tom) Liu, Taiwan, Director

Since no delegation from Australia was able to attend, no director from Australia was elected during the meetings. They may elect a director to serve on the Board of Directors for the next two years.

The Council session also reaffirmed its decision to maintain A-440 as standard pitch and to make this resolution known to music groups and conductors around the world.

The 1991 meeting of IAPBT was set to be in Seoul, Korea and for 1993 it was decided to contact Europiano and try to have the meeting in conjunction with the Europiano meeting that year. After the Council meeting was a symposium which was certainly the high point of the meetings. Each member organization was asked to prepare a presentation on the future of piano tuning and the piano industry and include an overview of the present situation in each country. Scripts of these presentations were provided in English and Japanese. Each speaker's presentation was simultaneously translated in English, Japanese, Korean, and Chinese. With the simultaneous translation, questions could be asked of each speaker by anyone in the audience. Presentations were given by Ling Ho (Tom) Liu of Taiwan, Bo Jung Lee of Korea, Charlie Huether of USA, and Tokuichi Ojima of Japan. As part of his presentation, Charlie Huether showed an 11 minute promotional video tape, produced by the PTG, showing the value of piano service and the importance of getting a qualified technician. While each country presented its own view and problems, the fact that we are all in very similar situations became clear. This showed that by working together internationally we can accomplish more than we can individually.

The participants in the IAPBT meetings were also treated to factory tours of Kawai and Yamaha as well as receptions by each company. Both of these companies provided spectacular buffet meals at these receptions which gave everyone a chance to sample Japanese cooking (and non-cooking at the sushi bar). These events gave people a chance to make friends and exchange ideas with technicians from around the world. Despite language barriers, our common interest in the piano made a great deal of communication possible. The party closed with the singing of "Auld Lang Syne" and the promise of seeing each other in Seoul in 1991.

The International Association Of Piano Builders And Technicians

IAPBT Newsletter
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U.S. Industry Groups Meet

Informal discussions among officers and executives of various piano-related organizations in the United States have led to a greater degree of cooperation and understanding. The talks, which have involved technicians, manufacturers, dealers, teachers and sheet music publishers and retailers, have taken place at various industry conventions and trade shows. Discussions have centered on ways of increasing public awareness of the piano.

IAPBT History...

motion to meet in Switzerland in two years. That meeting was held while delegations from PTG and JPTA were attending the Europiano annual meeting in Gwatt. At that meeting, the IAPBT officers introduced their new organization to Europiano's officers and invited them to join. The invitation was declined at that time.

Subsequent meetings and conferences were held in Tokyo, Kansas City, Toronto and Kyoto. The 1991 meeting will be held in Seoul, Korea. Although IAPBT has attracted no organizational members from Europe, it has expanded around the Pacific Rim. Memberships have been granted to the Taipei Piano Technicians Association., Korea Association of Piano Tuners and the Australian Piano Tuners Association. We look forward to meeting once more in Europe in 1993 and hope that at that time, or even sooner, the IAPBT membership will be expanded to include European organizations.

As part of an ongoing attempt to interest non-member organizations to join, IAPBT has allowed some temporary individual memberships in countries where there is no organizational member. We have such individual members in England, Germany, Norway and Hong Kong. It is our hope that through these individual memberships we may ultimately attract organizations from their respective countries. As the world grows smaller and interest in pianos, performance, service and manufacture grows worldwide, it is in the best interests of everyone whose work relates to this extraordinary instrument to maintain worldwide contact with like-minded people and organizations.

IAPBT started as an idea 10 years ago. It has survived and grown under difficult circumstances. The validity and the importance of the organization and its original concept has been proven by the fact of its survival. Now we must go beyond survival. We have the foundation laid by the hard work of those who were involved in its development. We must go forward achieving wider membership, wider recognition and greater accomplishments. The door is open. The "Welcome" sign is out.

Mexican Organization Founded

The first association of piano tuner-technicians in Mexico was organized in Mexico City during a May 26-27, 1990, seminar. Francisco Chavez, organizer of the seminar, was elected the organization's first president. A six-member committee was elected to begin planning for a 1991 seminar and to begin the formal organizational process for the new association.

The May seminar was the second in Mexico City. Members of PTG's South Central Region assisted in planning the seminar and teaching classes, and will continue to assist in organizing the new association.

IAPBT Song A Hit In Kyoto

At the meetings in Kyoto, an IAPBT song was written by Anne Doerfler of Toledo, Ohio, USA. While in some ways this seems very simplistic, it became quite meaningful as we all realized that despite the greatest language barriers, music was indeed the universal language. Each delegation developed its own translation of the words which could all be sung at the same time.

The tune is "Are You Sleeping" (Frere Jacques) and the words in English are listed below:

"IAPBT, IAPBT
Around the world, Around the world
Friends who love pianos, Friends who love pianos
Hand in hand, Hand in hand"
(repeat)

Conventions Planned

U.S.A. — July 7-11, 1990

The Piano Technicians Guild's 33rd annual International Convention will be July 7-11, 1990, in Dallas, TX, U.S.A.

The convention, to be held at the Hyatt Regency Hotel at Reunion Tower in Dallas, will include a 3 1/2-day Technical Institute comprising more than 90 classes in all aspects of piano technology. Forty-six classes will be taught by independent technicians from the United States and Canada, with the remaining classes conducted by representatives of various piano manufacturers and suppliers of parts, tools and equipment.

The program also includes exhibits, a spouse program, membership and organizational meetings, and the Guild's annual Awards Banquet.

For more information, contact the Piano Technicians Guild Home Office, 4510 Belleview, Suite 100, Kansas City, MO U.S.A. Telephone: (816) 753-7747. Fax: (816) 531-0070

Australia — Nov. 8-11, 1990

From I.J. Lindsay, national secretary of the Australian Piano Tuners & Technicians Association comes word of that organization's upcoming convention in Perth, Western Australia. The convention, hosted by the Pianoforte Tuners and Technicians Association of W.A. , will be November 8-11, 1990, at the Perth Sheraton Hotel.

The convention schedule includes lectures by Max Matthais (Steinway), Peter Lemmell (Bösendorfer), Klaus Fenner and technical representatives from Yamaha Australia. Also scheduled are an A.P.T.T.A. general meeting, dinner and convention banquet. For more information, write A.P.T.T.A., P.O. Box N.164, Sydney 2000, N.S.W., Australia, or the convention organizers, P.T.T.A. of W.A., C/-36 Silvertop Terrace, Willetton, W.A. 6155.

IAPBT Newsletter Debuts; Articles, Information Needed

At its meeting in Kyoto, the IAPBT asked the Piano Technicians Guild to consider being a permanent address for IAPBT and take the responsibility for producing a newsletter. At its meeting in Portland, OR, the PTG Board of Directors agreed to take on this responsibility. This newsletter is the first one done under this concept. We will try to produce two newsletters a year. I had hoped to that this one would have come out in the fall, but that did not happen. This newsletter is being sent to all piano technicians organizations we know of, whether or not they are members of IAPBT.

In order to keep this newsletter going we need input from you. Anyone with information they would like to share with the world community of piano technicians is welcome to send articles to the IAPBT office:

IAPBT
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Kansas City, MO 64111-3577
(816)753-7747
FAX (816)531-0070

Articles may be sent in your own language or in English. Member organizations are responsible for translation and distribution to their own membership. It is the international flavor that makes IAPBT special and the newsletter will reflect this if we get articles from various countries. Below is a list of those organizations that received this newsletter. If you know of other piano technicians organizations please let us know so that they can be included.

Technicians' Organizations Around The World

Associazone Italiana Accordatori
Riparartori de Pianoforti
Guiseppi Mario Molteni
Via Beltrami 10
1-28 100 Novara
Italy

Australian Piano Tuners and Technicians Association
I.J. Lindsay, National Secretary
PO Box N.164
Sydney 2000 N.S.W.
Australia

Bund Deutscher Klavierbauer
Horst May
Frankenwerft 35
5000 Koln 1
West Germany

Dansk Pianostemmer-Union
Gunnar Christensen
Osterveld 14
DK-14 Randers
Denmark

European Union of Piano Makers Association
Theodor Meister
Geerenstr. 3
CH-8604 Kindhausen
Switzerland

Japan Piano Tuners Association
Kenzo Utsunomiya
2-18 21 Sotokanda Chiyoda-Ku
Tokyo, 101
Japan

Korea Association of Piano Tuners
Bo Jung Lee
7-22 Hongje 3-Dong
Suh Dae Moon-Gu
Seoul, Korea

L'Association Francaise Des Accordurs-Repararteurs De Pianos
Jean-Pierre Klein
24 Rue Du General De Gaulle
94430 Chennevieres Sur Marne
France

New Zealand Piano Technicians Guild
Owen S. Mathieson
9 Douglas Avenue
Mt. Albert 3
Auckland, New Zealand

Norsk Pianostemmernes Forening
Odd L. Aanstad
Huser, Asmaloy
N-1674 Vesteroy
Norway

Pianoforte Tuners' Association
Les Sherlock
10 Reculver Road
Herne Bay
Kent CT6-6LD, England

Schweizerischer Verband der Klavierbauer und Stimmer
Erwin Lauchli
Oberulmiz, CH-3144
Gasel, Switzerland

Suomen Pianovirittajateknikot r.y.
Asko Heino
Metsapellontie 43A9
15200 Lathi 20
Finland

Sveriges Pianostammare
Lief Hallden
Korsvagen 15
S-13100
Nacka, Sweden

Taipei Piano Technicians Association
Ling-Ho Liu
3 Fl. No. 416-2 Ting Jou Road
Taipei, Taiwan
Republic Of China

IAPBT's Seventh Biennial General Meeting

Seoul, South Korea — **June 5-7, 1991**

Hosted by the Korean Association of Piano Technicians

ness card. See figure 5. Temporarily bend any other damper heads back away from the threads if they interfere with a straight line between samples. You now have unobstructed access and visibility to adjust all damper heads in line with the samples. Adjust each damper head until it is the business card's thickness away from the threads. No heads should touch the threads: otherwise they will upset the straight line.

Step 6: With the action back in the piano, re-check that the heads are lined up side-to-side with the unison strings and adjust as needeed. With the pedal no longer propped up, glue the felt to the heads, letting the damper springs clamp the felt against the strings. Gluing the dampers on in-place is the best way to ensure perfect alignment of the bass and trichord felts with their strings. Flat dampers need to be clamped in the center or else they will not glue flat against the blocks, and their crease will be less. To do this, glue on the first flat damper and one up at the tenor/treble break. Put a length of 1/8" rod between these two dampers and the strings, positioned so it rests in the crease of the felts; these dampers will hold the rod in place as the other dampers are glued on. The rod will clamp the dampers flat against the heads so they have a deep crease as shown in figure 6. Repeat for the section of flat dampers above the treble break.

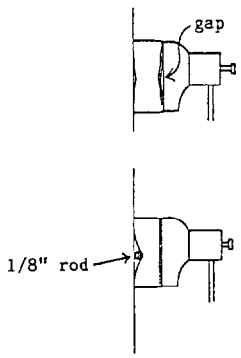


figure 6: gluing on flat dampers

Step 7: Fine-adjust damper lift with the pedal. If things are going your way, the dampers should now lift fairly evenly with the pedal. Before doing any fine adjustment, check to see whether one end of the damper section lifts sooner than the other; if so, remove the action and bend the lift rod hanger for that end so the rod rests closer to the action rail (push that end toward the rail while pulling the other end away). Be careful — a very slight bend makes a big difference.

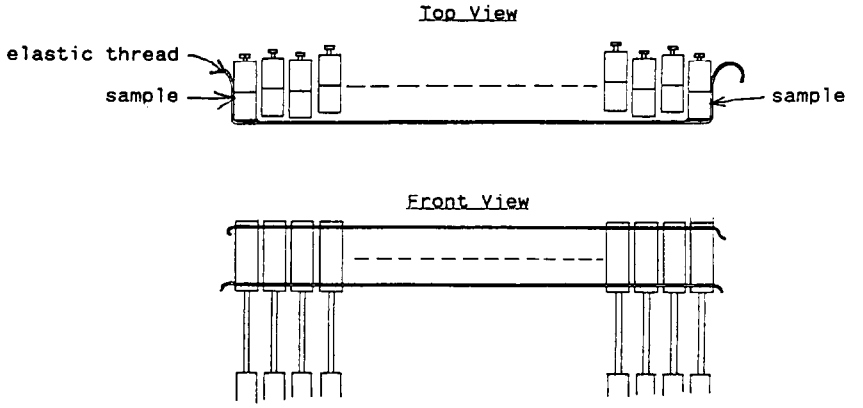


figure 5: using elastic thread for straightedges

At this point the wire bending required to even out the pedal lift should be very minor, and not enough to upset the parallel mating of the felt to the strings. Here I find it counter-productive to go in with the usual wire bending tools because they usually upset the side-to-side alignment slightly in the process of making fore and aft bends, especially in the bass where the wires are very angled. Instead, I prefer to just use my fingers and a hook or screwdriver, as shown in figure 7, to make these small changes. When the adjustment gets quite close, use your foot to just barely wink the pedal to identify the first few dampers to move. These can be slowed down by depressing the pedal fully and nudging the heads slightly with a finger. Remember that your bass and trichord felts are now perfectly aligned with their strings, so try to avoid any bending that will change their side-to-side position.

Step 8: Adjust damper spoons. I described spoon bending in detail in the December 1989 *Journal*, p. 19, and rather than to repeat that material here, I suggest referring back to that issue. To summarize however, I recommend using a spoon bender rather than the scheme of adjusting spoons on the bench. Yes, it *is* possible to use a spoon bender, and I believe it to be the fastest and most accurate method. But if I can adjust the damper heads on the bench, then why not the spoons too, you may ask? The difference is that poor visibility and tool access make extensive damper wire bending very difficult in the piano; once the bench adjustments are done, the minor tweaking necessary for a fine regulation of the damper wires is easily and accurately done in the piano. However, with the right spoon bender and a little practice, there is no tool access problem with spoon bending in the

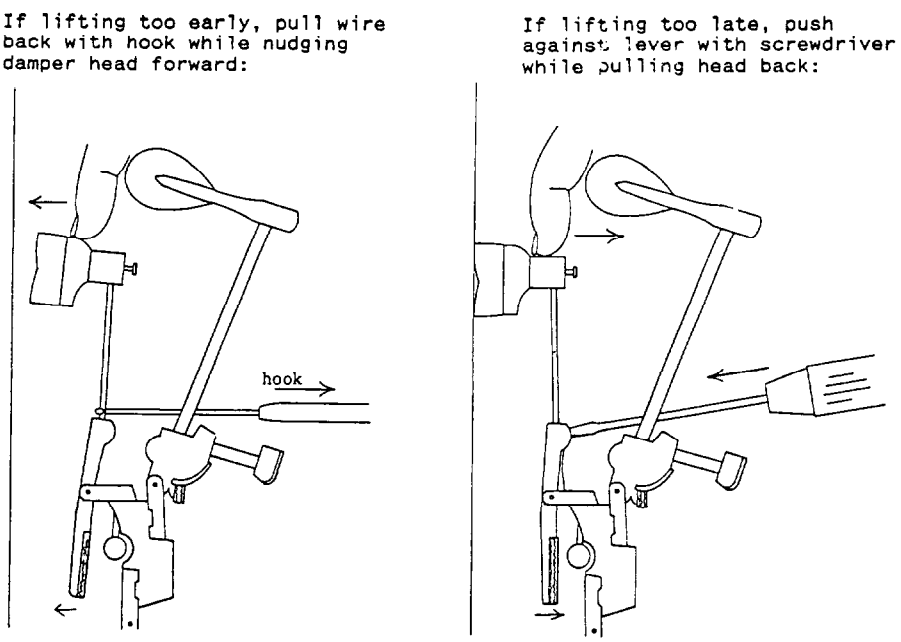


figure 7: fine-adjusting dampers for even pedal lift

piano. There is also no visibility problem, since the only thing we need to see is the damper lifting when the hammer is halfway to the string. Fitting the spoon bender into the spoon is done by feel. Although sample spoons can be set in the piano and others set to match on the bench, the regulation will usually not be perfectly uniform, and some trial and error will usually be necessary to refine the job. This is time consuming at best, and out of the question with spinets. Using a spoon bender, it is as easy to make a big adjustment as a small one, so I find it simplest to just set the spoons once and be done with it. By propping a gauge at one-half the blow distance and lifting each wippen to bump the hammers against it, you can immediately see the exact damper lift point, adjust as needed, and go to the next one. This procedure gives a perfectly uniform adjustment in one pass. Again, see the aforementioned article for complete instructions.

Conclusion

The damper adjustment procedures I've outlined above may sound rather complicated; however, they are actually easier to do than to describe. They key to doing any regulation work well is to first have an understanding of how the mechanism works, and then to follow an organized and direct series of steps in adjusting. In that way no work is wasted, you know you will get the desired end result, and the job becomes routine.

After a month off, I'll continue this series with a look at shop jigs you can use to do your own pre-filling, tail shaping, etc. on grand hammers. ≡

EXAMINATIONS

Learning To Pass The PTG Tuning Exam Part VIII: High Treble

Michael Travis, RTT
Washington, D.C., Chapter

Tuning the high treble as required in the PTG Tuning Exam presents a unique challenge, especially for aural tuners. The higher frequencies and short sustain times can be difficult to hear, false beats often interfere noisily with beat rate checks, and those short strings are relatively more difficult to control from the tuning hammer. Other problems arise if you're not used to tuning with a strip mute and haven't practiced with one in advance, or simply if you've run out of time and have to do a rush job on the top octave. I hope by now you are sufficiently aware of exam time limits and that you must budget your time so you can finish all the required notes.

Your examiners will normally be reluctant to suggest how you should tune for an exam, and this is good. We want to give everyone the same information to start with in order to be as objective as possible; that's why we have you read and understand the standard instruction sheet beforehand, and then leave it with you for the duration. Making too many suggestions just before an exam can do more harm than good, causing already nervous examinees to experiment with unfamiliar procedures which have a high probability of not working well the first time. We recognize that advice carries a burden of responsibility for the advisor, and it's better to let examinees make their own mistakes without giving them an excuse to blame examiners.

The exception to this is that we advise you to tune the top octave a certain way. The following statement appears among the standard tuning exam instructions:

"For purposes of this examination, do not stretch the high treble more than is necessary to get good, clean-sounding octaves all the way to the top."

We do not advise you in the exam room how to set pitch, tune a temperament or midrange, what kind of octaves you should use in the bass, or what tests are particularly valuable in the treble. Yet we do specify a particular result for tuning the high treble. Why?

Simply because, unlike most other areas, there are equally acceptable but divergent approaches to tuning in the rarefied atmosphere of the "high C-area," and we want to be as fair as possible by telling you in advance which one will give you the best chance of scoring well. Rest assured, PTG has no interest in promoting single octave high treble tuning for its own sake. If you've been following the listing of references in this series, you may recall mention of Rick Baldassin's *Journal* articles of April 1988 and May 1988 which graphically show the results of various types of treble octave tuning, and Rick has done a fine job of discussing the advantages and disadvantages in each case. Keeping up with current information is part of being a good technician, and the information is there for the reading.

What this boils down to as far as we're concerned with here is that whether or not you happen to think clean-sounding single octaves sound good in the context of your daily work, you should have the knowledge and the skill to control what you do, and to tune the top octave a certain way by choice, not chance. If we did not specify how to tune the top octave, you'd have less of a chance to score well there, since we compare whatever you do in the top octave to a clean-sounding single octave tuning.

The High Treble In The Exam

This is the sixth scored section of the exam, following pitch, temperament, midrange, bass and treble, and encompasses only the 12 top octave notes from C7-B7. For exam purposes, you don't tune C8. The tolerance in this section is the same as for the low bass (octave one): one penalty point per (pitch-corrected) six cents deviation from the master tuning. Deviations of 0 - 5.9 cents are scored as 0 penalty points; 6.0 - 11.9 cent deviations are scored as one point, etc. The percent conversion multiplier is one, so for example three points off in the high treble would convert to a score of 97%.

Although simple arithmetic and the above information make it clear that you could pass the high treble section at 80% with the maximum allowed 20 points off over this span of 12 notes, that doesn't make it a giveaway. The exam was set up so this section is as easy to fail as any other section, and even with a greater average passing point allowance per note (20/12 = 1.67) than any other section, failure occurs all too regularly. Let's see what we can do here to prevent some of that.

A Minor Correction

First, I'd like to append my stated procedure for electronically tuning the treble octaves for the exam. Last time I suggested that tuning the treble as 2:1 octaves that are one cent wide from about C5 all the way to the top should be sufficient to pass the test, provided you have a good midrange to base this tuning on and your hammer technique is adequate. I referred to this as the "2:1 plus a cent" rule, and I still stand by that.

However, I then added that you could refine this rule by employing pure 3:1 P12 tuning up through about the middle of octave six, and that's where I may have confused things. What I actually meant to say is this: set the instru-

ment on the note being tuned, play and measure the single octave below, add one cent to the display (for the 2:1 octave, one cent wide) and then check the P12. The modified rule and the suggested procedure is to tune the note so that it's at least one cent wide of a 2:1 single octave, but up to 1.5 cents wide if this produces a more pure 3:1 P12 without putting more than about one bps into the 4:1 double octave. If you still don't understand this and need more clarification, please call my number in the PTG Directory.

High Treble Tests

Tuning the top octave seems to give a lot of technicians fits. Yes, we all get the job done somehow, and no, most customers probably don't appreciate a very refined approach in this area. Rule number one of tuning a high treble note is don't leave it flat, and rule number two is make it sound about a half-step higher than the note below it. So what's flat, and how do you judge a half-step? There is a difference between what you do for your customers and what you do in the exam room. For your customers, you try to give them what you think they want, which most often gives you a lot of leeway. In a tuning exam, you try to tune clean-sounding octaves, and suddenly you have less of a choice, less slop-factor, and you have to control your tuning better than you're used to. The remedy is to practice the requirement in advance of the test, as previously stated:

Hint #4: Practice tuning the top octave by playing just the single octave, both notes simultaneously, especially if you usually tune in that area by playing the notes sequentially (which will drive the single octave too sharp), until you can hear the single octave when it beats as well as when it is clear.

If you have access to a VDTA such as a Sanderson Accu-Tuner, another way to practice hearing those high treble octaves is to set up the instrument as if you were going to tune a note electronically as described above, using the simple "2:1 plus a cent" rule, and see how well you can match the electronic settings aurally. At first, just tune to stop the lights, playing the note normally and listening very carefully to what happens as the lights slow down and you approach a pure single octave. You should hear a "spike" in the volume of the note being tuned as it begins to excite the second partial of the open string one octave below (if it's not open, press and hold the key to raise the damper without sounding the note). This volume increase is due to string coupling (the played string "rings the chime" of the unplayed but open string). Once you detect that you can listen for the actual beats, which slow down as the note being tuned approaches a pure 2:1 octave. These beats are often mistaken for false beats, but they are not because they can be literally tuned out the closer you get to a pure single octave.

Hint #22: Practice the "resonance test" method of tuning the top octave with or without an instrument. First get the note in the ballpark by playing both ends of the octave together and eliminating the 2:1 beats, or by setting the octave to a 2:1 plus one cent width. Fine tune by playing the top note by itself and pushing, pulling and nudging the tuning hammer as you find the "sweet" point of the single octave, the point of greatest excitation of the open string one octave below. Settle the string/pin at that point.

The effect of this kind of tuning is similar to that of turning up the treble brightness control on an electronic piano. The note is apparently louder and brighter, and has greater sustain, at least up close to the piano, when tuned this way.

A more conventional tuning test for the top octave would be the M10-M17 test for the single octave. Example: Tuning E7, play the M10, C5-E6 and then play the M17, C5-E7. Equal M10-M17 beat rates denote a pure 2:1 single octave.

Another test which is indicative is the M3-M17 test for the double octave. You may recall in the discussion of treble tuning, we noted that the double octave is tuned up to one bps wide in the vicinity of C3-C5, but gradually gets narrower as you go up. At some point, usually the upper part of octave six or the lower part of octave seven, double octaves will be nearly pure, and from around that point to the top, they are usually going to be narrow when you're trying to tune clean single octaves. So this test should be interpreted appropriate to your location in the scale. For example, tuning F7, play the M3, C#5-F5 and then play the M17, C#5-F7. The M17 should not be faster beating than the M3. If you moved the note being tuned and all test intervals down an octave, then the M3-M17 test should be about equal-beating, and if you moved everything down another octave, the M3 should be up to one bps slower than the M17.

Parallel M17s may not change very much in the top octave, or may actually regress in beat rate. If you get a steady increase in parallel M17 beat rates all the way to the top, your tuning is probably better described as double octave tuning, not single octave tuning. Suffice it to say, if you find a M17 that sticks out, having a noticeably faster or slower beat rate than its parallel neighbors up and down, this could indicate a problem that needs correcting.

A test to see whether a top octave note is too sharp is the P12-P19 comparison test. In single octave high treble tuning, comparing the P12 and the P19 down from the note should indicate that the P19 is faster-beating than the P12. If the reverse is true, then the note is too sharp. For example, tuning A7, play the P12, D6-A7 and then play the P19, D5-A7. If the P19 is beating faster than the P12, A7 is probably not too sharp, but if the P12 is beating faster than the P19, A7 is too sharp.

Wild strings sometimes limit the usefulness of beat-rate checks in octave seven, but there are a few other things you can do to try to verify your high treble intonation. Gross problems could be indicated by playing the tetrachord notes (do, re, me, fa), with "fa" the note you're checking. This test relies on your musical pitch sense. For example, test A7 by playing E7, F#7, G#7, A7. If A7 sounds flat, it probably is. Compare also with the same notes one octave down, see if you detect a difference or if the note spacing sounds similar.

Another musical test is one that might be called the "octave arpeggio" test, playing octaves in succession up to the note being tested. (I know it's not really an arpeggio, but I think the name fits this test). For example, tuning F7, check by playing lightly legato and in rapid succession, F4, F5, F6 and F7. Does F7 ring about like it should, or does your musical pitch sense tell you it's off?

A variety of actual arpeggio tests are commonly used and may be helpful, but you should always be aware of what

you're trying to do in tuning the top octave for the tuning exam since some of these types of tests will give results that are not consistent with the "good, clean-sounding octaves" required, and can cost you penalty points if you're not careful. If, for example, you use a major tonic arpeggio over a double octave, such as F5-A5- C6-F6-A6-C7-F7 to test F7, you should be aware that if the F7 sounds good you could already be too sharp for the tuning exam. Remember that the F5-F7 double octave may actually be narrow when you have a clean single octave, F6-F7, so this double octave arpeggio would mainly be useful for indicating sharpness (when F7 sounds either OK or a bit on the sharp side with the arpeggio). The danger of most arpeggio tests is similar: they tend to drive the high treble sharp with respect to clean single octaves.

In Conclusion

Successfully tuning the top octave for the PTG Tuning Exam requires that you learn how to tune clean single octaves, and that you do so on the exam piano. It is a skill that seems simple enough, but like other skills, takes practice to get right. If possible, use a VDTA to train your ears to the sound of a 2:1 octave, and test your top octave tuning in advance. Then, on exam day, after doing a first pass over the entire treble and then fine tuning octaves five and six, lay down a series of clean single octaves in octave seven, checking with a series of equal-beating M10-M17 tests, and also listening for the greatest open-string resonance with the note one octave below. Be sure to allow adequate time for this octave, since it is as important as any other section of the exam.

Next month: stability

At Large

Piano Action Touchweight; Part II

Alan Vincent, RTT
Los Angeles Chapter

In the previous article, we discussed the three factors which contribute to the touchweight of a piano action: weight, friction, and leverage. In the next several articles we will discuss each of these factors in detail and examine how each one affects the others.

Weight

As mentioned, this is the weight of all action parts, keys, hammers and the lead weights used to counterbalance or add to the weight of those parts. Any spring tension acting on the key or on an action part other than in the damper action would also be considered as weight. In a grand piano action, the arc of the hammer travel is effectively at a right angle to the keybed. The hammer shank must lift from a resting position below horizontal to one parallel with the string (in a well-constructed piano, the strings should be effectively parallel to the string upon impact with the center line of the hammer molding perpendicular to both the string plane and the center line of the hammer shank). During this travel, the hammer is working totally against gravity. Due to this vertical hammer travel and the fact that there is no lost motion in a grand action, there is a great amount of weight exerted on the capstan. The standard in grand action assembly is that the weight bearing on the capstan screw is counterbalanced by the use of small, round lead weights in the playing side of the key (on the playing side of the balance rail). The weights being placed on the playing side of the key apply a static load against the weight bearing on the capstan screw and help the pianist to depress the key. So, in a grand piano action, the lead weights used in the key counterbalance, or subtract from, the weight of the action parts bearing on the capstan screw. It is helpful to think of the leverage mechanism in the grand action as a see-saw with the hammer on one end and the key weights on the other. The technician should remember that any weight placed on the playing side of the balance rail will impede the return of the key to the resting position. The number and placement of the weights is critical and mistakes can be made which will hinder the function of the action. The placement of the counterbalancing weights will be discussed in a later article.

The weight standard used for the counterbalancing (hereafter referred to as "weighing off") of the hammer weight is usually between 50 and 57 grams. The weight standard is placed on the key at a certain point (usually near the front) and the weights are arranged on the key until the desired lift of the hammer to the point of let-off is achieved. To date, there have been two schools of thought regarding the placement of the weights; one has been to place the weights evenly out from the balance rail and the other is to place the first weight at the furthest point possible away from the balance rail (the point where it will have the most effect) and then to fill in the remaining weights back to the balance rail. Weighing off from the balance rail out offers a smaller incremental adjustment of the touchweight and an even placement of the weights from key to key. Weighing off from the front of the key back allows for the use of fewer weights which saves manufacturing time and material costs.

Normally, the amount of weight necessary to counterbalance the weight of the hammers would decrease from the bass to the treble in direct relation to the decreasing hammer size. More lead weights are needed to counterbalance the heavier bass hammers and fewer for the lighter treble hammers. The additional weight of the front key lever arm (once the key weights are installed) and the increased friction caused by the heavier bass hammers will result in upweight measurements which are lower in the bass and increasing when progressing into the treble. This is a normal occurrence when an action is weighed off from bass to treble with a consistent downweight standard.

When discussing weight in regard to the piano action, we must also introduce and consider inertia. Inertia is the tendency of a body at rest to remain at rest and the tendency of one in motion to remain in motion. The amount of inertia present in a certain moving part in a mechanical system is determined by weight and acceleration. In the piano action, acceleration of the hammer towards the string is accomplished by the use of leverage. Changes in leverage or weight will affect the inertia present. Inertia must be considered, as both the upward and downward movement of the key and hammer are equally important.

Using the previously mentioned analogy of the see-saw with the hammer on one end and the key weights on the other, we can imagine 200 pounds of weight on each end of the see-saw, resulting in a slow up and down movement. The heavy weights at the ends of the lever arms create large amounts of inertia: the weights would be difficult to start in motion and then difficult to stop and move in the opposite direction. The heavy weights would also increase the friction present at the pivot mechanism which would further slow the up and down motion of the see-saw. If the weights were lightened to 50 pounds, then the inertia would be reduced, as would the friction, resulting in a more rapid up and down movement of the see-saw and less force required to start or stop the weights in motion.

In the grand piano action, excess inertia could be present due to an increase in hammer weight and that weight having been counterbalanced at the key with additional lead weights. Although an acceptable downweight (50-57 grams) could be achieved in this situation, the excess weight at the ends of the leverage mechanism and the inertia they would create would cause the action performance to be sluggish. Again, because of the friction caused by the hammer and the weight of the front key lever arm, the upweight measurement would be low. A low upweight measurement indicates that the key is not returning to the resting position decisively, which is necessary for good repetition.

A situation in which a technician would be likely to encounter a touchweight problem would be in the replacement of a set of grand hammers. Since this is a common and fairly expensive service procedure, the technician must be certain that touchweight problems are not "built in" during the course of hammer replacement and that the action delivers good performance when returned to the customer. Since the older hammers might have been lightened in weight due to shaping over the years and the friction within the action and keys would have diminished due to a need for recentering and rebushing, the touchweight of the action should have increased as a result of the work performed. The customer may perceive the action to be much heavier, but is not likely to complain if the touchweight falls within an acceptable range.

The grand piano action is constructed with a 5:1 leverage ratio. This means that five units of hammer movement can be achieved with one of the same units of key movement. The specifications of .375" of key dip and 1.875" of vertical hammer movement (hammer blow) are commonly quoted as evidence of the 5:1 ratio within the grand action (five times .375" equals 1.875). This leverage ratio tells us that a one-gram increase of weight at the hammer will account for at least a five-gram increase of the downweight measured at the playing end of the key. The increase will actually be more because the weight increase will also increase friction within the action part assembly (the heavier hammer pushes the knuckle down harder on the jack and repetition lever, the wippen down harder on the capstan, etc.) which is measured as weight at the key. With the one-gram weight increase at the hammer, we will find the downweight to increase at least five grams plus an additional quantity for added friction. As mentioned before, all of the contributing touchweight factors are measured in the same manner so it is up to the technician to determine the cause of the touchweight problem and effect the correct repair. A detailed examination of the 5:1 leverage ratio in the grand action will be covered in a future article.

Next month, we will cover friction and its effect on touchweight. All technicians deal with frictional adjustments to the action. These can be as simple as easing tight key bushings and repinning tight action centers. These and many other aspects of piano action friction will be discussed next month. ≡

GOOD VIBRATIONS

Bridge Recapping: Location And Measurement

Nick Gravagne
New Mexico Chapter

We left off last time having discussed in an introductory way the job of bridge recapping. This article brings us to the next phase of the work: locating the original cap in the x, y, and z axes so that a new cap can be placed accordingly.

Before a bridge top can be removed three things must be taken care of: 1. A pattern, or "rubbing" must be made which duplicates and preserves the outline of the bridge top including the position of the bridge pin holes; 2. The height of the bridge, both front and back, (sometimes there is a significant difference not worth duplicating); 3. The fore-and-aft and side-to-side location of the original bridge top must be referenced to some set of points. Usual reference points are taken from the original bridge body (that part of the bridge which is left after the cap has been removed), or the piano case or, for some, the plate. Obviously the idea is to locate the new bridge top in the same position per the original in reference to three axes, i.e., the x axis which is side-to-side, the y axis which is fore-and-aft, and the z axis which is up and down. This article presents a couple of ideas on how to accomplish this.

The Pattern Or Rubbing

Referring to photos 1 and 2, you see two rubbings for two different bridges. Photo 1 shows a bridge which is attached to the original soundboard in the piano case. Notice that the paper on which the rubbing is made is quite wide compared to the narrow bridge top. This is so for two reasons: 1. The width of the paper helps preserve the curved shape of the bridge much better than if the paper were narrow; that is, a pattern is useless if, after having been made, it can be picked up and placed down but never in the same way twice. A narrow pattern, unless made of quite rigid material, will never drop back down in the same position twice. 2. The curving sweep of the bridge more or less demands a wide pattern anyway.

(Mylar — thin plastic — is a favorite of many technicians for pattern making, but I still prefer white paper since more information can be transferred from the bridge top to the pattern.)

You will notice in photo 1 that the outline of the bridge top is clearly evident; easy to see are the holes, notching, and even the string grooves. The paper on which the rubbing is made is called Kraft paper, which is white and not as thick or heavy as wrapping paper, and comes in rolls of various widths. I have been finding this paper at stationery stores and the like. The blackened outline of the bridge top is simply made by rubbing the side of a lead pencil over the paper which sits on the bridge. Get as much information on this rubbing as possible — holes, notching, width of bridge (more or less), string grooves, etc. Apart from the holes, the rest of this information may not be necessary, but after the bridge top has been removed it will be the only record of what was there. I can almost guarantee that you will refer to the "unnecessary" information for some reason or other. While at it, now is the time to record those items, should there be any, that need correcting in the new cap. Check to see if the notch sides are at least parallel; if not, departing at a slight angle, to the strings as they leave the bridge top. Actually, this condition should be noted before the piano is unstrung. Also check the left-most string landing (as facing the piano) of the unisons: Is there plenty of wood there for that left string to seat on? Or barely enough? Make corrections in the new cap. We'll touch more on possible corrections as we progress to future articles.

Two tools, an awl and a nail-set, are shown punching the holes through the paper into the bridge pin holes underneath. You sometimes have to probe for these holes, especially if you've never done this before, but once you learn to "read" the pattern they are easy to spot and punch. Holes punched in paper leave jagged and torn protrusions on the opposite side of the paper. Turn the paper over and lightly sand these off with a sandpaper block. Before a rubbing can be made, however, a way must be devised which secures the paper to the bridge or the pattern will not be true.

One way to secure the paper to the bridge *and*, at the same time, reference the pattern for x and y axis location is to drill 1/8" holes completely through the bridge exiting through the underside of the soundboard and clear of any case braces, i.e., these holes need to be accessible from underneath the piano. How many holes? If the entire long bridge is being capped, four or five holes are necessary, two of which are placed at the very ends of the bridge and clear of unison "patches" while another two or three are spaced in between. If only the top two sections are being recapped, two or three holes are necessary. Holes which must be placed at the interior of the bridge span should be located, if possible, at the bridge cap butt joints; that is, at the patch of bridge top found underneath a plate bar where no unison exists. This isn't always possible since a rib might be crossing directly underneath. And although drilling a 1/8" hole through the rib does not cause structural infirmity, it isn't advisable since very likely a bridge dowel of larger diameter already exists there. Furthermore, it is difficult to hit the rib center by drilling from the top and, although an off-center hole looks bad enough, a near-miss which just catches and grooves the

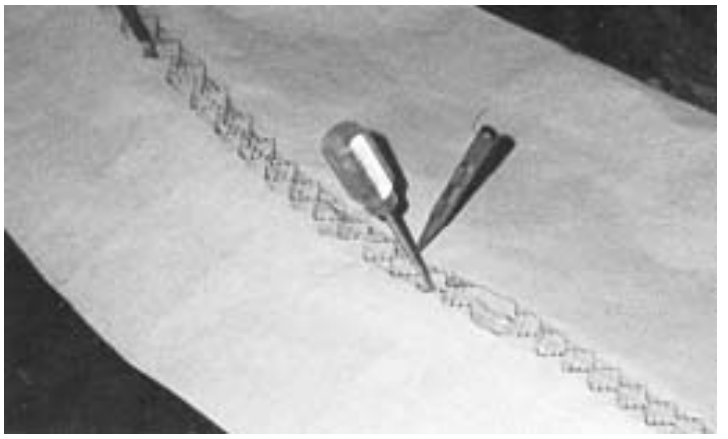


photo 1

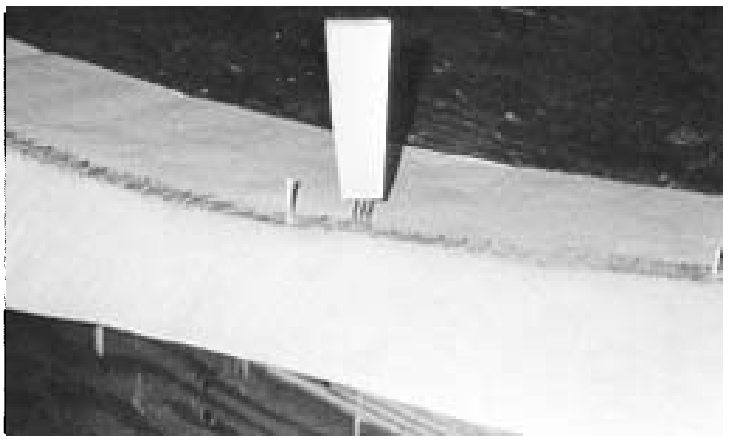


photo 2

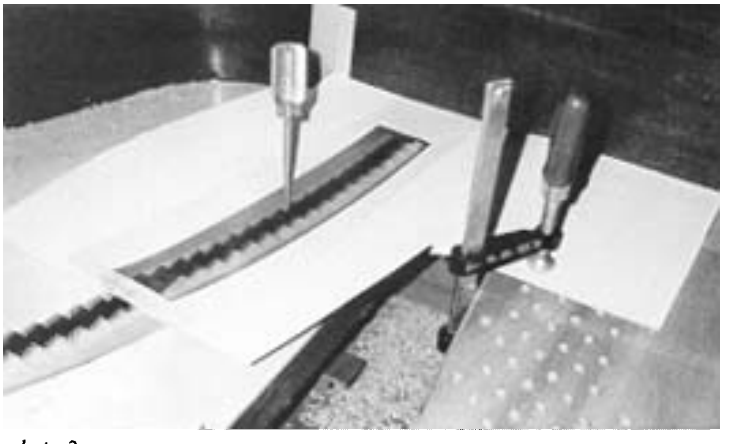


photo 3

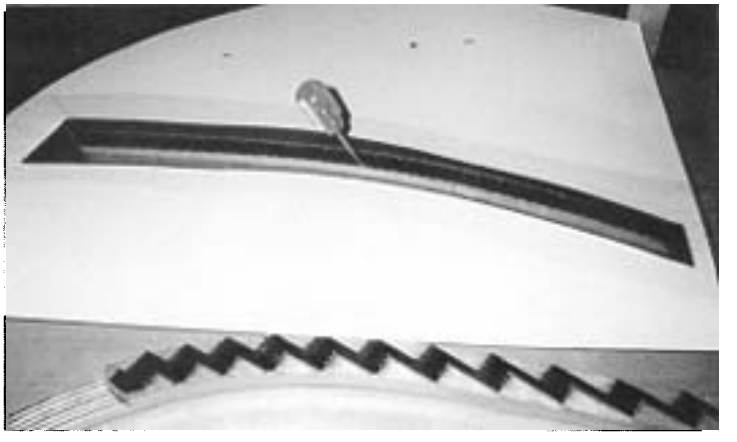


photo 4

side of the rib looks much worse and leaves one with an ill feeling.

It is necessary at times to drill through a unison patch; just remember to center the hole on the middle string groove midway between front and back pin holes and make every effort to drill a vertical non-wandering hole. If you are uneasy with drilling vertically-oriented holes freehand, make a guide out of a small block of wood — mine is made from one by two-inch material and is four inches long. At the drill press, drill a 1/8" hole through the block locating the hole about 1/2" in from one end. To use the guide, place it on the bridge top pressing firmly down, and using the electric drill, drill down through the guide hole and into the bridge as far as possible. Remove the block and finish drilling through the bridge exiting through the soundboard. All reference holes are plugged with dowels in the final installation.

Now before the paper is rubbed with the pencil, it is placed on the bridge top after which the 1/8" registration holes are punched through and dowels inserted. The paper is thus secured for rubbing. Moreover, when it comes time to deal with pattern placement on a new cap the job is simplified. The new cap is glued in place and the 1/8" holes found at the underside of the soundboard are drilled back through the new cap; the pattern can be located per the 1/8" dowels and the bridge pin holes punched. Photo 2 shows a rubbing located by 1/8" dowels. The bridge (which has been taken off the original soundboard in this case) has been recapped over the original bridge body and is being punched by a home-made gang-punch which punches the three holes at once. This will come up again in future articles.

A variation on this theme does not require drilling through the soundboard, but does require drilling through the top of the bridge and into the body to a depth below where the new cap will sit. So after the bridge top has been removed, the holes, which can be any size diameter, will be useful as locators by inserting small dowel centers. You will have to devise these dowel centers — possibly from pointed bridge pins or nails which fit loosely enough in the holes for later extraction with small pliers or a magnet, yet tight enough for an accurate location. The new cap is placed on top and pressed down so that the points of the dowel centers indent the underside of the cap after which the cap is taken to the drill press and drilled right through at the indentations. Considering this method, it is easy to perceive that a true vertical starting hole is necessary, otherwise the hole drilled in the cap at the drill press won't really be an extension of the hole in the bridge body; reasonably close will work, however. The holes in the new cap will serve to locate the rubbing the same as in the first method.

But, you say, there is a problem with the first method (the 1/8" holes and dowels): On most pianos it is not possible to access a hole drilled in the high treble from underneath the soundboard. True. So what to do? Photo 3 shows a favorite method of mine for not only locating high treble paper rubbings, but can be used for locating an entire top bridge section. The picture speaks for itself, but take note of a few things. The "window" cutout in the posterboard is covered with a transparent contact paper

(also found at stationery stores) which will stick to the posterboard as well as to the bridge top (not necessary, but a bonus). This posterboard-window jig is referenced to the pinblock by pencil lines, although it could have extended to the stretcher, and also referenced to a line drawn on a piece of masking tape attached to the inside rim. The jig is rigid and can easily be removed and set back in the same position. The jig in the photo was designed to locate the entire highest bridge section; but if made solely to locate the upper end of a paper rubbing (which would have been tacked in place at the highest unison and doweled elsewhere) the jig would have been smaller, just big enough to reference the top three or four unisons. In any case, a drilled registration hole (or two) is not necessary.

The posterboard-window trick can also be applied to bass bridge recapping. Photo 4 shows it in operation. The curve in the jig was picked up for cutting by placing the posterboard over the top of the rim and drawing a pencil line on its underside using the rim as a guide. Notice that the corners of the jig are referenced to lines drawn on masking tape (only one corner is shown in the photo). Since the jig is relatively large, it has a tendency to fall down at the back by the rim. To prevent this, tack scrap wood blocks of suitable dimensions to the underside of the posterboard and the jig will sit level with the bridge top.

Bridge Height

The original bridge stands at a certain dimension above the soundboard. But how high should the new cap stand? This depends on the downbearing conditions as found before and after unstringing and teardown. If bearing was adequate in the strung and unstrung condition, then recapping to original height is all that is necessary. The original height is simply measured with a depth gauge or similar tool from the surface of the soundboard to the top of the bridge. But don't forget to measure every four to five inches along the bridge length since the height is likely to change. And remember to measure at the back of the bridge to find if the bridge top slopes.

Your carefully taken fishline or carpet thread test will have revealed any noteworthy conditions such as a slightly tipped (forward) bridge or a rearward too-steep slope which shows up, for example, when the thread touches the rear string rest (duplex bars) *before* it touches the rear notch point. A new cap will correct these problems but, unless the plate is going to be used to set bearing and bridge top configuration (i.e., front and rear bearing), you will have to don your thinking cap as to how to compensate by measurements only, and make the new cap accordingly. But if the original height and character of the bridge top is all that is required, take the measurements and record directly on the paper rubbing at corresponding places. Now when the old cap is removed, measure again at the same places and subtract this dimension from the first: the answer yields the required height of the new cap. Again, record all this work — measurements, arithmetic, etc. — on the rubbing.

If downbearing is going to be increased with the new cap, it is necessary to ascertain by how much *before* the plate is pulled. Drill bits make excellent gauge "blocks." Take, for example a 1/8" bit and lie it down lengthwise along the bridge at the front notch, or slightly behind. Apply the carpet thread test for downbearing in the usual way except raise and lower the taut thread until it just touches the drill bit. Change bits if necessary until the required downbearing is found. The diameter of the selected drill bit represents the necessary addition to the height of the new cap. Record this dimension on the rubbing.

When the height of the old bridge has been recorded, and the required height of the new cap ascertained, it is time to safely store the rubbings, the jigs, or both, and turn attention to the task of removing the old bridge cap or bridge top. And that is where we will continue next time.

See you in Dallas!

At Large

Treble Tuning Again

Richard West, RTT
Nebraska Chapter

The more I study piano tuning, the more I wonder why we shouldn't go back to the older style fortepianos with the smaller keyboards and smaller strings. If the top and bottom octaves are eliminated and the inharmonicity is reduced to practically nothing, then the only problems remaining are temperament problems in the middle octave. But "progress" has left us with the Rubik's cube of octaves that don't match and go crazy at the extremes of the keyboard. The 2:1, 4:2, and 6:3 octaves, double octaves, triple octaves—none of them cooperate with each other. How do we decide what works best? Are we scientists dealing with physics, or magicians creating the illusion of equal temperament? Perhaps we are like medevial alchemists trying to make gold from imperfect steel. (They didn't have steel in those days, but you get what I mean.) Perhaps it is all psychological.

In the search for answers, it is always interesting to go back to Dr. Sanderson's data on a "normal stretch tuning." This is one of his "paper tunings" which shows the size of all the intervals on a piano, the treble being tuned as 2:1 octaves stretched one cent. Shown in figure 1 are the notes F4, F5, F6, and F7, with their respective overtone series' given vertically. The horizontal lines and numbers represent the number of beats per second (bps) between coincident partials. For example, the 2:1 octave of F4-F5 beats at 0.6 bps, while the 4:2 octave is -0.6 bps. The angled lines represent the double and triple octaves. The F4-F6 double octave beats at 0.2 bps.

One significant point in this chart is the double octave F5- F7. It is "flat" by -5.8 bps. When I tune, I find I like clean double octaves. For me to have the F5-F7 interval clean, I have to "steal" 5.8 beats from F5-F6, F6-F7, or a combination of both. The 2:1 octave of F5-F6 is already wide by 0.8 bps; F6-F7 is wide by 1.6 bps. Both of these octaves are narrow at the 4:2 level, however. F5-F6 is -7.4; F6-F7 is -43.9. This means that when I tune pure 4:1 double octaves, my 4:2 octaves should sound closer to beatless, but the 2:1 octaves are wider than one cent, and may have beats faster than two bps.

What I have come to understand about the way I tune is that I don't mind leaving beats in the 2:1 octaves. In fact, I don't like the "quality" of a pure 2:1 octave. I am not sure I can define what I mean by "quality" other than to say the "blend" of the various octave types (2:1, 4:2, 6:3, etc.) when heard together as the total sound of the two notes played simultaneously, seems better when the 4:2 is closer to beatless. It seems that slow beats in the 2:1 octave are easier to hide than beats in the 4:2 octave.

Moreover, the data shows that the wider the 4:2 octave, the closer the 4:1 double octave is to beatless, at least as high as the last six to ten notes of the treble. It seems preferable to have the 4:2 and 4:1 intervals clean than to leave them "flat."

In addition, there is no margin for stability error when 2:1 octaves are beatless. We have all experienced times when the center string sagged a bit by the time the two outside strings were tuned. A narrow 2:1 octave has to be retuned, because it will certainly sound "flat" to the customer. But, if slightly wide 2:1 octaves sound good, then why fight it? If pure 4:2 octaves are more forgiving, then we can have the best of both worlds, a better sound and better stability.

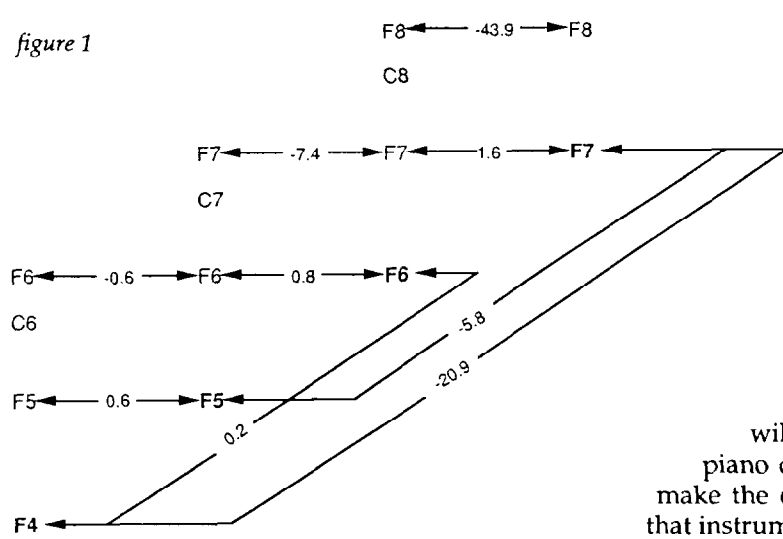
Finally, the thirds, 10ths, and 17ths don't seem to be affected. In fact, from F6 to F7, the 17ths seem to all beat the same 15 to 17 bps.

All of the above works fairly well up to a point. The most difficult compromises come in the last six to ten notes at the top. Having clean double octaves (the 4:2 octave is no longer usable there) makes the 2:1 octave go crazy. At the same time, however, the sound is short-lived. The fast beating 2:1 octave can be tolerated because the duration of tone is so short. Clean double octaves at the top reinforce the singing area of the piano two octaves below. When C5 is played, the C7 helps to brighten and reinforce.

Does this make me a "Picasso tuner?" Do I distort rather than stretch? I think not.

One final note is that each piano is, of course, different, and one formula will not always work. The piano dictates what "blend" will make the overall sound the best for that instrument. ≡

figure 1



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Coming Events

July 7-11, 1990	**33rd Annual PTG Convention & Techncial Institute** Hyatt Regency Dallas At Reunion Contact: Piano Technicians Guild, Inc.; 4510 Belleview, Suite 100; Kansas City, MO 64111 (816) 753-7747
Sept. 15, 1990	**Rhode Island One Day Seminar** Narragansett Christian Brothers Center Contact: Kirk Russell; 37 Liberty Street; Wakefield, RI 02879 (401) 783-1966
Sept. 28-30, 1990	**Florida State Seminar** Hilton Hotel, Pensacola, FL Contact: Danny Lyons; 1224 E. Cervantes Street; Pensacola, FL 32501 (904) 438-8969
Oct. 5-7, 1990	**Ohio State Conference** Days Hotel, North Randall (Cleveland, OH) Contact: Bob Russell, 1414 Lander Road, Mayfield Heights, OH 44124 (216) 449-5212
Oct. 17-20, 1990	**New York State Conference** Holiday Inn, Binghamton, NY Contact: Donald R. McKechnie; 1660 Slaterville Road; Ithaca, NY 14850 (607) 277-7112
Oct. 19-21, 1990	**Wisconsin Days** Yahara Center, Madison, WI Contact: Norman Sheppard; 5715 Cedar Place, Madison, WI 53705 (608) 233-3844
Nov. 2-4, 1990	**Texas State Association** El Paso Airport Hilton, El Paso Contact: Guy Nichols; Star Route, Box 27; Messilla Park, NM 88047 (505) 524-1465
Nov. 9-10, 1990	**North Carolina State Seminar** Brownstone Hotel, Raleigh, NC Contact: Tom Karl; 20 Mayo Street, Apt. F-6; Raleigh, NC 27603 (919) 832-3149

Auxiliary Exchange

President's Message

Those members, Guild and Auxiliary who are present at the upcoming convention will experience the innovations that have been introduced, and those absent must be content to read about them or obtain second-hand verbal reports.

Of significance to all attendees is the changed time frame, over a weekend instead of a mid-week or early week. This is to allow for a better airline rate to the convention city. Members of the Guild had been proposing and requesting this change, and we hope it meets with their expectations. In years past, the convention generally covered the July 4th holiday weekend. The majority felt this was a less desirable time, since many families had annual barbeque get-togethers. Thus the July date was postponed a few days to avoid disruption of family reunions.

In the past, couples had to leave their children at home with aunts and/or grandparents, in order to attend the convention. There were parents who brought their youngsters to the convention and they participated in the Auxiliary activities to a degree, but there were also times when a parent had to forego attendance at some event because they did not have a sitter. Well, this year, thanks to the efforts of Eileen Guthrie and her committee, a plan/program has been developed to cover the needs of parents who attend convention with their young children. Parents will be able to jointly attend the awards banquet, luncheons, classes and outside activities knowing there will be supervised nap time, swimming supervision and a Childrens' Hospitality Room.

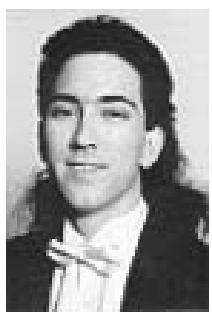
Another first at the 33rd annual convention will be a program on the harp. Guild members and Auxiliary members have heard classes on the piano, the harpsichord and the player; some have even observed the operation of Yamaha's Disklavier, but few have been told about that ancient instrument, the harp. We look forward to Barbara Boone's presentation and demonstration.

The convention brochure lists ten pages of institute classes to capture the interest of the technician. The Auxiliary planners have made every effort to provide innovative programs. There are not as many events as in the past to afford more time to visit with friends, and explore historic landmarks located only a few blocks from the elegant Hyatt Regency. With some free time, visits can be made to the city's West End District, the John F. Kennedy Museum, and the beautifully restored Union Train Station.

Agnes Huether

1990 Auxiliary Scholarship Recipients

Eric Thompson



Thompson

Eric Thompson, a junior at University of Texas at San Antonio, is a piano performance major studying with Dr. Janice K. Hodges. While at John Jay High School (1984-87), he won the San Antonio Optimist Award for Youth in Music four consecutive years, and won numerous awards for performances with the symphonic band, jazz band, and orchestra. In 1985, he won first place in the San Antonio Symphony Young Artist Competition, and as a result, performed with the Symphony. Other first place winnings of Eric's high school career include the Corpus Christi Young Artist Competition — pre-college piano division (1986), 11th and 12th grade divisions of the San Antonio Contemporary Piano Competition (1986, 1987), and state finals of the TMTA High School Piano Solo Competition — senior division (1987).

As a college student, Eric has won the TMTA Post-High School Piano Solo and Concerto competitions (1988, 1989). He has also won the Young Artist Competitions of the Mid-Texas Symphony and the Brazos Valley Symphony, and was featured in performances with both orchestras in 1988 and 1989 respectively. Eric has received scholarship awards from San Antonio's Philharmonic Music Club, Etude Music Club, and Cosmopolitan Music Club. He is currently the recipient of the Marjorie Powell Zachary Piano Scholarship at UTSA.

Eric is the eldest of Michael and Janet Thompson's three sons. He participates in extracurricular activities mostly related to music. He is the accompanist for the San Antonio Boy's Choir; he is pianist for the production of Gilbert and Sullivan's Gondoliers, which is now in rehearsal, and has several students he teaches on a regular basis. After graduation from UTSA he is planning to move to the East Coast to further his education and career in music.

Jimmy Lent

Jimmy, a 1990 graduate of the High

School for Performing and Visual Arts, with a Music Major. He began his career in music at age ten, and is now studying under John Wheems, private teacher and Sylvia Strong, director HSPVA Piano Program. He attended Summer Music Festivals in 1988, 1989 at Mid-Summer Piano Camp, University of Houston Campus and Boston University Tanglewood Institute in 1989. He participated in many solo piano performances, to include Holcome-Lindquest Bosendorfer Festival in 1987; featured soloist: Starmakers of the Northwest Spotlight Showcase in 1988: Jones Hall Pre-concert Music in 1990.

A few of the awards and academic recognitions Jimmy has received have been listed to give you an idea of the caliber of talent he possesses. First place winner in senior division — TMTA Competition; Critics Award — North Harris County Community College Piano Festival (1986-1989); 1st place — Kingwood-Humble Music Teachers Association Piano Contest (1987); 1+ rating — Forum Music Teachers Association Piano Festival (1989-1990); Whitlock Theory Examination Medal (1989-1990); Westheimer Colony $3500 Summer Study Scholarship (1989).

Jimmy's extracurricular activities center around music, as he performs for non-profit organizations, such as homes for abused children, food banks and the Hunger Coalition.

We shall have the pleasure of hearing both of these gentlemen perform during the convention in Dallas, as they have agreed to fly in from Houston and San Antonio to join us.

Ginger Bryant,
Scholarship Committee Chair

August Birthday Greetings

1	Elizabeth Batts
1	Shirley Truax
2	Nancy Smith
2	Betty Uggla
4	Pansy Wildman
6	Claudette Balamut
6	Pearl Kreitz
7	Esther Webster
13	Helen Barrett
15	Mary Morris
16	Thelma Berg
19	Ellen Adair
20	Shirley Schuett
21	Marjorie Dunbar
21	Ruth Unruh
24	Judy White
26	Martha Herwig
26	Wilma Voss
28	Dorothy Howerstine
29	Rosanna Hess

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JULY **UPDATE** 1990

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RTT Tuning Examinations. Illinois Test Center. Millikin University; Decatur, IL. Contact: John Baird (217) 429-5651

RTT Tuning and Technical Exams.
Sacramento, CA
Application deadline: July 18
Contact: Neil Panton, 5 Cedar Court, Menlow Park, CA 95025 (415) 854-8038

July 13-17, 1991
34th International PTG Convention & Institute
Philadelphia, PA
Contact: Home Office; 4510 Belleview, Suite 100; Kansas City, MO 64111; (816) 753-7747

Membership Status

Northeast Region	828
Northeast RTTs	537
Southeast Region	583
Southeast RTTs	387
South Central Reg.	315
South Central RTTs	208
Central East Region	627
Central East RTTs	401
Central West Region	365
Central West RTTs	254
Western Region	606
Western RTTs	402
Pacific NW Region	336
Pacific NW RTTs	232
Total Membership	3644
Total RTTs	2421

Survey Complete, Analysis Begins

Responses from the recent membership survey are now being compiled and analyzed. By extending the deadline for return of the response forms, we were able to collect a grand total of 1,522, for a response rate of 42 percent. This is an extremely good response rate for a survey of this type, and should provide us with extremely accurate data for statistical analysis. We hope to have a preliminary analysis completed in time for the convention.

Our thanks to everyone who took the time and trouble to respond to this important project, and especially to those chapters who went to heroic lengths to get responses from members who were unable to attend a chapter meeting. Thirteen chapters recorded responses from 100 percent of their members, and are eligible for regional action model drawings.

We also appreciate those who bothered to send in comments regarding the construction and conduct of the survey. Because the survey is expected to become an annual project, these comments will be helpful in future years.

Dallas Convention Awaits

With an unbeatable Technical Institute, an exhibit hall full of manufacturers and suppliers, and excellent early registrations, all indications point to a successful convention in Dallas this month.

Although the June 4 early registration deadline has passed, it's still not too late to make plans to participate. Registration fees are $130 for members and $170 for non-members. Registrations for the spouse program are $55 for Auxiliary members and $65 for non-members. Tickets are still available for the Awards Banquet ($28), the Closing Luncheon ($20) and the Auxiliary tour of Dallas ($30).

Remember that all membership dues and application fees must be paid to register for the convention at the member rate. If anyone in your area is considering becoming a Guild member, be sure to suggest that they stop by the Guild Membership booth and pick up a $30 rebate certificate.

IAPBT Newsletter

The International Association of Piano Builders and Technicians Newsletter bound into this issue of the *Journal* is the first produced by the Piano Technicians Guild for the international organization. During its 1989 meeting, the IAPBT board requested that PTG assume many of the organization's headquarters activities.

The newsletter will be produced quarterly.

Chapter Notes

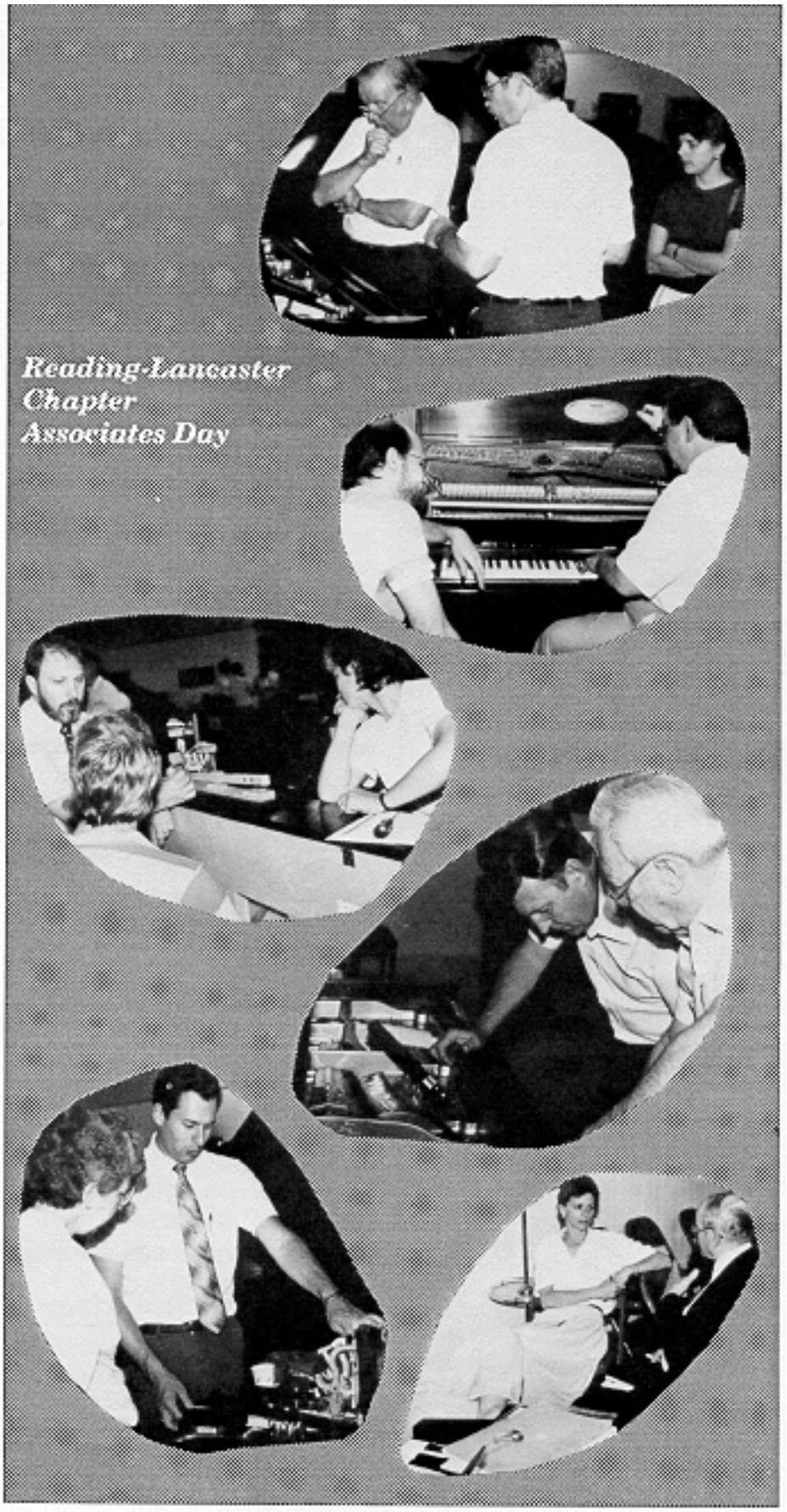
Reading-Lancaster, PA

On May 8, 1990, Reading-Lancaster, PA, chapter held its first Associates Day; in reality, it was a long evening that could have gone on longer. Associates from six chapters were given the chance to work one on one with RTTs in an environment of learning and friendship, the guiding premise being that the only stupid question is the one that doesn't get asked.

The logistics of organizing Associates Day are simple enough. For a modest fee, the Home Office sent sheets of mailing labels for every Associate Member in the neighboring chapters. Nearly 100 members received a flyer explaining the concept, and an application with a questionnaire, asking for particular areas they wanted tutoring in.

The response was terrific! With only a month of warning, many Associates could not schedule the trip, but wrote to say they were glad to hear that such an event was happening, and they would love to attend the next one (and there will be a next one...). Nine Associates came from neighboring chapters and three of Reading-Lancaster, PA, Chapter's own Associates participated, some driving three to six hours to attend. Carl Belcastro, of Big "Z" Music Mall, very generously opened the piano showroom, so there were many fine pianos on which to tutor (of course, they were left in good tune at the end of the evening). Carl also provided fortifying refreshments and an atmosphere of good cheer.

Before the Associates arrived, the questionnaires were read, and Reading-Lancaster RTTs (of which there were more in attendance than any other meeting in two years) took an Associate member who had a particular need under wing. Soon the room was a buzz with quiet concentration, the clink of regulating tools,



Chapter Notes...

and the sharpening and flattening of notes on half a dozen pianos. The learning process was indeed electrifying, and the participation from all quarters was wonderful to see.

The response was so good, the Reading-Lancaster Chapter is already planning the next Associates Day. But any chapter can hold a similar event. To coach the Associates is to strengthen the trade and the Guild. The expense is low (printing and mailing), and the rewards are high. And it was a lot of fun too!

Tom Patten

Indiana Chapter

We met in Fort Wayne for a hands-on experience in preparing a Yamaha grand for final, pre-performance voicing. The piano had been carefully tuned a few days earlier; now we were ready to completely knock it out of tune by seating all the strings firmly down upon the bridges and hitch pins. To those in the church corridors and offices it must have sounded like a flock of woodpeckers had been turned loose in the sanctuary, but we were as good as our word that the piano would sound better than ever.

We learned from Terry Howard that seating the strings is the indispensible first step in a good voicing job. We began as Yamaha recommends, by tapping all the strings down firmly at the hitch pins. Terry has developed a good set of tools for all phases of this work, using sawed-off remnants of old drumsticks on the strings in the area of the bridge pins. At the hitch pins he uses an action flange screwdriver that no longer has any sharp edges. For tapping in bridge pins he uses a hollow punch similar to a nail set.

As suggested, the sequence of the work is important. It is best to do all the hitch pins first; to be sure, some, perhaps most, will not register any change at all — nevertheless, by this means, you are making the back of the bridges more secure against any slight possibility of the undesired forward tilt or "roll."

Move forward to the bridge itself. Using a hollow punch, gently tap in the bridge pins; where there is slight movement you gain an improvement in side bearing. A typical bridge pin moved about 1/64" deeper. If 220 strings were all lacking 1/64" of side bearing the loss of string to bridge energy would be very significant.

Using the dense end grain of the drumstick material, we tapped the strings down carefully at the back and front bridge pins.

Finally, Bill Balmer demonstrated that a great improvement in tuning stability can be gained by carefully tapping downward against the tuning pin coils to assure that they are perfectly compact. A medium-sized screwdriver serves well for this purpose. Tuning pin coils may appear snug in a fine manufactured piano but there is often room for improvement. Examine the coil very closely as you tap and you may see movement. This is an area few of us gave any thought to but there are some sound mechanical principles underlying it. Through our experiences with closely crowded strings directly above the pressure bar in vertical pianos we discover that there is friction and holding power where strings rub together and hang up in the tuning process. The principle is applicable to some degree in tuning pin coils.

This final operation really put the piano out of tune and Terry Howard began to tune it again. We were now ready to watch the Jim Coleman/George Defebaugh video cassette on voicing. Their excellent presentation is a textbook all in itself. Every aspect and technique involved in the voicing of new hammers is explained and demonstrated. Problems and difficulties are not glossed over.

At the end of the showing we were ready to return to Terry and the Yamaha for his final voicing refinements. Had it not been for the greater tonal clarity and sustaining character gained through our efforts in tapping the strings down firmly upon their bearing points, a great deal more hammer voicing would probably have been indicated. This piano had not been heavily played upon; only some scattered resurfacing of hammers to even out hammer-to-string contact seemed called for. Terry proceeded with some light needling in the middle sections of the scale. Unlike new hammers, these hammers had already been deep needled in the factory tone regulating work. After light needling to restore character and texture to the tone, Terry listens for a few loud hammers to mark for deep needling. The striking surfaces were given a light suede brushing for a final tonal enhancement. To be sure, these final touches do not remain long with a heavily played piano but they are a great reassurance to the performer about to begin his program. Occasional tonal roughness at the capo bar can at least temporarily be relieved by isolating the string or strings producing the discord, then carefully moving them a very small distance to the right or left to gain a smoother surface for their upper termination.

We are planning a May meeting at Bob Rippe's shop in the Fort Wayne area. I visited the Indianapolis Chapter recently. There is considerable sadness due to the sudden loss of Guy McKay. Members of the Indianapolis Chapter will soon be visiting the Schaff Piano Supply Company and Standard Piano Hammer. They are also planning a major event in Indianapolis later this spring.

Ian McLuckie

Convention Regional Meetings Set

Meet with your regional vice president and other members from your region during meetings beginning at 10:30 a.m. Monday, July 9 in Dallas. Highlighting the programs will be presentation of Chapter Management Awards. First-place award-winners, as selected by the Chapter Management and Achievement Committee, will be honored during the convention awards banquet that evening.

The meetings will provide an opportunity to discuss issues concerning the region and its chapters, as well as an opportunity to receive information about the status of Guild programs and activities. Among items to be discussed will be results of the board and council meetings.

Regional meetings will be in the following rooms of the Hyatt Regency Dallas: Northeast, Reunion A; Southeast, Reunion B; South Central, Reunion C; Central East, Reunion E; Central West, Reunion G; Western, Regency A; Pacific Northwest, Regency C. A meeting for non-members will be held at the same time in the Cascade B room. Please encourage any member prospects or those who are in the process of joining your chapter to attend this session, which will be chaired by Guild President Ronald Berry, RTT.

There will be no Institute Classes during that time, and the Exhibit Hall will be closed.

Liability Limits Raised

Higher liability coverage limits on the Guild policy offered through Nowogroski Insurance Associates will be available at the November renewal date. Policy limits are being raised from $500,000 to $1 million of coverage.

A booklet explaining the optional coverage is being prepared by Nowogroski, and may be completed in time for distribution at the annual convention. If not, the brochure will be mailed at the November renewal date. Nowogroski representatives will be available in Dallas to answer your questions regarding the program.

The Soundboard

To the Soundboard:

Thought you might enjoy seeing what can be done with an old upright piano when it has outlived its musical usefulness. This old "Ann Arbor" upright was renovated by Charles and Nancy Meddaugh of Grand Ledge, MI. Imagine my surprise when he called me into a back room to tune his "other piano!"

Frank McKowen

1990 Directory Corrections

Roland Bessette
correct address and phone:
5759 Pellan
Brossard, QC J4W 1J2
(514) 465-8076

Larry Boyll
correct phone: **(219) 256-1408**

Jerry Dirubbo
correct chapter: **chapter 021**

Daniel A. Evans
correct phone: **(714) 830-2496**

David Lamoreaux
correct phone and city spelling:
Takoma Park, MD 20912
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Bernard Misbin
correct address:
11-A Rothwell Drive
Cranbury, NJ 08512

Marvin Rus
correct chapter and region:
chapter 671, region 5

David Severance
correct zip code: **83501**

David Tabachnick
correct city spelling:
East Northport, NY 11731