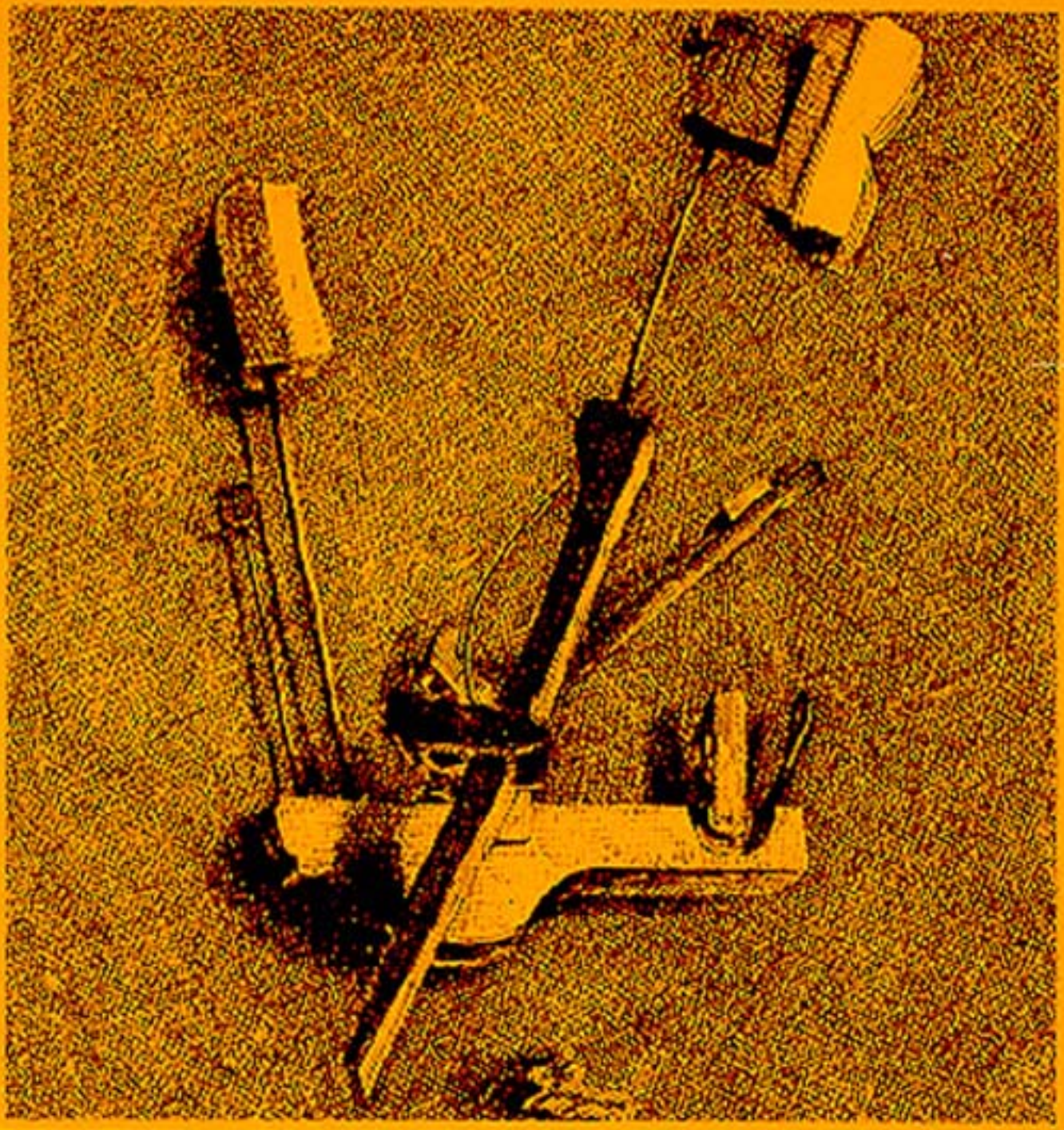
Piano Technicians Journal

October 1982



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Piano Technicians Journal

Official Publication of the Piano Technicians Guild

October 1982
Volume 25, Number 10

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JACK KREFTING, Technical Editor
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PATTY CONNELL, Managing Editor, Art Director
GEORGE DEFEBAUGH, Recorded Reader

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PRESIDENT'S MESSAGE

Ernie Preuitt
President

In all of the organizations — professional, fraternal, and friendship — to which I have belonged over the years, three categories of membership can be observed. These categories can best be described as resembling the concentric rings brought about by an excellent stone-thrower, standing on a bank, and hurling his missile into the pond. It whistles across the surface of the water, strikes just under the surface in the middle, and regains its balance, instigating waves which are both powerful and cooperative. These waves work in cooperation with the original intent of the stone-thrower, to let others know what the message of the stone conveys. There is then a second circle, less powerful, friendly and full of good wishes for the organization, willing to contribute of time and money, even though some of the inner wave is asking them to give time and money to projects with which they are not familiar. Some of this second circle also serves on committees, attends meetings, and wishes that the inner wave would pay more attention to that part of the organization which "really" needs attention. There is also a third circle. This third circle goes to conventions, stays for area meetings, and even attends local activities. What it never grows to know is the original stone-thrower. Perhaps he stands too far away by virtue of the original act of throwing the stone.

There is a tendency, on the part of the original stone-thrower, to remain where he is and let the concentric circle wave farther and farther from his gaze and his influence. He depends on the original circle, and to a lesser and lesser extent upon the second and third circles. This he must not do.

If the original stone-thrower is to remain active, influential and powerful, he must keep constantly in touch with that third circle. This original stone-thrower wishes to do just that. True, I cannot visit personally with each and every one of you. It would be too costly. I can't afford to go where you are, and you can't afford to come where I am. However, there is the device known as the United States Postal Service, the Bell Telephone System, and the Piano Technicians Journal. Please communicate. I would like to draw all of you into the original circle. What a thought! We can see in a moment what chaos this could create. Let's try it and see if we can make it work!

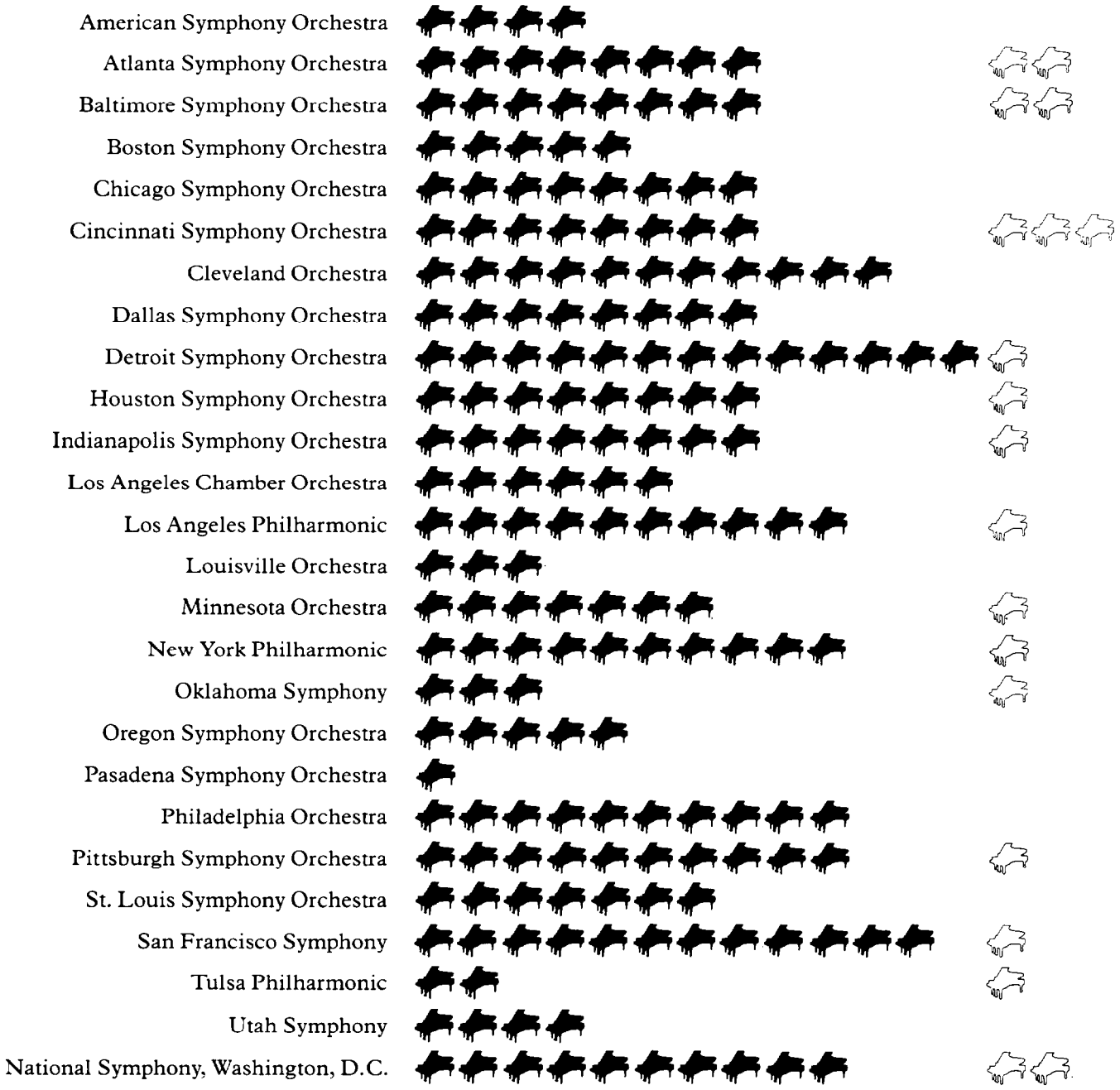
MEMBERSHIP — WHAT A CHALLENGE! Do you know any who really ought to be members of the Piano Technicians Guild?

MEMBERSHIP — WHAT A CHALLENGE! Do you know those who are outer circle members and would be delighted to be asked to help?

MEMBERSHIP — WHAT A CHALLENGE! Are you one who really ought to be recruiting, campaigning, witnessing?

Membership in the Piano Technicians Guild is, for the piano technician, an opportunity of the highest order to serve one's chosen profession. As a member, you receive the benefit of help from the best minds in the profession. As a member, you can show that you have been accepted by proving your technical skill. We are not an organization which accepts you simply because you have "dues money."

Membership in the Piano Technicians Guild is a coveted honor! You don't belong because you must, but because you may.



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THE TECHNICAL FORUM

Jack Krefting
Technical Editor

I received a letter recently from Dick Bittinger of Brownstown, Pennsylvania, a former member of the Piano Technicians Guild Executive Board and always an energetic and enthusiastic Guild supporter. Dick had clipped a newspaper ad which offered tuning, cleaning and mothproofing for only twenty-five dollars. The advertiser even stated that he did "professional work", whatever that may mean, and that it was "guaranteed", whatever *that* means. Judging by the policies of professionals in other fields, he presumably intends to collect his fee whether or not his work is satisfactory. How one could then guarantee unsatisfactory work without returning the client's money (and thus reverting to unprofessionalism) is apparently a dilemma not addressed within the advertisement.

The point of Dick's letter, aside from marveling at the tremendous bargain, was to question the advertiser's possible mothproofing technique. We know that certain chemicals are added to new felt by the felt industry which are effective in preventing moth damage, but we know of no mothproofing agent available for field use that will do the job without harming the piano. Reader comments are invited.

VERTICAL PIANO REBUILDING (Part 4)

In this continuing series, we now consider the open pinblock, which means that the block is largely or completely exposed rather than being covered in the tuning pin area by plate webbing.

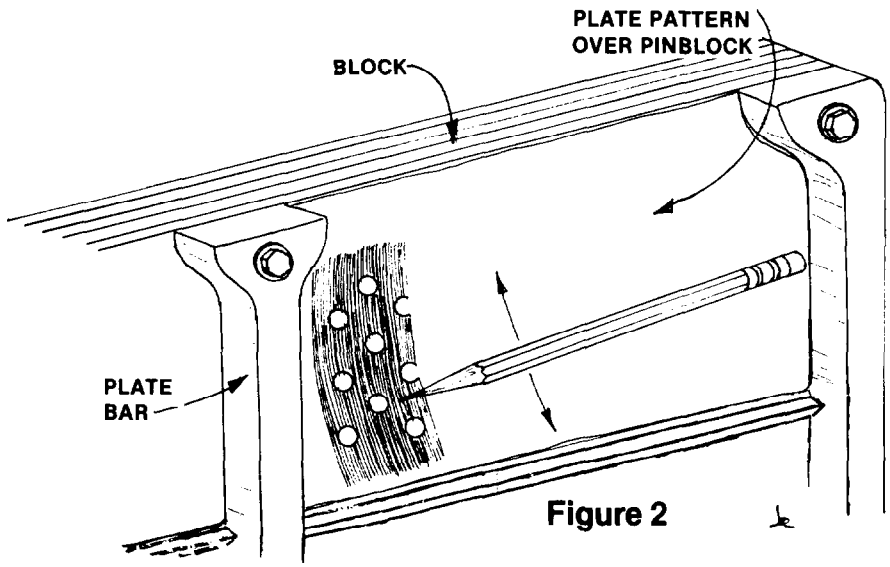


Figure 2

Replacement of an open pinblock presents some unusual problems, one of which is that the completed job must be acceptable from a cosmetic standpoint in addition to the other requirements. Good pinblock materials is not generally thought to be particularly pretty, so open blocks are commonly veneered with something liked burled walnut or curly maple. Whatever veneer is used, the important thing is that the overall thickness of the block is correct, and that the existing tuning pin hole pattern is reproduced in the new block.

Mylar is the preferred pattern material because of its remarkable dimensional stability under all reasonable environmental conditions. However, for this application ordinary paper is probably good enough. The *main thing is to get a good reference* from the plate because the new block will have no holes or reliable reference points. Often the plate is constructed with bars between sections that extend to the top; use these bars, or whatever other reference points on the plate that may be available, and cut the pattern material to fit exactly into the space as shown in **Figure 1**.

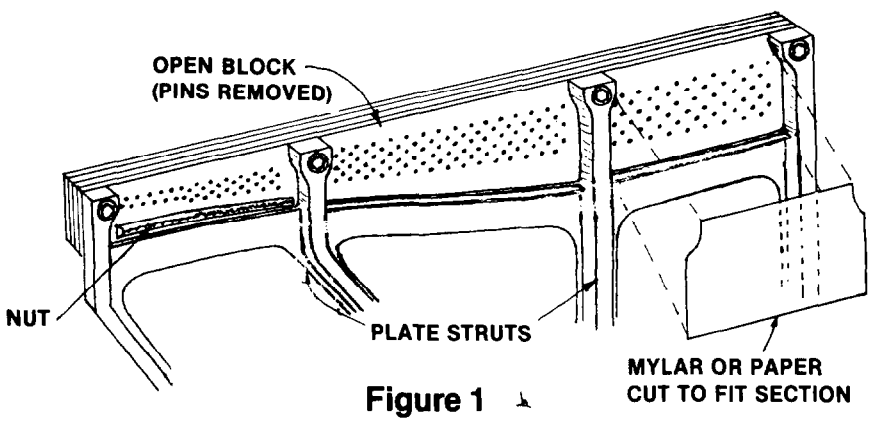


Figure 1

Tape the pattern in position and mark it with the side of a pencil point as illustrated in **Figure 2**, or simply press on the paper at each hole location with the thumb. This creases the paper around the rim of the hole, indicating its perimeter. Then when the new block has been installed, the pattern can be taped in position and all holes center punched through the pattern and into the block.

The reasons for reproducing the hole pattern may be obvious, but it should also be noted that if there were problems with the original pattern it is easy to make corrections now. If a string is touching a neighboring tuning pin, for example, or if the pull is not in line with the bridge pin and strike point, make a note of which pin is the offender and where it should have been placed. Check the string pull line with a

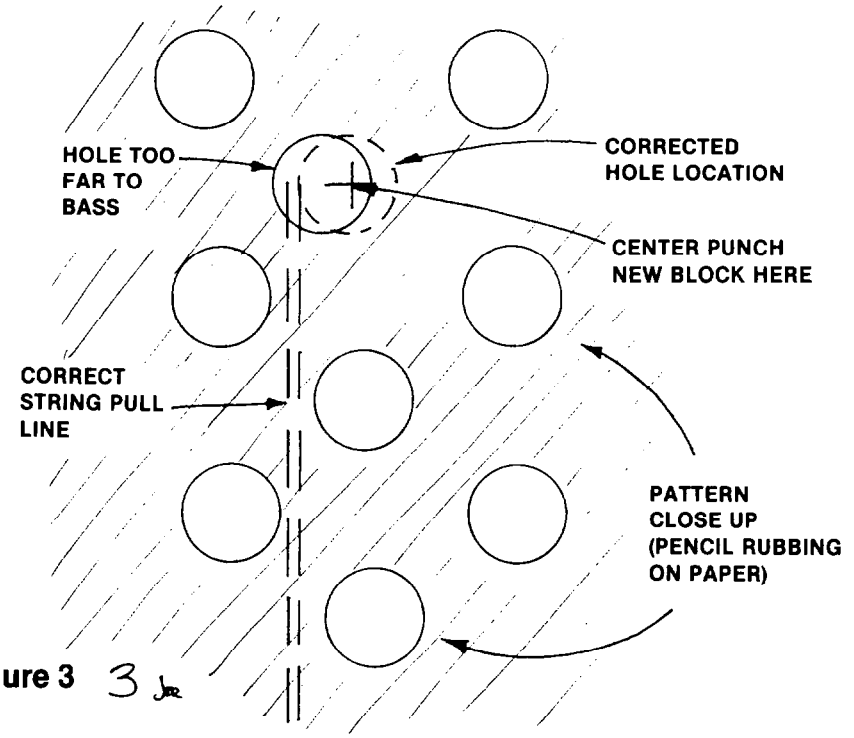


Figure 3 3 Jr

straightedge as shown in **Figure 3** and change the location of the hole on the pattern.

Pianos with open pinblocks, as well as those with a plate web but no plate bushings, will invariably have a plate flange to which the block is fitted. The fit does not have to be as good as on a grand, all else being equal, because on a vertical the entire back face of the block is glued to the back assembly; but the block should still bear against the flange in several places along its length.

Fitting may be done with the plate out and upside down on horses as would be done on a grand. Chalk the flange, tap the rough-cut block against it, and then rasp away block material wherever there are chalk marks. Be sure to start with block material wide enough that there will be something left to trim at the top edge, which should be ultimately planed and sanded flush with the top of the back assembly. Before gluing the new block in position, doublecheck the downbearing and sidebearing, and be sure the plate is resting flat on all supports so it will not be sprung when the screws are tightened.

On some old uprights with open blocks, the upper bass termination point is a wooden "nut" or upper bridge which is glued to the pinblock. Because this nut was made of wood and the pianos with this feature are invariably old, when we encounter such a feature we usually have to repair or replace it. This is more difficult than it appears at first glance, because the location of the nut and its pins directly affects strike point, speaking length, sidebearing, string spacing and action alignment. Its thickness is important too, affecting downbearing and blow distance as well

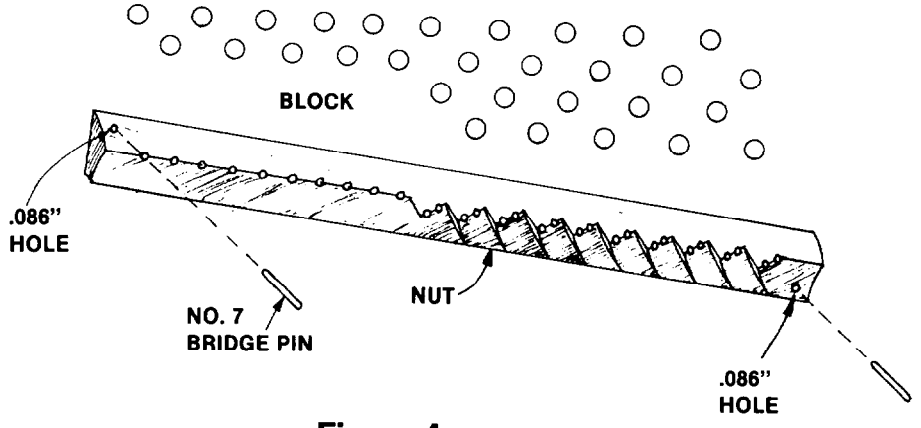


Figure 4 Jr

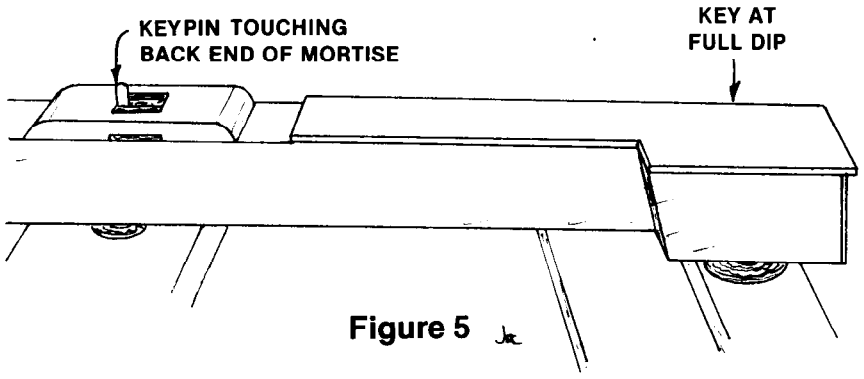


Figure 5

as letoff, damper lift and other regulating dimensions which vary with string elevation. Once again, a good pattern is needed. If the block will be replaced, the bass section pattern could include a pattern for the nut pins.

If the technician intends to replace the nut but not the pinblock, as might happen in a reconditioning situation, the block itself may be used as a point of reference. Bore a hole through the nut and into the block at each end as shown in **Figure 4**. The diameter of these holes, called out on the drawing as 0.086", is an arbitrary one based on the fact that a number 44 drill bit and a number 7 bridge pin share this particular dimension. The spare bridge pins may be used as locators to align the new nut on the pinblock.

After the holes are drilled, pull out all nut pins and make a pattern of the holes, including the two new locator holes. Then remove the nut from the block and fashion a new one from hard maple, marfim or beech. Mark out all hole locations on the new nut, but don't drill for the nut pins until after the nut is glued to the block. If the old nut pins went through the old nut and into the block, plug those block holes before installing the nut; otherwise the slightest inevitable misalignment will cause the nut pins to be loose at the bottom and "flagpole", resulting in false beats. Nut pins, like bridge pins, must bottom firmly for good termination.

To briefly review the procedure to this point, we use tooling holes for positive reference points to relocate the plate onto the back. If the entire block is to be replaced, not just sections or plugs, then our reference holes must be at the *bottom of the plate* as discussed last month.

Then the block is fitted to the flange, if any, and planed or veneered to thickness for downbearing. It is glued into position and the location of the tuning pin holes is marked by the plate web; in the case of an open block, by a pattern made from the original block before removal.

It should be noted that if the soundboard or bridges are to be replaced, this should be done before reinstalling the plate; the bearing can be adjusted by altering the height of the bridges, as a recommended alternative to altering plate height. These are factors to be considered in upcoming issues.

LOOSE BALANCE RAIL PINS

Q: *"How do you fix balance rail pins that wiggle themselves loose?*

"I regularly service a fine grand piano, 60 years old, whose balance rail pins work themselves loose after my customer has played for several months. I have tapped them down with a hammer several times, but they keep working themselves loose.

"Any suggestions?"

Ed Fesler, Twin Cities Chapter ("Mr. Goodbanger")

A: It would appear that the interference fit between pins and rail is not firm, or that someone has sprayed silicone on the pins which has migrated to the balance rail, or that the pins are being sprung out of position by the keys. Let's look at the latter possibility first.

If all or most of the balance rail pins have been tapped back for alignment of front keys (or for keyslip clearance!), it could be that the pins are touching the ends of the key button mortises on full dip. **Figure 5** illustrates the problem, which is manifested by a springy resistance at the bottom of key travel instead of the feeling of aftertouch. The solution would be to bend all the pins forward a bit, maintaining a good line of key fronts by feeling across them with the fingertip. Sharps can be aligned with a straightedge across their fronts.

If the pins are simply loose in the balance rail, the holes should be reduced with glue size, or oversize pins could be installed. Check the keys to see whether a significant number of them are "pully", because if so I would suggest the oversize pins as the solution to both problems. Naturally, those keys that were not loose will have to be eased or they will be too tight on oversize pins.

If the rail has been contaminated with silicone, I don't know what can be done.

GRAND JACK POSITION

Q: *". . . I would like to see a detailed description of the proper fore-and-aft position of grand jacks . . ."*

Mary Finley, student
Grayson County College

A: Essentially, the idea is to adjust the jack so it is as close to escapement as possible, without actually skipping off the knuckle on a hard blow. Restrain the hammer with one hand, an inch or less above its position at rest, while striking the key sharply with the other hand. If the jack won't skip out, adjust the jack stop screw until it will, and then back it off until it just won't. This is the optimum position for

that particular jack, even though this may well move it out of visual alignment with its neighbors. This is because of variations in knuckle radius, shape and texture primarily, but also for other reasons such as the condition of the tip of the jack.

For further details and illustrations, please refer to our January 1982 issue.

ILL-FITTING PINBLOCK

Here's a letter from a new member in Canada:

Dear Jack:

". . . There's a small grand at a local hotel which gets used a lot. It was rebuilt a few years ago, including new pinblock, pins, strings, etc. Looks good, but it will not stay in tune for one day. I tune it regularly once a week and still get complaints from the poor guys who have to play it. I'm not a green tuner, and have some pianos in my clientele which stay in tune seemingly for years.

"After reading an article on pinblocks in the **Journal**, *I checked this with a mirror and feelers, and sure enough, there's a space between the block and the plate flange. Now, here's the question:*

"I don't have a shop, and wondered whether I couldn't put the piano in their *shop, top off and upside down with tension off. I could then loosen the block holding screws and pry the block away from the flange slightly. Fill the crack with epoxy, then pull out the shims and tighten the block screws. This should anchor the block as well as a good fit in the first place, don't you think? . . ."*

H.G. (Hap) Knapp
Tweed, Ontario

It will anchor it, all right, but if anyone ever wants to do the job right by replacing the block it will be nearly impossible to get the old block off the plate. Another objection to this method is that some of the epoxy could get between the block and the web, possibly running down the tuning pins and string coils. Blobs of epoxy on the pins could well interfere with the fit of the tuning hammer, making the piano a pröblem to tune.

You don't need a shop to make this repair, nor is it necessary to turn the piano over. My recommendation would be to shim it with maple as shown in the February 1982 issue of the *Piano Technicians Journal*, pp. 8-10. That will solve the problem without causing another.

BLOW DISTANCE

Q: *"Many times I have heard technicians state that if the manufacturer specifies a striking distance of 1 7/8", he is referring to the actual distance the hammer travels within its arc; therefore to set striking distance with a straight-line gauge you must set the striking distance at 1¾". This statement has bothered me for quite a while, so I finally decided to test this theory. Enclosed are graphs made to illustrate the actual geometry of a piano with a striking distance of 1¾" according to the Action Handbook. As you can see, the added distance of travel is only 0.083", slightly more than 5/64", which makes the total distance the hammer traveled at 1.833", not hardly 1-7/8" as some would suppose.*

"Another point of interest that came to mind during my calculations was whether there is a real difference if the measurement of the striking distance were to be set from the striking point (actual) of the string to the point of the hammer at rest. The hammer would then be set higher and actually travel less distance than it did in the above example . . .

". . . I'm sure that to some technicians these fine points are trivial, but to those of us that are striving for the best possible in action regulation, it can make a difference. Of course this is just one measurement to be taken into consideration during regulation, but it makes me wonder where we should specifically measure from and to. If you have any thoughts about where to measure I am sure that there are other techs that would like to know as well as I do."

Joseph A. Garrett, RTT
Gales Creek, Oregon

A: The graphs and mathematical calculations supplied by our correspondent are not reproduced here for reasons of available space, not because they would not be interesting or valuable, as of course they would.

The assumption inherent in any such argument is that, since the hammer strike point travels in an arc rather than a straight line, the actual movement of that point is greater than the at-rest distance between hammer and string. I think we can take that as a given; the only question is whether that makes any difference. Come to think of it, the hammer striking surface takes a different path to the string every time it is struck with a different degree of force. On a very hard blow, for example, the inertia of the hammerhead makes it lag behind

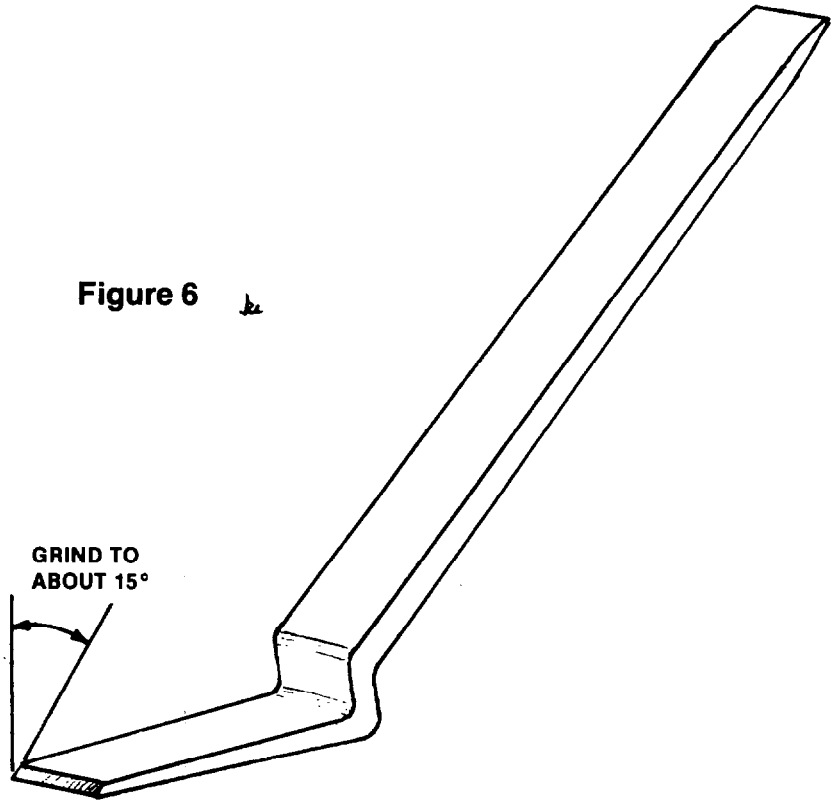


Figure 6

the knuckle, especially toward the bass where the hammers are heavy. The shank then bends, bringing the striking point of the hammer slightly in toward the knuckle, after which it whips upward and outward, finally striking the string slightly wide of the designed strike point. This tortuous path is certainly even longer than the arc described by the hammer on a soft blow.

Since the actual blow distance has a direct effect on aftertouch, as well as at least a peripheral effect on action weight, speed, power and repetition, this measurement is always to be considered; that is to say, while it should not be changed capriciously, neither should it be rigidly held to the detriment of performance. Because of tolerance stack-ups, some actions simply will not perform adequately at the specified regulating dimensions; when this happens, we have to do something, and that something is more likely to be a practical change in the spec than a theoretical debate over design, however productive the latter might become at some later date. Simply put, we must make it work even if it works wrong.

As a practical matter, any manufacturer who expects field technicians to mathematically calculate travel arcs to determine the actual height of the hammerline would probably be in line for some award for extreme optimism. Most, if the truth were known, would be content if all their instruments would work within their specifications, and if technicians would occasionally regulate the pianos at least to the extent of getting the shanks off the rail.

Having said all that, however, I don't want to leave the impression that we are unconcerned about fine points, as of course we are. I would agree with our correspondent that the small amount of additional travel represented by the arc, even on a soft blow, would not approach the 1/8" difference alluded to by his advisers. But the slightest change in a basic measurement such as action spread, keystick ratio or knuckle leverage would throw the correct blow distance off by that much, conceivably, even if the key travel is correct. Joe is correct in pointing out that all other dimensions must be considered at the same time if the result is to be in any sense predictable.

TIP OF THE MONTH

Here is another idea from a frequent contributor, Gerald Foye, who has modified an automotive brake adjusting tool as shown in **Figure 6**:

Dear Jack:

"Here is an idea that you might consider for the Technical Forum. When working on new, inexpensive uprights, I sometimes find it convenient to shim the balance rail in one or more sections rather than level lots of keys for the purpose of gaining aftertouch and, therefore, let-off. To raise the balance rail I have found an automotive brake adjusting tool to serve as an ideal pry (lift) bar. Grind the end as shown in sketch."

G.F. Foye
Lemon Grove, California

GADGET OF THE MONTH

Roy Haines of Reseda, California, made the tool illustrated in **Figure 7** for winding a coil on a new string before installation. The static part is held in the left hand, with the left index finger through the ring. It is beautifully machined of aluminum, with a stainless steel insert at the tuning pin hole. The pin crank is fabricated from a tuning tip and strap steel with a wooden knob. The steel parts are chrome plated, and the whole package is classy.

Roy is not making these tools available, mainly because they take so much time to make that their price would be prohibitive, but also because he is a practicing technician with a clientele and there are many demands on his time.

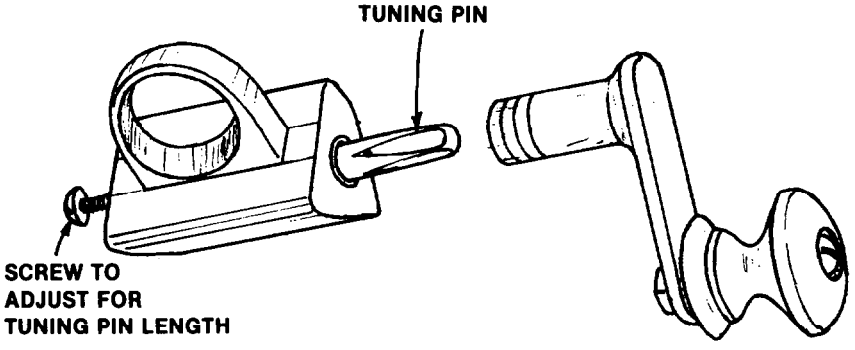


Figure 7

NEW PRODUCT OF INTEREST

Alex Vagias of Vagias Ventures, Inc., the company best known for snap-on plastic spinet elbows, has written to us with a description and samples of his latest product. Vagias is now marketing plastic replacement key tops that look like real ivory, more or less. He has one-piece (head and tail) replacements in seven shades, ranging from refrigerator white to very yellow, and individual (head or tail) replacements in three typical ivory shades.

The individual heads or tails cost ten cents apiece, and the one-piece tops range in price from $3 to $6.50 per set. For further information write to Vagias Ventures, 265 Prospect St., Baden, PA 15005.

IN CONCLUSION

We have received a number of requests for the address of Roland Loest, the technician who wrote the article on square pianos. Loest is the principal technician for Paul Boyd, the president of the company, whose address is:

Keyboard Craftsmen, Inc.
350 W. 31st St.
New York, N.Y. 10001

We also have a letter for general circulation and comment:

"I recently was called to tune an old upright (54") piano having the name Rice-Macy on the fall board along with the words "Chicago" and "Cabinet Grand". The owner, who had recently bought it from a friend, wants to know when it was manufactured. It carries a serial number 12305, but I can't find it listed in my Michel's Atlas, nor is it in the Pierce Atlas. The present owner knows that the original owner lived in Cleveland, and she thinks the piano was manufactured in the late 1890s, — but she wants a more exact date. I would appreciate your advice as to how we may obtain this information. A line or two in the **Journal** *might bring the answer?"*

A.W. Dickey
Sun City, Arizona

Any comments regarding the above piano, or any other technical topic for that matter, will be gratefully received for publication by me at this address:

Jack Krefting, Tech Editor
3802 Narrows Rd.
Erlanger, KY 41018

THE INTERNATIONAL SCENE

Fred Odenheimer, Chairman
International Relations Committee

Although I am writing these lines in early August, you will not read the report until sometime in October. By that time, we are two months closer to the IAPBT Convention of May, 1983.

If you plan to go on to China you will find details and an application blank on a different page of next issue. For the IAPBT tour please contact Fred Odenheimer, 15358 Wyandotte St., Van Nuys, CA 91406. Inquiries should be in *not later than Dec. 1, 1982.* The Registration Fee for the Convention of $350 will be due Dec. 15, 1982. This tour will require a minimum of 20 participants. Total cost is estimated somewhere around $2,300.00.

The Akasaka Prince Hotel where the International Conference will take place will have a new forty story skyscraper tower, offering a panoramic view of Tokyo. It is set in beautifully landscaped gardens in the historic heart of Tokyo, close to six major rail and subway lines. It is near the Diet, Government Offices, Business Districts, close to Ginza and Aoyama, the shopping districts and Akasaka and Roppongi, the evening entertainment centers.

Rooms are large and with all the modern conveniences to spoil you. Conference rooms will be equipped with instant translation facilities, and while somebody may give a talk in Japanese, you will instantly hear the translation in English per earphone.

There is a 25 meter outdoor swimming pool for your refreshment and there are a number of excellent jogging courses in the Akasaka area. In short, there will be something for everybody.□

SHOPTALK

Susan Graham, RTT
San Francisco Chapter

Susan's Simple Suggestions for Safety and Sanity in the Shop

Piano technicians have shops to get work done, not just for the pleasure of running a shop. Organizing and cleaning shop space often seems to fall in the same category as paying taxes: an unavoidable chore the benefits of which are too subtle to discern. However, some shop organization is necessary. Shop work rarely brings in the clean cash flow that tuning can: rebuilding is so labor intensive it must be done efficiently if there is to be any profit at all. In spite of the work involved, we are limited in what we can reasonably charge. We like to equate our work value with that of doctors and plumbers, but we really aren't as necessary to most of our customers. An out-of-tune or malfunctioning piano simply lacks the urgency of a sick child or an overflowing sink. Face it: when money is tight our kind of service gets postponed or eliminated. There are business building techniques to help, but it is also important that the work we do have is done efficiently. In this article I will discuss some of the things I do to keep my shop running as smoothly as possible.

The most fundamental suggestion is: have a specific, permanent shop area. It needn't be elaborate or huge, just some place where you can set up and leave actions and tools. Having a specific place keeps your tools where you can find them and trains your mind to focus on that place and the work that goes on there. We've all done work on our kitchen tables or on-the-spot at our customers', thinking to save extra trips or trouble. It isn't a professional or efficient thing to do (excepting those things which must be done in the piano) and, in the long run, more time is saved by working in an optimal environment.

When the specific space is set aside, what does it need? Good lighting and a good work surface is critical. Fluorescent lighting is most energy efficient, but the light is very tiring to work under all day. Some daylight or the addition of an incandescent-bulb lamp broadens the spectrum of light, making it easier on the eyes and also more accurate for matching colors and grain, etc. Fluorescent lights also change the ionization of the air so that there are more positively-charged ions than negative; this has a negative effect on stamina and mental acuity, so a source of fresh air is necessary in a fluorescent-lit shop.

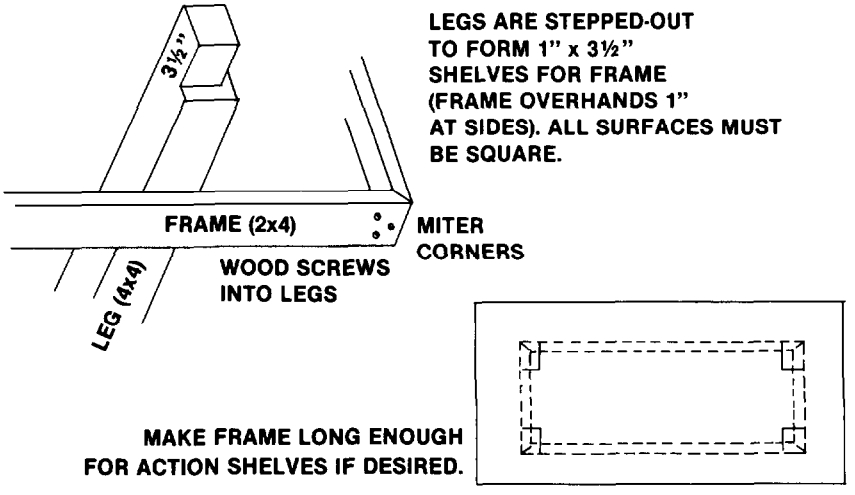


Figure 1

A good bench speaks for itself — if you've worked on a too-short or wobbly table you know how fatiguing and frustrating it is. My main bench is built from a solid-core door (picked up cheaply as a second) supported on a 2 x 4 frame on 4 x 4 legs. It is completely freestanding, so I can view my work from several sides, and can move the bench if necessary. The legs are recessed so I don't kick them (a little thing which matters). A bit of simple joinery, which can be done with a backsaw, plane and chisel or on a table saw, makes the bench extremely solid (the weight of the top helps too). My bench is 34" high, a comfortable height for a 5' tall technician to work at standing, or sitting on a 27" stool. There are studies in "ergonomics" (the biomechanical relationship between body size and furniture dimensions) but you can also just figure out by trial what is comfortable for you. A sketch of the bench is included. (**Figure 1**) I varied a design I got from fellow technician Peter Rossman: having his ideas helped me formulate my own, so I offer mine as a starting place for others.

Another important factor in a shop is climate control. Heat (and/or air conditioning) speaks for itself, but what about moisture? Do you know the ambient humidity in your shop and how much it varies? If not, you are risking wood changes which can undermine the finest craftsmanship. I have a small space heater and a de-humidifier, and keep the shop at an even 40% humidity. This is a little drier than it gets in my area, but if I am putting in a block or shimming a board I dry out further by running the heat up a little. While dryness requirements for action work are not as critical, consistency is still important. By keeping the shop environment stable, you can learn and predict how actions will react in the real world. Keeping moisture under control also protects music wire, tuning pins, and tools. At least have a gauge: the dial types are not expensive and give some idea of what the shop climate is and how much it varies. When accuracy is required, a sling psychrometer is used; there is also a gadget with prongs which stick into wood to read its moisture content. These are tools for major repairs, but humidity control in any shop improves efficiency and reduces worry.

Tool storage is necessary to keep bench space clear. There are many styles of cabinets, shelves, etc. which can be made or purchased. I have one

cabinet of small drawers where the tools are organized by job. All the stringing tools are in one drawer, hammer hanging tools in another, and so on. These groups of tools which are used in conjunction — if you need one, you'll need them all, so why not be able to grab them all at once? This is also helpful when I do perform a job in a home — I simply pull out the drawer and take it. Small boxes on shelves or in large drawers serve the same purpose (cigar or photo supply stores generate good boxes). I hang my general-function tools on pegboards: one wall for piano-only tools and another for the basic funky stuff like pipe wrenches. Pay attention to the storage of edge tools: hanging them will preserve that fine hone you labor to achieve. Planes shouldn't be set blade down but always laid on a side or hung; chisels will never survive knocking around in a drawer. Pegboards are quick and easy but it gets expensive to purchase all the fixtures; if you have wood scrap and a sabar, jig or bandsaw you can make racks in varying sizes and locate them around the shop for handy hang-ups. (**Figure 2**)

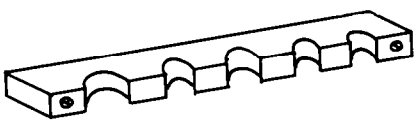


Figure 2

My other tip for tool organization is: Put away the tools for a completed task before you begin another. For instance, after hanging hammers, put away the jig, reamer, glue pot, etc., before you get out the regulating rack and tools. Simple, but it keeps things under control to really put tools away, not just shove them to one side. It's two-bit psychology but I know I can get myself to clean up when It's only a few things. I never have to waste a whole day cleaning the shop (this also makes other technicians very suspicious about whether you really do any work) and a certain minimum order is maintained. It is critical (especially in a small space) to keep control of clutter, and tools not in use are just that — clutter.

The other thing we store is supplies. It makes sense to buy general-use items such as bushing cloth and center pins in quantity. There are many things such as action parts that we rarely need in quantity without advance notice; don't waste money stockpiling these, but keep a few of everything on hand for small jobs and emergencies, and to assist in ordering for specific jobs. When I order things as stock, I mark them in the catalogue. I try to replace or at least list things as they get used; this way, there is some record of what I've bought. The supplies are in boxes, bags and envelopes, to protect them from dust and labelled on the outside. (It's amazing how much time it takes to open each container instead of just glancing at a label.) They are stored in groups on shelves along one wall: all the grand piano items on the right, the upright things on the left. They are further grouped into action parts on one shelf, "hard" supplies such as wood and metal rebuilding items and hardware on another, and "soft" items such as dampers and felt on a third. It's an easy system to remember, and at least narrows down where to begin looking for something. A simple system also helps if there are partners or assistants, as you can tell them where to start looking, rather than stop and join the hunt yourself. If you have no other climate control, keep music wire and tuning pins in a closed, slightly heated cabinet (a short damp-chaser is a perfect heater).

My final two suggestions have to do with maintaining the most critical tool of all: you. I hope by now it goes without saying that eye, ear, skin and respiratory system protection should not only be on hand but be used. Eyegoggles are straight-forward; more expensive ones are better. There is a NIOSH-OSHA handbook (library: reference section) which details chemical hazards and the protection the government suggests. It lists many types of respirators: dust masks and gas masks with organic vapor canisters seem to be most appropriate for our work. There are over 30 types of ear plugs and muffs manufactured: the National Bureau of Standards (Washington, D.C. 20234) has information on them. Both types must fit well and seal tightly against the skin (or in the ear) to be effective. The muffs are slightly more effective in some db ranges, but they are hot and cumbersome. Plugs are uncomfortable, especially at first. I suggest having both on hand. Rubber gloves are appropriate at times (such as drycleaning actions): be sure they are cotton lined or they get too damp and hot. Granted, one feels clumsy as a medievel night in armor; being thoroughly geared up in headset, respirator and goggles has the interesting side effect of making the phone ring, at which point you nearly detach your nose trying to get out of it all. However, we are exposed to many irritants and should at least control what we can. In any shop there should be adequate ventilation to prevent a build-up of fumes or dust.

My last offering is another simple rule: Never pick up anything heavy until you know where you're going to put it down. It's a simplistic thing to say but we often carelessly do otherwise: balancing an action on one knee while desperately shoving tools aside to make bench room, or walking out of the shop with an action only to be confronted with a closed car door . . . your back won't survive . . . and the action might not either.

In summary, I give you Susan's Simple Suggestions for Safety and Sanity in the Shop:

1. Claim a specific space. Avoid work under makeshift conditions.
2. Have good light of a balanced spectrum.
3. Have a sturdy bench of a comfortable height, which is accessible from as many sides as possible.
4. Control the climate.
5. Organize tools by job and store them properly; clean up after each operation is complete.
6. Stockpile general supplies; keep samples of specific parts. Store things so they are protected, and in categories easy to find.
7. Protect the body. It's the only one you get. □

THE TUNER

Paul Monroe RTT
Orange County Chapter

SALESMANSHIP

One of the chief concerns I have with my students is a subject not related to tuning but a very necessary part of our business. The subject is "Salesmanship".

I have heard good tuner-technicians say "give me a piano to work on and I like it but this calling on potential customers". Unfortunately, without that customer or client we won't do any tuning. This article is intended to give a few suggestions and comments that may help ease the pain for the tuner who doesn't like to sell.

One of the most important things to realize is that you are selling every minute of your waking hours. If you wake up in the morning with a good attitude you are selling your attitude and your spouse, or those around you will feel it or see it and react accordingly. Likewise if you wake up with a bad attitude.

When you talk on the telephone and you aren't smiling inside and outside, the person on the other end of the line feels it, recognizes it and reacts to it. Whatever your attitude, it carries over the phone wires just as well as it does when you are talking face to face.

A suggestion I want to pass on to you as an aid is to first like the person you are going to call on the phone. You will reflect in your voice whether you like them or not. If you don't like them I guarantee you will have a small measure of success in setting up appointments. It is appropriate to say here that you must like yourself and your profession before you can like the person you want as a tuning client.

Next, know your client. Is it a repeat client? Is it a potential client? For the new client it is sometimes difficult to learn all you would like to know, however, when the initial call is made, have a routine question sheet by your telephone. It should contain the obvious such as name, address, phone number and other information like directions, major cross streets if you are in a metropolitan area, type of piano — vertical or grand, name of the piano, when it was last tuned, anyone taking lessons, urgent or a routine need. While you are asking these questions you should be able to begin to learn something about your client, their attitude, their knowledge of the piano, etc., etc.

It is amazing how much you learn about their family lineage when they try to explain how they now have a piano that was once owned by their great grandmother and she gave lessons on it and "I want my child to learn on her piano". The fact that it was owned by their great grandmother may be of little interest to your personally, however I feel that it should be. If you are careless it will be felt by the client and when he or she hangs up, they don't really know if they want you to work on "grandma's" piano. Also, this little example tells you what you are going to see when you arrive to tune it. It also tells to allow an extra hour or two to do some of the repairs that usually accompany a piano such as this. Know your client and enjoy — it's your livelihood.

Another part of the business you should cultivate is the repeat client. As for me I don't like to call and remind my clients their piano is due for tuning. First of all, is it due? Just because it has been a year since it was tuned, it is due? In my opinion, it is due only if someone is taking lessons, it is played occasionally, it is treated as an instrument and not strictly as a piece of furniture. I am sure there are some technicians that will disagree with that statement, however let us look at some of the things that make it necessary to tune a piano on a regular basis.

1. Train ears to hear properly.
2. Maintain proper touch to avoid frustration by the student.
3. Check hammer and damper wear.
4. Adjust trap and damper systems.
5. Repair or replace broken parts.

The question of whether there is a need or not will have been answered during your first appointment to tune the piano.

If you are reluctant to call your repeat clients, the following suggestions should help a great deal.

During the first tuning determine if the situation calls for regularly scheduled tunings. Sell your client on the need if there is one. If they buy it, tell them you will be happy to place their name in your schedule and two to three weeks before the due date you will send them a card reminding them of the appointment. Your card should be printed. It will look professional and the costs of printing are minimal. Your card could read as follows:

We have scheduled

_____

to tune and service your piano. If this time is not convenient please call.

(714) 730-1234

The night before you are scheduled to go to their home, call to confirm the appointment. This is important for the new client as well as the repeat client. As you drive to their home you know they are expecting you. When you call to confirm the appointment they will be aware of who you are and what you do. You won't have to sell the need, you did that during your first appointment.

Some tuners set a specific date for the next appointment immediately after completing their work for that appointment. I refrain from setting a specific date and time of day to allow myself flexibility. I establish a firm schedule when I send out the appointment reminder cards.

Another reminder for the salesman. Your client likes to see you well groomed with a neat and tidy tool kit, a professional attitude and above all the client likes a smile that reflects your pleasant happy attitude.

If you would like to know more about the details of salesmanship, browse through your local library or book store. I think more books have been written about this subject than any other subject in the business field. There is one thing they all say and that is; to be able to sell you must believe in yourself and your product.

If you want to learn more about YOUR product, attend local chapter meetings, local, state and national conventions. Without this constant upgrading in your ability you will fall short of believing in yourself and your product. □

Thank You Piano Technicians Guild!

My Sincere Thanks

The Piano Technicians Guild's 25th Anniversary is now history and it leaves us with pleasant memories of a well run annual with all the trimmings.

Words of deep appreciation must be handed to those who stood in the front lines, worked endlessly and who gave generously of their time-effort and to the manufacturers who gave so much that made this 25th anniversay such a success and leaves us here the incentive to attempt to at least come up to the performance of the View in 82.

My special thanks to the D.C. Chapter for their part on the local level. Especially to Wendell Eaton and Ruth Ann Jordan for our unforgettable Opening Assembly. From the beginning it has been my aim to publicly recognize and honor those in our past who have given us our Guild. Wendell and Ruth Ann's opening assembly live up to my wildest dreams of this recognition. I was permitted to stand with Crowl, Travis, Otto, Eaton, Kingsbury, Rogers and others who over the years before I came along had given so much of themselves.

Please be reminded too, that Pratt-Read, Steinway and Kimball who gave us the treasured silver boxes and the beautiful music for the Banquet and the luncheon. The cooperation and assistance given us by the manufacturers and suppliers makes the wheel go round into success.

The Piano Technicians Guild has done it again, let us hope that we can say next year, Piano Technicians Guild's Best To Be in 83.

My heart full of gratitude to all who participated in making the 25th Anniversay a memorable event.

Jess Cunningham
Past President

Dear Friends:

Thank you so much for the Piano Technicians Guild Silver Anniversary proceedings.

I'm sure it was a gigantic task to put this historical program together. It was certainly done with devotion and fairness to all concerned.

I read it with memorable pleasure but wiped away many tears.

Sincerely,
Mrs. Raymond Feaster

I felt very honored to be one of the recipients of the "Man of Note" Award, at this year's Annual Convention in Washington, D.C. The Piano Technicians Guild Silver Anniversary Convention will always have a very special meaning for me. Thank you all ever so much! **Dick Bittinger**

When I was young, I was blessed with acquaintances mature in years and willing to share their knowledge and experiences with me, for which I am indebted and grateful. As I approach their age and assume a similar posture, I endeavor to pay off my debts to my old friends, long gone, by helping others. And while so doing, someone notices and I am honored with the Man of Note Award, recognition I did not seek but do appreciate.

Very truly yours, **Willard Sims**

UNISONS — THE EFFECT OF TUNING ON PERSISTENCE AND TIMBRE

James F. Ellis, RTT
Knoxville Chapter

Second of a 3-part Series

DATA AND DISCUSSION

Aural Observations

When we listen to accurately-tuned unisons in the middle of a good piano (one free of false beats), we notice several characteristics about the sound.

1. When we listen to the *sound level*, we hear the dual decay rate of the tone. We hear an intense tone (prompt sound) at the very first, which diminishes rapidly. This is followed by a lingering tone (aftersound), which diminishes slowly.
2. When we listen to the *timbre* of the note, we hear a distinct transition as the prompt sound ends and the aftersound begins. During the prompt sound, we hear a dominant fundamental and strong second and third partials, plus many of the higher partials. During the aftersound, the fundamental decreases and the second and third partials dominate the higher ones.
3. When we listen closely for *beats* (assuming there are no false ones), we get the distinct impression that we are hearing the beginning of a slow beat that never quite develops. The fact is, this is exactly what we *are* hearing. I explain this in the following paragraphs.

The Prompt Sound

When a piano hammer strikes the strings, a wave is formed that moves along the strings in both directions and reflects at each end. Within a number of cycles, these multiple reflections blend into the independent partials with which we are all familiar. At this time, the fundamental and other dominant partials are all synchronized. Their forces combine at the bridge, producing maximum deflection of the soundboard and maximum sound level. The energy coupled to the air by the soundboard is at its maximum for that particular amplitude of string vibration. This means that the strings are giving up energy at the maximum rate. This principle holds true for light strokes as well as heavy strokes.

The Transition

In Case 5, (See Part #1, September, 1982 Journal) the demonstration pendulums stayed synchronized because that was their most *stable* condition. When we coupled the heavy mass to the bar (Case 4, see Part #1, September 1982 Journal), the phase relationship of the pendulums was reversed to that of Case 3. (See Part #1, September 1982 Journal) In addition, the soundboard moves a large volume of air, and has a resistive component, which the pendulum apparatus did not have. It turns out that the condition in which all strings are vibrating in perfect step, is (in most pianos) an *unstable* condition. It produces the greatest dissipation of energy for the strings. The greatest conservation of energy would occur if all the strings were vibrating in perfect opposition, because that would disperse the least amount of energy into the air via the soundboard. This is exactly what the strings "try" to do. But which string will gain and which will lose, in order to bring this about? If the unison strings are all in perfect tune, they will all be synchronized, or will they? It is like standing a yardstick on its end. Which way will it fall? It won't stand there forever! Obviously, it will fall in whichever direction it begins to lean, for whatever reason. The very slightest imbalance or movement of air is all it takes. It may stand there for several seconds, but sooner or later it will fall.

My analysis agrees with Weinreich's discussion about why piano strings get out of phase, and with the findings of Hundley, et al.[4,6] In order to verify this, I constructed a non-contact electromagnetic transducer that was sensitive to the normal vibrations (vertical vibrations in a grand) of a single string. I mounted the transducer on a padded block designed to rest upon the strings of a grand piano, and to straddle the strings in question. The piano I used for this test was a 6' 4" Chickering, circa 1904. I tuned a few unisons in the middle of the piano as nearly beatless as possible. I then connected the transducer to an oscilloscope that was synchronized to a variable oscillator, which I could precisely adjust until the displayed wave form of the vibrating string appeared to stand perfectly still. I swept the transducer back and forth over the strings immediately after I struck the key, and about once per second thereafter, as the tone persisted. I observed the fundamentals of all the strings to be almost perfectly in phase immediately after the stroke, but to drift apart a few seconds later. When I muted one string and observed the other two, their fundamentals soon shifted out of phase, and stayed there. **Figure 3** is a simplified sketch of this phase shift. The actual wave forms are much more complex. The single trace represents the two strings vibrating in phase, and the double traces observed at 3 and 6 seconds after the stroke show that the two strings have shifted out of phase, and that they are maintaining that out-of-phase relationship.

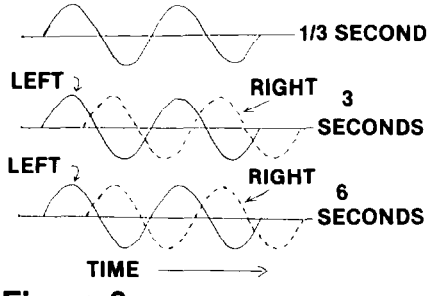


Figure 3
Phase Shift of Unison Strings

[4]"The Coupled Motions of Piano Strings", by Gabriel Weinreich, *Scientific American*, January 1979, pp. 118-127

[6]"Factors Contributing to the Multiple Rate of Piano Tone Decay", by Chase Hundley, Hugo Benioff, and Daniel W. Martin, *Piano Technicians Journal*, May 1979, pp. 15-23, Copyright 1978, Acoustical Society of America

When I observed all three strings, I found a variety of conditions that would satisfy the requirements for the conservation of energy. For some notes, the phases of the three strings would get roughly 120 degrees apart at comparable amplitudes. For others, two strings might be nearly in phase, with the third string vibrating in opposition (anti-synchronism) at about twice the amplitude. Or, one string might virtually stop while the other two would increase in amplitude and vibrate out of phase with each other. As Weinreich points out, the exact nature of the original imbalance among the unison strings (condition of the hammer, tuning, coupling, loading, etc.) determines how they will get out of phase.

There is an aural method of demonstrating this phase shift, which requires no special equipment. When we sound a note and quickly mute one string, we hear a decrease in the total sound level, just as we would expect. However, when we sound the note and wait a few seconds before muting one string, we find that the partials do not all decrease proportionately. Instead, we usually hear a decrease in the upper partials, but an increase in the fundamental. This indicates that the strings are out of phase at the fundamental frequency when we apply the mute. Stopping one string removes the interference at the fundamental frequency, and allows more fundamental to reach the bridge. This does not mean that the overtones will not get out of phase too, or that they will. It just means that the fundamental seems to go first — in most (but not all) cases — perhaps because it causes the greatest bridge motion and provides the greatest mutual coupling among the strings. This one-time-only shift from in-phase to out-of-phase (synchronous to anti-synchronous) motions is what I was referring to earlier as a "slow beat that never quite develops". We can try, but we can't tune it out completely. The piano just won't have it that way. Just as a yardstick standing on end will sooner or later fall; sooner or later the slightest imbalance due to some imperfection will get the strings slightly out of phase. As soon as that happens, the rate of phase shift will increase until the strings approach their anti-synchronous relationships, where they will stay, *if they are in tune*. The mutual coupling among the strings that causes this phase shift is highly dependent upon the characteristics of the bridge and soundboard, and it varies considerably among different pianos of different types, makes, and ages.

The Aftersound

If all of the partials of a two-string unison were to vibrate at exactly 180 degrees out of phase at exactly equal amplitudes, the forces at the bridge would cancel and there would be no sound. This never quite happens. There is always some imbalance in relative amplitude or phase angle, and the resultant of this imbalance produces forces and motions of the bridge that, in turn, produce sounds. In **Figure 4**, the left and right strings of a two-string unison are vibrating out of phase, but not exactly 180 degrees opposing. The solid lines represent the motions of the strings as a function of time, and the dotted line represents the resultant force applied to the bridge. The wave forms in the drawing are simplified for better understanding. As the imbalance becomes greater, so will the sound. The aftersound occurs when the vibrations that began in a synchronous but unstable phase relationship have shifted and approach an anti-synchronous phase relationship, which is more stable and conserves more energy.

Single-String Decay Rates

As I indicated earlier, certain investigators have somewhat differing opinions regarding dual decay rates of single strings. Weinreich believes that single strings exhibit dual decay rates which contribute to the dual decay of the overall tones, but Hundley, et al., believes this is not a significant factor.[4,6] In an effort to resolve this question, I measured the sound-pressure decay rates of single, double, and triple unison strings of several different pianos of different makes and types. As a rule, I found that the single strings did not exhibit dual decay rates comparable to those produced by double and triple-stringed unisons. I first recorded the sounds on tape, along with simultaneously-recorded one-second time

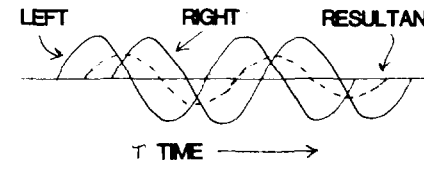


Figure 4
Phase Shift and Resultant

ticks, and later played the tapes back into an oscilloscope and a meter for direct readout. I then converted the linear data to relative dB.

Table 1 shows typical measured decay rates of the prompt sound and aftersound of single, double, and triple-string unisons of a Charles R. Walter Mod. 1520 vertical piano. The unisons were tuned beatless.

For single strings, I found little difference between the decay rates of the prompt sound and aftersound. There were some variations from note to note. When all strings were open (no mutes), the differences between the decay rates of the prompt sound and the aftersound were much greater in the middle of the piano than in the bass.

Parallel Motions

As I mentioned in the BRIEF REVIEW section, (Part 1, September 1982 Journal) some authors believe that parallel motions are at least partly reponsible for the dual decay characteristics of unison tones. The hypothesis is as follows:

1. Some of the vibrational energy of a string gets imparted (or converted) to the parallel mode.
2. Since the soundboard is rigid in the parallel direction, that energy is reflected back into the string rather than dissipated; therefore, that vibration persists longer.
3. The persisting parallel mode somehow gets converted back to audible sound after the normal mode has died away.

TABLE 1. COMPARISON OF DECAY RATES

		DECAY RATES (dB/Sec.)			
		ONE STRING		ALL STRINGS	
NOTE	STRINGS PER UNISON	PROMPT SOUND	AFTER-SOUND	PROMPT SOUND	AFTER-SOUND
B-1	1	3.3	3.3	—	—
F-2	2	3.0	3.0	5.3	4.3
B-2	2	4.2	2.7	7.2	2.8
F-3	3	6.0	3.8	14.3	2.1
B-3	3	6.7	6.7	14.0	2.9

Those who support this hypothesis believe it accounts for the dual decay rates sometimes found in single strings, and that the dual decay of the single strings contributes to the total characteristic of the unison.

There are several factors that can generate parallel vibrations in single strings. Perhaps the more common of these are imperfect hammers (texture, shape, alignment) and faulty string terminations. Even a perfect hammer will produce a very slight parallel component because it swings in an arc whose plane is not exactly parallel to the plane of the string (in an overstrung-piano). This effect is not eliminated,even though the hammer head may be bored at an angle to match that of the strings, and perfectly aligned. Putting the action center in the plane of the strings would eliminate this component, but that solution is not feasible. Besides, the error motion is very slight, and it doesn't matter anyway, assuming other things are properly done.

Dr. Weinreich measured the sound-level decay-rate of a single string, as well as the decay rates of both the normal and parallel vibrations of the same string.[4] According to his published traces, the *sound level* decayed about 8 dB per second for the first 3 seconds and about 2 dB per second thereafter. The *normal mode* decayed about 8 dB per second throughout. The *parallel mode* decayed at about 6 dB per second for the first two seconds and about 2 dB per second thereafter. Weinreich theorizes that (for a single string) the rapidly decaying normal mode accounts for the prompt sound, and the slowly decaying parallel mode for the after-sound. If we superimpose the trace of the parallel motion upon the trace of the normal motion, it indeed appears that the resultant would be something very much like the sound level Weinreich measured.

In my opinion, Weinreich's parallel-mode hypothesis contains two serious errors, as follows:

1. His trace of the *parallel* motion shows a *high initial* (immediately after the hammer stroke) displacement followed by a rapid decay, then a slower decay. The trace never shows a build-up of the parallel motion after the hammer stroke, which is what I would expect to see. In fact, I have measured such time build-ups of the parallel motion a number of times.
2. When we superimpose the traces, we are automatically assuming that the initial amplitudes of the normal and parallel modes are similar, and that given amplitudes of string vibration in each mode will result in proportional sound levels produced by the piano. These assumptions are incorrect.

In order to resolve these questions, I devised a way to compare the initial amplitudes of both the normal and parallel modes of a single string, and to compare the sound levels resulting from equal amplitudes in each mode. I constructed a second transducer, which was sensitive only to the parallel mode. I then compared the sensitivities of the two transducers (one for the normal mode and one for the parallel mode) and applied a correction factor to compensate for the difference. I measured the vibrations of some single strings in the middle of the piano, and found the amplitudes of the initial parallel modes to be typically 15 to 23 dB below those of the initial normal modes. I then coupled a driving transducer to one of the strings, and using an adjustable oscillator, I excited the string at both the fundamental and second partial, at constant amplitude, first in the normal mode, and then in the parallel mode. I monitored the vibrations of the string with the pickup transducers previously mentioned, and adjusted the driving signal until I had produced the same string displacements in each mode. It required much less energy to maintain a given amplitude in the parallel mode as it did in the normal mode, because less energy was dissipated. When I measured the sound output, that which resulted from the parallel mode was below that of the normal mode by 26 dB at the fundamental frequency and 18 dB at the second partial. If we combine the 15-23 dB reduction in the initial parallel vibrations with the 18-26 dB reduction in its proportional sound production, we see that the sound resulting from the initial parallel mode is 33-49 dB below that which results from the initial normal mode. This comes out at about 40 dB when we average and round it off. This means that, under normal conditions, the sound of the tone will be almost inaudible by the time the normal mode has decayed to where the sound of the paralleled mode will take over. It therefore appears that, under *normal conditions*, the contribution of the parallel mode to the overall tone is negligible.

Continued in next issue.

AFTER TOUCH

David W. Pitsch, RTT
Utah Valley Chapter

50 Point Guide To Grand Regulation Part XXIV

Step Number 38, Check gram weight resistance all 88 keys

Step #38 in the 50 point checklist is to use gram weights to help find too little or too much resistance at the key, something the pianist will surely complain about if overlooked. Unfortunately, many technicians do overlook this very important step when regulating an action.

There are two aspects to this step. Through the use of gram weights one can find problems with the lead weighting of the keys, or more frequently, one can find problems with the frictional resistance in the action. Since a fair amount of confusion can result when talking about both aspects, I will attempt to separate the two.

The weight resistance in a grand action can be defined as the equation $W = \frac{D + U}{2}$. Where W is the weight resistance of the action as felt by a pianist at the key, D is the downweight pressure of the key measured in grams. The frictional resistance can be defined as the equation $F = \frac{D \cdot U}{2}$. Where F is the friction resistance of the action. How we actually take the down and upweight measurements will be postponed until later. Right now the important thing is to realize the difference between the two concepts.

The weight resistance in an action is the result of the front half of the key having to lift the hammer/shank assembly, the whippen, and the back half of the key. This of course includes any lead weights which have been added to the keys. It does not include lifting any part of the damper assembly. Nor does it include the amount of force needed to push the action through the escapement. Rather, it is the force needed to push the key at rest down to the point of escapement. All measurements are taken with the action in the piano with the dampers blocked up, or with the action out of the piano on a bench. Once the keys have been weighted at the factory, this weight resistance is fairly well established for the life of the piano. It does change a little as the hammers wear and need reshaping, causing them to lose a little weight. But this slight variance can be re-established when the hammers are replaced, assuming the replacement hammers are the same weight as the original. So, for all practical purposes, if the factory did a good job when the keys were leaded, the regulating technician should not have to worry about the weight resistance of the action. In rare cases, the weighting of the keys may need to be altered slightly. This will be covered later.

The frictional resistance of the action, on the other hand, seems to continually change and is the source of many complaints for the technician. This friction comes from the key pins, the key center hole, the capstan, the hammer and whippen centers, and the knuckle/balancier contact point. Notice that the jack and balancier centers are not included, as they can not be measured by using gram weights at the key.

All too frequently a technician tries to solve a friction related problem by adding or subtracting lead weights. Of course, this is entirely wrong, and can lead to greater problems. The regulating technician should also be aware that complaints of an action being too light or too heavy can have sources other than those mentioned above. To illustrate this, I would like to relate a true story about a concert grand at a nearby university.

A well known concert artist hand picked a 9' grand at the factory, and it was sent to this university. Some of the faculty began to complain that the action felt heavy, while others complained it was too light. The piano was equipped with teflon bushings, which became tight when the piano was shipped to Utah, a dry climate. This caused the action to feel too heavy. On the other hand, the factory had hardened the hammers with lacquer, and with time the hammers became too hard, giving the complaint of an action that is too light.

The technician in charge of the instrument decided to replace the hammers, using a duplicate set from one of the supply houses. These hammers were too soft, especially for a concert grand. The teflon bushings were never serviced, as the technician did not know how. Plus he had heard from the factory that they were not subject to changes in humidity (which is not true), being "permanently free". The piano now had too soft hammers and too tight hammer centers. Naturally the complaint was heard that the action was too heavy. So the technician lacquered the hammers, from the strike point down!

The piano now had poor tone, but considerably more power. The reaction from the faculty was favorable since this made the action to feel lighter. That is, until the strings started to break from being hit by too hard of a hammer. Somewhere the technician had heard that if a piano kept breaking strings, the left-off could be made to be farther from

Continued on page 21

STEVE FAIRCHILD'S ALTERED EQUAL TEMPERAMENT FOR SMALL PIANOS

Steve Fairchild, RTT
Cristofori Brotherhood Chapter

On most small pianos, whether they be grands or verticals, I found it impossible to set what would be considered an equal temperament. Even when I have done the best possible job in tuning the whole piano it still sounds "out of tune". This is due to the distortion of the higher partial frequenices caused by inharmonicity.

In order to overcome this inherent "out of tuneness" I have created a temperament that I simply call "Altered Equal", which seems to deal more efficiently with a poorly scaled piano.

This temperament may be thought of in three basic parts. In part one, the beat speed of any fourth or fifth in which one or both of its notes are sharps will be tuned zero beat. In the second part, any fourth that is comprised of two white notes will have a beat speed that is double its normal speed, or approximately 2 bps. In the third part, any fifth that is comprised of two white notes may vary in speed but should be around 1 bps.

I will not set down a specific tempering pattern because this article is aimed at the accomplished piano tuner and I have found that they will integrate this new information into their normal tuning patterns. However, on **Chart 1** I have listed all the theoretical beat speeds and cent differentials of the thirds, minor thirds, fourths and fifths that occur ascending from D3.

On **Chart 2** I have listed sixteen notes chromatically ascending from D3 to F4 and their respective partial frequencies reading from left to right from the first, second, third, fourth, fifth and sixth. For example, you can find the beat speed of an interval such as F3-A3 third (5:4 ratio) by first locating the fifth partial of F3 (877.023) and the fourth partial of A3 (880), and subtract them and you will have approximately 3 bps. Of course, you would have to know the ratio numbers of the other intervals to find their respective beat speeds.

Tuning in "altered equal" will produce the following tonal colors. The keys of C, F and G will be mellow. B flat and D are mild. E flat and A are normal. A flat and E are bright. And lastly, B, F# and C# are brilliant.

I have demonstrated altered equal tempering to many piano technicians. So far, most have agreed that there was a great improvement in the overall sound of the small piano. I know this represents a departure from the norm as it has been taught. But then again, the small piano is a departure in itself, so why not give it a try? □

THEORETICAL BEAT SPEEDS AND CENT WIDTHS FOR STEVE FAIRCHILD'S "ALTERED EQUAL" TEMPERAMENT (CHART #1)

ASCENDING INTERVALS

ROOT NOTE	KEY NUMBER	MINOR 3rds		3rds		4ths		5ths	
		BEATS	CENTS	BEATS	CENTS	BEATS	CENTS	BEATS	CENTS
D3	(30)	5.0	9.8	4.2	9.8	1.3	3.9	1.0	3.9
D#3	(31)	11.5	21.5	6.2	13.7	0.0	0.0	0.0	0.0
E3	(32)	5.5	9.8	8.4	17.6	1.5	3.9	1.1	3.9
F3	(33)	13.0	21.5	3.0	5.9	0.0	0.0	1.2	3.9
F#3	(34)	8.7	13.7	11.5	21.5	0.0.	0.0	0.0	0.0
G3	(35)	9.3	13.7	3.3	5.9	1.8	3.9	1.3	3.9
G#3	(36)	15.4	21.5	10.6	17.6	0.0	0.0	0.0	0.0
A3	(37)	7.4	9.8	8.7	13.7	2.0	3.9	1.5	3.9
A#3	(38)	17.3	21.5	6.6	9.8	0.0	0.0	0.0	0.0
B3	(39)	8.3	9.8	15.4	21.5	2.2	3.9	0.0	0.0
C4	(40)	15.9	17.6	4.4	5.9	2.4	3.9	1.8	3.9
C#4	(41)	16.8	17.6	17.3	21.5	0.0	0.0	0.0	0.0

THEORETICAL FREQUENCIES FOR STEVE FAIRCHILD'S "ALTERED EQUAL" TEMPERAMENT (CHART #2)

NOTE	KEY NUMBER	PARTIAL NUMBERS 1	2	3	4	5	6
D3	(30)	146.998	293.996	440.995	587.993	734.991	881.989
D#3	(31)	155.915	311.830	467.745	623.661	779.576	935.491
E3	(32)	164.627	329.255	493.883	658.511	823.138	987.766
F3	(33)	175.404	350.809	526.213	701.618	877.023	1052.427
F#3	(34)	184.788	369.576	554.365	738.153	923.942	1108.730
G3	(35)	196.440	392.881	589.322	785.763	982.204	1178.645
G#3	(36)	207.886	415.773	623.660	831.547	1039.434	1247.321
A3	(37)	220.000	440.000	660.000	880.000	1100.00	1320.00
A#3	(38)	233.872	467.745	701.618	935.491	1169.364	1403.237
B3	(39)	246.384	492.769	739.153	985.538	1231.922	1478.307
C4	(40)	262.513	525.026	787.540	1050.053	1312.567	1575.080
C#4	(41)	277.182	554.365	831.547	1108.730	1385.913	1663.095
D4	(42)	293.996	587.993	881.989	1175.986	1469.982	1763.979
D#4	(43)	311.830	623.660	935.491	1247.321	1559.152	1870.982
E4	(44)	329.255	658.511	987.766	1317.022	1646.277	1975.533
F4	(45)	350.809	701.618	1052.427	1403.237	1754.046	2104.855

After Touch
Continued from page 19

the strings. This eliminated the string breakage problem, but now the faculty complained the action was too light and again had no power.

This time he decided to remove key leads from the front half of the keys to make the action heavier, and to increase the blow and dip to give it more power. The men on the faculty then complained of poor repetition, caused by the increased blow and dip, while the women complained the action was too heavy, since the front key leads had been removed. The technician reasoned that the repetition springs needed to be strengthened to give better repetition. For the women he regulated the dampers to lift from the keys later making the action to feel less heavy. During all of this, which took a few years, the knuckles began to flatten out. This caused the action to feel too heavy when going through the escapement.

The same concert artist who had hand picked this instrument when it was new came back to town to perform upon it. He disliked it so much that he swore it wasn't the same piano and refused to play on it! Small wonder, isn't it? The moral of the story is that a concert level technician must totally understand how an action works, and must be able to distinguish what the pianist is complaining about versus what is really wrong with the piano.

Before starting to think about using gram weights to find excess friction, and most certainly before trying to reweight the keys, a technician must repair and regulate the action as well as is possible. It should also be tuned and voiced for the room that it is going to be played in. If the action has had lead weights installed (usually jiffy leads) or key weights removed (a hole in the key can be seen), restore the key weighting back to what the factory had it. Only after checking out every possible cause of too light or heavy an action should a technician think about reweighting the keys.

Following the 50 point checklist up to step #38 will mean that all needed repairs and regulations necessary to the action have been performed. The only things left are the dampers and trapwork mechanisms. To check the gram weight resistance a technician must acquire a set of gram weights. All of the supply houses carry them. However, do not assume that the individual weights actually weigh what they say on them. Take your weights to a super market or drug store and use their scales to make sure.

All measurements must be taken at the same place on each key for uniformity, so I like to place the gram weights directly over the front key pins. I prefer to measure all of the downweights first, then all of the upweights. Chalk marks are made on the keys which are not in an acceptable range. Next month we will discuss what these measurements mean, and how to correct friction and weight resistance problems.□

In The Field

Ben McKlveen, RTT
Cincinnati Chapter

EFFECTIVE ADMINISTRATIVE SKILLS

A pamphlet directed to the attention of executive secretaries and office managers came across my desk recently. It was advertising a seminar which promised to teach all kinds of skills necessary to the effective administration of an office. The topics to be covered, as they were outlined, looked like they could be applied equally well to the management of a piano service. A good technician must be able to fine tune and repair a variety of pianos. He should also take time to fine tune and repair himself as the need arises.

The following topics are presented with some comment that would make them applicable to us as craftsmen.

1. Minimize interruptions — if you are working at home, plan your work, then make sure that the job can be completed quickly and efficiently. Time is money. Close doors, issue instructions to family members, do whatever is necessary to achieve quiet, effective working time free of extraneous phone calls, drop-in friends, door-to-door solicitors or whatever. Then do the job.

2. Avoid crisis-oriented work habits — for some this could mean a major personality revision. Some people avow that they work best "under pressure". Perhaps, but they can live longer and be much happier and more successful if they avoid the constant pressure cooker. Plan ahead, think ahead. Get supplies in advance of need, stay on top of inventory, keep up with office supplies. Sure, an occasional crisis will arise, but avoid living from one to another.

"A good technician . . . should also take time to fine tune and repair himself as the need arises."

3. Plan and set priorities — another way to avoid crisis situations. Plan days-weeks-months, then set up a schedule that reflects that planning. Where do you want to be next year or in five years? What do you want to accomplish with your business? Plan and work toward the implementation of that plan.

4. Manage time effectively — this is a corollary of priority setting but on a more day to day basis. Set up your daily schedule. If you have contract customers, put their appointments in the calendar at the proper time. Pay bills when due. Send bills on a regular basis. Set aside time to do specific chores, like calling customers, then do it — don't waste time talking aimlessly to friends. Pay attention to scheduling customers who live in the same general area for the same day so you don't have to drive more miles than you need, or spend more time than necessary.

5. Manage job stress wisely — what kinds of situations upset you?

"It is necessary to recognize stress producing people and situations . . ."

What types of clients get to you in a stressful way? It is necessary to recognize stress producing people and situations and devise ways of dealing with them before they happen. I have learned through the years to temper my reactions to some irritations and to stay cool in demeanor on the job even though I may be hot-under-the-collar. Nit picking customers, those that ask or expect the impossible, the price hagglers, the arrogantly ignorant and demanding, the inflexible who can't seem to find a time that suits them, all of these wear me out emotionally. As they have shown up, I have devised ways of dealing with them without anger or rancor on my part. Learn what stresses you can tolerate and form guidelines that keep you out of trouble.

6. Avoid overcommitment — this is one of the most difficult skills to learn. If work starts to come in, most of us are reluctant to try to stop it, turn it away or refer it to someone else. We think that it would be nice if we could store it for leaner times. Unfortunately, requests for our service don't store easily. Customers need work done within a reasonable time. If we overload ourselves with commitments several things can happen, none of them good. Customers begin to complain when their work is not completed in a timely fashion. We, in turn, are driven to crisis-oriented work habits. All kinds of unnecessary job stress is created. Granted, there are times when service demands will be heavier than normal, but a little planning and preparation can keep you out of trouble. Some work can be postponed until

quieter times — repairs that can be scheduled during summer months, for example. Other work can be farmed out to a trusted colleague. If the demand for service continues to be overwhelming, perhaps it is time to consider expanding your service and adding personnel to met these needs. (See topic #9.) If expansion is not your cup of tea, then selective retrenchment could help. Tailor your business to a slightly smaller territory or to a reduced group of services. Do what you do best or what you want to do — specialize in something. Do something though — don't just sit there and be overcommitted.

7. Give and receive feedback — in a one-person business this usually boils down to the formation of good communication skills with your customers, but could also include your colleagues. The round-robin discussions that precede our chapter meetings are a great form of give-and-take and seem to be very helpful, as well as enjoyable. With customers, it is necessary to "hear" what they are trying to tell you regarding their problems with the piano. It is also important that you let them know what they need to know about the condition of their piano so they can make intelligent decisions about service.

"Granted, there are times when service demands will be heavier than normal, but a little planning and preparation can keep you out of trouble."

8. Develop professional skills — we never have enough skills, in my opinion. The cultivation of additional skills is a great way to keep your interest and enthusiasm for your work. The Piano Technicians Guild offers this sort of cultivation in many different ways. Time does not stand still, materials change, new methods are developed and new ideas are born. To be part of all of this makes business profitable and pleasurable.

9. Turn problems into opportunities — a moment ago I wrote about overcommitment. As a problem, it can be turned into an opportunity to expand. Problems create chances to try new ideas, or new materials, new procedures. They open the door to inquiry, consulting with colleagues or excursions into creativity on your own.

10. Control the phone — Ma Bell's device can be one of the world's greatest time wasters. Part of controlling the phone is controlling yourself. Be disciplined with the phone. Fibber McGee routinely got laughs by going to the phone with some great purpose in mind, only to slip into, "Oh, is that you, Myrt?" (the operator) and then get involved in a totally irrelevant conversation and lose the original purpose of his phone call. "Control the phone" means using it as an effective tool of your business. That it is misused, is recognized by the phone companies and their hire consultants and speakers to help people learn to use the phone properly. Phone control also means keeping it properly monitored so that incoming calls reach you. Whether you keep track of calls through an answering service or a recording device, it is important to know that it is not untended and therefore, useless.

11. Handle paper wisely — next to phone control, paper work can be one of the biggest of business headaches. For the technician, a good rule to follow is — Keep It Simple. Try to handle paper as few times as possible and after you have handled it, do something with it. File it, record it or throw it away. You can drown in paper and "busy" paperwork. It is much easier to work out a system and then follow it. If it fails in some way, then modify the system and keep trying. But, to do nothing invites desk-top disaster and business inefficiency. The waste basket was a great invention, use it wisely. A recent personal experience illustrates this point. I was talking to a music supervisor and as I turned to leave, she said, "Oh, by the way, Mr. McKlveen, will you please give me the bid I requested, and put it on a small piece of paper. I am trying diligently to rid my desk of paperwork and I am using all manner of devious means to keep any more from being dropped here." She needed my bid, but was humorously adament that beyond that, all she wanted was a clean desk top.

Now it's up to you to identify your own problems, the reasons for unsatisfactory performance, and time-wasters. Learn to manage your time more effectively and increase productivity by working smarter. □

SOUND BACKGROUND

Jack Greenfield, RTT
Chicago Chapter

PYTHAGOREAN TUNING OF THE KEYBOARD

CHANGE FROM DIATONIC TO CHROMATIC SCALE

By the start of the fourteenth century the diatonic keyboard of the early organ had been expanded with the addition of the five raised keys for the chromatic notes. The pattern of raised keys in groups of twos and threes did not distrub the 1-1-½-1-1-1-½ step diatonic arrangement of the original keyboard. Later scholars have speculated that if the octave would have been divided into twelve equal intervals before the keyboard was developed, the keyboard could have evolved into a different, probably more efficient pattern.

The new chromatic notes were tuned at intervals of pure fourths (4:3, 498¢) and fifths (3:2, 702¢) in accordance with the Pythagorean doctrine set forth by Boethius. These principles, however, provided no guidance to indicate whether the tuning chain should be extended in one direction toward additional sharps or in the other toward additional flats or whether several notes should be added in each direction. The following table illustrates the differences in intonation between chromatic notes tuned as either sharps or flats and is arranged to illustrate some special interval relationships. The upper two lines give data for the raised notes, the bottom line shows 1½ octaves of diatonic notes. The interval widths are measured from the bottom C. All figures are rounded off to the closest whole numbers.

Important relationships that should be noted include:

1. The interval between the last note, A# and the initial note, F of a cycle with five sharps is 678¢, almost a quarter half-step below a pure fifth. The difference, 24¢ is the *Pythagorean or ditonic comma*. Technically this A#-F is a diminished sixth but is generally referred to as a *wolf* fifth because it is so badly out-of-tune. A Pythagorean tuning cycle with the wolf fifth between A# (B^b) and F is conveniently identified as one with an F X B^b disposition. The wolf interval falls between B and G^b in a cycle with five flats and shifts correspondingly in other cycles with several fourths or fifths on both the sharp and flat sides of the diatonic sequence.

2. The 81:64 (408¢) Pythagorean major thirds C-E, F-A and G-B are rapid beating. At modern concert pitch, middle C-E beats 16 hertz compared to about 10 hertz for equal tempered C-E. The pure beatless 5:4 C-E (368¢) is almost one-quarter half-step below the Pythagorean interval. The difference, 22¢ is the *syntonic comma*. However, the diminished fourths between the notes of the cycle 9 through 12 and 1 through 4 extend 384¢ and sound about as sonorous as 5:4 major thirds. Such diminished fourths are the pairs C#-F, D#-G, G#-C and A#-D in the cycle with five sharps, D-G^b, E-A^b A-D^b, and B-E^b in the cycle with five flats and corresponding pairs in the other variations of the Pythagorean circle. When they are tuned as diminished fourths but played as major thirds, they can be identified as quasi-thirds.

3. Almost pure major traids can be formed by the addition of the fifths which happen to be pure above three of the quasi-thirds; for example, D-G^b-A is the equivalent of 4:5:6 traid D-F#-A. Similarly, almost pure minor triads can be formed by adding the pure fifths below three of the quasi-thirds; for example, C-D#-G, played as C-E^b-G.

The pleasing sound of these few almost pure intervals and triads on keyboard instruments tuned in Pythagorean intonation played an important part in the development of harmony and promoted investigation of new systems of tuning better suited to harmonic compositions.

EARLY KEYBOARD COMPOSITIONS

Evidence of the progress of Pythagorean keyboard tuning is contained in musical treatises as well as in contemporary musical compositions of the late Middle Ages and early Renaissance. The earliest known keyboard music appears in manuscripts written during the second quarter of the fourteenth century found at the Abbey of Robertsbridge in Sussex, England. This collection, known as the *Robertsbridge Codex* contains six pieces. Three are in the form of an *estampie*, a vocal dancing song performed at social events. The accidentals indicate that

PYTHAGOREAN CHROMATIC SCALE
(cents from bottom C)

SHARPS													
	C#		D#		F#		G#		A#		C#		D#
	114		318		612		816		1020		1314		1518
FLATS													
	Db		Eb		Gb		Ab		Bb		Db		Eb
	90		294		588		792		996		1290		1494
DIATONIC													
C		D	E	F		G		A	B	C		D	E	F
O		204	408	498		702		906	1100	1200		1404	1608	1698

the tuning chain included E^b, B^b, F#, C#, and G# as the raised notes placing the wolf fifth between G# and E^b. This music was not in chordal style but was modeled after vocal polyphony with parallel movement of fourths, fifths, and octaves. Little more keyboard music was written until the early fifteenth century, by then the first stringed keyboard instruments had already appeared. The *Faenza Codex* found at Ferrara, Italy, written about this time, containing transcriptions of twenty-nine compositions by French, Italian, and other European composers is one of the next earliest collections of keyboard music. The tuning for the Faenza music appears to have been the sequence with five sharps, the F# X B disposition, the cycle advocated or referred to by many important fifteenth century theorists.

KEYBOARD DESIGN CHANGES

As the compass of the keyboard was extended on the bass side, in order to save space and reduce construction cost, many fourteenth century organs were built with incomplete lower octaves omitting notes which were used very little. Later when progress in musical composition demanded the missing notes, split keys in the low octave were introduced to avoid the expense of enlarging keyboard. The lever was split longitudinally but the key top was divided across its length, each half key and lever sounded a different pipe. During the early mid-fifteenth century, split keys were adopted over the entire keyboard of some instruments for the purpose of improving intonation in more tonalities. The split keys were usually G#/A^b and D#/E^b. Some written documents indicate the existence of instruments with each of the raised notes split to provide sharps and flats.

DEVELOPMENT OF KEYBOARD MUSIC STYLE

By the middle of the fifteenth century, organ design was quite advanced and fine large instruments were being built. German organ music written from around 1450 on shows the development of a definite keyboard style including use of chords. The collection written about this time known as the *Ilebourgh Tablature* includes five short preludes and three other pieces. The preludes contain a rambling melodic line written over a few sustained chords. The *Buxheim Organ Book*, a collection of several hundred keyboard pieces which appeared about 1475 shows further progress in musical structure. There are many chordal passages and frequent use of accidentals. Some of the pieces are older music written during the first half of the century. The chords in these indicate the compositions to have been written for Pythagorean intonation with F# X B disposition. However, later pieces seem to require some type of mean-tone temperament to sound best.

CHANGES IN TUNING INTRODUCED

By the middle of the fifteenth century, tempering in the tuning of keyboard instruments to overcome limitations of strick Pythagorean intonation on harmonic composition was fairly common practice although Pythagorean principles continued to dominate general musical activities for the remainder of the fifteenth century. Near the end of the century, theorists began to discuss tempering in their writings although not necessarily approving such methods. Tuning changes became a subject of heated controversy between the traditional theorists on the one hand who believed that the principles of Pythagoras handed down by Boethius should be observed as almost sacred and those on the other hand who believed that the practical considerations of performance were most important. New modifications of Pythagorean tuning that were offered afforded some benefits while conforming to the old accepted principles but these could not halt the decline of Pythagorean intonation and the advance of tempered tuning systems better suited to the new trends in musical structure and composition.

PYTHAGOREAN INTONATION IN VIOLIN PLAYING

Pythagorean intonation has not disappeared entirely and is often found in some phases of modern musical activity. It's use by violinists was demonstrated in research published in 1937 by Paul C. Greene of the University of Iowa. A study was made of 11 unaccompanied solos by six professional symphony violinists performed before acoustical research equipment that recorded the sound on charts with a scale showing pitch deviations from equal temperament. Analysis of interval; size showed general consistency in any deviations that occurred. The fourths were very close to the equal temperament value but the minor seconds and thirds showed a tendency toward contraction and the major seconds and thirds showed a tendency toward expansion. These intervals were closer to the equal tempered scale than the natural scale but were markedly closest to the Pythagorean scale. The striking conclusion of the study was that professional violinists, when unaccompanied, tend to conform to Pythagorean intonation. □

VACUUM LINE

Raye McCall, RTT
Pomona Valley Chapter

I have recently completed rebuilding a Gulbransen player and have learned a few things which perhaps might be of help to some of you.

REBUILDING THE GULBRANSEN ROLL MOTOR

The pneumatics are mounted with screws, and glued, to the top member of the motor frame. These glue joints must be broken carefully. I use a good wood chisel and a careful blow, which will break the glue joint. There is also a glue joint, or a blotter paper gasket, in the motor frame where the end joins the top member. This is the vacuum channel.

There are two small wooden discs on the sides of the upright channel board.

The pneumatics are double sided, with a wedge shaped piece in the top between the stationary leaves which contains the hinge. Be sure to check the glue joints in this wedge, and if it is loose, reglue it, being very careful to maintain proper alignment.

Seal the interior of the channel boards with lacquer, to be sure there is no bleed-through between the passages. Seal the interior surfaces of the pneumatics after removing all old fabric and glue. I also refinish the exterior surfaces of the pneumatics.

To recover the pneumatics, cut six pieces of motor cloth, each 2½" wide by 16" long. Glue the cloth to the open end of one side of the pneumatics, using PVCE glue. To be sure you get the pneumatic to stay open, the movable leaf can be taped to the other side. When the glue is set on the end, next glue the sides, making sure the fabric is taut over the corners. Smooth the fabric toward the hinge, making sure it is taut over the hinge on the middle leaf. I find it is much easier to mark and trim the excess over the movable leaf before gluing. The excess over the stationary leaf can be trimmed later, with a very sharp knife. It is best to allow 24 hours for the glue to cure before recovering the second side of the pneumatics.

The second half of the pneumatic is covered in the same manner, and allowed to cure for 24 hours, with the movable leaf approximately centered.

Next I surface the wooden discs on the sides of the upright channel block. This is done by taping a sheet of 220 sandpaper to a sheet of plate glass with double-sticky Scotch tape. Holding the channel block carefully in your hand, with the wooden disc flat against the sandpaper, and using a circular motion, carefully sand the disc until it is absolutely flat. These discs can then be lubricated with McLube 1708.

The two die-cast rotary slide valves are identical, so they can be interchanged without problems. These valves also must be faced on the sandpaper in the same manner, and lubricated with McLube 1708. These valves must also be checked for cracks.

Next the crankshaft must be polished. I use a buffing wheel and jewelers' rouge, but it could be done with very fine steel wool. The bushings must be checked for wear, and replaced if worn, and lubricated with V-J Lube.

You are now ready to reassemble the motor. First make a gasket of 1/32" cork composition gasket material for the joint between the channel boards, then assemble the joint and screw together.

The pneumatics should now be remounted on the top board, with a 1/32" cork composition gasket between, and screwed in place. The tabs should be mounted to the end of the pneumatics.

Next reassemble the crankshaft and rotary valves. Make sure there is no opportunity for leaking around the center shaft. If necessary, a thin punching of pneumatic cloth can be placed between the metal washer and the slide valve. Insert the end of the crankshaft through the thin board for the left end of the motor and fasten the end board to the motor frame. The hole around the crankshaft can then be stuffed with bushing cloth scraps to hold the crankshaft centered for testing. Fasten the crankshaft to the pneumatic arms.

You are now ready to start timing the motor and test it. To roughly set the position of the slide valves, hold the motor so that the rotary valves are to your right and down as you look at the crankshaft from the rear of the motor. Bring the crankshaft loop on Number 1 pneumatic so that it comes straight out toward you. In this position, the inside pneumatic should be completely closed. Set the screw on the inside slide driver so that it is in a line with the crankshaft loop. Set the outside valve driver in the same position.

You are now ready to fine tune the rotary valves. The valve on the outside of the channel block controls the outside pneumatics, and the inside pneumatics are controlled by the inside rotary valve. Determine the direction of travel by sucking on the supply nipple. As you look at the outside rotary valve from the side, it should rotate clockwise. As you look through the slot in the outside rotary valve to the wood disc, the hole nearest center or left should start to uncover as the number 3 pneumatic begins to open. The crankshaft loop should be a little past the center position as this hole begins to open, to allow atmospheric air into this pneumatic. Reset the set screw to this position.

Now go to the inside rotary valve. Watch through the slot in this valve as it starts to uncover the hole in the wood disc which is opposite the one previously discussed above. This controls the atmospheric air entering the other side of the number three pneumatic. The inside side of the number three pneumatic should be completely closed as this hole beneath the slide valve is just starting to be uncovered by the slot. The loop in the crankshaft should be past center, so that you can manually open the pneumatic, and the crankshaft will whip in the direction of rotation. Tighten the set screw on the inside valve in this position. Some minor changes may need to be made in these adjustments as you test the motor.

There should be about 1/32" of end play in the crankshaft.

This all may sound rather complicated, but makes for a good running air motor when properly set. *GOOD LUCK!!* □

Letters

DEAR FELLOW MEMBERS AND ALL INVOLVED WITH PIANO TECHNICIANS GUILD

It was with the greatest surprise and appreciation that I was awarded the Golden Hammer Trophy at our Convention in Wash. D.C. I had seen others receive this award in the past and could only marvel at their ability to contribute to our Guild, knowing they had earned it. And now this has happened to me. "My finest hour."

I shall never forget the good wishes from so many whom I felt deserved it more than I. My wife Grace and I shall forever be thankful.

From a farm in Canada to the highest trophy in the land, is difficult to credit, consequently we are so thankful to you all.

I must thank Mr. Smith for his craftsmanship in designing and making this miniature grand piano with the golden hammer nestled so nicely inside. Also the Chapters, Committee, Piano Technicians Guild Board and Members. I shall now have to work harder for Piano Technicians Guild to justify their faith and confidence placed in me.

This renews my philosophy of life which over the years I have found to be true. "If you give to the world the best that you have the best will come back to you." And has it ever.

Francis Mehaffey

Dear Mr. Stone:

A few days ago I received the twenty-five year pin. Many thanks for it. I certainly appreciate it and will wear it in place of the regular pin that I have had for many years.

In 1951 I took the tests in Milwaukee and became a member of American Society of Piano Technicians and transferred to the Piano Technicians Guild when the two merged. Since then I have attended many of the conventions and seminars of Piano Technicians Guild. Much of what I know of regulating and repair is a result of attending classes by the top men in the business, such as Dr. Wm. Braid White, Granville Ward, Charles F. Stein, Vic Jackson, Harvey Smith, Bill Stonaker and many others.

Since retiring in 1973, I spend the summers up here on Balsam Lake in Northern Minn. I am doing less piano work each year and do not travel to the various conventions. But I do attend the Central Iowa Chapter when I'm home in Waterloo, Ia. I was a charter member of the Central Iowa Chapter when it was formed in 1963. Since then I have been president, secretary, member of examining committee and at present chapter historian.

I have always promoted membership in the Guild and don't see how a piano technician can afford not to be a member.

Sincerely,
Howard P. Berry

Coming Events

Notices of seminars will be accepted for insertion in THE JOURNAL no sooner than six months before an event. In addition to the listing below, your seminar may be publicized through one free display ad, two columns by two inches deep. It is the responsibility of the advertiser to submit copy for the ad to the Home Office. Material must be received six weeks prior to the publication of THE JOURNAL. Note: All seminar dates must be approved by the Conference Seminar Committee. Please submit the appropriate information on the Request for Seminar Approval Form which may be obtained from the Home Office.

UPCOMING CONVENTIONS OF THE PIANO TECHNICIANS GUILD

1983 July 4-8
New Orleans
New Orleans Hilton & Towers

October 3, 4, 5, 1982
Florida State Conference
Holiday Inn – Gulfbreeze
Pensacola, Florida

Contact: Donald Valley
P.O. Box 65
Pensacola, FL 32591

October 8-10, 1982
OHIO STATE CONFERENCE
Cleveland, Ohio

Contact: Kevin Leary
18817 Hilliard Blvd.
Rocky River, OH 44116

October 15-18, 1982
TEXAS STATE CONVENTION
AND SEMINAR
San Antonio, Texas

Contact: Karla Pfennig
5623 Shoal Creek Blvd
Austin, TX 78756

October 29-31, 1982
NEW YORK STATE CONVENTION
Sheraton Airport Inn
Albany, New York

Contact: Evan Tublitz
1108 Sawyer Rd.
Clinton, NY 13323
(315) 853-3363

December 3,4,5, 1982
SECOND ANNUAL NORTH CAROLINA
STATE CONVENTION
Hendersonville, North Carolina

Contact: James Dowsett
P.O. Box 1387
Hendersonville, NC 28793
(704) 693-0787

FEBRUARY 18 - 20
CALIFORNIA STATE CONVENTION
Woodlake Inn
Sacramento, California

CONTACT: James G. Bryant
P.O. Box 20513
Sacramento, CA 95820
(916) 454-4748

Convention 1982

Piano Technicians Guild

25th Silver Anniversary Convention and Technical Institute

Part Two

PRESIDENT'S MESSAGE

President Sid Stone gave the following message:

"At this convention, we are celebrating a milestone in the history of the Piano Technicians Guild — our Silver Anniversary. We feel it the most appropriate time to reflect on our history and to honor all the members who contributed a great amount of time and effort to help achieve the growth and strength of the Piano Technicians Guild. There are many, many people who gave of themselves, whether for a single project or continuously over many years, who are all part of this great achievement. It would be most gratifying if we could honor each and every one of you individually, but, you know who you are and our heartfelt thanks go out to you. Tonight, we would like to honor individually those men of leadership. It is my pleasure tonight to present each past president with a silver jewelry box as a token of our gratitude for their years of service to the Guild. These silver boxes are engraved with each man's name, title, and term of office and were very generously provided by the Pratt Read Company.

Ralph Kingsbury 1968-1970

Jess Cunningham 1970-1972

Bob Russell 1979-1981

Past Presidents and the Silver Boxes

TWENTY-FIVE YEAR SERVICE PINS

Grand recognition was given to all members with a full twenty-five years membership in the Guild. Each was presented with a newly designed Piano Technicians Guild pin with "25 YEARS" in gold letters on a white banner across the top. This pin will be given each convention to those who reach the full twenty-five years of continuous membership.

President Sid and his wife Alice cutting the ribbon to declare the exhibits officially open.

Yes, we certainly enjoyed a superb 25th Silver Anniversary Opening Night and as the Alpha Band struck up a resounding march President Sid and his wife Alice led the way to the exhibits hall. The eager crowd followed to see the official ribbon cutting ceremony declaring the exhibit center open. This was a big and beautiful evening to remember. A special time for every member to feel that pride in being a part of the Piano Technicians Guild and among friends with the same professional interests.

It truly was the beginning of a perfect Silver Anniversary Convention.

THE SILVER ANNIVERSARY AWARDS BANQUET

Members and friends entered the banquet hall to find a tall fountain splashing with colored lights and surrounded by hors d'oeuvres. In no time, people were happily toasting each other and nibbling as they all mingled in anticipation of the Awards Banquet. Two long tables displayed a series of the individual Golden Hammer Awards from past years and the 1982 award awaiting announcement of the winner. The blue and gold Chapter Achievement Awards and the beautiful penset trophies for the Members of Note were also on display. The names of those to receive the awards were concealed to maintain the surprise for later on.

Enjoying the Steinway and Sons Reception.

Some of the awards with several Golden Hammer Awards

Surprise Birthday! President Sid announced that Hannah Grover was celebrating her 89th birthday at the convention and to loud applause a special cake was brought in by Wendell Eaton preceded by a vanguard of showers of Fourth of July sparklers.

Hannah Grover

The delegation from Japan extends greetings and friendship.

Six new chapter charters presented to the Regional Vice Presidents.

Robert Wolf, top winner in the President's Club.

The blue and gold plaques for Chapter Achievement are displayed by the chapter representatives who accepted the awards for the winning chapters.

William Smith, who handcrafts the Golden Hammer Awards and President Sid displaying the 1982 award.

Francis Mehaffey and his wife, acknowledging applause as he accepts the Silver Anniversary Year Golden Hammer Award.

Ginger Bryant and Jim Bryant receive a Presidential Award to loud applause.

Dick Bittinger and Willard Sims, the 1983 Members of Note

Charlie Huether is presented with a surprise Presidential Citation.

1982
CHAPTER ACHIEVEMENT AWARDS

FIRST PLACE

LARGE CHAPTERS
Connecticut

INTERMEDIATE CHAPTERS
Western Massachusetts

MEDIUM CHAPTERS
Cleveland, Ohio

SMALL CHAPTERS
Western North Carolina

SECOND PLACE

LARGE CHAPTERS
Washington, D.C.

INTERMEDIATE CHAPTERS
Northeast Florida

MEDIUM CHAPTERS
Sacramento Valley, CA

SMALL CHAPTERS
Hutchinson, Kansas

THIRD PLACE

INTERMEDIATE CHAPTERS
Cincinnati, Ohio

SMALL CHAPTERS
Southern Tier, New York

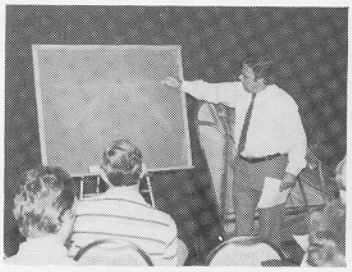
HONORABLE MENTION

MEDIUM CHAPTERS
Reading-Lancaster, PA

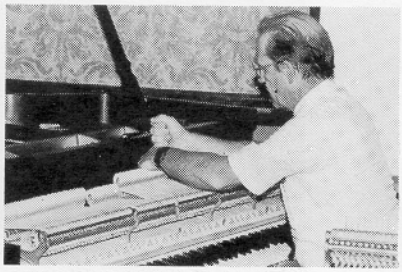
SMALL CHAPTERS
Western Maryland

INTERMEDIATE CHAPTERS
Ottawa, Ontario, Canada

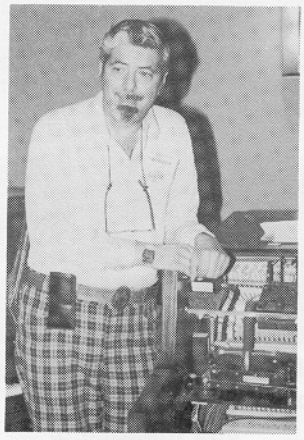
Mark Anderson and friend enjoy the banquet dancing



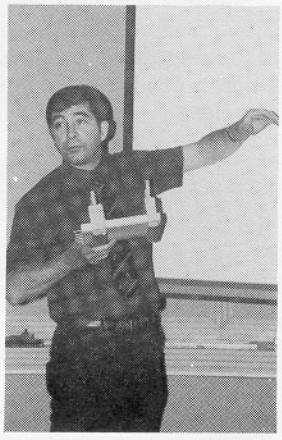
Jack Krefting "Setting the Bearing"



Jim Coleman "Tone Regulation"

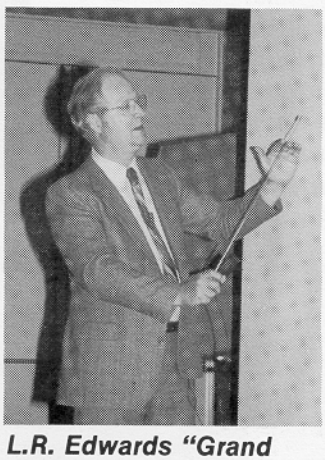


Norm Heischober "Advanced Player Forum"

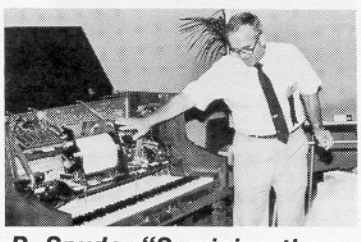


Wally Brooks "Pinblock Installation" & "Vertical Piano Construction"

Dr. Al Sanderson "Electronic Tuning"

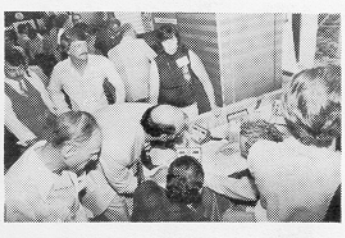


L.R. Edwards "Grand Dampers"



R. Snyder "Servicing the Aeolian Player Piano"

Feeling good

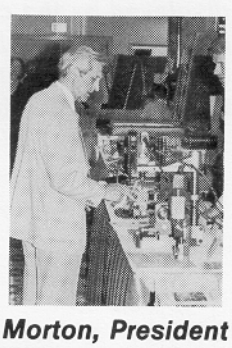


Exhibits

Coffeetime R & R

Jim Hess, Don Pahl and Willis Snyder in conference at the membership booth.

SCRVP Dick Flegle at the South Central Regional Caucus



Don Morton, President 1961-63 and 1977-79 Checking an exhibit

Caleb Tsai gives a mini-concert

Julie Berry, Auxiliary President

Auxiliary chorus

The Auxiliary Silver Anniversary Reception

THE 25th ANNIVERSARY LUNCHEON

Tired but happy members and guests strolled into the Presidential Ballroom on Friday to find white and blue decorated tables and gifts for everyone at each place. The blue silk roses on each table were a gift to a lucky lady chosen by random number so that many took home a flower reminder of the convention.

A highlight was the Piano Technicians Guild Barbershop Chorus of about thirty members under the leadership of the indefatigable Larry Crabb who kept the singers and the audience smiling and in high spirits.

The famous Barbershop Quartet with Larry Crabb, leader.

President Sid and Alice, Incoming vice president, Charlie Huether and Agnes.

President Sid offered the salute to all past presidents and followed by introducing the incoming board of directors. A brief message of greeting and acceptance from Ernie Preuitt was read and good wishes again sent his way for a fast recovery.

Ruth Ann Jordan surprised retiring president Sid by presenting him with a past president's silver box matching those given at the opening ceremony to all other past presidents.

The Uly's Rogers Outstanding Instructor Award was presented to Willard Sims by Gene Elfes.

The Auxiliary President, Julie Berry, announced the Auxiliary would again make a gift to the Guild of $1,000 for production of a new Membership Services Handbook.

Ruth Ann, all smiles as she accepts the Presidential Citation for her untiring work as chairman of the host chapter for the convention.

Carlos Ralon receives the Washington D.C. Chapter's Presidential Citation.

Retiring board members, Tom Blanton Southeast Regional Vice President and Bob Russell, Immediate Past President receive acknowledgements and awards.

President Sid Stone receiving his retiring president's plaque complete with golden gavel while Charlie Huether presents him with a past president's pin, entry into the prestigious Past Presidents Club.

The incoming Board of Directors

Wendell Eaton, President 1965-1967 and Institute Director, 1982

Audrey Eaton accepting the Presidential Citation awarded to Wendell for his dedication as the 1982 Institute Director.

Wendell Eaton, heaped with praise for his excellent organization and follow-through of top quality institutes with superb instructors, was awarded a Presidential Citation. Alas, Wendell could not come to the platform to accept his award because of a back injury on the last day but his wife Audrey, accepted for him and was applauded herself for her assistance in the organization.

Ben McKlveen will be the Institute Director for the 1983 convention and promised that the institutes will be winners.

In closing the convention, President Sid read his shortest rhyme yet:

PREUITT, YOU CAN DO IT, WE ALL KNEW IT . . . . SO GET TO IT!

ON TO NEW ORLEANS FOR OUR 26th ANNIVERSARY

1982-1983 Membership Booster Club

MEMBERSHIP POINTS
Five (5) points will be credited for bringing in a new registered technician, four (4) for an apprentice, three (3) for an allied tradesman and one (1) for all other memberships.

PRESIDENT'S CLUB
Those who achieve 15 points will receive the President's Club ribbon. At the Awards Banquet each will be presented with the 1983 President's Club pin, and the member who had the most points will be announced and honored.

RESTORER'S CLUB
Those who bring in a former member will receive the Restorer's Club award ribbon in addition to the point credits.

BOOSTER CLUB
Everyone who brings in a new member will receive the Booster Club ribbon at the convention.

NOTE:
Your name and your own chapter should be shown IN PRINT on the candidate's application on the line "recommended by," for your guaranteed full point credit. (Sometimes credit cannot be applied because the sponsor's name cannot be deciphered).

CORRECTIONS
Should there be a need for correction on the Booster Club or other lists, please notify the Home Office promptly. We want you all to receive full credit at all times.

Booster Club	Pts.	Mbrs.
BANTA, Norman	5	1
BECK, Jacqueline	3	3
BLANTON, Tom R.	1	1
CRABB, Larry	1	1
DENNIS, Robert R.	4	1
HALE, Robert	5	1
HOSTELER, Robert	1	1
JORDAN, Wayne	1	1
LEARY, Janet	1	1
MASTAGNI, Angelo	3	1
MAYR, Vitus J.	5	1
MEISSNER, Walter	1	1
SANDERS, Charles	1	1
SMITH, Sheldon P.	3	1
STONE, Sidney O.	1	1
THOMPSON, Treacey	1	1
VERHNJAK, Karl	6	2
WHALEY, Denzil	1	1
WILEY, John	5	5
WOLF, Bob	4	1

RESTORER'S CLUB
HALE, Robert

1982-1983 Reclassifications

Registered Technicians
Central North Carolina Chapter
CHAPMAN, John D.
Northern Virginia Chapter
HENEBERRY, Alan J.
Philadelphia Chapter
BERROND, Faye E.

Apprentice
Los Angeles Chapter
POWELL, Teri L.

New Members

Registered Technicians
Connecticut Chapter
LINDAHL, Herbert O.
476 Park Ave.
East Hartford, CT 06108

New York Chapter
TILLES, Nurit
117 First Avenue #3
New York, NY 10003

Pittsburgh Chapter
McCLEERY, George H.
1705 Mercer St.
Aliquippa, PA 15001

Roanoke Chapter
OLIN, Harvey M.
108 Trading Block Lane
Forest, VA 24551

Vancouver, B.C. Chapter
FERGUSON, Grant N.
4281 176th St.
Surrey, B.C. V3S 4N8

Allied Tradesmen

Connecticut Chapter
DUFFY, Donald J.
225 Woodrow Ave.
Bridgeport, CT 06606

San Francisco Chapter
SALIS, Shari
3025 Jordan Road
Oakland, CA 94602

Apprentice

Knoxville Chapter
HEILIGER, Philip F.
3918 Tennessee Ave.
Chattanooga, TN 37409

Associate

Lansing Chapter
WILCOX, Roger T.
1400 Lindbergh Drive
Lansing, MI 48910

Students

Cleveland Chapter
STEVENS, Donald, W.
211 Sunset Drive
Hudson, OH 44236

Columbia Chapter

ADAIR, John E.
100 Lockspur Road
Columbia, SC

Dallas Chapter

BRADLEY, Letita A.
33-A McArthur
Denison, TX 75020

Orange County Chapter

VANDERLIP, David A.
252 Camino De Naranjas
Anaheim, CA 92807

San Francisco East Bay Chapter

GOLATA, Debra K.
16884 Melody Way
San Leandro, CA 94578

LAMM, Catherine
1233 Henderson Lane
Hayward, CA 94544

Santa Clara Valley Chapter

ARECHIGA, Brian A.
3432 Garden St. Ext.
Santa Cruz, CA 95602

South Jersey Chapter

REED, Susan Bold
202 Belmont Ave.
Bridgeton, NJ 08302

Twin Cities Chapter

HARDY, Thomas L.
377 Ramsey Hill
St. Paul, MN 55102

Vancouver Chapter

ALEKSICH, Heather B.
302-3901 Carrigan Court
Burnaby, B.C. V3N 4K1

CERNY, Walter
16475 78th Ave.
Surrey, B.C. V3S 2H7

GILLESPIE, Zubin A.
3250 Puget Drive
Vancouver, B.C. V6L 2T5

KLASSEN, George H.
3-122 1st Street
New Westminster, B.C.

LANYON, Leonard N.
327 9th Street #101
New Westminster, B.C. V3M 3V8

LAVOIE, Suzanne
611 Queens
New Westminster, B.C. V3M 1L1

MEEDS, Wilf V.
9608 134th St.
Surrey, B.C. V3T 4A7

MILLER, Shirley V.
244 Chestnut St.
New Westminster, B.C. V3L 4N1

PERREAULT, Henri J.
3004 Alderbrook Place
Port Coquitlam, B.C. V3C 4B4

SWANSON, Kenneth G.
1015 Semlin Drive
Vancouver, B.C. V5L 4J9

Wilmington Chapter

OETZEL, William J.
17 Choate St. #1
Newark, NJ 19711

MEMBERSHIP IS EVERYBODY'S BUSINESS

Charles P. Huether
Vice President

The other day I lost a good customer. As sad as this may seem, it brought to mind a very good reason for belonging to the Piano Technicians Guild. The customer in question had been referred to me by another Guild member when she moved into my area several years ago. It was a good Grand, well-cared for by the previous tuner-technician. I was able to help the customer to get some case work repairs properly done to cover damage that the mover had caused in moving the piano. We developed a good relationship. Regular tunings were the order of the day, and when the family moved again somewhat further away from me, I still made the trip to take care of the instrument.

Last month I made my last regular call. The piano was moving out once more, this time to go far away. It was a sad occasion for me, for a good customer like this is always hard to give up. But when the matter of the move was brought up, the first question asked was: "Can you recommend a good technician in Florida?" Of course I could, not only by name from the Piano Technicians Guild directory, but from personal acquaintance. Convention attendance had made me acquainted with many technicians from all over the world.

Here is a customer properly aware of the need for competent piano service, who recognizes the Piano Technicians Guild as "the" source of such competent technicians, who has a continuous experience going through two technicians and many years and who is looking forward to continuing this good relationship with a new person far away. She has every confidence that her valuable instrument will continue to get the type of care and service it and she deserve.

The Piano Technicians Guild provides the means and channel by which this reference can be made with every assurance that satisfaction will be forthcoming. This was one customer I did not mind losing.□

AUXILIARY EXCHANGE

President's Message

Greetings to you all. This month I would like to thank you for encouraging a piano technician to strive for excellence. I have watched what you do. First, you are reading this column and probably most of the rest of the *Piano Technicians Journal*. You are expressing an interest in the technician's craft and in the organization which helps professionalize that craft. You are not the kind of spouse who keeps asking the technician when he/she is going to get a "real" job. (Aren't "real" jobs the kind people get laid off from?)

I have also seen you at seminars and conventions. You are interested in meeting other technicians and their families. You browse through the exhibits, asking questions about the different pianos and examining new tools which might help your technician with his/her work. You are not constantly trying to pull the technician away to go sightseeing when he/she is obviously wrapped up in the excitement of the convention.

You could have blocked the technician's way very easily. When he/she mentioned joining the Guild and paying the yearly dues you could have started talking about all the other things that money would buy. When your technician started registering for seminars and conventions you could have complained about how much the family needed a vacation away from the business. Instead of doing these things, however, you were much wiser. You encouraged your technician to become one of the best technicians in town; you saw the importance of becoming a member of the Piano Technicians Guild and working to qualify as an R.T.T. And you realized that there is so much to learn in this fascinating field that the technician would continue to get recharged and newly inspired by attending as many conferences, seminars, conventions, and local meetings as possible. You went out of your way to meet some of the people involved so you could share in the excitement of the fellowship among technicians.

In case your technician hasn't stopped to tell you so already, THANKS . . . he/she could never have done it as well without your support.

Julie Berry

ESTABLISHING RAPPORT WITH WOMEN TECHNICIANS

You may have noticed that more women are becoming piano technicians than ever before. Many women who are married to technicians and who used to be members of our Auxiliary have entered training to become technicians themselves. One might think that we, as a group whose membership is comprised (at this point) entirely of women, would have no difficulty relating to the women technicians. That is true in many cases. Women in the Auxiliary and women technicians in the chapters become good friends and pave the way for better acceptance of both groups by the men in the chapter. In other cases, however, women who are wives of technicians and not technicians themselves sometimes find it difficult to relate to women technicians. I think it is easy for us to feel intimidated because these women know lots of things about pianos that the rest of us don't know and may not even want to learn. These women can discuss these things with our husbands, and our husbands are eager to listen to what they have to say. While all this may be true, we would certainly be shortsighted if we let the assessment stop here.

The women technicians are a definite asset to the Piano Technicians Guild. In addition to the fact that there are many expert women technicians such as Hannah Grover, Barbara Martin, Ruth Ann Jordan, Connie Chesebrough, and others who have contributed their talents and their own high standards of craftsmanship to the Guild from its inception, the Guild is also being strengthened by some of its newer female members who are helping the organization become better oriented to the professional technician. Many of these women have learned piano tuning at residential schools and have already

shown their commitment to the craft by the time they join the Guild. These women have helped the technicians devise satisfactory ways for people of small stature to handle actions and other heavy or awkward parts of the piano. These women are working hard to prove themselves in a field which has been traditionally the domain of men. Many of them do not have husbands who are ready to support them by membership in the Auxiliary, so there is a definite role for us, a need for us to establish rapport and friendships with these women and to help bridge any gaps that are left between them and the men technicians.

NEEDLEPOINT KIT

The Guild emblem incorporated into an 18" by 18" needlepoint canvas will be made available to us at $25 for each kit, yarn included, if we have sufficient interest to order 40 kits. Do not send money at this point; however, if you are interested in this idea please contact Julie Berry by the end of the year. More details are available on request. The price does include postage and handling.

FROM OUR NEWEST HONORARY LIFE MEMBER

One of the most enjoyable tasks before the Auxiliary Council when it convened in Washington, D.C., was to vote on the Cleveland proposal nominating Luellyn Preuitt for Honorary Life Membership in the Piano Technicians Guild Auxiliary. As you might imagine, the vote was unanimous, and Lu was immediately invited to be our newest Honorary Life Member.

Recently Lu wrote to thank the Council for extending Honorary Life Membership in the Auxiliary to her. She is looking forward to being with us in New Orleans in July 1983. We certainly missed Lu and Ernie at the Washington convention, but we are all glad to hear Ernie is recuperating from his surgery without any complications, and we look forward to seeing them again at our next gathering.

Congratulations, Lu! You have certainly devoted yourself to the growth and development of the Piano Technicians Guild Auxiliary for many years. We in the organization are pleased to be able to honor you and our other Honorary Life Members with a token of our appreciation.

TUNING FORK KITS

Many technicians know that a soft leather case adds a touch of warmth and luxury for the tuning forks they carry with them. The Auxiliary has purchased several kits for making leather cases for individual tuning forks. They make thoughtful gifts for children or adults to give. If you would like to order one or more of these tuning fork kits, please send $1 for each kit (payable to PTG Auxiliary) to Julie Berry at 6520 Parker Lane, Indianapolis, IN 46220. Orders will be filled by return mail. Preference will be given to Auxiliary chapters who want to buy several kits for their members to work on as a group. Tuning forks are not included.

COUNCIL HIGHLIGHTS

The Auxiliary Council adopted several proposals in addition to the one extending Honorary Life Membership to Lu Preuitt. After considerable thought and discussion, the group decided to adopt an eight dollar membership fee to be paid by new members as they join the organization. This fee combines the cost of processing a new membership and the dues for the remainder of the calendar year in which a person joins. Therefore, a person pays $8 to join the Auxiliary and is not billed for any dues until the beginning of the next calendar year. This policy should clear up any ambiguities about half-year dues (there won't be such a thing) or about the cost of becoming a member.

The Council also adopted an exciting new fund raising project which is currently being manufactured and will be ready for the New Orleans convention. And in a related action, the Council decided to donate $1000 from previous fund raising projects to the Guild to be used in the revision of the Membership Services Handbook. The check was presented by Julie Berry, president of the Auxiliary, to Sid Stone, president of the Guild, at the Closing Luncheon of the Silver Anniversary Convention.

PLANNING A HOLIDAY BANQUET

Now would be a good time to check to be sure your Guild chapter and its Auxiliary (if it has one) have made plans for a holiday banquet or party. Chapters throughout the country have found that holiday parties are very enjoyable and give everyone a chance to pause and relax during one of the busiest times of year for piano technicians. Many groups present light musical entertainment at their parties. In fact, you may be surprised to earn how many musicians there are among chapter members and their spouses.

DID YOU EVER NOTICE....

- . . . how nobody dresses up as a piano tuner on Halloween?
- . . . how many piano tuners sleep on waterbeds to help their backs?
- . . . how many piano tuners are colorblind?
- . . . how piano tuners don't seem to change jobs as often as the general public?

Classified Advertising

CLASSIFIED ADVERTISING RATES are 25 cents per word with a $7.50 minimum. Full payment must accompany insertion request. Closing date for ads is six weeks prior to the month of publication.

Box numbers and zip codes count as one word. Telephone numbers count as two words. Names of cities and states count as one word each.

Send check or money order (U.S. funds), made payable to the Piano Technicians Guild, to Classified Ads, THE JOURNAL, 113 Dexter Avenue North, Seattle, WA 98109.

The Journal does NOT provide blind box service. Please include a mailing address and/or telephone number with your ad.

Ads appearing in this journal are not necessarily an official endorsement of the services or products listed.

wanted

WANTED: PIANO TUNER - INSTRUMENT REPAIRMAN. Responsible person needed to fill this position in an expanding music store in BERMUDA. Apply in writing including a brief resume to: **RIIHILUOMA'S, Box 895, Hamilton, Bermuda.**

WANTED MASON & HAMLIN OR STEINWAY GRAND. Want one that was a player. Have player mechanism to install. Aso want player mechanism or parts of these units. **Brady, 4609 Cranbrook, Indianapolis, IN 46250 (317) 259-4305, after 5 pm. (317) 849-1469.**

position wanted

PIANO TECHNICIAN seeking to locate. Interested in working with an expert technician or organization. Graduated from New England Conservatory's piano tech school in May. One year previous experience. Call **(313) 428-8885 or write: Cal Munson, 9981 Bethel Church Rd., Manchester, MI 48158.**

PIANO TECHNICIAN-TUNER seeking to locate. Interested in working with expert technician or busIness beginning Sept. 1982. Have 15 months previous experience from piano tech school. **Call (501) 273-5410, or write: L.E. Bradley, 601 Enfield Road, Bentonville, AR 72712.**

for sale

PIANOS FOR SALE — Always on hand, 150 to 300 uprights! Plain case, art case, and players. Also 50 to 150 grands at all times, as is or rebuilt. Excellent brand names—no junk! All set up for inspection. Lowest possible prices. **Call for quotes: Owen Piano Wholesalers, 2152 W. Washington Blvd., Los Angeles, CA 90018. Telephone: (213) 883-9643.**

1985 VICTORIAN STYLE STEINWAY A, 6'1", New ebony finish, cloth bushed wippens, shanks, flanges, pins, strings, damper felts, key bushings; regulated, voiced, ivories restored $9,500. **Richard Rosenfeld, (212) 683-2394.**

PIANO KEYS RECOVERED: Prompt service. Quality workmanship. **Johnston Piano Key Service, 41 Goodale Street, Haverhill, MA 01830. (617) 372-2250.**

YOU DON'T ARGUE WITH SUCCESS! That's why hundreds of tuner-technicians insist that their customers own copies of THE PIANO OWNER'S GUIDE. Softbound $3.95. Hardbound $6.95. Trade discounts, terms. Inquiries welcome. **APEX PIANO PUBLISHERS, 1014 Kentwood Drive, Mountain Home, AR 72653. (501) 425-7057.**

A PIANO MAY LOOK GOOD, BUT THEN... LOOKS ARE DECEIVING. Quality soundboard installation by those who care. **Richmond Piano Rebuilders, 3133 W. Cary St., Richmond, VA. 23221 (804) 358-1929.**

ACCURATE ELECTRONIC TUNING!! Substantial improvement over any other published method. Clearly-written instructions. Easy-to-learn routine. Designed for use with Hale Sight-O-Tuner - can be adapted for others. $10.00. **Don Hardin, 2620 Cypress Ave., Stockton, CA 95207.**

THE BUSINESS OF PIANO TUNING AND REPAIR. A comprehensive text written exclusively for your piano tuning business and finances. "A must for every tuners library." $12.50. **ELREC INT., 3605 Artic No. 512, Anchorage, AK 99503.**

KEY BUTTONS FOR STEINWAYS. The finest basswood Key Buttons available for older Steinways grands and other makes with 0.162" Balance Rail Pins. $49.95 plus shipping & handling. Order direct from the manufacturer. **New England Piano Action Co., 6 vernon St., Dept. T, Somerville, MA 02145 (617) 628-1591.**

KEY RECOVERING MACHINES for sale. Prices on request. Send self-addressed envelope. Or, build your own—send $15.00 for plans, photos, instructions (refund w/purchase of machine). **Solenberger Piano Service, 1551 Lynn Court, Santa Rosa, CA 95405.**

COMPLETE HOME STUDY COURSE IN Piano Tuning, Regulating and Repairing. Write or call for free brochure. **Aubrey Willis School of Piano Tuning, P.O. Drawer 15190, Orlando, FL 32858. Phone: (305) 299-3690.**

LEARN HOW TO REMOVE AND REPLACE SOUNDBOARDS YOURSELF. Video tape and printed instructions, **Victor Video, 6825 Germantown Avenue, Philadephia, PA 19119. $94.75 (215) 438--7038.**

WHIPPEN BUILDING. Revive the "feel" of Steinway grand piano action. The piano action specialists at New England Piano Action Co. can completely rebuild and modernize Steinway Whippens at a cost far less than that of a new set. Other action rebuilding services available. Please write or call for more information and prices. **New England Piano Action Co., 6 Vernon St., Somerville, MA 02145 (617) 628-1591.**

ZUCKERMANN HARPSICHORD KITS — A real challenge for the interested technician. Factory direct shipment at factory prices. Troubleshooting and advice for kit builders. Authorized Agent: **Yves A. Feder, R.T.T. Harpsichord Workshops, 2 North Chestnut Hill, Killingworth, CT 06417, Telephone (203) 663-1811.**

FOR SALE: STEINWAY UPRIGHT #194604. Style SP with Metrostyle Thermodist Player, excellent, untampered with original condition, $3400.00. **Richmond Piano, 3133 W. Cary St., Richmond, VA. 23221 (804) 358-1929.**

KNABE CONCERT GRAND for rebuilding. $3000.00 final offer. **(607) 754-0057.**

miscellaneous

SIGHT-O-TUNER MODIFICATION. Install ten-turn Knobpots to obtain .1 percent increments on the coarse dial and .01 on the fine. Tune pianos with highest accuracy possible while cutting ½ hour off tuning time. Modification includes error compensation chart keeping logarithmic cents values linear with coarse dial, contact points cleaned, recalibration, and library of cents spread for thirds and fourths for every piano now made. Detailed twelve page booklet describes THE OCTAVE DIVISION TEMPERAMENT SYSTEM invented by David Pitsch to perfectly set temperaments and tune octaves as taught at PTG conventions. Optional filter and oscillator outputs, external mic and instrument inputs, brighter lights, rechargeable battery available. All work completed within one week and guaranteed. Concepts proven by full time concert RTT. Used SOT bought and sold. **David Pitsch, (801) 225-0156.**

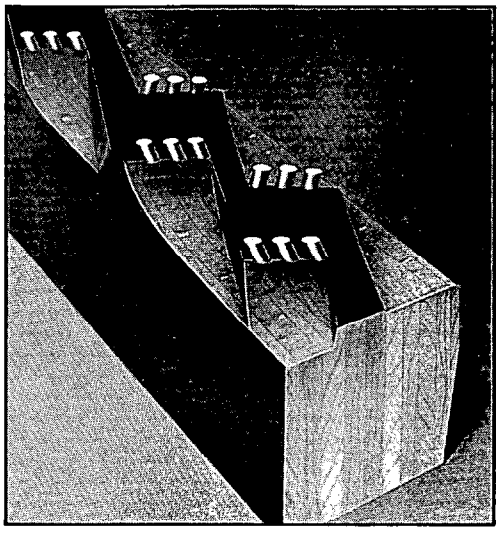
SIGHT-O-TUNER MODIFICATION. Install ten-turn BOURNS Potentiometers to improve the accuracy and repeatability of your turner. Calibration modification insures stability. External mic and instrument inputs, filter and oscillator outputs, superbright LED display, plus rechargeable battery system available. Complete cleaning, all calibrations, plus step by step instructions for use are included. Modifications completed in less than one week. Repairs also accepted. Prices you'll like. **Rick Baldassin, (801) 374-2887. NOT AFFILIATED WITH DAVID PITSCH.**

The Baldwin Piano...
You can see why it sounds better

The bridge is a critical component of the tone-producing system. It must precisely terminate the speaking length of the strings, and it must transmit vibration efficiently to the soundboard. In addition, it must be extremely strong to withstand the force of sidebearing and to resist splitting.

Traditionally, bridges have been capped so that they can be notched easily and the height altered for downbearing by planing. Our patented AcuJust™ plate suspension and hitch pin design gives us complete accuracy in setting downbearing, so we no longer need to plane our bridges down after installation. And we now notch all bridges by machine to gain increased precision and consistency.

In addition, our research showed that eliminating the capping, in combination with the above changes, gave us a definite improvement in tone. We gained maximum tone quality, greater efficiency in transmission of vibration, and improved reliability. At the same time we eliminated problems previously associated with capping: (1) occasional loose capping, (2) checking and splitting of the cap, (3) grain direction which was not always parallel to the line of the bridge, and (4) the potential tone barrier of a horizontal glue joint in the bridge.



THE BALDWIN GRAND BRIDGE: Thin vertical laminations are bent for continuity of grain from one end of the bridge to the other without horizontal glue joints. Baldwin researchers have found this design contributes significantly to outstanding tone quality.

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

Baldwin® - *Leading the way through research*

BALDWIN SPECIAL SERVICE—You may order Baldwin replacement parts at any time our office is closed—nights, weekends, and holidays—by dialing direct (513) 852-7913. Your verbal order will be recorded on our automatic answering service and processed the next working day.

Not Just Another Pretty Piano

Wurlitzer Pianos are pretty, of course ... beautiful, in fact. But they're more than that. They're fine instruments designed, engineered and built to perform over a lifetime with ease of upkeep and maintenance. That's because they're designed and built with the technician in mind.

For example, on most Wurlitzer Pianos you'll service, the music desk assembly and fall board are removable without tools... just lift off the music desk assembly and unsnap the fall board equalizer.

By removing just two screws and one nut, you can lift off the drop rail, leaving the keys totally serviceable.

How many times have you wished you could keep the key slip from touching the keys? With a Wurlitzer, it's easy... thanks to the key slip adjusting screws. And adjusting the pedal bolts is just as easy.

All of this, of course, makes for a more dependable piano that can make your job a little less frustrating.

Our continuing commitment to you, the technician, goes beyond product design. It's apparent in our ongoing willingness to teach and train. Our key technical people attend PTG meetings and conventions and conduct training sessions. Our service department continues its seminars. Our technical staff is at your service to provide any assistance you might need, just call 800/435-2930 toll-free between 8:00 a.m. and 4:30 p.m. For parts call Code-A-Phone 800/435-6954. In Illinois call 815/756-2771.

We recognize that a quality instrument must be well maintained. That's why Wurlitzer Pianos are designed, engineered and built with you in mind.

WURLITZER®

The Music People

Dekalb, Illinois 60115

Piano Technicians Journal
UPDATE
October 1982

Supporting The Arts

Reprinted from the St. Louis Chapter Newsletter "The Gateway Tuner" William Blees, Editor

When most people join an organization, they very seldom read all of the constitution; i.e., bylaws, rules, regulations and organizational goals. If it were not for a violation of the consitituion which is brought up at a meeting, members wouldn't even know a constitution existed. If a member of the Piano Technicians Guild would read very carefully the second article of the National Bylaws, he or she would read a small but very significant part of that article, letter d, which reads; "Promote music and the use of the piano and all other musical instruments." This is under the heading PURPOSE, OBJECTIVES AND PRINCIPLES. This presumably means that every member of every chapter of the Piano Technicians Guild is supposed to support music and promote it in every way.

Once a year the St. Louis Symphony puts on a Marathon Fund Drive to help pay for one of the best orchestras in the country. The Marathon is a painless way for merchants and other individuals, namely those who perform services and in other ways do things for the public, to donate time, articles, and other goodies to the Symphony, which in turn sells these items and services, with the money going to the Symphony.

About once a year, we, the members of the St. Louis Chapter of the Piano Technicians Guild are asked to donate one piano tuning to the Symphony Marathon. In previous years some of the St. Louis Chapter members have been reluctant for one reason or another to donate just one tuning to the Symphony. This year, when you are asked again, remember the purpose of the Piano Technicians Guild, and remember that as a member of the Piano Technicians Guild, you are asked to "promote music and the use of the piano and *all other instruments*."

CALENDAR

August	Home Office Collection of Chapter Dues Form sent to all chapter presidents.
September	Computer Printout to all chapter presidents for checking.
October 15	Last date for Home Office receipt of chapter dues collection form.
October 15	Final date for December Journal copy.
October 20	Last date for returning computer printout corrections to the Home Office.
November 15	Send agenda items for next Piano Technicians Guild Board meeting through your RVP.
November 15	Last date to mail Sustaining Membership Applications to the Home Office for presentation to the Piano Technicians Guild Board.
December 1	Deadline for Home office receipt of committee reports for typing.
December 1	Last date for Home Office receipt of Board agenda items.
December 31	Closing date for Hall of Fame nominations to Dick Bittinger, Committee Chairman.

Committees
1982-1983

WAYS AND MEANS (BUDGET)

Executive Board

BYLAWS

Ronald L. Berry, Chairman	6520 Parker Lane, Indianapolis, IN, (317) 255-8213
Samuel Nock	10421 Signal Butte Circle, Sun City, AZ (602) 933-8591
Jonathan C. Nye	1515 Almond Ave., St. Paul, MN 55108 (612) 646-1622
Connie D. Chesebrough	P.O. Box 384, N. Woodstock, NH 03262

CHAPTER ACHIEVEMENT AND MANAGEMENT

Thomas A. Rodgers, Chairman	Box 4006 First St., Stevens Point, WI 54481 (715) 344-4384
John L. Holder	25 E. Craig St., Basking Ridge, NJ 07920 (201) 766-5047
C. Guy McKay	306 Hargeo Dr., Indianapolis, IN 46217 (317) 881-6035
Larry B. Crabb, Jr.	4566 Ginson Dr., Tucker, GA 30084 (404) 491-1433
Zeringue, Nolan	**619 Barbier Avenue, Thibodaux, LA 70301**

CHAPTER PROGRAM DEVELOPMENT

Walter Brooks, Chairman	376 Shore Rd., Old Lyme, CT 06371 (203) 434-0287
Charles Hansen	504 N. Walch, Porterville, CA 93257 (209) 784-5382
Dennis Kurk	2567 N. Dunlap, St. Paul, MN 55113 (612) 484-3688
Hazzard, Nancy	420 Manor Rd., Staten Island, N.Y. 10314 (212) 273-8330

CHAPTER NEWSLETTER

Connie D. Chesebrough, Chairman	P.O. Box 384, N. Woodstock, NH 03262
Joel Jones	5914 Tolman Terr., Madison, WI 53711 (608) 271-6090
Leon J. Speir	7110 Forney Rd., Dallas, TX 75227 (214) 381-0212
Brooks, Vivian	376 Shore Rd., Old Lyme, CT 06371 (202) 434-0287

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Greg B. Hudak Chairman	2801 Whitney Ave., Baltimore, MD 21215 (301) 542-3385
John L. Wiley,	Box 2503, New Westminster, BC V3L 582 (604) 334-3536
Norman H. Neblett	P.O. Box 7000-65, Redondo Beach, CA 90277 (213) 316-3993

CONFERENCE AND SEMINAR

Vice President — RVP's — Local Chairmen

CONVENTION TIME AND PLACE

President — Vice President — RVP or Local Person — Executive Director

EDITORIAL ADVISORY

Palmer, Judith, Chairman	421 W. Rittenhous St., Philadelphia, PA 19144 (215) 848-2591
Kerber, Walter	2226 Siesta Dr., Sarasota, FL 33579 (813) 995-1664
Brady, Steve	22808 35th Ave. W., Brier, WA 98036 (206) 771-7781

EXAMINATION & TEST STANDARDS

Christopher S. Robinson Chairman	190 Long Hill Road, S. Windsor, CT 06074 (203) 528-6991
Mark A. Kreitzer	329 E. Bluff, Madison, WI 53704 (608) 249-5274
Christian Finger	P.O. Box 623, Niwot, CO 80544 (303) 477-9623
Wayne O. Matley	28610 S.E. Mud Mt. Rd., Enumclaw, WA 98022 (206) 825-6921
Robert A. Reeves	34 Court St., Ballston Spa, NY 12020 (518) 885-5472
Fred T. Yonley, Jr.	1201 E. Sixe Dr., Mesquite, TX 75149 (214) 288-0849
Phillips, John	9491 110th St., N. Seminole, FL 33542 (813) 391-5062
Francis Mehaffey,	1031 Northwestern Dr., Claremont, CA 91711 (714) 624-7140
Susan E. Graham	2967 Madeline St., Oakland, CA 94602 (415) 482-4707
Keyes, Otto	401 Taylor Ave., Glen Ellyn, IL 60137

GOLDEN HAMMER AND MAN OF NOTE

Willis P. Snyder, Jr., Chairman	79 Furnace St., Robesonia, PA 19551 (215) 693-5732
W. Jesse Lyons	615 B Street N.W., Ardmore, Ok 73401
Ralph A. Kingsbury	111 Brookdale Dr., S. Milwaukee, WI 53172 (414) 762-7226
Erwin Otto	777 Ocean Shore Blvd., Ormond Beach, FL 32074 (904) 441-1025
Jack Caskey	836 Yvonne Pl., Anaheim, CA 92801 (714) 956-3765

HALL OF FAME

Richard E. Bittinger, Chairman	P.O. Box 51, Brownston, PA 17508 (717) 859-3111
Walter T. Pearson	2366 S. Ridgewood, S. Daytona, FL 32019 (904) 767-0383
R.H. Weisensteiner	P.O. Box 432, French Lick, IN 47432 (812) 936-4522

Sunday, June 5 SHANGHAI/GUILIN Today you fly to what many say is China's most scenic city, on the Li River. Here, Needle-like mountain peaks extend straight up from level ground reflecting their odd shapes in the River, making it a photographer's dream.

Monday, June 6 GUILIN A full day to explore many natural and historic wonders: a cruise on the Li River, a visit to ancient Buddhist caves, etc. A day you will long remember.

Tuesday, June 7 GUILIN/GUANGZHOU Fly to your last Chinese destination of Canton, now Guangzhou.

Wednesday, June 8 GUANGZHOU There may be additional technical visits plus some interesting sightseeing, including one of Chairman Mao's former headquarters, the teeming Pearl River waterfront, etc. A final banquet will close your official stay in the People's Republic.

Thursday, June 9 GUANGZHOU/HONG KONG 3 hours by morning train takes you to Hong Kong and your accommodations at the luxurious Harbour View Holiday Inn.

Friday, June 10 HONG KONG Morning sightseeing, including a trip across the world's most beautiful harbor, the typhoon shelter area, Aberdeen and Repulse Bay, etc, afternoon free. There will be opportunity to visit local piano dealers if desired. Evening, a "Farewell to the Orient Dinner" scheduled.

Saturday, June 11 HONG KONG/LOS ANGELES Morning transfer to Kai Tak airport and a Korean Airlines flight to the USA, arriving Los Angeles mid-evening.

PROGRAM NO. 3 (Japan, China, Hong Kong)

Tuesday, May 17 LOS ANGELES/SEOUL/TOKYO Tour members depart late evening, crossing the International Date Line in flight, losing a day.

Thursday, May 19 SEOUL/TOKYO/NIKKO Arrive Seoul in early morning, then continue to Japan on the same flight with tour members leaving Korea. From here on, itinerary is the same as Program No. 1 starting with May 19 and No. 2, starting with May 28.

PROGRAM NO. 4 (Japan Only)

Tuesday, May 17 LOS ANGELES/SEOUL/TOKYO Tour members depart late evening, crossing the International Date Line in flight, losing a day.

Thursday, May 19 SEOUL/TOKYO/NIKKO Arriving Seoul in early morning, then continue to Japan on the same flight with tour members leaving Korea. From here on, the itinerary is the same as program No. 1, ending with transfer to Narita, Tokyo, for the return flight.

CUT OUT AND MAIL

REGISTRATION FORM

Space is very limited, so please return this form as soon as possible!

ASK MR. FOSTER TRAVEL
Tour Department
6524 Van Nuys Boulevard
Van Nuys, California 91401

(213) 988-0320

Please register me for your ORIENT STUDY TOUR.
I wish to participate on Program: ☐ No. 1 ☐ No. 2 ☐ No. 3 ☐ No. 4
Enclosed is my deposit ($250.00 per person) for _____ people.
Total enclosed: $_____

MY NAME _____ ACCOMPANIED BY _____

ADDRESS _____ ZIP _____ PHONE _____

PTG. CHAPTER _____ MEMBERSHIP CLASSIFICATION _____

BUSINESS FIRM AFFILIATION, IF ANY _____

MAKE CHECKS PAYABLE TO ASK MR. FOSTER TRAVEL SERVICE

PLEASE PUT IN ENVELOPE

CUT OUT AND MAIL

REGISTRATION AND CANCELLATION: A deposit of $250.00 is required at time of booking. The balance will be due 45 days prior to departure. A confirmation will be sent on receipt of deposit, together with visa application, and other pertinent material. In case of cancellation, received 60 days or more prior to departure, full refund will be made. For the period 59-31 days prior to departure, the cancellation fee is $250.00. For cancellation received 30-15 days prior to departure, the fee is 50% of the land arrangements and 14 days or less prior to departure, it is 90% of the land arrangements. In addition, airline penalties may apply, after ticketing has been completed.

WE URGE ALL MEMBERS TO TAKE OUT TRIP CANCELLATION INSURANCE TO PROTECT THEMSELVES AGAINST CANCELLATION FEES.

中华人民共和国对外贸易部国际贸易研究所

International Trade Research Institute
Ministry of Foreign Trade
The People's Republic of China

August 15, 1982

We are pleased to extend our warm welcome to the members of the Piano Technicians Guild to visit China in 1983.

I am fully confidant that through active cooperation of our two organizations, the above said visit will be most successful for all concerned.

Very truly yours

Zhang Pei-Chi
Deputy Director

TOUR COSTS:

Per person, sharing a twin room

PROGRAM NO. 1
(Korea and Japan)

Land Arrangements **$1,362.00**
Plus Airfare from Los Angeles **$1,030.00**

PROGRAM NO. 2
(Korea, Japan, China, Hong Kong)

Land Arrangements **$3,240.00**
Plus Airfare from Los Angeles **$1362.50**

PROGRAM NO. 3
(Japan, China and Hong Kong)

Land Arrangements **$3,045.00**
Plus Airfare from Los Angeles **$1,341.00**

PROGRAM NO. 4
(Japan Only)

Land Arrangements **$1,148.00**
Plus Airfare from Los Angeles ..... **$ 987.00**

FOR AIRFARES FROM OTHER CITIES, CALL ASK MR. FOSTER TRAVEL
ALL COSTS SUBJECT TO CHANGE

LAND ARRANGEMENTS INCLUDE:

IN KOREA:
- 1st Class Hotel Seoul Tokyu (3 nights)
- Daily Breakfasts (3 continental)
- Half Day City Tour with English Speaking Guide
- Round Trip Airport Transfers and Factory Transfers
- Tips to Porters
- Visa Fee

IN JAPAN:
- 1st Class Hotels (or similar):
  Kanaya at Nikko (1 night)
  Akasaka Prince (4 nights)
  Concorde (2 nights)
  New Miyako (2 nights)
- Breakfasts (9 continental)
- Lunches (3)
- Dinners (4)
- Train, 2nd Class Bullet (Kyoto/Tokyo)
- All Transfers, Sightseeing as shown in Itinerary with English Speaking Guides
- Special Visits to Factories, etc.
- Admission to "Gion Corner" in Kyoto
- All Tips to Porters and to Waiters in Connection with Included Meals
- Japan Visa

IN CHINA:
- Hotels Selected by Foreign Trade Ministry, Beijing, all with Private Facilities (11 nights)
- All Meals (starting Dinner May 28, ending Breakfast June 9)
- All Transportation by Air, Train or Coach
- All Transfers and Sightseeing with English Speaking Guides
- All Special Technical Visits, Entertainment, Banquets, etc.
- Chinese Visa fee
  (No tipping in China)

IN HONG KONG:
- Deluxe Hotel Harbour View (2 nights)
- 2 Breakfasts (American-style)
- 1 "Farewell Dinner"
- Half Day Sightseeing
- Airport and Train Transfers
- Tips to Porters and Waiters

TOUR CONDITIONS

TRANSPACIFIC AIR TRANSPORTATION: Economy class jet by Korean Airlines and/or other IATA carrier or connecting ATC carrier based on the 14/30 day group inclusive tour fare (GV10). This airfare requires that a minimum of 10 passengers travel together on the specified itinerary. Cancellations received after ticketing has been completed may result in forfeiture of a part of the airfare. All fares are subject to change and government approval. In China, air transportation by CAAC will be provided.

GROUND TRANSPORTATION: By deluxe Motorcoaches; and "soft seat" class train in China, 2nd class train in Japan.

ACCOMMODATIONS: At first class hotels in Korea, Japan and Hong Kong; in China at hotels assigned by the China Ministry of Trade, all with private facilities.

MEALS: Daily Continental breakfasts in Japan and Korea, American-style in Hong Kong & China. 3 lunches and 4 dinners in Japan, all meals in China.

TRANSFERS, SIGHTSEEING AND SPECIAL VISITS: By private motorcoach with English speaking guides.

ADMISSIONS, TIPS AND TAXES: All admissions to places of interest, visited in connection with this tour. All gratuities to porters and waiters (with included meals) and local taxes, but not airport departure taxes.

TRAVEL DOCUMENTS: Valid passport. Visas for Korea, Japan and China which will be supplied by tour operator and special instructions will be sent to all tour members after deposit is received. Vaccinations or innoculations not required at this time, but are recommended.

BAGGAGE: On all programs, 1 suitcase not to exceed 44 lbs., plus usual carry-on luggage.

TOUR PRICE AND VALIDITY: All costs are based on tariffs and currency exchange rates valid September 1, 1982 and are subject to change.

INSURANCE: No insurance is included and special insurance applications will be mailed to tour members prior to departure.

TOUR PRICE DOES NOT INCLUDE: Meals not shown above, beverages not usually included with meals in accordance with local custom. Airport taxes, laundry, or any services or items of a personal nature.

KOREAN AIR LINES is responsible ONLY FOR THE AIR TRAVEL PORTION of this tour performed by it on behalf of tour participants in accordance with the terms and conditions of their individual passage contracts and subject to applicable laws, treaties and regulations governing air transportation. Tour services including but not limited to carriage by land or sea, guide services, hotel accommodations, restaurants and all services other than carriage by air, are furnished by contractors who are independent and do not act for or on behalf of Korean Air Lines and Korean Air Lines shall not be responsible for any act, omission or event occurring prior to the tour participant's embarcation upon or after his disembarkation from Korean Air Lines aircraft. The usual passage contract used by Korean Air Lines when issued, shall constitute the sole contract between Korean Air Lines and the tour participant; and in purchasing a passage contract as a part of this tour, the participant acknowledges and accepts the foregoing conditions. KOREAN AIR LINES IS NOT TO BE HELD RESPONSIBLE FOR ANY ACT, OMISSION, OR EVENT DURING THE TIME PASSENGERS ARE NOT ON BOARD ITS AIRCRAFT.

Ask Mr. Foster Travel and/or associated companies give notice that all tickets and coupons are issued by them, and all arrangements for transport or conveyance, or for hotel accommodations are made by them AS AGENTS upon the express condition that they shall not be liable for any injury, damage, loss, accident, delay or irregularity which may be occasioned either by reason of defects in any vehicle or through acts or default of any company or person engaged in conveying the passenger, or in carrying out the arrangements of the tour, or otherwise in connection therewith, or of any hotel proprietor or servant. Such conveying, etc., is subject to the laws of the country where the conveyance, etc., is provided. The aforesaid companies can accept no responsibility for losses or additional expense due to delay or changes in transportation company services, sickness, weather, strikes, war, quarantine or other causes. All such losses or expenses will have to be borne by the passengers.

Valid September 1, 1982 to June 30, 1983

ORIENT STUDY TOUR

in connection with the

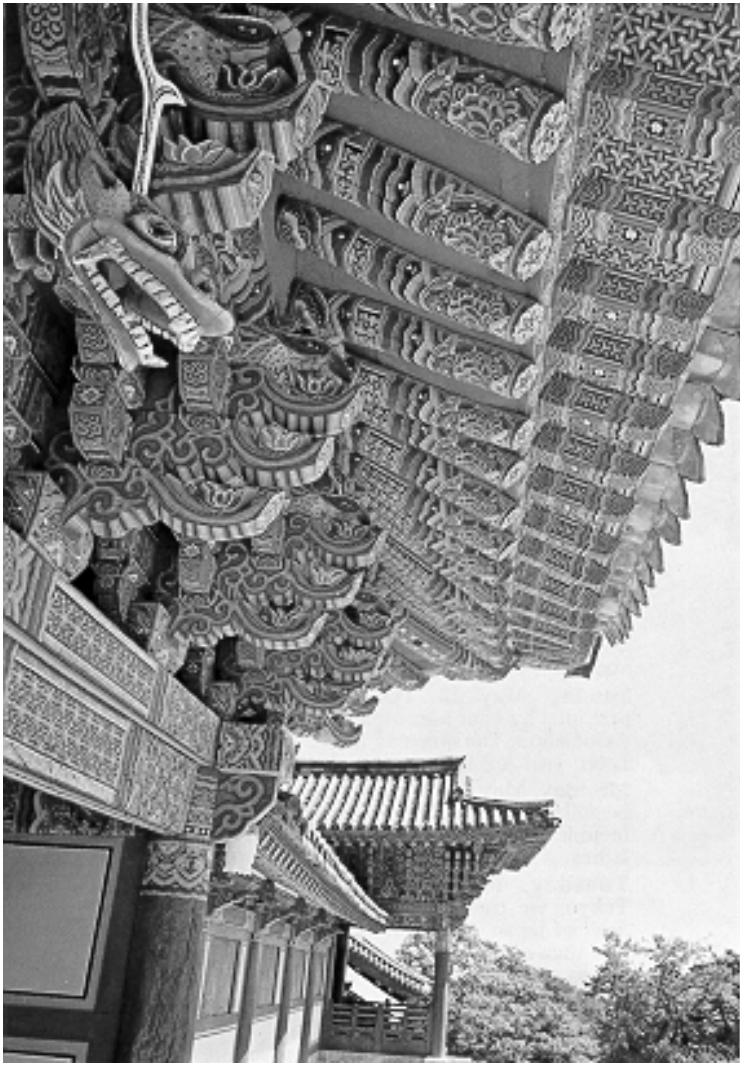
Intl. Association of Piano Builders and Technicians

May 22-26, 1983

and visiting

Korea, Japan, Hong Kong, and The People's Republic of China

KOREAN AIR LINES
We treat you as an honored guest.



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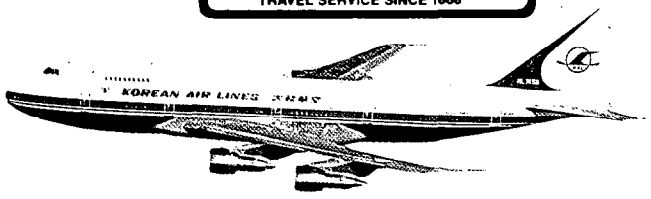
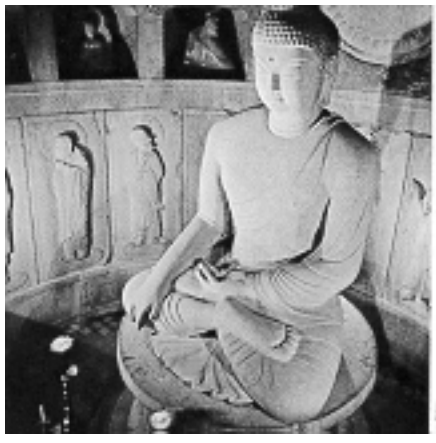


KOREAN AIR LINES
We treat you as an honored guest.



ORIENT STUDY TOUR

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PROGRAM NO. 1 (Korea and Japan)

Sunday, May 15 LOS ANGELES/SEOUL Morning departure on Korean Airlines 747 for Korea. In flight, you will cross the International Date Line and lose 1 day.

Monday, May 16 SEOUL Evening arrival & transfer to the fine Seoul Tokyu Hotel, minutes away from the heart of the city.

Tuesday, May 17 SEOUL Our first visit is to the Samick Piano Factory, for an extensive tour of the facilities and discussion. In the afternoon, we'll explore modern and ancient Seoul, a city of exciting contrasts. Included are Changdok Palace, Mt. Namson Lookout, the lovely "secret" gardens, and East Gate Market for some excellent shopping.

Wednesday, May 18 SEOUL Full day visit to the Young Chang Piano Factory, Korea's largest, for more valuable information and informal exchange of ideas, techniques and trade related problems.

Thursday, May 19 SEOUL/TOKYO/NIKKO Tour members who departed direct for Japan on May 17th from Los Angeles will board together with those leaving Korea this morning, for Tokyo. On arrival we'll proceed immediately to Nikko, one of Japan's most scenic areas, ideal to get rested up for the days ahead.

Friday, May 20 NIKKO/TOKYO We'll start exploring the wonders of Nikko after a leisurely breakfast. There is much to see here, especially the spectacular Kegon Falls, Lake Chuzensi, the great Toshogu Shrine, with its famous "3 Monkeys" sculpture. In late afternoon, we'll transfer to Tokyo and the recently opened deluxe Akasaka Prince Hotel.

Saturday, May 21 TOKYO You are in the world's largest city and you'll see it all from the top of Tokyo Tower, plus the Imperial Gardens, Asakusa district and lots more. Later, we'll leave Tokyo and drive to Kamakura to see the giant Buddha and, time permitting, also visit Yokohama.

Sunday, May 22 TOKYO Today you join arrangments provided by your host organization, the Japanese Piano Tuners Association. The morning is free (many stores are open today). Later, an I.A.P.B.T. meeting is scheduled.

Monday, May 23 TOKYO A morning council meeting will be followed by an official luncheon, then another council or technical meeting, with special activities provided for the ladies. A buffet and party will close the day.

Tuesday, May 24 TOKYO/HAMAMATSU Leaving Tokyo, we travel to Hamamatsu, facing the lovely "Inland Sea" of Japan. Later we visit the nearby Kawai Piano Factory and then dine with our local hosts.

Wednesday, May 25 HAMAMATSU Professional activities will include a full day visit at the giant Yamaha Piano Factory while the ladies will enjoy a day of leisure in the coastal city, until dinner.

Thursday, May 26 HAMAMATSU/KYOTO Leaving the coast, we travel inland to Japan's former capital, Kyoto, declared an "open city" during WWII and saved from destruction. Kyoto has retained its ancient look and is doubtless the country's loveliest city. We'll visit Nijo Castle, the Golden Pavilion, the ancient Imperial Palace, etc. Tonight, a special visit to "Gion Corner" to see a most interesting Japanese cultural show, is scheduled.

Friday, May 27 KYOTO Morning is free and the shopping is excellent. Later, we drive to Nara, to see additional ancient wonders. such as colorful Kasuga Shrine, Todaiji Temple and the charming Deer Park. Farewell Dinner tonight.

Saturday, May 28 KYOTO/TOKYO/LOS ANGELES One of the program's highlights has been left until the end. This morning, we'll board the famous "Bullet Train" which takes us at speeds exceeding 100 m.p.h. to Tokyo, where we're met and transferred to Narita airport for the return flight to California.

PROGRAM NO. 2 (Korea, Japan, China and Hong Kong)

Note: For activities May 15-28, see Program 1

Saturday, May 28 Tour members depart Tokyo Narita mid-afternoon via CAAC, arriving Beijing in the evening. They will be met by a representative of the Ministry of Foreign Trade and escorted to their hotel.

Sunday, Monday and Tuesday, May 29, 30 and 31 BEIJING During your 3 day stay, the Ministry of Foreign Trade will set up meetings with your Chinese counterparts, visits to piano factories plus arrange for a comprehensive sightseeing program. Included are a visit to the incredible Forbidden City, Temple of Heaven, Summer Palace and more, plus a full day trip to Pataling to visit the great Wall and the Ming Tombs. There will also be an official banquet in your honor, attended by Chinese members of your profession.

Wednesday, June 1 BEIJING/NANJING By air to Nanjing, China's former capital. Here you will visit Dr. Sun Yat-Sen's great Memorial, the Tomb of the first Ming Emperor, etc. Nanjing is one of China's most attractive cities, on the Yangtze River.

Thursday, June 2 NANJING/SHANGHAI A half-day, interesting train ride takes you to Shanghai, China's largest city (11 million). Located on the Whampoo River, it has retained some of its European-style buildings, but its "Old City" is what most of us expect Shanghai to look like.

Friday and Saturday, June 3 and 4 SHANGHAI During your stay, additional technical visits are scheduled. There will also be extensive sightseeing, a visit to the Children's Palace and the best shopping in China.

Don L. Stephens	650 Parrington Oval, U. of Oklahoma, Norman, OK 73069 (405) 321-0806
Maurice Roseburrough	P.O. Box 446, Marshalltown, IA 50158 (515) 752-1644
Norman Miller	1917 Graylock Ave., Monterey Park, CA 91754 (213) 281-3171

INTERNAL CODE OF ETHICS

Collette I. Collier Chairman	2743 S. Uhle St., Arlington, VA 22206
Marty A. Hess	4031 N. Harding, Wichita, KS 67220 (316) 744-0564
Dale E. Heikkinen,	1514 Wayne, Ann Arbor, MI 48104 (313) 665-0583

INTERNATIONAL RELATIONS

Fred Odenheimer, Chairman	15358 Wyandotte St., Van Nuys CA 91406 (213) 785-8402
Daniel A. Evans	4100 Beck Ave., Studio City, CA 91604 (213) 762-7544
Ralph E.T. Long	8 Baldock St., Ware England SG 12 90Z (44) 920-5939
John E. Lillico	200 Queen Mary Dr. #605, Oakville, ON Canada L6K 3L1 (416) 842-2776
LaRoy Edwards	970 W. 25th St., Upland, CA 91786 (714) 981-2570
Kenzo Utsunomiya	578 N. Sycamore, Fullerton, CA 92631 (714) 522-9451

MEMBERSHIP PROMOTION

Vice President and all RVP's

MINORITIES COMMITTEE

Juhn, Ernest	109-01 72nd Rd., Forest Hills, N.Y. 11375 (212) 268-7263
Zeringue, Nolan	619 Barbier Avenue, Thibodaux, LA 70301 (504) 446-6812
Braymer, Orville	5827 Valley View Dr., Alexandria, VA 22310 (703) 971-1756

NOMINATING COMMITTEE

Coleman, James Sr., Chairman	4 W. Del Rio, Tempe, AZ 85282 (602) 966-9159
Juhn, Ernest	109-01 72nd Rd., Forest Hills, N.Y. 11375 (212) 268-7263
Russell, Bob	1414 Lander Rd., Mayfield Hts., OH 44124 (216) 449-5212
Crabb, Larry	4566 Ginson Dr., Tucker, GA 30084 (404) 491-1433
Morton, Dan	19501 Mayhall St., Northridge, CA 91324 (213) 349-3736

ALTERNATES

McNeil, Tom	119 Allen St., Lansing, MI 48912 (517) 372-7296
Ralon, Carlos	Box 5, Sollers Rd., Lusby, MD 20657 (301) 326-3462
Draine, Robert	316 Arlington St., Action, MA 01720 (617) 263-8932

NOMENCLATURE AND SERVICE MANUAL

Raye McCall, Chairman	1078 E. Third St., Pomona, CA 91766 (714) 622-8826
Norman Heischober	295 West Shore Dr., Massapequa, NY 11758 (516) 799-1656
John F. Bloch	1584 S. Broadway, Denver, Co 80210 (303) 757-0004

PUBLIC RELATIONS

James G. Bryant, Chairman	1012 Dunburton Circle, Sacramento, CA 95825 (916) 454-4748
Paul J. Monroe	5200 Irvine Blvd., Irvine, CA 92614 (714) 730-3469
Charles P. Willis	311 Midland Ave., River Edge, NJ 07661 (201) 262-1369
John O. Baird	2518 N. Brighton, CA 91504 (213) 845-2785

SCHOLARSHIP

Norman Miller, Chairman	1917 Graylock Ave., Monterey Park, CA 91754 (213) 281-3171
Stanley Oliver	1965 E. Outer Dr., Detroit, MI 48234 (313) 891-9226

TEACHER RELATIONS

Fred A. Fornwalt Chairman	1333 Logan Blvd., Altoona, PA 16602 (814) 942-1489
William Blees	515 Poplar, Webster Groves, MO 63119 (314) 962-8599
Ronald A. Weintraub	3302 Belmar Blvd., Wall, NJ 07719 (201) 681-0293
Ben F. Bailey	5831 Virginia Pl., Riverside, CA 92506 (714) 683-5065

TECHNICAL INSTITUTE EVALUATION

Institute Committee

TRADE RELATIONS

Robert J. Russell, Chairman	1414 Lander Rd., Mayfield Hgts., OH 44124 (216) 449-5212
John F. Bloch	1584 S. Broadway, Denver, CO 80210 (303) 757-0004
Don Morton	19501 Mayall St., Northridge, CA 91324 (213) 349-3736

VISUALLY HANDICAPPED

Ken Williams Chairman	
Lawrence T. Goetsch	P.O. Box 1453, Sherman, TX 75090 (512) 786-9638
Kenneth Carter	550 S. Lyon, Marshall, MO 65340 (816) 886-3034
Harry E. Berg	2612 Gill Ave., Bakersfield, CA 93306 (805) 871-4600

HINTS FROM YOUR HOME OFFICE

Just Checking!

Members — Every member is asked to check that the label on the Journal is correct. Please notify the Home Office of any change and be sure to include your telephone number.

Chapters — All chapter presidents will receive a printout showing the full membership of the chapter. Please check the listing with your own chapter roster. Make any needed corrections on the printout and return it to the Home Office as fast as possible. We must have any corrections no later than October 20th. Please include telephone numbers if these are not shown in the printout.

Officers — A printout of chapter officers is also being sent to each chapter president. Please check and return to the Home Office as soon as possible.

Tips On New Member Applications

Be sure to complete the grey section in the upper right hand portion of the application form. Unless this is completed the application must be returned to the chapter. We MUST know the *classification* and this entry must be *dated* and *signed by a chapter officer.*

2. For Registered Technicians the *tuning examination form* and *examination fee* MUST be attached.
3. Attach the required *entry fee of $15* for Registered Technicians, Apprentices and Allied Tradesmen.
4. Attach the *full $60* for students as required by the bylaws.
5. Do not attach any funds for other classifications as they are billed on a pro rata basis after acceptance.

CHAPTER MAILINGS

The following papers were sent to all chapter presidents in the regular August Chapter Mailing:

July Special Letter of Greetings with a Message from President Ernie Preuitt.

August Hall of Fame Committee Form for sending your nomination for the 1983 Hall of Fame Award to Chairman Dick Bittinger.
Pink form for requesting the Home Office to collect your chapter dues.
Resume of Action of 1982 Council Session and Board Meetings.
Leader Guides or reports on three cassette tapes currently in the Steve Jellen Memorial Library and available on loan.

We Review 25 Years In Piano Technicians Guild

We still have a few of the special Silver Anniversary Books containing a review of the beginning of our Guild and the first twenty-five years. The book contains lots of photographs, nostalgia, memories, and reminders of the years from the earliest plans by the Negotiating Committee of the American Society of Piano Technicians and the National Association of Piano Tuners towards the formation of the Piano Technicians Guild.

This is a one-time printing and all members will be pleased to own a personal copy. Price is just $5.00 for the 56 page silver embossed anniversary issue.

SILVER ANNIVERSARY REVIEW

Please send _____ *editions of the 56-page Silver Anniversary Review*

I enclose $_____ *($5.00 each copy)*

Name _____

Address _____

City _____ *State* _____ *Zip Code* _____

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