

# PIANO TECHNICIANS JOURNAL

February 1981







## Frankly, my dear...

As the years go by, some performances become memorable while others fade into oblivion.

No one has yet been able to predict the judgment of time until the time itself has passed.

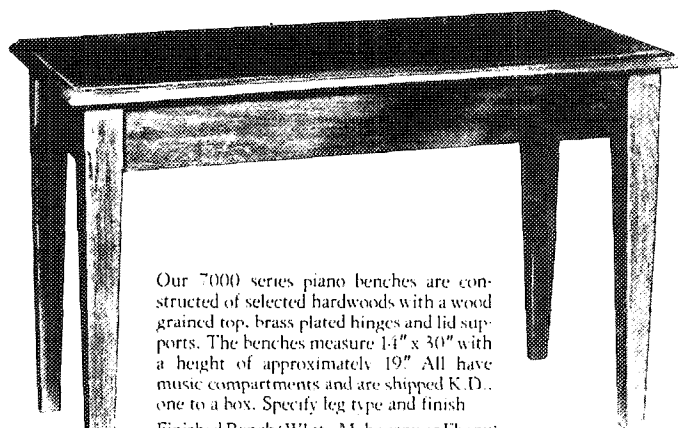
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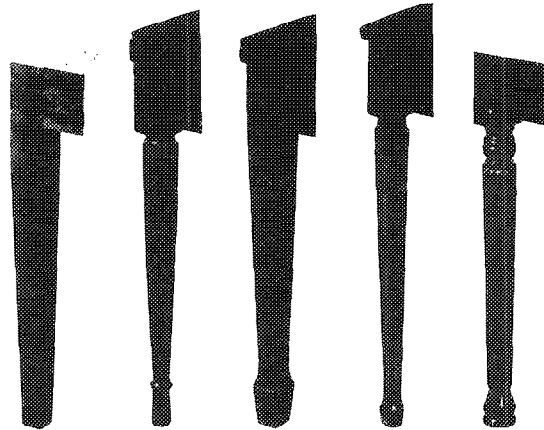
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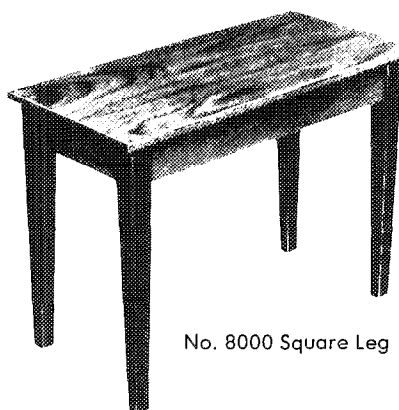
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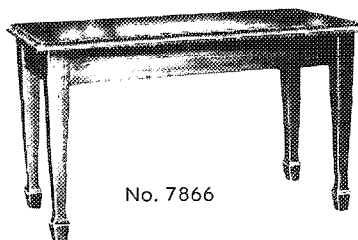


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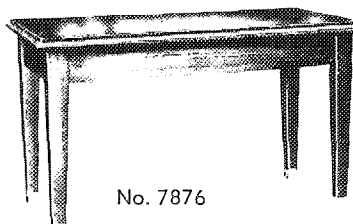
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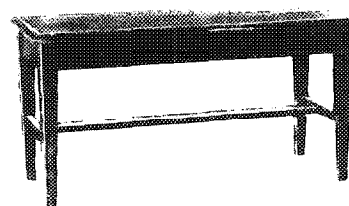
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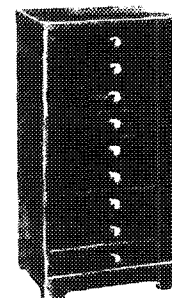


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# Piano Technicians Journal

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### COVER ...

Featured this issue is Felix Mendelssohn, German composer and conductor of the 19th century. Known primarily as a classicist during the romantic period, Mendelssohn's extremely varied range of works includes the overture to *A Midsummer Night's Dream* (written when he was 17), five symphonies and two oratorios, in addition to numbers of compositions for the solo piano.

### THE PIANO TECHNICIANS GUILD, INC.

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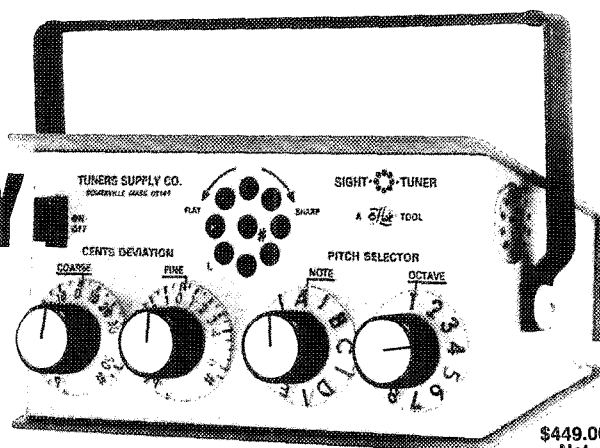
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# EDITORIAL

Don L. Santy,  
Executive Editor

I recently attended a conference having to do with the latest innovations and methods in dealing with association management problems in the 80's.

As usual, a great deal of time and effort went into trying to understand the Anti Trust Laws. When I first started telling Guild members about these ominous laws three years ago and sent a yellow sheet to all chapters warning them of the consequences of price fixing, restraint of trade, etc., I received some interesting comments as a result.

Some people were actually mad at me for spreading such "ridiculous and unwarranted" admonitions about. They expressed their incredibility in no uncertain words and even intimated that I was anti-government, if not in attitude, at least in tone.

When the Minneapolis Chapter fell innocently into the trap as a result of "hear-say and innuendo" and had to fight for its life at considerable cost and peace of mind, the clamor subsided. People actually began to take us seriously.

To this day there are people who cannot conceive a "Government of the People" being anything but loving and caring, concerned and helpful. They still believe that bureaucrats and politicians are "servants of the people" and find it incomprehensible when one agency or another subjects an individual or group to unbelievably cruel and tyrannical harassment. Don't ask me why. I honestly don't know. I just know it is being done—and way too often.

What brings me to this subject is a movie we were shown at this conference. It pointed out what can happen to a group of established, honest, law-abiding, successful, prominent, family-oriented businessmen who ply their craft

with too much enthusiasm, putting into practice methods and techniques used through the centuries to meet the competition, develop business and generate profit.

The movie was produced by International Paper Co. expressly for those who fail to take the Anti Trust Laws seriously. It is based on an **actual occurrence** and is a real shocker.

When it was over you could hear the gasps from the more than 100 professional association management people present, even though it was already familiar to them.

Twenty-three men—considered the "cream of the business world" in that industry, established and reputable members of their business and social communities—were trucked off to prison and given large fines. Lives were in shambles. Families were broken up. Reputations ruined. It showed the underhanded system the government resorts to to turn friend against friend and the bag of tricks that can be used when one side has "all the chips." I will try to get the film to show at this summer's convention to those who may be interested.

Also in attendance at the meeting was an expert on the Anti Trust Laws, an attorney from Washington, D.C. and an ex federal prosecutor and FBI man.

I managed to get him into a conversation later on. I told him that in one of the Guild's newsletters a member asked a local attorney how price fixing laws affected our industry. His retort was *suggested* to be that it affects goods, not services. He laughed heartily and said, "Only if you are one of the exempt organizations like the railroads or soft drink industry." I asked how they became exempt. He replied, "It's easy, just money,

lobbying, power and influence. You, too, can enjoy this privilege if you are willing and able to go through the process.

At the conference, we also spent considerable time discussing what it will be like in the 80's.

The next decade will be like something never before experienced in our lifetime. It will be a decade of change. Right now it is getting next to impossible to predict trends, costs and problems, which until now could be counted on with some accuracy and a degree of comfort.

All organizations are struggling with ever-spiraling double-digit inflation and budgets are falling out of balance everywhere. Organizations are hard-pressed to develop non-dues sources of income since members are unwilling to increase their dues fast enough to keep up. Many organizations are burdened

## Piano Tuning and Repair



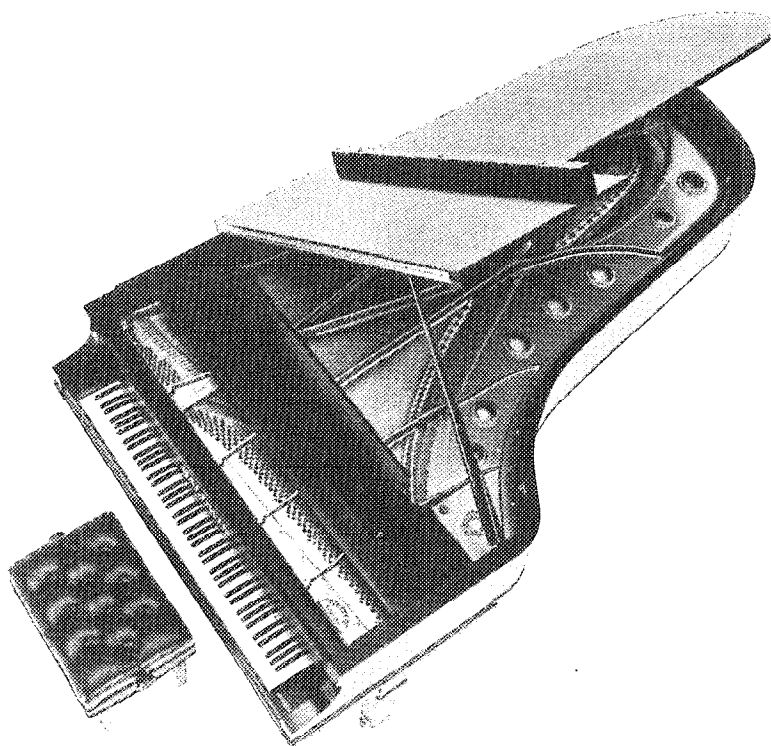
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with the need for full membership approval before making adjustments in their income. This means they are at the mercy of those who want more services but no increases in dues. An impossible situation, of course, but—if they are vocal enough—they can cause great damage to an organization.

The next decade will be an era of the "knows" and "know-nots", not the "haves" and "have-nots." Dissemination of information through clear lines of communication, especially through the printed word, will be more vital than ever before. Large conferences, bringing people from all over the country together in one spot, are becoming more difficult every year because of costs. Alternative methods are being developed.

Sophisticated record-keeping systems are taking the place of manual systems for cost effectiveness, but this calls for large expenditures of capital which most organizations (particularly non-profit ones) don't have. They have to work cooperatively with other groups for common saving and survival. This is multiple management coming into focus: organizations sharing space, people and equipment to keep administrative costs down.

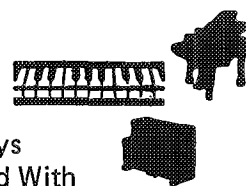
One thing was made clear at this conference—we must gird ourselves for changes we cannot even imagine, to say nothing of anticipating. The scramble in the market place will continue for some time to come. The wheels of government grind slowly and change is usually resisted.

I wonder how Justice Brandeis of the Supreme Court would word the following today (from his dissertation "Trade Associations"):

"A Trade Association is an organization for the mutual benefit which substitutes *knowledge* for ignorance, rumor, guess and suspicion. It tends to substitute *research* and *reasoning* for gambling and piracy without closing the door to adventure or lessening the value of prothetic reasoning."

It is a sorry day when we cannot speak our mind and make ourselves heard in an atmosphere of free competition and exchange of business. To be in a position of

extreme danger because of an offhand comment is sad indeed. Reminds me of a joke I heard some time ago... "BE CAREFUL WHAT YOU SAY" . . . When the new preacher loaned his fine team of horses to a friend he cautioned: instead of "giddy-up!" to start them, say "Praise the Lord!" and in place of "Whoa!" shout "Amen!" The fellow broke over the crown of the hill and started down at full gallop, when he noticed the bridge at the bottom was out. He screamed "Whoa!" repeatedly. As they approached the danger point, just before they plunged over, he remembered to yell "Amen!" They stopped abruptly. "Whew!" he sighed, mopping his brow, and breathed a loud "Praise the Lord!"



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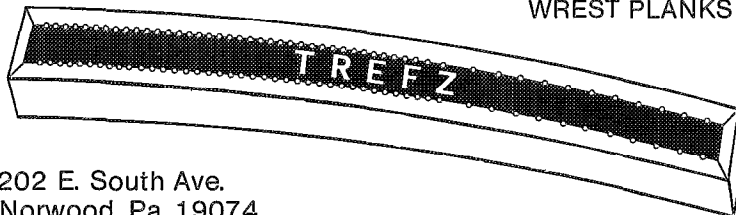
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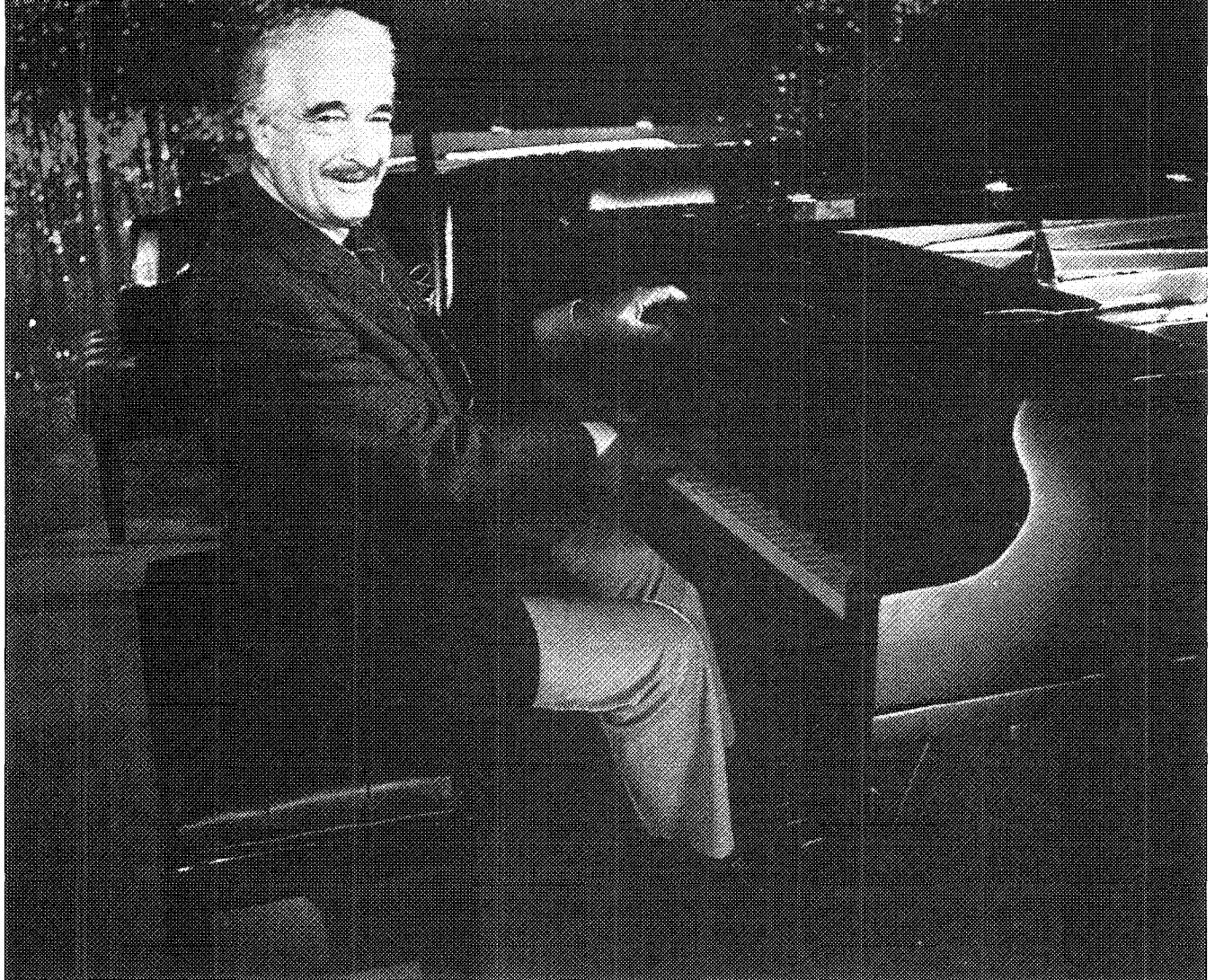
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# PRESIDENT'S MESSAGE

Bob Russell, President



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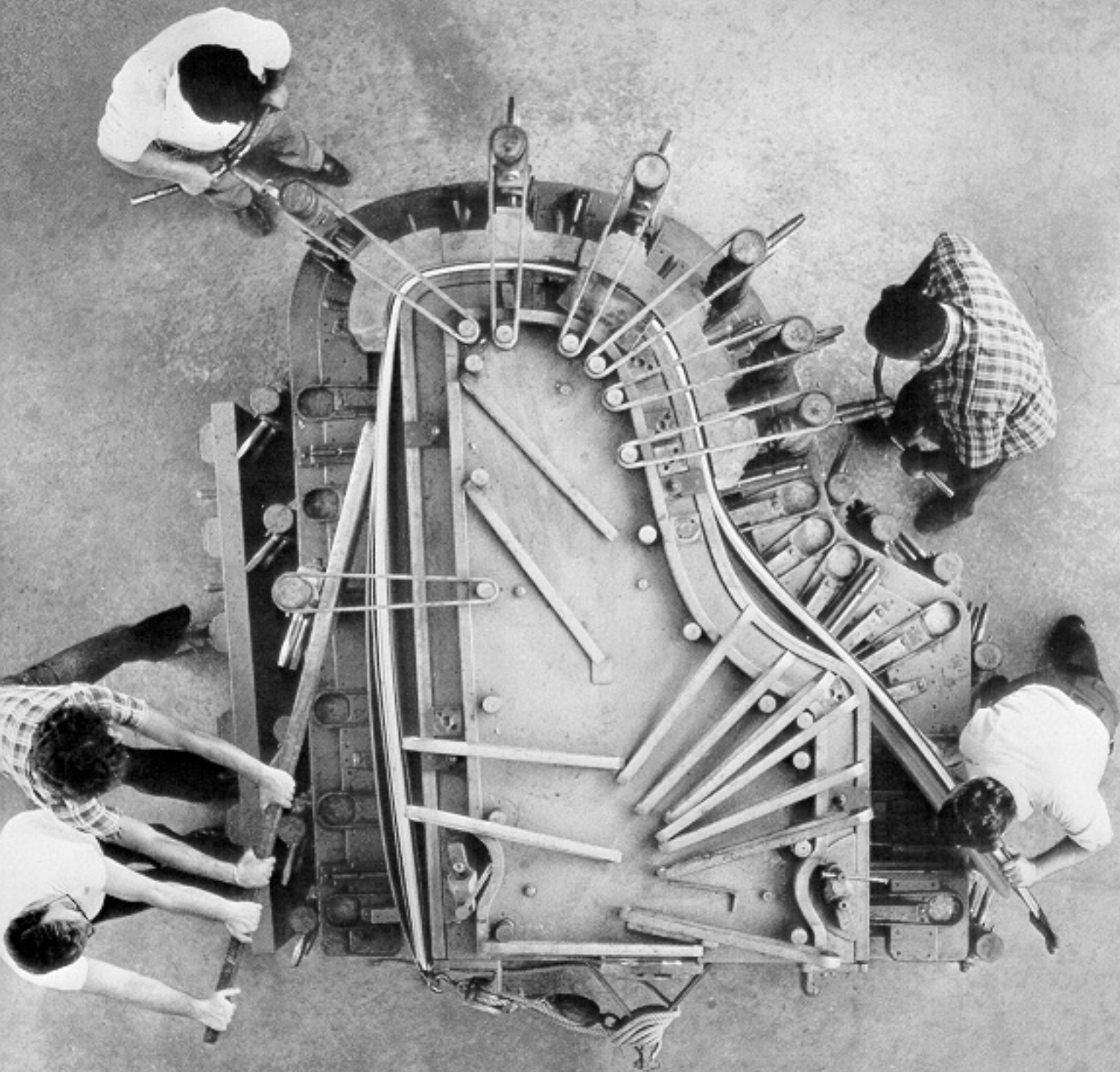
After returning from a friend's home, or following a lovely dinner party, we are usually quite happy and respond with a note of thanks to the host for the wonderful occasion. From personal experience, we are aware that these *notes of thanks* mean a great deal to those who extend their hospitality. I feel this same type of thanks and appreciation should be shown to our piano manufacturing friends. When was the last time you returned home from a seminar and said, "What a great seminar. How nice of the piano manufacturers to supply their instructors for us." Then, of course, you sat right down and wrote the *note of thanks* to the piano factory to let them know how you felt.

I would like to extend a **thank you** from the Piano Technicians Guild to every piano manufacturer who has furnished our seminars and conventions with instructors who shared their knowledge and service techniques with us. We appreciated it and, in return, we are better technicians and better equipped to handle any problems that might occur. This relationship that we are enjoying with our factory friends is perhaps the best in the entire history of piano manufacturing. Factories are sending their best technicians and representatives (at a considerable cost to the factories) in order to help us service pianos correctly. At seminars, it is possible to learn the pertinent ins-and-outs of a piano to help us become better technicians, more secure in our profession, and able to provide better service to the piano-owning public. And, as the circle turns, the better

we make pianos sound and play... the more exciting the instrument will be to others . . . the more pianos will be sold . . . AND the more work we will all enjoy. It is through this circle of mutual helpfulness that we will provide the world with the greatest instruments possible.

I must point out just one of the many examples of fine cooperation that has occurred over the years. Last November, Dick Bittinger, Northeast Regional Vice President, asked me to help him form a new Guild chapter in Ottawa, Canada. During the two days of testing, we tested and accepted about sixteen new members into the Guild. During the time we were testing, there was a two-day seminar going on. This could not have happened without the support of four different piano manufacturers sending their instructors, offering knowledge, encouraging professionalism and sharing friendship with our new friends. It is times like this that "thank you" seems so inadequate, but it is a start in the right direction.

So, after you have thoroughly enjoyed a class, take the time to let the instructor and manufacturer know how pleased you were. We must let our partners in the piano service business know that we appreciate them. We enjoy their support and we thank all of them for a job well done. □



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# THE TECHNICAL FORUM

Jack Krefting, Technical Editor

**QUESTION:** *"Behold the wound string — Dave Roberts advises to twist the string in the direction of the wrap turns just before installing (October 1980 Journal) and he explains why. Does this common advice, I wonder, leave anyone else out there as befuddled as it does me?"*

*"Allow me to elaborate — perhaps you can tell me where I've gone awry. For my model I take an ordinary pencil (pointing to the left) and wrap a strip of paper around it thus (Ed. note: See Figure 1):*

*"Now what is the direction of the wrap? If by 'direction of the wrap' you mean the direction I would have to turn the wrap to continue winding it, at the eraser end of my pencil that would be over the top and toward me; at the pointed end it would be over the top and away from me.*

*"This leads me to three conclusions: (1) It is impossible to turn the string in the direction of the winding; (2) It is impossible not to turn the string in the direction of the winding; and (3) It makes no difference which direction you turn the string. Help!" — Norman Henry, Oakland, California*

**ANSWER:** If we were really turning the string, like rolling a pencil on a table, then all three conclusions would be valid. But we are twisting it, because we are turning one end while the other remains stationary. A piece of ordinary manila or hemp rope makes a good illustration of the principle. With one hand, grasp the rope firmly so it

cannot turn; with the other hand, rotate the piece of rope first one way and then the other. Twisted one way it will become loose and begin to come apart, while the opposite twist makes it tight and solid. The latter is what we attempt to do with a piano string.

With the exception of a very few imported strings, the rule is to twist in a counterclockwise direction. This rule applies to either end of the string, so long as the observer is facing one end. When stringing a piano, my usual practice is to place the loop on the hitchpin, engage the bridge pins, thread the wire through the agraffe, and cut it to length by measuring the width of four fingers beyond the tuning pin hole. Then I hold the pin horizontally and make the coil with the tail end of the pin pointing to my left. When the pin is moved to a vertical position for installation, a quarter of a turn has been made on that end of the string. In almost every instance that amount seems to be adequate. But once in a great while a newly installed string will rattle, in which case I loosen the tuning pin enough to remove the loop from the hitchpin. Now, facing the other end of the string (from the tail end of the grand piano) I turn the string another half-turn, again counterclockwise, by simply turning the loop over and replacing it on the hitchpin. This puts a total twist of three-quarters of a turn on the string.

The point to remember is that when you turn your body 180 degrees, as you would when al-

ternately facing one end of the string and then the other, clockwise becomes counterclockwise and vice versa. In other words, if the technician backed up to the piano and twisted the string counterclockwise, with the hands behind the back, he would really be unwinding it rather than tightening it.

If the above explanation seems convoluted and difficult to remember, there is still another way to determine the proper direction of twist. Simply locate the end of the copper wrapping and imagine that to be the point of an arrow. It doesn't matter which end of the string we are viewing, so long as we twist that end of the string the way the "arrow" points, as illustrated in Figure 2. This method works in every instance for a technician with good vision, but the visually handicapped would be well advised to remember the counterclockwise rule.

The following three questions were submitted to the *Forum* by Calman Rothstein of Brooklyn, New York, for whose contributions we are always grateful.

**QUESTION:** *"What causes the necessity of the tuning lever to be moved a larger than normal amount before the string shows any change in the pitch? The pins feel OK and the plate screws were tight."*

**ANSWER:** In a word, friction. There are other possibilities of course, but the most likely cause of this condition would be friction in excess of the normal and ne-

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Author and Title		
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— J. Arnold	Epoxies - W	
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— Don	Quick 4-6 Minute Ep	
— John	Epoxy Bridge Repair	
— Harry W.	Epoxy Glue	
— Robert W.	Epoxy Cement on Loose P	
— John E.	Epoxy Soundboard Repairs	
<b>Glue Spreaders</b>		
— James	Electric Glue Gun	
— Gerald S.	Heat Gun Source	
—	Gluing with the Grease Gun	
—	Buzzes in Soundboard	
— John	Glue Spreader	
— John	Electric Glue Gun	
<b>380 Waters &amp; Ivory Cement</b>		
— Hoskins, Leslie	Mussel Glue	PTJ 08/58
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<b>370 Tapes</b>		
<b>380 Softening Glues</b>		
— Krefting, Jack	Replacing Upright Shanks	PTJ 11/77
—	Separating Glue Joints	PTJ 06/77
— Johnson, James L.	Glues and Solvents	PTJ 01/72
— Overdorff, Anson	Softening Glue	PTJ 12/70
— Scheer, John	Disappearing Acetone	PTJ 05/66
— Kegley, Paul	Soften Glue in Heated Sand	PTJ 08/59
— Koford, H. O.	Loosening Soundboard Glue	PTJ 03/58
<b>390 Glue Removal</b>		
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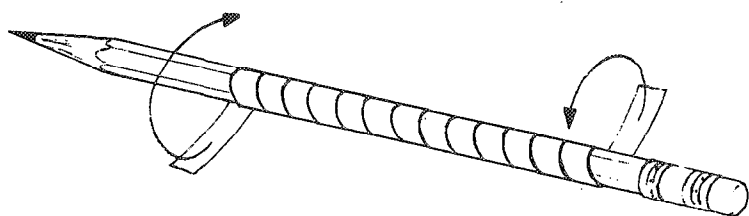


FIGURE 1

cessary amount between the tuning pin and the speaking length of the string. Something is causing the string to resist rendering over the counterbearing surface and through the agraffe or under the capo bar.

Sometimes this is characteristic of a particular design, such as when the pins are so much higher than the agraffes that an unusually steep counterbearing angle is present. This causes the string to develop a relatively sharp bend at the agraffe, especially in an instrument that is seldom tuned. If the instrument is to be restrung, this condition can be alleviated to some degree by the removal of the counterbearing felt, replacing it with a length of brass rod. This may or may not reduce the counterbearing angle, depending on the design of the piano and the diameter of the rod, but it will certainly reduce the friction. Tape out the waste ends if necessary with stringing braid.

In the case of a vertical piano, the condition can be caused by the pressure bar being screwed down too close to the plate. This is quite easily corrected, but the technician must remember that some counterbearing is necessary for solid termination and stable string spacing.

This condition is more common in the middle section of grand pianos which have a relatively steep counterbearing angle, quite a bit of felt or bushing cloth touching the strings, and moist conditions. The felt absorbs and retains atmospheric moisture, causing the undersides of the strings to become rusty. I have seen strings which are bright and shiny on top, but very rusty underneath. This makes the piano virtually untunable because the string refuses

to render smoothly over the counterbearing felt.

If the above condition is suspected, loosen one pin and pull the string up and away from the felt so the underside can be inspected. If rusty, lubricate with a mixture of benzine and petroleum jelly. The mixture will not discolor the felt, and the difference in tuning control will be like night and day.

**QUESTION:** *"In a model M Steinway the hammers have been filed two times in a period of ten years. Would the amount of felt removed from the hammers greatly affect the force necessary to depress the key even when it is regulated?"*

**ANSWER:** There is a certain amount of weight loss whenever hammers are filed. Curiously enough, the larger hammers may not seem to be reduced much in size after filing, because as the outer tension layers are removed the inner compression layers push outward. But there will always be some loss of weight because material has been removed, and even though it may seem like a negligible amount it does make a difference in the touch weight. This is primarily because of the leverage of the hammer on the end of a long shank, pressing

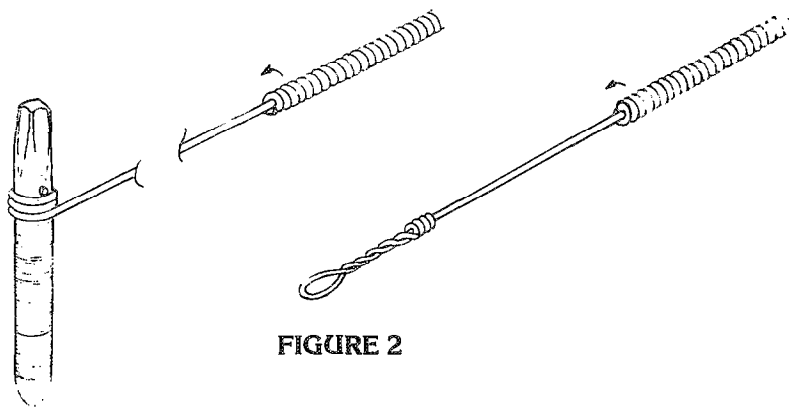


FIGURE 2

down on the jack at a point so close to the centerpin (see Figure 3).

Not being able to find a ready reference in the literature, I decided to try a little experiment with a grand action model. The keys in the model had not been leaded, so the downweight measured a ridiculous 69.6561 grams. After weighting the sample key to a more reasonable 56.3453 grams, I filed the hammer in the same way I would file any set of new hammers. This was a light filing with 60-grit open coat garnet paper, followed by a light polish with worn 100-grit paper of the same type.

The result of this first filing was that the downweight was reduced by just 0.0738 grams, down to 56.2715. Then I filed the hammer again, taking off more material to simulate the amount that would normally be removed after five years' playing, assuming that light string cuts would be obliterated. The result was a loss of somewhat over one gram in downweight, as illustrated in Figure 4. A third filing was then done, which removed a similar amount so that the downweight measured 53.9568 grams.

I should mention some details of the experiment for those who are interested. The weight was



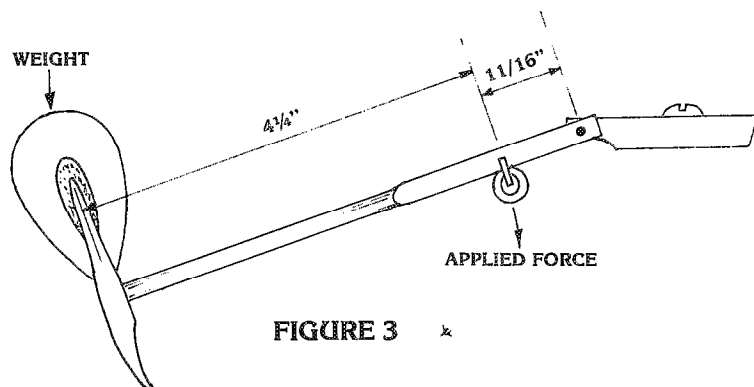
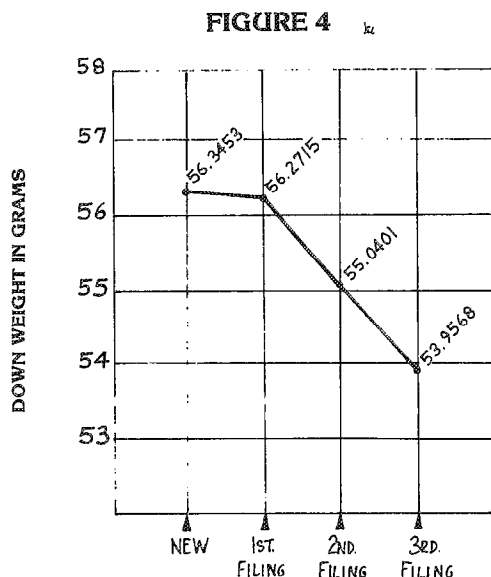


FIGURE 3



measured electronically and centered over the front rail pin on a natural key. All action centers were within torque specifications, and the key was free but not loose. The model was regulated but no lubricants were used other than the standard factory lubricant on the jack and repetition lever. The capstan screw was clean and free of burrs, and the whippen cushion clean and uncompressed. There was no excessive friction or rubbing parts. The downweight was measured when there was sufficient weight to raise the back of the key to the point of contact with the damper lever with eight medium taps on the front rail of the keyframe with the end of one finger. There were variables pres-

ent, of course, but I believe there are enough constants in the experiment that it could be considered reasonably objective and possibly even repeatable. At any rate, that's the way it was done.

If we consider my first filing to represent what would have been done after the hammers were hung, the next two filings would represent the two mentioned by Rothstein. The total reduction in downweight would be about two and one-third grams, which is not really a significant amount except to the most sensitive of pianists. Fluctuations in humidity could account for a considerably greater change than that. To sum up, I suppose one could say that the difference in touch weight is un-

deniably present, but probably not significant.

**QUESTION:** "In the small consoles the strings on the tuning pins are so close that I dread the possibility of having to replace one. Is there a method to make the task easier without taking a pain reliever?"

**ANSWER:** I would not attempt to make the coil in the piano (on the pin that is in the block) unless that particular pin is so ridiculously tight that loosening it would be beneficial anyway. Any time a pin is backed out three turns and retightened as a coil is being formed on it, it will end up being considerably looser than before. And in the case of the middle section of some pianos, such a procedure is impractical anyway because there is so little clearance between pins.

There are a number of ways to thread the new string in position, one of which is described later in this issue by Larry Laravela. Once the string has been cut to length, I prefer to make the coil on a dummy pin, an extra tuning pin carried in the toolcase. When the coil is made, carefully pry the becket out of the hole and place the coil on the proper tuning pin after having backed that pin out by about half a revolution. Squeeze the becket into position with a needlenose plier, or pry it in with a screwdriver by using a neighboring pin as a fulcrum. In very tight quarters it may not be possible to get a standard coil lifter into the gap, in which case a string hook will lift the coil as the pin is tightened.

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## DOWNBEARING ADJUSTMENTS

**QUESTION:** "The description of downbearing adjustments in the grand piano I've read are not very clear to me. It obviously consists of either raising the bridges (an impossibility in my opinion) or raising or lowering the plate. How exactly can the plate be lowered or raised? I find that concert grands have what clearly seem to be adjustment screws holding the plate besides the peripheral holding screws, whereas smaller grands have what seem to be just anchoring screws for the plate." — **C. E. Borges Cortes, Rio de Janeiro, Brasil**

**ANSWER:** The downbearing of any particular string is simply the angle at which it crosses the bridge. It is necessary, as Mr. Cortes has pointed out, to alter either the height of the bridge or the height of the plate in order to effect a change. The bridge could be raised if the crown were increased, as would normally be the case with a new soundboard, or by replacing the bridge or bridge cap with one of greater height. But if a crown is present in the soundboard, and neither board nor bridge needs to be replaced, it is much more expedient to alter the height of the plate.

This height adjustment should never be made by means of screwing the nosebolts up or down; nosebolts are designed to support the plate to keep it from bending under stress, not to bend it. Adjustment of bearing by that means is an invitation to disaster in the form of a cracked plate, whether now or later.

The plate should be lowered (or, occasionally, raised) only when the string tension has been removed and the piano is torn down for rebuilding. All peripheral supports, including the pinblock, must be altered in height by an equal amount so that the plate rests flat and level at its new height. Some plates are supported by screws, others by dowel ends, others by wooden blocks or "doughnuts", and still others rest directly upon the edges of the soundboard. The latter type is the most difficult to alter, as the technician must

choose between grinding the plate feet or chiseling into the soundboard, neither of which has much appeal to the craftsman.

In the case of dowels, doughnuts or blocks, the procedure is to lower them by removing material evenly from each support, or to raise them by adding veneer to the tops of each support. Naturally, the pinblock must be raised or lowered by a corresponding amount by either adding veneer or notching. Do not attempt to lower or raise only one portion of a plate; if this is to be done at all, it must be done uniformly so that the plate is not sprung when the screws are tightened.

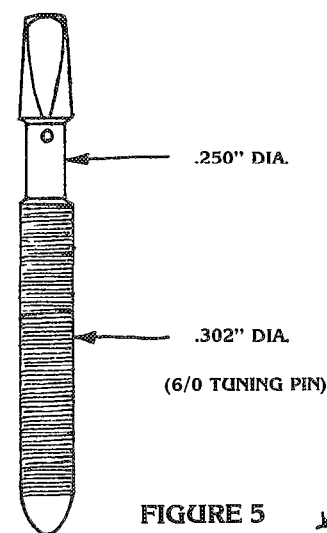
Lowering the plate increases total bearing on both sides of the bridge, because the string rests and agraffes are thus made lower than the bridge. It is possible to alter the bearing on the duplex side of the bridge by simply changing the height of the string rests. Ordinarily we would expect to observe less bearing from the bridge to the duplex than from the bridge to the speaking length, because while a certain amount of bearing is necessary for transmission and termination of the speaking length, the same amount behind the bridge will simply bind the board down, restricting its freedom of movement. Ideally, we are looking to achieve the least amount of downbearing that will provide reliable transmission in the dry season, when the board is nearly flat and the bearing is at its practical minimum. Anything above that is excessive, in my opinion.

### EXPERIMENTAL TUNING PIN

A reader from St. Louis, Missouri, has submitted the following:

*To the Editor: "The Guild has upgraded its tuning examination. The next step is for piano makers to redesign the piano to help the tuner tune it. I suggest that the Guild equip one or more pianos with the Hunnicutt tuning pin (see Figure 5) and let tuners tune it at conventions to get the feel of a faster, more precise, more stable tuning job.*

*"For a given pitch change, the tuner will move his tuning hammer*



*twelve percent farther. The effective twist on the tuning pin will be one hundred thirty-two pounds instead of one hundred sixty."* — **Hiram T. Hunnicutt**

This is not a new idea, although I am not aware of any manufacturers who have tried it in a production piano. The idea is to provide greater tuning control by reducing the diameter of the pin at the coil, while at the same time increasing the diameter in the block to increase torque and holding power. Both objectives are laudable, especially the former.

As has been discussed in these pages before, there are certain advantages inherent in a smaller diameter pin; namely the change in leverage in favor of the tuner and the increased space between tuning pins in the crowded tenor section. This might be offset to some degree by the weakness of the smaller pins, in addition to the increased likelihood of bending and springing during tuning.

A larger diameter pin is much stiffer and stronger, and offers a greater surface contact area in its interface with the pinblock. The corresponding disadvantage of that is the fact that the drilling of the block becomes all the more critical in order to allow for a smooth turning of the pin. If tuning pins were made with great precision, it might be possible to drill for a 6/0 pin and predict the results; as things are, however, it is difficult enough to drill for a 2/0 pin and

expect reasonable consistency of torque.

Although we can see potential problems with this design, it would not be fair to write it off without a fair trial. We would be interested to know whether our correspondent has actually made such a pin, and whether it has been installed in a piano. The construction of the block would be critical, as would the hole diameter and rate of feed, RPM, and driving method. Presumably the pins would have to be extremely hard and the block extremely soft in order to avoid the inevitable breakage at the becket hole, and whether this combination would prove to be superior is debatable. In fact, the topic would provide excellent grist for the Forum mill. Our readers are invited to comment.

### BROKEN PLATE?

**QUESTION:** *"On page 15 of the October 1980 Journal, David Pitsch says that turning a grand upside down has resulted in broken plates. How can this happen? I've had pianos in every position without damaging anything."* — **Robert E. Musser, Grand Junction, Colorado**

**ANSWER:** I think what we have here is a slight misunderstanding or breakdown in communications. It is true, as Musser points out, that pianos can be turned upside down without damaging them; certainly they are not reliant upon gravity to keep their plates from breaking. I too have had pianos in every position without damaging anything.

Pitsch's comment was more precautionary than exclusive. Piano plates are made in an unbalanced configuration, simply to avoid interference with the soundboard, bridges, strings and dampers. All of the struts are above the level of the strings, so if the plate were to give way it would do so in an upward direction every time.

Grand pianos are shipped in crates on their sides, and sometimes an accident will occur. The crates can tip over, and the damage can be great. If it happens to tip so that the piano lands on its bottom, the damage is usually

minimal, or at least confined to the trapwork and keybed. But if it lands on its top, the added shock and momentum can easily cause the plate to break because the stress is already in that direction.

Cast iron is extremely reliable under compression, but notoriously unreliable under tension. The piano plate is stressed when it is strung, and if it has been bent in the process it has been strained as well (if we define *strain* as the elastic deformation of an object). When a shock, such as the sudden blow sustained by the piano when it tips over, is added to this combination, breakage is not only possible, but likely. Pitsch said that plates have been broken by turning pianos over, which is correct. Musser says that it is possible to put a piano in any position without damage, which is also correct. It is a question of care, not of gravity.

### NEWSLETTER TECH REPRINT

Noises can be among the most troublesome of piano ailments, and they may come from virtually any part of the piano or even an exterior source. In *Perfect Pitch*, the newsletter of the South Central Pennsylvania Chapter, Dick Truax discusses a particular kind of noise that is often overlooked:

**SQUEAKS, SQUAWKS, RATTLES, BUZZES, ETC. . . .**

Usually more difficult to locate than false beats. One such squawk you might encounter will occur with the operation of the damper pedal. If all else fails check the action bracket to mounting bolt connection. If there is a slight amount (or more) play at this point, the resistance of the damper mechanism can be sufficient to cause the action to rise slightly. The subsequent rubbing of the metal to metal contact can cause the squawk.

Loosen the action, rock action back out of the way, and using a wood block (sanding block — lid prop — etc.) as padding and a light hammer, tap the action mounting bolt (at the top of the action) down until good contact is assured. In some older pianos, this condition can occur at all action mounting

bolts. In such case, before you do any tapping, examine the ball socket at the bottom of each action bracket. Most manufacturers used either a felt or rawhide insert to avoid metal to metal contact. If deteriorated or missing, these inserts should be replaced. — **R. Truax**

### STRING SPLICING

The following was submitted by Harold Staaf of Destin, Florida:

*"I would like to express my own ideas in trying to simplify what seems to be a very disgusting little repair that all of us as technicians run into every now and then.*

*"It makes no difference if we are tuning an old piano with strings that are suffering from rust and old age, or a new one fresh from the music store, there is that day when we are tuning that certain note: and just when we get the tension up to where we want it to give us that needed tone, the string will snap.*

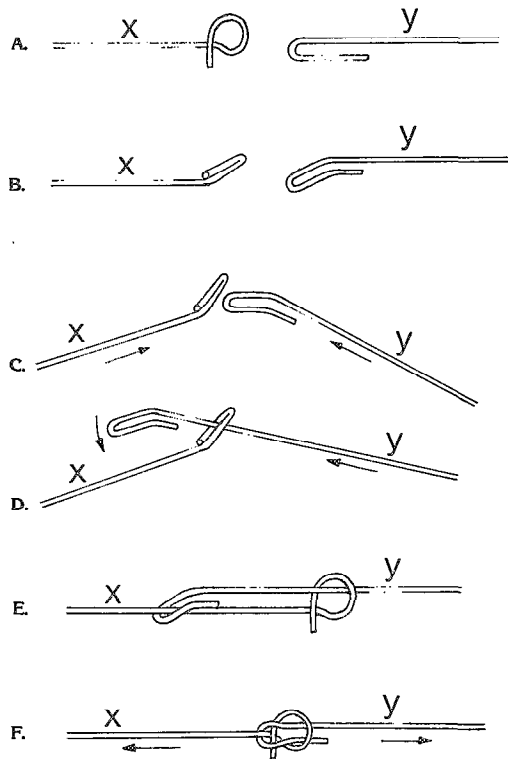
*"A very sickening sound, I'm sure you will all agree, as it means that we will have to spend extra time either replacing the string, or try to make a so-called 'splice' in the one that broke. I have been instructed many times as to how to make the different kind of knots in piano wire, only to find that they are hard to make and I generally end up losing a little blood from one hand or the other.*

*"I should like to present to you my own way of making a very simple knot in a piano wire. It is easy and can be made within a very short space, and will hold for many more tunings (see Figure 6).*

*"First I remove the broken end of wire from the tuning pin; then turn the pin back about three turns. In the end of the broken wire I use a round nose pliers to make a loop as shown in X of Figure A, with the short end of the loop on the top side as I look down at it. Do not put the short end on the bottom. Then I choose a length of new wire, eight to ten inches long, and in one end I make a bend. Not a loop, just a bend as shown in Y of Figure A. Both the loop and the bend must be made in the same*



FIGURE 6 x



direction. If one is made to the left, the other is also made to the left. The same goes if it is made to the right.

"Then a slight bend upward is made at the loop as shown in X of Figure B, keeping the short end of the loop on top or within the bend. Also a slight bend is made at the bend of the second wire as shown in Y of Figure B. Wire X is upward, while wire Y is downward. Wire Y is then threaded through the loop in wire X as we see in figures C and D.

"The bend in wire Y is then pushed downward and slipped under wire X as shown in Figure E. Just as simple as laying a fence post in a ditch.

"We then bring the bend of wire Y back through the loop in wire X, making sure that both ends go through the loop, and the knot is made. All we need do now is thread the wire through the tuning pin and after cutting it to the needed length start to tighten the pin. I am sure that a smile will appear on your face as you watch a perfect "splice" being made right before your eyes.

"All of us know that no matter what we do in piano work, everything takes practice. No matter if we are replacing hammers, doing action regulating or tuning, the more we do, the better we get. I suggest you do as I did, and that is to take two pieces of soft (easy to bend) wire about six inches long, and while sitting in front of the T.V. in the evening you can practice making the loops and bends and making the splice. It will save you time when you are out on the job. Never fear, the knot will hold if it is made correctly.

"The completed knot should appear as it is shown in Figure F."  
— Harold Staaf

#### GADGET OF THE MONTH

This month's gadget is gleaned from the newsletter of the Sacramento Valley Chapter, *The Valley Technician*. It is apparently a small steamer made of plastic that is shaped like a small travel iron, and may be used anywhere steam is required, as in removing bass bridges. Two other uses are described in the newsletter:

The featured tool this month is available at your local fabric store; it is the Steamstress II made by Osrow Products Company. The Steamstress II looks like a small travel iron made of plastic; it is designed as a steam presser for use in sewing and is not a dry iron. In piano work it is useful in any spot where you want a concentrated application of steam.

Removing key bushing is the first use that comes to mind. When all the keys are lined up on the bench and clamped together with a bar clamp (as Scott showed us last month) it is an easy matter to move the Steamstress down the line of bushings; as fast as you can remove the bushings with tweezers the next one is sufficiently steamed to be free. An added bonus is that the balance rail hole is automatically sized by the steam with no extra effort on your part.

This tool is also handy when refinishing to steam out dented areas in the veneer surface. The pattern of the steam setting may be varied from wide to narrow so the steam setting appropriate to the task at hand is used.

The Steamstress costs \$19.95 plus tax. If you can't find it here is the manufacturer:

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It comes with a one year warranty and instructions for its use and care.

#### TIP OF THE MONTH

Occasional contributor Larry Laravela, who has offered many tips on various aspects of piano service, has another for us this month. When replacing strings, especially when a tenor string must be slipped behind or under the bass strings, it is difficult to thread the new string into position without some kind of guide. Figure 7 illustrates Laravela's newest ideas on this topic.

A business card can be punched so that the holes will retain and guide the string. Two or three holes may be used, and in the case of the wound string Larry says that it is preferable to thread

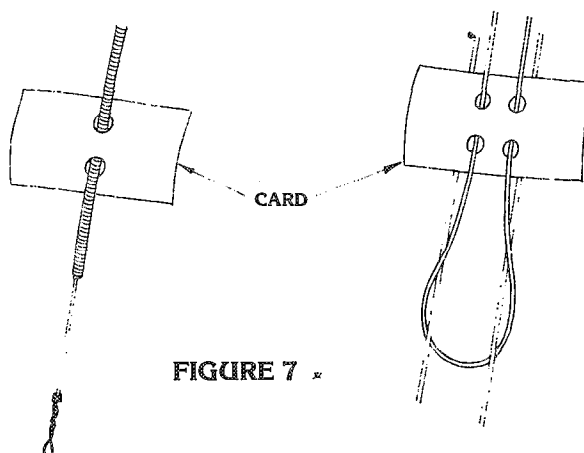
the card over the wound portion as this allows the loop to reach the hitchpin before the card touches the bridge.

For a plain string, a double row of holes in the card would be used. In addition, the string is looped around its new neighbors until guided into position, at which time the string can be cut to length and the ends unwound from the adjacent strings and coiled around the tuning pins. This technique works very well, says Laravela, and we thank him for taking the trouble to share it with us.

### IN CONCLUSION

Our thanks to all of this month's contributors. We always need more material, so please address your comments, tips, articles and questions to me at this address:

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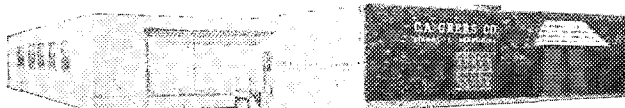


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# After Touch

David W. Pitsch

## REBUTTAL

The After Touch series of articles was first published in the Journal in April 1980. Since that time up until the October 1980 issue all correspondence concerning what was written in this article was directed to me through my home address. These included people who enlightened me on a particular point and those who wished additional information on what I had written. However, Mr. David Merrill, who wrote a rather severe criticism on some of the thoughts published in the After Touch series (see October 1980 Forum) declined to correspond with me before me wrote to the Journal. This resulted in his misinterpreting my statements, jumping to wrong conclusions, and in general misguiding the Journal readership on the true facts concerning aftertouch and escapement. All of this could have been avoided if he had first consulted with me. Since he did not, then I feel obligated to the readers to write a rebuttal to Mr. Merrill's critique, and to set the issues straight with the correct facts. All of the facts being set forth now would have come to light eventually as the After Touch series completed a discussion on grand regulation.

It is hard to write about a subject so large since everything can not be explained all at once. So far I have tried not to fly off on a tangent while discussing a particular subject, which is easy to do, or to go into great detail about some procedure at a time when it is not appropriate to do so. This results in passing over comments that were intended to be made later. Mr. Merrill accuses me of not relieving the confusion of lumping together the ideas concerning

escapement and let-off. This is very true. At the time the October issue was printed the After Touch series was discussing Section II. The Top Action point #22 on the 50 point checklist for grand regulation. Let-off is point #33 on this list, and a detailed discussion involving escapement was planned when the discussion had reached that point. However, since Mr. Merrill clouded the issue more than ever concerning let-off, escapement, and aftertouch, I will go into a short discussion now to clear up any misunderstandings on these points. Further detail will be presented when we get to the appropriate areas on the checklist.

I will give Mr. Merrill credit for defining let-off correctly as "the final separation between the knuckle and the top of the jack", but his definitions for escapement and aftertouch are dead wrong! Escapement he defines as "the movement of the jack following contact of the tender with the regulating button". He has two definitions of aftertouch: 1) "aftertouch is merely a method of measuring the relationships in the action." 2) "aftertouch is defined as that portion of key travel which occurs between let-off and front rail contact (including the elusive crush of the front rail felt)".

Escapement is correctly defined as the mechanical process whereby the power from the key is relinquished from the hammer mechanism to enable the hammer to strike the string without blocking upon it and immediately rebounding even though the key be held down. For the last hundred years piano actions have been of the double escapement variety, so any

discussion of escapement must include both let-off and drop! Mr. Merrill never mentions drop in his statements on escapement, and leads the readers into thinking that as long as let-off occurs, that escapement also happens. I quote: "Escapement happens before, during and after let-off, throughout the last small fraction of key travel;". This statement is, in my view, absurd. Escapement can not occur "before, during" let-off by the very nature of the term, and it is *aftertouch* which is happening "throughout the last small fraction of key travel". Even though let-off has occurred it does not necessarily follow that escapement has occurred. Take the example where the drop screw does not engage the balancier until after the hammer has struck the string. Escapement by definition has not occurred, although let-off has. At no time did the power from the key relinquish from the hammer before it struck the string. True, the hammer rebounds, but only because the repetition spring lets the balancier give instead of blocking the hammer against the string. Under these conditions, on a very light blow the hammer may not rebound very far and the repetition spring may cause the hammer to be thrust up again and to block upon the string. This can all be felt by the pianist in the key.

Aftertouch is correctly defined

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as the downward movement of the key after escapement. It is a safety factor insuring that total escapement occurs, especially as the action mechanism begins to wear and settle in. I had never heard of it defined as "merely a method of measuring the relationships in the action". I do have a good idea what Mr. Merrill was trying to say here, but I defy anybody to measure with accuracy the relationships in the rest of the action by only knowing the amount of aftertouch! As to his second definition of aftertouch: "that portion of key travel which occurs between let-off and front rail contact" notice that again David refuses to recognize that drop enters into the picture. You could have let-off at  $\frac{3}{8}$ " from the string and still not have escapement, depending upon the position of the drop screw. And it follows by definition that if escapement does not occur, there can be no aftertouch.

In my opinion, David Merrill's absurd statements reach a climax when he states "Aftertouch is rarely if ever a component of piano touch; that is, a pianist (assuming he or she is not also a piano technician) will never complain of too much or not enough aftertouch." The loss of aftertouch will result in the escapement not being fully completed, causing the hammer to "bubble". That is, with the key being fully depressed the hammer impacts the string multiple times. Even if the hammer does not "Bubble", the action feels "hard" and tends to "bottom out". I realize that not every pianist will complain about this condition. Same as the lady who tunes her piano once every thirty years whether it needs it or not! But I can assure Mr. Merrill that any person who is advanced in their piano abilities will complain when their piano reaches this stage.

As to David Merrill's critique of my answers to the three questions that appeared in the May 1980 article, I will go a little bit into these here, and will leave the rest for when we get to those points in the 50 point checklist. In answer to question #1 (does regulating the jack height to the balancier affect the strength of the repetition

spring?) my response is still yes.

I admit that some of these changes are slight, and that unless great care is taken in action regulation they would probably never be noticed. Mr. Merrill even reinforces my answer when he states that "when the height of the balancier at rest is changed, the compression of the spring is changed". Again I will admit that under normal regulating, the difference is hardly noticeable. Where I really found it to change is when I have replaced a knuckle. The old knuckle was grooved in the middle from the jack impacting it. The action was regulated precisely with the repetition spring as strong as can be without feeling it in the key. When the new knuckle is installed, everything else remaining the same, I readjusted the jack height to the new knuckle and found that the strength of the repetition spring had now changed. Try it yourself and see if you get similar results.

In answer to question #2 (Does regulating the let-off affect the backcheck distance?) my answer again is still yes! It is amazing that Mr. Merrill passed right over what I was talking about and wrote at length about the backcheck angle! I had assumed that the backcheck angle was correct. What I was speaking about is the change in the key angle that results from adjusting the let-off distance. Raising the let-off button to make the let-off point closer to the string causes the key to be further down at the front and therefore further up at the back. This causes the backcheck to catch the hammer closer to the string. Again I admit that the change is small, nevertheless it does exist, and will be noticed if you are meticulous.

On question #3 (Which of the following affect the amount of aftertouch: key height, blow, jack alignment, jack height, let-off, drop, backcheck, repetition spring?) again my answers remain the same. However, I will not go into detail now as space does not permit, and really the discussions belong with the appropriate subjects as we get to them in the 50 point checklist, as was my original intention. □

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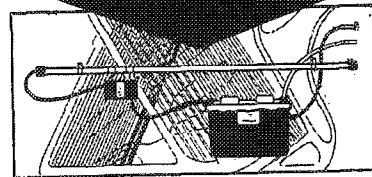
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# The International Scene

**Fred Odenheimer, Chairman,  
International Relations Committee**

At the time of this writing plans for the International Meeting in Switzerland and the following factory trip are just about ready. We were happy to receive an invitation from Mr. Lauchli, president of the Swiss organization, to stay in Gwatt during the International Association of Piano Builders and Technicians (IAPBT) convention and technical institute. Besides a considerable savings in expenses, this also means close interaction with technicians from many countries.

We are in close contact with our Japanese counterparts who will send a good sized delegation to Switzerland. I would not be a bit surprised if their delegation outnumbered ours. We also expect a small delegation from England, so we should get quite a boost for IAPBT.

The trip planned for after our

stay in Switzerland promises to be really exciting. Eleven days in duration, from May 2 to May 12, it will cover five factories: Ibach, Schimmel, Grotrian, Steinway and Rippen. One can hardly improve on that. Also on the tour is the collection of music boxes in Seewen, Switzerland, which has hardly an equal anywhere in the world.

We will see the famous Isenheimer Altar in Colmar, France and the Gutenberg Museum in Mainz and take a short Rhine cruise. We plan to stay overnight in the Hotel zum "Roten Baeren" in Freiburg, a hotel that dates back to the Middle Ages. While it will be February by the time you read this, there may still be a few openings for the trip. If you would like to go along, please contact Fred Odenheimer, 15358 Wyandotte St., Van Nuys, CA 91406, (213) 785-8402, immediately. □

## Reader Feedback

Dear Mr. Santy:

I would like to see a reprint of an article called "Getting the Business" by Robert Hayward (October 1971 issue). The subject of this article is really a sore spot with quite a number of technicians ... I really believe the piano technicians are helping the manufacturers far more than the manufacturers are helping the technicians.

Also I would like to see the **Journal** print a "feeler" article to see how much interest there would be in a series of question-and-answer type articles dealing with business tactics — how to get a high percentage of people to take good care of their pianos, how to create new business, how to sell more regulating jobs, etc. Hopefully questions and answers would come from many different technicians and situations. It's quite disheartening to keep on trying to learn new and better techniques when you can't sell them.

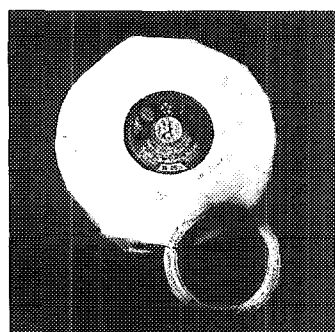
Marvin J. Snell  
Scottsbluff, Nebraska

Dear Mr. Santy:

Have you deleted Letters to the Editor as a matter of policy or are you not receiving any? Of all publications, the **Piano Technicians Journal** should be open to all who would express themselves on any subject. For instance, why is the Japanese piano so popular with the American consumer? With all the evidence of knowledge displayed in the pages of the **Journal**, why is there so little evidence of its influence on American manufacturers?

As I am teaching a class at Central Piedmont Community College ... can you mention (we) would be interested in back issues of the **Journal**? I have many saved since 1946 but (they are) not complete.

Clayton Harmon  
Asheville, North Carolina



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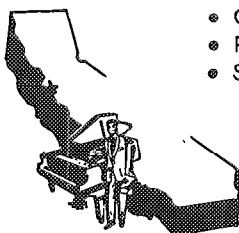
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# Calculating Technician

## Part XVIII Dave Roberts

Last November, I summarized the formulas introduced in this column over the past year and outlined a practical procedure for implementing these formulas in routine piano scale evaluation or modification. Such a procedure requires (1) a well organized, pre-printed worksheet on which you tabulate your measured and calculated quantities and (2) a programmable calculator with an efficiently designed program for carrying out these calculations.

An example worksheet is given in the Nov. 1980 article. Since calculators 'prefer' that you key-in numerical data with fractions expressed in the decimal system, as shown in the example worksheet, I suggest that you purchase a steel tape rule graduated in tenths of an inch rather than sixteenths. Lufkin makes one (#9212-X) and it should be available through your local hardware or industrial tool supply store. This will save time and mistakes in otherwise attempting to convert from English fractional inches to decimal inches. Of course, a metric rule or micrometer and even an English micrometer already read in the decimal fraction system.

An example calculator program is given in the Dec. 1980 article for a Hewlett-Packard model HP-67, one of 3 programmable calculators which I recommend that you consider for this task. The actual programming procedure is easiest to explain for the HP-67, but the equally easy to use HP-41C and the Texas Instruments model TI-59 have more program memory and thus have the possibility for extra program conveniences. Although I do not personally find such extras necessary, some people may want or need them, so I have developed a more

extensive program for the HP-41C.

Lou Day of the Denver Chapter of the Guild has worked out a similar program for the TI-59. These programs do the same calculations as the HP-67 program, but they also incorporate a number of helpful 'prompts'. Prompts are messages or symbols which appear in the calculator display before you key-in required measurement data, indicating what data needs to be keyed-in. These messages may also appear before or during the display of the calculated quantities, indicating what is being displayed at any given time. This is very much like the automated bank teller systems which ask you questions and give instructions on a TV screen, thus leading you through your transactions. The HP-41C has a \$260 base price, but requires an added \$40 plug-in memory module (up to 4 are possible) for the program to be discussed here. This module gives it more program memory than the \$220 TI-59, so the HP-41C can do more extensive prompting. The HP-41C, unlike either the HP-67 or the TI-59, can display letters, words and a variety of symbols as well as numbers in its display, so the prompts can be more descriptive. Also, the units (inches, mils, lbs., etc.) for the requested data or calculated numbers can be flashed in the display along with numerical values. This is incredible versatility for a handheld calculator, but I'm sure we are seeing only the beginning of many such electronic marvels to come.

The programming of the TI-59 and HP-41C is similar to that of the HP-67, as described last December, but with certain complications. For one thing, these programs are longer (involve more keystrokes) than the HP-67 program because of the added prompting and other convenience features. But there are additional complications as well. For instance, recall that the HP-67 automatically displays both the step number and the keycode(s) following each program step that you key-in. This is very handy because it enables you to verify that you in fact did

press the key(s) you were supposed to press and not some other key(s) by mistake. The TI-59 doesn't do this automatically, although you can do it manually (less convenient). The HP-41C does not display the keycode after each program step either, but it does display an 'alpha mnemonic' along with the step number. For instance, suppose the square-root operation were step number 275. After keying-in this step, the HP-41C would immediately display "275 SQRT". This particular mnemonic may seem fairly obvious, but there are several others that would be quite foreign to someone who hadn't read the manual in some detail. Thus, to make the HP-41C easy to program for someone with no background in math and with no desire to learn the calculator language, it is necessary to list *both* the keycodes and the alpha mnemonics, side-by-side. Since it would take an entire **Journal** page to do this and also give the corresponding TI-59 program listing, I'll not do it here. At Lou Day's suggestion, I have decided instead simply to make these programs available, for the price of the postage, to those Guild members who wish to have one. Just look up Lou (Lucius Day) in the Guild Directory for help with the TI-59 calculator and program or contact me for help with the HP-67 or HP-41C and corresponding programs. I hate to tell you what these programs would be worth if Lou and I actually charged you for the time we spent developing them. I'm sure Dr. Al Sanderson could say the same about the TI-59 program he developed to facilitate the Guild national tuning exam.

Let me emphasize that these calculator programs are sophisticated tools intended primarily for the experienced rebuilder. The intent here is not to substitute for experience and common sense, but to add to them. It is important to keep in mind that the formulas implicit in these programs are actually a simplified mathematical description of an enormously complex instrument. Even so, I believe the piano scale evaluation/modification approach outlined

in these articles represents, for the first time, a reasonably sound, scientific point of departure for both scaling and rescaling work for our membership. It is certainly a significant advance beyond the simplistic notions of 'equal tension', Klepac charts and the like, which don't deal at all properly with the important acoustical factors involved in good scale design.

Now let's return to the 2 new calculator programs which Lou Day and I recently developed. For comparative purposes, we programmed the TI-59 and HP-41C so that these 2 programs would be similar to each other and to the HP-67 program discussed at length last December. Assuming that anyone seriously interested in this sort of thing has already read the December article, the summary of the TI-59 and HP-41C programs in Table I should be self-explanatory. To illustrate the differences among the 3 calculator programs, let's look at routine A. Recall that the HP-67 requires that you key-in numerical values for **N**, **A**, **a** and **b** (not in this order) and then press the key-button labelled A. The A routine then stores these numbers in memory for future use and stops (about 1 second). That's it. The TI-59 program is a little different, as you can see. Here, you start by pressing the A keybutton first. Then the number "6" flashes briefly in the display, followed by a steady display of the current value of **N** in the calculator's memory. The advantages here are three-fold. First, the "6" is a reminder to you that you are going to be asked whether the **N** value (6th column on your worksheet, as Lou envisions it) in the calculator's memory is OK for the unison you are about to analyze or modify. Secondly, if you want to change this number, the old number shows you the number of significant digits to use when you key-in the new number. Thirdly, if the old number is OK, you don't have to key-in any number at all, thus saving on wearisome keystrokes. Instead, you just press the R/S (RUN/STOP) key, as indicated in step (ii), and continue in similar fashion with **A**, **a** and **b**. Finally, the HP-41C is still

different because it asks you outright "**N=1 STRINGS?**", followed by a short, low-pitched tone. There is hardly any question what the calculator is asking you here. The question mark together with the tone makes double sure you realize this is a question. When routine A is complete, the HP-41C flashes the message "**PRESS B OR C**", instead of simply stopping with zeros in the display, as does the HP-67 and TI-59. In other words, you are being told that the A routine is finished and you must next proceed to the evaluation/modification routines **B** or **C**.

The remaining routines follow a similar pattern, as you can see in Table I. The HP-41C will continue to show question marks and emit a low pitched tone whenever it asks questions. It will omit the question mark and emit a high pitched tone whenever a calculated number (with appropriate units, if there is room) appears in the display. In this case you write down the calculated number on your worksheet and the next number and the next, in the order that the calculator displays them in succession. You'll note that the TI-59 program is a little different here in that you have to press the R/S key each time before the next calculated quantity appears in the display. Lou likes the idea of writing down the calculated quantities at the user's own pace, whereas my thought was to save button pushing and have the calculator pace your writing speed. The HP-41C could easily be programmed according to Lou's preference if one so wished.

In routine D, example calculated values of new wound string dimensions  $L_1$  and  $L_2$  (see Oct. and Nov. articles) appear in the string-maker's language (not decimal fractions), one after the other, as " $L_1 = 6\frac{1}{2}$ ", then " $L_2 = 78 \frac{1}{16}$ ", using the HP-41C. The fraction  $8/16$  has automatically been reduced to its lowest denominator, in this case  $\frac{1}{2}$ , before being displayed. The TI-59 cannot display both integer and fractional parts simultaneously in this same way, so Lou has programmed it to display the integer and fractional parts separately, just as I did with

the HP-67 as described last December. This whole routine would have to be rewritten if the metric system were being used, but the other routines would only have to be modified slightly, I think. I don't believe either Lou or I have considered metric versions of these programs yet.

Next month, we'll evaluate the scale in a typical small grand and show how to go about improving it. This will probably end the CALCULATING TECHNICIAN series of articles, at least as far as I am concerned. Why don't you let Jack Krefting know whether this type of article has been of interest, so that he will be able to judge whether to have someone else carry on in a similar vein. I know from letters and calls I have received (even from overseas!) that there are at least a few technicians interested in this sort of thing, but how many? And do those who have not tried to follow any of the math feel you have benefitted at all from this type of article? Let Jack know. He can't read your minds. The **Journal** is only as good as we collectively make it and that requires, at the very least, feedback from our readership. Until next month, stay tuned to this column. ...

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**TABLE I TI-59 and HP-41C PIANO SCALE EVALUATION/MODIFICATION ROUTINES**

Routine step		User Instruction	Display, TI-59	Display, HP-41C	Comments
<b>A</b>	(i)	press A key	"6", then previous value of <b>N</b>	N=1 STRINGS?	<i>Preliminary routine:</i> If A=0, HP-41C skips directly to the message "PRESS B OR C" upon pressing the R/S key following step (ii); TI-59 clears display and stops routine. HP-41C has second display indicating status of current unison, i.e., plain, wound, trichord, bichord or monochord.
	(ii)	press R/S key	"7", then previous value of A	A=0.89?	
	(iii)	press R/S key	"8", then previous value of a	a=0.6 INCH.?	
	(iv)	press R/S key	"9", then previous value of b	b=0.6 INCH.?	
	(v)	press R/S key	clear display and stop	PRESS B OR C	
<b>B</b>	(i)	press B key	"1", then previous value of m	SMALL M=1?	<i>Main evaluation/modification routine:</i> If string not wound (i.e., if A=0), then TI-59 and HP-41C both skip directly to calculation and display of $I_4$ , upon pressing R/S key following step (iii); note that HP-41C is programmed to display $d_w$ , $I_4$ , Z and T/T <sub>B</sub> in automatic succession. With TI-59 program, user presses R/S key to display Z after $I_4$ , T/T <sub>B</sub> after Z and T after NT/H. For simplicity, calculators use $H=L/8$ , which is approximately correct (or should be) only at the bass/treble break. It is not a problem that this relationship changes throughout the scale, as long as it is done smoothly.
	(ii)	press R/S key	"2", then previous value of L	L=79.5 INCH.?	
	(iii)	press R/S key	"3", then previous value of d	d=67 MILS?	
	(iv)	press R/S key	"4", then previous value of D	D=187 MILS?	
	(v)	press R/S key	"5", then calculated value of $d_w$	$d_w=63.2$ MILS	
	(vi)		then "10", then calculated value of $I_4$	then $I_4=3.0$ CENTS	
	(vii)	press R/S key (TI-59 only)	"11", then calculated value of Z	then Z=3318	
	(viii)	press R/S key (TI-59 only)	"12", then calculated value of T/T <sub>B</sub>	then T/T <sub>B</sub> =0.34	
	(ix)	press R/S key	"13", then calculated value of NT/H	NT/H=35	
	(x)	press R/S key (TI-59 only)	"14", then calculated value of T	then T=348 LBS.	
<b>C</b>		press C key	Identical to routine B, except steps (iv) and (v) are reversed, i.e., $d_w$ is specified and D is then calculated		This routine is only for wound string design/modification, where $d_w$ is specified.
<b>A'</b>		press A' key (a on HP-41C)	Repeats C routine, steps (iii) and (v) through (x)		Repeats C routine, changing only d.
<b>B'</b>		press B' key (b on HP-41C)	Repeats C routine, steps (iv) through (x)		Repeats C routine, changing only $d_w$ .
<b>C'</b>		press C' key (c on HP-41C)	Repeats C routine, steps (iii) through (x)		Repeats C routine, changing just d & $d_w$ .
<b>D'</b>		press D' key (d on HP-41C)	Repeats A routine, steps (iii) & (iv), then the C routine, steps (vi) through (x)		Recalculates $I_4$ , changing only a & b.
		press D key press R/S press R/S (TI-59 only) press R/S (TI-59 only) press R/S (TI-59 only)	"15", then previous value of M "16", then integer part of $L_1$ "17", then fractional part of $L_1$ "18", then integer part of $L_2$ "19", then fractional part of $L_2$	M=? $L_1=6\frac{1}{2}$ then $L_2=78\frac{1}{16}$	Using HP-41C example numbers for $L_1$ & $L_2$ , TI-59 would display, in succession, "16", then "6" "17", then "8" "18", then "78" "19", then "1" User would then have to reduce fractions to lowest denominator for the stringmaker.
		press E key	calculated $E_L$	E=0.27 INCH	If G=L, then routines E and E' would give the same answer for the calculated value of elongation E.
<b>E'</b>		key-in any string segment G, then press E key (e on HP-41C)	calculate $E_G$	E=0.31 INCH	

The prompt numbers in the TI-59 program correspond roughly to the column locations in the November 1980 article example worksheet.

# 1981 TECHNICAL INSTITUTE UPDATE

In future issues of the **Journal** we plan to talk to you about many of the individual classes you will have the opportunity to attend at the 1981 Piano Technicians Guild Convention in San Francisco. However, for a paragraph or two let's see if we can help a bit in your class selections. Obviously, there is no chance to attend all the classes, so let's go shopping.

Suppose you are just getting a good tuning clientele established (certainly enough customers so you can afford the trip to San Francisco) and you wish to broaden your horizons, add a new dimension to your income-producing skills. What classes will you take? Well, if you have your sights set on being **the** concert tuner in your area, it might just pay you to put

*Tuning Tutoring* at the top of your list and grab some other classes as time permits.

*Tuning Tutoring* has proven so popular at past conventions it is now considered a necessity "Extra Special" for all annual Guild conventions. For the modest sum of \$30.00 you get 90 minutes of private instruction from one of our tuning tutors, all of whom have nationally recognized credentials in the world of piano tuning.

We know that piano tuning can sometimes be as lonely as herding sheep because we don't always have the opportunity to compare notes with our peers. So if you've been wondering lately just how good is your temperament setting, or how accurate is your octave stretching system, sign up for a

private tutoring session and get some answers and/or reinforcement for your own opinions and methods.

We will also mention the special *Grand Rebuilding* class which is continuous for three and one-half days at an extra registration fee of \$35.00. We will give you more details later on the plans of this master rebuilding team of Bob Burton, Ken Kadwell and Sheldon Smith, and we will try to get an accurate progress schedule prepared so it will be possible to drop out and catch another interesting class or two during the convention without losing your "rebuilding train of thought."

More next month... **George A. Defebaugh, Institute Director.**

## Tapes!

The Teacher Relations Committee is pleased to announce the addition of two video tapes to the Guild library. Both tapes are approximately 45 min. in length and are on the 3/4-inch video cassette format which is standard equipment in the public school system. The equipment is available through library media centers as well as rental centers.

"Piano Teacher - Piano Technician Forum" features our own Bob Russell as he addresses a group of piano teachers, answering questions and explaining how the technician can help teachers get the most from their own pianos and educate their students in proper instrument care.

The second tape features Horace Comstock in a slide tour of the Aeolian East Rochester piano factory. Although geared to the

## Tapes!

teacher, it is also very informative to the technician who has never had the opportunity to visit a piano factory. The presentation begins with the raw lumber and progresses through each step of the manufacturing process, explaining the materials used and why. The tour ends with the completed piano.

These tapes can be used in a variety of ways to improve teacher relations. For example, they may be played continuously at an exhibition hall booth (i.e., NAMM or MENC). They are sure to draw a crowd and be a good ice breaker to stimulate questions. They would also work well for music department in service days as well as teacher workshops. For maximum benefit in this type of usage, Bob's presentation should be preceded by a viewing of "The Music of

## Tapes!

Sound." Then his presentation may be run in its entirety, or may be interrupted periodically to allow for additional questions from the audience. (This is easily done with video tape). Furthermore, the tape may be used to study Bob's method of working with piano teachers. Although Bob speaks from the unique position of both teacher and technician, he still answers all of the typical questions which must be anticipated in a teacher workshop.

Finally, the factory tour tape may be used as a chapter technical. The Teacher Relations Committee hopes that you will make use of these tapes and that they will be a valuable aid in your work with piano teachers. —

**Fred A. Fornwalt, Chairman, Teacher Relations Committee. □**

# 1981 TECHNICAL INSTITUTE CLASS OFFERINGS

by George Defebaugh  
1981 Institute Director

## REPEAT CLASSES—

*"... Everybody's Favorite Classes  
in Everybody's Favorite City..."*

**AFTERTOUCHE IN GRANDS & VERTICALS.** Everybody's favorite with the Yamaha team of LaRoy Edwards, Jack Caskey, Kenzo Utsonomiya, and Joe Dennis.

**VOICING AND TONE REGULATING** with Norman Neblett—no extra promotion necessary.

**SHARPENING THE TOOLS OF THE TRADE.** A "hands-on" class, so popular in Philadelphia that Joel and Priscilla Rappaport are bringing it to San Francisco.

**VERTICAL REGULATION** (Spinets, Consoles, Studios). With the ever-popular Wurlitzer group, Cliff Andersen, Bob Hill, Bud Corey, Lew Herwig and Larry Talbot. Models and "hands-on" experience.

**SERVICING THE RHODES PIANO.** With Harold Rhodes and Horst Absman.

**GRAND DAMPER INSTALLATION.** All details of this job and some "hands-on" experience presented and supervised by Willard Sims and Jack Krefting, Baldwin Piano.

**SERVICING THE AEOLIAN PLAYER** with player expert Bob Snyder.

**HUMIDITY CONTROL SYSTEMS INSTALLATION.** Allen Foote and Wendell Eaton... need we say more???

**GRAND HAMMER INSTALLATION.** Hands-on — with models and all equipment under the expert guidance of Willis and David Snyder with assistance from Homer Wagman.

**GRAND ACTION REGULATION.** Introduced in Philadelphia by Roger Weisensteiner and the Kimball Collaboration — complete with models and "hands-on" work time.

**TUNING!!!** We will not yet name the titles and instructors for these "bread & butter" classes, but we guarantee a "smorgasbord" selection.

## NEW CLASSES —

**AGRAFFES.** Repair, removal and replacement. A new class with a new instructor, Paul Bergan.

**BASICS OF PIANO TUNING.** A class for the Student and Apprentice, with Leon Levitch.

**BRIDGE REPAIRS, Usual and Unusual** with *Journal* contributor and sometime photographer, John Bloch.

**BUILDING A SUCCESSFUL BUSINESS.** Tips on organizing and maintaining a profitable piano service business, Phil Bashaw.

**DESIGN AND REPLACEMENT of Grand Piano Keys & Actions** with Frank Stopa, Wally Brooks & the Connecticut crew.

**FRICTION IN THE GRAND PIANO ACTION.** The basics that must be attended to before grand regulation can begin, with Ed Whitting.

**KEY RECOVERING.** Ed Solenberger shows you how to build your own machine and recover your own keys.

**PEDALS LYRE AND SOSTENUTO.** From the bottom up with Steinway's own Fred Drasche.

**PIANO EVALUATION AND APPRAISAL.** Ben McKiveen brings you up to date on the "how & why" of this very important part of your business.

**REBUILDING THE OLD PLAYER STACKS OR "WHERE THE LEAK STOPS."** A must for all player service people, with Raye McCall, author of the *Journal* Column, "Vacuum Line."

**TROUBLE SHOOTING THE VERTICAL PIANO.** From casters to top hinges with master trouble shooter, Ernie Juhn.

**WHAT ARE ALL THEM FELTS FOR???** The answers will be forthcoming from you, the class, or Jim Harvey, Technical Manager, Kawai America Corp.

## SPECIAL CLASS —

**COMPLETE GRAND REBUILDING.** A very special class featuring theory, practical, and "hands-on" with master rebuilders Bob Burton, Ken Kadwell and Sheldon Smith.

## PRIVATE TUTORING

Both aural and visual tutoring will be available with such outstanding instructors as Newton Hunt, George Morgan, Carl Wicksell, Ruth Ann Jordan and others.



# Going to San Francisco? Make Those Travel Plans NOW

by James G. Bryant  
Local Host Chairman  
1981 Piano Technicians Guild  
Convention

The time to start making your travel plans for this summer's National Convention in San Francisco is RIGHT NOW! With travel costs what they are today, planning early is essential and large savings can be realized by planning ahead. In this constantly changing economy it is impossible to know just what will be available in the way of discount travel packages by the time you read this, but it is reasonable to assume that all modes of transportation will become more competitive in the months prior to the peak travel periods.

If you plan to fly, shop around. All airline rates are NOT the same. Basic fares differ as do special plans offered for early reservations. There are alternatives to flying which you may wish to consider this year. Driving is still one of the most economical ways to cross the country, particularly when you are able to share expenses. Why not get a group together?

Greyhound or Amtrak shouldn't be overlooked either. If you don't relish sitting up for that period of time, break your trip at a National Park or any of the other many points of interest along the way. Get a good night's sleep and visit some part of the country you have always wanted to see. To do this, however, you have to make your reservations early.

While motel space is readily available in most areas, you are likely to find that the longer you wait to reserve it the more it may cost. Many motels have only a few rooms at their lowest advertised price and those few go early. Make your reservations now and you will get the best possible rate and the type of accommodations you desire. Most motels allow cancellation without charge at any time prior to a specified time on date of arrival. They can be guaranteed by credit card number. The above

doesn't always apply in resort areas, however, so it is best to check.

There are now many motel associations with free reservation services in all price ranges — Best Six, Best Western, Friendship Inns, Travelodge, Imperial 400, and many more. AAA also has an extensive list of motels in their tour books which are free to members. If you can't find what you want from any of these

sources, the public library and most large hotels have a directory of nearly every motel in the country.

This will probably be the last National Convention on the west coast for six years, and may be the last one ever to be held in San Francisco. Don't miss this opportunity to visit one of the world's most exciting and beautiful cities. Start making your plans NOW to make the 1981 National Convention part of your "Dream Vacation." □

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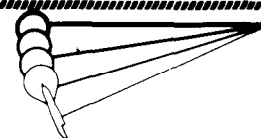
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# CROSS OVER THE BRIDGE

## All New for 1980-1981

This year the booster club has a new format.

1. **POINTS** The point system for bringing in a new member has been changed to give members a simpler, fairer system. Three points will be credited for bringing in a registered technician, apprentice or allied tradesman and one point for sponsoring a member of any other classification. In this way, the point spread recognizes the fact that all who sponsor a new member are actively supporting the Guild.

Members who achieve fifteen points will be honored in the 1981 President's Club. Those who help bring a former member back into the Guild will be honored in the 1981 Restorer's Club.

2. **PRIZES** This year as a special feature every member who brings in three members will receive a flashlight pen and every member who brings in seven new members will receive a Journal binder as a gift.

To be sure all points are properly recorded, please check all new member applications carefully.

1. Please **PRINT** your name after your signature on the line "recommended by" when you wish to receive credit for bringing a new member into the Guild. Some signatures are difficult to read and we regret having to omit a name for this reason.

2. Please show your own chapter after your name. Some members sponsor a new member into a chapter other than their own.

3. If you wish credit for a **RESTORED MEMBER**, please write this fact on the application form. It is not always possible to trace a former member after a lapse of time.

4. If corrections should be needed in the records, please notify the home office promptly. The **Journal** goes to print some weeks ahead of mailing.

5. The first figure after each name represents the number of points earned. The second figure shows the number of new members brought into the Guild for the year 1980-81.

Pts Mbs

### President's Club

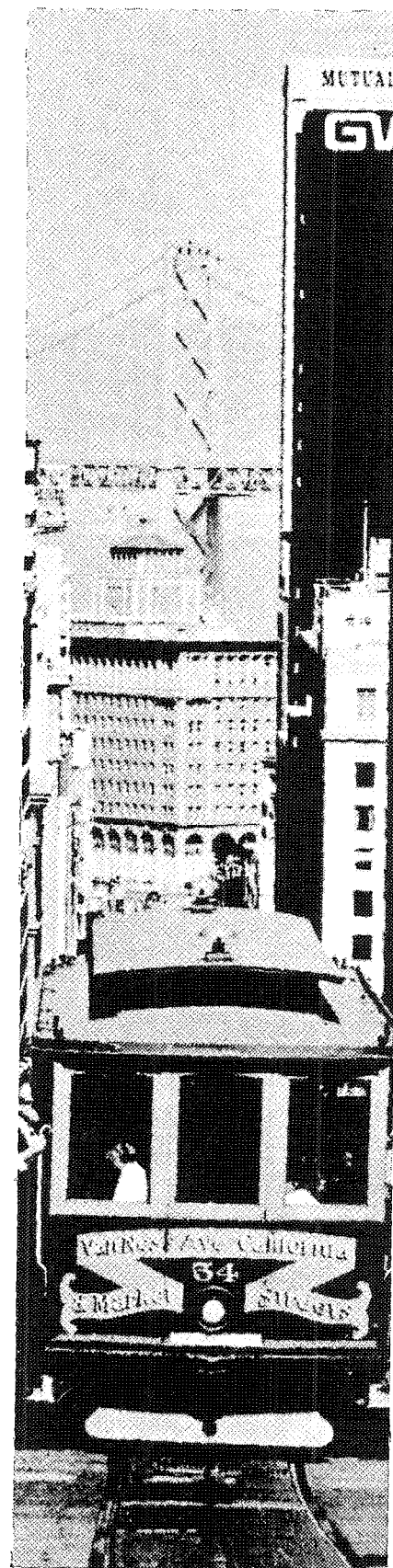
BITTINGER, Dick	17	7
DRAINE, Robert	24	8
MARCIANO, William	15	5
SMIT, Robert	18	6

### Restorer's Club

COLEMAN, Sr., Jim		
DUNCAN, David		
FANNING, William		
GOLD, Jimmy		
MENSCHING, Dale		
PREUITT, Ernie		
WALKUP, Ken		
WEEKS, George		

### Booster Club

ACKMAN, W. H.	3	1
AFFLECK, Don	1	1
ALLEN, Jon	1	1
ANDERSON, Albert	6	2
ASHMORE, Yvonne	1	1
BAIRD, John	2	2
BITTINGER, Dick	17	7
BROOKSHIRE, Jerry	1	1
BROWNFIELD, Gary	3	1
BURTON, Robert	1	1
CALLAHAN, James	1	1
CLEVENGER, Wayne	4	2
COLEMAN, Sr., Jim	4	2
COLLINS, James A.	3	1
COX, Merrill	3	1
CRABB, Larry	1	1
CRAW, Stephen	1	1
CUNNINGHAM, Jess	6	2
DeARMOND, C. E.	6	2
DEFEBAUGH, George	3	1
DeTAR, Brian	1	1
DRAINE, Robert	24	8
DROST, Michael	6	2
DUNCAN, David	3	1
EDWARDS, William E.	3	1
ERDMAN, James	1	1
ESMONDE-WHITE, Oliver	6	2
EVANS, Dan	3	1
FANNING, William	6	2
FELTON, Hilbert	10	4
FINGER, Chris	9	3
FLEGLE, Sr., Richard	1	1
FRITZ, Lloyd	3	1
FROST, Jack	6	2
GARLICK, William	3	1
GARRETT, Joseph	1	1
GENTRY, Kenneth	3	1
GILLER, Evan	7	8
GOLD, Jimmy	3	1
GULLIXSON, Elisha	3	1
HANSON, Frank	9	3
HARMON, Clayton	3	1
HAUCK, Jack	1	1
HEDRICK, Ralph	4	2
HERBERT, Curtis	2	2
HIPKINS, David	3	1
INGLES, Bob	1	1
JACKSON, George	3	1
JORDAN, Wayne	3	1
KIMBELL, Michael	1	1
KINGSBURY, Richard	3	1
KOKTON, Paul	3	1
KREITZER, Mark	3	1
LAWRENCE, Paul A. U.	3	1



LYNN, Frederick .....	6 ... 2
McGUIRE, Michael .....	4 ... 2
McKINNON, Karl .....	1 ... 1
MARCIANO, William .....	15 ... 5
MARTEN, Gil .....	3 ... 1
MENSCHING, Dale .....	6 ... 2
METZ, Al .....	2 ... 2
ODENHEIMER, Fred .....	6 ... 2
OSBORNE, James .....	6 ... 2
OSBORNE, Joseph .....	3 ... 1
PETERS, George .....	3 ... 1
PETERSON, Gerald .....	3 ... 1
PREUITT, Ernest .....	4 ... 2
RADD, Dorothy .....	3 ... 1
REITER, Michael .....	1 ... 1
REQUE, Styke .....	1 ... 1
RUSSELL, Bob .....	5 ... 5
SAAH, Joseph .....	3 ... 1
SCHMITT, Paul .....	6 ... 2
SCHOPPERT, Robert .....	9 ... 3
SEITZ, Al .....	3 ... 1
SIEROTA, Walter .....	3 ... 1
SKOLNIK, David .....	3 ... 1
SMIT, Robert .....	18 ... 6
STEELE, Joe .....	10 ... 4
SVEC, John .....	1 ... 1
THILE, Scott .....	1 ... 1
VARNADO, James P. ....	3 ... 1
WAGNER, Lloyd .....	9 ... 3
WALKUP, Ken .....	6 ... 2
WEEKS, George .....	4 ... 2
WEST, Richard .....	2 ... 2
WICKSELL, Larry .....	1 ... 1
WOODALL, Dennis .....	3 ... 1
ZEISEMER, Bruce .....	3 ... 1
ZELLMAN, Adelaide .....	1 ... 1

## New Members

### REGISTERED TECHNICIANS

**Baton Rouge, LA Chapter**  
JACKSON, RICKY D.  
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Canton, MI 48188

POND, GREGORY A.  
18920 Curtis  
Detroit, MI 48219

**Montreal, Canada Chapter**  
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Verdun, PQ H4G 1A5

**New Jersey Chapter**  
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**New Orleans Chapter**  
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**New York Chapter**  
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484 W. 43rd, No. 21R  
New York, NY 10036

### Northwest Florida Chapter

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4110 Russell Lane  
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1713 Great Falls St.  
McLean, VA 22101

CUNNINGHAM, STEVEN W.  
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MASSEY, VERGIL L.  
102 Anderson Ave.  
Winchester, VA 22601

### Ottawa, Canada Chapter

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SMIT, ADRIAN  
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### Phoenix, AZ Chapter

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Glendale, AZ 85302

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681 Meigs Street  
Rochester, NY 14620

### South Bay, CA Chapter

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14517 S. Vermont Ave. #9  
Gardena, CA 90247

### South Central PA Chapter

SHOWERS, MARK L.  
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Gardners, PA 17324

### St. Louis, MO Chapter

FRITZ, LEROY  
3601 Gary  
Alton, IL 62002

### Wilmington, DE Chapter

McDONALD, WAYNE J.  
1919 Dorset Rd.  
Wilmington, DE 19810

### APPRENTICES

### Central Iowa Chapter

NEIL, DONALD  
502 First Street  
Traer, IA 50675

# 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 date 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.

### Feb. 28-March 1, 1981 CALIFORNIA STATE CONVENTION

The Inn at the Park  
Anaheim, California

**Contact:** Paul Monroe  
5200 Irvine Blvd., #310  
Irvine, California 92714

### March 27-29, 1981 PENNSYLVANIA STATE CONVENTION

Brunswick Motor Inn  
Downtown Lancaster, Pennsylvania  
**Contact:** Richard E. Bittinger  
107 West Main Street  
P.O. Box #51  
Brownstown, Pennsylvania  
17508  
(717) 859-3111

### April 13-14, 1981 MICHIGAN STATE CONFERENCE

Michigan State University  
East Lansing, Michigan  
**Contact:** Thomas McNeil  
119 Allen Street  
Lansing, MI 48912  
(517) 372-7296

### May 1-3, 1981 MISSOURI STATE SEMINAR

St. Louis, Missouri  
**Contact:** Willem Blee  
515 Poplar  
Webster Groves, Missouri  
63119

## PIANO TECHNICIANS GUILD 24th Annual Convention and Technical Institute San Francisco Hilton Hotel July 6-10, 1981

LUNDSTEDT, ELIZABETH  
Box 311, 301 S.E. Jackson  
Greenfield, IA 50849

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Plymouth, MI 48170

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Cliffside Pk., NJ 07010

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Clark, NJ 07066

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Sparta, NJ 07871

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Pembroke, ON R8A 7P9

WHATNOUGH, ALAN G.  
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Ottawa, ON K2O 0A1

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TRAINOR, BRIAN E.  
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**Southern Tier, NY Chapter**  
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Trumansburg, NY 14886

#### ALLIED TRADESMEN

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Hindman, KY 41822

**Montreal, PQ, Canada**  
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5159A Langevin Cr.  
Chomedey, Quebec

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Verdun, PQ H4G 1A5

CORRENTE, SALVATORE S.  
5155 S. Langvin  
Chomedey Laval, PQ

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**Santa Clara Valley, CA Chapter**  
SOMERS, RICHARD J.  
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Redwood City, CA 94063

**South Florida Chapter**  
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Arthur H. Beckman  
Laurie J. Blakeney

Murle D. Buchanan  
James De Rocher  
Elson E. Dykema  
Murray N. Foreman  
Arlene F. Goffredi  
Roy E. Hebert  
Jerome Heischober  
Donald P. Heritage  
Richard W. Howenstine  
Jack H. Knox  
Robert G. Matson  
Mary F. McNerny  
Ted D. Mitchell  
Paul M. Nedvecki  
Marc Nystedt  
Donald E. Moore  
John S. Otto  
Lawrence Parrish  
William G. Sdao, Jr.  
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Sacramento, California 95825



### Editor, Auxiliary Exchange

**LUELLYN PREUITT**  
4022 South Fuller  
Independence, Missouri 64052

Due to time and space limitations, much of the material submitted for this issue will be run next month. Our apologies to the Auxiliary Board. — Managing Editor.

*We have a memo written by Dorothea Odenheimer telling us about many of the places of interest in the San Francisco area. One thing she does warn us about — bring a jacket! It is cool in San Francisco in the summer.*

"Are you planning to come to our National Convention next July 5-9? A great treat is in store for you when you discover San Francisco, a city unlike any other in the world. If you arrive by plane, you can board a reasonably priced airport bus to the bus terminal downtown, located right next to our convention hotel, the Hilton. Here you can take the elevator to the Hilton Tower, which overlooks the city. From here you can see the Golden Gate Bridge, opened in 1937. You might see a large ocean liner entering under this bridge (the city is on a peninsula, surrounded on three sides by ocean and bay) and you can cross this beautiful one-span bridge to Sausalito, or go on further to Muir Woods to admire the huge redwood trees.

"The long Bay Bridge, opened in 1938, takes you to Oakland and Berkeley (home of the University of California). Because of the heavy traffic it has two stories, one each way. What you cannot see is BART (Bay Area Rapid Transit), the fabulous tube built under the bay to connect the city with several outlying cities on the mainland. You might spot a ferry or two, once used by many people and still

much used today. It's a fun way to get across the Bay. You will see Angel Island, Alcatraz and Treasure Island, home of the 1939 World's Fair. You will see Twin Peaks and many other hills. San Franciscans used to build their houses up there to be able to have a nice view of the city and bay, but the highrise buildings of our day have put an end to that dream. Every day people come streaming into the business area of this 46½ mile area from outlying suburbs and cities. There are buses, streetcars, subways and cable cars to provide much fine transportation.

"Leaving your hotel and turning right you have only a few blocks to get to Union Square, which houses the old and famous St. Francis Hotel, the Hyatt Hotel and many shops. Window shopping here is fabulous. Many flower stands give color to the area. Here is a narrow street which is the forerunner of today's malls, lined with trees and flowers, artists' galleries and shops—and no cars allowed.

"You might get to Powell and Market, the big business street which runs diagonally, and find many shops and department stores. If you venture further you get into the 10 blocks of Chinatown, famous for the nicely decorated windows. Further down on Market Street you will find the Hyatt Regency Hotel, with its landscaped interior and birdcage elevators to a rooftop restaurant.

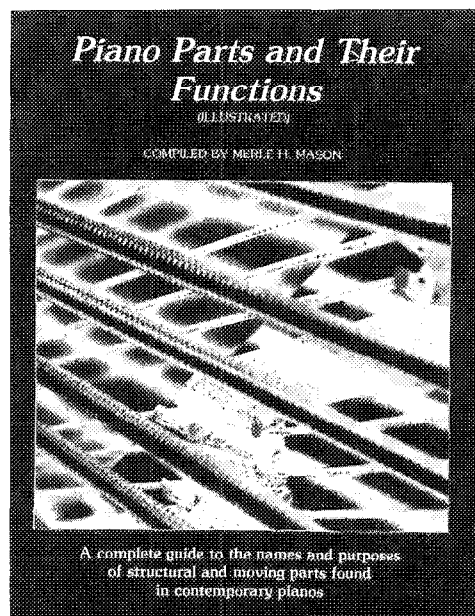
"Again at Powell and Market you might see the men turning the cable car around manually. Then ride it up and down hills to Fisherman's Wharf and Ghirardelli Square, an abandoned chocolate factory turned into a shopping paradise. If you climb to the third floor for a chocolate soda on the balcony you can look out over the Wharf and Bay. You may want to visit beautiful Golden Gate Park, De Young's Museum and the Japanese and Botanical Gardens. Further downtown is Embarcadero Center, with its high-rise office buildings, restaurants and shops. There is also a pier which has been developed for shops and restaurants. Here you may board a ferry for Sausalito or Oakland. You may be sure it will be a visit long remembered." □



# ANNOUNCING A NEW EDITION. . . .

## PIANO PARTS AND THEIR FUNCTIONS (ILLUSTRATED)

The official publication of the Piano Technicians Guild continues in its original 8½ × 11 format, completely reillustrated for easier reference and understanding.



### INCLUDES

**DIAGRAMS** of the many separate parts of different types of pianos, accompanied by the English names commonly used to designate these units.

**AN ALPHABETICAL** list of these names, together with the assigned numbers by which the corresponding parts in the drawings may be located.

**A GLOSSARY** consisting of:

1. Names of various parts of a piano not readily open to visual representation;
2. Names and descriptions of various mechanical functions of concern to both piano technicians and performers;
3. A list and definitions of many musical terms that are found in vocabularies of piano technicians and/or musicians at large; terms which often need clarification.

---

**PIANO PARTS AND THEIR FUNCTIONS**, The Piano Technicians Guild, Seattle, 1981

Please send me \_\_\_\_\_ copy(ies) of **PIANO PARTS AND THEIR FUNCTIONS**

My check in the amount of \$\_\_\_\_\_ and payable to Kendall/Hunt is enclosed.

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2460 Kerper Boulevard • Dubuque, Iowa, 52001

# Classified Advertising

**CLASSIFIED ADVERTISING RATES** are 20 cents per word with a \$5.00 minimum. Full payment must accompany insertion request. Closing date for ads is the first of the month prior to publication.

Box numbers and zip codes count as one word each. 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.

## FOR SALE

### 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

**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

**KEY RECOVERING MACHINES** for sale. Prices on request. Send self-addressed envelope. Or, build your own — send \$10.00 for plans, photos, instructions (refund w/purchase of machine). **Solenberger Piano Service**, 1551 Lynn Court, Santa Rosa, CA 95405.

**PRESTIGIOUS ORANGE COUNTY, CALIFORNIA TUNING CLIENTELE.** Store connection with Yamaha/Steinway dealer. Very desirable climate. Must sell because of poor health. \$5,000 firm. (714) 750-7852.

**STEINWAY #145712.** \$4,000. Needs rebuilding. Contact **Dan Baker**, 23930 Grant Rd., South Bend, IN 46619, (219) 288-8981.

**WEBER DUO-ART FALLBOARD SPRINGS** (spring on the treble keyblock to hold fallboard up). Write or call **Hugh Manhart**, 324 So. 51st Ave., Omaha, NE 68132, (402) 551-1753.

**CHROMATIC TUNER, PETERSON 320.** Back issues of Journal. **Ronald Poire**, 8328 E. 25th Pl., Tulsa, OK 74129, (918) 622-2872 all hours.

**BUSINESS IS GREAT**, but I'd like to retire now. Would like to sell home (has terrific view). You would have a showroom and workshop in basement plus a large customer file to work from. **Eggert A. Skjoldager**, 3244 Glen Creek Dr. NW, Salem, OR 97304, (503) 364-0513.

## HELP WANTED

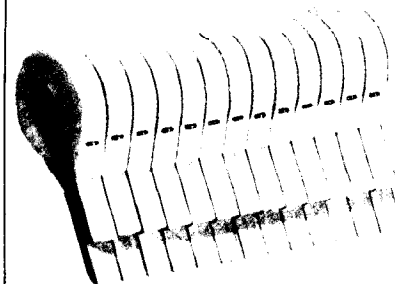
**HELP WANTED** — Artist piano-rental company seeks trainee. Work with the greatest pianos and artists in the world. An apprentice or novice technician is sought for long-term training and employment in New York City, with possible relocation to San Francisco or Los Angeles. Must be willing to embrace with equal zeal the following: tuning, rebuilding, truck driving, refinishing, piano moving, regulating, shop remodeling, voicing, road touring and sometimes long and unusual hours. Benefits: work with the world leader in concert piano preparation and provision, all types of artists, all types of music. As a reward for long-term loyalty, profit sharing or other bonus could apply. (212) 582-6798

**PIANO TECHNICIAN.** We are one of the leading piano manufacturers in Europe and want a qualified piano technician with good knowledge of tuning and voicing for a time of about three years or, if desired, longer. We offer good salary and best social conditions. Please send resume to **Schimmel Piano Company**, Post Office Box 4860, D-3300 Braunschweig, West Germany.

**FULL-TIME PIANO TUNER-TECHNICIAN.** Old-line dealer on Florida Gulf Coast. Finest lines and reputation. Only highly qualified technicians need apply for permanent position. Send complete resume. **Reynolds Music**, P.O. Box 608, Pensacola, FL 32593, (904) 438-1628.

## WANTED

**PIANO TECHNICIAN** seeking job opportunities; willing to relocate; registered craftsman member. Please write: **Walter F. Gramza, Jr.**, P.O. Box 201, East Rochester, New York 14445



### IMADEGAWA

### HAMMERHEADS FROM JAPAN

		Unbored	Bored
Grand	15 lb	U.S. \$77.50	\$82.75
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**Unbored:** — Pls. state number of bass

**Stock Sets:** — Pls. state number of bass hammers, plus measurement from strike point to center of hole.

**Custom Bore:** — Number samples. Mark stated value under \$2.00 to avoid hold-ups.

Please add \$3.00 per set to cover postage. We ship within 24 hours by registered mail.

Bank draft, money order, or VISA # must accompany your order.

Write or phone 1- (416) -483-9622

Piano Technicians Supply Co.  
72 Old Orchard Grove  
Toronto, Ontario, Canada M5M 2C9

**VISA**


# Piano Technicians Guild, Inc.



Having trouble describing a particular part and its function? Studying for an examination? *Piano Parts and Their Functions* is a comprehensive book of common nomenclature and identification for piano servicing. It is generously illustrated with line drawings keyed to part names. No technician should be without one! The book was compiled by Dr. Merle Mason and his Guild Nomenclature Committee after many years of research. It is essential to your library.

## GUILD KEY RING

**Prices: 1/\$1.50-3/\$4-6/\$7.50**

 Piano Technicians Guild, Inc.				
PLEASE SEND:	Quantity	Price	Total	
Piano Parts and Their Functions				
Hardcover (member)		\$14.00		
Hardcover (nonmember)		\$18.00		
Softcover (member)		\$10.00		
Softcover (nonmember)		\$14.00		
Guild Key Ring				
1/\$1.50 - 3/\$4.00 - 6/\$7.50				
<b>SUBTOTAL</b>				

ADD SHIPPING AND HANDLING				
If order totals	Below \$5.00	\$5 to \$9.99	\$10 to \$14.99	\$15 to \$24.99
Add	\$1.00	\$1.50	\$2.00	\$2.50
				\$25 or More
				None

Washington State residents only add 5.3% sales tax

Enclose check or money order for this amount TOTAL U.S. FUNDS

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Name \_\_\_\_\_  
Address \_\_\_\_\_  
City/State or Province \_\_\_\_\_  
Zip/Postal Code \_\_\_\_\_ Phone \_\_\_\_\_  
Chapter \_\_\_\_\_ Nonmember \_\_\_\_\_

MAIL TO: PIANO TECHNICIANS GUILD  
113 DEXTER AVENUE NORTH  
SEATTLE, WASHINGTON 98109

PLEASE FEEL FREE TO PHOTOCOPY THIS ORDER FORM

# Open For Business!



We didn't forget the technician when we designed our newest school and chapel pianos, Conservatoire 2960 and the Chapel 2962.

Tops, fronts and fallboards detach with ease, and the entire action slips out simply. However, most mechanisms, including a sostenuto system, can be serviced *without* removing the action!

These new pianos also offer a new all-spruce Duraphonic Multi-radial™ Soundboard which dramatically improves tuning stability. Laboratory tests prove that in environments with up to 90% relative humidity, solid spruce soundboards expand over 5 times more than the new Wurlitzer design, causing more serious changes in string tension.

It costs more to build pianos this way, but we believe that a quality instrument must be well maintained. Recognizing the importance of your work, we try to do ours just a bit better.

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# PIANO TECHNICIANS GUILD

## FEBRUARY 1981 UPDATE

### Dues and Delinquent Notices

This year annual dues are payable by February 15th. A notice of nonpayment of dues will be sent to all members who have not made a dues payment received by the home office on or before February 15.

**PARTIAL PAYMENT OF DUES** Registered Technicians, Apprentices and Allied Tradesmen who are unable to pay the \$96 annual dues in one sum may make partial payments of \$32 on the dates shown below. The second and third payments will include a \$3 service charge for a total of \$35 for each of these payments.

We regret that members who have not made a payment by March 18 will be dropped from membership.

**REINSTATEMENT.** A \$30 reinstatement fee is assessed on a reinstatement in addition to payment of back dues and the chapter must sign formal consent for a reinstatement.

#### MANY THANKS.

The new dues records department thanks everyone for sending a copy of the dues billing together with the dues payment.

**STUDENT DUES.** These are now \$60.00 payable to the Guild for all new and renewing student members.

**U.S. FUNDS.** All dues must be remitted in U.S. funds. The board policy requires the home office to return all payments which are not in U.S. funds.

PARTIAL DUES PAYMENT	DELINQUENT DATE	DROP DATE
----------------------	-----------------	-----------

January 1 \$32.00	February 15	March 18
April 1 \$32+\$3.00	May 31	June 30
June 1 \$32.00+\$3.00	July 31	August 31

**CHAPTER DUES.** Please note that the home office is collecting 1981 chapter dues only for those chapters which requested and signed for chapter dues collection last October. Members of these chapters will find the chapter dues included on the annual dues billing and the full amount of chapter dues must be included with the first payment. If your annual dues billing does *not* include chapter dues, please do not send chapter dues with your Guild dues payment. The home office must return the check and request a payment for Guild dues only.

**HELP! HELP! PLEASE:** Enclose a copy of the dues billing when paying dues. Attach a copy of the invoice when paying for merchandise, advertisements, library loans, etc. Send a separate check for each billing or invoice where feasible.



### Home Office Address

Please address all mail to the home office at 113 Dexter Avenue North, Seattle, WA 98109.

Our Post Office Box 1813 was closed last November. Mail sent to the P.O. Box is delayed and should be discontinued.

### Special December Chapter Mailing

Information was sent to all chapters on the post-convention Hawaii tour planned to follow the San Francisco convention. Application forms were sent in bulk to chapters for distribution to their members.

Also a December 15th letter from Bob Russell, President, regarding a proposed decision by the board on fees to applicants who take the new tuning test.

### January Chapter Mailing

...includes ... Members dropped for nonpayment of dues. (This information sent to the affected chapter.)

The new Guild Library list. Computer printout with request that the chapter check the computer information and enter any corrections on the printout and return it to the home office within one month of receipt.

A number of promotion flyers on the San Francisco convention for distribution to chapter members and for use in newsletters.

FOLLOWING  
THE PIANO TECHNICIANS GUILD CONVENTION  
IN SAN FRANCISCO  
JULY 6-10, 1981

# CONVENTION IN SAN FRANCISCO RELAX IN HAWAII

## THREE ISLAND POST-CONVENTION TOUR: OAHU, HAWAII AND MAUI

Kailani World Travel, Inc. is offering a **MONEY-SAVING POST CONVENTION** tour from San Francisco or from your home city with tremendous air savings to convention city, San Francisco, then on to Honolulu, Kona, Hawaii and Maui.

### KAILANI'S THREE ISLAND HAWAII POST CONVENTION TOUR INCLUDES: 8 Days/7 Nights: July 11-18

- \* Round-trip air transportation from your home city to San Francisco and round-trip air from San Francisco to Hawaii including all inter-island air travel (Note: Direct service from Honolulu to your home city will be used where possible on the tour's return).
- \* Complimentary in-flight food and beverage service.
- \* Round-trip transfers and baggage-handling gratuities on each island.
- \* Information and hospitality desk at each hotel on each island.
- \* Services of members of the Kailani World Travel staff throughout your stay.
- \* A Kailani World Travel Flight Bag for each tour member.
- \* Fresh FLOWER LEI Greeting on arrival in Honolulu.
- \* Hotel Accommodations: 3 Nights at Hilton Hawaiian Village, Honolulu  
2 Nights at Kona Hilton, Kona  
2 Nights at Wailea Beach Hotel, Maui
- \* All hotel and air transportation taxes.
- \* Full schedule of optional tours on each island.

**COST PER PERSON:** Costs as shown are based on double occupancy and are based on projected air fare increases thru **January 20, 1981** out of each of the Zone cities as indicated below. Please note that any increase or decrease in air fares after **January 20, 1981** will be passed on to each tour participant.

**PRICE GUARANTEE:** Kailani World Travel will guarantee the cost of the tour as shown if the total tour cost less \$350 is prepaid in full prior to January 20, 1981.

#### ZONE A — \$1179 Per Person

Baltimore  
Boston  
Cincinnati  
Cleveland  
Detroit  
Miami  
Pittsburgh  
Washington

#### ZONE B — \$1099

Atlanta  
Chicago  
Dallas  
Des Moines  
Houston  
Minneapolis  
New York  
New Orleans  
Philadelphia  
St. Louis

#### ZONE C — \$999

Kansas City

#### ZONE D — \$889

Denver  
Phoenix  
Salt Lake City  
Seattle  
Portland  
Los Angeles

#### TOUR PRICE FROM SAN FRANCISCO ONLY — \$799 Per Person

Single Supplement — \$225, Triple Reduction — \$25, Upgrade at Hilton Hawaiian Village to Rainbow Towers: \$40.

#### RESERVATION APPLICATION:

##### PIANO TECHNICIANS GUILD

##### POST CONVENTION TOUR

Return to:

KAILANI WORLD TRAVEL, INC.

119 NO. COMMERCIAL ST.

BELLINGHAM, WA 98225

Enclosed is my check in the amount of \$\_\_\_\_\_ representing a deposit of \$100 per person, or the total package cost less \$350 for price guarantee, for my party of \_\_\_\_\_ person(s). Please confirm me on \_\_\_\_\_ Three Island Hawaii Program.

Hilton Hawaiian Village Hotel Upgrade \_\_\_\_\_ Yes \_\_\_\_\_ No

My departure city is \_\_\_\_\_ Desired departure date \_\_\_\_\_

NAME: \_\_\_\_\_ First Name of Spouse \_\_\_\_\_

Address: \_\_\_\_\_ City, State, Zip Code \_\_\_\_\_

Home Telephone: \_\_\_\_\_ Business Telephone \_\_\_\_\_

Others in my party (Please indicate ages of children) \_\_\_\_\_

Type of accommodations: \_\_\_\_\_ Twin/Double \_\_\_\_\_ Single \_\_\_\_\_ Triple

Please make your checks payable to Kailani World Travel, Inc. and return to the above address. You will be invoiced for the balance of your tour cost which will be due no later than 6 weeks prior to departure. Should you cancel your tour arrangements after making your final payment, a \$100 per person cancellation fee will be assessed. Trip cancellation insurance is available thru our office for a reasonable cost.

#### FOR INFORMATION CONTACT: KAILANI WORLD TRAVEL

\*In Washington State, call 1-800-562-2597

call 1-800-426-2561

\*In Ore., Ca., Ariz., Nev., Utah, Ida., Mont. and Wyo.,

\*All other states call 1-206-676-1250



# ALOHA

## Shorter Hawaii Trip Possible

Regarding the Three-Island Post-Convention Tour to Hawaii as advertised in the January **Update**...

Interest has been expressed in taking a smaller block of time for this trip. Kailani World Travel has informed us that people can reduce the length of their stay in Hawaii by simply contacting the agency directly to work out a different fee schedule. For information...

Kailani World Travel, Inc.  
119 N. Commercial St.  
Bellingham, WA 98225  
(in Washington State)  
800-562-2597  
(in OR, CA, AZ, NV, UT, ID, MT  
and WY) 800-426-2561  
(from elsewhere) 206-676-1250

## 1981 Roster

The new roster will be printed from the information in the computer as of the end of April. Please make every effort to check with your chapter to see that the information there is correct.

Many members have not submitted telephone numbers. Ask your chapter president to add the number directly on the computer printout.

A new and up-to-date computer printout will be sent to all chapters.

PLEASE RETURN THE PRINTOUT either with corrections or marked CORRECT. Your home office wants to be quite sure that all entries are accurate for each member.

MEMBERS — Please check with your chapter on this.

## Booster Club Points

Recently some members have not been credited with the booster club points they have earned because the home office was not able to decipher the signature.

For full Booster Club credit please write the name of the sponsor in capital letters beside the signature.

## New England Seminar

The Boston Chapter is hosting the New England Regional Seminar on April 24-26, 1981. For further information, contact Kenneth Hagberg, 12 Radford Rd., Princeton, MA 01541, (617) 464-5529.



## Congratulations

... to Fred and Mimi Drasche on their 50th wedding anniversary February 21st from Erwin Otto and all your friends in the Piano Technicians Guild.

## New Member Applications

New members, eager to receive their official proof of PTG membership, often experience a delay due to the application not being mailed to the home office immediately following official approval by the chapter. Chapters are urged to send completed applications as soon as possible so that the new member will receive proof of Guild membership promptly.

1. Please be sure the top right hand corner of the application form shows the approved classification and the chapter officer's signature.

2. Please send the correct amount of membership fees or dues as follows:

Registered Technicians, Apprentices and Allied Tradesmen: New member fee \$30. Send only \$15 to the home office, the chapter keeps \$15. The home office will bill new members for prorated dues through the end of the year.

Associate and Affiliate Members: \$48 for 1981.

Student Members: \$60 covers 12 months from the month of entry.

## The Ugly Duckling Tuner

by Daniel A. Evans  
Western Regional  
Vice President  
Piano Technicians Guild

When I was a kid, I read the story of the ugly duckling. It impressed me very much, I guess, because I wasn't such a hot-shot myself and had a soft spot for the underdog.

I don't remember the details very well, but generally it was the story of an extra egg placed into the nest of a mother duck. Her eggs hatched lovely, fluffy, yellow ducklings, but the other egg re-

fused to hatch for days until finally a big, clumsy, white chick broke out. How disappointed the duck was!

Her own ducklings would have nothing to do with this newcomer. They already had their own clique and didn't need new competition. Let him fend for himself. There are enough ducks around the lake, anyway. And they turned their backs on him.

So the ugly duckling was denied the friendship of his colleagues and had to learn, on his own, how to get along in this world. Not an easy task. And he made a lot of mistakes.

But the ugly duckling kept trying, until one day a flock of beautiful swans came by and saw him.

"What a beautiful little swan, and all alone," they said. "He is the most beautiful and graceful little swan on the lake."

And so, the ugly duckling grew to be a magnificent king of the water birds, and was admired by all who saw him.

Now, if you have read this far, you are probably wondering what a fairy tale is doing in the **Journal**. But, my friends, this is no fairy tale.

This has really happened. And maybe in your chapter, too. For the ugly duckling is a student who has chosen the piano-service field as his vocation. The duck and ducklings are we old timers who like to think we have the field pretty much to ourselves and are not interested in new competition. We also want no part of disclosing trade secrets that will help a fledgling. And it is so comfortable just going along in our own ways.

But that new applicant may be just the new blood we need to keep our chapter alive. It may be that this new member can bring fresh vitality to the Guild. He may, in time, turn out to be another Man of Note, or be awarded the Golden Hammer (you can name several). Let us not be short-sighted and pass up the opportunity to welcome one who just might turn out to be very well gifted as a piano technician. It is here where the future of the Guild is nurtured.



## Chapter Notes

... **The Rochester Chapter** has voted to accept a new member, Douglas Bradley, who recently passed the Guild exam for registered craftsman status. Later in the December meeting Mr. Laverne Griffith of the Buffalo Chapter led a productive discussion on the new tuning exam procedures.

... **The Los Angeles Chapter's** second annual Christmas dinner and program was a busy one: Scholarship recipient Alan Gampel treated members to Bach, Beethoven and Stravinsky; Leon Levitch gave an inspirational talk on repairing a broken agraffe without tools or parts while in a concentration camp; and board member Harry Berg recommends George Defebaugh's slide lecture on hammers to any chapter that can arrange for it. New members are Don Heist and Roger Pierce, Students, and Boris Bernards, Associate. This active chapter plans to publish its own quarterly newsletter this year. □

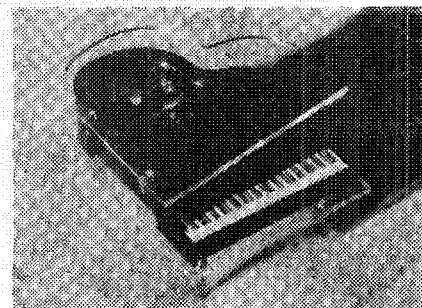
## New Music Box Piano

Music box pianos are now available as a sales item. The lucite replica of a grand piano (5½"x3½") plays "It's a Small World." As an international association, the song is appropriate for the Piano Technicians Guild.

Besides being a small jewel case, the music box is a symbol of the music industry. This beautifully designed music box would make an elegant gift or a much-prized award item, for use by chapters, auxiliary members, or individuals.

The \$17 price includes postage within the continental limits of the United States. Persons ordering music boxes outside the continental limits will be billed for additional postage.

When you want to give a new and different gift, give the music box piano.



Please send (\_\_\_\_) music box piano(s) to:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Zip Code \_\_\_\_\_ Foreign Country \_\_\_\_\_

☐ Send free gift card

This order made by:

(Name in Full)

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(Zip)

☐ Payment enclosed