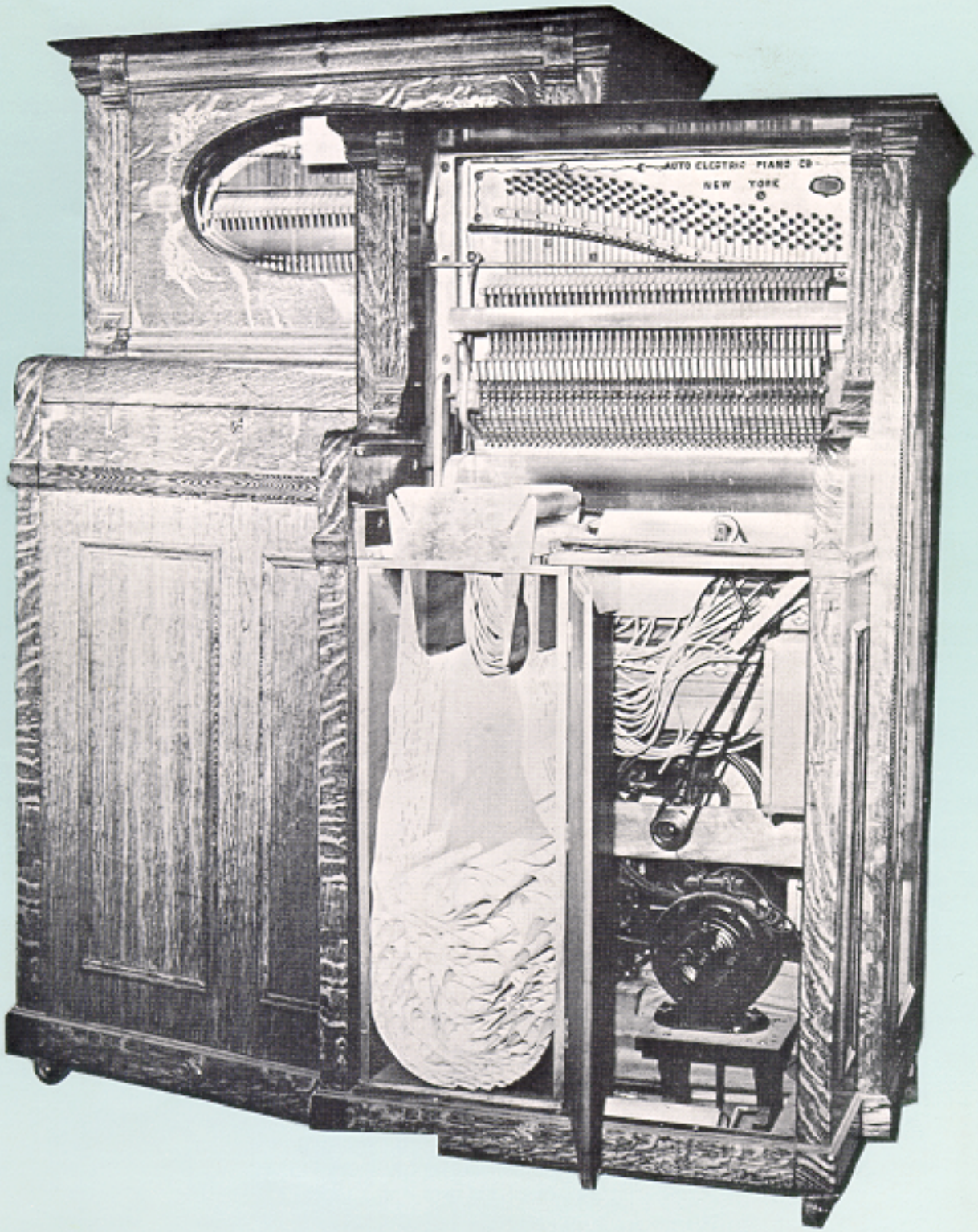
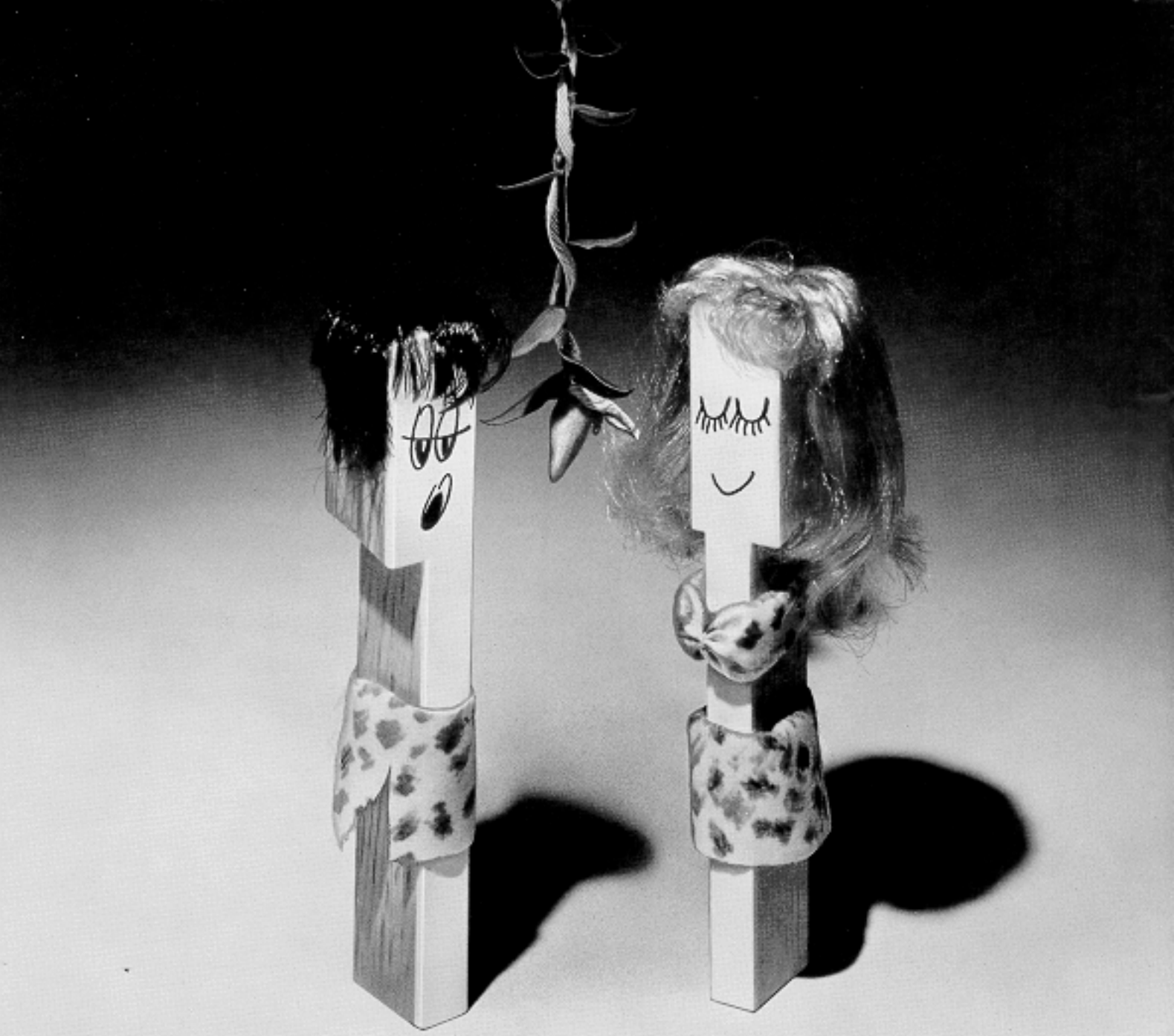
Piano Technicians Journal
AUGUST 1980





Me Tarzan, you Jane...

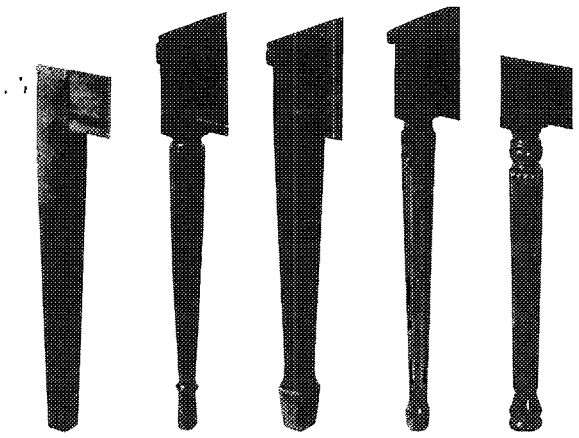
With these immortal words, the first of the superheroes
solved his identity crisis once and for all.
Nearly two hundred years ago, we defined our
relationship to the piano industry
in simple, straightforward terms:
we'll make keyboards and actions for you,
you'll make and market the pianos.
It has been successful for a couple of centuries,
and with the growing demand for quality and value,
we expect it to be successful for a couple more.

Pratt, Read & Co., Ivoryton, CT 06442
The future belongs to quality.

PERIOD MATCHED BENCHES

Our 7000 series piano benches are constructed of selected hardwoods with a wood grained top, brass plated hinges and lid supports. The benches measure 14" x 30" with a height of approximately 19". All have music compartments and are shipped K.D., one to a box. Specify leg type and finish.

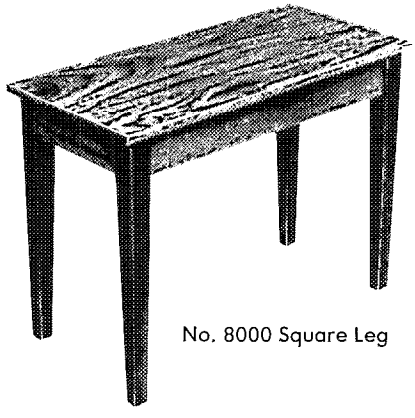
Finished Bench (Wlnt., Mahogany or Ebony)
List Price Each $74.00
Unfinished Bench
List Price Each $72.00
6 or More Benches Less 5%



7085 Square | 7051 Round | 7086 Spade | 7050 Round Flute | 7275 Georgian

All five leg styles are available in Walnut, Mahogany and Ebony finish or unfinished. Order by using the leg number followed by the designation "W-M-E or U" for type of finish. Example; 7085W for square leg, walnut finish.

ECONOMY BENCHES

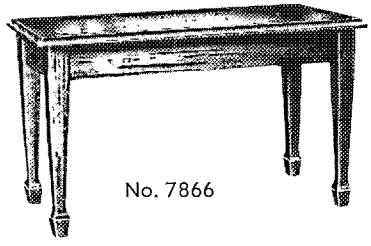


No. 8000 Square Leg

The legs and base of our 8000 series benches are made from selected hardwoods with the top being hardwood veneer laminations. All benches have music compartments and measure 14" x 30" with 20" height. No. 8000 Bench is square leg whereas No. 8001 is a round leg type. Both styles come in Walnut, Mahogany or Ebony finish or unfinished. Specify the letter "W-M-E or U" after leg style number. Example: 8001U for round leg, unfinished. (Sold and packed two of same finish and leg style to a carton. Add $2.00 list price for individual bench packaging.)

No. 8000—Square Leg (Specify Finish).
List Price Each $60.00
No. 8001—Round Leg (Specify Finish).
List Price Each $60.00
6 or More Benches Less 5%
(Add $2.00 list price cost for individual bench packaging)

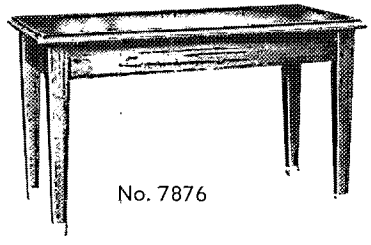
DUET SIZE PIANO BENCHES



No. 7866

Primarily designed to use with grand pianos, these high quality benches have veneered tops with a hand rubbed finish of either Walnut, Mahogany or Ebony color. Also available unfinished. All music compartments are finished. Bench height is 19" top size 14½" x 35" available in spade foot or brass ferrule legs and shipped K.D.

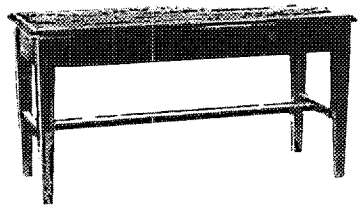
No. 7866
Spade Foot Leg, Specify Finish (W-M or E).
List Price Each $102.00
Spade Foot Leg, Unfinished.
List Price Each $100.00
6 or More Benches . . . . . Less 5%



No. 7876

No. 7876
Brass Ferrule Leg, Specify Finish (W-M or E).
List Price Each $104.00
Brass Ferrule Leg, Unfinished.
List Price Each $102.00
6 or More Benches . . . . . Less 5%

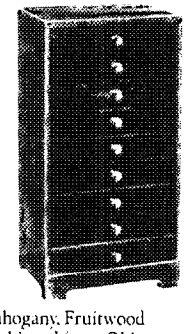
SCHOOL BENCHES



Similar specifications as the Duet Piano Bench but to further strengthen the legs for school use, a strong stretcher base is added. Comes with music compartment, 14½" x 35" top size, 19" high and three finishes, Walnut, Mahogany and Ebony as well as unfinished. Shipped set up.

No. 7022
Finished Bench. Specify Finish (W-M or E).
List Price Each $130.00
Unfinished Bench.
List Price Each $128.00
6 or More Benches . . . . . Less 5%

SHEET MUSIC CADDY



This economy sheet music cabinet is made with plenty of storage space. Cabinet stands 32½" high, 16" wide x 14½" deep and has nine drawers with contrasting brass drawer pulls. A high-protection finish of melamine, Formica brand, laminated surface comes in four simulated wood finishes of Walnut, Rosewood Mahogany, Fruitwood and Ebony. Cabinets are shipped from Ohio by U.P.S.

No. 7200 Specify Finish (W-RM-F or E).
List Price Each $140.00

THE HOUSE DEDICATED TO SERVICE

Schaff PIANO SUPPLY COMPANY

451 OAKWOOD ROAD, LAKE ZURICH, IL 60047

Prices Subject To Usual Discount

(312) 438-4556

Official Publication of the Piano Technicians Guild/August 1980 Volume 23 Number 8

Piano Technicians Journal

CONTENTS

COVER... Two views of an electric piano built by the Auto Electric Piano Company sometime between 1900 and 1910. The firm, headquartered in New York City, was active in the coin piano business during that time. The instrument shown uses an endless 44-note piano roll and is similar in format to 44-note pianos bearing such other contemporary names as Peerless, North Tonawanda Musical Instrument Works, and Regal.

THE PIANO TECHNICIANS GUILD, INC.
113 Dexter Avenue North
Seattle, Washington 98109

Telephone: (206) 283-7440
682-9700

Office Hours: (Pacific Time)
8 am-5 pm
Monday-Thursday

8 am-Noon
Friday

Messages may be left after office hours by calling (206) 682-9700. Your call will be answered by a tape recording machine.

PIANO TECHNICIANS JOURNAL, the official publication of the Piano Technicians Guild, is published monthly and issued to members. Annual subscription price: $60 per year; $108 for two years; $5.50 per single copy. *Editorial Offices:* 113 Dexter Avenue North, Seattle, WA 98109. Telephone (206) 283-7440 or 682-9700. **Closing date for copy and advertising is six weeks prior to date of publication.** Advertising rates are furnished on request.

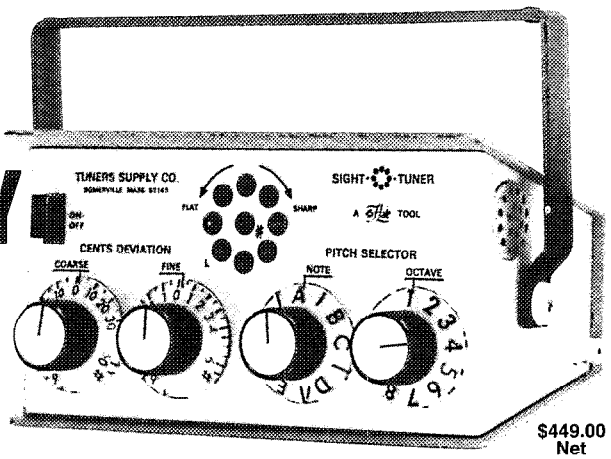
Reprints of most articles are available from the Guild home office, 113 Dexter Avenue North, Seattle, WA 98109. Price per page (plus postage): single copy, 25 cents; eight copies, $1.00, and 100 copies or more, $8 per hundred.

Second Class postage paid at Seattle. US ISSn 0031 9562 Foreign and Domestic.

HALE SIGHT-O-TUNER®
WILL HELP YOU TUNE ANY PIANO FASTER AND MORE ACCURATELY

Piano Tools Hale and Supplies

SIGHT-O-TUNER®



$449.00 Net

No machine will ever fully replace a fine tuner's musical genius. But the Hale Sight-O-Tuner electronic tuning device will complement your skills. It allows you to tune any piano faster and more accurately than you ever thought was possible.

Even in the noisiest environment, you choose which note you want to tune and it will tune that note *only*. Extraneous sounds won't affect the special tuning light on the HALE SIGHT-O-TUNER. You can also tune faint notes, from up to 30 feet. Or individual harmonics. Or wild strings.

The solid state unit is about as accurate as you can get, to ± ½ cent, over nine full octaves. Internal calibration makes tuning forks and line frequencies obsolete.

It all comes in a compact, self-contained package which is light enough (2 lbs.) and small enough (3½" high x 7" wide x 6" deep) to fit inside your briefcase. Bring it indoors or outdoors. It's battery operated to eliminate line or microphone worries.

Every professional tuner, music or orchestra director could use and should have one.

Let the HALE SIGHT-O-TUNER make your tuning easier. Join the thousands of people, including the late Arthur Fiedler, who already have.

TUNERS SUPPLY COMPANY

Serving the Music Industry Since 1884

EASTERN BRANCH: 94 Wheatland Street, Somerville, MA 02145 • (617) 666-4550
WESTERN BRANCH: 190 South Murphy Ave., Sunnyvale, CA 94086 • (408) 736-2355

NOW AVAILABLE!

FINEST QUALITY "Röslau"

CAST STEEL WIRE

EXTRA QUALITY • BLUE LABLE • TINNED

Available in 1 and 5 pound Coils

SIZES 12 through 22 (Half Sizes) 12 through 20½

SMALLER SIZES

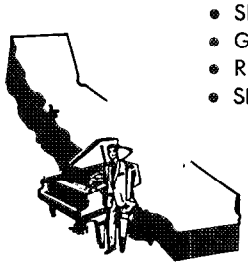
1/4 lb. COIL No. 00 through 11 *(Even Sizes Only)*

COMPLETE LINE OF TOOLS and SUPPLIES for PIANO REBUILDERS

SPECIAL TOOLS . . .

Designed to Meet the Technician's Requirements

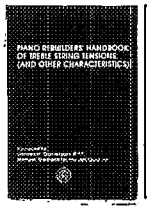
- SPOON BENDERS
- GRAM WEIGHTS
- REPINNING TOOL
- SHIMMING KNIVES
- KEY BUSHING TIGHTENER
- STRING HEIGHT GAUGE
- GRAND KEY LEVELING LEADS
- STRING HOOKS (2 Types)



Write: BOX PTJ

PACIFIC PIANO SUPPLY CO.

P.O. Box 9412 • North Hollywood, Calif. 91609
Phones: (Area 213) 877-0674, 769-2490



OVER 650 PAGES — HARD BOUND

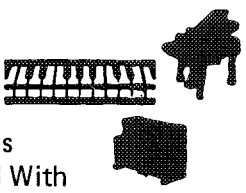
PIANO REBUILDERS HANDBOOK OF TREBLE STRING TENSIONS

This book gives the tension, % of tensile strength, and inharmonicity of every plain string from note 21 thru 88 of the A-440 scale.

- REDESIGN THE SCALE
- SORT OUT MIXED UP WIRES
- EQUAL OUT STRING TENSIONS
- REDUCE INHARMONICITY
- IMPROVE TONE
- REDUCE VOICING TIME

35" NET PER COPY

ORDER FROM YOUR FAVORITE SUPPLY HOUSE



Piano Keys Recovered With

ART IVORY

Over 50 years of continuous service to dealers and tuners

WRITE FOR COMPLETE PRICE LIST

O. E. SHULER CO., Inc.

149 E. HARRISON ST.
PARAGON, INDIANA 46166

EDITORIAL

Don L. Santy,
Executive Director

ANOTHER CONVENTION ASSIGNED TO THE PAST

One of the old timers (a past president) came up to me at our Philadelphia Convention and said, "This is wonderful, the Guild is getting back to the old good feelings again. Yes, I can see it. Each year a little more happiness and much more warm fellowship is evident, which is the way it ought to be."

The hotel wasn't half bad. A little weather-beaten but in many ways comfortable and secure. The management of the hotel was super in their never-ending quest to satisfy your staff and the membership. The food-service people were excellent and our staff believed the catering department was one of the best we have ever encountered.

Philadelphia offered tremendous depth in the historial significance and although the weather was hot and the streets dirty, the high degree of enthusiasm and the intense interest in our past reduced this discomfort considerably.

People attending a convention really are not aware of the tremendous amount of planning and work that goes into making it function. Your Guild staff started planning this convention and making arrangements for it right after last year's affair. We worked almost continuously right through this year's date to make this meeting as meaningful and pleasant as possible. We coordinated tightly every step of the way with your local host chairman Walt Sierota, who did an outstanding job. We checked and rechecked with institute director Ernie Juhn all along the way. He and his assistant Hilbert Felton, overcame one obstacle after another. It was their persistent determination that made the institute a success.

While your staff worked long, hard hours to meet as many demands as possible, it was really the "volunteers" who deserve the accolades. The amount of time put in by Dr. Al Sanderson and Jim Coleman was unbelievable. They often worked past midnight on into the wee hours of the morning to accomplish their goals.

The national certification program will certainly become one of the Guild's outstanding successful programs largely because of the dedication to this cause.

Everywhere one can see the members' dedication to the aims and principles of the Guild. Recent examples are Merle Mason with his index and nomenclature books, Don Morton with his determination to get the testing program underway, and the members of the board through their sacrifice of valued working time to travel throughout the country constantly upgrading and improving communications with the membership.

Another example is John Block, our official reporter/photographer, who lugged his equipment all around the hotel snapping pictures and taking notes.

The good ladies who relieved our home office staff at the registration area and helped in many other ways were all very much appreciated. The number, of course, goes on and on.

CHARLES HUETHER was so inspired by all of this wonderful work that he went home and wrote the following on the subject.

VOLUNTARILY GIVEN SERVICES

The cost of operating an organization like the Piano Technicians Guild goes far beyond funds collected and spent by the national office. Most of the enduring work of service and teaching is provided on a voluntary basis. The value of the service donated is never calculated. This is an attempt to do so.

We will assume:

(1) The monetary values in this calculation are based only on lost personal working time.

(2) The average volunteer can earn $100 per day in his business.

(3) The average number of working officers in a chapter is three.

(4) Workers at conventions and seminars, etc., devote as many days in preparation as they do in the actual program.

There are nine national officers this year. They devote an average of 45 working days per year to their duties. 9 x 45 = 14,220 man-days.

There are 158 chapters whose three officers devote an average 30 days per year. 158 x 3 x 30 = 14,220 man-days.

There are 100 committeemen who devote the equivalent of one working day to this task. 100 x 1 = 100 man-days.

About 50 volunteer helpers and instructors for the National Convention and Institute who devote, including preparation, 10 days each. 50 x 10 = 500 man-days.

Regional and local seminars, etc., averaging three per region yearly, use about 25 workers each for 5 days. 6 x 3 x 25 x 5 = 2,250.

To Summarize:

National Officers	*400*
Chapter Officers	*14,220*
Committee Workers	*100*
National Convention & Institute	*500*
Regional Programs	*2,250*
TOTAL (man-days of volunteer work)	*17,470*
Multiply by lost earnings	*x100.*
	$1,747,000

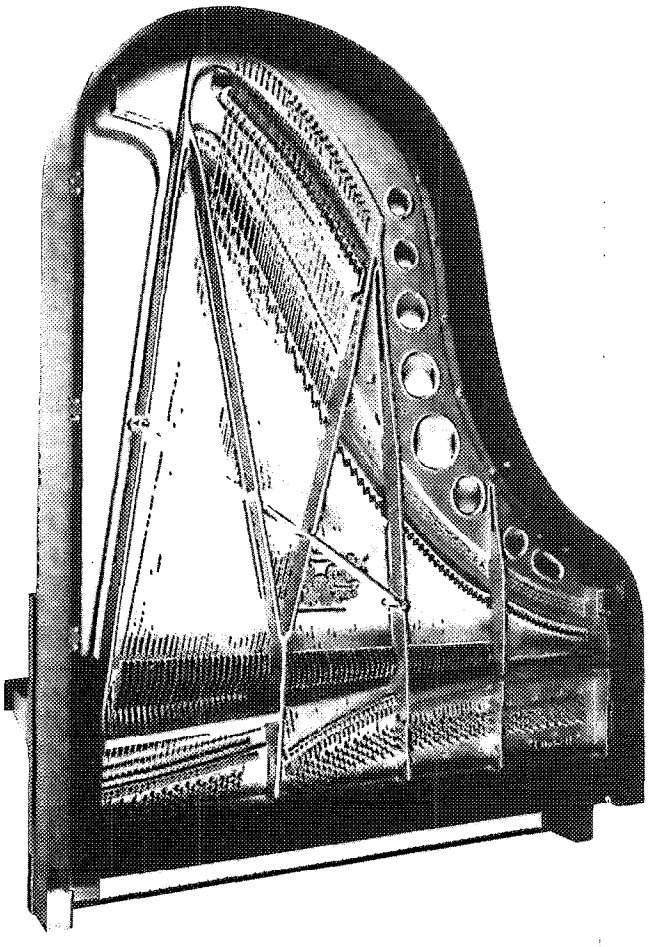
If this work were done by paid employees, the cost could reasonably be tripled, giving a REPLACEMENT VALUE COST of $5,241,000.

As members we share in over $5 million worth of VOLUNTARILY GIVEN SERVICES. Do you only draw from this account? When will you ever make a deposit?

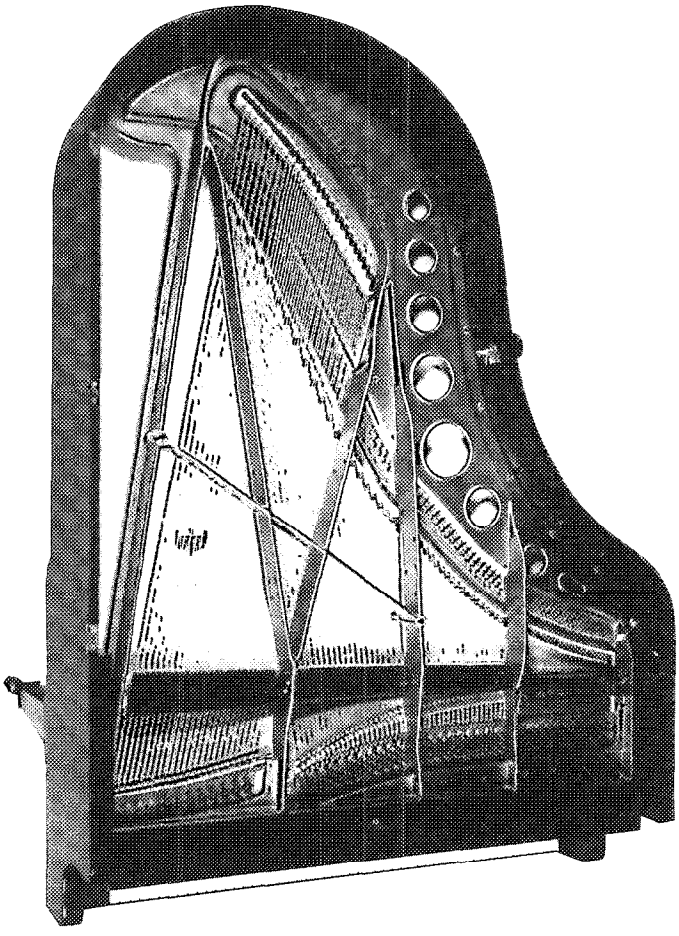
And if anyone ever asks you: "What do you get for your membersip dues?" do not forget to say: "Participation in over $5,000,000.00 worth of invaluable help and instruction and the intangible value of fellowship with the wonderful people who so willingly volunteer!!!"

The Resemblance Is Obvious!

The Kimball 6'7" Grand



The Bösendorfer 6'7" Grand



Look into a Kimball Grand Piano and you'll see a striking resemblance to the world renowned Bösendorfer. That's no accident.

The same touches of greatness previously found only in the Bösendorfer can now be found in the Kimball. Like the same distinctive plate pattern. Or the same gleaming polyester finish, the only finish of its kind on an American made piano. Plus, every Kimball Professional Grand also features the famous European Schwander Action, and a totally new scale design. All the things which make a piano a joy to play, and a joy to work on.

Kimball Grand Pianos. Take a look and you'll see our quality is obvious.

kimball®

A beautiful way to express yourself

Kimball Piano & Organ Co.
1549 Royal Street, Jasper, Indiana 47546
A Division of Kimball International, Inc.

PRESIDENT'S MESSAGE

Bob Russell, President

This message is being written as I fly across our great country heading home from a seminar. The Fresno, California, chapter invited me to give a one-day seminar on various piano subjects.

I must compliment this smaller-sized chapter for taking on the financial, promotional, and logistical responsibility of this venture. I believe their effort paid off with both members and nonmembers alike gaining in technical knowledge and Guild comraderie.

Even though we covered many topics there was one class that really gave me a thrill. The subject was "action regulation" and the ideas presented involved ways to expedite the job, or "how to do it faster and easier." The technicians got "into the class" so much that they weren't just learning another class but they were becoming aware of a philosophy of work and/or repair. As I watched this subtle change in thinking I knew this was the certain quality that makes the conventions, seminars, and technicals of the Piano Technicians Guild so fantastic.

We ALL learn and we ALL share our knowledge with others. The Guild is a proud organization, and justly so! □

Solid

The sound. The construction. The company that builds it.
All solid. That's why there are so many Baldwin Hamilton pianos.

Baldwin®

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

THE TECHNICAL FORUM

Jack Krefting, Technical Editor

WOOD SPECIES

To continue with last issue's discussion of wood structure, this month let's examine some of the species used in pianomaking. It is interesting to know why certain woods are used for certain applications, and to discover the differences among the various species.

Softwoods are known as Gymnosperms, characterized by exposed seeds, usually in the form of cones. The Angiosperms are what we call hardwoods, which have true flowers, broad leaves, and seeds that are encased in fruit. Not all softwoods are soft, and vice versa; in fact, the wood of the longleaf pine or the Douglas fir is considerably harder than that of the "hardwood" that we know as basswood or linden.

Basswood, commonly used for keyboards, may be nearly white in color if cut from the sapwood of the tree, or a creamy brown if cut from the heartwood. It is light in weight, straight-grained and easily cut because of its softness. Although it has a relatively large shrinkage ratio, it is considered very good for piano key material because it is very unlikely to warp in use. It grows in the eastern half of the United States and in Southeastern Canada.

The other common wood used in keyboards is sugar pine, grown principally in northern California and southern Oregon. It has a lower shrinkage ratio than the more traditional basswood while sharing its resistance to warping and ease of cutting and machining. Its heartwood is similar in color to that of basswood but sometimes tinged with red, while the sapwood is a creamy white color.

Maple is one of the most useful woods in our industry because it is hard, stiff, strong and highly resistant to shock. It is grown principally in the middle-Atlantic and Great Lake states, as six distinct species with about 15 subspecies. Only two of them, sugar maple and black maple, are of sufficient strength and hardness to be used in pinblocks or action parts. Maple is also used for grand rims because of its great strength and rigidity.

Since maple is not generally available outside of North America, foreign makers must either import it or use another species. In Europe, beechwood is very hard and dense, more so than American beech, and is used in many applications where we would use maple; in South America, the counterpart of maple is a hardwood called Pau Marfim, grown principally in southern Brazil, Paraguay, and northern Argentina, where it is known as guatambu.

Marfim is actually harder than sugar maple, having a higher specific gravity, although it is considerably less resistant to decay. Its sapwood looks exactly like its heartwood, which is like maple sapwood. Marfim is easily machined and has prodigious strength, although it is not considered as attractive as maple because its grain is almost invisible. It is considered the only suitable pinblock material in Brazil.

We should mention birch here, even though it is not indispensable to the piano industry, if only because it is fast replacing walnut as the principal material for hammer moldings. It is less expensive than walnut, and is more resistant to splitting when stapled. There are six species in this country, mostly in the northeastern and Great Lake states. The yellow birch and the sweet birch are the strongest and most useful in pianomaking. Birch plywood is very strong and stable, suitable for keybeds, grand consoles and vertical bottom boards.

Eastern spruce, grown primarily in the Great Lake states and New England, actually comprises three distinct species; red (*Picea rubens*), black (*Picea mariana*), and white (*Picea glauca*). All three have similar strength and other properties, and in general no distinction is made among them for production purposes.

Sitka spruce is found in abundance in the northwestern part of North America. Because of its high strength-to-weight ratio, it has been the favorite wood for aircraft construction, having been used in Howard Hughes' famous flying boat which was subsequently dubbed the "Spruce Goose," much to his dismay.

Spruce has been the most important wood in the soundboard industry for many reasons, including those given above. More importantly, it seems to have an unequalled capacity for amplification, which has caused some researchers to examine its physi-

FINE TUNER

Conn Strobotuner®
The fastest way to pinpoint pitch.

Nothing will ever take the place of the carefully nurtured skills developed by the piano tuner. But now tuning acoustic or electronic keyboards can be easier and faster with the help of the Conn Strobotuner.

The Conn Strobotuner is the most accurate electronic instrument ever developed for fine tuning musical instruments. It works as a visual aid to assist you in tuning more keyboards in less time. Because now you can see the sound as well as hear it. When you strike a note, the easy-to-read Strobotuner screen shows if the pitch is off, or if it's perfect. And it's accurate within 1/100th of a semitone.

To find out more about this quick precise tuning instrument, see your local music dealer or write to Continental Music, 616 Enterprise Drive, Oakbrook, IL 60521.

CONN | continental music

cal properties more closely. Interestingly enough, microscopic analysis has shown that spruce cells are unique in that they contain tiny diaphragms, surrounded by resonating chambers, as illustrated in **Figure 2**. Precisely what function these tiny resonators actually perform is not known, but it could be speculated that they have something to do with the superiority of spruce for soundboards. Without saying this must be the reason that spruce seems to perform in a superior manner, it must be admitted that a causal relationship could exist.

For those who wish to pursue this, I recommend a study-of-the-wood handbook published by the U.S. Department of Agriculture, an excellent basic reference text and the source of some of the material discussed here.

CHIPPED PLASTIC KEYTOPS

Here is a contribution from a well-known *Journal* contributor:

"Dear Jack,

"In a recent column of *In The Field* I wrote a short description of a key repair I used to bail myself out of an awkward situation with a customer. The repair involved filling in a chip in the overhang of a key covering. Some questions have been raised about it, so I am writing to give it more complete coverage in your column.

"The damage is a common one, a broken corner or a little half-moon chip out of the overhang of a white key. It is very difficult to match one keytop to the rest of the keyboard. Unless the damage involves many keys, replacement of all the tops is too expensive. One solution is to file the keys back so there is no overhang. This is not always desirable, especially if the piano and keyboard is in very good condition and only a few keys are chipped.

"To make the repair, I dissolved some key covering in acetone and then painted it into the damaged area until it filled in the chipped space, much like a dentist filling a tooth. This is best accomplished with several applications, so it is advisable to remove the key to the shop and apply successive filler coats while doing other things in the shop. Each layer must be allowed to dry thoroughly before the next is applied. When the damaged space is built up, it can be smoothed with a file. Polishing with rubbing compound completes the job.

"It does have limitations. The density of the material is different from that of the rest of the keytop. Therefore, the repair is not invisible. It does seem to be quite durable, however, and it does restore the contour of the key and is almost unnoticeable.

"There are a number of different plastics being used to cover keys. Best results are achieved with a filler made of the same plastic. In an emergency, small pieces can be cut from the backs of the keys (the tails that go under the fallboard) and dissolved to make the filler.

"If the front of the key is square and even with its neighbor, the fact that the key has been repaired is not so noticeable. It is the illusion that counts." — **Ben McKlveen**

NOMENCLATURE QUIZ

This month we will test our knowledge of the various string segments, angles and related parts. Pencil in your answers on Figure 1, and check them with the answer column near the end of The Technical Forum in this issue.

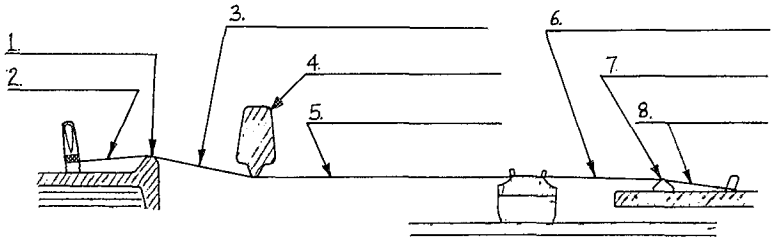


FIGURE #1

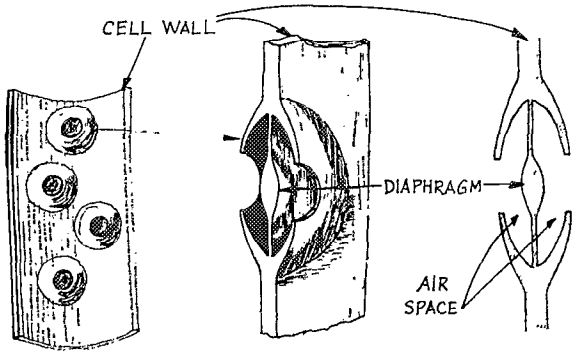
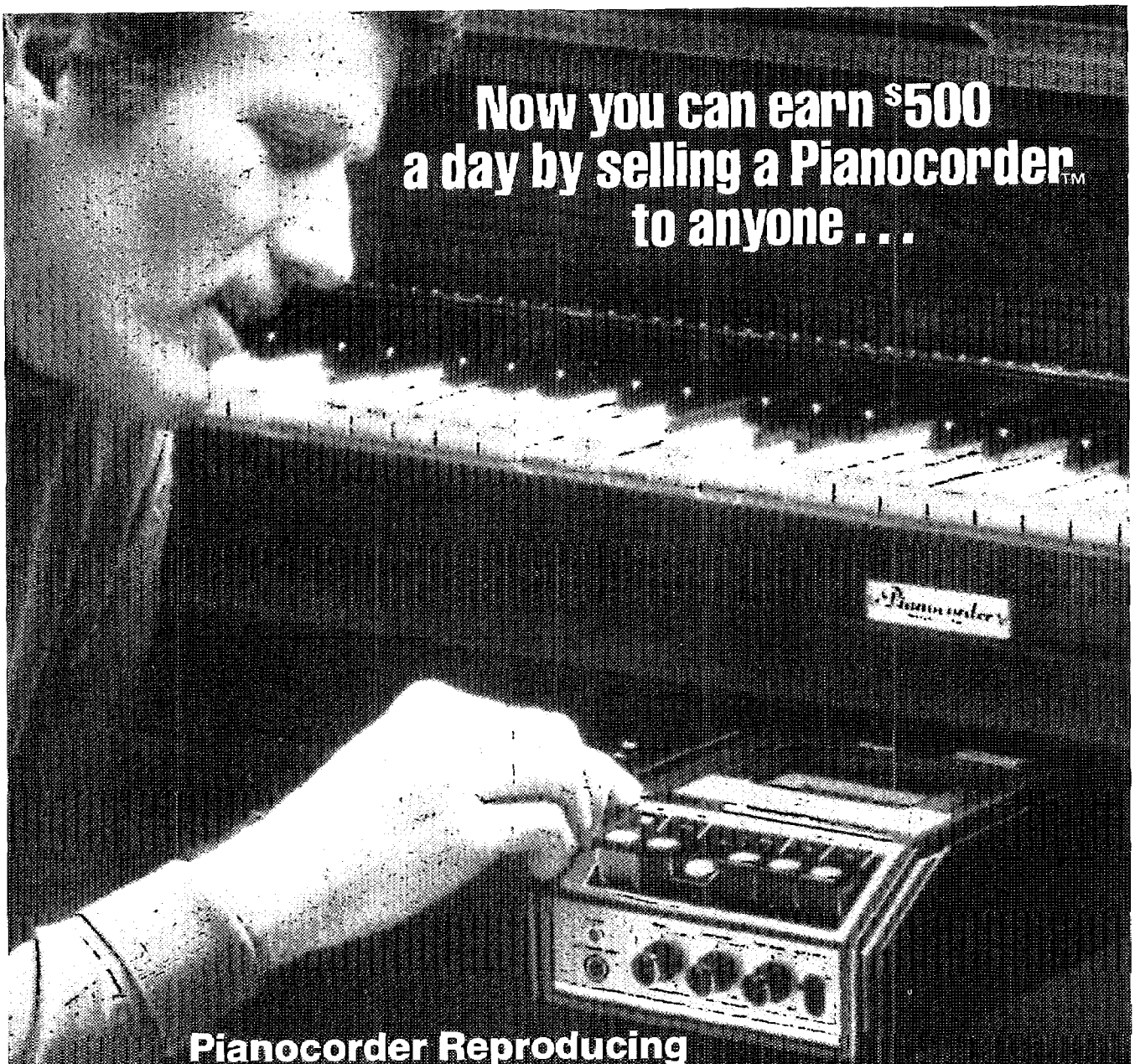


FIGURE #2

RECAPPING BRIDGES

QUESTION: "On an old grand, how do you proceed to recap and renotch the bridge? How do you recognize the need for such work to be done at all? — **Calman Rothstein, Brooklyn, New York**

ANSWER: The most obvious defect which would require the replacement of the cap would be



Now you can earn $500 a day by selling a Pianocorder™ to anyone . . .

Pianocorder Reproducing System is the world's first recording and reproducing piano completely controlled by computer programmed cassette tape.

Take advantage of this revolution in piano merchandising. This sophisticated electronic mechanism actually converts the piano from a limited, part-time instrument into a versatile, full-time home entertainment system everyone will love . . . even those who can't play or don't care to learn!

Imagine a piano that can perform "live" — all by itself — the immortal artistry of the world's greatest pianists as they played it. From classical to popular, ragtime to rock. It's like having the artist perform in your own home.

Wherever there's a piano . . . whenever a piano is sold . . . there's a market for the PIANOCORDER Reproducing System.

At about $500 profit on each unit, shouldn't you write for further information today?

Piano Tools Hale and Supplies

TUNERS SUPPLY COMPANY

Serving the Music Industry Since 1884

EASTERN BRANCH:
64 Wheatland Street, Somerville, MA 02145 (617) 666-4550

WESTERN BRANCH:
190 South Murphy Avenue, Sunnyvale, CA 94086 (408) 736-2355

that the existing cap is split or broken. Hairline cracks or checks may be repaired with epoxy, but a significant split will require replacement of the cap.

Another defect which may necessitate cap replacement is extreme grooving under the strings, caused by well-meaning technicians who pound the strings down on the bridge with more enthusiasm than finesse. If there is still plenty of downbearing, it is, of course, possible to pull all the bridge pins and plane the cap down, after which the cap must be renotched and pinned; but if there isn't, then the technician must make a choice between recapping and lowering the plate.

For this discussion, I will use a bass bridge because it's easier to illustrate and more often defective than a treble bridge. All of the procedures would be the same for either type, with the exception of the notching procedure and the fact that it is much more difficult to remove a treble bridge from a soundboard. **Figure 3** illustrates a straight grand bass bridge which is split along the line of pins. This happens to be a flatsawn bridge and cap, not the best construction to begin with, complicated by the grain running the length of the bridge instead of at an angle. A radial split, possibly encouraged and abetted by excessive sidebearing or dryness, is the not-too-surprising result.

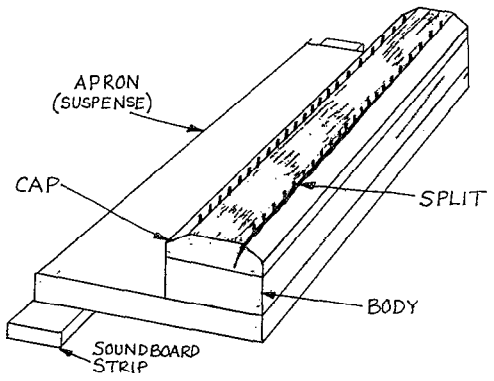


FIGURE #3

Before tearing into the job, it is a good idea to determine just what caused the splitting so this can be avoided when the new cap is installed. Check the grain orientation and the sidebearing, because these are easily corrected with the new cap. Also check downbearing so a decision can be made about the thickness of the new cap. When the measurements and observations have been made, pull all bridge pins so a pattern can be marked out.

There are a number of ways to mark the positions of the bridge pin holes, two of which are shown in **Figure 4**. If the sidebearing happens to be ideal and the split isn't too bad, a strip of Mylar or other material may be used as a pattern. Cut it to precisely the shape of the bridge and tape it into position on the old cap. Mark the holes with an awl or icepick, or rub a pencil over the area to indicate the location of each hole.

Sometimes the split is so bad the holes cannot be distinguished from the sides of the crack, so a pattern would do little good. If that is the case, stretch a thread along the straight line between the agraffe and hitchpin and mark the holes in the pattern at the intersection of the thread and the split. It is also possible to forget about the pattern and simply mark the new cap with the thread after it has been installed.

Remove the old cap (see **Figure 5**) and scrape the old glue off the top of the body of the bridge. This surface must be clean and flat so that a good glue joint may be achieved; but be sure no wood is removed unless a correspondingly thicker cap will be made, otherwise the downbearing will be lightened.

Getting the old cap off isn't always as easy as it sounds. It may be necessary to use heat, steam, acetic acid, pressure or chisels. In the case of a bass bridge it may be simpler to remove the entire bridge assembly from the soundboard, although this can cause some splintering of the board; but the job is easier on the workbench than in the piano, so the disadvantages may balance out either way.

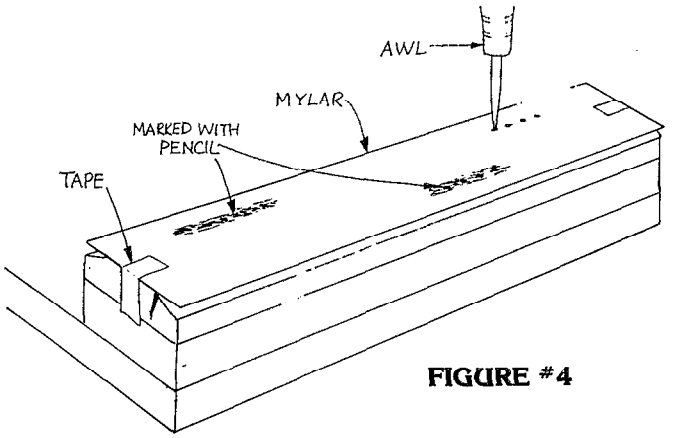


FIGURE #4

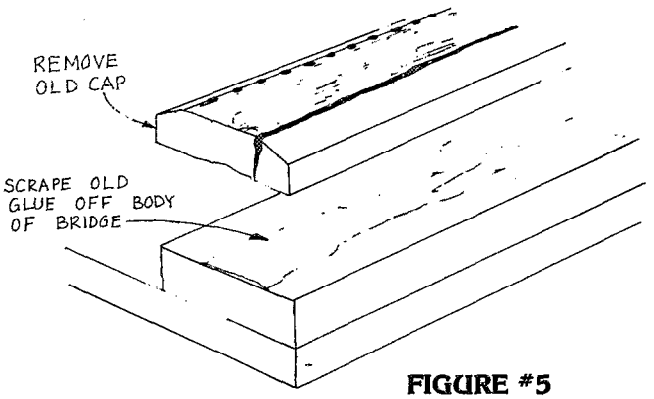


FIGURE #5

When making the replacement cap, select the best piece of hard maple and shape it with the grain running so it will not split. If the grain runs out at about 26° from the length of the bridge (see **Figure 6**) there will be good continuity of grain for sound transmission, yet the line of pins will not follow the grain. A quartersawn cap is more trouble to make and notch than a flatsawn one, but is much better from the standpoint of performance. The hard latewood is positioned to advantage in a quartersawn cap, both for tone and strength.

It's easy to talk about 26° angles with a straight bridge, but what about a curved one? Obviously, if the angle is correct at one point, it cannot be correct as the bridge curves; this is where the rebuilder must compromise, using his best judgment. In the case of a treble bridge, the cap may be in two or more pieces. This is not good from a tonal standpoint, because the glue joint is at least potentially a tone barrier, but because of the other considerations, it may be the lesser of two evils.

The thickness of the new cap must be carefully considered, because the thicker it is the more downbearing will result, and more is not always better. Generally speaking, there should be some downbearing everywhere, but the bass bridge requires the least amount. One way to determine the ideal thickness is to measure the existing bearing before removing strings. If the bearing was about right before teardown, make the new cap exactly the same thickness as the old one.

Plane the sides of the new cap until it is exactly the same as the body of the bridge, and glue it in place without chamfering or notching. Then blacken the top with shoe dye for appearance, and spray clear teflon (never silicone) on top for lubrication. Lampblack or graphite can also be used as a blackening agent, but these substances are messy and relatively difficult to apply.

Now the Mylar is taped to the new cap (see **Figure 7**) and checked for alignment with a stretched thread between agraffe and hitchpin. An automatic centerpunch, spring-loaded at any tension desired, gives optimum control when transferring the pattern marks onto the new cap. An ordinary punch and light hammer may be used, of course, but if the tip tapers quickly out to a diameter larger than that of the bridge pin, a too-heavy blow could be disastrous. The top of the hole would then taper out, just what we want to avoid.

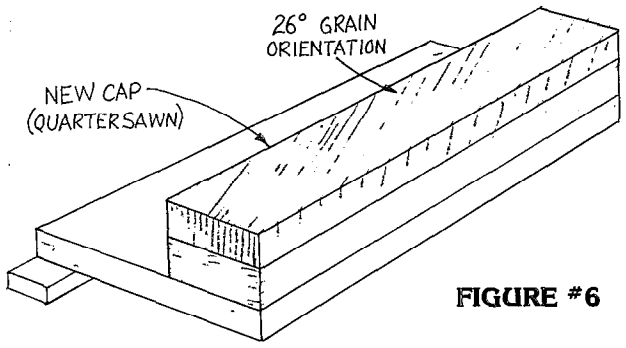


FIGURE #6

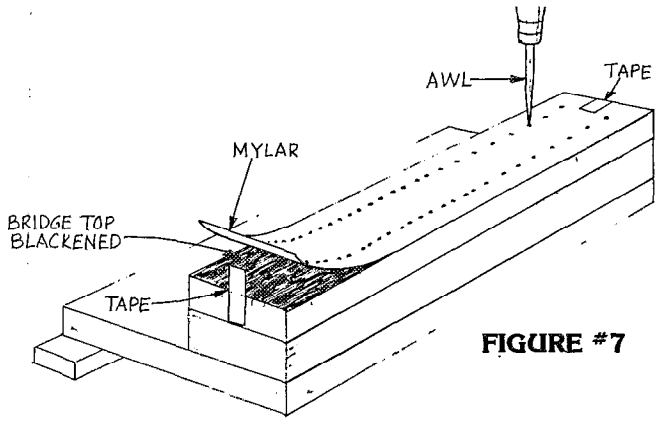


FIGURE #7

When in doubt about the marking, use the thread as described above. Mark both holes dead center on the thread line, because the combined diameter of the pins plus the drilling angle will provide just the right amount of sidebearing. Make sure the marks form an absolutely straight line on a straight bridge and they are perfectly aligned within each unison on a notched bridge. This is vital, because the notch or chamfer must cut the centerline of the holes for good termination.

Drill the holes at 17° perpendicular to the string, and 3° away from the center of the bridge, as shown in **Figure 8**. Stick a piece of masking tape around the drill bit as a depth guide so the holes won't be too deep, as each pin *must* bottom out in its hole. These angles may have to be modified a bit when drilling the middle of a treble bridge, otherwise the holes may intersect, a circumstance which cannot be allowed to happen. As always, the craftsman must use a good eye and judgment to be sure this doesn't happen. Try to maintain the 17° angle on the speaking length side if at all possible, making any needed compromise with the 3° angle or with the duplex side. If the drill bit suddenly goes deeper without the usual resistance, that should ring an alarm bell in your mind — either there is an interior void or you have intersected another hole. Plug the hole in the duplex side and try again, at another angle.

If it is a straight bridge, plane a chamfer as shown in **Figure 9**. If it is notched individually for each unison, hold the chisel vertically and bump it with the hand when the point is precisely along the centerline of each unison of holes, and then notch down and out from that mark. The reason the

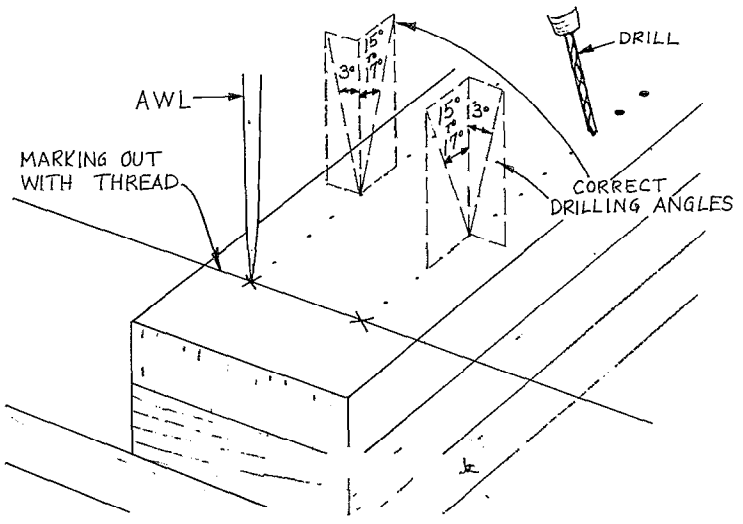


FIGURE #8

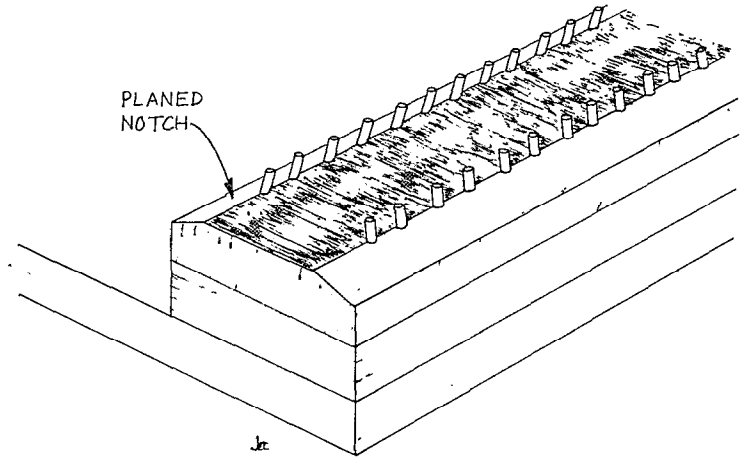


FIGURE #9

notch or chamfer must bisect the hole is that this makes the termination from the wood the same as the termination from the pin, a requirement for buzz-free performance.

The drill size depends on the size of the pin and the density of the wood, so it's best to try some test holes in a scrap sample of the same piece of wood and try a few pins. They must be tight, but not so tight that they will split the cap. Some of the supply house catalogs list drill sizes for particular pin sizes, and these can be used as a point of departure at least.

A nailset works admirably for driving bridge pins, after they have been started with the hammer alone. Bottom each pin in its hole, even if that means some pins protrude higher than others. This unevenness can be taken care of with a file, so long as care is exercised that no bridge pins are loosened as a result of a chattering file.

Capping a treble bridge is somewhat more difficult, partly because it's longer and has more notches, and partly because this work must usually be done in the piano rather than on the bench. The principles are the same, though. Clamping the glue joint between a treble bridge and cap is best done with go-bars from above and wedges supporting the board from underneath. To keep the cap aligned with the bridge during clamping, insert locator pins into predrilled holes in cap and bridge. These pins may be left in place so long as they are positioned not to interfere with the functional parts of the bridge.

Bridge work can get extensive, sometimes requiring the removal of the plate, and the technician should consider any such work in conjunction with the other work needed before making a bid. It makes little sense, for example, to remove the strings and plate to fix the bridge unless a new pinblock will also be installed.

NEWSLETTER TECH REPRINTS

The following article is reprinted from the newsletter of the Western Michigan Chapter. The author is not listed, so we cannot give due credit:

A FOOLPROOF SHARPENING METHOD FOR CHISELS AND PLANE IRONS

Fine sharpening requires appropriate tools for the various stages, none of which are expensive.

1. Carborundum stone: Medium or corase for removing nicks or reestablishing the bevel.
2. Arkansas stone: There are several varieties, the least expensive you can find will suffice. This is a very fine stone to put the beginning of a fine edge on a blade.
3. A hone: For producing a highly polished very keen edge. I use a piece of ordinary cowhide leather about 3" x 8" x ⅛" thick glued to a block of wood the same size. I rub into the leather ordinary red tripoli buffing compound.

The method: I use plenty of water for lubricating the stones. I prefer to hold the chisel or plane iron in one hand stationary and to move the stone back and forth with the other. The angle to maintain is that already established by the bevel. Once all nicks are removed with the carborundum stone, keep working until the edge is fully formed. Check this by looking at the edge straight on in a good light. If there is a flat part remaining it will reflect like a mirror, and you will see it clearly (See **Fig. 10**).

When the edge is fully formed, use the Arkansas stone for a couple of minutes. The bevel will have attained a rough appearance from the carborundum stone; with the Arkansas stone this will become a satin polish. When the satin polish on the bevel is uniform, the Arkansas stone has done its job. The finishing process is to draw the blade resting on the bevel across the leather which has had buffing compound rubbed on it. A couple dozen of these honing strokes will produce a high mirror-like polish similar to the chromium shine on the radiator of your new Rolls Royce. Your blade is now very sharp. Test it by shaving a few hairs from your forearm. Not recommended for facial shaving.

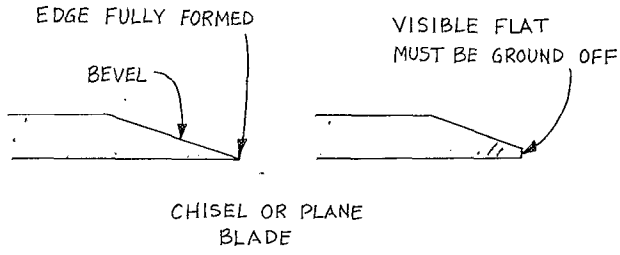


FIGURE #10

TECHNICAL TIPS

Our first tip this month is reprinted from "In Tune," the newsletter of the San Francisco Chapter of the Piano Technicians Guild. It was written by Rhys McKay.

To remove bass bridges with minimal effort and/or damage to the bridge or the apron or soundboard, use the heat gun first to heat evenly along the entire bridge, back and forth, taking care not to scorch the wood.

Then, using a thin, flexible spatula or long knife, work an edge of the blade into the glue joint at one end. Gradually pull the blade through the joint, using a rocking motion with the blade, keeping the plane of the blade parallel to the plane of the joint. The bridge will usually snap off with ease if properly heated.

If it's stubborn, use some acetic acid to help soften the old glue. Of course, check for hidden screws before all this. It's helpful, too, to clamp a C-clamp onto the bridge as a handle with which to pull up on the bridge as the blade is worked through the joint.

Perhaps it's a good idea to have someone else pull on the bridge as you work on the glue joint, at least the first few times you do this job. This method works beautifully on removing bridge caps as well.

Our next tip is reprinted from the Connecticut Chapter's "Keybed". The author is Jim Hess of Pennsylvania.

One often-overlooked aspect of tuning stability is the consideration of tuning pin torque or twist. The force of the tuning hammer turning against the resistance of the tuning pin firmly imbedded in the pinblock causes the pin to twist. By selecting the proper size tuning hammer tip the tuner can move the end of the tip of the tuning hammer against the coil of the string on the tuning pin. This decreases the distance between the tip and the pinblock, thus decreasing the amount the pin can twist. This in turn gives the tuner a closer feel of the tuning pin turning in the pinblock.

A #2 tip is useful for most older uprights and grands. A #3 tip does the job for most newer pianos. Occasionally, I use my #4 tip in pianos that have been restrung with oversize pins.

If in question as to which tip to use, place your tips on the tuning pins of the piano you are about to tune and select the one that is snug on the pin and is just meeting the coil on the pin.

TIP OF THE MONTH

This month's tip was contributed by Ellen Sewell of Cincinnati. It concerns the pinning of abstracts, and its suggestion was prompted by an item in this column a few months ago.

"When pinning an abstract, it can be difficult to line the respective centers up without a certain amount of trial and error. One way to easily accomplish this is to use the smallest available center pin as an alignment guide. When the components are aligned, simply chase the small pin with one of the correct diameter. The large

pin follows the small pin into the center, eliminating any possible misalignment problems."

GADGET OF THE MONTH

At least once in these pages, I have made the comment that piano technicians are some of the most ingenious people I know, and this month's gadget confirms that analysis. Jim Brown, an RTT from Ypsilanti, Michigan, has taken some very ordinary things and put them together to make an extraordinary tool. I will let Jim tell you about it:

"Here is a little gadget I made. From time to time we run across a situation where we could use a little bit of heat. Bending shanks, especially in an upright, can be terribly time-consuming when it's necessary to take out the offending shank. In 10 minutes you can make this handy gadget (see **Figure 11**) that will save you plenty. The materials are: one disposable pocket lighter; one piece of brass tubing 1/16" inside diameter, usually available at any hardware or hobby store; one piece of coat hanger wire; and a roll of duct tape.

Here's how to put it together. First, make an offset bend in the wire. Then, tape the wire to the tube so that the bend occurs just above the top lip of the lighter when the tube is placed over the gas jet. Next, tape the bottom half of the wire securely to the lighter, making sure that the bottom of the tube is snug over the gas jet. Then, depress the gas button and light the end of the tube with a match or other flame source. And then, just adjust the lighter to the length of flame desired.

The advantage is that it is a small unit, with the lighter easily detachable for other uses or in your pocket, and it's cheap to make. The length of tubing is variable and can also be bent for hard-to-reach places.

The one disadvantage I can think of is that you need a separate flame source."

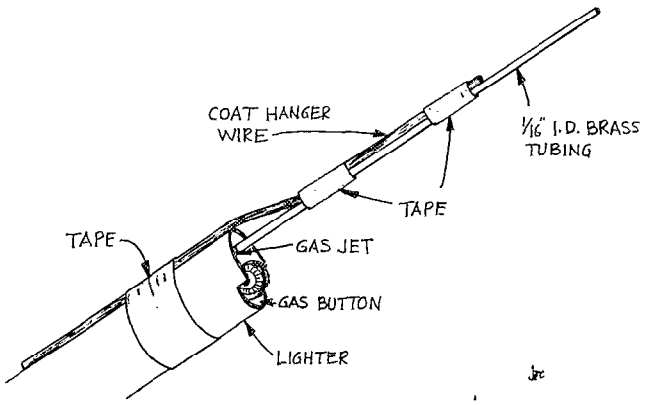


FIGURE #11

ANSWERS TO NOMENCLATURE QUIZ

1. Counterbearing bar
2. Waste end
3. Triplex (or Front Duplex, or Counterbearing Segment)
4. Capo bar
5. Speaking length
6. Duplex segment (aliquot length)
7. String rest
8. Waste end

IN CONCLUSION

I would like to apologize to Raye McCall and Thermoset for publishing the Thermoset address in the June issue. As it turns out, the Thermoset people do not sell in small quantities to technicians, so their products should be ordered from Raye McCall, the exclusive U.S. distributor. Raye's address is: 1078 E. Third, Pomona, CA 91766. □

Fine Tuning

by Willis J. Bradley

I have completed my 55th year of tuning and general piano service and during all of that time it has been my aim to improve the quality of my work in any way possible. I believe most tuners have this same aim.

I have been successful and my work has been acceptable to my customers all along, but I have come to realize during the last five years that there are many things to be learned about fine tuning. And many of them are not taught to the students who study the theory and practice of tuning.

This is not to say the theory of tuning, as taught in the best schools, is faulty. On the contrary, it is a theory which has developed into an exact science.

It has been correctly described as a closed mathematical system which, if followed faithfully, will result in tuning all intervals, correctly tempered, and all octaves tuned as "dead" or perfect octave intervals. But even this result, if it could be achieved, would not necessarily be entirely pleasing to the critical musician.

There are several reasons why this is true and every tuner should know all he can about them, and about how he can best overcome the difficulties they present.

First: — All tuning, except unison tuning, is done indirectly; that is, in tuning any interval, octave included, we are comparing coincident harmonics of the two tones being sounded.

Second: — The harmonics of a piano string, which is under high tension, are not exact multiples, in frequency, of the frequency at which the entire length of the string vibrates.

Third: — To tones which are either very high or very low in frequency, the human ear does not assign pitches which are directly proportional to their frequencies when compared with tones in the middle frequency range. In other words, our sense of pitch is a subjective discernment for each individual, and it may be considerably different from true pitch theoretically determined by the correct frequency for that pitch.

Fourth: — I doubt it's possible to set an absolutely perfect equal temperament, probably because the harmonics on which we depend are not true harmonics of the fundamentals from which they arise. This should not, however, prevent any of us from setting each temperament as perfectly as possible and, on a good piano, it is possible to set a very good temperament indeed.

Fifth: — I also doubt it's possible to tune a perfect octave without resorting to tests other than our evaluation of a "dead" or beatless interval. A number of years ago, a technical editor for *The Piano Trade Magazine* warned all tuners "never trust an octave." My experience has borne out the value of his warning. In fact, I have found that there is a considerable range of frequency over which an octave is acceptable to my ears, but the same octave will often be found to be less than perfect when one of its members is made a part of some other interval which is known to be correctly tuned.

We must recognize that perfection in tuning is not possible, but we should always strive for it. And as nearly perfect an equal temperament as we can set is a *must*, for it determines the harmonic pattern upon which all of the rest of the tuning depends. The quality of the piano is a limiting factor, as is our skill, but in the matter of skill it is our responsibility to do all we can to improve it constantly.

We recognize also that we are dependent upon coincident harmonics for practically every step in tuning. And also, that coincident harmonics may create some of our worst problems when they result in dissonant intervals. Therefore, they become the basis for some of our most useful tests, especially when they are coupled with some knowledge of chord structure. With this background of recognition of the possibilities and the problems we face I would offer these suggestions for achieving what we term "fine tuning."

First: — Become familiar with the piano keyboard so that you may test any combination of tones likely to be used in piano music. Those who play the piano may not know how careful the tuner may have been with his temperament or how much attention he has given to tuning perfect octaves, but they will be quick to notice any interval which is dissonant to the degree that it offends the ear. So, we must know what degree of dissonance is correct in the equally tempered scale, for it is, after all, a compromise whose greatest advantage is that all scales in all keys are equally acceptable, though none may be said to be perfect.

Intervals used in polyphonic music include seconds, major and minor thirds, fourths, fifths, major

and minor sixths, minor sevenths, octaves, ninths, tenths, twelfths, and so on. And most of these intervals, as well as others, have their uses as tests of accurate tuning.

Second: — Do not expect to leave a piano accurately tuned with a once-over tuning if any considerable pitch change is to be made, because the change in down bearing on the bridges during tuning will defeat your best efforts to achieve accuracy.

With a reasonably acceptable scale at the proper pitch, I strip mute the middle and treble sections of the piano. On uprights, above the treble break, the loops in the muting felt must be pushed down behind or preferably below the dampers, but this is not too difficult.

Then I set as perfect a temperament as possible, realizing that not only are fourths and fifths important intervals, but that major and minor thirds and sixths, while more dissonant, must also be acceptable intervals within the temperament octave. Also that fourths, fifths, thirds and sixths, both major and minor, have their proper beat rates and that these rates increase in frequency as we ascend the scale. This is true, of course, throughout the entire piano scale. The progression of beat rates and its evenness is one of our best tests of the equal temperament we try to achieve.

Third: — When I am satisfied with my temperament, and sometimes I must be satisfied with a compromise on spinets and small grands, I proceed with the bass tuning. My reason for doing this is, that having tuned the bass, I will have available for tests of treble tuning the intervals of major and minor thirds, fourths, fifths, sixths, tenths, twelfths, double and triple octaves. I can demonstrate the advantages of these tests more quickly than I can describe them.

For the bass tuning I have found this method fast and effective. And rarely do I have to make a correction after having applied the tests I use for each tone as I tune it. For instance, after having tuned E32 to E44 as an octave, I use the minor third E32-G35 and the major sixth G35-E44 as the test of a perfect octave. If the best rates of these intervals are identical, the octave is perfect.

Usually, I test the tone being tuned with its third, fourth and fifth above and sometimes with the sixth. In small pianos, E32 may be a wound string and these tests will indicate whether a slight compromise of the octave is needed to make the other intervals more acceptable and the progression of beat rates more even as the tuning descends the scale.

These tests are useful and conclusive enough until the tone F21 is tuned and by that time thirds, fourths and fifths have beat rates that are very slow and hard to judge accurately.

Another test is now available and it is helpful through the range of the next octave and sometimes lower. After tuning F21 to F33 I use the interval F21-Eb43 (an octave plus a minor seventh) and observe its beat rate. It will be rather rapid and should be the same as that of the major third C#41-F45. If these beat rates are identical, the double octave F21-F45 should be perfect. This test is much more conclusive than testing the octave F21-F33, if only because the more rapid beat rates are easier to compare.

In the extremely low bass double octaves, triple octaves and a comparison of beat rates for descending tenths and octave tenths may be used. Of course, thirds, fourths and fifths may be used as tests of bass tuning whenever their beat rates are fast enough to be judged and compared. In short, any test which confirms that a tone is tuned to its proper position within the entire scale pattern is useful.

Fourth: — In treble tuning, the first string to be tuned is F#46. After tuning it to F#34, I test the fifth F#46-B39. If the fifth beats too fast I know the F#46 is too low or much too high, which is unlikely, since the octave is at least nearly perfect. Re-tuning the upper F# I test it with D30 (a tenth) and compare this beat rate with that of D30-F#34 (a major third). These beat rates should be identical and I should have a perfect double octave with F#22. Fourths and fifths down from F#46 should test out right, also. This series of tests (fifths, tenths and thirds) is very effective and, when confirmed by perfect double octaves, may be depended upon to a point well above the treble break. From about C64 it is sometimes helpful to add triple octave tests. If a double octave seems perfect and the triple octave is beatless but gives the sensation that the highest tone just tuned is flat, it is likely the range at which the ear is not a reliable pitch indicator has been reached.

On very fine pianos, octave stretching is sometimes not necessary at all, but on those pianos where it seems necessary in order to satisfy the ear, it is best to tune the octave beatless and then to raise the upper tone just enough to satisfy the sense of pitch, but not to leave an octave that beats enough to be dissonant.

The purpose of the tests which I have described is to "box in" each tone, as it is tuned, among as many reference points as possible, once each reference point has been established as correct. In this way perfect unisons and octaves, correctly tempered fourths and fifths, thirds and sixths, each with its proper degree of dissonance, will fit into the best harmonic pattern for the particular piano being used.

The final step, the unison tuning of the muted sections, must be as exact as possible and here we have no tests such as intervals provide, so we must rely on concentration and the finest hammer handling technique we can develop. I have found that I can get a better unison by tuning each outside string to the middle string with the other string muted, except that when false strings are encountered it is sometimes possible to partly counteract the false beats of the faulty string by slight de-tuning of the other strings of the unison.

We may say that "fine tuning" is the closest adherence to theoretically perfect intervals and unisons which may be achieved without leaving dissonances or sensations of improper pitch which the ear will not accept. □

Pre-Voicing

by Joe Saah

(Editor's Note: Reprinted from "In Tune," the newsletter of the Piano Technicians Guild's San Francisco Chapter.)

When confronted by tone problems, many piano technicians seem overly anxious to find a quick remedy by using voicing needles or lacquer. Both needling and lacquering are important elements in the over-all voicing picture; a skilled technician must know when and how to use voicing needles, as well as how to prepare and use lacquer solutions for hammer hardening. The point is this: both these methods are ultimately destructive to hammer felt, and shouldn't be used until all other possible solutions have been explored. What are some of the things to check before we begin to needle or lacquer?

A. Before thinking about voicing we must make sure the piano is well tuned. We all have had clients comment upon the remarkable change in tone or volume after a good, solid tuning. A major pitch change will most assuredly change a piano's voice, so tune it first. As part of our preliminary tuning procedure we must consider several areas which can affect tone:

1) Tighten all plate screws.

2) Seat strings properly, using a wooden or brass tool to tap them down on bridges, aliquots, duplex bars, and counter-bearing bars. This can clear up false beats, and clean up a muddy sounding tone.

3) At this time, check and, if necessary, correct the tuning of the duplex scale — if the instrument has one. You may notice a brighter, louder tone when the duplex strings properly reinforce the harmonic structure of a given note.

4) We also double check the location and tension of stringing braid. A minor point, but one which can either add or eliminate high partials without using needles.

B. Next, we consider the role of proper action regulation in piano tone-building. Perhaps this is an obvious point, but sometimes we overlook regulation problems and are quick to blame hard or soft hammers, old strings, etc., for tonal problems. Some areas of regulation seem to have a greater effect on the tone we hear:

1) Of primary importance in this

area is the bedding of the keyframe. This foundation for all our regulation has a very direct influence on what the artist hears, both physically and psychologically. Generally, an improperly bedded keyframe will cause loss of power and consequent loss of tone.

2) Another major item to check here is the proper hammer striking point, especially in the high treble. Many a hammer has been unnecessarily hardened, when the problem was really an incorrect strike point. Check by experimenting — results here are immediately obvious.

3) Travelling of hammers and shanks can affect tone, so do this work carefully.

4) Of utmost importance is the actual hammer-string contact point: each hammer must hit its strings squarely and simultaneously. Space the hammers to the strings. File the hammers if necessary to remove dead felt, and to provide a perfectly level surface at the strike point. Later, we will discuss filing to bring up volume and brilliance.

After checking that the hammers are level, we check for level strings. String levelling is much over-looked, both by manufacturers and technicians. Here is an area that can dramatically improve tone. The symptom of an unlevel unison is an unclean, almost buzzing sound. It can also seem like a false beat, and can make tuning difficult.

Check all unisons by pulling the hammer up to the strings and blocking it there. Use either a hook to support the shank from the bottom, or use the method of pushing up on the bottom of the jack and not allowing let-off to occur.

When the hammer is blocked in such a fashion, the strings are individually plucked. It is immediately apparent if one or more strings is not level. The high strings will sound, while low strings will be deadened by the hammer. Carefully lift all low strings to the level of the high strings. Use a tool available from supply houses (string lifter) or make yourself a stringing hook using heavy gauge music wire epoxied into a handle of some sort.

In string levelling we are actually pulling up and slightly bending the wire near the agraffe or capo bar. This technique is easily learned and is an important part of pre-voicing. (An added bonus of level strings comes when we regulate dampers — especially in fine adjustment of the tri-chord wedges.)

C. The piano can be well tuned and properly regulated, but still lack volume or brilliance. Don't lacquer yet. If there is plenty of felt on the hammers, another filing can increase tone quickly. Getting down closer to the hammer molding, the layers of felt are harder and can create a more brilliant tone. This is especially useful to bring up sound in the high treble.

Some manufacturers count on the technician to remove layers of felt as the first important step in tone regulation. This is in addition to the removal of the outside layer of "dead," slightly cupped felt found on all new hammers.

Finish your hammer filing with a fine garnet paper (220 or finer). This final filing is done in only one direction, and is commonly referred to as "polishing" the felt. Again, we can effect a major change in brightness by this last touch.

Now, if we still can't get enough high-quality sound, we can lacquer to harden hammers. Lacquering is a major subject in itself, and won't be discussed here. Now also, if we have uneven tone, we can get out our voicing needles. Again, this is a big subject and can't be considered in this space.

A final bit of pre-voicing, obvious but often overlooked: room acoustics. A move of a few feet can alter a piano's tone in many different ways. Placement of rugs, pillows, curtains, etc., also have a great influence on volume, sustaining power and quality of sound. If these acoustic variables can be altered, do this first — hammer voicing must always be the last step, after everything else has been adjusted for ultimate piano tone.

So, next time you are anxious to get out the "juice" bottle, or to perform "acupuncture" on someone's piano hammers, stop for a moment and consider all other possibilities first. Only then should you proceed to use your other voicing skills in a judicious and craftsmanlike manner. □

VON DER WERKSTATT

Priscilla and Joel Rappaport

A DIFFERENT CONVENTION REPORT STEINWAY'S HAMBURG FACTORY IS 100 YEARS OLD

Most of us are still feeling the excitement of this year's convention in Philadelphia. It's difficult to come down to earth after such a rich and varied experience. But picture this:

It is the opening assembly and the speaker has made a few introductory remarks. He pauses and, at a table at the side of the room, a man stands and repeats what the speaker has just said. This happens again at another table in the back of the room.

What is going on? Could it be the speaker is from New England and the first table had to have his remarks translated because they are from the South and don't speak the same language? Seated around the table at the back, the people could be from California and don't speak either of the other languages and so need their own translation.

Wouldn't that make an interesting convention?

That's exactly the situation we observed last May when we attended the Europiano Kongress held near Hamburg, Germany. The host organization, Bund Deutsche Klavierbauer (BDK - German Piano Makers Guild) greeted over 200 participants from 11 countries for a six-day marathon of technical classes and visits to nearby factories (**Pictures 1-3**).

There were six groups that attended five four-hour classes and two two-hour classes on a rotating schedule.

The convention coincided with the 100th anniversary of Steinway & Sons' Hamburg factory. Because of this, Steinway & Sons played a prominent part in the convention. There was a visit to the Hamburg factory for the 208 participants, a luncheon, a city tour of Hamburg, and an afternoon piano concert, all hosted by Steinway. The tour of the factory was very technical in nature, with Steinway representatives always on hand to answer every question. We will report on this day in more detail later.

The company provided several grand and upright pianos right out of the production line, as well as two people out of the regulation department and one of their top voicers to give classes during the rest of the week.

The BDK is organized similarly to the Piano Technicians Guild. Its members range from apprentice to master-piano builder. There are groups such as the technical-tool committee which pursue tool use and design and work with the supply houses to make new and improved designs available to technicians.

The BDK with its sister organizations in Italy, Switzerland, France, Sweden, Denmark, and Norway, form the European Union of Piano Makers' Organizations or Europiano. A technical magazine of the same name is published quarterly. Once a year, the BDK has a convention so that piano builders from all over Germany can get together, socialize and exchange information.

This year, perhaps because of the importance of the Steinway celebration, the whole Europiano took part. There were 208 participants from Germany, France, Switzerland, Italy, Sweden, Denmark, Norway, Belgium, Luxembourg, Holland and the U.S.A.

Fred and Dorothea Odenheimer were there, Fred in his capacity as International Relations Chairman. And of course we just could not miss this opportunity to see many friends again. The group included many young people who are apprenticing in shops and factories, independent technicians, owners of stores where sales and service are offered, production heads of piano factories, and teachers in the technical schools.

A fee of about $350 covered the registration to the convention, six nights in the first-class Intemar Hotel in Bad Bramstedt, 40 km north of Hamburg, and all meals. The official language was German, but for the numerous people from France and Italy, translations were necessary. As the classes progressed, however, the running commentary we could not understand proved to be not so distracting after all.

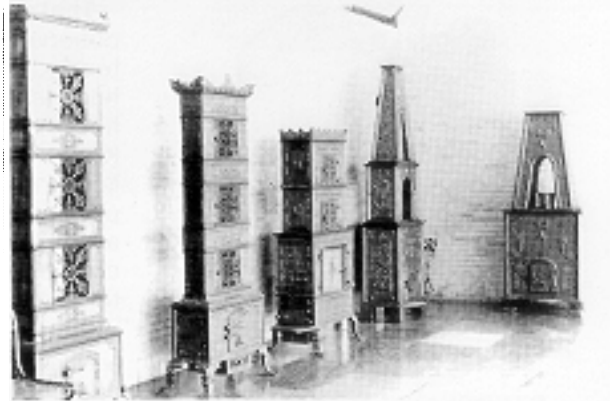
The first day's activities started with a visit to the Ahlmann foundry, where some but not all of the Hamburg Steinway plates are cast. Ahlmann has been in business for some 135 years and is well known for casting heavily ornamental stoves and delicate commemorative plates (**Pictures 4 & 5**).

The mold for a piano plate casting is prepared by pressing a special sand mixture around an

Picture #1 A typical class had about 30 participants and lasted four hours. Everyone had a chance to try new things on actual pianos. Here, Master Piano Builder Lothar Thomma explains some little-known repairs that can be done on a Steinway action.

Picture #2 The class watches as Master Piano Builder Klaus Fenner readies a core wire to be spun with copper in the Bass String Spinning Class.

Picture #3 Several smaller groups were formed out of the 208 participants so that operations at the Ahlmann Foundry could be observed closely.

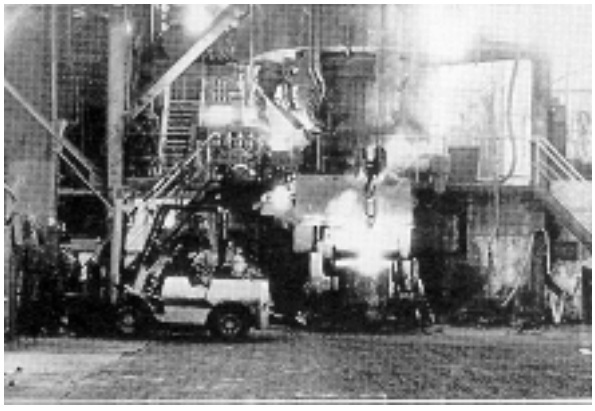


Picture #4 Some of Ahlmann's artistic work on ovens, many custom made for famous people in history.

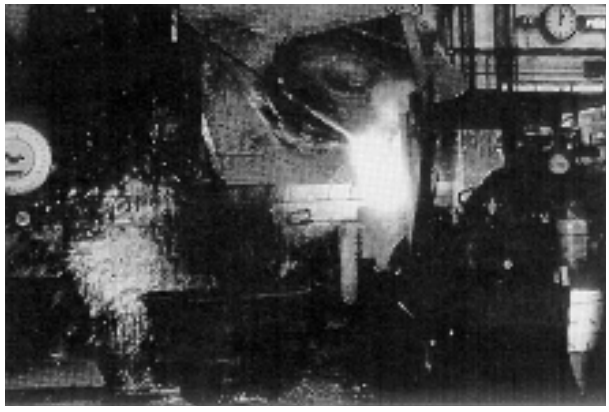
Picture #5 Ornamental castings with detail we usually don't think of when considering cast iron.

Picture #6 Sand and hardener are mixed in a bin overhead and quickly fed into the molds. A control panel on the chute regulates the flow of sand.

Picture #7 The sand is packed down by foot.

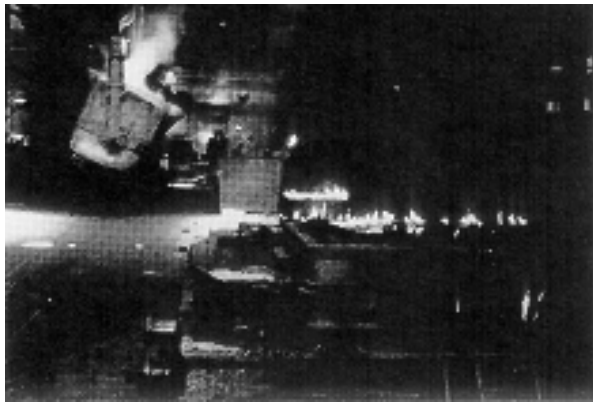


Picture #8 An enormous oven cooks the iron and it is poured into a pot which is to be transported by the lift truck, left. There is no need for central heating in this room!



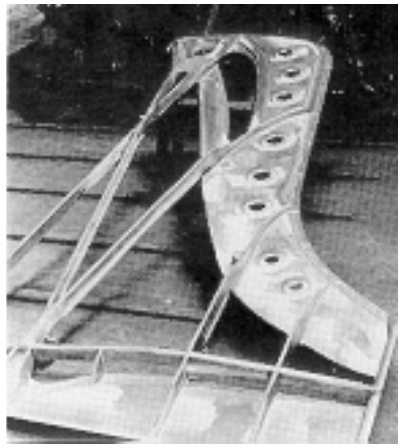
Picture #9 Smaller batches of molten iron are mixed in this smaller oven. Just before this picture was taken, the lid was opened by remote control and three handfuls of some metal was thrown in to complete the recipe. The lid was closed, the mixture cooked another minute, then the whole oven was tilted as we see here, to fill the pot held by the lift truck.

Picture #10 Sparks fly as the molten iron is poured into the mold.



Picture #11 Residual flames testify to the enormous heat present.

Picture #12 Our group inspects the model for a Steinway concert grand, the sand mold and, in the background, actual plates in various degrees of completion.



Picture #13 Notice, in the back, the rough casting right out of the mold. The rough edges are ground off and surfaces are cleaned to produce the plate in front which is ready for shipment to the Steinway factory in Hamburg.

aluminum model of the plate. This model is about one per cent larger than the finished casting to allow for shrinkage of the cast iron from the molten state to the cooled solid. However, as the factory manager explained to us, it depends on the shape of the cross-section how the cast iron shrinks: a long, thin plate brace will not cool and shrink the same as the tuning pin field. The holes in a grand plate in back of the hitch pins are to compensate for the slow cooling that would occur if this extensive field were to be left solid.

The mold is made in upper and lower parts. Down a chute comes the special mixture of sand and hardener (**Picture 6**). It is packed around the model by the worker who stomps on the sand with his boots (**Picture 7**). Within five minutes, the sand hardens enough so that the mold is ready. Both parts are put together and a funnel is attached to the mold.

Meanwhile, a specific mixture of molten cast iron has been brewing for piano plates (**Picture 8**). Lift trucks scurry around carrying giant pots to the ovens to fill up with molten iron (**Picture 9**), then out to the molds to discharge the molten metal (**Picture 10**). As the casting cools, the mold appears to be on fire (**Picture 11**) as gasses probably escape from the mold and are ignited by the heat of the molten metal.

Picture 12 shows an opened mold (bottom) after the model (in the middle) has been pressed. At the upper left are a raw Steinway D plate and a raw upright plate as they have come out of their molds. Cleaned-up plates rest to the right (Close up: **Picture 13**).

For decades, piano plates have been manufactured in this manner. Other firms have added automated assembly lines where one mold after the other is filled in rapid sequence, but essentially, plates have been cast exactly like this. Recently, a new procedure, called the V (for vacuum)-process has been used in England and Japan and allows a faster and much cleaner casting. We departed the Ahlmann factory fascinated by the transformation of a hot, molten mixture into the piano plate that we know so well. We also departed covered with black soot which permeated the entire work area.

In the evenings, dinner was served both sit-down style and buffet style. The food at the hotel was exquisite, and there was always an abundance of it. Curiously, although meals were included in the hotel plan, beverages were not. Small bottles of colas, beer, and mineral water were set on each table and were for sale. A tiny bottle of soda cost 85¢; one was never enough, so drinks got expensive. But everything else was good, it was worth it. The hotel's pool and sauna were available to us and provided a refreshing experience after a hard day in the classroom or on the road.

As usual at conventions, there was a tremendous exchange of information after the organized classes. For the first time in years, we saw colleagues with whom we had worked or gone to school. There were international exchanges about the kinds of pianos being sold and their relative merits. In Germany, the mark is apparently so strong that imports can now be offered at very reasonable prices. There is a strong influx of pianos from Korea, Japan, the East Block countries, and even the U.S.A.

The opportunity was there for finding out what kinds of machines are being used in piano manufacture, where the best tools are available, and the best methods of repair and service — just like at a PTG convention. Apprentices had the chance to make the acquaintance of other factory people and shop owners. There were shops looking for workers and people looking for open positions.

Highlighting two evenings were the screenings ot technical films produced by Master Piano Builder Heiner Sanwalt. After a warm-up film — Tom and Jerry going through their antics at a piano concerto concert, for instance — serious and thorough presentations were made on the manufacture of wool and buckskin as prepared for the piano industry and the multitude of operations and quality control needed to produce small hardwood action parts. In all, it was a personally and technically rewarding week for everyone. □

Shop Dimensions

By Gerald F. Foye

Shop work generally requires the use of dimensions to produce neat and accurate results. Some measurements can be adequately obtained using a tape measure or a yardstick while others demand a more accurate method of measuring. On this basis, a good piano technician requires a variety of measuring devices and the knowledge to use them.

A few examples of things a technician would measure are strings, tuning pins, center pins, punchings, drills, and key heights. In rebuilding, the list becomes more involved with pinblocks, bridges, shims and endless requirements. The more we involve ourselves with measurements, the more uses we find for our measuring devices.

You might ask why we would want to measure center pins, for example, when the size is already marked on the package. Although not common, such items as center pins, tuning pins and music wire can arrive mismarked. We also put things away hastily, or have accidents requiring sorting out.

As is true of most jobs, there are different ways of doing things which means our individual methods of measuring and the type of equipment used for the purpose will vary. Some technicians may prefer to measure wire, center pins or tuning pins with gauges while others would prefer micrometers. Some may prefer the U.S. Standard system of measurements while others prefer the metric system. It's all a matter of what we are used to and what works best for us individually.

My preference is the U.S. Standard system in conjunction with the micrometer and a six-inch and eighteen-inch flex scale with aircraft scaling. The air-craft scale is easier to work with and with extended use and good vision, a few thousandths of an inch can be estimated quite accurately.

For tool selection, there is no substitute for quality. And, as we know, quality means costly. But, for those on a tight budget there are reasonably good micrometers available in hardware stores, hobby shops and some mail order houses. Or, with a bit of patience and shopping, classified ads or swap meets might produce the right equipment at the right price. For those who can afford top quality tools, a tool supply store for machine shops is the best bet.

When checking used micrometers, rotate the thimble to determine if the movement is free without binding or jerking motion. At the same time, it should not be loose. The anvils (tips) should be flat and parallel (square) with one another. Don't accept micrometers if the frame has been sprung. Good quality micrometers are generally good for a life time with proper care. They can be cleaned and adjusted (calibrated).

Decimal charts are an excellent reference for equivalent sizes and expand our measuring capabilities. Charts vary in size from pocket to large wall charts. Such charts generally include: decimal equivalents, drill and tap sizes. Charts are available in tool supply stores, hardware stores. Many technical books have excellent charts in the backs.

DECIMAL CHARTS

Understanding decimal charts is a simple matter of reading fractions in thousandths of an inch. If the bottom (large) number of a fraction is divided into the upper (smaller) number, a decimal equivalent is produced. Using the fraction of ¼ as an example, divide 4 into 1 and the result is .250.

In addition to fractions, there are gauge sizes such as letter sizes, A (.234) through Z (.413), and wire (number) sizes, 1 (.228) through 97 (.0059). These wire sizes are not to be confused with music wire gauge. The above, combined with millimeter sizes, offer a wide range to work with.

One important use for the decimal equivalent chart is the selection of drill sizes. For example: suppose we go to the local hardware store to purchase a ¼ inch drill bit. We are advised they just sold the last one. A look at the decimal chart offers other possibilities. A letter E bit also happens to be .250 (two hundred and fifty thousandths of an inch), which is exactly the same as the ¼ we wanted. Another substitution would be a 6.350 millimeter size. In other situations, an examination of the decimal chart might offer a size within just a few thousandths that would be acceptable for the application.

As stated previously, many such charts also give the correct drill size for specific tap sizes.

READING DECIMALS

Applying the decimal system to a measuring scale using the aircraft scale is a matter of taking an inch and dividing and subdividing into 10 portions. In other words, an inch divided 10 times makes 10 equal portions, one of which is referred to as a tenth. A tenth can be divided 10 times into hundredths. Hundreds can be divided 10 times into thousandths, and thousandths are divided 10 times into equal portions, one of which is: one ten-thousandths of an inch. The latter is represesented by four decimal places and is used only in very close tolerance machine shop work.

Examples taken from a decimal chart would read as follows:

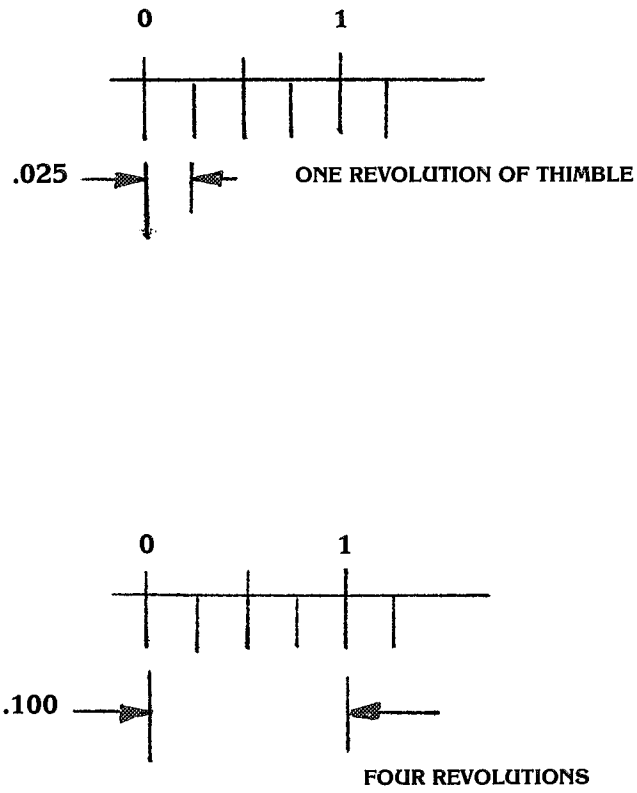
.007 (seven thousandths.)
.032 (thirty-two thousandths.)
.125 (one hundred and twenty-five thousandths.)
.500 (five-hundred thousandths.)

MICROMETERS

The micrometer has a thimble that can be rotated. Beginning with zero and rotating the thimble one division at a time will show a total of twenty-five divisions. Each division represents one thousandths of an inch. On the frame are 10 large divisions beginning with zero and ending on zero, the latter zero being the tenth division. Each of these segments is divided into four equal parts.

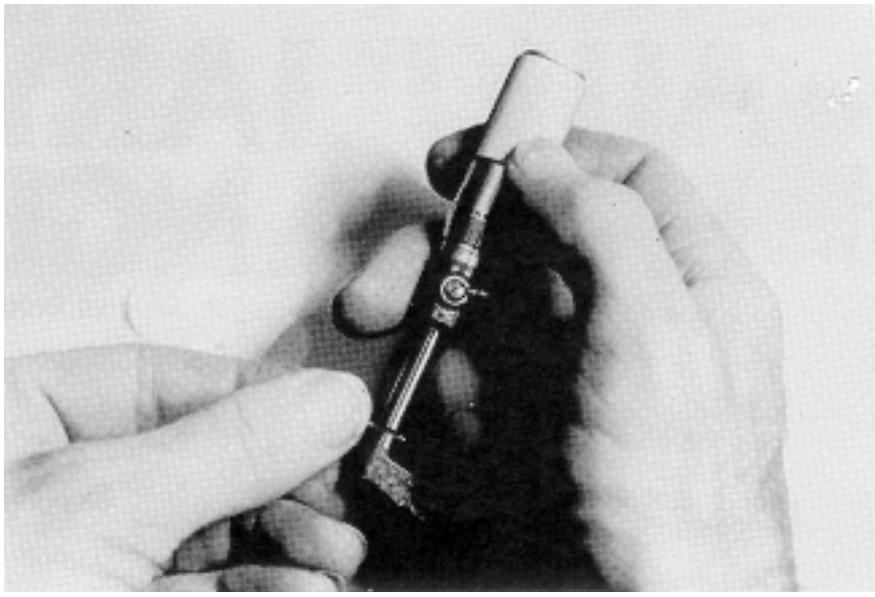
For practice, rotate the thimble clockwise until the anvils are closed (gently), and the zero on the thimble is aligned with the zero on the frame. The long, solid line on the frame is the reference or alignment mark. From this setting rotate the thimble outward one full revolution until the first, small division is exposed on the frame. We have now discovered that since one complete revolution of the thimble represents (.025) twenty-five thousandths of an inch, one small division of the frame also represents the same amount. Therefore, each four revolutions of the thimble equals (.100) one-hundred thousandths of an inch. (See **Figure #1**). Forty full revolutions represent one

FIGURE 1



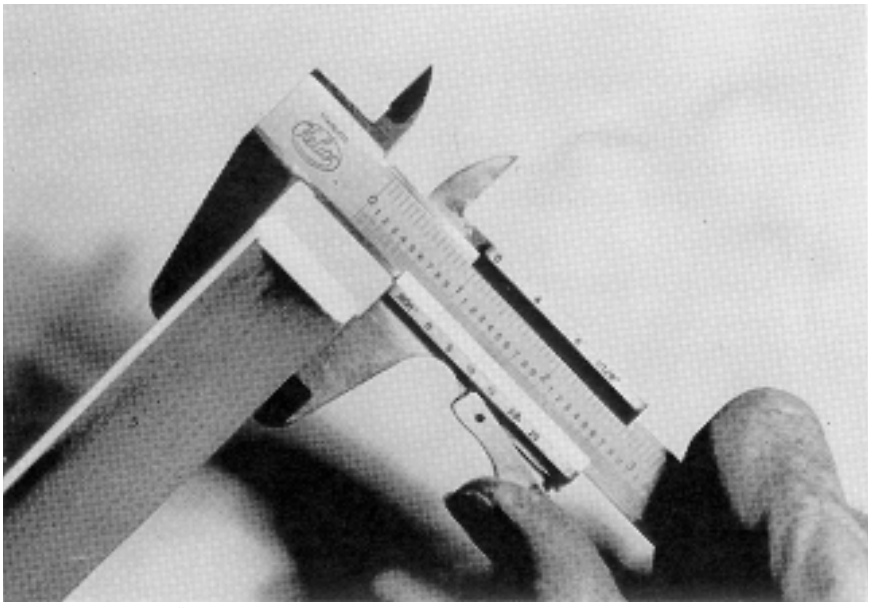
SAMPLE MICROMETER READING: .137

FIGURE 2



Method of holding and manipulating micrometers. Object being measured is a center pin.

FIGURE 3



Vernier caliper being used to measure replacement key tops in order to determine how much material must be removed before gluing.

inch. With practice, a portion of the division on the thimble can be estimated by visualizing that division as being divided 10 times.

As a demonstration of this technique, take reading of a white page of this *Journal*. Hold the micrometer as shown in **Figure #2**. Apply a very subtle pressure, then slide the micrometer on the paper. A barely detectable resistance or drag should be felt. Too much pressure will spring the mics, too little will give a false reading. The thimble should be barely open and the alignment mark on the frame should be about half way between four and five on the thimble. By estimating, the reading is about: (.0045); or, four and one-half thousandths of an inch.

With the right measuring tools and the knowledge to use them, a piano technician can work with greater accuracy, become more expedient and display greater confidence. □

Reader Feedback

To the editor:

I have enjoyed the full-page photos of unusual instruments on the front covers of recent *Piano Technicians Journals*. They are a fine improvement over the old covers. I would like to bring up one small point, however.

On the cover of the May 1980 *Journal* is a picture of a Coinola Co. orchestrion, an instrument containing piano, mandolin attachment, a rank of flute pipes and xylophone as the solo instruments, and drums and traps. In the table of contents, this instrument is described as an "orchestration," and the extra instruments are listed incorrectly.

An "orchestration" is an arrangement of musical parts for an orchestra. An automatic piano or organ with several extra instruments is an "orchestrion."

While it's understandable that the general public, or even an occasional "pie-anno tooner" who hasn't talked to anyone since 1948, might confuse these two terms, it's a sad state of affairs when the official voice of the professional piano technician makes this error. This is similar to calling bellows "bellusses," or calling piano hammers "them little pads that hits the wires in there."

Incidentally, the term "orchestrion" has been in use as a name for mechanical musical instruments at least since 1789 according to "The Story of the Organ" by C. F. Abdy Williams, as quoted in Dave Bowers' "Encyclopedia of Automatic Musical Instruments."

Art Reblitz
Colorado Springs, Colorado

THE AUXILIARY EXCHANGE

Luellyn Preuitt

GREETINGS FROM PRESIDENT JEWELL — The 23rd annual convention of the Piano Technicians Guild is now history. It was wonderful. For those of you who missed it, we are sorry you were unable to attend. To those of you who attended, didn't we have a grand time? A complete report of our activities will be found in the September **Journal**. Look for it!

It has been a pleasure to serve you as captain of your ship 'Welcome!' this past year. It is an honor to serve you again for another year. We retired two very faithful and excellent helpmates this year. Dessie and Kathryn excelled in their service to the Auxiliary, and we wish continuous health to each and many, many thanks for services rendered above and beyond the call of duty. We have two very good replacements whom you will be hearing more about later. We welcome them.

Our good ship 'Welcome!' served us very well on the trip to Philadelphia. She was a little small and crowded, but we made it. She has been in drydock now for some years and has had a thorough overhauling and rebuilding job. She has been re-designed into a clipper ship and renamed "Eliza." We will be sailing her around the "Horn," recreating her first voyage to the Golden State where we will drop anchor at the beautiful port city of San Francisco in July 1981.

The crew and I welcome all of you aboard. Sailing date is September 1, 1980. — **Jewell**

WELCOME NEW MEMBERS

Julie Berry, first vice-president and membership chairman of the Auxiliary, has sent a list of new members for inclusion in this issue. We welcome each and every one of them to our group. We hope they receive much pleasure and profit from being associated with us, and we in turn may be rewarded from association with them.

CHICAGO CHAPTER

Ann Beyer (Mrs. Edward)
38 Harlem Avenue
Glenview, IL 60025

CLEVELAND CHAPTER

Diana Bruno (Mrs. Paul)
6906 Snow Road
Parma, OH 44129

READING-LANCASTER CHAPTER

Jean Carraher (Mrs. T. Mike)
R.D. #2, Box 221
Mount Joy, PA 17552

PHOENIX CHAPTER

Elizabeth McEachern
10506 Signal Butte Circle
Sun City, AZ 85373

L. Audrey Nock
10421 Signal Butte Circle
Sun City, AZ 85373

M.A.L.

Beverly Thomas
6728 S.E. 72nd #b6
Portland, OR 97206

Marilyn Raudenbush (F. Roy)
20 N. Laurel Street
Mellville, NJ 08332

Apologies to Marilyn for not being able to figure out which chapter she belongs to! Or, if she is M.A.L., we welcome her in that category.

Wasn't it fun working on the needlepoint logo! President Jewell furnished this for us to have in lieu of the lost banner. It will be draped over the podium, when finished, and will be an excellent addition to our auxiliary meetings. The design is taken from the auxiliary pin, complete with gold leaf. It was in a frame, so two or even four ladies could work on it at the same time. The banner has not been found, and President Jewell thought of this replacement. Congratulations to her!

This month, your writer has a few words for you. Many changes have taken place within the Guild organization over the past few years, and the auxiliary has been affected by these changes. During the past year alone we have seen an article from a piano technician who happens to be a woman discussing the role of the Auxiliary. We have read a thoughtful reply to that article written by a member of the auxiliary board. And, we have made plans to discuss the placement of this column at a forum conducted, during the convention, by the aforementioned officer of the auxiliary. At the time of this reading that forum is history. No one then knew what would be

said, or what would be the outcome.

As this writer looks back over some 15 years of constant involvement with the auxiliary in one capacity or another, it becomes clear that what we have always lacked is a clear sense of direction. Many of us said this all along, but our voices were drowned in a sea of no-self-confidence or proliferating ideas. I'm not saying that auctions and book sales don't make money. They do that, but what is the object? It should be to help the Guild.

At the beginning, the auxiliary had an objective. It was to help the Guild. We still have this objective. How, now, do we best promote it?

We are faced with the same problem as many other groups. Rising costs take more and more of our income. Every dollar we can earn is needed just to stay afloat. Right? Or wrong! It depends on our priorities.

This writer remembers that she was not enamored of the auxiliary until she met some people with whom she could be friends. You say, but I could never find a friend in so small a group. Really? I suppose so, if you stay at home and never attend a national convention. Out of 200 people you can surely find one kindred soul. And ringing out from that small group, you feel every one there is a friendly person. Even if they do not become personal friends, they are still within your kinship. You all have one common element.

Neither am I saying you cannot find a friend in your local group. Go to the next meeting of the local auxiliary chapter and look around.

Today we face many of the dreary, irritating details of all the many parts of life. Combined with them are the really important decisions about community, brotherhood, admittance of past imperfections — one could feel overburdened by all the preponderance of detail which must be threaded into these overpowering issues.

We all want the Piano Technicians Guild Auxiliary to grow, not just survive, and BECOME what it was dreamed of in the thoughts and dreams of the founders. BECOME is the key word. Together we work, together we think, together we dream, together we BECOME.

In the coming months we will bring you news of convention activities and prepare for the coming year. Please let us hear from you so we can share with others around the country what you are doing for the advancement of the auxiliary. □

JOURNAL SUBSCRIBER SERVICE

Change of Address? Please give us 4 weeks' advance notice. Attach the label for your old address, write in your new address below.

Entering a new subscription? Check the box and fill in your name below.

Renewing? Check the box below and be sure your mailing label address is correct.

PLEASE SEND THE JOURNAL FOR 1 YEAR AT $40

☐ New subscription ☐ Renewal

☐ Payment enclosed

Name

Address Apt. No.

City State/Province Zip/Postcode

VACUUM LINE

Raye McCall

PART II

In the last issue of Vacuum Line the subject was pumps. The following discussion begins at the point where the preceding one ended.

Refer to the measurements which you took earlier from your exhausters and equalizer(s). Lay out your fabric, draw lines to give you the sizes you need and cut out the pieces you will need to recover the equalizer(s) and exhausters.

The fabric which you removed from the exhausters may or may not have had gussets glued to the inside surfaces. Whether or not they were there, make sure you put them in. Gussets are small pieces of cardboard. Show cardboard is excellent material to use. It can be obtained at an art supply or stationery store.

The presence of gussets makes the pump operate quietly and more efficiently. Without gussets, the fabric on the exhausters will emit a popping sound every time the foot pedals are depressed.

On each side of the exhausters the gussets are triangular in shape. Across the end they are rectangular (see **Figure 1**). I am suggesting here what the gussets usually look like when they are glued to the fabric. At the outer edges where the material is glued to the wood, you should allow one-fourth of an inch between the gusset and the inner surface of the wood so the fabric has room to bend. Through the center line where the gussets are backed up against each other, they can touch each other. Just be careful there is no glue between the surfaces along the center line.

As soon as the gussets have been installed and the glue is dry, you can now proceed with the gluing of the fabric to the wood. We leave it in its rectangular shape until this installation is complete and the glue is dry. Then, we cut off the waste along each side and edge seal the fabric with PVCE glue all around. The same installation procedure is used for the fabric to the equalizer(s), including edge sealing.

In most of the old foot pump players, the governor is mounted on and is part of the pump assembly. It is usually mounted at the upper right hand corner. Inside of both of these units are slide valves which are connected to levels in the front of the keybed by means of a linkage. Small rods which are fastened to the slide valves pass through holes which must be rebushed, otherwise you have a potential vacuum leak. The slide valves move in a channel and control the movement of air by exposing or covering an opening. The surfaces on which these little valves slide must be absolutely flat, clean, and lubricated. The working surface of the valve is covered with a light weight leather, usually pouch leather. This must also be lubricated.

Another integral part of the governor is a pneumatic. Inside of this pneumatic is another valve which works in concert with the slide valve to control the speed of the air motor. The pneumatic will no doubt need to be recovered. Perhaps you are already aware there are several different weights or thicknesses of cloth for use in players. The cloth we use here is called nylon motor cloth. There is also a spring fastened to this pneumatic in such a way that as the pneumatic closes, tension is put on the spring. If you want the air motor to run faster, you must increase the tension on the spring. This is what I define as the coarse tempo adjustment. The fine adjustment is made elsewhere, as will be discussed later.

When you took the governor apart, you may have observed two slide valves. One of these exposes an opening of this shape (see **Figure 2**) while underneath the other one is a round hole. The valve which exposes the opening illustrated is the air motor speed or simply "Tempo" control. The round opening is the governor bypass and is connected to the lever marked "Play-Reroll."

As you begin to reassemble the pump, always put in new gaskets.

FIG. 2

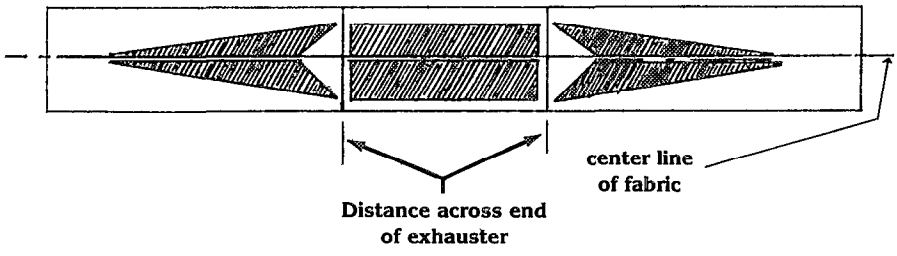


FIG. 1

We use and have for sale a cork, neoprene material. We have had good experience with it. Also, wherever you found cloth punchings and leather nuts — replace them with new ones. You will need to determine the direction of travel of the linkage under the keybed so you can set the valves correctly. With the shift lever in "Play" position, the top action cut-off valve should be open, and the governor by-pass should be closed.

When I install and set the tempo valve, I set it so that if the pump assembly were in the piano and the tempo lever all the way to the left the motor would be stopped. Therefore the slide valve for the motor speed or tempo control should cover the entire opening under it.

When the entire unit has been assembled, it is now time to prove your work. Cover very tightly, or plug, all the openings to which tubing will be connected when it is installed in the piano and pump it until the equalizer is completely closed. The better you have done your work, the longer it will take the equalizer to open. If it opens in less than one minute, you had better do some careful checking to find your leaks. If it takes an hour or several hours to open, you have done your work very well!

Anyone who works on player pianos should not look at a reproducer until he or she has been all the way through at least three ordinary foot pumpers and understands completely the function of the player system. This is a VERY important principle because many things are different in a reproducer. The pump is no exception. It is driven by an electric motor and is capable of producing a tremendous amount of vacuum — IF everything is done correctly.

Perhaps the most common pump to be found in the reproducing player piano is the rotary pump. It is approximately 17 inches square and has a large V-belt pulley about 16 inches in diameter mounted on the front of it. The back of the rotary pump has an access or inspection opening. Upon removing the covering, you can see there are pneumatics on all four sides of what looks like a square box about six inches deep. There is one pneumatic per side which opens in turn as the crankshaft in the center rotates. The crankshaft is connected to the pneumatics by means of small connecting arms in the ends of which are ball bearings.

In almost every case the races are pitted, and this will give you a noisy pump. The repair which we have used successfully a number of times is as follows:

The bearings in the ends of the arms can be replaced with Fafnir 9100NPP. This bearing requires a bore of 1.0236 inches to accept the O.D. of the bearing. You will need to take all eight new bearings and the four arms to a good machinist and tell him you need a press fit. You may retain the original cones. These will automatically center the new bearings and hold them in place very well.

At the center of the circular plate, there is also another bearing. This can be replaced with no. 3200 New Departure.

There are two more bearings on the main shaft. The replacement for these is no. 900529 or Z-99503 New Departure.

I have seen bronze bushings used in rotary pumps instead of the type of bearing mentioned above. Replacement of these is also a job for a good machinist because the fit is extremely critical. You will also find pumps in the Ampico which have connecting arms made of wood. The bearing surfaces in the ends of these are bushing cloth and the lubricant appears to have been graphite grease. When you rebush these arms, be VERY sure the new bushings have ample lubrication. The lubricant to use is V-J lube or McLube 210, both of which can be obtained from us. Apply it liberally.

Still another type of pump I have seen in Duo-Art is called the steamboat pump. It may have four or six pneumatics on it — two or three on each side. It may have a camshaft which runs the full length of the pump along the bottom or a crankshaft along the top. I have seen them in three different configurations. The crankshaft or camshaft has bronze bushings rather than ball bearings. These must be cleaned and a new lubricant installed. The lubricant we've used is cup grease, available at auto parts stores. This type of pump is hard to recover because the big pneumatics are very close together.

There are also many small flap valves that need your very careful attention. The plus factor is that they turn very slowly and so are very quiet.

All of the electric driven pumps I've discussed here have the capacity of producing about 60 inches of vacuum, providing everything is done properly. This is with the use of the original-size pulleys on the motor and pump. The use of a larger-size pulley on the motor is incorrect and should be avoided. Restore it properly and nothing else will be necessary. □

Calculating Technician

Part XII

Dave Roberts

Last month, this column continued the discussion of piano inharmonicity which was started in June. The predictable and, to some extent, virtuous inharmonicity caused by stiffness in piano wire was distinguished from the unpredictable, random and usually problematic inharmonicity caused by several other factors.

The formula given in June and July for calculating plain or wound string inharmonicity at first appears complicated. However, if you simply attack it one step at a time as was illustrated in the June issue, I think you will be convinced that it is, at worst, only tedious and not really complicated. Fortunately, inexpensive programmable electronic calculators can reduce the time to evaluate this formula to a few seconds, thus removing the tedium.

This month, I want to continue discussing inharmonicity and wound strings. First, you may recall from the last 2 months that our inharmonicity formula predicts an optimum length for the unwound segments between the wrap ends and the bridge and agraffe terminations. This length was shown to be roughly 3/8" to 9/16", depending on the string, and essentially coincides with the bending (but rarely moving) segments near the string terminations. Unwound ends which are either longer or shorter than the optimum length unnecessarily increase inharmonicity in wound strings.

There is a situation, however, in which one might deliberately make the unwound ends longer than the so-called optimum length. This is where there are lightly wound unisons on the treble bridge.

Why?

As you may know, the purpose of wrap on a string is to add mass to the piano wire without adding substantially to its stiffness. The resulting increase in tension, which is necessary to maintain the proper pitch, partially negates the effects of wire stiffness and thus lowers inharmonicity. At the same time, loudness or power in the piano tone is increased. It is impossible to achieve both of these benefits simultaneously with plain wire if speaking lengths become increasingly foreshortened relative to their proper scaling lengths, as is typical in the smaller pianos near the lower end of the treble bridge; hence, the switch to wound unisons.

Historically, the problem with putting wound strings on the treble bridge is that even the lightest, practicable wraps were still too heavy. Thus, the transition to the first wound unison was either too loud or too low in inharmonicity for a good aural transition, not to mention the tuning problems. There are several possible remedies to this situation:

- Put the treble wound strings on a separate (tenor) bridge so the speaking lengths can be used as an additional design parameter.
- Make the wound unisons bichords to reduce loudness and find lighter wraps to prevent the sudden downward jump in inharmonicity.
- Lengthen the unwound segments at the wrap ends, i.e., longer than the so-called optimum length discussed above.

The first remedy was abandoned long ago by most manufacturers. I'm not sure why, but from a scaling point of view, it seems an obvious way to cope with the scaling problems in small pianos.

The second remedy has been partially successful. Bichords helped with respect to the transition in loudness, but finding a lighter wrap wasn't easy. The very fine iron and copper wire gauges are fragile, possess marginal holding ability and are difficult to wrap onto a core without breaking, although it is being done today to a limited extent. Perhaps the best innovation has been the advent of very lightweight, rugged aluminum wraps which seem to have good holding ability.

The third remedy above also has limitations. Our inharmonicity formula (June and July issues) shows that inharmonicity in wound strings can be increased somewhat by lengthening the unwrapped ends.

However, you can go only so far with this approach because of two potential problems. First, if the unwound lengths reach too close to the maximum amplitude (antinode) regions for the higher partials, then the harmonic (should I say inharmonic?) structure of the tone starts to depart from that of a plain string; that is, the inharmonicity of these partials starts to deviate from a (n^2-1) proportionality, going instead to a lower power of **n**. It may be argued that this is no big problem and that the wound strings (especially the heavier ones) do this anyhow for other reasons.

Perhaps the greater problem results when the swages (flattening of the core) near the wrap ends reach into these antinode regions. The problem here is that there is a lot of flexing of the string in these regions, so the contribution to the overall string stiffness from these regions will be different in the two transverse dimensions of the swage. The result is different inharmonicity for string motion in these two vibration directions, which can cause the upper partials to beat with them-

selves. This argument also applies if the swages enter the bending regions near the terminations (refer to the figure and discussion in the June article if you have trouble visualizing all this). Thus, optimizing the winding length as described last month not only minimizes inharmonicity but also the chance for wild strings.

However, in the event one wishes to **increase** the unwound ends for the purpose of increasing inharmonicity without affecting loudness near the plain/wound transition on a treble bridge, we can estimate the maximum safe length as follows. SInce there are some 15-25 significant partials in the wound unisons generally, it turns out the (flexing) antinode *regions begin a distance from each* string termination equal to approximately 1½-2½ per cent of the speaking length plus one-half the optimum unwound (bending) length discussed earlier.

Thus, the swages should ideally not extend any further than about 1½" from the string terminations. If they do, the swaging should be minimal, i.e., just enough to hold the winding secure but not 'smashed' so flat that it makes a large difference in the resistance to bending perpendicular to and parallel to the plane of the swage.

Most string manufacturers conform reasonably well to these design precepts, some more than others. On the other hand, I have seen rather severe swages extending more than 2½" from the string terminations. I have not made a definitive experimental study of the tuning and tonal differences arising from different swage and winding lengths, and I don't want to alarm anyone unnecessarily in this regard, but I thought you should at least be aware of some of the theoretical implications of careless design in these respects.

On a related subject, I can tell you from experience that it is important for the wrap lengths on wound strings to be similar, give or take ⅛", perhaps 3/16" as an extreme difference. If the winding lengths differ by as much as one-half inch, you will hear gross differences in the (in)harmonic structure, making it impossible to tune a bichord or trichord unison.

It is not particularly critical that the ends of the windings in a two or three-string unison line up with each other (except for aesthetic reasons), as long as the winding lengths themselves are equal. You can use the inharmonicity formula to confirm these statements theoretically. For instance, a one-half inch difference in the winding lengths for the G23 treble bichord in a certain 6' grand caused the 4th partials to differ in frequency by almost two cents when the fundamentals were tuned together. This represents a beat rate of one-half per second and results in a 'snarl'. The higher partials, of course, beat even faster. The inharmonicity formula can be shown to be in reasonably good agreement with these observations.

On still another related subject, I know some people worry that speaking lengths for unsion strings on the bass bridge are not always equal. Differences of 3/16"-1/4" are not uncommon in those pianos which have no notching (just a bevel) on the bass bridge. The inharmonicity formula will confirm that the difference in (in)harmonic structure of the unison strings in this case is very small, amounting only to a few one-hundredths of a cent at the fourth partial in a typical small grand.

Thus, any problems you may have tuning such unisons is not likely due to the lack of notching on the bass bridge. This should be no surprise, really, because you see this situation even on high quality grands. Equal length unison strings are important in the middle and upper treble scale, however, because inharmonicity is 10 to 100 times greater at a given partial level and more sensitive to length variations.

Next month I'll examine different wrap materials for wound strings and how to determine equivalent wraps. Also, tips will be given for ordering wound strings, so stay tuned to this column ...□

Ring the Bell

Bell Ringers Club **Points**

Everyone wants a chance to receive the prestigious President's Club award or to sport a Bell Ringers or a Restorers Club ribbon at the annual convention. To insure that every Bell Ringer point is credited to your "account," and that every Restorer of a former member is recognized, the Membership Department requests the following:

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, as The Journal goes to print some weeks ahead of receipt.

The following points are scored for signing up the various ratings:

Craftsman — six points. Apprentice — five points. Allied Tradesman — four points. Associate — three points. Affiliate — two points. Student — one point.

When you have a total of 24 points you become a member of the President's Club; all others are Bell Ringers.

BELL RINGERS!

The full list of those who achieved the President's Club was not correctly printed in the July issue. We are happy to assure everyone that the winners of the 1980 President's Club award were correctly named and congratulated at the convention banquet in Philadelphia, and the special award pins presented. Those who were absent will receive their award pins by mail.

President's Club

Grand Winner

LILLICO, John 71

BITTINGER, Dick 47
KERBER, Walter 36
PETERS, George 33
CONOVER, Leslie 30
DROST, Michael 30
PERKINS, Robert 30
DRAINE, Robert 28
SIEROTA, Walter 25

Restorers' Club

BITTINGER, Dick
HAWKINS, Marshall
KERBER, Walter
MANWILLER, Ralph
SCHEER, Bob
SIEROTA, Walt

Bellringer's Club

ABBOTT, William Jr. 6
ACH, Philip 3
ACKMAN, Harold W. 6
ASHMORE, Yvonne M. 1
ATHERTON, Olan M. 6
BAILEY, D. Nelson 5
BAIRD, John 18
BAKER, Dean 6
BALIGIAN, Agnooni 22
BALZER, Fred 6
BARRETT, Bruce 1
BARRUS, Ralph 11
BERRY, Ronald 5
BIBLE, Dana 1
BITTINGER, Dick 47
BLAND, Robert R. 6
BLANTON, Tom 6
BLOCH, John F. 1
BOOTH, F. Darrell 4
BRATTON, Donald W. 5
BROOKSHIRE, Jerry 3
BROWN, Glen 4
BROWNFIELD, Gary 18
BROWN, Walter 1
CALLAHAN, John C. 7
CATE, Allan 2
CAUETTE, Louis 5
CAUNTER, Gerry 15
CLARK, Peter M. 1
CLOPTON, John 12
COHEN, Bruce 5
COLEMAN, Jim, Jr. 2
CONOVER, Leslie R. 30
COX, Merrill 3
CRAW, Stephen D. 3
CROY, Ronald 12
CUNNINGHAM, Jess C. 21
DANIEL, Pat 6
DANTE, Richard 6
DEFFLEY, Matthew B. 6
DeTAR, Brian S. 4
DOERFLER, Richard 1
DONELSON, James H. 1
DROST, Michael 30
DRAINE, Robert 28
EDWARDS, William E. 3
ERBSMEHL, Charles 1
ERLANDSON, Robert W. 6
ESPENSCHEID, Robert 5
FAIRCHILD, Steven 1
FARES, Jr., Charles A. 4
FISHER, Allen 6
FISHER, Leroy 6
FOSTER, David M. 6
FRANZ, Dennis L. 1
FRANZ, Earl M. 6
GARRETT, Joseph A. 1
GARTEN, H. Dean 5
GERLER, Kenneth 1
GILLER, Evan 12
GOETSCH, Lawrence 12
GORLEY, Tom 1
GULLIXSON, Elisha 6
HANCOCK, William 6
HANITCHAK, Leonard R. 1
HARMON, Clayton 8
HARRIS, Vaughn 6
HART, W. D. 6
HAWKINS, Marshall 11
HEINDSELMAN, Lois 17
HERBERT, Curtis 3
HESS, James 9
HILBERT, Edwin O., Jr. 5
HILBERT, Felton, Jr. 3
HOHF, Robert 5
HOLLOWAY, Jim 6
JAMISON III, Philip D. 6
JOHNS, Barney 2
JONES, Joel A. 5
KADWELL, Kenneth A. 6
KAST, Frank 10
KERBER, Walter 15
KINGSBURY, Richard 12
KLEIN, William N. 5
KOFORD, Lyn 5
KREITZ, Richard C. 5
LAMB, Elwyn D. 1
LEARY, Janet S. 1
LEWIS, Max E. 6
LICHT, Kenneth B. 6
LILLICO, John 71
LINDEMAN, Doug 23
LURIE, Mordecai H. 6
MACCONAGHY, Henry 7
MACKINNON, Karl 1
MANWILLER, Ralph 6
MARCIANO, William 4
MARKS, James M. 1
MARLING, Harold 5
MARTIN, Barbara 2
MATTHEWS, John 1
McCOLLOM, M. A. 5
McKAY, C. Guy 2
McANINCH, Daniel 1
MEEHAN, Joseph 18
MEHAFFEY, Francis 12
MEISSNER, Walter, Jr. 6
METZ, Albert J. 7
MOONAN, William 1
NICHOLSON, Steve 1
OLIVER, Stanley 1
OSBORN, Ralph 5
OVENTROP, Edward 6
OWENS, Bruce 1
PAULOZ, Richard 6
PEARSON, Walter 6
PEARLMAN, Sam 1
PERKINS, Robert 30
PETERS, George 33
PETERSON, Gerald 1
PHILLIPS, Webb 5
PIERCE, Marcus 8
POTTER, Randal F. 5
PRATT, Orman D. 6
PREUITT, Ernest 16
REITER, Michael 6
REQUE, Styrk 1
RICHARDSON, James 11
RILEY, Martha 1
RODGERS, Thomas A. 11
ROE, Eugene 6
RUSSELL, Bob 7
SANDERS, John 6
SEABERN, Paul 4
SCHEER, Bob 6
SCHMITT, Paul 1
SCHNEIDER, William 6
SCOTT, Dennis 1
SELLER, Marion 18
SERVISS, Kenneth 6
SEVERANCE, Davie 7
SIEROTA, Walter 37
SHANK, Dean 5
SHELL, Roger 6
SHROYER, Al 1
SMITH, Arthur 2
SMIT, Robert 6

SNELL, Marvin	1	WALKUP, Kenneth	16
SNYDER, Cecil	5	WARMINGTON, Carl	6
SNYDER, Willis	8	WEBSTER, Kenneth	1
SORG, Herbert	6	WEST, Richard E.	6
SPEIR, Leon	6	WHITTING, Ted	4
STATON, Rocker	1	WICKSELL, Carl	7
STONE, Sid	7	WIGENT, Don	6
STRONG, Douglas	11	WILEY, John	5
SWARTZ, Vern	1	WILLIAMS, Arthur	6
TAPP, Kenneth	4	WILLIAMS, Robert V.	6
TAYLOR, Kendal	9	WILLIS, Aubrey	10
TITTLE, Martin	1	WILSON, Richard D.	2
TOMANEK, Godfrey	1	WINTERS, Kenneth	8
UPHAM, Russ	2	WOODS, Edwin	5
WAGNER, Lloyd	6	WURZ, Douglas	22
WAGNER, R. W.	16	ZEHME, Uwe	6

IAPBT CONVENTION
April 26-May 3, 1981
Switzerland

The IAPBT convention will be held next spring in conjunction with the Europiano convention and technical institute. Those wishing to attend should contact Fred Odenheimer, 15358 Wyandotte S., Van Nuys, California 91406, (213) 785-8402, or the Piano Techicians Guild, 113 Dexter Avenue North, Seattle, Washington 98109, (206) 283-7440. Contact must be made prior to **September 15.** □

membership news

By Sidney O. Stone
Vice President
Piano Technicians Guild

Your membership committee was privileged at the 1980 Piano Technicians Guild Convention last month in Philadelphia to give recognition to those members who brought in new members in the past year.

During the previous 12 months, 178 members entered the membership contest. The Guild membership increased by 407 during that time.

The cutoff date for the membership awards was set at June 30th. All new member applications received after July 1 have been credited for booster club points in the 1981 contest at the San Francisco convention.

Congratulations to last year's first-place winner, John Lillico of the Toronto chapter. John was responsible for increasing our membership by 15. If every one of us had brought in 15 new members, there would now be over 50,000 in the Piano Technicians Guild. Furthermore, there would be an extra $4 million to invest in the future of the Guild.

What could be done with all that money? Put all regional vice presidents on full-time salary instead of part-time with no salary; have films, slides and tapes on every phase of piano service; send top-notch technical instructors to the smaller chapters; and have the necessary funds, several thousand dollars, to properly certify schools for piano tuners and technicians.

Coming down to earth, as membership chairman I would like to issue a more reasonable challenge — doubling the membership in five years. If each member would bring in one new member, that goal would be reached. Let it never be said that the way to increase membership is to lower the standards; quite the opposite is true. By council action in Phila-

delphia our examination standards for membership requirements were upgraded, and I refuse to believe our membership will decrease because of it. We will go forward. We will have more members. We will have a more knowledgeable, a more capable, and a more skilled membership. We will have more benefits for our members. And perhaps this is better than having $4 million at our disposal. □

New Members/Reclassifications

REGISTERED TECHNICIANS

Cleveland Chapter
JAMES, EDWARD F.
161 Gill St.
Ravenna, CH 44266

Little Egypt Chapter
BROWN, DEAN L.
P.O. Box 88
Cambria, IL 62915

New Orleans Chapter
FRUGE, FARRELL C., "BUNNY"
780 Sherwood Forest Blvd.
Baton Rouge, LA 70815

HUBER, JOHN L.
1020 Port St.
New Orleans, LA 70117

MARTIN, KENNETH J.
103-Coolon Road
Thibodaux, LA 70301

SKELLEY, DANIEL J.
1630 Palmer Ave.
New Orleans, LA 70118

Rhode Island Chapter
RUSSELL, KIRK B.
13 Liberty St.
Wakefield, RI 02879

Richmond Chapter
HALLMARK, ALAN B.
204 A Thor Drive
Richmond, VA 23229

HALLMARK, BRENDA C.
204 A Thor Drive
Richmond, VA 23229

Rochester Chapter
ROSS, JOSEPH
77 East Blvd., Apt. 7
Rochester, NY 14610

Twin Cities Chapter
HUMPHREY, ROBERT MARK
4017 3rd Ave. So.
Minneapolis, MN 55409

Vermont Chapter
SHELNUTT, JO A.
37 Pleasant St.
Bristol, VT 05443

Washington, D.C. Chapter
RODES, JERROLD N.
Box 225BB
Mountain Falls Rt.
Winchester, VA 22601

Youngstown Chapter
NEFF, ROBERT K.
901 28th Street N.E.
Canton, OH 44714

MEMBER-AT-LARGE

HUDSON-BROWN, KAREN I.
2516 Belvedere Ave.
Charlotte, NC 28205

ALLIED TRADESMAN

Philadelphia Chapter
SALICANDRO, FRANK
N. J. Piano & Organ Co.
#2 Friends Ave.
Medford, NJ 08055

MEMBERS-AT-LARGE

CHERMAK, MICHAEL G.
P.O. Box 692
Mancos, CO 81328

GERHARDSTEIN, ALAN P.
P.O. Box 1791
Durango, CO 81301

Cleveland Chapter
RYBUS, THEODORE
227 Court St.
Elyria, OH 44035

APPRENTICE

Central Iowa Chapter
FISHER, GREGORY A.
930 29th
Des Moines, IA 50312

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.**

September 19-21, 1980
WISCONSIN DAYS SEMINAR
Milwaukee, Wisconsin
Contact: Jonathan Moberg
2420 N. Bremen Street
Milwaukee, WI 53212

October 5-7, 1980
FLORIDA STATE CONVENTION
Jacksonville, Florida
Contact: Barney J. Johns
3546 Oleander St.
Jacksonville, FL 32205

October 11-12, 1980
OHIO STATE CONFERENCE
Cincinnati, Ohio
Contact: Willard Sims
c/o Baldwin Piano & Organ
1801 Gilbert Avenue
Cincinnati, OH 45202

Oct. 16-19, 1980
New York State Convention
of Piano Technicians Guild
Contact: William Moonan
811 Amherst Drive
Rome, NY 13440

October 17-18, 1980
TEXAS STATE SEMINAR
Dallas, Texas
Contact: Martin Wisenbaker
808 Cordell
Houston, TX 77009

Nov. 7-9, 1980
CENTRAL WEST
REGIONAL CONVENTION
Wichita, KS
Wichita Chapter

ASSOCIATE

Cleveland Chapter
MATTLIN, WILLIAM B.
5109 Mayfield Rd.
Lyndhurst, OH 44124

Rochester Chapter
WEBECK, GARY V.
Box 100
Putneyville, NY 14538

STUDENTS

Connecticut Chapter
TEHENNEPE, ANITA J.
740 Williams St.
New London, CT 06320

Denver Chapter
CERRUTI, STEPHEN
460 Fillmore St.
Denver, CO 80206

Falls Cities Chapter
POOLE, KATHY J.
381 S. Galt Ave. #1
Louisville, KY 40206

ROSSI, Peter R.
Mooleyville, KY 40154

THOMAS, FRED G.
4619 Park Blvd.
Louisville, KY 40209

Lehigh Valley Chapter
HARTMAN, ROBERT C.
RD #1, Box 1495
Stroudsburg, PA 8360

New Orleans Chapters
HAZLETT, HARRIET B.
Rt. 1, Box AA
Convent, LA 70723

KINCHEN, JOHN D., JR.
423 Kellog Drive
Luling, LA 70070

Philadelphia Chapter
PARRISH, LAWRENCE D.
1407 Magnolia Cir. E.
Jacksonville, FL 32211

COLEMAN, KENNETH
9601 Ashton Rd. L-11
Philadelphia, PA 19114

DINUBILE, JULIAN A.
1822 Bigler St.
Philadelphia, PA 19145

FORMAN, DAVID
139 East Maple Ave.
Lindenwold, NJ 08021

GORESKO, EBEN
231 Winona St.
Philadelphia, PA 19144

JACKENDOFF, SAMUAL J.
1822 S. 16th St.
Philadelphia, PA 19145

JONES, ARTHUR B.
616 E. Cherry Hill Apts.
Cherry Hill, NJ 08002

KRAMER, LOUIS
P.O. Box 90
Pitman, NJ 08071

SCHUMAN, JEFFREY
33 W. Park Ave.
Lindenwold, NJ 08021

Twin Cities Chapter
ADAMSON, JAMES D.
1538 East 88th St.
Minneapolis, MN 55420

ANDERSON, CARMEN M.
2504 16th Ave. So.
Minneapolis, MN 55404

Southwest Florida Chapter
SPRINGFELLOW, WALLACE E.
832 Red Robin Road
Seffner, FL 33615

Vancouver, B.C. Chapter
SCHROEDER, ART I.
1505 7th St. South
Cranbrook, BC VIC 4P9

MOVING? CHANGING YOUR ADDRESS?

Be sure of your regular Journal delivery by asking the Post Office to forward your Journal to your new address. Journals that cannot be delivered because the addressee has moved are not returned to us. We are sent a notice only and must pay .25¢ for each non-delivery notice.

To mail a duplicate copy means double Journal costs plus the return postage notice cost plus around $1.00 remailing charges plus office overhead. The Home Office has done this whenever possible but we are finding that it is becoming more difficult to do so now that we no longer have so large an overrun of the Journal printing each month.

BECAUSE WE WANT TO BE SURE YOU RECEIVE
YOUR REGULAR JOURNAL EACH MONTH!

1. Please ask the Post Office to forward your Journal to you when you move.

2. Please notify the Home Office as soon as possible, 5-6 weeks before you change your address.

3. *Should you not receive a Journal, please advise us immediately. On such prompt notification we can usually send a duplicate. When notified after any delay, we are not able to promise a duplicate Journal.*

The International Scene

Don Morton, Immediate Past President
and
Fred Odenheimer, Chairman,
International Relations Committee

WHAT IS IAPBT?

It is the International Association of Piano Builders and Technicians (IAPBT). This new world-wide organization was formed in Minneapolis during the 1979 convention. Don Morton, then president of the Piano Technicians Guild, and Nobuo Tanaka, then president of the Japanese Piano Tuners Association, were elected as co-presidents. The following purpose, objectives, and representation were adopted by members of the new organization:

The purpose of the association shall be the formation and maintenance of a world-wide fellowship of piano technicians and piano builders.

The objectives of the association shall be to provide a means for and encourage freedom of exchange of technical information and any other subjects of related interest, for action by the members, and for cooperation in scientific research and improvement of the quality of pianos.

Exchange of technical information shall be on a voluntary basis. Each member organization shall have three delegate votes at the next meeting of the IAPBT. The votes may be carried by one, two or three delegates.

The council in session in Philadelphia heard a report on progress of the IAPBT and that members of EUROPIANO and of the PIANOFORTE TUNERS ASSOCIATION OF GREAT BRITAIN who will be in attendance at the upcoming meeting in Switzerland are expected to become members of IAPBT immediately.

A general meeting of the IAPBT is to be held in Switzerland next spring and the board has designated Don Morton, Charles Huether, Dan Evans, and Fred Odenheimer as the official representatives of the Guild at that meeting. Full information on the meeting will be published in the *Journal* shortly so that interested members may know the schedule. The following will be placed on the agenda for the meeting:

1. An international logo design to be made up as an IAPBT pin, seal, letterhead, etc.
2. Quotations for production of the pins, seals, etc.
3. A proposal that the individual members of each country within the IAPBT be permitted, on application, to become sustaining members of the IAPBT and entitled to use and wear the approved logo. The proposal will suggest that only the highest qualified classes of membership shall be accepted for IAPBT sustaining membership as individuals.

Members attending the Philadelphia convention were invited to contribute $10 towards the Guild portion of the expenses of the session. It is now under consideration to provide that those who do so shall be charter members of the Guild in the IAPBT, if they subsequently join as soon as individual memberships have been approved. It is not known at this time, exactly how much an individual membership will be, but it is not expected to be great.

Now that Japan, the United States of America, Great Britain, and the members of EUROPIANO will definitely be holding a joint meeting of IAPBT, anyone interested in the advancement of international fellowship of piano technicians is invited to contribute on a voluntary basis. Contributions should be sent to the home office. Checks should be made out to the Piano Technicians Guild and marked "For IAPBT." A separate accounting of all receipts will be maintained and a full report passed on to the International Relations Committee. ☐

After Touch

David W. Pitsch

50-POINT GUIDE TO GRAND REGULATION PART II

Having discussed section #I, The Keys & Keyframe, last month, we will continue with section #II, The Top Action. Note that those procedures covered recently in other issues of the *Journal* such as rebushing, steaming warped keys, repairing the balance pin hole, etc., will be skipped over in this guide to regulation.

Also, some procedures were skipped over which were not covered elsewhere, such as refelting the keyframe. These I intend to discuss at a later date. If any reader feels we have neglected or passed by a subject, please let us know.

II. THE TOP ACTION (off of the keyframe)

15) Check action centers, repin or shrink as needed. There are many tests which can be used to determine if the action centers are too tight or loose. Let's discuss the hammershank/flange center first, since it's by far the most important and the most troublesome. I will list the six checks I regularly use for this center:

A) Wiggle each hammer gently side to side and feel by hand if the center feels loose.

B) Similarly, insert a long screwdriver blade under the shanks and wiggle the blade from side to side. Watch the hammer for any sign of lateral movement. Any movement indicates a loose center.

C) While the screwdriver blade is still under the shanks, lift all of the hammers in a section up and quickly release the blade downwards. Any sluggish centers will be late in following the blade down.

D) With the screwdriver still under the shanks, block the blade up at both ends so the shanks rest on the blade, preferably right on top of the rest felts/rest rail area. Individually raise the hammer and let it fall on the screwdriver blade. Listen closely to the sound upon impact, and watch how much bounce the hammer takes. Too little bounce indicates a tight center. A noisy impact of the shank upon the blade indicates a too loose center. This noise is much like striking a baseball bat upon the concrete and listening for a crack in the wood.

E) With the action firmly in hand (preferably screwed down to the keyframe) put the action on one end and swing the hammers out away from their rest position and back. Any sluggish centers will be noticeable by the lack of movement.

F) And, of course, the best method is to unscrew the flange and check the swing of the hammer by hand. Take the flange in one hand and hold it vertical, the hammer being taken by the other hand and raised to a horizontal position, 90° from the flange. Holding the flange very still, release the hammer and watch how many times it swings under the flange. This will look much like a pendulum. Count the number of passes the hammer makes under the flange. For this center, seven or eight passes is considered excellent. If the piano is a Steinway with the new teflon bushings, then the best results are at five or six passes. Fewer passes indicate a sluggish center or a bent center pin. Greater than eight passes indicates a loose center or some other problem such as a crack in the shank at the bushing area.

Unscrewing all 88 hammers may seem like a lot of work, but it is the only way to know for sure how every center is working. If the piano is used for concerts, then plan on taking every hammer off and checking the centers from time to time. This can mean the difference between the artist praising you and the piano for an even and responsive action, or criticism for a piano that has a heavy touch, was uneven, or would not repeat.

This is not as much work as it sounds. Just make sure the hammers are all properly spaced to the strings before you begin, and the whippens and backchecks are aligned to the hammershanks and tails. Take off all of the odd numbered hammers and work on them. Replace them and realign them using the neighboring hammers and the previously aligned whippens and backchecks. Go on to the even numbered hammers and complete the job in the same manner. Recheck the hammer to string alignment and you are done.

Now let's talk about repinning action centers.

I highly recommend using a pin vise which is capable of extracting and installing center pins. If you work on Steinway teflon bushings very much you will notice the extractor pin is a little large and often ruins the teflon bushing while

removing the old pin. Just remove the extractor pin and turn it down, using a drill and wet/dry sandpaper.

While we are discussing Steinways, be sure to purchase from the factory the set of four reamers. These can be used with equal success on regular felt bushings. Remember Steinway uses a rolled pin slightly rounded on each end. Oversized rolled pins can be purchased from the factory. Also available from the factory is a kit with both sizes of teflon bushings and oversized center pins. Regardless of what can be said pro or con about their new bushings, their rolled pin remains superior. I use this pin in regular felted bushings as well as in Steinway centers.

Think for a minute about what happens when we use a regular center pin. In the process of cutting off the excess pin, the pliers squeeze and make the pin oblong at the end. Depending upon how sharp your pliers are, you also leave a burr, either large or small. Some technicians file down this end of the pin to correct the burr and oblong end. Great, but this still can leave the edge of the pin sharp enough to eventually cut into the felt bushing. This filing also takes time. If it only takes an extra 20 seconds, this means an extra half hour to repin and file a complete set.

Other technicians cut the pin off a little ways away from the side of the shank, so that the burr does not have contact with the bushing. This looks tacky and can result in the pins touching each other, making it hard to align the flanges. For what little more the Steinway rolled pins cost, I always use them to save time and to eliminate any chance of ruining the bushing. It also keeps the job looking neat by not having the center pins sticking out from the bushings.

To conclude our discussion on action centers, let's compare repinning versus using solutions or the "zapper." If a center is loose, we have no choice but to repin, unless we want to take the time to rebush the shank. If the center is sluggish we can: 1) remove the pin, ream the bushing to the proper tolerance, and install a new pin; 2) apply a lubricant to make the center "work easier" (the only two I know of as being the correct lubs for the job are an 8:1 solution of naptha/mineral oil and an 8:1 solution of naptha/silicone as sold by the Wurlitzer people); 3) apply an action shrinking solution such as water/alcohol or the solution as outlined in the Baldwin service manual; or 4) use electricity to heat the center pin, causing it to dissipate moisture from the bushing and causing the fibers around the pin to be "ironed," better known as "zapping the pin."

Of these four methods, only the reaming and the "zapper" are instant in their results. Applying solutions can mean a waiting time of up to 24 hours, depending upon the solution used. None of the other three methods has been shown to be as long lasting as reaming.

If the center to be treated is actually frozen, meaning the hammer swings two arcs or less with the pendulum test, the only permanent solution is to ream the bushing. Using the zapper on a frozen center usually results in cooking the birds-eye hole in the flange. Using a shrinking solution on frozen centers is always time consuming and rarely permanent. Lubricating a frozen center is a complete waste.

For sluggish centers — that is, ones which swing three to six times — it is dealer's choice which of the four to use. Just try to pick the best method considering time, season of the year, cost to the consumer, and previous knowledge of how the methods work in your climate. If undecided, ream, for that is the most permanent.

When repairing action centers other than the hammershank/flange, remember all of the other centers are supposed to be more loose than the hammershank. Going in descending order of tightness: hammershank, whippen, balancier, underlever flange, jack, underlever top flange, and sostenuto tab. In recommending a good test for these other action centers, I would begin by saying, let well enough alone if nothing seems wrong. Obviously, if a center pin has worked itself out and is causing a loose flange, repair it. Or, if encountering repetition problems, it looks like a certain action center is sluggish and thereby causing slow repetition, remove the offending part and repair as needed.

As far as useful tests, a sluggish jack can easily be tested by lifting up all of the hammers and looking at the top of the jacks. A sluggish jack can be spotted by finding a jack which has not returned to its rest position, and so is out of line with the other jacks. The sluggish whippen, balancier, and damper centers are a little harder to test. Try moving the part with a finger or screwdriver and check for undue resistance. Just remember each time a center pin is removed from the bires-eye, the hole is enlarged a little and the same size pin reinstalled will not be as tight as the original. So do not extract a center pin unless it needs to be.

Now that we have spent this whole article on action centers, the remaining procedures of section II, The Top Action, will be discussed next month. If nothing else is remembered about action centers, make sure the center pin is tight in the flange. The pin rotates freely in the bushing, not in the birds-eye. □

Your Security Blanket

Eloise Ross
Sunset Insurance Associates

Insurance policies offered by the Guild insurance broker are made available as a membership service and are neither endorsed nor recommended by the Guild in preference to other similar plans.

Vacations are over — conventions (all the big ones, Piano Technicians Guild, Democratic, Republican) are over and so is the first half of the year! When and where did they all go?

Did you know that you, the average taxpayer, worked for the government until May 11 to pay your taxes?

Typically, then, the last half of the year becomes the tax-shelter season — YOURS! This is the time, this is the year you are going to do it for yourself! You have heard about and read about IRS-approved plans for you, the self-employed.

Just a short explanation: there are two — the Individual Retirement Account (IRA), with a maximum deductible from earned income of 15 per cent or $1,500, and the HR-10, Keogh plan, with a maximum deductible from gross income, less business expenses only, of 15 per cent or $7,500. Employees must be put on the latter plan after three years' employment and paid for at the same percentage of salary as the employer's percentage of net income.

There is a plan, too, for those who are employed by non-profit organizations (schools, hospitals, etc.), the Tax-Sheltered Annuity (TSA). It is an IRS-approved salary reduction-deductible plan.

You may have heard all this before, but this time you owe it to yourself to read on. Pick your age from the charts below which are actual figures, based on today's current interest rate (10%), not guaranteed, for the Flexible Annuity) (that CANNOT be outlived).

Remember, no tax reported during earning years on the growth, either. You see, it's not just a deductible item from your earned income today, but a tax advantage each and every day of your life!

	PRESENT AGE	TOTAL ACCUMULATED VALUE	ANNUAL PENSION INCOME
IRA	30	$440,415	$42,012
	32	361,159	34,452
	Cost of Delay	$ 79,256	$ 7,560
	40	$159,815	$15,240
	42	129,258	12,324
	Cost of Delay	$ 30,557	$ 2,916
	50	$ 51,631	$ 4,920
	52	39,850	3,804
	Cost of Delay	$ 11,781	$ 1,116
HR-10 (Keogh)	30	$738,542	$70,452
	32	605,636	57,780
	Cost of Delay	$132,906	$12,672
	40	$267,996	$25,560
	42	216,755	20,676
	Cost of Delay	$ 51,241	$ 4,884
	50	$ 86,581	$ 8,256
	52	66,825	6,372
	Cost of Delay	$ 19,756	$ 1,884
TSA	30	$336,071	$32,052
	32	275,592	26,292
	Cost of Delay	$ 60,479	$ 5,760
	40	$121,951	$11,628
	42	98,634	9,408
	Cost of Delay	$ 23,317	$ 2,220
	50	$ 39,398	$ 3,756
	52	30,409	2,892
	Cost of Delay	$ 8,989	$ 864

PLUS LOSS OF TAX SAVINGS

Assuming 10% current interest rate, not guaranteed.
Includes current Settlement Option (10 Yr. Citation and Life)

Classified Advertising

CLASSIFIED ADVERTISING RATES are 15 cents per word with a $3.00 minimum. Full payment should 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

PLEYEL PIANO dated 1858. Serial #26654. Rosewood Case. **David B. Taylor, Jr., 3929 Lynda Lane, Apartment G, Kingsport, TN 37664. (615) 246-7656.**

KEY RECOVERING MACHINE — Build your own key recovering machine. All parts and/or completed machines now available. Send $10 pp. for accurate machine drawing instructions, photos to: **Solenberger Piano Service, 1551 Lynn Court, Santa Rosa, CA 95405 or (707) 542-1756**

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**

FOR SALE

SHOP & OUTSIDE PIANO WORK EQUIPMENT, tools, stock, large trade, must sell, all in fine shape. New Conn Strobo. Power tools in shop. 25 years established. **Guy Drake, 3311-11th Street, Lewiston, Idaho 83501.**

QUARTERSAWN 5-PLY Vermont rock maple pin blocks. Resorcinol glue. **Call or write: George H. Wheeler, R.T.T. 11 Cherry Hill, Springfield, Vermont 05156 (802) 885-5325**

REPLACEMENT REEDS available for use in Parlour Reed Organs. Send inquiry to **Paul W. Toelken, Box 5017, Prescott Valley, AZ 86312**

NOW AVAILABLE — Key Recovering Machine. Build your own key recovering machine. All parts and/or completed machines **available now.** Send $10 pp. for accurate machine drawing instructions, photos to: **Solenberger Piano Service, 1551 Lynn Court, Santa Rosa, CA 95405 or (707) 542-1756.**

SQUARE GRAND PIANO and Organ Combination, Nunns and Clark 1833. $8,000 or best offer. **Call (208) 423-9985. Faye Williams, General Delivery, Kimberly, Idaho 83341.**

PIANO TUNING AND REPAIRING BUSINESS — Serving all Orange County (California). Over 500 customers, 25 teachers. $5,500. **Call (714) 871-5357.**

REPUTABLE PIANO STORE (since 1961), incl. over 100 rented pianos and stock, good income & location. Price on agreement. **K. Burger Pianos, 220 Hamilton Ave., Palo Alto, CA 94301, tel. 415/321-6166.**

ZUCKERMANN HARPSICHORD KITS — A real challenge for the interested technician. Factory direct shipment at factory prices. Also advice for kit builders from Zuckermann. Authorized Agent **YVES A. FEDER R.T.T. HARPSICHORD WORKSHOPS, 2 North Chestnut Hill, Killingworth, CT 06417 Telephone (203) 663-1811.**

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**

WANTED

WANTED TO BUY — Mason & Hamlin Grand Piano. Want one that was a player. I have a player mechanism to install. Will pay handsome reward. **Brady, 4609 Crankbrook, Indianapolis, IN 46250 — (317) 259-4305 after 5 p.m. (317) 849-1469**

WANT TO BUY — Top player piano stack for Story-Clark #89825. B-49 casted on piano plate. Stack has 28 bass notes, 30 tenor, 30 treble. **Eddie Oliver, Box 4604, Bisbee, AZ 85603. Phone (602) 432-4154.**

WANTED TO BUY — Ampico, Duo-Art and Welte piano rolls. Any rolls other than regular 88-note rolls. Also want parts for Ampico or Duo-Art players. **Brady, 4609 Cranbrook, Indianapolis, IN 46250; (317) 259-4305. After 5 p.m. 849-1469**

TUNERDATA: (1) Mail reminders make money for you; (2) geographical files make money for you; (3) we'll do them both for you. **Write Ed Fesler, 11315 Rich Circle, Minneapolis, MN 55437**

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**

STROBOTUNER WANTED: Seven octave. **(513) 255-2584 business hours, (513) 252-8096 after hours, ask for Dana.**

Piano Technicians Guild, Inc.

INVENTORY OF SALES ITEMS

For use by Registered Technicians

JEWELRY

Membership Pin — lapel-type, gold with blue and white logo-1/$3-3/$6-12/$18
Tie Tack — gold with blue and white logo-1/$3-3/$6-12/$18 .....
Tie Clasp — bar type, gold with blue and white logo-1/$3-3/$6-12/$18 .....

BUSINESS AIDS

Teacher Recital Program Covers — 100 for $5 (special price) .....
Billing Pads — 2-part with logo imprint, 50 per pad-1/$2.50-3/$6 .....
What is a Registered Piano Technician? — card with Code of Ethics — 7¢ each
Service Stickers — red and blue with logo-Plain-100/$4-200/$6-500/$12 ..... Imprinted with your name/address-$45/1000 .....
Logo Rubber Stamps — mounted on wooden handle, all sizes are priced the same: 1/$3.75-2/$6.50-3/$9.50. Indicate size/type: 1¼" round, ⅝" round, ½" round, 1¼" piano or ⅞ piano .....
Logo Metal Cuts — reusable metal on wooden blocks — all sizes are priced the same: $15.00 each. Indicate size/type: 1¼" round, ⅝" round, ½" round, 1¼" piano or ⅞" piano .....
Logo Cut Prints — all styles on one sheet 50¢ sheet .....

MISCELLANEOUS

Logo Stickers — peel-off backing, blue/gold/white — A and B styles.
A — for inside glass
B — regular
8½" logo – 1.$3-2/$5-6/$10 .....
3½" logo — 1/$1.50-2/$2.50-6/$5.50
1½" logo — 10¢ each (Min. order 10) (B only)
Coffee Mugs — white pedestal/blue logo — 1/$4-2/$7.50-4/$12-6/$16.50 .....
Flashlight Pens — gold, comes with battery-1/$4.50-2/$8 .....
Bumper Stickers — yellow/blue/white $1 each .....
Pocket Protectors — white vinyl with blue logo-3/$1.25-6/$2 .....
Logo Emblem Patches — colorful 3" sew-on patches, all are priced the same: 1/$1.75-3/$3-6/$4.50. Indicate colors: blue/white, blue/gold, black/gold .....
Dash Cash — emergency coin dispenser, white with blue logo-$1.75 each .....
Key Ring — heavy plastic with laminated blue/gold logo-1/$1.50-3/$4-6/$7.50 ..

For use by all members

BUSINESS AIDS

Piano Service Appointment Forms — small, green 5-part — 50/$4.50-100/$8-500/$30 .....
Piano Service Contract — letter-sized, 3-part 20¢ each .....
Piano Service Sales Agreement — letter-sized, 2-part 10¢ each .....

MISCELLANEOUS

Ballpoint Pens — gold, writes blue and red-1/$3.50-2/$6 .....
JOURNAL Binders — brown with gold letters-$6.50 each .....
Key Ring — heavy plastic with laminated blue/gold logo-1/$1.50-3/$4-6/$7.50 ..

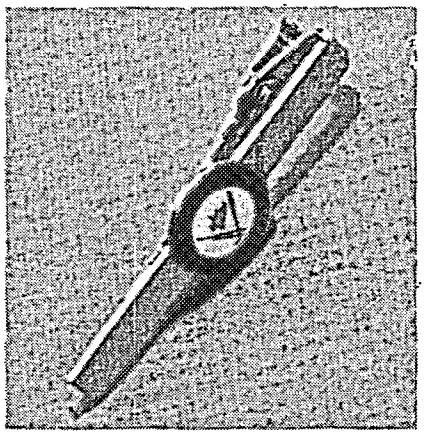
LITERATURE

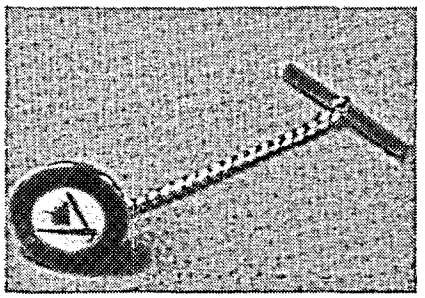
Pamphlets —
10¢ each/100 for $8/500 for $35
Care of Your Piano
Piano Pointers
Reminder Cards
"How Often Should My Piano Be Tuned?
The Unseen Artist
A-440 and Your Piano
"Should I Have My Piano Tuned in the Summer?"
Baldwin Postcard
The Tuner To Turn
Piano Action Handbook — by Merle Mason-$2.50 each .....
Piano Parts and Their Functions — by Merle Mason —
Members-$14 hardcover-$10 softcover .
Nonmembers-$18 hardcover-$14 softcover .....
Chapter Publicity Manual — $5 each ....

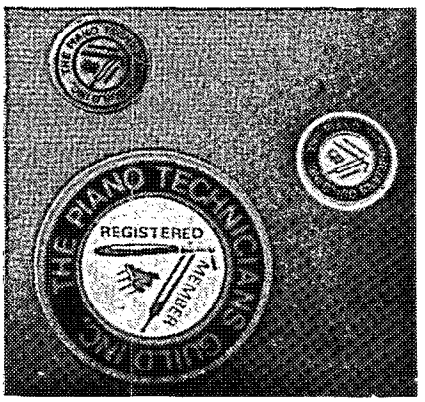
PAMPHLETS AND CHAPTER MANAGEMENT AIDS

All items below are available free from the Home Office.

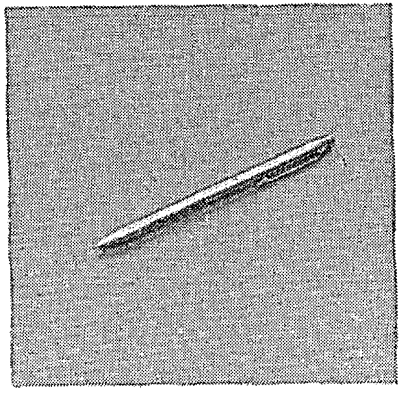
The Piano Technicians Guild-"The Facts" ..
Members Benefit List .....
Magic Kingdom Club Application .....
"Thank You for Your Membership Inquiry ..
Lending Library List .....
Reader's Digest Reprint: "The Other Masters of the Keyboard"-limit 10 per order .....
Serviceability Improvement Suggestions Form .....

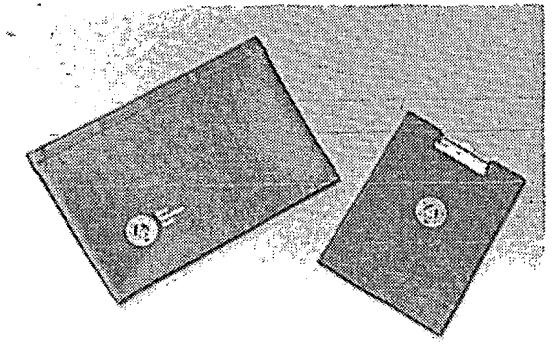


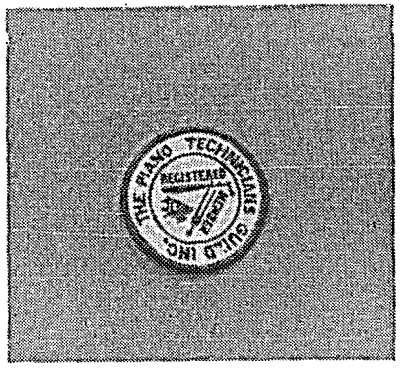


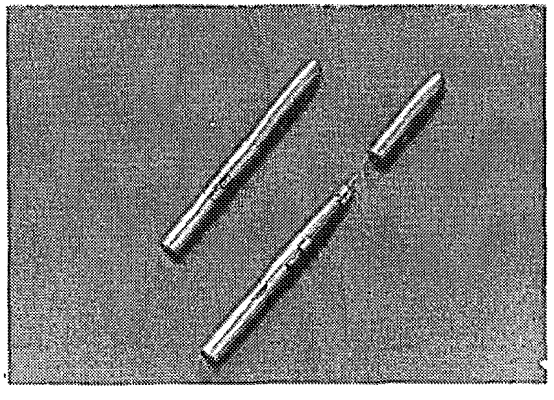


PLEASE FEEL FREE TO PHOTOCOPY THIS SALES ORDER FORM









Piano Technicians Guild, Inc.

PLEASE SEND:	Quantity	Price	Total
		SUBTOTAL	

ADD SHIPPING AND HANDLING

If order totals:	Below $5.00	$5 to $9.99	$10 to $14.99	$15 to $24.99	$25 or More
Add:	$1.00	$1.50	$2.00	$2.50	$3.50

Washington State residents only add 5.3% sales tax

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

ORDERS UNDER $10 MUST BE PAID IN ADVANCE.

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

23rd Annual Convention and Technical Institute July 14-18, 1980

CASSETTE TAPES ORDER FORM

The following programs were recorded at the Convention on standard cassettes.

Copies are available by mail order from Cassette Recording Company.

- ☐ **Aftertouch in Grand & Vertical Pianos** LaRoy Edwards, Jack Caskey, Kenzo Utsunomiya (2 cassettes) **$11.00**
- ☐ **Tuning Techniques** Ben McKlveen **$6.50**
- ☐ **Servicing the Teflon Bushings** Fred Drasche ... **$6.50**
- ☐ **Aural and Visual Tuning** George Defebaugh, James Coleman, Sr. (2 cassettes) **$11.00**
- ☐ **Vertical Servicing & Regulation** B. Corey, B. Hill, L. Herwig, C. Anderson (4 cassettes) **$22.00**
- ☐ **Hazards of Piano Tuning** Walter Pearson..... **$6.50**
- ☐ **The Behavior of Strings** James Hayes..... **$6.50**
- ☐ **Humidity Control Insulation** Allen Foote, Wendell Eaton **$6.50**
- ☐ **The Customer and You** Dick Flegle **$6.50**
- ☐ **Servicing the Aeolian Player Piano** Robert Snyder (2 cassettes) **$11.00**
- ☐ **Grand Hammer Installation** Willis Snyder, Homer Wagman, David Snyder (2 cassettes) ... **$6.50**
- ☐ **Inharmonicity & How to Deal with It** Dr. Albert Sanderson (2 cassettes) **$11.00**
- ☐ **Harpsicord Maintenance** Kyle Greenlee **$6.50**
- ☐ **Basic Piano Refinishing** Wayne L. Clevenger (2 cassettes)..... **$11.00**
- ☐ **Servicing the Rhodes Piano** Horst Absmann.... **$6.50**
- ☐ **Lubricating - When, Where and How** John Ford..... **$6.50**
- ☐ **Grand Regulation** Roger Weinsensteiner, Eric Johnson (3 cassettes)..... **$11.00**
- ☐ **Polyester Finish & Touch Up** Lee Sankey **$6.50**
- ☐ **Piano Hammer Construction & Preparation** Bob Johansen, Ray Negron..... **$6.50**
- ☐ **Soundboard Soundings** Mathew Slaats **$6.50**
- ☐ **Toward a Better Tuning** Gary Schultz..... **$6.50**
- ☐ **Electronic Instrument Overview** Kathryn Nickerson (2 cassettes)..... **$11.00**
- ☐ **Rebushing Workshop** Evan Giller..... **$6.50**

☐ **CONVENTION SPECIAL** – Any 16 or more cassettes listed above receive a 10% DISCOUNT. This includes a FREE 16 pocket Piano Technicians Cassette Album.

YES, YOU MAY CHARGE IT:

☐ master charge ☐ VISA

MY BANK CREDIT CARD NUMBER IS:

INTERBANK NO (Master Chg. only) _____ EXP. DATE _____ Mo. Yr.

Name _____

Company _____

Street Address _____

City/State/Zip _____

Area Code/Telephone No. _____

TAX DEDUCTIBLE EDUCATIONAL PROGRAMS

Order Total _____

Mail orders add 5% postage and handling (min. $1.00) _____

Ohio customers add 5% Sales Tax _____

Amount Due _____

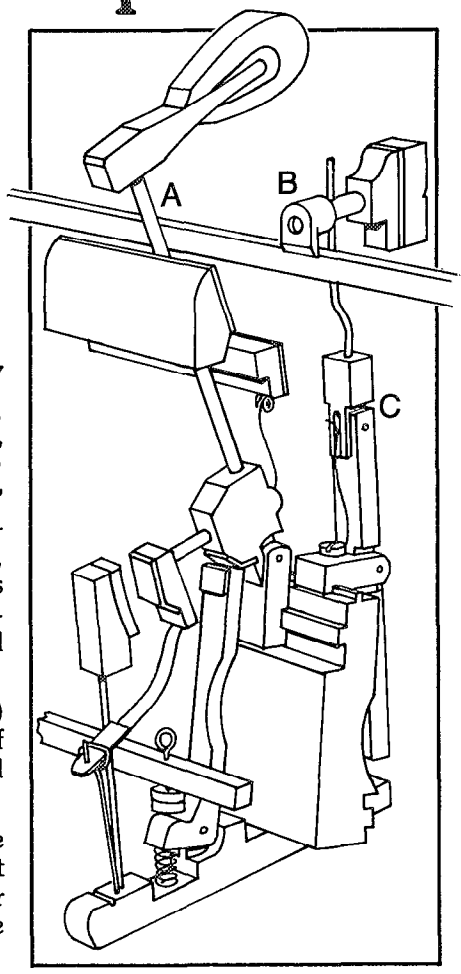
Make checks payable to: Cassette Recording Company

PAYMENT MUST ACCOMPANY ORDER

Cassette Recording Company, Inc.
34 North Main Street
Suite 1444
Dayton, Ohio 45402
(513) 223-5380

CRC

The Wurlitzer sostenuto system —so simple to service



INSTANTLY ACCESSIBLE FOR SERVICE

The sostenuto feature, a popular option on all current Wurlitzer studio, school and chapel pianos (Models 2962 and 2960), follows the principles proved in fine grand pianos and is even easier to service.

Operated from a sostenuto bar (A) actuated by the center pedal, any of 68 dampers may be picked up and held for sustained tones.

A Neoprene sleeve (B) on the damper block shaft has a lip that catches behind the sostenuto bar blade to hold the damper. Neoprene is a virtually indestructible material.

NO NEED TO REMOVE THE ACTION

Technicians will be pleased to know that all adjustments may be made from the *top* of the piano. It is not necessary to pull out the action.

Another fine point is our unique damper lever (C) which is made in two pieces, hinged and sprung to provide flexibility and make adjustments easier.

A new all-spruce Duraphonic Multiradial™ Soundboard improves tuning stability. In tests with up to 90% relative humidity, solid spruce expanded 5 times more than the new Wurlitzer design, causing more serious changes in string tension.

Wurlitzer Conservatoire Model 2960 with optional sostenuto meets all known school specifications. Maximum string length is 48½ inches.

As you continue to service our pianos, your comments will always be welcomed.

WURLITZER®
The Music People
DeKalb, Illinois 60115

PIANO TECHNICIANS GUILD

AUGUST 1980 UPDATE

Resume of the Action by Delegates in Council Session, Philadelphia 1980

RESUME OF THE ACTION BY DELEGATES IN COUNCIL SESSION, PHILADELPHIA 1980

A condensed report of the action taken by the delegates at the annual council session held in Philadelphia, July 1980, follows:

NEW CHAPTERS granted charters:
Little Egypt, Illinois
Tulsa, Oklahoma
Western Maryland

CHAPTER SUSTAINING membership was granted for Hal Lyne.

CHAPTER NAME CHANGES approved:
Greensboro-Charlotte to Central North Carolina
Western South Carolina to Western North Carolina
Capitol Area to Capitol Area, New York

MINUTES of the 1979 council session were approved as printed.

COUNCIL STANDING RULES adopted as printed.

REPORTS OF THE OFFICERS, REPORT OF THE EXECUTIVE DIRECTOR, REPORTS OF STANDING COMMITTEES, and **REPORTS OF SPECIAL COMMITTEES** were received as printed.

THE SPECIAL COMMITTEES ON RECORD were formally renewed as required by the bylaws.

The action on the proposed amendments to the bylaws and regulations is as follows:

1. **DUES INCREASE** The dues for Registered Technicians, Allied Tradesmen, and Apprentices were increased by $12.00 to $96.00 a year.

2. **ENTRY FEES** New members' regular dues payments will begin the month following entry date. The entrance fee remains the same as before.

3. **STUDENT FEES** Students' Guild dues are now $60.00 and chapters are authorized to assess additional chapter dues up to $20.00.

4. **RECLASSIFICATION FEE** A $10 reclassification fee is now required to be sent to the home office for all reclassifications.

5. **CHANGE IN DROP DATES** Dues are now considered delinquent if not paid by February 15th of each year and a second billing with a reminder notice will be sent February 1st. If no communication is received by the home office regarding dues by March 15th the member will be dropped.

6. **JOURNAL SUBSCRIPTION** The authority for setting Journal subscription rates was clarified to provide that the board continue to set the rates.

7. **SUBSCRIPTION FOR SPOUSES OF DECEASED MEMBERS** The proposal to increase the subscription price for these spouses was defeated.

8. **BUDGET PRESENTATION** In future the budget presented to the council will include itemized actual expenditures from the two previous years.

9. **LEGAL RESERVE FUND** The proposal to provide for a legal reserve fund was defeated.

10. **NEW STANDARD TUNING TEST** Both amendment #10 (Examination committee proposal) and #11 (Cleveland Chapter proposal) were reviewed and amended individually. After full consideration the council voted to adopt the amended committee proposal as follows, to take effect Jan. 1, 1981: Amend Bylaws: Article IV Sec. 2 ... delete a), b), c) *substitute* a new a) and b) and reletter the rest.

a) If the application is accepted by the chapter, an examination of the applicant must be given by the chapter examining committee and/or Certified Tuning Examiners at chapter level and/or at approved Regional Testing sites in accordance with PTG Council approved examining and grading procedures without exception or deviation.

b) All Technician applicants be accepted by the chapter and shall take the council-approved written examination of technical problems and the council-approved bench test under chapter examining committee supervision. The Tuning Test shall be given by three examiners at least one of whom is a Certified Tuning Examiner, at an approved testing site or at a chapter level if the conditions of location, instrument and equipment meet the specifications required in the testing procedures as approved.

Amend regulations by addition of Article IV STANDARD TUNING TEST QUALIFICATIONS FOR MEMBERSHIP.

A) This test shall be administered by a Standing Committee called Examinations and Test Standards Committee, under the supervision of the Executive Board.

B) The test shall be personally administered and given only by a Certified Tuning Examiner.

C) The test can be given at committee approved sites where basic requirements are met. These sites can include Certified Test Centers, Conventions, Seminars and other group or regional meetings and Chapters.

D) In administering the test, all the procedures outlined below shall be followed in every case so that all tests will be given fairly and the results will be comparable.

E) The Examinations and Test Standards Committee Requirements:

1) A standing committee appointed by the President with the approval of the Executive Board. The President shall designate the Chairman. President and Vice President shall be Ex Officio Members.

2) All members shall be Certified Tuning Examiners except the Ex Officio members.

3) Starting in 1981, no member may serve more than three (3) years consecutively. One new member must be appointed each year so there will be a staggered term.

F) Duties of the Examinations and Test Standards Committee:

1) Recommend to Council for approval any changes in tests and/or procedure. This includes tuning, written and bench tests.

2) Administer the Certified Examiner pool.

3) Recommend candidates for this pool to Board.

4) Approve all testing sites.

5) Recommend reasonable test fees subject to Board approval.

G) Certified Tuning Examiner Qualifications and duties:

1) They shall administer and grade the tuning test.

2) To qualify as a Certified Tuning Examiner the member shall:

a) Be an aural tuner.

b) Pass each category of the Test at 90 per cent or better.

c) Successfully complete instructions in handling the required measuring equipment and computer, etc., used in the test.

d) Sign consent to serve as examiner and indicate willingness to give the time needed to oversee exams.

e) Be recommended by the exam committee to board for approval.

f) Be approved by a board majority.

3) Examiners shall receive a stipend to cover personal expenses if they are required to travel over 50 miles and/or spend more than one day for the testing. Stipend to be determined by site costs and income from test fees.

4) No Certified Tuning Examiner shall advertise that he is an examiner.

5) Certified Tuning Examiners shall be recertified at regular intervals, every five years.

H) Test Sites shall meet the following requirements:

1) The facility shall be available for uninterrupted use for the period needed.

2) A good quality six-foot or larger grand piano shall be available.

3) Necessary supplementary equipment, calculator and measuring device, shall be available.

4) There must be three examiners, at least one of whom must be a Certified Tuning Examiner.

5) If one of the Certified Tuning Examiners is visually handicapped, there shall be a non-handicapped certified tuning examiner present.

6) The master tuning shall be done by a certified tuning examiner assisted by at least two registered technicians.

7) Test site may be at a national convention, a group of regional seminar or meeting or at a chapter.

8) Where facilities are limited and/or examiners are in short supply, a national test site can be approved.

I) Other requirements:

1) The applicant shall be screened for membership by the chapter as required by the Bylaws.

2) Chapters shall administer the bench test and written test.

3) Chapters shall attempt to find the level of tuning competence informally in advance so that the applicant is not put to unnecessary expense and inconvenience.

4) Application to take the tuning test shall be made to the local chapter which shall arrange a convenient testing site.

5) Location, dates and times of testing shall be circulated to chapters every month through the home office.

6) Applicant shall pay a test fee to cover costs of administering the test in addition to the normal application fee.

J) All procedures for actual preparation and administering the test follow in the committee-prepared "Examination Manual."

11. *CLEVELAND CHAPTER TUNING EXAMINATION PROPOSAL* After full consideration and amendment this proposal was not adopted.

12. *EXAMINATIONS AND SERVICE STANDARDS COMMITTEE* This proposal was for discussion of various aspects of the examination including revision and updating of the bench test. Full discussion was held and the proposal has been referred to the committee.

13. *ELECTION OF OFFICERS* In future the official request for nominations for Guild national office will appear in the December issue of the *Journal* and the committee selection will be published in the May issue.

14. *CAUCUS ELECTIONS* The proposal that the president read the caucus rules to the delegates was not adopted in view of the fact that the caucus rules are now printed in the delegates' agenda books.

15. CHAPTER OFFICER ELECTION The proposal that chapter officer elections be held in the months of November or December was defeated.

16. *INCAPACITY OF OFFICERS* The amendment was adopted after being amended to read as follows: "In case of death or incapacity due to medically verifiable illness which restricts an officer from properly fulfilling the duties of office, the president, upon agreement of the rest of the board that such incapacity exists, can appoint a replacement provided the workload of the vacant office demands replacement and that appointment is approved by unanimous vote of the rest of the executive board."

17. *USE OF THE TITLE CHAIRMAN* The proposal to require the use of "chairwoman and/or chaired" was defeated.

18. *LEGAL AFFAIRS COMMITTEE* The proposal to add this committee to the Guild standing committees was not considered as amendment #9 was defeated earlier.

22. *SOUTHEAST REGION* The region was enlarged to include the Virgin Islands and Puerto Rico, as the islands are a part of the United States and geographically appropriate to the Southeast Region.

26. *COUNCIL MINUTES* Since a complete resume of all council action is printed in the *Journal Update* immediately following the convention, the delegates approved elimination of the expensive printing and mailing of the 25-30 pages of the full copy of the minutes to all members. Any member wishing to have the full minutes will be sent a copy upon request.

The remaining proposed amendments were not considered and referred back to the Bylaws Committee.

1981 BUDGET AND REVIEW OF FINANCES The delegates considered the budget and, after review and extended discussion, the bud-

get was adopted as printed with the following recommendation referred to the board:

Page 63B of agenda book: Account #627 FILM/TAPE DEVELOPMENT to be reduced from $14,000 in the proposed budget to $7,000 and the remaining $7,000 to be transferred to account #603 MEMBERSHIP DEVELOPMENT SERVICES.

ELECTION OF OFFICERS The following officers were nominated and re-elected by acclamation:

President ..... Bob Russell
Vice President.... Sidney O. Stone
Treasurer-Sec'y. ... Charles Huether

ELECTION OF REGIONAL VICE PRESIDENTS The following were re-elected in their respective caucus elections and ratified by the delegates in council:

Northeast Reg. ... Dick Bittinger
Southeast Reg. ... Walter Kerber
S. Central Reg. .... Tom Blanton
Cen. East Reg..... George Peters
Cen. West Reg..... Ernest Preuitt
Western Reg. ..... Daniel Evans

ELECTION OF COMMITTEES The following were appointed as tellers: For the Nominating Committee: Dennis Kurk, Barbra Martin and Ed Wood. For the Minorities Committee: Ray McCall, Tim Dixon and Leslie Collis.

The following were elected to the Nominating Committee for 1980-81:

Jack Sprinkle, Chairman
Dick Flegle
Ron Berry
Stanley Oliver
Evan Giller

Jimmy Gold, First Alternate
Norman Heischober, Second Al'nt.

The following were elected to the Minorities Committee:

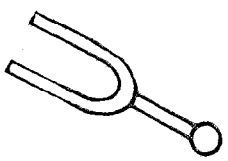
Patricia Sankey, Chairman
Don Morton
George Morgan

LOCATION OF FUTURE CONVENTIONS 1981 San Francisco, 1982 Washington, D.C., and 1983 New Orleans.

1984 CONVENTION LOCATION The following resolution was adopted:

"WHEREAS, There are advantages and disadvantages related to any type of convention location; and
WHEREAS, We know both concerning large city downtown hotels; and
WHEREAS, Some assumed disadvantages of campus locations are:
1. Difficulty in finding a willing school with enough available and satisfactory dormitory room and food service; and
WHEREAS, Some assumed advantages of campus locations are:
1. Cost of rooms estimated to be one-third that of hotels,
2. Food costs much less,
3. Parking costs reduced to nothing plus easy access by car,
4. Entertainment, restaurants and "atmosphere" (in many campus cities) equal though perhaps different,
5. A possibly favorable difference in cost to PTG for necessary facilities, be it therefore
RESOLVED, That the PTG Council of Delegates direct the executive board and the Convention Time and Place Committee to consider the possibility of holding the 1984 convention on a college or university campus; and to report significant findings to the Council."

REPORT ON INTERNATIONAL ASSOCIATION OF PIANO BUILDERS AND TUNERS Immediate past president Don Morton, who is co-president of the new world-wide association of IAPBT organized during the 1979 convention at a special international session, gave a report on the next meeting of IAPBT to be held in Switzerland next Spring.



Notice on Tuning Examinations

Applicants MUST take the required examinations through the chapter which has jurisdiction over the area in which the applicant lives and/or works.

Chapters are reminded to check that an applicant is within the chapter's jurisdiction *before* any testing begins. Otherwise the applicant may have the validity of the examination questioned and acceptance into the Guild delayed for additional testing.

The Increase In Annual Dues

by Don Santy
Executive Director
Piano Technicians Guild

On behalf of the leadership of the Guild who are concerned about the financial affairs of our organization, I would like to thank the members of the Council of Delegates for their approval of a $12 increase in annual dues.

This amount will barely keep us even with one year's inflation, but it will enable several programs to continue which we feel the Guild sorely needs to properly serve its membership.

The position of the home office was made clear at the council meeting. We do not recommend anything in the way of a dues increase. It is the collective wisdom of the board of directors which determines the needs and services of the Guild and the amount of money it takes to provide them. Like the board, the Guild's management people can only provide those goods and services for which the membership is willing and able to pay. If the members decide to pay for less, they will get less; if they are willing to pay for more, they will get more. There is no such thing as a free lunch.

The change in the fiscal year (last year) placed a severe strain on the 1980 Guild budget since it had to support the last two months of 1979. We are working diligently to overcome this situation.

THERE IS NO FAT IN YOUR BUDGET. Everything is there for a purpose and is vital to your cause. Your board of directors is kept informed through budget flow-sheet reports, and these are backed up by an OUTSIDE CPA firm also providing regular reports. A complete (and expensive) financial examination was completed by an outside CPA firm last year and your directors have copies. It showed quite dramatically how much MORE money your board is pouring into direct membership services. A six month's report is now being prepared by another outside firm (an accountant who did your work many years ago for and is familiar with the

Guild), and this will be available soon. Your board of directors is making every effort to keep costs down and income up in order to continue the current high level of activity.

You may notice a slight increase in the cost of some home office services. These can hardly be avoided in this time of a frantically expanding economy. Postage will soon leap to new heights in price; the price of paper and printing services is climbing steadily; compensation must be increased and more and more demands are being made by members who want more and more services. The absorption of inflation is a problem to us all and one must remain flexible to cope.

The Guild is fortunate in having a management firm which can expand and retract as the need arises and as your situation changes. Your fixed expenses are few, and we can provide you with as many (or as few) services as you wish. This is why we basically take the stand that a dues increase is the business (and the responsibility) of the membership and the board. We are simply able to serve you within those limitations which are placed upon us.

August Chapter Mailing

The chapter mailing being sent to all chapter presidents August 14 will include:

1. Chapter computer printout of the membership. Please check the entries for accuracy and report any changes to the home office without delay.

2. Outstanding-chapter awards participation certificate to those chapters on record in the 1979-80 awards contest.

3. New "chapter notes" form to be used when sending news and other items to be printed in the "Chapter Notes" section of the *Journal.*

Boardroom Reports To the Membership

The executive board of the Piano Technicians Guild was in session both before and after the council meeting. The board made recommendations for business which were later acted upon by the delegates in council. The board also approved following:

CHAPTER NOTES A new form has been prepared for use by chapters wishing to send in material for the Chapter Notes section of the Update. The new form will clarify the type of material which can be used and encourage a wider response from chapters.

INDEX OF JOURNAL ARTICLES The new Index listing information on all technical articles in past *Journals* is now in print and available at $25. Orders already on file in the home office are being filled first and new orders will be filled on first come basis until the 200 remaining copies are sold.

Anyone wishing to have photocopies of specific back *Journal* articles may order the copies from the home office. The price per page to be set at a reasonable rate to cover the cost and handling.

STEVE JELLEN MEMORIAL FUND AND LIBRARY The first donation has been received from CWRVP Ernie Preuitt in memory of Past Regional Vice President Paul Cheatham.

USE OF THE GUILD NAME BY NONMEMBERS An official letter is to be sent to every yellow page telephone book company and to the consumer protection agency instructing them that the Guild will protect its name and logo at all costs including legal process in order to protect the reputation of the Guild and consumers. The letter will state that anyone submitting copy for yellow page advertisements which include the Guild name or logo must produce a current Guild member card to prove the right to use the name and logo.

MEMBERSHIP CARDS The board continued to approve membership cards being mailed only after the full annual dues had been paid.

CAREER ASSESSMENT The board approved participation by the PTG in achievement of a career assessment program which would assist those interested in piano tuning to learn whether they had the capability to undertake the training required.

SCHOLARSHIP A committee to study the feasibility of the PTG having a scholarship fund was appointed.

SEMANTICS AND PTG The various uses of titles for the Piano Technicians Guild: PTG, Guild, etc., were discussed. The letters PTG, without periods, have been accepted for in-house usage and between members and chapters, etc. The full title Piano Technicians Guild to be used for all publicity, advertising, seminars, etc., and where the general public is concerned.

DELEGATES' AGENDA 'BOOKS Since the agenda books are costly to reproduce and many members are interested in receiving a personal copy the board has directed:

1. Each chapter shall continue to be mailed one copy for its delegate.

2. Agenda books shall be available for sale to any interested member at cost.

3. Books must be ordered in advance and a notice to this effect to be included in the Update and with the convention mailing.

PTG FILMS In view of the heavy demand for films the board approved:

1. Technical films are available for chapter programs and must be ordered by the chapter.

2. No films shall be sent to an individual for private use.

3. Films may be used for seminars, etc., sponsored by regions and chapters provided the film is ordered by a chapter.

4. Non-technical films not currently on request by a chapter may be sent on loan to colleges, etc., at a $25 fee.

Note that film policies still require prompt return of all films and a charge may be made for items damaged through careless or improper handling.

BUDGET The board amended the budget to comply with the council recommendation to reduce film and tape production account by $7,000 and increase Membership Promotion by $7,000.

1984 CONVENTION The council

recommendation that the 1984 convention be considered for a location at a college campus was referred to the Convention Time and Place committee for action.

MIDYEAR BOARD SESSION The 1981 midyear board session will be held at the Hilton Hotel in San Francisco where the next convention will take place.

JOURNAL PRICE The price of the PTG Journal to nonmembers was increased to $60.

CHAPTER ACHIEVEMENT AWARDS In the future, there will be four categories of awards: 1st and 2nd place award for large chapters, **51 and over**; 1st and 2nd and honorable mention award for medium chapters, **26 to 50**; 1st and 2nd and 3rd plus an honorable mention award for intermediate chapters, **11 to 25**; 1st and 2nd and 3rd plus an honorable mention for small chapters, **5 to 10** members

CERTIFIED TUNING EXAMINERS: The following 20 members were approved as Certified Tuning Examiners:

Olan Atherton
Ronald Berry
Richard Davenport
Clair Davies
Brian De Tar
Robert Draine
Evan Giller
Richard Harris
Bob Erlandson
Ruth Ann Jordan
Bill Marciano
Barbara Martin
Wayne Matley
Guy McKay
Don Morton
Robert Reeves
Michael Travis
Richard West
Jim Coleman Sr.
Al Sanderson

Report by the Chairman, Examinations And Standards Committee

By Ronald Berry
Chairman, Examinations
And Standards Committee

Gentlemen of the Board:

As you prepare to leave this 23rd Annual Convention of the Piano Technicians Guild, we are taking home to our membership news of one of the most significant challenges this Guild has ever voluntarily undertaken. In many ways the scope of this project is overwhelming and the January 1 target date is ambitious, but I know we are equal to the challenge.

The Council mandated us to implement the test by January 1. You have expanded the Examinations and Standards Committee to include one representative from each region who is, or soon will be, totally capable of carrying out the organized program of local testing and training necessary to bring each of our six regions into a state of readiness for the January deadline.

Jim Coleman and Al Sanderson, in addition to handling the transition programs in their respective regions, will continue to guide us through the technical aspects of the new tuning examination.

As chairman of the committee, I am prepared to assume the helm of this operation as we move the program into place. I have followed the progress of this tuning exam since it was first introduced. As soon as I could, I bought the three pieces of test equipment and began working with them. I know this test backwards and forwards and understand most of the challenges involved in its implementation. Even though I am still awed by the job before me, I am ready for the challenge.

Two men developed this test. Fewer than one hundred had passed it prior to this convention. And now we have to spread the word of it to more than 3,000 technicians in the U.S., Canada, the Virgin Islands and Puerto Rico.

You gentlemen are the leaders of those 3,000 technicians. You regional vice presidents know the chapters and the local members better than anyone else in the Guild; you know the movers and the doers as well as the people who talk big but act small. You also know what the Guild means and how this tuning test will professionalize and advance our craft as well as our organization. You are the six men who can pave the way; we need your help.

Our first joint task is to assess the needs of each region. I would like you to advise your respective committee members about what each chapter needs to bring it into full readiness. Once we can outline the job to be done we can begin to know how much work it will take. I will be contacting you each by mail before the end of July. In the meantime, please begin to gather your observations and make notes so you can advise us. Perhaps you will want to call your regional committee member and talk this over before you even receive my letter.

Several regional seminars have been scheduled for the coming months. You are the people who can move mountains for us to get things done at those seminars. You can contact the seminar organizers and get them — in ways known only to regional vice presidents — to arrange rooms and pianos for us as part of their seminar budgets.

More than that, you know the people who should be taking the test and getting trained as examiners in your region. A well-placed phone call from a regional vice president can convince those people to sign up for the test and follow through with the training. You as regional vice presidents can do things for us that the best test in the world could not accomplish. You can open doors which the exam committee cannot. We look to you for your influence, prestige, contacts and expertise. People look up to you; if you encourage them to give the exam committee the cooperation we need, they will know you speak in their best interest.

During the next five months before implementation and the months following January 1, you

will have an opportunity to observe how well we are getting the job done. Your analytical perspective can help keep us informed and on the right track.

It seems only timely to note the similarities between the job before us today as we prepare to leave this national convention and the job before other national leaders who have left Philadelphia in the past carrying news of important developments back to the states and provinces.

In the annals of our Guild's history and the development of our professional stature as piano technicians, the ideas which we have advanced at this council meeting, followed by the challenge of making them happen, carry an impact of legendary proportion. If we work together and work more intensely and more effectively between now and January 1 than we have ever worked before, by the time council convenes in San Francisco, our history will have been made. Thank you. **Ronald Berry,** Chairman, Examinations and Standards Committee.

A Letter From A Chapter President

(Editor's note: The following letter was sent to Dick Bittinger, northeast regional vice president of the Piano Technicians Guild. It was written by Wayne Jordan, who joined the Guild in January 1980 and is now president of the Wilmington, Delaware, chapter. Said Bittinger of the letter:

"It sure did my heart good to read a letter like this. It makes all the effort as regional vice president worthwhile. If all new presidents were like this our job as regional vice presidents would be a bit easier. I hope there are many more throughout our regions.")

Dear Dick:

I enjoyed talking with you after the meeting last week. I have a lot to learn about the Guild and how it operates. I look forward to your counsel and guidance over the next few months.

As with any endeavor, getting started is half the battle; and before I can start anything, I need to know where I want to go with it. Consequently, I've spent the past week establishing some goals and priorities. I'd like to submit this list to you for your comments, additions or corrections. (Also, as my northeast regional vice president, I would expect you to hold me accountable for them at the end of the year!)

I've determined three areas of concentration: personal, chapter, and public. The goals are as follows:

Personal: qualify as a national examiner within the next six months.

Chapter: 1. activate at least one-half of the currently inactive members; 2. advance five current members to craftsman by Dec. 31, 1980; and 3. (enroll) three new members of any classification by Dec. 31, 1980.

Public: Expand public relations to include at least three public speeches within the next six months.

My next step is to work out specific plans as to how these can be accomplished. I'd appreciate any suggestions you could make.

I hope these goals fit into your plans for this area. I look forward to seeing you in the near future.

Sincerely,
Wayne Jordan

Doctor of Piano-Forte (PFD)

by David R. Duncan
Greensboro-Charlotte Chapter

I am sure that a number of universities will wish to offer the above degree as soon as I get around to writing my books, *Piano Surgery in the Home* and *Diagnosis of Disorders in the Female Piano.* Meanwhile, those aspiring to this degree may begin preparation by studying the terms below.

Condition: Inaccurate tensioning of the stringular system.

Therapy: Systematic tensioning of the stringular system relative to 440 CPS.

Condition: Chronic loosepinosis due to inadequate moisture in the lateral wrest plank mass.

Therapy: Transfusion of TP fluids I V.

Therapy: Application of new adhesive matter to the indicated part.

Condition: Retarded operation of the vibrational activation system due to edema of the bushing tissue.

Therapy: Application of CP fluids to the bushing tissue. Heating of the affected areas useful in some cases.

Condition: Sclerosis of the main percussive device.

Therapy: Acupuncture of the main percussive device following indicated abrasive procedure.

Condition: Fissure of the fibrous amplification diaphragm.

Therapy: Implant of fibrous appliance into fissure with appropriate application of adhesive matter.

Condition: Localized loosepinosis due to divarication of wrest plank mass along a discernible line of fibers.

Therapy: Application of epoxy matter is indicated; however this condition usually leads to radical pinblockectomy with appropriate replacement of the entire wrest plank mass.

Condition: Acute stringular degeneration.

Therapy: Grafting of the entire stringular system with new string tissue followed by systematic tensioning at appropriate intervals.

Condition: Pencilitis due to the ingestion of pencil or other foreign object into the visceral area of the vibrational activation system.

Therapy: Pencilectomy.

How The Discussion On The Examination Proposals Was Handled

Since the discussion on the new tuning examination and the two proposals (committee proposal and Cleveland Chapter proposal) was handled in true parliamentary fashion as a motion and a substitution motion, all members will be interested to see how this was done. Here is the page from the Agenda Book which explained the procedure. The delegates followed the business in a professional and forthright manner with no problems. Congratulations to all our our experienced delegates!

NOTE: Amendment #11 is offered by the Cleveland Chapter as a substitute for amendment #10 proposed by the Examinations Committee. Under Robert's Rules of Order Revised the correct procedure for handling a substitute is as follows:

1. Full discussion, and amendment of any part of #10 (Examination Committee proposal) until the proposal is as satisfactory as the council wishes. NO VOTE IS TAKEN ON ADOPTING #10 AT THIS STAGE.
2. Now #11 (Cleveland Chapter proposal) is discussed, and there may be amendment of any part of #11 until this proposal is as satisfactory as the council wishes. NO VOTE IS TAKEN ON ADOPTING #11 AT THIS STAGE.
3. Now both proposals may be briefly reviewed. This gives everyone another opportunity to make further changes which may be advisable in view of action taken under above paragraphs 1 and 2.
4. When both #10 and the substitute #11 have been fully aired and amended to suit the council, the decision is made on which proposal is considered best by the voting members.
   a) A vote is taken on whether the substitute #11 (Cleveland Chapter proposal) shall take the place of #10 (Examinations Committee proposal).
   b) **IN FAVOR OF THE SUBSTITUTE:** If the council votes in favor of the substitute then #11 supercedes #10. The Cleveland Chapter proposal stays on the floor and the Examinations Committee proposal is removed.
   c) **OPPOSED TO THE SUBSTITUTE:** If the council votes against the substitute then #10, Examination Committee proposal, remains on the floor and #11, Cleveland Chapter proposal, is removed.
5. Whichever of the two proposals has been approved is now the **only** subject for final consideration by the Council. It can be reviewed again and amended again, if desired.
6. The vote is now taken to decide what action the Council wants to take on the proposal still on the floor. The Council may adopt, defeat, refer to committee or board, postpone, etc.

Chapter Notes...

The New Jersey Chapter honored one of its members at its annual dinner in June in Clifton, New Jersey. Charles "Bud" Willis, a former president of the chapter, attended the dinner not knowing he would be honored. He learned of his selection as he watched the beginning of a "This Is Your Life"-type videotape that was played for the membership at the dinner.

Willis, a life-long resident of New Jersey, was singled out not only for serving as president of the chapter but also for maintaining communications with neighboring New York chapters and presenting his technical program on knots for chapters in that state and in Philadelphia.

Several members of the audience praised Willis including Charles Huether, treasurer-recording secretary of the Guild, who mentioned Willis's desire to continually upgrade his knowledge in the field. Willis attended both the Baldwin School and Yamaha's Little Red School House.

The Redwood Chapter of California recently completed a piano technology workshop at the College of the Redwoods. The class, which could be taken for college credit, was an introductory course for those who wanted to know more about the field of piano technology. Included in the class were sessions on the history of the piano, taught by Neil Burgstahler and Stephanie Cadra; tuning the equal temperament, taught by Dan Gurnee; and meantone tuning, taught by Bill Swackhammer. All fees from the workshop went into the chapter treasury.

At its June Meeting, **The Portland Chapter** dispensed with a strictly piano-related program to learn the ins and outs of cardiopulmonary resuscitation, commonly called CPR. The members learned how to administer CPR, an emergency treatment designed to revive a person whose heart has stopped beating or whose breathing has stopped.

The Twin Cities Chapter of Minnesota took a look at how bad inflation isn't in a recent article in its newsletter, "Soundboard Buttons." Written by Phil Bach, the article examined inflation as gauged by the consumer price index, the government's chief economic indicator. It said:

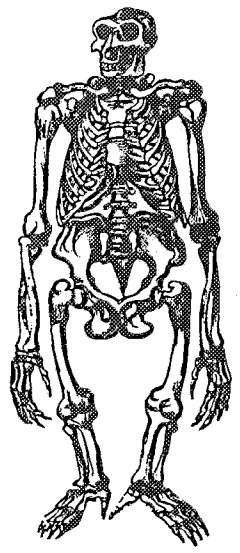
"The consumer price index (CPI) rose about 13 per cent last year. Does that mean that we have to raise fees 13 per cent to keep even? Not likely...

The CPI is zero-based on 1972 and assumes that nothing has changed since then, which it surely has. Three examples will illustrate.

1. Beef has risen more than the average, so if you've joined the people who have switched half the beef budget to pork, poultry, fish and other cheaper substitutes, you're ahead of the 13 per cent.
2. Mortgage rates have risen sharply, but whenever you got your mortgage, the increase has stopped for you. If you got one prior to 1972, you've missed the rise entirely.
3. Gasoline has outpaced the CPI, but if you've curtailed your driving, you've beat the gain in dollars spent. Few people are taking those long-drive vacations as freely as they used to. With a quarter million more cars on the road, gasoline consumption has dropped. Curtailing driving should be easy for a tuner who figures out ways to work closer to home, working the area intensively rather than extensively.

There are ways to come out even without jacking up fees 13 per cent.

TUNER HEALTH TIP



"Don't carry such heavy tool cases!"

(Contributed by John Baird, Central Illinois Chapter)