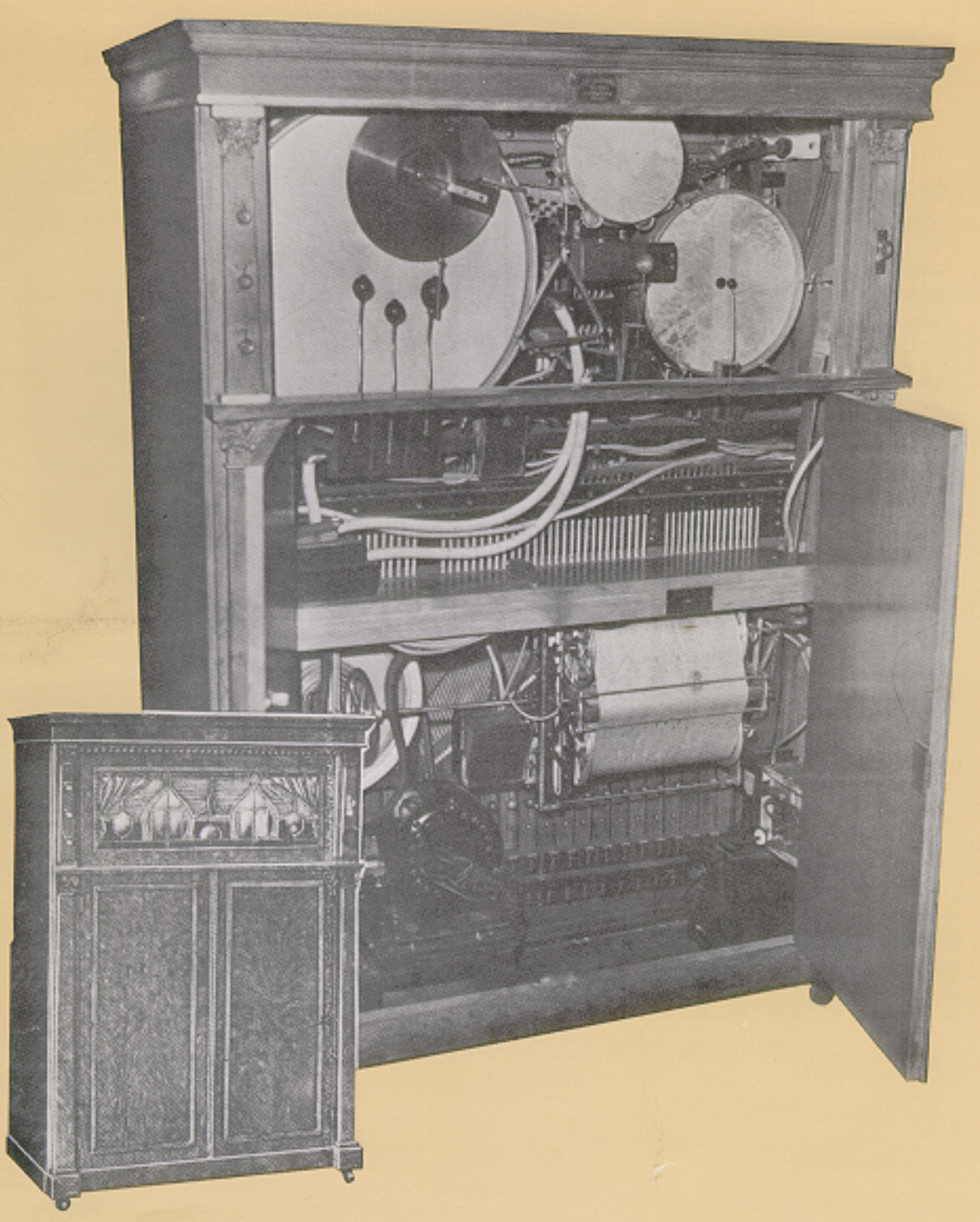
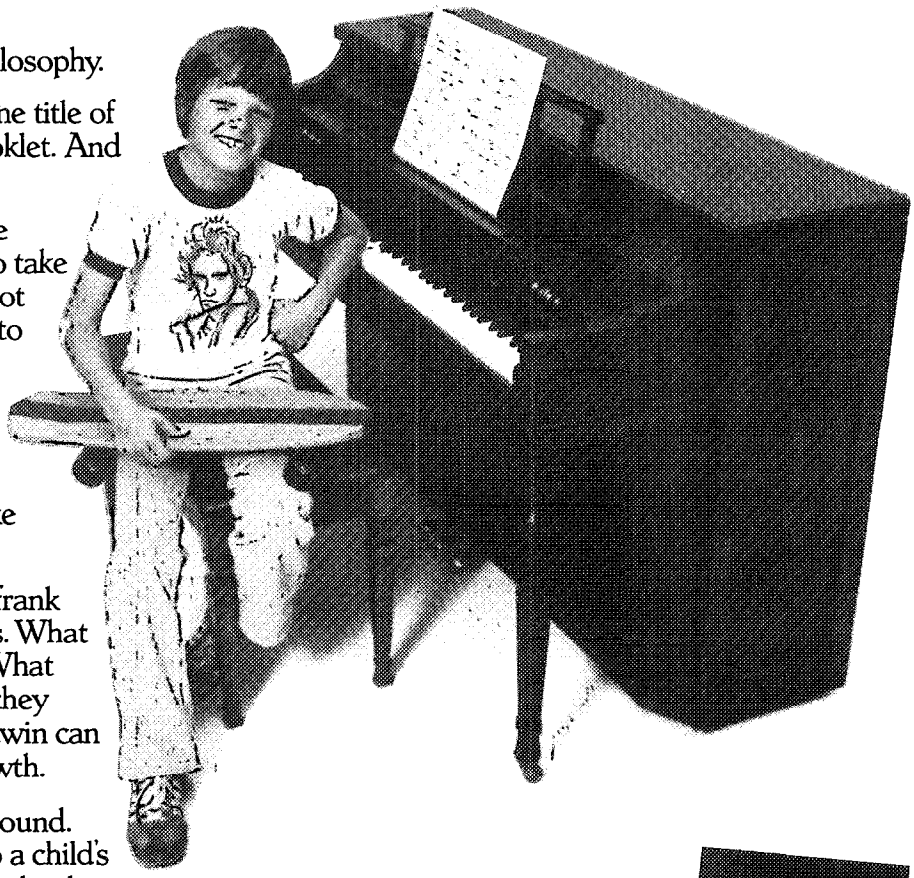
Piano Technicians Journal
NOVEMBER 1980



Every life needs music.

That's the Baldwin philosophy.

It also happens to be the title of a new, informative booklet. And it's yours free.



Because when the time comes for your child to take piano lessons, you've got some tough decisions to make. Not the least of which is choosing the right piano.

We think "Every Life Needs Music" will make those decisions easier.

You'll read some very frank discussions about kids. What they need in a piano. What they don't need. How they grow. And how a Baldwin can contribute to that growth.

You'll find out about sound. How important it is to a child's music education. And why the clear, warm sound of a Baldwin is unique among pianos.

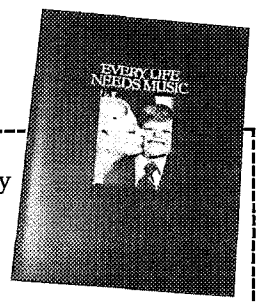
And you'll learn about piano construction and design. What to look for. Where to look for it. And how to recognize a quality piano when you see one.

But the most important thing you'll get from your free copy of "Every Life Needs Music" is information. The kind you need to make the right piano decision.

Of course, we think you'll choose a Baldwin piano.

Because a quality piano not only enhances a child's music education, it enriches his life.

And every life needs music.



Baldwin Piano & Organ Company
P.O. Box 2525, Dept. PTJ
Cincinnati, Ohio 45202

Please send me my free copy of "Every Life Needs Music."

Name

Address

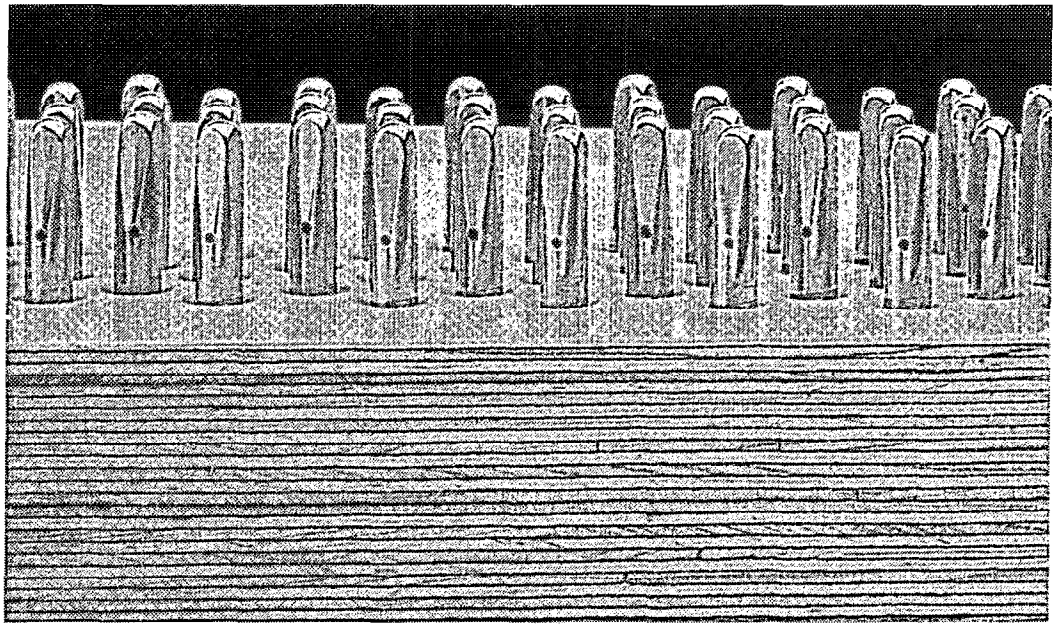
City State Zip

Baldwin®/EVERY LIFE NEEDS MUSIC.

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.

Delignit®

Multi-laminated beech pin block material



At long last Schaff has obtained a distributorship for the German made, multi-laminated beech pin block material called DELIGNIT®. For several years now this type of pin block has been imported into the United States and Canada. Now this particular DELIGNIT® grade, having the same characteristics of density as used by almost all European piano manufacturers, is available at Schaff.

As the above picture of a typical 1⅜" DELIGNIT® pin block shows, there are approximately 21 cross laminated plys of high quality beech veneers that are compressed together with a modified hot curing phenolic resin applied in a special dry-bonding process. A full panel pin block measures 48" wide x 59" long with a double block being 19" wide and a single block measuring 9½". All of the various width blocks come in either 1¼", 1⅜" or 1½" thickness.

Single and double blocks can be shipped UPS, but a full panel must ship via truck. Write or call for pricing information.

THE HOUSE DEDICATED TO SERVICE

Schaff PIANO SUPPLY COMPANY

451 OAKWOOD ROAD, LAKE ZURICH, IL 60047

(312) 438-4556

Official Publication of the Piano Technicians Guild/November 1980 Volume 23 Number 11

Piano Technicians Journal

CONTENTS

COVER... Featured this month is a Seeburg KT Special Coin Piano manufactured in the early 1920s. It retailed then for about $1175 and was basically a cabinet piano with mandolin and xylophone. This one also featured such percussion effects as castanets, triangle, tambourine and snare drum. Thousands were sold from the mid-teens to the late 1920s and many survive today, including this one in the collection of Harvey Roehl of the Vestal Press. (Photo from **Encyclopedia of Automatic Music Instruments** by Q. David Bowers, Published by Vestal Press.)

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.

EDITORIAL

Don L. Santy,
Executive Editor

The great scramble is on!

By the time you read this it will be all over. A president, and numerous lesser lights, will be settled in their nests for another term of political security. At long last we can turn our (and their) attention to more important things such as wars, inflation, poverty, the nation's ills, etc.

One rather philosophical gentleman was heard to say, "The most frightening thing about this election is that one of the candidates might win."

I am essentially apolitical. Politics mostly leave me cold. I don't know how many people feel as I do, but there must be those who hate to see our entire social fabric soaked in political rhetoric every four years like a throw rug that's been left out in the rain — every where you step it squishes and bubbles.

I am, however, curious about those who choose to run and WHY they run. The task is certainly thankless. They are exposed to terrible abuses. They (politicians) must have some traits in common. It is well recognized that one must have a tremendous ego need to let oneself in for such a hassle. This must be imperative to drive them on so relentlessly and to such great extremes.

My curiosity led to some research about presidents. It doesn't tell much but what I found out may be of interest to you.

Everybody knows the job is impossible. Only a few men have been eminently successful at it. A great many have been mediocre and some have been downright failures.

The youngest president at inauguration was good ol "Rough and Ready" Teddy Roosevelt. He was a mere child of 42 years. In spite of the rigors of the job he lived another 18 years. The second youngest was Jack Kennedy, at 43. One of the saddest periods in our history was his tragic end.

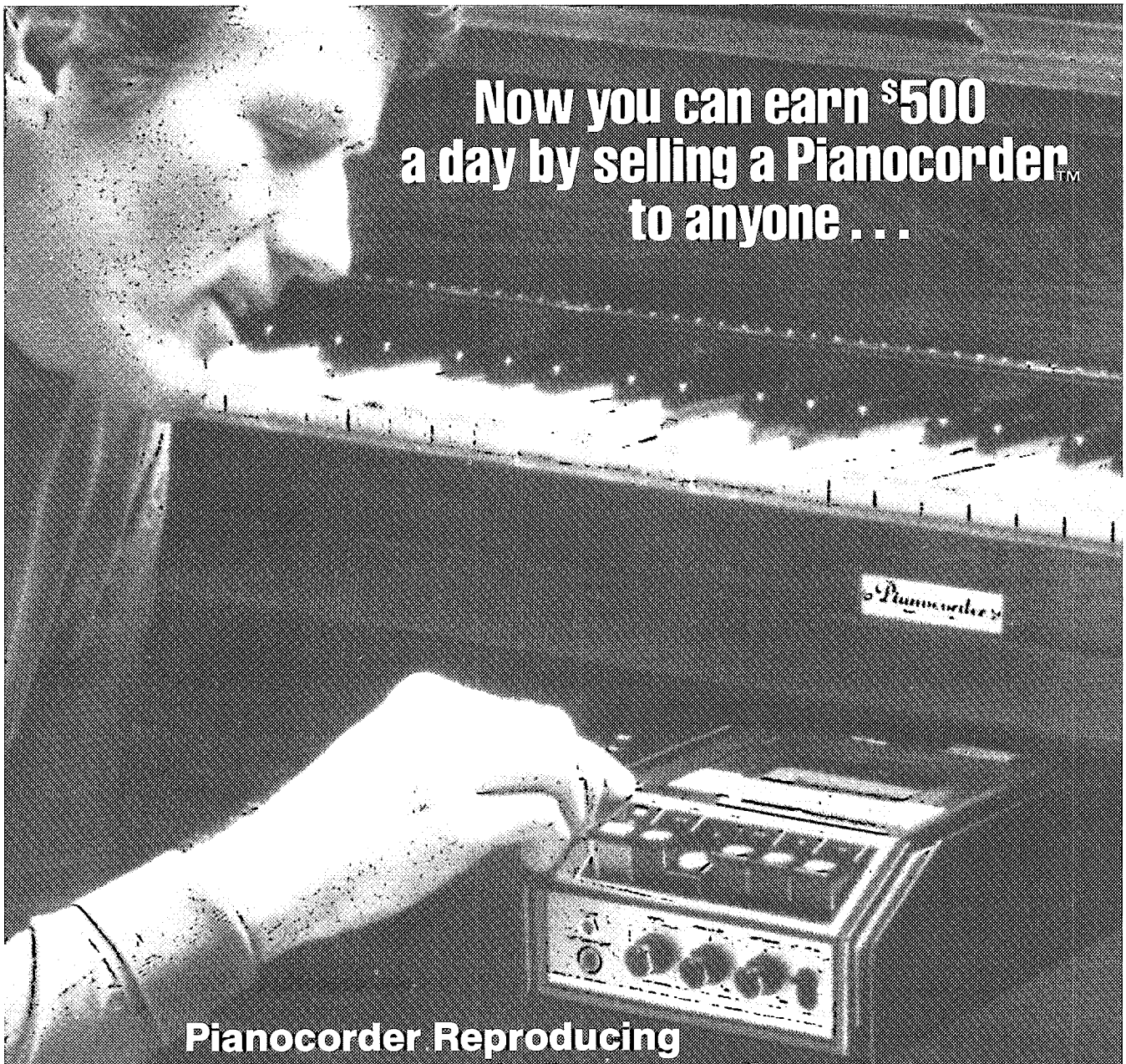
The oldest president at inauguration was William Henry Harrison who took on the job at 68, caught pneumonia in a freezing rain on inauguration day, and died 31 days later. Next eldest was James Buchanan who took on the job at 65 when most people stop working.

Six presidents were 54 years of age when they faced the inauguration crowd. This was the mean age, since 16 were older and 16 younger when they took office.

If you were born in June don't run for president unless you like to be a first. Not one president was born in that month. October, however, was different. Six were born in that month. A little figuring will tell you that Jan/Feb were great months for CONCEIVING presidents. Five were born in November. Four were born during each of the months of March, April and January.

Additional interest in this whole area of age is the fact that the average age of our presidents at DEATH was 68 years, six months. When one stops to consider that most of our presidents were in office in the 1700s and 1800s (where life spans were relatively short) that's quite interesting. Statistically, presidents lived longer during the 1700-1800s than beyond. Exceptions to this were Hoover, who died at 90, Truman at 88 and Eisenhower at 78.

Now that you've caught your breath, here is some more inter-



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:
94 Wheatland Street, Somerville, MA 02145 (617) 666-4550

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

esting trivia. It is certainly true that if you know what a man does for a living you can tell quite a bit about him. So what did our presidents do before they came into office?

Well, we started out with a farmer (and tree feller), George Washington. This was far too simple for the population to absorb so they made things complicated and for the next 44 years elected lawyers to office, seven of them in a row. From 1799 to 1841 the country was caught in the grips of "legal beagles." This was our infancy, so no wonder we have so many ailments today. Out of the 38 presidents 22 or 57 per cent were lawyers.

Then the people elected William Henry Harrison, an Army officer, to try to make things simple again. Can you think of anybody better qualified? Unfortunately, he didn't and with a self-destructive insanity the populace put in office two more lawyers, another Army officer (for another try) and then four more lawyers. No wonder we became a nation of laws.

The last lawyer in this series turned out to be a great one — Abraham Lincoln. He was just what the country needed at that time — an inspiration to countless people young and old. He started the trend "the greater you are the more abuse you have to take." The country was never the same again except that we kept electing lawyers to office. Ten more of them managed to manipulate themselves into the highest office in the land over the next 109 years.

Before this election, no actor had been nominated to run for president, but then what's the difference. Most politicians could qualify for that status. We did elect five politicians, two professors and two publishers and the usual gaggle of military officers. Interestingly enough, no enlisted men have been elected. Imagine, from private to commander in chief in a 15-minute ceremony.

Historical "greats" in the form of crusty old, cigar-chewing General Ulysses Grant spiced up the papers. He was an Army officer, of course. Teddy Roosevelt gave the country a shot in the arm with his "rough and ready" demeanor and he was classified as a politician. The only president I ever met was Herbert Hoover. He was a thoroughly decent man, a great humanitarian but not up to handling the severity of the times.

A guy who was up to handling the severity of the times was old "say it like it is" Harry Truman. He stepped into the heat of the kitchen and never left it. The last few presidents in our times and memories demonstrating a variety of characteristics were professional poiltician FDR, skilled articulator; Ike the General, skilled procrastinator; Jack Kennedy, skilled innovator; LBJ, skilled manipulator; Richard Nixon, wheeler/dealer; and Jerry Ford, the juggler and Jimmy Carter, skilled placator. Who knows what is going to happen next?

Why do people run for office, sometimes even several times? Are there that many fascinations, opportunities and advantages in the office? Just survival seems to be a major problem.

It reminds me of the delegation who was visiting a bereaved widow in an attempt to explain the recent and untimely demise of her husband. Seems he was a brewery worker and fell off one of the scaffolds into a vat of beer and drowned. When they had finished explaining the unfortunate accident to the widow she exclaimed, "Poor Mike, he didn't have a chance." Well, said one of the men, shifting to another foot, actually he did, he got out three times to go to the bathroom. □

Statement of Ownership, Management and Circulation
(Required by 39 U.S.C. 3685)

Title of Publication: Piano Technicians Journal. *Publication No.:* 00319562. *Date of Filing:* 9/30/80. *Frequency of Issue:* Monthly. *No. of Issues Published Annually:* Twelve. *Annual Subscription Price:* $60. *Location of Known Office of Publication:* 113 Dexter Avenue North, Seattle (King County), Washington 98109. *Location of Headquarters or General Offices of the Publishers:* 113 Dexter Avenue North, Seattle (King County), Washington 98109. *Publisher:* Piano Technicians Guild, 113 Dexter Avenue North, Seattle, Washington 98109. *Editor:* Don L. Santy, 113 Dexter Avenue North, Seattle, Washington 98109. *Managing Editor:* Jim Gratton, 113 Dexter Avenue North, Seattle, Washington 98109. *Owner:* Piano Technicians Guild, Inc., 113 Dexter Avenue North, Seattle, Washington 98109. *Known Bondholders, Mortgagees, and Other Security Holders:* None. *The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes have* NOT *changed during preceding 12 months.*

Extent and Nature of Circulation

		Avg. No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Nearest to Filing Date
(A)	Total No. Copies Printed	4,008	4,000
(B)	Paid Circulation		
	(1) Sales Through Dealers and Carriers, Street Vendors and Counter Sales	-0-	-0-
	(2) Mail Subscriptions	3,728	3,808
(C)	Total Paid Circulation	3,728	3,808
(D)	Free Distribution by Mail, Carrier or Other Means, Samples, Complimentary, and Other Free Copies	44	74
(E)	Total Distribution	3,772	3,882
(F)	Copies Not Distributed		
	(1) Office Use, Left Over, Unaccounted, Spoiled After Printing	236	118
	(2) Returns From News Agents	-0-	-0-
(G)	Total	4,008	4,000

I certify that the statements made by me above are correct and complete. — (signed) *Jim Gratton, Managing Editor*

PRESIDENT'S MESSAGE

Bob Russell, President

The search for knowledge is a never-ending process. New products and materials are continuously being developed, plus new recommended methods to service them. New ways to solve old problems and old, and sometimes forgotten, ideas are brought into useful service.

With the very obvious and rather new sophistication of our members in their search for better stringing scales and action designs and the easy-to-use calculators, we are becoming better shop and field technicians. Even the technicians who are not mathematicians are benefiting from this explosion of exciting knowledge that becomes easier to understand and use.

Some people learn their trade and then relax with the feeling that they have done it. This is probably a most human reaction, but don't relax too long! Sometime during this "relaxation," you and your reputation will begin to slide backwards.

I think it is sad when good technicians, for many reasons, stop their search for knowledge. It is due to our desire for more creative training, new ideas and knowledge that we remain at the top of our craft. We take pride in our work and in ourselves. This desire helps to make our lives and work happy and exciting. Our reputation grows and grows while our pride and knowledge expand.

Of course, this doesn't just happen with the snap of a finger. We must be open and receptive to knowledge. It can happen to us if we are teaching or listening; during a formal session or during a coffee break. This natural high, called creative exchange and learning, won't let us down.

The Piano Technicians Guild offers many opportunities for knowledge to help you maintain your excitement. A list of conferences, seminars, and conventions is listed in the **Journal** each month. An absolute must for any technician is to belong and be active in his or her local chapter. In this manner you gain knowledge pertinent to local conditions. All you need to do is take advantage of the opportunities.

This month a special day is set aside to give thanks to our maker, our loved ones, our country, and our way of life; we call this day Thanksgiving. This year, let us reflect on our professional life. Are we doing our best? Are we always open to new ideas and knowledge? Are we upgrading our skills? Are we continuing our search for knowledge?

Happy Thanksgiving. □

THE TECHNICAL FORUM

Jack Krefting, Technical Editor

LOOSE RIBS

Now that winter is upon us once again, many pianos will be in need of rib refastening. Some of these instruments may be ready for a major rebuilding job anyway, in which case the ribs will be refastened after the plate has been removed; but others will be repaired on the spot, with plate and strings in place. This month we have elected to illustrate 10 ways to refasten ribs, some of which can be used with the plate in place.

The following 10 methods do not represent the final chapter in the state of the art, but are merely intended to show some ways to do the job. Each method has its advantages and disadvantages, which we will try to point out as we go. Some of our readers will no doubt have discovered other ways to do it, and we hope to publish their responses in a future issue.

Figure 1 illustrates a very good way, in that the tiny hole required in the rib will weaken it very little. This hole is drilled through the center of the crack in the soundboard, so the hole becomes invisible after the crack is shimmed. Several of these L-shaped jigs must be made, so that the board can be refastened simultaneously at the intersection of each rib. I have made seven or eight of these out of scrap pinblock stock, although any old pieces of good hardwood would serve as well. For an anchor at the bottom, I use an old tuning pin with the music wire looped around it. The washers serve to keep the wire loop from digging into the rib when tension is applied to the wire.

The hole for the tuning pin must be larger than its equivalent in a real pinblock, as the jib is small and the required tension is much less. Experiment with the hole size according to the density of the material used for the jig. Usually a 17/64" bit will be about right, and the tightness of the pin may be further regulated by how far it is driven into the wood.

The hole drilled through the rib should be very small, just large enough to admit the piano wire. A hole of 1/16" diameter would be larger than necessary for #16 wire, which is the size I recommend for this purpose.

If you prefer to keep the rib at maximum strength by drilling no holes at all in it, Method 2 provides an interesting variation of the same idea. With this system, the wire goes around the rib instead of through it, and the anchor would be on top, right next to the jig. To keep the wire from digging into the rib, protect the latter with a piece of flexible wood or metal as shown in the illustration. Method 2 (**Figure 2**) is also invisible after completion, as the wire has gone through the crack in the soundboard, and no holes were required unless the rib happened to be separated where there was no crack in the board.

Method 3 is easy to accomplish, but does require two holes in the board and rib. After the glue has dried, the screws and wooden block will be removed, and the two holes should be plugged for the sake of appearance. As in the two previous methods, glue should be applied between rib and board with a thin metal spatula or a flattened piece of music wire before clamping pressure is applied. The advantage of this method is its simplicity, although the two holes would have to be considered a disadvantage even though they are quite small in diameter.

Method 4 is to be used with the plate in place, and is especially useful in a vertical piano. Wedges are placed between the wooden beams and the loose rib, and then positive clamping pressure is applied from the other side with wedges under a portion of the plate. If no part of the plate is covering the board at that point, Method 5 may be used. The flexible go-bars provide solid clamping pressure, but require some sort of overhead deck to push against. This is a very good method, especially in that no holes are required; but obviously it could not be used in the customer's home.

Method 6 has been widely used for years, and not without justification. True, it requires two holes at the intersection of each rib, which must be considered a disadvantage both cosmetically and structurally; but it does the job, and if the covering plugs are neatly fitted, it doesn't look too bad.

Method 7 involves the use of a very thin machine screw, the thinner the better. A block of scrap wood is temporariliy laid across the crack, and the bolt is placed through block, board and rib. A washer and nut are added to clamp the joint, and the bolt and

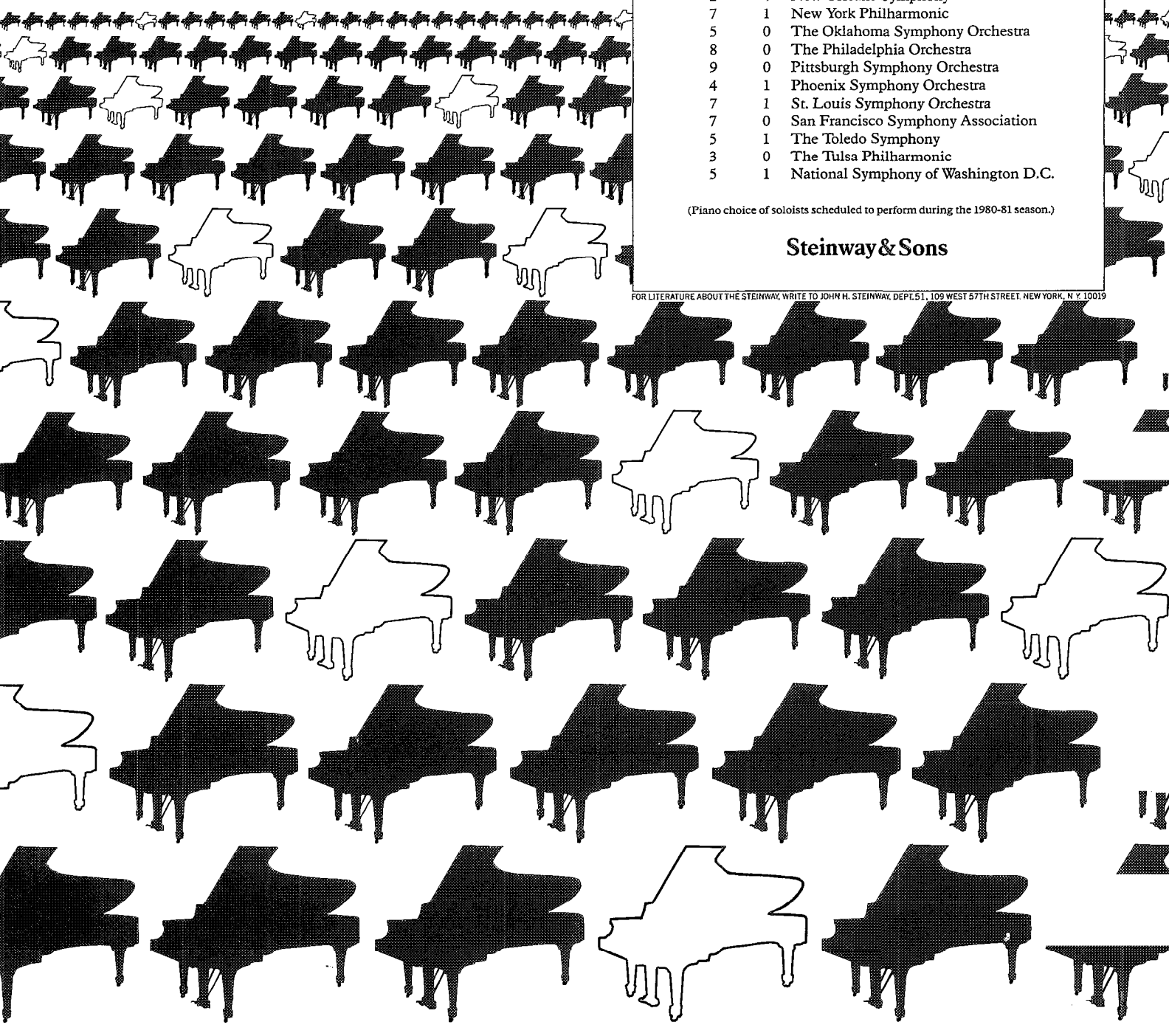
When it comes to choosing their instrument, most piano soloists act in concert.

(Steinway)	(Other)	
3	0	American Symphony Orchestra
8	0	Atlanta Symphony Orchestra
8	2	Baltimore Symphony Orchestra
6	1	Boston Symphony Orchestra
2	1	Charlotte Symphony Orchestra
7	2	Chicago Symphony Orchestra
8	1	Cincinnati Symphony Orchestra
6	2	The Cleveland Orchestra
6	2	Dallas Symphony
6	3	Denver Symphony Orchestra
7	2	Detroit Symphony Orchestra
4	0	Hartford Symphony Orchestra
8	0	Houston Symphony Orchestra
7	1	Indianapolis Symphony Orchestra
10	1	Los Angeles Philharmonic Association
7	2	The Milwaukee Symphony Orchestra
5	2	Minnesota Orchestra
2	4	New Orleans Symphony
7	1	New York Philharmonic
5	0	The Oklahoma Symphony Orchestra
8	0	The Philadelphia Orchestra
9	0	Pittsburgh Symphony Orchestra
4	1	Phoenix Symphony Orchestra
7	1	St. Louis Symphony Orchestra
7	0	San Francisco Symphony Association
5	1	The Toledo Symphony
3	0	The Tulsa Philharmonic
5	1	National Symphony of Washington D.C.

(Piano choice of soloists scheduled to perform during the 1980-81 season.)

Steinway & Sons

FOR LITERATURE ABOUT THE STEINWAY, WRITE TO JOHN H. STEINWAY, DEPT. 51, 109 WEST 57TH STREET, NEW YORK, N.Y. 10019



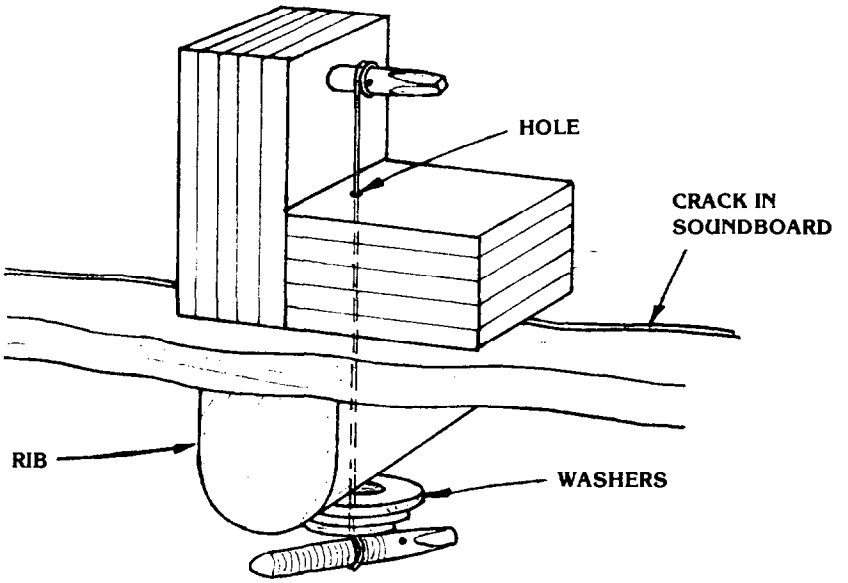


FIGURE 1

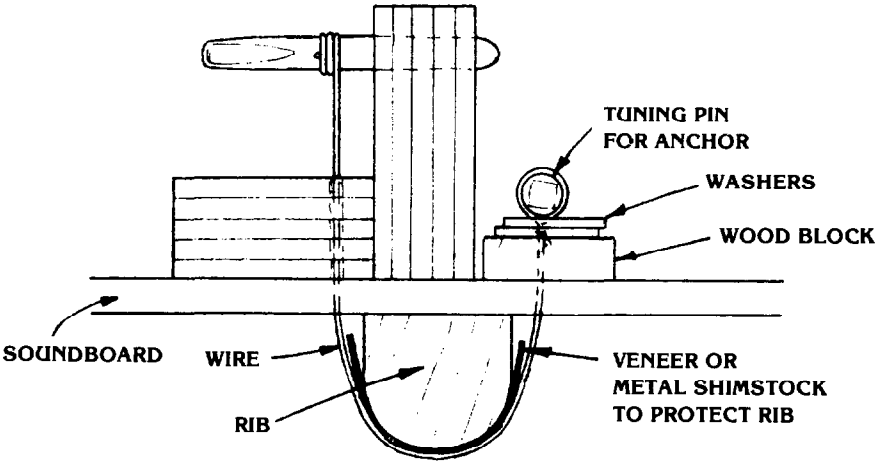


FIGURE 2

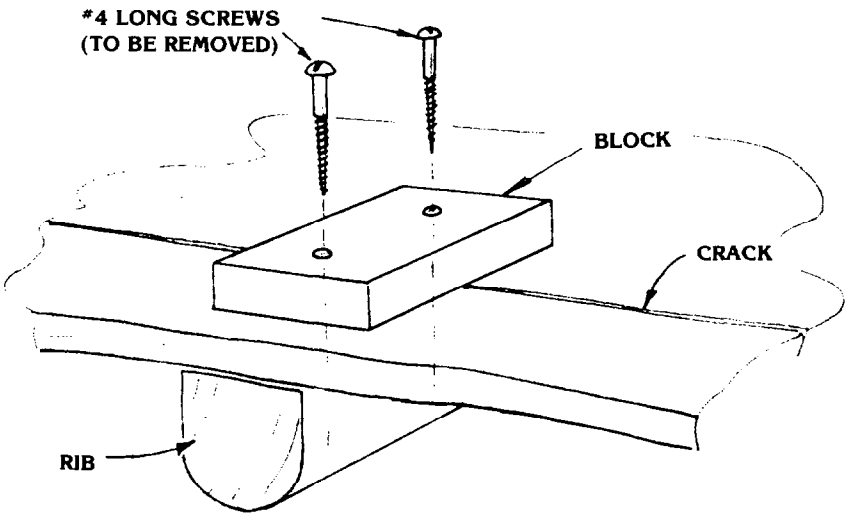


FIGURE 3

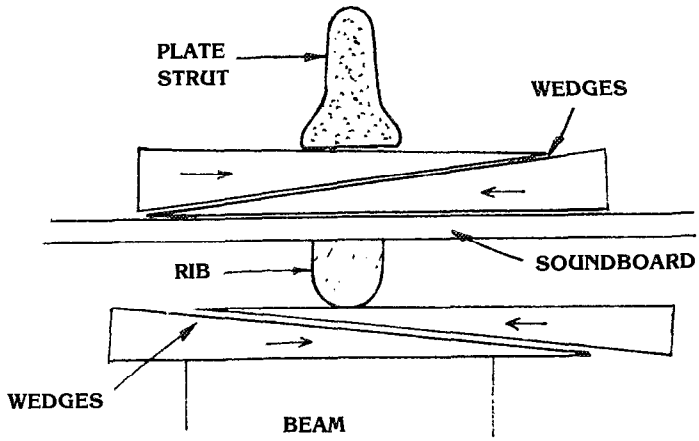


FIGURE 4

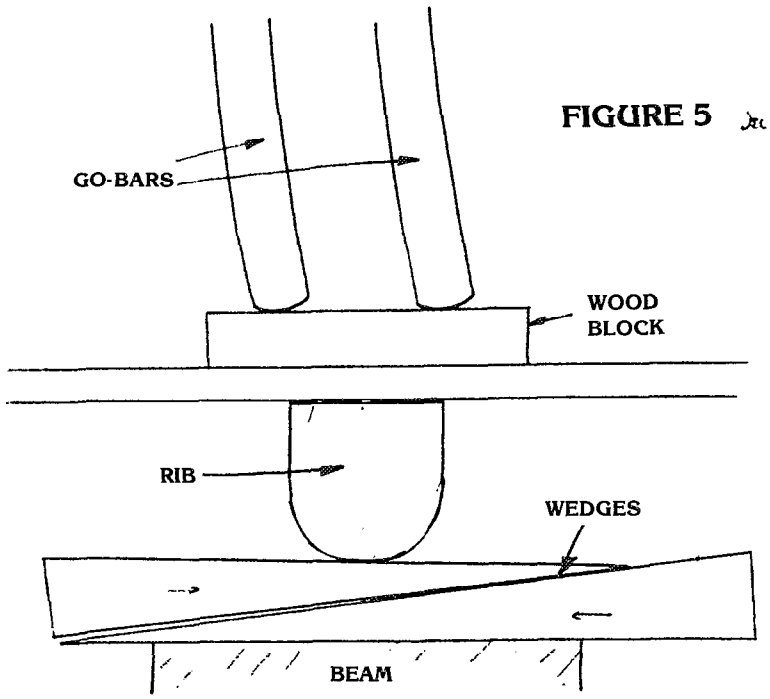


FIGURE 5

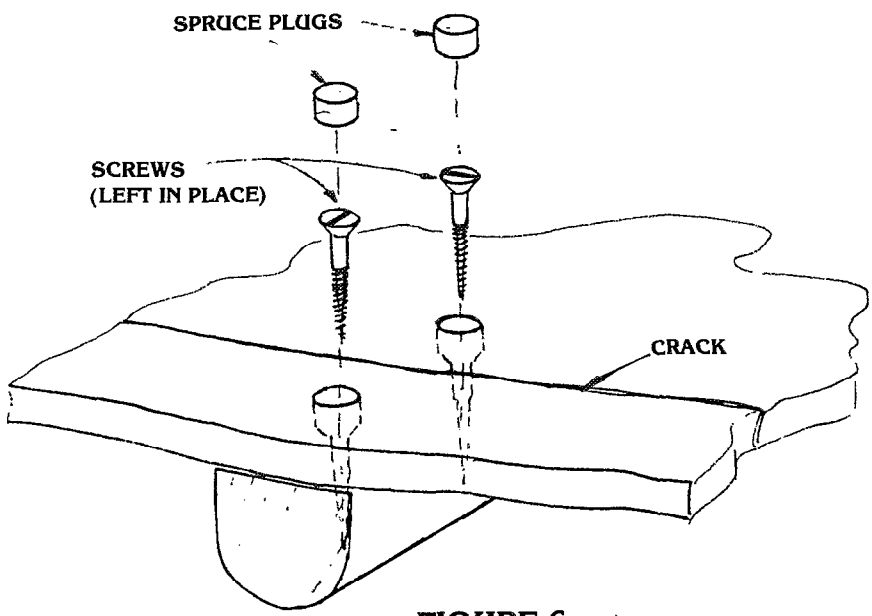


FIGURE 6

block are removed after the glue is dry.

Method 8 is more complex, requiring a beam to be fitted to the top of the rim and clamped to it in such a way that downpressure can be brought to bear on the board at each rib intersection by means of bolts threaded through the beam. When this method is used, the ribs should be supported by wedges from underneath. This method requires a fair amount of tooling and set-up time, but has the advantage of requiring no holes in rib or board.

Method 9 is designed to be used with the plate in place, and will be shown in more detail as the gadget of the month in this issue. This is something I worked out several years ago for the purpose of refastening the edges of soundboards, but works ust as well for loose ribs when they are under the plate. The big disadvantage of this system is the fact that several sizes of eccentric cams must be made to accommodate the varying spaces between board and plate in different makes.

Method 10 is designed for small grands which have no wooden beams, or for spots in the board which are remote from the framing. A stick of wood is cut so that it is slightly too long to fit upright between the rib and the floor, and it is forced into position after the top of the board has been wedged downward from the plate. The tighter the stick is forced, the greater the clamping pressure, until ultimately one of the three piano legs lifts off the floor. This would place a pressure of something like 200 pounds on the glue joint, which is far more than required. Indeed, if this amount of upward pressure were placed on the bottom of the rib without the wedging from above, the rib would likely crack.

There are no doubt other good ways to clamp ribs to a soundboard, and we will probably hear about them from our readers. In the meantime, I want to reiterate my aversion to the soundboard toggle, sold by supply houses as a method of refastening. These toggles are unacceptable for use in any situation, in my opinion at least, for the following three reasons:

1. The toggle requires a ¼" hole through the rib, which just about destroys its strength. Any repair that is destructive or eliminates the possibility of future proper repair should not be considered as even an alternative. The ¼" hole is destructive because it permanently weakens the rib.

2. The blade of the toggle digs into the surface of the soundboard, permanently defacing it and cutting off wood fibers at that point. Again, we are being destructive.

3. The toggle is made of no fewer than five separate metal parts: blade, pin, shaft, washer and nut. Presumably, the reason for installing the toggle in the first place was that it would eliminate a rattling noise, but Murphy's Law (Whatever Can Go Wrong Will Go Wrong) comes into effect at some point. I would hate to stake my reputation as a technician on the performance of such a device. Sooner or later it wll develop rattles of its own, and it could cause loss of crown in the board. I would urge that all readers promptly discontinue the use of toggles.

TECHNOLOGY IN BRAZIL

We have received a very interesting letter from one Carlos Eugenio Borges Cortes, a technician in Rio de Janeiro. He asks a number of questions, the first two of which will be answered in this issue. Here is the beginning of his letter:

To follow your frequent requests for contributions for your column in the **Journal**, here are a few questions to be asked.

I'm new in piano technology (5 years), though an old timer in maintenance, repair, adjustments and parts manufacturing for precision mechanisms, including internal combustion engines of all sizes (37 years) having also a Master Mechanical Engineering Degree.

Piano technology in our zone dates from about 60 years ago, when a few European technicians moved into the country and left a progeny of trainees. There are no technical schools or courses for piano technology and no literature in the Portuguese language. My way to learn was to use foreign technical literature (I have a li-

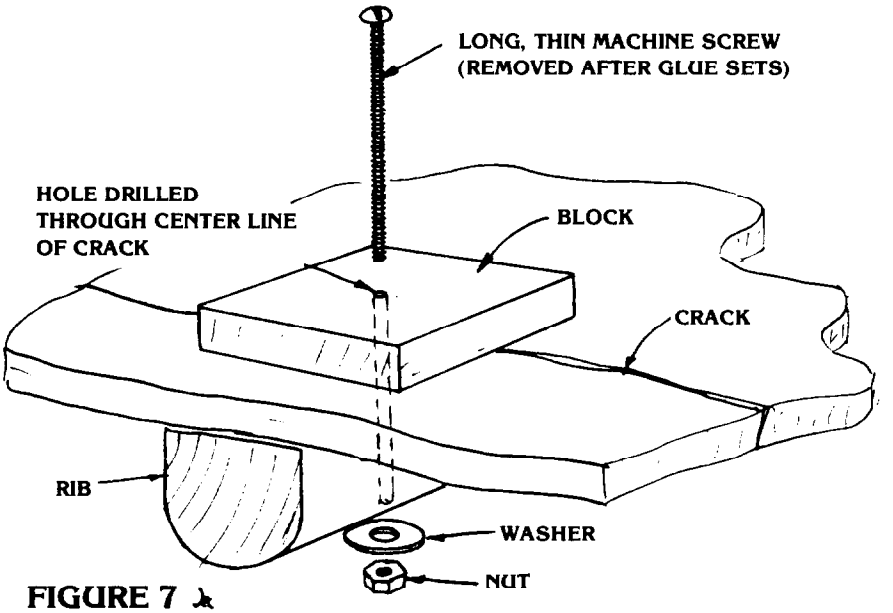


FIGURE 7

brary), reading manufacturer's service manuals and the **Journal**, using my parallel experience and asking questions, which is what I propose to do now. It is well to mention that I have a conservatory course in musical theory and play the piano.

Another hindrance to our work here is the non-existence of supply houses for piano parts and materials. This makes it mandatory to save and reutilize, as much as possible, the old parts. My sources of supply have been Chicago, New York, London and Frankfurt.

Here are the questions:

"I read that normal lubricants for piano actions are graphite and tallow. Graphite is a very fine lubricant though a little cumbersome to use since it has to be rubbed on the parts whereas tallow is an animal fat and, as such, subject to all kinds of deterioration problems common to this type of fats. Are there not more modern lubricants such as silicones and other mineral products? What is wrong with vaseline for certain applications?"

ANSWER: The problem with any lubricant is that if it is used because the parts will not function without it, then they will function properly only so long as it remains in place and retains its properties. When it gets dirty or gummy or is no longer in its place, there is a dysfunction because the moving parts will not perform without it. Whenever possible, I prefer to use materials that are naturally lubricous; if no lubricant is needed, there is nothing to gum up or get dirty or creep away or evaporate.

Certain metals are naturally lubricous when in rubbing contact, such as steel against brass or bronze. Agraffes are made of hard brass, which in large part accounts for the fact that the steel wire moves freely without lubrication during tuning, decade after decade. A polished silver centerpin will move smoothly in a wool cloth bushing without problems for half a century or more, provided the proper clearance is established and no lubricants are introduced into the center. Any lubricant that can evaporate or get squeezed out or lose its properties will sooner or later do just that; any

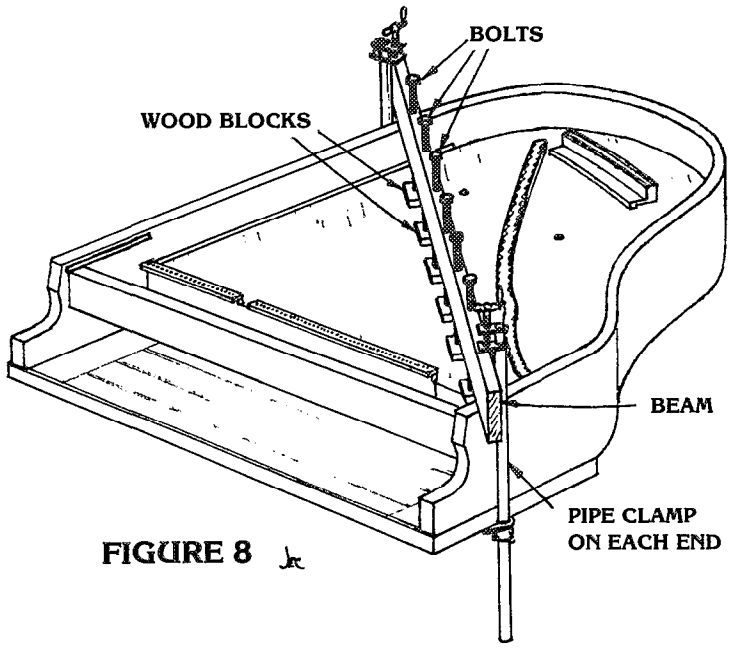


FIGURE 8

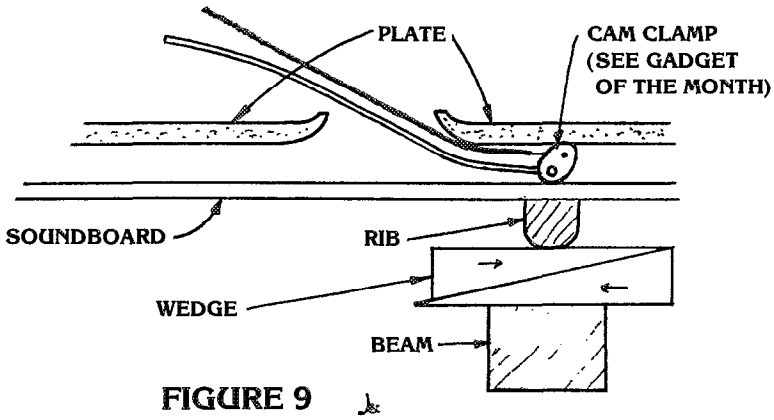


FIGURE 9

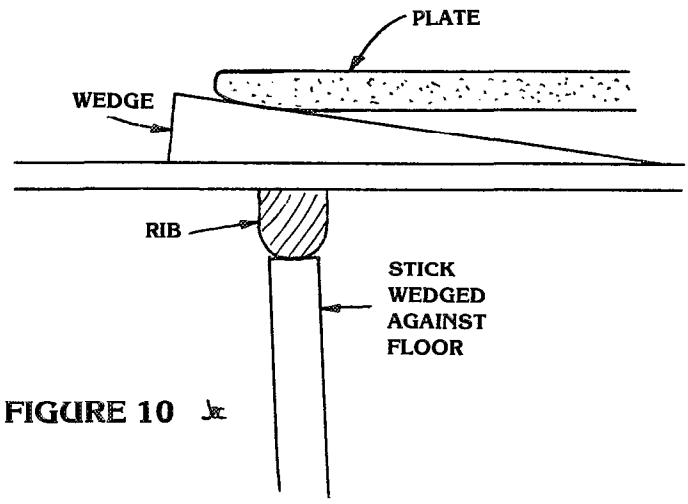


FIGURE 10

time a manufacturer depends on a lubricant for proper performance, the technician must realize that periodic replacement of that lubricant will be necessary.

Some time ago, one of our readers submitted a technical article which we did not publish because of its emphasis on "quickie" repairs designed to make the piano operable just long enough for the technician to collect his fee and cash the check. One of the statements made was, "If I can see it, I can lubricate it." He then explained how, with the aid of a hypodermic oiler, he could squirt unnamed lubricants into action centers, front rail bushings, and anything else that seemed to need lubrication. In this case I don't think the attitude was a cynical one, or that he was consciously trying to damage pianos; he simply didn't know any better and thought he was doing a good job.

It should not be necessary to lubricate action centers or key bushings at all. If they are too tight, change the clearance to eliminate the binding friction instead of lubricating. In any case, do not use any product which contains silicone as this has harmful side effects which have been discussed at length in these pages.

I agree that tallow has certain disadvantages, not the least of which is its apparent tendency to cause verdigris. Graphite can be used in certain applications; but, as Cortes has noted, it must be burnished into the wood or it creates a real mess. A thin film of petroleum jelly is a safe and effective lubricant for metal-to-metal applications, such as capo bars and vee-bars. It will also retard or prevent rust on plain strings.

A very effective lubricant for wood-to-wood contact points is soapstone or unscented talc. This is the traditional lubricant for keyframes, trapwork and general use. A newer lubricant which may be even better and seems to be completely safe to use is dry teflon in a spray can. One such product is SlipSpray, which I recommend for certain applications.

Do not use oil, especially penetrating oils such as WD-40 or Liquid Wrench, on any part except possibly a frozen caster or a rusty trapwork bolt. Incidentally, speaking of rusty bolts, I am told that one of the best chemical concoctions for rust removal is, of all things, Coca-Cola. I'm not sure whether to believe that or not, but have been assured that it is an old mechanic's trick.

Cortes' next question follows:

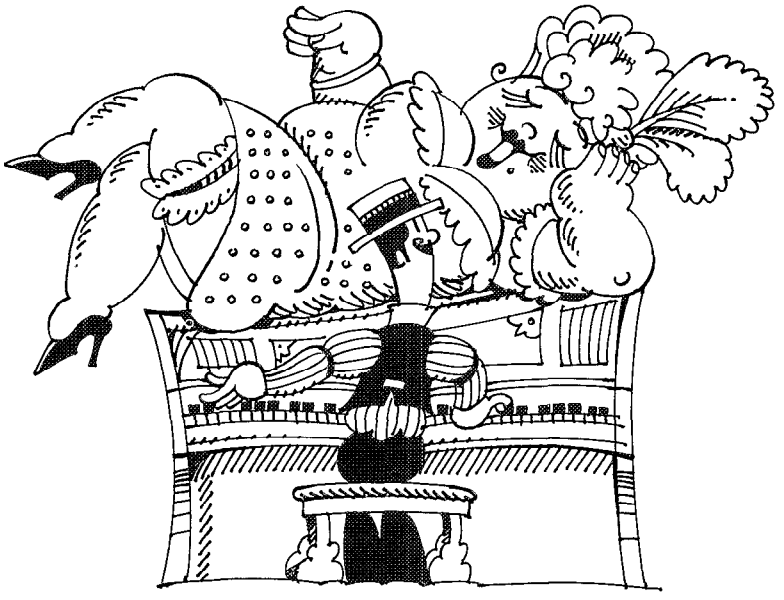
QUESTION: In removing old hammer heads we usually have to save the shanks and even the old heads for emergencies, due to the above mentioned reasons. I have been using the practice of steaming the heads at the mounting holes and using an appropriate extractor, with 90 per cent good results. Is there a more expeditious way of doing it?

ANSWER: I see nothing wrong with this method, so long as the steam is not allowed to penetrate the glue joint between the felt and the molding. An alternative method would be to use a 25 per cent solution of acetic acid (75 per cent water) which will soften the glue if it is the traditional hot-hide type. Many technicians simply use the extractor after chipping away the glue collar, without the use of chemicals or steam.

The success or failure of all of the above depends at least as much on the type of extractor used as all other factors combined. We hope to run a series on tools some day, somewhat in the style of a consumer-research magazine, and an analysis of available hammer extractors would be as good a place as any to start. If any of our readers would like to comment on this idea, we would be interested in hearing what you have to say.

Cortes has several other questions, which will be answered in future issues, but he also has offered to contribute the following tip on ivory cleaning, for which we are very grateful:

Everlasting Everett.



The weight of time wears well on Everett pianos. That's probably why piano technicians keep finding old Everetts people want to keep tuned. And we think the pianos we build today will last even longer.

Standard features like solid Sitka spruce soundboards, Pratt-Read keys and direct-blow Pratt-Read actions, 15-ply hard rock maple pinblocks, one-piece leg construction, poplar laminated keybed, and Denro nickel-plated tuning pins have been added.

We also proudly boast of a new management team dedicated to our growth. But with all that's new, we still have the same uncompromising dedication to craftsmanship.

So next time a customer asks you to recommend a piano, remember Everett.

EVERETT

Noteworthy pianos since 1883.

Everett Piano Company, South Haven, Michigan. A division of Yamaha International Corporation.

First I carefully sand paper the ivories using 400-grit, aluminum-oxide paper until they are flat and until a good portion of the yellowing has been removed. If the ivories are beyond certain limits you may have to sand them down to the keys, but I suppose the ones in recovery are not that bad.

Following sanding, I bleach the ivories using 90 or 120-volumes industrial hydrogen peroxide taking care to epose the keys to broad sunlight during the bleaching operation and keeping the ivories' surfaces always wet with peroxide.

The bleaching operation must be a careful one so as to minimize peroxide creeping between ivory and key which would cause loose ivories. This is a condition which you cannot avoid in bleaching, nevertheless the creeping and consequent loosening of ivories is reduced to a minimum if proper care is taken. I strongly suggest that each ivory be tested for firmness when the job is finished.

After bleaching I again use 400-grit, aluminum-oxide sandpaper followed by a buffing wheel application using the normal polishing compounds.

Be very careful with the peroxide on your hands and above all in your eyes (and in your hair if you don't want to become a blond). Wash out the peroxide after bleaching.

The initial aim on the average yellow ivories is to remove 60 per cent of the yellow with sanding and 40 per cent on bleaching. A proper balance between sanding and bleaching will come with experience. — **Carlos Eugenio Borges Cortes.**

KEY BUSHING CLAMPS

A member in Wilmington, Delware, has offered to share a frustrating experience with us. This illustrates once again that new tools as received from a supplier are not necessarily ready to use. We have noted before that many tools arrive with burrs, especially bending and spacing tools. Here's Walter Thomas, describing a related problem:

Dear Mr. Krefting:

In connection with the rebushing of a set of key-buttons on a 1912 Hardman-Peck upright, I ran into a slightly frustrating experience. Using wedge clamps described in a supply house catalogue as their No. 151 Key Bushing Wedge Clamp, I should like to share my experiences.

The wood in the buttons of this piano was very soft — either spruce or cypress. Also I had noticed that as I placed some of these bushing clamps into position, there seemed to be a considerable difference in the compressibility of some of these clamps. In any case I put a dozen pairs replacement felt bushings into position with the required glue, and inserted the No. 151 Bushing Clamp to press the cloth tight. The next morning I found that nine of the 12 buttons had been split diagonally with the grain — with two of the clamps landing some six feet away from the work table, with the button fragments scattered over the work shop area.

In view of this performance, I made some measurements on the clamps and made corrections which I would like to pass on to any who may wish to profit from my experience.

1. The sheet metal from which these clamps are stamped and formed was of two different thicknesses: .084 and .108 cm. respectively.

2. Therefore, the amount of pressure required to close these clamps as when they are to be inserted into the bushing hole, was found to be quite variable.

3. On 10 clamps taken at random, please note the widely varying pressures needed to bring the clamps into the closed (i.e., insertable position.

1. 13-14 lbs	6. 16-17 lbs.
2. 19-20 lbs	7. 15-16 lbs.
3. 16-17 lbs	8. 17-19 lbs.
4. 12-13 lbs	9. 15-16 lbs.
5. 15-16 lbs	10. 11-12 lbs.

Since in every instance, this is by far more pressure than necessary to glue in a piece of felt onto a piece of wood, I reduced the jaw opening on the calmps provided from two cm (as furnished) to one cm., so that only five lbs. of pressure was necessary to close the clamps when inserting them into the button. This reduction was accomplished by slipping the clamp between the jaws of a "Channel-Lok" plier and squeezing the spring at the closed end until a reduction in the size of the clamp opening of one cm. was obtained. This provided in every instance five lbs. plus or minus one-half pound working pressure at the jaw area. The bushings hold well and no more split buttons. — **Walter W. Thomas**

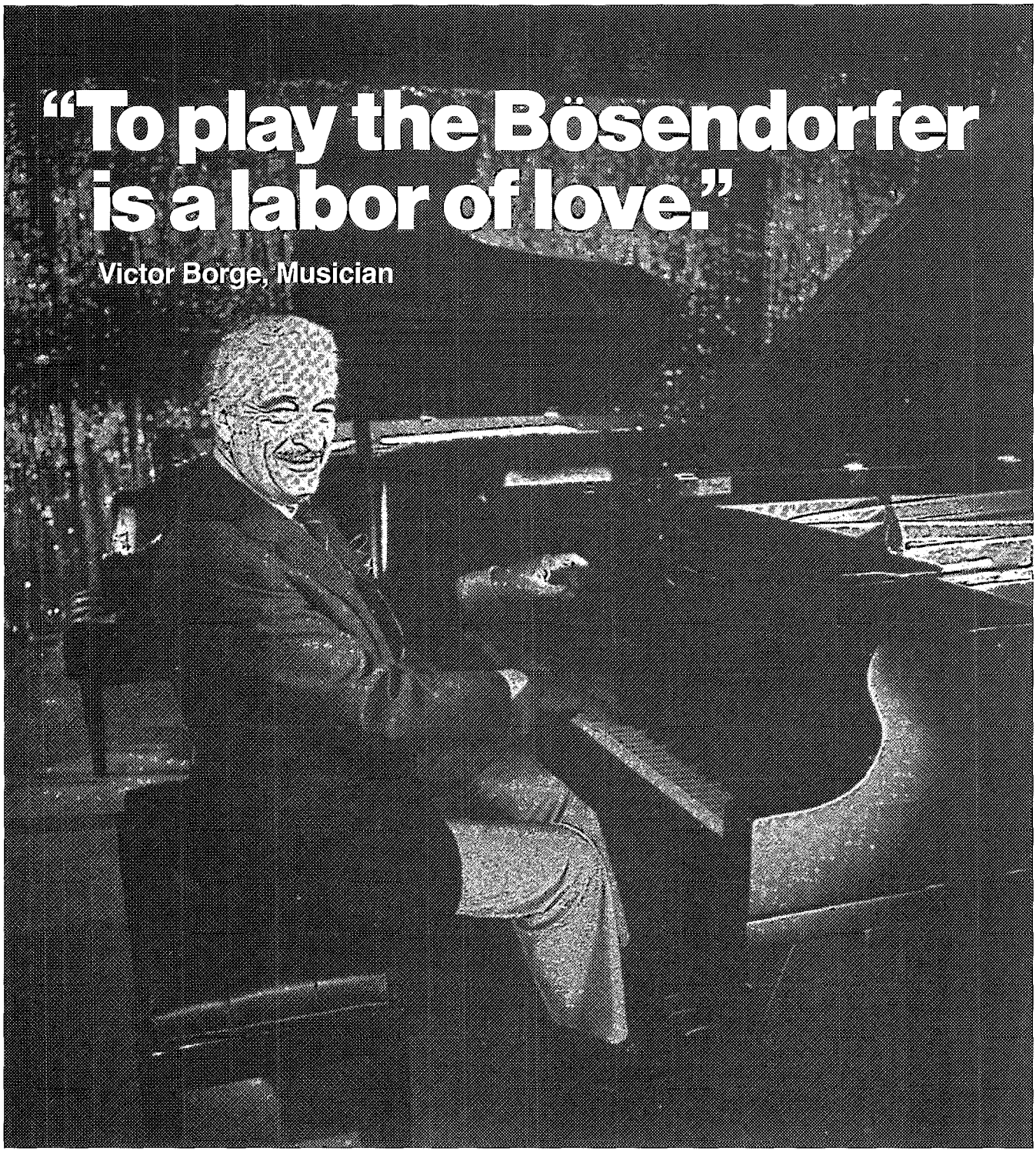
NEWSLETTER TECH REPRINTS

In recent months we have reprinted a number of articles from the Guild's San Francisco Chapter newsletter, **In Tune**, *primarily because of the excellent writing and technical knowledge of Susan Graham. She has recently written an article on soundboard finishing, which we reprint here:*

This month for a low-budget feature I'm going to describe my method for refinishing soundboards with varnish; a finishing method which saves the expense of spraying equipment. I'm not stating that this method is better or worse than any other; only that this is how I like to do it and that it produces the result I want. It's a convenient way to a good result, and may be especially useful to those in a just-beginning or small shop. (Then again, it is the method employed in some of the finer factories, and needn't be considered a compromise.)

The most important aspect of any finishing job is surface preparation. Since what I'm discussing here is actually refinishing old boards, (rather than preparing raw spruce), the job can involve repairs, as well as removal of the old finish before any varnishing is done. I make soundboard and bridge repairs *before* I do any scraping off of the old finish.

In preparation, the board has been washed (all bolt holes covered first) and allowed to dry out over gentle heat in a dehumidified shop so I can see any cracks in the board and detect loose



For over a century and a half musical giants like Liszt, Wagner, Brahms and Strauss applauded the incomparable Bösendorfer. Today musical giants like Victor Borge still do. Because Bösendorfer is still the only totally handcrafted piano built anywhere.

In their quest for excellence, Bösendorfer's piano masters spare neither time nor expense. Every piece of wood used in the Bösendorfer is seasoned outdoors from three to four years. Each mechanism takes more than a year to complete. Every bushing incorporates noiseless felt.

The result is a genuine masterpiece. Worthy of the world's most magnificent concert halls, and of the world's greatest pianists. Like Victor Borge. And perhaps like you. If you'd like to learn more about the Bösendorfer contact Sally J. Silberman, Kimball, 1549 Royal Street, Jasper, Indiana 47546.

Bösendorfer PIANOS of Vienna

The piano that sets the standard of the world.

A Division of Kimball International, Inc.
1549 Royal St . Jasper, IN 47546 812/482-1600

bridge pins. It seems easier to clean up glue from around a repair when the old finish is still on the wood and also the excess smears of glue, etc., will scrape off with the old finish.

One exception might be if you suspect the board may be markedly different in shade after refinishing and you choose to fill cracks with epoxy stained to match. This you may want to do after one new finish coat is applied to determine the color. (I also finish any work necessary to the bridges, and apply DAG, prior to any scraping.)

Next comes scraping. It is very unwise to use any chemical finish removers on a board, so the old finish must be scraped off dry. Needless to say, this produces a lot of dust, so wear a mask.

Technicians have devised a variety of scrapers from chisels, plane irons, saw blades, etc., and there are paint and cabinet scrapers commercially available. A dull scraper is worthless and will probably do more gouging than anything else, so if you can't sharpen edges, use scrapers with replaceable blades. I use two paint type scrapers with replaceable blades, one 2" wide and one 1" wide, and two cabinet scrapers, one flexible, one not. These are simply flat, rectangular pieces of steel, with good straight edges.

Also for bridge scraping I use a woodcarver's chisel, ⅛" wide, sharpened to a wire edge for scraping. With this I can clean all the old varnish (and any epoxy) from between the bridge pins. Although this step is tedious, it makes a very clean-looking bridge and will help keep those old termination points sharp.

A scraper works like a very fine plane, and *must* be used with the grain. This may mean changing the direction in which you scrape as you move from plank to plank. If the wood starts to look "chewed" try working in the opposite direction and/or use less force.

Bad stains are a problem — scraping or sanding them out can leave a noticeable depression or light spot in the wood. Bleach is risky, although I've used it on *small* spots — never the entire board!

It may be better to leave the wood intact and slightly darken the whole board. Obviously, there are places on a soundboard which are more difficult to scrape than others — just consider it a challenge to your ingenuity and patience.

Once there is no longer any finish visible on the board, I continue to scrape for evenness of color and smoothness of surface. Proper scraping can eliminate most sanding and is faster.

When all the old finish is off and the color is even, I switch to a 220-grit sandpaper. Again, always work with the grain — you'd be amazed how hard it is to get rid of just one cross-grain scratch. Use a felt-backed block of wood (felt-side down). You will have trouble achieving a smooth surface using sandpaper under your bare hand — the paper will tend to dig into soft wood and to ride over the hard grain lines.

In areas where the block won't fit, fold several pieces of paper together for stiffness. I sand in "stripes," each stripe being the width of the block, attempting to use the same number of strokes per stripe.

After the 220, I switch to 400 paper. Use open-coat paper and, again, wear your mask. By this time, you are producing very fine dust. I don't usually find I need to sand bridge notches — a benefit of careful scraping.

After the 400, I use a wet rag to *lightly* dampen the whole surface of the board. When the board dries, it will have a fine "tooth" on it. What has happened is that some wood fibers have bent during sanding rather than being sanded off. Dampening raises them and then I sand with 400 or even 600 paper. This practically polishes the board and leaves it ready for the next step.

The next thing I do is to launch an attack on all the dust I've produced. The main problem I find with varnish is dust particles settling in the surface as it dries, so thorough cleaning is necessary. Anyway, it assures that I clean the shop occasionally. Vacuum, brush, compressed air — I do everything I can to clean not only the board and the rest of the piano, but the large surfaces of the shop as well — lights, floor, etc. The final thing I use is a tack rag, gently wiping to remove any fine particles.

Okay, okay, the place is clean, now what?

Now, I apply a thin coat of orange shellac. Shellac in cans has a short shelf life and won't dry if it's outdated, so the most reliable way to use it is probably to mix it from crystals — but I never have. I buy the smallest quantity I can, and only if it's dated on top of the can. I use orange to give a warm color to the board, but always thin it considerably. How much I thin depends on how much color I want, how much blending or repair work, whether or not an old decal has been saved and needs to be matched, etc.

Usually store-bought shellac is very thick and orange and can be tricky to apply evenly. I start by thinning some with an equal part of denatured alcohol, try this on a part of the board which won't show, and continue to thin until I like the shade. Brush it on as evenly as possible in fairly wet strokes. Avoid overlapping and getting thick places.

I usually don't apply it to the bridge at all; only occasionally to the sides if I feel the color is needed.

The thinking on bridges is that they should have a light finish so as to avoid deadening any vibrations or gumming up the termination points, and varnish alone seems sufficient to me. After the shellac has dried, I sand again with 400-600. A very light once-over is all you need, although some unevenness in shellac color can be smoothed out if necessary.

Once again, I clean for dust, I even spray a fine mist of water around the shop to settle the dust in the air. I turn off the heater, so it won't blow the air around and then I leave the shop, overnight if possible. When I go back, I wear a nylon shirt (cotton sheds lint), walk quietly into the shop, tack-rag the board once more, and slowly stroke on a very wet coat of varnish.

Varnishes tend to differ in hardness and drying time, according

to how much "oil" in proportion to thinner it contains. Modern synthetics combine the best features of a variety of old types and are generally easier to use; I now use McCloskey's 0092 Crystal Clear Gloss Finish. Applying varnish successfully requires a good brush, so I have an expensive pure bristle brush, which I use only for varnish. I thin the McClosky's slightly for the bridges, and apply only one coat straight from the can for the board.

The trick is to apply a very wet coat, stopping just before it puddles. This finish has excellent levelling qualities, but work under a good light and sight from different angles to catch any dry spots and touch them up before drying starts.

Don't stir or shake the varnish and avoid whipping up bubbles, and don't work the finish over and over — flow it on and leave it. If a bristle falls out on the board, stab at it with the brush to pick it up, rather than getting fingerprints in the wet finish.

When you're finished, leave again, and don't slam the door! The McClosky's dries dust-free in 30 minutes, but I try to stay away until I'm sure it's hard (4-6 hours).

Next day, when I go out, I have a beautiful high-gloss board ready to go. If I prefer a satin finish or if the gloss is uneven I use 4/0 steel wool to cut the gloss slightly. Synthetic varnish, being softer than lacquer, doesn't rub to a high gloss easily, so if you want gloss, take extra care with surface preparation and dust control and it will be far less work in the long run.

I feel this finish protects wood well, remains flexible and is simple to apply if you follow a few rules. Prepare the surface properly — no finish will hide gouges or cross-grain scratches; use good materials and brush, and watch your dust. Costs me about $10 in materials, a one-time investment in a brush, some thinners and a little extra work in cleaning — all the while knowing that I'll get that beautiful result, which makes it all worthwhile. — **Susan Graham**

GADGET OF THE MONTH

Sometimes it is necessary to find a way to do what seems impossible at first glance, such as applying pressure on a soundboard to refasten a loose rib. That's easy when the spot is accessible, but what if it isn't? The clamp illustrated here was designed to reach under a plate, even all the way to the edge of the board if necessary.

Figure 11 shows the basic construction. Please note that the steel rod may be pulled or pushed as necessary, but the bass string can only be pulled. For this reason, it is important to remember to use the clamp the same way every time; otherwise, a situation could occur wherein the clamp could jam in position and be nearly impossible to remove.

After applying glue to the top of the loose rib and supporting the rib from below with a wedge or stick, follow the sequence shown in **Figure 12**. Insert the clamp with the small end first, as illustrated in "A." The distance was measured first, and a piece of tape on the steel handle marks the depth.

Next, pull on the wire while pushing on the rod as shown in "B." This forces the cam to rotate and bind between the plate and the soundboard, putting pressure on the glue joint. If more pressure is needed to get good squeeze-out of glue, the wedge underneath the rib may be tapped lightly. Be sure this *is* just a light tap, and that the cam clamp was not dislodged in the process. Pull on the bass string to determine this; if the clamp moves, it was dislodged and the process must be repeated.

After the glue has had time to dry, the cam may be removed by simply pulling on the rod as shown in "C." If it does not come out

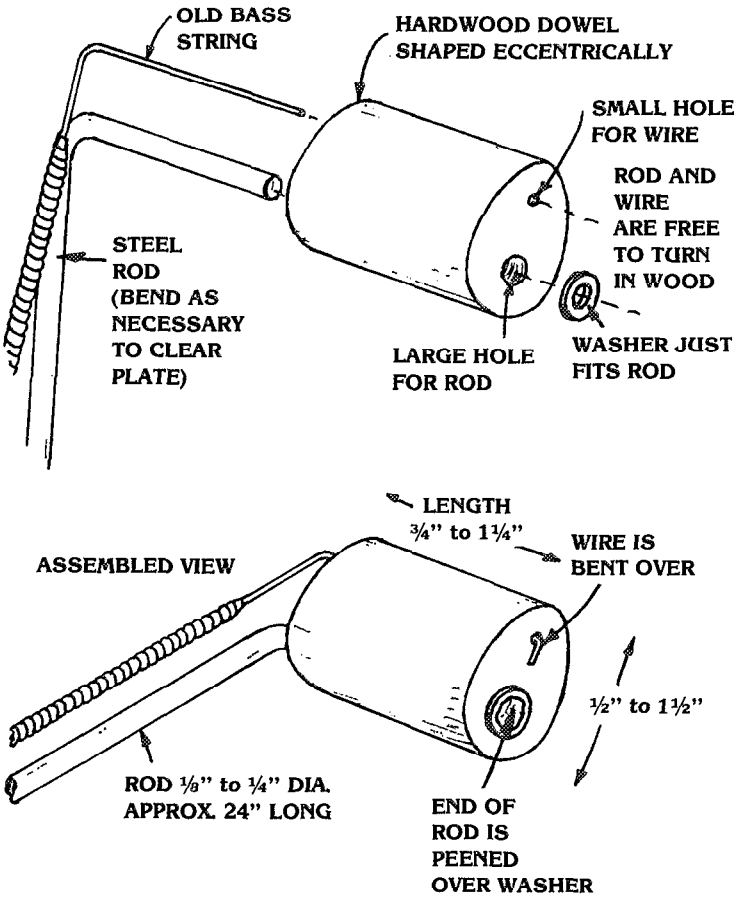


FIGURE 11

easily, remove the wedge from underneath the rib and then try again.

One disadvantage of this method is that, because of the widely variable distance between plate and soundboard, several sizes of clamps must be made. I have five of these, and will no doubt need even more than that to handle any given situation. Still, it has been a useful idea for me, and it has been my experience that there are times when nothing else will work. I have heard of technicians stuffing bicycle inner tubes under the plate and then filling them with air, but I don't see how enough pressure can be concentrated in the right spot with that method.

Malleable steel rods for this purpose are readily available from hardware and hobby stores. The diameter would range from ⅛" to ¼", depending on the size of the cam, and the length would be somewhere between 12 and 24 inches. □

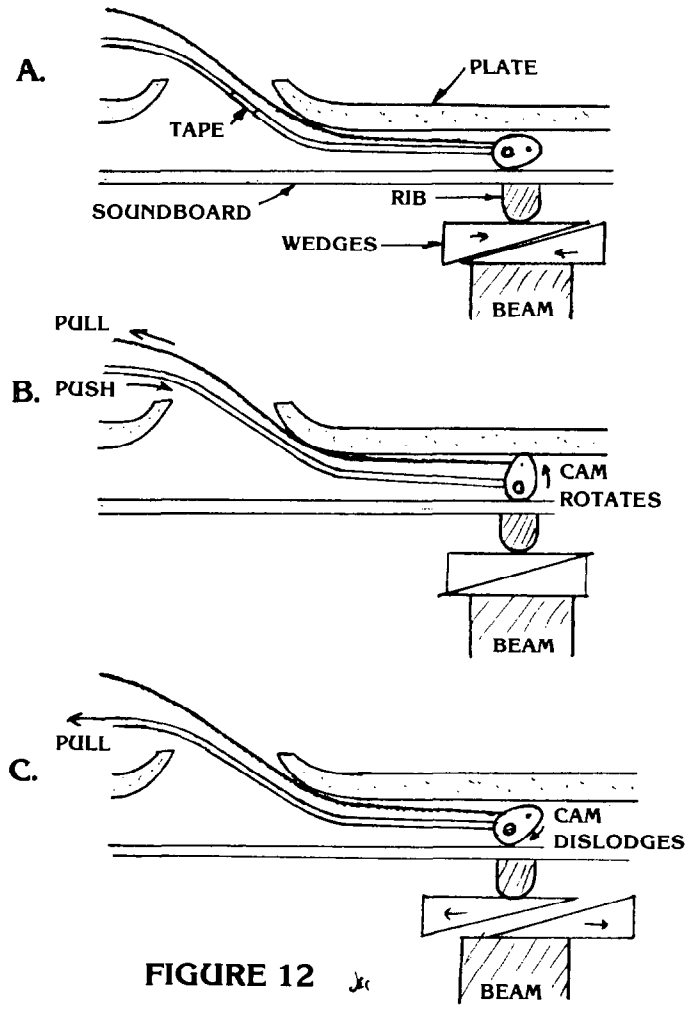


FIGURE 12

In the Field

BEN McKLVEEN

Last year the Ohio state seminar offered a class in piano evaluation — appraising for monetary value and estimating costs for repair and rebuilding. One of the people in the class asked a question about appraising pianos for insurance purposes and a lively discussion followed. It raised more question than it answered and suggested to me that the topic would be suitable for this column.

All of us are asked to do estimates from time to time. My opinion is that we who work with pianos should be in a better position to do this accurately than auctioneers, furniture dealers or non-professionals. Our craft gives us a knowledge of the complete piano — its inner workings, its brand reputation, as well as its outer appearance. But this is not the whole story. Unless we have some knowledge of the piano market and *current* piano prices we can misjudge prices badly.

Frequently, I am called by someone who says, "I am thinking about selling my piano. It is an XYZ brand. How much should I ask for it?"

If the person is a client of mine, and I have been servicing the piano and I am familiar with its condition, I might respond to the question with a price. I would have weighed in my mind the brand, style, physical condition, age, and artistic merits of the instrument, made a mental note of what that piano would cost as a new instrument today and come up with a dollar figure that I would consider "fair market value."

If the client called me and said, "I am moving out of town on Thursday; will you buy my piano?", I would go through the same process but subtract the cost of moving, any repairs or reconditioning that might be necessary and a fair profit for my efforts of reselling the instrument. The price I would then quote the client under these conditions would be a "wholesale price."

Evaluating pianos for insurance purposes requires that you be familiar with both new piano costs and fair market value. Insurance appraising can be a problem unless everyone involved knows what is being said. Often insurance companies have a great deal of trouble with their insured customers in determining the value of an instrument at the time of a claim unless a very specific appraisal has been made and is available for their inspection. If a piano was purchased for $2500 in 1960 and destroyed by fire in 1980, the chances are good that under the terms of a normal household insurance policy, the piano would be valued at $2500 *less* 20 years depreciation! The owner could be paid off for about half the original value, but in the meantime, the cost of the replacement of the piano would have soared to perhaps $10,000.

What is the best way to handle this problem? All of the insurance agents with whom I have spoken regarding the insurance of musical instruments stressed the fact that insurance companies want to be fair and equitable in their settlement of claims with customers. But, they don't want to be ripped off any more than the customer does. Misunderstanding of the policy coverage is a source of much anguish on the part of the insured at claims time. The terms of a policy are spelled out in the fine print of the contract. The problem is the customer seldom reads it nor does he always understand if it he does read it. So, a few suggestions for the technician making appraisals of this kind are:

1. Write the appraisal to include the make, model, and serial number of the piano.
2. State a fair market value.
3. Be sure to date the appraisal.
4. Discuss with your client the option of purchasing a policy that includes replacement cost coverage.

Replacement coverage is available for many items including antiques, fine art, jewelry, furs, coins,

silver, etc. The cost of pianos today, especially fine grands, is such that a replacement-cost rider clause or insurance policy is quite desirable. In the long run, good protection is truly a co-operative effort involving the appraising technician, the owner, and the insurance agent.

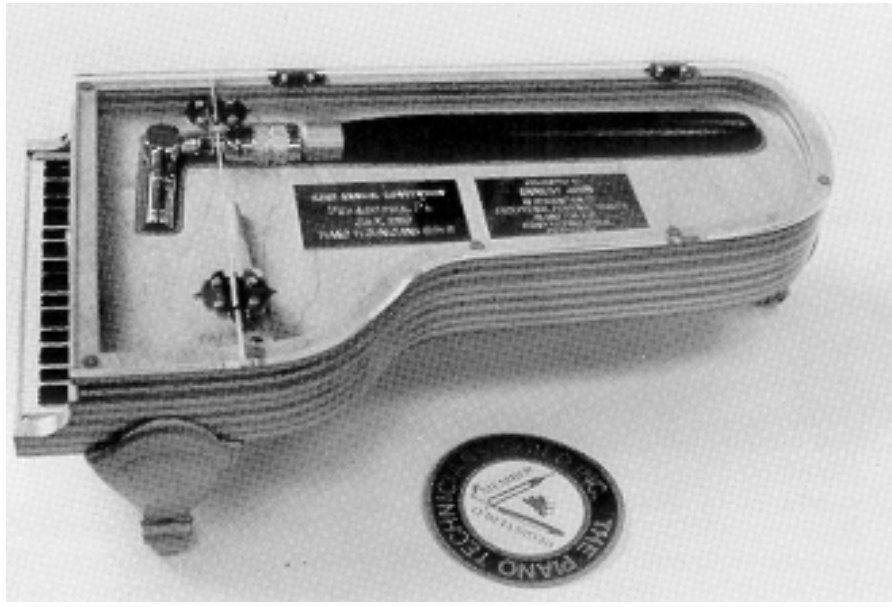
How do you learn to be a good appraiser? It starts by being familiar with the new piano market. The prices of new pianos should be part of our on-going education. Keep track of the used piano market as well. Ask questions and observe. Above all, keep up to date! Nothing is more misleading than prices that are two or three years old.

How do you charge for this service? Begin by treating an appraisal as you would a tuning. It is a part of your service and a business transaction involving time, knowledge, and material. Compute the time it takes to look at a piano, including travel expense, the time it takes to write up and send out the letter, and make your hourly rate reflect the time you have spent acquiring the knowledge to do this work with skill and accuracy.

I passed through a cabinet shop several weeks ago and saw the following paragraph carved in a large wooden sign and hung in a prominent place on the shop wall. The message is applicable to our profession as well as cabinet makers and I thought I would share it with you. It read:

TO THE CRAFTSMAN

After I leave your hands you may never see me again. People looking at me, however, will see you in me and so far as they are concerned, I will be you. Put into me your best so that I may speak to all who see and tell them of the master workman who wrought me. Say to them through me, "I know what good work is." If I am well done, I will get into good company and keep up the standards. If I am shabby, poorly made, I will get into bad company, contribute nothing and be thrown out as trash. □



THE 1980 GOLDEN HAMMER AWARD

Ernie Juhn Receives Golden Hammer Award

ERNIE JUHN

The 1980 Golden Hammer Award was recently presented to Ernie Juhn, a member of the Long Island-Nassau, New York chapter of the Piano Technicians Guild. The award, given yearly, is designed to recognize outstanding service and dedication to the Piano Technicians Guild.

Juhn has been a tuner-technician for over 40 years. He joined the Guild in 1965 as a craftsman member, and since that time has served four terms as northeast regional vice president and president of his local chapter.

Earlier this year, Juhn served as director of the Technical Institute, which is held in conjunction with the Guild's annual convention. It marked the third time he has held that position.

The award itself, pictured above, was designed by William Smith of the Guild's Seattle chapter. Each year Smith handcrafts a new design for the award from actual piano parts. □

The Puzzles Of Inharmonicity

David Merrill

We've all been trying for a long time to get the concept of inharmonicity under control, but it has become obvious that none of the currently available inharmonicity formulae can pass the ultimate test, a test which I invite all you "calculating technicians" out there to try for yourself, if you haven't already.

The test is to "tune a piano on paper," using whichever inharmonicity formula you feel most comfortable with (Dave Roberts supplied a fine one in the June 1980 *Journal*) to work out the frequencies of the partials. All you need to know is the gauge and speaking length of each wire, which is information you should be recording anyway on every piano you restring. (I recommend you start this process with the plain wire tenor and treble strings until you get the hang of it.)

The method for this theoretical tuning is simple, though the math may be tedious. First calculate the frequencies of the first six partials of **A_4** at **440 Hz** (or **C_4** at **261.6 Hz**, if that's what you normally tune from, although your **A_4** will not come out at exactly **440.0000 . . . Hz** if you begin with **C**). Then apply the same sequence of tuning and testing intervals that you normally use in tuning. Estimate the fundamental frequency of each new note to be "tuned," and work out the lower six partials using the inharmonicity formula. Find the differences in frequency between the partials of the new note and the coincidental partials of all appropriate "previously tuned" notes, and keep revising the fundamental frequency up or down and recalculating the partials until the note you're "tuning" gives differences at the coincidental partials that match the beat rates you normally try to achieve in tuning. (You might speed things up a little by revising the inharmonicity formula so that you can calculate the fundamental frequency from the desired frequency of a given partial to achieve a certain beat rate.)

I'm telling you all this so you can become as frustrated as I have. The problem is the stiffness of the piano wire is not the only element that causes inharmonicity, and since wire stiffness and tension are the only factors considered in the formulae I've found, you won't be able to make your theoretical piano "tune up" with the same beat rates and relationships that you regularly experience when tuning the real thing.

So where's the lost chord? What extra factor can we plug into the inharmonicity formula that will allow us to design a more perfect scale, and to predict with accuracy the frequencies of the partials on a given piano?

If the bridge were rigidly supported, formulae based only on wire stiffness would give a fairly accurate picture of what the string is really doing. However, if the bridge can move in response to the string's motion (and we certainly hope it can), then the behavior of the string is altered as explained below. This alteration is most pronounced on the fundamental vibrational mode, becoming less so as the partial number increases, and its result is a slight but significant lowering of the frequency of the lower partials, and a progressively slighter lowering of the frequency of the higher partials; a sort of "backwards inharmonicity." The analogy of a sprung support lends itself to graphic description of this phenomenon*:

In the fundamental mode, the string pulls the spring-supported ring away from its central rest position, and the compressed spring pushes back as the string returns. In this simple situation, the frequency of the fundamental vibration will be lowered by an amount corresponding to the imaginary added length of the string. The amount of imaginary increase in length is less in the case of the higher partials with their smaller relative amplitudes, so the higher the partial, the more rigid the bridge will "seem" to the reflected wave; the lower the partial, the greater is the bridge movement, and the greater is the corresponding flattening effect.

Another aspect of this phenomenon results from the fact that a part of the bridge's movement is in the form of a tilt in response to the changing tension of the string as it moves away from and returns toward its straight-line rest position. This type of bridge motion, which affects string behavior in the same way as does the vertical component of the motion, causes

* Gabriel Weinreich, "The Coupled Motion of the Piano Strings," *Scientific American*, Vol. 240, No. 1, January 1979.

a flattening effect which favors the lower partials.

How does the springy quality of the bridge make the string "think" it is longer? The primary restoring force which acts to return the string to its rest position is the tension between its two ends, but another element is the increase in wire tension as it moves away from that rest position. The amount of this tension increase is directly proportional to the amplitude; the farther the string moves from the straight line, the faster it will be accelerated back to its rest position. (This is the reason that the period of a pendulum — as well as a string — remains the same regardless of the amplitude of its swings.) This increase in tension is caused by the elongation of the wire, and the amount of tension increase is proportional to the ratio of this elongation to the total length of the wire. That is, a given displacement will produce a greater increase in tension in a shorter wire than in a longer one.

The effects of both types of bridge movement described above are the same; they reduce this increase in tension by reducing the amount of elongation for a given amount of displacement, in the same way as if a small additional length were added to the wire. The frequency is lowered by the resulting reduction of the restoring force.

If the partial frequencies are all lowered to some extent by the motion of the bridge, then it follows that the string must be tuned to a slightly higher tension to compensate for that effect. And tension, it happens, is a part of the formula for inharmonicity due to wire stiffness; the higher the tension, the smaller the proportional effect of wire stiffness on the frequencies of the partials. We can see, therefore, that bridge movement ultimately causes the tension of the wire to be higher in reality than it has heretofore been in theory, thus reducing that part of the inharmonicity that is due to wire stiffness, while introducing a new aspect of inharmonicity that is due to the imaginary elongation of the wire.

There are four factors that govern bridge movement, and these must be considered in any calculations of this phenomenon:

(1) the amount of bearing, which affects vertical bridge motion;

(2) the length of the wire segment between the back bridge pin and the hitchpin or duplex bar, which affects the tilt of the bridge;

(3) the distance of the bridge from the edges of the soundboard, which affects both types of motion; and

(4) the stiffness of the soundboard itself, which also affects both types of motion.

Factors (1) and (2) are related in the sense that a given bearing *angle* will produce greater resistance to vertical bridge movement if the length of the wire segment is short. Factors (3) and (4) are related in the sense that soundboard flexibility varies according to the position at which we choose to measure it (i.e., where we place the bridge).

Only through thorough analysis of bridge and soundboard behavior can we hope to account accurately for the behavior of piano strings. I hope that the "calculating technicians" reading this article will join me in pursuing this critical task. □

After Touch

David W. Pitsch

50-POINT GUIDE TO GRAND REGULATION PART IV
II. THE TOP ACTION (off of the keyframe) continued

22) Clean repetition spring and groove (Steinway, Yamaha, Bosendorfer). On Steinway, new style Yamaha, and in just the last year, the new style Bosendorfer whippens (which have the butterfly-type repetition spring), the spring grooves are coated with a graphite solution. The most recent Yamahas now use a teflon coating here, but the older models of this type whippen are graphite.

Hurray that someone has finally seen the light! This graphite paste becomes dirty and gummy, and makes for a *source* of friction instead of *eliminating* it. These grooves in the underside of the balancier and the spring tips must be cleaned in order to achieve a good regulated action. If left uncleaned, the jack height is very hard to set since the repetition spring not only has to support the knuckle, but also has to overcome this messy graphite paste as the balancier moves.

To clean this groove, release all 88 repetition springs from the grooves and turn the action upside down, taking care to protect the hammers while doing so. Run a piece of cloth up and down the grooves until clean. Be careful not to damage the groove. Now choose a lubricant which will, hopefully, eliminate this problem during future use.

I have tried three different lubricants for this job, but I have reservations about all three of them. If any of the readers have a sure-fire method to solve this problem, please be kind enough to share it!

I have tried:

1) Dag 154. This is a graphite solution and works well for lubricating the spring. I question whether it will be free from the dirty, gummy mess which plagued this area in the first place.

2) Spray teflon. I feel that this teflon is not as good as what is available to the manufacturers. It does not seem to last. Hence the repetition spring, while not getting dirty and gummy, will also not be lubricated quite well enough.

3) White grease. This is supposed to prevent rust and corrosion on the spring. It is not absorbed into the wood, but it is bound to get dirty with time. As to whether it will also get gummy and inhibit the spring is anybody's guess. The ideal would be to apply a teflon coating like what Yamaha now uses, but to my knowledge this is not available to technicians.

Turn the action right side up and clean the tips of the repetition springs with a suede brush. Rebend the springs back into their grooves, making sure that the spring is indeed in its groove by applying a slight sideways motion.

23) Round whippen felt if needed. The cushion felt on the bottom of the whippen which rests upon the capstan always compacts and gets worn from the constant hammering of the capstan hitting against it. Incidentally, this compacting along with the flattening of the knuckle is why a new piano always loses its hammer line. In the case where these parts have only "settled in," the action can be brought back into regulation by raising the capstans and making the corresponding adjustments in the let-off and drop. Since raising the whippen puts the jack tender closer to the let-off button and the balancier closer to the bottom of the drop screw, these two must be changed.

I use two wear areas, the knuckle and the whippen felt, to decide whether to repair an action or to replace the action parts. Just like a flattened knuckle, a worn whippen cushion felt must be replaced. I find it far less hassle to just replace the whippens and shanks/flanges instead of taking the time to try to repair these parts. But, if the piano is obsolete or if only a little worn, the whippen felt can be rounded back to its original shape by passing wool yarn through it just like as in rounding a worn knuckle. In the case where the whippens are obsolete and the cushion felts are deeply grooved, then the only solution is to replace just the whippen felt. I might add, that if such a piano was thrown into my hands, I would try to procrastinate doing the work until the owners junked the piano!

24) Polish the capstans. The top action is still off of the keyframe, so the keys are readily accessible. Either buff them on a buffing wheel or if on the job away from the shop, take some chrome/metal polish along with a rag and polish them a section at a time. Just use a wooden block along the back of the keys to keep them level and from wiggling too much. After polishing, I like to spray the capstans with emralon.

25) Clean knuckles and backchecks. A good shop will have a portable air compressor as a part

of the essential equipment. Take the nozzle and blow with high pressure up and down the knuckle and backchecks. Of course, it goes without saying that the entire action should be blown out, but I like to use a higher pressure when cleaning the leather. If the knuckles are dirty with graphite, this must be cleaned off next. Use some sort of a solvent, whatever is available in your area (some say that Renuzit is still available, but I can't get it). Then take a suede brush and comb the leather. Check the hammer tails. If they are not rough enough to ensure good backchecking, use a hand file and correct. Be careful not to roughen the tails so coarse as to wear the backchecks abnormally.

This ends section II. Before proceeding onto section III, make sure that all needed repairs have been finished and that sections I and II were performed accurately. Remember that if two people are working in the shop together, one can do section I while the other works on section II.

III. ALIGNMENTS (install action back on keyframe)

26) Align action frame in piano (adjust keyframe stop block). The action parts must all line up to insure full power and reliability. Take as samples the action parts to the keys at the ends of each section. Starting at the strings and working down, align the parts to the strings. This is assuming that the strings are in proper alignment. If the piano has been restrung, or especially if the plate has been removed, this may not be the case. Where there are agraffes or some other string positioning devices, you can be pretty sure that the strings are aligned well, assuming the plate is OK. Too many "technicians" try to install pinblocks and soundboards when they do not know how to align them. If you have trouble aligning the action and can see the piano has been "rebuilt," the problem may be that the piano was not properly rebuilt.

Anyway, loosen the hammer-flange screw to align the hammer to the string. Next, align the balancier so it is directly underneath the knuckle. This is done by either loosening the whippen screw and tilting the whippen or else shimming the flange and rotating the whippen. More will be said on this subject in step 28.

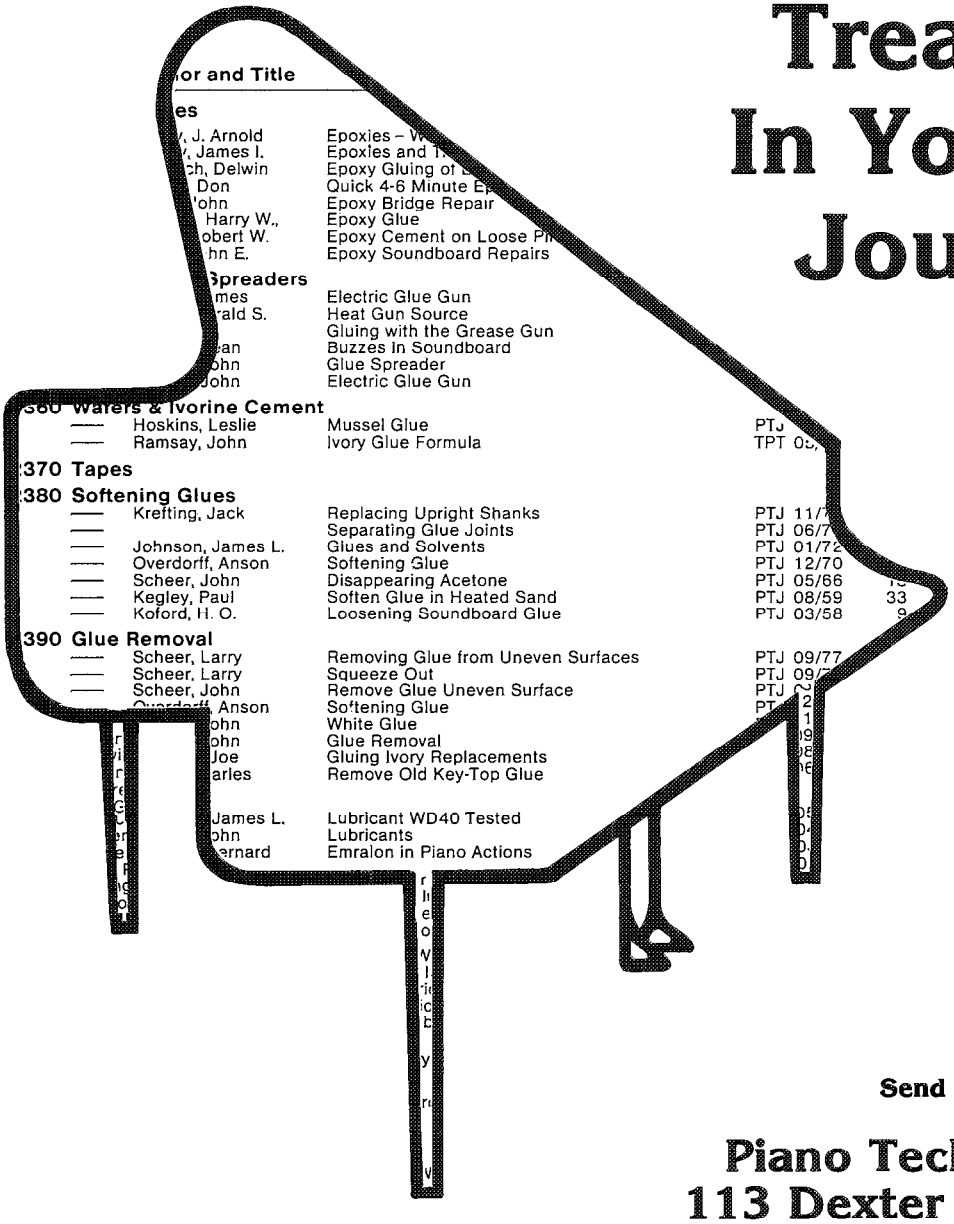
After the sample keys are aligned, check to see how the hammers look in relation to the strings. If all of the hammers are off to the left (most usually) or off to the right, then the stop block at the left end of the keyframe must be adjusted. It normally is screwed into the case, so just remove it, install or subtract shims, and screw back.

Shimming the stop block is normal, because the felt often compacts from the action coming back after using the una corda pedal. Make sure you check this if the piano has been stored for a time on its side, since the weight of the action against the stop block compresses the felt. If the shims need to be removed, as would be the case if the capstans are off to the right, be careful. Something has caused this and should be corrected.

There is the far chance that the action was improperly aligned in the factory, but not often. If the hammers have been replaced poorly and the hammer angle or hammer travel are way off, check here. More likely, check to see if the pinblock has been replaced, or check for something else which might have caused the plate to be repositioned. If the string alignment has been changed through altering the plate, not only will the action not line up, but the dampers will not, and the sidebearing on the bridge pins will be excessive.

As a caution, check to see if the capstans were centered in the keys, or that the keys are properly spaced and not warped on the samples being used. Is the action positioned on the keybed correctly? Since the bass strings cross the tenor at an angle, pulling the action in and out will change the hammer to string alignment a little. As a final check, did you rotate the whippen flanges when they should have been tilted, or vice versa? Remember to favor the strings which have agraffes when choosing where to align, since the upper treble strings with a V-bar can be slightly aligned to the action. □

NOW! A Map to the Treasures In Your Old Journals



$25

Send check or money order to:

Piano Technicians Guild
113 Dexter Avenue North
Seattle, Washington 98109

Now, you can find the information you need — quickly and easily. It's all here in the "Classified Index to Published Piano Technology." This 293-page index can guide you to any one of the thousands of articles that have appeared over the years in the **Piano Technicians Journal** and four other publications related to piano technology.

All you have to do is look in the index under the subject heading you need. There you'll find listed all of the articles published on that subject.

You'll find out who wrote a particular article, the title of it, the issue in which it appeared, and the page number. Then, you just grab the issue you need, and the information is yours. Quick and easy.

And, the home office of the Guild can send you a reprint of any article listed in the index that you don't have. So, how can you afford to be without it? Order your index today.

Calculating Technician

Part XV

Dave Roberts

Last month, we concluded our recent series of articles on design considerations for wound piano strings. The reason so much time was spent on this subject is that this information is groundwork we need before returning to the subject we started several months ago — piano scale evaluation and modification.

At this point, it would be helpful to summarize the formulas which have been presented so far and also put the scaling rules and comments made up to now in perspective. In Tables I and II, I have separated the quantities we would ordinarily measure, specify from tables or guess from the quantities we would ordinarily have to calculate if we were evaluating or modifying a scale.

One of these quantities, overall string diameter **D**, appears in both Tables I and II. This would be *measured* if we were just evaluating a scale. However, if we were designing wound strings (modifying a scale), **D** would be *calculated* from the formula in Table II using available music wire gauges for the core and available Washburn and Moen (W/M) wire gauges for the copper, iron and aluminum wraps (September 1980 article).

Note that the unwound segments **a** and **b** are also listed in both Tables I and II. Again, these would just be *measured* if we were evaluating an existing scale. However, rather than calculate them when designing new wound strings, I suggest simply letting **a** = **b** = ½". The calculation formula is only approximate (July 1980 article), and you should probably not make them less than ½" anyhow in order to allow for the stringmaker's tolerance on winding lengths and hitch-pin loops and the secondary "creep" process over the life of the string as described last month.

Table I. MEASURED QUANTITIES in SCALE EVALUATION/MODIFICATION

Quantity	Symbol	Units	Quantity	Symbol	Units
speaking length	**L**	inches	number of strings in the unison	**N**	none
any portion of total string length	**G**	inches	agraffe (or capo bar)-to-hammer-strike-point distance	**H**	inches
agraffe-to-start-of-winding (string at pitch)	**a**	inches	hitch-to-bridge pin distance (speaking side)	**M**	inches
speaking-side-bridge-pin-to start-of-winding (string at pitch)	**b**	inches	number of note as it lies on the scale	**m**	none
steel wire dia.	**d**	mils	partial number (1= fundamental)	**n**	none
wrap wire dia. (before wrapping)	d_w	mils			
overall string diameter	**D**	mils			

Note: a mil is one one-thousandth of an inch, i.e. 0.001" inches

For those of you who prefer to work in the metric system, say tension in kilograms and all lengths and diameters in centimeters, we can modify the formulas in Table II as follows:

- change the constant 802.6 in the tension (**T**) formula to 7.69
- change the constant 0.557 in the T_{max} formula to 5353
- change the constant 139430 in stiffness formula (**S**) to 0.00000198
- change the constant 0.043 in the E_G and **f** formulas to 0.00000061

Inharmonicity I_n will still be calculated in cents. Loudness **Z** and the hammer/string contact time factor **NT/H** will have different magnitudes than in the English system, but we are not ordinarily interested in either the units or magnitude of these quantities, just how *smoothly* they change from unison to unison throughout the scale. We might be interested in the magnitudes per se only as they compare note for note from one scale to another, but as long as we stick exclusively with either English units or metric units there is no problem in this respect.

Now we come to the question of what to do with all these formulas. I'm sure many of you are thinking that it's just not practical to measure all the quantities in Table I and calculate all the quantities in Table II for every note on the piano every time we wish to evaluate or modify a scale.

Obviously, none of this makes any sense if it's going to take too much of our valuable time, so let's describe a procedure for cutting the scale evaluation time down to less than one hour plus measurements. Subsequent modification, if necessary, would take a few minutes to an hour longer, depending on the extent of the modification. Wouldn't it be worth that much time to you and your customer to see that the piano you are rebuilding conforms to good scaling practice? Isn't improved smoothness in tuning, tone and power an important goal in rebuilding a piano? I think it should be.

The secret to efficient evaluation/modification of a piano scale is first to have a well organized, preprinted worksheet on which you tabluate your measurements (or specified quantities) and also your calculated quantities.

Secondly, you should have a programmable calculator with an efficiently designed program for carrying out these calculations. Part of an example 8½" x 11" worksheet is given here along

Table II.
CALCULATED QUANTITIES in SCALE EVALUATION/ MODIFICATION

Quantity	Units	Formula
string tension	lbs	$T = 2^{\left(\frac{m}{6}\right)}\left(\frac{Ld}{802.6}\right)^2\left[1+B\right]$, quantity **B** defined below
max. safe string tension	lbs	$T_{max.} = 0.557d^{1.667}$ (60% of breaking strength)
wrap weighting factor	none	$B = A\left(\frac{D^2}{d^2}-1\right)$, where **A** = { 0.89 for copper wrap; 0.79 for iron wrap; 0.27 for aluminum wrap }
inharmonicity of n^{th} partial	cents	$I_n = 1731(n^2-1)\left\{S\left(1+\frac{B}{8}\right)+\frac{3B}{1+B}\left[\left\|\frac{a}{L}-\sqrt{S}\right\|^3+\left\|\frac{b}{L}-\sqrt{S}\right\|^3\right]\right\}$
steel wire stiffness factor	none	$S = d^4/139430\,L^2T$ (used in I_n formula above and **a** and **b** formulas below)
loudness factor	NA	$Z = d\sqrt{NT(1+B)}$ (larger value gives louder, less sustaining tone)
hammer/string contact time factor	NA	NT/H (larger value gives faster hammer rebound, less damping of higher partials)
fractional string elongation	none	$f = 0.043\,T/d^2$ (elastic deformation only)
elongation of string segment **G**	inches	$E_G = (0.043\,T/d^2)G$ (elastic deformation only)
hitch-to-start-of-winding	inches	$L_1 = (M+b)/(1+f)$ } new, slack strings
length of winding	inches	$L_2 = (L-a-b)/(1+f)$ } new, slack strings
overall string dia.	mils	$D = d + 1.9\,d_w$ (assumes 5% distortion of wrap)
unwound ends **a** and **b** (wrapped string)	inches	$a = b = L\sqrt{S}$ (approximate only — see text)

with a few entries to show you how they might appear.

In this example, the note number on the keyboard (**m** in Table I) appears in the first column, with **A1-E44** on side 1 of the worksheet and **F45-C88** on side 2 (not shown here). The remaining quantities which you would typically key-in on your calculator keyboard for each note to be analyzed are listed in the next few columns.

In the 7th column (**N**), the letter **C, I, A** or **P** following the number of strings in the unison indicates copper, iron, aluminum or no winding (plain), respectively. Placing numbers in columns 5 and 6 when analyzing a scale would be optional. Writing down the wrap gauge numbers in column 6 when modifying a scale is also optional, but handy. The last 5 columns are for the acoustical and mechanical quantities to be calculated (see Table II). Not shown are a few unspecified columns for whatever purpose you wish.

For instance, you could calculate the (slack) lengths L_1 and L_2 for any wound strings which you may have redesigned (see Table II). Or, you may be interested in string elongation E_G for purposes of evaluating tuning stability (the

longer and more uniformly graduated, the better). Or, you might want to compare measured values of **L/H** on either side of the bass/treble break with the generally accepted value of about **8.0** in good scales. You should at least have the same value of this ratio on both sides of this break if different from **8.0**; if not, you might want to consider changing your hammer line slightly if this doesn't introduce other problems you can't cope with.

Let me state again, as I have in previous articles in this series, that the principal objective in good scale design is to get I_4, **Z** and **NT/H** to change *smoothly* (in this order of importance) from unison to unison throughout the entire scale, especially across scale breaks such as plain/wound, iron/copper, treble/bass, trichord/bichord, bichord/monochord, etc.

Refer to the May 1980 article for more discussion on this subject, including possible exceptions to the rule.

Also, string tensions should not exceed the maximum safe tension T_{max} (Table II). Rather than calculate T_{max} for the worksheet, however, I have chosen to calculate the string tension *as a fraction* of the breaking tension T_B, where $T_B = T_{max}/0.6$ (see March 1980 article). Thus, T/T_B in column (12) should not exceed **0.60** and, for most existing scales, will be in the range **0.35** to **0.50** most of the time.

Note the number of significant figures for each column entry on the worksheet. This is important because efficiency demands that you use minimum writing and calculator keystroke motions. Those of you contemplating using a printer with your calculator — don't. I know they are a lot of fun, but stringing-out all the measured and/or calculated quantities on a narrow piece of paper tape several feet long is counterproductive. The 8½" x 11" worksheet is far more efficient for comparing the various acoustical quantities for smoothness from unison to unison.

With experience, one can spot most scaling problems just by looking at the piano, in which case one need only evaluate a small portion of the whole scale. For instance, treble scales are seldom faulty except near the bass end and, at any rate, cannot usually be improved significantly by rescaling the middle and upper registers except for the obvious ploy of inserting any missing half-size wire gauges. On the other hand, the plain/wound transition is very often faulty, even in many otherwise good quality grands, and this problem can usually be spotted visually as described in the March 1980 article. Hence, as a practical matter, you need not spend more than one-half hour evaluating a piano scale if you use the general approach I have outlined here.

Next month, I'll give a listing and description of the HP-67 calculator program which I use in filling out the worksheet. I also hope to give comparable information for the TI-59, since this is the programmable calculator which will probably be most readily available to the general membership in view of its increasingly widespread use in administering the Guild's standard tuning exam, so stay tuned to this column.... □

P make _____
I model _____
A type _____
N serial _____
O mfg date _____

NOTES

m (key)	**L** inches	sting dia. **d**	sting dia. **D**	wrap dia. d_w mils	wrap dia. d_w ga.	**N**	unwrapped ends (inches) **a**	unwrapped ends (inches) **b**	I_4	**Z**	$\frac{T}{T_B}$	$\frac{NT}{H}$	**T** (lbs)
A1	55.7	59	203	75.8	14½	1C	1.0	0.5	8.1	2725	.24	29	200
A#	55.0	55	199	75.8	14½				6.3	2737	.28	31	211
B3	54.3	55	199	71.6	15				6.1	2639	.29	31	212
C4	53.6	51	187	71.6	15				4.8	2643	.34	33	222
C#	52.9	49	185	71.6	15				4.1	2703	.39	36	238
D6	52.3	47	172	65.8	15½				3.6	2449	.40	35	226
●													
●													
●													
●													
E20	42.4	38	79	21.6	24	2C	0.8	0.5	1.9	1355	.40	61	161
F21	47.4	37	73	18.9	25	2C	0.8	0.5	1.2	1375	.51	65	193
●													
●													
●													
D42	22.5	39	39	—	—	3P	—	—	5.6	836	.37	163	153
D#	21.3	39	39	—	—		—	—	6.2	838	.37	173	154
E44	20.1	39	39	—	—		—	—	7.0	838	.37	184	154

VON DER WERKSTATT

Priscilla and Joel Rappaport

BASS STRING MAKING IN A SMALL SHOP

The title of our column—*Von der Werkstatt* — means "from the workshop," the workshop having special emphasis on handcrafted activities. One of our goals while back in Germany last May was to review what was happening in the typical German *Werkstatt*. Of course, there is no typical shop there, just as we would be hard pressed to define a typical American piano-repair shop.

Some German technicians specialize in action work only. On the other end of the scale, a shop affiliated with a retail store might have a Master Piano Builder in charge, several workers and apprentice positions available for training. In addition to making new instruments ready, older instruments either purchased or received in trade are overhauled or rebuilt. One fixture in most of the rebuilding shops we visited was something you don't see in American shops: a bass string spinning machine. Most replacement bass strings are spun right in the workshop there. The advantage is that a dead string or one with a rattle can be immediately respun and the project can continue. A disadvantage is that an expensive supply of copper must be on hand in many different diameters. The core wire, incidentally, is the same wire used as plain wire in stringing.

At the Europiano Convention near Hamburg last spring, a class on bass string spinning was led by Master Piano Builder Klaus Fenner. Fenner wrote the book on bass strings. His *On the Calculation of the Tension of Wound Strings* (in German and English translated by J. Engelhardt) is available from Verlag Das Musikinstrument, Kluberstrasse 9, 6 Frankfurt/M., West Germany.

The class used two spinning machines of the type found in repair shops. Participants in the class had a variety of core wires and copper sizes to choose from and had a chance to spin some strings.

The hand-out for the class dealt with an experiment Fenner had made to research the phenomenon of wildness in pairs of bass strings. Suspecting that a major factor in a bass string's sound quality is variation in total diameter caused by uneven spinning of the copper, he spun two bass strings.

To test this theory, the length, core diameter and copper diameter were the same except that one string began very thick at the end, got thinner at the middle as it was spun and became thick again at the other end. This he did by varying the tension he held on the copper wire as the string was spun. The other string was the other extreme: thin on the ends and thick in the middle.

Both strings were stretched out for a year, then put on a monochord and struck with a mechanical device. Each string was tone-analyzed and scientifically measured for inharmonicity. The tone analysis consisted of graphing the amplitude of the individual partials without consideration of noise caused by the hammer striking the string.

By comparing the results, it was very obvious that the first partials of both strings were wildly different, whereas other higher partials were closer together.

This simply means that the tuner, in trying to match up these two bass strings, will listen to the group of higher partials but will be disturbed by the first partial pair producing a beat that is quite noticeable. This perhaps explains why when one of a pair of bass strings breaks, sometimes both are replaced, instead of just the one that broke, making tuning these two strings easier.

In order for pairs of bass strings to be able to be tuned together, their dimensions must be identical. Core wire diameter, copper diameter, overall diameter of the string throughout the length of the winding, and the number of windings per centimeter should match up.

With the help of a small bass string-spinning machine, strings are spun by hand. There are, of course, huge, fully automatic machines used in mass production, but this sort of machine is not practical for a small workshop where the demand for bass strings is small.

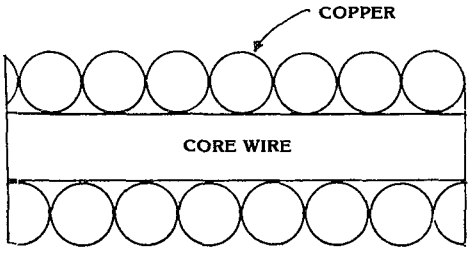
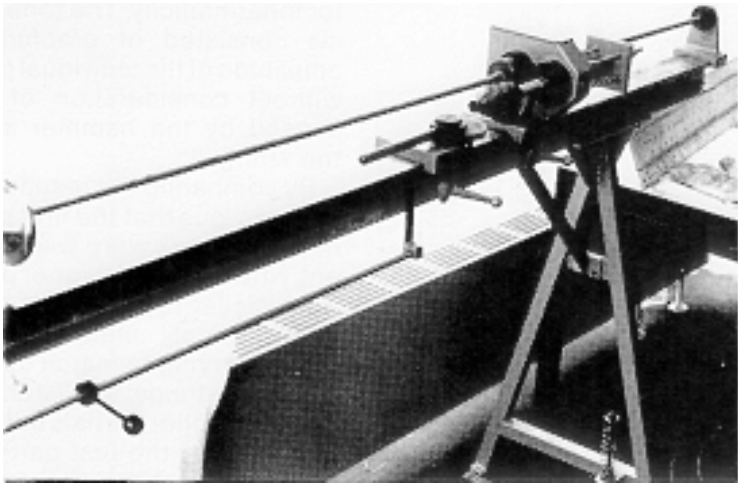
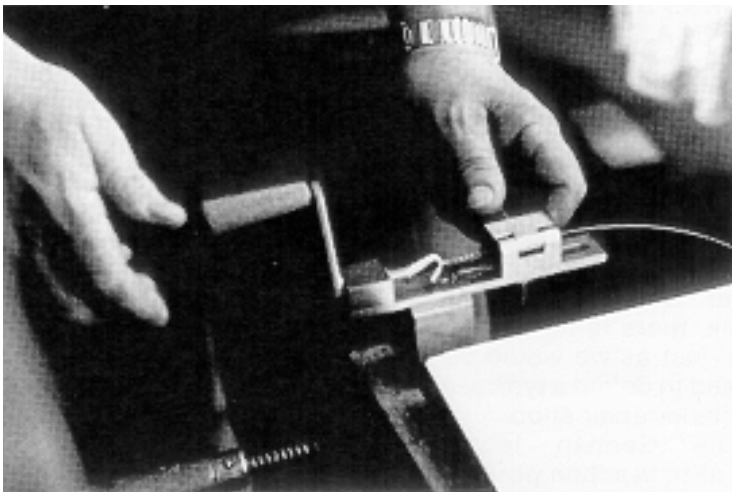


FIG. 1

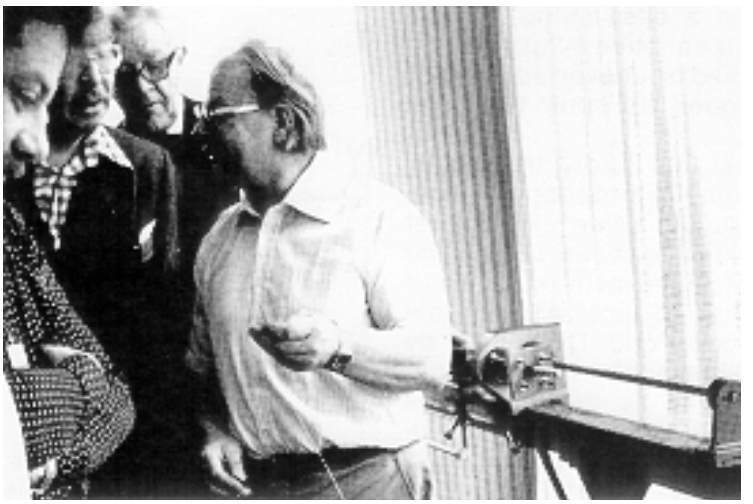
The core wire which is under about 60 per cent tension is turned in the machine at a high RPM. A good speed is about 2500 RPM. Larger machines for the production range from 870 to 5000 RPM. The copper wire comes off a



#1 Bass string spinning machine suitable for the small workshop.



#2 Making the loop on the core wire for the bass string.



#3 Klaus Fenner explains his method for making the loop. Class participants exchanged ideas and methods and took turns making loops and spinning strings.

#4 Klaus Fenner demonstrates to his class proper swaging of the core wire before copper is spun onto it. Approximately 25mm of the core wire is slightly flattened so that the copper winding will grab at its starting and ending points. This method is done after nicks are put in the wire but before it is put on the machine.

#5 String making in the production. The man here is swaging the core wire. The pointer near the man's left index finger shows where the copper for this string ends. This shows a method different from picture #4. This operation is done while the wire is on the machine and uses an anvil-like implement under the wire and a large hammer. Making a nick is not necessary.
(Photo courtesy Euterpe Pianofortefabrik, Langlau, W. Germany)

spool (it looks like a big spool of thread) and is held by hand under tension and spun evenly onto the core wire as the core wire turns, beginning and ending at predetermined points.

Bass string-making is very much dependent on the person spinning the strings. The spinner can have a direct influence on how the strings turn out, their consistency in diameter and their sound. If the tension held on the copper as it is spun is not consistent, then the outer diameter will vary, as will the number of copper windings. The swaging of the round core wire at the ends to hold the copper must also be uniform. Another factor is the copper itself: the wire must be consistent in its diameter and hardness throughout the roll.

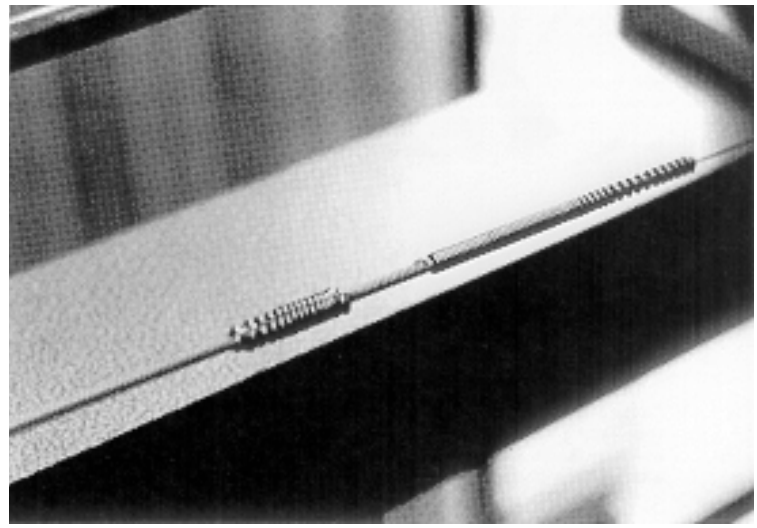
Let's take a look at a method typically used in a small workshop in making replacement strings. First, the core wire and total diameter of the string is measured. A loop is made at the end of the core wire and a "thick" or bend in the wire is made where the copper winding will start, about 10mm from the termination points of bridge or V-bar. Also at this bend, the wire will be swaged or flattened slightly so that the copper grabs as the winding begins. Proper swaging is important. If the wire is flattened too much the core is substantially weakened. If it is not flattened enough, the copper wire does not hold.

Let's take an example bass string (see **Figure 1**). The outer diameter is 3.475mm and the core wire is 1.000mm. We must determine the diameter of copper to be used on the core so that we *end up* with a bass string of 3.475mm total diameter. A simple calculation follows:

3.475	total diameter of string (wire core & copper winding)
−1.000	core diameter
2.475	copper on both sides of core wire
+2	

= 1.237mm diameter of copper wound on one side of the core after tension is exerted on the copper through spinning really making the copper thinner. A

#6 Spinning the bass string. Leather gloves or a piece of leather is used while spinning. Although it is hard to see, a piece of leather in the man's left hand is used around the string.
(Photo courtesy Euterpe)



#7 OOPS! A rather unusual looking bass string with several different diameters! Mistakes like this do occur. Since copper wire is expensive, the copper on this unusable string will be unwound and collected with other scrap copper. It is then sent back to a manufacturer so that it can be used again in the making of new wire.

factor of 4-7 per cent of diameter is added to the copper to account for this stretching. Each person who spins strings has a different factor. The factor added will also vary somewhat depending on whether you are spinning with thick or thin diameter copper. For our purposes here we will use a factor of 6 per cent and round 1.237 to 1.24mm.

1.24mm x .06 = 0.074 mm + 1.24mm = 1.314mm of copper winding to be used.

The closest size we have on hand is 1.300mm, so this will be used. If this size were missing from our supply, the next size of 1.350 would be used. However, the spinner would perhaps use a little more tension, stretching out the copper more than he normally would to achieve the desired diameter of string. This is the art of spinning. It can be fun if you know what you are doing and have lots of patience. But if things don't work out you can easily have a big mess on your hands or rather on the core wire as shown in **Picture 7**.

The core wire is then attached to the machine at both ends and put under some tension. The spinner will tell you the core must be under tension while spinning so when the string is strung onto the piano the copper winding will not loosen up. Copper is attached to the hook at one of the ends where the core is attached and wound slowly up to the nick in the wire. At this point the machine is set into motion, and the wire is spun at right angles to the core. Gloves are worn or pieces of leather are held to protect hands and to keep copper clean from sweat. One hand holds the copper and the other follows on the newly spun string to keep the string from swinging wildly. The foot operates a board which works a switch for the different speeds and a brake. The machine stops at the end of where the winding should be, and the copper is broken off at that point. New bass strings should be strung up as soon as possible so the chance of the windings loosening up are reduced. □

Cross Over The Bridge

All New for 1980-1981

This year the booster club has a new format.

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

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

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

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

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

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

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

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

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

	Pts	Mbs
President's Club		
DRAINE, Robert	24	8
Restorer's Club		
COLEMAN, Sr., Jim		
WALKUP, Ken		
Booster Club		
AFFLECK, Don	1	1
ALLEN, Jon	1	1
ANDERSON, Albert	6	2
ASHMORE, Yvonne	1	1
BITTINGER, Dick	10	4
BROOKSHIRE, Jerry	1	1
BROWNFIELD, Gary	3	1
CALLAHAN, James	1	1
CLEVENGER, Wayne	4	2
COLEMAN, Sr., Jim	4	2
COX, Merril	3	1
CUNNINGHAM, Jess	3	1
DeARMOND, C. E.	6	2
DeTAR, BRIAN	1	1
DUNCAN, David	3	1
ERDMAN, James	1	1
EVANS, Dan	3	1
FELTON, Hilbert	4	2
FINGER, Chris	3	1
FLEGLE, Sr., Richard	1	1
FROST, Jack	6	2
GARLICK, William	3	1
GILLER, Evan	4	2
HANSON, Frank	9	3
HARMON, Clayton	3	1
HAUCK, Jack	1	1
HEDRICK, Ralph	4	2
HERBERT, Curtis	2	2
KIMBELL, Michael	1	1
KINGSBURY, Richard	3	1
McGUIRE, Michael	3	1
METZ, Al	2	2
ODENHEIMER, Fred	3	1
OSBORNE, James	3	1
PETERSON, Gerald	3	1
PREUITT, Ernest	3	1
REITER, Michael	1	1
REQUE, Styrke	1	1
RUSSELL, Bob	5	5
SAAH, Joseph	3	1
SEITZ, Al	3	1
SIEROTA, Walter	3	1
SKOLNIK, David	3	1
STEELE, Joe	10	4
SVEC, John	1	1
THILE, Scott	1	1
WAGNER, Lloyd	3	1
WALKUP, Ken	3	1
ZEISEMER, Bruce	3	1

New Members

REGISTERED TECHNICIANS

Alaska Chapter
FORD, KURT W.
General Delivery
Eagle River, AK 99577

Central North Carolina Chapter
EISENBERG, PENNY W.
8722 Lorraine Drive
Matthews, NC 28105

Los Angeles, CA Chapter
EDER, ALAN D.
1739 Franklin Street
Santa Monica, CA 90404

Maritime Provinces, Canada Chapter
JOHNSTON, DENNIS T.
R.R. 1
Oromocto, NB E2V 2G2

THURBER, JOHN C.
R.R. 1
Fredericton, NB E3B 4X2

WICKENS, ARN E.
R.R. 8
Moncton, NB E1C 8K2

WICKENS, EDWIN P.
Box 135
St. Stephen, NB E3L 2X1

North Central Wisconsin Chapter
NELSEN, LARRY L.
969 Fredrick Drive
Neenah, WI 54956

Philadephia, PA Chapter
PLEIS, GEORGE W.
3855 Germantown Rd.
Collegeville, PA 19426

Phoenix, AZ Chapter
HAJEK, ARTHUR J.
1610 E. Apache Blvd.
Tempe, AZ 85282

South Bay, CA Chapter
MATTHEWS, JOHN
828 Angelus Place
Venice, CA 90291

Southern Tier, NY Chapter
SWENSON, EDWARD E.
11 Congress Street
Trumansburg, NY 14886

Western Massachusetts Chapter
SCHLAGEL, ROLAND J.
1362 Page Blvd.
Springfield, MA 01108

APPRENTICES

New Orleans, LA Chapter
GILMORE, KATE E.
6534 Virgilian
New Orleans, LA 70126

Philadelphia, PA Chapter
BOECHAT, AUGUSTE
6526 Algon Ave.
Philadelphia, PA 19111

Utah Valley, UT
HONEY, LEON V.
767 E. 400 South
Crem, UT 84057

STUDENTS

Cleveland, OH Chapter
ARGIRO, CAROL
569 Milan Avenue
Amherst, OH 44001

HOVEN, FRANCIS J.
3151 West 84th
Cleveland, OH 44102

Minnesota-North Iowa Chapter
MERSETH, MARILYN E.
286 Central Avenue
Zumbrota, MN 55992

Orange County, CA Chapter
BOWMAN, MARCIA K.
1549 N. Vulcan Ave.
#8
Leucadia, CA 92024

Philadelphia, PA Chapter
JENNINGS, LUTHER E.
1105 N. 63rd St.
Philadelphia, PA 19151

Phoenix, AZ Chapter
FLINT, GAIL A.
10957 Crestbrook Drive
Sun City, AZ 85351

FOOTE, JOHN S.
1364 W. Obispo Ave.
Mesa, AZ 85202

HEINEMAN, JOHN J.
9629 N. 4th Ave.
Phoenix, AZ 85021

HOLLINGSHEAD, ALAN W.
234 East 1st Ave.
#2
Mesa, AZ 85202

Wichita Chapter
SWAFFORD, KENT E.
1209 Linden
Wichita, KS 67207

ASSOCIATES

Maritime Provinces, Canada Chapter
SMITH, JOHN S.
1461 Manawagonish Rd.
Saint John, NB E2M 3X8

Sacramento Valley, CA Chapter
BARRETT, BRUCE
P.O. Box
Roseville, CA 95678

RECLASSIFICATIONS

REGISTERED TECHNICIANS

ARTIGUE, EDWARD J.
16228 S. Menlo Avenue
Gardena, CA 90247

BELLO, CHRISTOPHER
7421 Oakland Drive
North Biloxi, MS 39532

HEETER, RIC D.
3752 Edwards Road
Cincinnati, OH 45209

McNICOL, ANDREW
Lakeshore Drive
P.O. Box 664
Sackville, NB Canada E0A 3C0

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.**

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

Contact: Wayne Clevenger
518 W. 47th St. South
Wichita, Kansas 67217
(316) 524-3511

Jan. 16-17, 1981
ARIZONA STATE CONVENTION
Tucson, Arizona

Contact: Glenn J. Persons
42 E. Wetmore Road
Tucson, Arizona 85705
(602) 887-8569

Feb. 28-March 1, 1981
CALIFORNIA STATE CONVENTION
The Inn at the Park
Anaheim, California

Contact: Paul Monroe
5200 Irvine Blvd., #310
Irvine, California 91714

March 27-29, 1981
PENNSYLVANIA STATE CONVENTION
Brunswick Motor Inn
Downtown Lancaster, Pennsylvania

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

PIANO TECHNICIANS GUILD
24th Annual Convention
and
Technical Institute

San Francisco Hilton Hotel
July 6-10, 1981

THE AUXILIARY EXCHANGE

Luellyn Preuitt

1980/81 Auxiliary Board

Officers

JEWELL (Mrs. Jack) SPRINKLE, *President*
6033 North 19th Road
Arlington, Virginia 22205

JULIE (Mrs. Ronald) BERRY, *1st Vice President*
6520 Parker Lane
Indianapolis, Indiana 46220

SHIRLEY (Mrs. Richard) TRUAX, *2nd Vice President*
628 Florida Avenue
York, Pennsylvania 17402

BERT (Mrs. Walt) SIEROTA, *Recording Secretary*
5201 Whitaker Avenue
Philadelphia, Pennsylvania 19124

AGNES (Mrs. Charles) HUETHER, *Corresponding Secretary*
34 Jacklin Court
Clifton, New Jersey 07012

BELVA (Mrs. Richard) FLEGLE, *Treasurer*
1920 South 1st Street #904
Minneapolis, Minnesota 55454

GINGER (Mrs. James) BRYANT, *Parliamentarian & History*
1012 Dunbarton Circle
Sacramento, California 95825

Editor, Auxiliary Exchange

LUELLYN PREUITT
4022 South Fuller
Independence, Missouri 64052

From President Jewell: "Greetings to all! I have many blessings for which to be thankful, not only at Thanksgiving, but throughout the year. **They are you**! We have shared many happy, and some sad, experiences, during the past year. Now, the new pathway we are taking looks exciting and inviting. May each of you have a long list of 'Thankfulnesses' when you celebrate this month! Love, Jewell."

As promised, here are the two sketches of our newest auxiliary board members. Shirley Truax, second vice president, says in her article about herself:

"I am honored to have been chosen as a member of the board of the Piano Technicians Guild Auxiliary as second vice president. I am grateful for the opportunity to promote the Guild concepts and ideals and to work towards its goals in this capacity. I am happy for the position to display my faith in the piano-service field.

"Born and raised in York County, Pennsylvania, I've lived in Kansas, Maryland, and New York. For the past 15 years the city of York has been our home. I am the wife of RTT Richard Truax, mother of three and grandmother of three. I've done volunteer work for various civic and health organizations and worked as a waitress, janitor, bank bookkeeper, salesperson, typist, hospital interviewer, and purchasing agent. As wife of a piano technician I am a bookkeeper, salesperson, typist, hospital interviewer, and purchasing agent. As wife of a piano technician I am a bookkeeper, scheduler, cost accountant, cash flow analyst, billing clerk, purchasing agent, refinisher, upholsterer, shop technician, and delivery person. I'm a housewife, too.

"It took us a while to find our life's work and Dick and I share the responsibility for our 'cottage industry' of 11 years. We both have a strong, positive attitude about the Guild. Our reasons for belonging have remained positive: to have input in an organization that upgrades the piano service field, and to have the opportunity to have contact with co-workers on a business and social level.

"As second vice president, I will take this opportunity to gain member strength for the auxiliary. In belonging we can share the responsibility for promoting the Guild and attaining its goals. That will help us all."

Here now is Belva Flegle's response to our request for information about herself. Belva is our new treasurer. She says:

"I'm the wife of piano technician Dick Flegle, and, as you know, helped him in hosting the 1979 Minneapolis Guild convention. I'm the mother of two children, Rich and Barb. Both are married. Rich is an actor (he performed at the Minneapolis convention on opening night) and is presently with the Tucson Repertory Theater under the stage name of Richard K. Allison.

"Barb is a nurse and she and her husband live here in the Twin Cities.

"I have a degree in music and have worked with my husband in several churches where he has been music director. I play the

piano, vibraharp and marimba. We traveled for many years as a family presenting musical concerts. (This era of our life is past). For some time, I directed a very fine musical group of women here in Minneapolis, the 'Caroliers.'

"For several years I held administrative secretarial positions. Guess this means I'm a 'career' person at heart because of my love for people.

"We enjoy the many cultural opportunities here — theater, symphony, etc. — plus travel, bicycling, water skiing, and going to Guild conventions. We are actively involved in our Guild and the auxiliary.

"It is a privilege for me to serve as your treasurer. I want to meet our members and be your friend. If you have any questions at any time concerning dues, membership cards, etc., please drop me a note. I will answer immediately."

All of our auxiliary board members and ex-board members are great people. One of our most outstanding ones in recent years, Immediate Past President Helen Pearson, has a few words for us this month.

"A LETTER TO ALL AUXILIARY MEMBERS. Greetings to those who never get to our conventions, those who feel isolated from the other members of their own chapter, and especially isolated from the officers and governing board of the auxiliary.

"Even though you may live in some remote corner of the nation, you do have a voice in the running of the organization through your regional member-at-large delegate who is elected from the at-large members in attendance at the convention. Through this at-large delegate, it is possible for you to make suggestions and criticisms which would receive consideration at the annual meeting. To do this, just write to the delegate for your district, mailing it in care of the secretary, Bert Sierota.

"If you are under the false impression that you do not count, nothing could be farther from the truth. Each year at the council meeting proposals are made to mail information, questionnaires, etc., to you all. Then it is pointed out that on previous tries, there was so little response (maybe three or four replies) that it would be useless to do so.

"Unlike the Guild, our parent organization, we do not have regional vice presidents to visit the various chapters. In thinking about this matter of how we can unify the scattered membership into an active group, I suggest the following: mail a card with a 'Hi' and your name to me. Then we will know there is someone living out there, someone who will respond the next time we wish to do a mailing. If on the card you state your birthday, wedding anniversary, or illness, then your name will be passed on to the sunshine committee and you will receive a greeting.

"I shall pass your names along to the editor of the "Auxiliary Exchange" for printing, and perhaps at the San Francisco convention we will have a drawing for a prize. SEND THAT CARD TODAY. Helen Pearson, Immediate Past President, Piano Technicians Guild Auxiliary, 524 Elizabeth Place, South Daytona Beach, FL 32019."

ROCKWELL PRINTS STILL AVAILABLE

Have you ordered your Norman Rockwell print, "The Piano Tuner"? The auxiliary still has a few available. They make great presents for any occasion. Order from Julie Berry, 6520 Parker Lane, Indianapolis, IN 46220. Please include a check for $3.50 per print (includes postage and handling). Size is 8" by 10". Don't miss this opportunity to get this picture of that cute little red-headed boy (he's probably fat and bald by now) watching the piano tuner.

WELCOME TO NEW AUXILIARY MEMBERS

Julie Berry, first vice president and membership chairman of the auxiliary, has sent the following list of new members. We have 20 new members, and we want every one of them to know we are delighted they have joined us. We hope you attend seminars and conventions, so we become personally acquainted. Please accept Helen Pearson's invitation to send her a card. It'll get answered. Write to me. Tell me of your desires and your goals.

Julie has identified the ones (identified by an asterisk) who registered as non-members at the Philadelphia onvention and joined us while there.

Barbara (Mrs. David) Bauguess (M.A.L.)
1605 Dover Road
Montrose, CO 81401

* Lila Brown (Northern Virginia) (Jack Sprinkle)
6033 North 19th Road
Arlington, VA 22205

* Constance (Mrs. James) Cheeseman (New York City)
32-03 Junction Boulevard
East Elmhurst, NY 11369

* Josephine (Mrs. Dwight) Davis (Phoenix, AZ)
10221 North 52nd Avenue
Glendale, AZ 85301

* Mary (Mrs. Murray) Foreman (Detroit-Windsor)
105 Princeton
Alpena, MI 49707

* Donna (Mrs. Fred) Fornwalt (M.A.L.)
1333 Logan Boulevard
Altoona, PA 16602

* Nancy (Mrs. David) Foster (M.A.L.)
217 Academy Street
Berryville, VA 22611

* Wilda (Mrs. Emil) Fries (Portland, OR)
2001 East 8th Street
Vancouver, WA 98661

Mary (Mrs. Lloyd) Fritz (Fresno, CA)
156 West Ponderosa
Box 126, Reedley, CA 93654

* Carolyn Cook (Mrs. John) Hatcher (M.A.L.)
690 North Leak Street
Southern Pines, NC 28387

* Julia (Mrs. James) Hayes (M.A.L.)
260 Mountain Road
North Granby, CT 06060

Holly (Mrs. Dennis) Hunsicker (N. E. Florida)
1325 Donald Street
Jacksonville, FL 32205

* Donna Ann (Mrs. John) Lillico (M.A.L.)
  200 Queen Mary Drive Apt. 605
  Oakville, Ontario
  CANADA L6K-3L1

* Joan (Mrs. Robert) Morris (M.A.L.)
  2512 Trafalgar Square
  Champaign, IL 61820

* Jacqueline (Mrs. Charles) Nilson (M.A.L.)
  23 Kathy Drive
  Seymour, CT 06483

* Ruth E. (Mrs. Erwin) Otto (Daytona Beach, FL)
  777 Ocean Shore Boulevard
  Ormond Beach, FL 32074

* Runell (Mrs. John) Pelick (N.E. FL)
  1567 Townsend Boulevard
  Jacksonville, FL 32211

* Gladys (Mrs. Raymond) Springman (Reading-Lancaster, PA)
  417 Washington Street
  Montoursville, PA 17754

* Mary (Mrs. William) Tisdale (M.A.L.)
  Miner Road
  Chazy, NY 12921

  Laura (Mrs. Michael) Wilkes (N.E. FL)
  6159 Blanchard Road
  Jacksonville, FL 32216

Also from Julie Berry, membership chairman: "REMINDER TO SEMINAR PLANNERS. Is your chapter auxiliary faced with planning activities for the auxiliary at a local seminar or convention? Maybe this is even your year to plan for the national convention in your area.

"If so, don't overlook the fact that some of your not-so-well-known members may be experts in this area. A person doesn't have to know about pianos to know what kinds of events please spouses who come along to conventions.

"Tap your members' special talents and resources. If you ask around, you may discover your members have fascinating hobbies or specialties they would be happy to present as an auxiliary program. Other members might know of interesting places to visit, speakers to contact, or restaurants that specialize in group lunches. Sprinkle these activities with a class on phone techniques in the piano business or booking appointments, and you will have a well-rounded program of auxiliary activities which will attract more people to the conference and will delight all who attend."

Our recording secretary, Bert Sierota, has sent some more reports of chapter elections. Again, I am listing only presidents' names. If you wish more information, write to either Bert or me, and we will be happy to suply you with the information you wish.

Wichita, KS: Catherine Moore. Hutchinson, KS: Betty Graber. Minn.-No. Iowa: Phyllis Cady. Twin Cities: Maxine Buckman. Dayton, OH: Margaret Frazer. Reading-Lancaster, PA: Kathryn Snyder. Richmond, VA: Helen Doerflein. Phoenix, AZ: Pat Coleman. NE Florida: Irene R. Johns. Daytona Beach, FL; Helen Pearson. Pittsburgh, PA: Jayne Wagner. Los Angeles, CA: Norma Lamb.

Next month, I will have more reports from national officers and a story from Dora Odenheimer on the Europiano convention in Bad Bramstedt last May. Here is my own personal "Thanksgiving," never before shared with others. I am grateful that each day is a new beginning. □

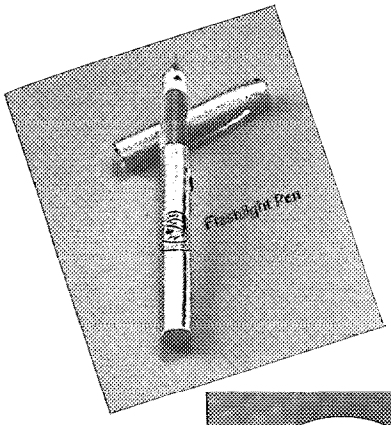
Obituaries

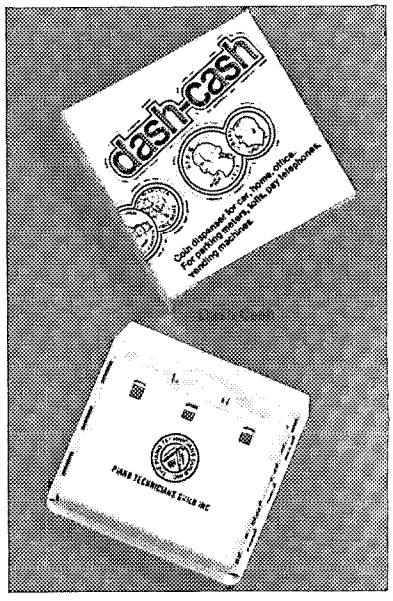
Christopher Lamoreux
Philadelphia Chapter

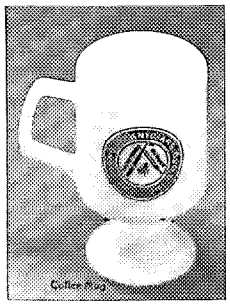
Walter D. Stevens, Jr.
Dallas Chapter

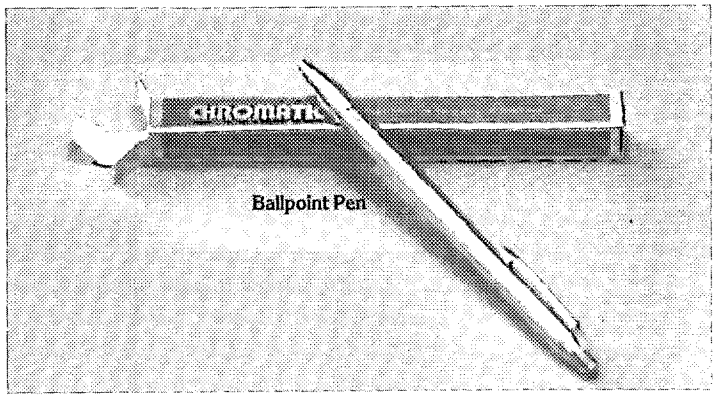
George Lockhart
Detroit-Windsor Chapter

Now's the Time for Christmas





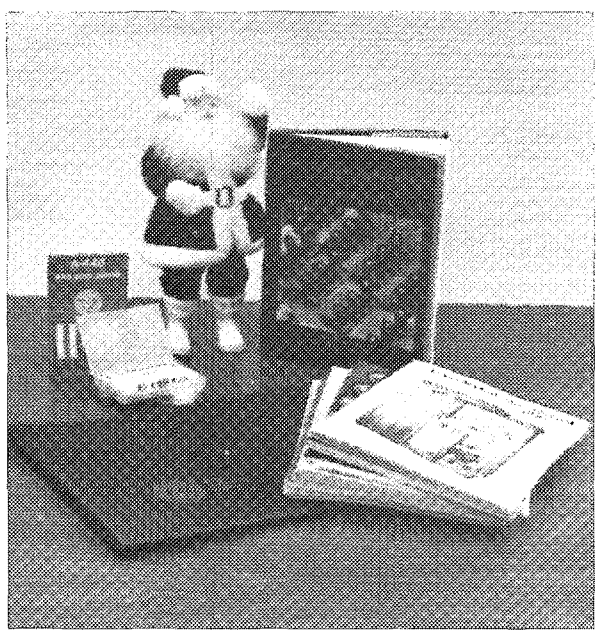




GIVE BUSINESS GIFTS THAT MEAN BUSINESS

A year's subscription to the *Journal* . . . or a copy of *Piano Parts and Their Functions* . . . are designed to help piano technicians in their business careers.

See the Sales Order Form on the reverse for additional suggestions.



Give the gift that's used daily. Your customers and associates will be reminded of you throughout the year.

Please send 1-year Christmas gift *Journal* subscription (12 issues) @ $60 each to:

FOR JOURNAL GIFTS

Name _____

Address _____

_____

City _____ State _____

Zip Code _____ Foreign Country _____

☐ Send free gift card

* * *

Name _____

Address _____

_____

City _____ State _____

Zip Code _____ Foreign Country _____

☐ Send free gift card

* * *

Please send _____
(Identify)

to:

Name _____

Address _____

_____

City _____ State _____

Zip Code _____ Foreign Country _____

FOR OTHER GIFTS

☐ Send free gift card

* * *

Please send _____
(Identify)

to:

Name _____

Address _____

_____

City _____ State _____

Zip Code _____ Foreign Country _____

☐ Send free gift card

_____

This order made by:

_____
(Name in Full)

_____
(Address)

_____
(City) (State) (Zip)

☐ Payment enclosed

SALES ORDER FORM

Item	Quantity Ordered	Total Price
BUSINESS AIDS		
Ballpoint Pens – gold, writes blue and red-1/$3.50-2/$6		
* **Billing Pads** – 2-part with logo imprint, 50 per pad-1/$2.50-3/$6		
Bumper Stickers – yellow/blue/white $1 each		
Coffee Mugs–white pedestal/blue logo 1/$4-2/$7.50-4/$12-6/$16.50		
Dash Cash – emergency coin dispenser, white with blue logo-$1.75 each		
Flashlight Pens– gold, comes with battery-1/$4.50-2/$8		
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		
* **Logo Cut Prints**–*all styles 50¢ ea. sht.*		
* **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		
* **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 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 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)	*Show A or B*	
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		
* **Pocket Protectors** – white vinyl with blue logo-3/$1.25-6/$2		
* **Service Stickers** – red and blue with logo. Plain-100/$4-200/$6-500/$12 Imprinted with your name/address-$45/1000		
Teacher Recital Program Covers – 100 for $7		

Item	Quantity Ordered	Total Price
JEWELRY		
* **Membership Pin** – lapel-type, 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		
* **Tie Tack** – gold with blue and white logo-1/$3-3/$6-12/$18		
PUBLICATIONS and MISCELLANEOUS		
Chapter Publicity Manual – $5 each....		
Pamphlets – 10¢ ea.-100/$8-500/$35		
A-440 and Your Piano		
Baldwin Postcard		
Care of Your Piano		
"How Often SHould My Piano Be Tuned?"		
Piano Pointers		
Reminder Cards		
"Should I Have My Piano Tuned in the Summer?"		
The Tuner To Turn To		
The Unseen Artist		
Piano Action Handbook – by Merle Mason-$2.50 ea.		
Piano Parts and Their Functions – by Merle Mason Members-$14 hardcover, $10 softcover Nonmembers-$18 hardcover, $14 softcover		
* **What is a Registered Piano Technician?** – card with Code of Ethics – 7¢ ea.		
All items below are available free from the Home Office.		
Lending Library List		
Magic Kingdom Club Application ...		
Members Benefit List		
Reader's Digest Reprint: "The Other Masters of the Keyboard"- limit 10 per order		
Serviceability Improvement Suggestions Form		
"Thank You for Your Membership Inquiry"		
The Piano Technicians Guild - "The Facts"		

* **For use by Registered Technicians only** **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

ORDERS UNDER $10 MUST BE PAID IN ADVANCE

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

Name _____

Address _____

City/State or Province _____

Zip/Postal Code _____ Phone _____

Chapter _____ Nonmember _____

Member's Number _____

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

PLEASE FEEL FREE TO PHOTOCOPY THIS ORDER FORM

PTG Form 7
8/1980

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

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

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

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

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

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**

MAKE ME AN OFFER on this Pratt-Read style A Upright Player Stack & Bellows. 26 Bass, 32 Center, 30 Treble. Original Mint Condition. **Bob Lutzke, 819 North Fourth Avenue, Big Rapids, Michigan 49307, (616) 796-6137**

PIANO FOR SALE. Ellington 5'6" Welte-Mignon 1914 Piano & Player, both rebuilt, refinished brown mahogany. Outstanding tone and performance. $7,000. Collector's item. **Lawrence Frazer, 133 N. Dixie Dr., Vandalia, Ohio 45377, (513) 898-3431**

COMPETENT TECHNICIAN WANTED to buy an established business which has connections with the largest complete music store in Central Florida. Business includes over 1200 customer cards, more than 100 churches, many public schools and two small colleges. Large inventory of parts, tools, supplies and 150 back issues of PTG Journals. Near Cypress Gardens. Dozens of beautiful lakes with connecting canals and excellent fishing. I am retiring. $5000 firm. This is such an attractive offer that I wish to first be contacted by telephone. **(813) 967-7920** after 7:00 PM Eastern time. This is a rare opportunity for an experienced technician.

WANT TO DOUBLE OR TRIPLE YOUR INCOME? Placing **The Piano Owner's Guide** by Carl D. Schmeckel with customers has helped hundreds of tuner-technicians to do just that! Hardbound: $6.95; Softbound: $3.95. Wholesale discounts; terms. **Apex Piano Publishers, 2621 S. 8th St., Sheboygan, WI 53081. (414) 458-4489.**

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**

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.**

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**

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**

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**

WANTED TO BUY

WANTED. A working or repairable action for Wurlitzer 5' baby grand, 60 years old. Serial number unknown, but "12-H" written inside case. Original action burned with my home on 8-18-80 and I need help. Write or call condition-price. **Lester Bridges, PTG member, 5 Bay Sweep Circle, Ocean Springs, MS 39564, (601) 875-2530**

WANTED TO BUY

WANTED. Electric hammershank-bending pliers, heatgun, mototool with accessories, new and used keytops-all types, key presses/clamps, Ford hammer-gluing platform, hammers-full and part sets, sets of tuning pins. **Hilton White, Box 2092, Glenwood Springs, Colorado 81601, (303) 945-9552**

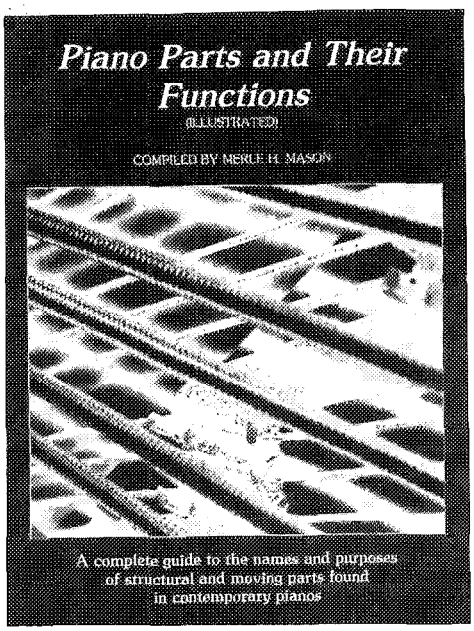
WANTED

WANTED. Full-Time tuner-technician to work in a beautiful, mountainous part of the country. Full-line music store. Send resume to **Hedge Music, 136 N. Bent, Powell, Wyoming 82435, (307) 754-4664**

MUSIC RACK needed for Chickering square grand circa 1876. Also need plate for Schomacher 5'1" grand, electrogold string scale. Call or write to **Kirk at Avery Piano Co., 256 Weyhosset St., Providence, RI 02903. 401-421-6000**

ANNOUNCING A NEW EDITION. . . .

PIANO PARTS AND THEIR FUNCTIONS (ILLUSTRATED)



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

INCLUDES

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

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

A GLOSSARY consisting of:

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

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

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

My check in the amount of $ _____ is enclosed.

☐ **GUILD MEMBERS**

_____ $8.37/copy (paperback)

_____ $10.77/copy (hardcover)

☐ **NON-MEMBERS**

_____ $13.95 (paperback)

_____ $17.95 (hardcover)

Name _____

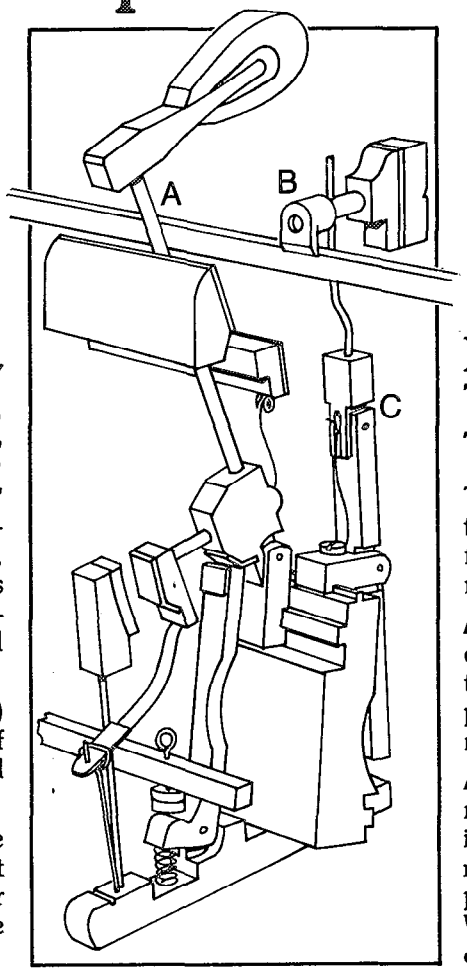
Address _____

City _____ State/ZIP _____

Kendall/Hunt Publishing Company
2460 Kerper Boulevard • Dubuque, Iowa, 52001

F80-364

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
NOVEMBER 1980 UPDATE

Golden Hammer Recipient Dies

by Stanley Oliver
Detroit-Windsor Chapter, PTG

George Lockhart, former president of the American Society of Piano Tuners (ASPT), died September 4, 1980.

Born on March 5, 1892, his long life span was marked with many achievements. At the age of 10, he went to work at the dock facilities of the East India Co., London, England, to help the family income. When his parents moved to Canada in 1906, George continued development of work skills and became a leader in the organized labor movement. In the mid-1920s he migrated to Northville, Michigan, and became an American citizen.

It was during his tenure as president of ASPT that talks were initiated to merge with the National Association of Piano Tuners and George and John W. Travis were the two last presidents before the founding of the Piano Technicians Guild in 1957.

George held leadership positions on many national committees, including international relations, constitutions and parliamentary.

During his later years he became a teacher of Esperanto and attended their international conventions. He was a group leader in the Great Books group in his community. While his formal and public school education ceased at 10, George never stopped learning and was in all respects a powerful intellectual. His love of literature took him into philosophy, history, economics and other fields.

He was long active with the Kiwanis and Rotary service clubs, was active in the choir and adult study groups of his local Presbyterian church, although never a formal member of that body. Always his own man without dissimulation on his strong convictions, George was a member of the American Atheists.

He is survived by a son, Dr. Hugh Lockhart, on the faculty of Michigan State University, and a daughter, Elise, a registered nurse now residing in Florida.

Some years ago a group of us attending national PTG council sessions spent a social hour in a local lounge. The band was playing Frank Sinatra's great hit "My Way." George, who was anything but a pop music enthusiast, purchased the record and played it innumerable times. It somehow caught his deep inner integrity.

We are all richer having known this strong personality. In the words of Goethe, "We are all hammer or anvil; it depends on time and circumstance." George was often the powerful intellectual blacksmith molding things around him for a better tomorrow.

Player Pianos?

The Guild would like to have a record of those members who work on player pianos. The home office occasionally has requests for names of qualified members who can accept this type of work. If you are interested in being included on the list, please notify the home office as soon as possible.

PTG National Committees 1980-81

Budget Ways & Means
Board of Directors

Bylaws Committee
Charles Huether, chairman
Joseph Saah
Sam Nock
Stanley Oliver
Kathryn Nickerson
Ralph Barrus
Ben Bailey

Chapter Achievement
Marshall Hawkins, chairman
Wally Brooks
Charles Hansen
Thomas Rogers

Chapter Newsletter Committee
Susan Graham, chairman
Paul Seabern
Jim Campbell

Chapter Management Committee
Dick Flegle, chairman
Ben McKlveen
Ian McLuckie
Chris Robinson

College & University Forum Committee
Joel Jones, chairman
Norman Neblett
Owen Jorgensen
Don Galt
John Phillips

Conference & Seminar Committee
Sid Stone, chairman
Dick Bittinger,
Tom Blanton,

Convention Time & Place
Sid Stone, chairman
Don Santy
Local RVP

Editorial Advisory Committee
Henry Baskerville, chairman
Jim Campbell
Don Galt

Examination and Service Standards
Ron Berry, chairman
Al Sanderson
Jim Coleman, Sr.
Don Morton
Ruth Ann Jordan
Olan Atherton
Robert Erlanson

Golden Hammer & Member of Note
Bill Stegeman, chairman
Clifford Geers
George Morgan
Emil Fries
Ralph Kinsbury

Government Affairs
Ronald Orr, chairman
Dick Kingsbury
Dennis Kurk
Willis Snyder

Hall of Fame
George Morgan, chairman
Jack Sprinkle
Norman Miller
Errol Crowl
Willard Sims
Don Santy, ex officio
Erwin Otto

Honorary & Sustaining Membership
Board of Directors

Internal Code of Ethics
Harry Berg, chairman
Marion Seller
Norman Plumb
Richard Flegle, Sr.

International Relations
Fred Odenheimer, chairman
Kenzo Utsunomiya
John Lillico

Membership Promotion
Sid Stone, chairman
All RPVs
Jim Hess

Minorities
Patricia Sankey, chairman
Don Morton
George Morgan

Nomenclature & Service Manual
Ron Orr, chairman
Norman Heischober
Ray McCall

Nominating
Jack Sprinkle, chairman
Dick Flegle
Ron Berry
Stanley Oliver
Evan Giller

Piano Tuning Schools
Allyn Winslow, chairman
John Bloch
Wendell Eaton
Jim Hess

Public Relations & Business Promotion
Robert Wagner, chairman
John Clopton
Ruth Ann Jordan
Jack Greenfield

Recognition
Janet Leary

Technical Institute Evaluation
Al Seitz, chairman
Ernie Juhn
George Defebaugh

Trade Relations
Bob Russell, chairman
Sid Stone
Don Santy, ex officio

Visually Handicapped
Jeff Hudson, Chairman
Fred Drasche
Jack Sprinkle
Paul Sprinkle

Chapter Program Development
Charles Huether, chairman
Don Santy, ex officio
Jeff Seise
Philip Jamison III

Scholarship Committee
Norman Miller, chairman
D. Elwyn Lamb
Charles P. Willis
Donn Foli

Student Membership
Paul Monroe, chairman
Ben McKlveen

Teacher Relations
Fred Fornwalt, chairman
Dick Truax

Women Technicians Committee
Barbara Martin
Ellen Sewell
Roberta Jacobs

1981 Hall of Fame Award

You are invited to submit names and qualifications of nomiees for the 1981 Hall of Fame award.

For eligibility to the Hall of Fame, the member must have demonstrated:

(1) A definite contribution to upgrading the piano industry.

(2) Outstanding personal and professional integrity to the point of being an inspiration to others.

(3) Long-term dedication to the causes, ideals and purposes of the Guild.

(4) Outstanding contribution and implementation of ideas, programs, etc., resulting in a definite improvement of the piano industry.

All names and qualifications submitted will be considered by the Hall of Fame Award Committee and their selection will be completed by March 1981.

If material about or photos of a nominee can be made available for the Hall of Fame book, please enter information with your nomination.

Send nomination and other information to George Morgan no later than December 31.

George Morgan, chairman, Hall of Fame Committee, Piano Technicians Guild, 6037 39th Ave. S.W., Seattle, WA 98136, (206) 932-8080.

1981 Annual Dues

The 1981 annual dues billing will be mailed in the third week of November to ensure delivery by the first week of December. All members shown as paid up on the home office records by November 15 will be included in the annual dues mailing.

IF YOU DO NOT RECEIVE YOUR 1981 DUES BILLING, PLEASE WRITE OR CALL THE HOME OFFICE.

Partial Payments: Registered Technicians, Apprentices and Allied Tradesmen who are not able to make the full payment in one sum may send a partial payment of $32 for the first four months of 1981.

Due Date: Annual dues, in full or by partial payment, are due and payable January 1.

Chapter Dues: Members in chapters which have requested the home office to collect chapter dues must send the full chapter dues with the Guild dues payment.

Membership Cards: 1981 membership cards will be mailed each month to all members whose 1981 dues are paid in full. Students will continue to receive a student card for the paid-up period from date of joining or renewal of membership. All other dues are now on the regular calendar year.

Registered Technician Certificates: The special, engraved Registered Technician Certificates are ordered in batches of 200 as soon as that number of newly registered members is added to the Guild: For this reason there may be a delay in receipt of the certificates which are individually engraved for each qualified member.

Those who already have a certificate will receive a gold foil seal marked "1981," which can be placed alongside or over the previous year shown on the certificate. In this way, the registered technician can show current membership each year. The gold seal will be sent with the 1981 membership card when all annual dues have been received.

October Chapter Mailing

The following were sent to all chapter presidents:

1. Letter from President Bob Russell regarding yellow-page telephone listings and other advertising media.
2. Several printed letters for use by the chapters in alerting local telephone companies and other media about the Executive Board's new policy on requiring proof of PTG current membership before accepting advertising.
3. Gold paper from Hall of Fame Committee inviting nominations.
4. Letter from Chapter Achievement Committee Chairman Marshall Hawkins.
5. Chapter Achievement Committee Convention Update Report Form.
6. New Monthly Chapter Achievement Report Forms.
7. Correspondence on transfers, drops and reinstatements to appropriate chapters.
8. Congratulations and awards to winners who have sponsored new members to date.

NOTE: If you have not seen or heard about the above mailings, please ask your chapter president about them.

Yellow-page Listings, Other Advertising

The executive board formally adopted a new policy last July regarding the use of the PTG name, logo, seal, and emblem, and titles of "registered technician," "craftsman," etc. (See following story).

A letter covering the executive board's new policy has been printed on PTG letterhead and supplied for each chapter's use. We suggest that letters be completed by typing in the name and address and sending to:

State or Provincial Attorney Generals

We realize there will be several letters sent in states where there are more than one chapter.

Yellow Pages

Please be sure to mail a copy of the letter to each telephone company in your area which accepts advertising for publication in the telephone book.

Newspapers, Etc.

Send a copy of the letter to your local newspapers and any other media where your chapter feels the letter would help prevent advertising of Guild qualifications by those persons who are not entitled to do so.

Guild Will Protect Name, Logo

The Board of Directors of the Piano Technicians Guild adopted the following policy at its regular annual session last July:

"The Piano Technicians Guild will take any necessary action, at all costs including legal process, in order to protect the Guild name, titles, logo, seal, emblem, and the reputation of the Guild with consumers. The Board of Directors, therefore, expressly requests that all advertisers, newspapers, and particularly "yellow page" and telephone listing companies be aware of the determination of the Guild to follow-up on any complaint or information received regarding advertisements by persons illegally claiming the right to use the Piano Technicians Guild name and identity.

"The Board of Directors further directs that all companies receiving this notice specifically require proof of *current* Guild membership from any person ordering advertising which includes the Guild name, titles, logo, seal, or emblem. Proof shall be the tender of a Guild membership card showing the current year and title of the member ordering the advertisement."

The title Piano Technicians Guild and, in addition, the titles "Registered Craftsman" and "Registered Technician" are official titles of qualifications granted by the Guild only to those who successfully pass rigid examinations.

Please write to us if you have any questions regarding this policy formally adopted by the board. — **Bob Russell, President.**

Getting Ready for the New Tuning Test

Part I: Finding a Test Piano

What does a chapter need to do to get ready for the new tuning test? First, a chapter needs to locate one (or more) quality grand pianos, at least six feet in size.

What is meant by "quality"? A quality grand — and they come under a variety of brand names — will not have any engineering, design or production defects which make it extraordinarily difficult to tune. Many old grands, if they are large enough, could serve a chapter well as a test piano. Occasionally, a specific individual piano will not be suitable as a test piano even though other pianos of the same name and size might serve the purpose well.

It will be up to the Examinations and Test Standards Committee to give final approval to a test piano, but chapter examinations committee should have no trouble selecting suitable pianos which will meet the national standards.

Where are these pianos to be found? Must a chapter buy one? No, not unless the members just want to. Chapters should inventory their areas to find out where the six-foot or larger grand pianos are located. Many times a chapter member will have access to a suitable piano in a church, school, university, concert hall, or store. Sometimes one of the members will have such a piano in his/her home.

It's best to locate a piano which is housed somewhere that the test can be given so the chapter doesn't have to get a piano moved in or out just to give a test.

It is also good to remember that it is not entirely an imposition to ask if a piano can be used for testing purposes, for that piano will have an opportunity to be tuned by not only one registered tuner-technician, but by three or more working as consultants.

It will be given a "super-tuning." The technicians will hover over it for several hours, making microscopic adjustments, until they arrive at the best possible tuning for that particular piano. Then they will go one step further and make a record of that "super-tuning" so it can be reproduced without going through the whole process again.

If a local exam committee is careful to always put the super-tuning back on the piano after a testing session is over, most churches, schools, universities, concert halls, stores, or private individuals will be happy to let the local chapter of the Piano Technicians Guild use their piano for testing in exchange for these deluxe tunings.

NEXT MONTH: Preparing the applicant.

Ronald Berry, Chairman
Examinations and Test Standards Committee

Chapter Dues Collection

The following chapters have sent the required pink form requesting the home office to collect 1981 chapter dues. Please note that these chapter dues will be shown on the annual Guild dues billing and are due and payable *in full* January 1.

#	Chapter Name	Dues
062	Toronto	$ 0
064	Connecticut	$20
078	New Jersey	$15
101	New York City	$20
111	Nassau	$30
131	Syracuse	$15
142	Buffalo	$17
144	Rochester	$ 8
165	Erie	$ 9
223	Northern Virginia	$24
294	Charleston	$96
296	Western North Carolina	$20
441	Cleveland	$36
445	Youngstown	$12
452	Cincinnati	$10
461	Indianapolis	$15
467	Indiana	$12
493	Western Michigan	$ 7
501	Central Iowa	$10
551	Minnesota-N. Iowa	$10
553	Twin Cities	$36
594	Montana	$15
601	Chicago	$25
631	St. Louis	$15
641	Kansas City	$10
701	New Orleans	$20
763	Texoma	$ 8
771	Houston	$15
841	Salt Lake City	$12
891	Las Vegas	$ 0
901	Los Angeles	$12
931	Santa Barbara	$10
941	San Francisco	$18
951	Santa Clara Valley	$10
956	Sacramento Valley	$15
974	Eugene, OR	$ 0
992	Eastern Washington	$ 5

PTG Post Office Box

The home office is closing down the post office box 1813 effective immediately. This is a direct financial savings for the Guild as well as a saving on overhead expenses. The parking problem in downtown Seattle where the box is located is so great that the home office must send two staff members down to open the box and collect the mail there — one to drive around and around the block and another to pick up the mail. Time wasted is considerable and the work load can no longer absorb this expense.

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

Chapter Notes

... **The Buffalo Chapter** recently toured the Q.R.S. factory in Buffalo. Q.R.S. manufactures player piano rolls, and the members of the chapter, in addition to viewing the operations of the factory, were allowed to check out rolls from the firm's library or purchase new rolls or other items of interest at a 10 per cent discount. Many members also signed up to receive the firm's quarterly bulletin which features information about rereleases of earlier piano rolls and the latest new releases.

... **The Tri-Cities (Illinois) Chapter** took advantage recently of a couple of tours some of its members took this summer. Chapter President Jim Higby presented a technical session at the chapter's September meeting using color slides he'd taken when the chapter toured Schaff Piano Company's bass string and hammer factories and the Standard Piano Hammer Company's factory in Des Plaines, Illinois.

... **The Los Angeles Chapter** has started featuring a 10-minute "inspirational talk" at its monthly meetings. At the September meeting, Harry Berg spoke on listening critically to pitch. He gave several suggestions on how to develop one's sense of pitch, and he closed with this thought: "*Tell* me and I will forget; *teach* me and I will remember; *involve* me and I will learn."