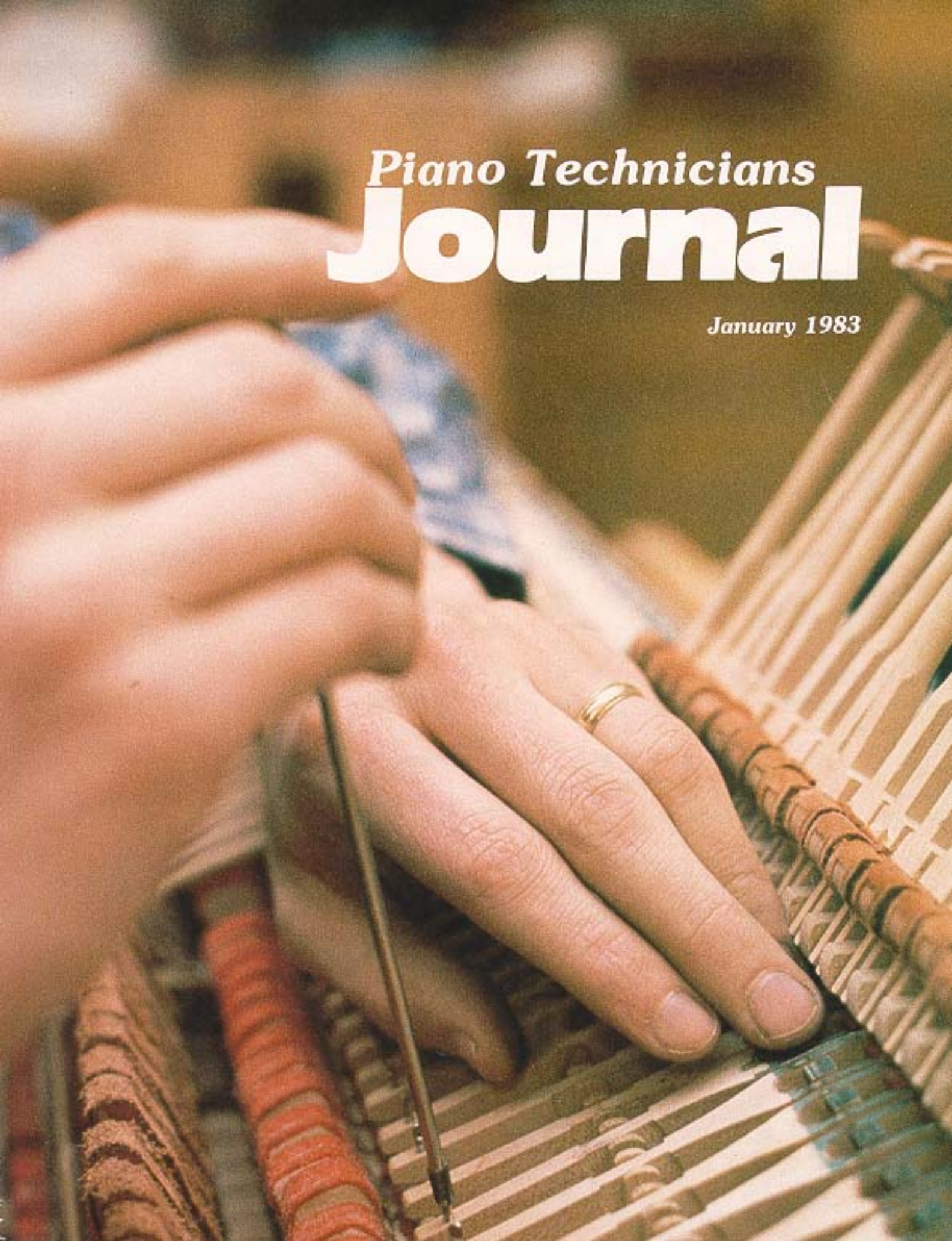
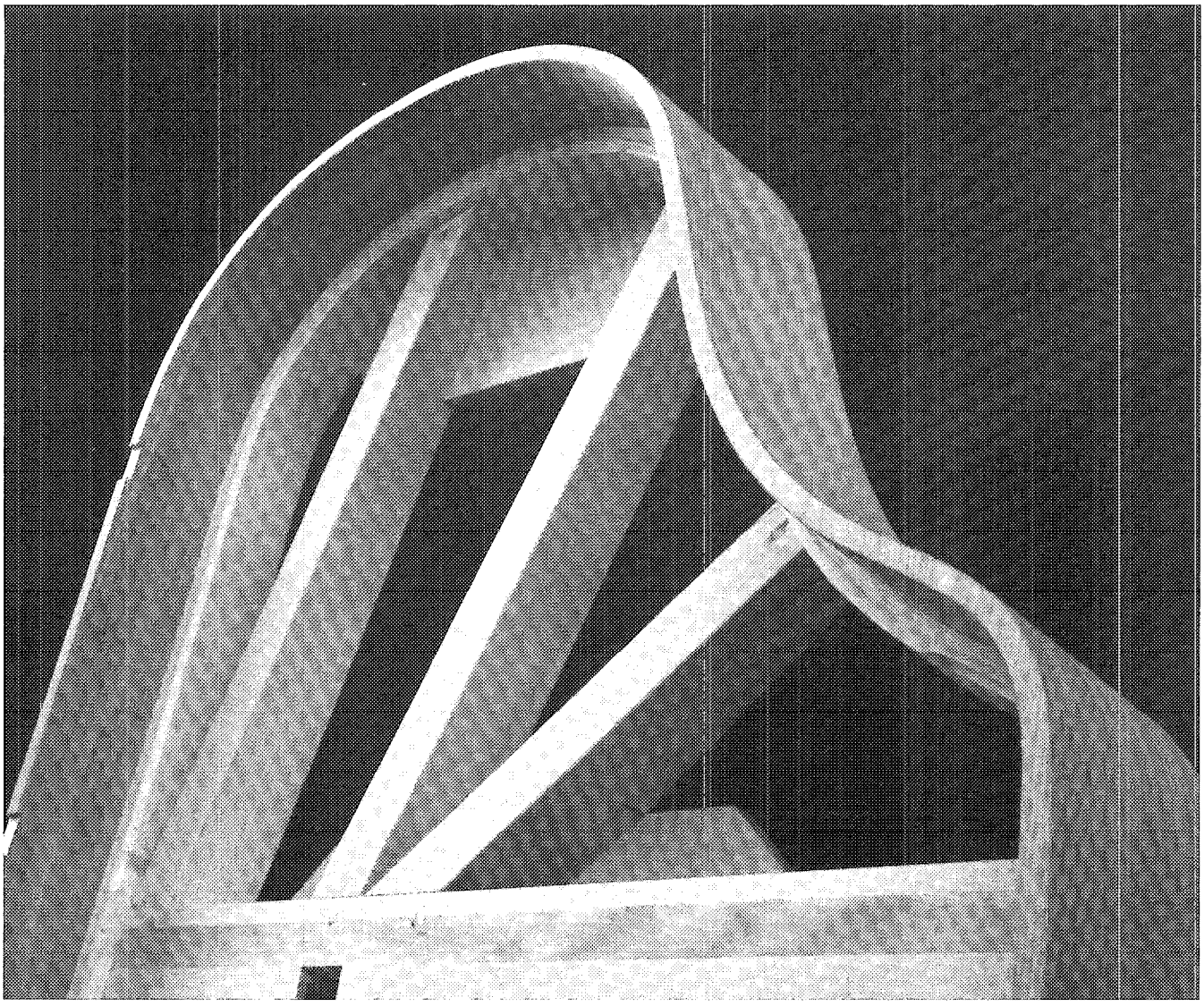


Piano Technicians Journal

January 1983



Fortress Steinway.

So begins the Steinway Grand Piano.

The basic frame, shown here, is so solid, so strong, so well made that even at this early stage of construction—before a note is played—the Steinway takes leave of lesser quality instruments.

Examine the curved rim. While other pianomakers build it in sections, we build it the hard way.

Inner and outer rims are rock maple, laminated in one operation into a rigid arch strong enough to withstand 20 tons of pressure from the strings.

Now take a closer look. The inner rim mount of the Steinway grand is beveled at an 88.5° angle so that the soundboard, when glued in, is forced to arch just enough to increase vibrancy and responsiveness.

Also observe that there are no metal connectors in a Steinway frame. We know they distort the sound and loosen with time.

Instead, the cross braces are joined to the rim with blind wooden dowels, cross-locked for maximum strength.

This homogeneous construction makes the Steinway grand a veritable fortress.

It will take us one full year to complete this piano. But it will last for generations.

For literature about the Steinway, write to John H. Steinway, 109 West 57th Street, New York, N.Y. 10019.

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Piano Technicians Journal

Official Publication of the Piano Technicians Guild

January 1983
Volume 26, Number 1

Journal Staff

DON L. SANTY, Executive Editor
JACK KREFTING, Technical Editor
AILSA THOMPSON, Update Editor
PATTY CONNELL, Managing Editor, Art Director
GEORGE DEFEBAUGH, Recorded Reader

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Editorial

Don L. Santy
Executive Editor

Marty Hess, the editor of the Wichita Chapter newsletter, the "Voicing Tool," ran an end-of-the-year message which is worthy of attention, and I would like to use his article as a guest editorial in this issue. It contains many deep and meaningful thoughts which I'm sure everyone will find inspirational. ***—Editor***

The recent interest shown by some potential new members in the Guild has reminded me of something that may occasionally come to our minds during the Thanksgiving/Christmas season.

I'm sure I speak for all the Craftsmen members when I admit that I owe a tremendous debt to the Piano Technicians Guild and its members.

On the National level, it's the organization that provides the leadership that has improved our economic status over the years. The Guild has reminded us of our professionalism and the important need that we fill by servicing the professional musician as well as the home pianist. The Guild has helped us grow in technical expertise in ways for which we are most assuredly thankful. The yearly international and regional seminars are our best opportunity to be trained by the very best group of technicians and factory service personnel. It's also our chance to meet personally with the manufacturers' representatives to find out about new products and techniques and air complaints.

We certainly can't overlook our professionally produced technical *Journal*. I doubt that any organization could show that they have a better "tool" to train the individual technician and to serve as an effective communicator for professional needs.

There is, of course, a political aspect to our organization on the regional and national level. But that is the *only* way that we as individuals and chapters can direct the organization in the way we want it to grow.

In reality everything begins on our local chapter level. Our colleagues (it's hard to think of my friends and teachers of this craft as "competitors") always seem willing to help with information, tools, training, and frequently to serve as a backup if we experience some trouble in being everywhere at once. I think of my frequent calls to various members for advice and consultation. It's tremendously useful to talk through a technical problem with another technician who may have had experience with that particular problem or can help me foresee the good or bad consequences of a procedure I may have planned. I know I'm always willing to help when I get calls for advice. It seems that all our members have come to this craft by different routes and therefore bring to it diverse outlooks and particular areas of expertise.

Our willingness to work together is evident when we've decided on what direction we want to take in our chapter projects, whether they are promotional or technical in nature. This always demands a great deal of time, especially for the individual directors of the projects for which we are not reimbursed. That's why it is so important that we all take our turn shouldering these responsibilities.

In closing, I must thank every one of you. I appreciate all the technical advice and business-building help that you as individuals have given me, and I must say I don't know what I'd do without the Guild. I give this quote from my original mentor in this craft, Bill Lain. When he was leaving Wichita, I was hard-pressed to try to thank him for his patience and time teaching me the basics. His reply was something I hope to always follow. He said, "Someday, someone else will ask you to help them the way I've taken time with you. Pass the information on."

Thank you. ***—Marty Hess***

1983 Piano Technicians Guild Convention, New Orleans, Louisiana

"A steamin' bowl of gumbo, a big helpin' of smokin' jazz, and a taste of Mardi Gras every day of the year! That's New Orleans. There ain't nothin' like it!" — These are the opening words of a Hilton Hotel publication about New Orleans, and how right they are. There is no other city in the South with as much to do and see as New Orleans. Once you have seen it you won't forget it, and you will always look forward to your next visit.

Someone up above favored us and allowed us to live here. This coming July, 1983, all of you can come and visit in New Orleans with us as we host the 1983 Piano Technicians Guild convention at the New Orleans Hilton and Towers. We promise you a time to remember; there is no reason not to come! Start making plans now to share this wonderful opportunity with what we hope will be the greatest number yet of Guild members and friends attending.

Ben McKlveen and his staff have started preparations for a topnotch institute. There will be classes of interest for all levels, from the beginner to the seasoned craftsman. For the most part, the institute classes will be held on the third floor, so that it will be easy to get from one to another.

The New Orleans Hilton and Towers is one of the newest hotels in New Orleans, located on the banks of the Mississippi River near the foot of Canal Street, close to the center of the city and only a couple of blocks away from the French Quarter (Vieux Carré). There is a shuttle bus to the central business district (we'll have the details for you later). Across the street from the Hilton is the International Trade Mart; go to its observation deck for a breathtaking view of the city at night. Across the street to the left you will find the Rivergate Exhibition Facility; I understand that the Rivergate may be hosting a food tasting festival at the same time we are having our convention — that will be a pleasant side trip. The cost is very, very reasonable and you can taste all kinds of food to your heart's content.

Next time we will give you more information about the Hilton's facilities. See you in New Orleans in July, '83.

Nolan P. Zeringue
Local Host Chairman

Letters

Dear Don,

Paul Monroe, in his article, "The Unison," Piano Technicians Guild Journal, November, 1982, page 17, made a noteworthy statement about the acceptance of out-of-tuneness of pianos. He said many people do not know how a tuned piano is supposed to sound. I agree.

I recently tuned a piano for an elderly lady. It had not been tuned for five to ten years. When the job was completed, I demonstrated it for the customer. She assumed a terrified look and said, "What have you done to my piano? It has lost its beautiful vibrato!" She was not satisfied that the unisons were clean and beatless, but had me throw them all off again!

Before the tempered octave was fully accepted, the purists complained about the beating thirds and sixths. Now, when George Defebaugh demonstrates setting a beautiful temperament, he concludes by playing a chromatic run of thirds, and comments, "Now *that's* beautiful music."

Our customers should know when a piano goes out of tune. I often demonstrate to them by throwing a unison out and bringing it back until they hear the difference, and then point out that when they begin to hear a beating unison more subtle intervals are also going out of tune. I recommend this advice.

Sincerely,
Dan A. Evans

President's Message

Ernie Preuitt
President

When was the last time you made a New Year's resolution — and kept it? I have known people, and I include myself, who have vowed to themselves, and their family and friends, that in the New Year they would or would not do certain things. It's an old, old story of good intentions gone astray.

Now that is not as it first appears, for at least we recognize our weaknesses, and realize that something should be done about it. If we refrain from a bad habit forever, for one year or even one day, it's one for the plus side. Of course the longer one keeps a resolution the bigger the plus side grows.

Some twenty-five or thirty years ago, Roger Bannister made up his mind that he was going to run a four-minute mile. Everyone, including the press, said he was out of his mind, it couldn't be done. Yet he proved, to everyone's amazement, that it could be done. Since that time many have run the four-minute mile. What changed all this? It had never been done, but the fact that one man, Roger Bannister, did it made others desirous of doing the same thing, only faster. People forever had possessed the same bodies, healthy and strong from the top of the head to the tip of the toes. The only thing they did not have was the proper attitude. It had never been done so it never would be done — until the young Englishman caused others to have a change in attitude.

———

So for us in the piano business, whether it be manufacturing, sales, or service, wouldn't it be a good New Year's resolution to change our attitude? I cannot speak with any amount of authority about our manufacturers, but I do see by visiting several factories that they are doing the best they can with what they have, and that there is the buying public to consider. As well as they do, I bet a change or a boost in attitude would be helpful.

Of course in sales if you don't believe in yourself or your product you are in bad shape. Sales people come in all sizes, shapes, and attitudes. There is the one who spends all his time telling his customers why he/she should not buy his competitor's product. Then there is the one who cuts his price so severely that he cannot afford to properly service it, thus three people lose — salesmen, service men, and most of all, the customers. Worst of all is the salesman who makes claims and promises that he cannot back up.

How many of us sometimes tell our customers that we do better work than so-and-so, and cheaper too? Sometimes we are so much better and so much cheaper that the customer gets fed up with our behavior, and gets someone else to do the job. We, like the salesman, sometimes promise to do work that we are incapable of doing. Isn't it much better to spend your time selling yourself to your customers than running down your competitors?

Of course we must believe in ourselves, and it can be done without being vain. All it takes sometimes is a change in attitude. Have a happy and prosperous New Year.

Coming Events

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

UPCOMING CONVENTIONS OF THE PIANO TECHNICIANS GUILD

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

OTHER CONVENTIONS OF INTEREST

1983

January 21-23
National Association of Music Merchants
NAMM Winter Market
Anaheim Convention Center
Anaheim, California

March 20-25
Music Teachers National Association
Hyatt Regency
Houston, Texas

LOCAL CONVENTIONS AND SEMINARS

January 6 & 7, 1983
ARIZONA STATE SEMINAR
Arizona State University
Tempe, AZ
Contact: Jon K. Allen
3025 So. Stewart
Mesa, AZ 85202
(602) 839-8570

February 18-20, 1983
CALIFORNIA STATE CONVENTION
Woodlake Inn
Sacramento, CA
Contact: James G. Bryant
P.O. Box 20513
Sacramento, CA 95820
(916) 454-4748

March 18-20, 1983
PENNSYLVANIA STATE CONVENTION
Allentown Hilton Conference Center
Contact: Mrs. Sharla Kistler
RD No. 8, Box 461
Allentown, PA 18104
(215) 395-2348

March 20-22, 1983
POST CONVENTION OF PENNSYLVANIA STATE CONVENTION
Cove Haven Pocono Resort
Lakeville, PA
Contact: Richard E. Bittinger
106 West Main Street
P.O. Box #51
Brownstown, PA 17508
(717) 859-3111

March 25-28, 1983
CENTRAL WEST REGIONAL SEMINAR
University of Wisconsin at River Falls
Contact: Mark Fischer
Central West Regional Seminar
P.O. Box 72
Northfield, MN 55057

April 7,8,9, 1983
PACIFIC NORTHWEST CONFERENCE
Vance Tyee Motor Inn
Olympia, WA
Contact: Michael D. Reiter
902 - 185th Court East
Spanaway, WA 98387
(206) 847-6009

April 9, 1983
STEINWAY ONE DAY MINI SEMINAR
Steinway Hall
New York City
Contact: Nancy Hazzard
6 Joan Place
Staten Island, NY 10314

April 22-23, 1983
MIDWEST CONFERENCE
Marriott Inn
Ann Arbor, MI
Contact: Mike McGuire
4151 McAlpine
Milford, MI 48042
(313) 685-2830

April 28-30, 1983
NEW ENGLAND REGIONAL SEMINAR
Ramada Inn
Mystic, CT
Contact: Walter W. Brooks, Jr.
376 Shore Road
Old Lyme, CT 06371
(203) 434-0287

May 12-14, 1983
PIANO TUNERS ASSOCIATION CONVENTION
Claredon Hotel
Leamington Spa, England
Contact: Ralph Long
8 Baldock Street
Ware, Hertfordshire
ENGLAND, SG12 9DZ

THE TECHNICAL FORUM

Jack Krefting
Technical Editor

Vertical Rebuilding (Part 7)

Last month we considered some aspects of soundboard replacement, even though the idea might seem radical for a vertical, but now we will consider the more common procedures of soundboard repair. Assuming some semblance of crown exists, the board can always be saved; it might be so full of cracks that shimming would be more work than replacing the board, but if it has crown it *could* be salvaged.

First it is important that the board be dried down to minimum dimension and that all glue joints are sound. The back should be laid out on horses or blocks or a tilter, and blankets draped over it to keep the heat in. A heater of some sort is placed underneath, since heat rises, and the rebuilder should take care not to under- or over-dry the board. Over-drying can ruin the wood and pop glue joints loose which otherwise would have been sound; under-drying will, on the other hand, not insure that adequate shrinkage has occurred, and, therefore, not insure that repairs will stand the test of time and the seasons.

If there are cracks in the board, these can be used as a gauge to monitor the state of dryness. Find a crack that goes only part way across the board and note that the sides of the crack are dusty, which they will be; when the board shrinks farther than it has previously, the end of the crack will progress and white wood will be observed. As soon as the white wood appears in the end of a crack, that is the time to make repairs. Make a pencil line across the end of the crack if there are any loose glue joints at the ribs or around the perimeter, so the board can be again dried to that stage after repairing loose glue joints. This is important if the shimming is to last beyond the first seasonal change.

The type of heater to use depends on a number of factors, but in general a convection heater or small space heater, thermostatically controlled, is better than the sometimes-used string of light bulbs or dehumidifiers. The latter will usually work, given enough time, but are relatively ineffective because of their low heat output. In any case, dry the board until white wood appears, whether that takes a day or a month. If the board isn't periodically inspected for signs of drying, it is entirely possible to damage it with too much heat. The most obvious symptom of this is a loud popping sound, which means a rib has let go; the board was heated too much or too fast, and now extra work will be required. Worse yet, if there are more than one or two of these popping sounds, the board will have no crown because significant lengths of rib have been detached.

If the sides have been removed as described in earlier issues, it is easy to inspect the glue joint around the perimeter of the board; if not, it is still not difficult if one has some sort of thin probe, such as a palette knife, feeler gauge, or a flattened piece of music wire. An old bass string, cut and shaped as shown in **Figure 1**, works admirably for this purpose.

To refasten the top edge of the soundboard without drilling holes in it, some means of applying pressure in the middle must be devised. A go-bar deck works fine, but since most shops are not so equipped, technicians might consider using a slightly crowned (or warped) piece of hardwood as shown in **Figure 2.** The crowned middle touches first and clamps tighter as the ends are drawn down, as in the pinch method of keyframe bedding, but, in this case, with considerably more pressure.

Since the liner is crowned as well, the pinch effect is increased by the amount of the crown.

As a practical matter, many of the things we would like to see in our shops just don't exist because we don't have time to build them, or the money to buy them, or the space to store them. Well, if the exotic clamping arrangements aren't available in a given circumstance, a well-placed weight will often do the job just as well. I have kept a five-gallon paint can full of old tuning pins around the shop for years just for this purpose.

Still another method of refastening a loose board is shown in **Figure 3.** A thin strip of maple or other hardwood is cut for each side and is pulled down with wood screws which go through the soundboard and into the liner. If there is no interference with the plate, the strips and the screws may be left in position even after the glue dries, a belt-and-suspenders approach favored by some.

Rib refastening techniques have been discussed in these pages before (pp. 8-13, November 1980) and our readers may wish to review that material. **Figures 4 through 11** are reprinted here from that article because the materials and techniques would be essentially the same even though they were drawn in reference to grand pianos.

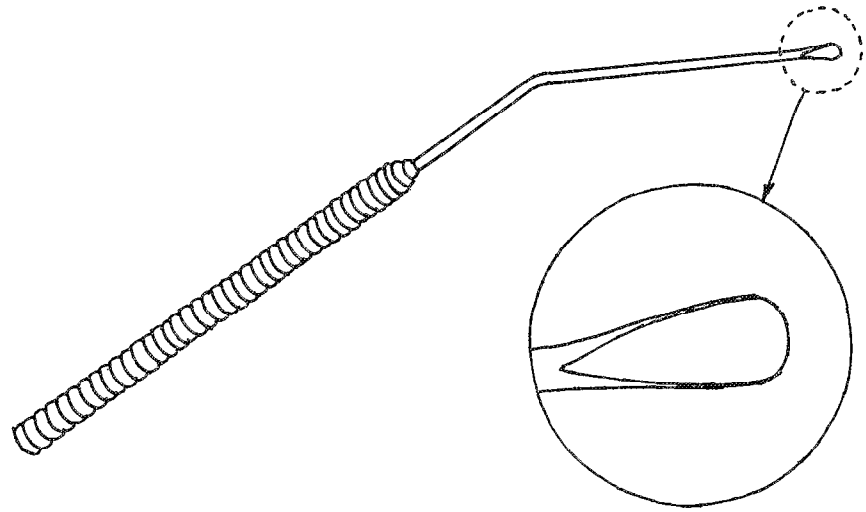


Figure 1

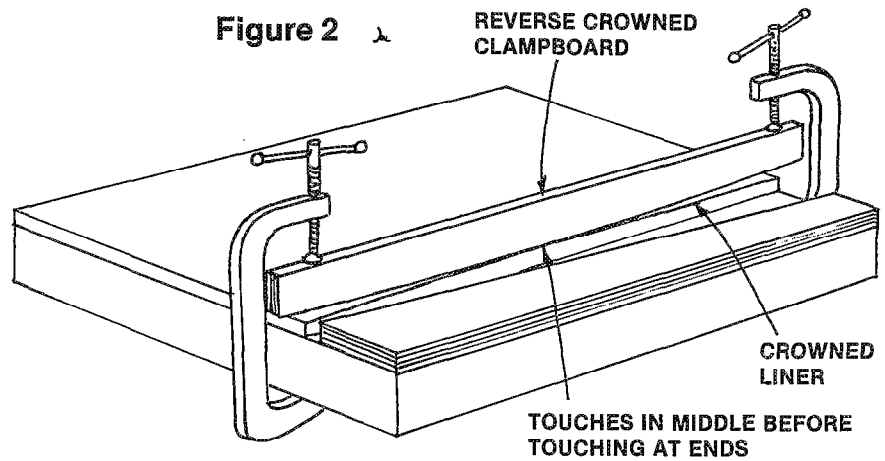


Figure 2

When I started writing this series, I stated my hope that other technicians would contribute also; that is starting to happen. Jeff Denning of the Phoenix Chapter writes:

"Your recent article on vertical pinblock replacement was exceptional. Having recently replaced a block in a 1906 upright I could easily relate to your cautionary notes.

"The need to take notes cannot be emphasized enough. I draw sketches of how and where measurements are taken — it saves time being literary. While disassembling the piano we always think we'll remember all the details. I have found my notes rather revealing on my memory capability.

"While replacing a vertical block I took many slides usable for a presentation I've prepared for the local chapter. Naturally, he who puts on the show 'must' be an 'expert.' So I experimented with several alternate techniques on block removal and offer some comments on the subject to you.

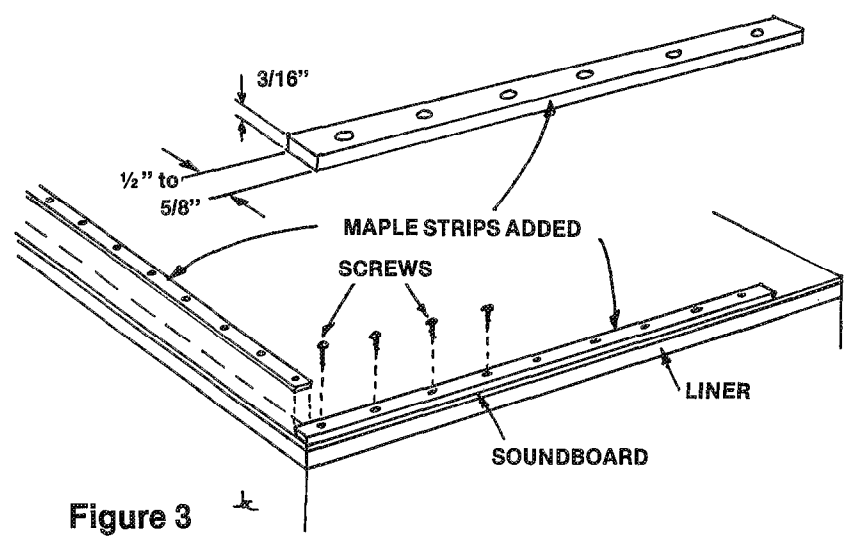
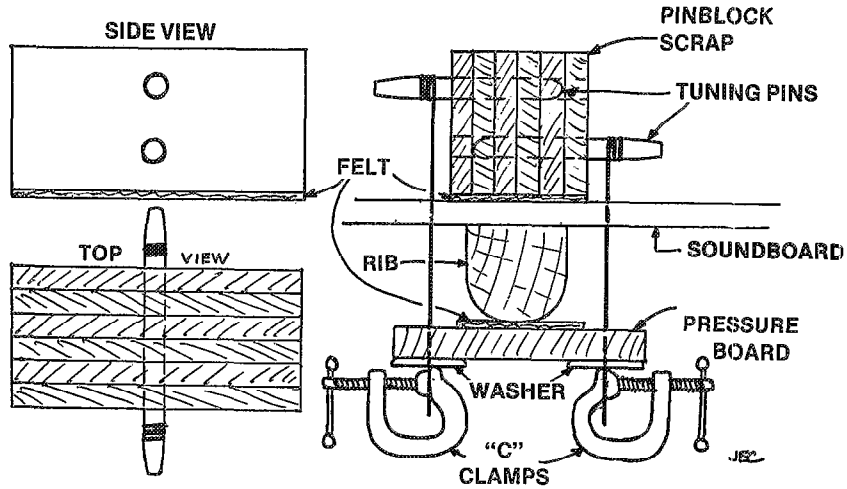


Figure 3

Figure 4



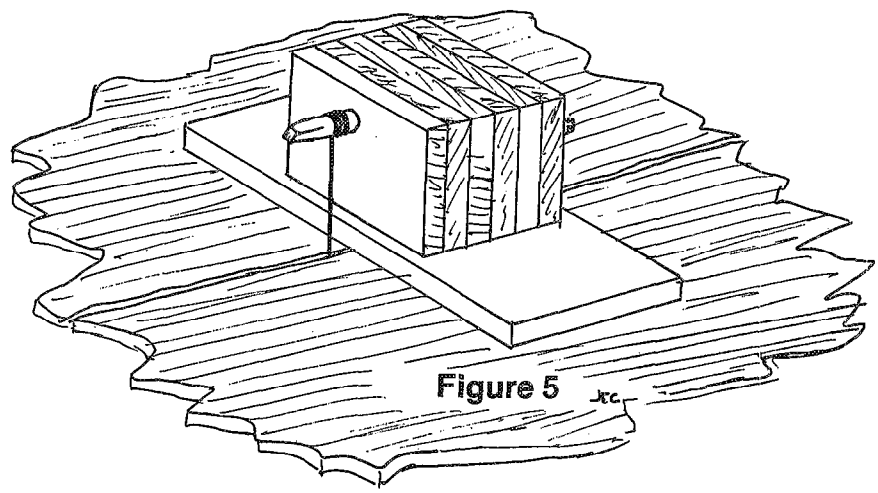


Figure 5

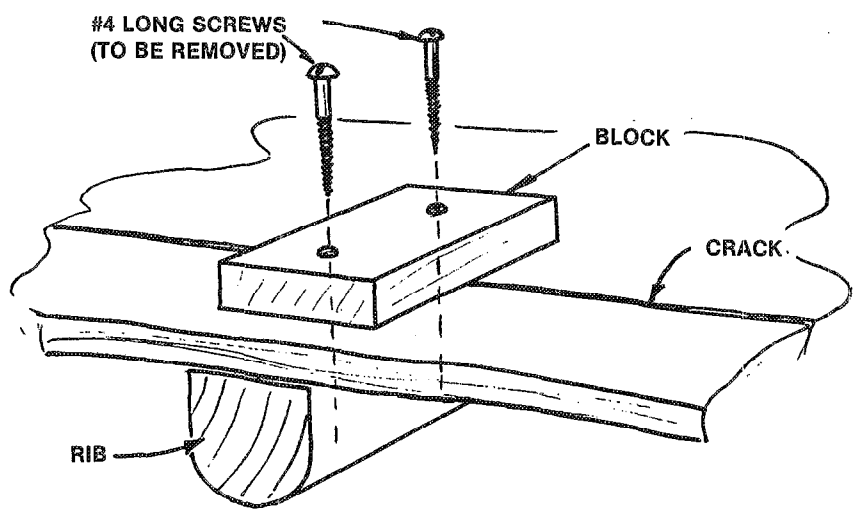


Figure 6

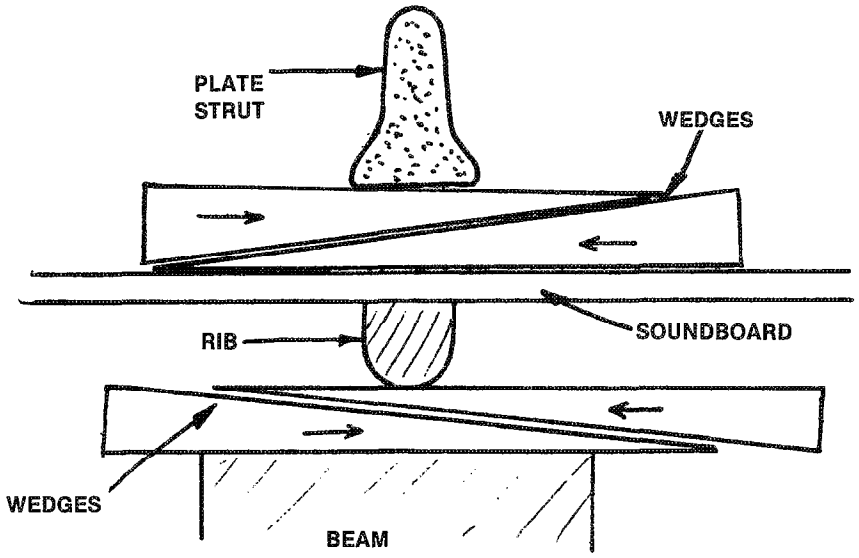


Figure 7

"The first observation I can make is I found vertical block replacement easier than grands, especially since I was taught how to fit grand blocks using the 'shur-form' tool — no epoxies. Although I spent more time on the vertical (27 hours total), about 6 to 7 hours were spent thinking about what I was doing, and a few more measuring and making jigs. All in all the job was not difficult, provided, as you indicated, good judgment is used.

"When I replaced the block I did not remove the sides. The problem with this piano was split mouths and very loose pins, not delamination. The block was the old type — three ¼ inch plies glued to a three-inch-thick plank attached to the posts.

"Because the sides remained, the saw and router could not go to the edges. This presented a problem in the bass only, but Cliff Geers plugs solved the problem with the last 6 or 7 pin holes. Also, the bass section was stepped up a quarter inch. The enclosed drawing **(see Figure 12 . . . ed.)** *shows the three phases of installation:*

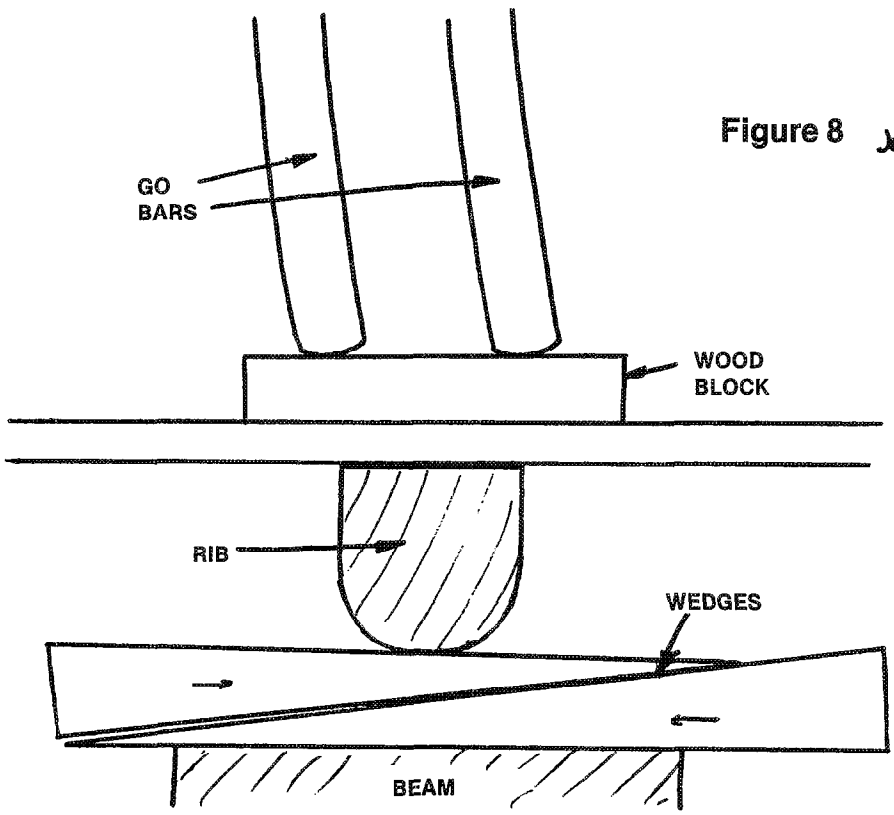


Figure 8

1. Using a circular hand-held electric saw, rough cutting hogged the majority of the wood away. The blade was set to within 1/32" of the desired depth. As View 1 shows, you can't get a square cut — that's where the router comes in. I tried the 'slatting' technique to see if it would speed things up. When I was chiseling out that which remained, my wife, daughter and cat left the shop because the chips became flying projectiles. A few shots at the face told me that this method was more dangerous than practical. I do not recommend the slatting and subsequent chiseling technique. Using the saw actually wound up faster, safer and more accurate.

2. View 2 shows the after-effect of using a router placed on a jig. The final cut of 1/32" produced a flat and true bonding surface. A chisel squared the corners. A small sample of replacement block was used to assure the piece would fit squarely in the corners. The new pieces were carefully cut and tested.

3. The plate was put in place to locate the holes, then removed and the block drilled and glued in place. Wherever a void existed on the edges some laminating resin was poured (with the aid of a palette knife) into the voids.

"One final comment: make sure the new block sits in the same environment as the piano. Humidity levels may differ if the block is stored in another room. If both piano and block have the same moisture content the overall results will be better."

Jeff Denning
Phoenix, Arizona

QUESTION: *I have recently looked at a Baldwin grand G scale. The instrument has been restrung and the plate regilded so the serial number seems to be gone. There is only the No. 13040 stamped in several places. If I am correct, this is a manufacturing number. Perhaps it will be of use in your being able to know more about this particular piano."*

"The complaint that brought me to the instrument was a very light and difficult-to-control action. I found that the touch weight, for the most part, was about 44 gm. down weight and 26 gm. up weight. There seem to be more lead weights in the keys than I see in

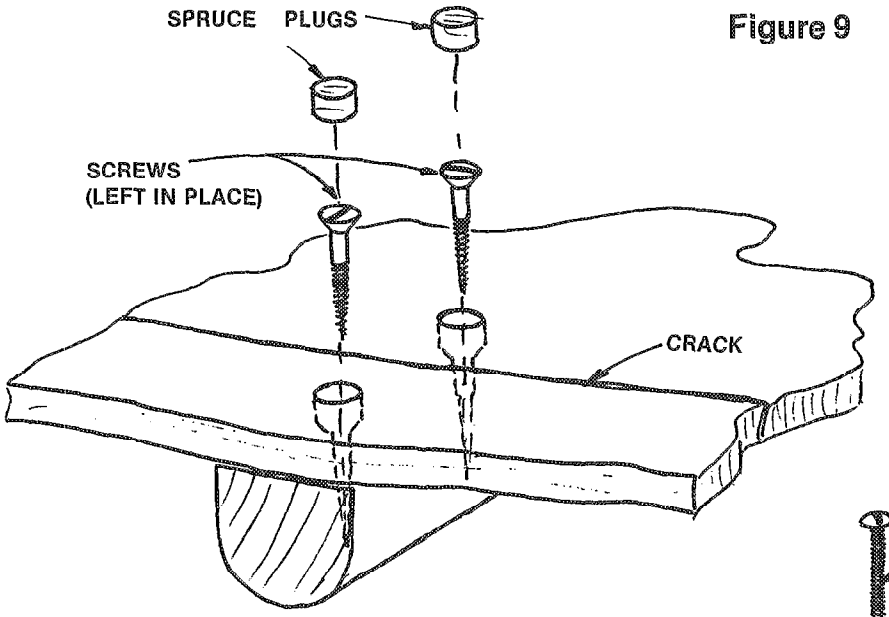


Figure 9

When the action has been repinned, there will be a noticeable difference in the weight figures. It probably won't prove to be the complete answer, however, so I would next check the distance of the action spread (whippen flange centerpin to hammer shank centerpin) and see whether it is 4-27/64", as it should be on this model. It may well be short, indicating that someone had moved the whippen rail toward the front of the piano. If this has happened, relocate the rail, checking the action spread at each scale break.

most pianos. I know that these weights assist on the down weight but hinder the up weight. If weights were removed both the up and down weights would increase. While this might be fine for the down it does not seem right for the up weight. My question is can anything be done about the situation or is this inherent in the design geometry of the action?

"As I write this it also occurred to me that there are possibly other reasons for the problem. Is it possible that the distance from the repetition center to the hammer flange center is incorrect? Would this cause this kind of problem? I did not think to check the distance at the time I saw the action. Also the hammers were not replaced when the instrument was restrung. Would the lighter (reshaped) hammers cause the problem?"

Paul R. Schoelles
Midland, Michigan

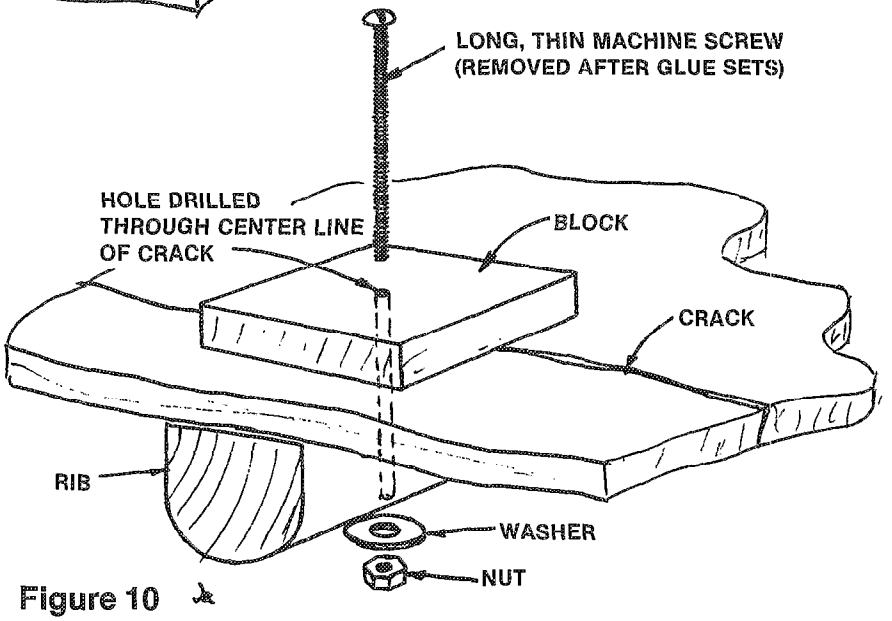


Figure 10

ANSWER: It is easy to understand why the owner would complain of light touch and control difficulties with weight factors of 44 and 26 grams. That leaves a difference of only 18, which indicates right from the beginning that there is not enough friction in the action. The action centers are very loose, and will have to be repinned with oversize centerpins. This will not entirely solve the problem, but I certainly would not suggest doing anything that would affect the weight until the friction problem has been brought under control. To check the torque of the action centers, please refer to pages 8 through 12 of the April 1981 issue of the *Journal.*

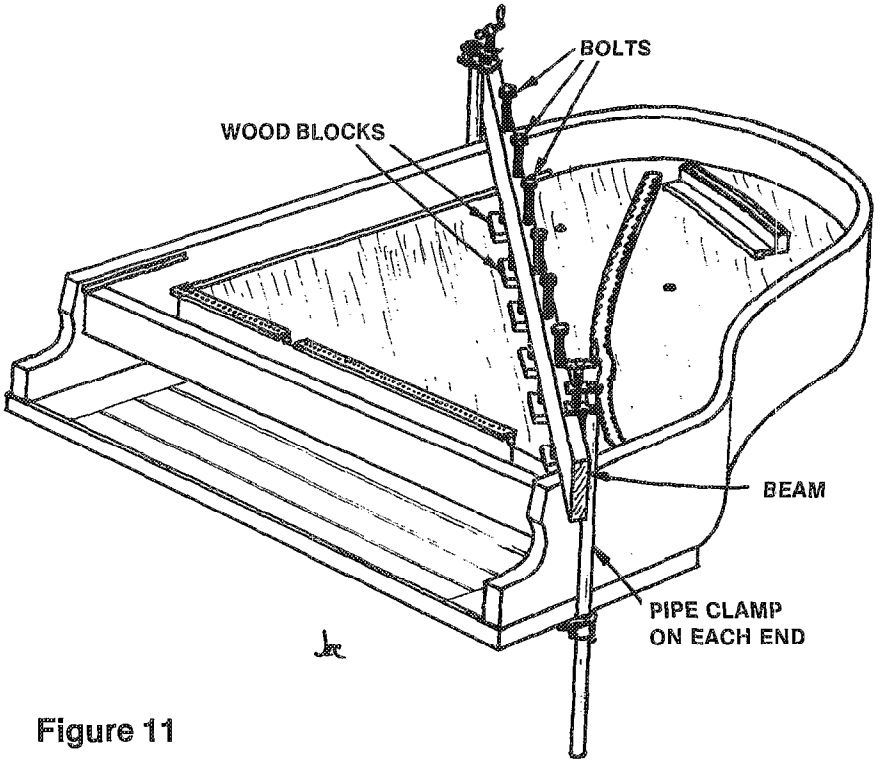


Figure 11

Finally, adjust the weight as required. It should have been within a few grams either way of 56, and if the weight is still too light it will be necessary to install heavier hammers or remove some of the lead weight from the front of the key. Never add lead to the back of a grand key, except for note 88 where there is so much wood in the front of the key that leading the back is sometimes necessary. In any event, we never have lead on both sides of the balance rail of any one key.

The above factors, in some combination, could conceivably account for the extremely low downweight figure and the low differential figure of 18, which should be around 28, but we also should recognize the possibility that someone customized this action upon the insistence of a pianist who preferred an extremely light touch. This would account for the excessive amount of lead weights in the fronts of the keys. But again, don't touch the weight until the first two factors have been considered and the action is regulated to specification.

Dear Jack,

"This month I have found 2 console pianos in schools that were decidedly SHARP *in the center. So sharp in fact that* A_{49} *was well on its way to becoming* B^{b}_{50}. *Heat and humidity were highly variable in both situations causing me to suspect humidity as the prime cause.*

"Could humidity make that great a difference? The second piano I tuned myself back on March 16 and I know it started out then at A-440. The sharpness diminished as I went up and down the scale with the last octave at either end being about as flat as I would ordinarily expect it to be after 6 months.

"I would greatly appreciate your thoughts on the cause and prevention of this. Naturally the piano sounded atrocious . . . . "

Dennis A. Myers
Chicora, Pennsylvania

ANSWER: The piano that was tuned to A440 in March, a cold month in Pennsylvania, could well be expected to go sharp in the middle in the summertime, particularly if there is no humidity control. The same thing happens in Cincinnati, St. Louis, and many other cities with high summer humidity and cold winters. The sharpness is most pronounced in the middle of the scale because that is where the greatest movement of the soundboard occurs. This would seem to be the answer, and in that event the owner of the piano should be notified of the side effects of excessive humidity variation. I don't believe any manufacturer warrants his products against damage caused in this manner, so it is up to the owner to see that the right environment is provided.

If the sharpness were to be exhibited in random fashion, one string here, another there, one would assume that the previous tuning had been done by someone lacking in skill or simply too lazy to set the pins. In this case, however, the conclusion that there has been a dramatic increase in relative humidity seems all but inescapable.

Why, then, would one board react more radically than another in a given environment? I can only speculate that the orientation of the grain is less than ideal. We would hope that every plank of every board would be truly quartersawn, but cheaper boards have some planks of bastard-cut wood. Wood expands almost twice as much around the growth rings (tangentially) as it does across them (radially); so a board comprised of 45° bastard-cut planks will react to a greater degree when the relative humidity changes. This, incidentally, is the main reason boards cannot be made flatsawn.

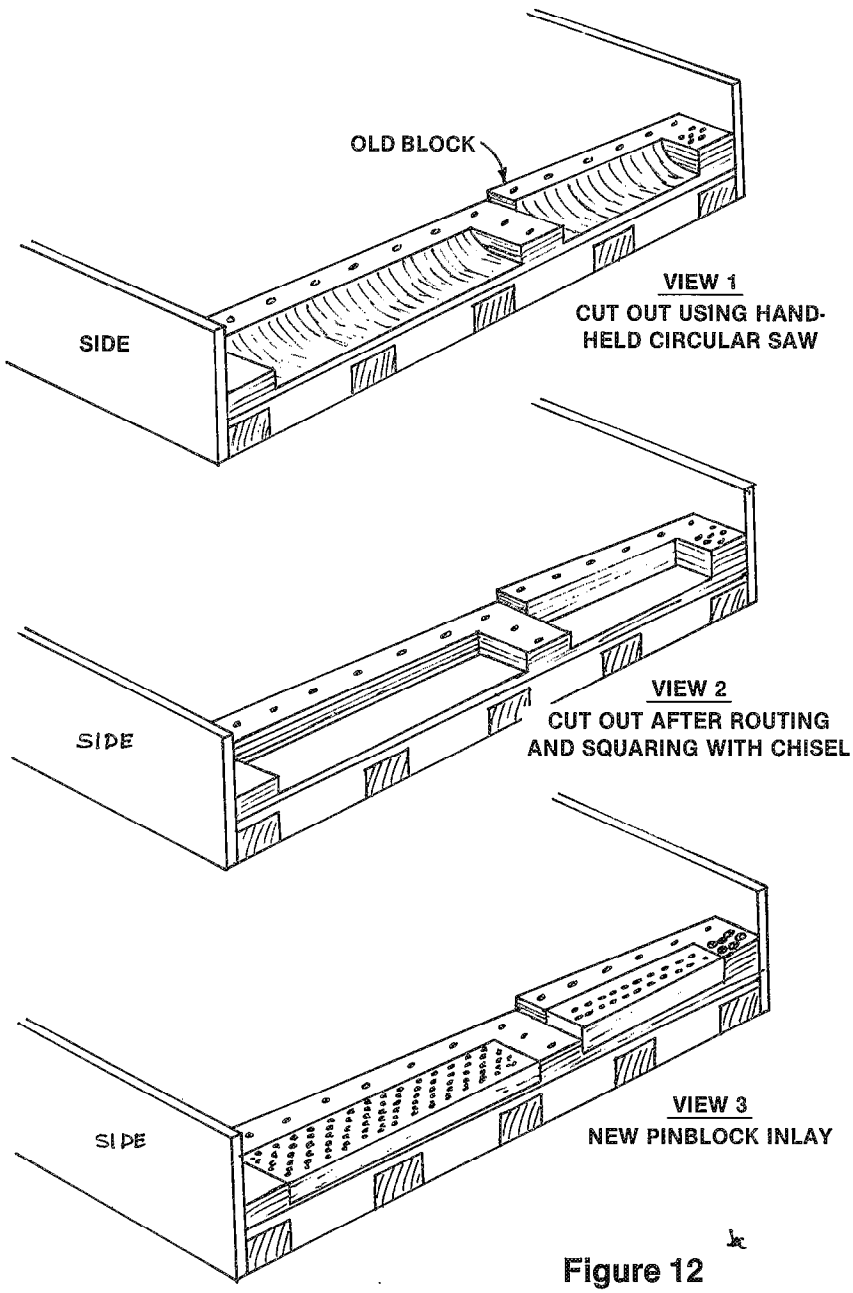


Figure 12

Agraffe Alignment

Here is a letter from one of our most experienced members, who has contributed material before and can always be counted upon to share his wealth of knowledge:

"Agraffes are a bone of contention to many technicians. I have been called upon to do agraffe work for other tuners who avoid them like sin. It is my opinion that most breakage is caused by improper installation, whether at the factory or in the field.

"Alignment by overturning or backing off can create, in the first case, a weakened threaded stub, and in the second case a loose fit at the shoulder. A weakened stub will eventually break, a loose fit allows bending of the stub and breakage due to metal fatigue. Most instructors give minute instruction as to removal, but gloss over installation alignment *by merely stating the use of metal shims.*

"Both 7/32" and 1/4" agraffe stubs have 36 threads per inch. By my calculations a shim 0.013888888" thick will reposition an agraffe by 180°, and a shim 0.000077160494" thick will correct by 1°. Interesting? Enclosed is a table of shims with the number of degrees they will correct."

Bill Pealer
Alexandria, Virginia

Bill also noted that, while he had patiently computed each five-degree correction to twelve decimal places for the nit-pickers and purists among us, most of us will get along just fine with about half that number. In any case, the accompanying chart shows the rounded-off figures in larger type. Bill's method is based on the premise that if there are 36 threads per inch, a 360° turn would change the height by 1/36", or 0.02777778". He divided that figure by 360 to arrive at the shim thickness which would realign an agraffe by one degree. It sounds good to me, especially when estimating the thickness of washers needed for a large correction; as a practical matter, though, we still presumably have to work with whatever is available, and shimming washers are not available in an infinite number of thicknesses. Maybe someone could develop a kit, and each chapter could have one ready for use by its members.

AGRAFFE ALIGNMENT

Thickness of shim (in inches) needed to correct agraffe position by degrees.

Degree	Shim Thickness (")	Degree	Thickness
	.000077160494		.005015318
1	0.0000772	65	0.005018
	.00015432098		.0054012343
2	0.0001544	70	0.005404
	.00023148148		.0057870367
3	0.0002316	75	0.00579
	.00030864		.0061728392
4	0.0003088	80	0.006176
	.00038580247		.0065586416
5	0.000386	85	0.006562
	.00046296296		.006944441
6	0.0004632	90	0.006948
	.00054012345		.0073302465
7	0.0005404	95	0.007334
	.00061728395		.007716049
8	0.0006176	100	0.00772
	.00069444444		.008101851
9	0.0006948	105	0.008106
	.00077160494		.0084876539
10	0.000772	110	0.008492
	.00084876543		.0088734563
11	0.0008492	115	0.008878
	.00092592592		.0092592588
12	0.0009264	120	0.009264
	.0010030864		.0096450612
13	0.0010036	125	0.00965
	.0010802468		.0010030863
14	0.0010208	130	0.010036
	.0011574074		.0010416660
15	0.001158	135	0.010422
	.0015432098		.010802468
20	0.001544	140	0.010808
	.0019290123		.011188271
25	0.00193	145	0.011194
	.0023148147		.011574073
30	0.002316	150	0.01158
	.0027006171		.011959875
35	0.002702	155	0.011966
	.0030864196		.012345678
40	0.00309	160	0.012352
	.003472222		.01273148
45	0.00347	165	0.012738
	.0038580245		.013117283
50	0.00386	170	0.013124
	.0042438269		.013503085
55	0.004246	175	0.01351
	.0046296294		.013888888
60	0.004632	180	0.013896

The Rice-Macy Piano

In our October 1982 issue, one of our readers asked for information about an old upright with the name Rice-Macy on the fallboard. The name is not listed in Michel's or Pierce, and A.W. Dickey wondered if any technician had knowledge of the make. Sure enough, Walt Sierota of Philadelphia found a reference in *Music for the Millions/The Kimball Story:*

"The plans for a further expansion were laid that year when Kimball signed a contract with the builder Hulburd Dunlevy to erect a new Kimball Building on Wabash Ave. and Jackson St. At the same time he authorized the addition in 1890 of a fifth floor to the piano factory and the erection of a five-story connecting link between that plant and the old reed organ factory.

"Big thinking also was occupying Conway when he repeatedly stressed to the Governor the importance of expanding the piano line at the top and bottom. His salesmen needed a grand piano to compete with Steinway and other leaders for the top quality trade, and they were calling for a Kimball-made instrument in the lowest-priced field to compete with the stencil trade. Such musical friends of the company as Dr. Ziegfield and Liebling were all for a Kimball grand, and Lufkin was instructed to set his best piano men to work.

"At the same time the Governor began to look around for a suitable name other than his own which he could apply to a lower-priced piano while reserving the Kimball name for the best of the instruments. He found it in the name "HINZE" the rights to which he acquired from Carl Hinze, who was associated with the Rice-Hinze Piano Company, later Rice-Macy, until 1890. The Hinze name would continue to be featured on certain lower-priced instruments of Kimball origin until it was finally abandoned by the Company in 1949."

Kimball, Hinze Piano
Serial #

7200	1890
12000	1895
17200	1900

Dear Jack Krefting:

"Saw a grand string cover *for the first time some years ago when called to tune a piano Cecil Short had been servicing. Cecil Short is the legendary piano tuners' piano tuner from Pomona California, for those not familiar with his name.*

"A brown felt material was directly under the music desk covering the tuning pins and covered the whole inside of the piano, rim to rim.

"SURPRISE! unlike other pianos in this area so near the ocean — Newport Beach, California — there was no rust on strings and tuning pins. The bass string windings still looked almost new and copper colored.

"I believe this should be installed in all grands. It performs something like an oil filter for internal combustion engines! I have had one in my 1927 Steinway for a good stretch of years now, and the original strings are in very good condition . . . .

"Many have never seen a String Cover. Usual question: "Doesn't it muffle the tone?" Answer: "No, because felt does not touch strings, the material is stiff enough to rest on plate struts only."

"Felt is available in yard goods stores 72" wide and in various colors. I lay it on the closed top, make dots around edge with chalk and cut right there — leaving about 6" extra length in front to make a folded, neat border over the pins."

Robert L. Janes
Santa Ana, California

I certainly wouldn't want to argue with someone of Bob Janes' experience, but I don't believe this would be as effective in other parts of the country. If the felt really doesn't touch the strings at all, then it probably wouldn't cause any problem, but in really humid areas any felt which touches strings causes rust because the felt absorbs moisture from the air and holds it in contact with the string. Apparently this doesn't happen in Bob's installations.

The other point that could be made involves reflection of tone. The lid of a grand piano is designed to project or "point" the tone out into the room by reflection. This added "point" is probably not needed in the average home as it would be in a concert hall, and the small loss of volume could be considered in that light also.

Dear Jack,

"Here is an entry for your "What the Heck is it" department.

"I was called to tune and regulate this console piano back in April. It is a Cable, serial number 219582, and the Pierce Guide dates it circa 1920. My first questions were as follows:

1) *Did Cable make a console-sized piano in the twenties?*
2) *Was plywood used in the twenties?*
3) *Would Cable have used screen door hooks as cabinet hardware?*
4) *Why a straight bass bridge?*

"Anyway, I tuned and regulated (sort of) and got it playing. The Bass sounds rather strange and regulating was a real chore but it works and the customer is happy.

"The more I thought about it, the more logical it became to assume that this was a Cable upright which had been cut down. (Actually, cut up *is a better description since it was shortened from the bottom.) I never heard of this being done, so I wasn't real sure of my theory until August. At that time, I was talking to Cecil McConnell of Altus, who had been a cabinet-maker and helped his son-in-law in the piano business in the '50s. He couldn't remember this particular piano, but did shorten three pianos in this manner. Chances are that this is one of them . . . ."*

Ben Bailey
Altus, Oklahoma

My first reaction to these photographs was one of disbelief; we have all been aware of the usual 1950-era butchering of old upright cases, which usually involved cutting a notch in the upper part of the sides to make a two-level lid, and adding a mirror over the tuning pins. It was called "restyling" at the time, I believe.

This is far more radical, however. The entire lower half of the scale has been truncated; when Ben says the bass sounds "rather strange," we can safely assume this to be the understatement of the year. The lower part of the treble bridge was altered, too, by arbitrarily shortening speaking lengths any old way, just to get some kind of bridge on the board. A digital analysis of the scale would be interesting.

The keyboard had to be raised once the bottom was cut off, and extensions added to the keys to make a kind of "drop action." Looking at the arcs of motion of the key and whippen, it looks like a lot of wiping friction would be inevitable, to say nothing of the difficulty of regulating the lost motion.

Even if the result were good, it is hard to see how such a project could have been economically feasible. Somehow, it was done and it even works, after a fashion. I guess we'll file this one under S for Strange.

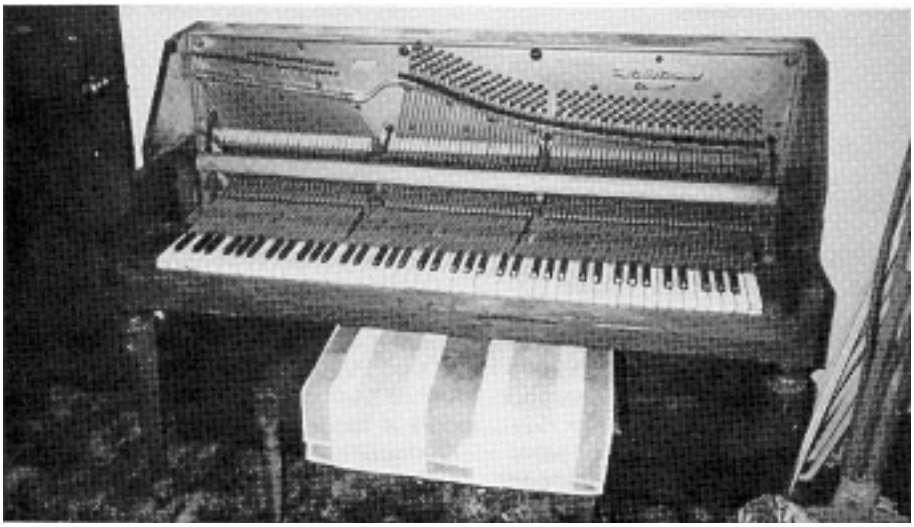


Photo 1: At first glance, this appears to be a typical older console.

Photo 2: A closer look reveals a full-size upright action, with the keys raised to backcheck height.

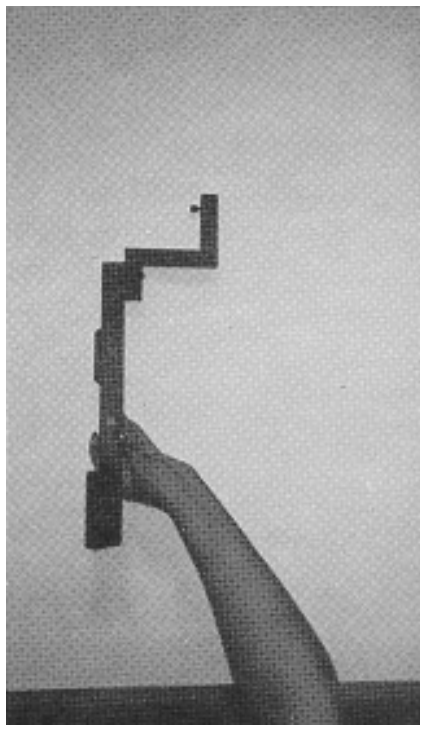


Photo 3: Plywood extensions were added to the undersides of the keys. Note the capstan screws.

In Conclusion

Whenever I try to recruit new columnists, the answer is usually something like, "Oh, you seem to have all the bases covered." Actually, that isn't true at all, and it never will be. We might stipulate that the basic instrument hasn't changed much over the past century, but technicians certainly

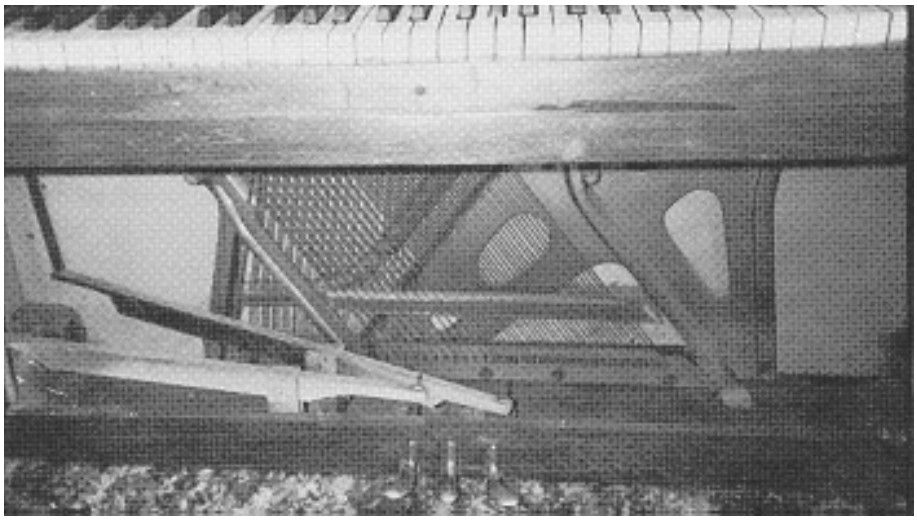


Photo 4: The bottom of the piano, including probably 12" of the plate, was cut off. The bass bridge is now cantilevered over the plate. The middle pedal appears to be a dummy.

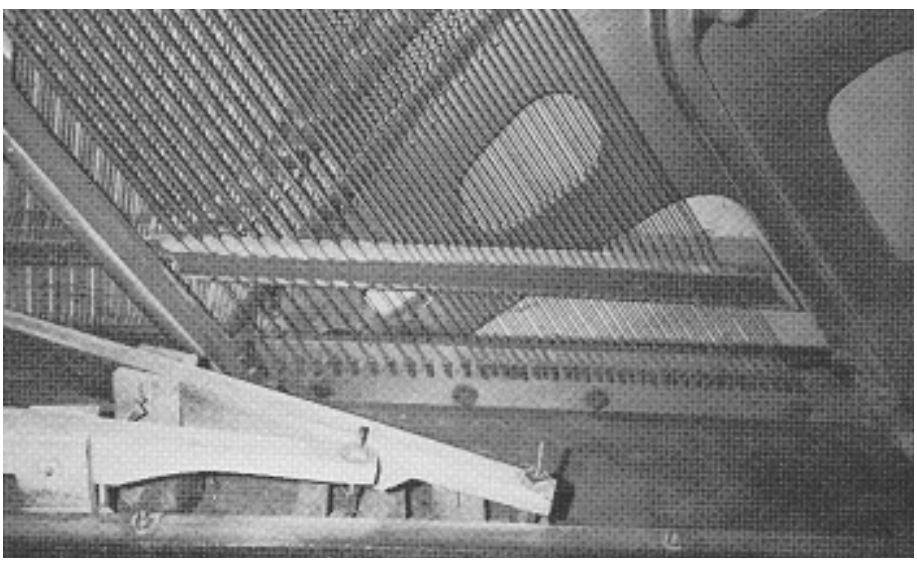


Photo 5: The treble bridge was apparently altered, also. Note the new bass hitchpin panel, bolted and welded in place. Also note the keybed support lug, now useless.

have. Techniques are constantly under evaluation and modification by you, the professionals in the field, and one purpose of this publication is to disseminate that technical information to the rest of us. If any textbook, or other printed body of knowledge, were the last word, then we wouldn't need to continue with technical articles; but we know that isn't the case.

For example, David Pitsch's series on regulating is almost finished, and as exhaustive as it was, we all know that it raised as many questions as it answered. This will, I hope, be taken as a challenge by other technicians. David's work will eventually be rewritten by someone, as will mine, and that is a healthy thing for the profession. Usually some small amount of new ground is covered, but even if not, the perspective is different. Greater emphasis is placed on some things, less on others, and we can all learn from one another. I need two or three more regular columnists, as well as the usual and continuing need for articles, tech tips and questions. Please send them to me at this address:

Jack Krefting, Tech Editor
Piano Technicians Journal
3802 Narrows Road
Erlanger, KY 41018

Computer Tools For Tuners

Ted Staton, RTT
Atlanta Chapter

The microcomputer has rapidly taken over the drudgery of many office and business tasks that formerly took hours from the productive person's day. As piano technicians, we cannot afford to be left wondering what happened in the transition to electronic helpers. Many think, falsely, that the computer replaces people on the job and, in fact, takes people's jobs. This is not really true. However, the computer is cost effective only if the technician is good enough at the piano tuning business to create a backlog of work. When he finds himself strapped with loads of legalistic paper work, snarled schedules, and nagging questions as to the profitability of a new venture (such as the rebuilding trade), it is time to consider investing in a computer.

Are they hard to use? Don't they cost greatly? The answer to both questions is no for many individuals. Like all good tools, they don't cost, they pay. Very efficient models cost much less than a new truck for hauling pianos. As to how difficult they are to use: some technicians burst into tears trying to understand the three knobs on the sight-o-tuner while others lecture at the conventions, fly their own planes, and work ham radio gear. The latter would be right at home with their own computer.

How does a technician introduce himself to the computer world? I have a double interest in the computer. Besides increasing my ability to handle greater customer loads by many fold using the programs mentioned here, my wife is the Director of Rocky Creek Computer Camp, one of the nation's first applications-oriented computer camps for young campers 10 to 15 years old. Believe me, if you think that it is too difficult to learn computerese, just watch these youngsters solve energy problems, ecology problems, music problems, diet problems. You will realize, as have I, that the computer will soon exceed the telephone in importance as a business tool. It has already done so to the television, in the opinions of many observers. Learning to use computers to help in your piano tuning business does not necessarily mean becoming a computer programmer. Many programs already exist such as general ledger, inventory, accounts receivable, accounts payable, word processing, spread sheets, sort programs, and even data base management. All of the above may be used without computer programming knowledge because they are "menu driven," i.e. a list of choices flashes on the screen and you choose one by pushing the corresponding key. Many of us, however, choose to go further.

I have seen firsthand that it is more profitable for a technician to learn the fundamentals of computer programming than trying to teach the professional programmer the ins and outs of the piano technician business. If you can deal with inharmonicity, the fine points of regulation, and careful, competent voicing, you can learn to write

fairly sophisticated programs in six months of hard, spare-time concentration.

What are the rewards? Picture this: you walk into your office in the morning, push several buttons on your computer. It, or should I say she/he (they seem to have a real personality) prints out your schedule for the day's tuning, complete with reminders about special parts needed for certain customers. The routing and direction are given if you request them. The phone rings before your secretary arrives and you decide to answer. It is a person wishing to schedule a tuning. You are glad they called, for it will give you a chance to see firsthand just how the new schedule program works. You ask their name and zip. The computer then tells you when the next time is that you have an opening in your schedule in that area or on route to or from other areas. In other words it has saved you gallons of gasoline each week. The first suggested time was not good for the customer — no problem, tell the computer and it goes to the next good time. This call happened to be a new customer, but had it been a regular customer, the screen would have shown in a flash all the pertinent information about that customer.

After the tunings are completed for the day, the customer files are updated so that when six months (or any other interval) rolls around labels for reminder cards are addressed automatically.

Tax time? Ugh . . . This is our usual reaction to the mounds of paper work and math calculations at income tax time each year, but things go much smoother if all your financial matters have been kept on a computerized general ledger.

How long will it take to rebuild Mr. Jones' piano? (Don't forget to figure in the special double-flanged pinblock!) Knowing precisely is no problem with a series of programs called PERT and the Critical Path Method. The entire project from start to finish is graphed out in seconds. It shows which steps in the rebuilding process must be finished when, in order to stay on schedule. It tells when certain parts must arrive, and it shows which jobs have slack and therefore can be worked in at any convenient time. Doing some experimenting with rescaling? The formulas from the *Journal* (The Calculating Technician) fit nicely into the computer program if you only take time to study how it is done.

How about typing a letter or writing your checks? This is very easy with your tool, the computer. Word processor programs are numerous and quite good today. Some far exceed the power and ease of use of dedicated (single use) word processors of two years ago. Any printed material, from business letters to books, can be composed at the keyboard, entered then edited, spelling checked, errors corrected and finally printed out with no strikeovers, correction fluid or mistakes of any kind. Entire sections, from sentences and paragraphs to whole chapters, may be moved intact with as few as three keystrokes.

To make intelligent decisions in these times of high inflation and close margins, the businessman needs accurate information and all the powerful decision-making tools he can muster. Lack of information about the health of your business and how to make the correct decisions to guide it to better health can lead to real disaster. I am saddened and, at times, frightened as I drive by now-deserted buildings where last week a Piano Technicians Guild friend had a piano business. I cannot help feeling that these competent piano technicians let business disaster slip up behind them, and they still wonder what happened to make things go wrong. It is not coincidental that these failed businesses were run by friends who thought they had no time for general ledgers and tuning. This is where this article steps in. I wish that I had written it a year ago. Maybe several of these friends would have read, heeded and still be in business.

The year 1982 was the first for my tuning business to be computerized in scheduling, customer reminders, estimates and general ledger. Because of this efficiency, my gross for the first four months of '82 equalled the entire year of 1981. Next year should be even better because I am dropping several unprofitable activities and accounts with poor revenue/expense ratio according to my computer. My computer has freed me to tune and still keep my finger on the pulse of my business with regular, accurate reports. I have also tuned many more pianos per week by efficient scheduling, less backtracking, less forgotten appointments and efficient reminders to old customers and follow-ups of prospects. The range of accurate information available to every home and business with a good personal computer is rapidly becoming limitless. Already the entire Encyclopedia Britannica is stored in computer-retrievable form and they are working madly on the entire contents of the Library of Congress! Each technician with the modest equipment costing less than most cars today can access these information sources now. When publishers' copyrights are finally dealt with fairly and legally, all publications will probably come in several forms, one of which will be for your personal computer. Then each technician will have the joy of asking for all articles on hammer shanks, for instance. (Now we have the wonderful and painstakingly prepared PTJ Index, but in the future we could have instant updates!)

So don't be left wondering about business matters. Don't spend years trying to make up your mind which computer to get. Buy one that lets you learn BASIC, a beginner's language with great power. After you own your computer, you can learn what you do and don't like about various models and then trade or sell if you find one you like better.

I would like to hear from you other technicians with your own computers. I would be glad to trade information and noncopyrighted programs of specific interest to the piano technician. (For instance, because of the size of pianos, we have to travel to our customers. Therefore, we have problems that the shopkeeper who sits in one location all day can't imagine.)

Is a personal computer for you?

The word is out. You decide.

Bass String Basics

Gerald F. Foye, RTT
San Diego Chapter

Special appreciation goes to those string makers and companies that took some of their valuable time to respond to a series of questions which enabled me to gather material for this article.

The intended purpose of this article is not to go into the technicalities of bass strings; but rather, just plain basics solely to make it easier to receive good replacement bass strings. This can be accomplished by learning to give the string winders correct information and to gain a small insight into some of the problems they face. Some of this information may be quite standard but there may appear a few new wrinkles that hadn't been previously considered. Also, a bit of controversy may appear which also adds interest.

Strings do break — we all know that. And, we all know why they break — or do we? Well, considering the tension they are drawn up to (up to twenty tons total in some pianos) it's really amazing they hold up as well as they do.

Some causes of breakage would be defective material, stress at a given point as caused by a kink, sharp bend or damaged area, fatigue, corrosion, inability to render across a pressure point and probably many more reasons.

Excessive breakage often occurs in pianos that undergo extreme playing conditions — notice what happens to those strings in a church where heavy gospel music is played. Or, how about a piano that is played in competition with amplified instruments like in a rock band? Some of these poor pianos literally get the strings pounded right out of them. The condition of the hammers generally will offer testimony as to how hard the piano is being played. I have seen a case where the piano was pounded on so hard the hammers, at the break, were driven right past the strings and into the plate. Why at the break only? Because there wasn't enough room to get between the strings elsewhere but at the break there was enough room between string and plate strut. Breakage under these conditions comes under the category of fatigue which is about the same as bending a coat hanger back and forth until it finally breaks. Aircraft parts are carefully examined for scratches or nicks to avoid the possibility of stress fracture. This would be similar to music wire that has been nicked. Vibration can cause stress fracture at that point. When wire cannot render across a pressure point, such as a pressure bar, the portion from the pressure bar to the tuning pin might stretch as a result of not rendering and cause breakage. One reason for not rendering might be a build-up of corrosion which binds the wire to that point. For that reason many tuners apply a pressure bar lubricant to assist in dissolving corrosion and to offer a lubed surface for the string to ride across.

Other possibilities for string breakage include improper scaling where the string tension is far greater than the allowable safety tolerances. There are other reasons, of course, which could include poor piano design wherein the wire is expected to follow some absurd route along a contoured pinblock or around wayward tuning pins.

Dealing with the broken wire is another matter. Often a tuner's knot is a reasonable solution. This is used to avoid the time required to break in a new string. But when it gets to the point where the piano is overcome with knots and universal replacement strings, restringing may be in order.

"Tubby" bass strings is terminology generally applied to those strings that have lost their ability to produce tone other than a dull thud. An age-old correction for this problem is to remove each string, form a coil, rock the coil back and forth, which is supposed to release the accumulation of troublesome debris, and replace the string; and, presto — it's still tubby. Well, some people claim it works but it never has for me. Even if it should work — what is your time worth? And there is also the matter of possible becket breakage following replacement. This tubby condition is caused not only by accumulated debris but also by contamination such as happens to a barroom piano. There can be other causes such as loose windings and sometimes this condition can be remedied by twisting the bass strings. (More on this later.)

Defective strings are a possibility since, now and then, a bass string might produce an unwanted sound that can't be dealt with except by replacement. If it is a new instrument, contact the manufacturer and they will probably send a replacement in short order as long as you supply them with the model, serial number and string number. Occasionally an entire set of bass strings may be faulty. However, don't necessarily blame the string winder. Other things may have taken place. Ever run across a new piano that has come from the factory eighty or one hundred cents sharp? What has happened to those poor bass strings? Something to consider when you are responsible for installing a set.

Here is a condition that is more common than most of us tuners would expect; and that is mixed bass strings. This is where the strings have actually been installed in the wrong order. I have seen quite a few examples in the past few years. One brand is particularly good at creating this hazard. The clue is that it appears to be almost impossible to properly tune the bass to the rest of the piano. Fortunately, the pianos that have this condition are generally of the type that sound so badly anyway that it isn't really that noticeable to the customer, only to the tuner attempting to get through a tuning. I know of

only two of these pianos where the customer felt something was wrong with the bass. In that case the problem was pointed out and a solution discussed.

Regarding the effects of improper scaling in bass strings, this condition has occurred in the past. Possibly from the factory or possibly from someone replacing a set of bass strings with an incorrect set or by improper ordering. How can this happen? I did attempt to tune an old square grand where the bass strings were definitely improperly scaled to the point they were simply out of phase with the rest of the piano. Tuning this instrument with a strobe would have been a total disaster. Matching octaves was the final result, which made a poor compromise, but nothing else would work. The beat rates were totally haywire. I also received a set of bass strings for an old upright I was rebuilding that turned out to have been sent to me by mistake. I doubt I could have gotten these strings on that piano but there is the possibility that a determined individual might have done so without realizing what was taking place. This clearly would have been a case of improper scaling through no fault of the manufacturer of that piano, but I suspect it has happened.

Some string noises can be dealt with on the spot. A common problem caused by loose windings creates a sound like a piece of paper touching the string. A simple twist of the string, in the right direction of course, will effectively take care of that little matter.

One sneaky little sizzle is simple, but the first time you run into it, it can be frustrating. It is the condition where a single coil of copper has broken loose. On an upright, if it is on the top of the string, it can appear by eye to be perfectly all right; but as soon as the string is stimulated, the loose coil dances up and down creating a very unpleasant noise. This coil can also be on the bottom of the string where it vibrates against a bridge pin. On a grand it slides along the wire causing a disturbance wherever it travels. Fortunately, this culprit is easily dispatched with tweezers.

Sometimes the ends of the copper windings may not be crimped tight enough. Gently crimping with pliers will generally settle this matter.

Another often found bass string noise is the result of glue that has fallen onto the windings. Naturally it generally lands in hard-to-get-at places like behind the upright action about in line with the key frame — look carefully.

There can be many more causes of unwanted bass string noises. Debris behind the upright piano, loose ribs, chunks of glue in the wrong places, lack of crown, sympathetic vibration with household ornaments, and so goes the long list. Don't forget hammers, they can do strange things too. Hammers that do not hit the strings squarely, hammers that have a hard spot in them, or loose hammer heads can all cause strange sounds. Be sure to eliminate all the possibilities before condemning the string.

Now suppose, after all this, we finally get down to the point where a full set of replacement strings is in order. First, although it is acceptable practice to do so, think twice before replacing just the bass set. If nothing else, you will find it inconvenient to deal with two different sizes of tuning pins.

Before even proceeding that far consider the condition of the piano. Examine it carefully to determine if it actually warrants the cost, trouble, and the long break-in period. Regarding break-in, it is a must that the customer understand the length of time required for this process.

Examine the condition of the pinblock. If there is any doubt about it be certain this matter is taken up with the customer to avoid problems later on. Examine the bridges, soundboard, ribs. Check the general structure for possible damage from age, insects or whatever else might occur. Check the plate. If a decision is made to replace those strings, don't forget to tighten all plate bolts before proceeding.

There are times when rescaling might be in order especially since it is the "in" thing at the present time. However, keep in mind that it is a source of inconvenience to the string winder — at least in some cases. Rescaling basically is a great idea. Unfortunately, it is overused and abused. It is more than a matter of running figures through a calculator. It requires expertise that not many of us really have. This is one point the string makers get wound up about (read that one again). They know their business well. And there have already been cases where they knew the rescaled figures were going to produce disastrous results. But they are in a dilemma. If they point out the possible error they offend the creator of the new scale. If they don't point out the problem and produce the strings as rescaled and the results are poor then they get blamed for that too. So what it amounts to is setting up some rules on rescaling. The rules are very simple — do so at your own risk and prepare to deal with results if they don't come out as anticipated. Don't blame the string maker. If there is a question regarding possible rescaling be certain it is handled by someone well qualified. Contact your favorite string maker and see if they are willing to assist in rescaling. But expect to pay for this additional service.

One case where rescaling might be in order is where wound steel strings are to be replaced with copper. There is a difference in weight characteristics. Check with your string maker to see how he handles this matter. Some will compensate for the weight differential, some will not. I certainly prefer to deal with those that will compensate. The same goes for replacement of aluminum wound strings. Some winders carry aluminum stock and can safely duplicate the string. Others will go to copper and there should be some sort of compensation. Naturally if the piano is of limited tonal quality to begin with it may not be worth the effort. On the other hand, a slight bit of rescaling might make a tremendous difference in the final output. Another good reason for rescaling is to compensate for strings where the windings fail 'way short of the theoretical termination points. The windings should terminate about ½ to ¾ inch from the bridge and the same from the pressure bar or agraffes at the tuning pin end. However, the inharmonicity created by the longer gaps might just be there by design. So consider the quality of the instrument to begin with and try to determine if they intended it to be that way. Some Asian instruments have the copper windings a bit too long — after all, climbing right over the bridge is a bit too much. Some rescaling is definitely in order in such a case.

At this stage of the rescaling game it appears it hasn't quite been developed into a science and much has to be learned as far as do-it-yourself projects go. Therefore, here is what might happen. On one hand, the string maker just might strike out on his own and do it his way. Or, he might go ahead with your figures and hold you responsible for the results. There is another problem the string winder has to deal with and that is availability of sizes. Sometimes those calculated diameters are not available to the string winder so he has no choice but to use what he feels is the most suitable compromise.

String winding is still a manual art which does have advantages. One advantage is that an experienced winder can literally compensate for copper

size by applying more or less tension to the copper as it is being wound which controls the diameter — to a point. Thus, he can take a copper diameter that is not quite right and make it come out right in the final product. So you see there is more to string winding than one might think.

Joel and Priscilla Rappaport put on an interesting string winding demonstration at a recent California Piano Technicians Guild convention. Even more interesting was their demonstration on how to retrieve a wayward string winding machine. Their costly piece of equipment got sidetracked on the way to its destination and there was considerable concern over the matter. Such machines are not available through ordinary sources. It took some real detective work on the part of some hardworking Piano Technicians Guild heads to track the machine down and retrieve it in time for use at the convention. However, they did come through with an interesting program. One issue Joel put across is that it is possible to control overall diameter of the copper on the finished product through manipulation of tension as it is being wound. Of course, such manipulation is quite limited but it serves the purpose. If copper were not so malleable it could not be done.

Speaking of malleable, some core wire is quite soft, which theoretically is not the best situation. Obviously universal strings are on the soft side to make them easier to install. Another item of debate is the shape of the core wire. Some feel hex wire is a poor way to go. Again, in the case of universal strings there is no choice, but some string winders feel it is best to avoid use of hex core wire. Some Asian pianos come from the factory with hex core. Possibly they find it more convenient to utilize universal string sets — it certainly looks that way in some cases. Isaac of Canada offers an interesting concept regarding the swaging of core wire. First of all swaging is done to anchor the copper to the core which is the same reason hex core wire is used. Isaac's method is to swage using two 3/4 inch flats separated by a 1/8 inch gap. The reason was not explained but logically the split flat would offer more flex at that point.

A question was asked regarding measurement of hex core wire — across the apex or across the flats. There was a divergence of opinion on that topic which surprised me. However, in this case I will express my opinion and that is to measure across the flats since this is accepted machine shop practice. If you measure a ¼ inch Allen (hex) wrench you will find the measurement to be correct across the flats.

A few quick words on replacement of a bass string using universal wire. Universal strings are not the ideal solution. On a good quality grand a universal should be replaced with a correctly made string using the universal to fill the gap until it arrives. There is also the break-in period which is an inconvenience. The core wire of universals is quite soft which may account for the lengthy break-in period as compared to a factory replacement string. However, that is a point of personal opinion.

However, much is to be said in favor of universal strings and certainly we should all carry enough to do the job. There are several different sets. It is wise to carry two sets of the most used strings enabling better matching of two string unisons when unison control is important. Match as closely as possible the original core size and overall diameter. At the loop end, which is attached to the plate or hitch pin, peel the copper off leaving the copper roughly 3/16 to 1/4 inch longer than the mating string. At the tuning pin end, do the opposite — leave the copper the same amount shorter so when it is drawn up to pitch it will stretch to correct length. Avoid nicking the core wire for reasons previously mentioned. As to the amount of copper to leave or remove, experience will come after a few universal wires have been installed. Naturally a neat coil at the tuning pin is important too, not just for looks but stability as well.

One last word on universal string sets. I find it most helpful to measure the core and overall wire size with micrometers and mark that size on the string tag for quick reference rather than fumble through a packet trying to measure the right size on the job. Also, even more helpful are the universal string size charts I obtained while researching this material.

Now, let's assume the decision has been made to replace the entire set of bass strings — what next? There is a little difference of opinion here as to which way to go so I suppose the obvious solution is to contact your favorite string maker and ask exactly how they prefer to go about it. Do they want the old strings, paper patterns, or both?

In general it seems that a good paper pattern is the better approach. The word GOOD is very important. the paper must be free of holes and markings that could create confusion. Brown wrapping paper works well. Rolls can be purchased where gift wrapping paper is sold.

Preferably the upright piano should be on its back on a tipper, the grand being no problem. The paper should be anchored to avoid any movement while making the imprints. Some winders refer to this pattern as a "rubbing" for the simple reason that that is the way it is made. Using medium grit sandpaper, rub the paper at the point where hitch pins are. Rub across the tops to wear through the paper and slide the paper down over the pins. Do the same across the bridge pins. Repeat the process at the other end rubbing across plate pins or agraffes. Then, with the paper down on the strings, rub the wound strings at the ends of the winding to clearly mark their position in relation to the core wire. Location of tuning pins is not needed.

On grands a pattern can be taken over the dampers with a notion to clarify that point to the string winder.

Along with the pattern send a sample of the first and last string from each section. In other words, a first and last in the single string area, first and last in the two string unisons area and the same with any three string unisons. Over grand dampers it might be wise to include the speaking length on the pattern of the first and last strings of each section using careful measurements.

I believe in offering the string maker all the help I can. They can use what information they need and discard the rest. On the pattern include the number of single strings, double wound, number of two string and three string unisons and any peculiarities involved. Make notations of missing strings or strings that have obviously been replaced with something not quite right as compared to the original. Include make and serial number which might allow the string winder to use scale sticks. And don't forget your name and address to avoid having patterns mixed up in the string winder's shop.

If the bass bridge is split badly I make a note of that also to clue the string winder in. String winders may make mistakes but more than likely the mistakes would be due to insufficient or misleading information given to them by the person sending in the order.

In some situations it may be advisable to send in the entire set of old strings. When doing so, take them off the piano in proper order and immediately mount them on a wire hook. Place cardboard punchings in place of missing strings. If the strings were mixed at the factory as mentioned earlier in the article, advise the string

UNIVERSAL BASS STRING MEASUREMENTS

(Courtesy George Wiederer, Schaff Piano Supply Co.)

String No.	Approximate Micrometer Measurement of Outer Diameter
No. 2019 (19 string series)	
B 48 1	.144"
B 48 1½	.134
B 48 2	.128
B 48 2½	.124
B 48 3	.117
B 48 3½	.112
B 48 4	.109
B 48 4½	.102
B 48 5	.097
B 48 5½	.088
B 48 6	.084
B 48 6½	.077
B 48 7	.075
B 48 7½	.074
B 48 8	.069
B 48 8½	.067
B 48 9	.063
B 48 9½	.061
B 48 10	.059
B 48 10½	.056
B 48 11	.054
B 48 11½	.053
B 48 12	.051
No. 2006 (6 string series)	
B 48 01	.155"
B 48 02	.158
B 48 03	.165
B 48 04	.175
B 48 05	.186
B 48 06	.194
No. 2010 (10 string series)	
S 01	.212"
S 02	.207
S 03	.202
S 04	.197
S 05	.191
S 06	.185
S 07	.179
S 08	.172
S 09	.166
S 10	.160

String No.	Approximate Micrometer Measurement of Outer Diameter
No. 2037 (37 string series)	
S 50 1	.138"
S 50 2	.136
S 50 3	.132
S 50 4	.128
S 50 5	.125
S 50 6	.122
S 50 7	.118
S 50 8	.116
S 50 9	.114
S 50 10	.112
S 50 11	.109
S 50 12	.107
S 50 13	.104
S 50 14	.099
S 50 15	.097
S 50 16	.094
S 50 17	.092
S 50 18	.088
S 50 19	.086
S 50 20	.082
S 50 21	.080
S 50 22	.077
S 50 23	.076
S 50 24	.075
S 50 25	.073
S 50 26	.071
S 50 27	.069
S 50 28	.067
S 50 29	.066
S 50 30	.065
S 50 31	.064
S 50 32	.063
S 50 33	.062
S 50 34	.061
S 50 35	.060
S 50 36	.058
S 50 37	.056

winder of this problem. If the strings have been dropped or there is any reason to believe they may be mixed then advise them of this. When sending a few samples with the paper pattern, mark the individual strings with a numbered tag so there is no question as to which string it is.

When your set of strings arrives, unpack them and hang them. Try to avoid a lengthy delay before installation. As one string maker pointed out, there is the possibility of a "creep" factor that may set in from too long a period of time between manufacture of the string and installation. This factor may cause problem strings. Also, examine the strings immediately to verify that there hasn't been a mix-up and that those strings are for your piano.

You have time and money tied up in those strings. Take care when installing them. Keep your hands clean and dry. Cotton inspector's gloves are useful for this purpose. Avoid handling the strings any more than necessary. The same goes for the tuning pins; keep your grimy paws off the portion that goes in the pinblock. Lay the set out on a flat surface. I lay them on the floor due to limited work area, but don't step on them or cause any

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Shoptalk

Susan Graham, RTT
San Francisco Chapter

Putting A Damper On It Part II

The first part of this article gave guidelines to clean, inspect and replace parts of a grand damper system. Now it is ready to be reinstalled and regulated.

Reinstall the underlevers, the damper guide rails, and the upstop rail. Raise the upstop completely and tighten one or two screws to hold it out of the way. Ease the guide rail bushings so a wire will slide through easily but without play.

Back the heads (with felt or cheap bushing cloth) if desired: hold several heads together, apply glue and press the group firmly on the cloth (placed on the bench so the wires can hang over the edge). Slice between the heads and trim the ends with a very sharp, thin-bladed knife lubricated with paraffin. This can be done immediately if the blade is sharp and downward pressure is applied to the heads. Put a sample of each type of damper (with felt) in the piano and check the level of the heads. If any sit lower than the others, they can be double backed to raise them.

When checking the samples for level, calculate an approximate lift. Leave the screws finger-tight — just tight enough to hold the underlever up on the wire. Insert the hammer action and pull up on the head, blocking the underlever against the upstop rail, or push down against the key to set the underlever so the key contacts it about halfway through its travel. This isn't a critical adjustment at this time; it only insures that the underlever is suspended from the wire but within operating range of the tray.

In most factories damper felt is glued to the heads before they are put in the piano. The felt is aligned to the head and later the wires are bent in installation to correct alignment to the string. However, many field technicians prefer to glue the felt on and put the damper in the piano immediately. This keeps the felt in alignment while the glue dries; in addition, since the wires are inserted into the top flange as each damper is glued up, the weight of the underlever begins to settle the felt immediately. This method does require that the head and string spacing be nearly correct but this is usually the case in rebuilding and slight adjustments in the felt can be made as the gluing is done. Note the word slight: do not "correct" misalignment of the heads by moving the felt to one side. If the heads are noticeably misspaced, the wires must be rebent.

Use Titebond or other slow-setting glue. (Some technicians recommend PVCE since it remains adjustable.) Apply the glue to the head rather than the felt so it isn't absorbed too quickly (if the heads are backed extra glue is necessary). Squeeze the sides of the felt at the glue line to compress and iron the fibers. Place the damper in the piano with the wire in the top flange and flick the lever up to be sure it is riding freely. If not, chalk mark it for correction later. Lift the lever and finger-tighten the screw. Throughout the initial gluing and regulation, leave these screws finger-tight to save time. Recheck the felt alignment — a hemostat is excellent for grasping damper blocks to make adjustments. Another benefit of in-the-piano gluing is that the overhanging felt edges can be perfectly aligned with a straight edge which gives a "factory" appearance to the job. Be sure the felt is pressed firmly to the head but don't raise the head to check or the felt will pull away. Pluck the strings to determine evenness of location.

Trichord felt should have been marked on the back with a line on one side before the strip was cut; keep these lines on the same side of both front and back trichord blocks. This allows for slight differences in the wedge thicknesses.

After the glue is dry, regulation begins. Like most regulation, many operations in damper setting may have to be done more than once. Therefore, work quickly through the whole process and then go back to perfect the job, rather than try to figure a sequence which will work to perfection the first time. Get comfortable for this fussy work: a four-wheeled dolly with a board across it makes a good low, mobile seat for damper work.

Begin by straightening the heads so they are parallel to the strings and to each other. Alignment of flats is easy to see and adjust as they sit on the strings. Wedge felt dampers should be slowly lifted by the underlever. If the front edge wanders to the right as the felt is released from the string, turn the head to the left. Since the wires aren't completely tight in the top flange this alignment is easy to correct by hand.

When the heads are parallel at rest and as they rise, space them so they are equidistant from each other and centered over the unison. As mentioned, this must be close before the felt is glued but it should now be rechecked. Heads are moved side to side by changing the bends at the top of the wire. There are four bends in a damper wire which concern us. Think of these bends in pairs; if one bend of a pair is changed, the other must be changed as well. The top two bends are adjusted first: one bend determines the position of the head relative to the vertical portion of the wire, and the other bend levels the head. These bends can be adjusted either in or out of the piano; in the piano is quick and accurate if you get the knack of it, but the bends can also be changed by trial and error with the

damper removed. It's like spoon bending in a vertical — some prefer one way, some the other, but the important point is that it be done. Like spoon bending, if you have the proper tools the job is easier. To change the bends in the piano, use a smooth-jawed parallel pliers and an open-ended wire bender with a long shank (which may need a bend to clear the pinblock). Grasp the head with the pliers so the wire is held securely and tilt the head so the *felt* swings toward the desired direction; this changes bend #1. Then use the bender to reach between the dampers from below and change bend #2 so the head is level to the strings. To change the bends outside the piano, remove the damper and follow the same order of bends, using pliers to hold the wire in the head while making bend #1 and a bender or bending pliers to correct the level at bend #2. With either method, bend #1 should appear to move the felt too far, since it swings in an arc: bend #2 brings it back as it levels it. A short cut to move the head closer to the vertical portion of the wire with the second method is to straddle bend #2 with pliers and compress it, and then relevel the head.

When the spacing is correct, check that the head is level front-to-back so both damper blocks contact and leave the string simultaneously. Depress the pedal slowly and watch for front or back ends lifting early. Tilt the head by hand to correct this; this should also result in the heads being level with each other. Be sure that the felts on combination dampers are correctly matched and the trichords sliced deeply enough to allow the flat to seat.

The damper heads should now be level in all directions. Watch for an entire section tilting slightly — this may indicate a misplaced damper guide rail. There is some play in the guide rail screw holes so the rail can be moved slightly to correct it. A small square which will sit on the strings is useful to detect this tilt. It can also be used to set samples in the next step, which is to check the travel of the dampers as the wires rise through the guide rail. Depress the pedal, watching for heads which wander to one side (but remain parallel to the string). These have wires which aren't traveling straight through the guide rail. Bend #3 should be changed with a bending pliers so the wire rises perfectly straight through the hole. If bend #3 is changed, then #4 must be changed correspondingly to keep the wire running straight down into the top flange. In general, bends #3 and 4 are equal, but that is not as important as it is that both vertical portions of the wire travel correctly. Incorrect travel through the guide rail will cause sluggishness and wear out the bushing, and incorrect alignment in the top flange strains and can break. underlevers. It also makes lift regulation difficult. Check bend #4 by being sure the underlever still slides freely on the wire.

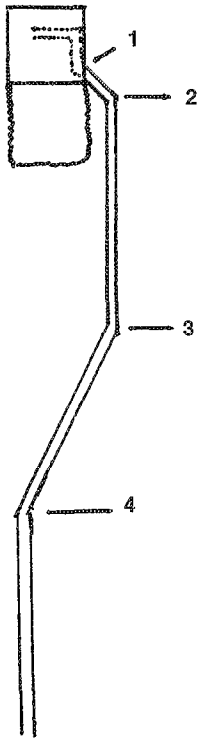
When alignment and travel are correct, the lift is set. The height of the underlever is adjusted so the damper begins to rise when the hammer is about halfway through the blow distance. Manufacturers specify the correct lift point, which should be absolutely uniform, since pianists can feel very slight differences.

Samples of the correct lift can be set by pulling or pushing the damper heads as described, or by stair-stepping a few underlevers and determining which is correct. It is helpful to set a sample in each section.

The remaining dampers can be set to match by a variety of means. The tray can be blocked up so it just contacts the samples; the screws are loosened on the others and the levers drop or the wires slide so the position is correct. Wood stock can be laid across the tray felt for a more even, solid surface.

It is more accurate to use a fixture of wood or metal, placed under the underlevers where the keys will contact them and set to height by the samples. My preference for a leveling fixture is a small block of wood with four capstan screws set in as legs. It is about 1" x 5" x 2" and spans six underlevers at a time (the only critical dimension is that it clear the dags). There is a lip on the block to stop it against the front of the underlevers so it always slides under the same distance. A longer rail with adjustable legs can also be used, or even a very small gage which sets one underlever at a time.

It should only be necessary to loosen the screw and tap the head or the top flange to break friction and get it to fall on the guide. Tighten the screws tightly, using a pliers or a captured screwdriver (having a cylindrical sleeve to hold the screw head). Using a regular screwdriver can bend the wire as pressure is applied to engage the slot. Often tightening the screws will throw the heads out of parallel to the strings. Instead of loosening the screws, grasp the wire just above the top flange with pliers and turn it to realign the heads. After the screws are tight, I slide the block out and back under, watching for low underlevers, which will "wink"; then I tap the underlevers, listening for clicks against the block which indicate any which are slightly too high.



BENDS IN A GRAND DAMPER WIRE

After lift is set by the guide, it should be checked with the hammers on every note. A small gage which measures the distance the hammer should be from the string as lift begins makes this check very quick.

If key end felts are worn it is difficult to achieve even lift, and the sostenuto tabs and underlevers will be out of line. Compromises will then have to be made to regulate pedal lift

and sostenuto function. It is better to replace the felts. In cases of slight wear, slice the key end felt and insert paper shims, rather than compromise underlever position. Fix the problem, not the symptom.

The pedal lift should be fairly uniform once the lift is set to the key. Depress and release the pedal slowly, watching for dampers which rise early or late. (There should be some lost motion between the tray and the underlevers — this is adjusted by the rod length.) Find the point at which the tray just engages the levers and tap the pedal so the dampers "bounce" — this helps to pick out unevenness in pedal lift. Shim under the tray felt with cardboard where dampers lift late; burn and scrape the felt under those which rise early. (There may be capstans to make this adjustment instead.) These adjustments should be slight; the underlevers should be in a straight line and the tray felt not so worn that drastic shimming is needed. Be fussy about pedal lift, though; it is important that pianists have uniform control without one section ringing longer than the others.

The pedal should lift the dampers the same amount as do the keys: play the notes and depress the pedal and watch for heads rising or falling as it is engaged. Blocking felt (under the keybed or in the pedal box) is adjusted to set pedal travel. The function of the upstop rail is to keep dampers from bouncing on the back of the key. It is not set to restrict damper motion by resisting the key or the panel or broken underlevers can result. The upstop should be set so that a sharp key damper has a very slight amount of upward lay left when the key is depressed. There are usually brads through the rail to help hold it in place. Do not drive these completely flush with the rail or they are extremely difficult to remove.

Trouble-shoot before reinstalling the sostenuto blade; it's easier to get at the screws and to see what is happening in the underlevers. Play each note with a hard and then a soft blow: each will pick out separate problems. The usual problem is leakage. In any section, this can be due to incorrect placement or length of felt: it is contacting a node and exciting a partial. Pluck the string to see if the ring is in all three strings of unison. A placement problem ring usually is. Touch the string lightly where the damper contacts to see if the offending ring comes from a node near the end of the felt. If so, experiment by moving the felt slightly. If not, it is likely that the head is coming down unevenly so one block isn't seating. Level the head. If the ring occurs in only one string, the head may be tilted or twisted, the blocks or the head off to one side, or the strings may be uneven. Feel across the strings to see if they are level; any which are lower than the others in the unison will ring. These can be raised by pulling up on them with a string hook near the agraffe or capo (in the speaking length). If flats continue to ring, be sure the felt is soft; sometimes peeling a layer helps (the lift must be re-regulated). Be sure that the dampers follow the string and the guide rail is eased. Stringing braid should be in place: waste lengths can be so lively they create damping problems. Hammer voicing can also affect what is perceived as damping.

Trichord dampers are full of tricks. Raise and lower them very slowly, being sure the damper head is not twisting as it rises. If one does, straighten it by turning the wire with pliers as described. Be sure the wedges are thin enough to seat between the strings; they can be pounded on an anvil or squeezed with pliers. The middle cut must be deep enough; check by plucking the two outside strings with the damper at rest, and deepen the cut with a sharp blade if necessary. One school of thought advocates inserting a piece of string to hold the wedges open; another maintains that the groove should be completely clean, even of fuzz. Experiment if necessary. Packing the fibers with pliers sometimes helps seating and noise problems — trichords can whistle and there is little that can be done if everything else is correct (using vertical grain felt helps).

Bass dampers which ring are usually twisting or moving to one side as they rise; as wedge dampers descend, both strings should be equally displaced. If not, the head (or felt) is off to one side. Front or back blocks contacting early is also common. If there is little clearance between monochords the felts may rub. These can be burned and scraped or brushed on the outside. These longer strings sometimes buzz against a neighboring damper wire — be sure the offending wire is travelled correctly. It is sometimes necessary to pound the wire between two hard surfaces to flatten it so this does not occur. Do not file the wire — swage it by pounding.

Polish the sostenuto blade and reinstall it, replacing any bushing cloth in the hangers. There should be no lubrication here. At rest, the blade should be at a five o'clock position; this is adjusted by the pedal rod length. The blade should be 1/16" above the bottoms of the tabs at rest (viewed from the front) and 1/16" away from them (viewed from above). This is adjusted by bending or moving the brackets. On Steinway pianos, the sostenuto blade is attached to the hammer action and a gage must be set to duplicate the height of the sostenuto tabs so the blade can be set (by bending the brackets) on the bench. When the rest position is correct, check the sostenuto by depressing the damper pedal, then the sostenuto pedal, and releasing the damper pedal. The sostenuto should neither raise the dampers further nor allow them to drop. The blade should also be at 3 o'clock as it engages the tabs, and extend 1/16" under them. Limit the travel of the blade with blocking felt in the trapwork; do not allow it to jam the underlevers against the upstop. With the dampers at rest, depress the sostenuto pedal; it should not wink any underlevers. Then strike each key a sharp blow. The tabs should not skip past the engaged blade and hang up. If they do, either the blade is not travelling far enough or it is misplaced. It also may be that a damper wire is bent forward or back so the tab is out of line. Correct by pulling or pushing on the wire to bend it — don't trim the tab! Most sostenuto tabs are hinged or flexible, but those which are fixed will bump slightly against the blade on the hard blow test; this is unavoidable. If the blade is correct but underlevers still skip past, recheck the upstop rail.

After troubleshooting is complete, recheck the lift regulation.

By now I hope you have an understanding of a grand damper system and are confident to perform this somewhat meticulous work. Even if you never intend to rebuild a damper system, the more you understand it, the easier any damper work will be.

50 Point Guide To Grand Regulation: Part XXVII

Step #41 Rebush/lube pedals and trapwork

This step is divided into two parts. Part I deals with the lyre and pedals. Part II concerns the trapwork. So important is the pedal/trapwork system that it should not be left unattended, ever. Each time a piano is serviced, whether it be for regular tunings, or for minor or major repair and regulation, the pedals and accompanying systems should always be checked. As I sit down to a piano for regular tuning and maintenance, I always take a quick look inside to see how dirty the soundboard is, making note of how old the piano is and what model or size it happens to be. As I install the felt muting strips, I first depress the sustain pedal to raise the wedge dampers, to keep them from getting pinched while installing the muting strips. While depressing the pedal, I make note whether it squeaks, feels out of adjustment, or possibly if the entire lyre assembly is loose or needs repairing.

If anything seems to need attention, I correct it before I proceed any further. Only a minute is needed to wiggle the three pedals to see if they are loose. While down there, look over the lyre to check if any glue joints seem to be breaking loose, and also check the condition of the felt and leather of the trapwork. When the pedals are found to be loose, the lyre is usually in need of being removed. The exception is for Steinways, or any other make where the pedals can be removed independently of the lyre. One of my lesser desires in life is to have to reinstall a Steinway, so if I don't *have* to remove it, I won't! How one person can hold a lyre up off the ground, make sure that two lyre braces fit into their proper slots, and still have a free hand to join the lyre to the connecting plate under the keybed is a wonder to me. Anyway, proceeding with Steinways, remove the plate in front of the pedals, keeping the screws orderly so that they can be installed into the same holes. Disengage the pedal rods from the back of the pedals and pull the three pedals out. Each pedal can be worked on separately. Unscrew the plate on the bottom side of the pedal and check the condition of the felt bearing. New Steinways have a nylon sleeve instead of felt. The nylon seems to wear out quickly, so I only use good grade key bushing cloth when refelting these pedals. Cut a strip of bushing cloth, put some VJ lube on the area of wear, and tighten the plate back onto the pedal.

Of all the pianos I work on, the Steinways are my favorite for repairing the pedals. The above procedure can't take much more than five minutes. I carry strips of bushing cloth precut to fit Steinway pedals in my tool case to speed this repair even more. However, if the pedals are accessible from the bottom of the lyre, the lyre must of course be removed. Before turning the lyre upside down, take the three pedal rods out and lay them somewhere in *order.* There is nothing like getting the pedal rods mixed up for wasting time and effort! Unscrew the lyre box bottom, marking it if needed to reinstall it properly. The most common type of system used in this kind of a lyre is where the pedal pin slides inside a wooden dowel. Again, before removing, number these dowels to insure that they don't get mixed up. Also check to see if the exposed ends of the dowels are level with the lyre box. If not, they may become noisy. Glue shims onto the dowel to bring it up level. Rebush the dowel if needed, and lube with VJ lube. After reinstalling the pedals, check to see whether they have proper clearance in the pedal slot. Cloth balance rail punchings can be used to adjust the pedal right or left as needed. Note that the felt trim in the pedal slot is not meant to guide the pedals.

I remember years ago working on my first lyre like this. I didn't have the foresight to number the dowels before I removed them. Neither did I pay much attention to the fact that the holes in the dowels were not centered, but rather off-set along the length of the dowel. I reinstalled the pedals, put the lyre back on the piano, and then I checked to see how good a job I had done! One pedal which had the dowels wrong end in didn't even work! Another one scraped against the pedal slot. The third worked, but it was tilting! If you figure up six dowels times six possible slots for them to go in, the total number of possibilities is thirty-six. I spent quite some time changing these dowels around until I got the pedals to work again.

Check the pins on the pedals to see if they have been bent. This often happens with an over-zealous male pianist. Straighten this pin or else replace it. Examine the pedal cushions, replacing them if they are worn or hard. Screw the pedal box bottom back onto the lyre, making sure that each screw is quite snug. Check the pedal rod contact point at the back of the pedals. On pianos like Knabe, the rod has a collar which rides on the pedal. Make sure that it is cushioned by a felt punching. If the rod rides in a hole in the back of the pedal, a piece of leather or rubber must be in the bottom of this hole to eliminate noise.

If the pedal rods are brass, use metal polish to shine them up. This helps cut down on noise. For plated rods, check to see if the plating is pitted. Polish these as well. Is the felt bushing in the pedal rod guide worn? Or more commonly with new pianos, is the felt hard from excessive glue? Rebush if necessary. Set the lyre aside.

Now we come to part two, lubricating and releathering the trapwork. The first step is to pull all of the hinge pins, removing the levers. The pins should be cleaned, polished, and coated with a light film of VJ lube. While the levers are out, tighten any screws on the bearing blocks. Clean and lube these blocks as well. Clean and lube any springs. If the pitmans slide inside a felt bushing, remove them. For brass pitmans, clean them, and polish with a metal polish. I prefer

Continued on following page

After Touch

David Pitsch, RTT
Utah Valley Chapter

not to lubricate the brass pitmans. If wooden pitmans are used, take a graphite stick and burnish the entire pitman. Do not use any other lubricant.

Examine the trapwork levers. Are the holes which the hinge pins go through enlarged? What condition is the leather in? When the leather has worn, I like to replace it with a new piece. Sole leather, as used in shoes, is the best for this purpose. I buy the thickest I can get. It is easy to sand it down thinner if need be. I dislike seeing more than one piece of leather used. Have you ever seen a piano which does not have an adjustable pedal rod? After many years of playing, the original leather at the sustain pedal lever had a hole worn in it from the constant impact of the rod. I have seen backcheck leather, old hammer trimmings, back rail felt, and even felt punchings glued in place to take up the lost motion! For these pianos I not only remove the old leather and glue on new, but I replace the pedal rod with one of the adjustable type. This makes adjusting the rod length much easier, but more important, the top of the rod which impacts the leather is much bigger than the rod itself. This keeps the leather from having a hole punched into it over many years of playing.

As a nice finish to step #41, I would like to state my views on how the pedals and trapwork look. Especially if the piano is in the shop for major rebuilding, I like to paint the trapwork and underside of the piano. Flat black is best. The customer may never see this other than when the piano is moved back into their home. But what a nice impression it makes! Similarly, I like to have all of the metal replated on the piano. Not only should the pedals be replated, but also the pedal rods, casters, hinges and screws. This may cost a little, but in the long run it is well worth it.

Bass String Basics

Continued from page 23

unnecessary nicks or damage to the copper — it is quite soft. Take care in getting the wire on the correct pin and cutting same. Vise grip pliers are useful in keeping the loop end on the hitch pin. It's embarrassing to cut a bass string only to discover it had jumped off the hitch pin before it was cut and now it is two inches shorter than it should be.

Twisting of the wire was discussed earlier and now this point will be clarified. It is recommended procedure to twist the bass strings upon installation. After the coil is formed at the tuning pin and the wire is still hung loosely, unhook the loop end (at the hitch pin) and rotate with the direction of the copper winding to tighten it. Standard procedure is a half turn on double wound and full turn on single wound strings. This is the same procedure to use to eliminate rattling or buzzing sounds from bass strings. I recently encountered a situation where the entire set of bass strings on an imported upright were quite dead-sounding — "lifeless." After narrowing the problem down to the strings I experimented by putting a twist in a couple of samples. The results were astonishing. I proceeded to restore the tone of the entire set with this method and the customer became quite pleased with the instrument.

When pulling the wires to tension, take care not to pull beyond pitch. Also, before final tuning tap all loops down to seat them on the plate around the hitch pins. Do this with a dulled screw driver with light taps. The palm of the hand is generally sufficient. This same procedure should be part of in-store tuning of new pianos.

Upon closing I would again like to point out that the final results depend upon you and the information you give the string makers. They won't ever see your piano and have no idea what shape it is in or what has occurred through the years. They are dealing with your pattern and those samples you sent in. Don't forget, those samples are now in a relaxed condition which isn't the same as when they are drawn up and stretched out in the piano. And, for that reason, there are times when accurate speaking length measurements might become very important.

Again, on that questionable topic of rescaling, it does take longer for the string winder to decipher your charts and there should be additional compensation as a result. If they question your figures, listen to what they have to say — they might just have a point. If you insist your figures are correct and they produce strings accordingly and the results are not as expected, don't put the blame on them, they are only doing what you asked of them. If there are some variations from your calculations, remember that the copper sizes may not have been available to them and there are also problems that arise in producing any product manually.

You might go a step further and inquire directly with various string makers to determine which are most agreeable to work with as far as your methods are concerned. Also, don't forget to question them regarding the replacement of aluminum or steel wound strings if you feel there is reason to adhere to that particular scaling.

INDUSTRY NEWS

Al Bianchi, Steinway Salesman, Sets Sales Record

NEW YORK — People who attain great levels of success and achievement are invariably labeled as having been born with some spark of greatness. Al Bianchi, who recently set a record of selling over $1 million worth of Steinway pianos in a year to private customers, doesn't subscribe to that idea at all.

Bianchi has been selling pianos at the Steinway store on Manhattan's West 57th Street for 35 years. He maintains that the $1 million sales feat involved no magic formula.

He leans across his kidney-shaped desk in the salesroom of Steinway Hall, the retail sales headquarters for Steinway pianos in the New York City area, and explains: "I accomplished it by treating customers the way I like to be treated myself."

In carrying out that credo, Bianchi's involvement with a customer often doesn't end when a sale is made. For example, when the distinguished pianist Don Shirley recently purchased a model D concert grand, Bianchi became aware that its size would pose delivery problems. So he not only arranged for special riggers to hoist the piano to Shirley's 8th floor apartment above Carnegie Hall, but made it his business to be on hand to supervise when the installation took place.

Virtually all the pianos he sold in attaining the sales record were destined for home use, with no institutional sales. This made the achievement even more significant.

Music and pianos have been a part of Bianchi's entire adult life. He started playing the piano at age 16, later became a cocktail pianist and subsequently formed his own big band, "The Esquires," which performed regularly at major hotels and clubs in the New York area.

Music, and the joy of playing the piano, says Bianchi, are major motivations in purchasing a piano. Therefore, he rarely embarks on highly technical discussions about the piano with a prospective customer. "They're not interested in the number of pounds of string tension at the treble end," he adds.

The typical Steinway customer, he said, is usually not a first-time piano buyer. "They are primarily interested in the instrument's esthetics and quality, its touch and the beauty of its tone, and, of course, its price."

Stacked neatly on Bianchi's desk are hundreds of file cards with names of prospects. He daily reviews these cards, calls prospects to determine their status, and regularly mails them literature about the Steinway piano. That literature gives the prospect more information about the Steinway.

His persistence usually pays off. From that group of cards he plucked one with handwritten entries reflecting scores of phone contacts going back to mid-1977. The final entry was the purchase of a Steinway grand piano in June 1982.

Bianchi treats every prospect as an inevitable customer. A casually dressed 14-year-old walked in one day and said his mother and father wanted him to look at a grand. Bianchi showed him the complete selection of new grands throughout the store. The young man tried out many pianos, and came back several more times. Ultimately a Steinway was purchased.

Bianchi instinctively sells pianos wherever he may be. For example, some years ago he regularly frequented a coffee shop across from Steinway Hall on 57th Street. In the process, he struck up an acquaintance with the shop's youthful dishwasher. "When I told him what my job was," said Bianchi, "he replied with a smile, 'Someday I'm gonna buy one of those pianos.'"

Today that dishwasher is one of the legion of Al Bianchi's satisfied customers.

Sound Background

Jack Greenfield, RTT
Chicago Chapter

Early Tempered Keyboard Tuning

INTRODUCTION OF TEMPERING

The practice of *tempering* or varying slightly the pitch of piano intervals in keyboard tuning can be traced as far back as the fourteenth century, the period in which the fully chromatic keyboard reached its present form and when the first keyboard stringed instruments were introduced. A document written in about 1373, author unknown, prescribes the organ pipe length for a tempered chromatic note as midway between the lengths of its diatonic neighbors spaced a Pythagorean whole tone apart.

The problems of the harsh and uneven intervals of the traditional Pythagorean and later just tunings became especially troublesome for keyboard instruments as they rose in importance. Harps were in the same situation but occupied a position of lesser importance in music. On the other hand, this is of no concern for vocalists, violinists and many other instrumentalists with some flexibility of intonation who can inflect their tone at different shades of pitch giving best intonation for a particular passage. In many situations, the performer's vibrato is wider than the pitch difference of corresponding enharmonic equivalents.

The tuning of keyboard instruments by Pythagorean fifths and octaves with a monochord for guidance was quite an inaccurate process. It was difficult to match the pitch of the monochord closely by unison tuning. In addition, the tuning of the monochord itself contained errors. However, the tuners did not depend on the monochord. Instead they used aural judgment in making slight variations to get the best sound. During the fifteenth century, it became a common practice to tune with a cycle of slightly flattened fifths, thereby reducing the width of the major thirds to give them a smoother sound.

The earliest keyboard compositions showing evidence of departure from strict Pythagorean tuning are found in the music of Conrad Paumann, a blind German organist active during the mid-fifteenth century. Paumann's compositions were the first showing a definite keyboard style in contrast to earlier organ music written in the style of vocal scores. The harmonic structure including triads indicates the use of a temperament providing harmonious major thirds.

TYPES OF TEMPERAMENT

It is customary to refer to systems of tuning with tempered intervals as *temperaments*. Systems with wholly pure or just intervals such as the Pythagorean or Ramos pattern are referred to as *tunings*. Temperaments can be classified as follows:

Equal: All fifths are tempered equally by 1/12th (about 2¢) of the Pythagorean comma. This produces rapid-beating major thirds, 16¢ sharper than pure major thirds. There is no wolf fifth.

Regular: All fifths, except one, are the same size. *Meantone* temperaments are regular systems of tuning in which fifths are flattened to a greater extent resulting in narrower thirds which sound smoother than in equal temperament. As a result of the reduction in the size of the fifths, the final wolf fifth closing the circle is considerably larger than pure in contrast to the Pythagorean wolf fifths which are smaller.

The degree of tempering is indicated as a fraction of the syntonic comma (22¢) unless indicated otherwise. In strict usage, "meantone temperament" refers to 1/4 comma meantone with fifths tempered at 696.6¢ to give pure major thirds. However the name can be applied also to other regular temperaments with fifths tempered by a different amount as indicated by the fraction of the comma. The name meantone is derived from division of the major third into two equal whole tones. The pure major thirds (386¢) of 1/4 comma meantone are divided into 193¢ whole tones. In just tuning, the division is unequal — for example, CE is divided into C:D (9:8 = 204¢) and D:E (10:9 = 182¢). In other types of meantone, although major thirds are slightly smaller or larger than pure, they are divided into two equal whole tones also.

Irregular: Temperaments in which the fifths are tempered to several different sizes selected so as to favor the more frequently used major thirds.

EARLY PUBLISHED TEMPERAMENTS

In spite of the spread of tempered tuning in practical music during the preceding century, many theorists showed little interest until the early decades of the sixteenth century when the problems of Pythagorean intonation in keyboard tuning could no longer be ignored. Bitter controversies soon developed between those who felt musical progress would be better served by complete abandonment of old principles and those who favored more conservative changes.

The first temperament known to have been published was presented by Arnold Schlick in 1511 in his book *Spiegel der Orgelmacher und Organisten.* It was different in that it gave directions for aural tuning and was not in the form of a monochord pattern. Schlick, court organist of Heidelburg, gave details of a method he developed for actual performance.

His directions, somewhat vague, indicate an irregular system lying somewhere between meantone and equal temperament. Ten of the fifths were flattened and two were raised resulting in major thirds only slightly larger than pure.

The next temperament in print appeared in 1518 as a mathematical exercise in an appendix in a book on arithmetic by a German mathematician, Heinrich Schreyber, better known by the Latinized Greek version of his name, Henricus Grammateus. He received his master's degree from the University of Vienna in the same year.

Grammateus described a theoretical method for dividing Pythagorean whole tones (204¢) on a monochord into two equal or mean semitones (102¢). This was a geometric procedure giving exact results; only approximations could be obtained arithmetically. Grammateus presented his monochord method for the purpose of sizing organ pipe lengths. The change he made was basically simple. Instead of a single whole fifth of the pure Pythagorean cycle, he split the Pythagorean comma between the fifths B-F$^{\#}$ and B^{b}-F. The diatonic notes are tuned in a sequence of pure fifths and fourths beginning with F and the chromatic notes are tuned in a sequence of pure fifths and fourths beginning with F$^{\#}$/G^{b}.

ARON'S MEANTONE TEMPERAMENT

Although Ramos had written about the use of meantone forty-one years earlier, directions for tuning a regular meantone temperament were first published in 1523 in a book by Pietro Aron. Aron, born in 1490, became one of the most important writers on music theory during the first half of the sixteenth century while in the service of the church. His book, *Toscanello in Musica* contained a chapter giving a method for direct aural tuning of the harpsichord. Aron's text, vague in some respects, has been interpreted as 1/4-comma meantone temperament; however, some scholars give credit for introduction of 1/4-comma meantone to later theorists who provided more specific details.

Aron's procedure started with E tuned pure to C. Next, G D and A were tuned to form the equally flattened fifths (or corresponding widened fourths) C G, G D, D A, and A E. Going in the opposite direction, F, B^{b}, and E^{b} were tuned as fifths or fourths tempered the same amount. The remaining notes B, F$^{\#}$, C$^{\#}$, and G$^{\#}$ are understood to have been tuned as pure major thirds to G, D, A, and E, respectively. In variations of the tuning method that appeared later, F, B^{b}, and E^{b} are tuned as pure major thirds to A, D, and G, respectively, or B, F$^{\#}$, C$^{\#}$, and G$^{\#}$ are tuned by continuation of the sequence of tempered fifths or fourths. The following table shows Aron's temperament with exponents to indicate the tuning cycle relationship and interval size in cents:

Grammateus' Monochord — Pythagorean with Mean Semitones (Cents above low C)

	C$^{\#}$/D^{b}		D$^{\#}$/E^{b}		F$^{\#}$/G^{b}		G$^{\#}$/A^{b}		A$^{\#}$/B^{b}		
C		D		E	F	G		A		B	C
0	102	204	306	408	498	600	702	804	906	1008	1110	1200

In strict Pythagorean tuning, enharmonic sharps and flats are 24¢ apart (see table, page 24, "Pythagorean Chromatic Scale," October 1982 *Piano Technicians Journal).* The Grammateus chromatic notes lie exactly midway between the Pythagorean enharmonic sharps and flats. There is no change in the diatonic semitones EF and BC (90¢). Grammateus' temperament is rated highly from a theoretical standpoint although its use may have been limited. Jorgensen (*Piano Technicians Journal,* January 1978, p. 19) lists it as applicable to English keyboard music from the early 16th century to 1695.

Starting on E^{b} and ending on G$^{\#}$, the exponents show each successive fifth or fourth tempered by 1/4 comma. The wolf interval linking G$^{\#}$ to E^{b} closing the tuning circle has a value of 463¢, over 1/3 of a semitone flatter than a pure fourth. The diminished fourths, C$^{\#}$ F, F$^{\#}$B^{b}, G$^{\#}$C, and B E^{b} have the approximate value 427¢, 41¢ greater than the corresponding enharmonic pure major thirds. This is due to difference in pitch or *diesis* of enharmonic sharps and flats. For example, the figure for G$^{\#-2}$ in the preceding table is 773¢. The corresponding enharmonic note A^{b+1}, tuned a pure major third below high C^{o}, has the value 1200¢-386¢ = 814¢. The diesis also appears as the difference between an octave and the sum of three pure major thirds (1200¢ – 3x386.3¢) = 41.1¢.

In 1/4 comma meantone, the interval ratio for a pure major third, for example $C_{28}E_{30}$, is 5:4. Tuning upward with the series of tempered fifths C G D A E, gives the ratio of C_{28} to E_{46} two octaves and a major third higher, of 5:1. The interval ratio for the tempered fifths is therefore calculated as the fourth root of 5, approximately 1.495, compared to exactly 1.5 for just fifths.

Although theorists continued to cling to just tuning as ideal from a theoretical viewpoint, meantone in 1/4 comma and other forms was soon widely accepted because it gave more resonant harmonious intervals and chords in the music of time and the music which continued for several centuries in keys with few sharps and flats, with few chromatic notes and with modulations that avoided wolf intervals. Except where otherwise indicated for some specific types of music, Jorgensen suggests 1/4 comma meantone temperament for most keyboard music from the early sixteenth century to 1722.

Aron's 1/4 Comma Meantone Temperament (Cents above low C)

	C$^{\#-7/4}$		E$^{b+3/4}$		F$^{\#-3/2}$		G$^{\#-2}$		B$^{b+1/2}$		
C^{o}		D$^{-1/2}$		E^{-1}F$^{+1/4}$		G$^{-1/4}$		A$^{-3/4}$		B$^{-5/4}$C^{o}	
0	76	193	310	386	503	579	697	773	890	1007	1083	1200

1982-1983 MEMBERSHIP/BOOSTER CLUB

Membership Is Everybody's Business

Dick Flegle
Central West Regional
Vice President

DYNAMITE..... a powerful explosive..... Webster's new International Dictionary states that it is an explosive made of nitroglycerin absorbed in a porous material. Every time I think of, or see in print, the theme of our membership drive this year: MEMBERSHIP IS EVERYBODY'S BUSINESS..... WOW! . . . . what explosive power wrapped up in four little words.

The basis of my excitement is in likening the nitroglycerin to our great Piano Technicians Guild and each of us individually being the porous material. Do you get the picture? When the Piano Technicians Guild is ABSORBED by each of us..... we are DYNAMITE. Now that is exciting.

Now I know that in the majority of cases, we are independent technicians. We thrive on building our business enterprise without sharing all the detailed facets of development and success with the outside world. Age-old sayings keep popping up in our thoughts . . . "It's none of your business," or "Mind your own business." Relatives and friends keep asking "How's business?" It's because they are interested in you . . . even the IRS is interested . . . .

Many, if not all, non-members are interested in your business. They see financial success, mental serenity and joy of living. You alone hold the key to sharing your good fortune with them. It has been said many times that if each of us would contact and sincerely encourage *one* non-member this year, heaven only knows what beneficial impact our Guild would make on society . . . far beyond what is apparent today. Come now and join our "explosive task force." Help find that one to carry one when you retire. By *giving* them opportunity . . . you will *receive.*

I trust that this little chat we have had has lit the "fuse of motivation" which will result in a tremendous explosion within you to share your acquired knowledge and expertise in piano technology with someone who will appreciate the fact that Guild "MEMBERSHIP IS EVERYBODY'S BUSINESS." Reach out to someone today..... I appreciate your feeling the same enthusiasm I do for Piano Technicians Guild.

Booster Club	Pts.	Mbrs.
ALLEN, Jon	1	1
ATHERTON, Olan M.	1	1
BANTA, Norman	5	1
BECK, Jacqueline	3	3
BITTINGER, Richard	6	2
BLANTON, Tom R.	1	1
BOURDON, Donald W.	1	1
BOYNTON, Richard B.	1	1
BROWN, Glenn	1	1
CALLAHAN, James	4	1
CASWELL, Alan R.	5	1
CRABB, Larry	3	3
DENNIS, Robert R.	4	1
FREIDIN, Irving	5	1
GARRETT, Joseph A.	1	1
GEIGER, James B.	1	1
GRIFFIN, Rudolph	5	1
GRIFFITH, M. Laverne	1	1
GUSTAFSON, David	1	1
HAINES, Roy	3	1
HALE, David	1	1
HALE, Robert	5	1
HARMON, Clayton	1	1
HAWKINS, Marshall B.	5	1
HOSTETLER, Robert	1	1
HOUSTON, James	4	1
JORDAN, Wayne	1	1
LAGOY, Martha M.	4	1
LEARY, Janet	1	1
LOEFFLER, W.J.	4	1
KEYES, Otto R.	4	1
MACKINNON, R. Taylor	1	1
MARTIN, Edward E.	1	1
MASTAGNI, Angelo	3	1
MAYR, Vitus J.	5	1
MEISSNER, Walter	1	1
MILLS, Fred	1	1
MOBERG, Jonathan	4	1
MONROE, Paul	1	1
MOORE, Robert	1	1
MURRAY, Samuel	1	1
PENNINGTON, David L.	1	1
PHILLIPS, Webb	5	1
PREUITT, Ernest	4	1
QUINT, Richard B.	1	1
SANDERS, Charles	1	1
SCIORTINO, Joseph	8	2
SILVA, E. Michael	4	1
SMITH, Sheldon P.	3	1
SNYDER, Willis	5	1
STONE, Sidney O.	1	1
THOMAS, H. Vince	4	2
THOMPSON, Treacey	1	1
TUBLITZ, Evan	1	1
UPHAM, Russell	1	1
VERHNJAK, Karl	6	2
WALSHE, Robert C.	5	1
WHALEY, Denzil	1	1
WILEY, John	5	5
WOLF, Bob	4	1
WOOD, Edwin	2	2

Restorer's Club
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Houston, TX 77008

Orange County Chapter
DAEHNERT, Ray H.
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CLINE, Greg E.
Rt 1, Box 143 A
Belmont, NC 28012

Member At Large
SHERROD, Michael R.
3401 Cardinal Lane
Midland, TX 79703

The International Scene

Fred Odenheimer, Chairman
International Relations Committee

"Journey into China" is a book recently published by National Geographic. It is full of wonderful photographs with text, showing the places you will see in China. If you really want to enjoy your trip to the Far East, you should acquire this book and read it before going, and I am sure your total impressions will be much more vivid.

Kenzo Utsunomiya and his family went back to Japan. We were sorry to see him leave, because he was "Mr. Communication." For the time being, we will have to do without him in this capacity; however, thanks to him, direct IAPBT correspondence is in good shape. If necessary we can always learn from our Japanese friends and use the phone.

According to a letter by Mr. Ogio, Chairman of the Convention Committee, dated Oct. 22, 1982, preparations for the IAPBT meeting are in full swing. They are expecting some 70 persons from overseas and this should be pretty much on target especially if we consider participation from other countries, mainly Australia. We are now just four months away from departure, and time for your decision to be part of a great experience is now. You know all about the tours and you have a number of choices to fit your needs. JPTA has extended the receipt of registration fee to March 15, 1983. Recently, the son of one of our Suisse Colleagues visited us, and we derived a lot of enjoyment from his stay. While he does not intend to follow his father's footsteps into piano technology, his visit was an outgrowth of international relations. Our involvement in this brought many friendships in faraway countries, the same as we made friends throughout the United States through our membership and active participation in Piano Technicians Guild. It is wise for all of us to take advantage of the opportunities at our disposal and enlarge our horizons.

IAPBT tour to Japan: contact Fred Odenheimer, 15358 Wyandotte St., Van Nuys, CA 91406, or Northridge Travel Service, 9700 Reseda Blvd, Northridge, CA 91325, attn. Tova Weltman.

ORIENT TOUR: IMPORTANT

This is the tour planned by WRVP Dan Evans at the request of the Board of Directors for Piano Technicians Guild members. NOT to be confused with Fred Odenheimer's trip to Japan for those visiting the IAPBT meeting who may not all be Guild members.

The charges for the Piano Technicians Guild tour planned by Dan include registration to the IAPBT conference and all other expenses except a few dinners in Japan. See brochure in centerfold of October issue ahead of "ASK MR. FOSTER TRAVEL SERVICE HAS BEEN RETAINED TO HANDLE TOUR ARRANGEMENTS."

Auxiliary Exchange

PRESIDENT'S MESSAGE

Dear Members and Friends of the Auxiliary,

Here we are, around to January already. For most of us January is a time to reflect about the year just past and to make some plans for the new year we are beginning. January is necessarily not as flamboyant or thrilling as December was, but neither is it as hectic. As we know, December can be especially hectic for people in the piano service trade. Those of us who are not the technicians but who must also plan our activities with regard to the technician's schedule are also affected by December's hectic pace and pressure.

Now that we are in January things should be different — or perhaps they won't be. If you live in a cold climate your customers are still going to be spending a lot of time indoors. If a family is snowbound for awhile they will usually end up playing the piano, and the piano will drive them up the walls if it is terribly out of tune. Looking back through our business records one year I discovered that January, February and March in Indiana are still almost as busy as November and December. There are not as many rush jobs after the holidays, and we are not trying to sandwich so many other activities in with the piano tunings, but the volume of business is still there.

I mention this because it is one of the nice things we can look forward to in January, especially if January is bleak and cold where you are. The business will keep coming in and so will the money. Retailers will be holding lots of sales and doing all they can to bring the now-weary shoppers back into their stores. People who sell Christmas trees have to shut down their businesses completely in January. Even my friend the dressmaker dreads the winter months because many of her customers cancel their appointments if the weather is bad, and a big snowstorm can completely shut off her cash flow. Other businesses may face a slump at this time of year but people still seem to call the piano technician.

If you and your technician have been wanting to make some special plans now may be the time to tuck away a little extra money to make those plans happen. Now is the time to think about next summer's vacation. Now is the time to decide if you are all going to go to New Orleans in July or if just the technician will attend. Now is the time to picture whether you want to go a few days early or stay a few days longer so you can see the sights of the city and have a fun time together. It will be much easier to tuck away a few extra dollars now than it will be in April when income taxes are due or in June when your customers aren't bringing you as much income as they probably are now.

I'd like to picture you sitting together before a crackling fire (or under a palm tree if you live in the Sun Belt), musing over the events of the day before turning your thoughts to plans for the future; all the while you can be grateful for the calm January evenings which follow the fast-paced December schedule. In January we can reflect about the condition of our respective businesses, we can plan together new directions we might want to take in the coming year, and we can think of things we want to do with the money the business is bringing us.

Enjoy January!

Julie Berry

FROM THE FIRST VICE PRESIDENT

LIFE IS EXCITING! Looking back over the year of 1982 brings a flood of memories! Some good — some wonderful — some not so good — a few could be classified as downright bad! It's the good and wonderful we want to remember — and only learn from the "not so good" and then forget them. "Not so easy," you say! You're right, but it takes practice and determination. A better word is probably "discipline." Discipline to learn from our mistakes and grow with the memories of many many good things! So much depends on us! How are your feelings today while reading this article in the *JOURNAL*? I hope you are counting your blessings and looking back over this past year with great enthusiasm. Even the change of

seasons is exhilarating — most recently the beautiful fall — the turning of the leaves — the harvest of fruit and vegetables — the spicy scent of fresh summer squash, onions, tomatoes, green beans and peppers filling the house . . . a potpourri from our backyard garden. Perhaps you are remembering the family being all together at Thanksgiving or Christmas — the children all home from school — the sounds of everyone being together. For you who attended the convention in Washington, you may be remembering the good times, the new friends, the all-day tour, the great hospitality room we had for the Auxiliary and the excellent programs. I remember a beautiful night having dinner at the Roof Top Terrace of the Kennedy Center, on the Potomac with three of my favorite people! What a refreshing time to reminisce. Another year has gone by! Feel good about it!

So — what do we do about the new year before us? Let's think about it! Sit down right now, by yourself, pencil and paper in hand. Jot down some things you would like to see happen in the year 1983! Set some goals! If you have never been a person to set goals, begin immediately, January 1983! You will be amazed. Write them down, carry them around with you, look at them often, tape them by your kitchen sink — plan and get excited about them! I'm not talking about New Year's resolutions, but meaningful, exciting goals for the coming year. Make sure some of them include personal achievements for you as a woman (we still have no male members in our PTGA). Make time for yourself each week and do something special for you. Remember when you are doing this how very special you are as a woman! Keep your mind alert by reading or perhaps you could take some classes, academic or hobby, to expand your horizons. Don't allow yourself to become stale or uninteresting as a person this new year. You are the only one who decides how vibrant and positive you will be. The last but certainly not least — in fact, perhaps the most important — suggestion is to develop the habit this new year of doing something for somebody else. You do not need a special occasion to help someone. Bake something for a neighbor, volunteer some time at a home for the elderly, send someone a note and tell them how much you appreciate them. On and on we could go. You know this, but it is worth repeating — and that is the best way to forget your problems . . . physical, financial, family — whatever — is to get involved doing things for others. It works — try it!

In your planning for the coming year, don't forget your support for your local Piano Technicians Guild Auxiliary as well as our National Auxiliary. Include in your goals our Convention next July in New Orleans. I'll be doing all of these things with you!

The years pass by swiftly! Make 1983 a special one for you and yours. A SPECIAL HAPPY NEW YEAR FROM THE AUXILIARY FAMILY TO EACH OF YOU!

Belva Fiegle

SHARE YOUR THOUGHTS

Drop us a line and share some of your ideas about the Auxiliary, this column, or life in your part of the world. Direct your letters to Julie Berry, 6520 Parker Lane, Indianapolis, IN 46220.

DUES ARE DUE

Remember we are now operating on a calendar year basis for the collection of dues. If you have not yet paid your 1983 dues kindly send them to Ginny Russell, Auxiliary Treasurer. Dues are $5/year.

AUXILIARY PINS

Auxiliary pins may be purchased from the treasurer for $2.50 each while the current supply lasts. Direct your requests to Ginny Russell.

Classified Advertising

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

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

Send check or money order (U.S. funds), made payable to the Piano Technicians Guild, to Classified Ads, THE JOURNAL, 1515 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

SIX FOOT GRAND made by Gustav Rosler of Vienna in 1904. Rebuilt six years ago (new block, strings, and plate and board refinished). Hammers are approximately 20 years old. Piano has unique scale and excellent tone. $4,500. Contact; **Robin Olson, 2219 Dartmouth Dr., Alexandria, VA 22307. (703) 765-1254.**

TELECTRA PLAYER PIANO — very rare. Kranich Bros., 5'-6" Telectra art case grand with 88 note Telectra player system, 40 brass rolls, 7" long and very ornate matching kidney bench. Piano is in very good condition. Player system is in good working condition. Make offer. **John Wheat, 1953 Bower Hill Road. Pittsburgh, PA 15243. Phone (412) 279-4972.**

BALDWIN CONCERT GRAND SD-10 #202166. 9 years old, ebony. Magnificent instrument. Recently replaced hammers and key bushings. $17,500.00. Write **Lesley Taylor, Horsepen Hills, Maidens, VA 23102, or call (804) 784-3938.**

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

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EARPLUGS protect against hearing loss around power tools, engines, loud music; these actually expand to any ear canal shape for best noise reduction available. Three pairs, $3.25, dozen pairs, $8.50, postpaid. **Larry Gibson, 8121 Sinclair Mill Road, Manassas, VA 22111.**

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PETERSON STROBE TUNER, Model 420, used one year, perfect condition, $225. Yamaha PT-4 Electronic C.R.T. Tuner, used 3 months, like new, $575. **Alan Grayson, P.O. Box 184, Tallman, NY 10982.**

WANTED

WANTED: A tool case, Clarinet case size. **Robert E. Musser, 547 Normandy Way, Grand Junction, CO 81501. (303) 242-5872.**

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MISCELLANEOUS

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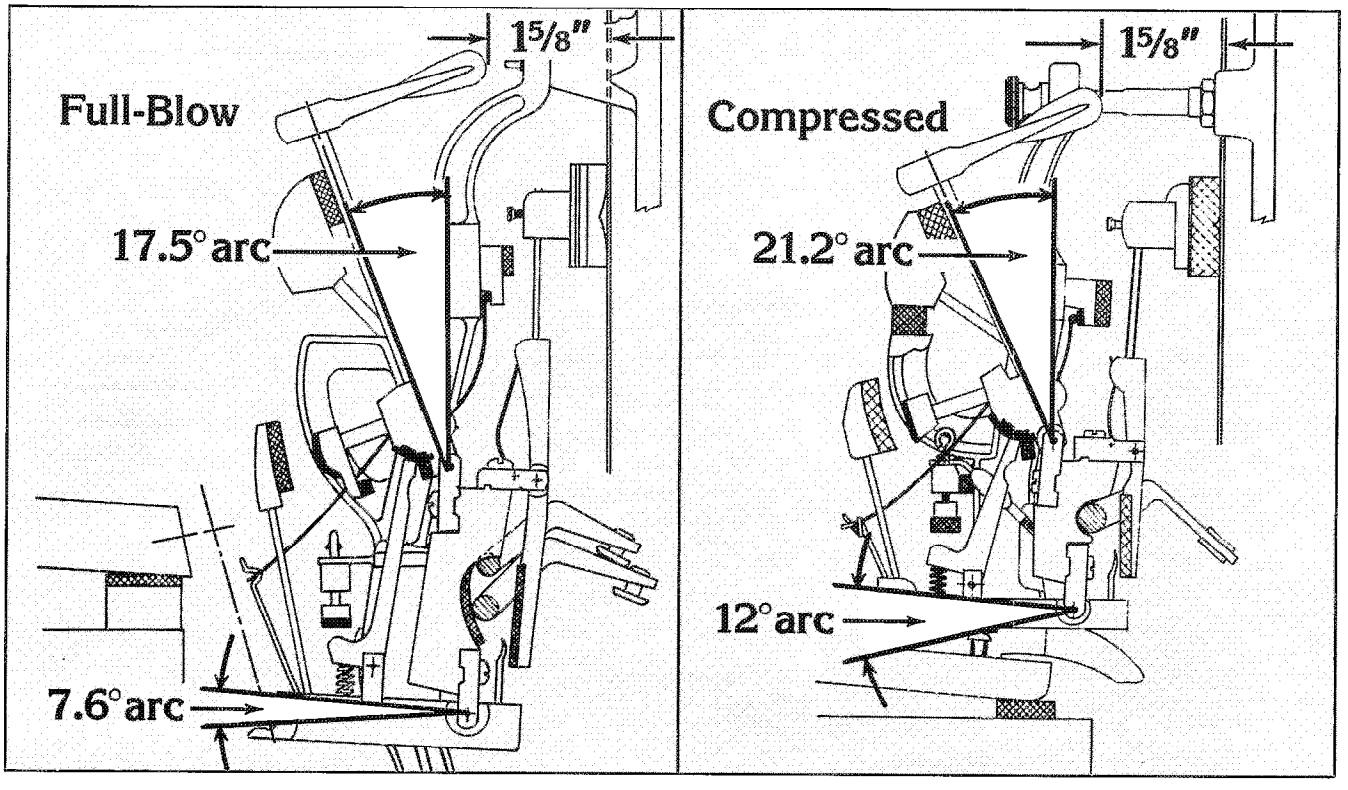
True, the compressed action is somewhat easier to remove and replace. But it has the built-in disadvantage of operating on greater arcs of motion, with added rubbing friction. That means less dependability and far more frequent service. In our Full-Blow Action our full-size parts travel on smaller arcs of rotation so there is less wear on the action centers.

Again, because of the greater arcs of motion, the compressed action has a reduced rate of repetition. In contrast, our researchers have found that our Full-Blow Action repeats at an average rate that is 23 percent faster than a compressed action.



In summary our Full-Blow Action adds up to a very impressive advantage when it comes to tonal performance — consistent full-power blows from full-sized parts, reduced wear on action parts, and an extremely fast repetition rate.

Sixth in a series of informative ads on piano tone published by Baldwin exclusively for the benefit of piano technicians.

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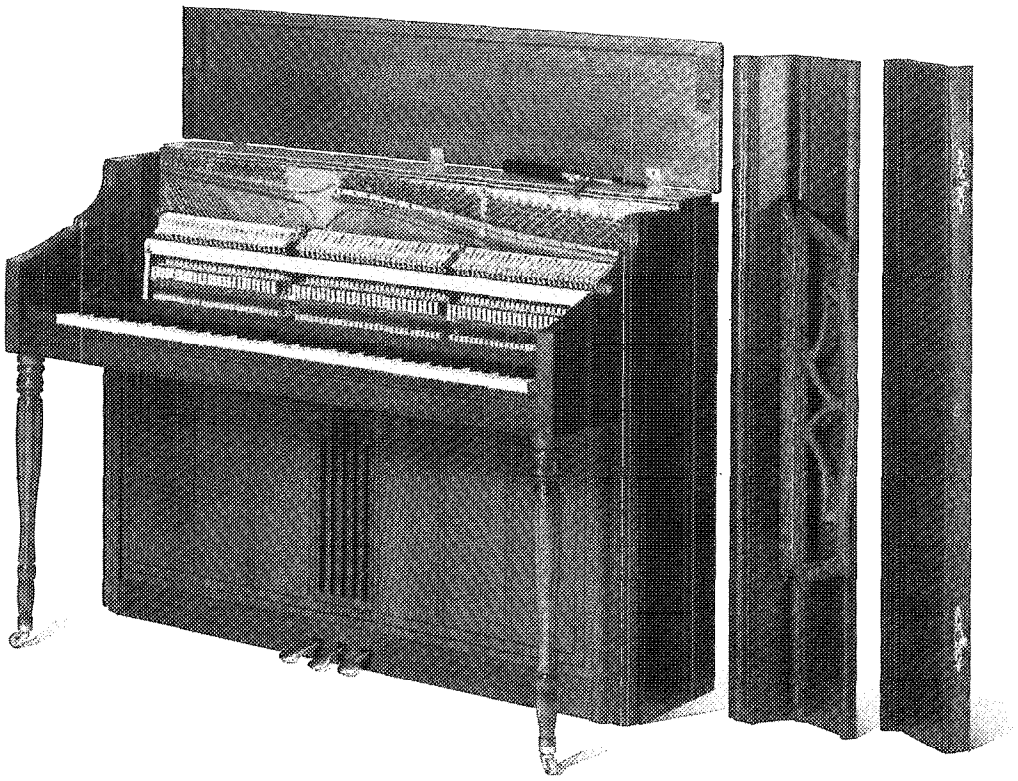

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