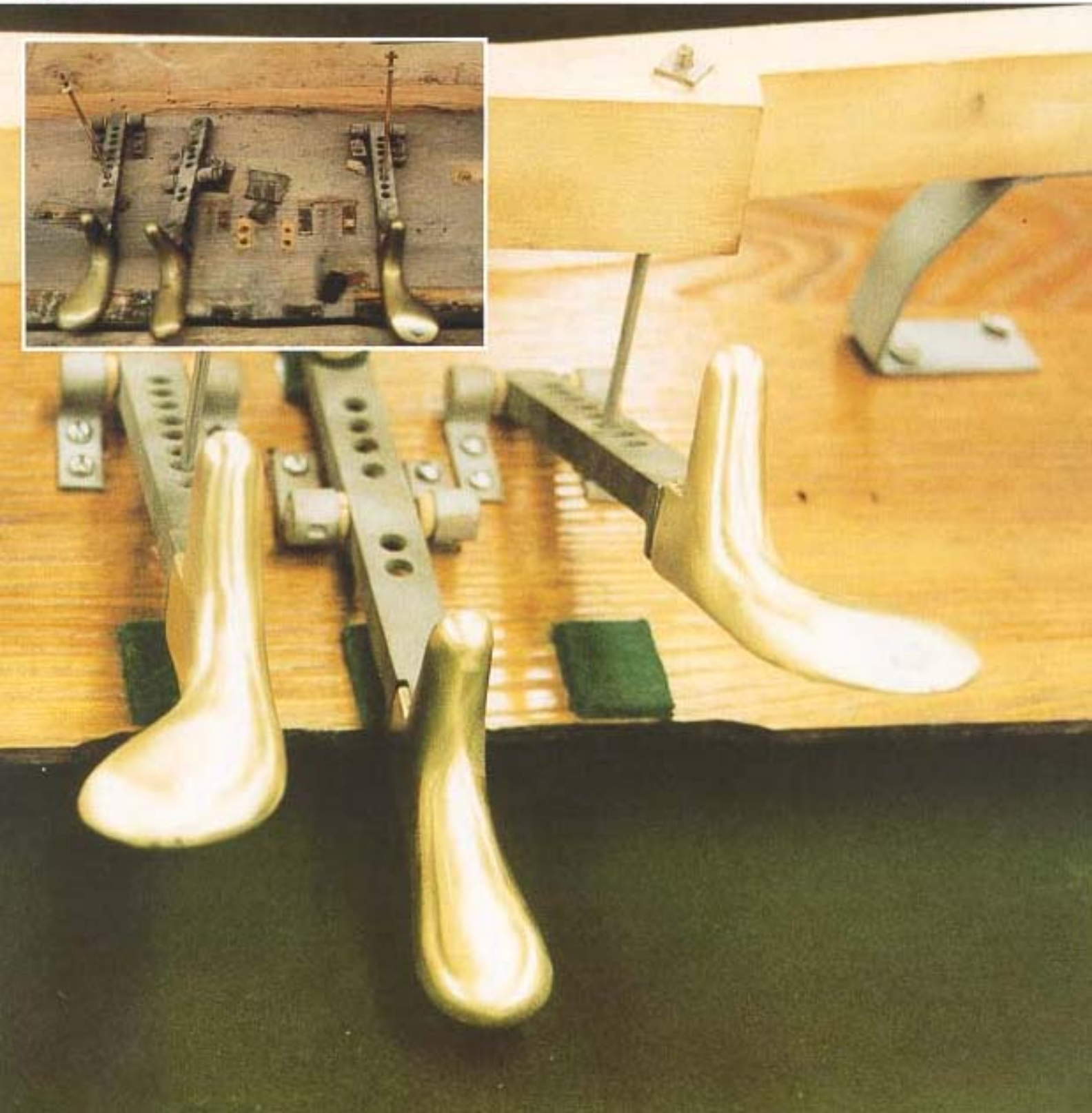
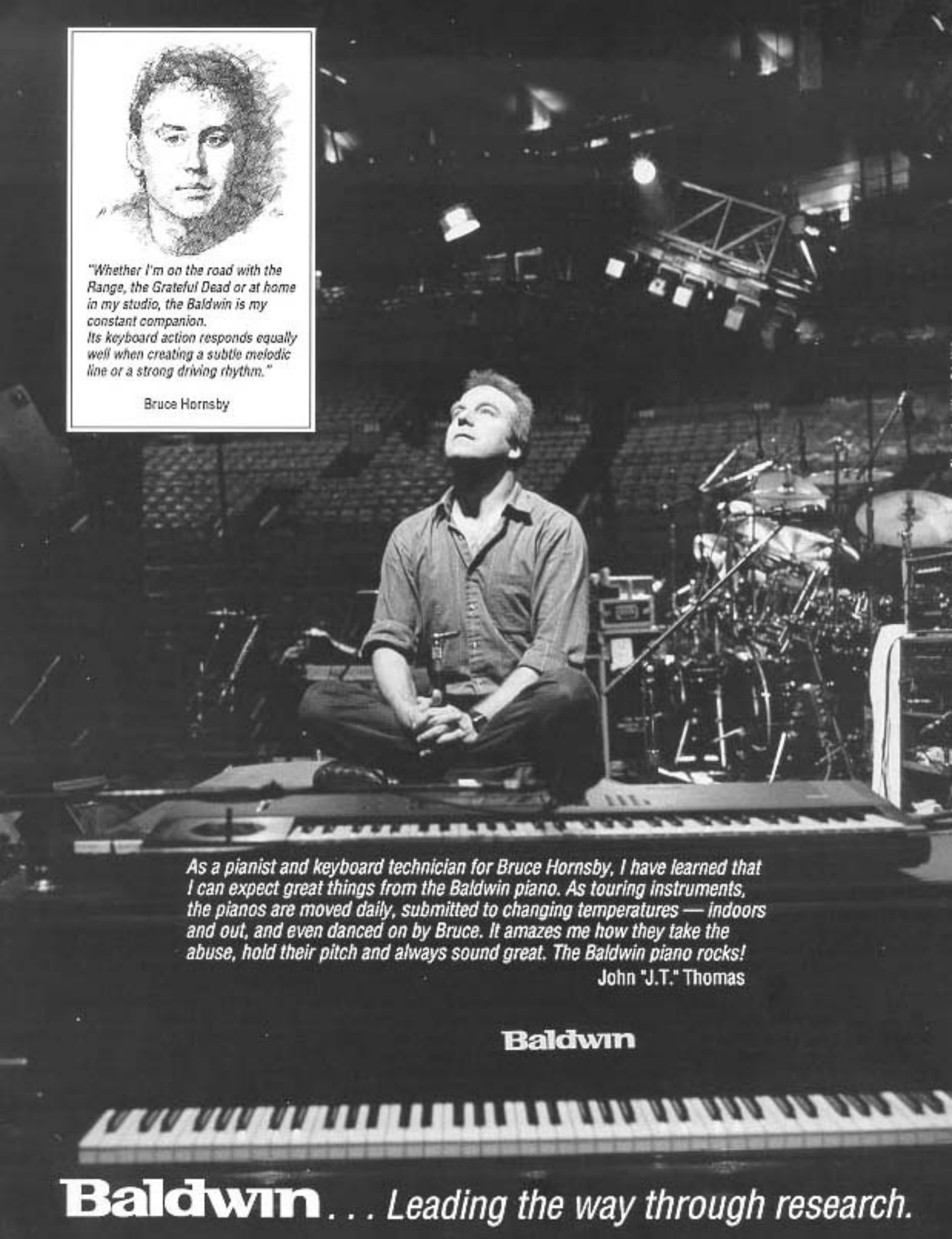
PIANO TECHNICIANS
Journal
Official Publication of Piano Technicians Guild

August 1994 Vol. 37 • #8





"Whether I'm on the road with the Range, the Grateful Dead or at home in my studio, the Baldwin is my constant companion.
Its keyboard action responds equally well when creating a subtle melodic line or a strong driving rhythm."

Bruce Hornsby

As a pianist and keyboard technician for Bruce Hornsby, I have learned that I can expect great things from the Baldwin piano. As touring instruments, the pianos are moved daily, submitted to changing temperatures — indoors and out, and even danced on by Bruce. It amazes me how they take the abuse, hold their pitch and always sound great. The Baldwin piano rocks!

John "J.T." Thomas

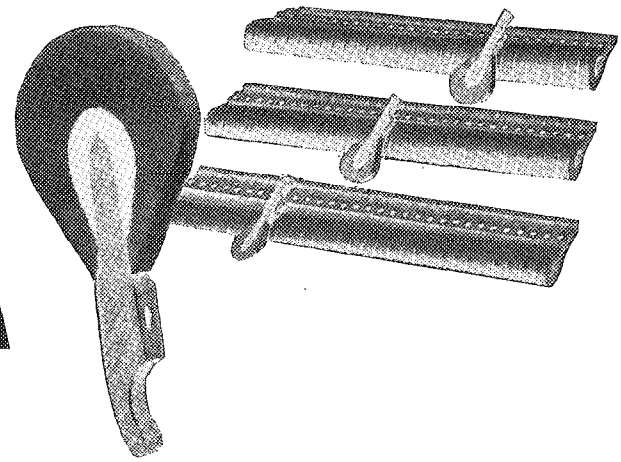
Baldwin

Baldwin . . . *Leading the way through research.*

Schaff

NOW HAS AVAILABLE...

IMADEGAWA
HAMMERS FROM JAPAN.



Due to the increase in popularity of Japanese-made hammers the last few years, Schaff has engaged with the Imadegawa Company in Japan to be a nationwide distributor. We will maintain a large stocking inventory which together with our years of replacement hammer expertise, will enable us to provide the finest hammer duplication service in the U.S.A.

Who else can offer...

1. A full range of wood moulding sizes and felt weights to accommodate almost any hammer duplication requirement.
2. Both upright and grand type hammers.
3. Either standard bore stock sets or custom made hammers.
4. A long standing history of providing reliable service and selling quality products.

CHARACTERISTICS OF STANDARD BORE STOCK HAMMERS

UPRIGHT HAMMERS—A set consists of 30 bass and 64 treble hammers. All bass section hammers are drilled at an 18° angle. Tenor section has 14 hammers at 12°, 10 hammers at 7° with the balance of tenor and treble at 0°. A 7/32" diameter drill is used for the bore hole. On a special order basis a type "B" set can be ordered with all tenor and treble hammers bored at 0° angle. On a stock basis upright hammers are available in the following striking distances (as measured at the treble end) of 2⅜", 2 7/16" and 2½". Also 12 Lb., 14 Lb., and 16 Lb. weights of felt available. All hammers are made of birch wood moulding, stapled throughout and have the option of being reinforced and unbored.

GRAND HAMMERS—A set consists of 30 bass and 65 treble hammers. All bass section hammers are drilled at a 9° angle. Tenor section has 8 hammers at 9°, 8 hammers at 6°, 10 hammers at 2° and the balance of tenor and treble at 0°. A .204" diameter drill is used for the bore hole. All hammer tails are shaped and tapered at no additional cost. On a stock basis grand hammers are available in the following striking distances (as measured at the treble end) of 1⅞", 2" and 2⅛". Also 12 Lb., 14 Lb., and 16 Lb. weights of felt available. Hammers come stapled throughout and can be provided unbored. Except for Steinway style, all grand hammers are made of birch wood mouldings and have the option of being reinforced.

STEINWAY STYLE—A set consists of either 20 or 26 bass hammers, reinforced with walnut mouldings and bored to Steinway specifications.

CUSTOM BORE HAMMERS

Both upright and grand hammers are duplicated from customer samples and bored to exact specifications. With our extensive inventory, we should be able to match 90% of the samples received for duplication. The samples we cannot match for Imadegawa hammers can be made from our high quality U.S. made hammers. Try Schaff and avoid unnecessary replacement hammer costs and order processing delays that occur in dealing with smaller suppliers.

WRITE OR CALL US FOR A COMPLETE PRICE LIST ON IMADEGAWA HAMMERS.

THE HOUSE DEDICATED TO SERVICE

Schaff PIANO SUPPLY COMPANY
451 OAKWOOD ROAD,
LAKE ZURICH, IL 60047-1516

24 Hour Hot-Line
Reg. (708) 438-4556
T-Free (800) 326-0341
Fax (708) 438-4615

PIANO TECHNICIANS
Journal
Official Publication of Piano Technicians Guild

Larry Goldsmith
Publisher/Executive Director

Jami Henry
Managing Editor

Kent Swafford, RPT
Michael Kimbell, RPT
Contributing Editors

Sandy Essary
Subscriptions

Mary Kinman
Director of Member Services

Catherine Wilane
Director of Finance

Home Office
Phone: 816-753-7747
FAX: 816-531-0070

Editorial
Piano Technicians *Journal* welcomes unsolicited materials, photographs and ideas from our readers. Please submit by mail or FAX. Microsoft Word 5.1-Macintosh format preferred. We'll acknowledge all submissions and return those we can't publish. DEADLINE: No less than 45 days before publication date (i.e., September 15 for November issue) Send materials and letters to: Piano Technicians *Journal*, Managing Editor, 3930 Washington, Kansas City, MO 64111-2963.

Subscriptions
Annual subscription rates: $85 (US)/1 year; $155 (US)/2 years; Single copies: Current year/$10; 1 year/$5; back copies/$2 if available. Piano Technicians Guild members receive the *Journal* for $45 per year as part of their membership dues.

Address Changes/Subscription Problems
Send or FAX a description of the problem and your current address to: Subscriptions, 3930 Washington, Kansas City, MO 64111-2963 or call between 8:30-5 p.m. CST—Monday-Friday.

 The Piano Technicians Journal (ISSN 0031 9562) is the official publication of The Piano Technicians Guild, Inc., 3930 Washington, Kansas City, MO 64111-2963. The *Journal* is published monthly. Second class postage paid at Kansas City, MO and at additional mailing offices. US ISSN 0031 9562 foreign and domestic. POSTMASTER: please send address changes to: *Piano Technicians Journal*, 3930 Washington, Kansas City, MO 64111-2963.

Greatest Hits

What's the most important benefit of your membership in the Piano Technicians Guild? The most common answer would probably be your subscription to the Piano Technicians *Journal*. Over the years, the *Journal* has consistently defined the many tasks that make up a piano technician's work and has provided a continuing supply of advice and information to help make that work more efficient.

Piano technology is unique. A good technician from, say, 50 years ago would regard a grand piano made in the 1990s as a familiar instrument. In very few other trades could that claim be made. And yet, if that same technician were to read this issue of the Journal, he would be amazed at the advancements in technique. Although the piano itself has not changed that much, we continually invent new tools and better ways of performing the same old tasks.

There have been defining figures in our history — great inventors, teachers, writers, and, for want of a better word, tinkerers. And most of their discoveries have graced the pages of the *Journal* at one time or another.

Although we try to bring you new writers and new information each month, it would be hard to improve on the techniques of a Ted Gose or a Don Galt, for example. These two Technical Editors — and many others before and after them — have provided a solid foundation of knowledge for many technicians. Not to take anything away from those now writing for the *Journal*, but we will never see their like again. And many current members do not have access to their wisdom.

That's why we've come up with a new way to present the information that's been published in past *Journals*. Four kits of reprints on specialized topics have been compiled by Yvonne Ashmore, RPT, and more are being planned. These kits, "Dampers, Trapwork and Action Centers," "General Repairs," "Hammers and Touchweight" and "Keys," reprint many of the great articles on these topics from past *Journals*. They're not designed to be pretty. Instead, they present solid information in a "greatest hits" format, and at an affordable price of $15 each, plus shipping and handling. This format also will allow us to reprint kits frequently, bringing in new articles as they're written and recalling other articles suggested by you, the readers. In this way, we're distilling the best of piano technology writings.

We'll keep bringing you the best new information from the best current writers, but the foundation of knowledge has already been laid. We won't forget it.

Larry Goldsmith

Editorial Note: We encourage your opinions, comments, notes, letters and/or questions. Please submit them to: PTG Home Office, 3930 Washington, Kansas City, Missouri 64111-2963.

PIANO TECHNICIANS
Journal
Volume 37 • Number 8 • August 1994

DEPARTMENTS

COVER ART

Don Valley attacks the upright piano from the "bottom-up" as he demonstrates the removal and repair of casters and piano pedals in his continuing series, "Behold The Upright" on page 29. Shown on the cover; a before and after view of his rebuilding and repair work.

Photos by Don Valley, RPT

PACE
Professionals Advance through Continuing Education
LESSON PLAN

PTG*Review*

IN ADDITION

FEATURES

Continuing Education Will Continue To Be Our Focus

PTG President
Leon J. Speir, RPT

Well, here we go again. A new face, a new voice, a new writer for this column. So, as it does every couple of years, PTG has once again gone through the ritual of changing leadership. You have elected me to serve you as the 22nd President of PTG. I want to thank you for your confidence in me and I will work hard to represent PTG well in the coming year. I also want to thank our Immediate Past President, Fern Henry, for her outstanding service to PTG. Fern's hard work and dedication is without parallel. We are a better organization today because of her vision and because of her courage to carry out that vision.

Changing leadership often signals a change in focus or direction. The uniqueness of PTG is that *you,* through delegates sent to Council, set organizational policy and direction. In the past few years clear choices have been made by Council in areas of marketing and education. Working to carry out these directives will be the challenge this year.

A leading Council mandate the past couple of years has been an increased emphasis on marketing PTG and our RPT members. Through the production of informational brochures and technical bulletins we have provided the tools to inform our clients about proper piano care and service. These products have also been designed to inform the reader what it means to be an RPT member of PTG. As the high cost of the product development phase of our marketing program begins to scale down, it is critical that we continue the distribution of these products to our clients and prospective clients. Marketing tools have been produced, it is now up to us to circulate them. Effectively marketing PTG and RPTs is a critical component to the future vitality of PTG.

A new product has been produced by the Marketing Committee that provides tools to assist in marketing your individual skills to your customers. The "Business Resource Manual" (BRM) contains an abundance of marketing tools which are geared specifically to promoting you and your business. This book will bridge the gap between PTG marketing efforts and your need to provide marketing at the local level. The BRM is now available and can be purchased from the Home Office.

Council in 1993 gave a very clear mandate to provide more educational opportunities for our members. We will proceed to carry out that mandate. This year's council apportioned an increased funding for the *Journal.* This action identified the *Journal* as one of the more important resources for education and training. Additionally, the overwhelming success of the *PACE* series of lesson plans made clear that education will continue to be a key ingredient in the future of PTG. Working to consolidate all the continuing educational offerings will be our challenge for the coming year. Developing resources for learning will provide tools to upgrade technical skills and to help identify PTG as an organization that promotes quality piano service to the public.

I look forward to the coming year with both a sense of excitement and responsibility. PTG's future is very bright and working together we can realize its full potential as an organization.

S T E I N W A Y

If it doesn't have 12,116 genuine Steinway parts, it isn't a Steinway.

Every part of a Steinway plays a part in creating a piano renowned for its unequaled touch and tone, and its enduring value. So, when a person invests in one of our new pianos, it's 100% a Steinway. And we want to make it easier for piano technicians to keep it that way. Our service department has improved the availability of genuine Steinway parts, including a prompt turnaround time on our improved hammers and action parts of various dimensions. We offer case and furniture parts, hexagrip pinblocks, as well as custom made parts for older Steinways. And now you have the added convenience of using Visa or Mastercard. If you call Glorie Lefrak at (718) 204-3150, she'll be pleased to tell you more about our service. Because once it leaves the factory, the most important part of a Steinway piano is you.

S T E I N W A Y & S O N S

One Steinway Place, Long Island City, New York 11105. (718) 721-2600.

FAX Your Order: (718) 932-4332

Executive Director
Larry Goldsmith

In Touch With History

Over the last few months, we in the Home Office have experienced an interesting phenomenon.

Every week or so, a large heavy box would arrive. Carefully cutting the tape and brushing away the inevitable plastic peanuts like eager archeologists, we would discover our history.

Each box contains a "Golden Hammer," PTG's highest individual award. Only one Golden Hammer is awarded each year, and the award has been given for only 25 years. For some 20 years, these beautiful piano-shaped awards have been machined from pinblock material by Seattle RPT William Smith, each an individual design made with that year's recipient in mind. A Golden Hammer recipient himself, Wendell Eaton (1972) set out to put together the most complete display of these unique awards possible. In an astounding display of persistence and detective work, he has tracked down and persuaded many of the recipients to share their awards in a special exhibition.

In some more recent cases, we remember the ceremony in which the award was presented — how George Defebaugh practically skipped to the podium to receive his in 1988; how a tearful Stanley Oliver was practically mobbed by admirers in 1985; how Bob Russell always said it was his most prized possession; how LaRoy Edwards, a winner himself, paid loving tribute to Fred and Mimi Drasche in 1992; and how the entire convention sent its love via videotape to John Travis last year.

None of us in the Home Office were around for the earlier awards, but seeing and touching the awards puts us in touch with the personalities that made PTG what it is today. And each has its own story. Allan Pollard's, for example, was accompanied by a note from his widow, the late Ruth Vertrees Pollard: "A tuning hammer serves its purpose only if used. The men listed have tuned a piano with this hammer." The note was signed by Hi Harting, Harold Guinn, Howard Whiddon, Raymond Whiddon, Ben Markum, Barney Hardy, Douglas Strong and Martin Wisenbaker.

> *"Every week or so, a large, heavy box would arrive. Carefully cutting the tape and brushing away the inevitable plastic peanuts like eager archeologists, we would discover our history."*

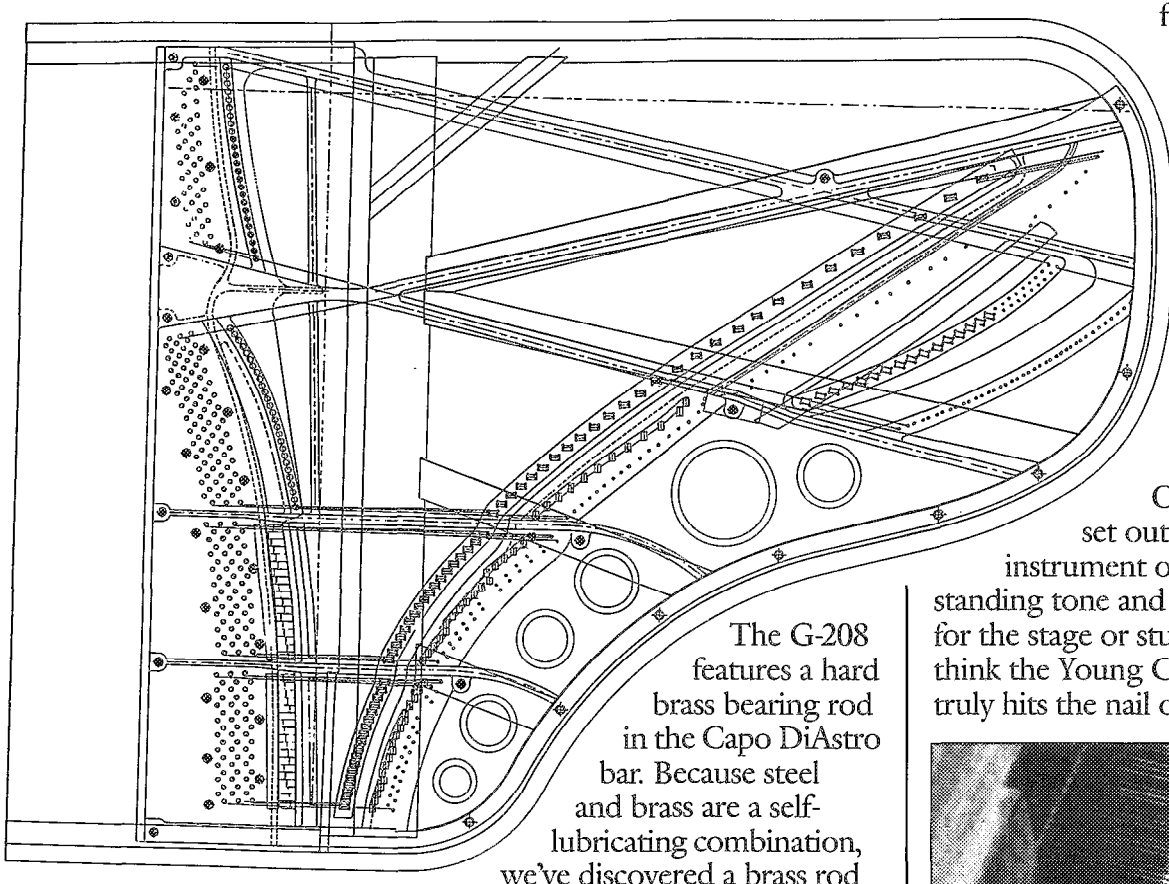
Some we'll get to keep on permanent display in the museum area of the Home Office — families of some deceased recipients have entrusted us with these priceless awards. After the convention, the others will be carefully repackaged and sent back home. They're simply too precious to be parted with for long. It's touching that an assemblage of wood, metal and plastic — no matter how beautifully crafted — could be weighed with such emotion.

So, to those special individuals who let us show their Golden Hammers during the Kansas City convention, thank you for sharing once again.

A nuts and bolts guide to the new Young Chang G-208.

Our engineers are obsessed with the little things because they recognize the importance of attention to detail. But lately, they've become equally obsessed with big things, and the result is 6'10" long. Our new G-208 grand is a departure for us and represents the smallest and largest of our latest innovations.

The G-208 is a 6'10" grand piano of an entirely new scale design. It features our new "Asymmetrically Crowned" soundboard which places the highest part of the crown in each rib directly under the bridge providing maximum support under the downbearing pressure of the strings. This new soundboard design exhibits improved power, projection and tuning stability, and offers a longer soundboard lifetime. We're so pleased with this new design, we're now incorporating it into all our grand pianos.

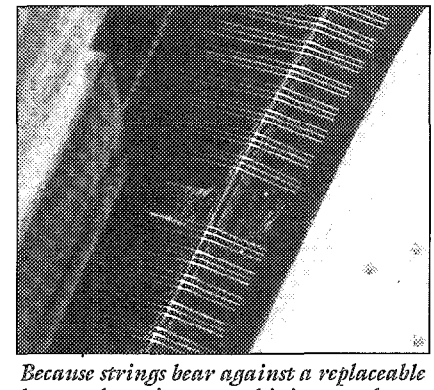


The G-208 features a hard brass bearing rod in the Capo DiAstro bar. Because steel and brass are a self-lubricating combination, we've discovered a brass rod offers better control of strings during tuning. In addition, the brass rod is easily replaced later in the life of the instrument eliminating the need for reshaping of the capo bar.

We also took a close look at our action and developed an all-new action design which improves response without loss of projection or clarity.

Our new double duplex system terminates the strings at the rear of the bridge and near the tuning pins with duplex bars. Both duplex lengths of the strings for each note are then terminated in equal length offering improved sustain, projection and clarity.

Together these innovations create an instrument with a rich, full sound, greatly improved response and a remarkable evenness of tone throughout the entire range of the keyboard. Our engineers set out to design an instrument offering outstanding tone and performance for the stage or studio. And we think the Young Chang G-208 truly hits the nail on the head.



Because strings bear against a replaceable brass rod, tuning control is improved.

For technical information on our new G-208 grand piano, write to us at Young Chang America, Inc., 13336 Alondra Blvd, Cerritos, CA 90701. Or call 310/926-3200, ext. 237.

YOUNG CHANG

The best the world has to offer.

Q — What Is The Full Decating Process?

At a seminar class sponsored by Charles House Felt Company, instructor Peter Van Stratum mentioned that their wool bushing cloth is "full decated." What does this mean and how does it benefit the product?

Bill Spurlock, RPT
Vacaville, CA

A — From Tom Carrier

Tom Carrier is Sales Manager for Charles House Felt Company in Unionville, CT. He has been with Charles House for 5 years and has over 15 years of experience in textile mill manufacturing.

The full decating process is basically a permanent press operation. The fabric goes through a highly pressurized chamber, while it is rolled on a tube, and is subjected to a steam treatment for a substantial amount of time.

This treatment is administered toward the end of the overall treatment of the wool and serves to "set the fabric" and add a final finish.

The purpose for the process is to add consistency to the product and to provide a uniform surface and thickness.

Q — How Much Can A Hammer Wear?

How much can a hammer wear, i.e., decrease in bore length, before the optimal range of regulation can no longer be achieved and the hammer must be replaced? Can vertical action geometry tolerate more differences in bore length than grand action geometry?

Clark Foerster
Grover Beach, CA

A — From Wally Brooks

Wally Brooks has been a technician for over 35 years and a member of Piano Technicians Guild for 33 years. Over the last 25 years, he has been an instructor at numerous seminars and conventions. Wally is owner of Brooks, Ltd., supplying hammers, action parts and rebuilding supplies to the trade for the past 14 years.

My first answer to this question would be 1/8" or slightly more, because at this point we begin to get far enough away from our action geometry to at least theoretically cause friction and wear on the action and change the strike point.

To answer the question directly (when can we not regulate any further?), I did a little testing.

Using a Yamaha grand action model set up to have a 2 1/4" hammer bore. I drilled 3 new hammers, one at 2 1/8", one at 2" and one at 1 7/8". I put each hammer on the model and regulated same, working down in bore length. When I got to the 1 7/8" hammer, I could still regulate this action correctly. Using the 1 7/8" hammer, I seemed to be as short as I could go, as the drop screw was regulated all the way out at this time.

The answer to the question, at least for this particular action would be approximately 3/8" maximum.

I found with the 1 7/8" hammer regulated on this action, that the strike point had changed a strong 1/4" and that the action had a peculiar light feeling.

In answer to the second part of the question (vertical actions) I would think that the range would be approximately the same. Although on this type of action when we shorten the hammer bore much more than 3/16", the hammers will fall against the strings and bobble on a soft blow of the key.

Q — How Can I Help With The Image of PTG?

I was talking with another tuner who is well established. He learned from his father who was supposed to be a master technician. I asked him if he would be willing to tutor me or give me some lessons to improve, and he said

that neither he or his father would give me help. (I realize I am his competition, and that if I improve, I may get some of his customers.) Then I asked him what he thought about the Piano Technicians Guild, and he gave me the impression that he did not have a high opinion of PTG. He thought that the PTG had low standards and he had a contemptuous attitude about the PTG "tuning competitions" (His words).

I have been very impressed with everything about the PTG. Your magazine and seminars and publications are top-notch and have been extremely helpful to me. I have a high opinion about PTG and the high standards it sets. I am only an associate but I am studying to become an RPT. What can I do to improve the image of the PTG among the general public and the other technicians and tuners in my area?

David Vanderhoofven
Joplin, MO

A

From Bill Spurlock

Bill Spurlock is a Registered Piano Technician and Chairman of the PTG Marketing Committee.

Thanks for the question, David. The solutions to changing the image of PTG among the public and other tuners in your area are the same: education. Taking the public first, you are no doubt aware of PTG's recent efforts to provide our members with professional business aids just for that purpose. Just introduced is our new Business Resource Manual, which combines a wealth of information and tools for promoting your individual business and PTG to the public. Included are marketing theory, successful techniques used by members, sample client letters, newsletter articles you may use to reach out to teachers and clients, loads of business tips, clip art and more. I'd like to recommend you purchase one from Home Office and implement those resources that fit your particular needs. The best marketing strategy is simply to do good work and talk about it.

As for non-member tuners in your area, patience and a gracious attitude are in order. Realize that often one negative experience with a PTG member years ago may have tainted a person's attitude toward the whole organization. A negative attitude can then lead to myths about the organization's activities (i.e. tuning competitions?) which need to be debunked by education. Don't try to argue with the person. Instead, show by example the benefits of PTG membership today. I suggest loaning a skeptic some recent Journals, a PTG Exam Source book and inviting him to a local chapter meeting or seminar when a particularly good speaker is present. PTG has lots of published material on our exams, educational programs, etc. which can be used to counter specific misconceptions. Avoid being confrontational, however, because this may just further polarize one's beliefs.

Turn in your questions! We can't answer them until we hear from you. FAX them to 816-531-0070 or send them to: PTG Journal/Managing Editor, 3930 Washington, Kansas City, MO 64111-2963. All questions will be considered for publication.

TT&T Removing Felt Marker From the White Keys

You probably have been called to a home to tune the piano and also to look at the white keys. When you arrive you notice that little Johnny and Susey have made their piano lessons easier, by marking the notes on the keys with a black felt marker. It is usually impossible to remove the marker with acetone, naphtha, or most other chemicals. Acetone will remove the marker, but it melts the plastic keys in the process.

I have accidently discovered a process that will remove the magic marker and will not damage the plastic keys. It is called Aero Brand #1250 Ink Reactivator. Manufactured by Specialty Ink Co., Deer Park, NY. You can find this product at a large rubber stamp company that wholesales to other dealers. You just wet a cloth with this solution and wipe the key and the black will just disappear. This will save the customer the cost of buying a new set of white keys.

Harry Buyce

TT&T The Calligraphy Tool

The last time you folks heard about my favorite voicing tool, it was a single needle expoxied into a hole drilled in the end of a wire mute handle. That was such a fertile spot that is has now sprouted two additional stickers. I purposefully set the needle points in a straight line of 1/8" overall, holding them at the sharp end with a set of vise grip pliers while the epoxy is setting up on the other end. Obviously this is no tool for making cube steak out of sorely cramped shoulders, but it's perfect for discrete amounts of frontal-lobe acupuncture.

One needle, on the outside, is set slightly forward, With this needle you can get just the slightest amount of penetration with a single stick. It also means that the deeper you want to go, the more the other two needles slightly behind it will start to sink into the felt. You can also have the three of them enter the felt together by leaning the wire handle correctly.

The set of punctures has a pattern similar to a spray gun's, with a choice of orienting the pattern, for instance, parallel or perpendicular to the string cuts. The latter will soften a line going between string cuts at a certain point in the crown's curvature. If all the pattern could do was to flip between these two orientations, it would truly be a calligraphy pen. However, you can turn the wire handle to place the pattern anywhere you'd like on the hammer felt. You can also vary the width of that pattern by anchoring the longer needle and either springing the other two needles apart or squeeze them together as the three go in. With all three needles rooted, there is a further means of loosening the skin of a hammer. Pretend that you have a fork in a plate of pasta, hoping to twirl some up with it. By rotating your wrist around the three planted points, what you'll now be doing is producing a conical enlarging of the puncture holes. You can also cover the area lightly as a baker might with a dusting of confectioner's sugar. If you don't mind something temporary, dragging the points across the top also sweetens things up. Making use of this tool's flexibility, you can treat the hammer with some tenderizer-loving care. In fact the phrase "pin-point accuracy" takes on a whole new meaning because you are now accurate with the larger pattern of three points, not one.

One important detail is that the points really don't need to be longer than 1/4". This is a far greater length than you're ever likely to be putting into the crown. Also, by keeping it this short, you'll cut down on the number of chunks of rubber from the inside of the hole in the mute which break off and get lodged in the points. Furthermore, it keeps to a minimum the extent to which the points get bent out of line by normal usage. I took care of this annoyance by clipping off the end of the eye of a needle, and installing the resulting miniature two-tine fork in the butt end of the rubber mute, just for the purpose of pushing points back in line.

Bill Ballard

Share Your Tips, Tools & Techniques!

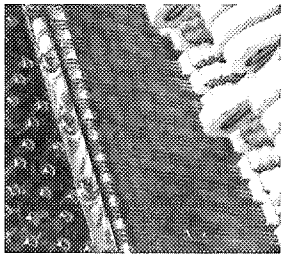
Send us your ideas. Tricks of the trade are often hard to come by—yet save time and energy when dealing with unusual problems or situations. Tips, Tools & Techniques ofters everyone a chance to find new ideas or solutions to everyday needs.

Send your ideas to:
PT *Journal*/Managing Editor
3930 Washington
Kansas City, MO 64111-2963

SOUND THINKING

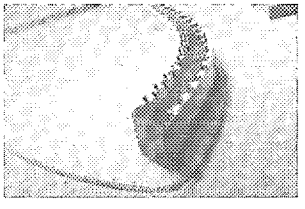
IT'S THE FIRST THING THAT GOES INTO A WURLITZER PIANO.

EVERY TIME WE SELECT A MATERIAL OR IMPROVE A MECHANISM FOR ANY ONE OF OUR INSTRUMENTS, WE THINK ABOUT THE SOUND.



THAT'S WHY OUR PIANOS HAVE A GRAND PIANO STYLE PIN BLOCK. SO OUR HIGH-FIDELITY SOUND BOARDS ARE LARGER, DELIVERING ACCURATE, FULL-RANGE TONE. AND OUR BASS STRINGS ARE LONGER, FOR RICHER, FULLER REASONANCE.

ALL SOUND DECISIONS. THE KIND CRAFTSMEN LIKE YOU UNDERSTAND AND APPRECIATE.



PUTTING THE SOUND FIRST IS A TRADITION WE'VE HONORED FOR OVER 135 YEARS. IN FACT, THE REASON THE "T" IN OUR NAME STANDS OUT IS TO REMIND US EVERY DAY JUST HOW IMPORTANT TONE IS.

BUT DON'T TAKE OUR WORD FOR IT. LISTEN. THE SOUND THINKING THAT GOES INTO EVERY WURLITZER SPEAKS FOR ITSELF.

WURLITZER®
YOU SHOULD HEAR US NOW.
422 Wards Corner Road, Loveland, OH 45140

Writing Effective Proposal Letters

By Bill Spurlock, RPT

Communicating Successfully With Clients

Keep your letter to one page when possible. Include other supporting documentation (Technical Bulletins, detailed estimate form) for more detail.

Use bold subheads to help the client see the main points easily.

Give a simple analysis of the piano's problems, without insulting. Avoid technical jargon.

Make clear recommendations, relating them to the client's needs; don't just promote what you want to sell.

Provide different options for the client when possible. Remember that you don't know all of their financial obligations

Tell the client that you'll follow up, but don't pressure them.

Mail your proposal letter and supporting material promptly. Use a highlighter and notations on the Technical Bulletins to relate their content to the client's situation.

April 10, 1994

John and Mary Smith
333 Main St.
Sacramento, CA 99111

Dear Mr. and Mrs. Smith,

You asked for additional information on how we could make your piano more enjoyable to play, and I'm happy to provide the following proposal.

Service Proposal: Mellowtone studio upright, 48", serial #54321, mfg. 1978

Condition Report

As we discussed, this piano is of good quality and its main components (strings, structure, and action mechanism) are in good condition. However, wear from normal use has gradually affected the tone and touch. The hammers have developed grooves from years of striking the piano's strings, and no longer have the smooth rounded shape necessary for best tone. In addition, felt and leather parts in the action have compacted and settled, affecting the regulation of the action. This is the reason you notice that it's harder to play your piano softly. The action screws have also loosened, causing rattles in some notes.

Recommendations

In order to help you get the most benefit from your investment, I have listed a couple of options for you to consider. Option I would correct the worst of the problems you are noticing—rattles, uneven tone, and difficulty in playng soft passages evenly. This option would probably give the most benefit for the least investment. Option II would give you the most responsive touch, and the widest range of tone available for your music, at additional cost. The cost would be spread out by pursuing Option I now, and doing the additional work in the future; however, splitting the work up would cause some duplication of steps, so total cost would be about 10% higher this way.

Option I: Reshape hammers, space and align action parts, tighten all screws, and regulate some action adjustments as needed.
Cost: $xxx.xx

Option II: Includes the work in Option I plus some further refinement of the regulation, as well as voicing for best tone to your preference.
Cost: $xxx.xx

I'll call in about a week to see if I can answer any questions. I know the work I've outlined here will greatly increase your enjoyment of this fine instrument. Thanks for letting me suggest some service options.

Sincerely Yours,

Be personal; don't just send cold facts.

You just finished tuning a piano that really needs additional work. Do you just scribble an off-the-cuff estimate on your tuning invoice and casually mention to the client that the piano needs "regulating" and "voicing," leaving them feeling insecure because they really don't know what those terms mean? If you are really thinking about the client's needs, you'll want to show them evidence of their piano's problem, then ask about their playing and whether they've noticed particular symptoms. Then, knowing something of their situation, you can offer to send them a proposal suggesting additional work that may benefit them.

Delivering your specific proposal by mail, rather than on the spot, helps both you and the customer. It gives the customer "breathing room" to consider your suggestions in their own time. It also allows them time to notice the symptoms you pointed out as they sit down to play privately. Mailing a proposal gives you time to prepare an accurate estimate of repairs in the peace and quiet of your office. Using a computer, you can make up a template proposal letter which can be modified slightly as needed for each job. There are several keys to writing effective proposal letters, as illustrated in the example above.

KAWAI...

The Choice of Those Who Know.

Symphonies, operas, music halls, festivals, artists and celebrities put their trust in **KAWAI**. The world's foremost pianist, Martha Argerich, performs on a **KAWAI**. Whether it's the *Aspen Music Festival, San Francisco Opera* or International Piano Competitions such as the *Frederic Chopin International,* Warsaw, Poland; *Arthur Rubinstein International,* Jerusalem/Tel-Aviv, Israel; *The International Music Competition of Japan*, Tokyo, Japan; *Sydney International,* Sydney, Australia; *Dublin International*, Dublin, Ireland; *International Pianoforte*,Cologne, Germany; *International Piano Competition "F Busoni"*, Bolzano, Italy; *Concours International "Vienna Da Motta"* Lisbon, Portugal;*Gina Bauchauer International Piano Competition,* Salt Lake City Utah; Santander International Piano Competition, Santander, Spain; Munich International Music Concour, Munich, Germany; *"George Enesco" International Piano Competition*, Bucharest, Romania; *The International Piano Competition of Taipei,* Taipei, Taiwan; *Hamamatsu International Competition,* Shizuoka, Japan, there is a **KAWAI** on center stage . . . also the winner of the prestigious *Van Cliburn Competition* won with **KAWAI**, not to mention Pop Artists and there even is a **KAWAI** In Chopin's Birthplace in Poland. **KAWAI** is the choice of the world's foremost pianists.Play **KAWAI...** play the best you can play.

KAWAI *The Sound Heard Around the World...*

NOTE: Finalists choose Kawai in all fifteen (15) of the worlds most prestigious Piano competitions... In six (6) of the top competitions the first prize/gold was won by pianists who chose Kawai.

Keep it simple

Remember that the average customer is very busy, just like you, so keep your letter brief. Think of the letter as a summary of the piano's problems and the benefits the client can gain by having the work done. A good proposal letter should entice the reader to want to know the specifics of the work you are proposing, but it can't do that if it's so filled with technical explanations that it makes their eyes glaze over. Once they are convinced that your proposal addresses their particular concerns, they will be motivated to move on to your detailed estimate/evaluation form.

PTG Technical Bulletins are excellent supporting documents because they give your proposal a third party endorsement. That is, they back up your recommendations with material written by a nonprofit organization; thus the credibility of your words is enhanced. Use a highlighter pen and notes to draw the client's attention to pertinent points in a bulletin.

Make your message personal

To be successful, any marketing effort must address the customer's needs. Don't go into a lengthy discussion of your qualifications and experience—the customers don't care. They have their own problems and needs. The best way for you to get their attention is to talk to them, not about yourself. Don't be like the insufferable bore at a party who says, "Well, enough about me, let's talk about yourself. How do you like my new suit?"

Make your ideas immediately apparent to the reader

Get right to the point, stating the facts as simply as possible. Avoid too much technical jargon that will make them stumble and possibly give up reading. And, use bold subheads like I'm doing here. This makes your main points clear to the reader, and actually makes it easier for you to write.

Strive to develop a simple writing style, using short sentences. Fewer words are often better than many. A computer grammar checker is useful here.

Present options when appropriate

If there are different, equally valid approaches to solving the piano's problem, tell the customer so. Especially when cost is a concern, realize that it is the client's money you are spending. It's your job to help them make an informed choice of performance versus cost. Just because you prefer installing new hammers to reshaping older ones doesn't mean that's the best choice for the customer and his/her budget. The best way to establish your credibility is to show understanding of the client's situation. Giving them some choice in the work to be done does just that.

> "The best way to get the client's attention is to talk *to* them, not *about* yourself"

At the same time, you have a professional responsibility to give them the straight facts. Don't make the client's budget your problem if there's no way to simplify the required work.

Follow up

If you offered to send a proposal to the client, do it promptly. Failing to respond will send the message that you're unreliable—not a good impression to make when trying to sell a job! In your proposal letter, tell the client that you'll follow up with a call, and when. Then be sure to do it.

As a small business owner in a unique field, you have almost complete responsibility for your own success. However, the good news is that succeeding with clients is remarkably easy. By giving them genuine personal attention, you make it easy for them to do business with you.

INSTANT
PIN•TITE ™ ®
TIGHTENS
LOOSE TUNING PINS
TUNE IMMEDIATELY • PERMANENT • NO CALL BACK

IT WORKS

MONEY BACK GUARANTEE
$13/250 ml 8 oz.* POSTPAID CHECK WITH ORDER ANYWHERE
Free Technical Data
The LUNSFORD•ALDEN Company
145 WOODBRIDGE CIRCLE
DAYTONA BEACH • FL
32019 USA

PIANOS! PIANOS! PIANOS!

We buy all types of usable pianos. We pay cash and will not hesitate on any fair price. We will remove immediately. Also we sell fine vintage pianos—large stock—Steinway and other top name brands.

Call Irv Jacoby collect 216-382-7600
PO Box 21148, Cleveland, OH 44121

San Francisco Piano Supply Co.

Piano Parts & Supplies

Same Day Shipment or Pick-Up

We Ship Anywhere!

657 Mission Street • #507
San Francisco, CA 94105
Phone 415-543-9833
Fax 415-896-2866
Call Toll-Free 1-800-247-0702

DRYBURGH PIANO SERVICE

distributors of
Satellite City **Hot Stuff**
adhesive products
1-800-GLUE ALL

ask for our complete guide of piano applications

10% discount on first order when you mention this ad

COMPUTER SOFTWARE

TUNING MANAGER

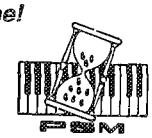
TRANSFER • STORE • EDIT
GRAPH • PRINT

Harness the power of your IBM and Accutuner

REQUIRES MIDI **$295.00**

PIANO SERVICE MANAGER

Organize Your Time!



- Scheduling On Screen
- Customer/Piano Database
- Accounting/Billing
- Prints Labels/Reports
- Daily Appointments.
- Reminder Notices
- Word Processing/Merge
- Manual & Support
- IBM Compatible
- Written for Piano Technicians by an RTT

$295.00

DEAN REYBURN, R.T.T.
2695 Indian Lakes Road
Cedar Springs, MI 49319

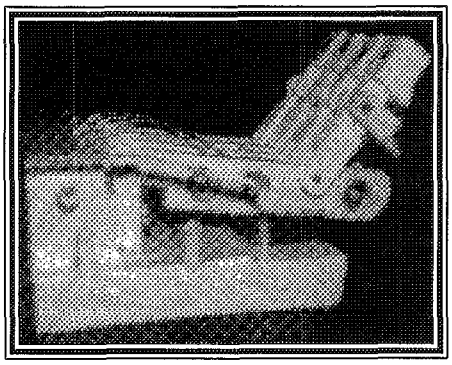
30 DAY MONEY BACK GUARANTEE
FREE DEMO DISK (SPECIFY SIZE) & INFO PACKET
616-696-0500

No More Bad Back-Actions

The new RennerUSA DamperUnderleverSystem is now available for installation in kit form.

- *Will fit all Steinway pianos including the problematic short-arm and teflon types.*
- *Qualified technicians will also be able to replace Mason & Hamlin, Baldwin, Knabe, Chickering, etc.*

Immediate Availability



Introductory Price **$350.00**

Recently Demonstrated at the PTG National Convention in Milwaukee, and important Regional Seminars, by Chris Robinson and Rick Baldassin.

Renner®
Renner USA
POB 1223
Weston, CT 06883

Phone: 203/221-7500 Fax: 203/454-7866

Or Contact:
Rick Baldassin
Teaching & Technical Consultant

Phone: 801/292-4441 Fax: 801/298-1441

PACE

Professionals Advance through Continuing Education

LESSON PLAN

Technical Lesson #12

Vertical Regulation— Adjusting Key Dip

By Bill Spurlock, RPT
Sacramento Valley Chapter

This monthly lesson plan is designed to provide step-by-step instruction in essential skills. Chapters are encouraged to use this material as the basis for special Associate meetings, or for their regular meeting program, preferably in a hands-on format. This method allows the written information to be transformed into an actual skill for each member participating.

In brief

Lesson #10 described how to determine the proper hammer blow distance and key dip for any vertical piano, and how to set that blow distance by adjusting hammer rail position. Then, Lesson #11 covered setting lost motion and leveling the keys. Once keys are leveled, key dip can be adjusted. In this lesson, participants will continue the regulation sequence by setting dip on white keys, and practicing one method of setting sharp key dip.

Getting started:

In order to pursue any serious study of piano technology, one must obtain basic resources. Catalogs from several piano supply houses, both large and small, are essential. Besides offering the necessary supplies, their pictures and item descriptions are valuable sources of information. Piano manufacturers' service manuals are also essential sources of valuable information. Most are available at no cost. Most important to participating in this Lesson Plan series are the PTG Exam Source Books, both the tuning and technical versions. Articles in these books will serve as reference material for the lessons.

Hands-on session setup:

To teach this lesson in a hands-on format, you will need one or more direct-blow vertical pianos in good condition. Used pianos in a dealership or practice room pianos at a college are good candidates, as long as they have only light wear. Ideally, parts alignment, determining optimum dip and blow, lost motion adjustment, and key leveling should have been done (as described in lessons #8-11). New pianos in a dealership might also be used, by applying the methods described here to refine their existing key dip. Action models are not suitable for this lesson.

Depending upon time available, this lesson may consist of each participant adjusting white key dip on one or two octaves, followed by setting sharp dip as described below.

Additionally, meeting setup should include:

- Extra regulating tools
- Extra balance and front rail paper punchings

Estimated lesson time:

One to two hours, depending upon the number of participants.

Tools & materials participants must bring:

For this lesson, participants should obtain the following tools:

- selection of regulating tools
- 6" steel rule, graduated in millimeters and inches (inch side should be graduated in 32ths, not 64ths, for ease of reading)
- key dip block, preferably modified as shown in figure 1

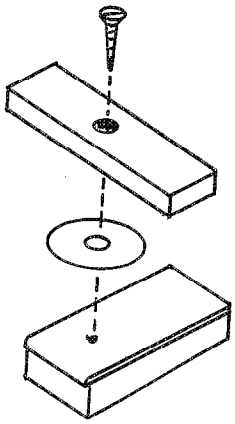
Assigned prior reading for participants:

PTG Technical Exam Source Book (PTG Home Office, 816-753-7747), pages I.9 & I.10; III.7

General instructions:

Measuring the dip of a single key or adjusting the dip of a test key to a specific setting may be done with a ruler or calipers. However, setting white key dip on an entire keyboard is normally done with a dip block, equal in thickness to the desired key dip dimension. The ordinary key dip block must first be checked for thickness, and if necessary adjusted by gluing shims to its bottom surface. Then it is placed on each key, depressed with a consistent force, and a finger is slid back and forth to compare height between the top of the block and the adjacent white key (keys must be well leveled before setting dip). While this method works well, I present the modified dip block shown in figure 1 as an option. This modification can be easily made to any existing dip block, and in my opinion makes it more accurate, faster, and easier to use. Photos 1 & 2 and their accompanying text describe use of the block.

For this lesson, participants must determine the desired white key dip as described in Lesson #10, then adjust their dip blocks, if necessary, to that dimension. If new pianos in a dealership are being used, you will not want to make wholesale changes to the existing key dip, but rather to even out the existing adjustment. In this

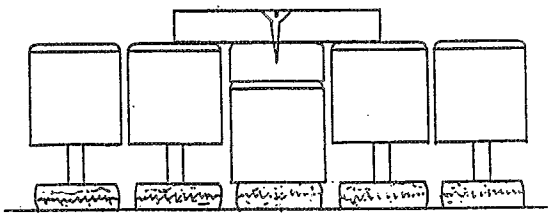


2" x 3/4" x 1/4" hardwood crosspiece

Paper front rail punchings to adjust thickness

Standard 3/8" dip block

Depress key with dip block:



- If dip is too shallow, crosspiece doesn't click on adjacent keys.
- If dip is correct, crosspiece clicks slightly on neighboring keys.
- If dip is excessive, crosspiece clicks loudly and neighbors wink downward.

case, dip blocks should be adjusted to match the average dip on the piano.

Key dip is normally adjusted first on the white keys, then on the sharps. I will describe three possible methods for gauging sharp key dip:

1. measuring the movement at the front (playing end) of the sharp key
2. comparing (by feel or sight) key movement at the capstans or wippen movement between adjacent white keys and sharps
3. comparing checking distance of white and sharp key hammers as a measure of equal wippen lift

Method 1 requires a special gauge, usually having a floating plunger that drops as the key is depressed, indicating key travel. While this method will work, it requires the user to know what key travel is desired for the sharps and at what point on the sharp top to make the measurement. It must also be possible to adjust the tool indicator to the particular dip dimension used. Due to the difference in key length and pivot point between sharps and naturals, knowing the *white* key dip dimension would not necessarily tell you how to measure dip at the front of a sharp key.

Important: The desired result is for the *capstans* of both white and sharp keys to travel the same amount. That way, all wippens, jacks, backchecks, and damper levers move the same distance as their keys are played, regardless of whether those keys are naturals or sharps. This gives all notes the same power and feel. *Thus, measuring sharp dip at the front end of the key is only valid if it results in equal capstan travel.*

Method 2 is more direct, because it measures movement of the key adjacent to the capstan, or else movement of the wippen body itself. This is illustrated in photos 3-6 and accompanying text.

Method 3 will be discussed in a later lesson, since it requires some backcheck adjustment to be done first. It is a useful and efficient method, assuming backchecks and catchers are not heavily worn.

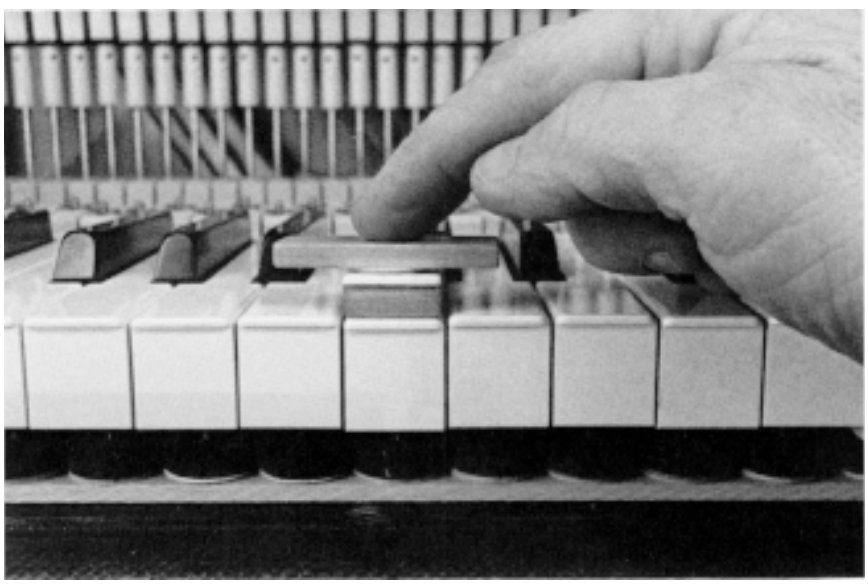


Photo 1

See Photo 2-page 20

Photos 1 & 2: The dip block is placed on each key in succession and depressed with a medium, uniform force. If using a plain dip block, slide your finger over to feel the relative height of the block and the adjacent key top, and make a decision on which is higher. Add or remove paper front punchings as necessary.

If using the block with cross piece, you will not have to make this tactile judgement. Instead, you will know whether the dip is too deep, correct, or too shallow the instant the key hits bottom, by using your sight and hearing as follows: If the cross piece clicks loudly on the neighboring naturals, and they wink noticeably, then dip is excessive. If the cross piece clicks faintly on the neighbors, and they possibly wink very slightly but are not moved downward, then the dip is correct. And if there is no clicking, the dip is too shallow.

With either block, strive to depress the keys with a uniform pressure. Uniformity will be easier with the modified block, since the "reading" occurs instantly at the bottom of the key stroke, whereas with the plain block you must maintain an even pressure on the block after it has hit bottom and while you are feeling for height. In either case, go through the white keys once to get them close. Then make a second quick pass with your block; this quick, repetitive checking from key to key makes it easier to maintain an even pressure and any errors show up readily.

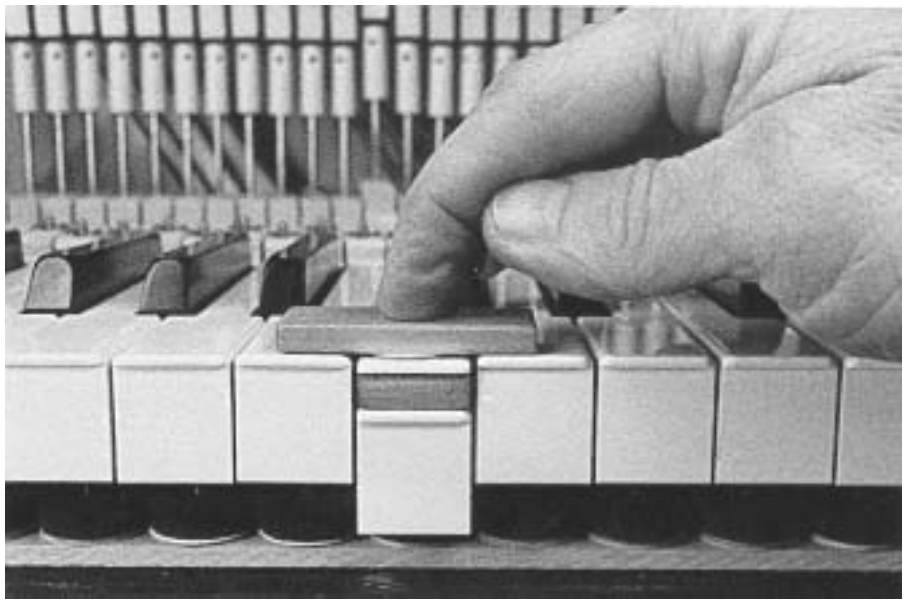


Photo 2

Photo 3

Photos 3 & 4: After setting key dip on the naturals, sharp dip can be set by comparing the relative height of two neighboring sharp and natural keys next to the capstans with the keys at rest, and then fully depressed. This method will not work on compact actions where the keys are cut down at the back, leaving no space for your finger. This test is only valid right next to the capstans. With the keys at rest (photo 3), feel the adjacent key edges. Then play and hold down both keys using equal force (photo 4), and feel again. If you are uncertain, repeat the test using the other neighboring natural key. The square key edges make it easy to feel differences in height.

Photo 4

PACE
Professionals Advance through Continuing Education
LESSON PLAN

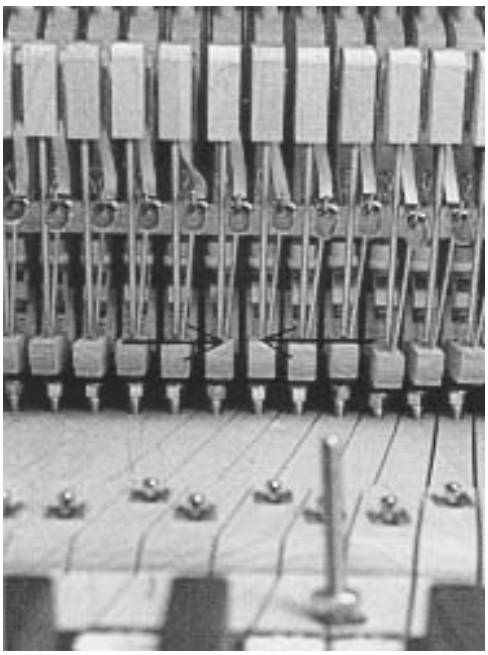


Photo 5

Photos 5 & 6: Sharp dip (equal capstan and wippen lift between sharps and naturals) can also be tested by visually comparing the travel of the wippens. Look for a distinct horizontal edge or line on each wippen, such as the top corner where the bridle wire enters, or the interface between the capstan felt and the wood. Compare the relative heights of that line or edge between adjacent sharp and natural keys at rest (photo 5), and then when fully depressed (photo 6). Differences indicate different amounts of wippen lift between the two keys, and thus unequal key dip.

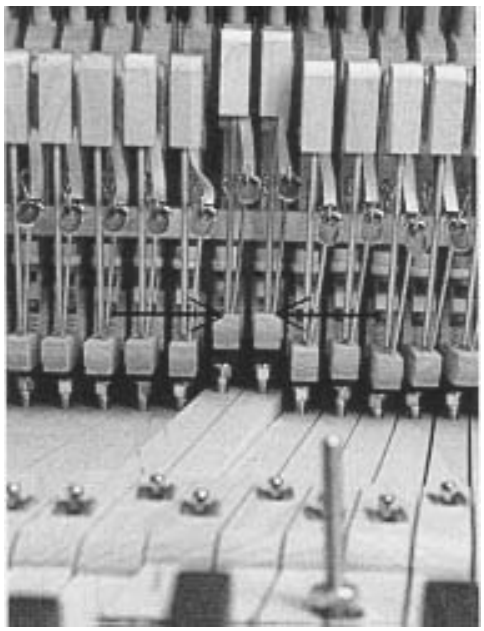


Photo 6

Summary of steps so far: Regulation must proceed in a logical order, since one adjustment often affects others. Thus, we have followed this basic order of steps so far:

1. screw tightening, followed by parts alignment
2. experimental settings of key dip and hammer blow tried on sample keys to determine the best dimensions for the given piano, followed by setting the hammer rail to that blow distance
3. lost motion adjustment, followed by key leveling
4. setting white key dip, followed by sharp dip.

Some variations in this order are equally valid, and certain steps can be done at almost any time in the process. However, in general most adjustments have some affect upon others, and therefore regulation must be refined by cycling through previous steps until an acceptable accuracy is obtained. The technician should strive to understand the relationship between the various action parts, and will then be able to determine the most efficient order of steps for each particular situation.

PACE
Professionals Advance through Continuing Education
LESSON PLAN

A portion of the following information was inadvertently left out of PACE Technical Article #11, printed in the June 1994 issue of the Piano Technicians Journal, page 19. This reprint includes only that portion of the article which was incomplete.

...Thus, a convenient way to evaluate "aftertouch" in a vertical piano is to look at the amount of jack escapement—how far the jack top trips away from the hammer butt leather. See figure 1. Several adjustments in the action affect the amount of jack escapement. These are: Adjustments in the action: See Figure 1 below.

- key dip, because dip determines the amount of wippen lift, and therefore the amount of jack rotation.
- hammer blow distance, because the available wippen lift must push the hammer to the let-off point, then continue to rotate the jack out from under the butt, increasing the blow distance (lowering the capstan) requires the wippen to begin its travel at a lower point also, thus reducing the amount of jack rotation.
- let-off distance, since this setting determines the point in the wippen travel in which the jack begins to trip. For example, increasing the let-off is done by lowering the regulating button, causing it to contact the jack earlier in the wippen travel, resulting in increased jack rotation.
- checking, since for a given jack position at the end of a key stroke, the distance between the jack top and the butt leather (amount of jack escapement) depends upon the position of the hammer butt. If the hammer checks close to the strings, the butt will be further forward, away from the jack top. If the hammer checks farther from the strings the butt leather will be closer to the jack top....

PACE

Professionals Advance through Continuing Education

LESSON PLAN

Tuning Lesson #12

Counting Beats

By Michael Travis, RPT
Washington, D.C. Chapter

This monthly lesson plan series is designed to provide supervised practice of tuning skills as a supplement to independent study and practice. Chapters are encouraged to use this material as the basis for special Associate meetings, or for their regular meeting program. Each lesson is designed to take about one hour, with about four participants. Participants are assumed to have essential reference materials and tuning tools (see PACE checklist) and access to a well-scaled large upright or grand piano for independent practice

In brief

This lesson consists of practice in beat-counting and tuning to specific beat rates using a metronome. Each participant will first measure the beat rates of the thirds and sixths up and down from an octave 3 note, and then will tune the contiguous thirds and fourths pairs from the same note, using the metronome to help establish beat rates.

Up to now in these lessons, we have been tuning just, or nearly just intervals; only our test intervals have been faster-beating. However, we didn't really care how fast, as long as we could easily compare beat rates and make them equal. Upcoming is an additional lesson on tuning just fifths and fourths, as promised, but this time as a part of a temperament, which by definition includes some beating intervals. Since tuning this temperament involves tempering intervals to specific beat rates, we need to first practice actually counting beats and setting intervals by beat rate. This will be a useful skill in other temperaments as well.

"Counting beats" in the literal sense means measuring the beat rate at a specific coincident partial level, and that is the focus of this lesson. But we are also figuratively counting beats when we remember a beat rate or compare two or more in tuning, and compromise as needed to achieve the best overall result, even though a particular beat rate may not correspond to its theoretical value. Aurally compromising beat rates is the skill most needed for more advanced tuning.

We don't really know whether the actual beat rate for the 5:4 major third F3-A3 in an aurally optimized equal temperament will be the "theoretical" 6.9 beats per second (bps). Knowing it's normally close allows us to set the temperament on most pianos by a procedure involving beat-counting. For example, we can usually set a good foundation for equal temperament by tuning the thirds, F3-A3, A3-C#4, C#4-F4, and F4-A4 beating at about 7, 9, 11 and 14 bps respectively. Another useful start to an equal temperament involves the speeds of 7, 8 and 9 bps for the intervals F3-A3, F3-D4, and A#3-D4. Both of these approaches are exemplified in chapter 7 of the Reblitz text (2nd edition, see below) under headings of "Potter F-A temperament" and "Defebaugh F-F temperament" respectively. For most of our work, it could be useful to learn and remember that benchmark 7 bps rate. On other less "cooperative" pianos, these approaches may be less efficient than those not relying on specific beat rates.

Also, at the faster beat rates, aural measurement becomes impractical, and we have to rely more on relative rates. With time and practice, we can go beyond literally counting beats and learn to tune the above and other interval series by remembering their beat rhythms and interrelationships. A useful first step in training this more intuitive feel or rhythm memory is measuring beat rates, and tuning intervals to specific beat rates on the piano. To keep things relatively easy, we will try to stay within the range of 2-7 bps for now, and practice some techniques that we can apply to faster rates as proficiency increases.

Using a metronome to help judge beat rates

A metronome is a device for marking time in adjustable intervals of ticks per minute (MM), useful for establishing tempo in music and beat rates in tuning, among other things. To help judge beat rates, for example, we could subdivide each metronome tick by four to give us four beats per tick (bpt). In music terms, the metronome setting would equal a quarter-note, and each of our beats would be a sixteenth-note. To convert our beats per second (bps) to a MM metronome setting at 4 bpt we would merely multiply by 15 (beats per second x 60 sec./min. ÷ 4 beats per tick = ticks per minute). We could also subdivide our quarter-note tick interval by two, giving us eighth-note beats, or by three, giving us triplet beats, or just use the tick right out of the box for judging slow beats. The following table presents MM settings for up to 9.0 bps at 1, 2, 3, 4, 5 and 6 bpt, that are within the normal metronome range of 40-208 MM. Not all settings are available on metronomes. Some metronomes will allow intermediate settings between the ones marked. Just use the one closest to what you want.

To calculate the MM setting for any bps value not shown, multiply the bps by the factor shown at the top of the appropriate

column to the right of the first (depending on bpt selected). To find bps from a MM setting, divide MM by the multiplier at the top of the appropriate bpt column. For example, to measure the 5:4 F3-A3 third beat rate, using bpt=4, adjust the metronome tick to coincide with the first of each group of four beats at the A5 level, and divide MM by 15 to get bps. Equivalently, using bpt=3, adjust the metronome tick to match the first of each group of three beats at the A5 level, and divide by 20 to get bps.

Metronome MM Settings

bps x60 bps x30 bps x20 bps x15 bps x12 bps x10

bps	bpt=1	bpt=2	bpt=3	bpt=4	bpt=5	bpt=6
1.0	60	—	—	—	—	—
2.0	120	60	40	—	—	—
3.0	180	90	60	45	—	—
4.0	—	120	80	60	48	40
5.0	—	150	100	75	60	50
6.0	—	180	120	90	72	60
7.0	—	210	140	105	84	70
8.0	—	—	160	120	96	80
9.0	—	—	180	135	108	90

How fast can you say "wah-wah-wah"? Di-ga this:

Armed with the information in the table and a metronome, we can now fairly accurately gauge beat rates. In counting beat rates, it helps to think of them in a purely abstract rhythmical sense. You will soon learn not to sub-vocalize "one-two-three-four-one-two-three-four" or to even think "Wah-wah-wah-wah-Wah-wah-wah-wah" as the metronome ticks. There is a limit to how fast you can do this, and in dealing with faster beat rates you'll find it hard to "wah-wah" fast enough. Try it and see! Can you say "wah-wah-wah-wah-wah-wah-wah" in one second? I doubt if even Curly the Stooge could do that!

But wait, there is hope. If you find it helps to involve the vocal cords in the rhythm-learning process, and most people do at first, "di-ga" works better than "wah-wah" for more than 1 beat per metronome tick, as follows (the tick is simultaneous with the capitol letter). For 2 beats per tick (eighth-notes): Di-ga-Di-ga-Di-ga. For 3 bpt (triplets): Di-di-ga-Di-di-ga-Di-di-ga. For 4 bpt (sixteenth-notes): Di-ga-di-ga-Di-ga-di-ga-Di-ga-di-ga. For 5 bpt (there's one in every crowd, and in every pair of contiguous major thirds): Di-ga-di-di-ga-Di-ga-di-di-ga-Di-ga-di-di-ga. For 6 bpt (two triplets): Di-di-ga-di-di-ga-Di-di-ga-di-di-ga-Di-di-ga-di-di-ga.

You can also use the hard syllables "ti" and "ka" (pronounced "ticka") in the same way as the softer "di" and "ga" above when you want to "whisper" the rhythms without activating your vocal cords.

Chapter meeting set-up

These lessons are most conveniently taught to a small group of four or five. Each group should have its own piano and RPT instructor. Each piano should be in a quiet environment for close listening. Avoid using pianos that present serious obstacles to tuning, such as deeply grooved or misaligned hammers, string termination noises, etc.

Tools & materials participants must bring

Tuning hammer and mutes, Coleman Beat Locator, small calculator. Instructor should bring a metronome.

Home study assignment for participants

Read *Piano Servicing, Tuning and Rebuilding*, by Arthur Reblitz, 2nd ed., 1993, chapter 7, and perform tuning exercises #4 and #6, pp. 222-23. Also, review, from *The PTG Tuning Examination: A Source Book*, "Beats, What They Are and Where They Come From" by Ron Berry, pp. 133-37 (*PTJ*, 8/88). An additional reference for this lesson is "How Count Beats", by W. V. McFerrin, *PTJ*, 5/77.

Practice with metronome alone: subdivide ticks by 2, 3, 4, 5 and 6 as we describe above, using the vocalizing or whispering technique. If you don't have a metronome, borrow one, or use a watch that indicates seconds and subdivide the seconds (equivalent to MM=60). Work especially on the tick subdivisions of 4 and 5, at various MM settings, alternating regularly every one or two ticks. This will drill you on the 4:5 contiguous M3 beat rate relationship.

Practice with metronome and piano: strip mute your practice piano midrange and measure the approximate beat rates in bps of all major thirds with low notes from C3-C4, using the above table as your guide. Aurally focus on the beats at the 5:4 M3 partials (see lesson #5). Then practice setting the thirds below and above a single note in the ascending ratio of 4:5 bps. For example, measure the F3-A3 M3 at four beats per tick, then tune A3-C#4 to five beats at the same MM tick. Then measure F3-A3 at five beats per tick and tune C#3-F3 to four beats at the same MM.

PACE
Professionals Advance through Continuing Education
LESSON PLAN

This contiguous thirds relationship is extremely important to learn for tuning equal temperament accurately. Try this at several locations in the midrange.

General instructions

Preceding the lesson, make sure the piano is fairly well in tune, though it needn't be master-tuned. Strip mute the midrange and upper bass. As the lesson begins, first briefly discuss its objectives and outline what each participant will do. The objectives are to gain familiarity with various beat rates and practice using a metronome to help measure and set them on the piano. Have each participant first pick a note in octave 3, and measure the beat rates of the contiguous M3's and M6s above and below the note. For example, if the participant picks F3, s/he would first measure the beat rates of the M3's, C#3-F3 and F3-A3, as well as the M6s, G#2-F3 and F3-D4. Then, have the participant tune the contiguous M3's in their ascending 4:5 beat rate ratio by adjusting F3. Finally, have the participant tune the contiguous P4's (C3-F3 and F3-A#3 in the example), each at 2 bps wide, without adjusting F3. Be sure to explain that we normally tune equal-tempered P4s at about 1 bps, and tuning them at 2 bps is just for practice with this specific beat rate. In all cases, as needed, remind participants to aurally focus on beats (see Tuning Lesson #5) at the appropriate coincident partial level. Use the Coleman Beat Locator as needed to help locate the beats. Each participant should demonstrate an ability to deal with beat rates in a range from 2-7+ bps, and should have approximately 10-15 minutes at the piano.

To measure a beat rate, first decide whether it is relatively slow, medium or fast. Slow beat rates, between approximately 0.7-3.0 bps, may be read as MM directly without subdividing the tick, and the reading divided by 60 to yield the bps. Medium beat rates, from 3-5 bps, may require subdividing the tick with two or three beats per tick, while faster rates require a smaller subdivision of the tick. Hint: if you use bpt=6, the bps/MM conversion arithmetic is easier (multiply/divide by 10). If the beat rate is too fast to measure, tune the "offending" note to slow it down a little. To calculate the bps, divide the MM setting by the appropriate factor (depends on bpt selected, see section on metronome above).

After measuring the appropriate M3 and M6 beat rates, the participant next works more with the contiguous thirds. This is a short drill on the 4:5 beat rate ratio of ascending M3s. Those observing will also benefit from the repetition of this drill. It may help if the participant can first vocalize the 4:5 rhythm at a given metronome tick (see above); it will at least be amusing to everyone else. Taking the measurement of the M3 below the selected note, the participant should now tune the contiguous M3 above so it beats 5 times at the same MM setting at which the lower M3 beats 4 times.

Finally, the participant should tune the contiguous P4s up and down from the selected note at 2 bps wide. (MM=120, bpt=1; or MM=60, bpt=2). Remember to aurally focus on the pitch of the beat.

Note: *Do you find these lesson plans valuable? Do you have specific suggestions for changes or clarification? Please direct any comments or suggestions to the author c/o the* **Journal.**

PACE
Professionals Advance through Continuing Education
LESSON PLAN

Frequently Asked...

By Kent Swafford, RPT/Contributing Editor

ACCU-TUNER QUESTIONS

I was lucky when I was learning piano technology in that I had an excellent teacher. I learned strictly aural tuning techniques, and, like many at the time, came to have a rather dim view of visual tuning. Then, ten years ago or so, I attended a class at a PTG seminar during which Dr. Al Sanderson showed a non-working prototype of a new electronic tuning device called the Accu-Tuner. The device seemed to promise some very substantial advances over the electronic tuning devices of the day. I can still remember the laughter, though, that rippled through the room when Dr. Sanderson, in answer to a question, stated that the asking price for his new device would be about one thousand dollars. I couldn't imagine why anyone would pay that kind of money for a device that, after all, wasn't necessary to those who knew aural tuning techniques. Well, I may have dismissed the Accu-tuner that first time I saw it, but a rather unlikely series of events has resulted in my becoming a piano tuner who now uses an Accu-Tuner every time I tune a piano. First, I was required to learn a little about using the Accu-Tuner as a part of giving the PTG tuning exam. Later, a local piano technician who had just purchased an Accu-Tuner passed away, and I bought a half-interest in the used device, both out of curiosity and so that the local chapter of the PTG would have an Accu-Tuner to use for the tuning exam. And finally, once I had access to an Accu-Tuner, I happened to be tuning a great number of school pianos in the evenings, and was thus able to practice with the Accu-Tuner in private without the watchful eyes and ears of any customers.

I found it a bother to add an Accu-Tuner to the already considerable load of tools that I was carrying with me to every piano. It was inconvenient to have to plug the Accu-Tuner into its charger on a regular basis. I am still a bit uncomfortable with the cost of the Accu-Tuner, now commanding considerably more than the original price of one thousand dollars. The technology in the Accu-Tuner and the techniques involved in its use are proprietary, meaning that there is no competition for it in the marketplace, and the device is priced accordingly; it is one very expensive tool! I suppose, though, that if one has priced some of the piano technicians hand tools being imported from Japan and Germany, maybe the Accu-Tuner's price won't seem too far out of line. In the end I have found the Sanderson Accu-Tuner (SAT) to be useful. I currently own two.

I would prefer to write a more generic piece called "Frequently Asked Questions About Electronic Tuning Devices," rather than something that is clearly going to sound like an advertisement for the Accu-Tuner, but the reality is that the Accu-Tuner remains the only electronic tuning device that can suggest a customized tuning for a piano based on measurements taken from that same piano. The Accu-Tuner even goes several steps beyond this singular capability. It can store the readings for a custom tuning in memory which can then be recalled when you return to that or a similar piano. And finally, the Accu-Tuner has the optional capability of saving (that is, "backing up") the memorized readings to a personal computer.

Just how good can electronic piano tuning be?

Piano tunings are as good as the piano tuner doing the tuning. There really isn't any other answer to this question. Accu-Tuners are uniform, but some tunings done with SATs are great, others are poor; the difference is in the skills of the piano tuners.

A number of people have suggested that I must have a lot of "faith" in the Accu-Tuner to use it as much as I do. Faith isn't a factor in tuning pianos. It is the piano tuner's responsibility to get the beat rates right and an SAT is just one more thing that a piano tuner can add to his or her bag of tricks to help achieve this.

Where do you put the Accu-Tuner when you tune?

The placement of the Accu-Tuner is not critical even though it may seem to be at first. On grands it can be placed at the intersections of plate struts, in the tuning pin area, or, if the lid is down, it can be placed on the lid. On verticals, it can be placed on the top of the piano. I have seem demonstrations of how it is possible to get different reading with different placements of an SAT. In practice, this is of little consequence, and anyway, I suspect one ends up placing the SAT similarly each time one tunes a given piano, as a consequence of moving the

SAT as needed to get the clearest reading. After all, the beat rates of the piano will sound different depending upon where you happen to be in the room, but one rarely hears of anyone suggesting exactly where to place one's ears while tuning.

What is the general procedure when you tune with an SAT?

Is the piano at an acceptable pitch level or will it need to be corrected first? Have you tuned this piano before? Must this tuning be done on a rigid schedule? Is this to be a concert—quality tuning or a less-demanding bread-and-butter tuning? The procedures will vary depending upon the situation and upon the tuner. The SAT is an adaptable tool; there may be as many ways of using it as there are piano tuners who use it. Some technicians use the Accu-Tuner only as a pitch source of A-440. Some don't use the SAT regularly, but have one for occasional research. Some use it only to lay the bearings in the "temperament" octave. Some use it throughout the whole piano only when doing pitch corrections. You get the idea; there are no "general" procedures that one must follow.

Do you use a temperament strip?

The use of temperament strips and mutes varies widely among piano tuners. It may be convenient to strip off an entire piano when doing a pitch correction or when tuning a piano for the first time. For subsequent tunings a pair of rubber mutes may be sufficient to mute the appropriate strings of one note at a time.

Do you really start at A0 and tune up through the scale to C8?

Yes, and this is probably the single most asked question I have heard about using the SAT, most likely because it is so different from the normal aural tuning procedure. This procedure, which assumes that readings appropriate for the piano at hand are already stored in the memory of the machine, was suggested by Dr. Sanderson himself after he did some research that seemed to suggest that starting at the bottom and working through to the top of the piano, tuning unisons along the way, produced a very stable, predictable end result. Unless I am mistaken, this research has never been published in the Piano Technicians Journal. The pitch correction function of the SAT was set up assuming that this procedure, unisons from A0 to C8, would be followed. (A full description of the SAT pitch correction function and the procedure for using it would be too long to include here, but suffice it to say that many Accu-Tuner users consider the pitch correction capabilities of the SAT alone to be worth the cost of the machine.) If you are tuning a piano that you have never tuned before, then one might create a custom tuning for the piano by first tuning the temperament octave and then creating a tuning up and down from there in order to make use of the normal aural tuning checks, saving the readings to memory as you go.

Don't you use generic tunings?

The practice of using prestored sets of readings on various pianos of similar make, model, and vintage is what is referred to as generic tuning. I have a very few stored sets of readings that I have developed myself that I use this way, but I do not use sets of readings that were developed by others. This is just personal preference. Using the SAT to develop individualized tuning on the spot based on measurements taken note by note is easy, especially if one makes a practice of it. The sets of readings that I have stored in the Accu-Tuner reflect my own tuning preferences; my SAT-assisted tunings sound much like my tunings did before I started using the Accu-Tuner, except that they are executed with greater accuracy.

Do you use the SAT to tune unisons?

Piano tuners tune pianos, Accu-Tuners do not. That said, the SAT can be a wonderfully useful tool in tuning unisons throughout the scale but particularly in the high treble. Perhaps this would be a good time to digress a bit from the questions and answers.

There are actually three measurable characteristics of inharmonicity. The first is the general level of inharmonicity, maybe high, maybe low. The second is the change in the level of inharmonicity up and down the scale, usually called the curve, maybe more curved, maybe less curved. The third is the difference in inharmonicity in a given note between what its inharmonicity really is, and what the inharmonicity might have been predicted to be by the other notes in the scale. This difference can be called inharmonic inconsistency. Inharmonic inconsistency occurs at scaling breaks or in "maverick" notes for which the beat rates just don't work out right.

When one measures a stretch number for the stretch or FAC mode of an SAT, one is measuring the general level of inharmonicity for that note. This ability to measure the general level of inharmonicity is a big part of why the SAT is useful to piano tuners. Aural piano tuners must use trial and error to determine the general level of beat rates appropriate to a given piano.

The SAT stretch or FAC mode can suggest a tuning that will produce beat rates that are usually very close to ideal for a given piano.

The stretch or FAC mode of the SAT must make assumptions about the inharmonicity curve. These assumptions usually work out quite well, number one, because many pianos are indeed scaled in fairly uniform and predictable fashion and number two, because within certain limits, different levels of stretch on a given piano are acceptable. In other words, if the assumptions about the inharmonicity curve are a little off, the tuning will likely be heard as being a little wide or a little narrow, but not necessarily wrong. Equal temperament of the piano, and piano octaves, are a bit elastic, and different piano tuners can and will use slightly varying amounts of stretch, regardless of the tuning method being used.

However, the SAT stretch modes have no way to allow for inharmonic inconsistency. The (human) piano tuner must make corrections for those notes whose beat rates don't work out as expected. The most common example of inharmonic inconsistency is in the bass. Mismatched bass strings are common because of all the variables involved with the windings. If the two notes of a unison have different amounts of copper windings, then they will also have different levels of inharmonicity and their partials will occur at different frequencies above the fundamental, and tuning the two strings together may be impossible because to tune one set of coincident partials perfectly beatless will cause beats between other sets of coincident partials.

Think about it; if a string has the "wrong" inharmonicity and its partials are at the wrong frequency, then not only will the tuner be unable to tune the string to form a beatless unison, the tuner will also be unable to tune the string to form the correct beat rates with the other notes of the scale. A compromise might need to be made between tuning the string to form both smooth tenths and clean-sounding octaves, for example. This can happen not only in the bass, but throughout the piano.

Then why bother using the Accu-Tuner for unisons if they don't always work out?

Because most of the time, they do work out, and when they do, they are glorious. But beyond that, when you tune all of the strings of a unison to the same SAT reading only to discover beats still remaining, you have learned that this may be a "problem" unison and that you may have to lower your expectations about how clean this unison can sound. This can lower your anxiety level as well.

Aural and visual techniques can enhance each other. When there is instability in the pitch of a given string (wildness), there will often be a corresponding instability in both the beat rates heard for that note and in the visual display for that note on the Accu-Tuner. The visual display can help the tuner interpret what is being heard in the beat rates checks, and vice versa. The more data, the better, particularly on wild strings.

Why bother using the stretch or FAC mode of the SAT if errors can be introduced into a tuning by doing so?

One can use the stretch or FAC mode as a "template" for a tuning. The stretch of FAC mode can suggest a tuning which fits the general inharmonicity level of the piano. These modes put the notes of piano into a standard, known relationship, and the beat rates may not be perfect. This can be seen as an advantage. When uneven beat rates are found in a stretch or FAC tuning, they may result from the inharmonic inconsistency of the piano itself and the tuner may need to lower his or her expectations about how smooth the beat rates can be. In other words, the stretch modes of the SAT lay out the inharmonic inconsistencies of a piano for all to hear. The tuner can then make an appropriate compromise and record that compromise in the memory of the SAT and not have to deal with it at all the next time the same piano is tuned. Again, anxiety can be kept to a minimum.

It is important, however, to point out that often the mistakes in temperament that can be discovered after doing a stretch mode tuning are very small, sometimes too small to bother correcting. As a practical matter, the mistakes that are made can easily be found by keeping in mind that stretch mode tuning tend to be on the wide side. While tuning wide fifths makes them beat more slowly and become more "clean-sounding," tuning wide fourths makes them beat fast, sometimes too fast, making them wild-sounding. So, after listening to octaves and determining that they are clean-sounding, a good way of checking a stretch mode tuning in the temperament octave is to play parallel fourths, listening for ones that are unacceptably fast. Once any fast fourths are smoothed out, there may be little left to do in the way of temperament refinement. Stretch mode temperaments are great starting points; it can be very easy to turn them into "perfect" temperaments. (For a full discussion of smoothing out temperaments, see the article entitled, "Temperament Refinement Procedures" in either the August 1992 Piano Technicians Journal or in the PTG Tuning Exam Source Book.)

Are there other advantages of using an SAT?

When you return to a piano whose readings you have previously stored in an SAT, you can strip off the piano and call up the reading for that piano and quickly analyze the pitch

level(s) of the piano. Piano tunings do not drift uniformly, so each section of the piano will likely have a different pitch level. If the tuning does not have to be at exactly A=440, one can check all the As and Cs of the piano against their stored readings, and offset the SAT so that the smallest changes will have to be made across the scale to reestablish a uniform pitch level. Tunings done this way have a good chance of being very stable.

In addition, for one reason or another, tunings tend to drift while you are tuning. If you go back over a tuning a second (or third) time and are using an SAT, it will be immediately apparent which section of a piano, which notes in a temperament, or which strings of a unison are the ones that have moved, and they can easily be corrected.

The SAT provides a superior way of tuning two pianos together. Assuming that the two pianos are very similar, find a tuning that works for both pianos, save it in SAT memory, and restore this tuning each time the two pianos need to be tuned together. If the two pianos to be tuned together are not very similar, then the tunings of the two pianos may need to be different, and saved separately.

Finally, the biggest advantage of the SAT may be the hardest to explain. The Accu-Tuner is a great equalizer of pianos. Any piano that is structurally sound can be tuned with an SAT using uniform procedures that will work on any piano. When using an SAT, a piano with poor scaling, dead bass, wild treble, and generally bad tone, can be no more difficult to tune than any other piano, and the results can be good, as good as is possible for that piano. With the Accu-Tuner it is possible to practice doing one's best work on every piano. It can feel good to go from a concert piano directly to a small spinet and, using the same basic procedures, do the same quality of work. True, the lesser piano still won't sound as good as the concert piano, but the difference will be the quality of the pianos, not the quality of the tunings. For those who think that some pianos will not allow good tuning work, the SAT may very well be the answer.

What are the disadvantages of using the Accu-Tuner?

There is an obvious false sense of security that can get a tuner into trouble with a tuning if he or she feels that the tuning must be good just because the lights are stopped. Piano tunings must be judged by whether the beat rates of the various intervals have been put into their correct relationships.

It can be a very unpleasant experience to be tuning a piano from the memory of an SAT only to discover that you have accidentally used the wrong readings from the wrong page of memory. User error such as this is no fault of the SAT, but such a mistake is a very definite disadvantage of tuning with an SAT.

Some technicians dislike using an SAT because it takes away from them what they enjoy about piano tuning. If one sees laying the bearings as an enjoyable "puzzle" to be solved differently for every piano, using the SAT may seem like cheating. I happen to find solving the temperament puzzle to be drudgery and a brain-drain. I much prefer to use the SAT to help solve the temperament puzzle, preserving my brain-power and will-power to be used to tune as stable as possible and to tune unisons as well as possible.

Do you use an SAT when doing touch-up tunings and intermission tuning checks?

The amount of time available to do the work is the critical factor, not whether to use the SAT. All tunings drift after they are completed, but never do so uniformly. If you use an SAT during a touch-up, any drift will be immediately apparent. If there is time to correct the drift, fine. If there is no time to correct the drift, one might offset the SAT (differently for each section of the piano if necessary) and just correct notes that have drifted relative to that section of the piano. If you limit yourself to just touching up the unisons you run the risk of the drift getting out of hand. I try to avoid tuning situations where there may not be time to fix the problems that are found.

Are there situations in which you avoid using the SAT?

I like always having the Accu-Tuner available and always using as many beat rate checks as time allows, bringing all available resources into play for every tuning.

BEHOLD

THE UPRIGHT

By Don Valley, RPT
Western Carolinas Chapter

"A Sure Foundation" could be the title as we begin from the bottom. Prior to getting into the technical matter —and lest it be left unsaid among the myriad of technical details in this set of articles— allow me to suggest a few ideas of keeping your parts organized while in the dismantled state. First, have a decent sized box to accommodate most of what you will need to insert. I have a source where I am given all the boxes that come with copy paper as they are emptied. The box is white, has no flaps but comes with a fitted cover. In bold print with a permanent felt-tip marker is printed the piano name, serial number and shop number. I have a shelf unit made for such storage. These are placed on the 16" deep shelves and are easily identified. Other items for this identification are #10 envelopes (letter size), masking tape, and smaller tip permanent felt markers. The one I find most useful is the type for making overhead transparencies. Whatever your preference, the important point is the "permanent" type.

Each part or group of parts removed is either placed in an envelope, sealed, and marked, or identified with masking tape. This is also a good way to know your proper piano nomenclature as given in "Piano Parts and Their Functions" by Merle Mason.

Now that we are organized, let's begin at where the piano touches the floor—the casters. Then the bottom board is next up. Many times, if not most of the time, the upright piano is not free wheeling. As a matter of convenience, in order to move the piano around the shop, this is step one in the repair procedure. With your tipper, lay the piano on its back. You have previously inspected the piano from all other angles; now do an inspection of what you could not see before. Take notes of items needing attention or repair. Remove the casters, one at a time; go through the restoration process and reinstall. This is presuming there is no damage to be repaired where gluing and drying time are needed.

Note the condition of the screws, their variation in size and their suitability for continued use. Note the same about the casters. If some screws are loose, tighten them prior to removal to see if they really do tighten or if you might need to use larger and/or longer ones. With the caster removed, make a judgment as to its continued effectiveness. Look for a bent shank, and in this event, replace the caster. Is there a bright metal spot on the surface? If so, that means it has been dragging on the floor. This is either from a bent shank or a loose-fitting caster on its mounting allowing it to wedge between the floor and wood of the piano. You may have to chisel away some of the concave area within which the caster revolves to remove the spot creating friction. You have probably noticed a great amount of rust, corrosion, and debris affecting the freedom of the caster. (Photo 1) Hopefully you have a sandblasting unit to sand all surfaces, initially cleaning them so further inspection is easy.

The metal now has a sort of pow-

Photo 1

dery appearance. As you work the caster parts, you will note friction from sand lodged in it. Take your air hose—fine nozzle—and force the sand out until the unit is free. From here, take it to the wire wheel and brush it briskly to further clean away any unwanted material. It is at this point you will lubricate by taking the oil can and place a spot of oil—caster oil—at each end of the axle and at each end of the shank. (Photo 2) 30 weight oil is fine. Place the caster against the spinning wire brush and spin the caster for a few seconds to spread the oil over the axle; do the same for the shank. You will be amazed at the difference—it will even do the job on a very badly rusted, corroded unit (Photo 1) Wipe away any excess oil so it does not continue to collect debris. Now that you have done this to each caster and replaced it, the piano will be free wheeling when it is righted.

Photo 2

Repairs to the caster mounting area are frequently necessary. You may find the screw holes too worn, or cracked. Rather than plug with pieces of wood, it is preferable to fill the voids with epoxy. Turn the flange to a new position. Drill new holes and secure it.

If you are not sure of the size of bit to choose for the screw you are using, measure the inside of the thread and choose a bit of that diameter. (Photo 3)

Sometimes the caster mounting area is partially torn away. In this event, I choose to rebuild it with an epoxy product by the name of Meta-Lox, an industrial metallic patching compound. It is dense as putty and strong as steel. Once mixed and applied it does not travel. Fill and form the area at least level with the base mounting for the caster flange. Let it season 24 hours. Then it can be drilled, sanded, chiseled, or whatever you choose, just like wood and yet, is much stronger.

For the not-so-extensive repair where the shaft opening is just worn, cracked, or someway oversized to fit the shaft snugly, great results are achieved by using the same product. Fill worn screw holes. Generously "butter" the inside of the shaft channel, using too much of it so squeeze-out is guaranteed. Take the caster shaft, spray a coating of mold release on it, such as McLube 1725 or Rem-Grit TFL 50, just for extra protection in the event the following step should fail. Then cover it with kitchen-type plastic wrap so the caster is not glued into place. Force the flange into the channel until it is seated and there is "ooze" around it. Clean the epoxy away to save chipping and sanding in 24 hours once it has seasoned. Now that the curing process is finished, drill the new screw holes, if needed. Remove the caster and clean away the plastic wrap. Set it back in place, install the screws, and you have a "firm foundation."

Should you need to replace the old casters with new ones, a considerable amount of fitting may be needed in that the old shank channels are often drilled at 3/4" to 7/8" and at varying depths. Note caster types (Photo 4-page 31) The new casters usually have a shaft retainer of about 1/2"(4J). In order to make up the difference, a wooden sleeve (4K) is supplied with the new casters with an outside diameter (OD) of about the same size as the original channel. For those where this is not the case, measure the new diameter, choose a drill bit of that size and drill the shaft. A WARNING! If you are drilling a new hole, the spade bit is fine. If you are enlarging an existing hole, use a round bit so you do not create further damage either to the piano or to yourself. In order to drill proper depth, measure the shank length and add 1/8". Then wrap a piece of masking tape around the bit at that point, excluding the guide points of the bit.

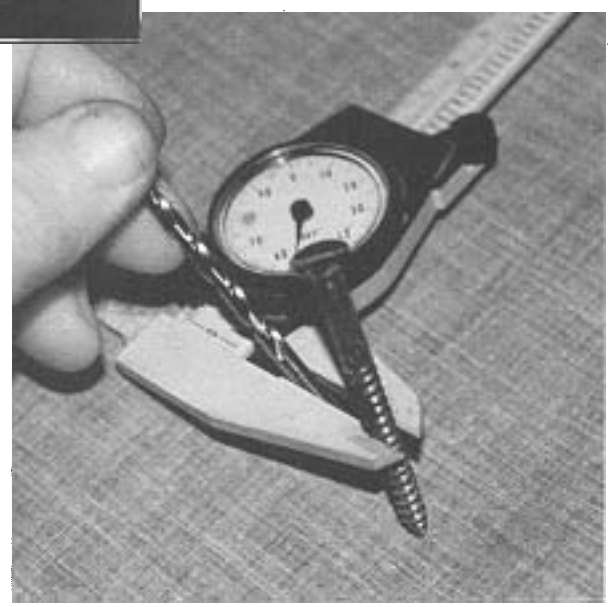


Photo 3

If the old casters are in good sound condition and can be restored to freedom, it is best to retain them rather than replace. My only change here would be those not cast but made of formed sheet steel such as in 4C. Double-wheeled "auditorium" casters (4D) are always a pleasure for easy rolling. However, because of the way they must be installed much of the time, the piano is placed at improper height for comfortable playing, especially the pedal position. In most instances there is not enough mass surface to be able to recess this larger swinging caster as it should be.

Now that casters have been somewhat rated as to their usefulness we will

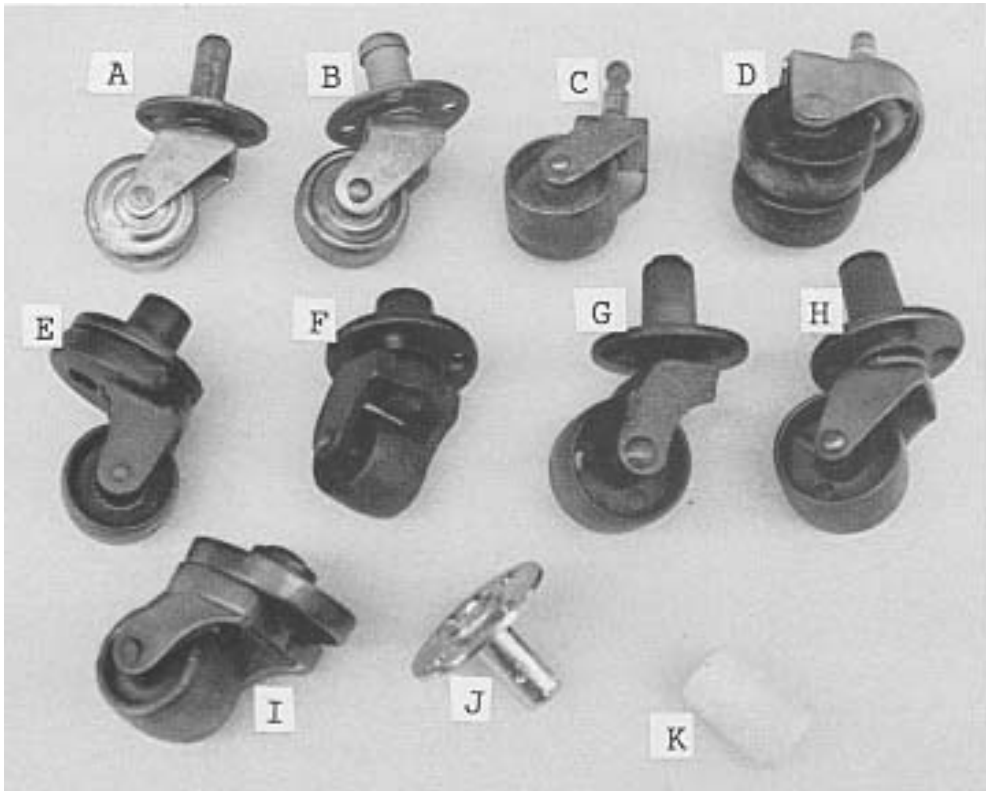
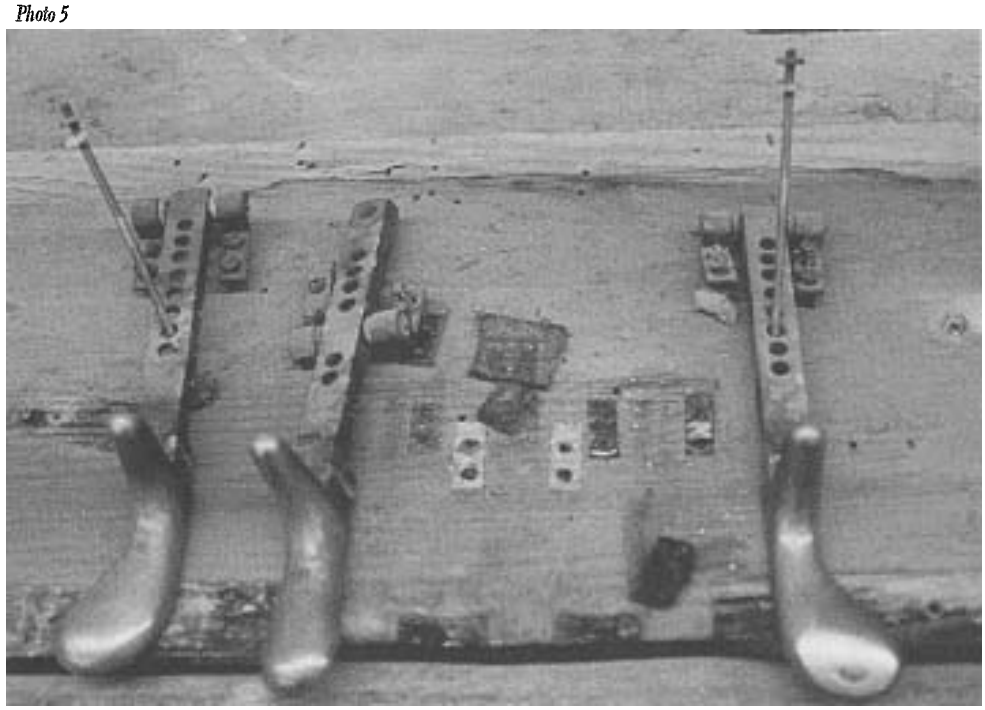


Photo 4: Identification of types

A: Cast shell caster
B: Cast Shell Caster, locked shaft unit
C: Cast Steel Caster, formed steel hub, removable
D: Double hard rubber wheel - "Auditorium"
E: Cast unit with disc bearings
F: Cast and Reduced
G: Cast unit; non-removable shaft flange
H: Cast wheel/shank flange (non-removable), formed hub
I: Restored shankless Illus. 1c
J: New Shank flange as for A or D
K: Sleeve to fit onto J

Photo 4

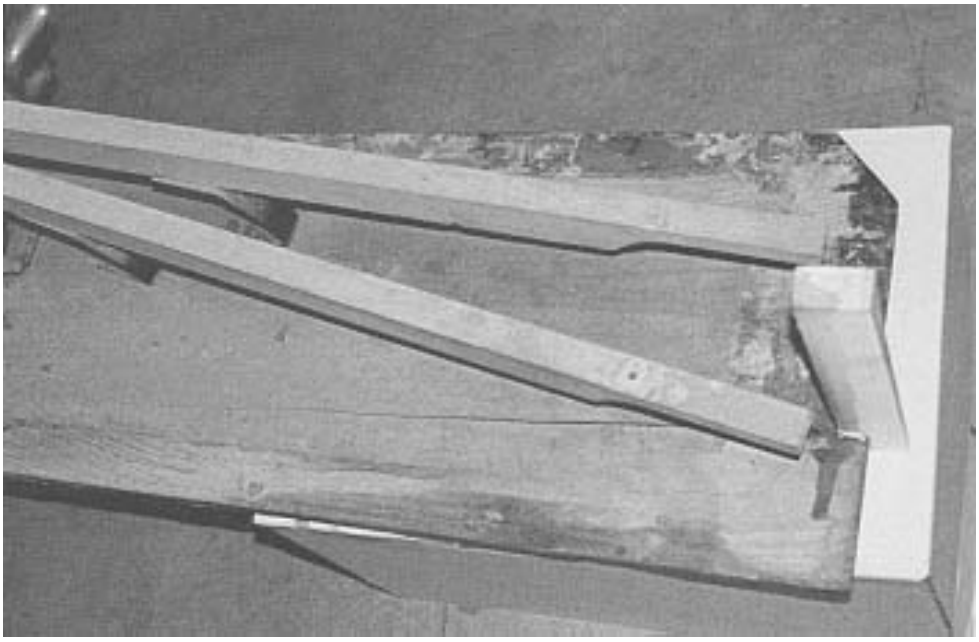
Photo 5



move on to the bottom board or "pedal board." With the piano in horizontal position on the tipper, check the pedal board for condition. Identify where all the perimeter screws are and remove them noting there may be two lengths — one for the beveled edges and another for unbeveled.

In removing the board, place a piece of felt behind the horns of the pedals so as not to damage the wood finish. Because the trap levers sometimes go to both ends of the piano, it may be necessary to remove one in order to clear the toe block prior to getting the pedal board free.

With the pedal board on the bench, remove all items attached so the board and each item can be cleaned, reconditioned, and even repaired (Photo 5). With excessive dirt out of the way, make preparations to repair the board if it is cracked or broken (Photo 6). The gluing process is similar in either in-



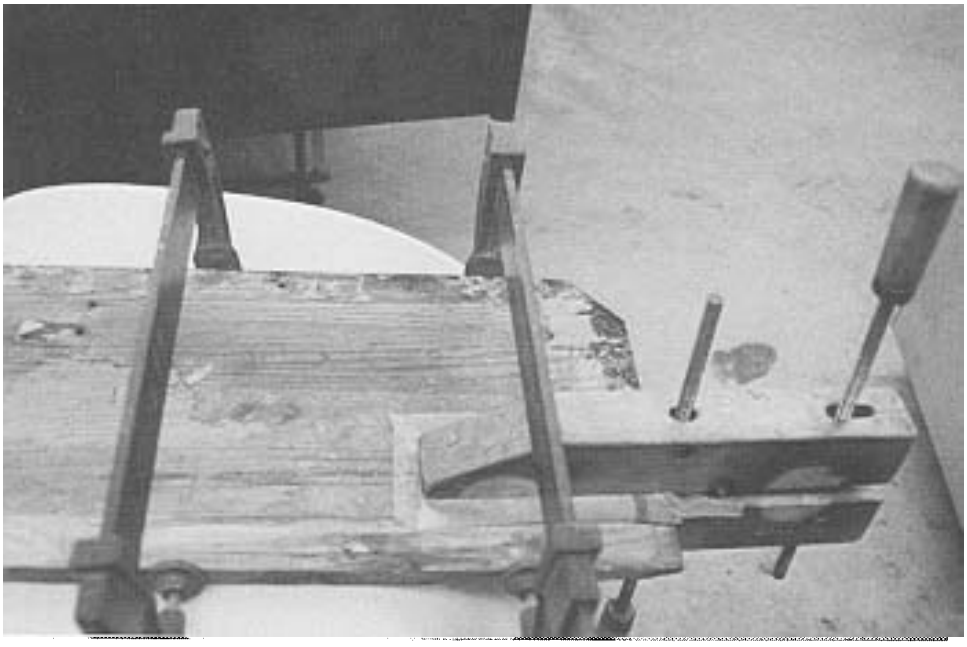


Photo 7

stance. Apply titebond to the raw edges; use Jorgensen clamps to keep the parts level. A piece of wax paper will protect the jaws of the clamp while glue is drying. Place pipe clamps, or similar bar clamps, along the edges, protecting those edges with strips of wood (Photo 7). Tighten firmly so glue oozes from the joints. While letting it dry, return to the rest of the trap work and pedals. I am sort of a stickler on cleaning, so without further mention, clean all parts with combinations of your proven cleaning agents and sandblasting, as the situation fits.

The pedals, if they are brass, can be cleaned and polished on the buffing wheel and then sealed. A good solution for sealing metals is simple. Simply mix lacquer thinner and lacquer 4:1; I keep a large wide-mouth jar of it all the time. The surfaces behind the horn—if there is one—can be sandblasted and wire-brushed. All the fittings, mounting blocks, trap levers, and lever brackets need cleaning as above (Photo 8, page 33). This may be done while the board is drying; it is best to let the board dry overnight. The next morning sandblast the board, sand it with fine sandpaper, spray it with clear lacquer. When this is dry, turn it upside down and blacken the edges. A good item that dries quickly is flat black lacquer in the small spray can from your local building supply house. When the drying process has finished, you may begin reassembling the trap work, pedals, et al. Place bumper felt cloth beneath the pedal horn, gluing it in order to keep pedals from bottoming out and knocking, as well as preventing excessive damper lift. Where there was a felt punching, replace it with a new one.

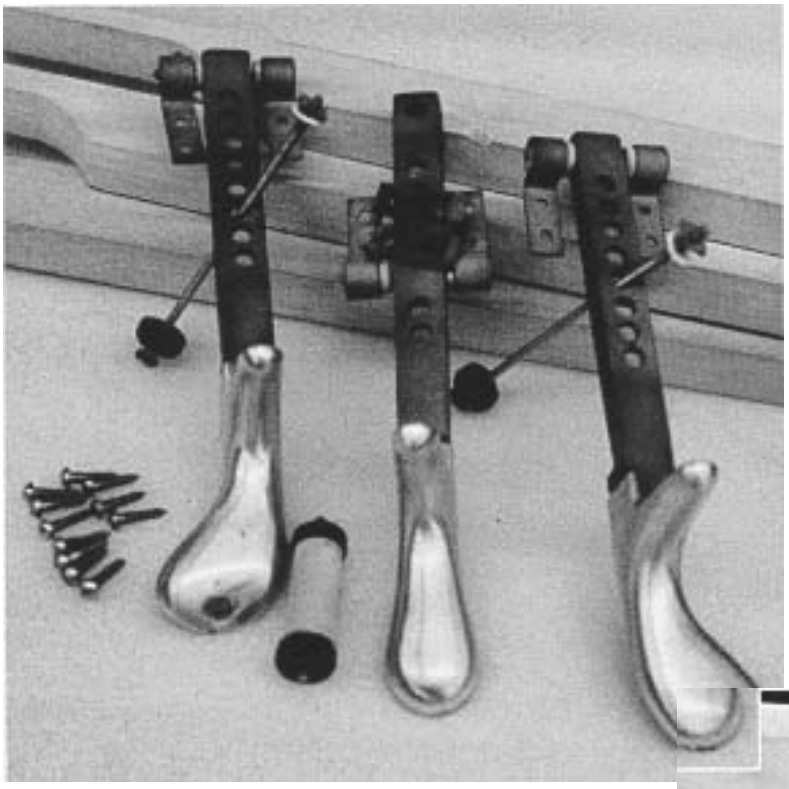
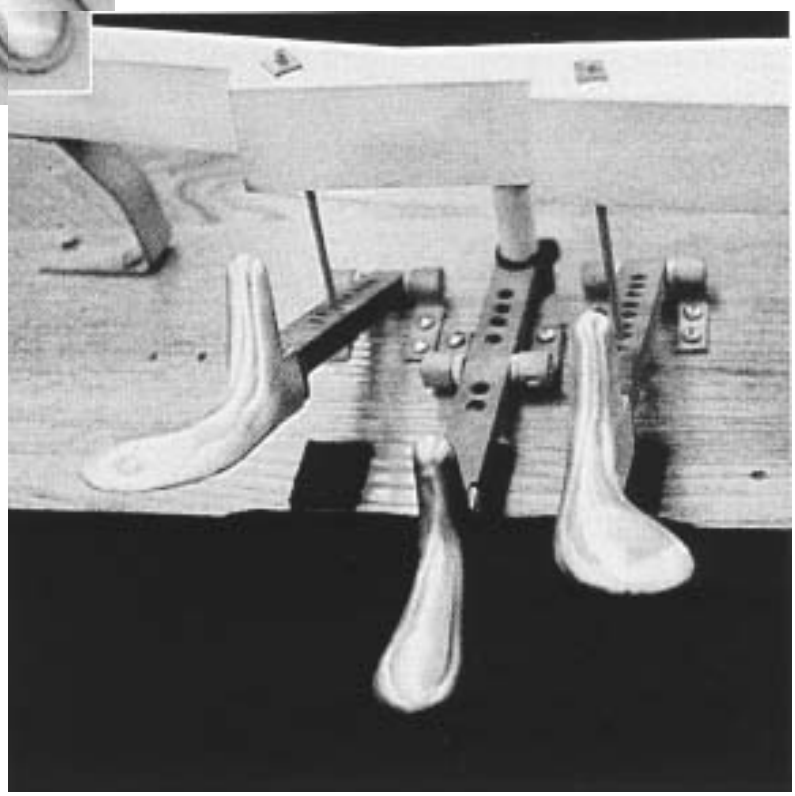


Photo 8

Photo 9



Now is a good time to rebush the cut-outs in the pedal rail; line them with medium or thick nameboard felt, placing a thick block of felt or cloth as an upstop. There may be springs to replace at this time. Once the bottom board is complete and looks like new, (Photo 9), replace it back on the piano. Now you can stand the upright up and work with it in your shop, moving it around freely as you choose. There is a lot of pleasure in accomplishing such a task and a sense of pride in a job well done.

Product Addresses:

Meta-Lox: Chemsearch
PO Box 152170, Irving, TX 75015-2170
1-800-527-9921
Texas 1-800-4427950

McLube 1725 and Rem Grit TFL 50
are acquired through your familiar piano parts supply houses.

INHARMONICITY & THE TEMPERAMENT

ARTICLE • 1

Introduction & Perspective

Daniel Levitan, RPT
New York City Chapter

An aural piano tuning begins with the temperament—the division of a section of the piano, usually an octave in the middle of the instrument, into equal-sized semitones. Making this division by ear requires knowledge of how the notes of the temperament should sound when they are correctly tuned; and for most of us, that means a familiarity with the rates of the beats that can be heard when certain intervals—principally fifths, fourths, thirds, and sixths—are played in the temperament area.

Today, there is little argument about what those beat rates should be, at least in theory. We are all familiar with a set of ideal beat rates for equal temperament—the 6.9 beat-per-second major third F3-A3, or the one bps fourth A3-D4—which have been widely disseminated since around the turn of the century. These beat rates are derived from calculations made of the frequencies of the temperament notes and their overtones under conditions of zero inharmonicity.

When we tune a large piano with low inharmonicity, we can expect to achieve a temperament having beat rates pretty close to these theoretical speeds. When we tune a piano with moderate to severe inharmonicity problems, however, few of us expect that every beat rate in the temperament we produce will match this idea. To confidently and quickly tune a solid temperament on one of these smaller instruments, we need to have an understanding, not only of the ideal beat rates, but also of which intervals to expect to vary from the ideal, and in what way. Considering that the bulk of pianos fall into this small-to-medium category, this is not a trivial issue, and most of us, over the course of our careers, develop or acquire at least a few conceptions regarding the beat rates of intervals in these smaller instruments to guide us in tuning their temperaments. These guidelines, unfortunately, are not universally agreed upon, and even less widely understood.

It's tempting to assume that this is because inharmonicity affects temperament beat rates on small pianos in an essentially random way, so there is no way to predict in advance what they should be. But if we make such an assumption we effectively give up any hope of ever setting a good temperament aurally on a smaller piano. Even if we begin by tuning temperament intervals to beat at a speed matching the theoretical beat rates as closely as possible, we run rather quickly into some irreconcilable conflicts. At that point we are forced to start moving notes around, hoping somehow to get our piano's beat rates to match,at some level of approximation, the theoretical speeds. After a while we suppose that we've gotten as close as we can, call it a day, and move on to the octaves and unisons.

But why assume that the deviations of beat rates on a small piano will be random? If we take a look at the scale of a small piano, we almost never find any likely causes for random fluctuations. If the bridge zigzagged along in jagged steps; if steel wire alternated with iron, brass, and aluminum wire along the scale; if wire diameters varied randomly—then we would expect unpredictably fluctuating inharmonicity in the temperament. But the bridge usually curves smoothly along, the strings are usually all made of the same steel wire, and diameters usually increase regularly—just like in a concert grand! At the worst, there may be a break in the middle of the temperament section as the plain wire changes to wound. Doesn't it seem that whatever modifications to theory these small pianos demand, they should be regular and predictable too?

What, then, should these modifications be? I have heard and read a wide variety of rules of thumb, sometimes conflicting, that various tuners use to guide themselves in the setting of the temperament in small pianos. Here are some of them, along with some unspoken assumptions that many of us make about the temperament:

- Temperament intervals beat faster in pianos with high inharmonicity.
- If the temperament octave is set too narrow on a spinet, it won't be possible to fit a temperament within it.
- The beat rates in the temperament section of a concert grand match the theoretical beat rates because its strings have low inharmonicity.
- Bass strings in the lower part of the temperament section usually increase inharmonicity

problems in that part of the temperament.

•If a perfect 6:3 octave is tuned, a theoretically perfect temperament is set within the octave, and perfect 6:3 octaves are tuned down from each note, the notes in the lower octave will also form a perfectly equal temperament.

•A smoothly increasing progression of beat rate speeds in all the intervals of the temperament indicates that it has been tuned as an ideal equal temperament.

•Two contiguous major thirds in an ideally tuned equal temperament always beat in the ratio of about 4:5.

•All fourths in an ideally tuned equal temperament tend to be about the same size.

•A 4:2 octave on a piano is never wider than a 6:3 octave.

•Fifths are always narrow in equal temperament.

Strictly speaking, all these statements are false—although some contain more than a grain of truth, and even some wisdom, in that they can be used to produce quite good tunings anyway! In the series of articles which begins this month, we'll try to sort out fact from fiction and develop our own rules of thumb based on an understanding of how inharmonicity affects the sound of the temperament in a small piano. Unfortunately, we won't discover a prescription for the one right way to tune a particular spinet's temperament. We'll discover that there is no such thing—we'll find that as inharmonicity increases, good taste, experience and the wisdom that comes from an intimate understanding of the situation at hand will all influence the way we tune a particular temperament. But first, we must have the facts.

I will assume throughout this series that you are already familiar with the beat rates of temperament intervals under conditions of zero inharmonicity, and that you have a working understanding of how those intervals relate to each other. If you don't, you will find numerous books, as well as articles in the Journal, with this information. The classic source is still, of course, William Braid White's "Piano Tuning and Allied Arts."

Before closing for this month, I'd like to bring up a few issues that may help to put our further investigations into perspective.

I mentioned at the beginning of this article that the usual approach to tuning a piano is to begin by tuning a temperament, to tune octaves from the temperament, and finally to tune unisons from the octaves. This approach is time-tested, and has the weight of history and tradition to recommend it. Indeed, it's hard to imagine tuning a piano aurally any other way. But I think it's reasonable for us to wonder if this approach really results in the best tunings. If you tune electronically, chances are this is not the approach you are using. You can use a machine to imitate the traditional aural approach or to copy a tuning created by you, or someone else, using the traditional approach; but more likely you are tuning the partials of the strings to frequencies which have been calculated to deviate from the theoretical frequencies of equal temperament by amounts derived from a program which makes assumptions about the inharmonicity of the particular piano you are tuning and about what constitutes a good tuning. This, or some other way, may well be the best way to tune a piano—I'm going to leave that for you to decide. But for the purposes of this article, we will assume that we have decided, for the time being at least, to take the historical approach, and to begin our tuning by setting as perfect a temperament as we can. Further, we will assume that the temperament lies within the octave F3-F4. This probably reflects the practice of the majority of tuners.

"I will assume throughout this series that you are already familiar with the beat rates of temperament intervals under conditions of zero inharmonicity, and that you have a working understanding of how those intervals relate to each other."

In our aural approach, we have recognized three types of tuning—temperament, octave and unison. Which is the most difficult? Most tuners would agree that unison tuning is the most difficult, both because the cents tolerance for a good-sounding unison is so small, and because people complain of sour unisons long before they notice a noisy fifth or bad progression of thirds. Clear unisons are like the high polish on a lens: no matter how finely a lens has been shaped, it's useless until polishing has made it transparent; and no matter how well a temperament or octave has been tuned, it is inaudible until good unisons allow it to be heard.

Good temperament tuning can pose just as much of a challenge, but the challenge lies at a much higher level of complexity than that of unison tuning. Tuning unisons, for all its difficulty and importance, is a rather straightforward procedure. Many

pianists will at some time or other attempt to fix a few unisons on their pianos; few will attempt an equal temperament, and far fewer will achieve one. Learning to tune the temperament section of a piano at a level of competence which will pass the PTG tuning exam may take years, and those who can do it are right to be proud of their skill.

Are the best tuners today capable of tuning better unisons than the best piano tuners in the early 1700s? Probably not. Are they capable of tuning better equal temperaments? Absolutely. Even though the idea of equal temperament—whether described as dividing an octave into twelve equal steps, or as dividing the comma of Pythagoras equally among twelve fifths—dates back at least two thousand years, still, as Owen Jorgenson has recently demonstrated in his book, "Tuning," it wasn't until the beginning of our own century that the best piano tuners were capable of regularly tuning a true equal temperament.

Today, of course, the better tuners are quite capable of tuning a true equal temperament at will. Then again, the better tuners tend to tune larger, higher-quality instruments. It's ironic that the less experienced tuners are more often tuning smaller pianos, where an intimate knowledge of inharmonicity and temperaments is more critical. It is like the claim one sometimes hears that, while anyone can rebuild a well-made piano, it takes an expert to rebuild a third-rate instrument. The point is that if the way the instrument was put together doesn't reflect the theoretical underpinnings of good piano making, then the rebuilder's knowledge of that theory becomes vital to his or her success. In a small piano, even the best scale designer is going to have been forced to make compromises with inharmonicity, and the tuner who is armed with a practical knowledge of inharmonicity will be more likely to get a good tuning on that instrument.

"...It's ironic that the less experienced tuners are more often tuning smaller pianos, where an intimate knowledge of inharmonicity and temperament is more critical...

...In a small piano, even the best scale designer is going to have been forced to make compromises with inharmonicity, and the tuner who is armed with a practical knowledge of inharmonicity will be more likely to get a good tuning on that instrument..."

Finally—why bother? Why work to achieve a marginally better temperament on a piano that won't sound that great no matter how it's tuned? Wouldn't our time be better spent focusing on octaves and unisons?

Maybe so, but we do have to tune the temperament at some point; and when we do, though we may not expect to hit the bull's eye, we should at least aim for the center of the target. Taking the time to understand how the temperament section ought to sound on a small piano will save us plenty of time and frustration later on. We'll set a better temperament in less time, because we'll know what beat rates to look for from the outset. We'll understand which compromises are likely to move us in the direction we want to go and which are not. And we'll tune the rest of the piano more quickly as well, because having a better temperament means that we'll have to spend less time worrying over compromises in our octaves, and that our parallel interval tests will be more reliable. We'll also be much more flexible in our tuning, because we'll know where we can and cannot afford to bend the rules.

Our investigations continue next month with a look at the effects of inharmonicity on isolated intervals.

PARTIAL HEARING

Your Greatest Asset

Jack Stebbins, RPT

Sonorous bodies produce sound. If the sound is pleasing we call it tone. If not, we call it noise. We have names for most of the tones we recognize: A, A#, B, C, C#, etc. But the tones are far more complex than the names indicate.

Consider the air in an organ pipe. It vibrates in its entirety at a pitch we call the fundamental. But it also divides itself into smaller segments that produce additional tones. These divisions are exact fractional parts of the column of air: 1/2, 1/3, 1/4, 1/5, 1/6, and on to infinity. Each of these segments produces a pitch of its own called a harmonic, a partial, or an overtone. The fundamental and its series of harmonics are all present in the tone we are listening to.

Let's look at a sample harmonic series. These harmonics correspond more or less to the notes on the keyboard. We'll call the fundamental, or the first harmonic, of this organ pipe C3. The second harmonic is produced by each half of the air column at a pitch one octave higher than the fundamental, C4. The third harmonic coming from each third of the column of air sounds a fifth above that, G4. The fourth harmonic produces the fourth above that, C5. The fifth harmonic, the major third, E5. The sixth harmonic, the minor third, G5. The seventh harmonic, a smaller minor third, A#5. And the eighth harmonic, a major second, C6. If we compress these harmonics into one octave, we have the basics for the 19th century harmony to which our ears have become so accustomed: the root, M3, 5th, and m7 of the common major chord.

At this point prepare your first demonstration. With a 10' length of clothesline or, even better, plastic rope, tie one end to a fixed object about waist high. Tie the other end to the reciprocating shaft of a hand-held power jigsaw. Stretch the line taut, and turn on the saw. By changing the tension on the rope, you can change the number of segments being produced. With this demonstration you can produce in turn seven, six, five, four, or maybe even three segments. A column of air in an organ pipe or a string on a piano, on the other hand, produces each of these segments *and infinitely more* all together at the same time.

Consciously or unconsciously you have been making use of this knowledge of partials in any tuning you have done. Out-of-tuneness is perceivable when any two fundamentals *or any of their partials* are not in perfect unison. In-tuneness is perceivable when any two fundamentals and each of their partials are all in perfect unison. This is achievable on the piano only with the interval we call the unison and then only when the strings are perfectly matched.

At this point it will be helpful to play any note on the piano. Listen to one string only. As you listen, begin dissecting the tone cluster in your mind's eye. Focus your attention first on the fundamental which will be the most prominent tone. Next, shift your attention an octave higher to partial two. It may help you to focus on the right pitch by playing once the equivalent note on the keyboard. Now pick out the third partial. Then the fourth, the fifth, and so on. If you chose a string below the middle of the keyboard, you may very well be able to identify seven or more partials in turn above the fundamental. The higher you are on the keyboard, the fewer you will be able to isolate. But they are there, and with practice you can separate more of them out.

Probably the first interval you ever tuned was a unison. Up to this point in your career, the unison has been at once the easiest and the hardest interval to tune. Easy because you didn't need any tuning theory to attempt it. Hard because you didn't know precisely when to stop moving that hammer. Equipped with the tuning skills described here, you will find the task becoming easier.

When you hear two strings of one note that are out of phase, you hear audible pulses. We speak of the note as being out of tune and the pulses as beats. If the note is way out of tune, you hear the fundamentals

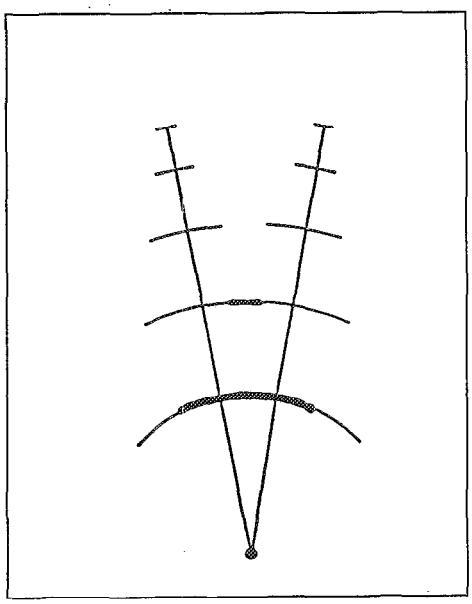


Figure 1

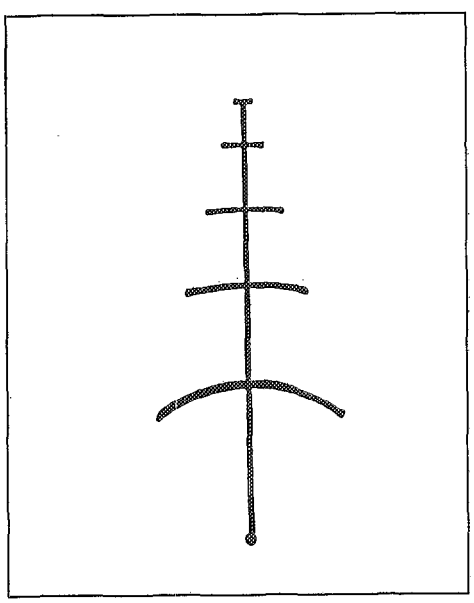


Figure 2

The higher the partial you choose to listen to, the better the chance you have of tuning a dead-on unison.

beating rapidly. As you tune one string and move it closer to the other, you hear the beating slow down. You move the string until the beating nearly stops. Typically now, you start to fuss with the string, tweaking it back and forth, a little sharp, a little flat, trying to get out all of the meowing that insinuates itself upon your consciousness from the depths of the tone.

Now it's time to try something new. As you tune this unison try the focusing exercise we practiced earlier. As the fundamentals come into unison, shift your attention to partial two. It will be moving slightly. Bring it into unison, and listen to partial three. Tune it, and shift your attention, in turn to each of the partials in the series as far up as you can hear. When you have finished the exercise, you will have a dead-on unison.

The concept of this exercise can be illustrated by a modified Christmas tree, figure 2. The base of the tree is your tuning pin. Think of figure 1 as being two strings of one note not quite in unison. The branches of the tree are arcs in the motion of the tuning hammer, and they represent a series of partials, from lowest to highest.

The overlapping in the lowest two branches represents an incomplete convergence of the two strings at the fundamental and the second partial. The greater the overlap, the less useful the partial is in detecting beats. If you are off of dead center, however, the upper partials will still be apart. The higher the partial, the greater the distance between them, and the faster the beating. Therefore, and this is the purpose of the illustration, *the higher the partial you choose to listen to, the better the chance you have of tuning a dead-on unison*, figure 2.

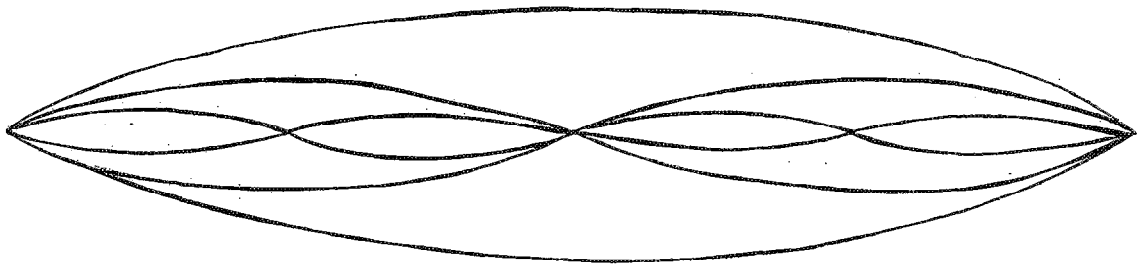
Now let us look at partials as they relate to tuning other intervals. With the piano string we have a departure from the simple harmonic situation of the organ pipe. Because the nature of vibrating steel and vibrating air is so different, the nature of the tones they produce is also different. In an organ pipe the speaking length of each vibrating segment of air is simple and exact. Each terminates clearly and precisely: figure 3. In the piano string, however, the steel is so stiff that the precise division of the string segments veers off theoretical. Each successive vibrating segment of the piano string begins and ends further from the termination point of the whole string: figure 4. Because of this, each segment is slightly shorter than its equivalent in the organ pipe, and each harmonic is correspondingly sharp. It is this deviation of the harmonics from their theoretical frequencies that we call inharmonicity. And because the harmonics are not precisely harmonic, we speak of them instead as partials.

In equal temperament, between any note and its neighbor on the theoretical keyboard there are 100 cents. The organ conforms to this description, but the piano deviates from it. The amount of deviation varies from piano to piano. Typically, partial two, an octave up, is .6 of a cent sharp of theoretical. Partial four, two octaves up, is 2.3 cents sharp. Partial eight, three octaves up, 8.5 cents sharp: partial sixteen, four octaves, 33.6 cents, and so on, each succeeding partial becoming progressively sharper than its theoretical equivalent.

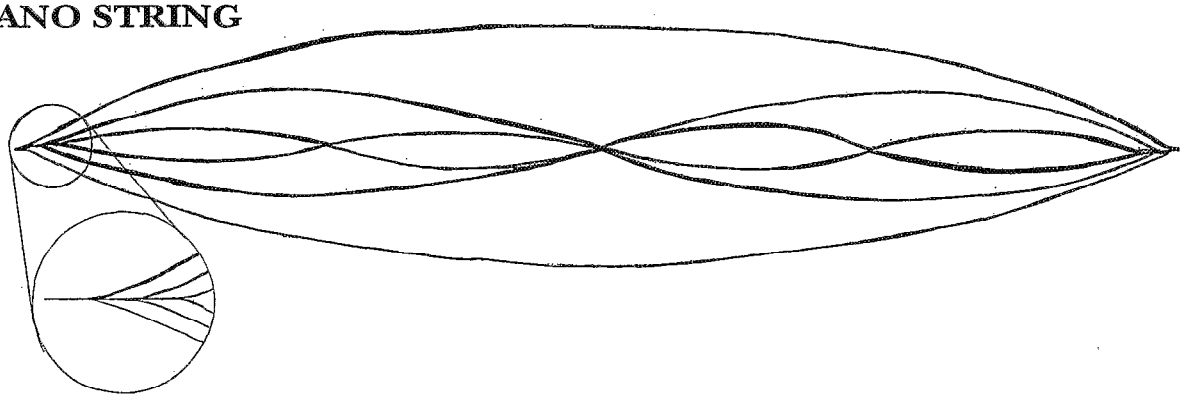
Look at the charts on page 41. Each is identified by a note name. The circled number 1 indicates that the fundamental is partial one. Each note has its first eight partials labeled. Separate the chart that says TOP NOTE, and fold it along the vertical line. Now lay it on top of the *bottom note*, and align the two F4s.

In unisons, all partials of one string are in common with the other string. This is not true of other intervals. These have only limited partials in common. In the same way we focused on pairs of partials in tuning unisons, we now focus on pairs of partials in tuning other intervals. In the illustration before you, you see that F4, F5, C6, and F6 are common to both notes. C5 is not common. Neither are A5 and D#6. *Beats occur between only those partials that are common to both notes.*

AIR IN AN ORGAN PIPE **Figures 3 & 4**



PIANO STRING



If they are not in unison with each other, these coincidental partials will be beating.

With the F4s on your charts aligned properly, you have the 2nd partial of the bottom note in unison with the 1st partial of the top note. This we call a 2:1 octave. As such the other coincidental partials are not in unison. You can hear them beating: the F5s beating slowly, the C6s beating faster, and the F6s even faster. Why are the other partials out of unison? *Inharmonicity!* Partials get increasingly sharp as you go up. Upper partials of the bottom note are sharper than the corresponding partials of the top note.

The 2:1 octave you have in front of you is the narrowest of acceptable octaves. Other kinds of octaves are in common use. You can choose another pair of partials to tune in unison, and you will have another type of octave. Look at the F6s. They are almost in unison but not quite. In order to achieve a unison here, you have to sharpen the top note. As you do so, the F4s will no longer remain in unison, and you will obtain a wider octave. Acceptable, but wider. In this case a 4:2 octave. Similarly you can choose to tune the C6s or the F6s and obtain a 6:3 or an 8:4 octave respectively. In each case you have to sharpen the top note in order to achieve a unison. All the other partials will diverge from unison and start beating accordingly.

Irrespective of which partial you choose to tune, the octave you obtain will be subject to inharmonicity. Partial two of A440 would theoretically vibrate at 880 hz. Because of inharmonicity, however, the partial lies a cent or so sharp of 880. Each of the higher partials reaches, or stretches, yet sharper. The 2:1 octave we illustrated on the chart, while it is the narrowest of octaves, stretches wider than theoretical. The other octaves stretch still wider. *Stretching is something that happens, not something you do.*

All right. You now have at your disposal an arsenal of different octaves to use when you are tuning. How do you know which is appropriate? The simplest answer is: you let the piano tell you. You use the octave that sounds best. As a rule of thumb, the wider octaves sound better on longer strings. Spinet strings never get long enough to make 8:4 or 10:5 octaves sound good. There are some useful conventions you may observe. From your temperament down to the bottom of the piano, 6:3 octaves usually sound good. From the temperament up an octave or so, 4:2 octaves are common. Above that, 2:1 octaves are useful.

Your selection of a test note will help determine what kind of octave you obtain. The proper test note, when played with either note of your interval, will create beats at the partial of you choice. A list of test notes is as follows:

Type of 8ve	Test Note	Coincidental Partial
2:1	M10 below bottom note	top note
4:2	M3 below bottom note	8ve above top note
6:3	m3 above bottom note	12th above top note (8ve + 5th)
8:4	M3 below top note	two 8ves above top note
10:5	m3 below top note	17th above top note (two 8ves + M3)
12:6	m3 above top note	19th above top note (two 8ves + 5th)

Using the chart in front of you, move the top note and tune a 4:2 octave. You do that by bringing the F5s into unison. Typically, you would tune that interval by playing the two notes and listening to the F5s converge to a beatless unison. Then you would confirm your accuracy by checking the interval with a test note. From the table above, in this case, you would use C#3, the note a M3 below the lower note of your octave. By playing C# and F3 together you have a beat speed given to you. Remember it and play C# and F4 together. If this second speed is exactly the same, you have a good 4:2 octave. If it is faster than the first, your octave is too wide. If slower, your octave is too narrow for a 4:2.

Let me insert a disclaimer here. If you have developed a style of tuning which calls, say, for the test interval of a M10 to beat slightly faster than a M3, I am not calling your style wrong. If, however, you think you have to make the M10 faster than the M3 in order to stretch the octave, it is your premise that is wrong.

As you continue tuning octaves up into the treble, the beat speeds you are comparing will be getting faster and faster. Along about F#5, I normally drop my test note an octave. At that point I would be playing D3 together with F#4 and then with F#5. If the beat speeds were the same, I would have a good 2:1 octave. This test I typically use from here to the top of the piano.

In tuning the bass, I customarily use the 6:3 octave. In tuning E3, I play E3 and E4 together and listen for beating at B5. I move E3 until the B5s are beatless. Then I check the octave with my test note, G3. Listening first to the test note together with the note I'm not moving, E4, and then together with the note I am tuning, I keep moving E3 until the comparative beat speeds are identical. I then have a perfect 6:3 octave. You may normally use this octave test from here to the bottom of the piano.

This principal of listening to partials and comparing beat speeds applies to all of the intervals used in tuning. As with the octaves, one interval may have more than one pair of coincidental partials, the higher partials producing a wider interval. A table of the commonly used intervals follows, the ration numbers indicating the coinciding partials of the notes involved.

Type Interval	Test Note	Coincidental Partial
5th (3:2)	M6 below bottom note	8ve above top note
5th (6:4)	M3 below top note	two 8ves above top note
4th (4:3)	M3 below bottom note	two 8ves above bottom note
M3 (5:4)		two 8ves above top note
m3 (6:5)		two 8ves + 5th above bottom note
m3 (7:6)		two 8ves + 5th above top note
M6 (5:3)		8ve + 5th above top note
m6 (8:5)		three 8ves above bottom note

This incomplete list of intervals and their partials does little more than acquaint you with the phenomenon.

Let me reiterate the two points I intend for you to take away.

(1) The higher the partial you choose to listen to, the better the chance you have of tuning a dead-on unison.

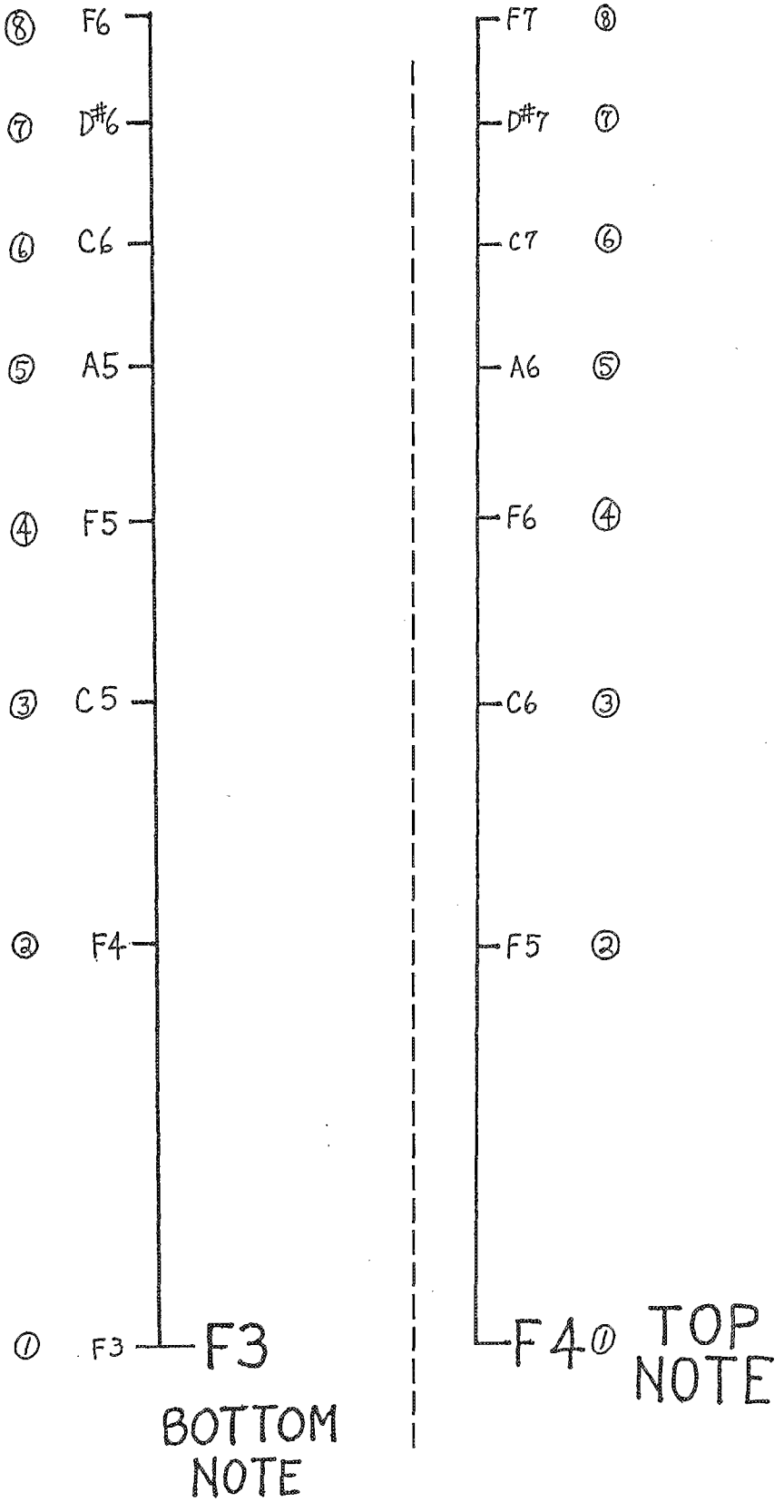
(2) Stretching is something that happens, not something you do.

The purpose of this article is to introduce you to the subject. Hopefully, it will help your focus as you hone your tuning skills.

Charts

Copy this chart on a copy machine and separate the bottom note chart from the top note chart by cutting down the dotted line.

Then, follow the instruction outlined in "Partial Hearing—Your Greatest Asset" to help you focus on your tuning skills.



The Tuner

By Paul Monroe

A continuing series directed to the associate working toward RPT status.

To summarize where we are to date, the temperament is tuned and the octaves in the tenor and treble sections are also tuned. We are about to proceed from the temperament down through the bass section.

Recheck the temperament, make adjustments as necessary, remembering to check the tenor and treble octaves if you do make any changes. Tune E3 to E4. Check this octave using the 3rd-10th test, the outside 6th-inside 3rds test, and check the even progression of beat rates in the 3rds, 6ths and 10ths. These beat rates should be slowing down as you progress down the keyboard. There are other tests but at this point these tests will achieve a good tuning for the beginning tuner.

Some readers may not have understood the outside 6th-inside 3rd test from a previous article so I'll explain again by example.

The M6th, F3-D4 beat rate should be in between the beat rate of M3rd, G3-B3 and M3rd, G#3-C4.

M3rd	G3-B3 = 7.8
M6th	F3-D4 = 7.9
M3rd	G#3-C4 = 8.0

In tuning the bass section, I use all of the test intervals available until beat rates become too slow and tend to slow down my tuning. It is at this point—and it varies from one piano to another—that I utilize the simple use of coincidental partials.

For this article I will start using F2 as a starting point. Tune F2 to F3. Try to tune the octave as pure as possible. To check the accuracy, depress F2 and F3, slow enough not to strike the strings and sufficient enough to release the dampers from the strings. As you hold down the octave, strike F4 in staccato fashion, left handed tuners on verticals with their left hand and right handed tuners with their right hand. What do you hear? Is it pure tone without any beats or a rolling effect? Which side of perfect is it tuned, the contracted or expanded side? It should be on the expanded side of perfect, without beats and at most with a very slow roll.

By holding down the octave and striking F4, the double octave of F2, you excite the 2nd partial of F2, the bottom note of the octave. You also excite the 1st partial of the top note, F3. This method of tuning in the bass section will give you basically pure octaves.

There is another way of tuning the bass section using the same method but exciting different coincidental partials. Hold down the octave F2-F3 and, in staccato fashion, strike C5. This will excite the 6th partial of the bottom note, F2 and the 3rd partial of the top note. F3. I try to make this combination beatless. (Keep checking the beat rate progressions on the 10ths and 17ths.)

By now you are beginning to think the tuning business is phenomenal so let me introduce another phenomenon. When you first play the octave F2-F3, you have difficultly hearing the combination of the 6-3 coincidental partials. I have found the following suggestion works.

Hold down the octave F2-F3 as before. Strike in staccato fashion C5. Listen for the tone. Now play the octave F2-F3 and listen. You should be able to hear the 6-3 coincidental partial more clearly than before. Eventually you will be able to utilize this method and increase your speed in tuning the bass section.

For a little enjoyment try the following experiment. Play the octave C1-C2 and record on paper what you hear. Then hold down the octave C1-C2, releasing the dampers from the strings and in staccato fashion strike C3-G3-C4-E4-G4. Listen. Now play the octave C1-C2 again and record what you hear this time. It is surprising what you can hear when you wake up your subconscious computer.

At this point I can visualize some of our long time craftsman tuners are saying. "Aha!—wait till they start tuning. It isn't as easy as it sounds when you read the words on the written page"; and they are right. So what follows are some of the problems you will be facing.

In some pianos, the transition from plain string to wound string causes a hitch, as some technicians call it. In other words you cannot have the beat rates of every interval you have tuned fit in with perfection. You will have to compromise; ie: as you progress down the keyboard the beat rate of the M3rds should slow down evenly. You may find that M3rd C3-F3 may have the same beat rate as C#3-F#3. This can happen not only with M3rds but with all of the other intervals such as the M6ths, 4ths, 5ths, etc. However, I consider it unacceptable to have the M3rd C3-F3 beating faster than C#3-F#3.

Other ideas where compromise is common in small grands and vertical pianos is the tenor-bass break or transition where wound strings start to cross over the tenor section, moving from bicord unisons to unicord and from single wound to double wound strings.

In my experiences the sections of a piano that need compromising vary from one instrument to another. Therefore it is virtually impossible to describe what to do for every piano. Remember, however, that the piano must sound as good as it was designed to sound when you finish tuning.

It has been said that a good tuner is one who is a master in the art of compromise. For this capability there is only one source and that is experience. With each piano you tune you will learn more about it. May I suggest at this point that when you complete tuning a piano, make sure you are satisfied. If you are satisfied, most likely your client will be also.

Hopefully these articles have been of assistance to the Associate. They have been designed to motivate you in becoming a good RPT tuner. Therefore, please remember that the tuning procedures in these articles are but a beginning. When you have mastered these few suggestions, be creative and do some research and analysis of your own. If you wonder about some of the things you come up with, ask someone in your chapter to check out your discovery.

Next month the topic will be unison tuning and hammer technique.

Here's a list of some of the less common, less obvious, and more frustrating damper and trapwork problems you might encounter.

Grand Damper Detours

We'll start at the top and work our way down.

- Damper heads loose on wires can cause a rattle.
- Damper heads at the end of sections can rattle against plate struts.
- Worn or missing guide rail bushings can cause a rattle, particularly in the bass when the damper returns.
- Excessive damper wire side pressure against the guide rail bushings can cause excessive whooshing when the dampers are lifted with the pedal, or in the case of one piano with a very thin guide rail, the wire "bowed" the guide rail and caused it to sing.
- Leads in underlevers will click if they're loose.
- Return springs on the top of the underlevers can click or groan if the slot is grooved or dirty, or the spring broken.
- Underlever flanges can become unglued or unscrewed.
- Leaf-type damper tray return springs can cause problems, as discussed last month.
- Damper tray lift dowels can groan against the underside of the tray, or against the sides of the hole in the keybed that it passes through. See last month again.
- Keybeds can be loose, or flexing.
- The keyframe glides/studs that are poorly finished or adjusted too low will squeak.
- Keybed contaminated with lacquer or lubricants will cause sluggish or noisy shifting.
- Failed lyre glue joints can cause squeaks, and loss of regulation.
- Missing lyre braces will cause problems, as will trap levers rubbing against improperly installed lyre braces.
- Poorly finished pedal rod ends can wear through the rubber tip in the pedal cup, or through the leather on traplevers.
- The pedal rod guide/brace on Steinway lyres has an up side. If it's installed upside down, the pedal rods will bind in the guide.

Vile Vertical Dampers

This time we'll start at the bottom.

- Bottom/pedal board loose from case and toe board causes noise and loss of regulation.
- Pedals rubbing against slots in toe board.
- Pedal mounts loose from bottom board.
- Missing pedal bolt bushing, or bolt in wrong hole in pedal.
- Trap levers and mounts loose or rubbing against each other or case.
- Lift dowels rubbing in keybed, or guide bushing worn/missing.
- Lift dowel-damper lift rod joint dirty and/or rough or bushing missing.
- Damper lift rod surface that wipes against damper levers dirty.
- Damper lift rod hangers loose, dirty, or bushing missing.
- Damper lever return spring has worn a groove into excessively thick coating of brightly colored hi-tech lubricant (also happens on butt springs), causing a click as the part moves and the spring jumps in and out of groove.
- Damper wire cut-offs fell into action at factory.
- Damper head screw loose, or heads rubbing against neighbors or action studs.
- Action brackets not held down tightly by down pressure from studs, causing action to lift slightly and squeak when dampers are lifted.

Please notice that in all of these cases the correct repair is not the application of any lubricant, but simply(!) finding the offending parts and then cleaning, smoothing, tightening, and aligning the parts. Thanks to my anonymous colleagues for contributing some of the treasures in the more frustrating category.

Techno-*Stuff*

By Richard Anderson, RPT
Feature Writer
Chicago Chapter

PTG Review
Dedicated To PTG News • Interests & Organizational Activities
PIANO TECHNICIANS GUILD

PASSAGES

William Moonan, Jr.
January 25, 1924
June 23, 1994

William Moonan, Jr. died at his home in Rome, NY after a long illness.

Mr. Moonan was a long standing member of the Piano Technicians Guild and was a piano tuning instructor and an officer of the New York Conference of the PTG. He served as vice president of the Syracuse chapter of the Guild and Vice President of the Piano Technicians Guild. In addition, he retired in 1981 after 27 years with Rome City School District and owned and operated Bill Moonan's Piano Service with his son, Tom.

Mr. Moonan also served with many area musical groups and theater productions, including Rome Free Academy's A Cappella Choir, the Robert Shaw Chorale and RCA Victor Orchestra.

He is survived by his wife, Margaret, three daughters and four sons.

Reclassifications to RPT

REGION 2

201-WASHINGTON, DC

CHARLES W. LESHER
3 GRANT CIRCLE
MECHANICSVILLE, MD 20659

REGION 3

771-HOUSTON, TX

AVERY B. TODD
SCHOOL OF MUSIC
UNIV. OF HOUSTON
HOUSTON, TX 77004

EVENTS CALENDAR

All seminars, conferences, conventions and events listed here are approved PTG activities.

Chapters and regions wishing to have their function listed must complete a seminar request form. To obtain one of these forms, contact PTG Home Office or your Regional Vice President.

Once approval is given and your request form reaches Home Office, your event will be listed through the month in which it is to take place.

Deadline to be included in the Events Calendar is at least 45 days before the publication date, however, once the request is approved, it will automatically be included in the next available issue.

September 24
Pomona Valley Annual Seminar
Clearmont Methodist Church
Contact: John Voss
2616 Mill Creek Road
Mentone, CA 92359
909-794-1559

October 6-9
Ohio State Conference
Cleveland, Ohio
Contact: Janet Leary
18817 Hilliard
Ohio 44116
216-331-8126

October 13-16
New York State Conference
Sheraton Inn
Syracuse, NY
Contact: Paul Kupelian
PO Box 162
Constantia, NY 13044-0162
315-623-9484

October 27-30
Texas State Association
Sheraton Inn
Wichita Falls, TX
Contact: Dale Probst
4447 Cunningham
Wichita Falls, TX 76308
817-691-3682

November 3-6
North Carolina State Conference
Radisson Hotel/High Point, NC
Contact: Evelyn Smith
1041 S. Aycock Street
Greensboro, NC 27403
919-230-1783

Reclassifications to RPT continued

REGION 4

441-CLEVELAND, OH

ROBERT J. MYERS
18431 STATION ROAD
COLUMBIA STATION, OH 44028

GERALD M. PALUCK
2710 DAISY AVENUE
CLEVELAND, OH 44109

481-DETROIT-WINDSOR, MI

KENNETH L. MILLER
11377 SILVER LAKE ROAD
BYRON, MI 48418

Reading/Lancaster Chapter Hosts Mason & Hamlin Tour

Each year the Reading/ Lancaster Chapter embarks on a field trip. This year, Willis Snyder suggested to the members at one of our monthly meetings to visit Mason & Hamlin in Haverhill, Massachusetts. The members approved and Willis planned an overnight excursion. We rented a bus that has bathroom facilities on board. Twenty-three members of the PTG signed up for the trip. We had plenty of room on the bus to stretch out for the long ride. Three chapters of the PTG were represented. Willis and Kathryn Snyder, Leavitt & Betty Keener, Debbie & Bill Northey, Chris Rogers, Debbie Kinkaid, David Snyder, Glen & Nathan Landis, Clyde Hollinger, Dan Sponenburg came from the Reading/ Lancaster Chapter. John Zeiner, Sr. came from the Lehigh Valley Chapter. And Paul McMillan, Douglas McMillan, Dick Traux, Keith Bowman, Mike Carraher, and Joe Crone came from the South Central Chapter. With a quick stop at McD's along the way, we made the trip in about eight and a half hours. Arriving at the Comfort Suites Hotel in Haverhill around 5:00 p.m., we were met by Lloyd Meyer, Chief Operations Officer of Mason & Hamlin and two members of his staff, Paul Monachino and Pete Bourassa. We were informed by Lloyd, that we had enough time to check into our rooms, freshen up and meet back down in the lobby for we were to be the guests of Mason & Hamlin for dinner at Mike's Harbor Side Seafood restaurant a few miles away.

The following morning, two more members of the Reading/ Lancaster chapter, Cathy & Mike Redden, met up with the group and jumped back on the bus to go to the Mason & Hamlin Factory.

Our tour began with a brief description of the history of Mason and Hamlin. The Mason & Hamlin piano was re-introduced when Santi Falcone began the Falcone Piano Company in 1982 in Haverhill. Falcone ran into financial difficulties around 1988 and Bernard Greer stepped in with the needed capital bringing Lloyd Meyer, former president of Steinway & Sons, as Chief Operating Officer. The company is now bringing the Mason & Hamlin name back into the public light. Falcone and Sohmer pianos are also being produced at the Haverhill facility.

We broke up into three groups and began to follow our guides through the process of piano manufacturing. Our group was fortunate to have Peter Mohr, the Technical Supervisor as our guide. The first room we entered was recognized without any effort. The milling room held the aroma of fine wood. We were shown the work of key beds with the tongue and groove joints, the shaping and the trap work being glued to the bottom. The next location was the rim making room and all the different rim presses for each style of grand and each manufactured name. The drying and the moisture rooms were of interest. Each room holds pieces of work for specific time for precise moisture being entered or extracted. The bridge press was a really interesting process. The use of a fireman's hose is a fantastic idea. It was amazing, being able to see each craftsman working on his specialty. The staff takes pride in their jobs. The pattern maker, the trapwork setter, the rim finisher, the veneers adders, the hammer hangers, the regulators, the chippers, the stringers, the bridge builder, and all of the others I neglected to mention. Each member of the Mason & Hamlin staff holds a part of each piano coming out of this facility. And it is all hand done. The upright manufacturing section is still under development. Plans for the near future are in the works for creating upright pianos. We had the opportunity to see the beginning of the rim process with the gluing of the lengths of wood together. Four members of the staff, after gluing, rounded the rim onto the press and set the clamps in place. These were no small clamps.

Mason & Hamlin set up a lunch for the "tourists" and we had the chance to ask any question that may not have been awarded during our tour.

We were delighted to have had this opportunity to tour Mason & Hamlin. The entire staff were very welcoming. They didn't act as though they minded that we were looking over their shoulders one bit. Even the staff member that was notching out the bridges didn't miss his mark.

We thank Lloyd Meyer and Mason & Hamlin for their hospitality. We suggest other chapters contact Lloyd Meyer for a tour of a factory that creates fine pianos with their heads, hearts, and their hands.

New Members In June

REGION 1

062-TORONTO, ON

KEITH J. BARNEY
1226 LAKESHORE ROAD
SARNIA, ON N7S 2L3
CANADA

080-SOUTH JERSEY

SHERRY L. OSTRANDER
P. O. BOX 515
WATERFORD, NJ 08089

117-LONG ISLAND-SUFFOLK, NY

RICHARD W. NIELSEN
29 BUHL LANE
E. NORTHPORT, NY 11731

118-LONG ISLAND-CRISTOFORI, NY

RONALD E. TRAXLER
LATTINGTOWN ROAD
GLEN COVE, NY 11542

165-ERIE, PA

STEPHEN G. BROWN
508 LILLIAN DRIVE
SHARON, PA 16146

REGION 2

335-SARASOTA-FT. MYERS, FL

ED MASHBURN
8991 SILKWOOD COURT
SARASOTA, FL 34238

337-SOUTHWEST FLORIDA, FL

WILLIAM A. PILLUCERE
5043 6TH AVENUE, S.
ST. PETERSBURG, FL 33707

DAVID J. PRUSZYNSKI
511 DORA
CLEARWATER, FL 34625

372-NASHVILLE, TN

STEPHEN W. LEHNER
550 HARDING PLACE, #B107
NASHVILLE, TN 37211

379-KNOXVILLE, TN

THOMAS A. RUSH
1300 ELFIN ROAD
LOOKOUT MOUNTAIN, GA 30750

RAY T. TIPTON
1173 MCFARLAND ST.
MORRISTOWN, TN 37814

REGION 3

731-OKLAHOMA

BENJAMIN J. DAVIS
P. O. BOX 359
LUTHER, OK 73054

MICHAEL W. ROBERTS
P. O. BOX 1482
GUYMON, OK 73942

752-DALLAS, TX

R. ARLIS LANSFORD
414 WEAVER STREET
CEDAR HILL, TX 75104

GARY L. NELSON
3406 CACTUS
DENTON, TX 76201

TIMOTHY D. THURSTON
2609 DRISKILL
EULESS, TX 76039

787-AUSTIN, TX

FERNANDO M. MORALES
CALLE MANUEL
XALAPA, VERACRUZ
MEXICO

HERMAN C. RICH
121 E. DAVILLA
GRANGER, TX 76530

REGION 4

405-BLUEGRASS, KY

MICHAEL W. HART
P. O. BOX 268
CORBIN, KY 40702

481-DETROIT-WINDSOR, MI

ROBIN K. PIETRZAK
23821 OXFORD
DEARBORN, MI 48124

LEONARD L. WILLIAMS
32543 MERRITT
WESTLAND, MI 48185

537-MADISON, WI

ROBIN L. PIERSON
795 S. SHELDON ST.
RICHLAND CENTER, WI 53581

600-WAUKEGAN, IL

TERRY M. WADE
2649 CRAWFORD AVE.
EVANSTON, IL 60201

601-CHICAGO, IL

JAMES W. SCOTT
3200 N. LAKE SHORE DR., #2001
CHICAGO, IL 60057

REGION 5

511-SIOUXLAND, IA

BRENDA A. HUNTER
P. O. BOX 2111
SIOUX CITY, IA 51104

RYAN J. MCSPADDEN
604 GRANT STREET
CANTON, MO 63435

553-TWIN CITIES, MN

MARY C. CORBIN
BOX 279, RR1
PARKERS PRAIRIE, MN 56361

RICHARD R. DARLAND
4920 OAKLEY STREET
DULUTH, MN 55804

SUSAN K. MCKIE
222 W. CURTICE
WEST ST. PAUL, MN 55118

JERRY D. NELSON
1203 HILLSBORO AVE., N
CHAMPLIN, MN 55316

KEN E. ZAHLER
504 1ST STREET, SW
ST. MICHAEL, MN 55376

641-KANSAS CITY, MO

TONY W. MITCHELL
RR 8, BOX 105
NEOSHO, MO 64850

MICHAEL P. SILVER
17000 KICKAPOO RD.
LEAVENWORTH, KS 66048

653-OZARK, MO

MICHAEL W. BUTTERWORTH
4305 B READOSA
COLUMBIA, MO 65203

TIMOTHY P. NELSON
4901 AZTEC
COLUMBIA, MO 65202

KENNETH A. ZAHRINGER
7681 W. HENDERSON ROAD
COLUMBIA, MO 65202

REGION 6

901-LOS ANGELES, CA

J. RANDOLPH HOSTETLER
1342 1/2 MCDUFF STREET
LOS ANGELES, CA 90026

905-SOUTH BAY, CA

BENJAMIN L. SPERBER
591 N. PLYMOUTH BLVD.
LOS ANGELES, CA 90004

917-POMONA VALLEY, CA

ROBERT F. HILL
1205 W. CYPRESS ST. #262
SAN DIMAS, CA 91773

941-SAN FRANCISCO, CA

JOHN F. OLIPHANT
30 VALPARAISO ST.
SAN FRANCISCO, CA 94133

956-SACRAMENTO VALLEY, CA

ROBERT FREEMAN
4540 G PARKWAY
SACRAMENTO, CA 95823

REGION 7

010-CALGARY, AB

DAVID P. ALBRECHT
BOX 46
HAWARDEN, SK S0H 1Y0
CANADA

JOSEF ROSCH
96 RAINDRIDGE DRIVE, NW
CALGARY, AB T3G 1W2
CANADA

013-BC COAST AND INLAND, BC

ROD K. VERHNJAK
#13 15531 24TH AVE.
SURREY, BC V4A 2J4
CANADA

981-SEATTLE, WA

LAURIE K. BROWN
4515 BURKE AVENUE N., #4
SEATTLE, WA 98103

985-PUGET SOUND, WA

ANGEL C. OROZCO
9203 28TH AVE., S., #56
TACOMA, WA 98409

992-INLAND NORTHWEST, WA

MONICA P. STUGELMEYER
S. 523 WASHINGTON, #2
SPOKANE, WA 99204

996-ALASKA

SUSAN CARMAN
719 LOWER MILL BAY RD.
KODIAK, AK 99615

PTG Marketing Tools

Brochures:

- How should I take care for my piano?
- How often should my piano be serviced?
- Special care and maintenance of the teaching piano.

50/$20, 100/$35, 500/$150

Technical Bulletins:

- Pitch Raising
- Regulation
- Humidity Control
- Voicing
- Finish Care
- Rebuilding

50/$12, 100/$20, 500/$90

Educational Materials

- PTG Technical Exam Source Book
- PTG Tuning Exam Source book

$29 each

Merchandise

- Journal Binders

1/$6.50, 2/$12

- Membership Lapel Pin *

$5.00

- PTG Gray Tie

$15.00

- PTG Blue Luggage Tag-Embossed

$3.00

- Coffee Mug

1/$4.00, 4/$13.00, 6/$22.00

- Pedestal Mug-10 Oz. clear

$1/$5.00, 4/$16.00, 6/$22.00

**RPTs Only*

To place your order for any of these items call 816-753-7747

Reminder cards or Business cards also available from PTG

OHIO STATE CONFERENCE 1994

Sponsored by the CLEVELAND CHAPTER - PIANO TECHNICIANS GUILD

Clarion Hotel & Conference Center—Eastlake, Ohio

October 6-9, 1994

Comprehensive Class Subjects	Exhibitors	College & University Program
Mini Techs	Panel of Experts Forum	Auxiliary Program
Hands-On Classes	Business Classes	Excellent Facilities

Instructors:

Joel and Priscilla Rappaport
- *Hands-On Vertical Hammer & Damper Replacement*
- *Advanced Vertical Regulation*

Mason & Hamlin's Paul Monachino
- *Grand Damper Installation, Reg. & Troubleshooting*

Inventronics' Dr. Albert Sanderson
- *Baldassin/Sanderson Aural Temperament*

Willis and David Snyder
- *Grand Action Restoration, Reg., Reconditioning, Repairs, Geometry Corrections, Limitations*

Steinway & Sons' Scott Jones
- *Voicing the New York Steinway Hammer*

Brooks Ltd.'s Wally Brooks
- *Grand Action Rebuilding for Fun and Profit*
- *Rebuilding Business: Estimates/Contracts/Appraisals*

Michael Wathen
- *Tuning Exam Preparation*

Pianotek's Bob Marinelli
- *Keyboard Replacement*
- *Professional Tools from Pianotek*

Conover Workshop's Ernie Conover
- *Hand Tool Maintenance and Handling*

College & University Technician Forum's Ken Sloane
- *Steps to a Playable Steinway for Discerning Musicians*
- *C&U Forum on Administrative and Technical Issues*

Mini-Techs-Alan Nemeth Moderator
- *Eclectic Technical Collection with 6 Instructors*

Kevin & Janet Leary
- *Troubleshooting Your Customer Relations*

Ken Slater and Supporting Staff
- *Hands-on Action Model Regulation - Grand*
- *Hands-on Action Model Regulation - Vertical*

Make your plans now to join us! For further information contact:

Kevin or Janet Leary

216-331-5605

Early Registration Deadline: September 15, 1994

PTG Foundation
Mission Statement

"The Piano Technicians Guild Foundation is formed to support the goals of PTG by preserving and displaying historical materials and providing scholarships and grants for piano performance, study and research."

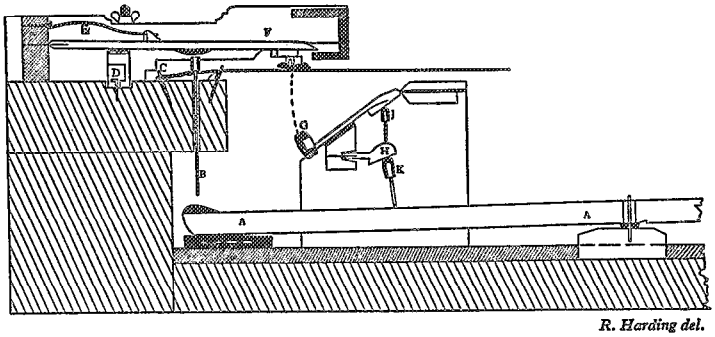


Fig. 52. Érard's action 'à double pilotes', 1790 (No. B 39. Plate III reversed).
A, key; *B*, the damper stick; *C*, hitch pin; *D*, portion of the mechanism for raising the damper; *E*, damper spring; *F*, damper; *G*, the hammer; *H*, the "false hammer" or intermediate lever; *J*, *K*, the jacks.

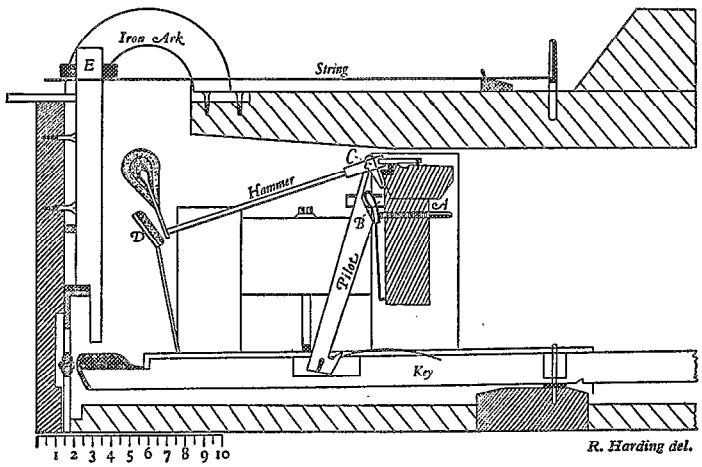


Fig. 53. The Érard grand action, 1796 (No. B 39. Plate IV reversed).
A, regulating screw working upon a spring; *B*, spring; *C*, set of buttons; *D*, check; *E*, damper.

...from the book *Old Pianos* by N.E. Michel (Revera, California, 1954). This volume, part of the library of William Braid White, was donated to the Piano Technicians Guild Foundation Museum and Archives by Fred Odenheimer.

As part of its adopted mission—"...to participate in the preservation of resource materials..."—The PTG Foundation has taken on the challenge of accumulating an archive of materials in piano technology, as well as a facility in which those materials can be displayed and used. If you have historical materials that you would like to donate to the Foundation, please contact Roger Weisensteiner, PO Box 432, French Lick, IN 47432.

If you wish to support this important effort financially, please send you contributions to the Piano Technicians Guild Foundation, 3930 Washington, Kansas City, MO 64111-2963.

AUXILIARY EXCHANGE

Dedicated To Auxiliary News and Interests

Consider This To Be Your Wake Up Call!

Thank you for your confidence in electing me as your new president. My election by an overwhelming majority of you is taken as a mandate for change.

Consider this to be your *wake up call!* There is much to do to have a successful organization. This organization can and will be effective in its endeavors. I am going to be asking each and every one of you for your assistance. As stated in our by-laws, the principle purpose of the PTGA is to support the Piano Technicians Guild (PTG) and its members; to develop understanding, goodwill and support in the music world; to promote music education; and to plan and develop the PTGA program for the annual PTG Convention.

My new motto is *"Just Say Yes."* I am going to add that to my other motto of *"More Fun For Everyone."* Besides planning next year's convention, I plan to steer this organization into more directly supporting the Guild, the music world and music education.

Several ways we will be doing this is through an increased effort is scholarships for piano students. Currently, we award two annual scholarships in the amount of $800 total, in the state where the national convention is held. I would like to see this increased to five states per year, rotated in some kind of numeric or alphabetic order. In order to do that, we must expand our scholarship fundraising efforts.

This year at our national convention, your Council approved a new fundraising effort proposed by myself. The Council has established, for the first time, a "Scholarship Store." This will be a mail order business, owned and operated by the Auxiliary. It will be organized through a system called "drop shipping." I have found a wholesaler who is willing to take our orders and ship their inventory to our buyers directly. We pay wholesale and sell at retail, collecting the difference. The profits are to be used primarily for scholarships and other music education support efforts. One of the great things about drop shipping is that there is no inventory for us to pre-pay for at all!

The first products offered by the Scholarship Store will all be piano related items such as coffee mugs, pens, towels, shirts, hats, etc., graphically displaying the piano/music theme.

Our first advertising will be done here on these pages in the *Journal.* Please support your scholarship store and encourage others to do likewise. Remember the proceeds go directly to promotion of the Guild through support of music students via the scholarship program.

This year's convention was a huge success, thanks to the efforts of our Immediate Past President, Phyllis Tremper, with the cooperation of the PTG Board and the never ending support of the Guild staff. Thank you all, we did have fun!

We have two new Board Members, Shirley Erbsmehl (Recording Secretary) and Debbie Johnson (Vice President and Membership Chairperson). Both of our new Board Members are the spouses of Regional Vice Presidents, and of course our Treasurer, Sue Spier, is the Spouse of the Guild President, Leon Spier. We have a new, strong connection directly with the Guild Board.

Due to personal illness, our previous recording secretary, Pearl Kreitz,

had to resign. She could use your love and prayers at this time. God be with you and hear you Pearl. We missed you in Kansas.

For the first time, the Auxiliary has the right to appoint a new Board Member to the PTG Foundation. This is a new and important position, so the Council elected to recommend Pauline Miller (a 45 year member of the Auxiliary) as our President's first appointment to that important Board position. Pauline Miller accepted the position. At the Foundation Board Meeting, Pauline was elected Second Vice President. Congratulations! Next year, we will have the opportunity to appoint a second Board Member. Each appointment is a two year position.

We installed a new Auxiliary Chapter, in Waukegan. Jenny Schwin was there to accept the certificate and took her place as delegate for the newly installed chapter. Welcome.

We had two new Honorary Life Memberships approved, one for Ivogene Dege and the other for Virginia Seller. Congratulations, and thank you for all your exceptional efforts throughout the many years for your participation and help.

Lastly, I am looking for your input for next year's convention in Albuquerque, NM. While things are still fresh in your mind, and before the planning meeting in September, I welcome your input as to what you want out of our next convention, and what you liked or didn't like about this year's convention. I am also looking for volunteers to help at the Convention. Drop me a note. My address is on the left side of these pages. *'Just Say Yes!"* So we can have *"More Fun For Everyone."*

Send all your *Journal* copy:
articles of interest about PTGA activities in your state,
funny stories you'd like to share,
Events your chapter sponsored,
Business ideas and successful hints,
And anything else you feel would be
of interest to other members!

Information should be sent to:

Paul Cook, PTGA President
3137 Voltaire Drive
Topanga, CA 90290

All information will be considered!

CLASSIFIEDS

Classified Advertising rates are 35 cents per word with a $7.50 minimum. Full payment must accompany each insertion request.

Closing date for placing ads is six weeks prior to the month of publication.

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

Send check or money order (U.S. funds, please) made payable to Piano Technicians Journal, 3930 Washington, Kansas City, MO 64111-2963.

FOR SALE

SANDERSON ACCU-TUNERS from Authorized distributor. Tuning lever note switch for Accu-Tuner: $35/coiled cord, $30/straight cord. Consignment sale of used Accu-Tuners and Sight-O-Tuners or new Accu-Tuner customers. Call for details. Rick Baldassin (801) 292-4441

ENCORE PIANO HAMMERS: Consistant, strong round bass; clean, clear tenor and treble without a lot of bite normally associated with European and Oriental pianos. More like the Mason and Hamlins, Chickering and some Steinways made in the early part of this century. Lightweight—easily voiced—no chemical hardener or impregnation—pre-filed—finest quality workmanship. Mahogany and walnut moldings. "T" rivet tensioner-underfelt—15 lb or 17 lb. Encore Hammers are made to the strictest specifications of Wally Brooks by the Abel Hammer Company of Germany. Write or call: Brooks, Ltd., 376 Shore Road, Old Lyme, CT 06371, (203) 434-0287 or 800-326-2440

STEINWAY GRAND, 1991 Model L, ebony finish. Must sell now. Willing to take loss at $20,000. (512) 453-7703

SOFTWARE MANAGEMENT SYSTEM. Complete office management designed for the piano technician. Unlimited potential for client database, appointment scheduling, statements, inventory and everything in between. $395/Time payment plan available. Write for a free self-running demo. (Specify disk size). Western Rep: Jim Coleman, Sr., 4 W. Del Rio Dr., Tempe, AZ 85282 or Eastern Rep: Troy Nolen, 5012 Dale Dr., Huntsville, AL 35803

NEW & USED SANDERSON ACCU-TUNERS. Bob Conrad, 1-800-776-4342

THE SUDNOW METHOD. Your tuning work is over. Now you play "Misty" by ear with great jazz chording. Your client wishes they could do that. Since you learned it in two weeks, without notes, maybe they can too. They buy the Method from you for your price. (Suggested retail is $89) You've paid me $50 each. (Add $5.00 shipping for any quantity). 1-800-658-7250. Paul Cordes, RPT

KORG MT1200 TUNER. $295 (list $375) Hears A0-C8. Plays C2-B5. Shows pitch, note, octave. Can program calibration, temperament. KORG AT12 TUNER. $175 (list $250). SONG OF THE SEA. 47 West Street; Bar Harbor, ME 04609 (207) 288-5653. Brochures

ATARI 1040 ST COMPUTER with SM124 monitor, utility disks, documentation, word processor and Dr. Sanderson's piano librarian with FAC. Excellent condition, $550.00, (818)993-0634.

GRAND PIANO STRING covers. Are you ready for an item that can keep the piano clean, prevent corrosion, improve tuning stability, make your clients happy and make you money besides? Custom made, it rests above the strings, covering soundboard, tuning pins and plate for complete protection inside the piano. Made from finest quality woven wool, available in black, brown and white. Personalized name applique also available. No inventory or investment required. For free brochure and samples call: Edwards Pianos (408) 426-1295, 145 S. River Street, Santa Cruz, CA 95060

PTECH DATABASE. AN INDEX TO PUBLISHED PIANO TECHNOLOGY. This is not a printed index with a clumsy classification system, it is a database for your IBM (or compatible) computer. You define your own search parameters. It includes over 13,000 citations from over 30 journals, including PTJ, of course. A wealth of information for only $89. Write or call today for your FREE demo disk! PC SoftWorks Co.; 4406 Stonebrook Dr.; Jonesboro, AR 72401, (501)972-5417.

BUSINESS FOR SALE. Step into full time tuning/repair business in the Seattle area. 20+ years of repeat clientele. Excellent referal system. (206)363-4286.

HAMMER BORING DEVICE. All metal, weighs 15 lbs. Accurate and easy to use. $180.00. Instructions and photo available on request. Kent Gallaway, 709 Thorne, Ripon Wisconsin 54971, 414-748-3265

GRAND PIANO STRING covers starting at $69.95 +s/h. Custom made from quality wool. Wool absorbs moisture and keeps strings, tuning pins, plate, soundboard looking new. Also, Accu-Tuner thumbswitches, $28.95. Action Piano, 714-364-1073

HANDCRAFTED SOUNDBOARDS BY NICK GRAVAGNE. Ready to install crowned boards or semi-complete. Your choice. Ordering and installation instructions $15.00. 20 Pine Ridge; Sandia Park, NM 87047 (505) 281-1504

PERSONALISED PIANO CLEANING CLOTHS. A great promotional aid. Leave a useful reminder with your customer. For further information contact "Pianoman," 11444 Coventry Blvd. N.E. Calgary, AB Canada. Ph. (403) 226-1019, FAX (403)226-2430.

HART BUTTERFLY SPRING TOOL - Sold out in Dallas, Philadelphia, California (twice!). More than 1,000 sold in the first 18 months. "User friendly", extremely effecient—$14.75 + $2.50 S&H. Hart's Piano Shop, PO Box 40685 Grand Junction, CO 81504. Also available from Steinway

"STEINWAY" STYLE DAMPER tool from the convention classes taught by Steinway. $15.00 + $2.50 S&H. Hart's Piano Shop, PO Box 40685, Grand Junction, CO 81504

USED INSTRUMENT DATABASE. Grandiose Grands: 800-666-7339. Messages: Box 12345. FAX: x60606. Data: x70707. New buyers: x10101. New Sellers: x20202. Online: Coming Soon! Is there a stradivarius effect in pianos? x54321.

WONDERWAND: Try the Tuning Lever you read and hear about. Enjoy Less Stress; Better and Faster Tunings: $60.00 p.p. Charles P. Huether, RPT, 34 Jacklin Court, Clifton, NJ 07012

"SALE OF PIANOS" — All models and styles. Specializing in players, art case and conventional pianos. Floor ready and as is pianos available. We also specialize in one of a kind and hard to locate pianos. Call collect Irv Jacoby 216-382-7600. Jay-Mart Wholesalers — Pianos since 1913.

COMPONENT DOWNBEARING GAUGES (bubble type) give readings in degrees (string angle) and thousandths of an inch (dimension). Available at supply houses. Box 3247; Ashland, OR 97520

BOLDUC SOUNDBOARDS now available! The best rebuilders know the superior quality of Bolduc Pinblocks. Now you can experience this same superior quality with Bolduc Soundboards. Call for prices and details. Pianotek Supply Co., 1-800-347-3854 or Fax: 810-545-0408

BOLDUC 5-PLY Pinblocks and Bolduc Soundboards, both ideal for world-class pianos. Pianotek Supply Co., 401 W. Marshall, Ferndale, MI48220, 1-800-347-3854

CLASSIFIED ADS CAN HELP! If you have products and services you would like others to know about, try advertising them in the Piano Technicians Journal classified section. Over 4,000 readers will see your ad each month...readers who are piano industry professionals. Place your ad today! Classifieds work!

BUCKSKIN for recovering grand knuckles and backchecks, upright butts and catchers. The "original equipment" supplying the industry for 140 years. Richard E. Meyer & Sons, Inc., 11 Factory Street, P.O. Box 307, Montgomery, NY 12549 (914) 457-3834

PIANOS FOR SALE — Spinets, consoles, studios, grands. One or a carload. Excellent brand names. As is or rebuilt. Lowest possible prices. Owen Piano Wholesalers; 2152 W. Washington Boulevard, Los Angeles, CA 90018. Telephones (213) 732-0103, (818) 883-9643

PIANO SCALING SOFTWARE for IBM & compatible computers. Plot inharmonicity, tension, break %, loudness/sustain, hammer contact, and more. 18 graph types, automatic bass rescaling, string winding data sheets, detailed users manual and money back guarantee. $80.00. Write or call: Tremaine Parsons, Box 241, Georgetown, CA 95634, 916-333-9299

FOR SALE FOR Restoration. 1894 Steinway piano #79044 Model "H". Good condition. 45" high, ebony finish. Call Cynthia Reinhardt EST #606-268-2006. After 5 p.m. 606-885-4979

PIANO TUNING/REPAIR business for sale. Established 13 years—Long Island's affluent North Shore. Excellent repeat customer base. Successful, prosperous. Great opportunity. Motivated seller. 516-928-8123

CUSTOM PIANO COVERS MADE TO YOUR SPECIFICATIONS. Perfect for any storage or moving situation. All work guaranteed. Also available, many gift items. Send for free brochures and samples. JM FABRICations; 10516 Ohop Valley Extension Road, Eatonville, WA 98328, 206-832-6009

RELIABLE ACCU-TUNER NOTESWITCH! One year guarantee! Includes coiled cable, thumb switch and attaching hardware. Fits all tuning hammers. $49.00 includes s/h. Dean Reyburn, RPT, Reyburn Piano Service; 2695 Indian Lakes Road, Cedar Springs, MI 49319, 616-696-0500

MASON & HAMLIN Grand, exquisite mahogony—$8,500.00. Weber Duo-Art 6'1" Grand, mahogany—$8,900.00. Mason & Hamlin 6'1" Grand, Immaculate mahogany—$10,900.00. Mason & Hamlin 6'1" Grand, Piano Disc, mahogany—$16,900.00. Steinway & Sons 5'7" Grand, ebony—$9,500.00. Steinway & Sons 7' Grand, ebony—$23,000.00. Steinway L 5'10" Grand, ebony with new strings—$12,000.00. Steinway 7' Grand, art case, circasion walnut—$30,000.00 o.b.o. Schaffer & Sons Grand, polished ebony—$6,900.00. Wm Knabe Grand Player with 78 rolls, mahogany brown—$7,500.00. Chickering Grand Fancy Square Tail, mahogany—$6,900.00. Harris Grand, mahogany—$2,500.00. Wm. Knabe Grand, walnut—$4,500.00. Exzanado Kimball Organ—$6,500.00. Refinishing, refurbishing and tuning. Call for complete listing: Schroeder's Pianos, 13119 Downey Avenue, Paramount, CA 90723, 310-923-2311

THE MOST ECONOMICAL precision key bushing cauls on the market. All sizes in stock all the time, custom sizes usually within one week at no extra charge. Phone orders welcome. Immediate shipping. Spurlock Specialty Tools, 3574 Cantelow Rd., Vacaville, CA 95688. Phone/FAX (707) 452-8564

MICRO-FINE TEFLON POWDER - the best lubricant for grand knuckles. Half the price of the commercially packaged product, and longer lasting. Reduces knuckle friction better than any other lubricant, greatly helps accuracy and speed when making touchweight measurements. Stops all but the most stubborn knuckle squeaks. 3/4 oz. =$3.75, 2.5 oz. = $10.75. For free catalog of all current products call or write Spurlock Specialty Tools, 3574 Cantelow Rd., Vacaville, CA 95688, Phone/Fax 707-452-8564

STEINWAY D, 1966, ebony, good pinblock, presentable case, action needs regulation. Sparsely used and well maintained by a charitable organization in the Boston area. For information or to make an offer call (617)876-5647.

PIANOS - Yamaha and Kawai grands $1850 and up. 23 Steinway grands and verticals. Large quantity of used American grands from $700 up. We buy pianos. Ed's 504-542-7090.

PIANOS FOR SALE. Grands, consoles, spinets. Excellent reconditioned brand name pianos. Floor ready-wholesale prices. Also available, "as-is" pianos. Any quantity. Call or write Piano Wholesalers, 5817 Wickfield Drive, Parma Heights, OH 44130. Call us first!! 800-438-3814

QUARTER SAWN ROCK MAPLE. 3/8" finished stock; various widths; 60" long. Peerless Piano Products. George H. Wheeler, 11 Cherry Hill, Springfield, VT 05156-2602 (802) 885-5325.

HELP WANTED

TUNER/TECHNICIAN — Full time position available for experienced technician. We are an established retail store that specializes in the restoration of Steinway and other fine pianos with the highest quality craftsmanship. Duties include field tuning and regulation to shop installation of new Renner Actions in grands. Join a growing company in historic Richmond, Virginia. Send resume and references to Richmond Piano, 3133 W. Cary St., Richmond, VA 23221.

MANUFACTURING

MASON & HAMLIN Companies introduces its re-manufacturing facility. The highest quality crafsmen can now rebuild your old Mason & Hamlin, Steinway or other hgih quality grand piano to original specifications using old world craftsmanship and the finest quality materials and prcesses. Please contact: George Brambilla, Director of Support Services, Mason & Hamlin Companies, 35 Duncan Street, Haverhill, MA 01830. Phone 508-372-8300 or fax 508-372-2921

SERVICES

STRAIGHT SIDES, SQUARE FRONTS and crisp notches are the benchmarks of our quality key recovering. Tops with fronts $100 plus return shipping and insurance. Call or write for free list of our key and action restoration services. Yvonne Ashmore, RPT and Associates, 12700 La Barr Meadows Road, Grass Valley, CA 95949, 916-273-8800

KEY BUSHING: We use over 20 different sizes of Spurlock Precision Cauls. Send the micrometer measurement of the key pins and we will give you a perfect fit. Both rails high quality felt $75.00 or leather $80.00 plus return shipping and insurance. Write or call for free price list of our key and action restoration services. Yvonne Ashmore, RPT and Associates, 12700 La Barr Meadows Road, Grass Valley, CA 95949, 916-273-8800

PIANO HARDWARE REFINISHED. Lacquer finish or nickel plate finish. Craftsmanship and finishes are guaranteed to factory specifications. Delivery 2-4 weeks. Brass on Ivory, 302 Linden Avenue, Edgewater, MD 21037. (410) 798-6536

SOUNDBOARDS. VICTOR A. BENVENUTO's system of soundboard replacement makes it as easy as 1-2. 100% accuracy. Video tape, $29.95 + S/H. Victor A. Benvenuto, The Piano Shoppe, Inc., 6825 Germantown Avenue, Philadelphia, PA 19119-2113, 215-438-7038, Fax, 215-848-7426

ADD ADDITIONAL $'s to your income. Rebuild player pianos for your clients. Send us the player parts. You restore the piano and we will return the mechanism in restored condition. We guarantee our work. For more details, call or write: Jim Brady, 2725 East 56th Street, Indianapolis, IN 46220, 317-259-4307

SOUNDBOARDS INSTALLED, topsides rebuilt. Bridge-conformed, spherically crowned boards with truly quartersawn ribs. Let's do the job right—you send us the case, we'll return you a piano. Quality's the bottom line. David G. Hughes, RPT. 410-429-5060. Baltimore

RESTORATION OF CARVED WORK, turnings, inlays, and marquetry, including repair of existing work and reproduction of missing pieces. Edwin Teale; 18920 Bridgeport Road, Dallas, OR 97338, 503-787-1004

REFINISH PIANO HARDWARE in nickel, brass, or chrome. Metal finishing specialists for over thrity years. Parts shipped back to you in 2-3 weeks Rush jobs can be accommodated. Whitman Company, Inc. 356 South Ave., Whitman, MA 02382. 1-800-783-2433.

52 PIANO KEYS RECOVERED—.050 - $85.00; .060 - $90.00; .075 tops with fronts - $85.00. New gloss sharps - $40.00. Keys rebushed: felt - $75.00; leather - $95.00. Other services available. Call or write for price list. Return freight paid with pre-paid orders of $50.00. Walker Piano Service, Route 4, Box 364, Fulton, KY, 42041, 1-800-745-6819

88 KEYS REBUSHED with extec quality felt. Both rails $130.00. Return freight paid with prepaid orders. Tommy L. Wilson, 1313 Highway 210, Dyersburg, TN 38024, 901-285-4046

CLASSIFIEDS WORK! Call in or FAX your classified ad by August 15 to be included in the October issue. Your products or services will get international coverage to 4,000 piano technicians and piano industry specialist. Call 816-753-7747 or FAX 816-531-0070

TRAINING

WELL-TEMPERED TUTOR. Learn to tune by ear with your Macintosh computer. Use pre-programmed temperaments or create your own. If you have trouble hearing beats, this program can isolate the beats for you. Score yourself with the PTG exam. Twenty-one historical temperaments also available. Demo disk available. Mark Anderson, RPT: 510-524-0390 (California). Great teaching tool!

NILES BRYANT OFFERS TWO HOME STUDY COURSES: Electronic Organ Servicing: Newly revised. Covers all makes and models — digital, analogue, LCT's, synthesizers, etc. Piano Technology: Tuning, regulating, repairing. Our 87th year! Free booklet; Write or call NILES BRYANT SCHOOL, Dept. G, Box 19700; Sacramento, CA 95819 — (916) 454-4748 (24 hrs.)

BILL GARLICK SEMINARS-Upgrade your skills at intensive six day resident seminars at Bill's home. Applications are invited for upcoming seminars in tuning, grand action regulation, historic tunings, harpsichord maintenance. Tuition includes instruction and use of facilities, private bedroom (share baths), breakfast and lunch. Write or call for information. Bill Garlick, RPT, 53 Weeks St., Blue Point, NY 11715, (516) 363-7364

THE RANDY POTTER SCHOOL OF PIANO TECHNOLOGY — Home Study programs for beginning students, associate members studying to upgrade to Registered Piano-Technician, and RPT's wanting to continue their education. Tuning, repairing, regulating, voicing, apprentice training, business practices. Top instructors and materials. Call or write for information: RANDY POTTER, RPT; 61592 ORION DRIVE; BEND, OR 97702. (503) 382-5411. See our ad on page 3

The NORTH CAROLINA REGIONAL CONFERENCE offers 3 days of intensive instruction in all phases of piano technology November 3-6, 1994, at the High Point, NC, Radison Hotel. Top national instructors, finest specialty tools and supplies by exhibitors, and attendance by major piano manufacturers along with luxurious accommodations will make this educational opportunity "The High Point of '94"!!! For more information and registration contact Conference Director Evelyn Smith, RPT (910) 230-1783.

VIDEOS

INSTRUCTIONAL VIDEO TAPES. Victor A. Benvenuto. Piano tuning, $50.00*; Grand Regulating, $50.00*; Grand Rebuilding, $100.00 (2)*; Key Making, $50.00*; Soundboard Replacement, $29.95*. (*Plus S/H). The Piano Shoppe, Inc., 6825 Germantown Avenue, Philadelphia, PA 19119-2113, 215-438-7038, Fax, 215-848-7426

PIANO TECHNOLOGY EDUCATIONAL materials. Vertical Piano Regulation by Doug Neal, $115; Plate & Pinblock Installation by Cliff Geers (2 reel set), $148; Wood Repairs by Cliff Geers, $68. Soundboard repair by Cliff Geers, $86; Grand hammer replacement by Cliff Geers, $86. Add $5 per order for shipping and handling. Questions? Call 712-277-2187. Mail orders to PTEM, 3133 Summit, Sioux City, IA 51104

WANTED

WHEREABOUTS OR AVAILABILITY of any Leckerling pianos. Contact Bill Leckerling, 802-425-2736, RR1, Box 1657C, Charlotte, VT 05445

TECHNICIAN wants to buy new or used Accu-Tuner. Call Paul (310) 49TUNER.

PIANOS! PIANOS! PIANOS! !!!Free phone appraisal!!! Buying all types of usable pianos. Cash or bank check on pick up. Won't hesitate on price. Call us first for fast professional service. "Steinway, Mason-Hamlin command specialty prices." Jay-Mart Wholesale, P.O. Box 21148, Cleveland, OH 44121. Call Irv Jacoby collect (216) 382-7600

JAY-MART WHOLESALERS — !!!Free phone appraisal!!! Buying all types of usable pianos. Cash or bank check on pick up. Won't hesitate on price. Call us first for fast professional service. "Steinway, Mason-Hamlin command specialty prices." Jay-Mart Wholesale, P.O. Box 21148, Cleveland, OH 44121. Call Irv Jacoby collect (216) 382-7600

USED ACCU-TUNER at a good price. Please call (205) 663-7438

WANT TO BUY Piano tuning and service business, Brandon, Florida area. Can be part time. (914) 235-3788, FAX (914) 636-0560

STEINWAY & MASON HAMLIN WANTED!! "Dead or alive." $$$ Grands, uprights, consoles—any size, cabinet style or quantity. Cash and immediate removal. Finders fee for successful purchases. Call us first!! 800-438-3814 toll free or write to be listed in our worldwide data banks. Piano Wholesalers, 5817 Wickfield Drive, Parma Heights, OH 44130. Call us first!! 800-438-3814

PianoDiscussions™

August 1994

News From The World Of PianoDisc

Floyd Cramer records for PianoDisc

Famed country artist Floyd Cramer recently completed two days of recordings for the PianoDisc Music Library. "He says he had a wonderful time, and the performances were exemplary", says Steve Merritt, Media Relations Director and Talent Booking coordinator. "Some of these performances are truly memorable, and we are looking forward to sharing them with the world very soon."

Mr. Cramer recorded one full hour of solo piano which will be released soon in the PianoDisc Music Library Artist Series, both as a 3.5" diskette (compatible with all PianoDisc control boxes) and in PianoDisc's new PianoCD™ format. Also, Mr. Cramer recorded several songs which he performed with a 18 piece orchestra and 8 voice backup chorus, and these perfomances will be released in the PianoCD™ format, as well as on two spectacular PianoVideo™ tapes (see "What is MuSync™?", right).

All of Floyd Cramer's PianoDisc performances will be available in the fall.

New PianoDisc music diskettes available this fall

A live jazz trio, a Steinway Artist recital and two different Gershwin releases top the list of PianoDisc Music Library additions for Fall, 1994. Also on tap are Artist Series performances by Nashville giant Floyd Cramer (see above) and "A Prairie Home Companion" stride artist Butch Thompson.

The Steinway Artist Series continues to grow with the addition of West Coast favorite Laura Spitzer's PianoDisc Grand Opening Recital diskette. Ms. Spitzer's fiery performances of the Chopin "Heroic" Polonaise and of Mily Balakirev's daunting "Islamey" were highlights of PianoDisc's Grand Opening festivities last fall, and this release offers a glimpse into the excitement of that day. The diskette includes works by Mozart, Chopin, Joplin and Gershwin performed during the Grand Opening recital.

Gershwin is also the focus of two other new releases, one for piano solo and the other with Symphony accompaniment. These diskettes feature some of Gershwin's finest musical compositions, performed by some of PianoDisc's finest artists.

One trio of artists, Trio Paradiso, have made a unique contribution to the PianoDisc Music Library with their new release, "Trio Paradiso—Live!". Music for this release was all performed live in the PianoDisc Recording Studios using MIDI instruments–a piano equipped with PianoDisc's TFT strip, a set of MIDI drums and a MIDI bass. The result is a live performance that rivals any ever recorded for player piano. So watch for it!

What is MuSync™?

Some of you may have seen the spectacular video demonstration at the PianoDisc booth at Winter NAMM in Anaheim, or more likely at the recent PTG get-together in Kansas City. In it, four Sacramento Symphony musicians perform selections from Claude Bolling's "Suite for Flute and Jazz Piano Trio" in a pyrotechnic display of virtuosity, with pianist Brenda Tom's performance being played on the PianoDisc piano in perfect synchronization with the rest of the musician's "live" performance. At both shows the demonstration never failed to attract a crowd.

If you missed it, you missed PianoDisc's most exciting new innovation: the PianoVideo™ Series with Musync™ technology. These videotapes aren't like the ordinary ones you might rent at Blockbuster. Instead, they are coded with a special carrier signal that, when transmitted via PianoDisc's new PianoCD™ device to a PianoDisc system, will result in a perfectly coordinated joint performance of television pictures, a home stereo or set of powered speakers, and a PianoDisc system. The resulting **musically synchronized** performance (hence the name, "MuSync™") has the immediacy of a live performance, enhanced by video images and actual audio of the performers as they play.

PianoDisc plans a series of these PianoVideo™ tapes, some of them featuring prominent artists such as Floyd Cramer. "It's the absolute closest you can get to the experience of having Mr. Cramer playing in your living room, unless of course you can invite him over personally," says Gary Burgett, President/Marketing. "You hear his performance on your piano, you watch him actually playing on the television screen and you hear his whole backup orchestra and chorus. Really, it must be seen to be believed!"

PianoDisc plans to demonstrate MuSync™ technology at the Summer NAMM session in Nashville. Also, dealer demonstration samples will be available soon—call your PianoDisc account executive for details. And watch for more about MuSync™—it's hot!!

PianoDisc Installation Training 1994

- August 10-13
- September 21-24
- October 12-15
- November 9-12
- December 7-10

Continuing Education Series 1994

- August 8-9
- October 10-11

*Tuition for the Installation and the Continuing Education seminars is **free**, but a $50.00 refundable deposit is required for confirmation. The PianoDisc Continuing Education Series seminars are restricted to PianoDisc certified technicians in good standing. For more information about attending a PianoDisc Installation Training seminar or a Continuing Education seminar, call PianoDisc at (916) 567-9999 during regular office hours.*

Our Address

PianoDisc
4111 North Freeway Blvd.
Sacramento, CA 95834

Telephone Numbers

Phone: (916) 567-9999
Fax: (916) 567-1941

Tech Support: (619) 258-1460
(916) 567-9999

Our telephone lines are open daily (except week ends and holidays) from 8 AM–5 PM Pacific Time.

Tech Gazette

Yamaha Service

George Gershwin Plays Disklavier™

An unprecedented recording of piano roll performances by legendary American composer George Gershwin was featured among new PianoSoft selections introduced at the 1994 Winter NAMM Show.

The new Gershwin disk, "*Gershwin Plays Gershwin*", features such classics as "Rhapsody in Blue" as well as selections that have never been published before. It resulted from the Gershwin Piano Roll Recording Project, spearheaded by Gershwin scholar, Artis Wodehouse. Using original piano rolls created by Gershwin from 1916 through 1926, the project produced the first compact-disc recording of Gershwin performing his own work.

According to Wodehouse, the project would not have been possible without the Disklavier piano's ability to interface with both modern computers and player piano technologies of the past. Computer programs were specifically designed to capture not only the note field on the original Gershwin rolls, but also the dynamics, articulations, and pedaling encoded on the originals. This information was then transferred to 3.5" floppy disks playable on the Disklavier piano, which were used to play the Gershwin performances during the final recording sessions. The compact disc is being released on the Elektra/Nonesuch label.

Using the floppy disks created for the project, Yamaha then produced the new Gershwin addition to the PianoSoft library. "*Gershwin Plays Gershwin*" is a truly historic recording that will allow Disklavier piano owners to listen as Gershwin himself demonstrates why he is a giant of American music.

The Gershwin disk exemplifies the Yamaha commitment to providing PianoSoft recordings that are truly one-of-a-kind, and the result from recording projects that stretch the creative potential of the Disklavier piano to new heights.

Newport Music Festival available on disks for Disklavier™

In early 1994, Yamaha will release new PianoSoft selections resulting from another innovative recording project. In 1992 and 1993, Disklavier pianos recorded the live, on-stage performances of world class artists appearing at Rhode Island's renowned Newport Music Festival, one of the most prestigious festivals in the United States.

The new releases will include two PianoSoft disks from the 1992 Festival (in addition to three titles already released from that year) and three from 1993, the Festival's Silver Anniversary. The recordings feature such artists as Boris Beresovsky, Phillip Bush, Nelson Padgett, Eduardus Halim, Thomas Hrynkiw, Pietro De Maria, and Ann Marie McDermott.

Disklavier Piano owners will now be able to hear the historical Newport Music Festival performances on the Disklavier piano, right in their living room. These unique Disklavier piano recordings, in addition to more than 230 other PianoSoft disks, now available in almost every musical style, demonstrate the Yamaha commitment to provide disks to meet a spectrum of individual tastes.

Next Month: Major Changes at Yamaha...

YAMAHA®