



PIANO TECHNICIANS  
**Journal**  
July 1992



*"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!*

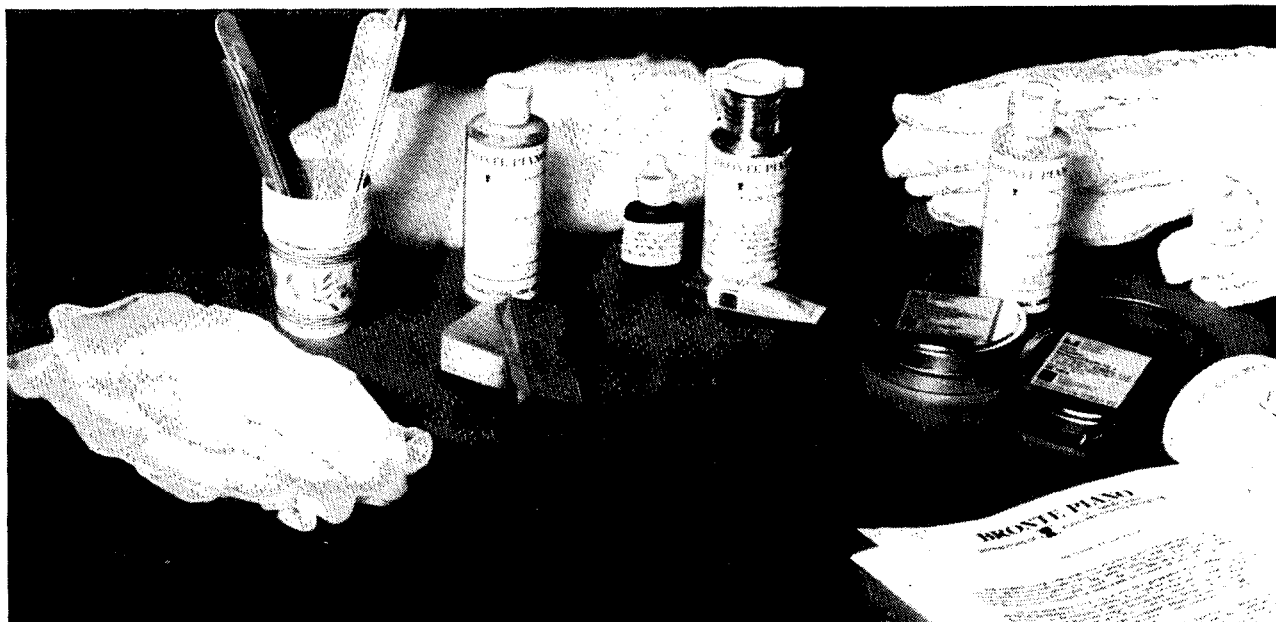
John "J.T." Thomas

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# Schaff Introduces:

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The König Company of West Germany is the European leader in the development and manufacture of "State of the Art" refinishing and touch-up materials. Over 40 years ago, German piano makers started using polyester finishes — just in the past few years, German chemists have found a fool-proof way to fix them.

In the past, polyester repair was complicated by long curing times, unpredictable chemical reactions and a short shelf life for the polyester. Nowadays, a 9 month shelf life is guaranteed, but realistically, you can expect the polyester to last 18 months. Also, the hardening process only takes twenty minutes so you can see same day results.

For the past few years, Schaff has been the exclusive U.S.A. piano industry distributor of König polyester repair products. Just recently, a two hour instructional video was made that coordinates with the 22 page polyester repair manual, to show all of the aspects of polyester touch-up. With the Polyking Repair Kit, everything except a chisel and some tape is included to make fast, "factory perfect" repairs.

Polyester repair is the perfect partner to piano tuning and repair. For the young technician, polyester repair opens doors to new piano dealers and their customers. For the veteran technician, polyester repair provides a break for the ears. Alternating your appointments between tuning and polyester repairs means fewer tunings with more profit, since the going rate for a one visit repair is about 75% greater than for a piano tuning. You cannot make a better investment, as the cost of a Polyking Repair Kit is about the same as a couple of piano tunings.

**König has a full range of products for the lacquer and polyester industry. Schaff maintains a stock of polyester based wood fillers, stains, high gloss touch-up pens, rubbing compounds, polishing liquids and Lack 20 polyester. Call or write for a complete product listing and prices.**

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THE  
COVER

*The art of  
gentle persuasion*  
see  
Nick Gravagne's "Good  
Vibrations," page 20.

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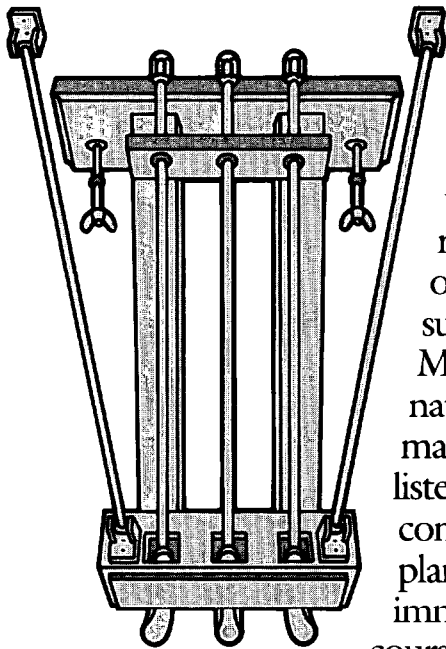
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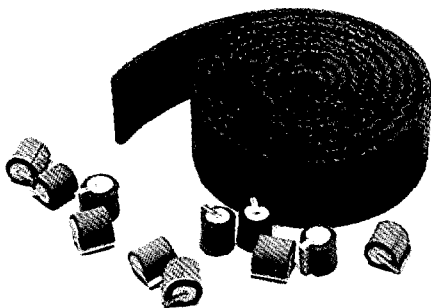
# How we to silence



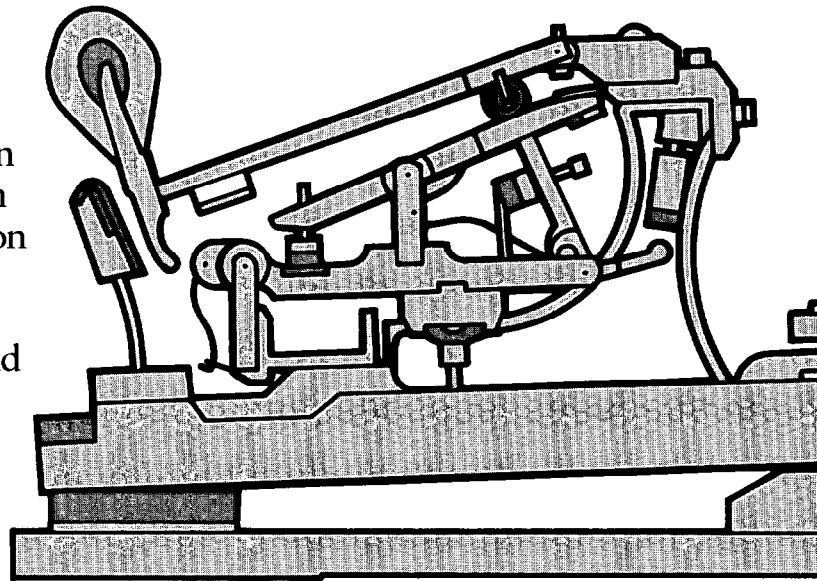
Several of you have recently written or phoned with suggestions. Don Mannino, our national service manager, read and listened to your comments and planned an immediate course of action.

Some of you have suggested that we lessen the amount of mechanical noise in our pianos. With the help of your suggestions, we've come up with a number of ways to quiet our pianos down.

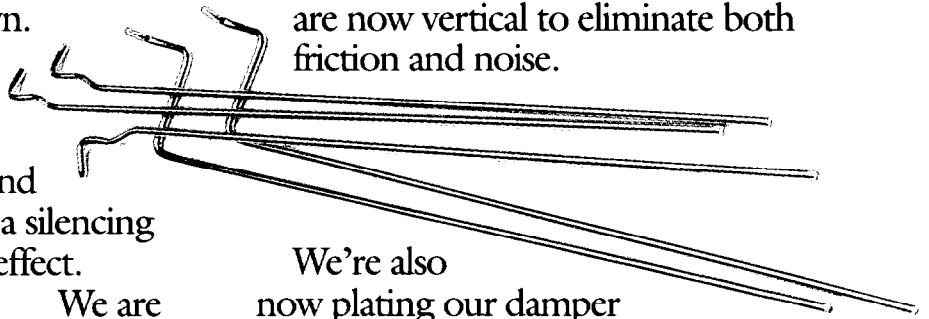
For starters, we've changed the knuckle core felt, whippen heel cloth and keyboard rail cloth in our grand actions to softer materials for a silencing effect.



We are now fastening our grand pedals to the pedal



box bottom instead of using nylon dowels in the box sides. And the grand pedal rods that previously had been angled in slightly are now vertical to eliminate both friction and noise.



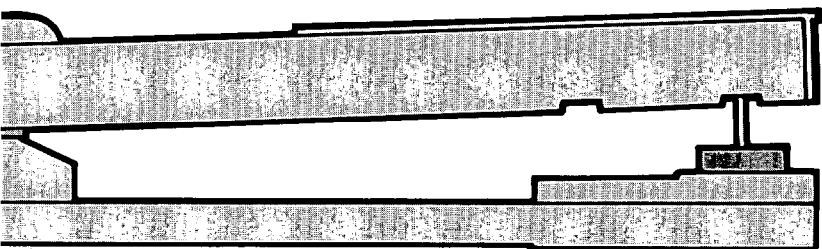
We're also now plating our damper wires more heavily and smoothly to decrease wear and corrosion as well as reduce noise where they pass through the guide rail.

In addition to diminishing noise, we've



are plotting  
our critics.

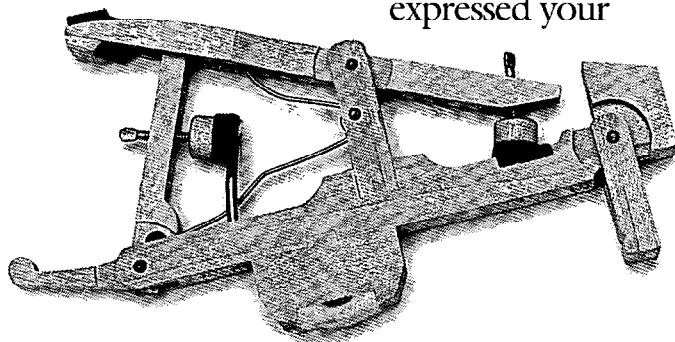
also lightened our touch through the repositioning of jack tenders and letoff buttons, and the use of auxiliary whippen springs in selected models. In response to your comments and suggestions about our action, we've now introduced a lighter



weigh off standard, as well.

We're also excited to have discovered a truly remarkable grade of English bushing cloth for our action centers and keys. Its superior properties will dramatically increase action longevity as well as create a noticeably smoother touch.

On his latest trip to the factory, Don expressed your



concerns to our manufacturing department heads and production engineers.

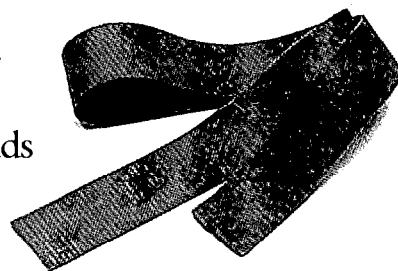
Within six days,

they began implementing improvements and refinements. And within a week, many of these were already in use in our pianos.

Striving to build a perfect piano is not an easy task. It's a challenge we eagerly face each day. But we're getting there thanks to all of you —

our not so silent partners.

To share your comments and suggestions on how we can continue to improve our pianos together, please write us at Young Chang America, Inc., 13336 Alondra Boulevard, Cerritos, CA 90701, or call us at (213) 926-3200.



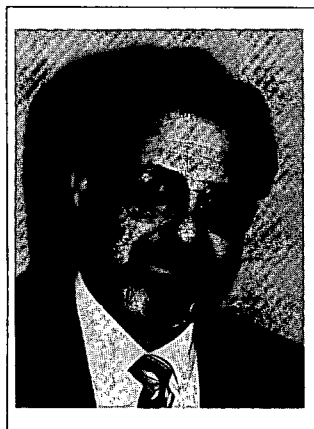
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## President's Message

# Education & Participation: Valuable Resources for Your Profession



*Nolan P. Zeringue,  
RTT  
President*

I write this as we begin planning for the 1992 PTG Convention in Sacramento, CA, but you read it as the convention is right upon us. As you read this we are packing up and getting ready to hit the road to California. Are you? Have you not made plans to be there? If not, why not? Has your chapter made plans to send a delegate to Council?

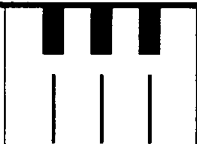
I do hope all of you who read this are coming to the convention, and I hope that most all chapters will be represented in Council. Representation is most important in Council because this is your organization and in Council, decisions are made which effect our organization. We need all of your voices in Council. Remember it is NOT too late to have a delegate come to Council for your chapter. Just send him or her with a letter from the President of the chapter identifying them as the delegate, and they will be seated in Council.

But, besides Council, how can you afford to miss the Institute if you have decided that you just can't make it this year. With the educational possibilities at this Institute, it is a must and certainly an investment in your profession. We will have a wide variety of excellent classes which will appeal to everyone. I am sure that most of you have been reading the articles in the *PT Journal* for the past few months describing what you can expect to experience when you get there.

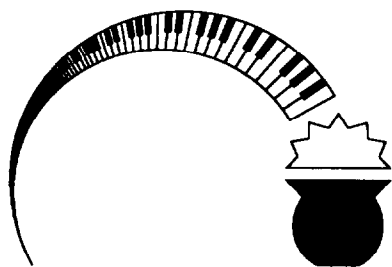
In addition to the articles on the Institute there have been some very good articles in the *Journal* about the beautiful country in and around Sacramento. The hotel is beautiful and there is much space in the activity center for all of our classroom needs. Just across the street from the hotel is a very large and beautiful park in front of the State Capitol. I am sure you will enjoy your time in Sacramento. Come and join us for a great experience.

I look forward to seeing all of you there. Won't you come and make this the largest attendance ever? Have a safe trip and good learning!





## *Institute Update*




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### THE SIGHTS & SOUNDS OF SACRAMENTO

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*by Jim Bryant*

Sacramento offers a wide variety of attractions and most are within easy walking distance from the hotel. Directly across the street is the State Capitol Building and 40 Acre Park. Tours are available from 9:00 am to 4 pm. Ask guards for directions. There are also self-guided tree tours of the park that give details on some of the 300 different species of trees from throughout the world.

"The Music Circus" puts on Broadway Musicals under the Big Top at 15th and H Streets with "in the round" staging. During convention week "Fiddler on the Roof", starring Theodore Bikel will be shown through July 26th to be followed by "Sound of Music" the 27th.

A pleasant 10 block walk down the K Street Mall will bring you into "Old Sacramento." Since the new three story shopping complex is currently under construction between 7th and 3rd, you will have to detour through Macy's Department Store. However, the two block walk through an air conditioned store will be welcomed at that time of year. As you approach "Old Sac" you may hear the plaintive whistle of a steam locomotive as a full sized steam powered train makes its hourly trek to a nearby park and back. "Old Sac" is a fully restored eight square block area along the riverfront and the largest and most authentically restored area of its kind in the West. Among other things it includes museums, shops, restaurants, riverboats, horse-drawn carriages and steam powered trains.

The already world famous Sacramento Railroad Museum is located at the north end and houses around 20 different restored locomotives and cars including one that gives "passengers" the impression that the train is moving. The Sacramento History Museum nearby is a five gallery exhibit of the city's history using a novel interactive video approach. Among the displays is gold ore taken from the Mother Lode. Also to be found in Old Sacramento are: The B.F. Hastings Building which was the Western terminus of the Pony Express; the Big Four Building, where

the wheeling and dealing of building the transcontinental railroads transpired between Crocker, Stanford, Huntington and Hopkins, all of whom amassed their great fortunes in Sacramento; the Delta King, a riverboat that, along with its sister ship the Delta Queen, ran between San Francisco and Sacramento until well into the 1940s. The Delta Queen was dismantled and shipped East and runs on the Mississippi and the Delta King has been turned into a hotel with restaurants and shops. Other noteworthy attractions are: Lady Adams Building which was made from the wood of a ship by that name in 1852 and was the only building to survive the fire of that year; The Globe, a restoration of the type of ship that rounded Cape Horn with gold seekers and immigrants and the Matthew McKinley, a paddle wheel steamer that makes excursions up and down the river.

About the same distance in the opposite direction is Sutter's Fort. John Sutter let the fort fall into disarray but it has been totally restored. It faces L Street between 26th and 28th Streets.

On your way to or from Old Sacramento, you might want to visit The Crocker Art Gallery at 3rd and O Streets. It contains the entire art collection of E.B. Crocker, brother of Big Four tycoon Charles Crocker. E.B. was a successful man of his own right as Chief Justice of the California Supreme Court. On a family trip to Europe he brought back 700 oil paintings and 1,000 drawings and housed them all in a large mansion. Upon E.B.'s death, Mrs. Crocker donated the home and all of the paintings to the city. On the day of the donation children and adults by the thousands came with bouquets to be presented to Mrs. Crocker. Those were nicer times.

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## *I*nstitute *U*ppdate

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**continued next page**

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# 1992 Technical Institute Class Schedule

	1st Period	2nd Period	3rd Period	4th Period
Thurs.-Sat.	8:00-9:30	10:30-12:00	1:30-3:00	4:00-5:30
Sunday	8:00-9:30	10:30-12:00		

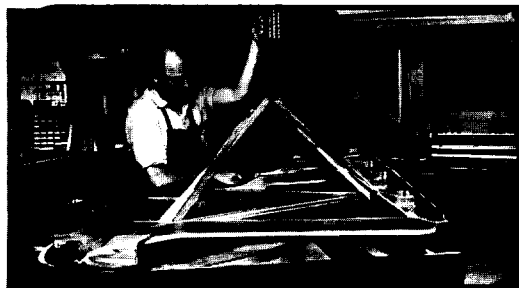
○ 1 class period

◯ 2 or more class periods

INSTITUTE CLASSES AND INSTRUCTORS	THURS.				FRI.				SAT.				SUN.		ROOM
TUNING	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
Tuning: Theories, Methods & Applications/Ray Chandler	◯										◯				Nevada
Tuning the Spinet Piano/James Johnson					◯						◯				Solano
Temperaments of the Masters/Randy Potter						◯							◯		San Joaquin
88-Note Stretch Tuning-Easy as F-A-C/Albert Sanderson				◯					◯						Nevada
The Impossible Tuning/Virgil Smith			◯												Solano
The Impossible Tuning/Virgil Smith					◯								◯		Nevada
VOICING & CONCERT PREPARATION															
Tone & Friction-Fact & Fiction/Rick Baldassin			◯		◯										Yuba
Voicing the Renner Hammer/Rick Baldassin									◯						Yuba
Voicing the Renner Hammer/Rick Baldassin													◯		Sutter
Concert Preparation-Factory Style/Kent Webb-Baldwin			◯						◯						Nevada
Tone Building the Piano/Wally Brooks	◯														Golden State B
Tone Building the Piano/Wally Brooks					◯										Golden State A
Tone Building the Hammer/Wally Brooks		◯													Golden State B
Tone Building the Hammer/Wally Brooks						◯									Golden State A
Concert Preparation: Multiple Challenges/Stephen Davis						◯							◯		Nevada
Everyday Voicing/Bob Davis and Dale Erwin									◯						Sutter
Everyday Voicing/Bob Davis and Dale Erwin													◯		Placer
Advanced Voicing/Horace Greeley									◯						Sacramento
Hammers, Tone & Touch Weight/Ari Isaac				◯									◯		Solano
Steinway on Stage/Dr. Billy Taylor													◯		Theater
REGULATION															
Reliable Grand Regulating/Danny Boone			◯												Regency C
Reliable Grand Regulating/Danny Boone											◯				Golden State B
Down Bearing/Parts 1 & 2/Nick Gravagne	◯										◯				Yolo
Panic Stricken Regulation/Bill Garlick	◯	◯				◯									Yuba
Action Design & Regulation/Kimball Team	◯					◯									Sacramento
Spielart/Ed McMorrow	◯										◯				El Dorado
From the Bottom Up/Norman Neblett			◯						◯						Placer
The Science of Touchweight/David Stanwood						◯							◯		Regency C
Dampers, The Yamaha Way/Yamaha Team	◯										◯				Placer
REPAIR															
Tools, Tool Kits & In-The-Field Repairs/Ron Berry						◯							◯		Carmel B
Restoring the Vertical Keys and Action/Richard Elrod-Samick	◯												◯		San Joaquin
The False Beat Stops Here/Susan Graham	◯						◯						◯		Yuba
Action Centers: The Secret to Consistant Touch/Don Mannino		◯									◯				San Joaquin
Grand Hammer Install. Factory Style/J & P Rappaport (LIMIT 32)	◯					◯									Solano
Custom Grand Hammer Installation/Dave Snyder					◯										Carmel B
Custom Grand Hammer Installation/Dave Snyder									◯						Solano
Manufacturing & Service: Past & Present/Willis Snyder			◯								◯				Sutter
Gadgets & Gimmicks Galore/Ralph Stillwell							◯								Placer
Gadgets & Gimmicks Galore/Ralph Stillwell												◯			Yuba
Gadgets & Gimmicks Galore/Ralph Stillwell													◯		Sacramento
Key Bushing/Bill Spurlock					◯								◯		San Joaquin
SHOPS & EQUIPMENT															
House Calls-Be Equipped/Isaac Sadigursky	◯					◯									Sutter
Shop Procedures for Fun & Profit/Jim Harvey			◯												Sacramento
Shop Procedures for Fun & Profit/Jim Harvey							◯								Nevada
Shop Procedures for Fun & Profit/Jim Harvey											◯				Yuba
Pinblock Replace. & Soundboard Restoration/Cliff & Tony Geers						◯			◯						Yolo

INSTITUTE CLASSES AND INSTRUCTORS	THURS.				FRI.				SAT.				SUN.		ROOM
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
PRODUCTS & SYSTEMS															
What's New in Humidity Controls/Dampp-Chaser															El Dorado
Secrets of the Super-Glues/Ed Dryburgh															San Joaquin
Introduction to Disklavier/Bill Brandom/D. Garten-Yamaha															Placer
Disklavier Master Class															Placer
Piano Design for the 21st Century/Fandrich & Team															Yolo
Gulbransen MIDI-Piano Retrofit/Gulbransen															Sacramento
Gulbransen MIDI-Piano Retrofit/Gulbransen															El Dorado
Piano Disc Installation Seminar/Nick Morris-Piano Disc															Amador
Introduction to Polyester Repair/Dwight Pile (LIMIT 20)															Amador
Advanced Polyester Repair/Dwight Pile (LIMIT 20)															Amador
Beautiful, Healthy & Safe Refinishing/Webb Phillips															El Dorado
Steinway Design: Form Follows Function/Steinway Team															Sacramento
Acheiving The Complete Piano Service/Kevin Cory															Carmel A
ALLIED ARTS															
Time is Money/Colette Collier															Carmel A
A Retrospective of Steinway's Patents/Bill Garlick															Yuba
The Stigma of Hearing Loss/Joe Garrett with J. Thurman															Golden State A
The Stigma of Hearing Loss/Joe Garrett with J. Thurman															Regency C
MIDI, for Non-MIDI Persons/Norman Heischober & Rob Sadowski															San Joaquin
An Illustrated History of Piano Building/Charles Huether															Golden State A
An Illustrated History of Piano Building/Charles Huether															Carmel B
Practical Appraising & Evaluation/Bob Russell															Sutter
Practical Appraising & Evaluation/Bob Russell															Solano
The Science of Wool, Felt & Hammers/David Stanwood															Carmel A
College & University Technicians/Tom McNeill															Carmel A
Visually Impaired/Stam Oliver															Carmel B
Administering the Tuning & Technical Exams/ETS															Trinity
Preparing for the Tuning Exam/Kent Swafford															Ventura
Preparing for the Technical Exam/M. Carraher															Carmel A
Mini-Technicals															Tahoe
Tutoring															Various Rooms
Chapter Symposium															Tahoe

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## SACRAMENTO WEATHER: HOT OR NOT?

Sacramento has developed a reputation for hot summers but it is one that is, to some extent, unwarranted. To San Franciscans, anything over 70 degrees is considered a heat wave. Northern California guide books are often written by these same San Franciscans who contribute to the myth.

The average high for the month of July in Sacramento is 93 degrees which is hot to be sure BUT, the average low is 60 degrees! This represents an average daily fluctuation of 33 degrees. The most pleasant hours of a July day are in the morning when temperatures are usually in the 70s and in the early afternoon when they creep up into the 80s. The highs for the day come between 3:00 and 6:00 pm. However, the humidity lowers in direct proportion to the raising temperatures. The hotter it becomes the lower the humidity.

This unique weather pattern is caused by the Pacific High which sits off the California coast keeping all storms well to the north. The average rainfall for Sacramento is .01 of an inch and I suspect even that low figure has been rounded upward since the tables only go to 100ths of an inch. You can leave your rain gear at home but do bring a light wrap. The Pacific High also dispatches winds toward

the California Coast and these winds pick up moisture and create the cotton-candy like fog that rolls into San Francisco around 3:30 every afternoon in the summer. This fog would continue on into Oakland and the East Bay but is blocked by the Coastal Ranges so it finds its way into the valley, which by this time is into the 90s or more, via the Golden Gate and the Carquinez Straits and continues on up the Delta of the Sacramento River in a direct line with downtown Sacramento. The Delta Breezes, as they are called, travel about 15 to 20 miles per hour through the mountain passes and then, as they spread out turn into a light, cooling breeze that is usually first felt around 7:00 pm.

The hot, dry afternoons last just long enough to make one fully appreciate just how enjoyable the rest of the day really is.

**T**he hotel is located at the corner of two one-way streets. It faces L Street (Westbound) at 12th Street (Southbound—dead end.) The front driveway can only be reached by traveling Westbound on L Street.

**From I-5 (north or south);** take the J Street Exit. Follow J to 14th and turn right and right again on L.

**From the West—I-80 (business);** after crossing the Yolo Causeway, watch for the cutoff to Business 80. Exit at 15th Street. Go straight one block (X Street) and turn left on 16th Street. Turn left on L Street to the hotel.

**From the East—US 50;** get on Business 80 East (signs will say Reno)

and exit at N Street. (This is somewhat easier than following US 50 to exit at 16th Street.)

**From the South—US 99;** take the N Street exit (See above)

**From the East—I-80;** your freeway will split twice. Both times you will take the right side and follow signs for downtown Sacramento. The first will be Business 80 and the 2nd will be State 160. 160 ends and becomes 12th Street. It is a one way street but has light rail in both directions along the left hand side of the street. Stay in the middle until I Street and then get over to turn left on J. Go two blocks to 14 Street and turn right and right again on L Street to the hotel entrance.

**NOTE:** If you arrive in the late afternoon, freeway traffic can make things somewhat harrowing for a stranger. If traffic won't allow you to safely make your exit as shown above, it's no problem. Just take the next one. It is easy to get on L Street heading West since sun is guaranteed.

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## Technical Forum

*If wishes would make it come true, I would like to think that you are reading this issue while either preparing to go, or perhaps enroute to the 1992 PTG Convention and Institute. It is somehow magical, how our Institute Directors keep outdoing themselves by coming up with new instructors and classes each year. The Sacramento lineup looks very promising, and I hope to see each of you there.*

*The last paragraph was intended as a standalone thought. However, starting with the August issue, you'll also start to see some new names, articles, in fact, subjects that have never been presented in the Journal before.*

*And now on to the second and final installment of Klaus Fenner's treatise on tuning stability. I trust you have enjoyed the first installment, and on behalf of all of us, I'd like to extend my thanks to Klaus for permission to use this article.*

**Jim Harvey, RTT  
Editor**

# Tuning Stability— What Is It?

Part 2

By Klaus Fenner

## THE TUNER'S ABILITY & TUNING STABILITY

It is a well-known fact that pianos can vary considerably in their tuneability. From which we can draw the logical conclusion that the tuner's ability plays an important role. Good tone quality and good tuneability do not necessarily go hand in hand. It is quite possible for a piano to have a good tuneability and a mediocre tone quality, or an excellent tone and touch, but be extremely difficult to tune. But the latter instruments must be tuned as well. And if a piano is up to a high tonal standard, its owner generally expects the tuning to be up to the same high standard. And if the tuner is unable to tune such an instrument to the customer's satisfaction, it will not do to simply lay the blame on the instrument. Such conditions separate the qualified tuners from the less qualified ones, and it would be interesting to see a statistic on this (expressed in percentage).

Whether the wrest-pin torque is too high or too low, whether the pins have been driven in too deep or not deep enough, whether the string segments between the wrest pins and the iron bridge are too short or too long, whether too much or too little down bearing causes problems, whether false-beating strings are encountered, whether the hammers are toned too bright or too mellow—as a rule, the workmanship of the instrument is at fault if the tuner finds himself faced with a piano he just cannot tune properly. It is interesting to note that there seem to be no pianos in which these criteria prove to be in the tuner's favour. The wrest-pin-torque range in which a good tuner, working carefully, should be able to

produce a solid fine tuning extends from 3.9 Nm [34.7 inch-pounds] when turning the pin anti-clockwise to approximately 22.6 Nm [199.6 inch-pounds] for a clockwise turn. On the one hand, the torque of many older pianos is in the lower range and, despite this, they will stay in tune well if tuned properly. On the other hand, since there are still manufacturers and dealers who believe that the higher the torque, the better the tuning stability, one often encounters new pianos with the torque in the extreme upper range, almost to the point where wrest pins start to break off (up to 24.5 Nm [216.9 inch-pounds], depending on pin diameter). A proper piano tuner worthy of the designation ought to be able to master both situations.

After all, the art of tuning is primarily a matter of tuning-hammer technique. Anyone who has practiced long enough to have developed correct tuning-hammer technique will also have had sufficient time, with proper guidance, to have trained his ear, and everything which goes along with this. Electronic tuning aids alone will not do the job. Tuning hammer technique is far more important. And for some, this presents a problem. The result is umpteen complaints concerning tuning stability. And a good measure of the blame, pressed down and shaken together, must be given into the bosoms of those who go chasing after frequencies and beats with an electronic tuning aid. It cannot be held against a customer with a discriminating ear who expresses doubts concerning the tuning stability of his piano when the tuner himself reasons along this line, rather than being honest with himself and seeking the blame in his own lack of skill.

If all our clientele whose pianos we tune from time to time,

seldom enough, had a musical ear so highly developed that they could not bear to play their instruments unless in perfect tune, the tuners of whom I just spoke would not have the slightest chance of getting their foot in the door until they had learned proper tuning-hammer technique and how to do a solid tuning. Due to variations in tuneability in different pianos, they often find that they have bitten off more than they can chew. With demanding customers who can hear whether a piano is in perfect tune or not, all such unqualified tuners have to offer is unqualified excuses concerning the instrument's alleged poor tuneability/tuning stability.

In this connection I should once more like to refer my readers to my lectures given in London and Karlsruhe, in which differences in tuneability are discussed, as well as my lecture held in Brunswick (Braunschweig) on false-beating (or "wild") strings. In a futile attempt to overcome such difficulties, inexperienced tuners often turn the pins repeatedly back and forth. Wrest pins treated in this manner will soon begin to react uncontrollably, resulting, of course, in the strings in question going out of tune. All of which goes to show that the tuning stability of a piano can be no better than the tuner who tunes it.

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### EFFECTS OF CLIMATIC CONDITIONS

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Still another prerequisite for tuning stability is a precise knowledge of the effects of the climatic conditions in the room in which the piano is placed. It should be known that humidity and temperature variations due to changes in season are among the main determining factors for the behaviour of the tuning. A competent piano technician—and this is what every tuner should be—should not only be well informed on this subject himself, but also be able to impart the necessary knowledge to his customers. And a piano technician should also be in a position to determine the reasons

why a piano is out of tune: poor quality, the previous tuning poorly done, improper treatment or an unfavourable location.

As is generally known, climatic fluctuations are detrimental to tuning stability in that variations in the relative humidity of the air cause the sounding board to absorb or evaporate moisture, thus changing the moisture content of the wood. The only way for the sounding board not to be affected by climatic conditions would be to use a material which reacts little or not at all to humidity changes. However, our experience up to now has been that a material with such a property is unsuitable for sounding board manufacture; the improvement in tuning stability would be at the expense of an inferior tone quality. The principle is similar to that discussed under our third sub-heading, "Sounding board and tuning stability". In like manner, attempting to improve the tuning stability by excessively increasing the string lengths would also adversely affect the tone quality. The wire diameter remaining the same, longer strings would result in increased string tension, which would cause instability by over-straining the back assembly, as well as less inharmonicity, i.e. spread between the partials, which in turn would result in a loss of vividness and character in the sound. So, as previously mentioned, we must, on the one hand, live with the fact that the prerequisites for an optimum tuning stability are not the same as those for the creation of an optimum sound. On the other hand, under ideal climatic conditions, the tuning stability of a piano in which the designer's top priority was an optimum sound will not be any worse than one designed with no other goal in mind than optimum tuning stability.

Hence it is necessary to keep the climatic conditions in the room in which the instrument is placed under control to such an extent that they cannot cause any sensitive reactions in a responsive sounding board. This is the watchword: control. On the one hand, the possibility must be created

for the technician and his customers to familiarize themselves with the extent to which humidity and temperature values can fluctuate; on the other hand, it is necessary to know how wood, and in particular the wood of the sounding board, the wrest plank, the action and the keyboard, reacts to these fluctuations.

The primary cause of fluctuations in the moisture content of wood is fluctuations in humidity due to changes in weather conditions. There are two ways of measuring humidity: *Absolute humidity* is expressed [in the metric system] in  $\text{g/m}^3$  (grammes per cubic metre) and is a fixed value. *Relative humidity* is expressed in percent of the saturation point of air with water, and is not a fixed value, since the ability of air to absorb water varies as a function of temperature. Although the value normally of interest is the one for relative humidity, it is a good idea to be familiar with the relationships between relative humidity, absolute humidity, and temperature (Table I).

Something else we need to know is the relationship between relative humidity, temperature and the moisture content of wood (Table II).

As we examine these two tables, it becomes clear to us that even slight climatic changes in the course of a year will inevitably result in fluctuations in the moisture content of wood which cannot remain without effect. If, for example, the temperature is kept at a steady  $20^\circ\text{C}$ . [ $68^\circ\text{F.}$ ], but the relative humidity changes from 40% in the winter to 60% in the summer, the moisture content of wood will increase from 7.5% to 11.5%. With frequent larger fluctuations from over  $20^\circ\text{C}$ . [ $68^\circ\text{F.}$ ] at less than 30% relative humidity in the winter months to  $15^\circ\text{C}$ . [ $59^\circ\text{F.}$ ] and over 70% relative humidity in the humid summer months with the heating turned off, the wood will suffer a change in moisture content of from 6% to at least 14%. The change which a sounding board undergoes as the wood swells and shrinks due to such moisture-content fluctuations occurs on some-

what the following order:

As a rule of thumb, with radial-cut lumber (i.e. cut across the grain) with vertical, or standing, grain, a change in moisture content of 1% will cause a change of approximately 0.12% in the width measurement; with tangential-cut lumber, with horizontal grain, the same change in moisture content will cause twice as much change in the width measurement, i.e. 0.24%. The better and longer the lumber has been air seasoned, the less swelling or shrinkage. A finish on the wood will prevent its moisture content from immediately conforming to humidity changes. As can be seen in Table II, the condition of equilibrium is reestablished only with considerable delay. Assuming, then, that a 1% humidity change causes a change of only 0.1% in the width, a 4% humidity change, figured for the most favourable circumstances, will cause 4mm swelling or shrinkage per 100cm of sounding board width. Under the most unfavourable circumstances, the fluctuation in relative humidity could be as much as 8%, causing twice as

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Degrees Centigrade	Table I						
0	100	Relative Humidity % of saturation point					
5	72.4	100					
10	53.0	73.2	100				
15	38.2	50.0	72.0	100			
20	34.9	39.7	52.2	75.5	100		
25	20.8	30.1	41.1	57.1	75.8	100	
30	16.4	22.6	30.9	42.8	56.9	75.1	100
	5.04	6.96	9.51	13.91	17.53	23.12	30.80
	Absolute Humidity (grammes per cubic metre)						

% Relative Humidity	Table II					
20	6.5	6.0	5.5	5.0	4.0	Equilibrium Moisture Content of Wood (%)
30*	8.0	7.5	7.0	6.5*	6.0	
40	9.0	8.5	8.0	7.5	7.0	
50	11.0	10.5	10.0	9.5	8.0	
60	13.0	12.5	12.0	11.5	10.0	
70*	15.0	14.5	14.0*	13.5	12.0	
80	18.5	18.0	17.5	17.0	15.5	
90	24.0	23.0	22.5	22.0	20.5	
	0	10	15*	20	40	Degrees Centigrade

much change, namely, 8mm per 100cm, in the sounding board width measurement. Since the board of course cannot change its dimensions to this extent because of being glued all around its edges to the relatively rigid backframe, the arch will increase or decrease instead. The forces exerted by the down bearing of the strings and the up bearing of the sounding board arch will be thrown out of equilibrium. The re-establishment of equilibrium results in changes in the string tensions, which in turn result in the instrument no longer being in tune. A simple explanation for a simple matter of grave concern to piano owners, and hence to piano manufacturers.

Table I also shows something else worth knowing: One of the principal causes of insufficient relative humidity is cold, dry winter air which, whenever the house or flat is aired, is blown into the room in which the piano is situated and then warmed up to room temperature. Even if air at 0° C. [32° F.] had a relative humidity of



100% (which is not normally the case, as cold winter air is dryer), this air, brought into the room and warmed up to 20° C. [68° F.], would then have a relative humidity of only slightly less than 35%, and warmed up to 25° C. [77° F.], a still lower value: 20.8%. In like manner, during a cool, rainy summer, 70% relative humidity can be brought down to 50% by heating the room up to 20° C. [68° F.]. Unfortu-

nately, due to the energy crisis, heating during the summer, even in rainy or damp weather, is practiced far less than in former times, resulting in more and worse out-of-tune pianos.

There is nothing complicated about it at all. Theoretically, all one needs to do is provide for a correct, constant relative humidity, and everything will take care of itself. It is all a matter of control. In practice, it is

precisely on this point that our problems begin. Hanging on the living-room walls of houses and flats throughout the land are hygrometers, and the owners of the pianos standing next to them think they are well informed concerning the relative humidity in their rooms. There are enterprising manufacturers and dealers who throw in such a "measuring instrument" free with every piano sold. I wonder whether this practice does not do more harm than good. Although these hygrometers react in some way or other to fluctuations in relative humidity, the deflection of the needle generally has little if anything to do with the scale to which it is supposed to have reference. Under the most unfavourable circumstances, the range indicated by the scale and the deflection range of the needle can be in a ratio of three to one, resulting in incorrect readings indicating a quite uniform relative-humidity pattern throughout the year. I myself was deceived for years by such a device. Not to mention the fact that the typical run-of-the-mill hygrometer commercially available does not take temperature into consideration, which, as we have seen above, is extremely important. For example, the reading is the same at 0° C. [32° F.] as at 30° C. [86° F.]. Assuming an absolute humidity of 5 g water vapour per cubic metre air, this temperature change would cause the relative humidity to drop from 100% to 16.4%.

Quoting from an authoritative source: "Even if placed in a protected location, hair hygrometers work very unreliably, since, due to ageing, measurement errors of up to 20% relative humidity can occur. On top of that, the hair tends to gather dust and has to be regenerated from time to time. But repeated regeneration results in fatigue, which in turn results in still further measurement errors. The proper thing to do would be to replace the strand of hair every three months".

That, to me, means that one would be better off not buying such a device in the first place, because one never knows how long the unit was sitting on the shelf in the shop prior to

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purchase. One well-to-do customer of mine who had just purchased a new grand for almost L15,000 (\$21,000) was quite happy with his hygrometer, which in January was registering 60% relative humidity. He also possessed a very expensive and highly effective humidifier, which, however, he had running only at its lowest setting. My own measuring device, which I know beyond any doubt to be accurate, registered only 27% relative humidity. I had to tell this customer that I regretted to have to inform him that he was not only ruining his piano, but voiding the warranty on it as well. Fortunately, in this case I was in a position to prove to the customer that he was—not deliberately, of course—endangering his instrument by submitting it to improper treatment. Frequently enough, however, neither the customer nor the piano technician knows exactly what is really happening. It is merely observed that the piano is regularly badly out of tune.

And what other reason could here be for that than the quality of the instrument itself?

Never be misled into taking at face value a customer's claim that in his home the air is never too humid or too dry. In most cases he hasn't the foggiest notion what he is talking about. The old adage that "the customer is always right" simply cannot be applied here. If the customer tries to convince the technician that he was sold a "lemon" when in reality adverse climatic conditions are the cause of his troubles, the technician should not hesitate to tell him the cold, hard facts of life. But if the technician has not sold the piano to the customer, it can even happen that he himself will jump on the bandwagon. And the more expensive the instrument, the easier it is to draw such a false conclusion. Of course, if the technician does tell the customer that he is subjecting his piano to improper treatment, the customer frequently dismisses such

remarks as an effort on the part of the technician to protect himself in case the tuning should not hold. In such a situation, one is probably better off referring the customer to one's competitor, and the customer should be told this in no uncertain terms.

The customer himself bears the responsibility for the humidity conditions in his home, and he must see to it that they remain acceptable. But if, instead, he prefers to stubbornly insist that the conditions in his home are exactly the same as in the homes of his friends and/or relatives and they practically never need to have their pianos tuned and that the dealer has foisted a "lemon" off on him, we see difficulties heading our way which make us wish someone else were in our shoes instead. And sometimes we must pay dearly for promising the customer more than we and/or the instrument can deliver.

To make a long story short, we must put ourselves in a position to

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prove to such a customer that he is in the wrong. And that is not such a simple matter. It is at the very least an expensive proposition. First, there are devices on the market for measuring the moisture content of wood. Below 8% or above 10% is no longer acceptable. In order to precisely determine the relative humidity and, still better, the absolute humidity, I bought a so-called *Hygrom*, a device operating on a principle similar to that of a psychrometer, which measures the moisture content of air in grammes per cubic metre, from which the relative humidity at the given room temperature can be determined. Using this, I was able to show the owners of pianos which were badly out of tune in the winter that their hygrometers were not giving correct readings. This, of course, is just the first step, which must be followed by measures being taken to ensure that the relative humidity remains within the recommended limits. But such measures will not be taken unless the piano owner is first shown that his valuable instrument is at risk.

I know from personal experience how difficult it is to keep the relative humidity at a sufficient level in schools and similar institutions with central heating during cold winters, as well as to prevent it from climbing to excessive values while the school is closed for the holidays during a rainy summer. Yet these are problems which can be solved with circumspection and a bit of financial outlay. It is just a matter of making it quite clear to such customers that if this is not done, the result will be a ruined piano with an invalid warranty. And we have nothing to fear from competitors who claim that their pianos do not require such meticulous care. They are either lying, and their instruments *do* require the same care as ours, or they are telling the truth, and their instruments are inferior in tone and playability.

If, after we have done everything in our power to make it clear to those responsible for the care of pianos what their duties are in this regard, they are either unwilling or not in a position to take proper care of

their instruments, then we should have the gumption to refuse to honour any unjustified warranty claims and complaints.

### WHEN IS THE BEST TIME TO HAVE A PIANO TUNED?

Although in many cases it is scarcely possible—or even impossible—to eliminate the problem of fluctuating relative humidity in the homes of our customers, there still remains the glimmer of hope that it is possible to strive for a tuning which will remain usable over the longest possible period of time. Since, as we have seen above, fluctuating humidity means that an important prerequisite for good tuning stability is not given, the logical conclusion that can be drawn from this is that it would make good sense to have a piano tuned only when the wood moisture content is at a level which, based on the humidity conditions and the time of year, can be expected to remain constant for

awhile. The moisture content of unfinished wood adjusts to the prevailing relative humidity in a matter of days. Of course, the thicker the boards or planks, the longer it takes. But the better the material and the better its outer surface was sealed off or otherwise treated, the longer it takes for the surrounding air to affect the wood through the finish. This holds true for sounding boards as well. My experience up to now with my clientele has been that, as a rule, over the course of a year the heating period lasts longer than the summer months without heating. There is a grain of truth to the old joke about a typical German summer actually being a mild winter. The approximate ratio of months with heating to months without could be given as 7 1/2 to 4 1/2, or even 8 to 4. Assuming that no decisive measures have been taken to ensure a constant relative humidity and that the end of one period and the beginning of the other is an unsuitable time to have the piano

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tuned, as the piano would be out of tune again within a few weeks, it becomes obvious that regular tunings at six month intervals could be counter-productive if carried out at the wrong times. I recommend to my customers who have their piano tuned only once a year that, if possible, they should have it done at the beginning of each year, provided, of course, that the tuning is still tolerable the following Christmas. Then again there have been years when this was the wrong time, e.g., when winter did not set in until the middle of January or the beginning of February and remained until Easter.

Those with such a fine ear for music that they cannot bear to play their piano out of tune should have it tuned at least three times a year. Because in the summer abrupt changes in the relative humidity, and hence in the wood moisture content, can occur, forming no solid foundation for the summer tuning. At the end

of a dreadfully rainy summer, as the holidays draw to a close, the tuner is often quickly called for. But then all his painstaking work is soon brought to nothing by the heating period following shortly thereafter.

Fortunately, many, if not most, of our customers are not endowed with an ear so keen as to register every little change in the tuning. But with a customer whom we know to not be in this category, we really should be telling him why having his piano tuned now would be a waste of time and money and recommend that he bear the out-of-tuneness another four weeks, at which time he will probably find the piano going back in tune by itself as the moisture content of the sounding board normalizes in response to relative humidity returning to its normal range.

Problems are particularly likely to be encountered with new pianos, the tuning of which, as previ-

ously mentioned, has not yet had a chance to settle down. If the customer has a keen, well-trained ear, it will not be long before he calls the dealer and orders the first tuning, usually done free of charge. If, as misfortune would have it, this happens toward the end of a spell of rainy weather as summer draws to a close, followed shortly thereafter by the heating period, or, conversely, toward the end of the heating period after a long, hard winter, soon to be followed by the first summer rains, the piano will most certainly be badly out of tune in short order. What can then ensue, I have already mentioned several times: The customer concludes from this that he has purchased a piano with a poor tuning stability. And the dealer, in his ignorance, informs the manufacturer that the tuning stability of their instruments leaves something to be desired.

All of which goes to show that with a bit of luck in the selection of the

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tuning date the out-of-tuneness due to seasonal changes can be kept to within certain limits, yet the ideal solution to the problem is a controlled relative humidity which never deviates more than slightly from an average value. This is at the same time beneficial to the householder's health. Moreover, any expense involved in stabilizing the relative humidity is more than compensated for in reduced heating costs. If the relative humidity is too low in the winter, a higher room temperature is required in order to feel comfortable. The overly dry air soaks up moisture like a sponge, drawing it from the skin through evaporation. This evaporation in turn causes a drop in the skin temperature (the principle on which refrigeration units operate), one feels cold and turns up the thermostat. But the increase in the room temperature reduces the relative humidity still further, the air becomes even more greedy for moisture, the rate of evaporation is speeded up, and we have a vicious circle. A 1° increase in room temperature means a 6% increase in fuel consumption, and hence heating costs. Experience has shown that if a proper relative humidity is maintained, the room temperature can be reduced by at least 3°. In the summer, when the relative humidity is in the 50-60% range, one is perfectly comfortable within a temperature range of 16-20° C. [61-68° F.] But in the winter, with only about 30% relative humidity, a room temperature of 22° C. [72° F.] is perceived as not quite warm enough. There will always be musicians and music lovers who can find fault even with a tuning just done by an expert. When such customers begin to continually voice their dissatisfaction in the presence of others without being able to give any exact reasons why, it is entirely possible that the tuning stability of the pianos with which they have to do will be called into question. The subjective view of each individual who for some reason or other feels called upon to make his view public can naturally cause a certain amount of confusion. Everything in the way of opinions arrived at which in some

way or other become public—whether spoken out of envy and ill will or because one is inclined to agree with everything some seemingly influential critic says—contributes to giving birth to [false] judgements which cause damage, yet do not result in the desired benefit to their author. Such a course of action is short-sighted. One should be prepared to admit that an unsatisfactory result might possibly have been due to extenuating circumstances. This can just as well happen to one's competitor.

Insofar as it is not acting against the customer's best interests, piano technicians should not cause each other any difficulties. It would be better to present a united front in educating the public. This is the only way to make it clear to obstinate customers that there is no way of getting around certain facts of life. This, of course, does not mean that all differences in the skill of the individual technicians should be swept under the rug. On the contrary, any piano technician who refuses to take badly needed advice because he believes he is God's gift to the music world should be put in his place in no uncertain terms. Such an unteachable person cannot be regarded as our colleague, and we should do what we can to protect our customers from such pseudo-technicians. I would like to see more solidarity among piano technicians. That, too, is tuning stability.

Translation by J. Engelhardt

## BIBLIOGRAPHY

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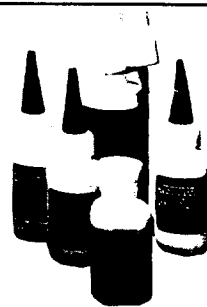


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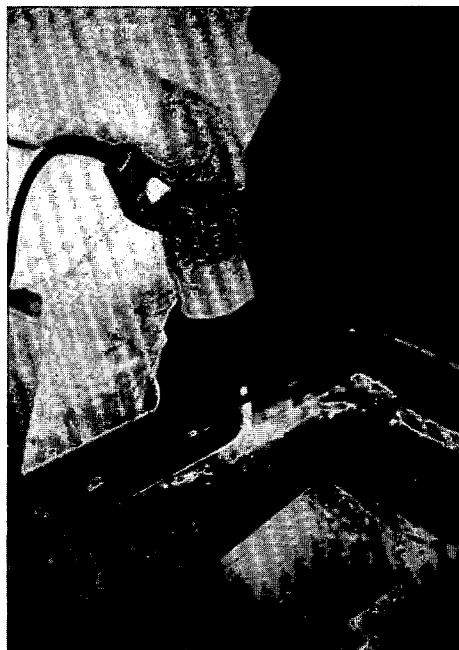


**Good  
Vibrations**

## Pinblock Removal Using a Reciprocating Saw

*Nick Gravagne, RTT  
New Mexico Chapter*

*Last month in this series a pictorial article appeared showing pinblock removal with the aid of an ordinary electric circular saw. This month we will consider the use of a reciprocating saw to accomplish the task.*



*Photo 1*

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### THE SAW & ITS FEATURES

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**P**hoto 1 shows the saw in action making the stretcher cut on a Steinway pinblock. The tool shown is a Milwaukee Sawzall with a pivoting shoe, and a 4 amp rating. The blade is a 6-inch standard type which, according to the usage chart, can be used "through nail-embedded wood and for general roughing-in." And for cutting out Steinway pinblocks, we might add. Longer blades are readily available should the 6 inch blade prove too short for certain stretcher tops-to-pinblock bottom distances. This particular Sawzall throws a 3/4" stroke, is variable speed to 1700 strokes per minute, and with a flip of the switch churns out 2400 strokes per minute. There are many brands of reciprocating saws on the market, each with differing or similar characteristics. More powerful units are rated at 8 amps, and have stroke lengths of 1 1/8 inch. Most saws, regardless of power, seem to work in the range of 1600 to 2600 strokes per minute. Note that while a circular saw cannot generally be used freehand, that is apart from riding the saw on its shoe, reciprocating saws can be used freehand to a certain extent. Still, as in the photo, it is best to ride the saw's shoe along the stretcher top, using it freehand only at the bass and treble ends of the long cut where the rim begins to obstruct. Trying for a flush cut to the stretcher will cause some of the stretcher to be removed as well. Make the cut as close to the stretcher as possible, but don't try for flush.

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### STARTING THE CUT

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The pivoting shoe, which is designed to aid in plunge cutting, is a nice but useless feature in making such a starting cut in pinblocks due to the density of the hard wood, as well as to a too-steep entry angle resulting from the saw sitting so far above the pinblock surface. Photo 2 shows two 1/2 inch holes drilled near the stretcher. In order to start the cut, the saw blade is first placed in these holes. Notice that duct tape has been applied to the top of the stretcher for protection. The piano was later refinished. If the piano is not going to be refinished a more substantial protection will be required such as thin sheet metal (flashing). Tape it in place with double stick tape or wrap it around the stretcher top. Beware: sometimes tape, even masking tape, can pull a lacquer finish off the surface.

Since the inner rim, along with the general bulk of the saw and shoe, precludes cutting all the way along the stretcher length of pinblock, the last short lengths (about 1-1/2 inch) need to be chiseled out. Sometimes the glue joint of those short lengths can be "wedged" apart with a chisel. But pay constant attention not to damage the stretcher and any of its case joints.

---

### THE END JOINTS TWO CHOICES

---

The decision is based upon whether or not you like to have as much of the original pinblock intact after removal. If this matters little,





Photo 2

then saw as far as possible along the stretcher length, taking care not to cut into the inner rim (in the keyed area). Finally, crosscut the ends of the pinblock off. The last chunks still clinging to the rims are then chiseled off as in **Photo 3**.

If though, like me, you prefer (for no seriously supportable reason) to have all the pinblock length intact after removal, the second course of action can be taken. Essentially, this involves forcing the ends of the pinblock up from the keyed in order to break the glue joints. The technique calls for two kinds of applied forces: static pressure applied from below through such devices as a scissors jack or a pinblock support "jack" (**Photo 4**), and shock forces delivered to the *top* of the pinblock by a stringing hammer.

---

### CONSIDER PRE-SOAKING FIRST

---

In order to prepare the block for this treatment the end dowels should be drilled out. In addition, a trough for holding a water/vinegar solution or wood alcohol needs to be chiseled out at both ends where the block meets the inner rim. This trough, which can be

seen in the cover photo as well as in photo 5 on the next page, should begin at the stretcher corner but stop a bit short of the flange edge of the block in order to keep the solution from running out. Fill up the dowel holes and the trough with the solution and let it soak for a while. If using water/vinegar, make the solution as hot as your tap can give you; use alcohol at room temperature. Note that alcohol will white-stain the piano finish; water/vinegar stains less so, and hot water even less. Check and reapply the solution a couple of times. After about a half hour, it's time to bully the block out.

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### THE SHOCKING TREATMENT

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Start at the bass end. Place your jacking device under the pinblock, making sure it is not pushing on the stretcher. **Photo 4** shows a pinblock support jack in place. Turn up the jacking device until a good amount of pressure is felt either at the handle (if a scissors jack) or nut/wrench (if a pinblock support). Unless the block-to-case joint is atypically weak, don't expect to break it with static pressure only. So take a stringing hammer and deliver a few sharp blows to the pinblock top over the area of the jacking device. This sort of jolting force, along with the static force from below, will eventually free the

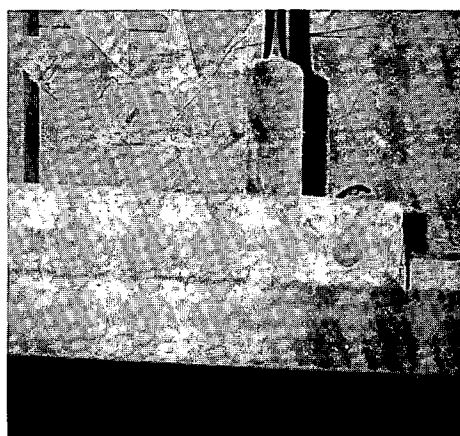


Photo 3

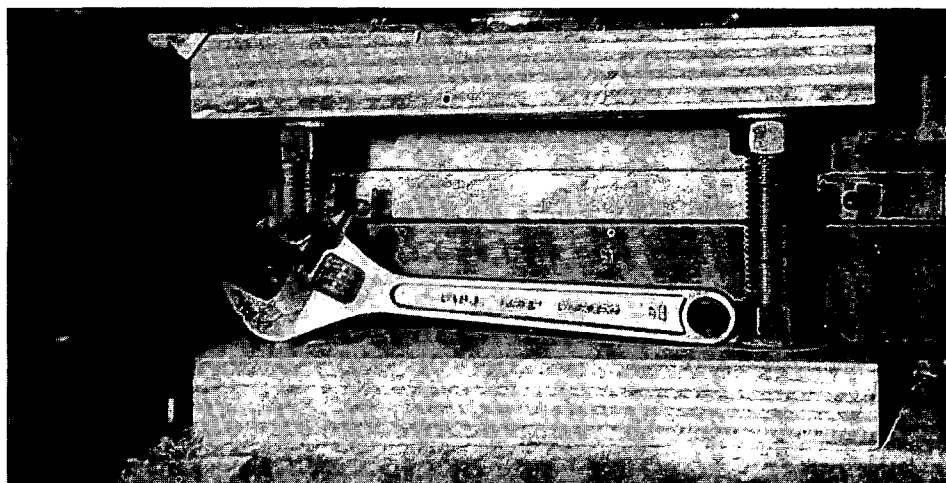


Photo 4

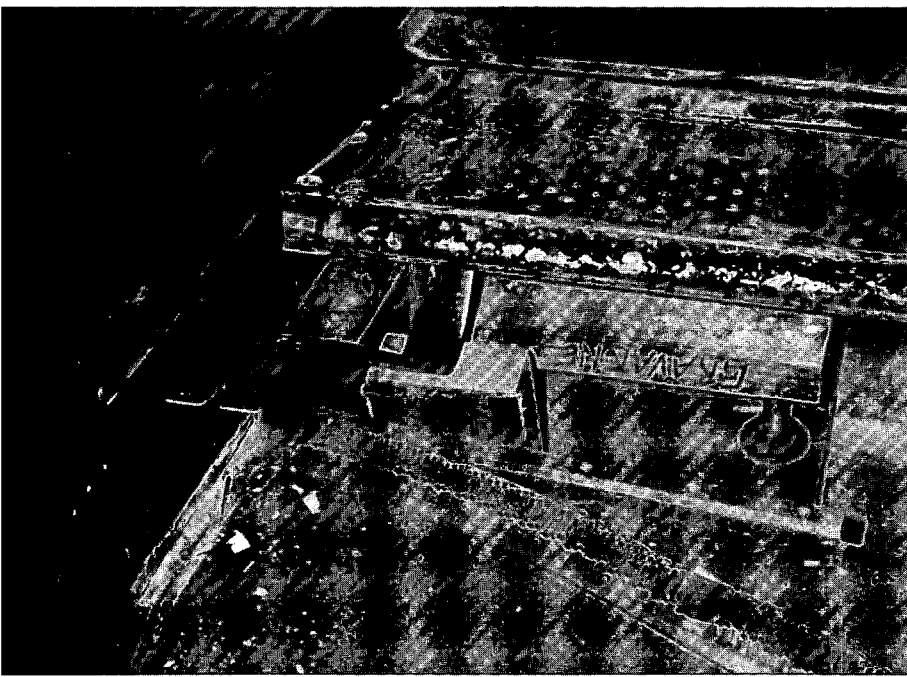


Photo 5

the pinblock, indicating a tight fit to the plate flange—typical for Steinways. Does all that blacking suggest that the original fit was super tight? Not necessarily, although the factory fit was obviously excellent. But after years of string tension the block has been driven even more tightly into the flange, creating an almost unbroken blackened surface.

After the treble end has been broken free, remove the pinblock and turn your attention to the stretcher where a thin strip of old block is still attached. This can usually be chiseled off as in **Photo 6**. If the strip is particularly stubborn, i.e., bits of the stretcher are coming off as well, soak it with the solution (use a small paint brush), and/or make a series of vertical saw cuts in the strip back to the stretcher. Use a small hand-held saw. In pieces, the once continuous strip is easier to

block from the case. After applying the hammer blows, go back to the jack; you will find that it can be easily turned up a couple of more turns. When considerable resistance is once again felt, beat the top of the block with the hammer. Continue in this fashion until the joint is broken. The operation goes fairly quickly. Do *not* crawl into the action cavity with a chisel in order to wedge apart the block from the shelf; doing so will introduce unsightly or damaging beveled dents into the shelves.

When the bass end is free, lift it in order to break the treble end free. If this doesn't work the above jacking and shocking treatment is required. Only in order for it to work, the free floating bass end needs to be clamped down to the rim with a pipe clamp and a block of wood. The cover photo also shows a bit of extra persuasion: note the flat steel crow bar working off a block of wood which is standing on the keybed. Here the combined effects of solution soaking, of jacking, hammering, and prying broke the treble end cleanly away from the rim and case. Very little material had to be chiseled off the shelf. Finally, while looking at the cover photo, note the "blackening" along the flange edge of

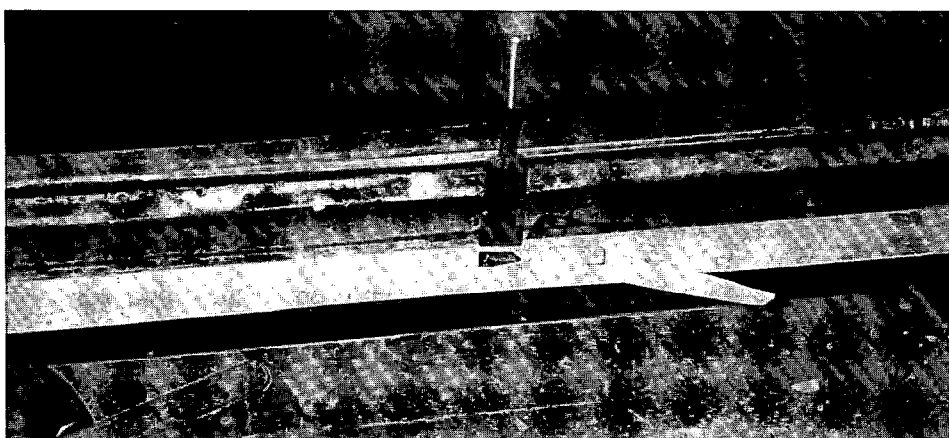


Photo 6

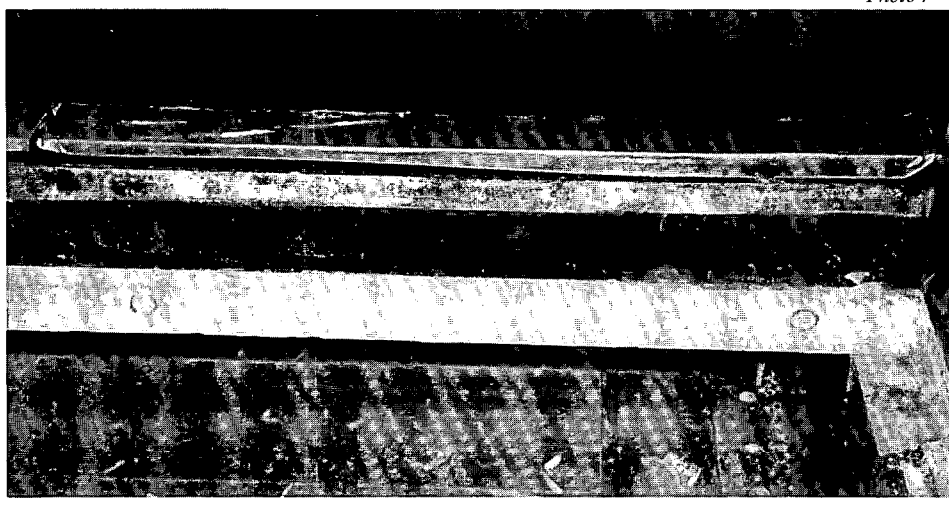


Photo 7

chisel off. Finally, **Photo 7** shows the stretcher joint and the bass shelf which have been cleaned and scraped, ready for the new pinblock.

Note the sawed off and exposed blind dowels in the stretcher. Typical of Steinway construction are five such dowels which further secure the block to the stretcher.

**Note:** Certain (if not all) Hamburg Steinways are constructed with blind dowels in place not only at the stretcher, but at the bass and treble ends of the block as well. Be aware, you cannot use the jacking and blocking treatment with these blocks.

There seem to be as many variations of the above technique as there are piano rebuilders. Some practitioners use a router equipped with a specialty bit—for example. In any case—all seem to swear by their

method—"it's the best—the fastest, it's cool." Whatever method you use, the job should be accomplished in a routine fashion and without moment-to-moment crisis management. In addition, the job should be carried out with reasonable speed (1-1/2 hour max not necessarily including final scraping/cleaning), and with no damage done to the block support

shelves, to the stretcher or its case joints.

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## Tuning Corner

Ben McKlveen  
Contributing Editor  
Cincinnati Chapter

### There Are Details... & Then... There ARE Details!

**S**everal weeks ago I was working with my flight instructor at a small airport near Cincinnati. After completing a series of practice take-offs and landings, we started back to our home airport on the north side of town. The instructor sat silently as I located what I thought was Interstate 75 and turned the plane to follow it to a landmark that led into the traffic pattern for the home airport. After a few minutes, he broke the silence by asking, "Are you comfortable, Ben?" Puzzled by the question, I replied that I was perfectly comfortable. We flew on for several minutes, the highway drifting by under the wing. The landmark failed to appear. After another couple of minutes I said, "Al, I think something is wrong". "Where do you think you are?" he asked. At that point I hadn't the faintest idea. "Look at your compass," said Al. The compass read 240 degrees—southwest instead of southeast! I was following the wrong road, blindly without any other checks, assuming that it was I-75. As a result, we were twenty-three miles west of the airport and headed in the wrong direction. I reversed my direction and

with a series of radio and instrument tests and visual checks, I got us home. My instructor took great delight in using this experience as an object lesson and teaching experience. I had focused on only one option: the visual, and was mistaken. Getting lost forced me to cover other options, as well as the visual, to be sure that I was going to where I wanted to go and would get there.

You may wonder why I tell you this story. The reason is that this experience has a curious business parallel. Less than a day after my flying episode, I received a call from a woman who was opening her home to a fund-raising concert. The performing musicians were a violinist, a cellist, and a pianist who was a client of mine. The piano that was to be used was described as an 1880 Weber grand that was a half-tone low. The pitch was a real problem for the trio. To tune the strings below pitch spoiled the sound and made the performers very uncomfortable. The hostess's regular tuner had refused to raise the pitch because he had been told that it was an 1880 instrument and he felt that it would never take the tension to raise it to pitch. They asked if I could do anything to help them. I agreed to look at the piano. At seven o'clock on a Saturday evening I was at the door of the owners, and shown into the large living room which was already set up for the concert, now less than twenty-four hours away. The piano was a pleasant looking, nineteenth century, medium-sized Weber grand. Age verification was out of the question because I could find no serial number. It was one hundred cents flat! Playing the piano for a few moments helped

me to make a number of other observations. It didn't have 110-year old bass strings. They were very live and powerful, no corrosion and not a dead string in the lot. Could this piano have been rebuilt? It seemed so. The plate had been rebronzed and the serial number had been covered over. The tuning pins looked good—no rust, coils were bright, and very tuneable. These clues, above and beyond its reported age suggested that the piano could be tuned at A-440 and that it would be stable. A price quote was made and accepted and the work was begun. It consisted of a standard pitch raising, followed by a tuning, with some additional care and effort because of the concert requirements the next day. As a safety factor, a short service call, made a couple of hours before the concert, allowed the correction of several unisons that had drifted, and the concert went on as scheduled.

The parallels between the flying experience and the piano work are obvious:

1. I made one incorrect visual assumption in the air to determine my location and I got lost. This could be very dangerous. It is poor flying discipline.

2. The regular tuner in this story relied only on what he was told about the piano—that it was an 1880 instrument—and on the strength (or weakness) of that information he made a judgement that the piano could not be raised to pitch. He was wrong; he lost the work and his reputation suffered. It is necessary to use *all* of the avail-

story continues—page 38



## Economic Affairs

**T**imes are hard. It's easy to get depressed just listening to the evening news. The headlines are touching home. And yet, some businesses are booming. These are times when quality shows, and price is not always the deciding factor. The costs of doing business continue to rise, and the price you set for your goods or services can negatively affect your business, whether your price is much higher than the average—or lower.

I saw an interesting commercial on TV the other night, for Jimmy Dean sausage. In this ad, Jimmy Dean tells his audience that he makes the best sausage, uses the finest ingredients, and yes, charges accordingly. He then looks straight into the camera and says "I'd rather have to explain a higher price to you than to apologize for lack of quality." What a statement! And it can be just as applicable to a service, can't it?

A few months ago I was called to service a piano in a well-established neighborhood—very nice houses. The room that held the piano was across a hallway from a large dining room. The wallpaper in the room was literally falling off the walls! As I finished the tuning, the lady of the house (who had been trying unsuccessfully to hang the paper herself) began to tell her story. It seems that she had asked someone for an estimate for doing the job. The estimated cost was \$450. "Too much!" she told the man. So he lowered his estimate to \$300. The lady agreed, the paper was ordered, and the nightmare began. The paper wasn't properly matched at the seams, more paper had to be ordered, and the frustration mounted until the woman threw the pseudo-paperhanger out of her house.

What amazed me was that this lady could not understand her misfortune. Who knows? Maybe the paperhanger couldn't understand his misfortune either. Maybe they deserved each other. The woman never seemed suspicious of someone who was willing to reduce his price by 33 percent. The paperhanger could not have given his first estimate based on

# Cheap at Twice the Price?

By  
Collete Collier, RTT  
Washington, DC Chapter

his worth as a professional, nor his cost of doing business. Maybe he was just a part-timer. I doubt he will ever build much of a business, judging from this case. But anyone who is unwilling or unable to set a fair price for his work should go to work in a situation where the prices are set for them, where they don't have to deal with those kinds of business decisions. (I later met a professional paperhanger who told me that a more realistic estimate for the job as I described it would have been closer to \$750.)

And what was there to gain by working for a woman like this? People whose main criterion is price will continue that pattern and wonder why they can't seem to get good service. And they will seldom expect to get less quality for less money! Altogether, this is a bad combination of circumstances. This client would probably also, if referrals are given, bring in more of the same type person as she. Who needs that? Businesses and clientele are built and nurtured. It's not accidental that we might acquire a certain "type" of client—they are a reflection of how we do our work, and the standards we set and maintain.

Suppose you give someone a special price. They are, in effect, borrowing money from you. Have you considered how it will be paid back? Let's say, for the purpose of this discussion, that you do not adjust your fee for 3-4 years. During that time your costs of doing business have risen, you have acquired 4 more years of experience, and the service you sell should have improved in quality. That means, if times are suddenly better, you are due for a substantial increase. If you increase all at once, the clients' reactions will most likely be anger. Rather than be appreciative for years of subsidy, they are more likely to feel they are being taken advantage of. They will probably go looking for someone who is cheaper, and you may discover that their "loyalty" was to your subsidy, rather than your work. Or, you might increase your fee more slowly, somewhat akin to backing "down" an "up" escalator.

There will always be some jobs we might do in harder times that we would refuse otherwise, but we do so knowing what we are doing and

why we are doing them. There will also be those jobs where we give someone a break—but they are not the rule, they are the exception. Gratitude and ego are nice feelings, but they don't pay the mortgage.

This is not an article about keeping and setting prices at an artificially high level. The man would have made just as bad a business decision had he given the woman an estimate of \$600 and stuck by it. (This assumes that the \$450 figure was a fair estimate for the work involved.) Setting a price for your product is the result of study of many factors: cost of doing business, experience, type of service given, and the quality of that service. But all businesses tend to find a range that allows a reasonable profit. Allowing outside factors to dictate your method of doing business, rather than basing your fees on the basis of good business sense, could lead to the demise of your business. If you are retired, with a paid-up mortgage, and set your fees artificially low in order to give people a break, how about giving the beginning technicians with their new mortgages and young families a break? We can't attract the type of professionals we'd like to see in piano technology in the future if they have to compete with 1970 or even 1980 prices.

One rule of thumb I use is to always buy goods at a discount, and *never* buy services at a discount. We are all familiar with the phrase "you get what you pay for". I submit to you a variation: "you give what you get paid for".

***"...anyone who is unwilling or unable to set a fair price for work should go to work in a situation where prices are set for them..."***

## **American Music Conference Board of Directors Approves New Focus, Major Changes for Association**

In an atmosphere of "positive enthusiasm for and commitment to the future," the American Music Conference Board of Directors at its May 15 meeting in Chicago unanimously approved several major changes in the association's future focus, direction and activities.

The key element of change was a commitment to focus AMC's efforts for the next two years on the National Coalition for Music Education as the first major active AMC project.

The National Coalition's goal is that "every child in every school will receive a well rounded education that includes a comprehensive, sequential, high-quality program of music taught by a certified music teacher." Coalition founders are the Music Educators National Conference, the National Academy of Recording Arts & Sciences, Inc., and the National Association of Music Merchants.

Also approved by the AMC Board was the nomination of Karl Bruhn, NAMM's current director of market development, as AMC's executive director; slightly altered bylaws, and moving the AMC office to Carlsbad, California.

"This was an extremely encouraging, positive meeting that was filled with a lot of enthusiasm," said AMC President Jerry Gorby, president of Gorby's Music, South Charleston, WV. "We are all looking

forward to a great future for this association under the leadership of Karl Bruhn and the important role AMC will play regarding music education in America."

According to Gorby, the move to make the changes within AMC were brought about by several important, and sometimes sobering issues currently affecting the U.S. music community. The two key issues he noted were: 1) The steady decline during the past 18 years in the expenditure on new musical products as a percentage of this country's personal consumption. (Between 1974 and 1991, the percent of personal consumption as related to musical products dropped 58%; from slightly more than 2 tenths of 1% to less than 9 tenths of 1%.); and 2) The fact that the six clearly defined goals of AMERICA 2000, the national education strategy, did not include the arts and other important subjects.

Highlights of findings from AMC's 1992 nationwide survey of "Adults' Attitudes Toward Music" were also presented. AMC's first benchmark survey of adults' attitudes was conducted in 1987. Highlights included:

- Even more Americans agree today music is an important, integral part of their lives. Eighty-six percent agree "music is a very important part of my life" (compared to 71% in 1987) and "music brings the family together (81% vs. 71%)

# **INDUSTRY NEWS**

- This year's respondents were significantly more likely than those in 1987 to report several reasons they definitely felt it was important for children to play musical instruments. Over 10% more in 1992 chose the following reasons: "develop poise and confidence," "provides another means of self-expression," "develop child's creativity," and "overall intellectual development."

- Overall, respondents view music as an important, enriching part of life, agreeing children should have some experience with music and musical instruments.

- Americans overwhelmingly agree learning to play an instrument provides children "a sense of accomplishment," "self-expression," and "is fun."

- Majority of respondents agree schools should offer instrumental music instruction as part of regular curriculum and communities should provide financial support for music education in their schools.

- Majority of respondents believe children should get an early start in music education, agreeing instrumental and vocal music should begin in elementary school and elementary school children should receive lessons in music appreciation.

"The results of this new survey are obviously at odds with current school music program budget cuts," Gorby said. "What is needed are tools parents and other concerned adults can use to help bridge the gap between 'perception and reality.'"

AMC, a national non-profit educational association, was founded in 1947 to encourage active amateur music making and music education for people of all ages. Members include the entire music community and everyone who understands the necessity of music and the other arts in our society. It does not promote individual companies, products or people within the industry.

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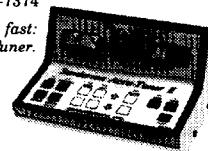
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## Temperament Sequence

# Aural Tuning for Visual Tuners

By Kent Swafford

Kansas City, Chapter

PTG ETSC Tuning Exam Subcommittee Chair

**S**ince the Piano Technicians Guild tuning exam requires examinees to demonstrate aural piano tuning skills, and since many piano tuners learn visual tuning techniques before learning aural techniques, there is a clear need to present material that will help piano tuners who are already familiar with visual techniques to learn the techniques of aural piano tuning.

While piano tuners who have developed good visual tuning skills, good string-setting technique, and the ability to tune good unisons may not be able to learn aural tuning "easily," such tuners do at the very least possess skills that should enable them to learn aural tuning techniques much more easily than if they were beginning from "scratch." This article will try to suggest ways in which a visual tuner could make use of an electronic tuning device to learn the techniques of aural tuning.

There are some basic differences between visual and aural tuning techniques that need to be understood. The late George Defebaugh, a great teacher of piano tuning if there ever was one, once said of aural tuning, "Temperament setting is not a routine job; [it is] a job that requires the utmost skill in the art of compromise, to put these twelve semi-tones in their proper places, so they will be a happy family of intervals." The visual tuning of a temperament can indeed be "routine": measure the stretch number(s), calculate the tuning, tune chromatically through the temperament by stopping the lights, and aurally verify/refine.

The procedure for tuning a temperament aurally, however, is

difficult or impossible to describe in a straight-forward manner; the description must of necessity be convoluted. This is because, while a stretch calculator allows a tuner to automatically adjust for the general level of inharmonicity, the aural tuner must correct for inharmonicity as a part of tuning the temperament by adjusting the beat rates through a process of trial and error, a much more difficult task.

Also, when tuning visually, each note is tuned directly to the electronic tuning device, meaning that the last note tuned in a temperament octave is likely to be just as "in-tune" as the first note tuned. But when tuning a temperament aurally, each note must be tuned to notes tuned earlier in the sequence, so that a mistake on one note can easily lead to mistakes on notes later in the sequence. This, of course, means that the last notes tuned are likely to be less "in-tune" than the first notes of the sequence. When tuning aurally, it is important, therefore, to tune each note of a temperament sequence to as many of the previously-tuned notes as possible, so that a mistake in tuning any one note in the sequence will have the least possible effect on notes that come later in the sequence.

A visual tuning device with a built-in stretch calculator can be a very powerful tool for learning aural tuning.

Obtain a good temperament sequence with all the aural checks fully written out, such as the "Every-Which-Way-You-Can" Temperament Sequence, included with this article.

Obtain an A=440 aural pitch source, such as a pitch fork or an external speaker for your visual tuning device.

At a piano, set up your electronic tuning device for visual tuning according to the way you normally tune, by measuring the stretch number(s) and calculating a stretch tuning, or choosing a page of memory. Tune a temperament visually, but rather than tuning chromatically through the temperament as you would normally do, follow the directions for the aural temperament sequence, tuning the notes as they are ordered in the temperament sequence by manually stepping your electronic device from note to note through the aural sequence. This will be tedious.

As you visually tune through the temperament sequence, carefully listen to each aural check as listed in the written instructions for the temperament sequence you are using.

Familiarize yourself with the beat rates of the various tuning intervals and checks. I cannot suggest how long this might take, but I assume that this could not be done in an afternoon!

The next step toward success in aural tuning would be to tune through the temperament sequence, first attempting to tune each note aurally, then immediately stepping the visual tuning device to the reading for that note and using the "box" to correct any error. This will be tedious, to be sure, but you will be getting immediate feedback as to how you are doing, much as if you had a tuning teacher listening over your shoulder.

As you progress, and if you have the patience for it, you could start tuning two notes of the sequence before checking them with your electronic device, then three, then four, and so on until you are attempting the whole sequence aurally.

Even after you are tuning through the whole sequence aurally, check your work by stepping the visual tuning device through the aural sequence. This will allow you to discover where you went wrong, if you did indeed go wrong. When you discover an error, listen to the checks for that note as suggested by your written version of the temperament sequence and see if you can begin to hear your mistakes.

As you tune different types of pianos this way, you will become aware of the extent to which the electronic tuning device automatically adjusts the general level of the beat rates from piano to piano. When tuning aurally, this adjustment of beat rates is accomplished by a combination of remembering what beat rates "work out" for a given type of piano, and by learning how to use beat-rate checks to "read a piano" and find the

general level of beat rates that are appropriate for each individual piano you tune. The STOP points in the "Every-Which-Way-You-Can" temperament sequence are places where you can evaluate how things are working out and double back to make corrections as necessary. And corrections will be necessary. For example, in tuning an F3 to F4 temperament octave, the F3-F4 octave must be tuned to be clean-sounding and the beat rates of the three contiguous thirds F3-A3, A3-C#4, and C#4-F4 must progress in an approximately 5:4 ratio. You will find that the general level of the beat rates of these thirds will have to vary from piano to piano in order for the three contiguous thirds to fit into the octave.

Develop a way of aurally refining a temperament that is independent of a temperament sequence. (For an example of such a technique,

see the article entitled "Temperament Refinement Procedures.") [Note - next issue -j] Practice aural refinement techniques to fully develop the ability to find your mistakes aurally.

Extend your aural ability outside the temperament area using the same "tune aurally, check visually" technique.

When your aural tunings and your visual tunings agree to within a cent or two in the mid-range of the piano, you will be ready to have an RTT listen to your work to see if you are ready to take the PTG tuning exam. Also, you will know that your aural skills are becoming fully developed when you use aural checks on a given note and confidently decide on a tuning for that note which is different than that suggested by your electronic tuning device!

## An "Every-Which-Way-You-Can" Temperament Sequence • Kent Swofford

**Tune A4 to an A=440 pitch reference, using test note F2 or B1.**

(First, tune piano A4 beatless with pitch reference A4. Then, make beat rate of F2-A4 M17th on piano exactly equal to beat rate of M17th between piano F2 and pitch reference A4, or make beat rate of B1-A4 double-octave m7th on piano equal to beat rate between piano B1 and pitch reference A4.)

**Tune A3 to A4, using test note F3.** (Tune a "clean-sounding" octave and make F3-A3 M3rd beat [the same as or] slower than F3-A4 M10th.)

**Tune F3 to A3**  
...approximating 7 bps expanded.

**Tune D4**  
... to F3, approximating 8+ bps expanded.  
... to A3, approximating 1+ bps expanded.  
... to A4, approximating 1/2 bps contracted.

**STOP.**  
Be sure that A3-D4 P4th beats [as fast or] faster than D4-A4 P5th and that F3-D4 M6th beats faster than F3-A4 M10th and F3-A4 M10th beats [the same as or] faster than F3-A3 M3rd.

**Tune A#3**  
... to D4, approximating 9+ bps expanded.  
... to F3, approximating 1+ bps expanded.

**Tune F4**  
... to F3 using test note C#3. (Tune a "clean-sounding" octave and make C#3-F4 M10th [the same as or] faster than C#3-F3 M3rd.)  
... to A#3, approximating 1/2 bps contracted.

**STOP.**  
Be sure that F3-A3 M3rd, F3-D4 M6th, and D4-A#3 M3rd progress (approximating 7,8+,9+ bps) and that F3-A#3 P4th is [as fast or] faster than A#3-F4 P5th.

**Tune C#4**  
... to A3, duplicating bps (on slow side) of A#3-D4 M3rd.  
... to F4, somewhat faster bps (5:4 ratio) than A3-C#4 M3rd.

**STOP.** See that the F3-F4 octave is as wide as "clean-sounding" allows. Make contiguous major thirds F3-A3, A3-C#4, C#4-F4 (and F4-A4) progress smoothly (4:5 ratio).

**Tune F#3**  
... to A#3, duplicating bps (on fast side) of F3-A3 M3rd.

... to C#4, "almost-clean" P5th, about 1/2 bps contracted.

**Tune D#4**  
... to F#3, duplicating bps (on fast side) of F3-D4 M6th.  
... to A#3, duplicating bps (on fast side) of A3-D4 P4th.

**Tune B3**  
... to D#4, duplicating bps (on fast side) of A#3-D4 M3rd.  
... to F#3, duplicating bps (on fast side) of F3-A#3 P4th.

**Tune G3**  
... to B3, duplicating bps (on fast side) of F#3-A#3 M3rd.  
... to D4, duplicating bps of "almost-clean" F#3-C#4 P5th. (See that G3-B3 M3rd duplicates bps of F3-D4 M6th.)

**Tune E4**  
... to G3, duplicating bps (on fast side) of F#3-D#4 M6th.  
... to A3, duplicating bps (on fast side) of G3-D4 P5th.  
... to B3, duplicating bps (on fast side) of A#3-D#4 P4th. (See that G3-E4 M6th duplicates bps of A3-C#4 M3rd.)

**Tune C4**  
... to E4, duplicating bps (on fast side) of B3-D#4 M3rd.  
... to G3, duplicating bps (on fast side) of F#3-B3 P4th.

... to F3, duplicating bps (on slow side) of F#3-C#4 P5th.  
... to F4, duplicating bps (on fast side) of B3-E4 P4th.

**Tune G#3**  
... to C4, duplicating bps (on fast side) of G3-B3 M3rd.  
... to D#4, duplicating bps of "almost-clean" G3-D4 P5th.  
... to C#4, duplicating bps (on slow side) of A3-D4 P4th.  
... to F4, duplicating bps (on fast side) of G3-E4 M6th. (See that G#3-F4 M6th duplicates bps of A#3-D4 M3rd.) (See that G#3-C4 M3rd duplicates bps of F#3-D#4 M6th.)

Tune through the sequence as many additional times as necessary, using all of the available checks from the beginning. For example, check F3 against A#3, C4, D4, and F4.



## International Relations

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### Theme of Symposium: Piano Services Promotional Activities Today and in the Future

By Mr. Tokuichi Ojima

*This month we feature the talk  
given by Tokuichi Ojima in  
Kyoto Japan in 1989.*

*What is presented here is  
somewhat of an outline  
but it gives a good overview  
to the situation in Japan.*

*We have a little more information about  
the program for the IAPBT/Europiano  
conference in France in May 1993.*

*Several of the titles  
for technical classes  
seem quite interesting.*

*It seems the Europeans  
are plunging into some  
of the new technology.*

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3. *Composers—Performers;  
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*This doesn't even count the  
technical classes that  
will be held in England  
with their convention.  
Make your plans  
now to save for this unique trip.*

As president of the Japan Piano Technicians Association, I extend my heartfelt welcome on behalf of our members to each of your participating in the Kyoto Meeting. Many of you represent your national organization and have come all the way from overseas.

I am overjoyed to have the opportunity to talk with you about the status quo and the future of our industry. I sincerely hope that this occasion will provide technicians operating throughout the world with a stepping-stone for joining forces and appealing aggressively to more clients about the importance of piano services.

As a beginning, please let me touch upon some basic data.

1) The number of piano technicians in Japan is estimated to be from 6,000 to 7,000. The Japan Piano Technicians Association comprises 2,500 members at this moment, whereas the estimated figure for nonmember technicians ranges from 2,500 to 5,000. (Technicians must have 5 years of experience to become members.)

2) The number of pianos in Japan are estimated to be around 7 million units or more.

3) The percentage of households furnished with a piano is approximately 20 percent. The proportion, of course, differs substantially according to the area.

4) A technician services 50 to 60 pianos a month on the average. A technician who services pianos exclusively is supposed to handle more than that number.

5) A technician has 500 to 600 clients on the average.

6) Tasks involved are: cleaning the inside, tuning, minor regulating, small repairs when necessary, and thorough regulating and voicing are performed by agreement with the client.

7) A technician puts in two hours on the average to service a piano. The figure ranges from 1.5 hours to 2.5 hours, depending on the case.

8) Promotional activities conducted by individual technicians include: promoting tuning services and executing such services by appointment which is sometimes called "contract tuning"; recommendation to potential clients by established customers, acquaintances and friends; utilization of telephone book Yellow Pages; distributing leaflets throughout the area a technician serves; making use of extra size, name board for members; taking part in music-propagation activities.

9) Promotional activities performed by the association include: maintaining contact with musicians' organizations; placing advertisements in music magazines; staging concerts; public relations activities through welfare-oriented programs directed at local official organizations and the general public; providing training courses

dealing with skills and courtesy, with an eye to fostering dependable technicians.

10) Future images of piano technicians and proposals include: technicians who sincerely love music and handle pianos with loving care; credited technicians who handle pianos like home physicians who take care of their patients; technicians with a broad view and an interest in new technologies, such as electronics; technicians who foster successors by handing down their techniques and dedication; technicians who have an international mindset and pursue technical exchanges with their overseas counterparts.

11) Proposals to expand piano servicing business through reactivating unused pianos include: developing educational systems to encourage members of the family other than the regular user to play the piano—or simply arouse their interest as the first step. This requires cooperation on the part of instructors and dealers; ("Silver music classes" centering on elderly citizens is one example); promoting the development and installation of automatic performance devices; promotional activities in cooperation with musical experts and others.

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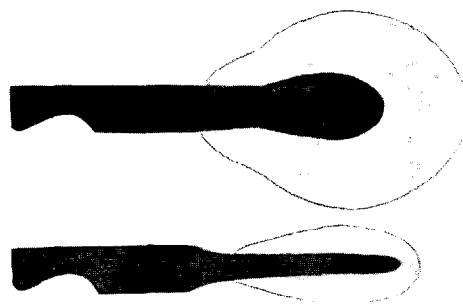
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# PTG

**AUXILIARY**



**EXCHANGE**

Schools and churches this May are keeping us very busy as the tuning year draws to a summer close. They are also creating an even shorter patience span in my husband's mental attitude. I suspect he was ready to kick one obstreperous spinet which he hadn't tuned in 14 years.

Originally, the piano had received a free tuning, by Bill, when purchased in 1978 by an area minister's wife. It was never serviced again until Bill was called by a very small country church to get it back into shape after it had been donated to them. The former owner was in very poor health and had given it to one of the churches ministered to by her retired husband.

Bill was willing to tune the poor thing and even repair the five or more sticking keys, but he was almost defeated by a corroded Philips head screw which hadn't seen the light of day in all of those years—hence the desire to kick the offending piano. Some of his school pianos have further aggravating problems and we all know about school budgets!

The little daily problems at home tend to keep us in rare form too! Consider the visit by a neighbor, of two years standing, who thought our metal roof needed scraping and painting since it was in such bad shape. Yes, we've hired him to do the job and we rush home for lunch to see if he needs anything before we're off to the late afternoon school tunings. I'll probably get a blast from our car dealer, too, for not getting the hatchback in soon enough for its 12,000 mile check-up, etc., etc., etc. Oh, the neigh-

bor just happens to be in the business of "Rustic Restoration" and is recommended by next-door neighbors so not to worry!

The above caviling is to prove that we are alive and well and functioning at the usual frantic pace. Please remember to sign up for the Auxiliary Tour of Old Sacramento. There are only 94 seats on two buses and if I don't sign up soon, I'm going to miss the bus myself! I'm looking forward to lunch at California Fats, too, which will be our afternoon stop. I really enjoyed dining there last fall.

There is one more teaser—Carolyn Fox, wife of Tuner-Technician Dale Fox of North Highland, CA has recently joined PTGA as a California member-at-large and will lead any spouses (who meet in the lobby of the Hyatt regency Sacramento at 9 am on Wednesday, July 22nd) on a walking tour of the shopping area and nearby sights to be seen. This will surely get you all acclimated and sounds like an offer too good to be refused! Thank you Carolyn! See you in Sacramento.

*Arlene M. Paetow  
President*



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## KNOW YOUR SACRAMENTO HISTORY

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California has a history as rich and varied as the state itself. The area around Sacramento certainly has a number of claims to fame of its own. Perhaps one of the most glamorized time in the history of the Sacramento Valley is the period around the mid 1800s.

In the 1830s, California was a territory of Mexico. At this same time a German named John Augustus Sutter emigrated to the United States, supposedly to escape imprisonment for debt and the wrath of his wife. He spent some time up and down the West Coast before settling in California in 1839. Sutter was described as a "dreamer with a gifted tongue" who was able to convince the Mexican government to let him develop a 50,000 acre tract at the confluence of the Sacramento and American Rivers (what is now Sacramento). The Mexicans were interested in establishing a bulwark against foreign insurrection.

Sutter established an adobe fort which he christened "New Helvetia" and it became a major trade center for settlers coming down out of the Sierra Nevadas. In 1848, General Sutter, as he appointed himself, decided to put a sawmill up the American River from the fort at the settlement called Coloma. A carpenter employed by Sutter, named James Marshall, was in charge. When Marshall got the waterwheel operational it was his practice to let it flow and get the silt moving. On the morning of January 24, 1848, Marshall went to check the flue and found gold in the sediment.

The gold was to become a boom for California and a bane for Sutter and Marshall. Nine days after the gold was first found, California was ceded to the United States by Mexico, putting Sutter's title to the land in question. The town of Coloma swelled to 10,000 miners and squatters overran the New Helvetia lands.

James Marshall was mobbed wherever he went by angry people demanding that he guide them to a rich lode. He died a poor man and John Sutter spent the rest of his life appealing to state and federal governments for compensation after the loss of his lands and claims.

Very few of the prospectors were able to grab any substantial amounts of gold and by 1870 the town of Coloma's population had dwindled to about 200 people.

The gold fever hung around for quite a while however. For instance, when the main street of the town of Grass Valley was paved the locals constantly picked through the gravel looking for sparkly nuggets.

The biggest winners from a monetary standpoint were those enterprising people who supplied all of those "infected" with the fever. One example is a man named Studebaker who went to the gold fields from his home in Indiana with \$68 and started making wheelbarrows for the miners. Five years later his stake and grown to \$8,000.00 and he returned to Indiana and in a little over a decade his modest wagon works had grown to one of the largest in America.

Another easily recognizable name which has Gold Rush beginnings belongs to Levi Strauss. In 1850 Strauss sailed from New York with a stock of cloth. By the time he reached California, most of the fabric was gone. All that he had left was a bolt of heavy canvas. This he fashioned into work pants for the miners who immediately took to the sturdy garments. By the time Strauss added his patented copper rivets at the stress points, "Levi's" had made their mark and "there was no where to go but up!" By the end of the 19th century, Levi Strauss employed 500 people and he grossed 1 million dollars per year as a result of his bolt of canvas and a few rivets.

**NOTE: To anyone attending convention...**  
Although the Auxiliary installation luncheon is included in your spouse registration, you must redeem the coupon in your registration packet for a ticket if you wish to attend.  
Exchange Deadline: Thursday, July 23, Noon

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## OH CANADA!

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On April 2-4, 1992, the Pacific Northwest Regional Conference was held in picturesque Banff, Alberta, Canada. The weather during the conference must have been ordered straight from the Visitors and Convention Bureau as we had a couple of days of record breaking warm and balmy weather. The morning of the last day we awoke to find 2-3 inches of snow covering everything except the roads and sidewalks—truly the best kind of snow to have!


While sitting around in the lobby of the hotel getting ready for Saturday's activities, Deanna and Nolan Zeringue and Deanna's sister strolled through toting the video camera. Seems that Nolan was up at 2:00 a.m. videotaping the snowfall from the balcony of their hotel room! One gets the feeling that 3 inches of snow is not a common sight in Thibodaux, Louisiana.

One of the highlights of the conference for the technicians was the opportunity to tour the shop and amenities of The Banff Centre for the Arts which is nestled in the trees right at the edge of town. The Banff Centre is renowned for its musical, drama and visual arts. As I understand it, the Piano Shop is any technician's dream. What with the very warm weather the group of technicians had the doors open to enjoy the breezes. My husband was appointed to wield the hockey stick which was strategically placed by the door in case an errant elk should wander in.

The Calgary Chapter of PTG hosted the conference and from all accounts did a wonderful job. Having been directly involved in hosting other conventions I know just how much effort and sweat go into pulling one of these off. Everyone involved is to be commended (especially the persons who selected the weather and the scenery!)

The Calgary—Banff—Lake Louise area was host to the 1988 Winter Olympic Games and anyone

story continues—page 38



# CLASSIFIEDS

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**GRANDIOSE GRANDS** (see display ad on page 19) announces the attempt to create a permanent & stable nationwide marketplace for fine (e.g., repairable) used instruments via an electronic database, without inflating prices. Buyers, dealers, sellers, restorers and appraisers—initial listing is free! If interested, contact me or visit at hometown Sacramento in July. Mike, 916—961-2865. (This classified will appear only twice, 7 & 8/ 92).

**DON'T MISS THE PTC STORE** at this year's Sacramento Convention. All your PTC business aids, coffee mugs, journal binders, etc. will be there. Or, save yourself some packing time...place your order at convention for later shipment. Visa & MasterCard accepted for convenience.

## LITERATURE

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...OH Canada  
continued from page 34

who remembers watching any of those games on TV will remember the breathtaking beauty of the area. Banff is located 120 kilometers west of Calgary, which is the nearest major airport. Shuttle buses are available to take visitors up into the Rockies.

With every imaginable type of winter activity from baths in Hot Springs to downhill skiing just 10 minutes from downtown, to summer activities ranging from high country horseback trips to canoeing through the lowland lakes and the Bow River which runs through the town of Banff, the entire region is truly a vacation paradise. If ever you have the opportunity to see the Canadian Rockies don't miss it!

able information that our senses can give us to make judgements about how we do our work. It is possible to imagine situations where, at first glance, a course of action would work, but further inspection turns up evidence to the contrary. Careful evaluation helps avoid trouble.

Most people are wary of rash actions and take the "safe" approach to their work. But very often, additional information can help define or clarify a problem, and make repairs or improvements possible that might not be done otherwise. In the tuning

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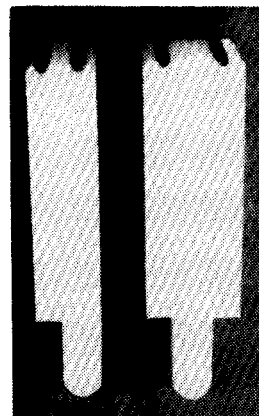
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# EXTRA! EXTRA!

Yamaha Piano Service

July, 1992

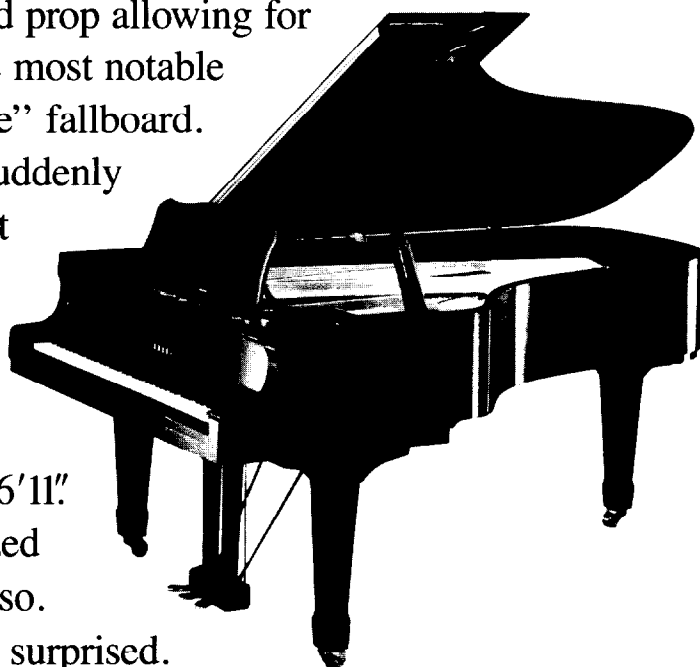
## Continuing A Tradition of Excellence!

The New GF and CF grand pianos.

The New G series (Classic) and the C series (Conservatory) grand pianos represent the culmination of extensive Yamaha research and modification. Instruments of uncommon virtuosity, they have set new standards of tonal clarity, color and control. Specific changes and improvements include: • new scales that increase the length of the bass strings and provide for smoother transitions through the break area • re-engineered soundboards and bridges improve the performance of these pianos • cabinetry that offers more user options for the performer, including the music desk, with five adjustments instead of three and a new lid prop allowing for three different lid placements. One of the most notable improvements, however, is the "soft-close" fallboard.

It glides shut gently, and will no longer suddenly drop on unsuspecting fingers or slam shut while the technician is tuning. Finally, the sizes of the grand pianos have changed. The GF series are 5'3", 5'8" and 6'0". The CF series are 6'1", 6'7" and 7'6" with the addition of the new CF6 at 6'11". If you have not yet stopped at an authorized Yamaha piano dealer, we suggest you do so.

We are certain that you will be pleasantly surprised.



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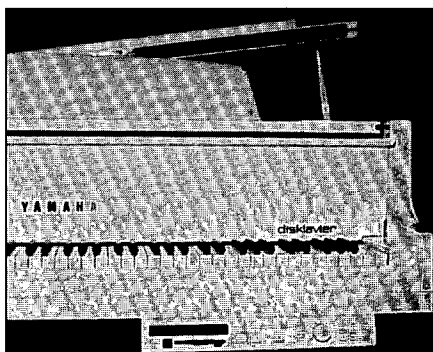
**YAMAHA**

# Tech Gazette

Yamaha Piano Service

July, 1992

## New Disklavier Pianos



### YAMAHA INTRODUCES NEW DISKLAVIER PIANOS

In late May, at our Keyboard Division Dealer Meeting held in San Antonio, Texas, we unveiled a new generation of Disklavier Grand and MX100 Upright pianos which incorporate the "II" Disklavier reproducing system.

The Disklavier Grand "II" control wagon has been replaced with a compact control unit mounted to the underside of the keyboard or can be placed up to 50' away from the piano.

The capabilities of the MX100 "II" and Disklavier Grand "II" pianos are very similar. The panel button layout is the same on both systems and the user functions are virtually identical.

Improvements and additional system capabilities include:

### GENERAL

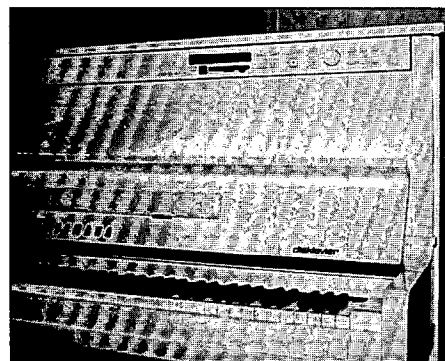
- Newly designed (very user-friendly) control panel
- Larger LCD display (24 X 2)

### DISK PLAYBACK

- A new key solenoid system which provides a wider range of dynamic expression
- Playback tempo can be changed in 1% increments
- Playback can be transposed in 24 half-step increments, up and down
- MIDI transpose—including the ability to correctly transpose multi track disks
- MIDI clock out
- Piano part MIDI out channel ON/OFF function
- Both the MX100 II and Grand II systems can playback High-Performance incremental pedaling

### DISK RECORD/EDIT

- Separate Left/Right recording capability
- Multi-track (ensemble) recording capability, including the ability to assign program (voice) numbers and volume level of each track
- High performance incremental pedaling can be recorded



- Track mix, track move, track copy and track delete capabilities
- Quantize and overdub functions on the rhythm track
- Note editing functions
- Recorded tempo can be altered and saved.
- Improved Metronome functions, including a highly visual LED display and a two measure count-in, during record

### UTILITY

- Song copy—to either same disk or different disk
- Disk Copy

### AVAILABILITY

The new MX100 II upright pianos will begin arriving to our dealers sometime in October. The Disklavier Grand II pianos will follow about a month later. Please stop in to see these exciting new instruments or contact us for more information.

## Yamaha will Participate in

### LITTLE RED SCHOOL HOUSE:

- #112 September 28- October 2
- #113 November 16-20

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- #27 August 10-14
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- July 22-26, National Convention Sacramento, CA
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