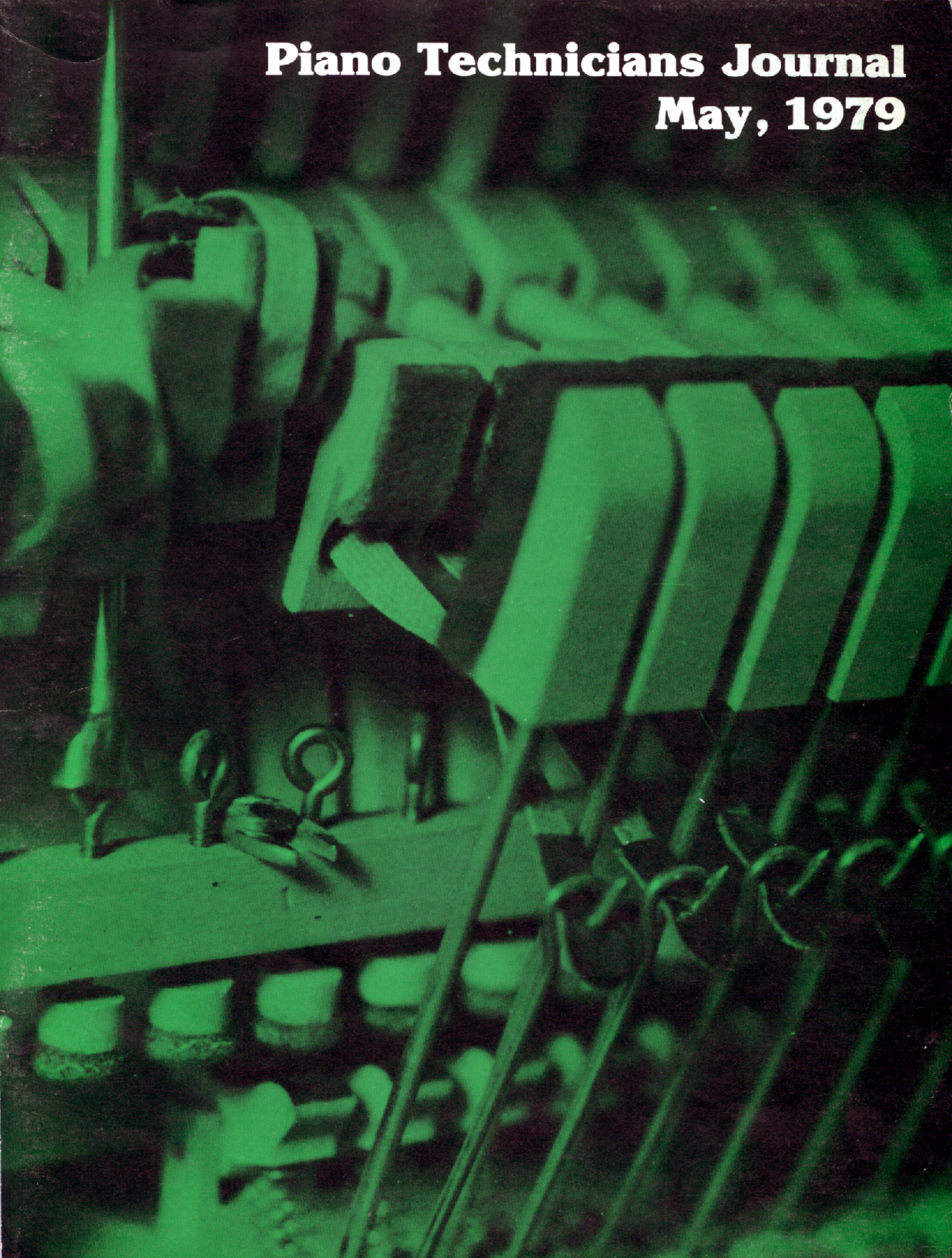
Piano Technicians Journal
May, 1979



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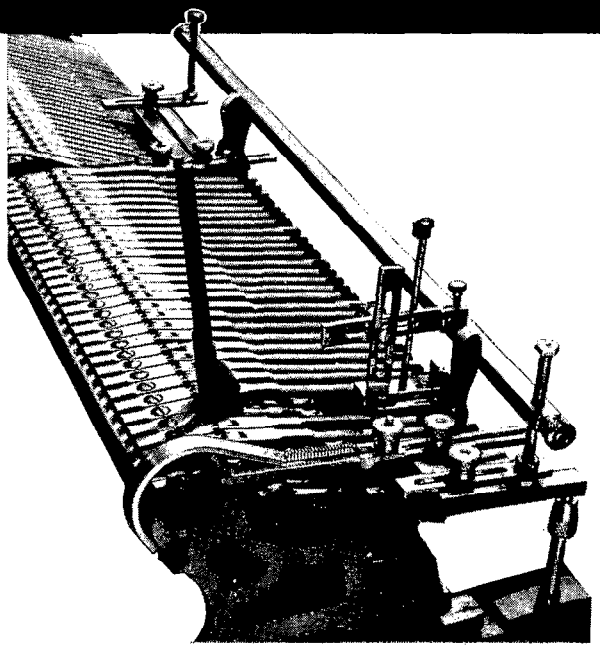
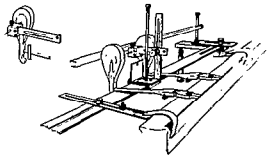
PRESENTING . . . MORE JARAS EXCLUSIVE PRODUCTS

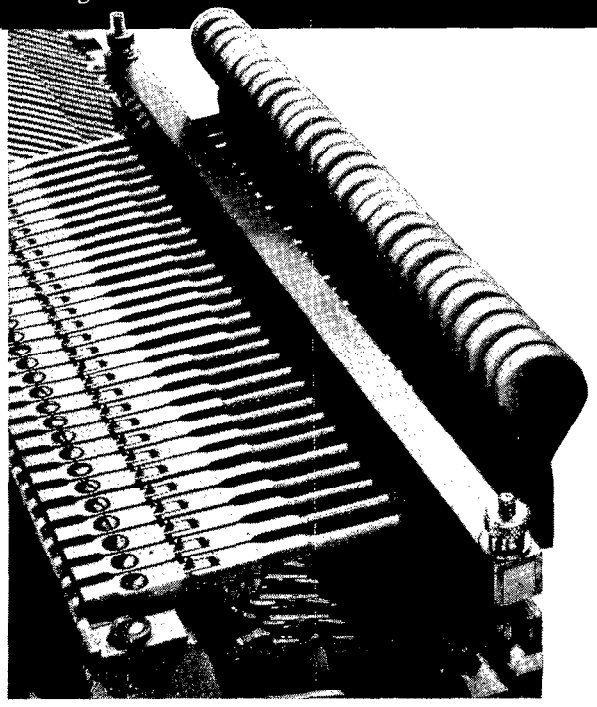
Introducing four new Jaras products that already have been shown and widely acclaimed at the NAMM and PTG Trade Shows this summer. As are all of the Jaras tools, these new products are original and designed to last a lifetime.





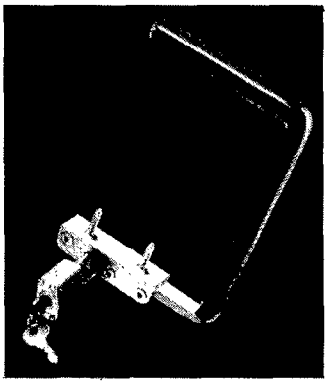
JARAS GRAND PIANO HAMMER INSTALLER is by far and away the most accurate and efficient hammer installation jig on the market today. Over two years have been spent in the development of the jig that consists of all aluminum and stainless steel parts. The unit is lightweight and can be adapted to any grand keyboard. Upon setting the two end guide hammers to correct pitch, side angle and traveling distance, an entire section can be installed quickly with exact precision. Full instructions are available with the hammer installer.

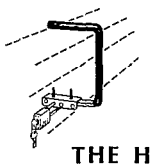
No. 892—Jaras Hammer Installer—List Price Each..... $250.00



JARAS SHANK AND HAMMER CLAMP is an entirely new tool made of lightweight aluminum measuring 20 inches in length, enough so an entire section of shanks or hammers can be clamped at one time. There is a rubber cushion inlay on each side of the jaws to prevent marring of the hammer shanks. This clamp can be used for three different operations: shaping and roughing of grand hammer tails; cleaning old glue irregularities from hammer shanks; and dressing the striking surface of the felt hammers. The JARAS clamp is a lifetime tool that will drastically reduce the time needed to do these three operations.

No. 890—Jaras Shank and Hammer Clamp—List Price Each..... $60.00

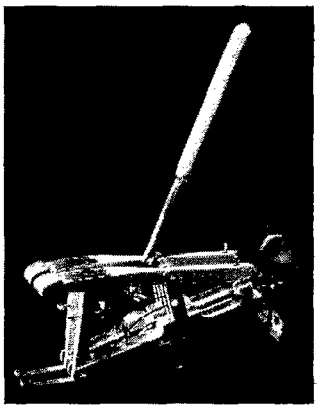




JARAS FALLBOARD CLAMP fills a much needed requirement for a fool-proof, attractive upright and grand piano locking device. The clamp is made from a special hardened steel and has a rubber sleeve to protect the piano's finish. Our smaller clamp, which is 5⅞" wide, can be used on the majority of new and old pianos, however, larger fallboards will require the 6⅛" wide clamp. This device consists of a lock and two keys (no two sets of keys alike), and screws are provided to attach the clamp underneath the keybed.

No. 893—Jaras Fallboard Clamp, 5⅞"—List Price Each.... $42.00

No. 894—Jaras Fallboard Clamp, 6⅛"—List Price Each.... $42.00



JARAS STEINWAY REPETITION SPRING REGULATOR is the answer to the age-old problem of regulating the Steinway repetition spring. This tool is extremely durable and has a recessed groove to enable the technician to find and regulate the repetition spring without looking. The tool, measuring 5¼" in length, can also be used on some other model grand whippens such as Chickering.

No. 891—Jaras Steinway Repetition Spring Regulator—List Price Each..... $11.00

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Piano Technicians Journal

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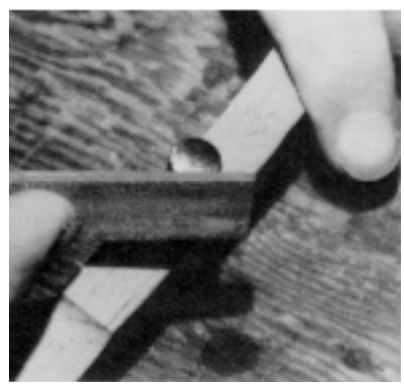
Articles



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Journal Staff

Strobotuner® will never replace the piano tuner, it just lets him tune electrics and acoustics more accurately.

The fine art of tuning acoustic pianos will never die. But lots of today's tuning business is tuning electric pianos. For tuning electrics, Strobotuner can provide you with a real extra-business opportunity. Especially since many new electric keyboard players are looking for professional tuning help. And with a manufacturer-recommended Strobotuner, you'll be ready because tuning electronic keys is much different than acoustics.

You see, Strobotuner is the most accurate electronic tuning instrument ever developed for musical instruments. It tunes within 1/100th of a semi-tone, and covers the complete range of frequencies from C_1 to C_8.

Among other things, it accurately tunes the temperament octave. It shows inharmonicity, and makes octave-stretching simpler. And, you see it all on a screen that's absolutely clear and easy to read.

Here's another Strobotuner "plus." You can tune all pianos in noisy places. Strobotuner can help experienced tuners stay in tune with the dynamic electronic keyboard market. And because it saves time, you can tune more acoustics than ever before. For details, see your piano supply house, music retailer, or Continental Music, 616 Enterprise Drive, Oak Brook, IL. 60521, (312) 325-7080.

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EDITORIAL

THE MAN WHO SOLD HOTDOGS

There was a man who lived by the side of the road and sold hot dogs. He was hard of hearing so he didn't have a radio. He had trouble with his eyes so he didn't read newspapers — but he sold hot dogs. He put up signs on the highway telling how good they were. He stood on the side of the road and cried, "Buy a hot dog, mister?" People bought his hot dogs. He increased his meat and bun orders. He bought a bigger stove to take care of his trade. He finally got his son home from college to help him out. But then something happened. His son said, "Father, haven't you been listening to the radio? Haven't you been reading the newspapers? There's a big depression. The European situation is terrible. The domestic situation is worse." Whereupon the father thought, "Well, my son's been to college, he reads the papers and listens to the radio, and he ought to know." So the father cut down on his meat and bun orders, took down his advertising signs, and no longer bothered to stand out on the highway to sell his hot dogs — and his hot dog sales fell almost overnight. "You're right, son," the father said to the boy, "we certainly are in the middle of a great depression."

I hear a lot of pessimistic talk these days — the oil crisis, the Middle East border dispute, racial unbalance, crime in the streets, etc. It's enough to boggle the mind. At the same time people are buying more than ever before, making more money, and enjoying more comforts and security. There's more of everything. We represent just one sixteenth of the world's population. We produce 40 percent of the gross national products of the world but, at the same time, we consume 40 percent of the world's energy.

Like the man who sold hot dogs, just because somebody tells us that things are bad doesn't necessarily mean they are. Much depends on that person's perspective and individual area of concern. We sometimes create our own depression. We must remember that we survive at the sufferance of those with whom we trade and to whom we provide goods and/or services. We forget that the **customer** is always there — if we have the guts, ambition, and imagination to either attract him or track him down. If we take the easy way out and wait for someone to drum up business and solve our problems, we are doomed to ultimate failure.

How does business get bad? Usually deterioration is caused by loss of customers. Why do we lose our customers? Well, people who have studied the situation claim that 1 percent die off; 3 percent move away; and 5 percent change because of referrals to our competitors from their relatives, friends, and associates. Lower prices somewhere else cause 9 percent to leave, and complaints about your work account for another 14 percent. A wholloping big 68 percent of our lost customers went down the tube because we simply did not cultivate their **friendship, respect,** and **continuing interest.**

We must keep in mind that **promotion** is the art of creating excitement, **advertising** is what **you** say you are, and **public relations** is what people say you are. Like the man who sold hot dogs, all three must be continuously honed and cultivated to achieve success in business today. "The peaceful prologue of the past has no resemblance to the stormy turmoil of the present." One of the great assets of American business mentality is that of being able to live in a continuous state of highly motivated excitement. The never-ending, driving, ambitious quest for improvement and the general upgrading of our individual worth, and business, is what makes American business successful. The daily struggle to be productive and the almost frantic pace of the marketplace have put us in a position of being one of the world's greatest business-oriented nations. We could not achieve this enviable spot if we allowed ourselves to settle into pessimistic apathy or self-satisfied relaxation. To achieve success we must pursue it relentlessly and doggedly.

We must bear in mind that when God made the oyster He did so in such a way as to guarantee this creature absolute economic and social security. He built a hard shell over the oyster to protect him from his enemies. When hungry, the oyster has but to open his shell and food rushes in to nourish him. He has complete freedom from want. But, as the story goes, when God made the eagle He said to him, "The blue sky is your limit. Build your own house and survive as best you can in the gale forces of the wind, the cold, and your meager surroundings." People have always admired the eagle and he became our national symbol; the oyster, however, just lies around on somebody's beach and exists. — DLS

LATEST ADDITIONS AND CHANGES TO:

TAKE A GIANT STEP

Highlights

Paul Bunyan and his Blue Ox invite you to attend the 22nd Annual Convention and Institute July 23-27. The PTG Annual Convention isn't all classwork; you can relax with your friends (old and new) and enjoy some of the following activities.

EXHIBITS

This year over 30 exhibits are planned. Exhibits feature all that is new and exciting in the industry, as well as the "old faithfuls." It will be your opportunity to discuss ideas, problems, and possible solutions with the very people most likely to know — the service representatives and company officers of piano manufacturers, supply companies, importers, trade schools, electronic tuning equipment firms, and others. Exhibit areas will be open for your convenience nearly every hour the convention is in session.

BANQUET

Each year the banquet serves as the convention's social highlight. For supper entertainment we will have the "Golden Strings," who may just be the longest running and most successful violin show in the history of show business. The Downtown Radisson's "Golden Strings" has been appearing for more than 13 years in the hotel and consists of 12 veteran musicians: 9 violinists, 2 pianists, and 1 bassist. Averaging more than 30 years of individual violin musical experience and study, this group has performed for more than a million people and recorded 10 albums. Be sure to be there to sample the superb cuisine and enjoy the festive atmosphere!

CLOSING LUNCHEON

At the closing luncheon you'll bid farewell to retiring Guild officers and welcome their replacements, share in award presentations, and say goodbye to friends for another year. This is a "must-attend" event that's guaranteed to make you glad you came and sorry to leave.

The Technical Institute

Following the well-organized pattern of last year's Institute, classes in 1979 will be divided into five categories: basic, intermediate, advanced, general interest, and special. There is a wide variety of subject matter to choose from, and in some cases a choice in classes on the same subject is also available.

There will be 43 classes held with 55 instructors. This may be the largest number ever in Institute/ Convention history. Classes are from Tuesday (July 24th) to Friday (July 27th). In addition to the many members of the Institute faculty who have been featured in their regular classes for the past several years, new faces and subjects covering many categories will be yours to sample. Here is a tremendous opportunity to acquire that "extra knowledge" that will make you the better technician we know you want to be — don't pass it by.

The Institute faculty and members of the Twin Cities Chapter of PTG are looking forward to your attendance at our 1979 Technical Institute and PTG Convention. Make your plans now to join us for what we are sure will be a most rewarding experience in sharing the knowledge of our profession for the betterment of all.

Aquatennial!

Ten days crammed with fun and diversion in the City of Lakes. Plunge into the medley of parades, entertainment, ethnic traditions, social events, and sporting competitions. Whether spectator or participant, be part of the more than 200 activities that make up Aquatennial's 39th annual celebration. Downtown, at the lakes, in the parks and neighborhoods, and throughout the suburbs you will find the Aquatennial alive and happening.

Radisson Hotel Downtown

Conveniently centered in the heart of downtown Minneapolis activity, The Radisson is only 15 minutes from downtown St. Paul by car or taxi.

The Radisson Hotel welcomes our members to privacy, comfort, convenience, and relaxation. Their suites are planned for casual, pleasant visits in a luxurious atmosphere — or quiet, restful moments of serenity away from the crowd in your own special world. Every guest room at The Radisson Hotel is planned to make you feel comfortably at home.

Reach almost any downtown point, without having to brave the elements! Downtown Minneapolis boasts a complete system of walkways, escalators, arcades, and tunnels designed for

quick, comfortable, and convenient movement to banks, restaurants, clubs, and shopping — created to keep visitors comfortable as they enjoy the center-city! Radisson Center is part of this convenient system — making it easy for you to shop, conduct business, and keep dining engagements downtown, whatever the weather.

Downtown "QT" (quick transit) mini-busses go where you want to go downtown, and they're ready when you are! You can catch one every 6 or 7 minutes, and go any direction for just one dime. Air-conditioned, comfortable, and dependable — the QT is just one more Radisson convenience.

Registration Cancellation Policy

Full registration will be refunded if cancellation is received postmarked no later than June 15. After this date a 30 percent cancellation fee will apply to all refunds on cancellations made prior to July 20, 1979. There will be no refund made on any registration cancelled on or after July 20.

Nonmember Registration

Nonmember technicians may use $30 of the registration fee for membership application fee during the convention. It may not be used as dues. Nonmember spouses may use $6 of the registration fee as Auxiliary dues at the convention.

Basic Classes

FOR STUDENTS AND APPRENTICES

Carl Wicksell will again offer insights on **Basic Tuning Techniques**, a basic and elementary class on tuning. Joel and Priscilla Rappaport will repeat their class on **Comprehensive Piano Survey**. Discussed here are the basic use of tools, piano materials, basic piano construction, and a general view of action functions, regulation, and repair. **Important!** Both of these classes have been placed early on the schedule for a special reason. If you are a student or beginner, it is extremely important that you attend these classes **before** attending others. Your comprehension of the other classes will be greatly improved if you do.

Stanley Palm will instruct on the basic repairs of refelting the key frame, installing bridle straps, and reshaping piano hammers.

Intermediate Classes

AN ADMIXTURE OF NORMAL WORK TOPICS

Heading this category are four repeat classes and one new class on tuning.

1. **The Fine Art of Tuning with Bill Stegeman**

2. **Aural and Visual Tuning with Jim Coleman and George Defebaugh**
3. **Efficient Tuning Techniques (Aural and Electronic) with Steve Fairchild and Dr. Al Sanderson**
4. **Tuning Historical Temperaments with Owen Jorgensen**
5. **Creative Tuning with Carl Wicksell:** A unique approach to teaching tuning. An enlarged keyboard having keys equipped with lights will be displayed. Those keys that are in the process of being tuned will light up, giving the student an excellent visual corollary to the aural presentation.
6. **Vertical Pianos:** Two classes for thoroughly covering all phases of vertical action regulation are again on the program. The Yamaha presentation will be made by LaRoy Edwards, Henry Haino, and Kenza Utsunomiya. The Wurlitzer instructors are Cliff Andersen, Larry Talbot, and Robert Hill.
7. **Grand Regulating:** The very capable team of Willard Sims and Cliff Geers will once again guide you through the intricacies of regulating and adjusting the grand piano action.
8. **Voicing and Tone Regulating:** One of the most popular classes at our gathering is that on voicing. Norman Neblett is responsible for this, with his very thorough and interesting teaching method.
9. **Dampers:** Because of the great interest, we will have two classes covering dampers. Ernie Juhn, with giant models used for demonstrating, will explore both the upright and grand damper regulation procedures. John Bloch will show his slide presentation on dampers starting from the bottom board.
10. **Harpsichords:** For those who are interested in harpsichords, Jim Campbell will be back to tell us all about their service.
11. **Restringing:** Restringing is a most important subject, so we will be holding two separate classes on this. Walter Pearson will start the actual work on restringing a grand piano, and Bud Corey and Lew Herwig will unstring and restring a vertical back.
12. **Hammer Hanging:** Ned Dodson (the very knowledgeable craftsman from Colesville, Maryland) will show you how to solve the problems of hammer hanging.
13. **Servicing the Piano in the Home:** Fred Drasche of Steinway will cover in 38 steps the technical servicing of the grand piano in the home.
14. **Key Recovering:** A demonstration of key recovering using the original Oslund key recovering equipment will be put on by Lee Jedlicka, current owner of the firm.

Advanced Classes

HIGH-LEVEL CLASSES FOR THOSE WHO WANT TO EXPLORE ADVANCED TECHNIQUES

1. **Piano Actions — Design and Relationship:** Joel and Priscilla Rappaport, each of whom has built a complete piano from scratch, will detail the technical aspects of piano action design.
2. **Piano Scale — Evaluation and Modification:** One of our most scholarly members, Dave Roberts, will discuss the characteristics of good piano scales and will teach you how to evaluate or modify existing scales.
3. **Mystery of Piano Tone:** Lew Herwig of Wurlitzer will present ideas on the physics of piano tone

and how it affects us (i.e., aliquot placement, inharmonicity, and longitudinal harmonic problems).

4. **Advanced Player Repair:** Norman Heischober will be in charge of this class that will be of great interest to those who want more detailed information on player piano repair.

General Interest Classes

CLASSES DEALING IN WORK-RELATED AREAS FOR EVERYONE

1. **Business Building:** Martin Tittle will give you all kinds of tips on setting up your office, advertising your services, handling phone inquiries, and selling the job in the home.
2. **The Customer and You:** The president of the Twin Cities Chapter, dynamic Dick Flegle, will tell you how you can earn $40,000 in the next 12 months.
3. **Humidity Control Installation:** The Dampp-Chaser team of Allen Foote, Clayton Harmon, and Wendell Eaton will again present a "hands-on" class covering the special problem of humidity control for pianos.
4. **Special Tools and Their Use:** Our expert on tools, Francis Mehaffey, will have more new ones to show including some electronic tools developed recently by his son.
5. **Troubleshooting the Shot:** Genial John Ford again presents the many ways of quick repair you can use to keep the old upright going for a while longer.
6. **Aeolian Player Troubleshooting:** Players are still very much in vogue and Richard Elrod of Aeolian will tell you all about their service.
7. **Bosendorfer and Kimball Servicing:** Roger Weisensteiner will explain the servicing procedures for the large Bosendorfer grand and other Kimball pianos.
8. **Servicing the Rhodes Piano:** Electric pianos are widely in use now and helping to explain their servicing is Mr. Harold Rhodes.
9. **All About Soundboards:** The heart of the piano, the soundboard, will be discussed by the representative of Posey Mfg. Co., Carl Granberg.
10. **Looking at Piano Hardware:** A subject often taken for granted but of high importance is piano hardware. Harry C. Kapreilian of the Charles Ramsey Corp. will tell us all about it.
11. **Using Glue and Epoxy in Piano Work:** We can always use more advice on the use of glue. Raye McCall makes the breaks and demonstrates the way they should be repaired.
12. **The Microcomputer Makes Money for You:** Keeping up-to-date in your business with microcomputer technology is demonstrated by Ed Fesler and Del Simcox.
13. **The Pianocorder:** The very latest in player piano ideas is the use of tape cassettes with the Pianocorder System. Displaying and discussing the service of this unique instrument is Bill Long of Superscope.

Special Classes

PRIVATE TUTORING ON TUNING

1. **Bridge Building and Repair:** For the true piano builder the class on bridge building and repair is a must. Students will do the actual bridge construction work under the expert eye of Willis Snyder. This is a two-day class limited to 32 students for a special fee of $10 — first received, first honored, with priority to PTG members.
2. **Installing Grand Pinblocks:** Jack Krefting, our new technical editor for the *Journal*, will expand his class of last year on grand pinblock installation to a full two days in order to allow for an "in-depth" approach to his subject. This full installation project will be limited to a class of no more than 50 and requires a special fee of $5 — first received, first honored, with priority to PTG members.
3. **Forum for College and University Technicians:** Yat-Lam Hong, former technical editor of the *Journal*, will moderate this class designed to analyze the special problems confronted by technicians who do a relatively large amount of work for schools.
4. **Forum for Advanced Player Technicians:** A class for player piano technicians who wish to discuss the special problems involved in their particular area of piano service.
5. **PTG Class for Test Examiners:** The often-discussed issue of evaluating tuning for applicants to the PTG seems to be drifting towards use of some electronic means to accomplish this. Dr. Al Sanderson and Jim Coleman will head this class.
6. **Private Tutoring on Tuning:** The tutors for these individual classes are Marlyn Desens, Newton J. Hunt, Bob Erlandson, Marion Seller, and Virgil E. Smith. **Important!** These individual sessions are designed to aid those technicians who have had several years of training. Do not sign up for this class if you are just beginning to tune. Requires a special fee of $20 which is nonrefundable 24 hours prior to your class. Registration is first received, first honored, with priority to PTG members.

Special Tuning Concert

This year we are reviving a past favorite of other conventions by again presenting a Special Tuning Concert. Performing on the large Bosendorfer grand piano will be Ben McKlveen, Institute director for 1978 and a highly esteemed technician.

Member Calendar

SATURDAY – JULY 21, 1979

1:30 pm	6:00 pm	Registration Open

SUNDAY – JULY 22, 1979

10:00 am	12:00 n	Council in Session
12:00 n	6:00 pm	Registration Open
1:30 pm	5:00 pm	Council in Session
7:00 pm		Lecture - Recital by Owen Jorgensen

MONDAY – JULY 23, 1979

8:00 am	9:45 am	Chapter Workshop Breakfast
8:00 am		Institute Office Setup
8:00 am	6:00 pm	Registration
9:00 am	4:00 pm	Classroom Setups
10:00 am	12:00 n	Council in Session
1:30 pm	2:15 pm	Regional Caucuses
2:15 pm	5:00 pm	Council in Session/Officer Elections
7:30 pm	9:00 pm	Opening Assembly
9:00 pm	10:30 pm	Exhibit Opening/Ribbon Cutting

TUESDAY – JULY 24, 1979

7:30 am	12:00 n	Exhibits (Drawing)
8:00 am	6:00 pm	Registration Open
8:30 am	12:00 n	Classes in Session
9:00 am	10:30 am	Board Committee Appointments
1:00 pm	6:00 pm	Exhibits (Drawing)
1:30 pm	5:00 pm	Classes in Session
6:45 pm	7:30 pm	No Host Cocktail/Reception
7:30 pm	9:30 pm	Banquet

WEDNESDAY – JULY 25, 1979

7:30 am	12:00 n	Exhibits (Drawing)
7:30 am	9:00 am	Membership Services Open
8:00 am		Registration All Day at Office
8:30 am	12:00 n	Classes in Session
1:00 pm	6:00 pm	Exhibits (Drawing)
1:30 pm	5:00 pm	Classes in Session
5:15 pm	6:15 pm	Feminine Technicians Meeting
6:30 pm		Young Technicians Meeting

Free Evening Options: Aquatennial Torchlight Parade, Organ Recital, or Big League Baseball

THURSDAY – JULY 26, 1979

7:30 am	12:00 n	Exhibits (Drawing)
7:30 am	9:00 am	Membership Services Open
8:00 am		Registration All Day at Office
8:30 am	12:00 n	Classes in Session
11:45 am	1:30 pm	Membership Services Open
1:00 pm	6:00 pm	Exhibits (Drawing)
1:30 pm	5:00 pm	Classes in Session

Free Evening

FRIDAY – JULY 27, 1979

7:30 am	9:00 am	Hosted Committee Breakfast
7:30 am	11:00 am	Exhibit Finale (Drawing)
8:30 am	12:00 n	Classes in Session
12:30 pm	2:00 pm	Closing Luncheon
3:00 pm		Special Tuning Concert by Ben McKlveen

Spouse Calendar

SUNDAY – JULY 22, 1979

8:00 am	8:45 am	Chapel Session
11:30 am		Board Meeting
2:00 pm	4:00 pm	Talent Show Organizational Mtg

MONDAY – JULY 23, 1979

8:30 am	12:00 n	Auxiliary Center Open
9:00 am	12:00 n	Crafts
1:00 pm	5:00 pm	Auxiliary Center Open
2:00 pm	3:00 pm	Film on Tahiti (William Balamut)
3:00 pm	5:00 pm	Talent Show Work-out

TUESDAY – JULY 24, 1979

8:30 am	12:00 n	Auxiliary Center Open
8:30 am	9:30 am	Class
9:30 am	11:30 am	Auxiliary Opening Assembly
11:00 am	11:30 am	Members-at-Large Meeting
1:00 pm	5:00 pm	Auxiliary Center Open
2:00 pm	5:00 pm	Council Meeting
7:30 pm	9:30 pm	Banquet

WEDNESDAY – JULY 25, 1979

8:30 am	12:00 n	Auxiliary Center Open
8:30 am	9:30 am	Class - "Take a Giant Step with Avis" by Avis and Ken Kuby
10:00 am		Tour
1:00 pm	5:00 pm	Auxiliary Center Open
1:30 pm	2:30 pm	Class - "Helping Your Spouse in Business" by Ralph Kingsbury
3:00 pm	5:00 pm	Auxiliary Presidents Tea
8:00 pm		Organ Recital, Oliver Congregational Church by Marion Seller

THURSDAY – JULY 26, 1979

8:30 am	12:00 n	Auxiliary Center Open
8:30 am	9:30 am	Class
12:00 n	2:30 pm	Auxiliary Installation Luncheon - "The Hurdy Gurdy for Monk, Queen, and Peasant" by Prof. Russell Harris of Hamline University
2:30 pm	5:00 pm	Auxiliary Center Open

FRIDAY – JULY 27, 1979

8:00 am	12:00 n	Auxiliary Center Open

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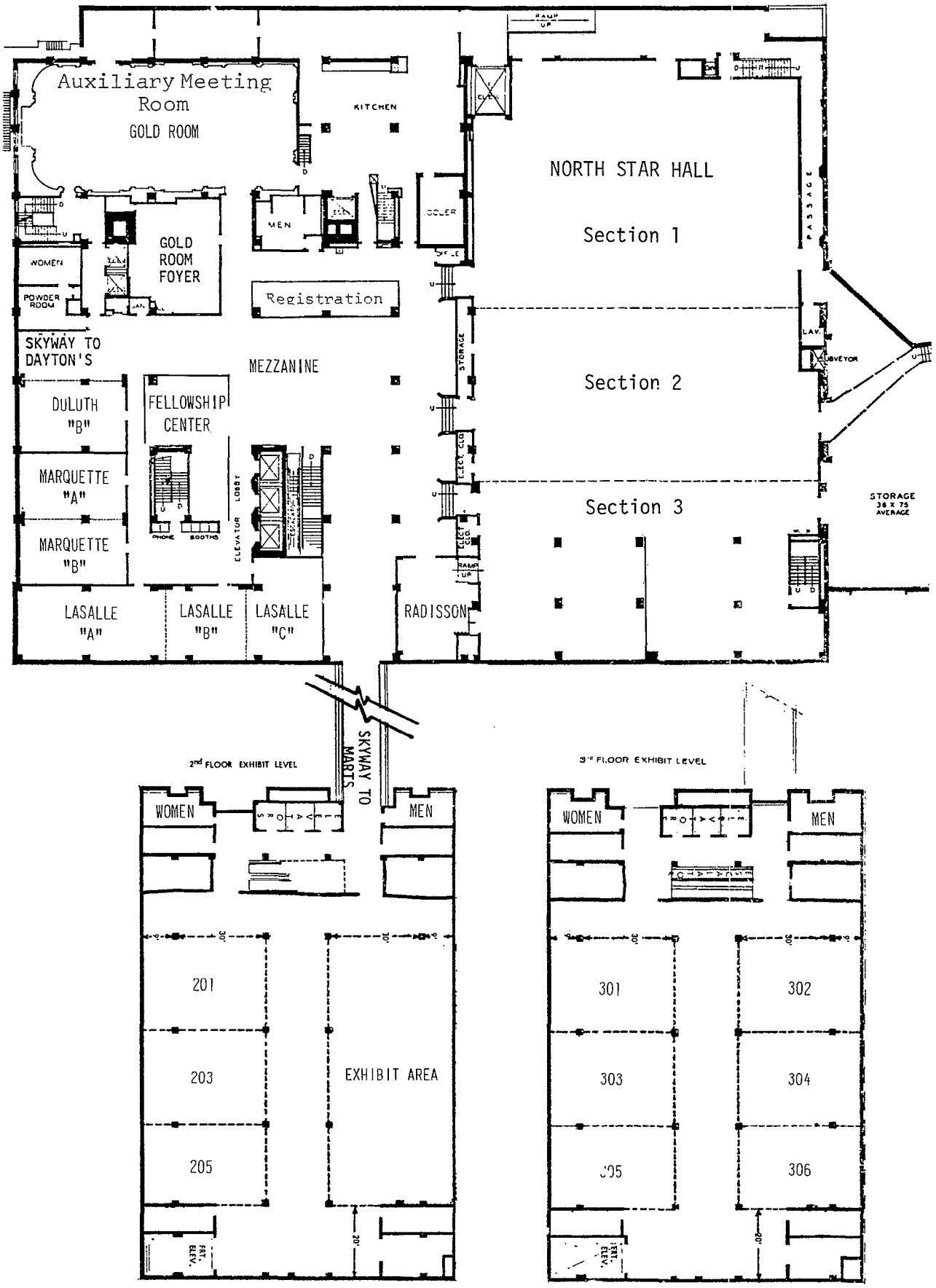

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Why do Piano Tones First Decay Rapidly, Then Sustain?

One of the distinctive features of individual piano tones is a rather rapid decrease in loudness immediately following the initial peak, which then blends into a sustained tone that decreases in loudness much less rapidly. When I discovered and reported this to the Acoustical Society in 1947, I asked the question in the title above, but did not have time for research on the answer. Later, after I came to Baldwin, we searched for the solution. Nearly 10 years later, after considerable investigation, we resolved the question in a paper presented to an International Congress on Acoustics (and on numerous other occasions, including my lecture to the Piano Technicians Guild at their Las Vegas Convention several years ago). Although an abstract containing the basic explanation was published in 1956, the complete account was not published until recently in the *Journal of the Acoustical Society of America*.

Recent research by Prof. Gabriel Weinreich, University of Michigan, has included similar investigation and conclusions. An excellent article by Prof. Weinreich in the January 1979 issue of *Scientific American*, entitled "The Coupled Motions of Piano Strings," has brought this knowledge to a much broader section of the population. The *Scientific American* article is not available for reprinting in the *Piano Technicians Journal*, unfortunately; but the Acoustical Society of America has granted permission to reprint the article on the earlier work at the Baldwin Piano Research Laboratory.

We investigated a number of factors and found that several of them did indeed contribute to the change in decay rate, as outlined in the summary of the paper. However, one factor which is of some importance in nearly all cases, and which is perhaps the easiest to understand, can be explained as follows:

When three strings (which are tuned to nearly identical frequencies) are struck by a piano hammer at almost the same instant and at approximately the same strike-point distance from the fixed end points of the strings, nearly identical waves start to move side-by-side along each of the three strings. When the three waves reach the piano bridge, they act as one because they are acting simultaneously. (They "zig" and "zag" together.) However, the only way they could continue to push and pull on the bridge simultaneously would be for them to travel along the three strings at exactly the same speed until the tone becomes inaudible. After a large number of round trips (for example, 440 per second at A_4), the three waves typically lose their perfect alignment because of slight differences in frequency or string condition. Thereafter, the wave on one string may be urging the bridge to "zig" when the wave on another string is urging it to "zag." Since the bridge has to respond to the combination of forces at any instant, it absorbs vibration power from the strings less rapidly when they are disagreeing with each other (slightly, but most of the time) than when they are in total agreement. This conserves the energy of string vibration during the latter part of the tone, providing the sustaining quality for which pianos are noted. It is the initial rapid decay of well-tuned piano tones which provides clarity for new tones that are played while earlier tones are sustained.

The full explanation is more complex, because the strings in a unison group are coupled together at the bridge. They influence each other somewhat through this coupling. The amount of influence depends upon how closely together they are tuned. There are other complications because the strings can vibrate parallel to the soundboard and bridge as well as perpendicular. These complications make piano tone both interesting to hear and study.

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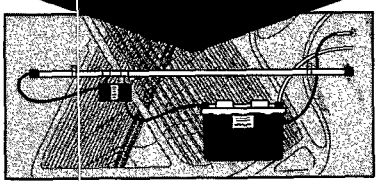

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Factors Contributing to the Multiple Rate of Piano Tone Decay

Causes for the decrease in rate of piano tone decay with time of tone duration were investigated, including the following: different rates for different vibration modes or groups of modes, nonlinear transformation of mechanical energy to acoustical energy, storage of mechanical energy for subsequent acoustical radiation, transfer of energy between string modes perpendicular and parallel to the bridge, interference among strings that are almost exactly in tune, and change in rate of energy transfer from the multiple-string source to the bridge during the transition from an initial in-phase condition to a later out-of-phase condition. The last two closely related factors were found to control the rate change in most cases.

INTRODUCTION

The existence of a slope change in sound pressure level recordings of piano tones has been reported in detail.[1] In general the sound pressure level of a sustained piano tone decreases with time more rapidly at first than it does later on. An example is shown in Fig. 1. This tonal characteristic is undoubtedly of musical importance, and has probably influenced the nature of piano composition. It permits tones to be sustained for a long period of time at a level somewhat below the initial level, so that succeeding tones in a rapid passage stand out over the predecessors.

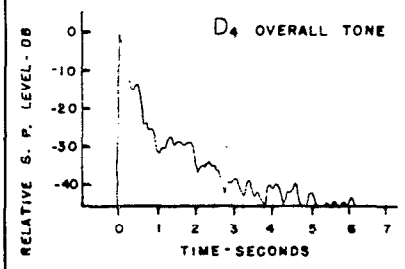

FIG. 1. Typical overall sound pressure level versus time for a Baldwin style M grand piano tone D_4.

Although the decay rate of the tone wave is the physical property of interest, the variable frequently plotted in acoustics (especially in reverberation studies) is the time which would be required for the sound pressure level to fall 60 dB at the same rate. We here call this the "extrapolated 60-dB duration."

Throughout most of the piano scale, three strings tuned approximately to unison are struck simultaneously by the hammer and thereafter apply vibratory forces to adjacent points on the piano bridge. The mechanical vibration travels along the bridge and into the soundboard (and piano structure) in a distributed manner. The soundboard vibrates in a complex pattern which is a function of frequency, and the sound pressure at a point in space receives contributions from all of the vibrating areas of the board. Possible causes for the observed multiple decay rate exist all along the chain. The vibration of each individual string could diminish at a variable rate. The superposition of several string vibrations or their mutual loading effects could be the cause. Losses in the bridge-soundboard system could be greater at high level than at low level, accounting for the rate change. This investigation approached the subject from each of the several different points of view.

I. FREQUENCY DEPENDENCE

First a possibility arising directly from the complexity of string vibrations was considered. With the exception of the highest tones of the piano, many partials are present in the overall tone. It is well known that overall tones of high fundamental frequency have much shorter duration than tones of low fundamental frequency. Figure 2 is a typical plot for grand piano tone, of the extrapolated 60-dB duration as a function of fundamental frequency, based upon the initial decay rate.

One might deduce from this that the high-frequency partials of a tone of low fundamental frequency would decay much more rapidly than the low-frequency partials. If the most prominent partials were to decay more rapidly and the less prominent partials more slowly, a transition of the overall tone from dominance by one group to dominance by the other group of partials would occur. Such a change of slope in room reverberation curves[2] has been shown to result from domination of the last part of the reverberation curve by grazing-incidence modes of vibration, for which the acoustic absorptivity of the wall materials is very low.

A brief check on this possibility for piano tone had been made previously,[1] without a definitive answer. The new data of Fig. 3 show that the durations of the individual partials of a complex piano tone do decrease somewhat with increasing frequency, but not greatly. The straight dashed line in Fig. 3 is the trend of the curve of Fig. 2 borrowed for comparison. It is apparent that the upper partials of a low-frequency tone decay much more slowly than overall tones of correspondingly high fundamental frequency. Moreover, the grouping of modes by decay rate, within a single tone, appears not to account sufficiently for the large change in decay rate of the overall tone.

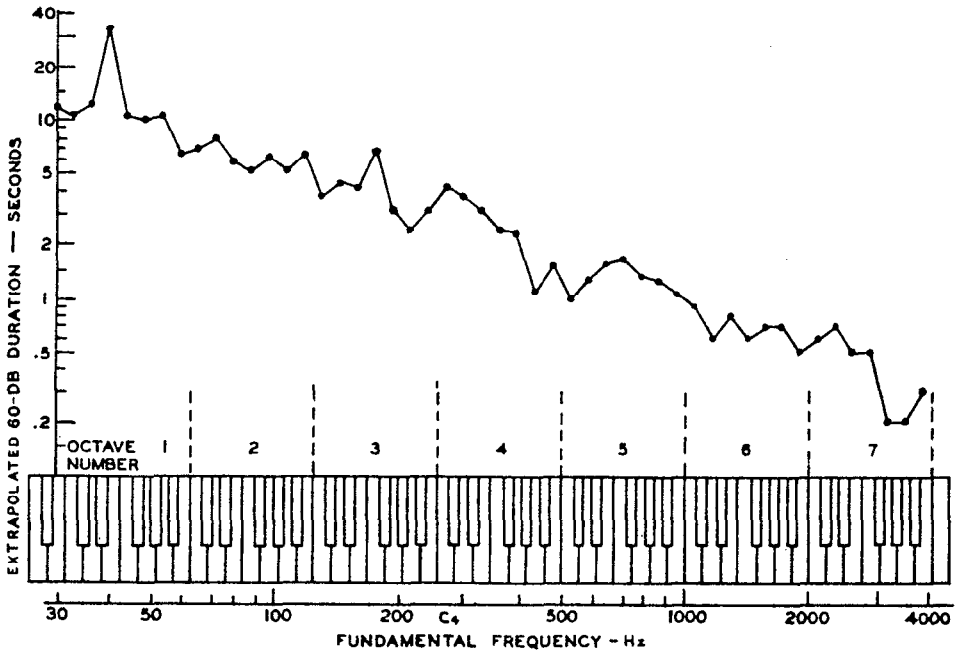

FIG. 2. Extrapolated 60-dB duration of the tones of a Baldwin SD-6 grand piano, based upon the initial decay rate.

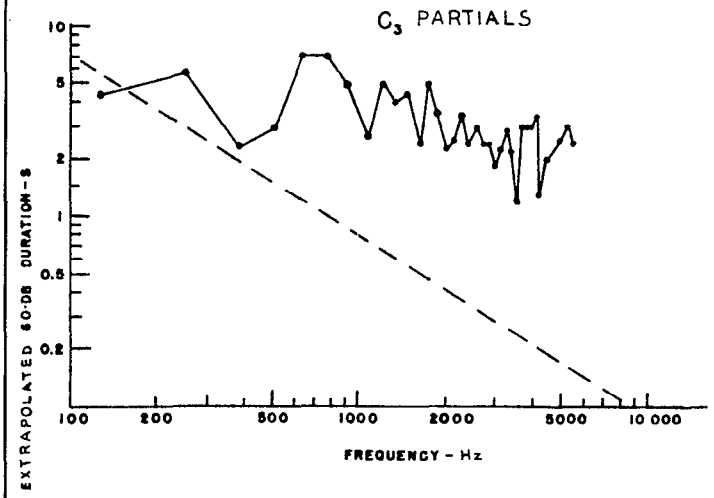

FIG. 3. Extrapolated 60-dB duration of the partials of one grand piano tone C_3, based upon the initial decay rate. The dashed line is the average trend for overall tones borrowed from Fig. 2.

Figure 4 is the result of an extended search for an exceptional tone which does exhibit a multiple decay rate resulting from different rates for different modes of vibration. It should not be considered at all typical. Curve A is for the overall tone. Curve B shows a rapidly decaying fundamental which dominates the beginning of the overall tone. By contrast, the second partial shown in curve C decays more slowly and with considerable irregularity. For the third and all higher partials, grouped together in curve D, the decay rate is intermediate between the fundamental and the second partial. Consequently, in this exceptional case the fundamental is initially dominant and controls the initial decay. The second partial is terminally dominant and controls the terminal decay.

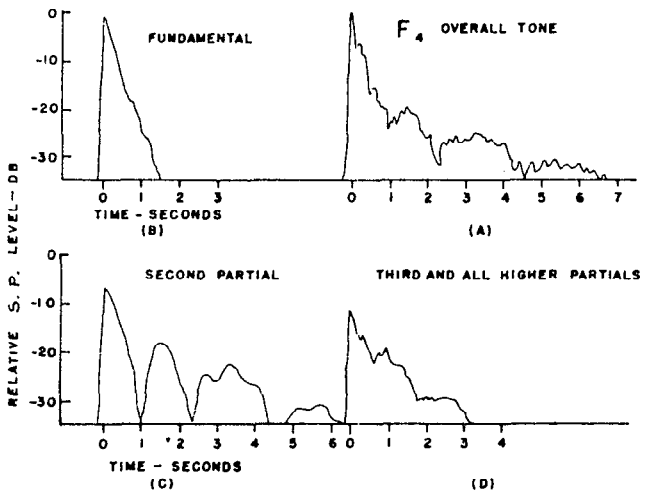

FIG. 4. An *untypical* tone in which the fundamental is initially dominant and the second partial is terminally dominant.

II. TRANSFER LINEARITY

Another possible cause of multiple decrement of piano tones is nonlinearity in the string-to-air path — that is, the

string-to-bridge-to-soundboard-to-air path. Ordinary overload type of nonlinearity would be expected to produce an opposite effect from that observed, but possibly other types of transfer functions could cause the observed changes in decay rate.

A direct measure of linearity was obtained by using a magnetic driver in proximity to a string triplet and driving the strings at the fundamental frequency. Simultaneous measurements were made of electrical input level to the driver and sound pressure level at a point near the piano in anechoic environment. A typical curve obtained in this manner is shown in Fig. 5. There is no evidence of nonlinearity, the curve being quite linear over a 45-dB range of typical sound pressure level.

A second measure of the linearity of the string-to-air energy transfer is shown in Fig. 6. This is a comparison of tone level recordings for which the key was actuated by different weights, 100 (lower) and 800 g (upper). The curves are almost identical. If nonlinearity were present, the decay rate would vary with the force of the blow, i.e., the break in the curve trend would always come at the same level of string vibration. This experiment has been repeated for a large number of piano tones, with the same result — no evidence of dependence of decay rate on the force of blow. Apparently the piano string-to-air transfer function is linear, and this factor is not a contributor to the multiple decay rate.

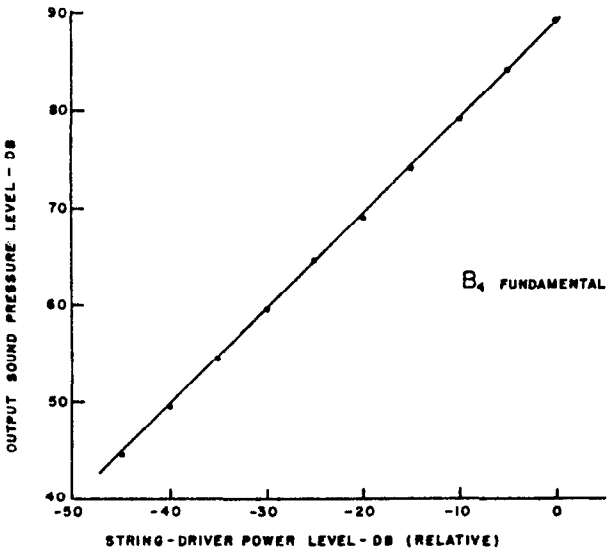

FIG. 5. Linearity of response for the string-bridge-soundboard-air path at approximately 250 Hz. String electromagnetically excited.

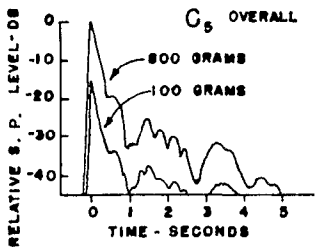

FIG. 6. Linearity of response for the string-bridge-soundboard-air path for different weights actuating the key at note C_5.

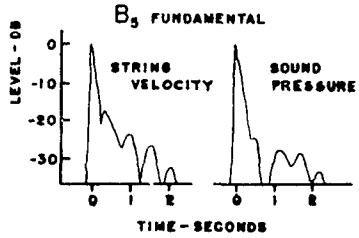

FIG. 7. Comparison of string vibration velocity level and piano sound pressure level versus time for the fundamental of a piano tone B_5.

III. MECHANOACOUSTIC DISCREPANCY

However, linearity of energy transfer from the string termination, through the bridge and the soundboard, to a point in space at discrete frequencies in steady state does not necessarily mean that a level recording of the sound pressure at that point will correspond to a level recording of the combined mechanical vibration of the string sources. Many examples have been studied, and correspondence is frequently but not always very close. The example shown in Fig. 7, for the fundamental of tone B_5, illustrates the difference which may be observed in fine detail. There is in general a sufficiently close correspondence to rule out the possibility of mechanical energy storage for subsequent acoustical radiation. However, some cases are even more dissimilar in fine detail than the example of Fig. 7.

Instantaneous discrepancies between the combined string vibration velocity level and the resulting sound pressure level can be expected on the basis that the vibration is transient and the vibration path is complex both in time and in space. Both the bridge and the soundboard vibration are distributed, and the sound pressure at the measuring microphone is subject to interference among the various contributions from the distributed radiating areas.

IV. PARALLEL MODE

Although the hammer strikes the strings in a direction perpendicular to the plane of the soundboard, it is well known that the subsequent vibration of the piano strings is not restricted to the direction of the hammer blow. There is some vibration parallel to the soundboard as well as perpendicular to it. However, the vibrations parallel to the bridge and soundboard were expected to produce much less sound output and, possibly, to have a much smaller decay rate. Possibly the energy in the perpendicular mode would dissipate rapidly; then energy would be transferred from the parallel mode into the perpendicular mode and dissipated there. This possibility was investigated.

High-speed level recordings of the perpendicular and parallel components of string vibrations were sampled with a magnetic pickup responsive primarily to the velocity of vibrations in one plane. Care was taken to maintain the string-to-pickup spacing constant for each mode of vibration, so that comparison of amplitudes of vibration could be made. Figure 8 shows typical level recordings for perpendicular and parallel modes of the same string.

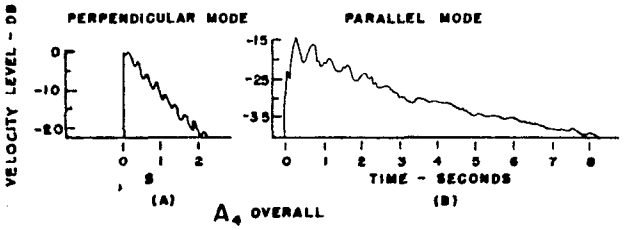

FIG. 8. Comparison of typical string velocity level versus time curves for vibration modes of the same piano string for note A_4, perpendicular and parallel to the soundboard.

It was found that the parallel vibrations have much lower velocity amplitudes than the perpendicular vibrations, about 15-dB-lower levels on the average, and that the parallel vibrations decay much more slowly in almost every case. Velocity level recordings for perpendicular vibration were almost identical for the individual strings of a triplet, but the parallel vibration showed great string-to-string differences, even within the same triplet.

A point of particular interest which tends to rule out this effect as an important factor in multiple decay rate is a lack of correlation between the fluctuation of the parallel and perpendicular modes. Even large fluctuations in the velocity level for one plane produced no perceptible effect upon the velocity level in the other plane. Even more important is the observation, reported in Sec. V, that the vibration of a single string at a particular frequency does not typically exhibit multiple decay rate.

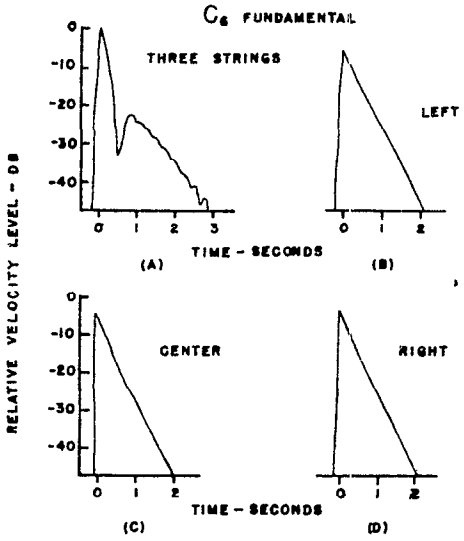

FIG. 9. Fundamental vibration velocity level versus time for a combined three-unison-string C_6 group, compared to each individual string with the other two strings damped.

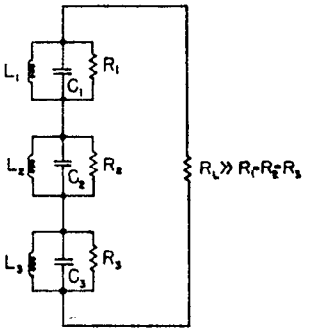

FIG. 10. Simplified equivalent electrical circuit for three piano strings, each in a single mode of vibration. R_L represents the piano bridge.

V. INTERFERENCE

Each string of a triplet exerts a force on the bridge at a separate point, but the points are physically close together. Although pianos remain in tune for long periods of time for all practical listening purposes, the three strings of the triplet cannot be maintained exactly physically in tune with each other. Therefore, at any instant the force exerted on the bridge by one string may either reinforce or cancel the forces exerted by the other strings, depending upon the phase relationships among the string vibrations.

Figure 9(a) is a vibration velocity level recording for a three-string group which shows a typical interference minimum. The curves in Figs. 9(a)—9(d) marked "left," "center," and "right" are for the individual strings — that is, for one string when the remaining two are damped by rubber wedges. There is a striking similarity among the individual string vibrations, but they all differ markedly from the curve for all three strings vibrating simultaneously.

If the three strings are not closely coupled through the bridge, i.e., if their loads are virtually independent, the interference will be simply a superposition of the individual periodic forces. A simplified equivalent electrical circuit (for three strings each in a single mode of vibration) is shown in Fig. 10. Each LC circuit is shunted by a load R_n, and all three in series provide a voltage across R_L (assumed large relative to R_n), which, of course, is actually a complex impedance.

Assume the three tuned circuits, each representing, say the first mode of vibration of one string, are tuned to angular frequencies ω_0, $\omega_0 + \alpha$, and $\omega_0 + \beta$, where α and B are small compared to ω_0. The three tuned circuits begin oscillating in phase with equal initial amplitudes, and are assumed to have the same decay rate.

The potential difference a across the resistor R_L analogous to the force on the bridge is then

$$a = k[\cos\omega_0 t + \cos(\omega_0 + \alpha)t + \cos(\omega_0 + \beta)t]e^{-\delta t}. \quad (1)$$

This can be reduced to

$$a = k\left[[3 + 2\cos\alpha t + 2\cos\beta t + 2\cos(\alpha - \beta)t]^{1/2} \times \cos(\omega_0 t + \phi)\right]e^{-\delta t}, \quad (2)$$

where

$$\phi = \tan^{-1}\left(\frac{-(\sin\alpha t + \sin\beta t)}{1 + \cos\alpha t + \cos\beta t}\right). \quad (3)$$

The current i flowing in the load R_L then is analogous to the velocity of the bridge, and is $i = a/R_L$.

Logarithmic plots of Eq. (2) are shown in Figs. 11 and 12. For both these plots a frequency f_0 of 440 Hz was chosen. For Fig. 11, α and β were each chosen to be 0.25 Hz (1 cent). For Fig. 12, α was chosen to be 0.1 Hz (approximately 0.4 cent) and β to be 0.22 Hz (approximately 0.9 cent).

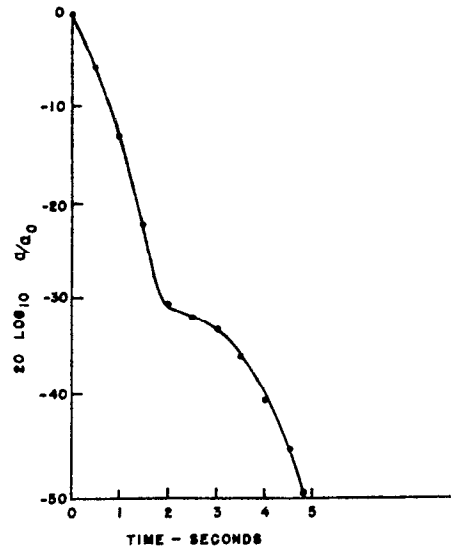

FIG. 11. Logarithmic plot of Eq. (2) for $f_0 = 440$ Hz, $\alpha = \beta = 0.25$ Hz.

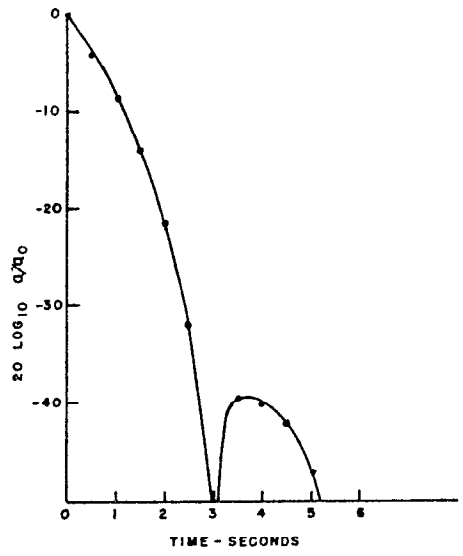

FIG. 12. Logarithmic plot of Eq. (2) for f_0 440 Hz, α 0.1 Hz, and $\beta = 0.22$ Hz.

A change in decay rate occurs. In Fig. 11 the decay rate goes through a maximum at about 1½ s after onset, and a minimum at 3 s. In Fig. 12 the level falls to a sharp minimum, followed by a maximum, somewhat in the manner of the sound pressure level curve of Fig. 7. Thus piano tones sustained by the pianist for several seconds can be expected to exhibit a decrease in average decay rate due to interference.

An overall piano tone would, of course, be represented by a group of generators, one for each mode of each string. Because the modes of a string are not exactly harmonic, the minima would occur at slightly different times for different modes. Thus the overall tone would generally tend to have less drastic minima than shown in Fig. 12.

Curves calculated in this manner provide a reasonably good fit for actual piano sound pressure level recordings. However, this equivalent circuit does not provide a sufficiently rapid decay initially relative to the terminal decay, e.g., during the first 5—10-dB drop in level.

VI. MUTUAL LOADING

If the individual load resistors R_n in Fig. 10 are omitted, or are assumed large relative to R_L, mutual loading of the damped strings will occur. The equivalent circuit is shown in Fig. 13. Again this is a greatly simplified model. A complete circuit would include internal string losses, individual termination losses, bridge-soundboard reactance, radiation impedance, and a separate tuned circuit for each mode of string vibration. However, the principle can be demonstrated by this simple model.

Assume that each LC circuit represents the fundamental frequency of one string of a triplet, that E is the initial voltage across each capacitor, and that the polarities are such that the voltages are in series aiding at $t = 0$. Then at that time the total power dissipated in R_L is $9E^2/R_L$. If a single tuned circuit were connected to R_L, with the other two simulated strings short circuited, the total power dissipated would be E^2/R_L. Thus each of the three oscillators, while in series and in phase with each other, delivers three times as much power to R_L as it would alone. This explains the rapid decay during the first 5—10-dB drop in level.

As in the circuit of Fig. 10, the decay rate depends upon the phase relations among the very slightly detuned unison strings and therefore is time dependent. The distinction is

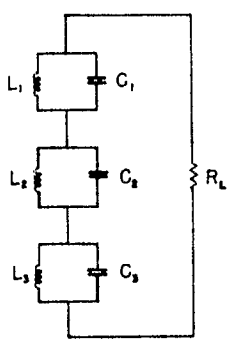

FIG. 13. Simplification of Fig. 10 assuming bridge impedance R_L provides mutual loading for the three strings.

that there is mutual loading. After the initial boundary conditions imposed upon the strings has been lost, the instantaneous decay rate can be much greater or much less, but the time-averaged rate decreases.

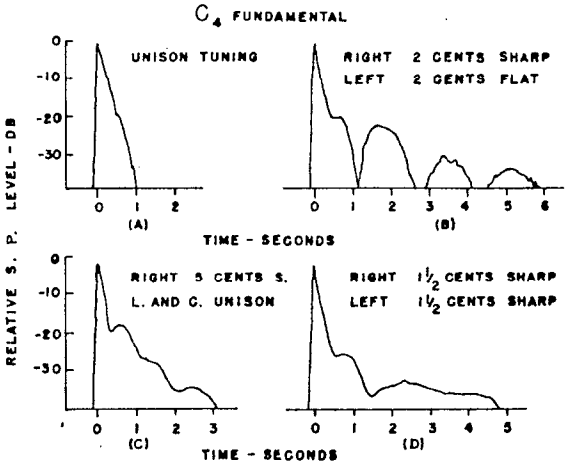

FIG. 14. Sound pressure level versus time for C_4 fundamental of a three-string group struck by a piano hammer, for four different detunings. For (a) the tuning was as close to unison (zero beat) as could be obtained.

Figure 14 shows an actual measured result for different tuning conditions of the C_4 unison strings of a piano. Figure 14(a) is a curve obtained with extremely close unison tuning. Curves (b)—(d) illustrate various small amounts of detuning. The effect can be observed with even less than the ±1½ cents detuning shown in curve (d). Tuning differences of the order shown here are typical.[3]

VII. ELECTRICAL ANALOG MODEL

Rather than solve the differential equations for the equivalent circuit shown in Fig. 13, we decided to construct the electrical analog. Figure 15 is the schematic diagram of the actual circuit used.

The effective Q of strings on an actual piano ranges from several hundred to several thousand. It was not practical to construct inductances having Q's of this order, so a Q-multiplier circuit[4] was used with each tuned circuit to increase the effective Q. Even with the Q multiplier it was not possible to obtain Q's as high as desired. Operating conditions for tubes V_1, V_2, V_3 were adjusted so that the initial currents in L_1, L_2, L_3 were 2 mA. A voltage waveform as shown was applied to the grids of these tubes to turn them off and shock excite the tuned circuits, which then oscillate at their resonance frequencies. Each LC circuit was tunable with a decade capacitor.

A high-impedance transformer was connected across each tuned circuit, and the secondaries of the three transformers were connected in series aiding to a load R_L. R_L was so chosen that it was the major energy dissipating element in the circuit.

The voltage across R_L was displayed on an oscilloscope and photographed. Amplitudes were then measured from the photographs for calculation of the voltage level versus time points of Fig. 16. The curve titled "single oscillator" is for one oscillator alone connected to R_L. Each of the other oscillators by itself gave an identical curve. The second curve in Fig. 16 is for the three oscillators in series and tuned very carefully to unison. The decay rate for this curve is much greater — about three times — than for the single oscillator. Figure 17 is a photograph of two typical envelopes obtained from the analog model by detuning the oscillators slightly relative to each other. Figures 18 and 19 are the voltage level versus time curves corresponding to the photographs. These analog curves closely resemble curves for single partials of actual piano tones.

VIII. SUMMARY

(1) Interference among nearly-unison tuned strings, and progression from an initial in-phase to a subsequent not-in-

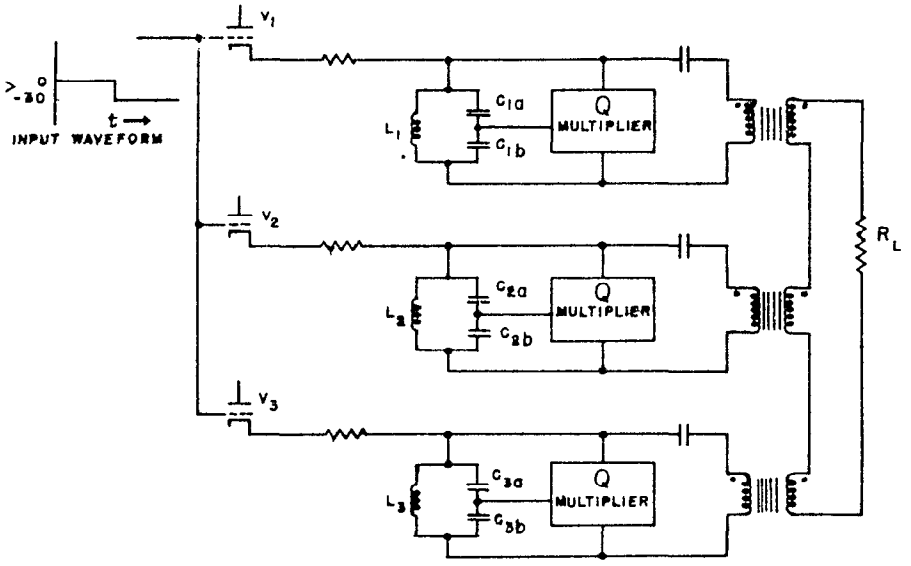

FIG. 15. Schematic of an electrical analog of Fig. 13.

phase condition, are the major causes of change in average decay rate of the individual tones of a piano. The steep initial descent is the result of the initial phase agreement among strings. Interference effects accompanying variable not-in-phase conditions characterize the sound pressure level versus time function later.

(2) Two factors were found to contribute only slightly and in some cases to the multiple decay rate. (a) Only in exceptional cases did particular partials or groups of partials have sufficiently different decay rates to contribute significantly to the multiple decay rate of the overall tone. (b) In general the mechanical vibration of well-tuned piano strings decays more smoothly than the corresponding acoustic tone wave. The greatest deviations occur near the treble end of the scale, and are not of such a nature as to explain the multiple decay rates observed.

(3) Two factors were found to have little bearing upon multiple decay rate of piano tones. (a) Parallel and perpendicular modes of string vibration typically have greatly different decay rates but the perpendicular mode dominates throughout much of the tone duration. (b) The transmission of vibrational energy from piano strings, through the string terminations, bridge, and soundboard to the air, is quite linear.

ACKNOWLEDGMENT

The authors wish to acknowledge the interest and support of John F. Jordan throughout this investigation.

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2 F.V. Hunt, L.L. Beranek, and D.W. Maa, J. Acoust. Soc. Am. **11**, 80–94 (1939).

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4 H.E. Harris, "Simplified *Q* Multiplier," Electronics **24**, 130–134 (May 1951).

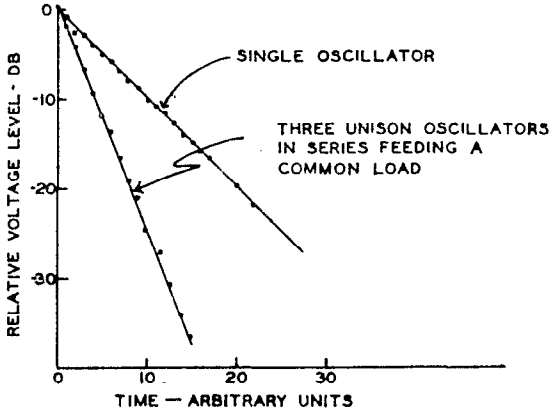

FIG. 16. Voltage level across R_L (in Fig. 15) versus time for one oscillator only, and for three identical oscillators connected in series. Measured from oscilloscope photographs.

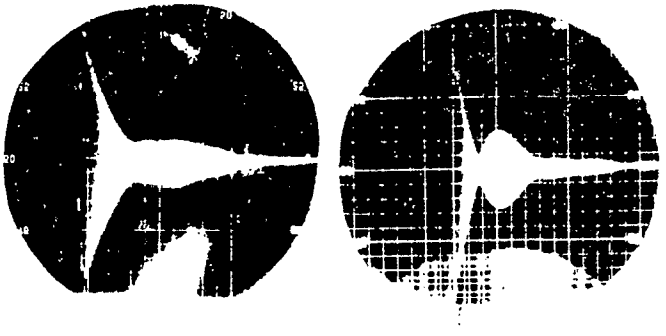

FIG. 17. Oscilloscope photographs of two typical wave envelopes from the analog model of Fig. 15 for slight detuning of the oscillators.

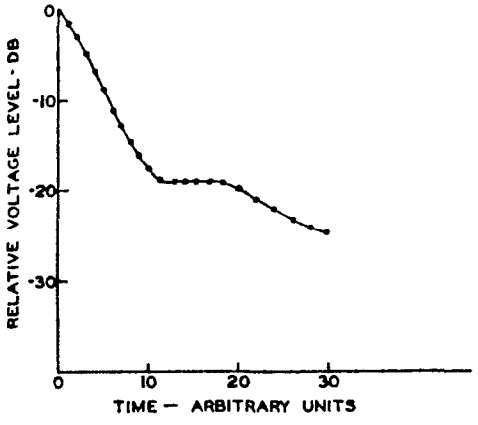

FIG. 18. Voltage level versus time for the left photograph in Fig. 17.

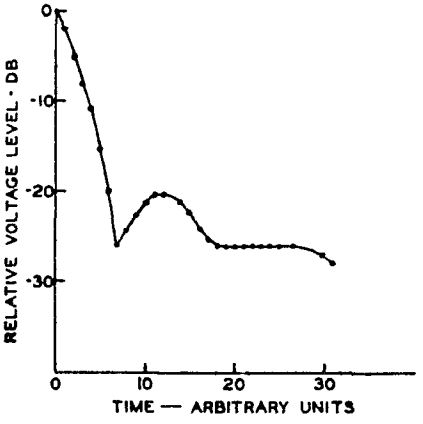

FIG. 19. Voltage level versus time for the right photograph in Fig. 17.

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JACK KREFTING, TECHNICAL EDITOR

THE TUNER-TECHNICIANS FORUM

Like every technical editor before me, I have had to wrestle with the issue of just how basic or advanced the "Forum" should be. Unlike my distinguished predecessors, however, I have been given total responsibility for the technical accuracy and content of the entire magazine. This added responsibility has occasioned, as might be expected, almost continual reassessment on my part. Is the *Journal* publishing the kind of material the members want to read?

Over the years, every part of the piano has been discussed in these pages already; to compound the problem, our readership runs the gamut from rank beginners to experienced craftsmen to brilliant theoreticians, and everyone has a different notion of the relative importance of certain types of articles. Outside of the few really new ideas expressed, we are basically restating what has already been said over and over again, with small refinements here and there.

I am still convinced that a basic practical approach to piano technology will be of the greatest benefit to a majority of our readership, which is why I asked Priscilla and Joel Rappaport to concentrate on basic shop skills in their column, even though they are qualified to lecture on a far more advanced level. Our emphasis, then, will continue to be practical — with an occasional foray into the theoretical area. In this issue we present an outstanding article which addresses the phenomenon of tonal decay, together with an introductory article by Dr. Daniel Martin which was written at my request for the benefit of those of us who are not well schooled in acoustical engineering. We are indebted to Dr. Martin, the Baldwin Company, and the Acoustical Society for permission to use this material.

We welcome Raye McCall to the ranks of the regular PTJ contributors. McCall's column, "The Vacuum Line," will discuss player pianos, nickelodeons, orchestrions, and other strange and wonderful instruments. It will appear bimonthly beginning with this issue.

This month also marks the debut of our new technical illustrator, James E. Campbell. Jim is a practicing technician with prior professional experience as a draftsman and modelmaker, a background which uniquely qualifies him for this work. When you see his drawings, we think you will agree that he can do the job. At the same time, we want to thank Charlona Rhodes for an excellent job of illustrating for the past several months. This change was made primarily for logistical reasons, but will also allow Charlona more time to handle the myriad chores of a managing editor.

Now, on to the mailbag.

TUNING STABILITY IN NEW PIANO

This letter is from a Craftsman member in Jackson, Missouri:

I am wondering if you can give us some ideas on a new grand piano that will not stay in tune and possibly some suggestions on what to do with it. The piano was tuned five times in the first year by another tuner. The dealer then asked me to tune it. I found it to be very much out of tune. The piano was then returned to the dealer. I then tuned it again and two days later it was getting out of tune again. It gets out of tune first in the high treble and the low bass. The tuning pins seem to be normal. — George A. Slocum

Before answering Mr. Slocum, I want to make a few general observations about new pianos for the benefit of newer technicians in our readership. We are often faced with the seemingly self-serving task of convincing the purchaser of a new piano that it must be serviced regularly. True, most manufacturers provide such advice in printed form; but most people prefer to listen to a live person than to read printed instructions. Usually, they talk to only two people — the salesman and the technician. The salesman isn't likely to say too much about service for fear of losing the sale.

The average buyer expects a new piano to stay perfectly in tune, for the same reasons that he would expect a new refrigerator or television set to work perfectly as soon as it is delivered. If we simply tell him that a new piano should be tuned four times the first year, three times the second year, etc., he might not quite believe us. "Well, we're not concert pianists," he says, as though that made any difference. So we must explain things like soundboard compression, string stretching, humidity control, and frame compression. The more we know about piano design and construction, the easier it is to convince the customer that we are acting in his own best interest, and not simply hustling extra work for ourselves.

To get back to Mr. Slocum's question, it would seem that lack of maintenance is not the problem in this case. With seven tunings in a year or so and adequate tuning pin torque, the instrument should be quite stable by now; since it is not, I would suggest the following:

1. Be sure the strings are seated firmly at the bottoms of the hitchpins, touching the plate (assuming that the piano is not a Baldwin, of course.)
2. Check the plate for cracks.
3. Be sure all plate screws and rim bolts are tight.
4. Check the framing and rim for structural defects, bad glue joints. etc.
5. Check the fit of the pinblock to the plate.

This last item is difficult to check visually. Remove the action and try to push a business card between the plate flange and the pinblock. If it goes in all the way to the webbing, the block was not fitted properly to the plate. Check this all along the face of the block. The block should be touching the plate flange every inch or so along its entire length.

Since we don't know the make or model of the instrument, we don't know whether it is equipped with plate bushings. This could be significant. Some pianos manage to achieve reasonable tuning stability despite an ill-fitting block, in that the bushings and plate holes absorb the forces of compression. In effect, the bushings and the plate webbing are doing the job of the plate flange. When this situation occurs, the leverage of the tuning pin acts to **widen** the gap between block and flange, the opposite of the usual situation. The bushing acts as a fulcrum rather than a support to minimize springing of the pin. (See Figure 1.)

I am intrigued by the fact that the high treble and the low bass seem to go out of tune first. If the cause of the problem is indeed an ill-fitting block, as I suspect, one might surmise that a gap between block and flange exists on the ends but not in the middle. Besides the tactile test with the business card, there are a couple of visual observations that can be made. First, observe the angle of the tuning pins while standing at one end of the piano. If the pins in the center seem to be nearly straight up and down, or at least not slanted against the pull of the strings at the same angle as the end pins, the block may have rotated in the middle, where it has the least support from the rim. If this appears to be the case, this can be confirmed by checking the clearance between pinblock and action when the action is being removed or replaced. Normally, there should be as much clearance between drop screws and pinblock at the middle as at the ends. If there isn't, one might reasonably suspect that the middle of the block has rotated.

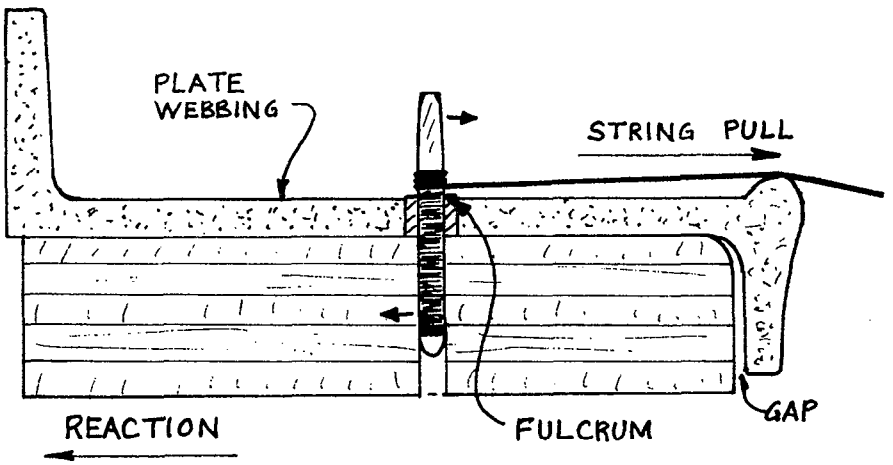


FIGURE 1

To correct this condition, the gap between block and flange must be filled so that the block cannot move around. There are a number of ways to do this, but I will only suggest the one method that I have used since I know from firsthand experience that it will work.

Release all tension evenly until all strings are very loose. Using large C-clamps, force the center of the block back up against the webbing where it belongs. Then insert thin hardwood wedges, with glue on the side that touches the block, into the gap. Dry fit them first, and try to leave no more than 3/4 inch between wedges. When they are all ready, line them up on the keybed (protected with newspaper) and apply glue to one side of each wedge. Place them in position quickly and, while the glue is still wet, hammer each wedge lightly upward. (See Figure 2.)

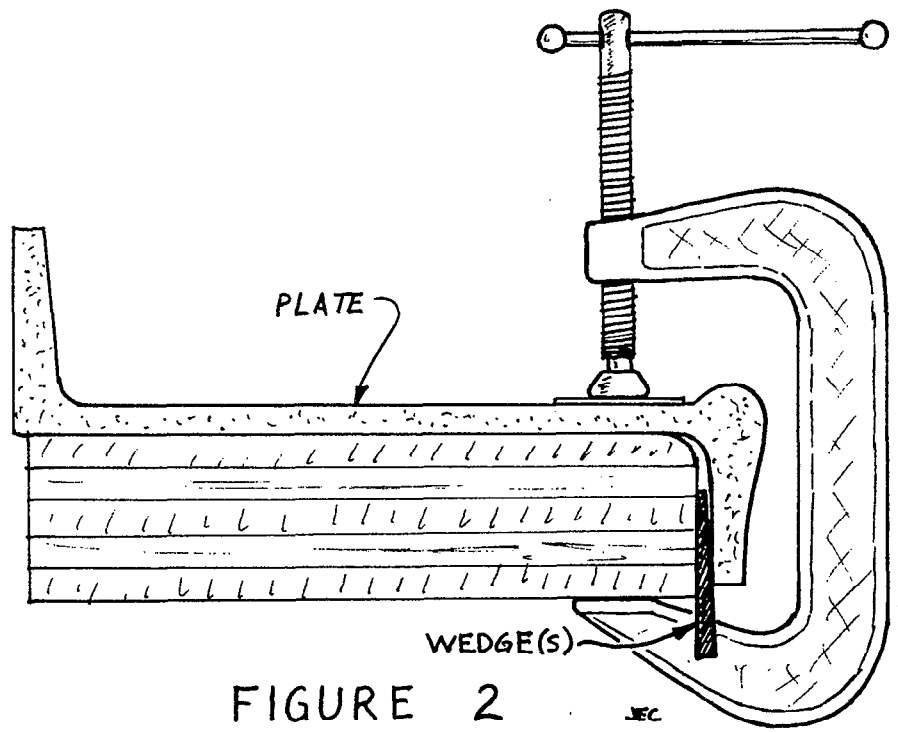


FIGURE 2

This is a bit tricky because, each time a wedge is driven further into the gap, its neighboring wedges are slightly loosened. Work quickly from end to end, lightly tapping each wedge until all seem to be uniformly solid. Then retighten all plate screws and remove the C-clamps. Begin chipping the piano, adding tension as evenly as possible. When the piano has been brought to pitch and the glue has dried, trim excess wood from the wedges that projects into the action

cavity. A bare hacksaw blade works about as well as anything I have tried for this purpose.

Tune the piano, wait a day or so, and retune it. Keep it in the shop for a week or so for observation before delivering it to the customer. It should be stable by then, but be sure to tune it once again 10 to 14 days after delivery to compensate for any humidity difference between the shop and the customer's home.

OPEN QUESTION

The following letter from Baytown, Texas, poses a question for which I have no answer. Maybe one of our readers can help.

From time to time I encounter a tuning stability problem on a new upright piano that I don't quite understand. In such cases I find that, when I place my electronic tuner on the piano and set it "dead" to some particular note, the pitch of the note changes almost immediately by 7 to 10 cents when I put the piano under strain. The strain can be applied by lifting the keybed with my knees or by placing a small book under one of the legs. The pitch is essentially restored when the strain is removed. The same observation is made on other notes covering several octaves.

I do not mean to imply that all Model X, Brand Y pianos behave in such a manner. On the contrary, they do not. This leads me to suspect that there might be some problem with the specific piano such as a hairline crack on the plate. (I have not been able to locate one, however.) Are some pianos designed with such a low margin of safety in their bracing structure that such an occasional indicated instability is to be expected?

I encountered this behavior initially when I moved a piano one or two feet from a wall and tuned it. It sounded o.k. in an aural check, so I pushed it to the wall and gave it a final check. It then sounded pretty bad, so I pulled it out and retuned it. I then pushed it back to the wall, and the same thing happened. I then made the tests described in the first paragraph and finally tuned the piano in its usual place, and quickly walked away.

I have tuned a similar piano (different brand) over a period of about three years without ever achieving the tuning stability that I have realized with other pianos of the same brand. I'm not referring to the usual problems of string stretching, variations due to changes in humidity, temperature, etc., that one normally encounters with seasonal changes and with different methods of operating heating and air-conditioning. I think I have had sufficient experience so as not to be confused by such factors. Moreover, it failed to pass the so-called "strain" test.

In summary, I am asking whether such a strain test might be of some help when tuning stability seems to be abnormally low. — James Dinwiddie.

SILICONE IN PINBLOCK

The following letter comes to us from New Orleans, Louisiana:

I am a Registered Craftsman with PTG and I have a problem. I recently attempted to tune a spinet piano and much to my surprise I found quite a few of the tuning pins in the bass were too loose to hold a unison.

The piano is only about six years old and I found that the owner tried to clean the dust off the tuning pins with a silicone-type duster spray.

If you know of a quick solution to this problem, please let me know as quickly as you can. — John K. Branch, New Orleans Chapter

From what I know about the behavior of silicone, I'm afraid the owner has inadvertently ruined her piano. As I mentioned in the March 1979 issue, silicone creeps, penetrates, relieves stress, and lubricates; worse, it can't be removed from wood, period.

The instrument will probably have to be completely disassembled. Possibly the plate can be cleaned; but the pinblock, strings, and pins will have to be replaced. If the keytops were sprayed also, they will probably start cracking because of the stress-relieving characteristic of silicone.

We don't really know how much silicone was applied, or exactly where it crept after being applied. If the owner is inclined to gamble on a somewhat less expensive repair job, you might try reaming the plate and block holes to 1/2 inch and using plugs, as described elsewhere in this issue. But the client should be clearly advised that this will not guarantee that no further damage will occur. The remainder of the silicone might stay where it is, or it might creep further. It would be a shame to go to all the trouble of plugging a dozen holes only to find another dozen pins slipping later. We don't know that this will happen, but we don't know that it won't, either.

It strikes me as ironic that, when thousands of pianos are neglected year after year, one conscientious owner does serious damage to her instrument in a well-meaning attempt to take good care of it. Fortunately, most people leave the cleaning of the inside of their pianos to their technician, but there will always be exceptions. For instance, I'll never forget the young gentleman who asked me to replace a set of keytops on his old upright. When I arrived to pick up the keys, I noticed how immaculate his apartment was — plastic covers on the furniture, little squares of extra carpet under each caster of the piano, and so on — so I asked him if I should remove my shoes before entering. He said that wouldn't be necessary, but I noticed that he didn't sound too sure.

When I began removing the keys, he was appalled at the dust on the keybed. I assured him that I would clean it when I returned to replace the keys, and he looked relieved. I replaced the fallboard and other case parts and left. Two weeks later I returned with the newly recovered keys, only to find that he had removed and washed the keyframe. Speechless, I stood there while he proudly handed me a cigar box containing the felt keyframe punchings, all freshly drycleaned. Then I spotted the paper punchings, all stacked neatly according to color. "You wouldn't believe how badly these were all mixed up," he said disdainfully. He was obvi-

ously waiting for some kind of response from me, but I just couldn't think of anything to say.

METAL PINBLOCK

Question: *I am presently rebuilding a Wurlitzer baby grand. I can find no serial number on the piano, so the year of construction remains a mystery. It has a* solid metal pinblock *(no kidding!)...and the pins have wedges in their bottoms. What is the purpose of this type of tuning pin? Why a wedge? Can these be replaced by standard tuning pins available today?*

Since the pinblock is metal, is it permissible to use a power drill to remove and install these pins? I have heard that pianos with metal pinblocks were generally designed for the tropic zones or areas of high humidity. Is this correct?

Are pianos with solid metal pinblocks and wedged pins still manufactured, or are they a thing of the past? — William E. Salkin, Madison, Wisconsin

Answer: I have seen one such instrument, but that is the limit of my experience in this type of construction. I wrote to Bob Hill, chief engineer for Wurlitzer, who gave me the following information:

1. Wurlitzer built some uprights and grands using the "Uniblock" constructure in the 1930's.

2. This was a production technique at the time; that is, they were not experimental pianos.

3. The tuning pin screwed into the casting and was locked by the wedge from the bottom.

4. To the best of my knowledge this block is part of the plate. I do not believe it can be removed.

Our thanks to Hill for this information. Bob sent a copy of my letter to Larry Talbot, Wurlitzer's piano service manager, in the hope that Talbot might have access to further data. Sure enough, he did. Here's Talbot:

This letter is just to enlarge a little on the comments included in Bob Hill's February 20 letter.

Uni-plate construction was used by the Wurlitzer Company during the late '20s and early '30s at the North Tonawanda, New York, plant. We are not sure exactly why the Uni-plate was developed, but it was probably as a means to get away from the wood pinblock problems that were quite common at that time.

As Bob mentioned, the tuning pins were turned into the plate and the brass wedge was driven into the split pin from the rear. The wedge was used to make the tuning pin tight, but tuning was accomplished in the same way as a piano that has a conventional pinblock. There was one big advantage, however. If a technician discovers a loose tuning pin, all he needs to do is tap the wedge in further to increase the torque at the pin.

We really can't think of any reason for replacing this construction with a conventional wood pinblock. We don't feel it would be practical to try it, and we don't see any reason why it would have to be done unless there are some broken tuning pins. However, replacement tuning pins can be manufactured by most technicians from standard tuning pins by cutting them short and cutting a slot in them.

The one problem we have heard of with this construction was that once in awhile a tuning pin would freeze in the plate. A tuning pin that has frozen to the plate can usually be loosened by applying a few drops of penetrating oil and then tapping it lightly. Once the pin breaks loose it can then be tuned normally.

Personally, I am in the same position as you. I have heard of this construction feature many times, but I have never actually seen one.

Mr. Talbot went on to say that he thinks the topic may have been covered in the *Journal* sometime in the late '50s or '60s. While hunting for such a reference, I called Cliff Geers for his opinion. It seems he rebuilt one of these a couple of years ago, and has some thoughts of his own on the subject.

According to Geers, the "block" is indeed part of the plate casting, maybe 1/2 inch thick or so, and the rebuilder should not attempt to use regular tuning pins directly in the casting. Instead, Cliff suggests that the holes be reamed out to a diameter of 1/2 inch and plugged with pinblock material. Then a thin pinblock should be made to fit underneath the webbing as a normal block would be fitted, and the plate must be drilled to accept heavy screws to fasten the block to the plate. (See Figure 3.)

To determine the proper thickness of the new pinblock, the rebuilder must measure the overall height of the action. The block should be as thick as possible while still allowing for action removal. When the block is fitted and the webbing holes reamed and plugged, drill through plugs and block for the new tuning pins. Cliff

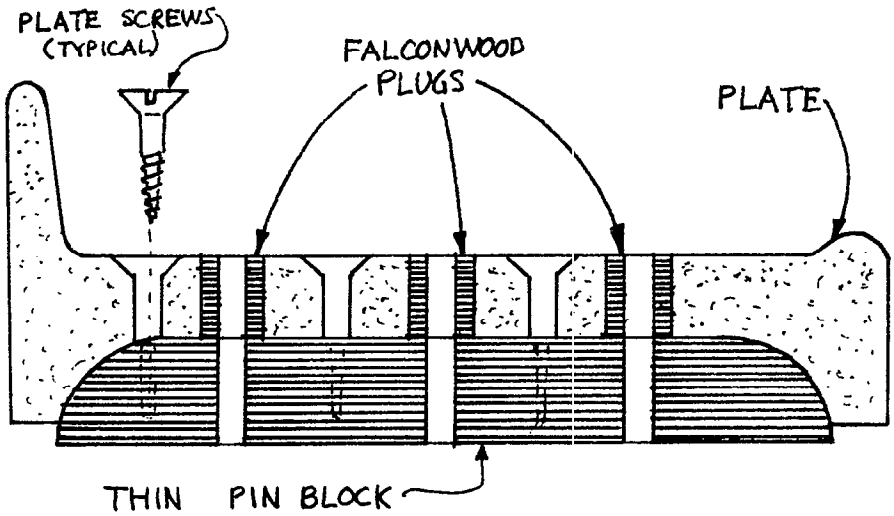


FIGURE 3

suggests that 1/0 pins would be better than the standard 2/0 size because the smaller hole would leave more wood in each plugged hole.

To my mind, the secret of the success of this particular rebuilding job was his use of the very dense Falconwood for the plugs and block. Because the plate is so thick and the block so thin, ordinary pinblock material probably would not do the job in this instance. I'm sorry if this sounds like a commercial for a particular brand name of block material, but I don't know of any other multilaminate block that would be available for this purpose, and I would not use a quartersawn block unless it were at least an inch thick.

The rebuilder might be tempted to ream the plate holes to 3/8 inch and use plate bushings. This would be far easier than the 1/2-inch plugging, but I don't think it would provide sufficient holding power for the pin. Besides, the longest bushing readily available to my knowledge is only 7/16 inch. Of course, the shorter bushings could be stacked two deep to lessen the springing of the pin; but the 1/2-inch plugs suggested by Geers would provide springing resistance as well as holding power.

This brings to mind the related topic of plugging an old pinblock as an alternative to replacing it. I have had two occasions to use this technique, one of which was successful. I will relate the details here in the hope that others may avoid making the same mistakes I made.

The first piano was an Everett spinet about 25 years old. It was badly dried out, and the block had apparently cracked in several places, judging by the looseness of pins in line with one another. I considered my options:

1. Replace the block. This would have been the best solution, but I rejected it because of the effort involved on this type of piano.

2. Pinblock treatment. I rejected this option because I wanted a permanent solution to the problem, and there is some evidence that doping has a deleterious effect on the block, even though it usually tightens the pins temporarily. This was, I felt, too nice a piano for last-ditch treatment.

3. Oversize pins. This option was rejected on the theory that a larger pin would only compound the problem by widening the cracks.

4. Plugging the block. This was the option selected.

Because most of the loose pins were in the crowded tenor area, I used a 3/8-inch plug cutter and drill. That was my first mistake. The plugs looked substantial enough, and I drove them into the loose holes, which had been reamed out to 3/8 inch, with plenty of glue. Then I drilled new holes through the middle of the plugs with a hand-held drill motor, and that was my second mistake. The new pins held for four or five months and then loosened again. Fortunately the piano belonged to me, so no client was involved, but the piano still sits in my shop, now six years later.

By selecting too small a plug diameter, I left myself no margin for error. Even if precisely drilled, the plugged walls of the holes were too thin. This was compounded by the general weakness of the surrounding old block material, which failed to properly support the plugs.

By attempting to drill the plugs with a hand-held drill, I inadvertently committed the error for which I had left no margin. The drill bit probably broke through the thin wall of the plugs because I could not hold it steady enough. At any rate, what had seemed like a good idea turned out to be a disaster.

The second piano was a large 19th-century Weber grand. It came into my possession newly refinished but sadly in need of a pinblock. The block was the most difficult of all blocks to replace — it was open and deeply slanted on top, and firmly mortised into the case on both ends. Replacement would mean sawing away part of the outer rim, and I wanted to avoid that if at all possible. Because the pinblock was open, I would have also had to make a separate template for each section in order to determine the precise location of the tuning pin holes. The exposed faces would have to be veneered and fitted carefully around each plate brace. So I decided to plug the existing block. There were no apparent cracks or delamination problems, so I took a calculated risk.

But this time I did it more precisely. With a bench-model drill press mounted on a board spanning the rim, I reamed all the holes to a diameter of 1/2 inch. Then I cut 240 Falconwood plugs with a 1/2-inch plug cutter and drove them into the holes with plenty of aliphatic resin glue, supporting the block with a pinblock jack. The tops of the plugs were trimmed flush with chisel and belt sander, and an automatic center punch was used to mark the exact center of each plug.

With a high-helix 0.272-inch pinblock bit in the drill press jig, again mounted on the platform on the rim, all holes were precisely drilled at the same angle used in reaming for the plugs, with a controlled feed rate at a spindle speed of 920 rpm. That was four years ago, and that Weber tunes as nicely now as it did when first strung. The torque measures at between 130 and 138 inch-pounds throughout the scale, and I am proud of that job.

If I had it to do over again, I would probably just replace the block to save the time required to cut all those plugs (I burned up one plug cutter and turned a second one brown, at a cost of $22 each), but at least now I know that a block can be successfully plugged, for whatever that's worth. And I hope that this recitation has been more informative than boring to our readership.

Finally, to answer Mr. Salkin's last question, I'm quite sure that no pianos are now being manufactured with a metal-to-metal tuning adjustment. The two other such tuning arrangements that come to mind are the Wegman and the old Mason & Hamlin screw-stringer, both of which faded from the scene years ago.

FALSE BEATS

Question: *Is there any evidence that rusty strings could emit false beats? I'm already familiar with the phenomenon and realize that a less*

than solid string/bridge connection is at fault. When I recently tuned a fairly new piano which ordinarily doesn't have this problem, but definitely did this time, along with rustiness too, I thought there just might be a connection. — Mark Mandell, North Hollywood, California

Answer: A thin layer of surface rust will not ordinarily cause false beats. My observation over the years has been that, at least on unwrapped strings, surface rust seems to have little or no detrimental effect on tone quality either. Of course, rust looks bad and, once present, is difficult to completely remove; but it doesn't cause real problems for the instrument until it begins to eat its way into the string.

A rust pit anywhere on a string is a weak point which invites eventual string breakage. A rust pit that happens to occur on a node of the speaking length will cause false beats within that string. The only solution for that condition is to replace the string.

As far as I know, there are only two basic causes of false beats: one is a defect within the string itself, and the other is a faulty terminus at one end or the other of the speaking length. String defects would include the following:

1. An air bubble in the molten steel will elongate as the wire is drawn through successive dies, creating a defect that is virtually undetectable. When a string breaks for this reason, the break will be long and jagged as opposed to a break caused by excessive tension. (See Figure 4.)

2. Inconsistent string diameter may result from improper drawing of the wire during manufacture, or from a necking down of a portion of the wire due to excessive excursion or tension.

3. A nick or kink in the speaking length would be considered a defect, but probably would not cause false beats.

4. A rust pit at a string node, as mentioned above.

With the possible exception of the third item above, these conditions would require replacement of the affected strings. As a practical matter, however, it is difficult to diagnose such defects in the field. If the technician starts to replace strings at his client's expense, he should do so only after eliminating all other possible causes of the problem. Even if a string is rusty, it would take a microscope and precise measuring instruments to enable the technician to state categorically that a rust pit indeed does exist precisely at the point of a node. We might guess that this is the problem, and we might get lucky, but the odds are against it.

More often than not, the cause of the false beats is not in the string at all. Here are some of the possibilities:

1. **Loose bridge pin:** This condition can be corrected by installing an oversize bridge pin in its place, or by swabbing the hole with epoxy and reinstalling the pin. If this latter method is used, be sure to wipe away all of the excess epoxy that squeezes out, and don't put a strain on the pin until the epoxy is hard.

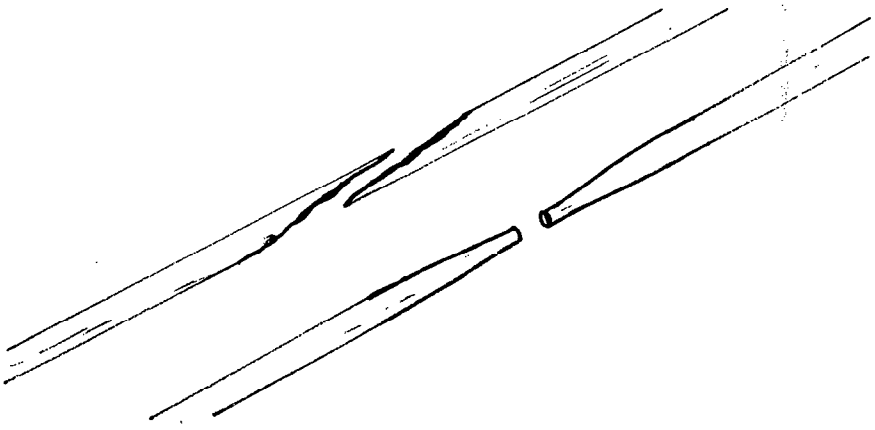


FIGURE 4 JEC

2. **Bridge pin not bottomed in the hole:** This one is easy. Tap it in. I carry a nailset in my case for this purpose.

3. **String is climbing the bridge pin:** Grands are more susceptible to this condition than are verticals, simply because the grand hammer strikes upward, lifting the string off the bridge if downbearing is insufficient. In a vertical piano, the initial excursion of the string would be toward the bridge, thus lessening the likelihood of this happening. Check for roll and cant. If the bridge is canted, see our January 1979 issue, pp. 20-21, for a suggested procedure. Reversing the canted condition of the bridge will increase the frontside downbearing, and the strings will be much less likely to climb their bridge pins.

4. **Foreign material between string and bridge pin:** Usually this will be a blob of glue or varnish. Loosen the string and scrape it off. Sometimes a bit of wood will fall into a bridge notch on a vertical piano. If this bit of wood just lies there touching the string, it will make a buzzing sound; but if it somehow becomes wedged tightly against the string, it could cause false beats.

5. **Bridge not notched deeply enough:** This condition allows the string to touch the bottom of the notch. I have never seen this cause false beats, but if the condition were extreme it could happen. I have seen this cause buzzing sounds, and cured it by carving the notch a bit deeper.

6. **Bridge notched forward of the bridge pins:** The notch should begin sharply and cleanly on the centerline of the bridge pins. If it were cut too far back (away from the speaking length), the pins would tend to "flagpole" for lack of support, causing false beats. More common is the opposite situation, where the string touches wood before it is terminated at the bridge pin. To correct this, pull out all bridge pins on the speaking length side of that unison and notch the bridge with a chisel, starting in the center of the holes. Parenthetically,

I want to mention the fact that some verticals are made with notches only in the upper or speaking length side of the bridge. This is obviously a production expedient, but it rarely causes problems so long as there is plenty of downbearing and sidebearing. If such a bridge should give trouble because of this, the technician will have to either pull the pins and notch the bridge or grind down the string rest to increase backside downbearing.

7. **Insufficient sidebearing:** When a string is struck, its initial excursion is naturally away from the hammer. It then returns toward the hammer, and then away again, back and forth. One would naturally assume that the string would continue to vibrate in this plane until its energy is dissipated, but not so. For reasons unknown to me, it quickly begins to vibrate not only up and down, but also side to side, and even end to end. The complexity of its motion is a source of mystery to better minds than my own, so I don't feel too badly about not being able to explain why it does what it does; the point here is that, if downbearing is minimal, sidebearing becomes vital to the maintenance of the string-to-bridge connection. Given this condition, if the bridge pin holes were drilled so that the string could move away from the pin for even a fraction of an instant, false beats will occur. Generally speaking, though, if the sidebearing is visible and the downbearing is measurable, I would tend to discount this as a probable cause.

8. **Loose bridge cap:** This might conceivably cause false beats, although in my experience it is more likely to cause deadness of the affected unisons.

9. **Burr on V-bar or capo bar:** This is a very common cause of false beats. Its cure involves either resurfacing the bar or spacing the string to one side just enough to get it away from the burr. If the technician determines that he should resurface the bar, he should proceed with the knowledge that he is altering the downbearing when material is removed from the bar. In a vertical piano, this treatment will increase the bearing; in a grand, it will have the opposite effect. In any case, if it is not done uniformly, the strings will not be level at the strike point. Some grands use a brass rod as an insert at the capo. If grooved or burred, this insert can be replaced or turned upside down after loosening all strings in that section, thus providing a brand new bearing surface. The downbearing can easily be altered on such instruments by changing the rod diameter.

10. **Insufficient string angle from capo or V-bar:** In a vertical piano, the string passes over the V-bar and goes under the pressure bar. The angle of the string as it passes over the V-bar is important. If this angle is too severe, the piano will be difficult to tune because of excessive friction between string segments; if this angle is too shallow, the terminus will not be secure and false beats may result. Lew Herwig, scale designer for the Wurlitzer Company, once told me that this angle should be 17 degrees. We don't have to actually measure this angle to diagnose the problem, though. With the action out of the piano, a thin piece of metal such as a pointed regulating tool can be inserted over the V-bar and under the pressure bar between unisons. If the wild strings are all in one area and the angle is noticeably shallower in that area than elsewhere, as indicated by the piece of metal, then I would say that the odds are good that the pressure bar is too far forward in that area. Take the tension off in that area and screw the pressure bar toward the plate. Tighten the screws evenly until the indicated angle is similar to that angle in the unaffected parts of the scale. Then chip and tune.

11. **Burred agraffe:** Surprisingly, a string can often be spaced slightly within the hole of the agraffe. Try forcing the string to one side with a dull screwdriver. If that doesn't do the trick, remove the string and polish the agraffe hole or replace the agraffe.

The above list is not intended to represent a complete list of all possible causes of false beats. Even so, some of them are only rarely found, and the technician would be well advised to check out the usual causes first. When I encounter false beats in the treble of a vertical piano, the first thing I check is the bridge pins because they are usually at fault. If they are all right, the second thing I do is to space the string slightly to one side on the V-bar. Ninety percent of the time, I can locate the problem in one of these two areas.

Technical Tips

Here are three more tips submitted by Herman O. Koford of Los Angeles:

1. If the keys bind on the keyslip, there are several ways to shim it out. One way is to run a screw into the keyframe or keyslip. It is adjustable and will not fall off when the keyslip is removed.

2. Piano movers use a rubber hammer to remove legs and lyres. I don't have room for one in my kit, so I take off one of my shoes to use as a hammer. The rubber heel won't leave any marks.

3. An 8-inch flat file is a useful tool in your kit. If you grind the end in the shape of a chisel, it is even more useful. Clamp your vise grip on for a handle.

Tip of the Month

Larry Scheer of Philadelphia, who has given us hundreds of tips over the years, has another bright idea:

As the upright action must be held firmly in place to prevent squeaks and to provide solid pedal operation, the brackets are often difficult to remove. To do so, use a hammer and butt extractor. [See Figure 5.] *Put the heel against the plate and the fork against the inside of the bracket. Use in the same manner as for hammer heads.*

Reader Feedback

The following letter comes from Durant, Oklahoma:

My letter concerns the technical tip on removing new Baldwin spinet actions (February 1979, p. 17).

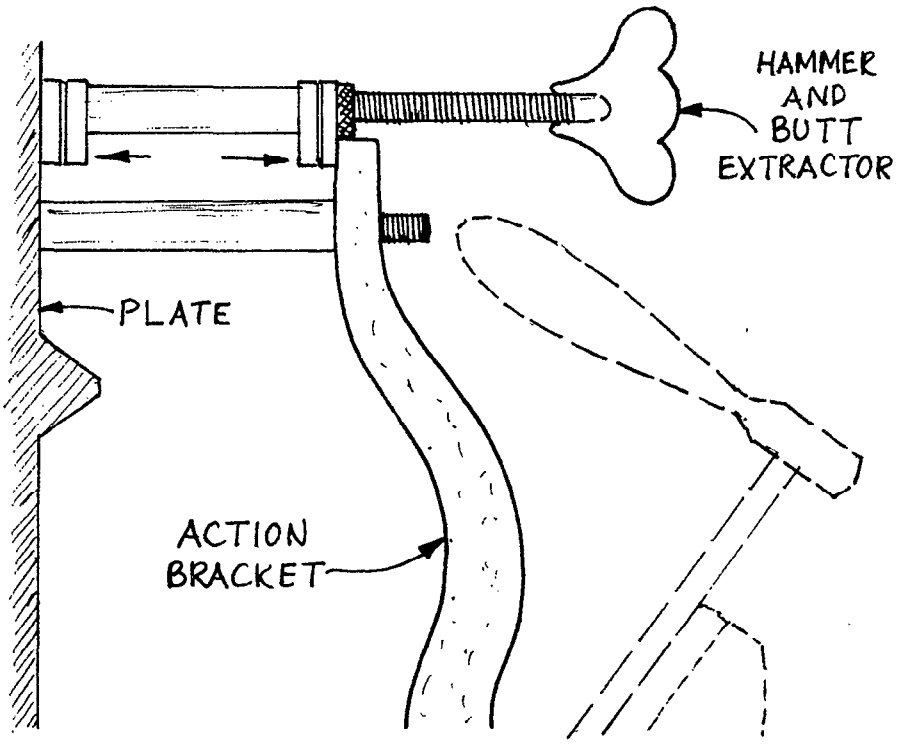


FIGURE 5 JEC

I recently attended a Baldwin seminar in Conway, Arkansas, where, along with 13 other technicians, the same method for removing the action was shown to us. It seemed like a good idea until I actually tried it. Not only was it difficult to get the pickup fingers out of the felted grooves in the whippens, but twice as difficult to reinsert them. The factory has a special tool for that job which makes it somewhat simpler.

Another problem that makes this method difficult is the dangling pickup fingers interfere with the removal of the action.

I suggest using the old method of disconnecting the pickup fingers from the end of each key and securing them close to the action with a set of threaded rods or some kind of elastic straps, such as motorcycle tie-down straps. If the forks on the end of the keys still interfere with removing the action, I suggest laying folded newspapers or magazines over all the keys so that the forks are covered. The action will come out easily. [See Figure 6.]

However, for the technicians who prefer the new method, the newspaper trick works quite well by keeping the dangling pickup fingers out of the way. — Robert Payne, RTT

Our next correspondent prefers to have his letter printed anonymously:

. . . February's "A Report on Ivory Imports" reminds me to tell you that I have filled chipped ivories with Devcon White Epoxy for about 10 years. I clean the ivory (I'm still looking for the best way), file the chip, and under the ivory lip lay on a mold (I've tried tape, adhesive, masking, and drafting; now I use all three and am looking for a better way), and lay in the epoxy. I wait overnight and file to shape. I have three problems which have generated a lot of paper from Devcon. It yellows unless I buff it. It sometimes forms air bubbles. It is difficult to mix exactly.

Devcon politely says what amounts to "Tough darts. We make glue." Even so, their glue is so good I challenge you to find the four keys I patched in the L.A. Chapter meeting room. I tell you four because most of the tuners can see it if I point them out. Perhaps somebody could formulate white 5-minute hard dry epoxy.

I assure you I am not out to destroy the key recovering business, but I could get the impression PTG thinks so. I have written and spoken about printing an article on white epoxy, but it doesn't happen. Ivory is now scarce and more ivory keys should be saved. I've deliberately made the description unreadable for publication, because I don't want my name mentioned. Thank you. . . .

On the contrary, such an article would be welcomed. Send it to me and I'll see that it gets printed. Meanwhile, here is a letter from Bob Waltrip of Parker, Arizona:

I would like to add one more word to the tip on setting hammer escapement in uprights (February 1979 issue). At a hobby shop you can get a 1/8-inch piece of balsa wood about a foot long and 3 inches wide. Just lift the dampers with the sustaining pedal and put the wood under them so that the dampers hold the wood in place at the hammer line. Then you can go along and block each hammer against the wood, holding the key lightly, and turn down the regulating button until you feel the jack kick out.

I would like to submit a couple of technical tips of my own. I've always lived in a small town, and have had practically no contact with other tuners, and have been reading the Journal *only a few months, so both the following tips might be old hat to my fellow technicians. But I'd like to list them just in case.*

First is setting key dip on sharps. After keys are leveled and dip is set on the white keys, I go along and hit a sharp and its natural neighbor a hard blow, then feel the backs of the keys to see if they're level with each other. I add or subtract punchings under the sharp at the front rail until the back of the sharp near the capstan is level with its natural neighbor — providing, of course, that they're level with each other when at rest.

Second is a good way to regulate damper lifter spoons — particularly in an upright action of some age that has not been completely rebuilt, where there might be discrepancies in thicknesses of butt leather, damper lifter felt, etc. After all the rest of the action is regulated, and you've adjusted damper wires so the damper lifter rod lifts all dampers at the same

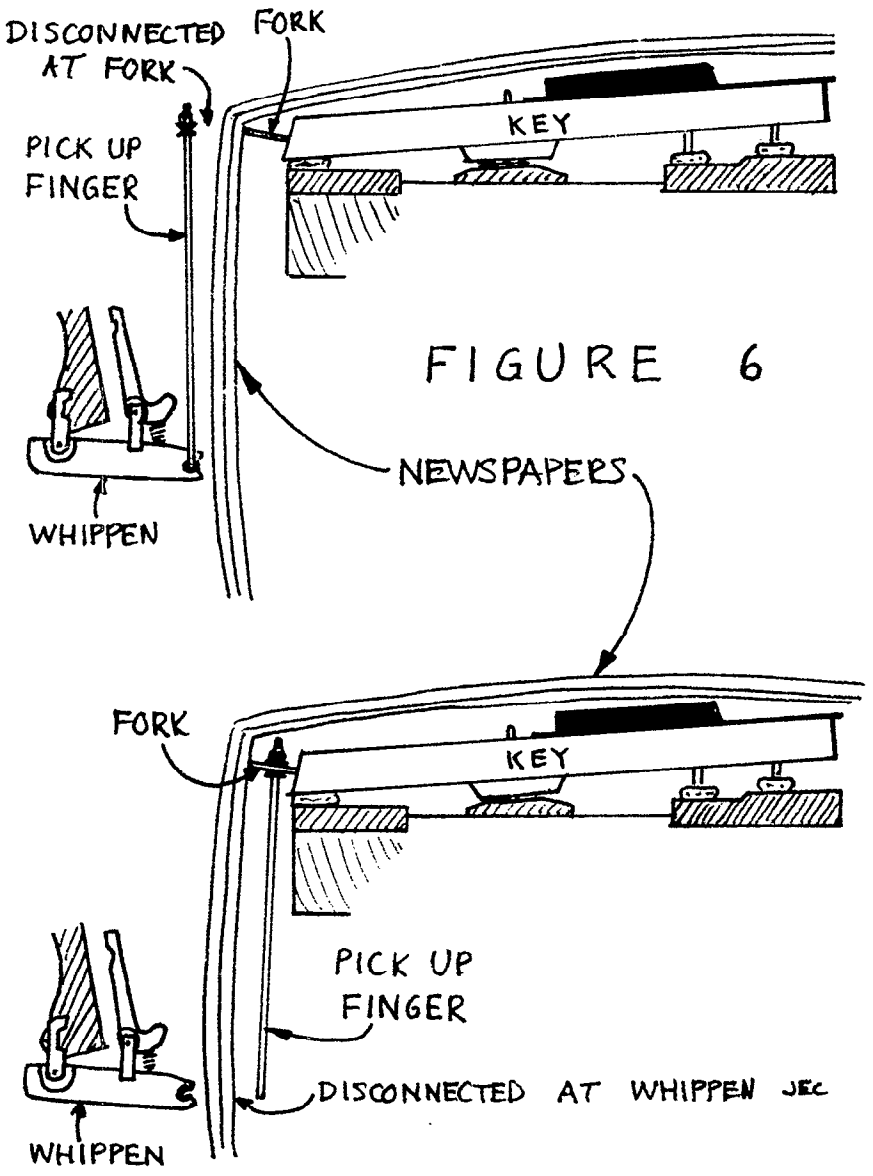


FIGURE 6

time, take action out of piano and put on a low bench so you're facing the back of it. Block up lifter rod with wedges so that it's holding the dampers at the string line — that is so that damper faces are 1-7/8 inches from hammer faces. Then lift each abstract with your finger and watch the hammer and damper move toward each other. Adjust damper lifter spoon so that the face of the hammer and the face of the damper are exactly even with each other when you feel the jack kick out. This is quite easy to do if you look down over the top of hammer and damper as they move toward each other. For bass dampers merely remember where the string line is, pretend the string line is moving back with the damper, and see that the jack escapes when hammer is a little behind the point of bichord dampers, or even with the groove of monochord dampers. This way, no matter how thick or thin any felt or leather is, all the dampers will lift just a little, and all pretty evenly, giving you a fast, light action. If the butt felt is a little slick and you can't feel the jacks kick out, weight each catcher shank with a small horseshoe staple and watch for when the hammer stops moving.

I agree with your remarks regarding bridle straps. If they're not light and flexible they can actually impair repetition. — Bob Waltrip

We are delighted to hear from Mr. Waltrip again. His first letter, in which he took exception to a statement of mine regarding replacement of upright butts, was published in our February issue. A member from Bainbridge, Ohio, wishes to comment on that letter and some other things:

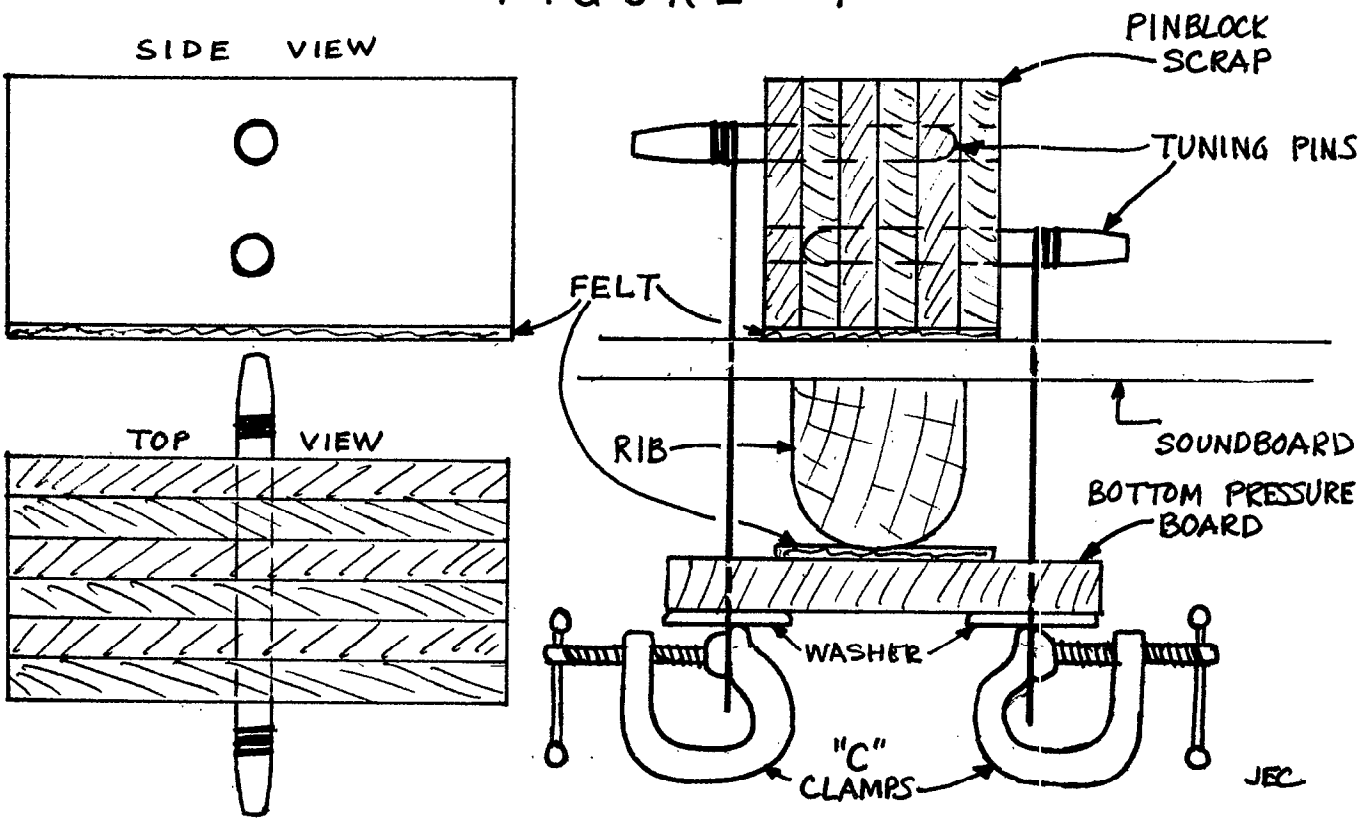
. . . Mr. Waltrip's castigation over the matter of replacing hammer butts seems to me to have been a bit severe. To a point I would agree with Mr. Waltrip. The point of agreement is that the brown, fuzzy cloth on replacement butts and backcatches is not suitable for replacement purposes in a good quality vertical action. However, I don't find it economically practical to replace two pieces of buckskin, and *the butt cushions,* and *rebush the centers,* and *glue on new bridle tapes,* and *drill out the old shanks on any very large number of W, N&G, or Billings flange butts. Much more practical to put buckskin on the new butts and dispose of the old worn-out, moth-eaten butts and the fuzzy cloth.*

I heartily endorse your reservations about the usefulness of flange lubricants. In the case of some console actions made about five or six years ago, the whippen flange may occasionally be stiff because the centerpin is bent, out-of-round, or has missed the center of the bushing on one side of the fork of the flange. Additionally, an excess of bushing cloth may sometimes be found inside the flange where it will bind on the birdseye. Lubricating or shrinking agents are quite ineffective in treating such problems.

Speaking of [vertical] *actions, your five-six-seven rule does not apply to Wurlitzer spinet actions of recent manufacture. Specified hammer blow distance is 1-1/2 inches, and arbitrarily increasing this by 1/8 inch will fairly certainly cause problems somewhere else along the line. Of course, any intelligent technician will consult the manufacturer's specifications and adhere to them where at all possible.*

Finally, I might mention that, on occasion, when presented with a note that stubbornly refuses to give

FIGURE 7

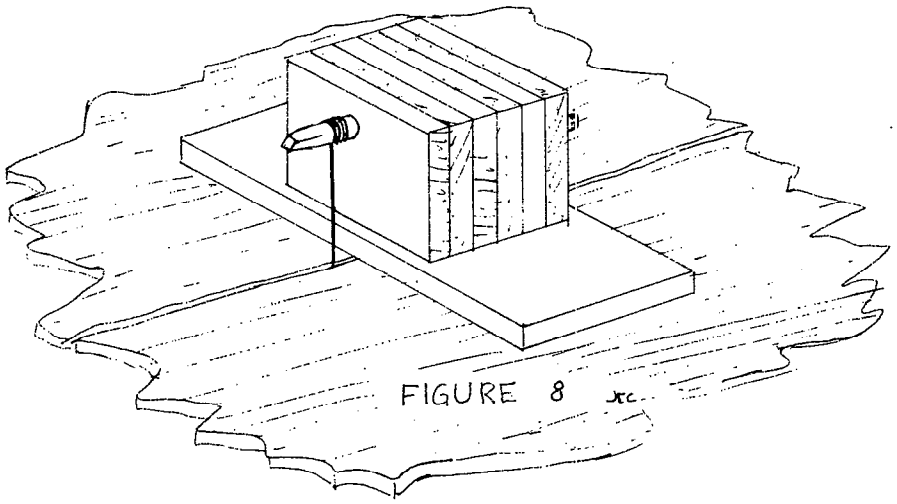


satisfactory repetition after careful regulation, easing and repinning of action centers, replacement of the jack spring, and frustrated fiddling with the letoff, backcheck and "lost motion" have failed, replacing the butt and backcatch wool with buckskin may succeed. This "sanity-saver" has worked for me on several occasions. . . . — Tom Harr

In response to our discussion of rib refastening techniques in our March issue, a well-known member from Clifton, New Jersey, writes:

My experience with the L-shaped single wire unit has been that it exerts uneven pressure because it tips since pressure is applied on one end, even though the wire goes through the center. This device [Figure 7] *provides even pressure and, since both wires go through the crack in the board, requires no holes at all through the rib. It should be superior even to go-bars. Note the felt pads to ensure that neither soundboard or rib surfaces will be damaged.*

The next drawing [Figure 8] *illustrates the same idea, but uses a smaller piece of pinblock — about 2 inches long — in conjunction with a pressure board on top. This board can be as long as desired or shaped in curves or angles to fit as closely to bridges or rim as necessary.* — Charles P. Huether



To enlarge just a bit on Charlie's excellent idea, I will point out that there are instances when the portion of the rib to be clamped is right over a large frame member. When this happens, there just isn't enough clearance for the anchor on the underside of the rib. In such cases, I have used a different version of the wire jig (Figure 9) which requires only the wire under the rib. The anchor is above on one side, and the L-shaped jig next to it on the other side of the rib. This is not as good as Charlie's jig because, if too much pressure is applied, the wire could dig into the rib a little bit; but sometimes it must be used because the more sophisticated jig will not fit under the rib and over the beam. The other alternative in this situation would be to wedge

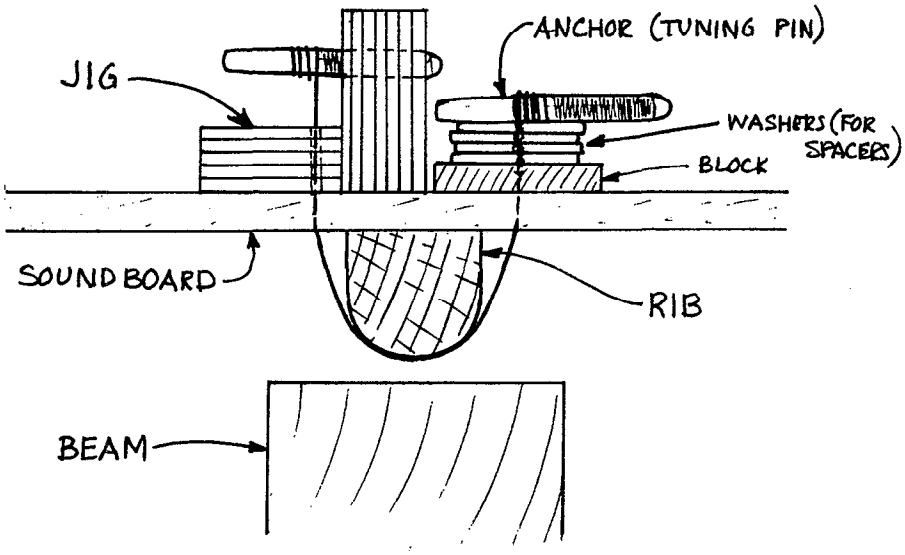


FIGURE 9 JEC

the rib upward from the beam and apply go-bars from the top side. If the jig shown in Figure 9 is used, a piece of veneer can be inserted between wire and rib to protect the rib.

Finally, Hugh Manhart of Omaha has this to say about my comments to his letter in the March issue of the *Journal*. The subject was plate stress, and here's Manhart:

To update: My attempts to find the people who conducted the hologram/laser demonstration on ETV are not getting anywhere. This date I have written again to the Nova people, requesting some action to be taken.

Commenting on the PTG article, and your analysis of this plate stress experiment, I just assumed that there are *a wide variety of other things happening throughout the structure of the piano while it is being tuned. My thought is that* the end result of all of these happenings will show up on the plate *in the form of these lines of refraction. This is the crucial event! The* one *thing that can be physically monitored, or measured, or just simply viewed. I suppose the soundboard does move independently of the plate, but in the last analysis, whatever happens, the plate is the last thing that will flex.*

Should anything come of this investigation, I would sure like to be in on it. There must be a zillion ways to tune a piano, but only one or two best *ways. . . .* — Hugh Manhart

That's all for the "Forum" this month. Next month we'll discuss hammer hanging, repairing cracked plates, and other goodies. In the meantime, I hope you are making plans to attend the Minneapolis Convention. Institute director Dennis Kurk is preparing a program of technical instruction that promises to be second to none, and I'm looking forward to it. You will be glad you attended, I promise you! ■

Readers may contribute material to the "Forum" by writing Jack Krefting, Technical Editor; 6034 Hamilton Avenue; Cincinnati, OH 45224.

ELOISE M. ROSS

YOUR SECURITY BLANKET

Attending a Piano Technicians Guild conference and/or convention is an educational experience for the nonprofessional technician too. In addition to being *"on the spot"* for insurance purposes (answering questions, discussing problems, explaining claims procedures, making suggestions, etc.), we get a "pulse" on the area in which we are visiting.

One fact stands out — the rapidly escalating cost of houses nationwide! Have you taken a moment to consider just how this affects you? If you already have a home, the value has appreciated tremendously. Your interest rate and payments, however, have remained the same — good for you!

Your major concerns are increasing taxes and keeping the insurance up to replacement values. However, you still have a mortgage and, if you didn't provide for its payment in case of death, perhaps you have another concern.

How about those who are buying their first home? More often than not it takes two incomes to qualify, as well as two to keep up the monthly payments.

The purpose in bringing this to your attention is to remind you not to overlook the importance of insuring the spouse. Joint Mortgage Insurance, whole life or term, is the answer in case of the death of either one. The contract insures two lives under one policy. Death benefit for the face amount is payable on the **first** to die. The survivor has the opportunity to purchase, within 31 days, without evidence of insurability, a new life policy (not to exceed the face amount of the contract). Should both insureds die within 31 days of each other, the face amount will be payable for both.

The present-day monthly payments are fantastic! **Do not** overlook Disability Income Coverage for both!

COMING EVENTS

Notice of seminars will be accepted for insertion in issues no sooner than six months before the event and will be continued until after the event.One free display ad of 2 columns X 2½ inches deep is available for all PTG seminars, etc. It is the responsibility of the advertiser to submit copy for ad to home office. MATERIAL MUST BE RECEIVED BY THE 1st OF THE MONTH PRECEDING PUBLICATION.

NOTE: All seminar dates must be approved by the Conference Seminar Committee. Please submit all dates to home office on the appropriate Request for Seminar Approval Form.

MAY 5-6, 1979
WASHINGTON D.C.
REGIONAL SEMINAR
Washington D.C.
Write: Ruth Ann Jordan
4 East Granville Drive
Silver Springs, MD 20901

JULY 23-27, 1979
PTG NATIONAL
CONVENTION
Minneapolis, Minnesota

MAY 11-12, 1979
INTERMOUNTAIN CONVENTION
Write: Lynn H. Hansen, President
1120 Elm Avenue
Provo, UT 84601

NEWTON J. HUNT

ACCENT ON TUNING

PITCH RAISING – A NOT-SO-NEW VIEW

Pitch-raising of the last few years has been turned into a bit of a circus. There is nothing inherently wrong with this as there has been much good accomplished in the way of technique, world records, and written words about the subject. What seems to have been neglected is the fact that, for so many of us that go out there day after day to make a living, pitch-raising is no game but a function of our activities that saps our energy and stresses our minds and bodies.

Occasionally I am tightly scheduled for two or three weeks at a time. When I encounter a piano that is flat, and that I know will not stay in tune and on pitch with only one tuning, I have to work harder to do the two tunings during the same time I had hoped to do but one. What this means is that I have to decide what the fall rate of this instrument will be and raise the pitch to compensate. I must tune the piano well enough so that, when I go through it for the second time, it will require less energy than in a regular tuning, will stay where I want it, and will leave me feeling confident that it reflects the skill I brought to bear.

I schedule four tunings a day: one at 9:30 am (to avoid the rush hour), the second at 11:30 am, the third at 1:30 pm, and the final tuning at 3:30 pm. I allow 90 minutes to go in and do the work required, and then 30 minutes to move on to the next job. If I am unable to do the work necessary during that amount of time, I decide what work can be done and what work can be postponed to another time. I have never deferred a pitch-raise, although on some doubtful pianos I have not raised the pitch at all.

I generally take 20 to 30 minutes to raise pitch and then another 45 to 50 minutes to fine tune. The pitch-raise time may seem excessive to some, but my objective is to finish with a piano in tune that requires a fine polish only for the second tuning – without more rough cutting.

At one time I was tuning so many pianos of one make and model that I was able to pitch-raise them up to 30 cents in 20 minutes *and* have it in such good tune that it was almost criminal to charge for the fine tune. Few of us tune just one make and model but encounter a wide variety of instruments, each with its own characteristics.

When assessing a piano for a pitch raise, one of the more difficult decisions is what the fall rate of the piano is likely to be. This judgment must take into account several variable factors, each of which will have its influence.

AGE

New pianos tend to be less stable and if they are left a little sharp, all the better for the next tuning (unless standard pitch is a requirement of the job). There is a very large safety factor that permits a degree of hammer swinging freedom. This is, of course, true of pianos that are several years old and have not been tuned since they left the dealer's floor.

Not-so-new pianos are generally more stable, if you have tightened the plate screws. They have an adequate safety factor against string breakage. Older pianos also tend to be more stable but have a limited safety factor. More care must be exercised so as not to overcompensate. You must be cautious not to overpull the strings because of the loose tuning pins.

STRUCTURE

A solid, heavy, and strong structure will give less and will have a lower fall rate; whereas a light design will be less rigid and require a larger compensation factor. The difference from one extreme to another can be as much as 50 percent. That is to say, if one piano should be pitch raised by 10 cents, another may require 15 cents for the same degree of flatness.

QUALITY

The quality of design and construction is a factor that is not always related to structure. Some very fine and expensive pianos have a fairly flexible structure as an element of their design, so a larger compensation factor needs to be used. Other high-quality instruments are very rigid and the use of a high factor would necessitate a pitch lowering.

For many pianos, structure and quality are so closely related that a one-to-one relationship nearly exists. It only remains for you to make an estimate based on your experience and observations of the structure (plate, back, rim, case, etc.) and its quality (engineering, workmanship, materials, etc.).

FLATNESS

The amount of flatness is the factor that is going to have the greatest influence on your work approach. In the C_4-A_4 region, 1 bps is equivalent to about 5 cents. In most cases, 8 is the outside limit for a nonpitch-raise and, even at that, tuning instability creeps in so that a pitch raise would be necessary for a concert situation.

The maximum limit that a piano can be raised above pitch is about 40 cents. Pitch raising any more than this on new strings risks approaching the elastic limit and destroying the long-term resilience of the string. With older strings the risk is breakage. A piano that is 150 or more cents flat

will require three tunings, and if it is a new or restrung piano, maybe four.

CONDITION

Cracked plates, pinblock back separations, extreme age, severe corrosion, and severe abuse are factors that would prevent one from attempting any tuning. The worst cases aside, a tightened plate, reasonably free moving strings, a degree of care and caution, some understanding of the limits, and a few technical points are the basics for experience leading to proficiency in pitch raising.

The usual fall rate for the average piano is 25 percent of the degree of flatness. By adding or subtracting one or two percentage points for each of the listed factors, one should be able to arrive at a compensation factor close to what is needed for a good job. When a piano is found to be flat, check the C_4-E_4 or the A_3-$C\#_4$ third (depending upon which fork you use) to make certain that the beat is about what it should be. Tune your reference note (C_4 or A_3) to the fork and check the third again. A pure third indicates 12 to 13 cents flat, and a third that sounds right but contracted indicates about 25 cents flat. A half tone is easy to determine (as is a quarter tone, 50 cents) by comparing the reference note to the adjacent note upward.

If a 10-year-old (+1 percent) studio piano (+1 percent) in the $2400 (−1 percent) category is of medium weight (+0 percent) and of a basic good design (+1 percent) but is 20 cents flat, I would use 25 percent (with nothing added or subtracted) as a compensation factor and raise my C_4 to 5 cents sharp so that I have either a 1-bps beat with the fork or so that the beat of the C_4-E_4 third is just less than halved. I would then tune a good 4-minute temperament and start tuning the treble, giving each octave a little extra stretch.

If the piano is in rather good tune but just flat, I will stretch the octaves about one-half beat per second; however, if it is below pitch (most are), I will put about one-half beat per second in each octave as I go up until I reach the C_6 region. Here I will use a little more stretch until about C_6, at which point I start to taper off until the C_8 octave is tuned pure.

If it is an American or European piano, I will pull in the bass so that the octaves are tuned when slightly contracted (just enough so there is not a discernible beat) and then I will pull in the middle unisons. (I use a temperament strip only in the middle section.) If it is a Japanese piano, I will pull in the middle section unisons first and then tune the bass as above.

At this point I will begin the fine tune. I pitch raise a little slower, but my aim is a better end result, which is — after all is said and done — the purpose of it all. It really doesn't matter how one goes about it, but time and effort conserved is well earned. ■

PRISCILLA AND JOEL RAPPAPORT

VON DER WERKSTATT

SURPRISE! Unexpected Work

It is not uncommon to discover that a piano coming into the shop for rebuilding often has some small problems that were not originally diagnosed with the technician's initial appraisal and estimate of work. Many times it is not possible to "see" all that needs to be done. One can suspect that a pinblock has been doped by the way the pins feel in tuning or by reading the word "doped" with the date etched into the plate, but actually "seeing" the stains on the pinblock from the pin tightener solution can only be done after the plate is pulled. Likewise, the pinning in the damper levers may be loose, but can't be verified until the entire damper mechanism is taken out. Unless we routinely take the action off of the keyframe to examine the condition of the whippen support cushion and capstans during our evaluations, we can often be caught discovering later, when the action is in the shop and completely taken apart, that we have more work to do than originally expected.

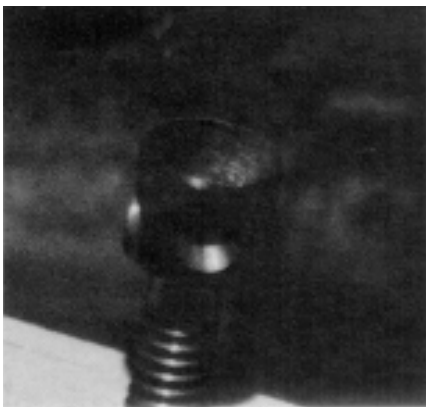
Although this is not a column on business practices, perhaps a certain charge should be included in an estimate for action work, for example, that may be "discovered" later. If nothing extra is needed, the customer would appreciate a lower bill. If, however, you find some work that *should be done and is not accounted* for in your estimate, two things could happen: (1) You do the work and don't get paid for it. (2) You can't afford to work for nothing, have accepted the job at a certain fee, and *the work does not get done.* In the first instance, the situation is not fair to the technician; in the second, it is not fair to the customer.

This month let's take the action stack off of a grand or the action out of an upright. The capstans may be burred on top, have a sharp edge, or may even be severely scratched (possibly from the use of coarse steel wool or sandpaper). All of these conditions can lead to the excessive and premature wearing of the whippen support cushion as well as adding unwanted friction between the whippen and the key. Brass, in its polished state and used in contact with felt, does not need any lubricant. Since both the whippen and the capstan on the key at point of contact move in arcs tangent to one another, it is most important that this contact point be a sliding motion, not a rubbing motion. To achieve this, the capstan must be slightly rounded on top, highly polished, and free of burrs or scratches. If capstans have burrs, scratches, or sharp edges, there are two solutions: (1) replace capstans, or (2) restore existing capstans to a smooth and polished condition.

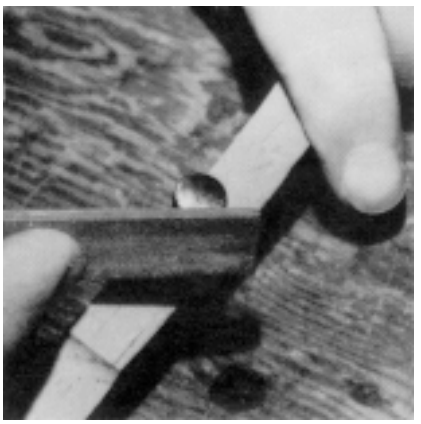
Replacing old capstans with new ones is not difficult, although one must take into account the time needed to extract the old capstans and screw in new ones, plus the cost of materials. This procedure may also be elected if you decide to replace old square-sided capstans with those which have holes in them. Remember also, the capstans must be straight (not leaning to the right or to the left, or forward or backwards). They must be in a straight line from bass to treble, otherwise the regulation could be affected or inconsistent. The new capstans should be screwed in to equal the approximate old height as closely as possible to prevent a lot of extra regulation work, screwing the capstans up or down so as to get the correct blow distance or lost motion, as the case may be.

Restoring the old capstans if you want to use them, by removing the burrs or sharp edges and then buffing them to a high polish, may be a bit more practical. All it takes is a small fine file, some 400 and 600 sandpaper, the finest steel wool, a buffing wheel with a little buffing compound, and about 1 to 2 hours of your time. The procedure is shown in the accompanying six pictures.

Picture 1 illustrates the scratched surface of a capstan.



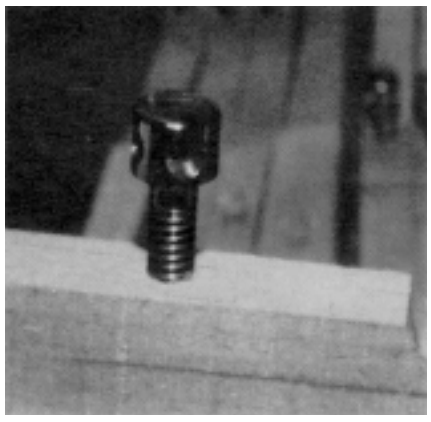
Picture 2 shows a capstan with a sharp edge.



Picture 3 shows use of a *very* fine file to round off the sharp edge of this capstan.

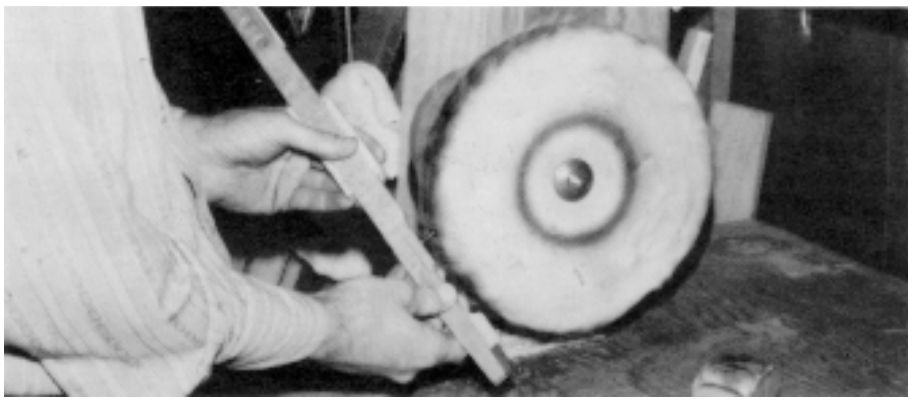
Naturally, it is up to each technician to decide whether or not this work is necessary. The point is, if rough capstans are present, the hour or two you spend correcting them may save you much more time and frustration later in your regulation procedures. ■

Picture 4 demonstrates resurfacing top of capstan with 400 or 600 sandpaper.



Picture 6 shows the finished product — the polished smooth surface of brass capstan.

Picture 5 shows buffing a capstan. The bottom of wheel (buffing area) turns away from you so as not to throw dust or fuzz in your face. Arms are held in close to body to support work. Safety goggles are worn.



RAYE McCALL

The Vacuum Line

This title will serve to introduce you to a new department in the *Journal*. In this department I want to discuss an area of piano service in which many technicians do not participate. The writer would like to suggest that the reason for this is possibly a lack of understanding. You are probably aware that what I am talking about is player piano service, and more specifically, having to do with the player systems as found in several different pianos. In an effort to try and familiarize you with the player piano, I would like to be very elementary and start by discussing what you can expect to see or find when you open those two little doors on the front of the piano. Gradually I will work from that point on through troubleshooting and eventually into complete restoring of all of the player systems. At some future time the expressions systems that were made by different manufacturers could be talked about here.

The format in which I would prefer to conduct this column would be the same as the technical forum. As we go along I would appreciate your input, both in the way of questions and additional information. In our shop we are involved in the restoration of players, in-the-home service of old players, previously restored players, and new players that are currently being made. We are also distributors for some player supplies. Many of you have had some rich and exciting experiences with nickelodeons, orchestrions, and other interesting devices which we would like to share in here as time and space permit.

The parts which make the player function are a pouch (usually leather) with a bleed, a valve, and a pneumatic. There is a line made of plastic, neoprene, or rubber which is connected to a nipple on the back of the tracker bar (located in the roll box). The other end of it is connected to another nipple which opens into a little chamber under the pouch. The tracker bar is the long brass object in the center of which is a row of holes over which the paper passes.

I call your attention now to the title of this column, which I chose because it is what makes the player function — the vacuum. The amount and how it is generated will be discussed later. It follows then that there must be lines or tubing to supply this vacuum to all parts of the piano where it is needed. The entire system must obviously be tight so that the vacuum which is being generated will be retained for the purpose of operating the piano.

Now let's talk about the theory of operation. When the player is running, there is vacuum in the tubes which connect to the tracker bar. As the perforations in the paper cross the tracker bar, atmospheric air is drawn into the holes and it passes through the tubes to the underside of the pouch. (See Figure 1.) There is also vacuum in the chamber above the pouch where the valve is located; but now we have air under the pouch, which will cause it to inflate and, as it does so, it pushes the valve. The valve has two faces. When it is closed on one side to vacuum, it is open on the other side to atmospheric air. When the pouch has pushed the valve, it will now be closed on the atmospheric air side, and open on the vacuum side. This allows the vacuum to pass to the pneumatic and collapse it. If it is a key pneumatic, the note will be sounded. As soon as the paper has once again covered the opening in the tracker bar, the air in the tubing and under the pouch must be evacuated so that the pouch can deflate and the valve can close. Such is the function of the bleed. Air is drawn through the bleed into the chamber above the pouch where there is vacuum all the time the player is running. Since this vacuum is generated by the pump, either foot- or electrically driven, the air which came through the bleed is now exhausted through the pump. It is just that simple. If you can understand what has just been said, then you understand basically what makes the player operate.

There are several parts or assemblies of the player's unit with which you need to be familiar. When you remove the front of the piano, the first thing you see is an assembly called the player top action. Looking from left to right (bass to treble), you should first observe a tracker unit connected to a double pneumatic. This double or two-sided pneumatic is mechanically connected to the top shaft in the

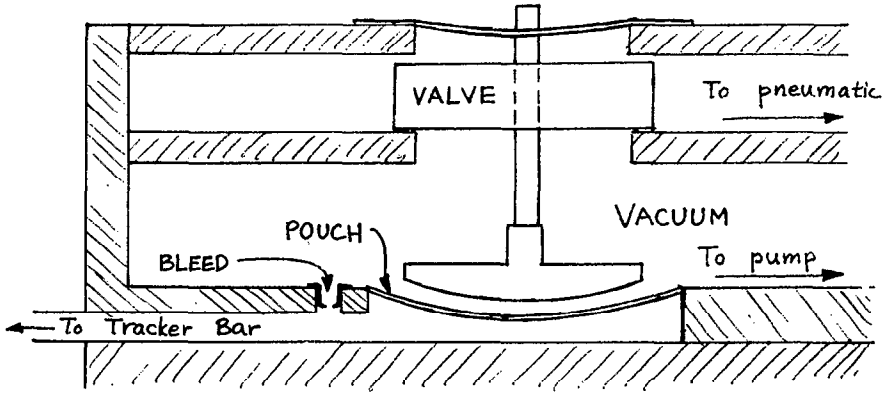


FIGURE 1

transmission, which will be discussed momentarily. Next after the tracker unit is the roll box and whatever controls may be present therein. We are talking now about the older players in which you may find a transposing lever, a tempo indicator, a sustain or loud pedal switch, and a control that is labeled "Play—Reroll." The transmission is on the right-hand end of the roll box, and it usually has three shafts. The top shaft is connected to the drive shaft by a ladder chain inside the transmission. The drive shaft has a provision for shifting into either reroll; or into play, which drives the take-up spool. The drive shaft is also connected to the air motor by means of another ladder chain outside the transmission. The little key pneumatics, arranged in either two or three tiers, are located directly underneath the above assemblies.

Underneath the keybed, again from left to right, you will find a sustain pneumatic (if there is one), the pump assembly, and the governor. The function of the sustain pneumatic is to lift the dampers. The vacuum which operates the entire system is generated by the pump. The function of the governor is to control the speed of the motor.

The removal of the top action or the pump assembly from the piano, in order to get at the piano action or for string replacement, is not really all that difficult. In the next article we will be discussing the servicing of player pianos, both old and new. In future articles, we will try to talk about as many details as are possible relating to the different player units we find on the market today■

LESLIE J. HOSKINS

STRAY THOUGHTS

I believe that some of our *Journal* contributions reflect the influence of Dr. Norman Vincent Peale — **positive thinking, love of God and fellowman.** That is good; Dr. Peale's philosophy has influenced the lives of countless people for many years and his books are known worldwide. Even a songwriter used it as a theme not long ago: "Eliminate the negative, accentuate the positive. . . ." That is a creed anyone can live with and profit from.

But I do not believe Dr. Peale advocates a Pollyanna view of the seamy side of world affairs or a head-in-the-sand disregard of the evils which pose a constant threat to our social and economic way of life. There are issues too real and too great to be dismissed by wishful thinking or a benevolent attitude, and it is unfortunate that those who cry out against the crescendo of crime are likely to be mistaken for alarmists or crepe-hangers.

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Recently I urged our readers to become members of a mythical "4-C Club" by pledging each morning to be **cheerful, careful, confident,** and **concerned.** Perhaps I should have placed "concerned" first because we must surely be deeply concerned with everything which affects our well-being. But perhaps we are too much concerned with just one aspect of our times — making money. Circumstance has forced this upon us whether we will it or not, but with it there is an unjustified inclination to feel that if we have plenty of money there is nothing to worry about — I worry. Maybe I need more money.

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There may have been political turbulence way back in King Solomon's time, according to Proverb 11.14 where he wrote, "Without wise leadership a nation is in trouble, but with good counselors there is safety." I wonder how the good king would have reacted to some of the goings-on we see in government today. He surely would have flipped his crown if the National Science Foundation and Administration of his time had spent "$500,000 to determine under what conditions monkeys and humans bite and clench their jaws." That happened here. You may clench your jaws if you like, but don't bite.

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"Where have all the tuners gone?" That question headlined an article in the January issue of *Music Trades International* (Eng) and was asked jointly by Music Trades Association and Distributive Industries Training Board looking into the "shortage of trained piano tuners and qualified electronic engineers." Relief measures were urged. I haven't heard much recently about a shortage of piano tuners in America.

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The harmful effect of noise on the human ear used to get considerable attention in the new media but that, too, has quieted down. However, I did see an item which said that Hong Kong is the world's noisiest city, having a decibel level of 76 dB as compared with 66 dB found in New York City. Out of Scotland comes a story purporting to show that the squealing of pigs before and during feeding has become so intolerable that farmers may have to wear ear muffs to prevent hearing damage. (Perhaps the thrifty Scots are a wee bit too careful in measuring out feed for the swine.) Here in the United States, the squeal of housewives when they see the price of pork does not fall gently on the ear.

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Thought for the Month: "You can't drive spikes with a tackhammer."

CHARLES HUETHER

THE DISSATISFIED CUSTOMER

PRICING YOURSELF INTO TROUBLE

In the last couple of articles we discussed various ways we all inadvertently use to develop dissatisfied customers. It is hoped that by this time you have been thinking about the content of these articles and attempting to eliminate those actions which were pointed out. In case you have been doing this and still find that you are getting some dissatisfied customers, let us consider one more situation in which we are responsible for helping develop the seeds of dissatisfaction in our own customer. As previously stated, you can run into enough trouble due to circumstances over which you have no control, without helping the process.

In this case, we create problems by estimating prices too low. A low price is a good way to get the job, but it is also a good way to get stuck in a difficult situation. Now, I am not advocating unreasonably high prices. You can sit at home watching television if your prices are out-of-line, but if you shave the price to get the job and then run into unforeseen problems, you are put into a position where you can be tempted to shave the quality of the work in order to come out even. Here is the trap. You considered all the shortcuts when you gave the low price, and you were counting on them to work for you with no problems. But when you got into the job you quickly found that your estimate of the work was deficient, the shortcuts won't all work, and you are stuck doing things the "right" way at greater cost to you in time, if not material.

We can, in a situation like this, try the shortcuts anyhow, hoping that they will somehow get us out of the house and the customer will not be critical. Sometimes it works, but we never leave with a feeling of having done a satisfactory piece of work. We leave with the sword of a subsequent complaint hanging over our heads. Remember this: the dissatisfied customer we hear from can be only in a minority; that is, you never hear from the majority of dissatisfied customers. They are there, nevertheless, sending out negative vibrations among your other customers or potential customers.

Keep in mind that, if you by some unfortunate chance have been stuck with too low an estimate, **do not**, I repeat, **do not** ever shortcut the work in order to make up for what you underestimated. Accept the consequences of your error in judgment and resolve, before you start, that the job will be done to the absolute best of your ability.

It is possible, if you are persuasive and have good rapport with your customer, to ask them to pay you more in view of the fact that you ran into unforeseen problems. This is not an unusual occurrence. It might be possible to approach the job in the first place in that way, leaving an opening for the increased costs. If you can manage this, fine.

It has been my experience that, even though people will take a car or appliance in for repair without having a set price before the work starts and end up paying the final bill no matter how out-of-line it may see with what they had expected, there seems to be another attitude for the piano serviceman. It would be interesting if members with experience and attitudes regarding this aspect of doing business were to write to the *Journal* so that these experiences could be shared. I am sure there are many of us who do not have trouble adjusting prices with the work, and have techniques for relating to customers which make this problem easier for them. Let us hear from you.

In summary then, be honest with yourself and examine how you relate to customers. Consider how you present your estimates of work — price, job description, expected results. Make sure that in each area you are covered with an understanding as to what is practical, realistic, and within the realm of achievement. Don't promise more than you can deliver within the limits of the situtation — whether it be the condition of the piano, the price you are charging, or the time restrictions of your work schedule. If you deliver as promised, when promised within the areas of understanding you have achieved with your customer, you have gone far in eliminating many potential dissatisfied customers■

JOHN BLOCH

CHIPS OFF THE OLD BLOCH

Last month we left the symposium with Charles Frederick Stein the last speaker on the panel. Now we will get into Part II, with A. Hoffman, foreman at Steinway & Sons.

CAN A SOUNDBOARD BE RECROWNED?

Mr. Hoffman: Gentlemen, as a Steinway man I would like to agree with what Mr. Stein said. If the soundboard has gone wrong (the crown is gone, the board is cracked, or the ribs are loose), then the board should be replaced. But the question has been asked, "Can the board be restored?" Well, I am inclined to think that it can be done if the board is fully intact, but I also believe this is a very theoretical question. We would do it in the following way: Remove the plate and then cut down what we call the acoustic dowels by a fraction of an inch. This is done to lower or drop the plate. The plate is then put back into the piano. The soundboard will sound all right — very much like it sounded when new — but this is a theoretical case. I have never seen a soundboard in our place that, after 20 to 30 years, is so well preserved it has no cracks. If in addition to cracks the ribs are loose, I would not attempt to repair it. I would rather replace it because, in the case of loose ribs, chances are that the board will curl up at the crack. Also, when pressure is applied to spruce (one must remember that spruce is brittle), the chances are the board will crack some more. Whenever we get a piano into our shop with loose ribs and numerous or very large cracks, we definitely put a new board into the piano.

Robert Hayward: Well, this is most interesting to me. When Mr. Challis got through I almost decided to go into plumbing, especially when I thought of the many hours spent in trying to recrown a board. It would be quite disgusting to learn that, after spending all that time, the attempt was wasted.

When I attended a technical meeting in Chicago several months ago, we had a debate between Mr. Schneider of Milwaukee and Mr. Gose of Chicago. The question for debate was, "Can a soundboard be recrowned?" Mr. Gose took the negative, but pulled a trick because he switched the matter to another thought by saying that it isn't so much a question of whether or not a soundboard can be recrowned. The real question for consideration is, "Should it be attempted?" The answer that Mr. Gose was inclined to go along with was that one would be better off, even if one may be to a degree successful in recrowning a flat board, to put a new board into the piano — that hadn't dawned on many men because it seemed like an awesome operation, even if they had the right equipment, and they would need the right equipment to do such a job. I am beginning to think that, if you are going to do a complete rebuild job on a fine instrument or rebuilding in general, it would be better to put in a completely new board rather than to try to explain the one shim you didn't quite manage to camouflage well. If we really are going to be what our name implies — **real** piano technicians — let's think *in terms of complete new boards.* Then we may be **really** worthy of the name.

Edward Sambell: I started out in England in a music trades school 18 years ago at the age of 15 and have been with various English companies and dealers in Canada for some years. *I want to go along wholeheartedly* with what Mr. Hayward has to say and, in fact, that is what I would say myself. If a piano is worth restringing and worth a job at all, it is worth a new soundboard — especially so if it is some 40 to 50 years old. The real reason for my saying a few words is that the method of lowering the plate is a misnomer if we call such a *method a recrowning of the board.* It is nothing of the sort. To lower a plate will increase the height of the bridge and thereby increase the downbearing of the strings on the bridge. Well, after the piano is restrung that would finish it; strictly speaking, it is only a partial job.

Erwin Otto: I haven't much to add, everyone has said about everything. I am in agreement with all speakers except Mr. Hoffman. He doesn't seem to be of the opinion that lowering the plate of the piano will improve the tone. My opinion on restoring the crown on an old board is that it can be done. There is, however, the question of whether or not it should be done. If you really think enough of your old piano, then put in a new board.

Don Morton: I have observed that most American companies cut the treble bridge to clear the support of the plate. Do you think we will ever get away from that? Is there anything being done in the engineering or designing departments to eliminate the cutting of the treble bridge?

Charles Frederick Stein: No. Are you inferring that European piano makers do not do it that way?

Robert Hayward: To cut a bridge would tend to weaken that bridge. Is that what you have in mind?

Don Morton: Yes.

Bob Johnson: The claim is made that the downbearing on older and larger pianos is not so very important. I couldn't dispute this and no one in the audience seems to dispute it. It has been said that one could produce satisfactory tone on large pianos without much downbearing. My work is to make piano strings, not to repair pianos. I have never repaired a piano; it would scare me half to death to

work on this complicated mechanism which makers treat with so much care to hold it to certain dimensions. I would be an amateur trying to equal the experienced. I don't know many people with sufficient experience in putting in new boards. In my opinion, it would be a major operation.

Moderator: Times change and have changed. At one time pianos were much cheaper than they are today. Many piano owners/buyers cannot afford a $4000 piano but are willing, and can afford, to spend $2000 for a good piano. Although it is a major operation to put a new soundboard into a piano, with the proper equipment and skilled workmanship it is not as difficult as we think. We have thought along other lines in the past and there is still a hangover from that way of thinking. I joined a tuner's organization in 1920; at that time pianos were cheap. People didn't think of piano rebuilding; the general pattern was to trade the old piano for a new one.

Speaking of new soundboards, of course, we have the grand piano in mind. The grand piano is in the background today. The cheaper grand is disappearing from the market. The better-made grands always have and always will be the authoritative pianos, and therefore in the higher priced brackets. It would be a waste of time to either restring or think of a new soundboard for a so-called commercial or trade-name grand. They are 20-year pianos at the most and have outlived their usefulness. This is not the case with the artistic and high-grade instruments. There is and always will be a popular demand for the good rebuilt pianos of the better-grade brackets.

My observation has been that high-grade piano shops have been adhering to high-grade workmanship except when shops begin to commercialize and farm their work out. Then they try to pass it off to the public as a commercial rebuilding job equal to the artistic rebuilding. There is no doubt in my mind as to what good piano technicians think. The panel has expressed itself quite clearly on the subject. It may be news to you that the trend of thinking is undergoing a change right now. The fine artistic grand, as well as the high-grade grand, is not on the way out. There is a movement underway to popularize the grand and get it back to the place it once occupied.

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Dear Reader: I am going to take a break here. The symposium will continue next month with Part III. ■

Marion Seller to Play at Convention

Old St. Paul, home of the state capitol of Minnesota, is contiguous to Minneapolis; and it is here at Olivet Congregational Church (only 10 minutes from the convention hotel) that RTT Marion Seller is playing a new 33-rank tracker pipe organ on Sunday mornings. Mechanical key action (such as J.S. Bach played in the 17th and 18th centuries) offers certain advantages over electric action, which plays through cabling and gang switches. (We hope it never becomes customary to play pianos remotely using key contacts and wire cables.)

Several of Marion's friends asked to hear the new instrument and he has promised to play Wednesday evening during the convention. Anybody not going to the ballgame or watching the Aquatennial parade will be warmly welcomed.

Those wishing to attend may register for transportation. Coffee and cookies will follow the music. ■

ART SCHOENBERGER

Self-Image and More!

In the *Piano Technicians Journal* of November 1978, an article on "self-image" concerned a technician who quite evidently believed our occupation puts us on a low social level. The author stressed that this individual has not really strived for excellence in his work and does not respect himself, nor his profession. He is quoted as saying "People do not want to socialize with me or hold intelligent conversation when they learn that I am a piano technician."

His self-image is certainly a roadblock here, but I believe he is guilty of misjudging people. It is closer to the truth to say that most intelligent individuals enjoy conversing with anyone who speaks interestingly and intelligently.

If this technician should climb to the top of the mountain in our profession and develop a very comfortable self-image, he may lose his sense of social inferiority but he has not automatically become an intelligent and fascinating conversationalist. A favorable public image must be created and nurtured. If he wishes to convert a first customer to a regular customer then, in addition to tuning a piano, he should be selling himself. Self-image is important here because, if he believes he has nothing worthwhile and interesting to sell, he fails.

Assuming self-image is now in good shape, what can be lacking? Well, for one thing, good salesmanship. A good salesman very often is not even selling his product; he is selling himself — his personality, his interest in the customer, and his conviction of the worth of his goods and the knowledge of its workings and qualities.

We must all be good salesman. We have a built-in advantage over many good salesmen in other fields: they speak glowingly of their products but know in their hearts that there are other competitive brands that are better. This is a strain on their credibility. Not us! What could possibly take the place of a fine tuning?

What next? Probably the first talent we should acquire is the ability to **listen.** If we can learn to listen, letting our customer see our attention in our eyes, our attitude, and the position of our body, we are already halfway toward becoming an intelligent conversationalist. We all know how much **we** enjoy being listened to. If the customer hasn't learned to listen himself, you've earned his accolade as a very interesting fellow. But avoid the habit of listening with your answer running; he'll soon note your anxiety to interrupt and top his story.

What can you do to make him want to listen to you? At first glance, tuning a piano can seem a boring and repetitive chore that requires no imagination, offers no chance to be creative, and simply cannot be a source of interesting conversation. Hah! What about the simple device of showing how a fundamental can be synthesized by playing the upper partials while leaving the string of the fundamental undamped? How about a word on duplex scales or aliquots and their relationship to mutation ranks on pipe organs? What about that low A on the piano which theoretically should be produced by a string 21 feet long, or the similarity between the bridge of the piano and that of a violin?

If you can reduce these and the many other interesting facts about a piano, its tuning, and its music into a language the average person can understand, you will generally find an interested audience as you work.

It has occurred to me that a class on personalizing your tuning visit and how to present educational, unusual, and interesting facts about our profession to customers could be a valuable addition to seminars and institutes. Collating the fascinating data, oddities, and trivia that we may not know (or have forgotten) would be a fine contribution to our sales package.

Like sailors, we're a varied bunch of individuals, and it is no exaggeration to say that some of us are definitely characters! We've come into this very special profession on a multitude of paths. In my own town some of our past professions (jobs or whatever) include preacher, pilot, violinist, college professor, engineer, inventor, salesman, concert pianist, and who knows what else. Some of our backgrounds and experiences **have** to be downright exciting; in fact, if you can work the tale of your life into a continuing series, your customers may ask for more frequent tunings just to hear the next installment!

Besides your intelligent conversation, use your other talents — within reason, of course! Me, I've memorized and polished up two piano selections and play them (and nothing else) quite well. Many customers remind me that they want to hear them even though I've been playing these same tunes for three or four years. Playing them twice a year is hardly often enough that they'll become trite.

I try to break the conversational ice quickly with a new customer, all the while watching carefully to make sure they are genuinely interested. Listening is a skill that can't be faked too readily, and I shut up quickly if I see I'm not coming in loud and clear. I sincerely enjoy most of my customers and I believe they enjoy me. I like this business because I make new friends and visit others regularly. ■

Welcome Aboard New Members!

CENTRAL IOWA CHAPTER
AMELANG, RICHARD L., Apprentice
2105 Easley
Waterloo, IA 50702

CRISTOFORI BROTHERHOOD CHAPTER
CARBOCCI, W.O., Allied Tradesman
30 Raybor Road
Commack, NY 11725
FAIRCHILD, STEPHEN C., Craftsman
84 Abbington Court
Copiague, NY 11726
FAIRCHILD, THOMAS J., Apprentice
84 Abbington Court
Copiague, NY 11726

DALLAS CHAPTER
COFFEY, BARBARA L., Student
309½ North Armstrong
Denison, TX 75020
KIMLER, DAVID E., Student
810 Stimson
Rockwall, TX 75087
PETRASH, LINDA M., Student
1827 North Alexander Street
Sherman, TX 75090

DAYTON CHAPTER
ELLIOT, ROBERT, Apprentice
2125 Harshman Boulevard
Springfield, OH 45504
ENNIS, DONALD J., Apprentice
6434 Soliloquy Trail
Dayton, OH 45449

DETROIT-WINDSOR CHAPTER
BROWNING, DAVID S., Student
1764 Wordsworth
Ferndale, MI 48220

FALLS CITY CHAPTER
CRISP. RONALD A., Student
652 Catalpa
Sellersburg, IN 47172

GREENSBORO CHAPTER
DUNCAN, STEPHEN R., Apprentice
2536 J Suffold Drive
High Point, NC 27260

HAWAII CHAPTER
AGASA, EDWARD, Apprentice
30 Ponahawl Street
Hilo, HI 96720

INDIANAPOLIS CHAPTER
MITCHELL, LOUISE P., Student
4205 Otterbein Avenue
Indianapolis, IN 46226
NELSON, MICHAEL, Student
4020 Standish Drive
Indianapolis, IN 46241

LONG ISLAND-SUFFOLK CHAPTER
FISCINA, NICHOLAS P., Apprentice
20-17 Jackson Avenue
West Islip, NY 11795

MEMPHIS CHAPTER
WILKERSON, ASA, Craftsman
4314 Jamerson
Memphis, TN 38122

NEBRASKA CHAPTER
SHULTZ, LEROY C., Craftsman
5960 Oakridge Drive
Lincoln, NE 68516

NEW HAMPSHIRE CHAPTER
HANSON, FRANK, Craftsman
Meeting House Road
North Berwick, ME 03906

NORTH CENTRAL WISCONSIN CHAPTER
HIORNS, RICHARD, Student
2105 North Mountain Road
Nassau, WI 54401

ORANGE COUNTY CHAPTER
CARRANZA, CHRISTOPHER, Student
10602 Tibbs Circle
Garden Grove, CA 92640

PADUCAH CHAPTER
WHITBY, ELMER L., JR., Craftsman
869 Burkhart Lane
Paducah, KY 42001

PHILADELPHIA CHAPTER
CHARRIER, HORACE D., Craftsman
1019 Lansing Street
Philadelphia, PA 19111
LUKENS, KEVIN E., Craftsman
207 East 8th Avenue
Conshohocken, PA 19428
SDAO, WILLIAM G., JR., Apprentice
7809 Verree Road
Philadelphia, PA 19111

POMONA VALLEY CHAPTER
ATTERBERRY, WILLIAM, Apprentice
7472 Matterhorn Avenue
Cucamonga, CA 91730

PORTLAND CHAPTER
ISAACSON, NANCY, Craftsman
5924 Southwest Vermont
Portland, OR 97219

READING-LANCASTER CHAPTER
BRUBAKER, JOHN R., Apprentice
1254 Elm Avenue
Lancaster, PA 17603

ST. LOUIS CHAPTER
BAKER, ELIZABETH A., Craftsman
2850 Russell
St. Louis, MO 63104

SOUTH BAY CHAPTER
PEARSON, STEPHEN L., Craftsman
610 Stanley Avenue, No. 1
Long Beach, CA 90813

SOUTH CENTRAL PENNSYLVANIA CHAPTER
HILFERTY, JOSEPH, Allied Tradesman
Box 286, RD No. 3
York, PA 17402

SOUTH FLORIDA CHAPTER
LEIST, CLAYTON E., II, Craftsman
855 Northwest 127th Street
North Miami, FL 33168

TRI CITY CHAPTER
TRAFNY, RICHARD , Allied Tradesman
809 East Chamberlin
Dixon, IL 61021

UTAH VALLEY CHAPTER
BALDASSIN, RICK L., Student
255 East 400 West, No. 8
Provo, UT 84601
MILLETT, CHARLES E., Student
110 North Paradise
Orem, UT 84057
PENDLETON, RICHARD K., Student
2363 West 200 North
Provo, UT 84601

VANCOUVER, B.C., CHAPTER
CLARKE, THOMAS
342 East 5th Street
North Vancouver, B.C. V7L 1L9

WESTERN MICHIGAN CHAPTER
BOYLES, HERBERT L., Associate
MR 103A
South Haven, MI 49090
COLLINS, RICHARD, Craftsman
Route 1, Aylworth Avenue
South Haven, MI 49090
NAKAMICHI, SHINYA, Craftsman
921 Hazel Street
South Haven, MI 49090
WEBER, ERNIE W., JR., Associate
RR 5 Baseline Road
South Haven, MI 49090

Reclassifications

CRAFTSMAN
METCALF, ROGER
Long Island-Suffolk Chapter
PIKE, PHILLIP
West Virginia Chapter

APPRENTICE
ENOCH, NORMAN
Wichita Chapter
QUINN, WILLIAM
Wichita Chapter

Long-Distance Lesson

Students in the piano tuning and repair program at Grayson County College in Sherman-Denison (Texas) view a slide presentation and hear a simultaneous long-distance discussion via a WATS line conference call from Cincinnati, Ohio. Olan Atherton (left), president of the Dallas chapter of the Piano Technicians Guild and owner-operator of Atherton Music Company in Sherman, moderates the lesson given by Willard Sims and Cliff Geers of the Baldwin factory in Cincinnati.

CHAPTER NOTES

Note: *Technical information submitted in chapter newsletters has been forwarded to Jack Krefting, Technical Editor, and will be included as part of the Technical Tip section of the Forum, as space permits.*

BUFFALO CHAPTER

The Buffalo Chapter reports that Popenberg's staff painted their upright project within the last month, but that bubbles began to appear. Members have corrected this problem by sanding down these areas and stripping the piano. They also checked action regulations and report that it was necessary to replace a few treble hammer heads because they were worn down into the wooden moldings. They checked hammer shapes with the moto tool, touching up hammers when necessary.

It has been suggested by Gordon Dunn that all members passing the tuning examination test automatically be given an induction letter into the Guild and the local chapter.

Members have been spending time reading and discussing antitrust laws during their business meetings. Subjects such as price-fixing, acquiescence, dividing clientele among members, standardized Guild certification, and individual self-regulation of your own business have been discussed. — Marty Turkiewicz, Jr.

CHICAGO CHAPTER

The Chicago Chapter is alive, with new things always happening! At a meeting earlier this year, Don Wilson tuned a couple of pianos. He was rated by several of the members using the forms and rating sheets prepared by Dan Mensing, chairman of the Examining Committee. It was amazing to see how close the scoring was **and** that the same things were noted by the examiners.

Frank Lord has been appointed Nominating Committee chairman.

Chicago Chapter reports an increase in attendance at their chapter meetings. They have two meetings each month, one for the Board and anyone interested in the business side, and the regular meeting at which the minutes of the Board meeting are read and approved. This shortens the business portion of the regular meeting and allows more time for the technical session. Each regular meeting then becomes a mini-seminar.

Technical sessions cover a wide variety of topics. One such session was on how you operate your business and what tools you carry, etc. Kent Bussie, Frank Lord, and Gerry Hubka were the panelists. Everybody does things differently it seems, and the area you work in determines how you operate. It was a lively discussion and some of the tools and devices were new to the membership.

Jack Greenfield, Public Relations chairman, has distributed a new directory of chapter Craftsman members by area. He is making it available to teachers and teacher associations. — R.B. Quint.

CINCINNATI CHAPTER

The Cincinnati Chapter will be well represented at this year's Institute during the national convention in Minneapolis this July. Cliff Geers and Willard Sims will be teaching grand regulating. Jack Krefting will have two all-day classes in grand pinblock installation. Jim Campbell will offer sessions in harpsichord tuning and servicing, and on Friday afternoon Ben McKlveen will give a special tuning concert.

The Cincinnati Chapter will start its new project piano — a 62-year-old upright player. Students and Apprentices will have to do most of the work on the project, under the guidance of volunteer Craftsmen. Bob Mollard will supervise the reconditioning of the player action and Jack Krefting will oversee the rest of the job.

At their next meeting, the chapter will be electing one delegate and two alternate delegates to serve in Minneapolis. — Newsletter

CONNECTICUT CHAPTER

During February and March, the monthly meetings of the Connecticut Chapter covered a wide variety of projects for discussion and approval. Among them were such topics as

1. Restoration of a Nunn square grand to original condition for Pratt-Read Museum of Musical Instruments.

2. Complete rebuilding by Students and Apprentices of a Sterling grand, supervised by Craftsman members. When finished, this piano will be the chapter's "test instrument."

3. Formal dedication and opening of the Steve Jellen Memorial Library at Pratt-Read.

4. A joint meeting of neighboring chapters (Rhode Island, Boston, New York, Western Massachusetts) to be held in September and featuring a tour of the Pratt-Read factory.

5. The 25th anniversary of the chapter to be properly celebrated in November 1979.

6. A consensus expressed by all present that left-handed tunings on grands and right-handed tunings on uprights are as good as right-handed tunings on grands and left-handed tunings on uprights.

During March, three Apprentices and two Craftsmen were voted in as new members.

The business meeting was followed by a technical session. Ken Strick gave a mini-technical on temperament (he sets his on C_3-C_4), and a regular technical on the new Craftsman tuning

test was given by Jim Hayes. Jim also moderated the March technical given by all present which covered the aches, pains, and cures of piano servicing as experienced in real life. Also represented was the "hall of shame," a rather amusing segment of a technician's life when seen from a distance. — Godfrey Tomanek

DALLAS CHAPTER

The Dallas Chapter has almost completed their chapter project — rebuilding an ancient upright. Many of their members donated shop space as well as their time to the renovation.

A recent monthly program was provided by Mr. Bob Jones, a professional woodcarver and tool sharpener. Bob gave an excellent demonstration on the necessary steps used to "finely sharpen" a pocket knife and wood chisel. We learned that tools usually don't have a fine edge at the time of purchase.

The chapter is investigating the possibilities of taking a trip to the Baldwin piano factory this summer and are attempting to make this a joint venture with the Fort Worth Chapter. — Mike Sonnenburg

DAYTONA BEACH CHAPTER

Daytona Beach Chapter reports the election of officers at a recent meeting. Members present included president Oscar Gaudette, secretary-treasurer Walter Pearson, Erwin Otto, and Fred Drasche. Special visitors in attendance were Ralph and Helen Kingsbury, Louis Via, Marvin West, John Francis, and Keith Kosuta. Marvin West joined the chapter and Keith Kosuta is a new Student member. One interesting aspect of the meeting was that, although those in attendance were few in number, two former national presidents (Erwin Otto and Ralph Kingsbury) and a former regional vice president (Walter Pearson) were present.

DETROIT-WINDSOR CHAPTER

The Detroit-Windsor Chapter recently participated in the American Guild of Music's regional meeting at the Renaissance Center in Detroit. Their program theme was "proper piano care." — Steve Hornbeck

LONG ISLAND-SUFFOLK CHAPTER

Gene Rudder, chairman of the chapter's state convention, reports that everyone was highly pleased with their convention. Gene would like to thank all those who taught, hauled, etc. He would also like to thank the ladies who did such a super job in the social room, at the information table, etc. The hotel management sent a special letter of thanks, complimenting the tuner-technicians for their fine spirit of cooperation and extending a hearty welcome to return.

LOS ANGELES CHAPTER

Members of the Nominating Committee for new officers are Fred Odenheimer, Ernest Dege, Elva Brown, Elwyn Lamb, and Norman Miller.

The chapter reports that there will be a change in their bylaws.

The Los Angeles Chapter tells us that they have received four new Student members into their chapter. They are F.L. Roy Haines of Reseda, Margaret M. Harris of Los Angeles, Forrest (Lee) Hintz of Pasadena, and William E. Taylor of Manhattan Beach. A quick summary of what the chapter can do for new members and how members may call on any Craftsman of their choice was given by president Dan Evans. New members were made to feel at home.

Jim Harvey recently gave a technical program on the subject of "Testing Members for Advancement," which discussed new standards for giving uniform tests throughout the nation. The Los Angeles Chapter has purchased a $400 computer for this purpose. — Harry Berg

NORTHEAST FLORIDA CHAPTER

Northeast Florida Chapter members recently had the pleasure of having Mr. Fred Drasche give a 4-hour class covering grand regulation, pedal and trap work, proper damper action, and hammer filing. Fred not only tells how to repair and regulate, but he goes the extra mile and shows why. He also answered numerous member questions from the floor. All chapter members (except one) were present, which shows the drawing power of Mr. Drasche. The chapter is deeply indebted to him for sharing his vast knowledge and they hope to have him return for a future class when he can fit it into his busy schedule. — George Weeks

ORANGE COUNTY CHAPTER

The Orange County Chapter reports that it will be honoring chapter members who have rendered extraordinary service to the Guild at their forthcoming Chapter Awards Dinner. — Newsletter

POMONA VALLEY CHAPTER

Terry Bannister led a recent technical session on how to be prepared with the right spare parts when out on the job. He stressed the idea of keeping on hand different manufacturers' jacks, hammer butts, and flanges to fit grand, vertical, and compressed actions.

Ed Seymour gave a program on "Ten Keys to Better Keys." He discussed the 10 parts of a key that most often need attention: front bushing, balance rail bushings, balance pin hole, backcheck, damper lift felt, key tops, key fronts, sharps, capstans, and key leads. Ed also discussed repairing warped keys and adding lead to change the touch. Each point was covered thoroughly as to repairing, replacing felts, key tops, bushings, etc. (Remember to check the front rail pins to be sure they are not turned when rebushing!) — Kathleen Gilkey

PORTLAND CHAPTER

The Portland Chapter reports the appointments of Don Person as acting vice president and Taylor Mackinnon as acting secretary until spring elections.

The chapter has elected its Nominating Committee, with past president Russ Petree automatically becoming chairman. Elected members are Martin Nemecek and Doug Smith.

Portland Chapter has voted to suspend the chapter bylaws for 1979 only and hold the election of officers at the April meeting. Joe Garrett was appointed chairman of the Bylaws Committee, the purpose of which will be to revise and update the bylaws.

SAN DIEGO CHAPTER

The San Diego Chapter announces that Elizabeth Chaffey recently passed her examination and is now a Craftsman member of the chapter.

The chapter members voted unanimously to endorse Mr. MacConaghy as a candidate for the Golden Hammer Award. A nomination will be in order at the forthcoming national convention in July.

Anyone interested in purchasing a Peterson Model 400 strobe tuner can contact Craftsman member John Kitzmuller; 12632 Pinebrook Court; Poway, CA 92064. This unit is "like new" and priced at a real saving.

SAN FRANCISCO CHAPTER

San Francisco Chapter announces the election of Jim Donelson as president and Wayne Matley as secretary-treasurer of the State Board.

The chapter has voted to purchase a Sight-O-Tuner for their local Examination Committee.

San Francisco is preparing for their chapter officer elections. Duncan Matheson, Shawn Skylark, and Wayne Matley were selected as a Nominating Committee. — In Tune

SALT LAKE CITY CHAPTER

Interesting and varied technical programs have dominated the Salt Lake City Chapter's meetings.

Editor of the local "Salt Tablet," Wilford Young, provided members with a reprint from the January issue of *Scientific American*. They published a notable piece of documentary dealing with the physics of piano strings as they function inside a piano, written by Gabriel Weinrieich of the University of Michigan. — Arletta Lombardo

SANTA BARBARA CHAPTER

The Santa Barbara membership recently voted to change their bylaws to create active and inactive categories for members. The sole purpose of the change is to make it easier to have enough members present to constitute a quorum. All members who attend chapter meetings regularly will be considered active members; any member who misses three consecutive meetings will become an inactive member. The quorum necessary to hold a business meeting will be based upon a percentage of active members. An inactive member will regain active status by attending any meeting. In other words, if a member attends a meeting only once every three months, he or she will remain in the "active" category. — Newsletter

SOUTHWEST FLORIDA CHAPTER

Walter Kerber recently attended the Florida Music Teachers meeting in Fort Lauderdale and worked at the PTG display. Most of the music teachers were very impressed with the information given out at the display and wanted a complete list of PTG tuners in their area. — Minutes

SYRACUSE CHAPTER

Chapter member Bob Sharp is claimed by stage manager Dan Wooley at the Civic Center as being one of the "top 10" tuners in the country. Bob said he is currently recording, with Professor Frederick Marvin, Chek composer Dusek's 24 Sonatas for Genesis Records. The last one that he did is considered one of the "top 10" recordings of the year by the critics. — Newsletter

VERMONT CHAPTER

Since last spring, the Vermont Chapter's monthly meetings have been technical sessions. They are rebuilding an old Ivers and Pond upright which was in pretty rough shape when they started. Two or three things are often done simultaneously — like key recovering and soundboard shimming.

Their biggest problem to date was discovering that the soundboard had no crown. After discussing various alternatives, it was decided to put wedge-shaped shims about every 6 inches along the treble bridge. The theory was that the arc created in the treble bridge would be strong enough to pull up the soundboard and restore crown. Saw cuts were made parallel to the sides of the piano and went about 3/4 of the way through the bridge. Though cuts were positioned between the trichords, some bridge pins were removed to give the saw good clearance. After the cuts had been made, wedges were driven between the backposts and the soundboard until the desired amount of crown had been artificially created. Rock maple shims were then carefully fitted and glued into place. The technique was fairly successful in restoring crown. The rim of the plate near the hitchpins was also filed down to give better bearing.

Recent business meetings have been devoted to planning the 1980 New England Regional Seminar, which the Vermont Chapter is sponsoring.

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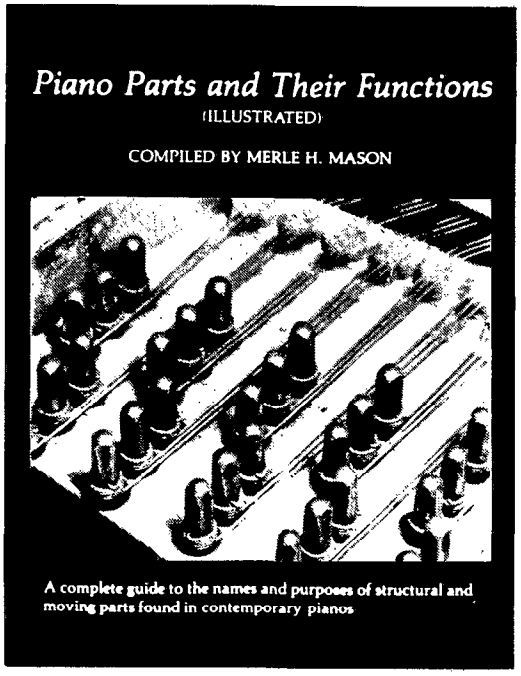

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1. Please **print** your name after your signature when you endorse a person's membership application. (Many signatures are difficult to read.)

2. If the member is a restored member, please **write this fact on the application.** (Many of the Membership Services Department's "inactive files" are inadequate and only retained for a certain number of years.)

The following points are scored for signing up the various ratings: Craftsman, 6 points; Apprentice, 5 points; Allied Tradesman, 4 points; Associate, 3 points; Affiliate, 2 points; Student, 1 point. When you get a total of 24 points you become a member of the President's Club; all others are Boosters.

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Bach, Philip F. — Twin Cities 7
Ballard, William — New Hampshire 6

Barford, Wallace — Capitol Area 6
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Bell, Hamilton — Cleveland 1
Bible, Dana — Greenboro, N.C. 5
Bittinger, Dick — Reading-Lancaster 6
Bloch, John — Denver 1
Boyd, Thomas W. — Philadelphia 1
Brandom, William S. — Kansas City 6
Brownfield, Gary — Boston 6
Buck, Gene — Sacramento Valley 1

Carbaugh, Bob — Chicago 5
Carr, R.V. — Central Florida 6
Caskey, Ralph — Greensboro, N.C. 5
Coleman, J.W., Sr. — Phoenix 1
Coleman, Loring — Las Vegas 1
Conner, J.S. — Hampton 6
Crabb, Larry — Atlanta 2
Crowe, James — Washington, D.C. 1
Cunningham, Jess — New Orleans 14

Dante, Richard — Cristofori Brotherhood 15
Dege, Ernest — Los Angeles 5
Deptula, Walter — East Texas 6
Desmond, Frank — Dallas 17
Donelson, James H. — San Francisco 1
Drewa, Edward — Twin Cities 1
Duncan, David — Greensboro 5
Dye, William — Santa Barbara 11

Eaton, Wendell — Washington D.C. 1
Edwards, William E — Detroit-Windsor 1
Epman, Lawrence — Wisconsin 5
Erlandson, Robert — Nebraska 6
Evans, Dan — Los Angeles 5

Finger, Chris — Denver 1
Flegle, R.H., Sr. — Twin Cities 6
Freeman, Marion — N.C. Louisiana 6

Garrett, Joseph — Portland 5
Geiger, James — Dayton 11
Giller, Evan — New York City 10
Goetsch, Lawrence — Dallas 1
Gold, Jimmy — Texoma 6

Grace, John — Puget Sound 1
Griffith, LaVerne — Buffalo 8

Haino, Henry, Western Michigan 18
Hanson, Lynn — Utah Valley 1
Hanson, Sigurd — Houston 1
Hauck, Jack — Phoenix 1
Heischober, M. — L.I.-Nassau 5
Hendrickson, William — Santa Clara 1
Hershberger, Ben — South Bay 1
Higby, James — Tri-City, Iowa 4
Higgins, Richard — Hawaii 11
Hipkins, David — N. Virginia 6
Hopperstad, J.M. — Sacramento Valley 1
Hulme, Gregory — Kansas City 6

Jeffers, James — Phoenix 5
Johns, B.J. — Northeast Florida 1
Jones, Joel A. — Madison 6
Joseph, Paul — Philadelphia 17
Juhn, Ernie — Philadelphia 6

Kast, Frank — N. Virginia 5
Kelley, Allen — W. Massachusetts 12
Keller, William — Reading-Lancaster 6
Killberg, George — Twin Cities 5
Kimball, Richard — New Hampshire 6
Krefting, Jack — Cincinnati 5
Krystall, Darwin — Los Angeles 1
Kuraya, Ben — Hawaii 12

Lake, Robert — Santa Barbara 1
Lamb, D.E. — Los Angeles 5
Lawrence, Paul A.U. — Blue Grass 12
Leach, W.F. — Richmond 10

Macchia, Allen — NW Indiana 5
Macchia, Frank — N.W. Indiana 6
MacConaghy, Henry — San Diego 12
Marciano, Bill — New Jersey 5
Marten, Gilbert — Central Iowa 6
McAninch, Daniel — Fall Cities 2
McDonald, Robert K. — Mississippi-Gulf Coast 5
McGuire, Michael — Detroit-Windsor 1
McIntyre, John — Lansing 6
McKlveen, Ben — Cincinnati 5
McNeil, Thomas — Lansing 6
McVay, James — Vancouver, B.C. 22
Mehaffey, Francis — Pomona Valley 1
Mensing, Daniel — Chicago 5
Miller, D.L. — Minnesota-North Iowa 6
Monroe, Paul — Orange County 6
Moore, Donald — Fresno 6
Morton, W. Don — Los Angeles 3
Murdaugh, Rodney — SW Missouri 1

Neie, Gary — N.C. Louisiana 5
Novinski, Tony — Wichita 6

Persons, Glenn — Tucson 6
Peters, Patricia — Central Florida 1
Peterson, Clarence — Santa Cruz 1
Peterson, Gerald — West Michigan 6
Peterson, Jerry — Western Michigan 7
Pizza, Anita — Miracle Strip 6
Preuitt, Ernie — Kansas City 6

Ralon, Carlos K. — Washington D.C. 7
Reineck, Ed — North Central Wisconsin 6
Richardson, J.W. — Idaho West 10
Richey, Charles — Dallas 1
Rooks, Michael — Ozark 5
Russell, Bob — Cleveland 5

Sankey, Lee M. — Houston 1
Schneider, William — Lansing 3
Schoppert, Robert — S. Dakota 24
Scoville, Glenn — Pomona Valley 5
Seller, Marion — Twin Cities 6
Seitz, Al — Alaska 6
Serviss, Ken — Portland 6
Sierota, Walter — Philadelphia 7
Sims, Willard — Cincinnati 3
Sinisi, Mario — Long Island-Suffolk 5
Snyder, Cecil — South Bay 6
Stegeman, W.J. — Minnesota-North Iowa 1
Stern, Walter — St. Louis 6
Story, Everett — E. Washington 6

Tapp, Kenneth — West Memphis 18
Thatcher, Walter — St. Louis 6
Tinker, Mary — St. Louis 6
Tipple, Robert — Member-at-Large 6
Truax, Richard — South Central Pennsylvania 4

Wheeler, Clifford — Boston 6
Wheeler, Richard — Portland 5
Whitby, Elmer — Paducah 6
White, T.E. — Northwest Florida 6
White, Walter — Baltimore 6
Willis, Aubrey — Central Florida 5
Winslow, Allyn — Boston 6
Witting, Edward — South Bay 1

Zehme, Uwe — South Florida 7
Zellman, Adelaide — Connecticut 1
Zeringue, Nolan — New Orleans 1
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PARLIAMENTARY WISE

Answers to the questions are in accordance with *Robert's Rules of Order*, Newly Revised, RONR. When sending questions to the *Journal*, please quote any local chapter bylaw or rule which affects the subject.

Question: *We have a rule on the books but not in the bylaws. How long does it stay on the books?*

Answer: It sounds as though the rule is a standing rule in your chapter. It will remain in effect until a motion is proposed and adopted which changes or removes the rule.

Question: *Does a change of officers (such as an annual election) cancel out rules adopted during their term of office?*

Answer: No. Action by an assembly can only be changed by the assembly. Therefore, rules adopted remain in force through any change of officers until further action on the rules is taken by the membership.

Question: *How does a standing rule get on the books?*

Answer: A standing rule is a motion adopted by the members establishing a permanent procedure to be followed until the rule is formally amended or rescinded. Any motion which has a continuing effect (i.e., is intended to be permanent procedure) **automatically** becomes a standing rule upon its adoption — when a majority votes in favor of the motion (for example, a motion establishing that an annual summer picnic shall always be held in June, or a motion requiring the committee chairman to hand all committee files to the incoming president at the annual meeting). All standing rules should be listed and each member should have a copy.

Question: *How do we remove a standing rule?*

Answer: Propose a motion to rescind the rule. A two-thirds vote is required to rescind or remove the rule.

Question: *Who has the right to rescind a rule?*

Answer: Any member has the right to **propose** that the rule be rescinded. Only the members have the right to determine whether the proposal shall be adopted or rejected.

Question: *We voted to spend $25 on a gift for a special member. How can we increase the amount to be spent?*

Answer: Move to amend the motion to buy the gift by striking out $25 and inserting $. . . . A two-thirds vote is required to adopt an amendment to something which has already been adopted by the members.

Why? The principle is that while most main motions can be adopted by a simple majority vote, a stronger vote is required to authorize a change. For this reason, a two-thirds vote is required to rescind or annul previous action, and also to amend or change the previous action.

Question: *When may a member ask a question of another member when there is business on the floor?*

Answer: It is always in order for a member to ask a question, provided that the answer is necessary in order to take an intelligent part in the business under consideration, and provided that the question is of such importance that it cannot wait until a later time.

Note that all questions must be made to or through the presiding officer even though directed to a member. The member responding should do so through the presiding officer and not turn to the questioner when answering.

Question: *Does a member have the right to name who shall be appointed to a special committee which has just been approved?*

Answer: Yes, provided that the bylaws of the chapter have not established that the president is to appoint all committees.

Question: *We are not always able to get a quorum (half the members) to attend the business meetings. How can we have regular business meetings which are legal without a quorum?*

Answer: Each chapter has the right to establish for itself what the quorum for its meetings shall be. It is not a requirement that the quorum be half the membership. Review the number who regularly attend and set the quorum at that figure — a percentage of the membership, a definite number, etc. Bear in mind that, if just the quorum attend a business meeting, a majority of those who vote in that quorum can act for the chapter, so do not set your quorum too low.

Question: *What is the difference between a standing rule and a directive?*

Answer: A directive is a form of order or instruction issued by the membership to an officer, committee member, etc. A directive is self-limiting and therefore an anticipated completion time is specified or implied, even though the date may be sometime in the future (for example, a directive to the treasurer to pay a bill, or a directive to a special committee to be responsible for the chapter's participation in a major joint meeting to be held in the next year).

A standing rule remains in force until action is taken to amend or rescind it.

Question: *Is it correct to sign a report "Respectfully submitted"?*

Answer: It is considered unnecessary and no longer the custom.

Question: *Our chapter took action on some business and, although a majority voted in favor, I wanted to go on record as being opposed. What could I have done?*

Answer: A member may request that the minutes show a negative vote was cast by the member on that motion. It will not affect the vote, but does indicate a strong feeling on the part of the member with regard to that particular motion.

NO NOISE IS GOOD NOISE

Dear Rosette:

My husband is always complaining about noises he has to put up with when he is tuning a piano. He usually keeps on tuning in spite of the television, vacuum cleaner, faucet running, women chattering, etc. I don't think I should have to listen to his complaints all the time. I'm sure other piano tuners have this same problem. How do they handle it? — Wondering

Dear Wondering:

If you want to know how other piano tuners handle the noise pollution problem, we should ask our readers. In the meantime, I asked my husband, Flange (he's the one with the loose screw), and he has a simple and effective solution: He tells the customer to shut up, turn off the television, or do her housework some other time. He says it works every time and he is not disturbed by noise. (Now I realize why we don't have many repeat customers.)

I checked with another tuner and got a better answer. He either talks to the customer about noise interference, or he won't start tuning if there is noise. If the customer starts the noise during his tuning, he stops. It isn't long until the customer realizes she is interfering. Flange adds, "If she doesn't cut off the noise, she isn't smart enough to know if her piano is in tune or not, in which case you might as well pick up your tools, hand her the bill, collect the money, and make your departure."

I don't always agree with Flange and know little about tuning and listening to beats, but I feel your husband should not have to put up with noise interference. If he cannot bring himself to tell the customer, you will continue to be his listening post. Be thankful it is not **your** problem. Your listening to his complaints is nothing compared to what he must endure.

Dear Rosette:

My husband is an active member of PTG and has learned a lot about tuning and repairing pianos, but he has one outstanding fault — his appearance when he leaves the house for his appointments. Sometimes he doesn't even shave, and I'm lucky if I can get him to take a bath twice a week. He would wear the same clothes for weeks if I didn't get after him. His attitude is: All that counts is the quality of work — and you never see a plumber, electrician, or appliance repairman dress up for work. Is there anything I can do to get him to shape up? — Tired of Talking

Dear TOT:

Yes, there is something you can do. First of all, stop your nagging. Then make sure **you** are clean and neat — and your house is in order. Speak to another PTG member who is close to your husband. Tell him how you feel and ask his suggestions. Perhaps he could talk directly to your spotted spouse or to the chapter program chairman, who might bring the matter up in one of the technical programs.

Granted, other servicemen do not "dress up," but your husband does not have to crawl under the house to check the water pipes or in the attic to install wiring, or take out a greasy motor. No, when he is let in the house, he is shown the room that is the showcase of the house — where the piano is located. There is no reason for his appearance to be unsightly in the least. One tuner in this area, a nonmember of PTG, has the idea that the dirtier the clothes or the longer the hair, the better the technician. That is pure nonsense. Take a look at all the well-dressed men at the national PTG conventions. At the last convention I saw only one who was a little shabby. I hope that wasn't your husband.

LUELLYN PREUITT

Wives' Lives

IN MEMORIAM

Dorothy Oventrop died the morning of March 19 after a prolonged bout with cancer. She will be sorely missed by all of us who loved and admired her spirit and courage. Dorothy was a committed member of the St. Louis Auxiliary and could always be counted on to do whatever needed to be done. Our deepest sympathy to Ed, her husband, and his family.

A Message from the Twin Cities Auxiliary

We consider it a real privilege to be able to extend a warm welcome to the Auxiliary for the 22nd Annual PTG Convention to be held in Minneapolis July 23-27. Our chapter has been helping organize and staff an Auxiliary Center in the Gold Room of the Radisson Hotel. Hostesses from this area will be available to provide information regarding tours, shopping, restaurants, and local points of interest. This center should prove to be a comfortable meeting place for friends, and informative and inspiring for each of you.

The choice of the Radisson Hotel, located in the very center of downtown Minneapolis, will delight Auxiliary members. Specialty shops are available in every direction for browsing and shopping. Department stores, lovely clothing shops, china and gift shops, and candy and music stores line either side of the Nicollet Mall. Medical facilities, a drug store, and beauty/barber shops are all close at hand. Orchestra Hall, the Minneapolis Public Library, our 51-story IDS Center, and the renovated Butler Square with its varied shops are within walking distance.

Many interesting restaurants are also located in the downtown area. We hope to have many suggestions available for you because we want your stay to be both a time of learning and a time of fun. We'll do all we can to steer you in that direction.

Our weather in July is usually one of hot days and cool nights. Best that you be prepared with a sweater or light wrap for daytime and evening. Air-conditioned places of business often feel chilly after the heat of outdoors. We hope your time here will be under sunny skies but, should it rain, use our skyways that connect the downtown businesses and shop dry and comfortably.

Again, welcome. We are awaiting your arrival and welcome suggestions from participants as to what they thought missing from Auxiliary rooms during past conventions. Any ideas for your comfort or entertainment will gladly be incorporated into our plans.

Remember, this is your convention! — Avis Kuby and Maxine Buckman, co-chairwomen, Twin Cities Hospitality Committee

Convention Talent Show Program

Here's a message from our president, Helen, about the planned talent show program at the convention in Minneapolis.

It used to be that those with talent were discovered in Hollywood; later it was Vegas or Nashville. Last year it was the PTG Convention in Cincinnati. Remember the California gals who put on such a good show at the tea? The "mod" thing to do right now is to perform for the Auxiliary. Fame is instant! You will all be given your chance to "do your thing" (whatever that may be) in Minneapolis. Talent scouts will be there looking for the latest in night show entertainment — probably both from Atlantic City and the mushrooming film industry of "gnikep" (read from right to left), where millions are waiting for the latest in western culture.

You may not think your special talent is unusual or outstanding. But judging from the ratings and salaries paid to current entertainers, you never know what the public will like until you at least show what you have. Whether you can do a puppet dance on your toes or make weird music by wiggling your ears, get busy and prepare.

Sunday, July 22, we will all meet in the Auxiliary Hospitality Room to plan the big talent show. There will be a dress rehearsal on Monday for the first performance Thursday morning, July 26.

The whole idea of a talent show is yours, not mine. You suggested it on the list you handed to Betty Graber at the luncheon two years ago, so it will be your show. I alone will be privileged to sit back with the scouts drinking "alocacoc." Start getting your act together now; we want this to be such a success that PTG will want us to perform for them next year! **Special note: Get busy on the cookbook sales so that we can finance a charter plane to "gnikep."**

Midwinter Board Meeting Adventure

Following is a report by Agnes Huether, corresponding secretary, about the adventures of four Auxiliary members during the two-day midwinter Board meeting preceding the California State Conference. Charlie suggested this be called "Dames at Sea from PTG."

It will never be recorded in the annals of naval history, but the 3-hour voyage on the "Aztec" out of Long Beach, California, by four intrepid Piano Technicians Guild Auxiliary shipmates will be remembered for a very long time. That day in mid-February was warm. The sun shone brightly on the 97 passengers who embarked on the 65-foot vessel bound

for a whale watch. The waters of San Pedro Bay lapped gently against the white-painted craft. Weather conditions were perfect for the 12-mile cruise out to the path of the migrating gray whale.

Some 40 youngsters from a private elementary school waited impatiently for the ship's crew to weigh anchor. It was evident that the students had been well briefed on the habits of the gray whale. Just from casual eavesdropping, one could learn that the annual migration (and return) of the gray whale from the Arctic to the Gulf of California in Mexico is the longest of any mammal — a 10,000-mile, eight-month round trip. It's really great how children love some statistics — the longest, the highest, the smallest, etc.

While we gals mused at the valor of the five school teachers and admired their skill in riding herd on their charges, we overheard that this was the second of six such school trips for 1979!! The children proved to be great sailors.

Our ride was fairly smooth, with everyone excited about the promised view of whales in the open sea. Our colleague from Pennsylvania was the first to rise from the table in the cabin and suggest that we four go out on deck with the others. Ten minutes later, I scrambled out and beckoned to my associates from Missouri and Ohio to follow. They nodded me on and said something about following "in good time." It was great standing there on the port side and getting the sea breeze full face. About a half-hour later, the boat cleared the bay and, as we passed the breakwater, the captain prepared us for rougher water. While the youngsters giggled and squealed as they were thrown off balance with the pitch and roll of the boat, the over-39 crowd sought hand holds. As we adapted to the rise and fall of the deck, we managed an apt stance. In a short while we were rewarded with the ever-splendid sight of dolphins leaping and diving in graceful precision.

After a short spell of viewing, our boat turned around and headed out to sea. Soon black triangles of dorsal fins of sharks were spotted, some quite close to the boat, and loud squeals were heard from the children. Then a tour guide spoke over the PA system and asked all to be quiet. The gray whale, a shy and gentle creature, would react to the children's cries and swim away. One could hear a pin drop. The engine was cut and the boat drifted. Then, ahead, we saw three flukes flash high above the water, then another. The captain directed all to look toward 11 o'clock. Quickly they were gone, but soon reappeared on the surface exhaling. The captain brought us in for a closer look and we watched and marveled at the barnacled heads of two or three gray mottled whales cruising gently on the surface. All too soon it was time to put about and steam back to the marina.

Our voyage back was something else. While the boat plied the waters with ease and the children plied themselves with potato chips, Hershey bars, Cokes, and bubble gum, my three intrepid colleagues were decidedly incommunicado. Never before have I found them so taciturn, aloof, or antisocial. They sat apart from each other and stared glassy-eyed at the horizon as it dipped and rose. Attempts to draw them into conversation were futile.

The "Aztec" docked 30 minutes later. It was not until we all touched terra firma *that my usually congenial companions came alive. Then they spoke enthusiastically about our venture; they were glad they had made the trip, but even happier that it was over.*

Special thanks to our California member, Millie Hooker, who gave us all the particulars on whale-watching and accurate directions to the Long Beach marina.

Despite what you might hear to the contrary from Cele Bittinger, Lu Preuitt, or Ginny Russell, all of the foregoing is the absolute truth!!

A New Name for "Wives' Lives"

We are gradually getting some suggestions for a new name for our pages in the *Journal*. Most are concerned with the reintroduction, in some form or another, of the word "auxiliary." This writer also would like to see it used in some way. Remember, according to our recently adopted bylaws (Article 111, Section 1, Members, Chapters), "To be eligible for membership an applicant must be an interested person, 16 years or older, sponsored by a member in good standing of the Piano Technicians Guild, Inc." Therefore, the words "wife" or even "spouse" are not really appropriate. By asserting the fact that we are the **Auxiliary**, we can remind everyone that we are here to supplement and, as our theme for the year suggests, to "dignify, enlarge, and strengthen" the entire organization. We hope to have several titles to suggest in Minneapolis so, if you have any ideas, send them to this writer so they can be included. See you in Minneapolis July 23-27. ■

CLASSIFIEDS

Classified Advertising Rates: Classified ads are 15 cents a word, with a $3 minimum. **Copy due** the first of the month preceding publication. **Address:** Managing Editor-Art Director/Charlona Rhodes, PTG, 113 Dexter Avenue North, Seattle, Washington 98109. Telephone: (206) 283-7440.

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MISC.

PRICE CHANGE — Retail price of *The Piano Owner's Guide* in soft covers has been changed to $3.95 per copy. The hard cover price of $6.95 stays unchanged, as do all discounts accorded our many quantity distributors. **Piano Publishers; 2621 South 8th Street; Sheboygan, WI 53081.**

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