

PIANO TECHNICIANS Journal

OFFICIAL PUBLICATION OF THE PIANO TECHNICIANS GUILD
May 2007 Vol. 50 No. 5



PIANO TECHNICIANS GUILD

THE PIANO TECHNICIANS GUILD INC.

50 YEARS OF PROMOTING PIANO SERVICE EXCELLENCE
1957-2007
PIANO TECHNICIANS GUILD

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19th ANNUAL CONVENTION AN INSTITUTE OF PIANO TECHNOLOGY
THE PIANO TECHNICIANS GUILD
1988-1989

Washington, April 24

40

50 Years
1957 - 2007

PIANO TECHNICIANS Journal

Vol. 50 No. 5 • May 2007

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DEADLINE: No less than 90 days before publication date (i.e., February 1 for May 2007 issue).

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Annual subscription rates: \$70 (U.S.) for Members; \$104.50 for Non-Members (U.S.)/1 year; \$181.20 (U.S.)/2 years; Single copies: Current year/\$10; 1 year/\$5; back copies/\$2, if available. Piano Technicians Guild members receive the *Journal* for \$70 per year as part of their membership dues.

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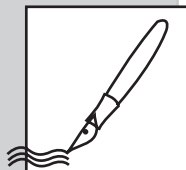
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POSTMASTER: Please send address changes to:

Piano Technicians Journal, 4444 Forest Ave., Kansas City, KS 66106-3750.

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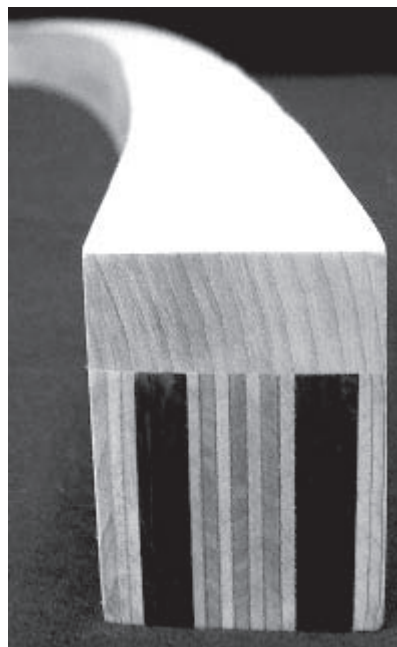
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The Ravenscroft Piano

By James Coleman, Sr., RPT
Phoenix, AZ Chapter

In August of 2003, RPT Michael Spreeman established Spreeman Piano Innovations in Scottsdale, Arizona to fulfill the dream of building limited edition, custom-handcrafted pianos. The first Ravenscroft model 220 was presented in a debut performance at a two-piano, four-pianist jazz concert in December 2006. There are two Ravenscroft models available: a 7'2" model 220 and a 9' model 275.

I had the occasion to play the Ravenscroft 220 in the display room at Spreeman Piano Innovations. The CAD-designed action by Robert Springer maximizes leverage ratios for increased dynamic response, repetition, and evenness of touch. I was amazed first at the clarity of sound in the bass and tenor section. Gone were the brash sounds we are accustomed to hearing in that area and yet there was no sacrifice of power. In fact the power seemed greater. I was pleasantly surprised by the great duration and clean tone as I played chords and melody up into the fifth and sixth octave (the killer area). This was true all the way through to C88.

A few weeks later, I heard the Ravenscroft piano as part of a dual (or is that duel?) piano jazz presentation. The second piano was a well-known brand fine piano. Both instruments were about 7 feet long. At one point during the program one of the musicians said, "I want to play the good piano." He played a solo on the Ravenscroft and seemed to be mesmerized.

Two other jazz artists took the stage for the second half of the program. Armand Boatman, recognized to be the king of jazz piano in the Phoenix area,



Photo 1 — Completed Ravenscroft model 220 prototype.

teamed up with a former student of his. They had a lot of fun playing off of each other. The other piano, having very low-tension stringing in the tenor area, began to show very slight instability by the end of the program, but the Ravenscroft held its tuning like a rock. Both pianos did well under heavy playing and were well matched for power, but in my opinion the Ravenscroft exhibited a superior bass and tenor.

Following is an interview I did with Michael about his pianos.

Jim Coleman, Sr.: Why did you decide to build a piano?

Michael Spreeman: I was Head Technician at Arizona State University in 1992 and began working with

jazz pianist/composer Bob Ravenscroft. Mr. Ravenscroft felt creatively limited by the restrictions of his 9' concert piano and commissioned me to locate, re-design, and rebuild a piano that would invite him to explore new, unrestricted realms of playing. The goal was to create an outstanding performance piano, designed to reduce the barriers from mechanical function to creative

performance. I found a disheveled, retired 1926 concert grand, which became the first Ravenscroft "concept" piano.

After 30 years of working as a rebuilder and concert technician, I am excited to have the opportunity to offer handcrafted performance pianos to the public. I have elected to name my new pianos after Mr. Bob Ravenscroft, in honor of that 1992 commission.



Photo 2 — Michael Spreeman in the showroom in Scottsdale, AZ.

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The Ravenscroft Piano

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JCS: *What is the Ravenscroft concept?*

MS: The general concept is to build the very finest pianos available. My goal with the 220 prototype was to build a unique instrument which delivers richness and purity of tone, broad dynamic range, power, and lyric duration with an action that invites the pianist to perform with as broad a dynamic spectrum possible with unlimited velocity.

JCS: *You mention that the 220 and 275 have a basic design. What is this basic design, what does it sound like?*

MS: Piano sound is incredibly subjective, so this is a difficult question to answer, but I wanted an “ocean of sound.” Each of the high-end pianos on the market today has unique and wonderful qualities in their sound. I have found that I may prefer the treble of one brand, the tenor of another, and perhaps the bass of yet another. What I have attempted to produce is an instrument which exhibits an accentuated version of each of these aspects.

It’s especially important to me that a piano has long duration and power in the fifth octave, in order to project through a powerful bass and tenor. Also, a broad dynamic spectrum is important to me. Some pianos have an incredible lyric capacity when played softly but then distort and break up at higher volumes. Other pianos are powerhouses at louder volumes but have little to offer when played softly. I wanted to design a piano capable of both the softest and the loudest playing.

JCS: *What things make your design unique and what parameters do you demand from your instrument’s construction?*

MS: Being an independent and privately-owned company, I have the freedom to make decisions about the selection of quality materials, pursue research and design changes, and can implement a “no compromise” policy for workmanship and quality of construction. Unlike a large manufacturer, I can hand-select the woods, discard products that do not meet high standards, and perform specific operations as many times as necessary to obtain the results that I strive for.

The Ravenscroft sound begins with the design of the rim, bracing, plate structure, soundboard shape and thickness, number of ribs, thickness and layout of the ribs, bridge design, and scale design.

In order to produce an instrument that can encompass the largest dynamic spectrum and maintain structural integrity for as long as possible, the rim, bracing,



Photo 3 — Underside of the model 275 rim, showing the three-ply beech bracing.

and belly rail must be very strong and rigid. A strong perimeter is imperative in a piano in order to provide a solid foundation for the soundboard. Rim-flexing can be a contributing factor to loss of crown in the board. Both the 220 and 275 have laminated inner and outer rims made with alternating plies of beech and a very hard African mahogany (specific gravity is .063 as compared to American mahogany which is .058). It is my opinion that this provides the strongest, least flexible rim because the glue bond between the more porous mahogany and the beech is greater than the bond between two lesser porous woods., but even a piano with the strongest rim must also have a well designed beam structure to inhibit flexing (see Photo 3).

The 275 has five full length braces that are 4 ¼” x 3” (10.8 x 7.6 cm) 3-ply beech with two 3” x 3” (7.6 x 7.6 cm) thick cross members which are doweled and dove tailed into the inner

rim. The braces span across the belly rail where they are notched and doweled to provide added support to this typically weak link in the perimeter of the inner rim

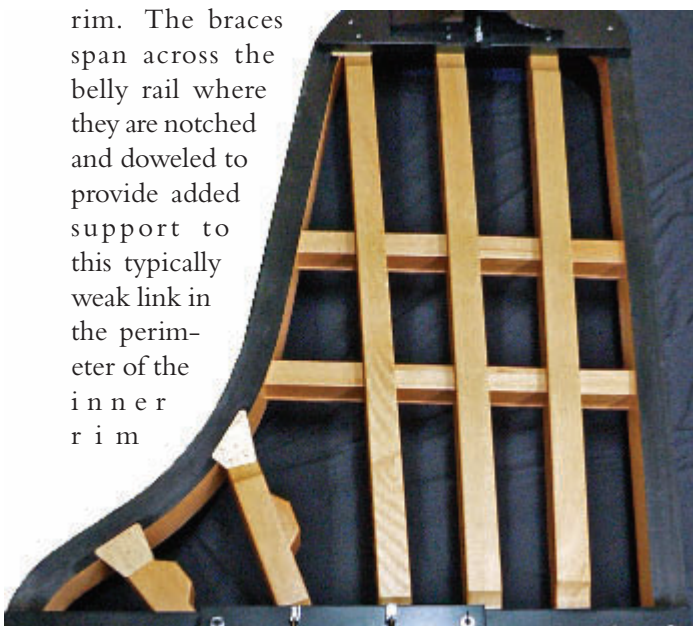


Photo 4 — Bottom of the 275, showing bracing layout, cross members, and dovetail joints.

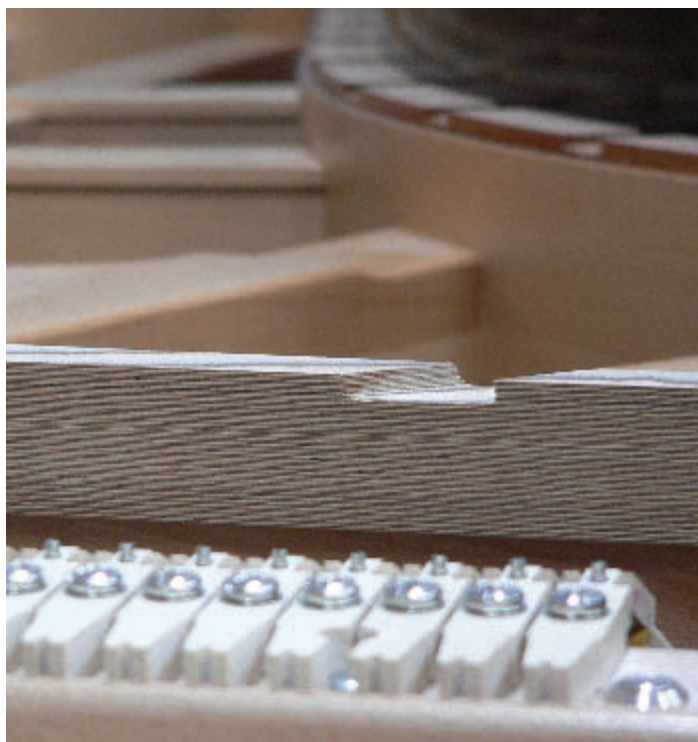


Photo 5 — Front view of the 275 belly rail. Note the horizontal beech laminations, similar to Falconwood pinblock material.



Photo 7 — The model 220 soundboards leave the press with a 22mm crown over a one meter span.

(see Photo 4). In order to further strengthen and minimize flexing of the belly rail, it is made from horizontally laminated beech, (much like the Falconwood pinblock material) and notched and doweled into the inner rim (see Photo 5). This massive structure combined with the plate, which is about ½” thick at the webbing, brings the weight of the 275 to just under a ton.



Photo 6 — Sauter craftsman in Germany, installing the 275 beams with dovetail joints.

I elected to have my rims and plates constructed in Germany because they have the highest quality materials and their meticulous attention to detail is internationally recognized. Carl Sauter in Spaichingen, Germany makes the Ravenscroft cases, rims, and plates to my specifications (see Photo 6).

After I inspect and accept the completed rims and plates, I design and construct the soundboard, ribbing, bridges, and scale.

The soundboard wood is milled to my specifications and imported from the Fiemme forest of Northern Italy. The ribs are select Eastern Canadian white spruce. The ribs are crowned with specific varying radii, and the board is pressed into crowned cauls that vary in radius. The soundboards come out of the press with about 22mm of crown over a 1 meter span. The board is then thinned and tapered at specific points (see Photo 7).

The bridges feature vertically laminated bodies with hardwood caps. The prototype 220 has alternating mahogany and maple laminations with a maple cap in the tenor, hornbeam in the first treble section and a laminated maple/ebony cap in the treble (see Photo 8). The next two 220s will feature bridge bodies vertically laminated with maple, mahogany, and ebony (see

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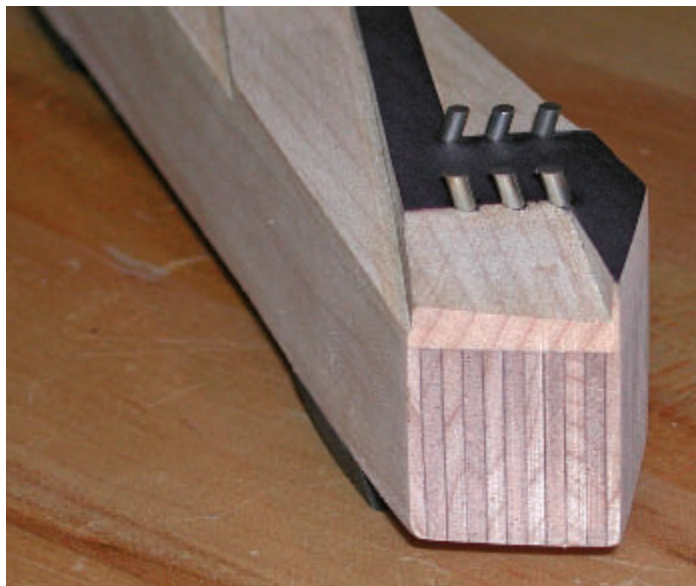


Photo 8 — The tenor bridge of instrument #22002. This end view shows the vertical laminations of maple and mahogany with a maple cap.



Photo 9 — The tenor bridge of instrument #22003. This bridge features vertical laminations of maple mahogany and ebony with a maple cap (note that this bridge is not yet notched!).

Photo 9). The bridges are located on the soundboard and temporarily attached. The plate is then set in and clamped so that the bridge height and cap angle can be established in the piano. Each speaking length is measured and plotted on the bridge, and the bridge pin boring and notching are performed by hand to insure accuracy (see Photo 10). The prototype 220 has a fairly high tension curve with a focus on maintaining an even tension curve.

The keys and keyframe are custom manufactured by Kluge of Germany with ebony-capped rosewood sharps. The keyframe incorporates oak front and bal-



Photo 10 — Michael drilling a 220 bridge with a pneumatic drill mounted on a sliding angled drilling fixture.

ance rails with tight-grain spruce cross members to maintain structural integrity. The action stack, action parts, hammers and sostenuto system are all Renner. After the piano is strung and at pitch, Robert Springer measures necessary parameters in order to design the action for each specific piano. Robert's unique program utilizes CAD to determine optimal stack height, capstan location, action spread, parts placement, rotation, clearance, and interaction (see Figure 1). This process creates the most efficient leverage ratios, unique to each piano. The outcome is an action which provides poised response, and a seemingly invisible interface for the pianist's expression.

JCS: *What is unique about what you are doing?*

MS: Probably the most unique aspect of the business is the ability to tailor and build pianos for clients who desire a specific sound and aesthetic appeal. The 220 and 275 prototypes are built and available with a basic

