

## Technical Class Outline

1. Read Voicing The Renner Hammer by Rick Baldassin
2. Unwrap hammers and place in sequence on wood rack
  - a. Discard hammer at underfelt termination.
  - b. Count out bass hammers with 2 extras.
  - c. Count out treble hammers with at least 4 extras.
3. Special Option Only: Remove excess shoulder on drum sander.
4. Gang-clamp hammer in cauls. Clamp cauls to bench.
  - a. Pre-voice as instructed by Rick Baldassin.
  - b. Remove excess felt and saddle with 80 J weight paddle.
  - c. Follow with 100 J weight paddle.
  - d. Finish with 180 J weight shoe-shine. Note: If you desire a "mellow type of tone quality, then leave the - hammers at "d". If you desire a "bright" type of tone quality, then:
  - e. Iron set of hammers with flat iron at "wool" setting.
5. Determine proper hammer bore distances.
  - a. Measure string height, keyed to underside of string, at each end of each section.
  - b. measure hammershank flange center pin height from keyed to pin center when stack is mounted on keyframe.
  - c. Correct bore distance is the distance between these two measurements.



**NOTE: Do not be surprised if you find considerable deviation between the sections.**

6. Discover the best "face forward" for this set of hammers.
  - a. Select hammers number 52, 67, and 88
  - b. Mark the natural front as supplied.
  - c. Mark the correct bore distance for each of these hammers as determined by Step 5 above.
  - d. Mark one inch below boring distance.
  - e. Drill hammershank hole with #3 screw macjng brill bit
  - f. Drill hole through side of hammer tail to lighten.
  - g. cut off hammer tail at distance in Step 6.d above.
  - h. Taper hammer tail.
  - i. Install hammers 52, 67, and 88 on piano action and regulate.
  - j. Install action on piano.
  - k. Move action in and out to find best possible strike point.
  - l. Remove action and turn the hammers 180 degree.
  - m. Reinstall action in piano.
  - n. Move action in and out to find best possible strike point.
  - o. **Mark which face has the best sounding tone!**

7. Preparation of hammer set for mounting
  - a. Lay hammers out on rack with "best" face forward.
  - b. Count out hammers in each section.
  - c. Measure the head boring distance on end hammer of each section.
  - d. Measure the tail bore length on end of each tail bore mark.
  - e. Using straight edge, draw line to each tail bore mark.
  - f. Using slave board, cut off excess tail below line (step e.      above).
  - g. Determine bass and tenor hammer slant angles with protractor.
  - h. Set up boring device for proper bass and tenor angles.
  - i. Boring from tail stop will automatically allow for head bore deviations.
  - j. Bore set hammers with #3 screw machine bit, or drill of your choice.
  - k. Prepare to cove out hammers with appropriate fixture.
  - l. Cove out hammer tails with two inch Forstner bit.
  - m. Prepare to taper hammer tails with shooting board.
  - n. Taper hammer tails with jack plane.
  
8. Setting the hammer strike line.
  - a. Mount new hammer numbers 1, 52, 67, and 88 at 5.125 inches from hammershank centerpin.
  - b. Set treble cheek block guide plate at center of travel.
  - c. Install action in piano.
  - d. Find best level of tone for each hammer: if action has to be pulled out a given distance to produce best tone, then record that distance and move the hammer the appropriate amount.
  - e. These hammers will become your gluing guides for the rest of the set. Glue set of hammers to respective hammershanks.

## Grand Hammers

Non-Reinforced / with Underfelt / Custom American Shaped Tail

Model	Molding Material	Size (lbs.)	# Hammers		Overall Length		Hammer Bore Range		Width
			Bass	Treble	Bass	Treble	Bass	Treble	
G3M	Mahogany	Gr.3 14 lb.	32	64	3 1/8"	2 13/16"	2-2 1/4"	1 11/16- 1 15/16"	27/64"
G4M	Mahogany	Gr.4 16 lb.	26	70	79.5mm	71.5mm	51-57mm	43-49mm	10.9mm
G3M-L	Mahogany	Gr.3 14 lb.	32	64	3 1/4" 83mm	2 15/16" 75mm	2 1/8- 2 3/8" 54-60mm	1 13/16- 2 1/16"	27/64" 10.9mm
G4M-L	Mahogany	Gr.4 16 lb.	26	70					
G5M	Mahogany	Gr.5 18 lb.	26	70					
G4M-U	Mahogany	Gr.4 16 lb.	96		3 5/8"	92mm	1 11/16- 2 5/8"		27/64"
Premium Blue "Lites"								43-67mm	

We recommend grand hammers that are without reinforcing, with underfelt with Mahogany moldings, and with Custom American shaped tails. The above models represent our Standard Grand Hammers. However, hammers with reinforcing, without underfelt, with Hornbeam moldings, or with European shaped tails are available by special order.

## Upright Hammers

Non-Reinforced / With Underfelt

We recommend upright hammers that are without reinforcing, with underfelt, with Hornbeam moldings. The above models represent our Standard Upright Hammers. However, hammers with reinforcing, without underfelt. or with Mahogany moldings are available by special order.

Model	Molding Material	Size (lbs.)	# Hammers		Overall Length		Hammer Bore Range		Width	
			Bass	Treble	Bass	Treble	Bass	Treble	Bass	Treble
U3H	Hornbeam	Gr.3 14 lb.	32	64	2 11/16" 74mm	2 15/16" 74mm	2 1/8- 2 3/8" 54-60mm	2 3/8- 2 5/8" 60-66mm	3/8"	13/32"
U4H	Hornbeam	Gr.4 16 lb.							9.5mm	10.4mm
									13/32"	13/32"
									10.4mm	10.4mm

Premium Blue Hammers are made with the world's finest, all natural felt, and do not contain any chemicals, lacquers or other artificial hardners or reinforcing agents. The moldings are chosen for the optimum-weight ratio.