



Hand-crafted Musical Instruments designed by  
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## Hammer Dulcimer Models Comparison

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Welcome folks to the wonderful world of the hammer dulcimer. I'm Russell Cook, owner, designer and janitor at **Master Works** where I, along with several very talented woodworkers, live out the romantic dream of handcrafting beautiful musical instruments every day! Am I lucky to get to do this for a living or what?! You've probably heard and fallen in love with this fantastic folk instrument called the **Hammer Dulcimer**. You are now at the crossroads of considering getting started or upgrading your current instrument. Since you're reading this, I'll assume you are going for it. Congratulations – that is the first big decision (and the correct one, if I may say so myself) – now come many more! Don't worry, though, the dulcimer world is full of wonderful folks who will help you all the way through the process of getting started, learning and succeeding at making beautiful music year after glorious year. If you have a few minutes, allow me to share a little info with you about various sizes of dulcimers, in general, and Master Works specifically. But first, a little background information concerning dulcimers.

Dulcimer enthusiasts are becoming more numerous every day and for good reason. The hammer dulcimer has been around for many centuries evolving and improving while soothing the soul and satisfying the musical needs of humans since biblical times. Just look, by flipping through the Groves Musical Encyclopedia, at the hundreds of instruments that have died out not withstanding the test of time. If you are serious about the hammer dulcimer's history, I highly recommend the book "The Hammer Dulcimer: A History" by Paul Gifford. We also have a brief history of the hammer dulcimer, and other folk instruments, on our website.

More recently there has been a tremendous growing awareness of the hammer dulcimer in the past few decades and it just seems to be growing more so each year. Four of the main reasons for this renewed popularity are:

1. Performers, pro and semi-professional musicians, part-timers and many purely for fun, have yielded lots of exposure of the instrument by sharing their natural love and enthusiasm for the dulcimer.
2. These "dulcimer fanatics" have devoted huge amounts of time, energy and money to produce and promote dulcimer festivals throughout the US and now other parts of the world.
3. Third they have graciously devoted substantial time and energy to provide excellent learning tools in the way of workshops, private lessons and materials, such as books and videos.
4. Last, the dramatically improved multiple instrument designs plus high quality craftsmanship, hardware and materials have benefited the average new player, and especially the semi pro and professional performer. By having rich loud instruments in much lighter and durable packages that tune and stay in tune better, much of the headache is gone! Cheap, high quality tuners haven't hurt, either.

This brings us to the purpose of this flyer – to inform you about some of the various designs of hammer dulcimers built and played across the US. It isn't an exhaustive list - there are always interesting variations. After all, there has never been a "Stradivarius" of the Hammer Dulcimer whose design is carefully copied. But this does cover the most typical American sizes and all of the models we at Master Works build. We find these models fill the needs of 98% of all dulcimer players from beginning to professional. **There are many choices** and variations to consider as well as investments. I hope these descriptions help you in the process of making just the right choice as you search the path to "dulcimer heaven". It is my sincere belief if we as builders, promoters, and supporters of dulcimers **sincerely try to help you** make good choices and support you with the help you need, **you will succeed thus we will succeed.**

## Terminology

Before jumping into detailed descriptions of the various models, allow me to share a little dulcimer terminology. Hammer dulcimers are typically identified by range or size. Two or more numbers separated by a “/” or “-“ identify the number of “courses” per bridge. A course consists of two or more strings tuned identically. Two strings per course are more common than any other arrangement. Three or more strings per course can be found and I own an antique hammer dulcimer with ten strings per course! A “bridge” is a liner strip of wood that typically has a small rod of plastic or metal on top called a “bridge cap”. The strings cross over the bridge cresting the bridge cap and form a layer of strings allowing the lower level strings to pass below untouched. The left more centrally located bridge is called the “treble bridge” while the one located on the right is called the “bass bridge”. The strings crossing the treble bridge produce two separate vibrating string lengths from a single course of strings (on the left and right side of the bridge) yielding two different notes. These are typically a “fifth interval” (DO to SOL) apart in pitch, on the American style hammer dulcimer. The “bass bridge” is played on the left side and not the far right. Its notes are a “fifth interval” below the right side of the “treble bridge”. Strings pass over two other rods, or bridges with rods, on the extreme left and right side called “side bridges” or “side rods”. Then they travel on to the pins attached to the left and right sides of the instrument.

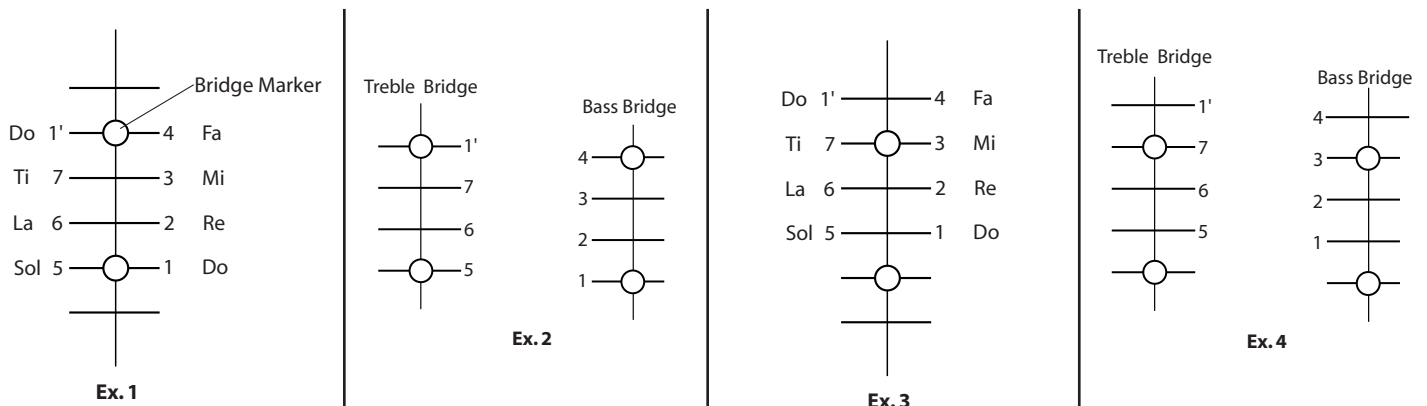
The bridges sit atop the “soundboard”, the large, flat, horizontal, wooden, surface of the instrument. It may consist of a number of different materials ranging from plywood to Spruce, Mahogany and many others. The soundboard is attached to the “pinblocks” (commonly made of hard maple) that anchor the strings on the left and right side. The soundboard is also commonly attached to the “endrails”. They give the instrument stiffness and stop the instruments tendency to bow like a banana due to the extreme pressure from the dozens of taught strings. The endrails are the vertical pieces of wood on the narrow and long sides or ends of the instrument. “Hitch pins” are simple very small vertical metal rods the strings hook onto. “Tuning Pins” are the larger pins with a hole in it. The string goes into this hole and then wraps around the tuning pin a couple of times. The head of the tuning pin is square to accommodate a “tuning wrench” which is used to rotate the tuning pin to tighten or loosen the string affecting the pitch. The unseen portion of the tuning pin inside the pinblock is threaded causing the pin to rise out of or go deeper into the pinblock when it is twisted.

Beneath the soundboard are numerous “braces” which support the soundboard in various ways by various builders. Without them, the soundboard would collapse due to the hundreds of pounds of pressure pushing down on it due to the strings cresting over the bridges. There is even more pressure pulling the pinblocks to the center which are often supported by the braces as well. The braces may also help the endrails give the body of the instrument stiffness.

All of these components sit on top of the foundation of the hammer dulcimer – the “back”. It may consist of various materials, as do soundboards.

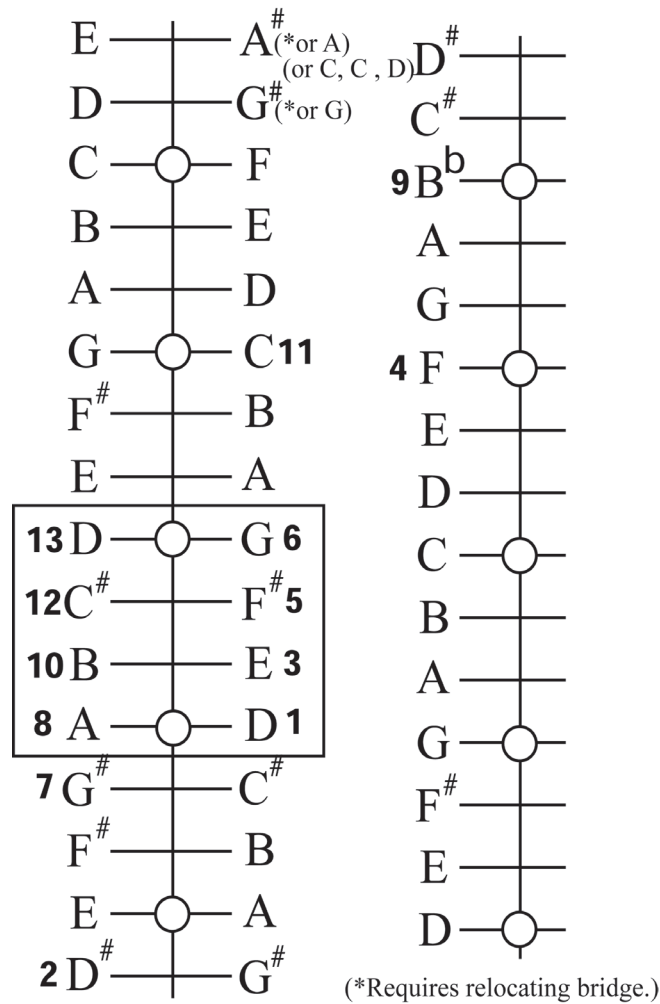
The instrument is sometimes plucked, but typically struck with small wooden mallets or “hammers”. Most players support their instrument with some fashion of a “stand”. Some sit and some stand when they play. As a beginner, not knowing how you will end up approaching the instrument, you may consider using an *adjustable stand* that allows you to chose either situation plus adjust the angle as well which is just as important as the height.

The typical American hammer dulcimer is tuned in “diatonic” scales, which simply means “Do-Re-Mi-Fa-Sol-La-Ti-Do”. The major versions of these scales (verses the minor) are found in two parts: ½ on the right side and ½ on the left. Each starts on one “bridge marker” and ends on the next “bridge marker” up (example 1). Scales can be found on the right and left side of the treble bridge **or** on the left side of the bass bridge in conjunction with the right side of the treble bridge (example 2). As you can see, there are numerous markers thus there are numerous different major scales on a hammer dulcimer. Minor scales can also be played by starting and ending one note above each bridge marker (example 3 & 4).



“Chromatic scales” (all the whole and half steps combined), such as you find on a piano when all the black and white keys are played consecutively, can often be found on a typical “diatonic” American hammer dulcimer. The extra “chromatic” notes are found scattered across the instrument within the numerous different “diatonic” scales. Some scales will have a “D” and another will have a “D#” or one may have an “F” and the other may have an “F#”. Follow the numbers and discover how chromatic notes can be found in various locations to change this D diatonic scale to a chromatic scale.

## 16-15 Chromatic "D" Scale



This is not an exhaustive list of terms of the hammer dulcimer but should provide a basis of information to be able to communicate about the different models. All of this music terminology is great for explaining but **it is not necessary to know music theory to learn to play the hammer dulcimer** – it is an easy-to-learn folk instrument! In fact, as well as several others, I was lucky enough to win the national contest long before knowing most of the terms or theory we have just discussed!

*\*\*This would be the perfect place to interject a blatant advertisement for “THE ULTIMATE HAMMER DULCIMER RESOURCE BOOK” by guess who. It is literally 5 books in one covering music theory as it pertains to the hammer dulcimer; various ways instruments are tuned, chromatics, scales, octaves, duplicated notes, chords, a common chords section (great for jamming) plus hundreds of patterns of how to look at the instrument without memorizing a lot of music theory and much, much more.\*\**

Now, on to the main purpose of this pamphlet.

## 12/11 Student Model

1. Considered to be a minimal starting place for beginners as far as range of playing.
2. Does not contain a full octave of all the chromatic notes within its natural tuning but does so with a retuned top bass bridge note, commonly highly unused. Has 2  $\frac{3}{4}$  octaves of the diatonic scale of "C", 1  $\frac{3}{4}$  octaves of the diatonic scale of "F", 2  $\frac{3}{4}$  octaves of the diatonic scale of "G", 2  $\frac{1}{2}$  octaves of "D", and 1  $\frac{3}{4}$  octaves of "A".
3. Very light and portable, smaller in size (39  $\frac{3}{4}$ " wide on the long end rail and 13  $\frac{3}{8}$ " from wide side to narrow side and 4  $\frac{1}{8}$ " tall to the top of the bridge. Weighs in at approximately 10  $\frac{1}{2}$  lbs.
4. Most commonly plays in the keys of "C", "G", "D", "Am" and "Em" some in "Dm, Gm, F and A".
5. Student instruments are less expensive to start with, fewer strings to tune and tend to stay tuned better (there is less wood to expand and contract and fewer lower pitched notes that are usually more sensitive to moisture changes). BUT, most beginners progress quickly enough that they grow out of a student model very quickly. Many times a student instrument owner will return to purchase a larger model in only a few months or even weeks!
6. There are fewer choices of woods available (choices of wood in enrails do not affect tone appreciably in this model), no soundhole inlays but stain top available as an option.
7. The tone is bright but full, clean but not choppy or "banjo like" (no offense to banjo players!).
8. A solid mahogany top is always a better sounding instrument than one with a laminated top.
9. The 12/11 comes with receptacles in the back to accept monopod legs (for playing without a stand) or video camera tripods (to be used in place of a typical wooden stand). One handle port is located in the back for ease of handling.

## 15/14 "Pioneer Package"

1. A 15/14 is typically considered a "Full-sized" instrument by range of notes. It's great for beginners and the full size means they're not nearly as apt to grow out of it. Many beginners choose to purchase a "Full-sized" model to begin with eliminating the need to move to a larger nicer model for a longer time!
2. Contains a complete "chromatic" 1  $\frac{1}{3}$  octaves naturally or 1  $\frac{3}{4}$  octaves with a retuned top bass bridge (commonly highly unused duplicate of the "C" on the top right treble bridge). It has 3 octaves of the diatonic scale of "G", 2  $\frac{3}{4}$  octaves of the key of "D" and "C", 1  $\frac{3}{4}$  octaves of "F", 2  $\frac{1}{3}$  octaves of "A", and 1  $\frac{3}{4}$  octaves of "E".
3. Most commonly plays in the keys of C, G, D, A, Am, Em, Bm, and some in Dm, Gm, F and E.
4. The extended range of this model is in the lower register giving a bigger, lower pitched voice to the instrument. The full key of "A" and partial key of "E" is important for playing with other folk instruments. The added lower register on the bass bridge adds the important "tonic notes" of "D" and "E" for the very common keys of D major and E minor so often used playing dulcimer music.
5. Though larger in range, the "Full-sized" model remains very light (12 lbs.) and only slightly larger than the student: 42  $\frac{3}{4}$ " X 15  $\frac{3}{4}$ " X 4  $\frac{1}{8}$ "
6. Being somewhat larger and braced quite differently, the voice is substantially better than the 12/11 student model - a little deeper and louder. A laminated soundboard will never sound near as good as a solid Mahogany nor the maple bridges as mellow as in a regular 15/14, BUT still a substantial improvement in voice and range at about the same price as a student laminate top with the accessories needed to play.
7. The instrument is constructed of Finnish Birch on top (3/8" top and 1/4" bottom), hard maple pinblocks and bridges with ash endrails. The entire instrument is normally stained black all over providing a stark contrast between the strings and the soundboard. You may choose to have your Pioneer stained brown or leave the instrument natural with a lacquer finish. Soundhole inlays are the "Harrison Rose" design. One handle port is located in the back for ease of handling.
8. The package includes an "Understanding and Fine Tuning" book by Russell Cook, a simple slip-in style case made of black water resistant Cordura that is lightly padded, hammers, tuning wrench, chromatic electronic tuner and an unfinished sit-down Ash x-brace stand.

## 15/14 "Sapelli Pioneer Package"

This is the same great instrument as the regular Pioneer but with a wonderful advantage. Instead of a 3/8 inch laminated Birch soundboard, it has been replaced with gorgeous solid vertical grain Sapelli wood. Sapelli is known to be very similar to Mahogany. It is somewhat harder and heavier than Mahogany but much more readily available and easy to work. It is consistent in color and grain. This soundboard is also tapered like the regular Pioneer. For just a bit more of an investment, get an instrument that sounds much better to start with and will improve over time more so than a laminated top.

## 15/14 Full-sized

1. A 15/14 is typically considered a “Full-sized” instrument by range of notes. It’s better for advanced beginners and intermediate players - they’re not nearly as apt to grow out of it. Many beginners choose to purchase a “Full-sized” model to start with eliminating the need to move to a larger model for a long time - maybe forever!
2. Contains a complete “chromatic” 1 1/3 octaves naturally or 1 3/4 octaves with a retuned top bass bridge (again, commonly highly unused duplicate of the “C” on the top right treble bridge). It has 3 octaves of the diatonic scale of “G”, 2 3/4 octaves of the key of “D” and “C”, 1 3/4 octaves of “F”, 2 1/3 octaves of “A”, and 1 3/4 octaves of “E”.
3. Most commonly plays in the keys of C, G, D, A, Am, Em, Bm, and some in Dm, Gm, F and E.
4. The extended range of this model is in the lower register giving a much bigger, lower pitched voice to the instrument. The full key of “A” and partial key of “E” is important for playing with other folk instruments. The added lower register on the bass bridge adds the important “tonic notes” of “D” and “E” for the very common keys of D major and E minor so often used playing dulcimer music.
5. Though larger in range, the “Full-sized” model remains very light (12 lbs.) and only slightly larger than the student: 42 3/4” X 15 3/4” X 4 1/8”
6. “Full-sized” instruments are somewhat more expensive but still very reasonable for an American-made, hand-crafted musical instrument. The higher quality materials (rosewood bridges, sound hole inlays, etc.) and considerably increased time – (tapered soundboard, bigger bridges, more stringing, etc.) along with more highly scrutinized materials and parts dictate the increase in cost. But, the voice is substantially better than any student model or the “Pioneer”. Its voice is deeper and richer, surprisingly loud and full from the high to the low notes.
7. There are three endrail wood choices (Walnut, Cherry, and Maple). The bridges are available in Rosewood (most commonly chosen) or Maple. Rosewood color coordinates better with Cherry or Walnut endrails. Rosewood bridges typically enhance the mellower, darker tones and increases sustain slightly while Maple bridges promotes slightly brighter tone with slightly less sustain (less hard and massive than Rosewood). If you’re concerned about having too much sustain to play a lot of faster fiddle tunes, jigs, reels or such, consider the “Low Sustain Setup” (explained in the 16-15 section of this booklet).
8. All “Full-sized” 15/14 hammer dulcimers have custom “Harrison rose” soundhole inlays. Red, brown or black stain soundboards are available (these enhance the players ability to see the silver strings versus the average caramel colored soundboard). A dark background is often beneficial to anyone having a hard time visualizing the strings distinctly.
9. The “15/14 Full-sized” comes with receptacles in the back to accept monopod legs (for playing without a stand) or video camera tripods (to be used in the place of a typical wooden stand). One handle port is located in the back for ease of handling.

## 16-15 Ultralight

1. Considered somewhat extended in range by the number of notes. Better for intermediate and advanced players but not a burden for beginners. Not as apt to grow out of as it will grow with you as you develop greater needs in the future (see 5-C below).
2. Contains a complete “chromatic” 2 1/4 octaves with a retuned top bass bridge (again, commonly highly unused duplicate of the “D” on the top right treble bridge). It has 3 octaves of the diatonic scale of “G”, 2 3/4 octaves of the key of “D” and “C”, 1 3/4 octaves of “F”, 2 1/3 octaves of “A”, and 1 3/4 octaves of “E”.
3. Most commonly plays in the keys of C, G, D, A, Am, Em, Bm, and some in Dm, Gm, F and E.
4. The extended range of this model is in the lower register giving a much bigger, lower pitched voice to the instrument. The full key of “A” and partial key of “E” is important for playing with other folk instruments. The added lower register on the bass bridge adds the important “tonic notes” of “D” and “E” for the very common keys of D major and E minor.
5. The extra course on the treble bridge provides several important advantages.
  - a. Many times, when playing in a particular key, you need the 3<sup>rd</sup> of the diatonic scale above the higher tonic note of that scale. For example, in the key of D, move an octave higher from the first D, the tonic of the scale, which is, of course, again D. If you continue from that high D to E then to F#, it would be the 3<sup>rd</sup> note of the 2<sup>nd</sup> octave. F#, the higher octave 3<sup>rd</sup> proves to be needed to play many tunes in the key of D. Now, to my purpose for this explanation. C is the highest normal key on the treble bridge. On the 16-15, the tuning continues up to E on the left, which is the higher 3<sup>rd</sup> of the scale. This permits the player to utilize the key of C much, much more by

simply having one extra course!

- b. The lowest and highest note on a 15-14 is D three octaves apart very important as this is the most common major key used on a hammer dulcimer. (Another important reason for owning a full-sized over a 12-11 student). But the most common minor key is Em. The 16-15 gives you the highest E to complete the scale (more importantly the arpeggio of Em) to the higher E.
  - c. **One of the most important reasons for opting up to a 16-15 “Ultralight” verses a “Full-sized” is its ability to grow!** No not in range but in its chromatic capability (refer to the description of a 16-15c). **At anytime you may return your 16-15 “Ultralight” to us at Master Works, and we can change it into a 16-15c** (c =chromatic – refer to the terminology section). It costs \$250 to add chromatics to an existing “Ultralight” verses \$200 when purchasing a 16-15c to start with, but it sure beats selling and repurchasing a newer instrument, especially if you have grown very attached to it! This gives you the ability to purchase an instrument at a lower cost now and invest further towards your chromatic needs at a later time! How great is that? I don’t know of another builder anywhere who offers such an option.
6. Though larger in range, the 16-15 “Ultralight” remains very light (14lbs) and only slightly larger than the 15-14: 43 3/8’ x 17’ x4 1/4 ‘.
  7. Though somewhat more expensive, the 16-15 “Ultralight” is still very reasonably priced at approximately one thousand dollars (priced any American made handcrafted guitars lately?) It is constructed of hand-picked woods, by myself, including mordillo rosewood, genuine mahogany, Finland birch, select white hard rock maple, vertical grain spruce or fir, plus dozens of varieties of custom American and foreign exotic woods. Again, I hand pick all materials from 100,000s of board feet of wood each year. I have touched virtually every stick of wood incorporated in your instrument. More than three decades of continuous hard work and experience (10,000 plus instruments) means more than I can explain when it comes to dealing with the inconsistency of wood from countries all over the world as well as a variety of glues and finishes. I certainly don’t know it all but I know a lot more than I did my first, fifth or even tenth year of building or my 1<sup>st</sup>, 100<sup>th</sup> or even 1000<sup>th</sup> hammer dulcimer! Quality and consistency comes from succeeding and failing, while discovering characteristics of wood in all phases of instrument building through many decades of experimenting, as well as production.
  8. “Ultralight” - what does that mean? Materials alone do not completely dictate the tone of an instrument. Even more important is the design-what you do, or don’t do, with the woods and glues and finish and hardware. After years of building large, heavy, over-braced traditional American style “floating soundboard” dulcimers with four strings per course, I saw the light of “less is more”. When there are more strings per course there is more stress to brace against. This makes the instrument more massive, which makes the instrument less vibrant which dictates even more strings! I own an antique dulcimer that has ten strings per course and it weights a ton! Yes, it sounds awful as well! Anyway, my design went from 50-60lbs to 18lbs. - everyone went nuts! I often heard “I don’t have to get someone to carry my hammer dulcimer for me anymore!” Continuing in that train of thought, I continued searching for a slightly leaner “thoroughbred” of a design. So, for more than two decades I have been building the original lightweight hammer dulcimer reasonably titled the “Ultralight”. It now weighs in at approximately 14lbs. There is a 4 lb. difference from the first “Ultralight” to now. This change came from a simple but extremely important concept -“tapering”. From the beginning of the “Ultralight”, I chose to taper the pinblocks, removing a ton of unnecessary hard maple. You now see many instruments incorporating this logical concept. But it can be integrated in many other ways as well. Braces need not be full thickness and height all the way across the instrument. The stress is mostly in the center where the back is being pushed downward by the cresting strings over the treble and bass bridge. So, we make them shorter where the pressure is less and full height where the support is needed! The soundboard not only vibrates but also supports the treble and bass bridges just like the braces. The areas not directly supporting the bridges do not need to be as thick and should be thinned. The supporting areas should be stronger and be made thicker. The edges are strengthened by being attached to the endrails and pinblocks thus the perimeter is stiffer than the central areas of the soundboard. This allows us to make it thinner around the outside and shave off a few ounces! The pinblocks have a lot of stress but are fully attached to the back, endrails and soundboard thus they are stiffened and need not be as thick and wide as you might suspect. The back is supported by the braces, endrails and pinblocks. It does not require thickness to be stiff. The bridges create the cresting strings, of course. Since the hammer dulcimer is designed logically in a trapezoid shape, the higher-pitched shorter strings crest more sharply unnecessarily. We taper the bridge – a shorter height on the narrow end of the instrument – thus removing some very heavy rosewood from the bridges and relieving a bit of stress on the body by yielding a less severe crest of the strings over the bridge. The “Ultralight” utilizes a double endrail design. The first “internal” endrail is inside between the pinblocks and above the back and beneath the soundboard just like the visible endrails in the 12-11 and 15-14 design. You can see

the “Ultralight” internal endrails through the back handle ports. The second endrail is the flat external visible material, which covers the internal endrail and ends of the pinblocks on both short and long sides of the hammer dulcimer. Since there are two, both the internal and external endrails are thinned to reduce weight but remain even stronger than just one thick endrail.

9. Voice – The “Ultralight” is the instrument Master Works/Russell Cook is known for. It is rich, mellow, reasonably loud and evenly toned from top to bottom. Rosewood bridges are a part of this rich mellow voice but maple may be chosen to brighten it slightly. Those who play a lot of faster tunes may prefer maple bridges on their instrument. Maple bridges also affect sustain slightly. It is a little softer and less dense than rosewood yielding slightly less sustain. Softer lighter woods, such as walnut or cherry, transfer energy less effectively and reduce sustain even more. But the tone becomes ‘tinny’ and ‘thin’.

Sustain is far less understood than it should be in the hammer dulcimer world. Every piece of wood, hardware and all aspects of design affect the voice and sustain in various degrees. Even the arched soundboard affects sustain slightly. But, by in large, sustain is the product of bridge material and design as well as bridge cap material and design. Side bridges are included in this concept. Again, harder denser bridges yield more sustain just as harder denser bridge cap material yields more sustain. Long continuous bridge cap rods yield more sustain and sympathetic vibration (hit a ‘D’ and all “D’s” resonate, etc.) while short little multiple bridge caps yield less sustain and sympathetic vibration. Softer bridge caps such as “delrin”, a fiberglass type plastic rod, yields less sustain while metal caps yield more. Bridge design affects sustain dramatically. Extremely low sustain is evident in instruments with individual “chessman” style bridges, versus long continuous bridges of one piece of wood. Separating the top of a continuous wooden bridge is somewhere between. Side bridges are similar in affect but not as dramatic. The most dramatic variation of side bridges is the Howie Mitchell design where all strings go *through* the side bridges and turn up to the hitch pins. Since they are in direct contact with the wood, sustain is dramatically reduced. Some players determine they need a lower sustain than average. They might play a lot of Fiddle tunes, Jigs or reels. Some folks need it to comfortably perform jazz or ragtime tunes. Some players are just used to a low sustain voicing from previous instruments. Whatever the reason, we can accommodate you with the “Low Sustain Setup”. It includes a less massive wood for bridges. Cherry fills the job well. The slots on top are much wider (taking mass from each pedestal). The bridge is then tapered from a narrow top to a wider bottom making the bridge somewhat shaped like a triangle verses our traditional round top, straight sided rectangle shape. Again, the result is less mass. Then, the bottom of the bridges are scalloped to lower mass, as mentioned before, but mainly to make the bridge less stiff - a little more like individual chessmen style bridges. Last, but not least, we drill extra small holes in the lower half of the Bass bridge, Guess why - yep, it’s to lighten the bridge where sustain is commonly the most prevalent. The lower treble is typically not a problem.

All together, the process dramatically lowers the sustain of the entire instrument offering players the full, mellow tone of a Master Works Hammer Dulcimer with the flexibility of adjusting for taste concerning sustain.

10. Endrails – There are two standard choices of endrails – walnut and cherry. Maple is available but is rather bland in appearance so we choose to use only curly or birdseye maple (which cost a little more) on these nicer instruments. It is an extra cost along with many other exotic wood choices. Endrail choices do not dramatically affect the tone of the instrument. They mostly affect appearance, which is very important as you look at it day after day!
11. Soundholes are not important in varying the tone or voice of a hammer dulcimer as there are so many slots and handle ports elsewhere in the instrument. In smaller instruments, such as violins, the soundholes affect the tone a great deal. We include at no extra charge beautiful Harrison Rose soundhole inlays in your “Ultralight” hammer dulcimer. It is based on a quilt design with a little Celtic rope styling on the side. We have a few custom design inlays available for an extra fee or you may produce your own and have us incorporate them into your ordered instrument.
12. Stained soundboard – Red, brown or black stained soundboards are available (these enhance the players ability to see the silver strings versus the average caramel colored soundboard).
13. The “Ultralight” model comes with receptacles in the back to accept monopod legs (for playing without a stand) or video camera tripods (to be used in the place of a typical wooden stand). Two handle ports are located in the back for ease of handling.

### 16-15c Ultralight Chromatic

1. The 16-15 “Ultralight” but with an option added called “**Chromatics**”. The body of this instrument is exactly the same as the 16-15 “Ultralight”. Since the American hammer dulcimer is tuned in diatonic scales, *not all of the sharps or flats of the chromatic scale exist* within its range. But, there are numerous diatonic scales on each instrument (basically explained under the **Terminology** section) and each scale has slightly different notes thus *some of the chromatic notes DO exist* somewhere on most instruments. BUT, *with the Chromatic option, ALL the sharps and flats are available* somewhere on the instrument. The chromatic option simply adds missing notes not typically available on the 16-15 “Ultralight” and other smaller models that are tuned in normal diatonic fashion. There are 3 additional bridges producing 5 additional missing notes. *This yields 3 and ¼ octaves range fully chromatic.*
2. There is no need to discuss what keys are theoretically available on a chromatic because it is fully chromatic – all notes of all scales and keys are available for over 3 octaves. Realistically, though, it is very *difficult to play in any key other than those normally used on a non-chromatic*. So, what is its benefit? With a chromatic, you will be able to find any chromatic note a tune may require – a note not normally found in that particular diatonic scale. For example, in the key of “D”, there are 2 sharps (F# and C#). But if the tune requires a D# or Bb or F or C, they are there in all 3 plus octaves! In the key of G, the 4<sup>th</sup> note of the basic melody of the song “Laura’s Theme” is Bb but the key of G only has a B – no Bb. *The Bb can be found on a chromatic and in all octaves!*
3. There are no appreciable changes in weight, durability or tone.
4. All wood choices and other options are the same as the “Ultralight”.
5. The instrument is *not more difficult to play than a non-chromatic* – you can interchange from one model to the other with virtually no interruption of playing patterns. As a beginner, it is not more difficult to learn to play on a chromatic but may not be beneficial to a beginner for a little while.
6. The chromatic option costs only \$200 at the time of purchase of an instrument. To add this option at a later time to an existing “Ultralight” there is an additional cost of \$50 (the process is more difficult and time consuming). *To add this option to an existing “Ultralight” requires it to be returned to the workshop* – it cannot be done at any dealership.

### Bantam Weight Option

1. As I have discussed earlier, possibly the most important aspect of tone in an instrument is it’s mass. The more massive an instrument, the more energy it takes to drive it and make it vibrate - the less it vibrates from the same amount of energy. Heavier built instruments are stiffer having thicker materials contained within its construction – the mass must come from somewhere. Lighter and less massive instruments are more vibrant, louder and responsive. It has been our focus for two decades to always be in search of ways to eliminate as much mass as possible - safely. The challenge has, and always will be, “how far can we go?”. To be sure, we’ve gone too far a time or two or three. You have to discover where that line exists to be able to avoid it! But, *the line is where the sweetest voice of an instrument is hibernating!* You must aggressively hunt for it, find it, map it and return to it over and over. You must test it with new and different materials. The most frustrating problem is when you make an unrelated improvement elsewhere in the instrument, *the line changes!* How challenging instrument designing is – how fun it is!
2. The “Bantam Weight Option” is not another model but a process of eliminating excess mass from the normal “Ultralight”. Why not include this process into all 16-15’s? It is labor intensive and more expensive. We would prefer to leave the decision to you rather than make all 16-15’s more expensive.
3. The process includes basically 4 variations:
  - a. The back is changed from laminated Finland Birch to a thin vertical grain mahogany. It is “fan braced” to give durability and to permit it to be thinner.
  - b. The external endrail is reduced in thickness.
  - c. The internal endrail is made thinner and “honeycombed”. Again, less is more!
  - d. Since the instrument is becoming so much lighter and responsive, we choose to separate the bridge caps to deter excessive sustain. You might refer back to the terminology section as well as the 15-14 description (sec 7) and the 16-15 description (sec 9).
4. Not only does the voice of the instrument improve but also so does its portability. It *weighs in* at an incredible 12lbs.!
5. There is no apparent change in durability or ability to stay tuned.
6. Of course, this option cannot be added to an existing instrument.
7. It is my opinion that this is the best \$200 you can invest in your new instrument. If necessary, I would recommend waiting on the chromatic option or passing on a carrying case in order to include this option in your instrument. The chromatics can always be added or cases and such purchased later. I hope you choose a Master Works because of all the things we do right but, most importantly, for it’s voice and tone. This is one of our finest developments – you deserve it!

## 16-16c *Russell Cook Edition*

I've been asked just exactly what would I include in an instrument built just the way I would like it most. I was asked several times by different folks. I got to thinking about what would I do if I wanted to order a special handcrafted piece of furniture or a special handcrafted rifle or beautiful painting or... It's great to give the artist some idea of what I might appreciate most but I would ask them to simply give me their most – their best effort – their finest work – their *smartest* design. Well, wouldn't it be wise to do the same for someone looking for my finest work of art? *Here it is!*

- Start with a 16-15 Chromatic Ultralight Bantam Weight – considered possibly the finest light weight hammer dulcimer in the country and beyond in its very reasonable price range
- Add Redwood, carefully sandwiched with mahogany for strength, by stripping it into the soundboard to add just a touch of its attitude, tone and volume
- Do the same in the back for extra effect
- Include redwood bracing to amplify its effects even more
- Put extra slots along the edge of the soundboard to make it more vibrant without losing strength
- Scallop the bottom of the bridges to reduce weight, stiffness, mass and sustain without losing the rich mellow voice only available from Rosewood bridges
- Add an extra 16<sup>th</sup> bass course to offer a “variable” note – tune it to a low tonic note of the key you use the most
- Include beautiful exotic wood endrails – just because I like it
- Stain the soundboard to a deep red or chocolate brown or black or ??? to contrast with the strings to make it easier to see on stage
- Add wound strings throughout the lower range to give extra power to the bottom end
- Separate the bridge caps to reduce sustain just a little
- Add custom soundholes with distinctive laser engraved artwork. Also offer coordinating laser engraving for the endrails for an exquisite looking package that few people in the world have in their possession (available at an extra fee)

Most of these options have been spoken of before. But redwood is something very special and peculiar to work with. Redwood is wild! It has a great attitude like “LET ME AT ‘EM! I’ll show them whose boss!” I sometimes refer to it as “rowdy” or “bold”. At the very least, it's different and beneficial – **if** you can control it. It is also quite dangerous – just ask any hammer dulcimer builder who has used a lot of it. They all have experienced its bad attitude when put in a stressful environment concerning construction. A hammer dulcimer is not a relaxing place to exist if you're a piece of wood!

Redwood is very brittle and very easy to crush. That is the bad side of redwood. But, it can be dealt with – you just have to use “kid gloves”. That is the purpose of “sandwiching” redwood with a thin coating of mahogany before incorporating it into the soundboard. Even then it must be carefully stripped into locations that are farthest from excessive pressures like chromatic bridges. Yep, it is a whale of a bunch of work! The soundboard is constructed as usual (specially selected from all the material in the workshop). Then, we slice it back up into sections for the purposes previously discussed. The selected mahogany strips are thinned to approximately 1/8 inch then sandwiched with 1/2 inch vertical grain redwood. These sections are then cleaned up on the edges, resurfaced to 1/2 inch and glued back into the soundboard from whence it came. Now, the soundboard is resurfaced to exacting dimensions and tapered with our unique shaping system (no need to share too much info) and finally glued into the first normal clamping of an “Ultralight” AFTER we go through a similar process with the back!

As with other models (15-14, 16-15, 16-15c, etc.) we offer the Low Sustain Setup option. Check it out within paragraph 9 of the 16-15 description.

Is it worth it all? Can it really make that much difference? I learned a long time ago it wasn't about *a* little thing or a *couple* of little things but rather a **compilation of many things that determine the outcome of our great efforts**. This is especially true in instrument design. No, with only redwood in the soundboard all by itself, it would require a trained ear to hear the difference. The same with redwood in the back or braces or scalloped bridges or..... but anyone can hear the difference when all these small variances are grouped together in one special instrument. I challenge you to hear the difference – especially with a regular 16-15 or even a bantam weight sitting beside a RC Edition. You'll hear lots of difference and I'm confident you'll be quite pleased and even impressed! And if you're that impressed with **your** instrument, maybe, just maybe, you'll find a little extra time to practice or feel a little more confident about playing somewhere or trying a new more complicated piece of music, or ...etc. You can't buy yourself into being a better musician .....can you????

*“In his signature model, Russell has put it all together to create a true master work. The innovative design, impeccable craftsmanship, visual beauty and responsive tone make this an instrument to cherish for a lifetime. I am proud to offer, without reservation, the Russell Cook Edition hammer dulcimer and, even more proud, to call him friend.”*

*Jerry Reed Smith – Song of the Wood, Black Mt., NC*

*“Exquisite tone, absolutely superb craftsmanship, a joy, a pleasure and an honor for any hammer dulcimer player to own. An heirloom to be passed down from generation to generation.”*

*Marty Rodabaugh – Wildwood Music, Coshocton, OH*

*“I’ve never been tempted to own anything other than my wonderful Master Works 16-15 Chromatic.....until now! When I first played the new Russell Cook Edition I thought my ears were deceiving me. I still can’t believe that he has taken a superb instrument and, once again, made it even better....to create a sound that will make you sigh with contentment. Ahh.....such sweet music!”*

*Jeanne Page – Apple Mt. Music, Albuquerque, NM*

## **Dampers**

Typically, the only way to change the voice of your instrument is by using various hammers with various materials on the striking surface, pluck the strings with your fingers, picks held in your hands, or picks in the end of your hammers. The latter allows you to strike the strings (double sided gives you two voices) then pluck the strings without removing the hammers from your fingers! Oh yes, you can “bend” the strings sort of like a Sitar if you don’t mind retuning more often!

BUT, a wonderful new option to consider adding to your new instrument-of-a-lifetime is a damper system. When activated, it dramatically reduces sustain but allows the notes to be heard briefly. The voice is similar to that of a steel drum.

Rotating small strips of wood with thick felt barely touch the strings near the end of their vibrating length when activated by the depressed pedal. The pedal is connected by way of a cable and can be located anywhere around or under the hammer dulcimer. It is comfortable and easy to use – just like a piano pedal (why reinvent the wheel?). A cable runs up to the front of the instrument, snaps on and is adjustable to your preference. Detach the cables from the instrument and you’re as portable as ever!

A typical complaint of other dampers is the noise they make, complexity of setup, bulky design, inaccuracy and the uncomfortable location of the pedal. Our system is constructed of rosewood and is smooth, quiet, small and durable. These simple to use dampers are an asset to any level of player expanding your voicing abilities wonderfully! The Master Works damper system is available on brand new 16/15, 16/15 Chromatic and Russell Cook Edition instruments. They “may” be retro-fitted on many older Master Works instruments (contact us to find out).

## **Soprano**

1. This is a specialized model of hammer dulcimer intended for folks in search of the most portable and compact instrument available or an additional voice in an instrument. 15 or more years ago I personally constructed several dozen of these in various sizes and tunings. They proved to be very beneficial to those who purchased them for these purposes. There was some confusion to first time buyers who were looking for a student model. *“This smaller instrument must be just what I need”* I heard time after time. But, I strongly suggest a beginner NOT start with a “Soprano”. Instead, they should own a regular instrument first and then get a “Soprano” at a later time.
2. Contains a complete “chromatic” 1 1/3 octaves naturally or 1 3/4 octaves with a retuned top bass bridge (again, commonly highly unused duplicate of the “D” on the top right treble bridge). It has 3 octaves of the diatonic scale of “G”, 2 3/4 octaves of the key of “D” and “C”, 1 3/4 octaves of “F”, 2 1/3 octaves of “A”, and 1 3/4 octaves of “E”.
3. Most commonly plays in the keys of C, G, D, A, Am, Em, Bm, and some in Dm, Gm, F and E.
4. You may notice these last two paragraphs were word for word from the 16/15 “Ultralight” description. The tunings are exactly the same only the Soprano is one octave higher in pitch throughout. On the Soprano, the lowest D on the bottom of the bass bridge is one note above middle C. The lowest D on the bottom of the bass bridge on an “Ultralight” is the D almost an octave below middle C.
5. The weight of this model is only 6 1/2 lbs.! Dimensions are: 31 1/4” X 14 1/4” X 3 3/4”. Each course of strings is .8 (8/10)

inches center to center. This spacing is slightly closer than the regular spacing of our other models (about .97 inches). The difference is noticeable when first approaching the “Soprano” but a few minutes of playing and your mind starts automatically compensating. It is amazingly easy to transition from one to another. If you use it a lot, there is virtually no transition time!

6. The soundboard is handpicked vertical grain spruce or vertical grain mahogany. The tone is so bright and clear and amazingly loud for such a petite instrument. The bridges are made of maple which promotes a brighter tone. The back is laminated Finland birch with a handle port and hardware for both video camera tripod and monopod. Braces are made from spruce or pine. Pinblocks are hard maple as in all Master Works instruments. Endrail choices include walnut or mahogany at this time. Soundholes are 1¾ inches and are open.
7. There have been a few versions of “Soprano’s” built over the past couple of decades. None can compare to the quality, playability and beauty of this magnificent instrument. If travel is your game, don’t leave home without it! If you’re looking for a new and different sound to compliment your group or recording you’ll find it’s wonderful solo or coupled with a regular instrument or in trio or quartet with other hammer dulcimers. It also offers a little variety to your solo concert (I love to throw it into a concert to break up the routine). The “Soprano” will please the listener (and player) to no end!

Well, folks, that just about covers it. Actually, there has to be about a thousand pages of other things to discuss and info to share with you but we just can’t include it all. I hope this has helped. It is truly an important decision and I hope you don’t wallow in agony coming to a decision, but I also hope you take it seriously. If there is a point that I didn’t cover or explain clearly enough, PLEASE call or email or write. I’ve invested dozens of hours in producing this for you and you alone. It would be very easy to adjust or add to this for others benefit so give me a buzz.

Until we visit in person at the office, workshop, festival, craft show, concert or on the other side of Jordan, may your hammers never break and your instrument never need tuning (yeah – right!). Hey, that’s why God created electronic tuners!!

*“Do not neglect your gift...” 1 Timothy 4:14*

*“Sing to Him a new song: play skillfully, and shout for joy.” Psalms 33:2-3*

*Russell*