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## Weekend Warrior Luthiery, Part 3

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For those of you who have been following this series I last left off with my first full day of spraying clear on the guitar. As I write this, the guitar is complete and class has been over for three weeks, which is both bittersweet and rewarding. When I say class is complete, it really means I completed my guitar at that point. Like most projects of this magnitude, everyone works at a slightly different pace. Carlos finished his guitar a week earlier than me and as I wrapped up my final day, Tim, Rob, Mike and Don were all still in their last stages (they've all since "graduated" from class with beautiful guitars). Let's go back to week 11 and see how this guitar made its final journey to being a playable instrument.

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### **Week 11: Finishing Day**

After letting the clear coats dry thoroughly for the week, my guitar was ready for (more) sanding. I can't reiterate how much sanding goes on in building a guitar...it literally felt like 50 percent of the work! This time with 600 grit "wet-or-dry" sandpaper on a block I worked out the uneven spots on the guitar until it was flat enough for yet another couple of final coats of clear. Sanding took a long while and it wasn't until after lunch that I sprayed the last three coats, making this shortest day, leaving at 3 p.m. since the paint needed to dry for final sanding and buffing.



Finishing and sanding are finally complete!

### **Week 12: Final finishing**

After seeing Carlos on the buffing wheel for most of the day last week I knew what to expect, but didn't realize there was still a lot of sanding to do before getting to that stage. Armed with a series of graduating sandpaper grits (from 800-1500) I spent a good bit of time wet-sanding the guitar until everything evened out. This included the neck, headstock and body. The neck actually got even a little finer sandpaper with some micromesh because there would be no buffing of the back of the neck since it would look glossy but feel sticky to the hand.



Neck glued and clamped

The next step before buffing was to glue on the neck and bridge. Before I could glue the bridge on, it was necessary to chisel off any excess finish that could interfere with the gluing process. Since the bridge has to come in contact with raw wood to make a strong bond, any finish could compromise the integrity of the connection. The bridge was glued down and held in place with several clamps and left to dry while we bolted and glued the neck on. The bolt, if you recall, was necessary as we didn't have enough time in class to learn the difficult dovetail joint but I can say it doesn't feel like it has made a difference in the final result.



**The bridge glued and clamped down.**

Once that was complete, I spent the remainder of the day working the guitar and neck on the buffing wheels to bring the finish to a glossy luster. It was unreal to experience this stage because for the first time it began looking like a true instrument. All of the details of the wood grain, binding and finish work that I'd done came to life. A very proud moment. Buffing is one of those steps that just feels good. It's not terribly difficult, and is actually a bit meditative and cathartic. After all of that was complete, I wrapped up my area and headed home for the day.



All buffed and shiny!

### Week 13: Neck and Frets

With the guitar in its completed structure, the next step was to get the frets on and prepare the nut and saddle for strings. It's hard to believe, but this time came up faster than I'd expected. Perhaps it was the weeks of finishing and sanding work that droned me into a bit of a lull that all of a sudden I was back to work on something that seemed significantly different again. I've never leveled a fingerboard, dressed a fret or done any type of level, crown, or polish in my life, so this stage had me a bit concerned. All of the good working skills in the world would never make up for a lousy fret job and bad setup. This was going to be interesting.

The first step was to cut the nut and saddle to size. Fortunately, there was a template for this and it went surprisingly fast and was very easy. A little bit of the grinding wheel on the bone nut and saddle took them down to size quickly. After the basic shaping was done I spent some time with a file and rounded over the edges to smooth out the break points and take any sharp corners off. Both were set aside for the fretting stage.

Before any fretting could be done, we needed to make sure the neck was straight and flat. I used a large sanding block with the proper radius (20" in this case) after the truss rod was adjusted to the appropriate tension and level-sanded the fingerboard. With chalk marks on the ebony to help guide me it was just a matter of sanding it away until the chalk disappeared. With that complete I spent the next few minutes cutting the long fret wire into actual frets that hung over about 3/32" on either side of the fingerboard. It was also my first time using a fret tang clipper, which basically removes the tangs from the ends of the frets so they can fit into the slots. I made several errors learning to use the tool and had to recut a few frets but once I got the hang of it, it was really easy to complete.



**Fitting the frets**

Next up was the first and only time I'd get to take a hammer to the guitar. Fretting was done with a brass hammer and a wood block to protect the frets. It almost seemed a bit barbaric to begin, with but the process went very smoothly. Put a drop of glue in the fret slot, set the fret in, and tap it in with the hammer. You could apply a pretty good amount of force to make sure it went in all the way but it definitely required a little finesse so as not to beat up the wire too badly. Once the frets were over the body we needed to set up a support mechanism between the body and neck to ensure I didn't crack it when hitting it with the hammer. George assisted in this and we got through the

first part of the fret job fairly fast.



Polishing the frets

After the frets were installed I used a nipper to cut the excess fret wire off at a slight angle to the fingerboard. Leaving very rough edges (obviously), the next step was to use a sanding block that created the perfect angle to the frets at the edge of the fingerboard. This step required using my hand to feel if anything was jutting out, and after a time I had both sides of the frets smooth and ready for the level, crown, and polish. Leveling couldn't be much easier as it used a large sanding block to bring them into the correct radius. We used a felt tip pen to mark the top of the frets much like the chalk to see where the sandpaper had hit until they were all erased. I then used a file to round the edges off the frets to a 3-point smooth end. Again, though I'd never done this before, it seemed fairly easy to accomplish after a little practice. The final stage was polishing, and we all know that's just another name for sanding, which is exactly what it was: a long process of using graduating degrees of microgrit sandpaper to remove all scratches and leave the frets shiny and complete.

#### Day 14: Final Setup

Hard to believe but this was the last day. Today was all about stringing up the guitar and cutting the nut slot. George came in with a handy measuring tool that helped mark the nut for the proper string spacing and we used a pencil to draw in the areas that needed to be filed away for the slots. With the slots marked I used a file to gently cut away just a bit of the slot to hold the strings in place. After all 6 slots were cut I strung up the guitar and heard its first sound produced. Let me tell you this was a thing of beauty. While I understand it will take time for the guitar to come to life it blew me away to hear my own creation and it sounded *good!*

But before I get to that let me finish up with the fret slotting. For the next hour I filed a little away

at a time on the nut and continued to measure using feeler gauges to make sure the slots were cut to the correct depth. This became a combination of numbers and feel, and in the end the nut was cut to a comfortable-but-not-too-low depth. Since the saddle was a bit high I ground it down slightly to make the action comfortable and that concluded the build!

For the next hour or so I just played the guitar and marveled in the accomplishment of actually building an instrument. My biggest concern all along is I'd make something comparable to a \$500 classical guitar, but that was not the case at all. In fact I'd happily put this up against guitars in the \$3-4K range and feel very comfortable. After all, people who know their instruments conceived the design. I now believe that the impossible is possible, with a little time and care put into it. There are flaws. I can see them in the finish, in places where my work wasn't perfect. But overall, as a hand-built instrument and as my first ever build, I'm blown away.



Slotting the nut



**Done! I celebrate with an A minor.**

As the weeks have gone on, my guitar is opening up so that each time I play it you can hear it starting to breath a bit more. The stiffness is slowly going away, but that will take some time and a lot of playing, which I'm sure will be no problem at all.

For those of you who have followed this and wonder if it's something you could accomplish I can say with total confidence that the answer is a resounding *yes*. With the help of dedicated and fine luthiers/teachers like George and Diana, it's very possible to create your own work of playable art. Will I be able to work for Collings or Taylor as a builder now? No, but that wasn't the point of taking this class. The point was to live a lifetime dream and that's exactly what it was. Fulfilling, satisfying and incredibly fun and rewarding. Thank you Phoenix Guitar Company!