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*Ron Cook Studios*



*147 Sacramento Avenue - Santa Cruz, CA - 95060 - (831) 425-4933 - www.roncookstudios.com - ron@roncookstudios.com*

# **Restoration of Circa 1920 Kumalae Ukulele**



**Completed by Ron Cook**

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**For Barbara Davis**

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## Background

Jonah Kumalae made a decision to set up a booth at the 1915 Panama Pacific International Exposition in San Francisco and never looked back. He showcased his finely crafted ukuleles with Hawaiian musicians brought over to play them and won a "Gold Award". He proudly displayed a decal of it on all his ukulele heads from that point on.

A friend of mine and ukulele enthusiast indicated that over 600 ukuleles were produced each month in Kumalae's workshop during the 1920s and 1930s. He also mentioned that Kumalae ukuleles were often handed out to passengers on cruise ships heading to the islands and classes were given during the voyage. Some hotels had Kumalae ukuleles in rooms for guests to have and play. By the end of 1930, thousands of Kumalae ukuleles found their way to homes around the world. At its height, Kumalae employed 50 people and had a 20,000 square foot factory, where he also made instruments for other companies, like Sherman, Clay & Co. (see below) and for some mail order catalog companies.

Kumalae ukuleles were known for their beautiful curly Hawaiian koa wood and the ornate bindings on the higher-end instruments. Like many other ukulele manufacturers, Kumalae closed his business in the early 1940s due to a falloff of business during the war. As of 2012, Kumalae branded ukuleles have re-emerged, and several models are being manufactured in Ontario, Canada. However, these are more modern with various wood types and mechanical tuners and have no relationship to the originals except by name.

The following photo is from a 1925 Sherman, Clay & Co. catalog showing five models numbered 21 through 25, which correspond with Kumalae models A through E, or 1 through 5, respectively. Described but not shown in the catalogue is a Style 20, a plain, "straight grain koa" ukulele with one inlaid ring (some had three very thin rings) around the soundhole. It sold for \$9.00. This model is also known as a Kumalae Style 0. All models of Kumalae ukuleles were French polished. Celluloid and mechanical friction tuners could be ordered in place of the stock wood pegs at additional cost.



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## Valuation

Even though Kumalae sold many thousands of ukuleles in the 1920s and 1930s, a small number have shown up for sale. More than likely, this is because of the very delicate nature of the instrument. The koa wood is very thin, and once away from Hawaii, the koa either dried out, cracked or split, or was kept in a damp environment where the hide glue softened and the instrument basically fell apart. Many were thrown away.

This particular ukulele is the Model D (or Model 4), which was one of the better of the Standard size soprano ukes. Kumalae ukuleles came with wooden friction pegs, but if ordered, or purchased through a retailer, like Sherman, Clay, & Co., celluloid-style tuners could be installed. This lovely Kumalae ukulele has the original wooden friction pegs.

Examples of Kumalae Model D Ukuleles, in all states of repair and disrepair that I've recently found for sale on ebay have been priced from around \$300 to over \$1000. I also found some information about Tiny Tim's Kumalae Ukulele that sold at auction for \$1600. The fancier Kumalae models, with intricate bindings and inlay, are showing up on ebay for around that same price.

I feel that this Model D, in its restored condition, should be able to sell in the \$600-\$1000 range. It does fret true, producing a beautiful tone that, as my friend described, is "the real Hawaiian ukulele sound."

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## Day 1: Assessment



On Day 1, I made a full investigation and assessment of damages. As I've mentioned in other ukulele repair logs, Kumalae ukuleles are known for having almost paper-thin wood on the body. This is great for sound and one reason Kumalae ukes have a wonderful tone, which some say is the true "Hawaiian" ukulele sound.

But thin wood can also cause problems if the instrument is dropped, stored improperly, or sat on. Whatever happened to this one broke the neck off, cracked the sides and a little on the top, and caused some glue joints to come apart. Also, the top was warped.

The good news was that the neck, head, and friction pegs were in good shape. Only the dovetail joint (bottom right photo) had broken. Fortunately, the broken off piece was still glued in the body. A little later I noticed that the last fret, the 12<sup>th</sup> fret, was missing. I would have to fabricate a new one.

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## Day 2: Back Removal



On Day 2, I removed the back. Recently I acquired a specialty heating device that included a type of matte knife that attached to the end. This is basically a wood burning tool, but it came with several attachments for different types of work. It has a rheostat I can set from warm to very hot. For the old hide glue, I ran a damp sponge around the edges already loose, then set the burner on warm, and slowly ran the knife around the edges. Within an hour, the back was off.

After I took the back off I saw why the top was warped. Both of the top braces had come loose. (See the arrows in the bottom photo.) I knew as soon as these were fixed, the top would flatten out quite a bit.

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## Day 2 (continued): Top and Back Numbering



With the back off I noticed numbers penciled in on both the top and back. Both said “21-a”. I can only assume this numbering system paired top and back pieces of similar koa.

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## Day 3: Fixing Loose Bracing



The first thing I needed to do was to re-glue the two top braces. As I thought, this flattened the top quite well. I used a PVA glue, not hide glue, on this repair, since I wanted the braces to attach more firmly to the top.

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## Day 4: Side Cracks



When the neck broke off it took off a few pieces of wood, which are missing, and broke the sides on both sides of the opening.

Before adding any reinforcements inside, I needed to close up the cracks. I had to do this very gently, because the side wood is so thin. Too much clamping pressure would do more damage than good.

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## Day 5: Adding Cleats & Kerf Repair



Now that the side cracks were closed I started gluing thin strips of wood (cleats) on the inside to strengthen the sides and to keep the cracks from opening again.

I also noticed that the kerf strips, the notched lining that gives a little more gluing surface for the top and back, had come loose. It took only a few minutes to repair these.

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## Days 6 to 9: Adding Cleats



For several days, I continued to make and glue the thin strips of wood on the inside over the cracks. As you can see in the photo, I made the strips run from kerf to kerf.

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## Day 10: Top Cleats



Because the top had warped so much from the loose braces, a hairline crack had developed just below the opening where the neck goes. I injected a little PVA glue into the crack, and then, after it dried, added a few thin cleats to strengthen the area.

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## Day 11: Gluing Back



Now that all the cracks have been repaired, it was time to glue on the back. For this type of repair I do use hide glue. I use a pre-mixed liquid version of hide glue that's available at hardware stores. Hide glue is reversible, which means with a little heat and/or moisture, it becomes tacky again. This is great when tops and/or backs need removing for repairs.

Store bought liquid hide glue has a short shelf life, around a year at most. In the old days, and to some extent today, luthiers mixed just enough hide glue from granules or flakes for the job at hand. It would be heated in a special glue pot then brushed on the surfaces being glued.

Hide glue has been around for thousands of years. Earliest recorded written procedures for making hide glue dates from around 2000 BC in Egypt. It was often used in paints to seal furnishings and other items, like caskets.



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## Day 12: Removing Top



Now that all the cracks have been repaired I needed to take off the top so I could remount the neck.

The reason I removed the back first was because it was already coming off in a couple of places, which made it easy to remove to get at all the crack repairs. Unfortunately, the neck couldn't be remounted from the back side. That's because the part of the neck that attaches to the body is a dovetail joint. It has to slip in from the top.

I again used my heating iron with its matte knife attachment to remove the top. This was a little more difficult and took a couple of hours. Some of the rope-like binding was loose already, and several pieces popped off while removing the top.



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## Day 13: Gluing Neck



The neck's dovetail joint has slots on both sides that the thin side pieces of the uke fit into. I had to first clean out the slots since pieces that broke from the body were still glued inside.

Once I got the slots cleaned, I dry fit the neck into the body's side pieces, and it fit perfectly. It helped that part of the neck's dovetail was still in the body. This allowed me to set the neck perfectly in place and at the right angle to the body.

Once I got the fit right, I glued it in place.

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## Day 14: Gluing Neck Reinforcements



Because of the missing pieces that were lost when the neck broke, the neck's dovetail was still very weak where it attached and it wouldn't take much to break it again.

I added a little mass to the dovetail by adding a couple small maple pieces. I glued them to both the dovetail and the sides. This will help strengthen the neck joint.

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## Day 15: Gluing Top



Now that I was satisfied with the neck joint, it was time to reattach the top. Again, I applied hide glue to the top of the sides and the kerf lining, then clamped the top in place.

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## Day 16: Scraping and Sanding



When I put the top back on, I was able to get most of the squeezed-out glue cleaned off, but with all the clamps in place I couldn't get at all of it. Today I used a cabinet scraper to get the remaining glue off, then sanded down the surfaces with sandpaper to even out the finish around the repairs.



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## Days 17 to 19: Fixing Rope Binding



Before putting the pieces of rope binding back on, I had to first clean the channels. The hide glue had squeezed out onto these small edges, so I had to use a micro chisel to scrape it. Cleaning took a couple of hours on Day 17.

Piecing the rope binding back was a challenge. It was like a jig saw puzzle. I had to keep placing different pieces until one fit and looked just right. I was only able to glue a couple at a time, wait a few hours, then glue a couple more. The whole process took three days.



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## Day 20: A Busy Day



On Day 20 I was able to get quite a bit done. First, where the neck joined the body, there was still a slight void where some of the side wood was missing. I took some fine red mahogany sawdust, mixed it with white glue, and made a wood paste (I call wood maché) and forced it into the small void on each side of the neck. Because it's made with glue, it adds strengthening power to the neck joint.

One thing I've noted with old ukuleles is that the neck wood shrinks crosswise over the years. The frets don't shrink, so the sharp ends stick out a little. Using a fret file, I smooth out these rough ends. One other thing, like I mentioned earlier, the 12<sup>th</sup> fret was missing. I fabricated another and set it in place.

After filing the frets I finished sanding the instrument with 600 grit sandpaper, cleaned it off then applied the first coat of stain.

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## Days 21 to 24: Staining and Varnishing



For the next four days I applied one more coat of stain, then when it was dry, applied several coats of tung oil varnish.

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## Day 25: Polishing and Stringing



After letting the varnish cure for a couple of days, it was time to polish it and string it up.

Before polishing, however, I had to clean out the friction peg holes. Finish had gotten inside them and made the peg holes too slippery to hold the pegs securely. I used a tapered reamer, used for tapering holes for friction pegs, to clean them out.

Older ukuleles usually had a low-gloss finish. Applying a non-abrasive paste wax with 0000 (very fine) steel wool, helps protect the surface, and keeps a low-gloss appearance.

Now it was time to string it up.

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## Day 25 (Continued): Completion



After stringing it up, I tested it by playing each string up the neck to make sure the action (string height) was correct. It was. I played a few chords then tried my hand at the only ukulele song I know, “Has Anybody Seen My Gal”. This old Kumalae ukulele sounded great.

This ukulele is nearly 100 years old now. I’m sure with proper care it will make beautiful music for another hundred.

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