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

Restoration of 1915-1920 Phonoharp Celestaphone

Completed by Ron Cook

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For Barbi Lazarow

Background

Chord zithers, often called Guitar Zithers, were very popular from the late 1800s to the mid-1900s. Hundreds of thousands were made by several companies, including Friederich Menzenhauer, Oscar Schmidt, and Phonoharp. Phonoharp made several different models of chord zither, each one manufactured in the thousands. These were sold in Sears and Montgomery Ward catalogs as well as door-to-door.

In 1915, one model of Phonoharp made was the Celestaphone. It was advertised as a mandolin and guitar in one instrument. It had a set of four chords and 15 doubled melody strings. Weighted hammers, when hitting the strings, bounce on the strings making a sound like a doubled picked mandolin. This model of zither lasted only five or six years and evolved into the Marxophone, which was made by two different companies until the 1950s. Note that the Marxophone was used in the *Doors* first album for the recording of "Alabama Song", written by Bertolt Brecht with music by Kurt Weill.

Celestaphone: 1915-1920

Marxophone: 1920-1950s

Unfortunately, Barbi Lazarow's Celestaphone is missing the hammer mechanism. The Celestaphone has been on a couple of auction web sites, and I hope to eventually find one for parts. However, it is a very rare instrument and seems to sell quickly when available. I'll keep looking.

The following photo is of Barbi Lazarow's Great Uncle Maurice Fox, a young doctor stationed in Atlin, British Columbia, in the mid to late 1920s. He was the original owner of the Celestaphone.

Great Uncle Maurice Fox

From the top decal it is obvious this instrument was made for the Canadian market. Canada was still a British commonwealth. It had independent rule, but it was part of the British Empire. Notice on the decal that one is the British flag (left) and the other is called the Canadian Red Ensign, the Canadian flag of that period, but still showing Canada as being part of the British Empire. In the 1950s, Canada began designing their own flag. The current Maple Leaf flag was finally adopted in 1965. I found a second Celestaphone on the internet, also without the hammer mechanism, that was for sale in British Columbia. It also had the flag decal.

Valuation

Chord zithers from several U.S. companies were made in the hundreds of thousands and were sold door-to-door through the depression years and by Sears Roebuck and Montgomery Ward catalogs from the late 1800's up to the 1950s. Because so many have survived, prices are relatively low compared to other stringed instruments. Occasionally, rare instruments, like the Celestaphone, can go for much more. Some previous auctions have sold Celestaphones, in bad condition, for under $100; in perfect condition, for up to $500.

But, for many people, the value of an instrument is not monetary, but sentimental. To be able to have a restored piece of family history on display, to know its use, its background, and who played it, and to be able to pass it down to future generations, is priceless.

Day 1: Assessment




On the first day, I always look over an instrument to see how much work is needed to repair or restore it. The biggest problem with this zither was the failed glue joint at the tail block (top left photo). The block had come loose probably because the zither had been stored with the strings tight. It was fortunate that the strings had been removed or more damage could have occurred. Also, I had noticed a broken screw where the tail pin cover had been attached. The tail pin cover (top right) was well worn. For some reason, there were a couple of eye screws on the zither, one by the sound hole (bottom right), and another on the side. The top of the zither was also well worn. When I noticed the line of marks on the top, then the areas at each end of the tail pin area where something was mounted, I began researching the instrument and found that it used to have lead hammers that struck the strings. It was a Celestaphone, from the 1915-1920 era. Unfortunately, the label is missing.

Another interesting item I noticed was how the sound hole decal was applied a little to the side. Often decals are set after the instrument is finished but before a top lacquer is applied. There are different decals for each model and for each market or special occasion, like a world fair or exposition. This zither, with the decal off center, shows that it was probably rushed through production.

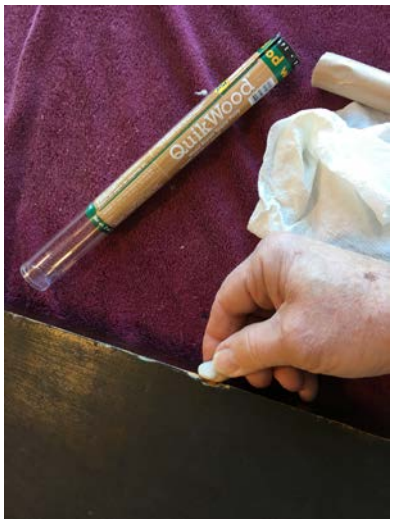
Day 2: Remove Hardware

On the second day, I removed the tuning pins and bridge wires. The bridges have several small steel rods that sit in little grooves that the strings go over. Without these rods, the strings would cut through the wood bridges. (This is often the case on cheaper “children’s” zithers.) The rods, like the tuning pins, were very corroded and needed cleaning.

Day 3: Cleaning

Now that all the hardware was off, I was able to clean all the years of dust and grime off the instrument. I first use some 0000 steel wool (super fine) to remove some small paint spots that were probably there for decades. I then used tepid water mixed with a little liquid dish soap. It took a few passes to get all the grime off.

Day 4: Patching



There was a fairly large chip on the bottom edge. I used a two-part epoxy filler to patch the chip. The brand, QuikWood, dries fully in 12 hours and can be sanded like wood and painted.

Day 5: Repairing Tail Pin Cover

The tail pin cover still had the rusty broken screw still in place. The screw also split the wood at the very end. In addition, there were two fiber pads on the underside. One was nearly off. Today I repaired the small crack and reglued the fiber pad.

Day 6: Sanding Tail Pin Cover

After all the glue dried, I sanded down the tail pin cover to remove the scratches and prepare it for painting.

Day 7: Repairing Failed Glue Joint

On this day I spent several hours to glue and clamp the failed glue joint at the tail pin block. I injected glue deeply into the cavity then proceeded to apply as many clamps as need to close up the gap.

Day 8: Cleaning Bridge Hardware

On the next two days I cleaned all the hardware. The first day I cleaned all the corrosion off the metal bridge rods. I used sandpaper and 0000 steel wool.

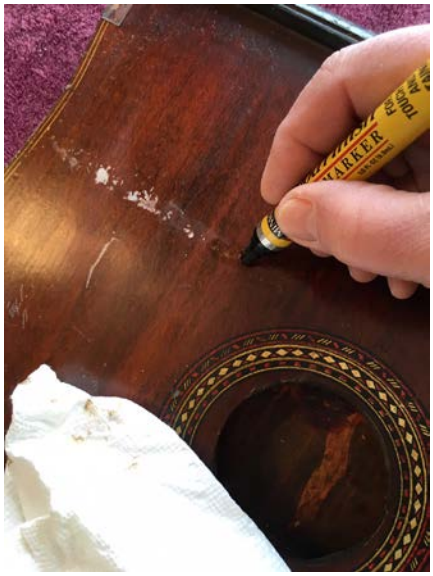
Day 9: Cleaning Tuning Pins

This day I cleaned the corrosion off the tuning pins. I used a rotary carving tool with a fine flap sander to clean them. This process took several hours.

Day 10: Side Touchups

The sides have an interesting striped design with alternating black paint and reddish stain. The paint and stains were worn and with few scratches. To touch up each stripe, I covered the rest with blue painter's tape so I could work on a single stripe at a time.

Day 11: Touch Ups



Today I did some stain touch ups on the top. I worked mainly on the marks where the Celestaphone hammers had taken off some of the finish. Later in the day, when the stains dried, I used a colored paste wax to polish the top. A couple of paste wax brands have colored waxes for different colored woods. The reddish paste wax is for darker woods and finishes like the top and sides of this zither.

Day 12: Creating New Label

I spent most of today on the computer designing a replacement label for the Celestaphone. I found one on the internet that I used as inspiration. I duplicated it, finally finding the proper fonts, and after a couple of false starts (wrong sizes), I printed it, cut it out, and glued it in place under the sound hole.

Day 13: Applying Swelling Liquid

Removing tuning pins usually leaves the holes a little oversized. I use a special swelling liquid that I pour in each hole and let it soak into the wood. If I didn't do this, the tuning pins could slip when the strings are tightened. I had to wait 24 hours for the liquid to soak in.

Days 14-17: Painting Back

Over the next four days I repainted the back. I had patched the few large scratches and several small ones when I had cleaned the zither some time ago. I applied four coats of flat black, one coat each day. I let it dry 24 hours between coats.

When the last coat dried, I applied paste wax using 0000 steel wool. The steel wool helped remove the small brush marks.

Day 18: Installing Tuning Pins

With the swelling liquid in the tuning pin holes soaked in, I reinstalled the tuning pins. Because of the number of pins, I had to take breaks because the twisting of the tuning key made my wrist sore.

Notice the extra hole with a brass insert at the point to the left of my hand. Under my hand is a second hole. These were for a music stand that a customer would have to buy separately, as were the music sheets that fit on the stand. All the chord zithers I've restored had these music stand holes, but I've never seen any with the actual music stand, and only one zither I received had some music sheets.

Days 19-20: Fixing Top Glue Joint

As I had partially installed the zither's tuning pins, I noticed a slight glue failure at the top. Again, I injected glue deeply in the opening and clamped it shut.

When the glue dried, I completed reinstalling the tuning pins.

Days 21-22: Stringing

My string supplier had a set of strings that were made for the Marxophone, which is the instrument the Celestaphone evolved into, as I mentioned in the introduction.

On the first day, I installed the 15 doubled melody strings. On the second day I finished by installing the chord strings.

Day 23: Polishing Back and Installing Feet

I did one more polish of the back and reinstalled the three brass feet.

Day 24: Fixing Broken Screw

Before I could install the tail pin cover, I had to remove the broken screw from the zither. I used a rotary carving tool with a small burr bit. I was able to “carve” out the broken screw.

I then reinstalled the tail pin cover using two new brass screws.

Day 25: Completion

The last day was time to tune up the zither. I have a digital tuner that attaches to a part of the instrument with a clip, usually clipped to one of the tuning pins. When a string is plucked, the vibration is picked up through the clip, which has a contact microphone on it, and displays on the tuner's screen. With 30 doubled strings and 16 chord strings, this took a little time.

Like many zithers from this era, the tone is unique and very beautiful. I'm happy I was able to restore an instrument that is over 100 years old to be playable again. I'm sure that with continuous playing and good care, this Phonoharp Celestaphone Zither should last another 100 years.