

Preserving The Clough Brengle Model 87 Transmitter, Part 2--The Restoration

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The first installment of this two-part story dealt with background on the 1930s Clough-Brengle Company and two of their CW transmitters. Both models were used in the Civilian Conservation Corps camps during the Great Depression. In this final part, Ron continues to tell us about his restoration/preservation of an example of one of them--a model 87 that he had purchased in damaged condition.--wf

When I got the Model 87 unpacked I was pleased with what I saw. Not only is a neat-looking piece of gear, but the reported damage was not nearly as bad as expected. My first order of business was to get out the digital camera and take some “before” photos and get a quick inventory of the damaged parts. Then it was time to get busy.

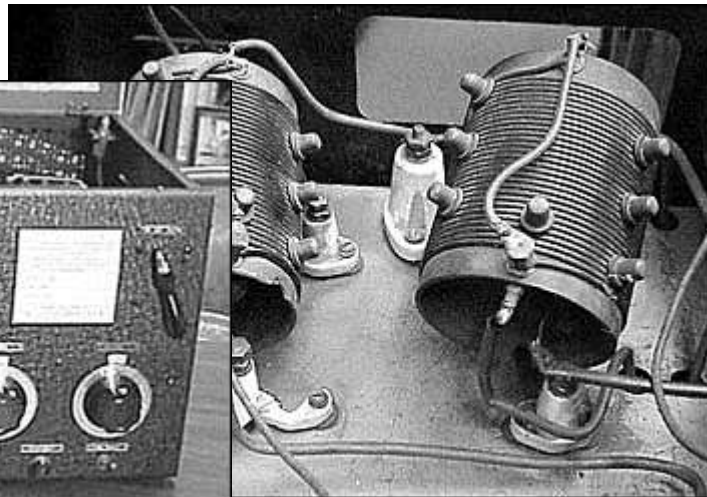
I went to the computer and posted a quick message to the AWA and CC-AWA Email reflectors about what I had found and what parts I would be needing, namely the four ceramic stand-offs and an oscillator tuning knob. As luck would have it, the source who told me about the availability of the Model 87 also had the parts, and immediately shipped them to me. With the parts in hand, the remaining problem was the broken antenna coil forms, which were missing large pieces of phenolic where the mounting screws had broken out. More about that later

When I took the chassis out of the cabinet I was very pleased to see that it had never been “hammed.” It appeared to have been untouched since it was built in 1935, with all the original parts still in place. This confirmed my decision to do nothing to disturb the originality of the piece.

I vacuumed out the dust and loose dirt, and the remains of



Model 87 front panel after restoration.



of the antenna coil forms as received.

the three broken tubes, being careful to not suck up any loose hardware. Next, to remove the 70 years of dirt and grime from the chassis, I used a "multi-surface foaming cleaner" that I found at the local dollar store. It works great and hasn't damaged anything yet. For the tight spots, I used a toothbrush with the head bent back slightly, as well as long cotton-tip swabs. When I do this work, I am careful to wipe down any cleaned surface with distilled water, to make sure I don't leave any residue behind.

When the ceramic standoffs were broken, most of the mounting hardware was lost. The main missing pieces were 8-32 nickel-plated brass machine screws with matching flat washers and nuts. Luckily the local hardware store still stocked brass hardware, and my good friend and ace restorer Robert Lozier was kind enough to do a quick plating job for me. The resulting beautiful shiny pieces didn't resemble at all the dull gray of the other hardware in the transmitter, so I swapped the bright stuff for the original in places where it wouldn't be seen.

After the replacement standoffs were installed, I had to do the hard part, which was replacing or repairing the damaged phenolic coil forms. Unfortunately, the broken pieces were missing, so they had to be replaced. Luckily, I was able to locate some matching coil forms, and I decided to patch the originals, cutting pieces from the spare forms and grafting them onto the broken ones.

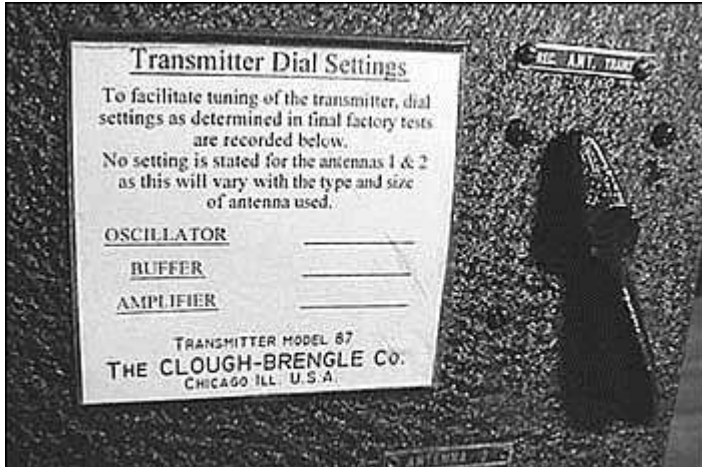
After some trial and error, I found that my Dremel tool with a thin cut-off disk worked quite well. I cleaned up the broken forms, making a square hole at each location, sanding and filing until the patches fit. I next bridged each patch on the bottom of the coil with another piece from the donor form, out of sight, to give the patch the needed strength to support the coil. Contact cement worked well.

After the cement had set, I used brown plastic wood filler to blend the patches with the original. Sanding and coloring with a brown Magic Marker completed the patch. Mounting holes were drilled, and the coils remounted on the standoffs. Replacement tubes, a pair of 802s and an 83, were obtained and installed.

Another clue to the fact that this transmitter was totally original was the fact that all of the solder joints were uniformly gray. I also found several cold, loose solder joints, and a very short plate cap wire to one of the 802 finals. It is unlikely that this transmitter could be put in the air today without considerable rehab work. But, as I stated at the beginning, that was not my goal for this project.



Interior view showing repaired antenna coils.



The replicated factory instruction card.

One of the problems with vintage communications gear is what to do about the paint on the cabinet. The textured finishes that they were able to apply in the 1930s and 1940s just can't be replicated today--possibly due to EPA-required restrictions in paint formulas.

Many restorers say they can get a good finish using modern wrinkle paint, but the results I've seen are far from looking correct. And if you are a BA (boat anchor) fan, you know that even if the textured paint is

intact, it will turn gray with age, and no amount of cleaning will bring it back.

Some time ago I ran across an item in a 1950s RCA Ham Tips, recommending the use of thinned black paint applied with a balled-up cloth, rubbing the paint color into the textured finish. This will leave just the color and not fill in the depressions. I found another way to accomplish the same thing using Testors Paint Pens (available at most hobby shops) instead of the thinned black paint. I tried it on an old voltmeter with the typical gray color. The result was outstanding, with the original texture clear and sharp under a clean gloss black color.

The paint pen looks like a magic marker, except the tip is spring-loaded. The pen is shaken and pumped to load the paint into the tip, and after a few seconds the paint will begin to flow. The best method I have found is to do a small area, and then use a paper towel to wipe off the excess. As you progress to the next area, wipe the excess off over the previous area to avoid lines.

Try out the technique on an experimental piece first. While the process is time consuming and labor intensive, I feel it is worth the effort. I have also found that it is a good idea to complete one surface in a single session; this will keep the lines between each area less visible.

After a little cleaning and polishing of the knobs and dial skirts, I was almost done. The last thing I had to do was come up with something to go in the card holder on the front panel. One of the old CCC operators had told me that the card showed basic tuning instructions. I replicated the factory instructions shown on the Model 4581, another C-B CCC transmitter in my collection. Hopefully this is close to what would have appeared on the original.

There are still a few things I would like to do, such as replacing the damaged Cornell-Dublier paper labels on the chassis-mounted vertical filter cans. But, in conclusion, I am very pleased with how this job turned out. I would love to hear your comments on my little project, and most important, if you have any information on the Clough-Brengle Company or the CCC radio stations, please contact me.