

On seeing the advertising brochure for the M55s for the first time, I was immediately taken by the cabinet version featuring the Bell Flower motif executed in marquetry. I told my Swedish friend, Anders Widell, to be on the lookout for one. In 2017 he located one that had been in the hands of a collector. For whatever reason, the original bottom of the cabinet had gone missing and he had

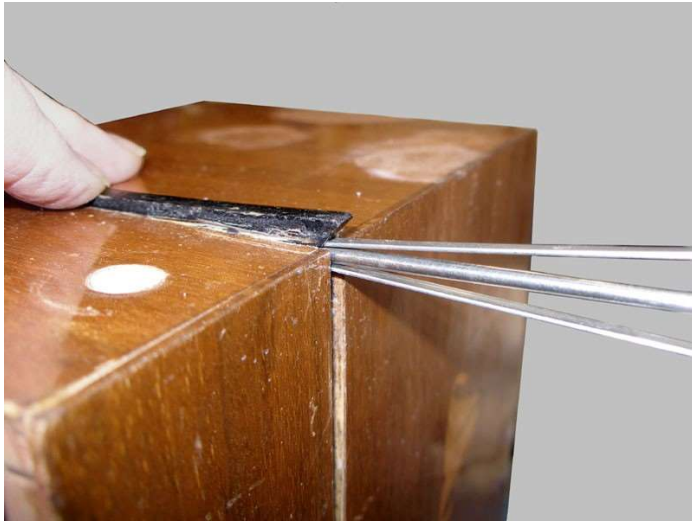


attempted to make a replacement. His base plate was not quite large enough and was attached crooked with countersunk flat head screws. The cabinet sides and top had dozens of deep scratches and dents that severely degraded the appearance of the set. **The battery cable had been cut off.** But the

good news was that the receiver chassis still had all original parts. One audio transformer tested OK but the other transformer has an open winding. However, that is OK with me; they were never designed to last 90 years. **What is important to me is to preserve original components.**

1. The first thing I needed to determine was; could the cabinet be made presentable? I had never encountered so many dents and scratches on such a small cabinet.

The finish is French polished shellac. It would be easy to remove with only denatured alcohol. I elected to try steaming the dents. However, before this task could be attempted, I had to remove the black lacquered birch strips that bisect the cabinet. One strip was missing, and I had to fabricate a replica. As I mentioned earlier, a previous owner had attempted to make repairs to the cabinet. At that time these black lacquered strips had been glued back in place with some sort of modern PVA glue. The problem is that these glues are waterproof unlike the original traditional hide glue used to assemble the cabinet. It took several hours work to extract these



wood strips without showing external damage. It involved driving very thin razor blades down beside the strips and driving flat SS strips in from the ends to lift the strips from the bottom of the grooves. Fortunately the repairer had not done a completely thorough job of removing the old hide glue

from the bottom of the grooves so that I could still weaken the bonds to some degree with water but it was a terrifying task.

The photograph shows my removal technique. The flat Stainless Steel strips are salvaged from a used windshield wiper blade and the end is ground down to a dull wedge. They are driven into place one at a time; this protects the cabinet and the part being removed. Then a skinny flat blade screwdriver is driven in between to complete the extraction. This technique works well when opening an old locking rabbet box joint commonly found on radio cabinets.

I have an old heat-sealing iron as used for mounting photographs and prints. You can buy a new one with adjustable temperature for about \$25 from e-Bay. This tool works well for steaming dents simply because of its small size. You could use a full-size iron, but its heating area is much larger than you really want for working on small dents.



The process is easy, just take a small square of old cotton bed sheeting and lay it on the wood. Use a disposable pipette to apply a few drops of water to the sheeting. Apply the iron for ten seconds or so and then lift the sheet off. There will be condensed steam on the finish around where you are working that you will wipe off. You repeat the process two to four times but before each new placement of the sheet, apply a few drops of water directly on the dent and allow it to soak-in for a minute or so. Then apply the sheet, add a few more drops of water and steam until the sizzle stops. I have found that performing more than three or four applications will yield little improvement. There can be a great variation in the effectiveness of this process but in this case, it proved well worth the effort.

Only **after** I was finished with the steaming, did I strip the old shellac with alcohol. The dissolved old finish soaks into the steamed areas and helps to keep the wood coloration uniform.

There were a few dents too deep to be eliminated completely by this process including one more than 1/8" deep. These I filled with *Elmers ProBond Wood Filler*. Because the wood is very light in color, it seemed like it was best to stain the filler close to the desired color before application to get an acceptable result. The

wood filler is leveled using a cabinet scraper and a very light sanding with 400 grit sandpaper. Because of the marquetry and original wood coloration, I wanted to keep the wood removal to an absolute minimum.

These cabinets have a ***Radiola*** logo that has very fine features and it is **printed** on the wood. It must be some sort of lithographic method and I do not know how to reproduce it. I made a point to keep the alcohol away from the logo.

I applied two spray coats of shellac; using “one pound cut” for the first thin coat and then one heavy using “two pound cut”. The surface will not be level at this point but it prepares you to begin French polishing. The application of the polishing tampon will move the softened spray layers into the grain pores and eventually fill them. It is a laborious process. I do not know how long an experienced craftsman required to put such a finish on new wood at the time; my actual rubbing time was more than an hour spaced over 8 or 10 sessions! But it worked fairly well.

2. Once I determined that the refinish of the cabinet was adequate, I could set about to make a dimensionally accurate replacement base. This was not a difficult task because I have the exact same M55 except for the cabinet motif.

3. Since the base for this radio was not original, it was missing the paper label pasted to the bottom. I could not place the bottom of my reference M55 on a flat-bed scanner because the feet are glued in place. This time I did not use it as simply a template for placement of computer generated text; which is the preferred method. After 13 years, I had just purchased a new Olympus OM-D E10 Mark II camera and was able to make a very sharp photo that could be retouched. As mentioned earlier, for some reason the



label on my first M55 had been deliberately defaced. I was able to ask my Swedish friend to take snapshots of other M55 labels and from them I could reproduce the areas that had been defaced.

There is no way to know the serial number of my particular radio but I could use a number in the series and simply transpose a couple of digits to make my unit likely have a unique serial number among the sets that survive after 90 years.

4. The battery cable had been cut off just about an inch from the cabinet. Fortunately, my first M55 has the original cable to serve as a reference. Unfortunately, there is no reproduction cable available **anywhere close** to what was used on this radio. I had thought that the reproduction wire **Radio Daze** can supply which is 20 AWG stranded hook-up wire in various colors and has a cotton over-braid that supposedly matches the O.D. of the original cable conductors would do the trick. However, the wire I received from

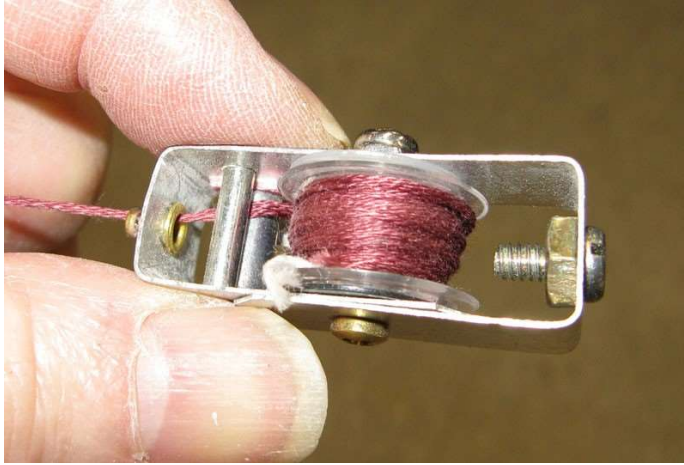
them was 0.015" over advertised diameter and **much too stiff**. I had a small stash of +50 year old 22 and 24 gauge wire in various colors that when bundled, proved to match the original cable diameter closely. Unfortunately, I have only enough wire to make one cable the required 5 ft. long. The original cable jacket is a pale maroon color braided by a 24 spindle over-braid machine. I certainly do not have such a machine in my shop and to contract to have a single cable braided on modern machines would be prohibitive because of setup fees and minimum purchase requirements.

5. Just four months previous I had encountered a similar problem in restoring a General Electric prototype superheterodyne receiver of 1926 vintage. I determined that I could braid a jacket using 12 bobbins; the original used 16 bobbins. I produced results that were good enough to simply not be noticed as a replacement by the majority of people that would ever examine the artifact. In that case, I only had to braid a length of about 15". This primitive method proved extremely difficult to manage tension on the threads and was very tiring and slow. If I were going to braid a 5 ft. long jacket, there would have to be a better way!

Using just 12 bobbins to reproduce this particular M55 cable is somewhat less convincing but only if you have an original next to it for A/B comparison. I think the substitution will not materially detract from the overall appreciation of this receiver. I began to think about how I could improve my braiding



scheme. The work I had produced was too uneven and loose despite my best efforts.



My idea was to make little shuttles containing a thread bobbin with a foam rubber flat washer acting as a drag plate on the side of the bobbin. I knew from sewing machine technology that this is not a good way to keep constant tension on the thread because as the

thread is pulled off the bobbin, the amount of pull required to cause the drag plate to slip increases, thus making your braided jacket tighter. But I could not think of a way to make a simple tensioning device independent of drag on the bobbins with the materials I had in the shop. However, the changes made did substantially reduce the strain on my fingers. BUT the work I could produce still looked uneven in a different way and **actually looked worse.**

By this time, I had spent almost a week of afternoon hours fiddling with this problem; **but I just could not accept defeat.** I finally thought of a simple way to put drag on the thread independent of the bobbin. My solution was to have a steel rivet pass through the cage. A small super magnet was positioned to adhere to the side of the rivet. Thus, if the thread was placed to run between the rivet and the magnet, it would pinch the thread and provide a fairly constant drag regardless of how full the bobbin. Drag can be regulated by wrapping the magnet with a few layers of aluminum foil tape. **It worked!**

I needed a frame to keep the bobbins in order and apply tension on my wire bundle. The solution was to cut a ring from scrap plywood. Glued to the top of the ring are 12 squares of MDF board.

There is a 6mm hole drilled in the side facing the center of the ring. I press fitted another super magnet as used in the shuttle into each hole. This provides a magnetic anchor to the #6 steel flat head screw in the end of the shuttle frame. The MDF block keeps you from accidentally pulling too much on the shuttle and introducing slack in the thread.

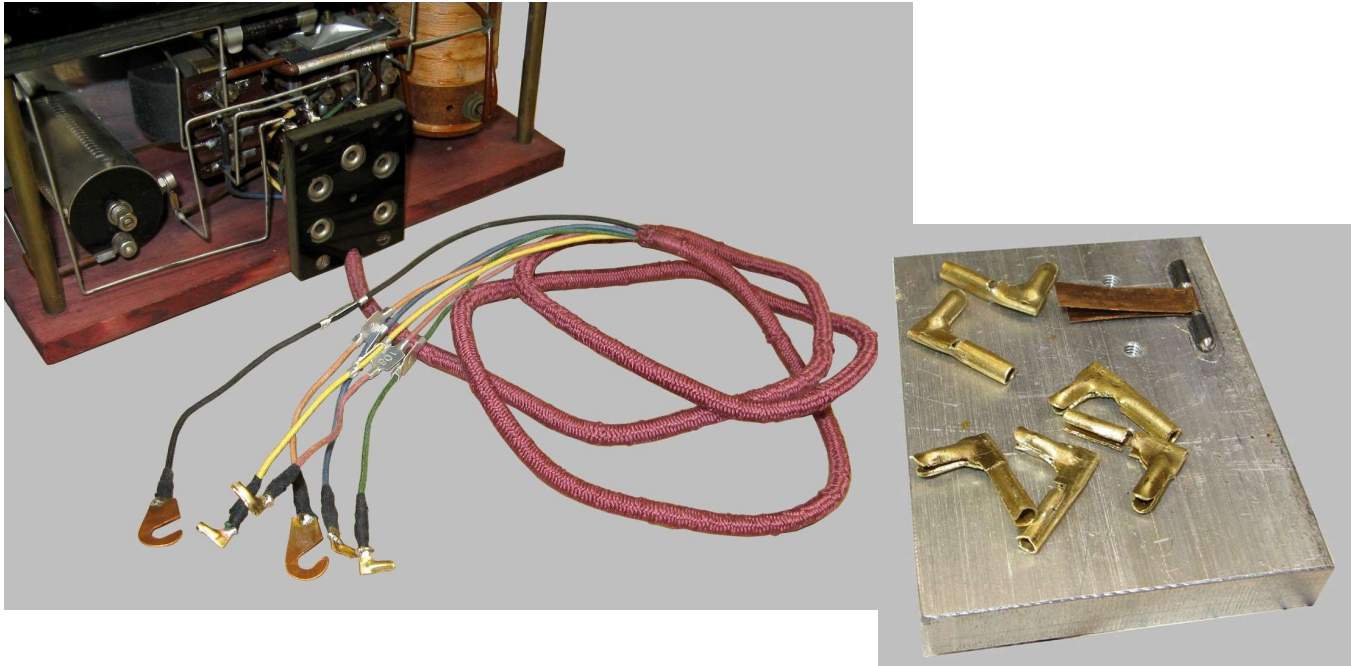


There is a wood eyelet to support the cable as it is braided. It is actually split in half and only held in place by the two plywood sheets connected to the ring. Should you be interested in the details, A full description can be found at this URL: <http://kd4hsh.homestead.com/Cable-Braiding.html>

The braiding sequence is to begin at the top of the ring at V3 and move the shuttle CW to position P1. The shuttle previously occupying P1 is shifted CW to V1 and so forth until you are back to the V3 location. (i.e. You have moved every other shuttle clockwise.) Then you grasp the G1 shuttle and move it counterclockwise to the O3 position, the displaced O3 shuttle being moved CCW to the G3 position and so forth back to G1. This creates 0.5 mm of braid length. Since you are moving the shuttles a few thousand times, you want to be in a comfortable working

position. I found that mounting the ring to a camera tripod was easy and worked very well for me. The total braiding time was 7 or 8 hours spaced over 5 days but I think I wound up with a cable that greatly enhanced this particular radio.

6. Each wire has a little aluminum tag to identify the voltage it



should be connected to. Replica tags were made without too much difficulty.

7. The little brass plugs for 'B' & 'C' batteries were never used in the USA. I fabricated replicas from brass sheet. **This was not fun.** And I doubt many readers need a description of this obscure task.

8. The printed paper dials for tuning and volume were water (condensate) stained and creased and partially torn. I had a junker chassis used in the restoration of my first M55 with dials in better condition. Before just substituting the dials, I decided to see what could be done to bleach-out the brown stains. I applied ordinary bleach with a Q-Tip and saw marked improvement without

significant bleaching of the red and black ink. I flushed the paper with water and then forced dried the paper while sandwiched between hard surface paper. This seems to work however if you research paper conservation, you will find many web pages with conflicting information about the efficacy of various paper treatments. You will also find reams of descriptions about various problems with paper items where the writer tells you **nothing about specific remedies** employed. I'm left with the feeling that professional conservators consider their methods trade secrets.

9. The little rubber tires used to drive the two dials were cracked and completely hardened so I had to make replacement tires the same way I had done on my first M55.

And now there is the third and last cabinet version of the Radiola M55 in my collection. The version in Red Mahogany. Once you have two of three, it is inevitable that you would want to collect them all!

Sent by my good friend Anders Widell and unpacked June 30-2019. Expert packing so no shipping damage at all.

Happy to see that two of the Philips made valves were branded Radiola. These are now difficult to acquire even as duds for display only. The audio output tube has the standard Philips branding on top.



Tradera auction listing photo.

Battery cable in better shape than expected only fraying on both ends... Only necessary to whip both ends. As it turned out, it was time consuming to repair a splice on the -16 & A+ leads. The stranded wire was not twisted before soldering and in removing it, the wires were helter-skelter.

I made up a pad of Solder Wick by wrapping around a thin strip of wood. Saturated the wick with rosin flux, laid the wire on the pad and place the tinned soldering iron tip on top. Then I can drag the wire between the pad and soldering iron tip to



remove excess solder so that the fine strands could be separated and straightened. Seems to be a safe way to do this. After individual strands are straightened, I can brush them with a very fine glass fiber clockmaker's brush pencil. The strands can now be properly twisted and tinned.

The colored braid on individual wires was in very good condition except for one wire... I was able to wrap the frayed portion with plain cotton cord. To get the proper color match to the aged braid, I found that I could rub the new cord with 'oil pastel crayons' and then brush the cord with a stiff bristle brush only very slightly damp with alcohol. The color match becomes good enough for even a critical exhibit observer to likely never notice the repair.

I observed that this Mahogany veneer cabinet has much smaller view ports than the blond and marquetry version cabinets. The

paper label on the bottom indicates that this is an earlier production run. That is reinforced by the sales brochure images which likely show examples from the first production run.

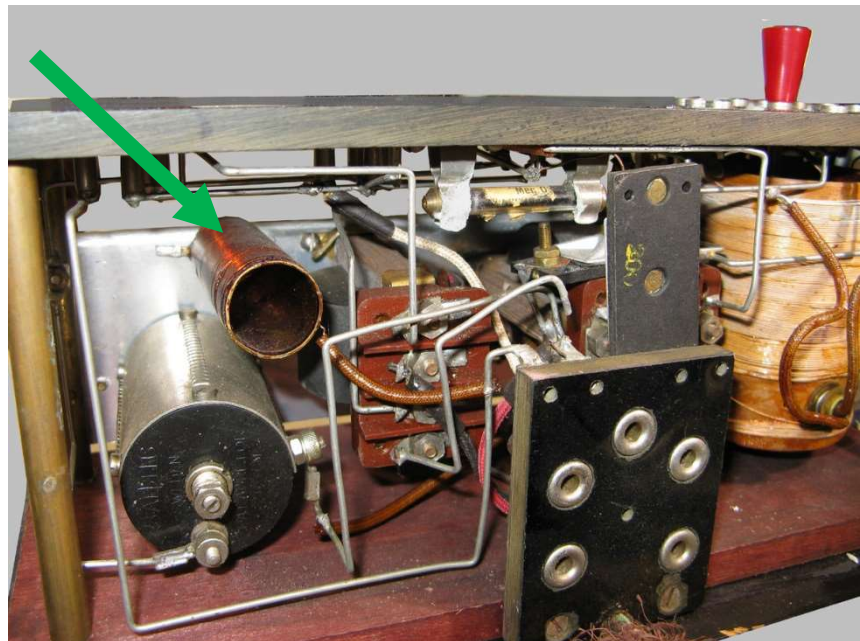
The Mahogany veneer was loose on the front of the cabinet but fortunately there was no material loss. I reattached the veneer using hide glue. I spent a long time French polishing the cabinet; trying to fill-in numerous shrunken grain pores. The burl Mahogany will never be completely flat again.

The internal circuitry is definitely different. The unique antenna coupling condenser seen in the later versions is not used. There is no gimmick capacitor but the audio output plate bypass capacitor employs the same unique construction method for making a capacitor... A new schematic will have to be generated.

Plate bypass cap is brass tube wrapped with mica and then wound with fine magnet wire that forms the other plate of the capacitor.

The radio was missing its tuning knobs. The previous owner had

attempted to whittle crude knobs from wood. I made near perfect reproductions using a silicone rubber mold and urethane plastic resin.



There is a red topped brass shorting pin used to select tuning ranges, bypass the regeneration and turn ON the tube filaments that are missing. Making a silicone rubber mold for this part turned out to be a bit of a challenge.



The four wood screws holding the sides of the cabinet to the base have been removed many times and the counter sink holes for them in the cabinet base plate now will have to be repaired. The same is true for the holes in the cabinet side walls... They are all split apparently because two of the original wood screws were lost and substituted with those that are too big and of the wrong profile.

The wood feet have blue felt covering the flat head screw. I am not sure if the other sets I have had any remains of this blue felt.

The black lacquer wood banding on the cabinet is completely missing. I suspect that it is very fine grain bass, birch or spruce. I did buy a plank of bass wood at Woodcrafters. Cutting the plank to precision strips less than $\frac{1}{4}$ " is a time-consuming process with my shop tools.

The other two M55 have paper labels in the top lid.... There appears to be no trace of such a label on this mahogany stained cabinet known to be from earlier production runs.

I cannot think of any other restoration techniques employed that I have not explained in recent times elsewhere.

After three weeks of afternoon work, this is the result.



I note that this cabinet is very difficult to photograph. Under indoor lighting conditions it appears very dark indeed.