Restauration of the Colonial Globe radio (by David Agresti)

Last year I was visiting a friend who also collects old radio's and he said that he had something that might interest me. He came with a box and told me that he found something that I was already looking for a long time. When I opened it I saw the radio and I was immediately enthusiastic….maybe a little too enthusiastic because half was missing or broken. I think that the condition of the radio was even too poor to be a donor. But anyway I took the challenge and seen the circumstances the price was really not high.

After coming home I started to make an inventory of the damage and the missing parts.

I'm going to summarize it here below followed by some pictures to see what I'm talking about.

- A big hole in the Bakelite on the lower half of the globe
- Some cracks in the Bakelite in the upper half of the globe
- The continents and names in gold color ware very vague and missing
- Missing speaker clothes
- Missing tuning and volume knob
- Missing equator ring
- Missing copper top on globe
- Missing valves and bad valves
- Missing components like resistors, capacitors, mains cord, top cap connections
- Leaky Electronic capacitors
- Mechanically broken and interrupted coils
- Rusty chassis
- Perished wiring in the neck
- THE WHOLE ELECTRONICS PART IN THE FOOT was missing, so I mean :
- Speaker, speaker holder, Valve fitting, output transformer, connection plate
- And last but not least, the metal bottom cover was also missing

So in fact I could better make a list of what I have…it would be much shorter ☺ ☺

Most of my friends told me that it would be impossible to get this restoration done, but in fact that motivated me even more.

Luckily one of my other friends Luc, who is chairman of the Belgian Radiofriends Club has an identical radio. This one is in good shape and plays well. I restored it electrically for him a few years ago.

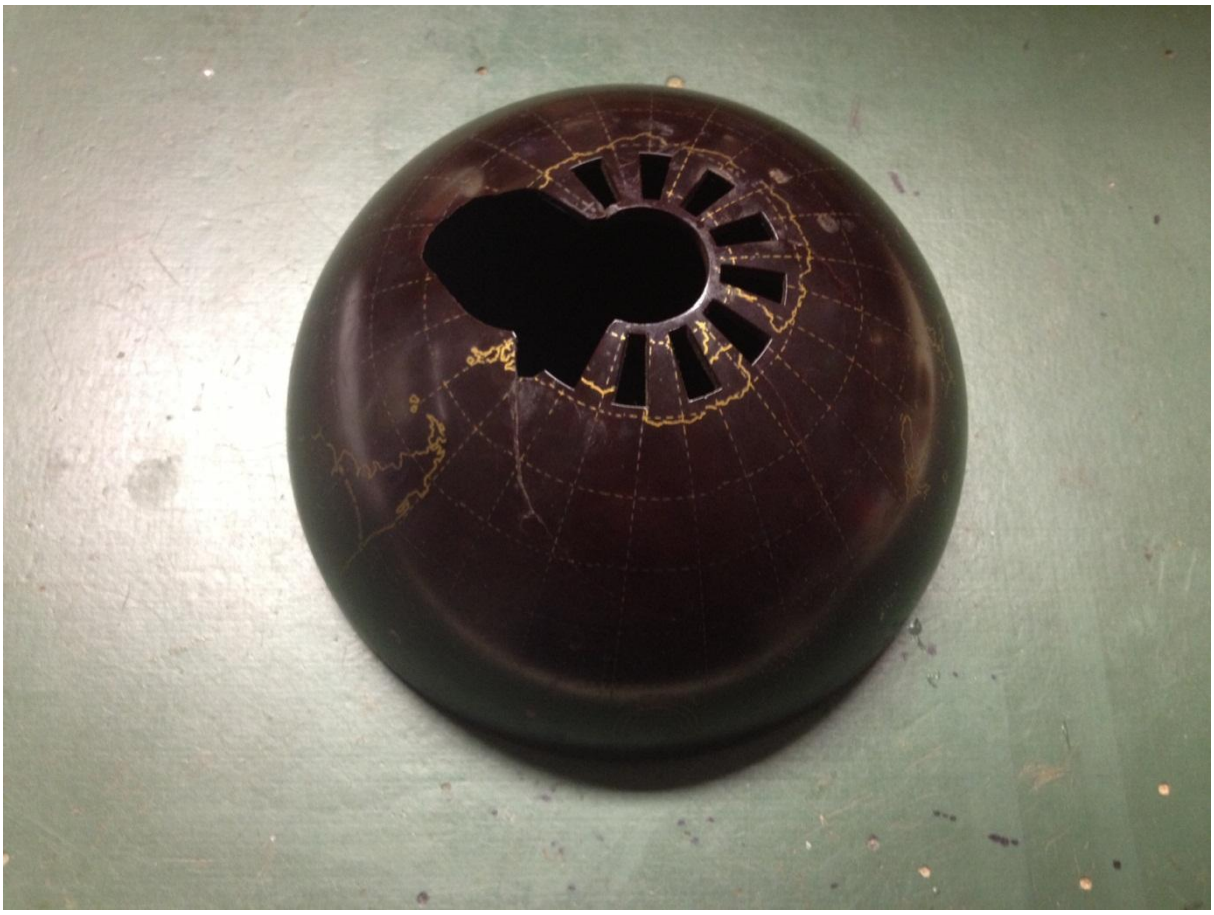
So I asked him to borrow it for a while because I had to find out a lot of things and use some of his parts as template.

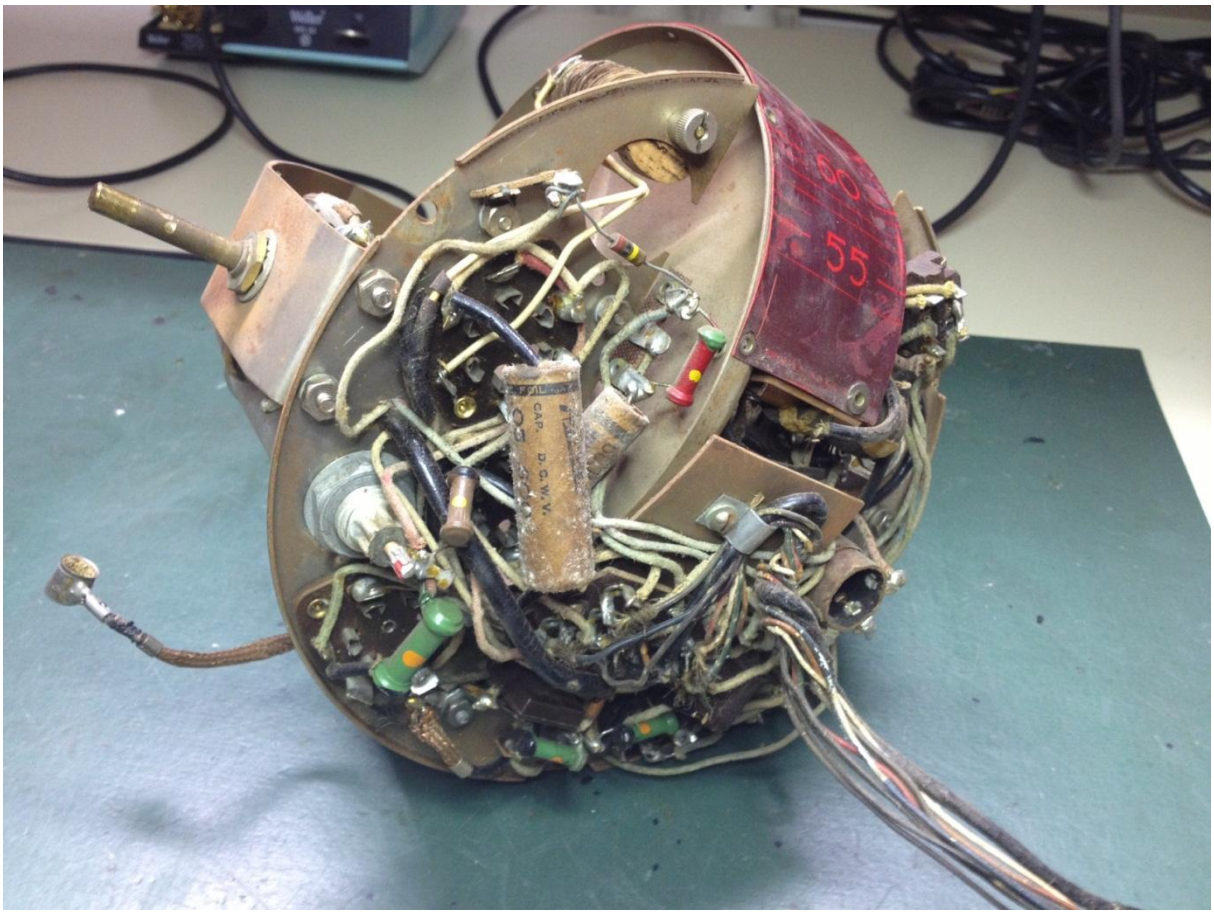
Luc also helped me creating the molds to make the knobs, equator and copper top knob.

Luc,…thanks for that.

Here below you will find some pictures of the disaster :


NORTH AMERICA
ATLANTIC

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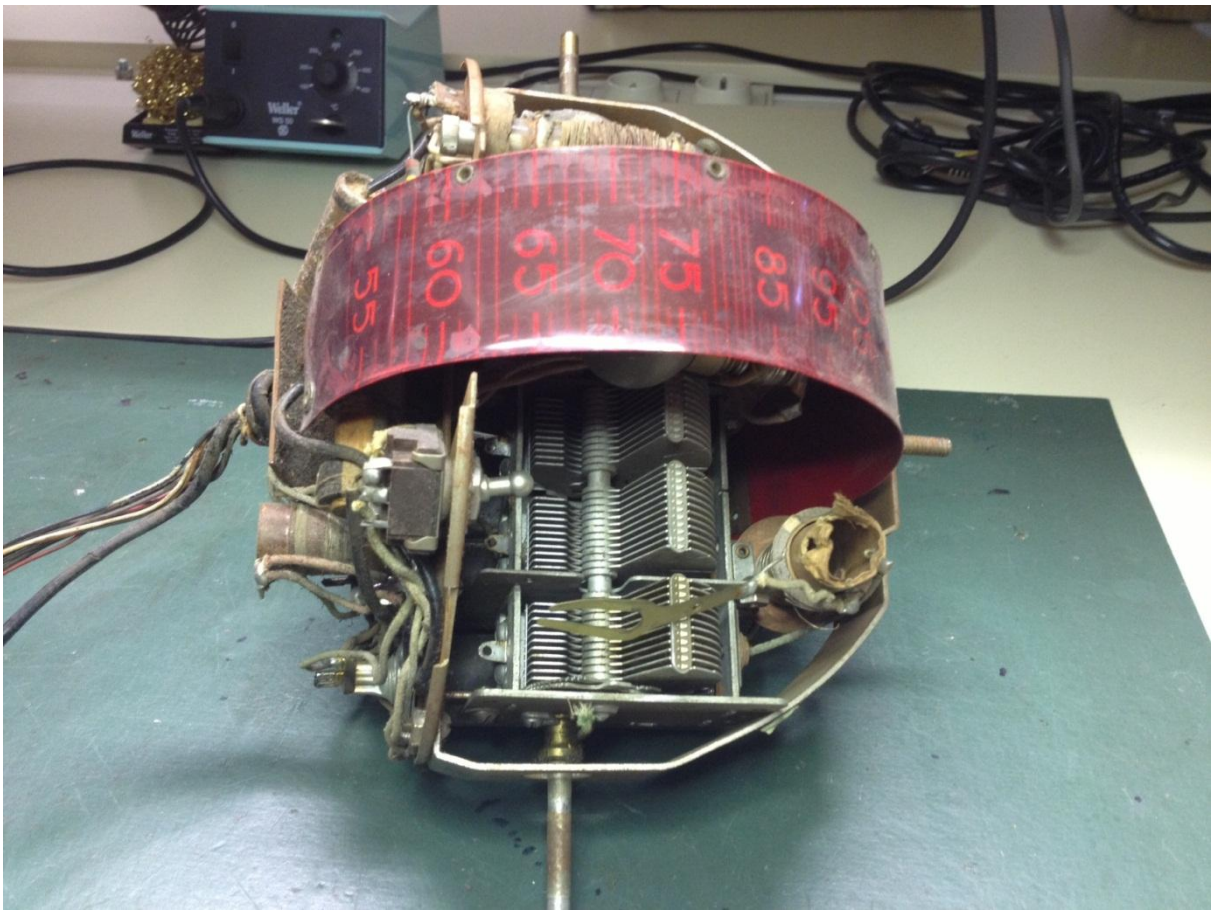
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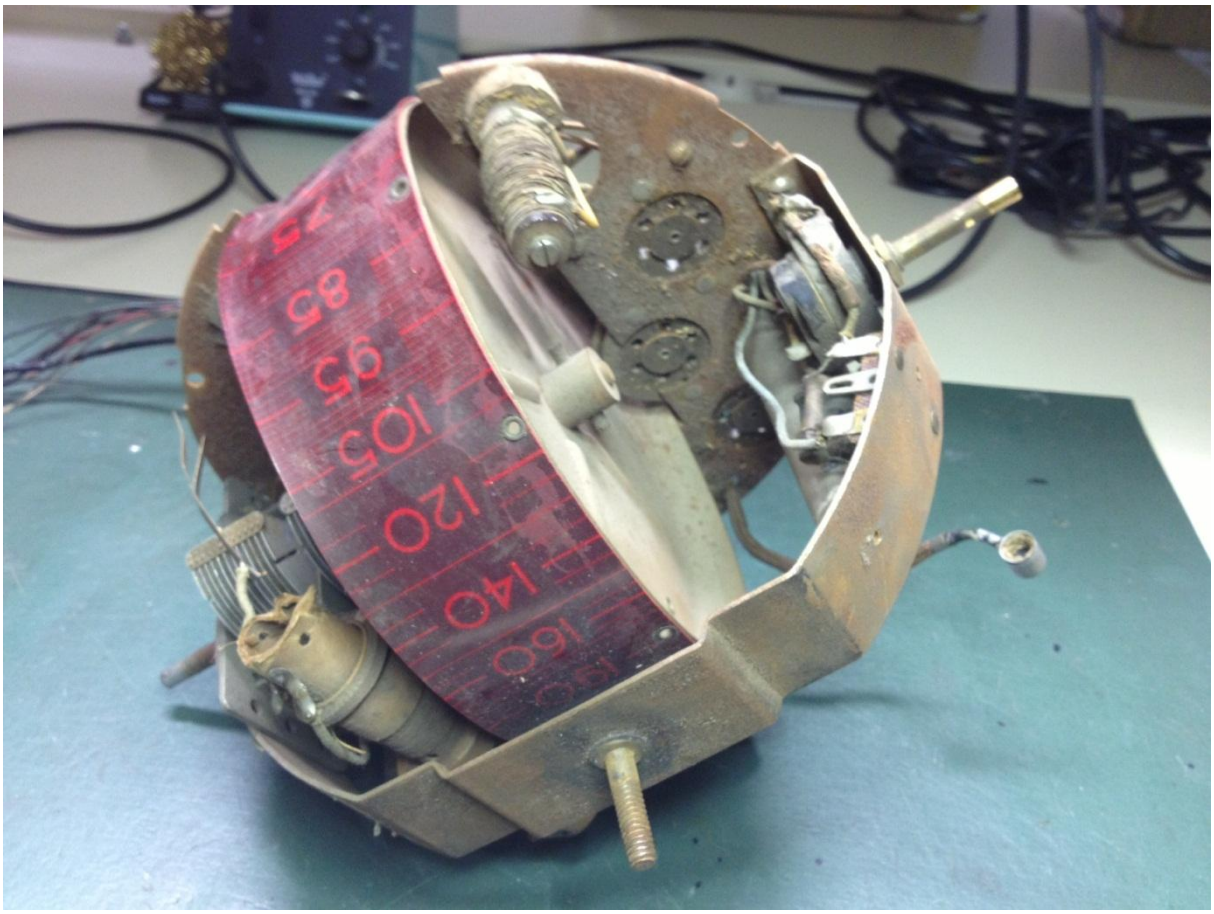


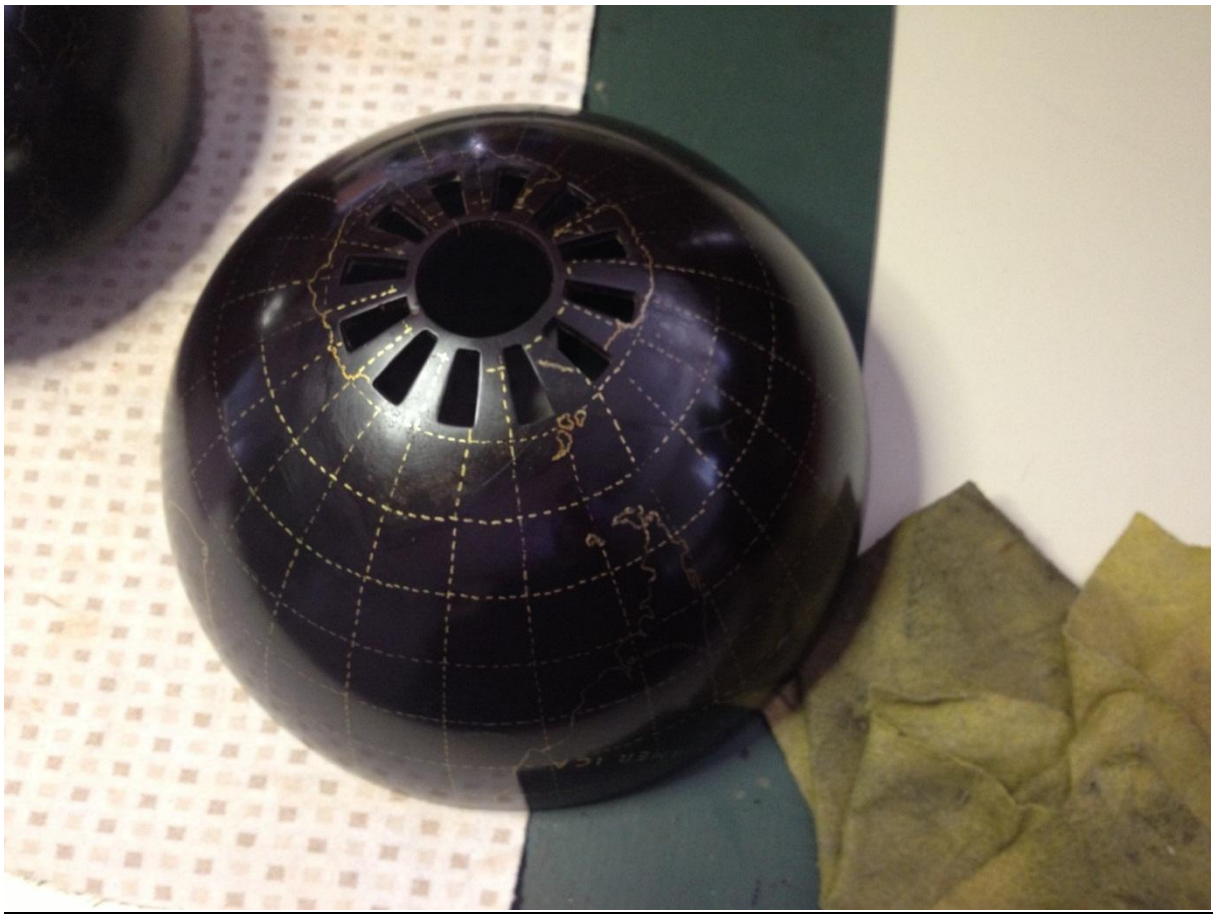
What I'm going to do now is describe the different steps of my restoration, maybe not in too much detail because that may bore you.

1. Repairing the Bakelite and redrawing the continents

To fill the cracks and the hole, I looked for a piece of Bakelite of a donor radio, which had the same color. Then I start to file it till I had enough Bakelite powder to fill the gaps. Next I used clay and put it in the intact piece of the globe to create a mold. After the clay was dried out I fitted it in the missing part and filled it up with Bakelite powder. To create the 'artificial' Bakelite I put special superglue from Starbond on the powder to harden it out. This process of powder and glue was repeated until the substance was piling over a bit. After drying out, It was time to sand it and then polish. Then it was time to redraw the continents and for that I bought a gold pen. Works pretty fine.

Time to do the other half of the globe now.

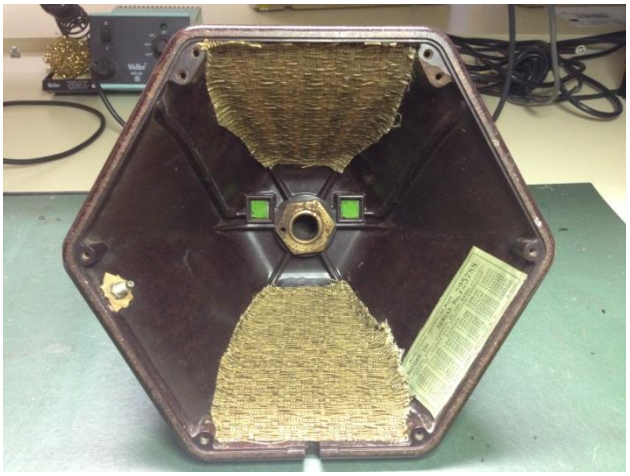
The result was superb !




ATLANTIC OCEAN
SOUTH AMERICA

2. Replacing the missing clothes on the speaker compartment

There is not much to tell about. First finding something that matches the original in my stash of spares. Cutting the right size and glue.

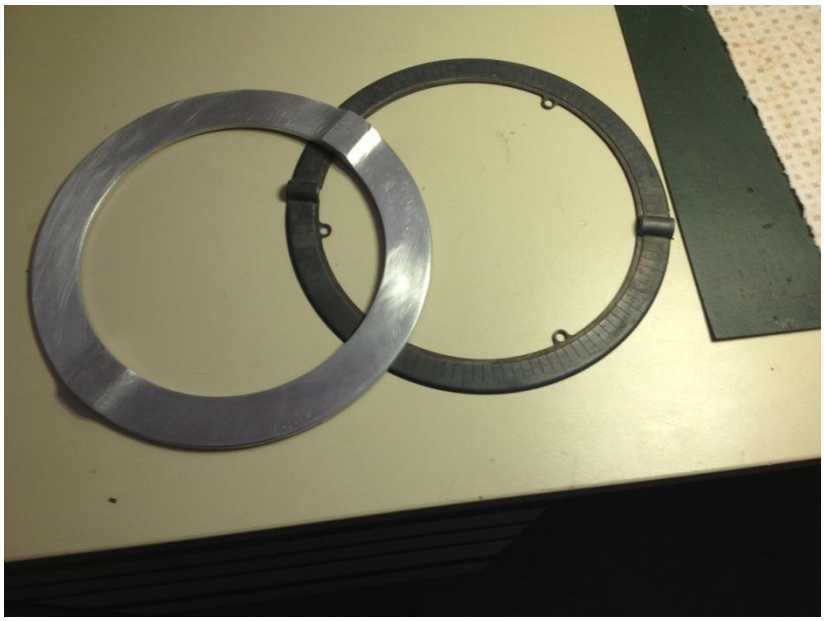


3. Making the equator, knops and top

As I told a little earlier, I had some help here from Luc to create the equator and knobs. He has a turning bench where we could make it in the right form and size. But then the fine work started to get it in the right shape with the same curves as the original. So I did this with a file and I can assure you that it took a long time and it caused many blisters.

replica

Original model

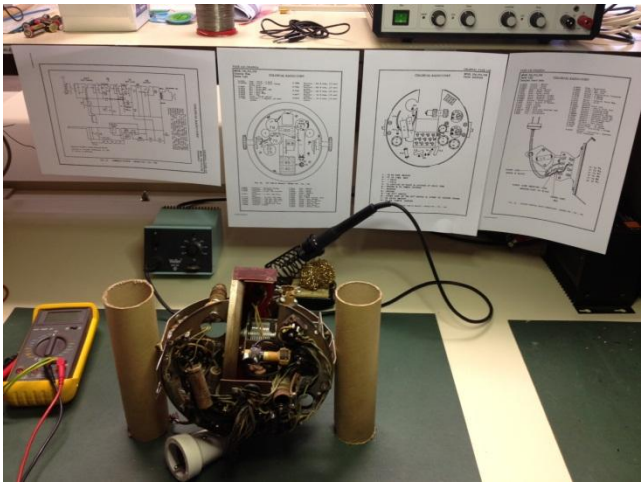


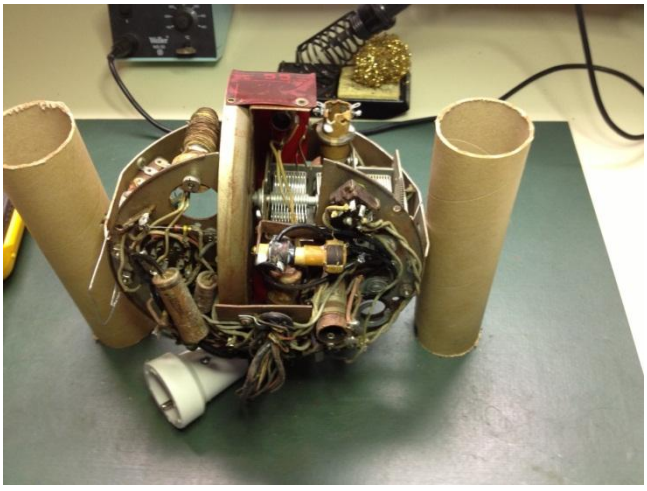
4. Electronics in the globe

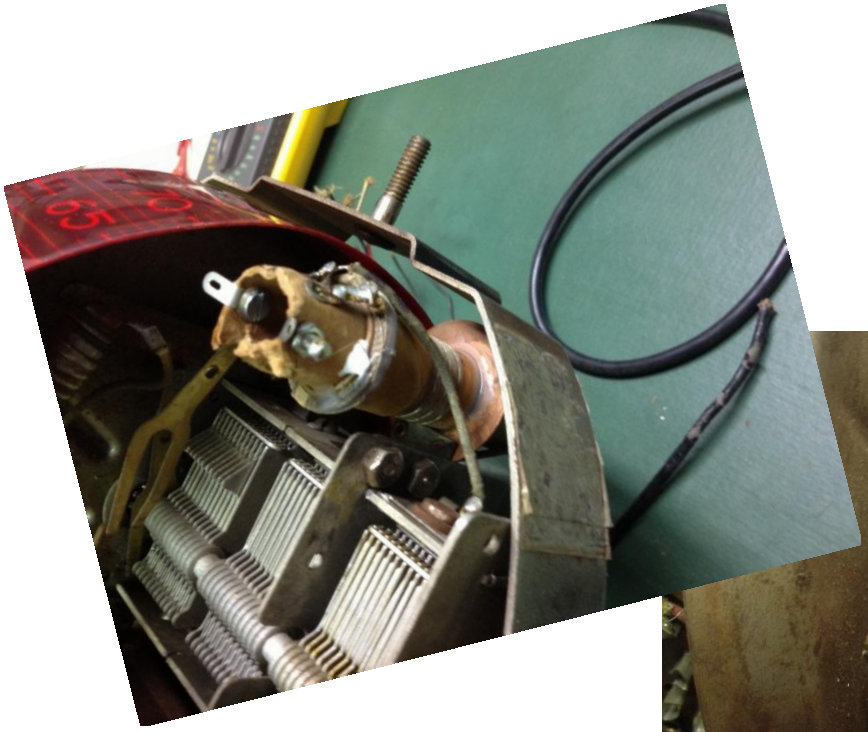
I'm going to describe here the restoration of the electronics part. In the mean time I found all the schematics online and I cleaned up the corrosion on the chassis.

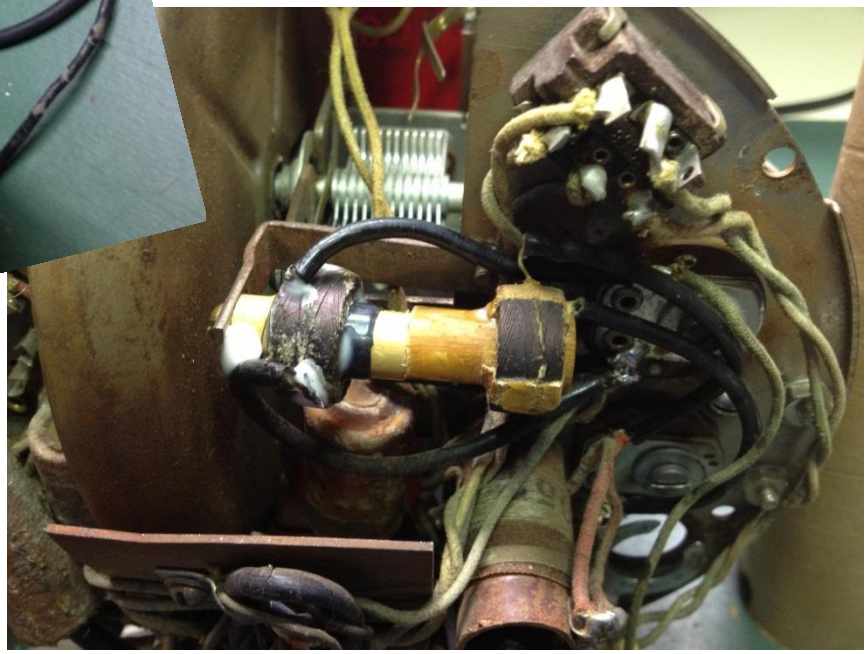
One of my bigger worries were the coils. They seem somehow damaged, eaten by mice or hit by something…I don't know. In any case they were open circuit.

So I tried to undo a little unwinding where the breaks were and got them connected back again. I can assure you that it was some work to do with a magnifier and a lot of patience.









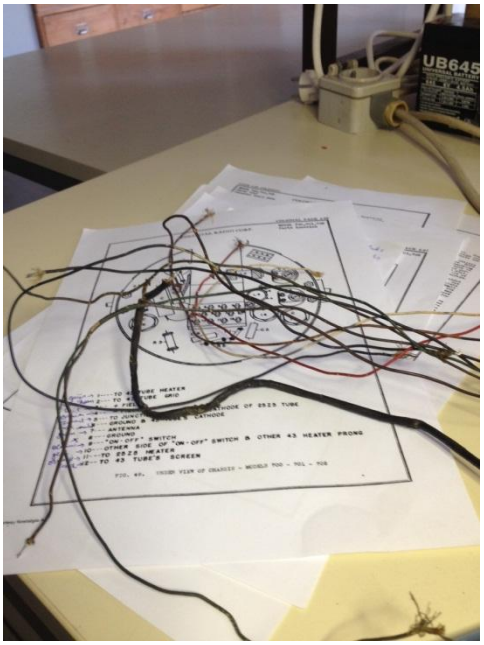
Next step was measuring and checking the different components and their tolerances.

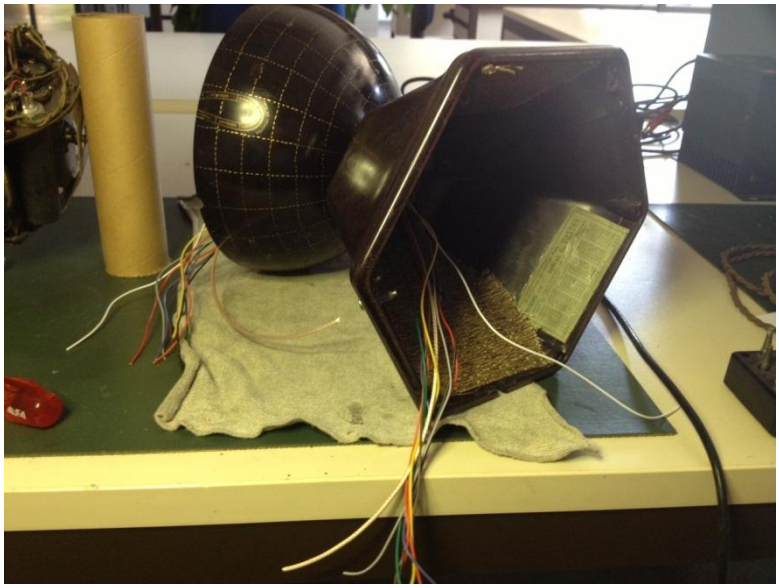
I quickly discovered that it was needed to replace a big part of the capacitors because their leakage was too high. I did some tests with my Heatkit IT-28, which Iove by the way. But I wanted to do it in the right way and keep the housing of the capacitors and change the internals.

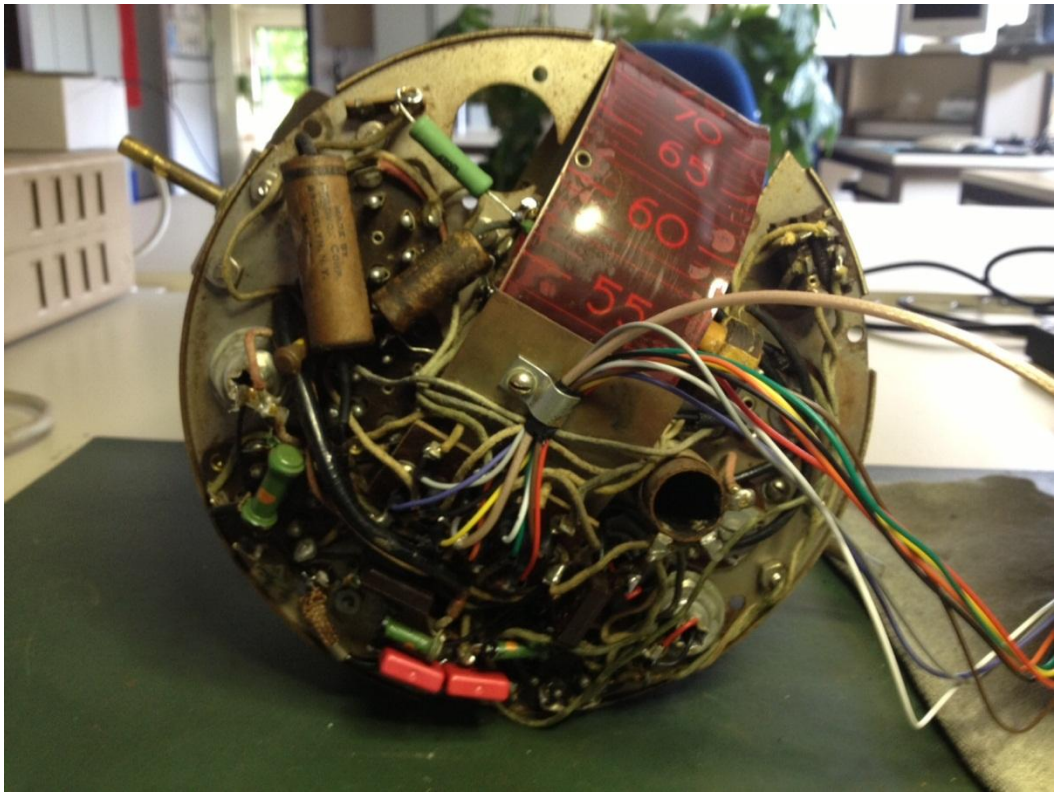
I also tested the remaining Tubes if they had shorts and if the emission was ok. Luckily I have some spares and could replace the missing and defective ones.

For the rest the schematic diagram showed some resistive wires but they were missing, so I replaced them by an appropriate resistor with the same value.

Another nice thing is that the connection between the electronics in the globe and the foot are done by wires. These wires +/- 10 are going through the copper neck. Most of those wires were perished and needed to be replaces to avoid shorts. I can assure you that it’s not easy to get them all through.







After this I can conclude that I checked most of the components and that most of the anomalies are gone. So the upper part of the globe should be fine.

Bigger challenge is the electronics in the foot of the radio……by the way…..the foot is empty.

5. Finding parts and creating a whole new inside of the foot

So just a quick summary of what to do here :

- Need a speaker that is fitting
- Need the bracket for the speaker
- Connection metal that keeps everything together
- Tube fitting
- Epoxy connection plate
- Output transformer
- Bottom cover

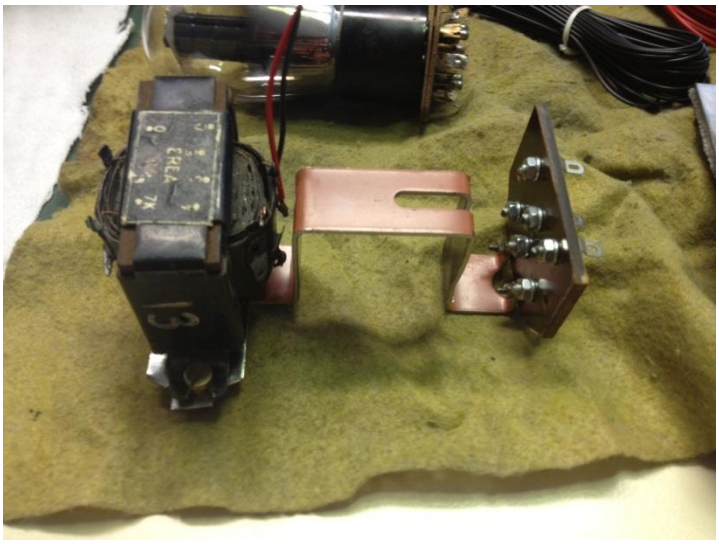
First of all I started making in metal sheet the speaker fitting and the bracket. That was not so hard because I had the globe of my friend a model. Although it was easy, it implied allot of work to make it exactly in the right size. Else it would not fit properly.

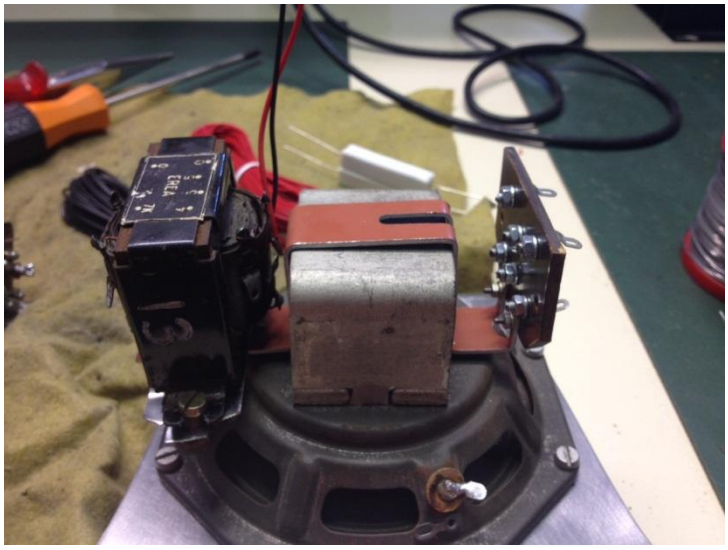
In the end I was happy with the result :

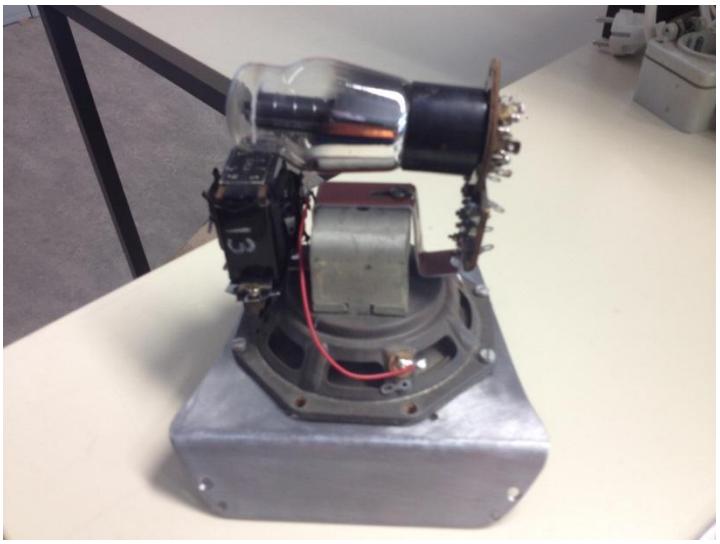
The construction of the connection metal, tube fitting and epoxy plate is very straight forward, so I'm not going in details here.

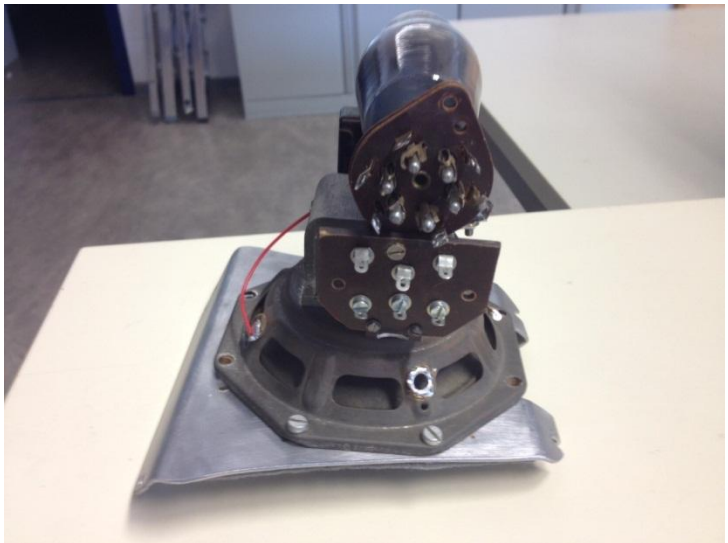
Next step was the search for a speaker that fits. Not easy but in the end I found one. The only disadvantage ; it isn't a speaker with energized magnetic field, but one with permanent magnet. This is no problem so I replace the missing resistance of the electrical energized magnetic with a fixed resistor. And while I'm in the resistors calculation, I also look for a resistor to replace the resistance in the power supply cord because I'm going to use a normal one.

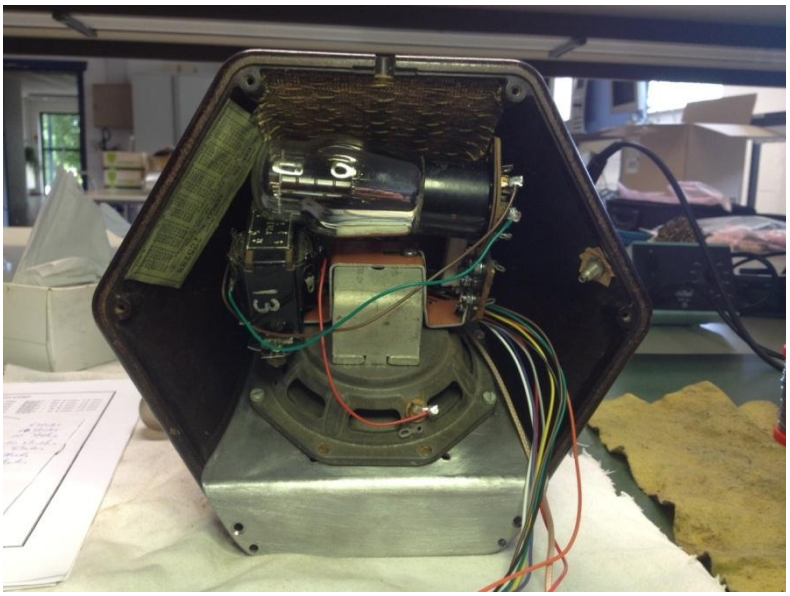
Ok let’s get everything assembled and fitted in and hooked up….

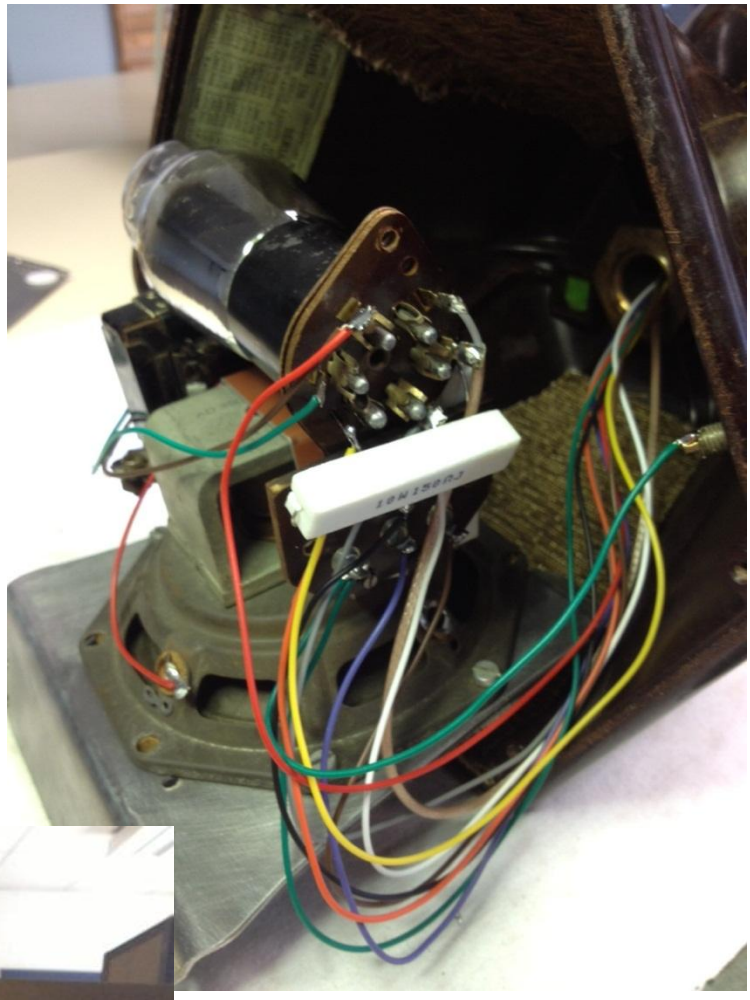












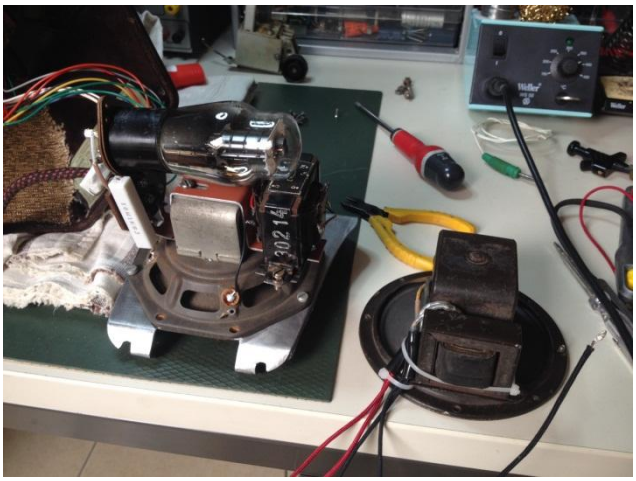
Everything seems to fit.

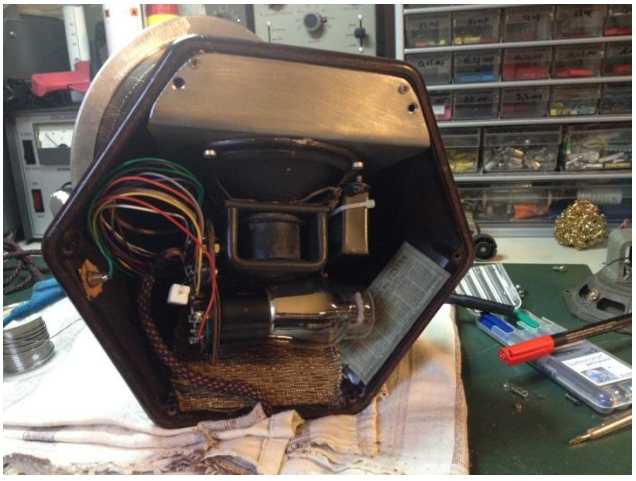
This is the result….Which is mine and which is my friend's ???

6. Starting up the radio for the first time

I did the starting up of the radio together with some people of the club on one of the meeting days not so long ago. They are very experienced in radio technique and repair and I wanted to have their opinion. Like all restoration projects, there is always something that's not working from the first time…. We started up the radio and increased the voltage gradually and checked if we could measure the voltages that would be expected following the datasheet. Doing that we discovered that the "75" tube was defective and we had a short circuit between the plates of the variable capacitor. So we replaced the tube and did some bending of the plates until the short circuit disappeared. The radio started living again !!

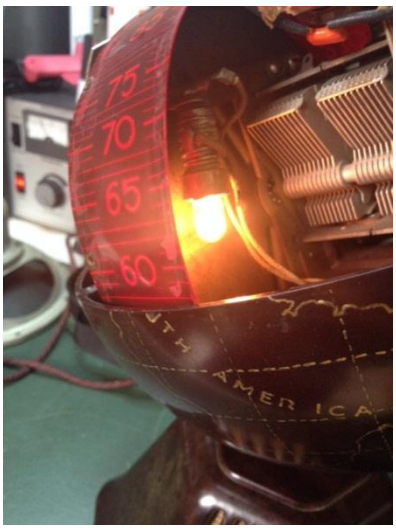
Because of the location (nearly a cage of Faraday) and a lot of TL-lights, we could only receive one station and we also detected a quite high hum. This hum was caused due to the fact I had to use a replacement speaker which did not really meet the specifications. Luckily, I found a suitable replacement that day of a small Emerson radio. This was nearly like the original speaker and had the electrical energized magnetic field.





So when I arrived home, I immediately started to built-in the speaker. It fitted really well and when I turned on the radio the difference was huge. At home I also did not have the reception problem that I had at the remote location, so receiving different radio stations was no problem anymore.

Last but not least, the dial lamp. I did not succeed to source a dial lamp with the appropriate fitting and the 110-130 voltage (Belgium 220V). So I re-used the fitting of the defective lamp and fitted another on into that. Works fine and gives the right amount of light to illuminate the dial.



So that was it and I was very happy that the project was completed successful.

7. A little history about the radio

The Colonial Model 700 “New World” Globe Radio Fashioned as a world globe, is an unusual 1930s radio. It is also scarce, making it desirable for collectors who like eccentric cabinets.

The Globe has a distinguished pedigree. Its cabinet was designed by none other than Raymond Loewy, fabled creator of designs for everything from locomotives to electric shavers. The original design patent drawing, is dated June 24, 1933.In addition to natural Bakelite, the Globe was offered with black and ivory cases. Regardless of color, it presents a

very dramatic appearance. Inside is a conventional 1930s AM receiver, using five tubes. An external antenna is a necessity. Since the Globe has no RF amplifier, the longer the antenna, the better.

When you turn on the radio, the illuminated red dial is seen through a small rectangular opening in the globe.

Circling the globe at its equator is a metal ring, plated in 22-karat gold. At the top is a decorative brass finial showing the compass directions. Large, wheel-shaped plated knobs control power, volume and tuning.

Some technical specs :

- Manufactured in USA, Long Island New York by Colonial Radio Corp.
- Year 1933
- Tubes : 6A7, 78, 75, 43, 25Z5
- Super-Heterodyne ZF/IF 175 KHz
- 7 AM circuits
- Broadcast (MW) and police Bands 150-200m
- AC/DC-set/115Volts
- Electromagnetic Dynamic LS (moving coil with field excitation coil)
- Various materials, design radio or novelty, fancy for unusual shape. Available in brown, black or ivory
- Switch for AC or DC operation; the +B voltage is doubled in AC operation; 154 Ohm resistance line cord