Found in the collection of the Lauren Peckham estate, a maybe unique type of broadcast radio receiver.

Electradyne Peerless Two Tube Super Reflex Receiver

Peerless Radio Corporation

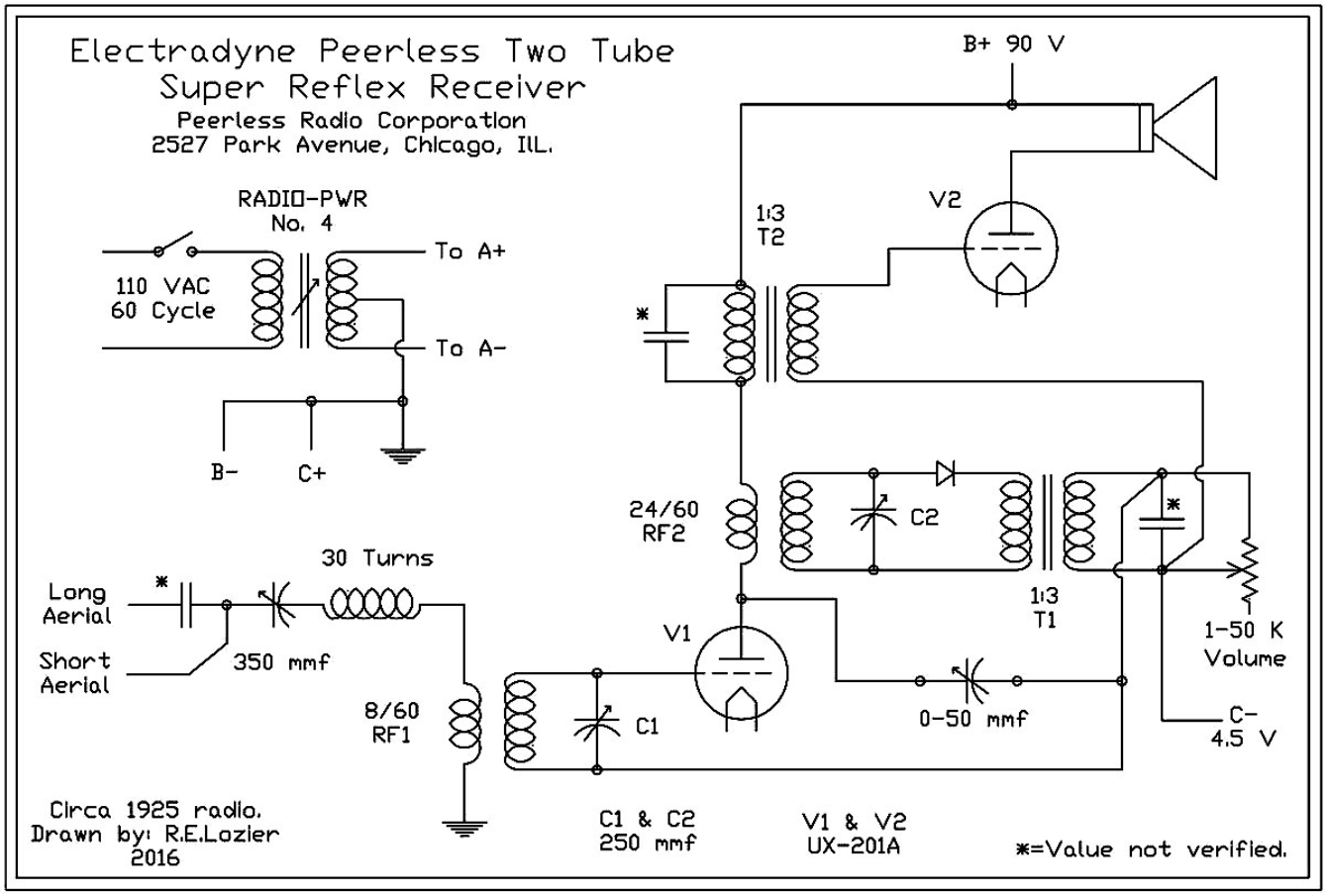
2527 Park Avenue, Chicago, Ill.

Circa 1926

Unique in the power source for this radio.

The factory provided capability of using a 6 Volt storage battery OR 110 VAC from the house lighting circuits to light the filaments of the two Type 01-A vacuum tubes. (More later.)

This receiver is certainly to be regarded as a 'local' receiver of minimum tube count to drive a built-in loudspeaker. The similarities to the Harkness Reflex designs are obvious.

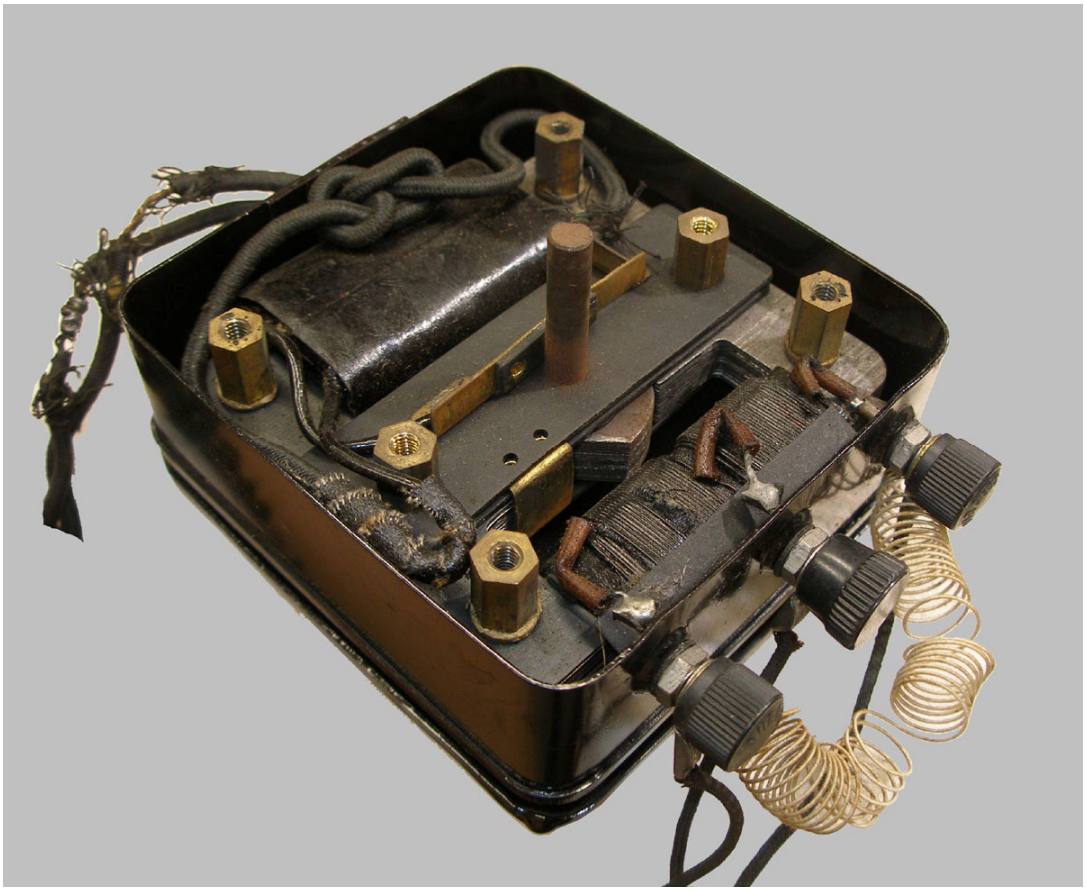


There is an addition of a series resonant circuit in the antenna connection that should improve selectivity. Volume is controlled by using an adjustable carbon pile resistor to shunt RF and AF frequencies and the detuning of the 350 mmf. condenser in the antenna circuit.

This is the way the radio is wired and there appears to be no modifications. I make this statement because although all parts appear to be functional, this radio is very difficult to tune, has virtually no DX ability (more than 25 miles) and the audio, while LOUD is quite distorted. There appears to be no ability to balance RF and AF gain.

The radio uses a Carborundum detector, these detectors are usually operated with a bias potential applied. This radio has no such provision. For an experiment, I substituted a silicon diode; it made no difference.

As mentioned above, the radio comes with the ability to light the filaments of the ¼ Amp. Type 01-A tubes from 110 VAC mains power. This is done by the use of a RADIO-POWR #4 adjustable transformer made by the Electrical Division of the Eagle Carburetor Co., Cleveland, Ohio. Trade mark #188,897 in use as of October 1, 1923. Patents pending is indicated but I have not been able to find any patents granted or advertisements in radio magazines of the day.

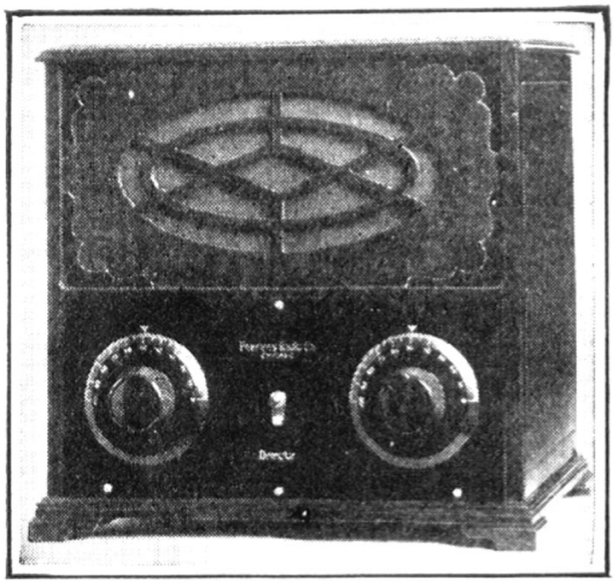


There are three legs to the transformer. One outside leg has the 110 VAC rated primary. The other outside leg has a low voltage center tapped secondary. The center leg has no winding. In the center of that leg there is a rotatable stack of laminations. By turning the stack, the degree of magnetic flux through the leg can be made to change. This in effect shunts the primary induced flux away from the secondary winding and thus the output voltage drops. With the two tubes and a separate coil of resistance wire

connected as a load to the transformer output, the output can be varied over a range of about 2 to 5.5 Volts. This same type of transformer construction was in use for electric arc welding in the early 1920s but did not come into general use until the 1930s. Did the RADIO-POWR idea come from the AC welder transformer technology? I don't know.

There is some confusion in just who was using the trade mark. The McGraw-Hill Co. *Radio Trade Directory* for November 1925 lists Peerless Radio Corporation at 4733 N. Robey St. Chicago. With brand name of "Electrodyne" In the same reference it says that the "Electradyne" brand name is that of Foreign & Domestic Commodities, Inc. 121 N. 8th. St. Philadelphia, PA

The only photograph I have found of a Peerless Radio Corporation, Chicago, Ill radio receiver is this one from *Radio Retailing* October, 1925 page 493. The page is titled: "Lamp Socket" Radio to Have Important Place. (Full page shown elsewhere in this exhibit.)



Peerless Radio Corporation, Chicago, Ill.
A.C.—$125

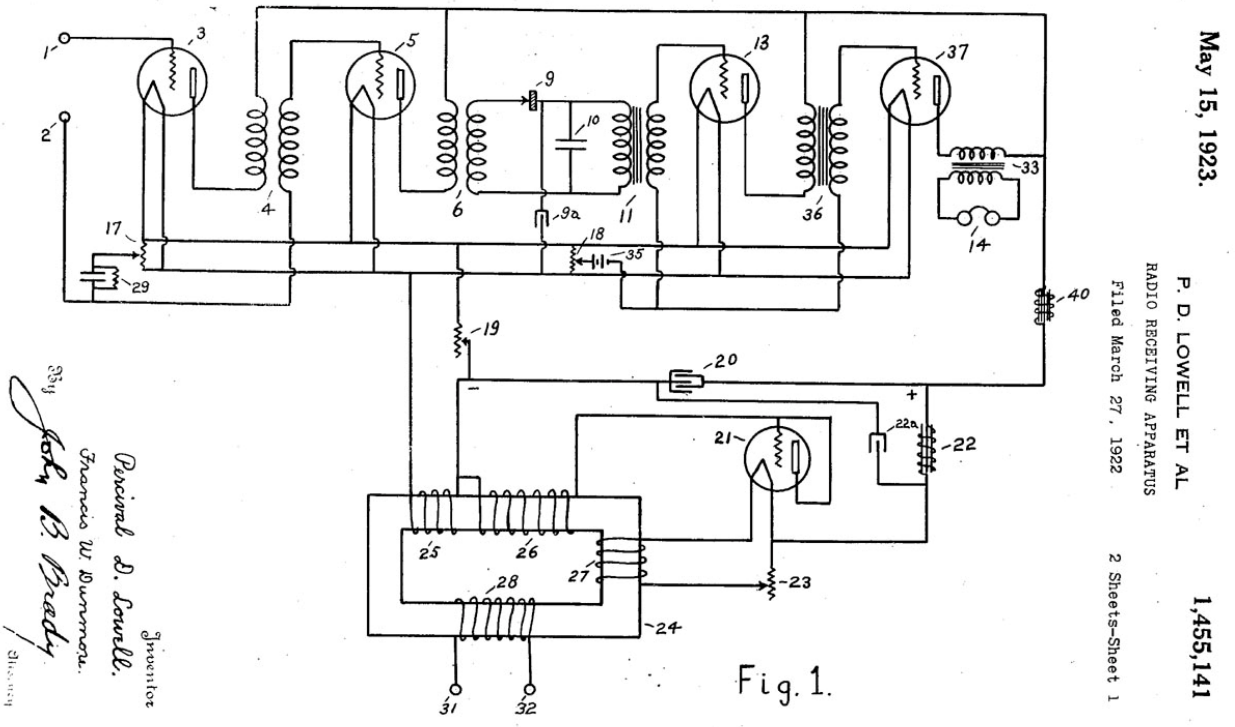
This version appears to be a straight reflex since there appears to be no "Counterdon" adjustable condenser as in the Harkness Counterflex or the series tuned antenna circuit present on the version on exhibit.

As with many makers, designs were being modified during production runs. Even more so when you had small start-up businesses building a handful at a time.

As a further complication to what this radio is supposed to be is the fact that it also contains a 'B' Eliminator supply to enable full

AC operation. This is accomplished through the use of a packaged module made by Timmons Radio Products, Philadelphia, PA. Timmons was one of the first 'B' Eliminator manufacturers. According to discussions on Antique Radio Forum, there may be a number of manufacturers claiming 'first-to-market' in 1924. The Timmons advertising states "Patented May 15, 1923". Alan Douglas identified this as a Lowell & Dunmore patent # 1,455,141 which showed a triode with grid and plate tied together as a rectifier. Reference: Lowell & Dunmore in the *AWA Review* Vol.3

Patented May 15, 1923



I have seen no documents that describe Timmons as offering parts to be built into radio power supplies… But I cannot imagine that someone would have bought a complete Timmons supply and then stripped it down. The tube socket does indeed have the plate and

grid shorted together and the filament operates at a nominal 5 VAC with a filament rheostat in series. So I must presume that the 01-A is used as a half-wave rectifier and is the desired tube for this installation.

After making resistance and current checks, I did power-up this eliminator and found that it could easily deliver 15 or so milliamperes which is more than enough to power this radio. The quiescent current of the supply was very low indicating little leakage. That is good because the entire module is potted in what appears to be tree rosin rather than the more-to-be-expected asphalt compound.

The instruction sheet pasted to the back of the radio says nothing about this 'B' Eliminator. But it also has lines crossed out telling how to adjust a detector that seems to have been replaced at some point in production by a Carborundum fixed detector. So was this an in-process upgrade to the product? We may never know.

Restoration and conservation:

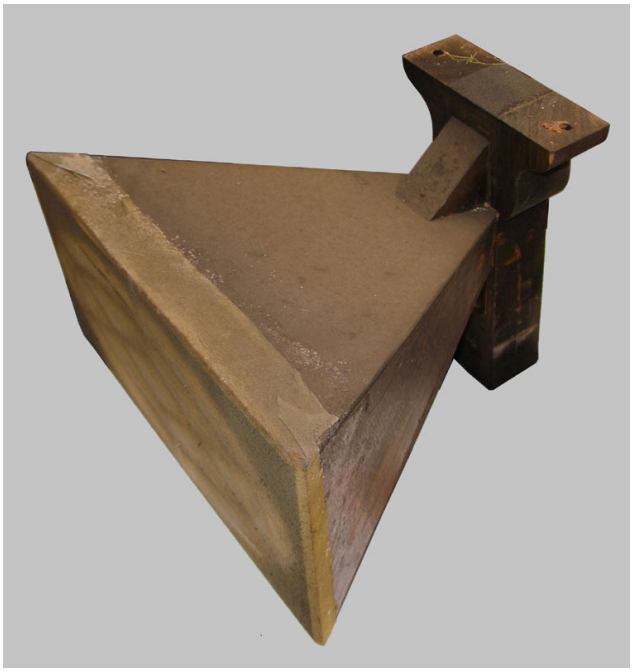
The cabinet only required a good cleaning with Go-Jo followed by a slight pigment touch-up to worn surfaces, application of boiled linseed oil and finishing with paste wax.

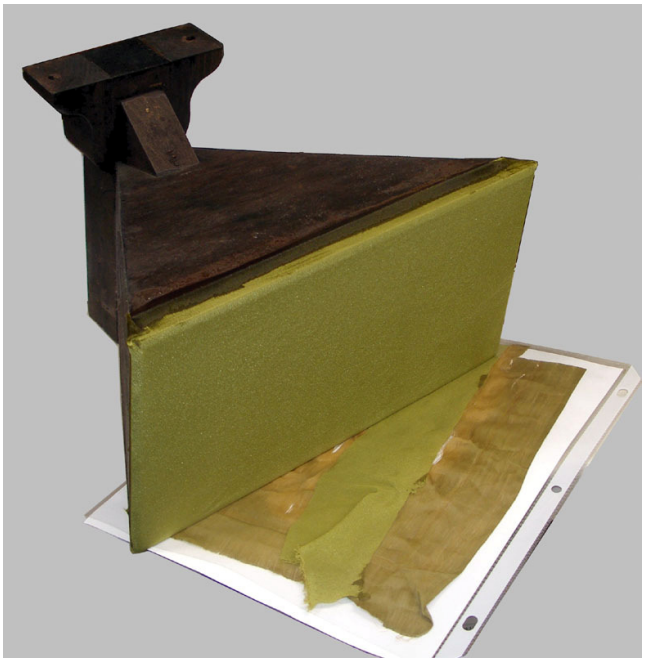
The grill cloth was, in my opinion, beyond salvageable. It was attached by traditional hide glue, so with careful application of brushed-on water, it loosened enough to be pulled free of the wood horn with no damage at all to the wood. I then sandwiched the cloth between two sheets of #10 polyethylene mesh. (This is available at craft stores.) This allows you to move the cloth up and town through a pan of soapy water without causing threads to unravel. You finish by using the sink sprayer to rinse the cloth while it is still protected inside the poly mesh.

While the fabric not protected by the cabinet was too deteriorated to withstand even this gentle method of cleaning, it allowed me to

wash out the heavy coating of soil so that I could better determine the true color of the fabric. A burn test verified that it is woven with Rayon threads and that the original color was chartreuse!

While light weight fabrics are no longer woven in Rayon, you can find e-Bay sellers in Hong Kong that have silks for bridal gowns and dresses that are very close to what is required. So I was able to buy a half yard of silk and have it delivered for less than $9.



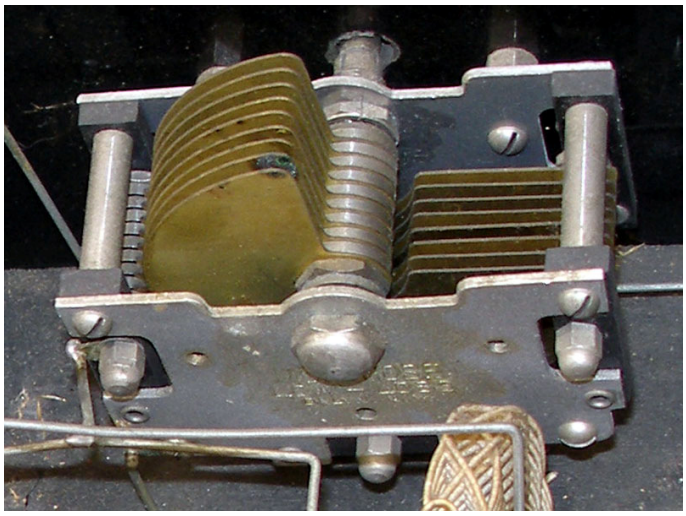


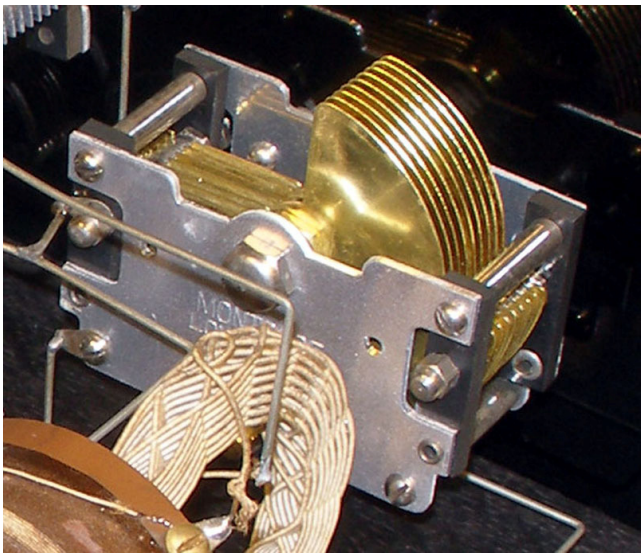
The horn driver is made by Burns. There was nothing wrong with the function. The only problem is that one of the terminal screws had been lost long ago and a little bit of extra wire was being used to keep the speaker cord tip in place. The screws are 5-40 old style pan head screws as used in telegraph and telephone instrument manufacture. I have yet to find a correct one in my junk boxes or on the Web. Do you have one?

The chassis although soiled

and having a number of solder joints loose due to corrosion, was in pretty good shape.

For a good cleaning, the chassis was totally disassembled and I used my usual cleaning techniques for the task. i.e. Application of Go-Jo waterless hand cleaner on Bakelite and wood, ultrasonic cleaning of all plated metal parts and automotive deep cleaning car polish for the black lacquered audio transformers. The only new technique I employed for this project was in cleaning the yellow brass vanes of the Montrose brand Low-Loss tuning condensers.

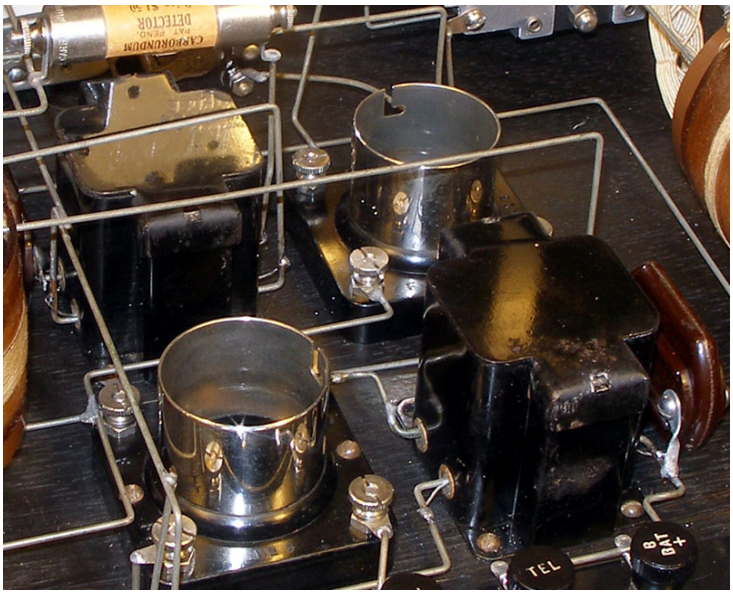


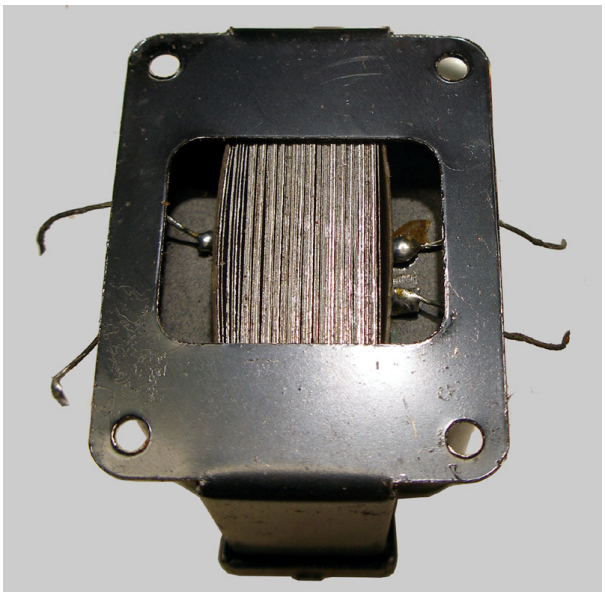


The brass vanes were cleaned separately from the other metal parts. After cleaning with soapy water in the ultrasonic cleaner, the parts were rinsed and placed in a solution of over-the-counter hydrogen peroxide (3%) and the dry acid, sodium bisulfate. It does a remarkable job of cleaning bright yellow brass without leaving excess copper oxide on the surface that gives a pink cast to the coloration. If left uncoated, the surface will 'mellow' in a few weeks. The same technique was employed on the bright brass brackets for the tuning coils.

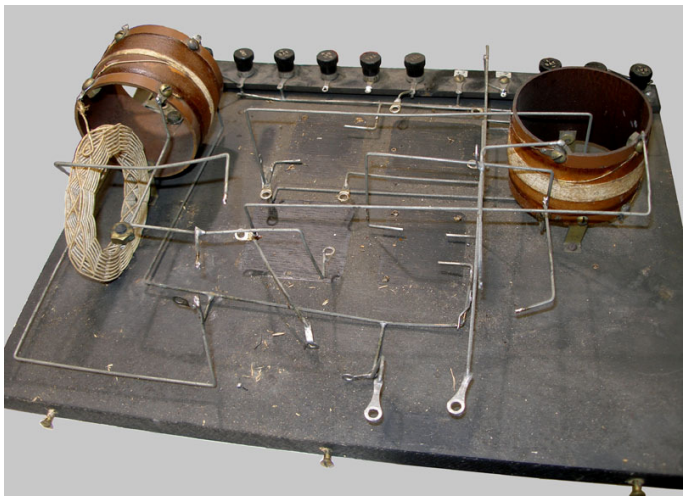
I found the audio transformer terminations to be peculiar in that they do not have conventional terminations. There is simply a bare twisted wire tacked onto an inside bobbin termination. The wire passes through a fiber bushing. Buss wire is bent to stick

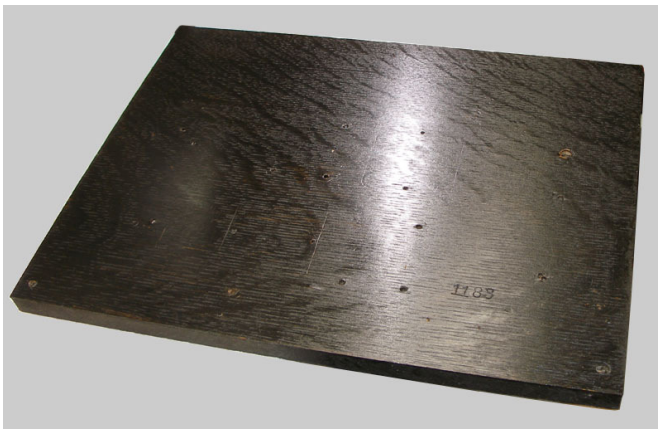
through the bushing by maybe ¼". The end of the bare wire is simply soldered to the nearest point on the buss wire.





The buss bar to the transformers are cut long enough to pass into the bottom of the cases. Note that the bare chassis plank is stamped # 1183. It will be interesting to find out the true number of chassis made. I sort-of think that the numbering may have started with 1000 or maybe even 1100.



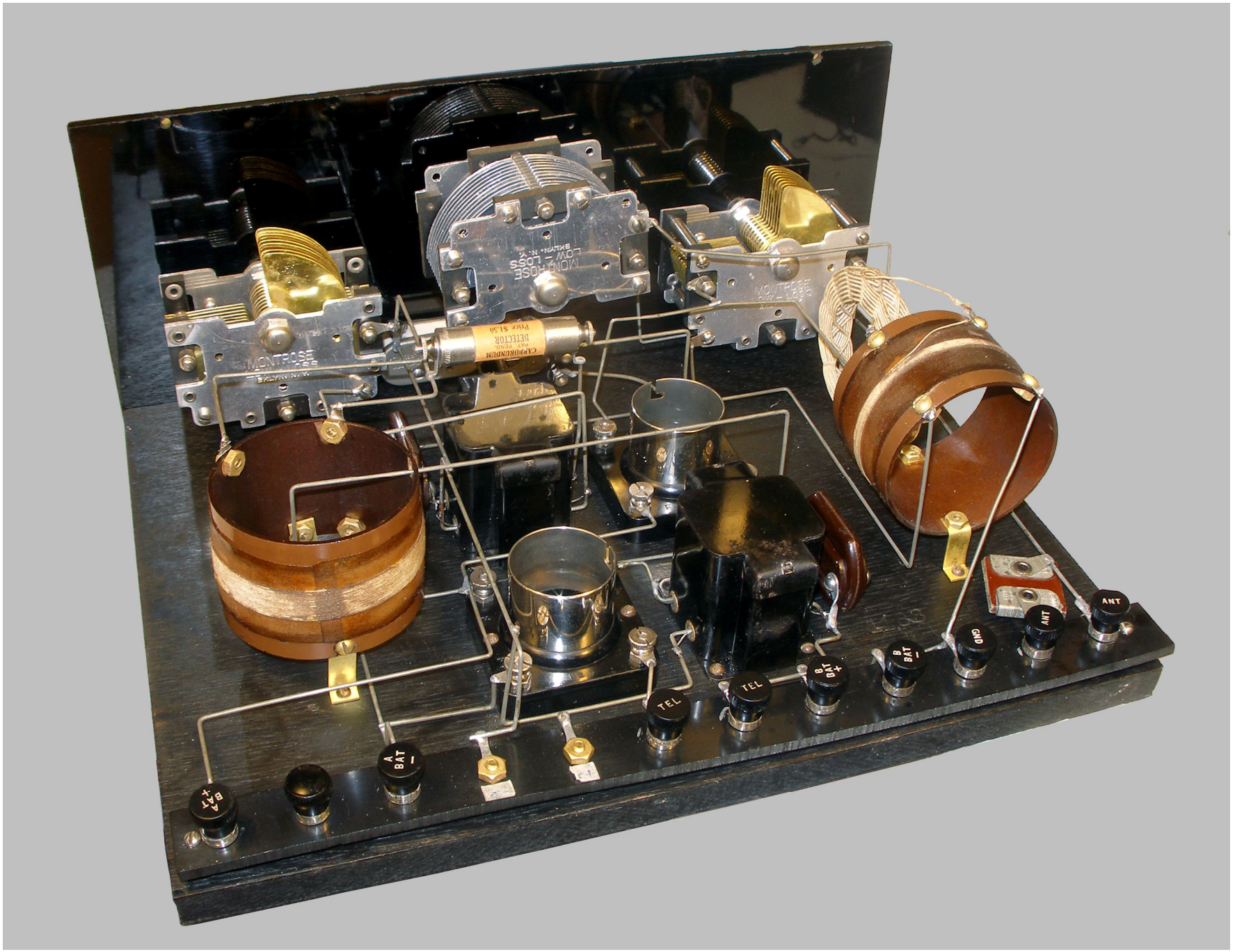


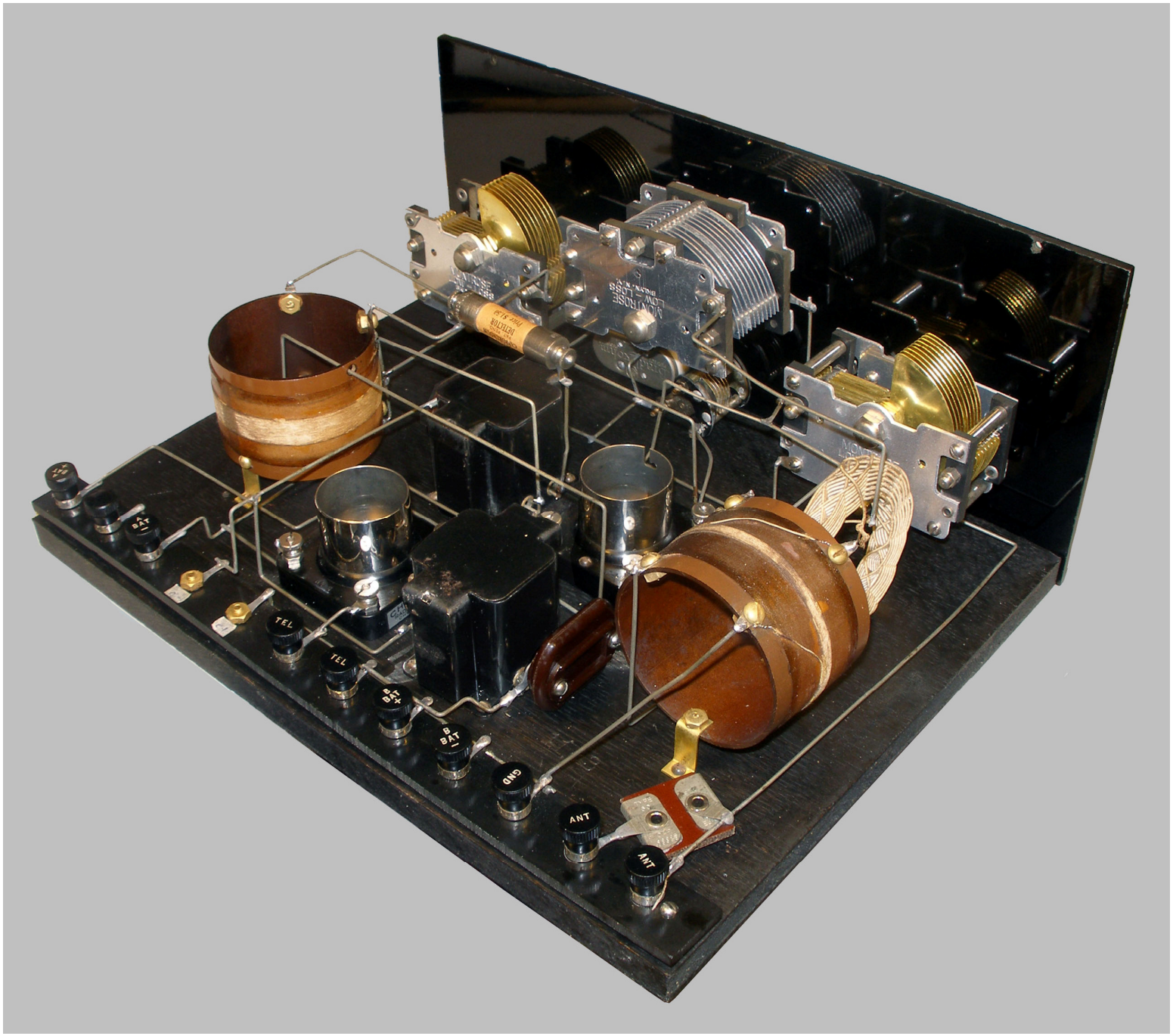
The white basket weave coil was very soiled and I wanted to remove it for cleaning using my new-found technique for cleaning textile covered wiring. The coil is mounted to the chassis using a length of ¼-20 threaded fiber rod. It was extremely difficult to

remove and replace the nuts….. With the coils removed from the chassis, I could place them into a stainless steel tray and pour in mineral spirits. I slosh the parts in the spirits and just gently brush them with a bristle brush. The real cleaning takes place by using compressed air to blow off the spirits in an aerosol spray. I set my blow gun to about 30 p.s.i. It appears that this ballistic removal is far more effective than just brushing-down, maybe patting down with dry cloths and being allowed to dry. I repeat the process two or three times…. It only takes a few minutes. The improvement in appearance is often dramatic. I've done this a number of times for the five conductors going to the typical field coil loudspeaker. Sometimes it helps to finish the wires with a thin coat of clear or amber shellac; something that will be easy to remove with denatured alcohol if you decide you do not like the results. (I am one of those people that really hates to see new vinyl insulation wiring, especially on the top side of the chassis.)

FYI – I have a way to create your own cloth covered wiring to closely match old wiring… Just e-mail me for details…

Photo Gallery


MONTROSE
CARBORUNDUM
DETECTOR
Price $1.50
A BAT −
BAT +
TEL
TEL
B BAT +
B BAT −
GND
ANT
ANT


A BAT
TEL
TEL
B BAT +
B BAT −
GND
ANT
ANT


RADIO POWR
110-V
ELECT. DIVISION
THE EAGLE CARBURETOR CO.
CLEVELAND, OHIO


ELECTRADYNE