

A Lovely Radio

M. Simon



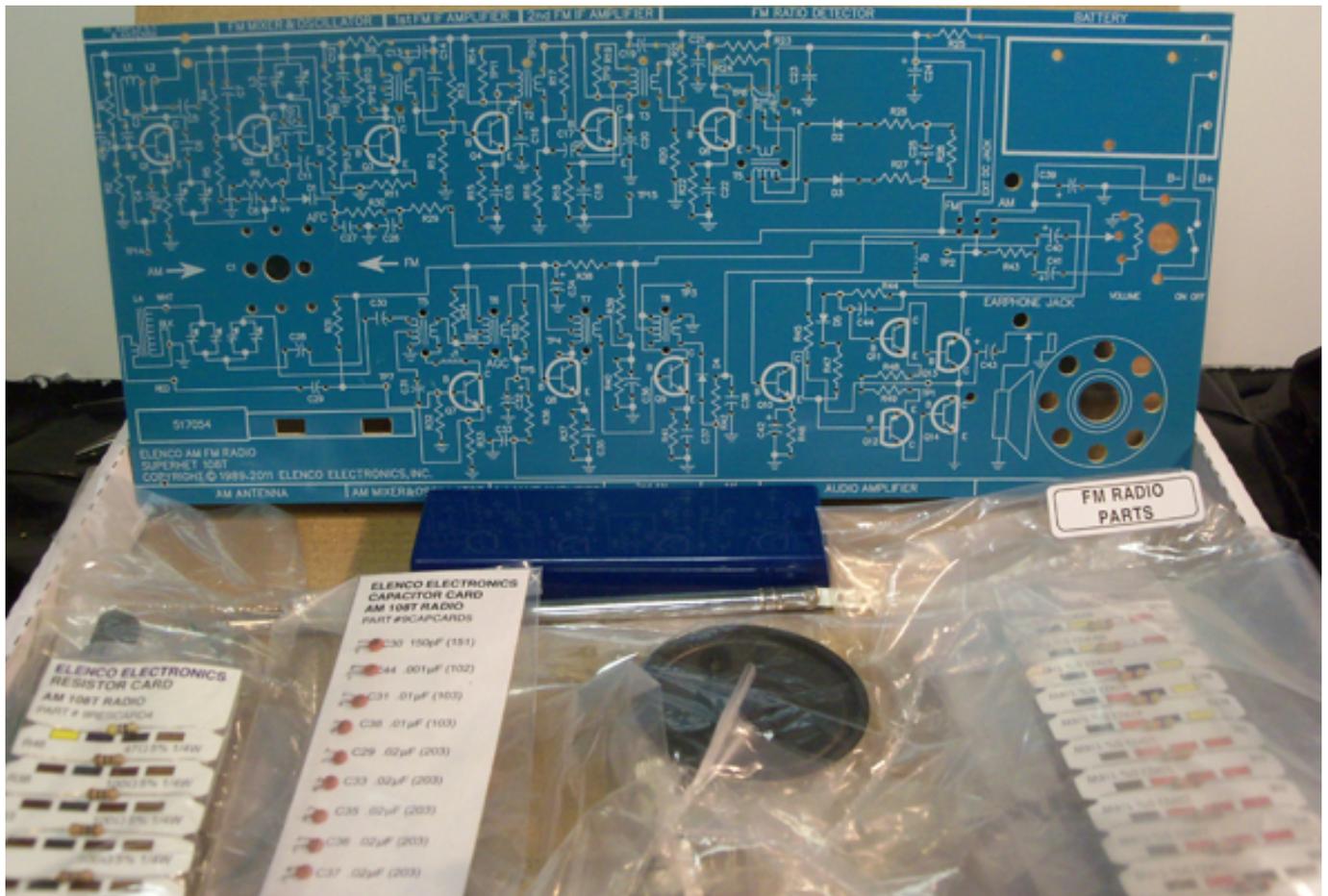
I have always loved radios. For as long as I can remember. The affair started to go deeper when I started studying the Radio Amateurs Handbook at age ten. By age 13 I had my first two amateur radio licenses. A Novice and a Technician. I was good in theory and practice but I was never much interested in code. I might add that the interest of [my uncle and cousins](#) [1] in radio didn't hurt at all.

So I was delighted when the folks at [Elenco](#) [2] sent me their [AM/FM-108TK](#) [3] kit to evaluate. Not only do I get to fool with a radio but I also will have something electronic that works for a decoration/conversation piece. I love talking about radios. And electronics. Most of my friends are engineers and their mates. Which suits me fine. Engineers are way more rational than average. Mostly.

The kit is designed to teach radio theory. If you want a general theory of superhetrodyne radios I think the Radio Amateurs Handbook is better because it covers the theory in both a more detailed and more general way. This kit does go into some detail about the individual circuits such as transistor biasing and circuit trouble shooting, which very helpful stuff for beginners and budding engineers, not to mention trouble shooting. There are also detailed instructions for doing things like measuring the bandwidth of the IF.

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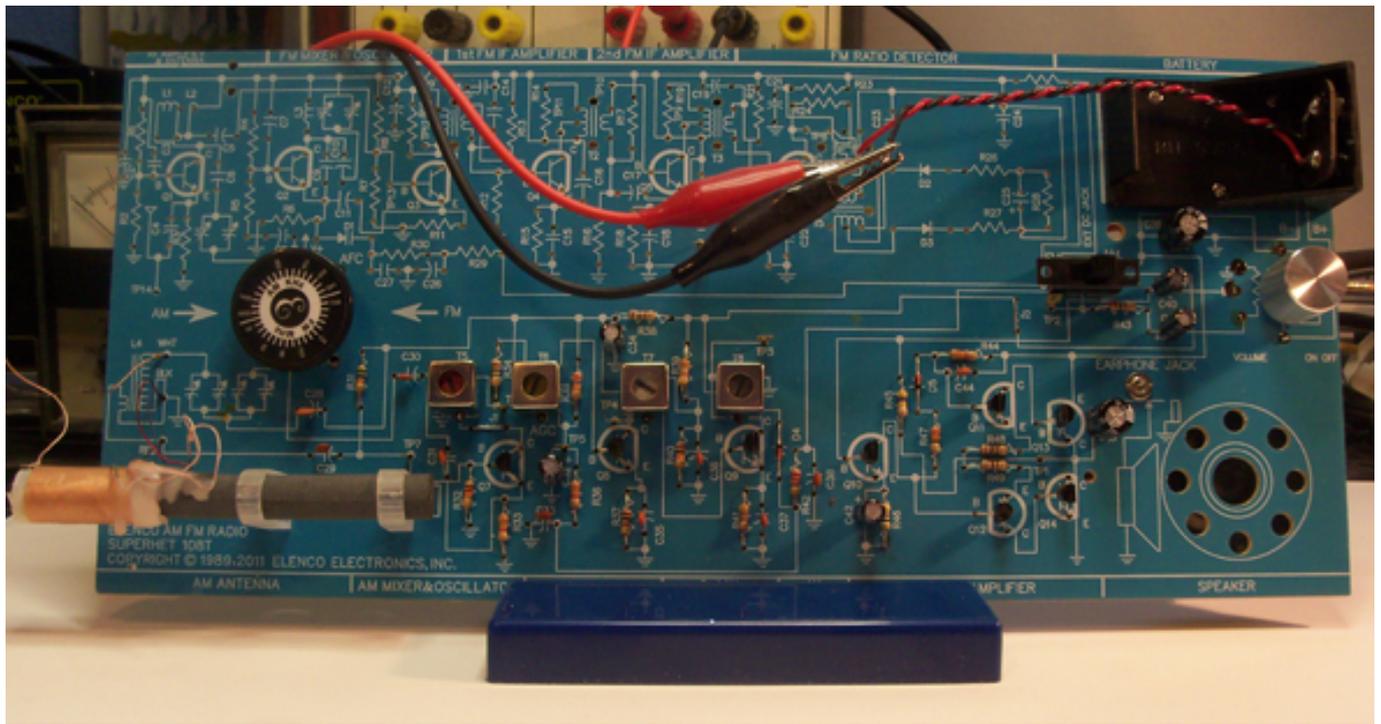
As you can see from the above picture there are a fair number of parts in the kit. But they are well marked. All through hole stuff so soldering is easy. If you are using a lead bender the resistors are on .5" centers. Since you are not only trying to build a working radio but also a piece of art take your time. Some of the capacitors are going to take some extra effort because the hole centers do not match the lead centers. Not a big problem if you take your time. One caution though. The battery holder that came with my kit seems to have been constructed with some plated spring steel wire. I suggest fatiguing (bending the wires back and forth) the excess wire off after soldering rather than cutting them in order to avoid nicks in your side cutters. I did not put my side cutters to the test. Just in case you were wondering.

The radio is built one section at a time with checks designed to help you make sure you build it correctly. The basic checks can be done with a voltmeter and those checks helped me find two errors I made along the way. A solder joint that did not join and two resistors switched in the oscillator section. Easily fixed once found.

When it came to tuning the radio I used the [Model: SG9000 Wide Band RF Generator](#) [4] from Elenco. If you have a frequency counter to set it to the frequency you desire, it does the job nicely. And speaking of frequency counter - I tuned the oscillator section more or less as described with a modification. I put my scope across the emitter resistor of the oscillator and just made sure the oscillator frequency was correct at both ends of the band. A somewhat simpler procedure than the one described in the manual. All in all a fun kit to build and a good tool for the beginner to learn how radio was done in the days before DSP.

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The above picture is the completed AM radio part of the kit with my trusty [Elenco XP-720 Power Supply](#) [5] in the background. The supply - since it is a linear regulator rather than a switcher - makes an excellent battery eliminator for test purposes. There may be some 60 Hz noise but there is no radiation from the switcher to gum up the AM band.

M. Simon's e-mail can be found on the sidebar at [Space-Time Productions](#) [6].

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Links:

[1] <http://www.ecnmag.com/Blogs/2011/12/I-Love-The-Sound-Of-Hetrodyne-Whistles/>

[2] <http://www.elenco.com/>

[3] http://www.elenco.com/product/productdetails/radio_kits=MTc=/am--fm_radio_kit_%28transistor%29=NzE=

[4] http://www.elenco.com/product/productdetails/generators=NjY=/wide_band_rf_generator=Mzc2

[5] http://www.elenco.com/product/productdetails/power_supply=ODU=/same_as_xp720_in_kit_form=NTc4

[6] <http://spacetimepro.blogspot.com/>