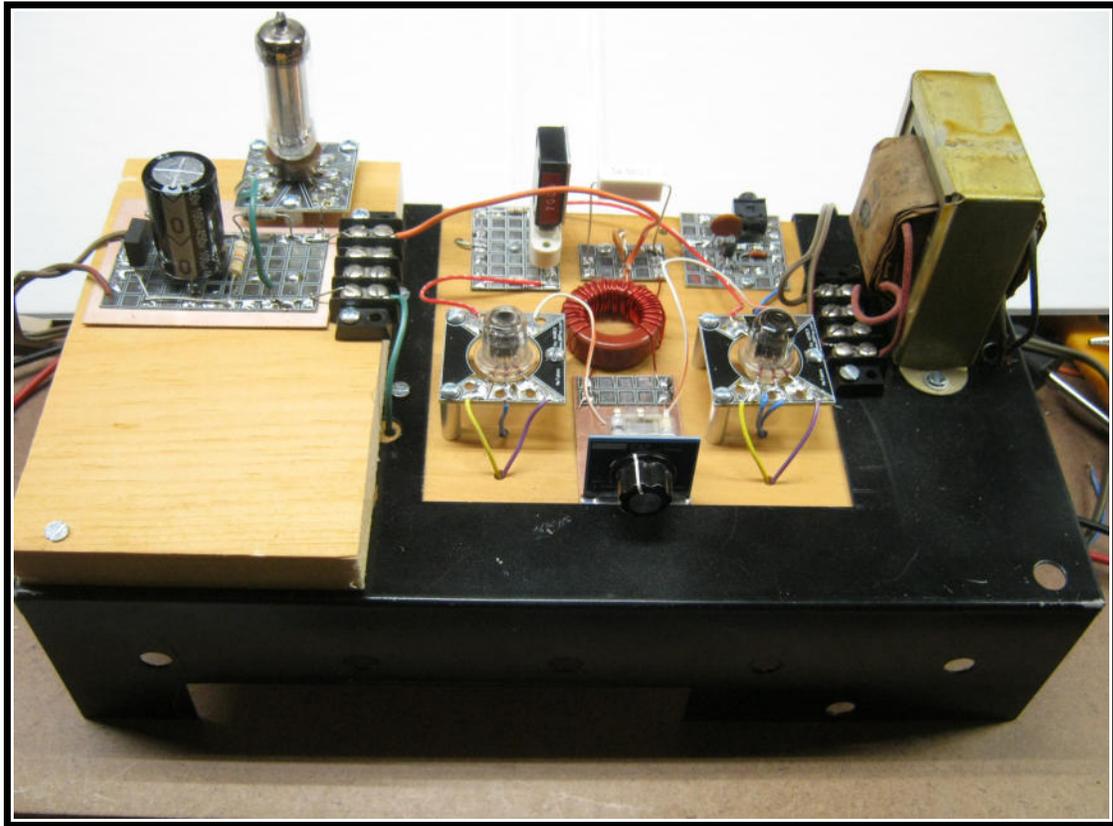


FDIM2020 Buildathon Acorn Tube 2 Transmitter prototype



WIREX's AT2 prototype built on a chassis scrounged from his personal boneyard. The chassis came out of a Heathkit Laboratory Generator. The transformer on the right is original from the Heathkit and is the only thing retained besides the chassis. It only supplies 120vac & 6.3vac so it was OK for testing but not enough voltage to run the acorn plates properly though it did supply the heater voltage for the acorns.

The pine board in the center is fitted from below and fills the area that one was filled with a large shielded box where the RF generation stuff was housed. The pine board on the left is mounted on top of the chassis where all the old tube sockets were located. The pine boards made it easy to screw down breadboard modules as they were generated. The chassis was stripped of every part, sand blasted, primed and painted black. The transformer was refitted and the 2 pine board construction areas were mounted using existing screw holes in the chassis. This technique makes a great 'sandbox' for playing with simple vacuum tube circuits.

[ASIDE] I missed the vacuum tube era. Not miss it as in fondly remembering but miss it as I was too young. In 1965, I did go to a Lion's Club auction held on my uncle's farm and

bought 50 dead vacuum tube TVs for 50 cents each. I convinced my uncle to haul them all back to my house in his big trailer. They filled up all 3 bays in our old garage. I spent the rest of the summer either fixing them or stripping them for good stuff if I couldn't. I was quite popular at school selling TVs to my friends for \$10 each! I studied electrical engineering in college but by then, vacuum tubes were gone and integrated circuits were the hot items to fiddle with. When I found QRP, I always wanted to build a glowbug in a tuna can but never had the time to delve into vacuum tube 'technology'. Hence this kit! It forced me to have some good FUN figuring out a 'new' (to me) technology. My Heathkit Prototyping Station will allow me to play around some more with some cool tubes I have Collected.

Modules:

Center Front is the polyvarion tank tuning capacitor. Since each end of the polyvaricon is attached to the plate of an acorn tube, the voltage differential ACROSS the polyvaricon is low which allows it to 'survive'.

Left & Right of Center Front are the acorn tubes mounted in QRPme MeTube Acorn tube paddy boards. The acorn tubes were VERY CAREFULLY soldered to the MeTubes adapters directly at the pins. Not something that is recommended but if you are VERY CAREFULL, it can be done. A GOOD heat sink needs to be applied between the glass envelope and the spot where the pin is going to be soldered. Hemostats are very handy in this situation.

Center Middle is the toroid soldered to a couple of sections of MeSquares. A hole was drilled through a MeSquare for mounting each side of the toroid.

Rear Left & Right are additional sections of MeSquares holding the FT243 crystal and the little MPS A92 keying circuit.

That is pretty much the AT2 Transmitter section. As you can see the entire transmitter could be easily built on a piece of wood Manhattan Style but in a Buildathon, that spells Time with a capital T and than means a loooooong streaming session. I chose to design a single board where all the components can me mounted easily and quickly.

Back Left is the power supply components. These are: bridge rectifier, inrush limiting resistor, high voltage capacitor, high voltage bleed-off resistor and voltage dropping resistor for the OA2 regulator tube. The OA2 tube is in the back mounted on a 7 pin MeTube paddy board. The OA2 is needed if the incoming high voltage is higher than required by the acorn tubes. The back to back wall wart power supply put out 196 volts DC at the output of the bridge & filter cap while the Hammond transformer power

supply put out over 250 volts. Through the bridge and voltage dropping resistor, the voltage is easily tamed to 150 volts DC for a nice stable voltage to the acorn plates using the 150 volt OA2 regulator tube. The back to back wall wart and Hammond plate transformer solutions were much too pricy to be included in the Buildathon kit. The boost converter module was found by Jerry and after receiving and playing around with it, it proved to be the best option. So while the OA2 tube is cool, it really isn't needed.

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