

The Resurrection of Big Art...



November 11, 2022 Wife and I drove out to Tribune, KS to purchase a couple SP-600s from Matt Matthes, KD0EZS, while there I saw a 20V-3 whom he purchased from KC9VF, whom he purchased from KGFF AM owned by Potawatomi Nation in Oklahoma. There it was collecting dirt and dust in the corner of Matt's shed, I expressed interest in buying it and we struck a deal.



December 17, 2022 Matt delivered the 20V-3 and with the help of several local hams, N0UNI, W0RHP, KF0BZM, W0UY, KF0KRY, and KB0SQL we unloaded and place the 20V-3 on a dolly specially made by Robert Bontreager.

I used as my roadmap the Article written by Bill Carns, N7OTQ, in “The Signal” starting with issue Fifty, Second Quarter 2008, continued through issues; 52-2nd quarter, and 54-4th quarter. Bill and I became very good friends through the process with his mentoring and inspiration for me to keep at it. Did I mention that he is a pilot too?

December 19th, 2022 Began assessment of what condition the unit is in, not good, but nothing major missing, a few areas where fires occurred in the RF Tank Deck, disintegrated components and obvious wiring errors in the tank.

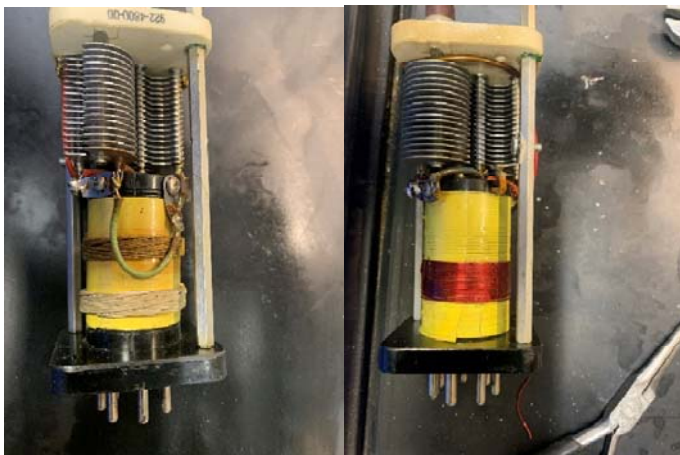
December 27th, 2022 Began by removing the tubes and decided to start cleaning up from the top down, starting with the mess in the RF Tank Deck. Lots of burnt plastic had to be scrapped off and buffed.



January 4th, 2023 Many of my ham buddies with KB0SQL being the most willing to help clean had been busy scrubbing and washing out the big box.

The proper way to restore and modify for 75m is to get it running on the BC band first but I was missing too many tank components and the crystals were already replaced with 3880 and 3885 crystals.

I rewound the oscillator and drive coils for 75m.



January 5th, 2023 Noticing Five BBOD's, Black Beauties of Death, in the Modulator Deck I replaced them with Orange Drops.



I also added an additional screen bypass for the 807 driver in the RF Deck to eliminate a possible 60Mhz parasitic.



January 10th, 2023 AC0MO and I wound a new plate choke on a Delrin core, it measured at 297uh, the original plate choke measured at 2mh and was known to be self-resonant in the 75m band.



January 11th, 2023 We installed the new plate choke into the Tank deck. We also installed new components for the Plate Bypass and RF Feed. I also modified the mechanical passthrough for the plate connections and made the modifications to the tank deck for 75m.



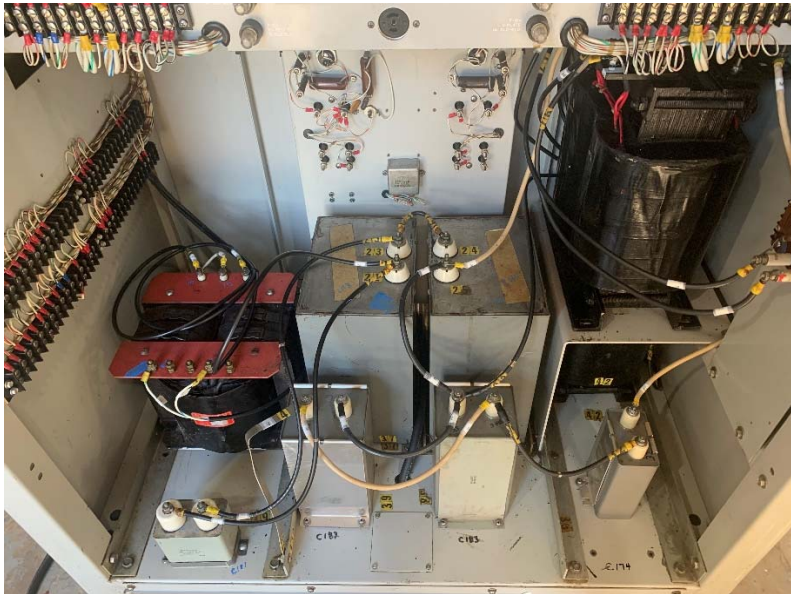
Modified plate connections:



January 12th, 2023 Now a mystery, there was a cable with a Jones connector that was just hanging loose. Many inquiries over the next couple days as to what it's for came up empty.



KB0SQL and I started to install the heavy iron and wire it all up. All of the connections were figured out and the bottom of the cabinet was populated.



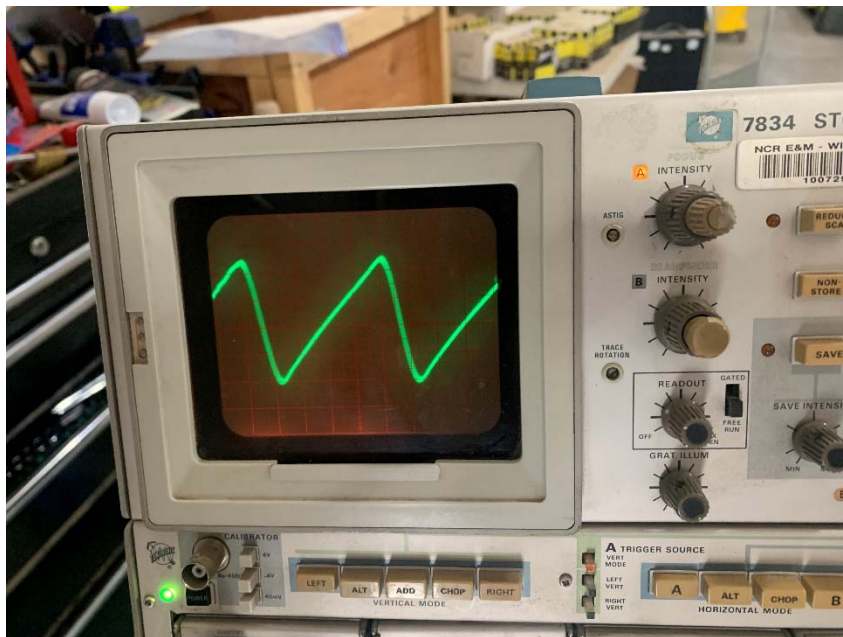
January 15th, 2023 When I tried tweaking the oscillator and driver circuits I discovered a problem, no metering, I pulled the metering switch out and found a Jones connector that matched the connector on the mystery cable. Viola, now metering was working along with many other things...



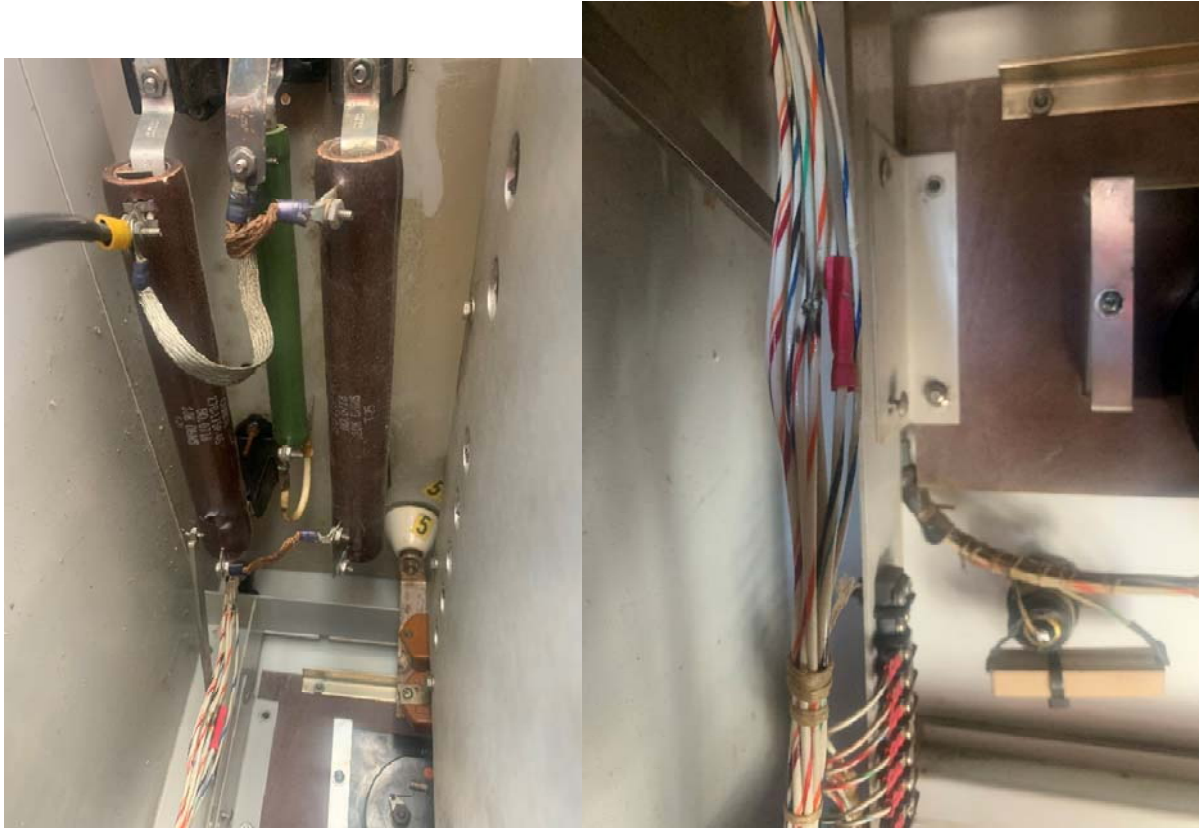
The HV started shutting down, I figured out that the lightning protection circuit was the culprit and found that the capacitor that connects to the tank circuit was intermittently shorting. I disconnected one leg of the cap to continue testing.



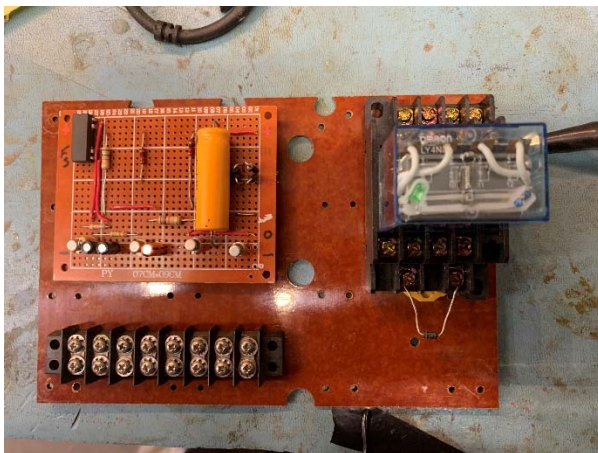
I adjusted the oscillators to the correct frequency and peaked the buffer and driver coils. Progress... I also checked the Plate voltage and we were getting 3KV but then smoke.



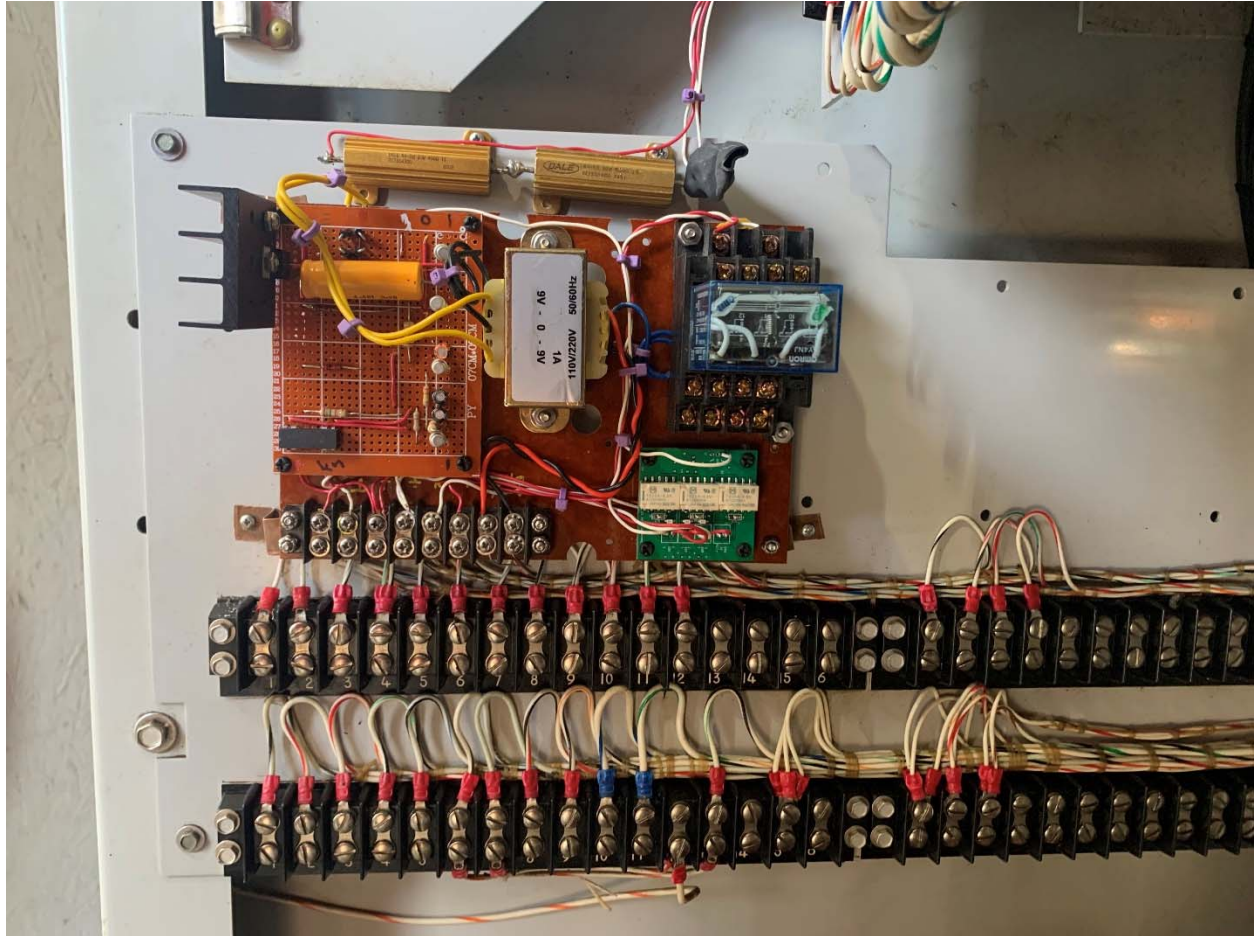
January 16th, 2023 The prop bar for the meter face was too close to one of the series dropping resistors for the screen supply and it arced over and opened the 225watt 20K resistor. I also found a wire bundle in that area that had been previously damaged and repaired.



January 20th, 2023 I began making a Push-Push PTT circuit. I also made the TX/RX antenna switch using large vacuum relays and a RF ammeter. I replaced the bad capacitor in the Tank Deck that caused the HV to shutdown.



February 4th, 2023 I completed and installed the PTT circuit with a sequencer, power supply, and contactor relay.



February 25th, 2023 I received a batch of eBay 4-400A's, the original tubes were all bad. I keyed it up and could not obtain resonance and got only 14 watts out.



February 26th, 2023 AC0MO and I began troubleshooting the RF output issue and discovered without the 807 driver we were getting 8 watts on 27.990mhz, and I could dip the plate. Aha! The tank deck is where the problem is. So, we opened it up and began tracing all of the connections against the schematic, and found that the coil between the plate and load capacitors was being bypassed with a short strap attached to the shunt capacitor for the loading. Easy fix, removed that strap and we were able to get 400 watts out. Afterwards we put the modulator tubes in and began testing with modulation. 1344 watts PEP in cutback. I noticed that the modulator tubes were getting red and the modulation transformer is not the original. I experimented with the primary taps and found a combination that gave me 100% modulation without overloading the tubes.



February 28th, 2023, I wired an XLR connector to the unit so I could connect a microphone.



I connected Behringer Ultra-Voice VX2000 voice processor and a Peavy PV 231EQ 31 Band Graphic Equalizer together to amplify and process the microphone, a Shure 515SBG. I did some testing and tweaked the audio. I used a Collins R390A for my receiver. ACOMO and I trimmed my 75m dipole for 3880 and KB0SQL and I ran heliax from my shed to the antenna.



Later that evening I made contact with KD0EZS, I had promised him that I would contact him first. I also spoke to many others including Bob Heil, who suggested that I use a better microphone.

March 1st, 2023 I prepared for the that evening's Collins 3880 First Wednesday AM Phone Net, did some more improvements to the audio quality. That evening I got on the net representing South Central Kansas with another Collins broadcast transmitter. All those that were involved in the history of this transmitter had checked in and I think they were very excited to hear it up and running.



Inaugural transmission to KD0EZX on March 1st 2023

Special thanks:

Engineering and moral support

N7OTQ - William Carns

Selling and delivering Big Art

KD0EZX – Matt Matthes

Fabricating roller base

Robert Bontreager

Many hours of assistance

KB0SQL – Charles Tucker

AC0MO – Joe Kelber

KF0KRY – Dan Spears

Unloading Big Art

KF0BZM – Mark Rankin

W0RHP – Phillip Muth

N0UNI – Todd Wilson

W0UY – Tom Lappin

What's in the future?

Maybe a VFO, definitely give it a permanent location with ample electrical power.