

TRANSMITTERS

EDITED BY **BRUCE J. HOWES, W1UJR**, 312 MURPHYS CORNER RD., WOOLWICH, ME 04579
E-MAIL: w1ujr@ar1.net

Restoring a 1937 Utah Jr. Transmitter

Background

Utah Radio Products of Chicago, IL is perhaps better remembered today for its transformer products rather than for its radio kits. Yet, like many of the other transformer manufacturers of the day—Stancor, Thordarson and UTC come immediately to mind—Utah began to offer a number of transmitter kits. The line began with simple two-tube tabletop units and grew to include high power floor rack models.

The radio kit concept was shrewd. Many depression-era hams were burdened with budget and time constraints and/or were stymied by the lack of tooling and technical skills.

Utah realized that it was a simple matter to offer a kit, complete with pre-punched and drilled sheet metal, which the average ham could assemble with minimal hand tools. Aside from the profit realized selling the kits, this familiarized the ham of the day with the offerings of the company, and quite possibly led to future component sales.

Unfortunately many of these transmitters are lost to us today. Like much early radio gear from the 1930s these rigs have fallen victim to parts cannibalization, been discarded because of component failures or obsolescence, or donated to wartime scrap drives. But there is great joy to be found in discovering, restoring, and operating one of these icons from our radio past. The folks that take the time to get these artifacts on the air deserve much commendation.

Information from the rig's schematic diagram, which is supported by Raymond Moore's excellent book *Transmitters—Exciters and Power Amplifiers*, suggests that Utah first offered the Utah Jr. for sale in late 1937 and that production of the kit ended in 1939. Aimed at the new ham, this was an entry level kit selling for \$15.95, not cheap in depression dollars, but still reasonably affordable.

Aside from the transformer, Utah appears to have sourced most of the other components from standard manufacturers of the era. The two air variable capacitors came from Cardwell, the plate meter from Triplett, the switches and keying jack apparently from Switchcraft.



Detail from a 1938 QST ad for the Utah, Jr.

The Utah Jr. tube complement was rather simple, consisting of only a 5Z4 rectifier and a 6L6 oscillator, providing a RF power input stated to be 25 watts. No modulator was included or offered, so the Utah Jr. is strictly a CW only rig. Despite the rather simple circuit design, Moore's book claims band coverage from 160 to 10 meters with appropriate crystal and coil sets.

Condition as Found

Overall, I found my unit to be in good condition for a transmitter now approaching its 75th anniversary. The exterior black wrinkle finish on the cabinet was in very good condition, needing only a thorough cleaning. I find that a lanolin based hand cleaner, like D&L or GoJoe, works very nicely in cleaning the decades of grime from the paint, but always test a small and inconspicuous area first.

Although the cabinet was in good order, the chassis of the RF and power supply decks were another matter. Both were showing signs of rust forming under the paint, and in several spots moderate rust pitting of the metal was observed. I therefore planned to strip down and refinish both of the sheet metal chassis with a powder coating process.

I began the restoration project by removing

concerned about the use of heat on the now-brittle cardboard housing and decided to use a microwave oven.

A few minutes in the microwave was all it took to soften up the wax, allowing easy removal of the failed capacitor and installation of a modern replacement. I then re-melted the removed wax and poured it back into the cardboard case. The repaired unit looks like original 1930s equipment.

The assembly of the RF deck took just a little more time than that of the power supply, lead dress being important here. However, the process was quite straightforward and it took only a few evenings to fully assemble the deck ready for testing. A careful inspection was made of the 75 meter plug-in coil, and the Arcturus 6L6 power tube was checked. The air variable capacitors, fresh from their trip through the dishwasher, gleamed like new.

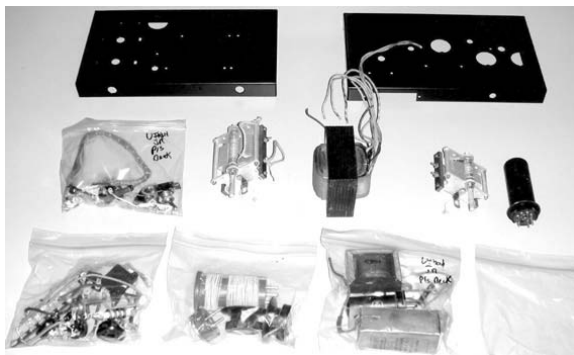
On the Air

The unit worked the first time it was fired up. With the installation of the proper 75 meter crystal and the connection of my light bulb dummy load, we were in business. Careful loading and tuning brought the plate current up to the Utah suggested 80 mA, and the little 25-watt light bulb glowed brightly.

Since this is a link-coupled rig, it prefers a high impedance antenna, ideally a balanced one. I did find, on the suggestion of Larry NEIS, that I could use an external air variable in the antenna line to tune the impedance to better match the Utah Jr.'s narrow loading range.

While the Jr. transmitter was one of the more humble of Utah's offerings, it is a very robust, simple and quite solid transmitter. Paired with a receiver of the day, say a venerable National HRO or FB-7, it would represent a very respectable station for the ham newcomer.

Today, the end operation of such a vintage station can be a joy. The operator has to be occupied not just with the logging of call signs, but also with loading, tuning and transmit/receive



Power supply and RF decks after disassembly.

switching. These are activities we miss out on with today's solid state transceivers—the tactile feeling of really operating, not just listening.

More Information

John Dilks, K2TQN, the author of the wonderful vintage radio column published each month in *QST*, wrote an interesting piece about the Utah Jr. in the March 2007 issue. John has some additional information and photos of the Utah Jr., as well as an archive of his other articles, on his website—which can be found at www.eht.com/oldradio/arrl/2007-03/Utah_jr_transmitter.htm.

Raymond S. Moore's excellent reference, *Transmitters—Exciters and Power Amplifiers*, ISBN 0-9618882-3-7, mentioned earlier, is another resource for information on the Utah and other vintage transmitters. Covering a span from 1930 to 1980, Moore has compiled a wealth of data on early and late transmitters.

Coming Next

I'm quite interested in devoting future columns to AWA member transmitters, especially rigs built to pre WWII designs. If you've got something that you feel is appropriate, please contact me.



Author's National FB7/Utah Jr. station. Key and receiver power supply not shown.