5 TUBE AM SUPERHET RADIO KIT

a review by Gary Heisey

R60-1-1

Introduction Heathkit and Eico have dropped most, if not all, of their tube kits. I had given up looking for one, but recently saw Antique Radio Supply, 688 W First St., Tempe, AZ 85281 was selling one for about $34.95 less tubes. This is a 1950's style AM Radio Kit using the following tubes: 12BE6 converter, 12BA6 IF, 12AV6 for detector, first audio and AVC, 35W4 rectifier, and 50C5 audio output. Remainder of parts include a 4 5/8" ferrite rod antenna, 2 section airgap tuning condenser, molded tube sockets, 4" speaker, 2 IF transformers, plus cabinet, all hardware, resistors, capacitors, etc. The metal chassis base measure 7½"L x 3¼"W x 1½"H. Point to point wirind method is used.

Assembly The 15 page instruction book supplied with the kit was not the step by step format most of us are used to. Seven pictorial diagrams are used instead, so you must color in each wire on the diagram as you install it. I had no problems with the wiring except for the L2 oscillator coil where the diagram was not too clear. Please avoid excessive slack in the wiring, but don't cut wires so short that they are tight.

The instructions have troubleshooting at the end of each stage of wiring; if you lack an isolation transformer, I suggest a VOM to make all but grid voltage measurements. You will also need an RF signal generator, as the kit must be completely aligned or the radio will be prone to "motorboat" (low frequency audio oscillation) at the low end of the dial. To reduce hum modulation during alignment, I found it necessary to install a .05 cap between the signal generator low side and the B- or common ground of the radio's power supply. This will also guard against short circuits or fireworks should your AC powered test equipment be grounded through a 3 wire line cord.

I eagerly rushed through construction of my kit, starting from the instant UPS dropped it off at 4:30 PM, stopping only for dinner. Several cups of coffee later, I completed the kit around 12 midnight. At first, I couldn't hear any stations except a hum and motorboating sound when tuned to the low end of the dial. Later I discovered the IF transformers were so far out of adjustment that a generator alignment was needed even though I had attempted to peak the IF stage by ear. The slug cores needed to be turned down a lot more than I thought and the adjustments were somewhat critical.

Modifications Caution! This radio uses a transformerless AC-DC circuit with series connected tube heaters. One side of the AC line is indirectly connected to the chassis via a resistor/capacitor isolation network. It was a disappointment to find a non-polarized line cord included with the kit. (I made my own by cutting the socket end off a spare polarized extension cord.) An isolation transformer should be used between radio and wall socket during testing purposes. Since I was without one, I had to proceed without it. After receiving several nasty shocks in the past from these types of radios, I wanted to make minor wiring changes to my kit for safer operation. I decided not to detail the changes here since they might be misinterpreted. Basically the modification involved removing the on/off switch (SW1) from its present location and installing it in the wire going to pin 3 of V1. The hot side of the polarized cord was soldered to Lug 2 of SW1. The cold side of the line cord is permanently connected to the common ground circuit.

Chassis Hot Check After completing all wiring and the safety modification, I measured the voltage on the chassis and got a zero AC volts reading with the radio off and plugged in. I also got a zero reading with the set turned on, proving my safety mods worked.

To improve the range of adjustment of antenna trimmer C5A, I soldered a 10 pF cap between the lug of C5 and a ground lug fastened under the tuning condenser mounting screw near the 12BE6 tube.

If tunable hum is noticed when tuning on strong stations, try connecting a 0.1 uF cap soldered to either one of the 3 pins used as a common ground on V3. The other side of the capacitor is connected to Lug 1 of SW1. This corrected the problem and improved sensitivity near 540 kHz.

After operating my kit for a few days, another problem came up that had me baffled for quite awhile. The radio was prone to instability and when I took the set outside my mobile home, it would whistle and oscillate on stations as if there was too much gain. I placed a call to Kelvin electronics, and their man suggested shielding the converter tube. Close, but no cigar. Shielding the 2nd detector tube V3 completely fixed that problem for good; the instruction manual makes no reference to this last problem.

Performance and Appearance With a tuning range of 540 to 1650 kHz, selectivity was fair and normal on all but my strongest local stations. Volume was fair and clear on KDKA 100 miles to my west at noontime, but not as loud as my GE Superadio. Having no other kit to compare it with made evaluation difficult. If you bring your hand or even a wire from an outside antenna near the ferrite loopstick, the volume increase is dramatic. The second night of operation of this little set actually resulted in a new catch, WAAM-1600!

The direct drive tuning plus the small size of the knob requires a steady hand. The all black plastic case is not cosmetically too thrilling. The numbers on the dial are impossible to see but could be filled in with a white marking crayon. The case requires drilling 3 holes for chassis mounting; a template is supplied. I feel the radio looks better out of the case. Note that there may be an error in the catalogue. A type 50B5 tube is listed, but my kit used a 50C5, so I ordered a tube I didn't need. Check with the supplier before ordering. The .022 uF capacitor across the primary of T1 was changed to .047 uF and resulted in a more pleasing tone. The small size of the chassis is deceptive and there may be more room for additional parts. A headphone jack and tone control could be added. Leaving the bugs aside, I found this a very enjoyable kit to build, but not one I could recommend for the first time kit builder without supervision.

(The kit is manufactured by Kelvin Electronics, 1900 New Highway, Farmingdale, L.I. NY 11735; phone 516-349-7620. Stock number is 123-134)