

73 Tests the Hallicrafters HT-40K

Donald Smith W3UZN
Associate Editor

THE Hallicrafters company has added to its line two kits, the HT-40K and a receiver, the SX-140K. The transmitter is housed in a typical Hallicrafter two-tone gray cabinet, runs 75 watts input on CW and controlled carrier AM phone operation. It covers the 80 through 6 meter bands.

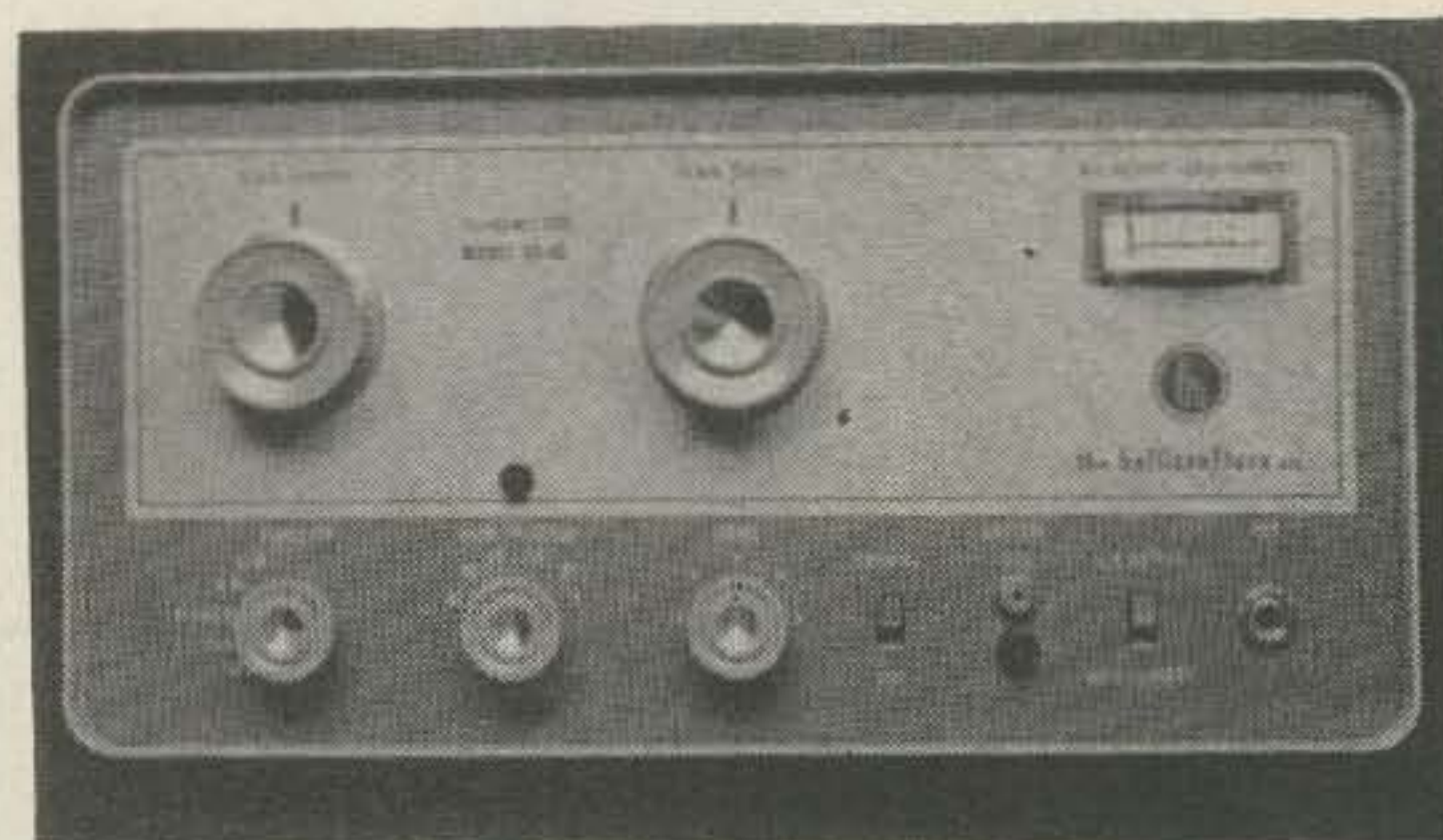
Specifications of the rig:

Oscillator	Crystal control or external VFO
Power input	75 watts CW 75 watts controlled carrier AM phone
Frequency coverage	80, 40, 20, 15, 10 and 6 meter Amateur bands
Audio input	.004 volts minimum from microphone — Crystal, Ceramic or Dynamic type
Output	50-75 ohms unbalanced coax, Pi-coupled
Power requirements	105-125 vac, 60 cy, 175 watt power consumption
Dimensions	7-3/16" high, 13 3/8" wide, 8 1/4" deep
Net Weight	17 pounds
Price (Kit)	79.95
Construction time	Approximately 8-9 hours

Hallicrafters has put a lot of thought and engineering into their new kits. The manual is very comprehensive, with many illustrations and even complete information on how to solder for the newcomer. Each part is in a separate, transparent bag, with the part and diagram number on it.

Circuit Description

A 6CX8 (triode section) is used as the crystal oscillator in a modified Pierce circuit, receiving feed-back from the plate of the oscillator through a 4700 mmfd capacitor (C1). The output of the oscillator is developed across an RFC and coupled to the buffer-multiplier through a 1000 mmfd capacitor. If VFO operation is used, feedback from the oscillator plate is removed by the xtal-VFO switch. It is not



even necessary to remove the crystal.

The buffer is the pentode half of the same 6CX8 used for the oscillator and operates straight through on 80 meters and doubles or triples on other bands. The output of the buffer-multiplier is not tuned, but has the output developed across a 1 mh RFC. This output is connected to the band switch, to be coupled to the final amplifier.

The final amplifier is a rugged 6DQ5 tube, with the grid circuit tuned to the operating frequency and operates straight through, with the exception of 6 meters. On 6 meters, the frequency is doubled in the final. The final plate operates into a pi-coupled circuit on all bands. A diode is connected to the output of the coupler to rectify a small part of the output signal. This rectified signal is connected to the front panel meter, giving an indication of the output. Note that the final is not "dipped," but rather peaked for maximum indication on the meter. A switch is provided to read this output signal or to read grid current of the final. In the grid current position, the meter which is divided into 5 divisions, will read to 5 mils, one mil per division. In the output position, each division indicated on the meter is approximately 10 watts of rf output power. Thus the output power of the rig delivered to the antenna can be closely estimated.

The speech amplifier consists of a 12AX7 tube, one triode being used as a mike preamplifier, rc coupled to the second triode section of the tube, which is the first audio amplifier. The gain control is placed in this stage. A second audio amplifier is used, which is one triode of a 6DE7 tube, the second triode being the modulator. The second audio amplifier is direct-coupled to the modulator.

TRANSISTORIZED TELEPHONE INTERCOM SYSTEM

Model SA-10W

\$23.95 2-unit set

FULL-SIZE PHONES w/SPIRAL CORDS!

Ideal for few feet or up to 9 miles. Each phone has separate red button, which when depressed sends pleasing signal tone; black button for talking. Receiver is transistorized crystal unit; transmitter is carbon unit. Each unit has spiral phone cord. Operation requires no switching. Use several units together. Imported.

ALCO



GRID DIP METER WIRED — READY TO USE

Completely calibrated

Freq. coverage
1.5 to 300 MC in 6 ranges

\$36.99

Ranges color-coded to match coils, undamped 1 MA meter. Variable sensitivity control for optimum grid current adjustment. Calibrated dial, adjustable hairline, allows precise accuracy. Phone jack permits use as modulation monitor. Oscillator tube is 6AF4. $6\frac{1}{2} \times 3\frac{1}{8} \times 1\frac{1}{2}$ ". 6 coils supplied. 117V, 50-60 cps. 2 lbs. Imported.



R.F. FIELD STRENGTH METER

Single Band 1 to 250 MC.

\$6.95

Model PSI-1 $2\frac{3}{16} \times 3\frac{3}{16} \times 1\frac{1}{16}$ "

Compact! Sensitive! Checks antenna efficiency, load matching, etc. Requires no battery or other power source. RF measured on accurate meter. Telescoping antenna to $10\frac{3}{4}$ ". Earphone jack provided for monitoring; case has powerful magnet to grip fender, etc. Imported.

WITH FREE LEATHER CASE

20,000

ohms per volt MULTITESTER

\$15.95

- High sensitivity — 20,000 Ω /V
- New design; wide scale arc
- Compares with $4\frac{1}{2}$ " meters
- Measures $3\frac{1}{4}$ " W x $4\frac{1}{2}$ "
- Compact black bakelite case

DC V. ranges: 5-25-250-500-2500
@ 20,000 Ω per V.

AC V. ranges: 10-50-100-500-
1000 @ 10,000 Ω per V.

DC current: 50 μ a, 2.5 ma. Imported



SEND FOR FREE CATALOG

Available direct or through
your local distributor

ALCO

ELECTRONIC PRODUCTS, INC.

Dept. 666 — 3 Wolcott Ave., Lawrence, Mass.

CW operation is accomplished by keying the cathode circuits of all stages in the transmitter section of the rig. A jack is provided for this purpose on the front panel, as if to encourage CW operation.

The design of the modulator is such that the modulator has low plate resistance and acts as a high level cathode follower. The screen of the final has considerably higher impedance and thus becomes a considerable portion of the cathode follower impedance. The audio from the cathode follower (modulator), is applied to the screen of the final through a .47 mfd capacitor and of course modulates the screen of the final in normal, controlled carrier fashion.

The power supply is transformer operated and uses a voltage doubler circuit (full-wave), to develop the high B+ voltage. Diodes are used for rectification, cutting considerably the heat which is characteristic of tube type rectifiers. Filtering is accomplished by a pi-type filter circuit, with a filter choke being used in the pi, for better filtering. RFC chokes and capacitors are used in the line to minimize TVI.

The kit was easy to build and went together smoothly. A cabled harness is furnished for the long runs of wire, simplifying and making a neater job of the wiring. In the final assembly you begin to see just how attractive the rig looks. The final tuning and loading knobs are large, helping to make tuning easy.

Tune up is very easy; only the drive capaci-

tor and final tune and loading need be adjusted. It is impossible to tune the drive control (a capacitor in the final grid circuit) to a harmonic of the operating frequency, due to the selection of coils used in the grid circuit. Output into a dummy load was 43 watts on CW and 39 watts on AM phone peaks. On 6 meters this output was somewhat less, no doubt due to doubling in the final.

I think that Hallicrafter with their entry into the kit field has put out a rig which will be of interest to many amateurs, particularly the newcomer. It has reasonable power output, simplicity of construction and good design coupled with looks and a well known manufacturer.

... W3UZN

