



The HD-10

Heathkit's new electronic keyer

Mort Waters W2JDL
82 Boston Avenue
Massapequa, L.I., N.Y.

Recognizing CW's popularity—it's far from dead, despite the claims of the ssb boys—Heathkit has produced an electronic keyer kit that will gladden the heart and tickle the ears of every CW man. Yes, you too can send beautiful, effortless, perfectly formed code. For the benefit of those who still pound away at a straight key or use a bug, you can send for hours with this keyer without strain or fatigue.

Benton Harbor's latest goodie was especially interesting to me because its circuit is based on the W30PO transistorized keyer which first appeared in QST for December, 1962. Until then, I had used several conventional keyers, all of which were alike in that they keyed the rig through a relay. Inevitably, relays meant trouble. Sooner or later, contacts got dirty or

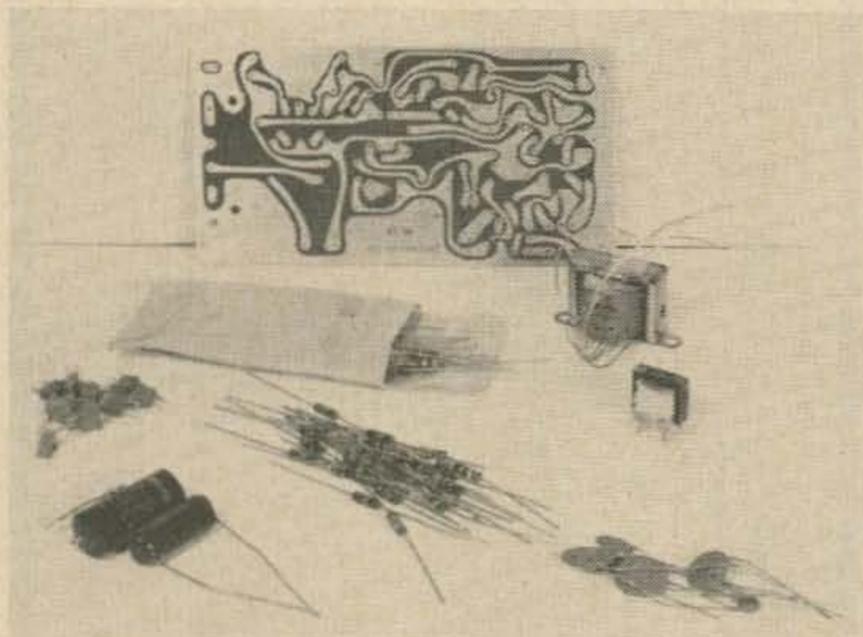
needed readjusting. The W30PO job boasted of one feature that sold me—instead of a relay, a switching transistor was the keying medium. No moving parts. Nothing to foul up. Hallelujah! It has worked like a charm ever since.

Heath's designers improved that circuit, added a few ingenious touches of their own, squeezed in a paddle and packaged the whole thing in a neat little box only 3½x4½x10½ inches, painted in the now traditional colors—two-tone (Wayne?) green, same as the SB100, 110, 200, 300, 400 . . . and who knows what's to come? There's still a lot of numbers left.

It was a pleasure to assemble this kit. Although the number of parts is surprisingly large (there are 49 resistors, 18 capacitors, 6 diodes, 11 transistors and 2 transformers), a single circuit board takes care of everything except a few odds and ends, such as speed and monitor volume controls, pilot light, etc.

As I've come to expect from Heath, the instruction manual is a model of clarity. Success is assured by following the instructions and soldering properly. And, speaking of soldering, Heath now includes in their kits a new full-color booklet that is a complete course in soldering and kit-building.

Now, to the kit! There's no point in covering the assembly details here; that's the function of the manual. I'd suggest only one thing that the manual doesn't mention. The screws which fasten an eight lug terminal strip to the rear panel are also used as binding posts for ground connections. Before attaching the strip, sand the paint from the inside face of the back



The HD-10 kit utilizes the printed circuit board shown here. Almost 90 parts mount on it—including the power transformer at right, rear.

panel, to assure a good ground. Do the same where the phone jack mounts.

The built-in paddle is simple and ingenious and more than adequate for keyer beginners. (See photos for details of its construction). Once you've become skillful, you'll probably want to switch to a paddle that has more precise action and is easily adjusted. Thinking ahead, Heath has provided for attaching an external paddle to the rear panel.

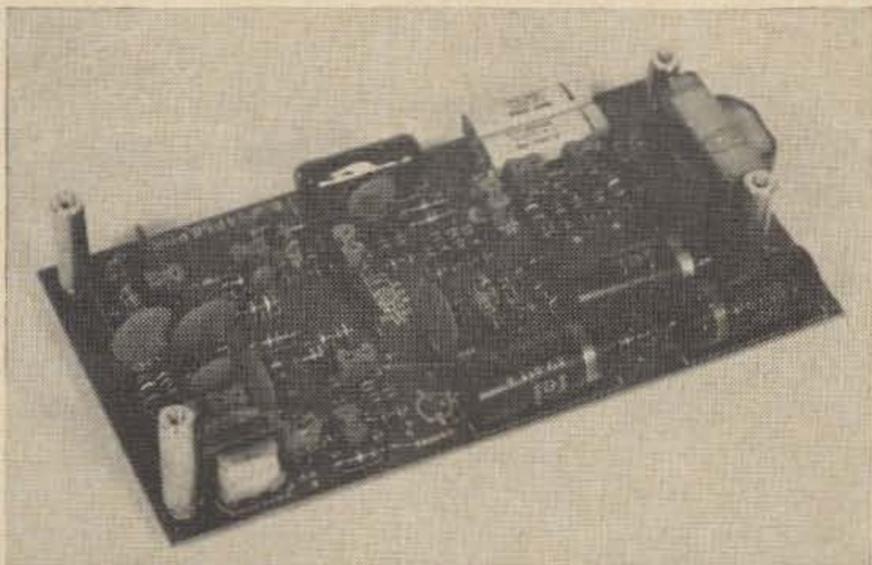
By changing jumpers and connections on the rear panel you can have any mode of operation you can think up, plus a few you never suspected. Here's what the keyer can do:

- 1) Choice of built-in or separate external paddle
- 2) Conventional operation; automatic dots and dashes
- 3) Automatic dots and manual dashes
- 4) Hand key or bug can be attached externally.

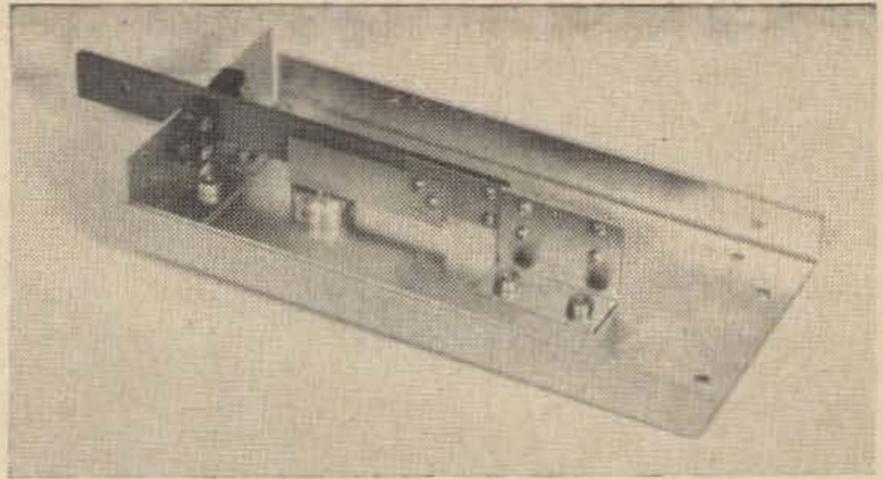
Flexibility extends to monitoring also. The built-in sidetone generator can be heard through its self-contained speaker or through earphones plugged into the rear panel jack. For deluxe on-the-air monitoring, feed the receiver audio to the keyer. When the station is in "receive" condition, you hear the receiver through the phones plugged into the keyer. Switch to "transmit" and the sidetone is heard through the same phones when you key.

The kit took only 4½ hours to assemble, including the time I spent taking photographs, so you can see it isn't a major project. It worked fine first try, but one diode opened about ten minutes later. Once replaced, however, no further trouble was encountered.

The dot-space ratio is adjusted in seconds with the help of a VTVM or a 'scope and the circuitry assures that dashes will be exactly three times as long as dots. The adjustments hold throughout the full speed range. You



Completed board with all parts soldered and four metal spaces in place. The spacers support the board upside down in the case.



Paddle subassembly complete except for handle. Strips of spring brass provide adjustable tension and the small snap switches used for contacts may be adjusted for desirable spacing.

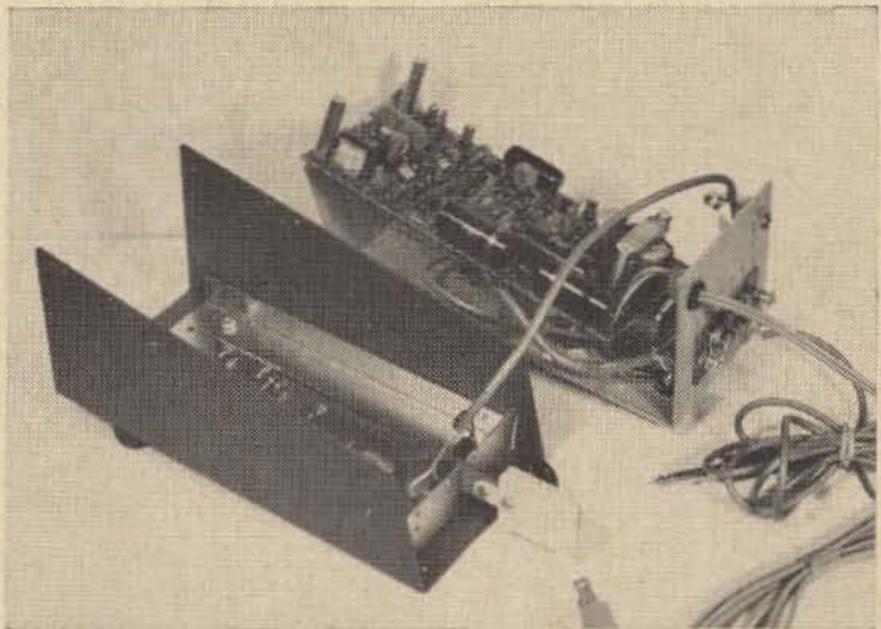
have your choice here too—two pairs of resistors are furnished; one gives 10 to 20 wpm, the other 15 to 60 wpm. You wire in the pair for the range you want.

The Heathkit HD-10 keyer can handle any transmitter using grid block or other types of keying where a negative voltage is shorted to ground to key the transmitter. The keying transistor, a 2N398A, is rated to handle a maximum of -105 volts at 35 ma. Make sure the current and voltage at your key terminals are within these limits. Slightly higher ratings can be had by substituting a type 2N398B, about \$1.45 at most parts jobbers.

In most installations the built-in 110 volt ac power supply will be adequate. For portable or emergency use, however, two 22½ v. batteries in series, or one 45 v. source tapped at 22½ v. will do the trick. Overseas hams can adapt the ac power supply to 230 v. by inserting a .068 µf 600 wvdc capacitor in series with one leg of the line cord.

As good as my W3OPO keyer was, this one is even better. One of my buddies—an old, old timer—instantly recognized the improvement without knowing I was using a new keyer.

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Ready for final assembly with all parts completed. Circuit board mounts upside down over paddle. Metal cover with control panel follows last.