

(W2NSD from page 71)

dandy Vee if six meters ever opens to Bermuda.

Well, I could go on about our other summer "help," but space here is limited. We'll be looking for a new crew next year. Have you thought about the possibility of spending a nice summer up in the beautiful mountains of New Hampshire?

### Typewriters

Perhaps I can draw on the collected experience of 73 readers. Does anyone know of a typewriter that turns out the fine typing job (for offset printing) of the IBM Executive, but which doesn't need almost constant repairs? Hoot-Mon!

### Polaroid

The new Polaroid 100 camera looked like it was just the ticket for a magazine editor. I bought one of the first out to see if it shaped up. I can report that it does an excellent job on black and white pictures, indoors, outdoors, or with flash. That little transistorized shutter control gives me perfect pictures every time, and this is valuable for magazine work. I've shot several packs of the color and am extremely disappointed with it. I don't know how the fellows in the camera magazines got those

beautiful pictures, but mine all come out very dull and not much more interesting than black and white.

### Poverty

There's a letter from a skeptic every week or so asking how I can plead poverty with a straight face while I am making trips to Europe, driving around in a Porsche, and keep telling about my big antennas and transmitters. It is difficult. But once you get used to being poverty stricken you can do almost anything you want without interfering with this state of mind.

The philosophy involved may be difficult to accept. Basically it is to do as much as possible while spending the absolute minimum of money. This forces me to drive around ignominiously in a 1957 Porsche instead of a 1964, but it does get me around in a Porsche (pronounced por-sha). It means that in order to get over to Europe I have to tour direct 71 other people (which I enjoy anyway). It means that I have to swap off advertising space in 73 for equipment, make do with surplus at every opportunity and scrounge second hand gear whenever possible.

Being poor is fun.

. . . Wayne

# The Heath HW-22 40 Meter SSB Transceiver

Charles Leedham WA2TDH



The Heath Company is right in the thick of the heavy current rush to SSB transceivers, their contribution being three one-band models covering 20,40 and 75. The prices of the non-kit transceivers coming out all over the place recently are enough encouragement to get started, finally, in sideband, but what could be more mouth-watering than a picture in a Heath catalog of a sideband transceiver with 200 watts PEP input, and for only 120? Not much. All of which sent me to the order blank in a hurry, bringing forth an HW-22, the 40-meter model. It wasn't as quick as all that, unfortunately, for the flood of orders for these units

and their 75 and 20 companions has the Heath factory backed right up to the eyeballs with clamoring hams, but they expect to be caught up by the time you read this.

As a transceiver, considerable of the circuitry of the HW-22 is used for both transmit and receive, thus saving space and cost. The carrier oscillator is used for carrier generation in transmit and for insertion in receive, both signals go through the same crystal filter and one common *if* stage, the VFO serves the functions of both, and the transmit grid and plate transformers operate also (in reverse) as grid and plate transformers for the receive *rf* stage. All to the good, incidentally, because with this sort of transceive operation, you know good and well that when you're receiving somebody, you're automatically and infallibly set up on this frequency when you return his call. The major overall difference from the multi-use set-up of a small AM transceiver is that the audio stages are kept strictly to themselves—the receive audio output is not used as the mike amplification on transmit.

For transmission, a 12AT7 is used crystal controlled for the carrier, and fed to a balanced modulator (four crystal diodes in a balanced ring) for combination with the audio coming in two stages from a 6EA8. The carrier is balanced out (45 db down) with a tuning control and the wrong sideband is chopped out at the filter, also 45 db down. The HW-22, by the way, operates only in LSB, *really* a single sideband rig, but the absence of USB capability is no absence at all, as 99.9% of the operation on 40 meters is LSB by a sort of general unspoken agreement. From the filter the signal gets another boost before it meets the VFO frequencies at the transmit mixer, then to a 12BY7 driver and two 6GE5 output tubes in parallel.

The receive section is single-conversion, with a 2.305 meg *if* for good image rejection. The passband is 2.7 kc at the crystal filter, and the arrangement gives quite good selectivity. A 6EA8 *rf* amplifier brings the signal in to the *if* stages, and the other half of the 12AT7 carrier oscillator is the product detector. Two halves of a 6EB8 operate as the *af* output stages.

Construction of the HW-22 is simple enough, and considerably more so because all the tubes, transformers, crystals, oils and all but two or three of the other components are mounted on one large circuit board. It still takes time, and about halfway through I had the feeling that I was stuffing parts onto the board by day and that someone was sneaking in at night to pull them out, like Ulysses' wife with her knitting. Nonetheless, it is an enormous constructional improvement over hand-wiring (as the TV-set



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ads like to call it), because you never get to that normal kit-building point—where you know you are about two-thirds of the way through because it has become physically impossible to squeeze another part into that mess without hiring an elf with small tweezers to climb right in.

On this point, incidentally, Heath has supplied a major aid to overcome the complaints about the difficulties of servicing circuit-boards. Two pages of the manual are “X-Rays” of the board, showing the foil side and “through” it, the location of every component, numbered in relation to the schematic. This makes circuit tracing simple. Three other pages are given to charts of proper resistances at every point on the board, and proper voltages for receive and transmit at all pertinent points. Even before initial turn-on after construction, there are several stages of extra, point-by-point resistance checks to be made (the biggest list has about 60 checkpoints), just to be sure you’ve got everything in the right place and that there are no accidental shorts on the board from sloppy soldering technique—like mine. This aspect of the kit—as well as the basic transceiver design—has been well thought out by the people at Benton Harbor.

In operation, the HW-22 has performed quite satisfactorily. Operating into an inverted vee antenna at a rotten location in the middle of New York City skyscrapers, the transmitter gives enough punch to get good signal reports—good for readability and all O.K. on clean signal—from one end of the country to the other, and the audio reports have been universally excellent. Provision is made for either push-to-talk or VOX, and the VOX circuitry performs admirably, picking up quickly and with adjustable release time. Relay click is very mild, and after a short period of operation is hardly noticeable.

The unit itself is quite pleasing in appearance, with a good, big VFO knob and vernier tuning for precision settings. The unit is used here as a base rig, but for mobile operation there is a gimbal bracket which can be screwed under the dash or even on the floorboard, with the HW-22 firmly held and tiltable to the most convenient operating angle.

Power requirements for the HW-22 are 800 at 250 ma peak, 250 at 100 ma, -130 at 5 ma for bias, and 12 volts filament at 3.75 amps. These requirements are of course met by the HP-23 power supply (\$39.95) for the base, or the HP-13 Mobile supply (\$59.95) for 12 to 14 volts. These solidstate power boxes also supply 6 volts for filaments and an adjustable (-40 to -130) bias for use with equipment

other than the HW line. Power supply switching is handled remotely by the on-off switch at the transceiver.

All in all, the HW-22 (and presumably the 75 and 20 models) looks like a hard unit to beat, especially at the price of \$119.95. It tunes only 7.2 to 7.3 and has only LSB, but if you’re going to operate SSB on 40, that’s the only part of the band you can be in, and the only sideband you’ll use. Add the ac power supply, and you’re on 40 SSB with a respectable 200 watt PEP signal for only \$160, which is mighty hard to beat. It is an ideal mobile rig, with very little final tuning ever needed, and for one-band base operation, it could even sit in the living room with hardly a sour note coming from other interested parties in the house. The cabinet is only 6 inches wide by 10 deep, hardly larger than a standard AM table radio in pre-transistor days. Poke the power supply out of sight under the table, and none of your friends will believe that you can talk across the country with that little box sitting there on the table. Of course, when you try to prove it to them, the band will be dead anyway, and they still won’t believe you, but then that’s ham radio for you. . . . WA2TDH ham radio for you. . . . WA2TDH

### 80 Words Per Minute

Old timers will be saddened to hear that Ted McElroy has passed on. Ted, one of the greatest CW operators of all time, could copy up to 80 words per minute and held the world’s record at 73 words per minute. Few amateurs were not amazed to watch Ted at conventions copying code at these high speeds. He would start a tape at some easy speed down around 50 wpm and talk with everyone for a while then sit down and type with unbelievable speed. In a few moments he would look up and talk with agape watchers for a while and then type some more. Perfect copy. His sparkling wit will not be forgotten by the thousands who counted him their friend.

### Voice of America

W2SKE’s amateur radio program is broadcast every Sunday over most of the Voice of America transmitters. You can probably best hear it at 5:15-5:30 PM EST on 9530 kc, at 5:30 on 9720, or 5:45 on 9525 kc. Bill always has an interesting program so crank your receiver down and tune in next Sunday.