

A test report:

The Heath SB-200



Charles Leedham WA2TDH

There comes a time in every ham's life when the siren call of power is heard, pegging the meter and coming in Q5. It has been beckoning to me, lo these long years, but I had always managed to resist it. Going along with the theory that good signals can be got out with low power, tinkering, and a dash of cunning, I have put in my QRP apprenticeship. I have tuned lines, wrapped baluns, trimmed elements, tapped loads, climbed towers. I have put up beams, ground planes, coaxials, quads, dipoles, long-wires, inverted V's, inverted V beams, and just about every other kind of antenna that will conceivably fit on an apartment house roof.

Even operating from one of the world's rottenest locations—midtown Manhattan—I have managed to put out a respectable signal, getting just about as much oomph as could reasonably be gotten out of a given small input. But when the real test came, getting through in the clutch to the good DX or holding up through the QRM for a phone patch, it was never quite enough. Know the feeling? Ever have your little peashooter trampled to death by the hob-nailed boots of a kilowatt just when you were about to snag that little S2 DX station? The high-power bug was nibbling, and finally it bit, and hard, when the ads first appeared for the Heath SB-200, an incredible KW on CW and 1200 PEP on SSB, and all for only \$200. It was just too much to resist.

From the beginning, the SB-200 is an impressive little package. Two packages, rather, because the massive transformer is mailed in a separate small box of its own—presumably because it is so heavy it would smash other components, however well packed, to flinders

if it were packed in the main box and that box got joggled much in the post. The major components themselves are a pleasure to unpack and contemplate because you can almost feel all that high power surging through them.

In construction, the linear is straightforward and easy, I didn't keep track, but it was something like ten or twelve hours, and this of very slow, very careful construction. I had no desire to run an unsuccessful smoke test at 2,400 volts, and so checked and rechecked every step. The only point I found that requires any watching at all is the fact that a small coax cavity and driver element (for the SWR bridge) are installed inside the back apron towards the end, and after a number of wires have been laid in the same general area. If you've ignored the manual's earlier instructions about routing those wires, you might have considerable trouble getting the cavity in place. It is a minor point, and if you follow the manual carefully, won't bother you at all.

The power supply section is a breeze. Sixteen silicon diodes, six filter capacitors, plus equalizing and bleeder resistors all slip into a circuit board, leaving nothing much else to do in the power section but put in that husky transformer and hook a few leads to the rest of the unit.

The rest of it goes right along smoothly. Then at the end, there are exactly two resistance checks to make before putting the linear into operation. Heath has prudently avoided any voltage checks, confining itself to repeated warnings throughout the manual on the lethal potentialities of 2.4 kilovolts, and supplying nice red Danger stickers to be put here and there. If you've never handled high

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voltages before, this is no time to start—and in any case you won't have to, because the thing works flawlessly. Screw on the top plate of the heavy shielding, drop the hinged top of the cabinet into place, hook it up to your exciter, and you're in business. No tuning of coils, no fussing, no neutralizing, no nothing. Just power.

In circuitry, the SB-200 is only a little more complicated than an electric light. The signal from the exciter comes in through pre-tuned input coils for each band (80 through 10) and is applied straight to the cathodes of the two paralleled power tubes running in grounded grid configuration. These are either 572-B's or T-160-L's. It matters not at all which tube you get, for they are identical tubes except for name.

Input of the SB-200 is a full, round kilowatt on CW and 1,200 watts on sideband. Input drive required to reach full output is 100 watts, easily available from most current exciters, and naturally enough supplied by Heath's companion transmitter/exciter, the SB-400. Input impedance is 52 ohms, and the input itself is so broad-band that no tuning is required there. Output is 50 to 75 pi-network, and Heath strongly recommends not working into an SWR of more than 2:1. You can talk on SSB from now until next week, pausing only for breath, and not overheat anything, and hold the key down for up to five minutes, so no fear of blowing something if it takes you a little long to get tuned up. Especially since tuning is a matter of five to ten seconds once you know which knob is which.

There are three hook-ups to the exciter—ALC from linear to exciter, the rf cable, and one for carrying a grounded condition to the linear relay when your exciter relay closes on transmit. The fourth hook-up is to the wall, and you can take either 120 or 240 volts to make the SB-200 work. The primary of the power transformer is split, and a simple change of bridging connections inside the linear allows you to change your power source if you want to—and the connections are made to screw terminals, not soldered, thus making power changes almost instant. Peak power draw is 16 amps at 120 volts, 8 at 240. I've got the thing hooked up to 240 volts from an air-conditioner outlet near the operating bench, figuring that 16 amps on the single 120-volt line in the room would be a bit much, considering the fact that everything else (transmitter, receiver, lights and such are already quite enough. What will happen come summer I'm not at all sure. The line cord comes with a three-prong grounding plug,

plus an adapter for a normal wall plug if your house or apartment isn't equipped with grounding sockets. But be sure you use the grounding connection of that adapter, onto the screw of the socket! That kind of voltage is nothing to have around ungrounded. Or, if like me, you plan to plug it into a 240-volt source, make sure you have a proper plug on hand for that socket. Most if not all air-conditioner and other 240-volt sockets take completely different types of plugs, so get one when you put in your SB-200 order, or start looking for one. Then just clip off the plug supplied with the line cord, wire on your new plug (CAREFULLY!) and you're in business.

The linear, incidentally, is not fused but has two button-resettable circuit breakers and the buttons are accessible at the top, after lifting the piano hinged top of the cabinet and respectfully observing the big DANGER label on the shielding. Whether the breakers work or not I couldn't say, as nothing has ever popped—which is quite a good recommendation for the linear. But I imagine they do. There is also very little apparent heat from the two big tubes. They are fan-cooled, and the fan moves the heat out very smoothly, so that a hand held over the top of the cabinet feels hardly anything. Still, heed Heath's cautions about putting it in a well-ventilated area.

Actual operation is totally painless. First, you peak up your exciter using the relative power setting of the linear's meter. Here, incidentally, somebody at Benton Harbor has been doing some good thinking. The meter reads relative power of the exciter when the linear is switched off, and then of the linear when it is on. Also, more thinking—there is an SWR setting for the meter which reads the SWR of the exciter, linear off, or the SWR of the whole affair. With the exciter tuned, it needs only to touch up the tuning and loading of the SB-200, and you're ready to put out those lovely big watts. Switching from exciter to linear is almost instantaneous. Shove the big rocker switch on the front panel and the instant-heating tubes start boosting your signal within two or three seconds. And that's all there is to it.

Operation with this tabletop powerhouse is pure pleasure. I have always stayed pretty much out of the pile-ups in the past, knowing full well that the power boys would beat me out almost every time, and I've settled for working the DX that I happened to hear first and early. But once the SB-200 was in place I couldn't resist the temptation. Within the first few hours of operating, I walked happily

nto three good struggles for some interesting DX, and came away with the contact. Heh heh. Of course, some of the low cunning necessarily developed in the years of trying to get through with low power helped, but it was the pure brute power of the kilowatt that turned the trick. Things look a great deal different from behind a kilowatt. Cross my heart, I'm not going to trample my way into any more pile-ups, but better you should get an SB-200 just in self defense in case I weaken.

The SB-200, I think, is going to be one of the very hottest items Heath ever came up with, and they have a long history of some very good stuff. I haven't had a moment's trouble from it, from the first time I hit the switch. The output is clean, and on-the-air reports from some very critical people have been universally excellent as to quality. And no TVI, either, so far as I know. And the price! Any time you can buy yourself one thousands watts for \$200—that's all of 20c per watt—that is the time to break open the piggy bank. I hear that orders for the SB-200 are piling up like autumn leaves out there in Benton Harbor, so better get yours in quick. Very highly recommended.

... WA2TDH

Solution to Ham X-Word

T	R	A	N	S	D	U	C	E	R		
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Answer to question on p. 65: NE-2

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