Charles Leedham WA2TDH

The Heath SB-300 Receiver

One of the first things that is bound to hit any ham looking at Heath's new SB-300 is the fact that it looks startlingly like another well known receiver which shall here be known, in the manner of certain sneaky TV commercials, as "Brand C." At least in the black-and-white catalog and pictures it does. In living color, things are slightly different, what with a dark green front panel. Question: does it do more than just look like the high-priced spread? Does it work like Brand C? Answer: as far as my ear and limited supply of test equipment can tell, it does.

In short, Heath has come out with a fair wowser of a ham receiver at the relatively modest figure of $265. It not only works good like a ham receiver should, but a few extra bits of good thinking have been thrown in. The only thing I'm not at all sure of is why the Benton Harbor gentlemen made it look so very much like—and there let us abandon all subterfuge—the Collins line. Perhaps this is the best of all possible ways for a ham receiver to look—I tend to agree with this sort of thinking. Or perhaps Heath was boldly inviting comparison. If so, they didn't do wrong, for the comparison by no means hurts them.

To the necessary formalities first, however. The SB-300 is a full-coverage receiver, designed primarily for SSB, with CW and AM as is, or even better if you add filters for each mode at $20 per. It tunes eight 500 kc band segments, into which the amateur bands fall with a good many kc left over here and there: 3.5-4, 7-7.5, 14-14.5, 21-21.5 and 28-30 megacycles.

One of the very good features of the SB-300 is the fantastic bandspread. One complete turn of the circular main dial is worth 100 kc, and it takes five turns of this dial to work your way across the half-megacycle of band provided in each of the band positions. With the main dial 12 inches around, this works out to five feet of bandspread per half-megacycle. Imagine a linear dial covering 80 meters, with the pointer moving along a five-foot-long scale between 3.5 and 4.0, and you get something of an idea of how finely and accurately the SB-300 can be tuned for SSB and CW.

As the main dial goes around, an ingenious spiral mechanism inside moves a pointer across an upper scale, thus enabling you to keep track of where you are in the band. The actual tuning knob is verniered, with 4¼ turns per 100 kc—thus you can really zero in on a signal, even if you're as ham-handed as I am. It needs no delicate jiggery and pokery to do fine tuning on the SB-300.

Along with this wide bandspread goes Heath's inear Master Oscillator, a precision bit of business that means just what it says—linear. The specs claim electrical dial accuracy of 400 cycles from one end to the other, on any band. As nearly as I can tell, it is that good or better. Once you have calibrated the dial against the built-in crystal calibrator, this means that when you tune to a spot, you are there, or so close as makes no difference. No more trying to remember which spots on your dial mean approximately what they say—ask someone to meet you on a given frequency, tune the receiver to that spot and, if his transmitter is as accurate, there he comes, right at the setting. If another operator asks you to listen for him 5 kc higher, you move the dial up five notches, and you are positively

5 kc higher. This is the kind of operating ease you get with first-class equipment.

Back to the essentials: the SB-300 has an all-crystal front end, variable ACG control, a very high frequency *if* (3395 kc) for good image rejection, excellent sensitivity—the specs say less than one microvolt for 15 db S + N/N ratio, and it tests out at about that.

Construction of the kit is basically straightforward and easy, although it takes time. The LMO is pre-built and sealed, taking that job off your hands and assuring factory-aligned accuracy. All you do is bolt it in place and solder on a few leads. Also the pass band filter, and the *if* filter or filters. Most of the work is done on two circuit boards, the rf and *if* sections.. It is no cinch, for there are are an unbelievable number of resistors and capacitors to be put into the boards, but everything goes step by step. Total construction time is on the order of 40 hours if you're experienced at doing kits; probably about 10 hours more if you're not. In any case, you've got a good week of evening work cut out for you, going at it fairly steadily. After the parts are all in place, there is a pre-cut cabled wiring harness for making the major hook-ups from section to section, which removes a great deal of the pain of construction.

When tune-up time finally comes, everything is made easy and precise by tuning against the 100 kc crystal calibrator. All the tunable coils are gathered in one handy spot and—here another good idea—the whole top of the cabinet lifts up and back on a piano hinge, giving you easy and immediate access to the coils. Also, to find out where you soldered things wrong that are making the fuses blow, the whole chassis slips right out of the cabinet with the loosening of only a screw or two, thus saving you much sweating and cursing.

In operation, the SB-300 is a top-notch receiver. The 2.1 kc crystal filter for SSB gives good sharp characteristics, and with that long, long bandspread SSB is remarkably easy to tune. Frequency stability is very good, less than 100 cycles claimed in the specs, and easily that good in practice. Also, even with the wild fluctuations made by the voltage here in Manhattan, the frequency stays remarkably stable.

Because the SB-300 is a very specialized receiver, nothing happens when you turn the mode switch to CW or AM, unless you have popped for the extra crystal filters for those nodes—a 400-cycle unit for CW and a 3.74 kc for AM. You can, of course, tune CW in the SSB position and also AM. Still, it was a

revelation to me to listen to CW with the proper filter installed. There is the usual hollow, ringing sound of such a narrow filter, but once a CW signal is centered in that filter, there it is, with no nonsense about it. It sounds like suddenly everybody else went off the air. That knod of filter requires the stability that comes with the SB-300, and to anyone—like me—accustomed to trying to copy CW while the note wobbled and other nearby stations faded in and out and made everything miserable, it was startling to be able to catch a signal, and then sit back to copy it with ease.

Only the AM filter seems relatively useless. AM comes in very nicely with it, but it is of little consequence when you can also tune AM just as well in either of the SBB mode positions. About the only thing it does is enable you to listen to Radio Moscow more clearly as it smears the 40-meter band. It also seems futile to have a specialized AM filter when Heath's companion transmitter the SB-400, has no provisions for AM transmission.

The SB-300 is naturally intended for use with the SB-400 transmitter (just out recently, at $325 for an all-band 180 PEP rig), and it is possible to arrange your inter-unit wiring to make one oscillator work for both receive and transmit, thus working transceive with dead-on accuracy. Or you can operate them separately for DX work. The SB-300 works, of course, as well with any other transmitter, except for the transceive feature. There is also provision for operating the SB-300 with two VHF converters, permanently hooked up and switchable-to without a lot of hooking and unhooking. An auxiliary power plug supplies juice to the converters and the converter outputs feed right into the back of the receiver, into special sockets.

All in all, the SB-300 is a very good rig, more than worth the money if you want to do serious receiving.

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Is it Time for a Change?

A. David Middelton, W7ZC/W5CA
Associate Editor
The Monitor
Box 303 Springdale, Utah 84767
Reprinted from June 1964 *Monitor*

In this long hot summer of 1964 the nation is plagued not only with national and state elections but due to ARRL's inept policy—the ARRL elections for Director and Vice Director must be held in eight divisions.

ARRL By-law 18 states that half the divisions shall elect officers each year. This article refers to "Director" only but election rules include Vice Director also. Altho he is an elected official, an ARRL Vice Director is a political non-entity and because ARRL will not permit any voice in the conduct of ARRL affairs, he is as useless as a fifth wheel!

This year the following divisions will hold elections. Incumbents are named along with their divisions.

Central (Haller—replaced Doyle in mid-term 1963); Hudson (Kahn—elected in 1958. He stated at 1964 Board meeting he would not run this fall as he is moving to Florida. This writer will lay odds that Kahn will show up as a candidate from SE Division in a future go-around.) New England (Chaffee—elected prior to 1957); Northwestern (Roberts—elected in 1948); Roanoke (Anderson—elected prior to 1957); Rocky Mountain (Smith—elected in 1960); Southwestern (Meyers—elected in 1958); and West Gulf (Best—elected in 1960). Each of these men took office on Jan. 1st of the year following election except Haller who replaced Doyle in mid-term.

Regardless of the inanity of ARRL's policy of electing officers for a two-year term, every ARRL member owes it to himself, if to no other reason, to select and elect qualified parties to the Directorship.

By-law 13 states that on any date not later than noon of the 20th day of September of an election year in any electing division, nominating petitions signed by TEN or more FULL members of a division, and naming a FULL member of the division as candidate for Director (and Vice Director) may be filed with the Secretary. Petitions are also solicited by notices placed in August and September QSTs.

Far too often an incumbent is returned to office, by default, without ballotting due to one or several "incidents."

His name may be the only one submitted.

If no petition is filed, the request for petitions is repeated three months later, and then if no nominee is named the incumbent returns to office until the next regular election for that division.

Candidates named in petitions may be declared "ineligible" by the ubiquitous Executive Committee. Ineligibility may be ruled due to a candidate not having the required four years membership in ARRL (altho Article 12 does not state when this four-year period is dated). A candidate may be ruled ineligible due to his vocation (Article 12 again) or he may not have a General Class (or higher) license (By-law 8).

The following inconsistency is noted. Petitions are receivable until noon Sept. 20th. By-law 14 states that the Executive Committee shall delete the name of any nominee—who may be ineligible, and the name of any who may withdraw by written communication. By-law 14 does not state WHEN such action by the Executive Committee shall be taken. It is therefore assumed that it occurs AFTER noon, Sept. 20th, which makes it impossible for a group of ARRL members to submit another petition to replace that of an "ineligible" person!

Also, no procedure is defined where anyone can challenge the ruling of the Executive Committee on this important matter. So—in the case of an "ineligible" candidate—he is OUT, unless he wishes to take it to court. Only one party did this. Some time ago a court suit was filed, hearings held (of all places, in Hartford) and the court ruled against Candidate JOHN from Maryland or Virginia.

One type to avoid is a candidate who will permit his name to be entered in nomination, and after it is too late to do anything about it—follows the dictates of the Pressure Group and withdraws his name from nomination. This is a common trick used to confuse and defeat any group seeking to replace an incumbent by another director. Often it serves to return the incumbent, sans vote by the membership!

By-law 14 further states that if there be more than one eligible nominee, the Secretary shall send by mail (during the first week in October) a ballot to each FULL