

Be a Bone Yard Ph.D.

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BE A BONE YARD PHD

The educational approach to buying your first HF rig.

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Used equipment provides more bang for the buck! But every prospective used-equipment buyer, old-timer and newcomer alike, has to decide:

- What rig should I buy?
- How much should I pay?
- Where can I find a used rig?

After 10 years away from the HF bands, I faced those very questions. A couple of months later I carried home a used HF transceiver that is still in my shack, providing many enjoyable contacts. Which one did I buy? That's not important. *How I bought it* is the story that I want to tell.

Getting My Head Straight

I began by contemplating some lessons I had learned in 20 years as a ham, and writing down some factors to consider.

Be Patient

After I upgraded to General, I hurried down to the local ham store and traded my old Swan 500C transceiver for a new solid-state, digital readout, 100-W transceiver, a vertical antenna and a box full of accessories. Years later, I realize I didn't get any new capability. I just had a different rig, a different antenna, and a maxed-out credit card! All I needed to use my new privileges was an SWR meter and the antenna. I already had everything else. Some ham with a little more patience now owns that Swan. I hope he got a good deal.

This time I resolved to be patient. If the urge to operate overwhelmed me I could use the local club station, or borrow a rig from a friend.

You're Buying Your Next Rig, Not Your Last

I thought the Swan's replacement would keep me happy for the rest of my ham radio life. As I explored the HF bands though, my

wants and needs changed. After a few months, I was more than willing to move on to another rig.

Some hams still own every rig they ever bought. I belong to the much larger group that clears out the shack once in a while. My shack cleaning tends to occur just before or after I buy a new rig. I'm either looking for space or I need the money for the new rig. This time I bought a *next* rig that I knew would sell when the time came.



The Kenwood TS-830S transceiver is mostly solid state. The final-amplifier tubes are commonly available 6146Bs. If you think you might want to work split-frequency (for DXing), look for a TS-830S that includes one of the two optional remote VFOs. This transceiver does not include a general-coverage receiver.

Knowledge is Power

I get the best deals when I know what I'm doing. When I do my homework, know what the equipment can do and know what it's worth, I don't need to be told I got a great deal!

How to Select a Rig

I started by defining the features I needed, examining all available rigs and selecting the ones I wanted. Big job? You bet! The information was out there, though, and I knew the methods to use.

To begin, I put the information in a notebook as I gathered it. I didn't try to memorize all the equipment features, prices, and accessories. As I improved my equipment education, I had organized notes on each rig.

Write Down What You Want to Do

I was mainly interested in casual CW and SSB operation, with a little DXing thrown in. I thought I might later try RTTY, AMTOR or HF packet. My "Want to do" list was simple:

- Short-term goals: CW, SSB, DX.
- Long-term goals: RTTY, AMTOR and packet radio.

After looking for likely places to erect antennas in my yard, the list of bands I could use was short: I only had room for 40- and 20-meter dipoles. No, I didn't consider an antenna tuner at the time.

By now, my list of requirements boiled down to operating 40- and 20-meter SSB or CW! There must be hundreds of rigs that will do that. I didn't list transmitter power or other transceiver features, because I expected the market survey to tell me these things.

You might want to limit your search to transceivers that offer a general-coverage receiver so you can listen outside the ham bands. Until general-coverage receivers became common, product reviews didn't mention receive coverage separately. You'll have to read between the lines

and look closely at the ads to see what each one is capable of.

This is the time to confess that I didn't just sit down one evening, activate my brain and create the Requirements List. I read magazines, talked to other hams on 2 meters and discussed the plan with hams at work.

Survey the Market

With my list of requirements in hand, it was time to find out which rigs would match that list. In 10 years' worth of *QST* I looked for manufacturer's ads, Product Reviews and articles on modifications. In the first pass, I just listed, by manufacturer and model, the items of interest. I listed four popular rigs from the late 1970s and later,

NEW HAM COMPANION



The ICOM IC-735 enjoyed many years of sales; new units may still be available from some dealers. A general-coverage receiver is standard. Options include narrow CW filters and a built-in keyer, the presence of which will affect the resale value. To use this transceiver at home, you'll need a source of 13.5 V dc at 20 A. While ICOM sells a matching power supply, you can probably get a better buy if you purchase an aftermarket supply.

and noted issues and page numbers where ads or articles about modifications appeared. A second pass helped me develop a list of "standard features" I wanted. You have it easier nowadays: just pick up the two volumes of ARRL's *Radio Buyer's Sourcebook*!¹

¹R. Schetgen, ed, *Radio Buyer's Sourcebook* (Newington: ARRL, 1991 (Vol 1); 1993 (Vol 2)). See your local dealer or the ARRL Publications Catalog elsewhere in this issue.

Limit the Search with Guidelines

After reading advertisements and product reviews, I listed certain manufacturers and models to avoid because of unreliability or other quirks or problems.

I limited my search to rigs manufactured in 1980 or later. Prior to 1980, many rigs were all-tube. Tube final amplifiers in an otherwise solid-state rig are acceptable ("hybrid" rigs, like the Kenwood TS-830), unless the final amplifiers are TV "sweep tubes" (such as the Drake TR-4). Sweep tubes aren't as

durable as tubes designed specifically for transmitting service, like the 6146. Also, it's easier to find 6146s than sweep tubes. Although I am not anti-tube and 30, 17 and 12 meters were not on my list, all-tube rigs and those lacking these bands are harder to resell.

Avoid Orphans

An orphan is a rig whose manufacturer no longer exists. There are plenty of Swan and Astro rigs out there, for example, but the company no longer exists. Swan parts are tough to find. Ignore the orphans until you know what to do when they break. Experience has taught me to avoid modified rigs, too. Don't add any unknown factors to your "get on the air" efforts.

Accessories

I find that 13.5 V dc from a used Astron or Pyramid power supply will do the same job as the matching supply, at about half the price. I avoid the cost of an automatic antenna tuner by using resonant antennas or a manual tuner.

Build the Information Base on Used Rigs

After I listed my requirements, it was time to gather more information. I matched that list against the types of used equipment available, starting with the reference list and my magazine stack. This time, I compared each rig to my Features List. Then I checked to see if I should avoid the rig for reasons I had previously listed. As I built the candidate list, I added price information if I had it. Soon, I had a list of candidate rigs and the price range for each.

Information Sources—QST Product Reviews

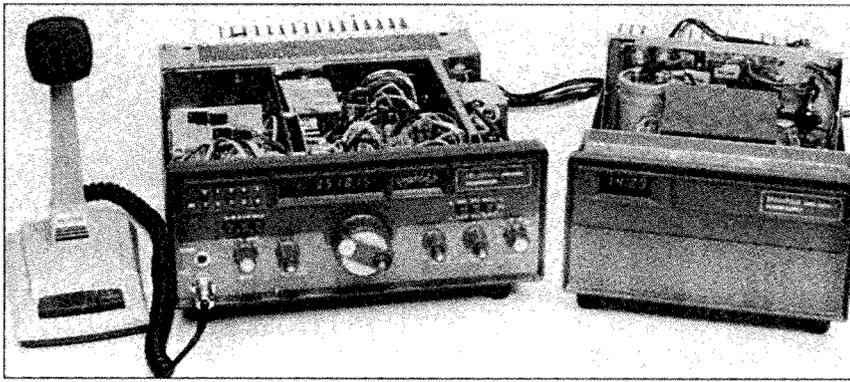
In preparing this list I frequently referred to *QST* Product Reviews. *QST* reviews are objective and informative. Manufacturers do not furnish the review rigs—ARRL buys them on the open market. Technical tests are conducted using standardized procedures. Furthermore, the equipment reviewer's comments are subjected to critical review by an editor who calls on other experienced hams for their evaluations. The end result is an unbiased evaluation I can trust.

ARRL Radio Buyer's Sourcebooks

If these two books were available in 1987, they'd have saved hours of looking through magazine back issues. The first volume contains 57 reprints of product reviews on the most popular HF transceivers. If a rig isn't covered in this book, a quick look at the *QST* Product Review Article Index in Appendix C tells you if it was ever reviewed in *QST*. An



Yaesu's FT-757GX also packs a lot of radio in a small box. For CW fans, this radio features full break-in CW and a built-in keyer. Optional interfaces allowed computer frequency control. The '757GX in this photo rests on an optional, lightweight switching-mode power supply. Look for a 13.5-V dc, 20-A supply for home use.



The Heathkit HW-5400, shown here with the optional HWA-5400-1 power supply, is an orphan. The Heath Company no longer manufactures Amateur Radio equipment, and parts are in short supply. Most of the semiconductors in this rig are probably available from other sources. If you need a mechanical or electrical part specific to this rig, though, you may have a hard time finding it. Advice: Don't buy an orphan as your first rig.

Where Do I Get a Manual?

There must be some deep Black Hole in the universe where all the equipment manuals go. Fortunately for those of us who buy used gear, several sources sell photocopies of original manuals. The list is too large to reproduce here, but you can get a copy by requesting the "Manuals Handout" from:

ARRL Technical Department Secretary
225 Main Street
Newington, CT 06111-1494

Please include a stamped, self-addressed envelope.

excellent introduction provides background information on choosing a radio and the evolution of ham gear, some good information on performance comparisons, and a must-read section on how to use transceiver features to beat interference. An appendix of comparative performance charts summarizes band coverage, modes, receiver test results, and other features of interest to a would-be buyer. The second volume contains all Product Review articles from 1991 and 1992 *QST*, and updated indexes and other appendices. Both books are now on my bookshelf, and will be my first source for technical data on

my next rig. If you're looking for a rig built before 1991 you need only Volume 1.

Local Hams

I never met a ham who would pass up the chance to show off his shack and equipment. At the time I was looking for a new rig, I was fairly active on 2 meters. I usually mentioned that I was looking for an HF rig, which often got me invited to visit a ham who had that model, to try it out. I also got a lot of advice. My innocent comment even generated intense round-table discussions on equipment features. I remember one that kept the re-

peater warm long after I signed off and went to bed!

Club, Field Day, and Special Event Stations

Most Field Day and Special Event stations welcome visitors. I can't think of a better way to judge the performance of a rig than by trying it out on Field Day.

Hamfests

At larger hamfests you'll find dealers with equipment to look at and advertising literature to take home. Flea market sellers are usually very willing to discuss their rigs. They certainly don't mind an inspection, if they really want to sell it. Even if you're not

Other Sources for Used Gear

In addition to *QST* ham ads, other places you might find out about used-equipment bargains include periodical publications of classified ads and swap nets, some of which are listed here.

Ham Trader Yellow Sheets—A bi-weekly list of ham radio and other electronic equipment, the *Yellow Sheets* have become the defacto pricing standard nationwide. Send a no. 10 self-addressed envelope with 2 First-Class stamps for a sample copy. A 1-year subscription costs \$16.50.

Ham Trader Yellow Sheets or
PO Box 2057 PO Box 15142
Glen Ellyn, IL 60138 Seattle, WA 98115

Weekly Ham Trader—Advertisers in this little list seem to be concentrated in the 5th call area, but there are good bargains to be found. A First-Class mail subscription costs \$13 for 6 months or \$25 for one year.

Weekly Ham Trader
PO Box 1159
Arnold, MO 63010

Audible Ads—To record/hear ads for used gear, browse free by calling 512-502-0685 (Touch-Tone phone required).

Several ham radio suppliers regularly deal in used equipment, taking it in trade toward new equipment purchases. Check the ads in *QST* to identify such sources, and call them to determine current equipment availability.

Users Groups

Hams love to tinker and modify. Users groups provide a

forum for the exchange of information on upgrades and modifications. Some popular rigs are even the subject of regular nets. Here are some:

Manufacturer	Frequency	Day	Time
Collins	14.263	Sunday	1500 Eastern Time
Drake	3.865	Saturday	2000 Eastern Time
ICOM	14.317	Sunday	1700 UTC

ICOM owners also have an Internet mailing list. Send e-mail to icom-request@hipp.etsu.edu with "SUBSCRIBE [your e-mail address]" in the body of the message.

The International Radio and Computer company maintains nearly 20 years of back issues of monthly (now bi-monthly) newsletters covering equipment made by Yaesu, Kenwood and ICOM. You can purchase sets of back issues or subscribe to the newsletters. For a catalog, send \$0.50 (U.S.) or \$1.00 (outside the U.S.) to:

International Radio and Computer
3804 South U.S. Hwy 1
Ft Pierce, FL 34982

Swap Net

The Traders Net meets on 3898 kHz at 0001 UTC Tuesdays and Saturdays. You don't have to check in to hear the bargains. Keep a pencil and paper handy as check-ins read off their lists of equipment for sale and their telephone numbers. If you can't hear a check-in, don't worry; the net control will usually repeat the equipment description and phone number.

ready to buy, you can tell a lot about the market by observing which rigs get carried away and which rigs get carried back home.

Price Information

It's pretty easy to get technical information about used rigs. It's not hard to get evaluations from the magazines or other hams, either. Determining the "fair price" for a used rig, though, takes a little work. After the technical information review is complete, I am still looking for price information about the rigs on my list.

I used *QST* and other ham radio magazine classified ads to begin building my price information file. I highlighted the ads that contained rigs from my list. Then I reviewed each highlighted ad and transcribed the price and condition information to my list of possible rigs.

QST Ham Ads are a good information source, but they are at least a month old when you read them. When I'm ready to buy, I refer to the *Weekly Ham Trader* and the *Ham Trader Yellow Sheets* (biweekly). See the sidebar for subscription information.

Swap nets are another way to gather price information. Ask around the repeater to see if there is a local swap net, or check into the one listed in the sidebar. Listen closely and keep your notebook handy.

Of course there are always hamfests. Despite what the hamfest flyers say, the only reason to have a hamfest is to provide the opportunity for buyers and sellers to meet and transact business. Any other hamfest activity is purely ancillary! Hamfests will be your best price information source.

My latest source of price information is the Internet. If you can send and receive electronic mail (e-mail), chances are you can access the several hundred newsgroups used to exchange information on a variety of subjects. Among them, you will find `rec.radio.swap` and `rec.radio.amateur`. The swap newsgroup averages about 25 "for sale" messages per day. The equipment newsgroup is not used to post "for sale" messages, but a few show up every week. Check with your system administrator to see if you can receive these newsgroups. About now, you're thinking, "This guy did a lot of reading and a lot of talking about equipment. Wonder if he ever bought a rig?" Well, I did. When I started looking at price data, I really began the buying process. I just didn't do it in a hurry. Once you have a price range worked out, you can shop for a rig from the same sources you used to get prices.

How Did I Get the Best Deal?

I got the best deal by following the guidelines I mentioned at the beginning of this article. Patience and knowledge were the basis for my bargaining. When I located a rig on my list for a reasonable price, I began to negotiate. When I went hamfesting or contacted someone about a rig for sale, I knew the going price in advance. In fact, I usually had a range of prices, based on condition and optional features, to refer to during the negotiations.

I passed up a lot of "good deals." Past experience taught me that, if it seems too cheap, it probably is. Life's too short to buy "hot" gear.

External wear and tear don't always indicate the operating condition of a rig. Other things being equal, of course, I'll take the one that is clean, unscratched, complete with manuals and cables, and whose appearance indicates that the owner took care of it.

Time spent looking at a rig before I bought it saved me from spending a lot of time looking at it afterward! I like to test a rig first, if possible. A really smart buyer would carry a wattmeter, dummy load, hank of wire, and a 12-V battery to every hamfest. I don't do that. If a test area is available, though, I like to listen on each band, twist the knobs and push the buttons to see if all the lights come on. If a dummy load is handy, I transmit on each band. When buying a rig from a local ham or a dealer, I always test the rig *before* I begin to dicker.

Before I buy a rig that I can't see or test, I ask a lot of questions. I start off with questions like, "What bands did you operate with this rig?" I continue with specific questions like, "How long have you had it, how is the power output on 10 meters, and do you like the CW filter?" I'm trying to get the seller to talk about the rig. If I'm satisfied with the answers, I ask the seller for a reasonable acceptance period. In other words, I want the right to return the rig within two weeks, if it doesn't live up to his description.

With the preliminaries out of the way, I make my offer. Private sellers are usually willing to bargain. Prices are subject to go up, though, based on the buyer's attitude! I don't insult the seller. I do not want to create a take-it-or-leave-it situation. I want to leave room for the seller to respond. I never tell him that his price is too high. I use statements like: "I just saw one, three rows up, for X dollars," or, "Bone Yard Electronics has the identical model for X dollars." Then I listen to the seller's response. If he doesn't want to lower his price, there are only three things to do: Try again, buy at his price, or thank him and walk away. If he makes a counterproposal, I consider it. If I think he is still too high, I may take another stab at getting him to lower his price. If we both are serious, sooner or later I am going to pay his price or he is going to accept mine.

My objective during negotiations is to buy the rig for slightly less than I think it's worth. I don't have a set price in mind; I have a range. When I get a price within my range, I have an excellent deal. When I get a price slightly above my range, I have a good deal. If I can't get him to deal at that price range, I say "Thank You!" and walk on. I always try to leave the door open for the seller to have a change of heart. If he doesn't get any better offers, he may hunt me down and accept my offer. On the other hand, I'm prepared to walk away from a good radio that isn't a good deal.

I have described the dickering process as if the seller and I were face to face. If I do it by electronic mail, telephone, or even mail, the same principles apply. It just takes longer.

Consummating the Deal

If all goes according to plan, the seller and I agree on a price and any conditions of the sale, such as the acceptance period I mentioned. When the seller is far away, we agree on who will pay for shipping and how it is to be shipped. Another question to settle is the method of payment. Some sellers want a check or money order before they ship. A more equitable solution is for the buyer to send his share of the shipping charges to the seller. The seller then ships the item COD. This arrangement protects both buyer and seller.

You Pay for Your Education— One Way or Another

You can pay for your education by buying the wrong rig, buying a rig that doesn't work, or paying too much for the rig you buy. I prefer to pay for my education by investing my time and money in advance. Learning about ham equipment and the ham equipment marketplace can be very enjoyable. My advice is to dive in and enjoy the fun. Just make sure you look before you dive. **QST**

Radio Tips:

Buying on the Packet Network

If you can operate packet radio, you can use this mode to search for used equipment. More than 25,000 hams get on packet at one time or another and many of them have stuff for sale. They advertise through the use of bulletin messages that appear on packet bulletin-board systems (BBSs).

Take a quick scan through these bulletins by connecting to your local packet BBS and sending the following command:

L> SALE

or

L> FORSALE

You'll see a list of every bulletin message that's addressed to "SALE" or "FORSALE." This should cover about 90% of the sale messages. If you want to do a more thorough search, just send **L** (list) and read all the "subject" lines.

And while you're canvassing the packet network, don't forget to check any nearby *DX PacketCluster* systems. *PacketCluster* networks are frequented by active DXers and contesters. They often use the network to buy and sell equipment. In fact, you'll find listings here that you won't see on packet BBSs.

To search for used-equipment sale listings on a *Cluster*, connect and send the **DIR/NEW** command. You'll see a list of every message that was posted since your last connection.

—WBSIMY