

## Your first HF transceiver

by *Duncan Insley, WA6RRU*

In the Amateur Radio classes I teach, I often encounter students who plan to persevere at least to a General Class license. I suggest that they get an HF transceiver immediately - first to practice receiving on the-air CW, then to operate in CW mode once they receive their Novice licenses.

They always ask, "Which transceiver should I buy?" and, "What will it cost?"

When I tell them a new transceiver costs a Kilo-buck or more, they ask, "How about a used transceiver?" When they learn that even a used, all-solid-state transceiver will set them back \$750, a long silence ensues.

In a spirit of three strikes and you're out, they ask, "Is there no way I can get an HF transceiver without hocking my kids?"

So I inquire, "Is \$350 possible?" The students brighten - until I explain that, back in the stone age, there were hybrid transceivers, solid state except for the last transmitter stages, which used vacuum tubes. Their facial expressions then say, "Who wants an old transceiver with hard-to-get, expensive vacuum tubes?"

### "Cheap" transceivers

In the mid 1970's, both Kenwood and Yaesu introduced "hybrid" transceivers - the forerunners of today's marvelous toys. Because no RF transistor could put out more than a few watts, they made everything solid state except for the transmitter output stages. The FT101 was a true transceiver (all in one box), whereas the Kenwood "Twins" comprised separate receiver and Transmitter cabled together to operate as a transceiver.

Both rigs became popular, and both roughly matched the performance of the previous all-tube sets, though early solid-state receivers tended to overload easily. Both used a 12BY7 tube in the driver stage, followed by a pair of TV sweep tubes in the final amplifier.

### Improvements

Until about 1980 the two companies periodically upgraded their hybrid rigs. Yaesu made versions through the FT-101E. Kenwood brought out entirely different models, progressing to the one-box TS-520, the TS-820, the TS520S (and the contesters' fa-

vorite, the TS830S- ,AF6S). They also switched to real transmitting tubes in the finals (6146's). But in about 1980, high-power transistors appeared, and both companies stopped making hybrid rigs.

### Availability of vacuum tubes

Tubes for these rigs are still available. One source is Antique Electronic Supply in Tempe Arizona. The \$10-to-\$18 prices aren't peanuts, but since a set of tubes will last several years, the cost per year isn't significant.

### Last comments

A modern solid-state rig requires no tune-up. And if you transmit with your antenna disconnected (or on the wrong antenna) nothing bad happens, because protective circuitry instantly shuts the rig down. The old hybrid transceivers don't have protective circuitry, and you must "tune up" whenever you change bands or antennas. (On the other hand, tubes don't instantly "pop." You have time to notice your error and correct it.-AF6S)

So if your name isn't Rockefeller, consider a Yaesu or Kenwood rig from the 1970's. Get a clean one, with new or nearly new tubes and the instruction book. Have the seller turn it on and demonstrate its receiver, at least. If the seller can't demonstrate the transmitter section, demand a return guarantee if you experience a transmitter problem.

Back home, you can enjoy it to your heart's content on receive. Just keep that "heater" switch on the front panel in its off position. (The heater switch fires up the transmitter tubes). Later, when you have a license and a proper antenna, ask some old fogey like me to come over and show you how to tune up and operate the transmitter.

from the November '95 Sierra Intermountain Emergency RA (Minden, Nevada) "Sierra News" Dorothy Uebele, N7MXA, Editor, via the ARNS

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## Feedline

Feedline is a member-supported publication of the Cary Amateur Radio Club and is published monthly. Deadline for submissions is the second Thursday of the month.

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## **Cary Amateur Radio Club**

The Cary Amateur Radio Club meets on the fourth Thursday of the month, **7:00 p.m.** in the lower level of the Christian Life Center of White Plains United Methodist Church. The June, November, and December meetings are held off-site. Call for location of those meetings.  
**Next Meeting: June 20, 1996. OFFSITE!**

### **1996 Officers**

KB9MS	Bob Lukaszewski	833-0199
	President	
N9CGD	Tom Doligalski	481-1236
	Vice-President	
K4IWW	Will Harper	467-0224
	Treasurer	
N4UE	Herb Lacey	467-9608
	Secretary	

## **Field Day 1996**

*Here's your personal invitation to attend.*

Well another year has gone by and we get nearer to the great summer contest, Field Day. This year we are at a new site, Bond Park, in Cary. This will be a good opportunity to get out and meet the group as well as do some operating. This is a great site. Plenty of space to roam around. Fishing, biking, and just plain relaxing, whatever suits your fancy can be had at this site.

This year we would like to have everyone bring their HT's tuned to 144.44 Mhz. This will make the communications easier when we need to make announcements etc. Also bring your flashlights.. this is a park that has no lights and it will get pretty dark walking between the stations.

Another good idea is to bring your mountain bike if you have one. It will make getting around much easier, besides you'll get your daily exercise as well. We're always thinking about our club members.

Festivities start about 9 AM Saturday morning after a brief breakfast get together to be announced at this month's meeting. The contest starts at 2PM sharp and goes to Sunday 2PM.

Please make an effort to attend for a couple hours to help operate, or put-up or take down some antenna's or tents.. etc. This is a club event and it takes the entire club's support to make it really fun.

Just a note that the meeting is Thursday June 20 at the Field Day site in Cary off of High House Rd., across from the new St. Michael's Church. Meeting starts at 6:30 pm so we can check out the site. Bring your lawn chair!

TNX 73 de Bob KB9MS President CARC

## **Good Company II**

*A lot of people don't have a clue to what's going on.  
That includes the experts!*

## **May Meeting Minutes**

Meeting called to order at 7:38 p.m., by Pres., Bob, KB9MS. Introductions.

Treasurer's Report - Will, K4IWW, reported: Savings.: \$2,918.43; Checking: \$305.35; Cash-on-hand: \$9.00; Total: \$3,232.78. Dues still being received (\$9/yr.). CARC caps still available (\$4).

### **OLD BUSINESS**

SWAPFEST - We need a SWAPFEST Czar. Lots of jobs for everyone to do. This OUR FEST. It isn't necessarily supposed to be fun for us. When another club puts on a "FEST, that is when you have the fun.

Volunteers so far...Fontella, KE4IZZ, ticket sales; Dave, N4ELM, Flea market;

## **Meeting Minutes**

*(Continued on page 4)*

"So we went to Atari and said, 'Hey, we've got this amazing thing, even built with some of your parts, and what do you think about funding us? Or we, ll give it to you. We just want to do it. Pay our salary, we'll come work for you.' And they said, 'No.' So then we went to Hewlett-Packard, and they said, 'Hey, we don't need you. You haven't got through college yet. -- Apple Computer Inc. founder Steve Jobs on attempts to get Atari and H-P interested in his and Steve Wozniak's personal computer.

"Computers in the future may weigh no more than 1.5 tons." -- Popular Mechanics, forecasting the relentless march of science, 1949

"I think there is a world market for maybe five computers., -- Thomas Watson, chairman of IBM, 1943

"I have traveled the length and breadth of this country and talked with the best people, and I can assure you that data processing is a fad that won't last out the year." --The editor in charge of business books for Prentice Hall, 1957

"But what ... is it good for?" --Engineer at the Advanced Computing Systems Division of IBM, 1968, commenting on the microchip.

"There is no reason anyone would want a computer in their home." --Ken Olson, president, chairman and founder of Digital Equipment Corp.,1977.

640K ought to be enough for anybody." -- Bill Gates, 1981

*The following letter was received from the FCC today. I am releasing it to the amateur community since I believe it to be of general interest. It concerns the recent publicity about consideration being given by a WRC-97 Industry Advisory Committee to future use of the 144-148 and 420-450 MHz bands for commercial low-earth orbiting (LEO) satellites. I feel it would be advantageous to give this information the widest possible distribution, therefore you may redistribute it without limitation. 73/Fred/W5YI*

Federal Communications Commission  
Washington, DC  
International Bureau  
Satellite and Radiocommunication Division  
Room 500, 2000 M Street, N.W.  
Washington, DC 20554

June 5, 1996

The W5YI Group, Inc.  
Fred Maia, W5YI - Editor  
P.O. Box 565101  
Dallas, TX 75356

Dear Mr. Maia:

In recent days, over 1,000 members of the Amateur Radio community have contacted me regarding the upcoming 1997 World Radiocommunication Conference in Geneva and expressed strong concern that U.S. proposals will impact adversely on spectrum allocated for Amateur bands. My purpose in writing to you is to respond to these concerns and to provide you with additional information regarding the WRC-97 preparatory process and its relation to existing services. Many of the comments I received have focused on a list of "candidate" frequency bands discussed at the May 7 meeting of the WRC-97 preparatory Industry Advisory Working Committee Informal Working Group 2A (IWG-2A). The comments suggest that the Amateur Radio Service bands, specifically the 144-148 and 420-450 MHz bands, have been targeted as a source of spectrum for future Mobile Satellite Service (MSS) operations.

First, I want to assure the amateur radio community that no amateur bands have been selected for reallocation. The list of bands generated on May 7th represent only the IWG-2A's initial efforts to study spectrum use below 1GHz in order to assess the feasibility of proposing world-wide MSS allocations in that range. Before recommending preliminary proposals for consideration by the Commission, IWG-2A participants must first conduct sharing studies among a range of services using frequencies below 1 GHz. These studies are necessary in order to determine the feasibility of sharing between services, and whether recommending any specific frequency band will be fruitful. Second, the bands listed reflect only the initial component of a long-term effort to conduct sharing studies before submitting the Committee's proposals to the Commission for review. We intend to conduct sharing studies in bands currently occupied by government and non-government users. In any case, I want to emphasize that the survey on spectrum use is an international matter which involves all frequencies below 1 GHz.

Finally, the current WRC-97 preparatory process, as in years past, operates under a Congressional statute designed to encourage maximum participation by all interested parties. Therefore, all written and electronic comments received at the Commission to date by Amateur Radio operators have been included as part of the public record on WRC-97 proceedings. However, in the interest of efficiency, we have created a designated FCC office and e-mail site to channel future WRC-97 comments directly to the WRC-97 Committee Chairs. I have included our latest Public Notice outlining these changes and urge you to share it with your members.

I appreciate the many valuable contributions the amateur radio community has made to the progress of radio technology and to ensuring the safety of the American public. I look forward to working with you so that we can continue to advance the use of exciting telecommunications technology both in the U.S. and abroad.

Sincerely  
Cecily C. Holiday  
Director, WRC-97 Preparatory Team  
Enclosure ( continued on page 4)

# Federal Communications Commission

## Public Notice - June 6, 1996

### PROCEDURES FOR SUBMITTING COMMENTS TO THE WRC-97 ADVISORY COMMITTEE

On March 14, 1996, the Committee released Public Notice (No. 61997) (Streamling Notice), that announced its new streamlined World Radiocommunications Conference (WRC) preparatory process. Under this new process, formal Notice of Inquiry (NOI) proceedings are eliminated in favor of developing WRC proposals in the Commission's WRC-97 Advisory Committee. This removes the redundancy that was inherent in our previous "NOI-WRC Advisory Committee" process and enables the United States to respond more effectively to the rapidly evolving international environment and to the ITU's new two-year WRC schedule.

The Streamlining Notice included general guidelines for submission of public comments to the Advisory Committee. The Notice states that procedures would be developed to ensure that members of the public continue to have full opportunity to participate in the development of WRC proposals under the new streamlined process, including those parties who do not attend meetings of the Advisory Committee and IWGs.

Since the release of the Streamlining Notice, we have gained experience without new process. We now provide these procedures for submitting comments to the Advisory Committee.

\* Comments on Ongoing Advisory Committee Matters: Parties who wish to comment on the ongoing deliberations of the Advisory Committee and its IWGs may do so at any time.

\* Comments on Preliminary Proposals: As announced in the Streamlining Notice, preliminary WRC proposals developed by the Advisory Committee will be released by the Commission in periodic Public Notices. These Public Notices will allow an opportunity for public comment and will provide the appropriate procedures, such as filing deadlines, to be followed.

In either case, parties wishing their comments to be considered directly by the appropriate Advisory Committee group and to become part of the Advisory Committee's public record should submit their comments in writing to Office of the Secretary, Federal Communications Commission, Washington, DC 20554, or by e-mail at "[wrc97@fcc.gov](mailto:wrc97@fcc.gov)." Commenters are requested to file an original plus one copy.

The comment should reference the Advisory Committee public record file number "Reference No. ISP-96-005" and the appropriate Advisory Committee Informal Working Group, if known, in which their submission should be considered. The FCC staff will ensure that comments filed are considered in the appropriate groups.

**For the most expeditious and efficient consideration of their comments, parties should refrain from filing comments directly with the Chair of the WRC-97 Advisory committee, with the Chairs and Vice Chairs of the Informal Working Groups, with individual FCC staff members or private sector participants in the Advisory Committee process. (KM4LB emphasis)**

For additional information, contact Cecily C. Holiday, Federal officer of the WRC-97 Advisory Committee, or Damon C. Ladson, Alternate Federal Officer at (202) 418-0749, or consult the WRC-97 Homepage on the Internet (<http://www.fcc.gov/ib/wrc97/>)

End of Public Notice

73/Fred/W5YI

*(Continued from page 2)*

Parking, Charles, KE4CDI; Security, ????. All of these volunteers need ongoing help to spread the load.

#### **New Business**

Field Day Site - Bond Park - June 22-23, 1996. The regular monthly meeting will be moved from the 4th Thursday, 6/27, to the 3rd Thursday, 6/20, in order to be BEFORE Field Day. Friday

evening, 6/21, will be for station captains to install the twine for all of the antennas to be put up on Saturday morning. We are really going to need support for this FD. Plan to help out sometime during the weekend.

#### **PROGRAM:**

Bob, KB9MS, brought a bevy (flock, herd, gaggle, brace, etc.) of laptops to demo the fabulous CT, contest program.

We will be using CT to do logging, duping, and, for the CW stations, keying of transmitters. It could hardly be easier!!!

Next Meeting: Thursday, June 20, at Bond Park.

n4ue