

Teach Your Club Members to be Good HF Operators

By Sumner Weisman, W1VIV

For me, the March 2007 issue of QST was a catalyst. On the front cover was a box that announced, "FCC Ends Code Exams as of February 23." Inside the magazine, in the regular "It Seems to Us" editorial by David Sumner, K1ZZ, David explained that suddenly, thousands of Technician class licensees will find themselves with HF privileges. He wrote, "Some Technicians have been waiting for this moment for a long time and are prepared to take advantage of these new privileges right away. Many others are not yet equipped for HF operation." I thought, "This could be a disaster. Hams who have only had local experience with our club's 2 meter and 70 cm repeaters have *no* idea how to work the HF bands. *Everything* is different." Under Suggestions for Local Clubs, K1ZZ continued, "Devote some of your meeting program time to explanations of how to get on the band, what to expect, and how to operate so as to blend in." As I thought about the problem, I realized that it would be better to hold a separate class in HF Operation than to try to squeeze it into our busy monthly meeting, where we have a speaker as well as regular club business. That's how the idea to hold a formal course in HF Operating was born. It made sense for two reasons; as a service to our members, and to do our small bit to keep the HF bands from becoming increasingly chaotic.

My first act was to enlist the help of our Director of Training, Ed Weiss, W1NXC, who was the 2003 winner of the ARRL's Herb S. Brier Instructor of the Year award. Ed runs our "License-in-a-Weekend class, and has done so for many years. He enthusiastically jumped aboard the bandwagon, and together we put together our course outline. See Figure 1. In addition to as much classroom instruction as possible, we wanted to include some hands-on operating experience with our club station, W1FY. The plan was to put each student on the air for a short time, with Ed or me as Control Operator. For this, I had set up a schedule on 20 meters with Bob Hess, W1RH, a former President of the club, who was now 3000 miles across the country in California. If we could contact Bob, our students would be convinced that HF is surely the way to go.

HF WORKSHOP

1. **Introduction**
 - A- What is HF?
 - B- Object of Course
 - C- HF Procedures vs VHF/UHF

2. **Modes of Operation**
 - A- SSB
 - B- CW
 - C- AM

- D- Digital Modes
3. **Setting Up Your Station**
 - A- Rig
 - B- Antennas
 - C- Test Equipment

 4. **HF Propagation**
 - A- Sunspot Cycle
 - B- Ionosphere
 - C- Ground Wave

 5. **Band Characteristics**
 - A- 160 – 10 meters
 - B- WARC Bands
 - C- DX vs Local Operation

 6. **Operating Procedures**
 - A- Calling Techniques on HF
 - B- Calling and Replying to a CQ
 - C- Good Manners on the Bands

 7. **DX Techniques**
 - A- Making a contact in a “Pileup”
 - B- Split Operation
 - C- Contesting

 8. **Hands-On Operating – Let’s Go on the Air!**
 - A- HF Setup in W1FY Shack
 - B- Transceiver Demo
 - C- How to Use Accessories

Figure 1 – Course Outline

Getting publicity

To publicize the course, we talked it up in our meetings, sent out an announcement on the club’s email reflector, and inserted it in our newsletter. We considered opening it up to the public rather than only to our club, but space in front of the rig is quite limited, so we cautiously kept it small. In case your club would like to duplicate our announcement, see Figure 2.

The Framingham Amateur Radio Association presents... **How to Operate on the High Frequency Ham Bands**

Course Description:

A one-day class on proper operation on the 160 meter through 10 meter Amateur Radio bands. It’s very different than VHF/UHF repeater operation. Both classroom instruction and hands-on operation will be included.

Who Is It For?

This course is designed for people with Technician, Tech Plus, Novice and General class licenses, who have never operated on the HF Bands, or who need a review of good operation.

Details:

- Free for paid-up members
- Saturday, June 16, 2007
- W1FY Shack, 9 am to Noon

Instructors:

Your instructors, Ed Weiss, W1NXC, and Sumner Weisman, W1VIV, have well over 100 years of combined ham radio experience!

Please e-mail W1VIV@ARRL.NET to make a reservation.

Figure 2 – HF Course Announcement

Handouts

It is important to provide good handouts to each student, so that they have something to take home and use as reference material in the future. I discovered that there is a wealth of reference material on the ARRL website for the taking, including text, PowerPoint, and videos.¹ I included “The Considerate Operator’s Frequency Guide,”² and “HF is Fun”³ The latter article is perfect for the course. It includes sections on The Ionosphere, Building a Station, Dipoles, Beams, Grounding, Keeping a Logbook (now optional but still recommended by ARRL), QSLing, US Amateur Radio Bands (great color chart), and Some Common Controls Found on Amateur Radio Transceivers. It is a wealth of information. I also printed out a drawing from an ARRL PowerPoint presentation that is perfect for showing a typical ham station. See Figure 3. It was better than anything I could draw for the course.⁴

What Kind of Gear Do I Need?

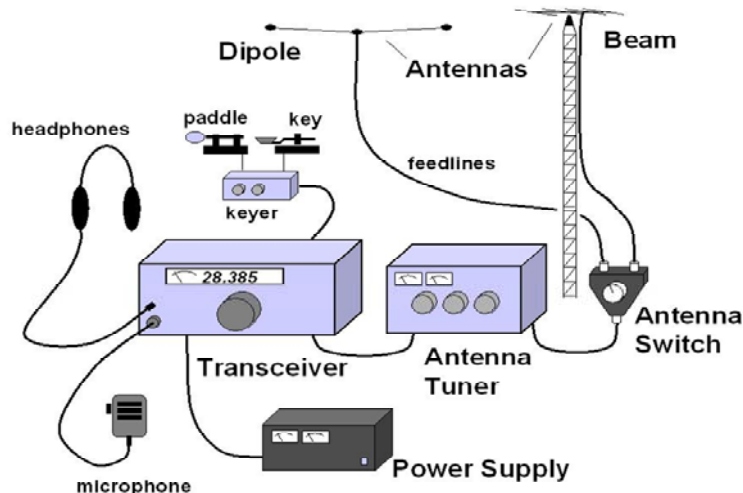


Figure 3 – A typical ham station

More information

I also added material from other sources, including a description of the WARC bands, further information on the ionosphere and sunspots, communications procedures, the Phonetic Alphabet, the RST System, and UTC timekeeping. The handouts given to each student were loaded with good information, and they could refer to them again once they eventually got on the air. Finally, I created a questionnaire in order to get some feedback from the students on the value of the course.

The students

Eleven club members signed up for the course. Who they were was a big surprise. We expected that the great majority would be relatively new no-code Technicians who had taken our license courses. Instead, we had only one Technician, six Generals, and four Extra class hams. What does that show? I had assumed that most General and Extra class hams have had adequate on-the-air experience, but I was wrong. I then realized that I have met some Extra class hams who have *never ever been on the air*. This course was even more important than I originally thought.

The big day

We divided up the lecturing between the two instructors, and the course went mostly as we had planned. See Figure 4. There are several items that I would change, and perhaps these will be helpful to other clubs considering a similar effort. First, there was not enough time allocated. We allowed two hours of lecturing on a Saturday morning, and then one hour of on-the-air experience. We had to curtail some of the discussion during the first two hours, where not enough time was available. I recommend adding one more hour for lecturing and replying to questions. Then, of course, Murphy's Law prevailed, and the condition of the 11 year sunspot cycle would not allow us to contact W1RH. I then called CQ a number of times on 20 meters, but band conditions were so bad that we could not even get a contact, running 350 watts into a 3 element yagi antenna. See Figure 5. On the bright side, what better way to learn about the sunspot cycle and the ionosphere? I realized later that I probably could have raised someone on 40 meters or below. Finally, we never passed out our questionnaires, and therefore never received the feedback we wanted.

The result

In spite of the minor difficulties, our students thanked us and told us that the course was quite helpful. I do recommend that other clubs undertake a similar effort. The need is certainly there – even more so than we first thought. You not only will receive the satisfaction of passing along some of your hard-earned ham radio experience, but you may actually be helping to keep our important HF bands free of people who have little or no operating knowledge. To me, this is an opportunity to provide an important service that only an experienced ham can provide.



Figure 4 – Classroom instruction -- W1NXC discussing the HF bands

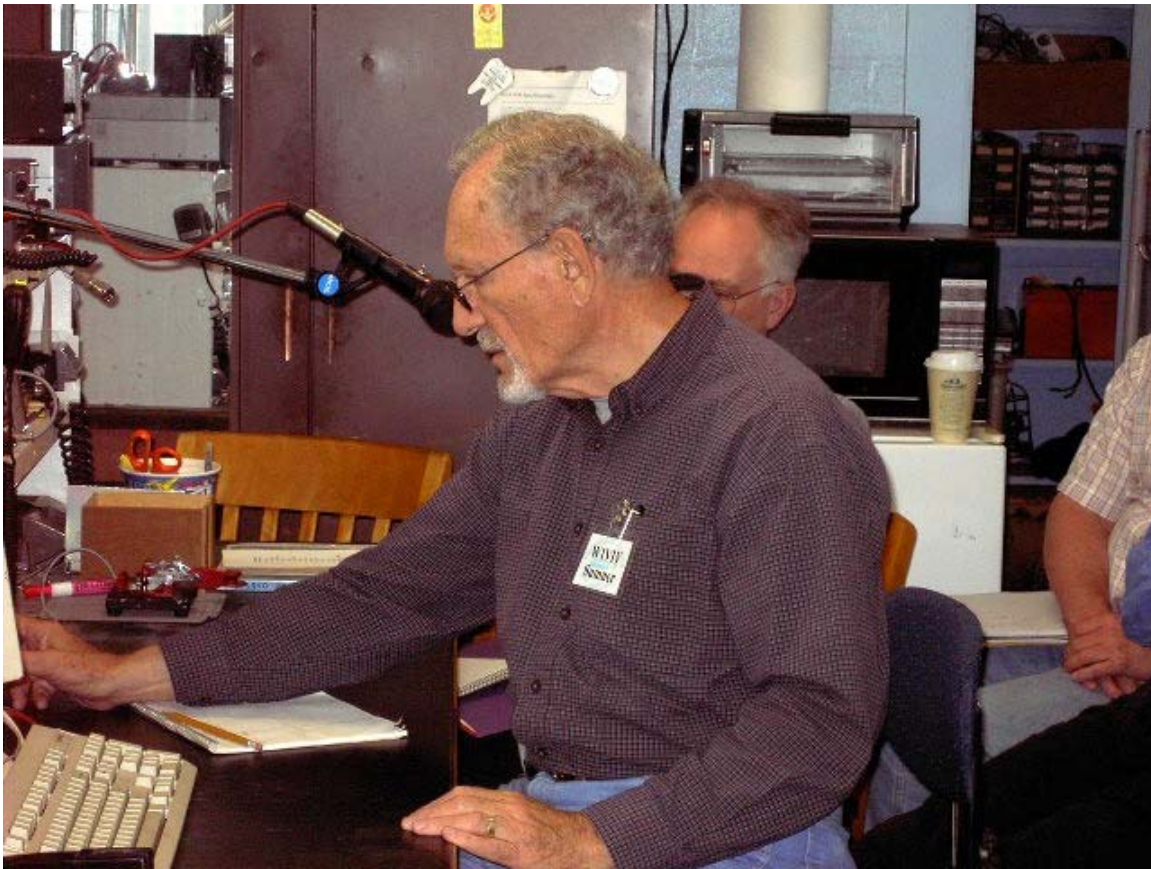


Figure 5 – Hands-on instruction -- W1VIV teaching transceiver operation

Notes

¹ <http://www.arrl.org/FandES/ead/materials/videos.html>

² <http://www.arrl.org/FandES/field/regulations/conop.html>

³ <http://www.arrl.org/FandES/ead/materials/Discover-the-Magic.pdf>

⁴ [http://www.arrl.org/FandES/ead/materials/HF-101.ppt#317,25,What Kind of Gear Do I Need?](http://www.arrl.org/FandES/ead/materials/HF-101.ppt#317,25,What%20Kind%20of%20Gear%20Do%20I%20Need?)

Additional Note: Photos by WA1HAM

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