PCARA Update

Volume 3, Issue 10 Peekskill / Cortlandt Amateur Radio Association Inc. October 2002

Step Up to the Plate…

A community service organization such as our own relies heavily on the efforts of its membership to stay alive and well. Without members volunteering their time and talents, the business of running the club doesn't get done. The services that we are able to provide our communities aren't available, or are seriously impacted.

If you haven't had the opportunity to be part of a committee, or be involved with a club function such as Field Day, Kid's Day, or JOTA, I ask that you consider giving a few hours of your time over the coming year. I know we all seem to be leading increasingly hectic lives with less and less free time, but please try and help keep our association healthy, strong, and able to serve our communities in times of need.

Just a reminder that at November's meeting the annual nominations for officers will be held. Elections are held at the December meeting. Maybe consider throwing your hat into the ring!

I hope to see each of you at the October 6th meeting at HVHC.

— 73 de Greg, KB2CQE

New P.O. Box

Peekskill Cortlandt Amateur Radio Association has been using a P.O. Box at the Crompond Post Office for several years, courtesy of Joe KR2V. Thanks Joe!

PCARA now has its *own* P.O. Box at Crompond — P.O. Box 146 — which is kind of neat since the 2m repeater is on **146**.670 MHz.

— KB2CQE

PCARA CW Course

PCARA is sponsoring a CW Course to help prepare those who wish to take the 5 WPM Element 1 exam. In order to upgrade to General or Extra Class, Element 1 is required.

The classes start Thursday, October 10, 2002, 7:30 PM to 9:00 PM at Hudson Valley Hospital Center in Dining Room B. (Location to be confirmed -*Ed.*) The classes will meet each Thursday and run for nine weeks, with the exception of Thanksgiving - 11/28/02, until Thursday, December 12, 2002. A VE Session will be held on December 12, 2002 at HVHC.

For more information or to register please contact: Bob, N2CBH (n2cbh@arrl.net) or Karl, N2KZ (karlzuk@hotmail.com).

- Karl, N2KZ

Repeater Fund

Following last month's appeal for contributions to the PCARA Repeater Fund, there have been a number of generous donations.

The estimated cost to upgrade the cavities for PCARA's new two meter repeater and thereby complete the project stands at $2,000. A special PCARA fund has been established to earmark the donations for this new repeater work.

Donations so far have been received from Charles, WA2WGJ; Malcolm, NM9J; Ray, W2CH & Marylyn; Ed, WA2AXP; Karen, WA2CVU; Armen, N2PLZ, Sean, KC2IDN; Bill, WB2MKQ; Roy, KC2DMH; Karl, N2KZ; Kevin. N2KZE; Clint, KB2ZRJ; Greg, KB2CQE and Mike, N2EAB.

Any assistance you can provide would be most graciously accepted. Member contributions to the "Repeater Fund" will be recognized with a certificate of appreciation.

Please send your donation to: **PCARA (Repeater Fund), PO Box 146, Crompond, NY 10517**.

Installation and testing of the new two meter repeater continues at the location of N2CBH. You may be able to hear the signal on 146.67 MHz if you are close by. One recent addition to the controller is a temperature sensor, which is currently announcing the temperature on the hour.

PCARA Officers

President:	
Greg Appleyard, KB2CQE	kb2cqe@arrl.net
Vice President:	
Bob Tarsio, N2CBH	n2cbh@arrl.net
Secretary/Treasurer:	
Joe Ellman, KR2V	kr2v@arrl.net

To tune or not to tune…

— N2CBH

I have never been particularly fond of antenna tuners that are found in virtually every ham shack including my own. Admittedly, they can be mighty handy if you have an antenna cut for one band or no band in particular. I use one once in a while but I don't like the side effects they generate. Let's talk a little bit about what a tuner does. The good, the bad and the ugly, that is.

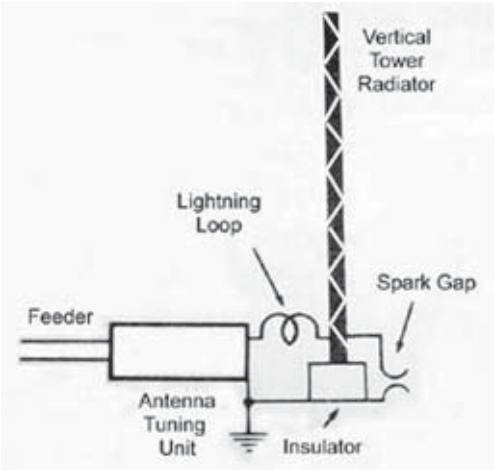
The basic antenna tuner comprises of a series of reactive elements to attempt to match the usual 50 ohm unbalanced output of a transceiver to an antenna feed line. The output might be coaxial or it might feed a long wire or maybe balanced line to a Zepp antenna for instance. In each case the tuner's job is to swamp out the reactance and add or subtract resistance to your antenna system so as to produce a 50 ohm resistive load to your transmitter. The mathematical term for what the tuner does is to introduce the complex conjugate of what the antenna produces in terms of reactance. If your antenna is too short for the frequency that you want to operate on, it will offer capacitive reactance and it might not have a 50 ohm resistive component either. A complex conjugate is the introduction of reactance of the same amount but opposite type in order to cancel it out leaving a purely resistive load. Simply put, the tuner acts as an R.F. transformer. In the case of the too short antenna, the tuner would introduce additional inductance to cancel the capacitive reactance exhibited by the antenna. If your antenna were too long, the tuner would introduce capacitive reactance to cancel the inductive reactance exhibited by a too long antenna.

Antenna tuner containing reactive elements — variable capacitors and tapped inductors.

Actually, the magic that a tuner performs is a neat trick. If you are using coax or balanced line to feed your antenna from your tuner the trick ought to be performed out at the feed point of the antenna and not in your shack. Why? First of all, we know that the primary purpose of any tuner is to protect your rig from reflected power. The tuner acts to protect the final amplifier of your rig by allowing it to see a 50 ohm, resistive load. The big question is — what is happening on the other side of the tuner? The side that feeds the line to your antenna may have a tremendous VSWR while the input side is producing that nice 50-ohm resistive load. This can be a serious problem if you are running a lot of power as the tuner must take the brunt of high R.F. voltages and currents. An underrated tuner may arc or burn under these conditions.

This VSWR wastes power too. The higher the VSWR from the feed point to your tuner the less power that gets radiated by the antenna. This is not all bad if your transmission line is up in the air away from obstructions. By definition, if it's got a standing wave on it, and the feeder currents are out of balance, it's an antenna! That's right. Your coax may be acting as an antenna along with your intended antenna. If your coax is buried in the ground like mine is, this isn't a good situation as all that power on your line is heating up the ground! Another effect of this type of mismatch is that your antenna may exhibit a directional characteristic other than that which might be expected. Remember that this effect will be present on your received signals as well. So you might not hear the signals you want because your feed line is acting to make your antenna directional in a way that cancels desired signals.

Can you operate without a tuner or at least not in the shack? Sure. One way is to have a resonant antenna for each band that you wish to operate on. A dipole, which is a resonant antenna, can often be used for most of the band without the use of a tuner especially at 20 meters and above. Or, consider a quarter wave vertical. You may not have enough room for a resonant antenna on every band. This often means one length of wire for all bands. The method of matching that I like the best, that offers flexibility and the best match possible, is to place the tuner at the feed point of this type of antenna. Commercial AM broadcast stations use this method almost exclusively. Placing the tuner at the end of your coax run just before the antenna connection point insures that most of the energy that you pump out will get to the antenna. There will be little or no side effect of the transmission line acting like an antenna. This allows flexibility in operating as well if your tuner can be controlled from the shack. I use one of the commercially available auto-tuners. Feed it a small amount of power, tell it to tune



AM broadcast antenna system, with tuner at the end of the feeder cable.

and in seconds you are ready to go.

There is another simple method of tuning your antenna at its feed point. Consider this idea that Heathkit marketed years ago. They placed a large air variable capacitor on the order of 1000 pF into a metal box with a small motor to drive it. The ends of the cap were then connected across the feed point to a dipole, which is cut about 5 percent longer than normal for the lowest band desired. The dipole was then driven in the conventional way with coax connected to each end. To tune the antenna, you simply applied a voltage to the motor and watched your VSWR bridge. That's it! Simplicity is elegance. This was all small and light enough to be suspended in air just as any dipole.

Another method that is clever is to connect your feed line to the end of a long wire bringing the other end of the wire down near the ground and connecting it to a variable capacitor whose other end is connected to a metal stake driven into the ground. A small motor turns the capacitor, which tunes the antenna against ground. The last two examples use only one capacitor.

I should clarify one thing about the use of a tuner with a long wire antenna. When feeding a long wire with such a tuner you are in fact placing the tuner at the antenna feed point. So, this is OK with me but watch the R.F. in your shack. It's always best to keep as little of the long wire in your shack as possible. Always make sure your tuner is grounded as well. This is good operating practice for the use of any tuner.

Actually, tuners are often handy. I thought it might be fun to challenge you all to build an antenna without using a tuner. Consult the ARRL *Handbook* and ARRL *Antenna Handbook* for some great ideas. Let me know how it works out.

— 73 de N2CBH, Bob

World Band Radio

I have been enjoying Amateur radio for over a year now since my novice days of the 1970's. There is so much to this great hobby of ours that it would take a long time to go into all the various aspects.

Lately I have been making many contacts all over the world. While this is a lot of fun, the recent events of September 11, 2001 have brought the more serious emergency communications purpose of Amateur radio to the forefront. This side of the hobby is fascinating in its own right.

While the need for the service is strong and vital, I feel that we radio operators need to get away from the serious side sometimes and I have been doing that on occasion.

One of the things I realized recently was that modern amateur HF band transceivers are continuous general coverage receivers as well. I have checked out mine and found that it performs very well, especially for the occasional listener. These rigs are very good for utility listening too.

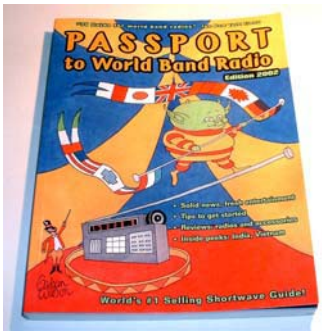
Mark's Icom IC-718 transceiver is typical of modern HF radios, with a continuous receive coverage of 0.03 - 29.99 MHz.

I became fascinated with the idea of having this bonus in the rig and began listening to lots of interesting programming. The only problem was that most of the time I did not know what I was listening to.

I tried looking for shortwave listings on the Internet and found they still did not tell me how to find what I wanted to hear.

I went to the ARRL web site and checked in the online store for books on shortwave listening. It turns out there are several choices, including shortwave broadcasting, utility stations, and even TV listings.

The publication I kept coming back to was *Passport to World Band Radio*. This is a shortwave listening guide that has available stations listed by the hour as well as "Blue Pages" that tell what's on each frequency around the clock.



There are addresses and E-mail listings for QSL purposes. The book also reviews the best of portable, "portatop", and tabletop receivers. The guide makes listening for programs of interest something you can plan ahead.

The various broadcasting stations have news, science, music and even plays and talk shows. The events around the world they describe are always current and sometimes reported as they are happening.

Listening to many news stations and opinions from most of the world sends the message that the evil out there is not the majority — a comforting truth.

To me all aspects of the science of radio are fascinating and important. We communicate two-way and that is novel, but the world is broadcasting to whoever will listen.

I think it is very important to keep all forms of radio alive. The Internet is a wonderful and powerful tool but radio does not depend on any direct, wired connections.

Take a minute to check out short wave broadcasting, you may get hooked like me. When I'm not on the air, or monitoring the bands, I am listening to some pretty interesting stuff and contributing to the worldwide radio audience.

— Mark, AB2ML

Peekskill / Cortlandt Amateur Radio Association

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Web site: http://www.pcara.org

PCARA Update Editor: Malcolm Pritchard, NM9J
E-mail: NM9J@arrl.net
Newsletter contributions are always very welcome!

PCARA Information

PCARA is a **Non-Profit Community Service Organization.** PCARA meetings take place the first Sunday of each month at 3:00 p.m. in Dining Room B of the Hudson Valley Hospital Center, Route 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater.

PCARA Repeaters

W2NYW:	146.67 MHz -0.6, PL 156.7Hz
KB2CQE:	449.925MHz -5.0, PL 179.9Hz
N2CBH:	448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Oct 6: October meeting, 3:00 P.M. HVHC. Visit from ARRL Hudson Division Director, Frank Fallon, N2FF.
Thu Oct 10: PCARA CW classes begin, HVHC, 7:30 P.M.

Hamfests

Sat Oct 12: Bergen ARA Hamfest, Westwood High School, 701 Ridgewood Rd., Washington Township NJ., 8:00 A.M.
Sun Oct 13: Nutmeg Hamfest and Connecticut State Convention, Wallingford, CT. 9:00 A.M.
Sun Oct 20: Hall of Science ARC, Hall of Science, 47-01 111 Street, Queens, NY. 9:00 A.M.
Sun Oct 27: Town of Babylon ARES, Knights of Columbus Hall, 400 S. Broadway, Lindenhurst, NY. 9:00 A.M.

VE Test Sessions

Oct 6, Nov 3: Yonkers ARC, Yonkers Police Dept., 1st Precinct, East Grassy Sprain Rd, 9:00 A.M. Contact: Daniel Calabrese, 914 667-0587.
Oct 8: Crystal Radio Club, Rockland Co Fire Trg Ctr, Firemans Memorial Drv, Pomona NY, 7:00 P.M., contact Robert Chamberlain 845 354-7340.
Oct 10: WECA, Fire Training Center, Dana Road, Valhalla, NY 10595. 7:00 P.M. Must preregister w/ Sanford Fried, 914 273-2741.
Oct 12: Bergen ARA, Westwood Regional HS, 701 Ridgewood Rd., Washington Township, NJ. Contact D. C. Younger, 201 265-6583.
Oct 18: Bergen ARA & Fairlawn RC, Fair Lawn Cultural Cent, 12-56 River Rd, Fair Lawn, NJ. 7:30 P.M. Contact D C Younger, 201 265-6583.
Oct 21: Split Rock ARA, Hopatcong HS, Hopatcong NJ. 7:00 P.M. Contact Sid Markowitz, 973 724-2378.
Oct 21: Columbia Univ ARC, Watson Labs, 612 W 115th St. New York, NY 10025, 6:30 P.M. Contact Alan Crosswell, 212 854-3754.

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