PCARA Update

Volume 13, Issue 2 Peekskill / Cortlandt Amateur Radio Association Inc. February 2012

Raising the stakes

The Fifth Annual PCARA Bring and Buy Auction held at the January 2012 meeting was an unrivaled success, in both attendance and amount of items that were sold! The auction brought in more than $150 in donations to the club from generous members and attendees. Our auctioneer as in years' past was Malcolm, NM9J who once again used his talents to whip the crowd into a bidding frenzy on more than one occasion. (N. B. Sotheby's London, be afraid – be very afraid). Thank You for all who attended and made the afternoon such a great achievement!

Malcolm, NM9J (right) encourages higher bids for electronic equipment at the PCARA annual Bring and Buy Auction on January 8. [Pic by W2CH]

For anyone interested in upgrading their ticket, the Westchester Emergency Communications Association (WECA) is sponsoring an Amateur Extra Ham Radio Class starting Tuesday February 7, 2012 at the Westchester Fire Training Academy in Valhalla, NY. Details can be found on the WECA website, http://www.weca.org.

Our next regularly scheduled meeting will be Sunday February 5, 2012 at 3:00 pm at Hudson Valley Hospital Center in Cortlandt Manor, NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE

PCARA Officers

President:
Greg Appleyard, KB2CQE, kb2cqe *at* arrl.net
Vice President:
Joe Calabrese, WA2MCR; wa2mcr *at* arrl.net

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Net night

Peekskill/Cortlandt Amateur Radio Association holds a weekly net on the 146.67 MHz W2NYW repeater on Thursdays at 8:00 p.m.

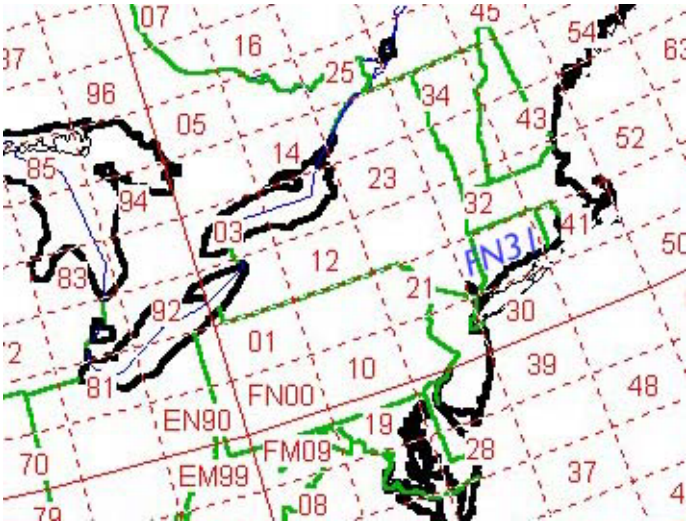
Photos by W2CH from PCARA's 2011 Holiday Dinner were featured in the "ARRL Hudson Division Beacon" newsletter.

Adventures in DXing

- N2KZ

Get Ready! Go!

I've been waiting weeks for this – no – even months for this. It's finally Saturday, January 21, 2012. At 2 pm, the ARRL VHF Sweepstakes will commence. Hundreds of fellow amateurs will soon be on the air with one thing in common: For a brief 20 or 30 seconds, they'll want to work YOU. You just have to gain their attention! This is a huge opportunity for someone who is building a collection of QSL cards to earn a place in the ARRL's VUCC - the VHF/UHF Century Club. All you need is QSL verification that you have reached 100 Maidenhead grid squares. If your operating passions live above 50 MHz, this is a cherished prize. If you have a VUCC, you are serious about VHF.



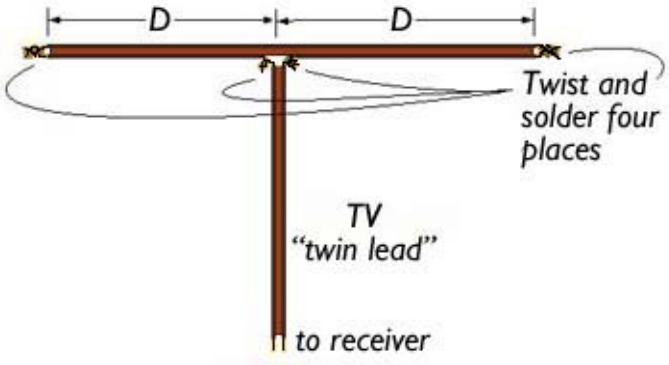
Maidenhead squares map for northeast USA. Each grid square represents 1° of latitude by 2° of longitude.

Operating in a big contest is not an easy task! Beyond the world of radio, there are other challenges to contend with. Family always comes first. Work is high on the list, too. The contest only lasts thirty-three precious hours. Like a good tailor, I have to fit everything in! For instance: At 6 am on Sunday, I begin ten hours of work. It's a fact of life: Adults have responsibilities! With no remorse, I have learned how to juggle.

I have equipment I love to use. Using the finest in 1986 technology, my rig for 6 meters is a Yaesu FT-690RII. Using its optional 10 watt linear amplifier, it does all modes with two VFOs for agility. After spending some time with this fourth-hand unit with serious mileage, I have found my way and can really make it sing. This rig was given to me by a mentor and good friend. Now, this rig is a very good friend to me.

Outdoors, the world is white. There is a ton of fresh-fallen snow outside. Six inches of new snow fell overnight. Is this an omen? On sunny summer days I like to sit on my deck and operate on 6 meters using my three-element Yagi to put a little extra punch into my QRP signal. I use the 'armstrong' method: spinning the beam around while holding a ten foot mast in my hand. Not today! It's back to basics. This afternoon, my trusty homebrew folded dipole, tied up in my attic, will be delivering my voice and key to the sky!

Yaesu FT-690R II is a synthesized portable transceiver from the 1980s, covering 50-54 MHz FM/CW/SSB, with a barefoot output power of 2.5 watts.



Folded dipole can be assembled from 300 ohm TV twin lead. A balun is needed to match to 50 ohm coaxial cable.

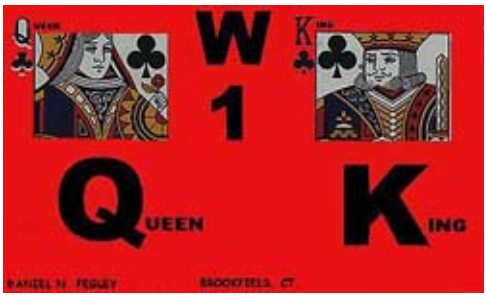
As the clock approaches 2 pm, there is an eerie silence on 6 meters. The orchestra is warming up. Empty carriers can be heard tuning up just above 50.125 MHz, the 6 meter calling frequency. Not a voice can be heard. You sit and you wait and you wonder. Will the band be open? Will a lot of people participate? Will there be grid squares available that I don't have?

The clock strikes 1800 UTC - 2 pm Eastern Standard Time! The onslaught begins! This time around, the concentration seems to be exclusively SSB above 50.125 MHz to about 50.175 MHz. My initial strategy is to comb the band, back and forth, trying to nail as many loggings as possible. If I hear huge pile-ups, I try to avoid them. They take a lot of time to get through and it might be a half-hour before you touch

base. My pencil just flies as I try to haul in catch after catch. No VHF contest is complete without the monster signal of Dan and his buddies at W1QK, just 15 miles away in Brookfield, Connecticut. There he is at 50.150 MHz without fail. Dan probably earns a VUCC every contest he works. With his dominant signal, W1QK is heard!

Antennas at W1QK, Brookfield CT.

It's 2:45 pm and I'm just starting to get tired from the first wave of VHF insanity. I hear a very familiar voice on 50.135 MHz. It's Ray, W2CH having fun calling CQ and hauling them in. Twenty miles away and on the wrong side of his apartment building not facing me, I knew he might not hear me on SSB, so I offset my transmit frequency 700 cycles and called him on CW. I think I caught Ray off guard! He heard me, just barely, and patiently tried to eek out my callsign replying to me on sideband. It was not meant to be. I called several times, but to no avail. (Ray had a great time, too! By Sunday night, he worked 53 stations on 4 bands!)



W1QK QSL

Then a miracle happened: unlike any other band I know, 6 meter devotees really love when other operators will go to the ends of the Earth to get their signals through! Hearing a weak someone (like myself) trying their hearts out on CW can make you a prime target. I suddenly became deluged with several stations calling me back also on CW. I was perfectly happy to oblige! This day was just filled with stations from the FN 20 and FN 21 grid squares (North and Central New Jersey and Northeast Pennsylvania) and I gladly added a bunch to my log book!

Just remember my two best tricks for 6 meter QRP contesting: Sneak in and be fast – and – try to grab attention using CW in USB pile-ups. Offset your signal 700 cycles to create a nice listenable note to those listening on SSB. If they are on 50.135, operate on 50.1357. Send your callsign quickly – in a flash – in that split second after the multitude of calls ends and the 'big' station replies. Be relentless. Don't give up! If you are not heard in a couple of tries, vary your offset frequency slightly to change your CW note. The frequency you first tried may be masked by the receiving station's DSP filters. Also, be prepared to send your call a second or third time very slowly for recognition. SSB stations sometimes can't copy fast code! This works so well for me! Give it a try!

Delightfully filled with CW in my head, I went down to the CW portion of the 6 meter band around 50.090 to 50.105 MHz and took a look around. It was pretty quiet, so I sent a CQ out on 50.095 MHz to see what might happen. Instantaneously, I heard from John, VE1ZJ, just outside of Sydney, Nova Scotia on Cape Breton Island. John sits in rare grid square FN 96 and it was a wonderful catch! His signal was just huge and had a very easy-to-work fist. Nice copy, OM! John is very active in longwave DXing and was the first ham ever to hear a transatlantic longwave beacon from David, G0MRF, on the experimental 136 kHz band. John replied to David via 20 meters to complete the first longwave crossband QSO ever! Very nice to meet you, sir!

Since I had not used my Yaesu FT-690RII in a long time, I thought I would try to see if it was still competent on FM. I called over to the Rockland Repeater Association 6 Meter machine (53.37 MHz 88.5 PL) to see if I could still bring it up. I was answered by Lorenzo, YV1LBB, 2150 miles away in Venezuela! I guess ten meters was open: Lorenzo was crossbanding via a link to the RRA's ten meter FM repeater. We had a nice long chat with armchair copy. It was simply amazing! Following close behind was the friendly voice of PCARA's Kevin, N2KZE. Obviously, today, 6 meters was the place to be!

The afternoon continued with good results. Stations from down South and in the Midwest were heard in the distance from the 5, 9 and 0 callsign regions. You could tell these were stations using power in the kilowatt range with large arrays managing to push their signals far beyond what us mere mortals might expect. These stations held court from about 50.135 MHz up to about 50.175 MHz USB until after dinnertime (about 8 pm or so.) They were organized multiple-operator machines raking in contacts by specific callsign areas or letter suffix. Operators were calling 'only threes' or calling specific stations they could pull out by the last letters of callsigns. (Come

on! Say 'KZ!') I finally cashed it in and went to bed. What a day!

Sunday was a short sequel to what I experienced the day before. I did not arrive home from work until about 5 pm. I jumped on 6 meters upon contact with my home QTH. This was a great time to operate as a QRP station. By now, all the big guns had worked all the other big guns and everyone was looking for a few more QSOs with stations that had not been obvious the day before. The distant stations that were inundated with calls Saturday were hungry now. I was ready to go!

HF and VHF nested quad antennas at WB4VMH, Lake City, Florida.

One of the first stations I worked was Dick, WB4VMH, in Lake City, Florida (grid square EM80.) Dick was obviously using his 500 watt amplifier with an authoritative signal into our QTH. The fun continued with a bunch of QSOs from near and far. A little while later, I had to run out on an errand and just happened to drive up one of the largest hills in our area (hi, hi) and tried to see if anyone was on 2 meter simplex for the contest. I quickly worked stations in Central New Jersey, Pennsylvania and a father and son pair in nearby Yorktown Heights. I wish every day was this good!

The ARRL VHF Sweepstakes really put a smile on my face. Anyone who thinks 6 meters and above is sleepy spectrum make note! My calendar is already marked for June 9 and 10, 2012 for the ARRL June VHF QSO party. The weather should be much warmer then and I would like to be heading for Bear Mountain or some other lofty place with my Yagi! I'm still a long way from the 100 necessary grid squares to snag my VUCC award!

Please remember that there is fun every Thursday night on VHF: The PCARA Old Goats Net, emceed by yours truly N2KZ, can be easily found on the PCARA repeater at 146.67 MHz. Check in and join the fun!

Until next month, 73s and dit dit from Karl, N2KZ 'The Old Goat.'

Bring and Buy Auction

Here are some more photos from the PCARA Bring and Buy Auction, held on Sunday January 8 at Hudson Valley Hospital Center.

Lovji N2CKD (right) watches as Malcolm, NM9J auctions an Autek audio filter.

Neighboring clubs were encouraged to attend by Shirley, N2SKP (right). [Photos by W2CH]

Extra Class

Westchester Emergency Communications Association will be conducting a class for the Amateur Extra examination this winter. The class will run for nine weeks every Tuesday night from 7:00 - 9:00 pm starting February 7 at the Westchester Fire Training Academy, 4 Dana Avenue, Valhalla. On Thursday of the 10th week, a VE Test Session will be held at the same location.

Further details are available at WECA's web site, http://www.weca.org

Quiet Please

Hum and noise annoys

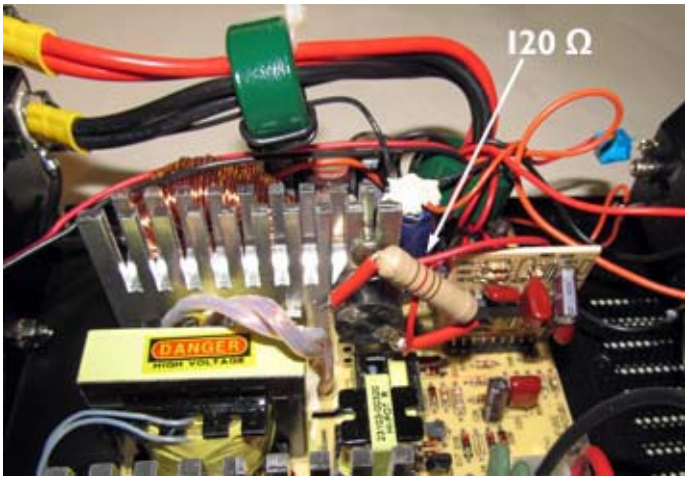
Some recent shack rearrangements have caused audible noise problems. I like to keep things quiet so I can concentrate on the the more important sounds. Here are some of the ways that I fixed unwanted noise.

Switch off the noise

During the initial testing of my Icom HF transceiver, I had connected an Astron SS-30M power supply. This Astron model is a switch mode power supply that has no problem supplying 13.8 volts DC at 23 amps as required by the radio. But every so often the power supply cooling fan would cycle on and the fan noise became quite intrusive. I checked on the Internet and found several people had success with a simple fix.

Astron SS-30M switch mode power supply

The Astron SS-30M's internal fan is turned on and off by a thermal switch, so the cure is to solder a 120 ohm 2 watt resistor across the switch. This ensures that while the thermal switch is open, the fan runs continuously, but at a lower speed, with hardly any noise. As a result, the case stays cool and the fan no longer needs to come on at full speed during normal operation. Hint — be sure to disconnect the 120 volt AC plug before working inside the case of this power supply.



Addition of 120 ohm resistor across the thermal switch in the SS-30M power supply.

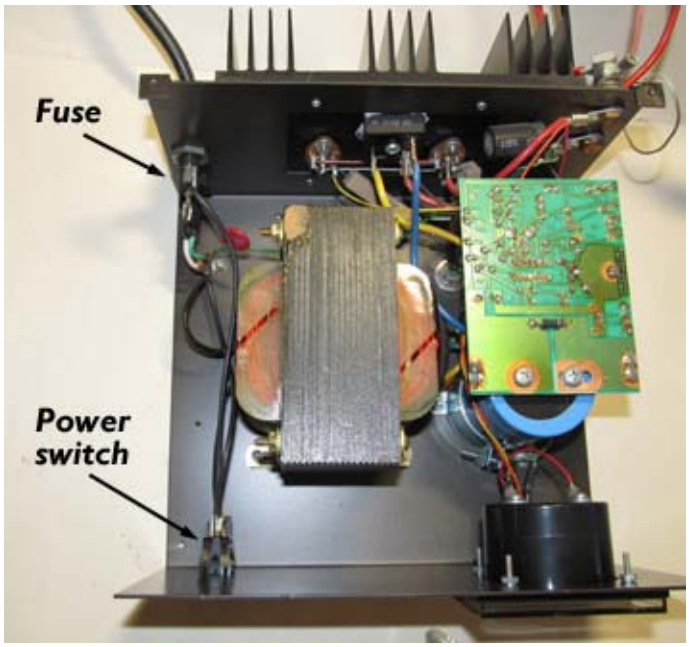
Linear power choice

For permanent installation in the radio room, I changed the Icom HF radio from the SS-30M to an Astron RS-35A power supply, capable of supplying 13.8 volts DC at 35 amps. There were no problems with fan noise from this Astron model because it is a linear supply that relies on convection cooling. Instead of a noisy internal fan, there is a large heat sink on the rear panel to keep four power transistors cool.

Astron RS-35A linear power supply.

But there was a different problem — a loud, audible hum was coming from the RS-35A power supply while switched on, independent of the load current. I had come across this type of problem before, so I was hoping for a simple fix. One notable success from my past was with a Hi-Fi stereo receiver that had a buzzing transformer. The cure in this case was to take a large rubber stopper — as found in chemistry labs — and jam it between the transformer and the nearby metalwork.

My first step with the Astron was to disconnect 120 volt AC mains at the plug, then remove the power supply cover. The reason for caution is that linear power supplies are heavy, and you may need two hands to turn the case over and get the cover off. This



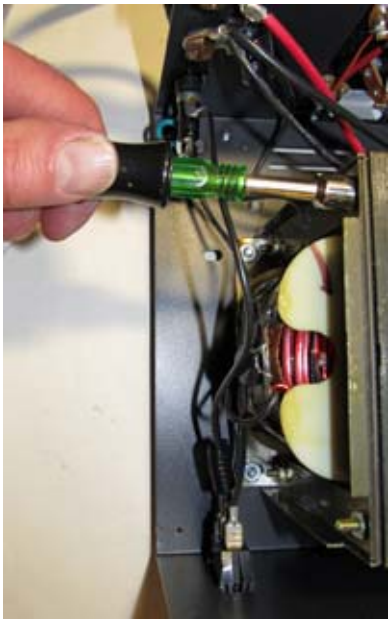
Astron RS-20M power supply with the cover off. High voltage is exposed around the 120 volt connections for the fuse and the power switch

is a great way to accidentally touch high voltage with one hand and have current run through your body and back through your other hand to chassis. The result is potentially lethal! You must keep both hands well away from any high voltage during the investigations.

With the cover off and the power supply turned on again, there was still an audio hum coming from the power transformer. The usual cause is loose laminations — laminations are the individual steel stampings used for the magnetic core of the transformer. Use of separate metal plates in the construction of the transformer is intended to reduce eddy currents.

Warm and snug

The cure for lamination buzz is to tighten the nuts and bolts that hold the transformer laminations together. Before doing this, it's best to pull out the AC power plug again, to avoid touching any high voltage circuitry or shorting anything with your wrench or screw driver. While the cover is off, you should also tighten the mounting bolts that hold the transformer to the chassis. It's worth checking the fasteners for any other components that might have vibrated loose during the life of the power supply.



Using a nutdriver to tighten hardware on the mains transformer within an Astron RS-35A power supply.

Sympathetic hum

Tightening the bolts did reduce the noise coming from my Astron's transformer, so I replaced the cover. Unfortunately, with the cover back on there was still a pronounced audio frequency hum. The cause now was the folded steel cover itself, positioned in the magnetic field surrounding the power transformer. The steel cover vibrates and can generate a buzz wherever it touches the chassis. If you put your hand on the cover, you can feel it vibrating, and you may be able to reduce the noise temporarily by pressing down on the top cover, or lifting up near the edge.

One cure I have found with other Astron power supplies is to place vibration-absorbing material between the top cover and where it rests on top of the front panel. Suitable material can include vinyl tape, heat-shrink tubing that has been slit open or even the silicone rubber sleeve from a discarded ball-point pen.

Preventing vibration by sliding a piece of rubber sleeving into the gap between top cover and front panel on an Astron RS-20M.

Be vewy vewy quiet

One word of caution — you need to listen very carefully for improvements as you make changes to a buzzy power supply. Let the unit warm up first, because components expand with heat and the noise can change. Switch off everything else in the radio room that might prevent you from hearing low levels of noise, including other power supplies. Some people have benefited from a sound level meter to monitor these low level sounds.

I had to carry out one more modification on my Astron RS-35A power supply to prevent the large metal cover from vibrating. I removed the cover and applied four adhesive cushion feet to the top of the transformer so they supported the metal cover when it was back in place. This final step reduced the overall hum to an acceptable level. I have seen polystyrene foam suggested as an alternative to rubber cushion feet, but polystyrene melts easily and might be a fire hazard.

Rubber cushion feet (arrowed) on top of transformer to prevent steel cover vibrating.

A message from the fans

There are some other sources of noise in the

radio room that are only present occasionally. I have a couple of Icom mobile transceivers for VHF/UHF with built-in cooling fans that run during periods of transmission, then continue for a minute or two. They are quite noisy, and especially noticeable when listening for a weak signal after the transmission ceases.

My usual approach in cases like this is to first make sure the fan and its air passageways are free of dust. It's amazing how much dirt can be drawn into a radio in a mobile or domestic setting by a small fan. An aerosol of "canned air" or similar product is useful for blowing the fan and passages clear. Don't be too vigorous, or you might hurt the fan mechanism, or damage electronic components with static electricity.

Using "Blow Off" canned air to remove dust from a cooling fan.

It's worth carrying out a similar clean-up of your laptop or desktop computer from time to time. You may be surprised by the amount of dust, lint and spider webs inside a PC that has been sitting on the carpet for a while.

With a small mobile radio, it's probably unwise to go much further with quieting the fan, unless it is running rough. The radio designer will have calculated a certain amount of air movement to keep the heat sink cool at full power output, and you don't want to exceed his ratings.

Modern mobile radios often have a removable control head, so you might want to separate the body of the radio, then move the chassis out of earshot from your operating position, in order to keep the fan noise down.

Always on

Until recently, I had another mobile radio in the shack that was left on continuously. This was from the good old days of IRLP when node number 4214 was active, linking to the KB2CQE repeater. The transceiver used on the node was a Yaesu FT-8000, and in order to keep the chassis cool during long periods of reception and transmission, I arranged additional cooling by positioning a 12 volt fan over the chassis.

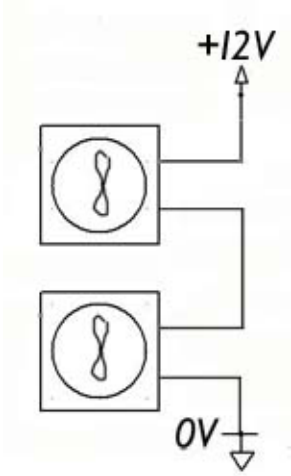
Unfortunately, the 12 volt DC fan running off a 13.8 volt power supply spun very fast and generated a lot of acoustic noise that was really distracting in the radio room`. My first solution was to include a series resistor, calculated to drop the fan's voltage to around 6-7 volts. The fan was then running fast enough to provide adequate cooling, but without making a lot of noise. This arrangement required a substantial wire-wound resistor that ran quite hot, so I went looking for a better solution.

Cooling fan sits on top of Yaesu FT-8000 as part of IRLP node 4214. A second fan is behind the radio, cooling the Astron RS-7S power supply.

Two fans are better than one

The problem was solved by purchasing *two* 12 volt DC fans with the same current rating, then wiring them in series across the 13.8 volt supply. That meant each fan received 6.9 volts, which was just right for quiet running, with sufficient air movement.

One word of advice — you might be tempted to install a variable-speed DC fan, of the type sold for fitting into a custom PC case for cooling the CPU. My experience with these devices is that they generate a lot of electrical and RF noise, so best to keep away from them.



Two 12 volt fans wired in series will run quietly from a 12 volt supply.

Keep the noise down

With a little care, you should be able to reduce unwanted noise and hum in your radio shack down to a low level — so you can listen ever more closely to the real noise from your receiver as the exotic DX fades away into the static of a dying band.

- NM9J

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!
Archive: http://home.computer.net/~pcara/newslett.htm

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. *Apart from holidays.

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 Feb 5: PCARA monthly meeting, Hudson Valley Hospital Center, 3:00 p.m.

Hamfests

Fri Feb 24: New Providence ARC Auction, New Providence Municipal Center Gym, Academy St., New Providence NJ., 6:30 p.m.
Sun Mar 4: LIMARC Long Island Hamfair, Levittown Hall. 201 Levittown Parkway, Hicksville, NY., 9:00 a.m.
Sat Mar 24: Splitrock ARA North Jersey Hamfest, Roxbury Senior Center, 72 Eyland Avenue, Succasunna, NJ., 8:00 a.m.

VE Test Sessions

Feb 5: Yonkers ARC, Yonkers PD, Grassy Sprain Rd, Yonkers, NY. 8:30 a.m. Contact Daniel Calabrese, 914 667-0587.
Feb 9: WECA, Westchester Co Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. Contact Stanley Rothman, 914 831-3258.
Feb 20: Orange County ARC, Munger Cottage, 183 Main St, Riverlight Park, Cornwall NY. 8:00 p.m. Contact Thomas Ray, (845) 391-3620.
Feb 27: Columbia Univ VE Team, 2960 Broadway, 115 Havemeyer Hall, New York NY. 6:30 p.m. Contact Alan Croswell, (212) 854-3754.

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