



PCARA Update



We're 4 Henry

On June 7, 2009 PCARA will be holding a Special Event Station commemorating the Quadricentennial of Henry Hudson's historic voyage up the picturesque river and valley that now bear his name. Station **W4H**



will operate from Perkins Memorial Drive in Bear Mountain State Park from 9:00 am to 4:00 pm on that date. This setting overlooking the Hudson River will provide a most spectacular vista for such a

celebration. We will be discussing details at the May 3rd meeting at Hudson Valley Hospital Center (there's that *Hudson Valley* thing again!).

PCARA has received permission from the Lakeland Central School District to hold its ARRL Field Day 2009 activities at Walter Panas High School on the weekend of June 27-28, 2009.



Much thanks to Joe, WA2MCR for all his efforts with the necessary paperwork to get approval! Details will be discussed at the May 3rd meeting.

The 2009 New York QSO Party sponsored by the Rochester DX Association (<http://www.rdxa.com/>) is scheduled to take place on October 17-18, 2009, and PCARA has sponsored a plaque for the *New York*



Phone category. As well as sponsoring a plaque, PCARA will be participating in the contest as well. Please mark these dates on your calendar.

Our next meeting is May 3, 2009 at 3:00 PM at Hudson Valley Hospital Center. As always, **ALL** are welcome! I look forward to seeing each of you there.
- 73 de Greg, KB2CQE

PCARA Officers

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Greg Appleyard, KB2CQE, kb2cqe at arrl.net

Vice President:

Joe Calabrese, WA2MCR; wa2mcr at arrl.net

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Conversion

At the April PCARA meeting, Bob N2CBH brought along several ex-commercial transceivers to demonstrate how easily this type of surplus equipment can be converted to amateur use in the 2 meter and 440 MHz bands. Bob also showed how to use various types of test equipment to assist in the conversion.



Bob, N2CBH demonstrates how to convert ex-commercial VHF and UHF FM equipment to the amateur bands.

Adventures in DXing

– N2KZ

Giant Fish QRP

If a man with a giant fish called CQ, would you answer? I'm glad I did! One recent afternoon I jumped onto 20 meters equipped with my mighty one-watt Small Wonder Labs QRP kit transceiver. The first station I heard had an unusual call: CU2JT. He replied immediately! I had reached prolific CW operator, Gary Wikstrom, sitting on the island of Sao Miguel, part of the Portuguese Azores in the middle of the Atlantic Ocean!



Gary CU2JT with a lucky catch.

Not only was the Azores an exotic catch, it also counts as an IOTA island EU003. When people talk about the thrill of QRP, they are not kidding around!

Gary is originally from Sweden and still holds a Swedish callsign: SM7BGK. Concentrating on digital modes (CW, PSK31 and RTTY,) Gary has logged about 40,000 QSOs from his home in the town of Livramento near Ponta Delgado. The main rigs in Gary's shack are impressive: A Kenwood TS-570D and an Elecraft K3. I



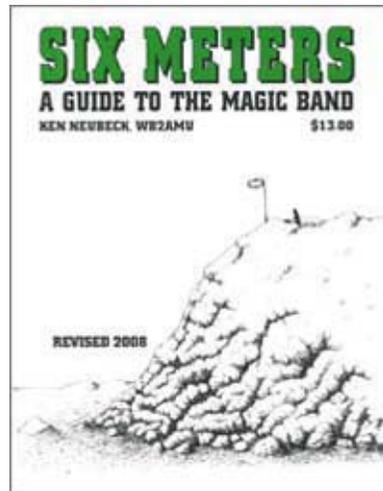
The CU2JT shack.

fishing in the Salmon River up in Pulaski, New York. (The fish is a 13 pound steelhead.) Gary, Craig and I

have one thing in common: We have a passion for six meters! I have caught Craig's dominant signal from Mantoloking, New Jersey many times while browsing The Magic Band. I hope the next time I work Gary from the Azores we will be on six meters! I certainly will try! Working Gary on 20 meters is like shooting fish in a barrel!

Magic Band Book

It's easy to become an expert operator on six meters. Simply order a copy of 'Six Meters - A Guide to the Magic Band' by Ken Neubeck WB2AMU. Decades of knowledge and experience can be found within its pages. It's all here: How the band is allocated, vintage and modern rigs and antennas, enjoying all the different propagation modes, chasing international DX and great stories about working the band and enjoying the miracles it can produce. Read this book and you'll understand why so



many hams have undying passion for this band and all it can be. What a joy to read! Now in its fourth edition, Ken offers you 128 pages of ham radio fun. Enjoy it now before the next skip season begins! The book can be purchased for \$13 directly from Ken at 1 Valley Road in Patchogue, New York 11772.

Quick Six Trick

There is one thing of which you can be certain: Six Meters operators will do anything to complete a contact. You should be in my shoes! Operating with a tiny 10 watts into my homebrew folded dipole, I need to have every trick in the book to break through a pile-up. I know my signal is weak! When the world is operating on upper sideband, I sneak in with a CW signal ending in slash QRP. Who could resist that? One thing must be remembered: You must supply your own offset to be heard with a CW note. I like a note of about 700 cycles, so if the entire world is screaming on 50.125 MHz, I'll send at 50.1257 MHz. I've been recognized, time after time, trying this sneaky trick!

DTV Distress

With only six more weeks before the final shut-down of analog TV (this time for sure!) people are starting to come out of the woodwork looking for help converting to digital. My name is rightfully associated

with antennas and TV, so my phone is ringing regularly! In the past few days, I have begun to see an interesting pattern in my neck of the woods. Most of my neighbors have television antennas dating back to decades ago. Because UHF transmissions were either not strong or non-existent, many people installed hefty VHF-only arrays. This made sense since all of the major stations could be found on VHF.

After the June 12 switchover, we will be a dual band television market. It will look like this: CBS 33, NBC 28, Fox 44, ABC 7, MyTV 38, WPIX 11 and PBS on 13 and 51. Viewers with VHF-only antennas have a good shot at ABC, WPIX and PBS but what will they see besides that? It's hard to predict. CBS will be lowering their power when they move from their current digital channel 56 to 33. NBC continues to be weaker than most on channel 28. Will I be installing new VHF/UHF antennas by the score?

I recently installed a Zenith DTT901 converter for a nearby neighbor who has a VHF-only antenna (a vintage Channel Master medium-sized Crossfire array.) I was surprised that CBS 56, Fox 44, ABC 45 and PBS (New Jersey) 51 locked in well.



Inside the Zenith DTT901 digital TV converter.

NBC 28, MyTV 38, WPIX 33, and PBS 61 did not show. WPIX and PBS should come in when they switch to high-VHF June 12th. MyTV is also carried as virtual channel 5-2 on Fox's channel 44 transmission. Only NBC might be in doubt. One big surprise was seeing, for the first time, WNYZ-LD on channel 6 displaying virtual channel 1-1. With only 300 watts from Long Island City, this was quite a catch!

Important reminder: Everyone who watches digital TV over the air will have to rescan their TVs, outboard tuners or DTV converter boxes after the June 12 switchover date. If you don't, you won't be seeing CBS, ABC, MyTV, WPIX and PBS anymore! All the stations switching frequencies will need to be found again by your digital tuners.

Titanic Signal

If you were scanning the bands Saturday morning, April 11th, you were bound to hear the mighty voice of special event station WØS. I think the call letters stood

for 'What a Outstanding Signal!' A group of amateur radio operators gathered at the Titanic Museum in Branson, Missouri to commemorate the 97th anniversary of the sinking of this mighty vessel. I heard them, by surprise, on 40 meters and was bowled



over by their huge signal. My little Small Wonder Labs SW+40 was sufficient to shake hands with them with just one watt emitting from my QTH.

WØS was fitted with state-of-the-art gear provided by Icom running hundreds of watts out into the ether. Boy, could they be heard! Their code note and fist was firm and steady. It was a very pleasant treat. The station was available for hours and hours working a steady stream of CW ops. Later, I was up on 20 meters with my SW+20 and worked WØS again without any sweat. My QSL letter went out immediately that afternoon. For pictures and more see: <http://www.wzeros.com>. Did you miss the station? Try again next year! WØS will reappear for the next three years leading up to the 100th anniversary of the sinking of the Titanic.

We Are Special, Too!

PCARA will be participating in our own special events station slated for Sunday, June 7th to commemorate two important anniversaries: The 400th anniversary of Henry Hudson's discovery of the Hudson River and the anniversary of the Peekskill Cortlandt Amateur Radio Association! A likely site for the station may be the peak of Bear Mountain overlooking the Hudson River high above the Bear Mountain Bridge and State Park. This was a regular site for PCARA's ARRL Field Day operations for several years. Final details are still to be decided. Stay tuned!

Remember to tune in Thursday nights at 8 pm for the PCARA Old Goats Net on our two-meter repeater: 146.67 MHz. All licensed amateurs are welcome to join in. Tell all your friends to listen! You'll hear tales of great DX, exotic equipment procurements, operating tips and hints and simply great fun. See you there!



Until next month, 73 de N2KZ dit dit.

Power supply potential

One item found in every amateur radio shack is the 12 volt power supply. Ever since we began adopting mobile equipment designed for 12 volt vehicle batteries, we have needed battery substitutes that could be used in the home. They were far more convenient than lead-acid batteries that needed topping up with distilled water and splashed sulfuric acid all over the carpet.

Conventional linear regulated power supplies are not particularly high tech – they usually contain a transformer, rectifier diodes, a large electrolytic capacitor and some regulating circuitry to maintain the output voltage at a nominal “12 volts” over the full range of output current. With this in mind, I have purchased quite a few used supplies at hamfests – and quite a few times I have been disappointed with the purchase after I checked the item at home.

This has nothing to do with the brand of the power supply – everything from Astrons to no-names have required fixing. (I have a fondness for Astron linear supplies – they are generally well-designed, made in the USA and will run forever if treated well. But they do seem to suffer at other people’s hands.)

Check output

The first thing to do with any second-hand power supply is to keep it well away from expensive radio equipment. Just connect a DC voltmeter to the output terminals, plug the power cord into the 120 volt AC



The first thing to check with any second-hand power supply is the output voltage. This TrippLite PR-3a “12 volt” supply was measured at 19.9 volts.

mains and switch on.

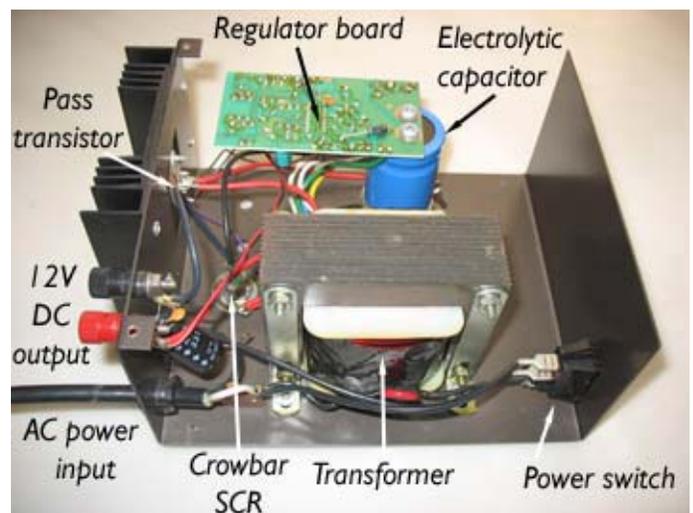
There are several possibilities...

- 1) If the no-load output voltage is around 13.8 volts DC, then all is probably well.
- 2) If the output is around 15-16 volts, then you could

- 3) have an *unregulated* power supply.
- 3) If the no-load voltage is 18 volts or higher, then you have a regulated power supply with a serious fault in the regulating circuitry. Switch off immediately or you may damage internal components. Do **not** connect any of your mobile equipment to the power supply unless you want to destroy it.
- 4) The last possibility is zero output volts DC or AC, or a very low voltage... this won’t damage your equipment, but it does mean the power supply needs repair.

Finding fault

Let’s assume you have a power supply with an incorrect output voltage. The first step in diagnosis is to disconnect the AC supply and take the cover off. Identify the various components such as the transformer, rectifier diodes, smoothing capacitor etc. The regulator components are usually mounted on a small

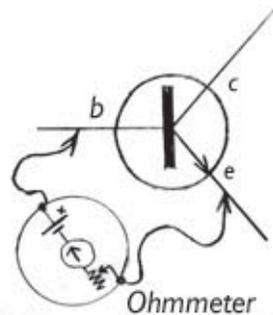


Major components inside an Astron RS-7 regulated power supply.

circuit board. If the power supply has a crowbar circuit to protect the output against high voltage, you may see a large SCR mounted on the chassis. (The crowbar circuit throws a dead short across the terminals whenever the output voltage rises too high – blowing a fuse and protecting the connected equipment.) Keep an eye open for any modifications, repairs or damaged components that might affect operation.

The next step is to acquire a schematic of the equipment, preferably with voltage readings. New Astron equipment usually includes a schematic diagram, but with secondhand equipment you are on your own. Astron schematics are available at <http://www.repeater-builder.com>. For other brands, try an Internet search for the model number, or check out one of the vendors of manuals and schematics such as W7FG’s <http://www.vintagemanuals.com>.

With the circuit diagram to hand, you may be able to make more sense of the problem. Components that might have failed include the AC mains supply fuse, the output transistors, the driver transistor and the regulator IC – if there is one. Astron power supplies make use of the National Semiconductor LM723 voltage regulator IC, whose design is well over thirty years old! Electrolytic capacitors sometimes dry out, and can explode if subjected to an overvoltage. Before applying AC power, carry out a visual check for burnt or modified components, then use an analog volt ohm meter (VOM) to check the integrity of the pass transistors – you should be able to test the p-n junctions while power is off. Also look for blown (open circuit) collectors and emitters and/or short circuit collectors and emitters.



Testing the base-emitter junction of an NPN transistor with a traditional ohmmeter. The junction should conduct in the direction shown but not with test leads reversed. Note that a digital ohmmeter may not be suitable for this test.

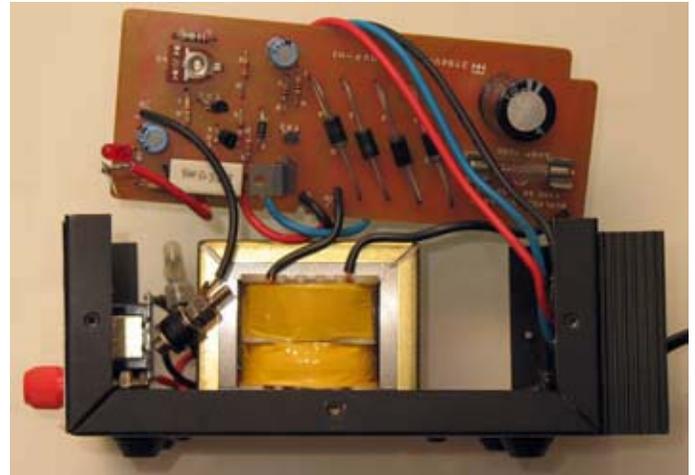
Next apply 120 volt AC power. Since the cover is off the equipment, keep one hand in your pocket and keep one eye on all the live circuitry such as the power switch, AC fuse and transformer primary — do not touch any of them accidentally. With a DC voltmeter, measure the voltage on the power transistors and on the regulator IC. If there are deviations from the test voltages suggested by the schematic, it's time to investigate why. Remember that the final pass transistor should have the full DC supply voltage on its collector, while the emitter should have a reduced voltage – typically 13.8V DC for a nominal 12 volt power supply.

Hamfest specials

In one of my second hand Astron power supplies, purchased at the BARA hamfest, the circuitry had been butchered. After restoration according to the schematic, the output voltage was far too high. Repair of this model RS-7S required replacement of the LM723 regulator integrated circuit, R1 (2.2 ohms), R4 (100 ohms) and the output capacitor C7 (2200 microfarad).

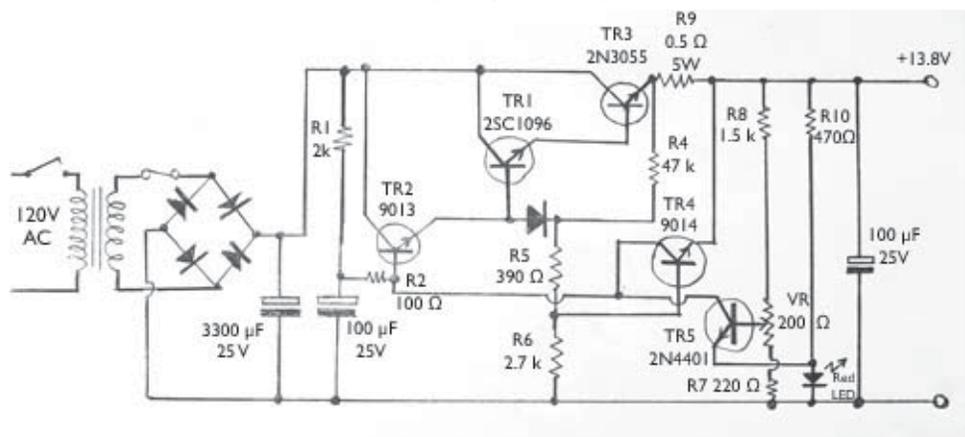
Another power supply that caused me much grief was a small TrippLite PR-3 supply. also purchased at the BARA Hamfest. The output measured over 19 volts —

definitely on the high side. I took the cover off and saw bad news – the circuitry had been extensively modified by the previous owner. Resistors had been removed, one transistor was missing, another transistor had been rewired and extra cables added. I tried to find a schematic, but TrippLite does not publish this information, and nothing was available on the Internet.



TrippLite PR-3 power supply with the circuit board folded out.

Fortunately, at a more recent hamfest, I acquired a “Bentley” DCP-328 power supply, and happily it was in full working order. Even better news – the internal circuitry was almost identical to the TrippLite PR-3. I spent a while drawing out the circuit then compared it with the faulty supply. The missing transistor was a “9014” and the missing resistors could also be filled in. I replaced the missing transistor TR5 with a 2N4401 from Radio Shack, rewired the modified components then cautiously switched on. Success! The power supply was regulating and with a quick adjustment of potentiometer “VR” I was able to set the output voltage to 13.8 volts. I was also able to check that the current limiting foldback transistor TR4 was operating correctly, reducing output voltage as the current reached



Schematic diagram of a repaired Tripp-Lite PR-3 12 volt power supply. Most of the component values were read from the circuit board, but some had to be estimated by comparing with a “Bentley” DCP-328.

around 2.8 amps.

My recent purchase of a “Sublime” MBL-12 power supply at the Orange County hamfest produced another clunker. The output

voltage was far from correct. Investigation showed the unit was “Made in Japan”, with a 2SD389 power transistor mounted on the rear panel, driven by a 2SC1384 transistor. Voltage measurements and resistance measurements revealed a damaged 2SC1384 driver transistor. I replaced it with a TIP31A NPN transistor and everything settled back to normal.



“Sublime” MBL-12 power supply required repair.

Care and feeding

Why are so many of these secondhand hamfest power supplies “goners”? I think it is probably a combination of misuse and neglect.

The first thing to remember is that manufacturer’s descriptions can be wildly optimistic. If you purchased a “7 amp” power supply to run a 7 amp radio, be

prepared for disappointment. Manufacturer’s ratings are usually for “Intermittent Commercial Service”, meaning short transmit times and long receive periods. The safe continuous current is usually no more than 75% of the peak rating. A cooling fan can lengthen the life of power



Front and rear views of an Astron RS-12S power supply with built-in speaker. Note the exposed pass transistors on the back.

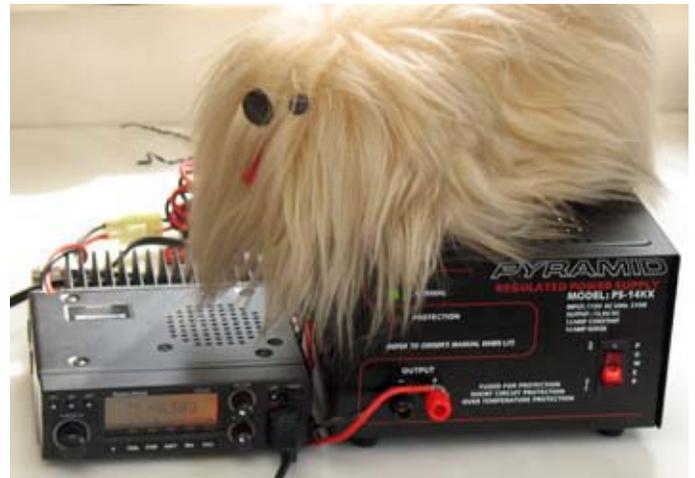
supplies that have to run continuously.

The high power pass transistors on a large, regulated power supply are usually mounted on an external heat sink, with the collectors insulated from chassis ground. Those naked transistors are a potential problem. While the power is on, there will be a relatively high voltage of 20-28 volts DC on the transistor case. Don’t let bare wires drape over the back of the power supply; keep antenna connectors and other grounded items out of the way of the live parts.

Inexpensive power supplies seldom include surge suppressors – it is always a good idea to plug sensitive electronic equipment into a surge-suppressed power strip. Another shortcoming of cheap supplies is that they are unlikely to be protected against over-voltage in the event of a component failure — so keep your expensive radios well-away.

If you have transmitting equipment and the antennas are nearby, it is always a good idea to prevent RF pickup on the power leads. Ferrite chokes on the power supply cables and disk ceramic capacitors decoupling the output posts to ground are recommended.

Power supplies usually have holes in the cabinet and a large heat sink on the back. You and I realize that these vents must be left open to allow air to circulate, but other people cover them up, then act surprised when the power supply overheats and fails.



What’s wrong with this picture? Answer: Dougal is covering the ventilation holes and the heat sink fins of the Pyramid PS-14KX “14 amp” power supply.

Take care of your power supply and it should outlast the equipment that is plugged into it.

- NM9J

Mount Beacon ARC Hamfest

Mount Beacon Hamfest took place on Sunday April 26 at Tymor Park in LaGrangeville, NY. The weather was practically perfect with cloudless skies and a temperature topping 84 deg F in the afternoon.

PCARA had a club table within the main building, manned by Joe WA2MCR, Mike N2EAB and NM9J. Outside in the flea market Bob, N2CBH was enjoying the sunshine in the company of a good number of buyers and sellers. Here are a couple of photographs from the event.



Gary, WB2HNA joins Bob, N2EAB at Bob's spot in the outdoor tailgate section at Mt Beacon ARC Hamfest.



John, N2MTG and Mike, W2AG check items for sale on the club table manned by Joe, WA2MCR and Mike, N2EAB.

Teaching

It has been said that if you stand in the rain you are going to get wet, which simply stated means that if you just show up you are going to learn something.

Everyday we play two important roles in life, the teacher and more importantly that of the student. We can identify these roles through Amateur Radio and our radio club activities.

Often we think of the instructor and student roles in a traditional classroom setting or a training session but when you think about it there are many subtle ways in which we impart knowledge to others or broaden our own understanding of a topic. A lot of what we do in life has been learned from watching others and then trying it ourselves. Think about this when you are on the air. Anyone who has ever tuned a radio receiver is well aware that more people are listening to a conversation on the radio waves than the two stations directly in QSO. Each time we key the transmitter we are teaching by example and hopefully these are all good lessons. Observation and listening on the air is a great way to learn the ropes but eventually we have to experience something to become proficient. Sure, we may stumble in the beginning but experience is a great teacher and provides us with lessons that can never be learned in a classroom.

Eventually the student will become the teacher and the cycle continues.

Know Code: This cute play on words is used by many Morse aficionados who want to world to think that in order to be a "real ham" one must be proficient at telegraphy. Nothing could be further from the truth.

In the early part of the twentieth century many ships at sea used Morse code to communicate and knowledge of the code was required so as to not cause interference to seafaring communications.

In the USA and many other countries Morse proficiency is no longer a requirement for any Amateur Radio license but it is still a favorite operating mode for many — however if we are to be effective communicators in the twenty-first century then we will need to know a lot more than Morse code. Basic computer skills such as saving and sending files, configuring software programs and interfacing transceivers with computers have become characteristic with Amateur Radio today. A working knowledge of wireless networking and digital communication can prove to be invaluable during an emergency.

With so many facets no single activity can define Amateur Radio. Ham radio has always been a journey of discovery and a quest to learn and experience new things. From spark to vacuum tube to solid state to digital, ham radio has always been on the move. It takes a lot more than Morse code to be an effective radio amateur.

Credit: ARRL Club News & American Radio Relay League.



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
(IRLP node: **4214**)

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun May 3: PCARA meeting. Hudson Valley Hospital Center, 3:00 p.m.

Sun Jun 7: PCARA Special Event Station **W4H**.

Hamfests

Sun Apr 26: Mt Beacon ARC Hamfest, Tymor Park, LaGrangeville, NY. 9:00 a.m. **(Club Table)**

Sat May 9: Great South Bay ARC Hamfest, Fireman's Memorial Pk, Hartford St., Lindenhurst, LI, NY. 8:30 a.m.

Sat May 23: Bergen ARA Spring Hamfest, Westwood Regional High School, 701 Ridgewood Rd., Washington Twnshp, NJ. 8:00 a.m.

VE Test Sessions

May 3: Yonkers ARC, Yonkers PD, 1st Precinct, E Grassy Sprain Rd, 8:30 a.m. Contact D. Calabrese, (914) 667-0587.

May 14: WECA, Westchester Cnty Fire Trg Center, 4 Dana Rd., Valhalla, NY. 7:00 p.m. Contact Stanley Rothman (914) 831-3258.

May 18: Columbia Univ VE Team, 2960 Broadway, 115 Havemeyer Hall, New York NY. 6:30 p.m. Contact Alan Crosswell, (212) 854-3754.

May 23: Bergen ARA, Westwood Regional HS, 701 Ridgewood Rd, Washington Twnshp, NJ. 8:00 a.m. Contact Donald C Younger, (201) 265-6583.

May 29: Orange County ARC, Munger Cottage Riverlight Park, Hudson Street, Cornwall, NY 12518. 6:30 p.m. Contact Ronald Torpey, (845) 234-2371.



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