



# PCARA Update



Volume 15, Issue 3 Peekskill / Cortlandt Amateur Radio Association Inc. March 2014

## Watch for the Orange fox

PCARA has taken a table at the Orange County Amateur Radio Club (OCARC) Hamfest on Sunday April 27, at the Wallkill Community Center in Middletown, NY. This would be a great opportunity to start your Spring cleaning a bit early and bring some of your no longer used equipment for sale. Either way, please consider joining us. For more information on the OCARC Hamfest, please



visit their website at: <http://www.ocarc-ny.org/>.

The date for the next PCARA Foxhunt has been chosen. On Saturday May 10, 2014 at 3:00 pm the hunt will begin from the Beach Shopping Center in Peekskill, NY to wherever the Fox lies in wait. Further details will be discussed at the March meeting.

Just a note on the corporate front, the PCARA ARRL Club Affilia-



tion Charter has been renewed. Due to some type of minor oversight the charter had elapsed. We are now once again official, and our information is available for view at:

<http://www.arrl.org/Groups/view/peekskill-cortlandt-ara> . [For a list of affiliated clubs in our local area see page 11. -Ed.]

Our next regularly scheduled meeting is on Sunday March 2, 2014 at 3:00 pm at Hudson Valley Hospital Center in Cortlandt Manor, NY. I look forward to seeing each of you there.



**Affiliated Club**

- 73 de Greg, KB2CQE

## PCARA Officers

President:

Greg Appleyard, KB2CQE, kb2cq at arrl.net

Vice President:

Joe Calabrese, WA2MCR; wa2mcr at arrl.net



Mike N2HTT (right) demonstrates portable APRS operation to Greg, KB2CQE at the February meeting. Read more about Mike's APRS experiences on page 5.

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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. Join net control Karl, N2KZ for news and neighborly information.

# Adventures in DXing

- N2KZ

## Working Real DX

It is hard to be really good at something. I have been a ham radio operator since October 1999. In almost 15 years of operating, I have had some wonderful moments. I've worked a Russian in Antarctica. I sent CW to New Zealand while driving through Toledo, Ohio. A Scotsman once heard my CW as I was sitting under an apartment building, in traffic, on the Cross Bronx Expressway. A ham in Hawaii heard my measly 5 watts of CW on 20 meters. I even earned my Worked All States award never exceeding the 50 watts my wonderful Heathkit HW-16 can provide. It's a wonderful life!

There has to be more! A good lifelong friend, Bob Myers, K2TV, sits high on the DXCC honor roll with 353 countries logged. Talk about inspiration! Bob and I have a lot in common: CW, vintage rigs, low power, field operating and decades of experience as broadcast engineers. It was Bob who begged me to drop my original call, KC2FPM, and trade it in for a nice 1 × 2 vanity call like N2KZ. That might have been the best ham radio advice I have ever received. Thanks, Bob!

Having a 1 × 2 call has helped me complete some of my most challenging low power CW QSOs. One case in point: I once struggled for about 45 minutes to contact 4U1UN at United Nations headquarters in Manhattan. Operating on 6 meters, with ten watts to a folded dipole up in my attic, I relentlessly pleaded my callsign over and over again through a hefty pileup of traffic. At long last, someone down there finally pulled me out! They may have been only 45 miles away, but with my quite modest QRP signal, it became one of my most treasured and unusual QSLs.

Certainly, one of my most rewarding ongoing ham radio activities is hosting the weekly PCARA Old Goats Net on our two meter repeater (Thursday nights at 8:00 pm on 146.67 MHz.) I prepare questions of the week and topics of the week to keep the conversation rolling. Finding new material for these gems becomes quite a challenge in itself! I was thinking about what might be the most ultimate and excellent DX — from stations so, so far away. Where might that be?

Over the years, I have had very good luck regularly working stations in Europe and North and South America. The Pacific Rim, like Australia, New Zealand,



Bob, K2TV

Japan and Alaska can be numerous especially up on ten meters. Some places remain elusive. I have only one logging I can count as African — a special event station from Senegal. The Middle East and the Far East are simply not on my charts. I've never touched base with Egypt, China or India. So, I've created a personal challenge to flex my DX capabilities: Let's try to work India!

Every quest needs a strategy. I began with some logical thinking. When are most American hams on the air? My guess would be from just before suppertime to maybe 10 pm local time. On the East Coast of North America, that equates to 2200 to 0300 UTC. We are five hours *behind* UTC and India is five hours *ahead* of UTC. Therefore, prime time in India for hams might be 1200 to 1700 UTC - 5 pm to 10 pm local time. On the reverse of this theory, early risers in India might be seen between 0000 and 0300 UTC which would be 5 am to 8 am in India.

[Note — the Eastern time zone is 5 hours behind UTC/GMT while on standard time, but only 4 hours behind GMT when we “spring forward” to daylight saving time on Sunday March 9. And India is more accurately 5½ hours ahead of GMT. -Ed.]

My next step was a long consultation with a couple of my favorite DX spotter sites on the Internet: <http://www.dxsummit.fi> and <http://www.dxwatch.com>. I filtered their lists for the last month or so looking for Indian stations with the familiar VU2 prefix. Some operators have truly earned the title of superstar!

Arguably the most active ham in India is Patel

Manubhai, VU2XO who has scored 156,562 hits on QRZ.com! Rakesh Kapoor, VU2RAK is an avid home-



Patel, VU2XO

brewer often found on 20 meters CW and USB using a two-element quad. Another notable is Arabole Basappa, VU2NXM best known for serving as the Chief Telegrapher and a Wireless Instructor for the Indian Navy. He is on the air regularly from his QTH in a little village just outside of Mumbai. Little do they know, they have become targets for this particular



Rakesh, VU2RAK

**DXer!**

Putting these pieces together, I again searched the spotter sites for data to support my theories. My direction seems correct. Indian hams are often heard on 20 or even 10 meters between 1200 and 1500 UTC. American stations with particularly good 'ears' have witnessed India coming in on 40 meters between 0100 and 0200 UTC at 7.130 to 7.135 MHz. A quick look at some grayline charts showing dawn and dusk between New York and India supported my findings. Good food for thought!



*Grayline map for 12:30 UTC on Feb 21, 2014 shows the transition from night to day crossing the Eastern USA and from day to night crossing India.*

### Seeking Asia then

Looking for India during early mornings sounds familiar. I remember being a novice shortwave listener during the mid 1960s. My first encounters with stations very far away were during the mid-evening here in America. Radio Japan, Radio Peking and Radio Australia all forced their way into our country with hundreds of thousands of watts via double-hop skip on unlikely frequencies in the 19, 16 and 13 meter bands. All of these stations had a signature flutter from the double-hop that said: 'I am distant!' They all sought primetime listeners on America's East Coast and they found them!

One very early Saturday morning, I decided to try my Hallicrafters S-120 and see what I could hear on 49 and 31 meters. I heard a huge signal on 9.580 MHz which I thought must be the BBC but turned out to be Radio Australia! Filled with interest, I turned my four tube wonder on again and again at dawn. Amazing audio filled my headphones from Australian regional broadcasts originating in places like Alice Springs and Port Moresby. Eventually, I even logged the elusive All India Radio.

### Seeking India today

Fifty years later and I'm still trying to capture India for my logbook but this time it will be two-way communication! I found more information at the web site of The Amateur Radio Society of India (<http://www.arsi.info>) and Wikipedia where I edu-

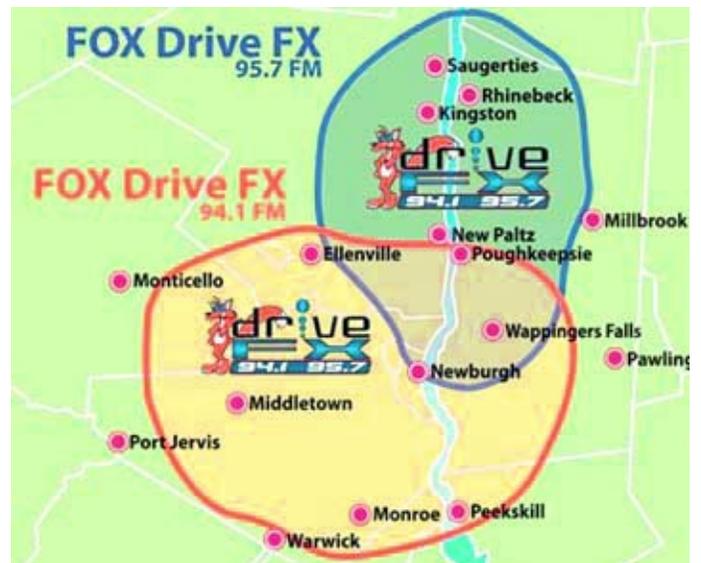
cated myself on Indian frequency allocations and all things ham radio in India.

So now, it is time to watch the DX spots and carefully listen. Patel, VU2XO is only 7257 miles away from my lowly 20 meter dipole in the trees. Should I aim for direct, long path or over-the-pole? Time will tell! Wish me luck!

And avid DXer Glenn Hauser reminds me that All India Radio can be heard easily in North America today, especially between 2045-2230 UTC (3:45 pm to 5:30 pm Eastern) on 11670, 9445 and 7550 kHz. Amazingly strong.

### Small is Big

The new bevy of low power FM radio stations and repeater translators continues to grow. In the Peekskill area, WNYC 93.9 FM listeners have had to adjust to a new and surprisingly robust adjacent-channel signal. Our editor-in-chief, Malcolm NM9J, (a regular WNYC listener) recently noticed newcomer W231BP on nearby 94.1 MHz. Radiating from a tower nearly 900 feet tall a few miles north from the Woodbury Common Premium Outlets mall, W231BP pumps out wild technopop from a nationwide service known as Drive FX. It is one of two stations teamed up to cover the Mid-Hudson Valley



*Coverage map for translator W231BP on 94.1 MHz and for translator W239BL on 95.7 MHz.*

with pounding dance music. Its coverage is strong enough to adequately cover Peekskill and even beyond.

Malcolm has been able to null out most of W231BP's signal from his reception of WNYC-FM, but it wasn't easy!

North of the I-84 / I-684 intersection in Dutchess County is a true micro broadcaster:

Pawling Public Radio. Right now, it is broadcasting with a Part 15 transmitter in the milliwatt range on 101.7 FM. On Valentine's Day, the FCC approved PPR's application for a construction permit to build a 'real' station on 103.7 FM. Their effective radiated power will increase to just under 1.8 watts radiating from a tall tower north of Pawling between Routes 55 and 22. If you can't wait, you can listen to it now on-line at: <http://www.pawlingpublicradio.org/listen-live/> or via mobile applications like TuneIn.



Pawling Public Radio should be very proud of the enthusiastic community of volunteer broadcasters they have amassed over the past few years. PPR already airs



*Creative Writing Circle, with Kim Kovach second from the right*

watch! For example, have a listen to *Stories From the Creative Writing Circle* hosted by local author Kim Kovach. Several writers all read their perspectives based on the same basic topic. You'll be amazed by their individual imaginations!

Over in Danbury, all sorts of new stations are on the horizon. Sacred Heart University's WSHU station group will be launching a 250 watt translator in Danbury on 96.1



FM. My guess is this outlet will carry WSHU's Fairfield County Public Radio programming — a local news and talk service. Connecticut Public Radio will also be building a Danbury translator. Look for them soon on 97.3 FM when you

are within a few miles of the Danbury Fair Mall.

You might remember radio station developer Dennis Jackson featured in last month's *PCARA Update*. Dennis now has another construction permit, this time based in Danbury on 102.5 FM. One can only guess what might show up on this translator. Although it seems to be an allocation for a non-commercial service, the permit states that the programming will not be the same as the main station. When it finally hits the air what we hear may be a surprise to all!

Do many new stations and translators equate to an enjoyable listening experience? Does quantity guarantee quality? The intent of the FCC allowing many new community broadcast outlets was to promote local content and local coverage of current events, news and sports. I wonder if our tired ears will find some relief!

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



## General Classes

### WECA

Westchester Emergency Communications Association will be holding an amateur radio class for the General License in March. Location will be the County Fire Training Center in Valhalla and the first session will be held Tuesday March 18, starting at 7:00 p.m.



Classes will continue on Tuesday evenings, 7:00 - 9:00 p.m. The last class on May 13 will be followed by a VE Test Session, the following Thursday.

WECA Education Director, Larrie W2UL, asks us to spread the word to those who might be interested. If you know anyone who wants to try for the Technician license, they are welcome as well. Full details of WECA activities are available at <http://www.weca.org>.

### Orange County ARC

Orange County Amateur Radio Club will also be organizing a General Class. There will be five sessions held on Saturday mornings, March 8 to April 5, from 9:00 am to 12 noon. Location will be Munger Cottage, 183 Main Street, Cornwall, NY. There will be a subsequent VE Test Session available on Sunday April 27 at the Orange County ARC Hamfest, Town of Wallkill Community Center in Middletown, NY. You can register for the classes at the Orange County ARC web site, <http://www.ocarc-ny.org>.

# APRS on a budget

## The Mobilinkd Bluetooth TNC - N2HTT

I can recall as an adolescent being captivated by the hi-tech gadgets used by James Bond in the movie “Goldfinger”. Not only did he have a really great sports car, complete with ejection seat (a feature that never seemed to be available in any of cars I have owned over the years,) but “Q” had provided him with a radio tracking device that could be used to keep an eye on the evil A. Goldfinger. It came complete with an in-dash display, and a very cool sonar-like “ping” sound



*Aston Martin DB5 mobile tracking system, with moving map display, from the 1964 James Bond movie ‘Goldfinger’.*

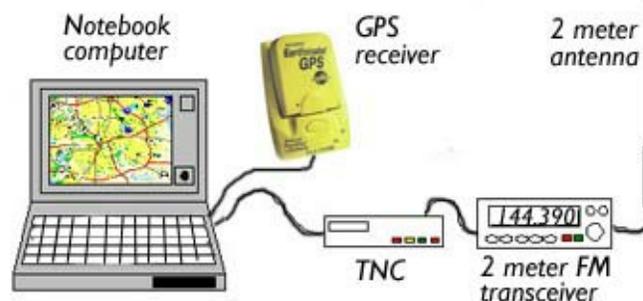
that got faster and higher in pitch as you closed in on your quarry. It looked pretty useful to me. Roughly 20 years later, and unbeknownst to me (I was not a ham yet) Bob Bruinga WB4APR put together the first steps toward that cool tracking device with the development of a tracking system that ran on an Apple II in 1982. Within two years he had a version running on a Commodore VIC-20, which was called Connectionless Emergency Traffic System. By the early 1990’s the system was available for IBM PC’s and was referred to as the Automatic Position Reporting System, the familiar acronym APRS by which we know it today.

APRS is based on the AX.25 amateur network packet protocol, but does not depend on an end-to-end connection to send information (hence “connectionless” in the original name.) It broadcasts packets on a single agreed-upon frequency (144.39 MHz) where they are received and repeated (digipeated) by fixed stations. Packets are sent at 1200 baud, AFSK modulated FM. If you listen on 144.39 for any length of time you will soon hear the typical “br-a-a-a-p” sound of a packet passing by.

In addition to their information content, packets contain path information which determines how many “hops” or digipeats a packet should enjoy. Any station listening on the digipeater frequency can quickly put together a picture of active stations in the immediate area. Digipeated packets are eventually heard by a gateway station, a radio connected to the Internet, and

the information is then shared over the Internet globally.

Post 2000, with the deactivation of GPS Selective Availability (a system that added wild imprecision to the GPS signal received by commercial receivers), personal use of GPS suddenly skyrocketed. APRS benefited as well, and with a portable computer, a GPS receiver, an APRS TNC and an FM radio, portable tracking was yours for the taking. That’s a lot of gear, wires, batteries and expensive gadgets to carry and hook together.



*Traditional mobile APRS set-up*

Of course there were purpose-made rigs with TNC and GPS built in, (mostly Kenwood I think) but they were very, very expensive. I remained intrigued (I was a ham by then), but not enough to jump in.

Now more than a decade later, APRS (which now stands for Automatic Packet Reporting System) has come a long way.

Not just position reporting, but weather conditions, short text messages, telemetry and even email travel over the APRS network. And the number of devices that can interface to a radio have multiplied as well. One of these, the Mobilinkd TNC, just made its debut in the latter months of 2013. This tiny TNC is low cost, and solved a number of problems that were keeping me out of the APRS swimming pool.

The modem uses Bluetooth to connect to your mobile smart phone. You know, the one with the GPS built in, that can function as a terminal or map display, and can run applications? There are several very sophisticated APRS applications available for Android phones, and a few for iPhone as well (I can’t comment on these, I have an Android phone.) So the combination of your phone plus app, wirelessly connected to the Mobilinkd TNC attached to



*Kenwood TM-D710G dual-band FM transceiver has built-in TNC and GPS for mobile APRS operation.*



your radio, give you a full featured, portable APRS station, using bits you already mostly had! I was hooked.



Mike, N2HTT's Mobilinkd Bluetooth KISS TNC for Android phone, with HT interface cable. Unit can run 48 hours from the included 1200 mAh Li-Ion battery.

My mobile APRS station consists of:

- Samsung Galaxy S4 Phone
- APRSDroid application
- Mobilinkd TNC, with the BaoFeng interface cable
- BaoFeng UV-5R handheld radio



N2HTT portable APRS setup with (L to R) Samsung Galaxy S4 smartphone, Mobilinkd Bluetooth TNC, connected to the BaoFeng UV-5R dual-band FM transceiver. Smartphone screen shows received packets.

I already had everything except the TNC and the Android app; my cost of entry was roughly \$64 for the TNC and cable, and \$5.00 for the APRSDroid app, so for under \$70 I have a perfectly usable portable APRS station. To date, I have used this setup stationary at my home, and portable in the car around the back roads of

Cortlandt Manor. I was pleasantly surprised to see that connection to a digipeater is readily available all over the area, even in places where the cell signal is non-existent. (By the way, you can use APRSDroid and your phone to publish your position data over the cell network to the Internet without a radio, but what's the fun of that?)

This summer I hope to be able to use the system portable when I am hiking near our house in central New York State. I don't know whether there are enough digipeaters in the area to make this workable, but I am looking forward to finding out. Given the small size and good battery economy of the component parts, if I can hit a digipeater this should work out pretty well.

You can find more information about the Mobilinkd TNC in the January 2014 issue of *QST* where it was reviewed (page 50 -*Ed.*), or at their website at <http://www.mobilinkd.com>.

- Mike, N2HTT



APRS map display shows location of N2HTT/P at the PCARA meeting.

## Fun with fonts

If the newsletter looks a little different from past issues, that's because the March 2014 *PCARA Update* marks the second time that new page layout software has been used. The February 2014 and March 2014 issues were both assembled with Serif Page-Plus X7 software, rather than the previous Adobe Page-Maker.

Apart from one remark about color of the mast-head, no adverse comments were heard about the February issue. There are still some problems with **fonts**, so work is continuing to improve the look of the newsletter with the new software.

*fi*

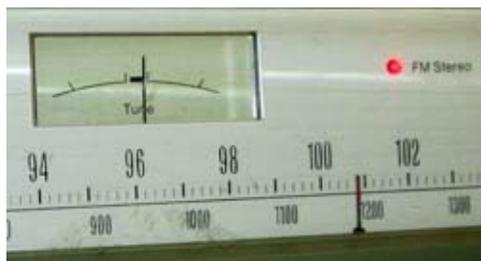
# Memory loss and a super solution

## Dave, my mind is going

It's being going on for quite a while. Memory has been failing in all sorts of places. Fortunately it's not *my* memory that's been failing but memory in my radios, from the very old to fairly new.

## Anthem to analog

Just like elephants, one of the wonderful things about analog radios is that they never forget. Whatever



*Analog radios never forget.*

frequency or station an analog radio was last tuned to — it will be the same next time the set is switched on — unless you happen to knock the VFO dial. Mechanical push-button controls in analog car radios were also no problem. Press the button today and the frequency is recalled. Press the same button next month and the same station plays again. Wonderful!

## Digital distress

Our memory problems began when PLL digital synthesizers first appeared in the late 1970s. It was wonderful to be able to set a radio's frequency to an exact number of kilohertz, then be quite sure that was where the equipment was tuned to. Even better was the ability to store frequency and other data in a memory location, with several memory presets available for selection via push button or rotary control. Now it was possible to recall frequencies and other settings such as repeater offset and PL tone whenever needed.

But what happens when the radio is switched off? Would the last frequency in use be remembered? Not in the case of the IC-701, which reverts to the low edge



*Icom IC-701/IC-710 (1976) was one of the earliest amateur radio transceivers with digital synthesis.*

unless you happen to knock the VFO

of the band selected by the band switch. Would data stored in memory presets still be available? That could be a problem for early digital sets, manufactured at a time when memory was expensive, and a steady supply of electrical power was needed to maintain settings.

## Simple solution

With a car radio or mobile transceiver, the easiest solution for memory loss was to use the 12 volt DC supply from the vehicle battery, which is present whether or not the engine is running. All the radio needs is a supply line direct from the battery.

I have a 1980-vintage Yaesu FT-480R multimode 2 meter transceiver that worked along these lines. It has a grand total of *four* memory locations, and needs a constant 12 volt supply in order to maintain their contents. This was easy in a vehicle, but not so easy in the radio shack where AC power was switched off when not in use. I ended

up with a conventional Astron 12 volt power supply for transmit/receive, and a separate power supply that stayed on when shack power was off, just to maintain memories in the FT-480.

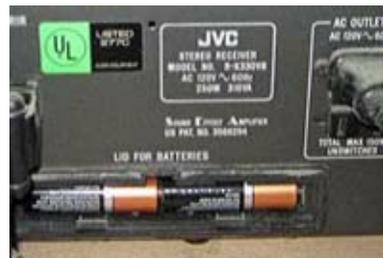
Even today, car radios and vehicle systems need to be supplied with constant DC power to maintain memory settings. This is worth remembering when an automobile battery has to be replaced. Service shops use a “memory saver”, consisting of another battery plus adapter cable that can be plugged into the cigar lighter or into the vehicle's on-board diagnostics (OBD) port. This “memory saver” maintains presets, fault codes and other electronic settings while the main vehicle battery is disconnected.

## Battery back-up

As memory channels became more popular, radio manufacturers realized that relying on external power was inadequate, especially for radio equipment that might be unplugged and moved around. The next approach was to use a standard alkali battery to maintain memory settings. I have a JVC stereo receiver that uses two AA cells and several clock radios that use a 9 volt battery for backup. This works well enough during the life of the battery, which could be several years. Just remember to change the battery



*Yaesu FT-480R (1980) 2 meter SSB/CW/FM transceiver relies on the vehicle battery for memory backup.*



*Battery backup for JVC receiver.*

before it is completely drained and corrosive chemicals begin to ooze out. Fortunately AA and 9 volt batteries are still available today, decades after they were first used for memory backup.

Another solution for some equipment was to include a small nickel cadmium or nickel-metal hydride battery on the circuit board. The battery was charged during normal use, then when AC power was removed, the battery would maintain contents of memory and perhaps keep a real-time-clock running. Unfortunately, nickel cadmium cells do not have a long life and if equipment was not plugged in for a while, the cell might discharge completely.

### Bright as a button

The next development in battery back-up was to replace older-style batteries with something having a much longer life. The usual choice was a lithium button cell or coin cell, as used in 1970s LCD watches. Lithium cells can last a very long time — 10 years or more — provided the current drain is kept low.

Lithium button cells and coin cells are fairly reliable, so manufacturers used components with solder tabs or wire leads that could be soldered directly onto the circuit board.



Icom IC-38A 220 MHz FM transceiver with replacement lithium cell (arrowed) soldered to the circuit board for memory backup.

This approach worked fine until the cell failed and had to be replaced. Now, instead of popping out a standard alkali battery from a battery holder, the radio had to be dismantled, the old lithium cell unsoldered, then a new cell with the same type of connection had to be soldered into position.

Replacing a permanently mounted coin cell can be a painful process. A better approach for radio amateurs is to cut out the old lithium cell then replace it with a cell holder, for example Radio Shack's 270-009 "CR2032 Battery Holder". This makes it much easier to replace an exhausted cell next time.



Battery holder for CR2032 cell.

### Super solution

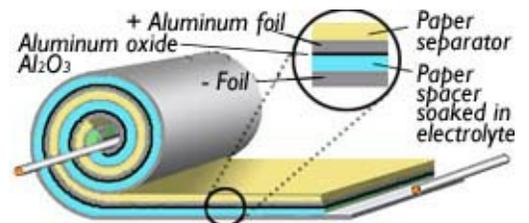
The limited life of electrochemical batteries used for backing-up memory was a problem looking for a

solution. Panasonic/Matsushita came up with a possible answer with the introduction of its "Gold Cap" electric double layer capacitors in 1978. Although these "supercapacitors" are sometimes compared to secondary storage batteries, they do not rely on a chemical reaction to produce electric current. Instead, they utilize the absorption and release of ions.



### Electrolytic capacitors

Before we examine supercapacitors in detail, let's recall how a conventional electrolytic capacitor operates. Electrolytic capacitors are based on electrodes made of metallic aluminum or tantalum. The anode has a thin film of aluminum oxide or tantalum oxide formed on the metal surface which then acts as the dielectric (insulator) between the metal anode and the surrounding liquid electrolyte. A typical electrolyte might be a solution of sodium borate in water with other additives.

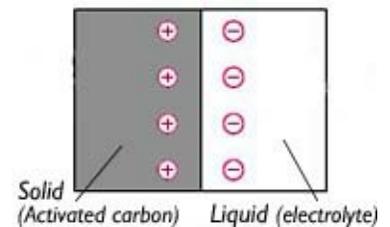


Construction of electrolytic capacitor using etched aluminum foil coated with oxide.

Thanks to that very thin dielectric film of  $Al_2O_3$ , electrical capacity is high, but life can be short due to leakage of the water-based liquid electrolyte.

### Double layer capacitors

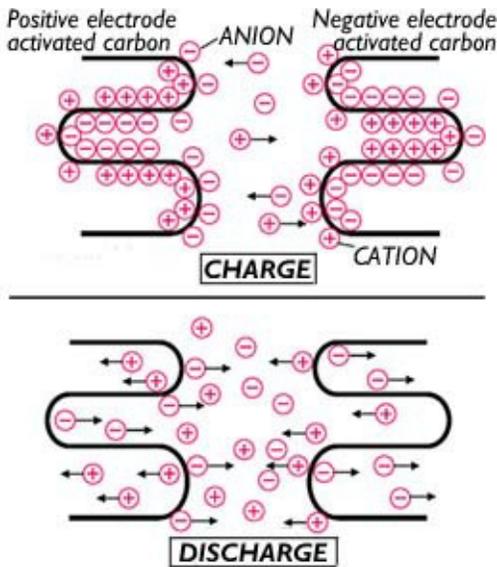
Electric double layer capacitors use a different principle from electrolytic capacitors. Instead of employing a thin layer of metal oxide as dielectric, they rely on a double layer of opposite-charged particles that is built up at the surface of a conducting electrode when it is immersed in a liquid electrolyte. This layer is caused by the electrode repelling ions of like charge and attracting ions with opposite charge.



Electric double layer on the surface of a solid conductor immersed in conductive liquid. [DLC diagrams after Panasonic.]

A special type of carbon with very large surface area — known as activated charcoal or activated carbon — is used as the electrode in double layer capacitors. Activated carbon is prepared by pyrolyzing an organic material such as coconut shells. The material is then impregnated with electrolyte, so there is a huge surface area that acts as the boundary between solid and liquid

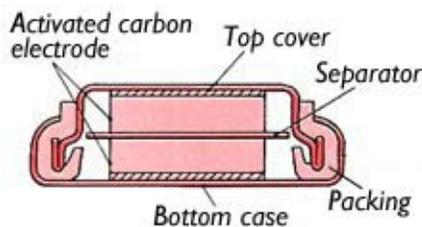
for build-up of the double layer. The electrolyte used is an organic solvent such as propylene carbonate containing a dissolved organic salt, for example tetraethylammonium borofluoride.



Action of an electric double layer capacitor.

During charging of the double layer capacitor, negative anions are attracted from the liquid electrolyte to the surface of the positive electrode while positive cations are attracted to the negative electrode. During discharge, these ions move in the opposite direction.

Construction of a coin-shaped single cell is shown below. There are two electrodes inside the cell made of activated carbon, both of which are impregnated with liquid electrolyte. An insulating separator is positioned between the two carbon electrodes. This separator is highly resistant to penetration by ions in the electrolyte, preventing short circuits. Practical supercapacitors have two or three of these coin cells stacked together.



Coin-shaped double layer capacitor.

### Super capacity

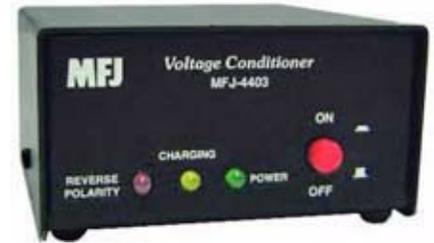
Panasonic claims that its Gold Cap supercapacitors have no limit to the number of charge and discharge cycles they can be subjected to. They do not need a special charging circuit and repeated rapid charge and discharge is acceptable.

These small-size supercapacitors have values in the region of **one farad**, with a typical voltage rating of 5.5V. For comparison, traditional electrolytic capacitors have values measured in microfarads ( $\mu\text{F}$ ). More recent developments



One farad (1.0F) supercapacitor.

have produced larger supercapacitors with greater capacity, suitable for energy storage, starting vehicles and smoothing out DC voltage sags. For example MFJ's MFJ-4403 transceiver voltage conditioner contains **six 25 Farad** supercapacitors wired in series.



MFJ-4403 voltage conditioner.

Small supercapacitors have been adopted by equipment manufacturers to replace lithium button/coin cells for memory backup. They can be found in both mains-powered and battery-powered equipment. The capacitor is charged to 5 volts DC while the equipment is connected to the standard power supply. When the power supply is removed, the supercapacitor slowly discharges — maintaining contents of memory for days or weeks. The advantage of using a supercapacitor is the extreme simplicity of the circuitry. Just include a series resistor to charge/discharge the capacitor from the normal 5V power supply.

Some AM/FM tuners have supercapacitors to maintain the contents of memory. They work satisfactorily, provided the equipment is not disconnected from external power for too long. If you go away for a couple of weeks, you might return to find your memory presets need reprogramming.

### Fixing an Onkyo

I have an Onkyo TX-8211 stereo receiver that has given good service for 14 years. From the following paragraph in the Instruction Manual, I guessed that it must rely on a supercapacitor for memory backup:



Onkyo TX-8211 stereo receiver

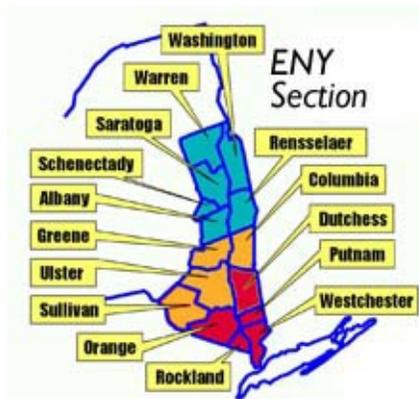
### Memory Preservation

“The unit does not require memory preservation batteries. A built-in power back-up system preserves the contents of memory during power failures and even when the unit is unplugged. The unit must be plugged in order to charge the back-up system. The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time the unit has been unplugged. This period is shorter when the unit is exposed to a highly humid climate.”



# Eastern New York clubs

ARRL's Eastern New York Affiliated Club Coordinator Ron Fish KX1W recently circulated a list of Affiliated clubs in the ENY Section of the Hudson Division. Ron invited recipients to publish the list in their newsletters. So — if you are interested in visiting any of our neighbors, here are details of affiliated ENY clubs located within 25 miles of Peekskill/Cortlandt.



## Crystal Radio Club – W2DMC

Meets 1st Wednesday at 1930 in Rockland County Fire Training Center, Pomona, NY (except July/August)  
Contact: Paul Horenstein, K2PH, prh'at'aol.com, (845) 510-2998

## Mount Beacon ARC – WR2ABB

Meets Monday at 2000 on the air, KC2DAA repeater, 146.97 (-), optional PL 100Hz  
Contact: Andrew Dana Schmidt, W2BOS, andrewds'at'optonline.net, (845) 462-7539

## Orange County ARC, Inc. – W2HO SPECIAL SERVICE CLUB

Meets 3rd Friday at 1930 in Munger Cottage, Cornwall, NY  
Contact: Tom Ray, W2TRR, w2trr'at'ocarc-ny.org, (845) 391-3620

## Peekskill/Cortlandt ARA – W2NYW

Meets 1st Sunday at 1500 in Hudson Valley Hospital Center, Dining Room B  
Contact: Gregory Appleyard, KB2CQE, kb2cq'at'optonline.net, (914) 736-2765

## Putnam Emergency and Amateur Repeater League – K2PUT

Meets 3rd Wednesday at 1900 in TOPS Center, 112 Old Route 6, Camel, NY  
Contact: Laretta Petriello, KC2VMH, kc2vmh'at'gmail.com, (845) 661-7991

## QSY Society – K2QS

Meets 1st Tuesday (Apr-Nov) at 1900 in East Fishkill Community Library, 348 Route 376, Hopewell Jct, NY  
Contact: Shirley Dahlgren, N2SKP, shirleyjean'at'optonline.net, (914) 582-3744

**R.E.C.W.A./Metro 70 Communications – WR2MSN**  
Meets at 1900, 28 Wells Avenue, Bldg 5, 5th Floor, Yonkers OEM, Yonkers, NY  
Contact: Carl Everts, N2VQP, ceve914'at'aol.com, (914) 760-1984

**Rockland Satellite and DX Association – W2LGB**  
Meets Last Friday on the air at 2000, 443.200 (+), PL 114.8 Hz  
Contact: Larry Berkowitz, W2LGB, lberk26'at'gmail.com, (845) 521-1317

**RZS Amateur Radio Club – W2RZS**  
Meets Mondays at 1700, 40 Saw Mill River Road, Hawthorne, NY  
Contact: Robert Schaps, WB2NVR, wb2nvr'at'optonline.net, (914) 262-3535

**SS Seward Institute Amateur Radio Club [School Club] – K2SWD**  
Meets Wednesdays at 1430, SS Seward Institute Technology Lab  
Contact: Christopher Golodich, KA2MGI, ka2mgi'at'hotmail.com, (845) 355-1963

**United States Military Academy ARC [School Club] – W2KGY**  
Meets TBD (building under renovation)  
Contact: Roy Spells, KC2NDQ, roy.spells'at'usma.edu, (845) 494-3155

**Westchester Emergency Communications Association – WB2ZII SPECIAL SERVICE CLUB**  
Meets 2nd Monday at 1900 in Westchester County Center, White Plains, NY  
Contact: R. E. Stevenson, N2AMP, n2amp'at'weca.org, (914) 725-2376

**Yonkers Amateur Radio and Computer Kidz – N2PAL**  
Meets Saturdays at 1400 in Yonkers Police Athletic League Building, Yonkers, NY  
Contact: Michael Rapp, KA2FBL, ka2fbl'at'live.com, (914) 907-6482

**Yonkers ARC – W2YRC SPECIAL SERVICE CLUB**  
Meets 2nd Sunday (except Jul/Aug) at 1200, 1500 Central Park Avenue, Yonkers, NY  
Contact: Efrem Acosta, W2CZ, w2cz'at'optonline.net, (914) 751-2390

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Any changes or updates to this list should be sent to ronf404'at'aol.com. You can find further details of ARRL-Affiliated Clubs on the ARRL web site at <http://www.arrl.org/find-a-club>

# Peekskill / Cortlandt Amateur Radio Association

**Mail:** PCARA, PO Box 146, Crompond, NY 10517

**E-Mail:** mail 'at' pcara.org

**Web site:** <http://www.pcara.org>

**PCARA Update Editor:** Malcolm Pritchard, NM9J

E-mail: NM9J 'at' arrl.net

*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 Mar 2:** PCARA meeting, Hudson Valley Hospital Center, 3:00 p.m.

**Sat May 10:** PCARA Foxhunt. 3:00 p.m. start from Beach Shopping Center.

## Hamfests

**Sun March 2:** LIMARC Hamfest, Levittown Hall 201 Levittown Parkway, Hicksville, NY. 9:00 a.m.

**Sat April 5:** Scout Troop 139/Crew 7373 HAMFest, Conlon Hall, 19 N. William St, Bergenfield, NJ. 9:00 am

**Sun April 27:** Orange County ARC Hamfest, Town of Wallkill Community Center, 2 Wes Warren Drive, Middletown, NY. 8:00 a.m. **Club table.**

## VE Test Sessions

**Mar 1:** Yonkers PAL Ham Radio Club, 127 N Broadway, Yonkers. 2:00 p.m. Michael Rapp (914) 907-6482.

**Mar 2:** Yonkers ARC, Yonkers PD, Grassy Sprain Rd., Yonkers. 8:30 am Contact John Costa, (914) 969-6548.

**Mar 18:** WECA, Westchester Co Fire Trg Cen, 4 Dana Rd., Valhalla, NY. 7:00 pm. S. Rothman, 914 831-3258.

**Mar 17:** Columbia Univ VE Team ARC, 531 Studebaker Bldg, 622 West 132nd Street, New York, NY. 6:30 pm. Alan Crosswell, 212 854-3754.

**Mar 21:** Orange County ARC, Munger Cottage, 183 Main Street, Cornwall NY. 6:00 pm. Thomas Ray



Peekskill / Cortlandt Amateur Radio Association Inc.  
PO Box 146  
Crompond, NY 10517