Got radio?

The November 2016 PCARA monthly meeting was very well attended. We reviewed PCARA's participation in the 36th Annual Harry Chapin Memorial Run Against Hunger and discussed suggestions on how to improve coverage for the 3 mile mark along the 10K run. Tom Raffaelli, WB2NHC, ARES Emergency Coordinator for Westchester County and WECA Emergency Services Director, suggested using one of the WCDES RACES vehicle's remote-base setups to improve communications along the course. We are planning to conduct a test of the system in the Spring of 2017.

Also, we had a "Go Box" Show and Tell including examples from Malcolm, NM9J and Bob, N2CBH. Lou, KD2ITZ brought along a home-brew 2 meter Moxon antenna that he built using the aluminum frame from an old discarded lawn chair. *[See page 12 –Ed.]* Joe, WA2MCR shared PCARA's results from the NYS QSO Party on Saturday October 15th, which was hosted by Joe at his home QTH. Thanks Joe!

Our next meeting is the Annual PCARA **Holiday Dinner** on Sunday December 4, 2016 at 5:00 p.m. at the Cortlandt Colonial Restaurant. The menu is included in this month's edition of the *PCARA Update*. Cost is $40.00 each which includes tax and gratuity. All adult beverages are extra ($$$). Just a reminder that the Election of Officers takes place at the December meeting. As always, ALL ARE WELCOME!

January usually brings thoughts of cold, ice and snow, short days and long dark nights — but for

Cortlandt Colonial Restaurant, venue for the Holiday Dinner. (Remaining half of the rock cut is visible behind.)

PCARA members it brings thoughts of the Annual PCARA Bring and Buy Auction. On Saturday January 8, 2017 at 3:00 p.m. the Annual PCARA Bring and Buy Auction will be held at New York-Presbyterian/Hudson Valley Hospital in Cortlandt Manor, NY. Bring along some of your no-longer-used electronic treasures to try and find them new homes. You just might bring home a few new gems yourself!

If you haven't already joined PCARA's Yahoo Group, now is a great time to give it a try. Activity has picked up thanks to the efforts of Group Administrator Lou, KD2ITZ. Instructions on how to join are included in this month's edition of the *PCARA Update*.

Please note that our next regularly scheduled meeting after the Holiday Dinner is Sunday **January 8**, 2017 (*not Jan 1*) at 3:00 p.m. at New York-Presbyterian/Hudson Valley Hospital 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

Contents

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

Back To The Future!

2016 was the year of the cord cutters. Thousands and thousands of people decided to move away from conventional cable TV and embrace the new world. New antennas suddenly appeared to capture local over-the-air digital TV. Roku, Amazon Fire TV, Apple TV, XBox, PlayStation, Android, PC and iOS TV became welcome and ready substitutes for cable, eagerly pulling in streams of television live and on-demand. This new antenna plus IP solution saved consumers hundreds of dollars yearly. It all made sense. *[IP = Internet Protocol -Ed.]*

Over-the-air plus IP has taken many years to mature. It has been about seven and a half years since June 12, 2009 when all analog broadcast television converted to digital TV. Only now have casual viewers embraced these new and different ways to bring news, sports and entertainment into their homes.

The beginning of digital television came in 1996 when technical standards were first decided. Experimental broadcasts were first seen over **WCBS-DT**, UHF

Space Shuttle launch.

Channel 33 starting as early as 1997. Early adopters were able to view endless test patterns and a demonstration video of a Space Shuttle launching produced by Harris Corporation over and over again!

CBS was the lone wolf of DTV until Fox 5 **WNYW** came on the air. At this point, HDTV programming was only seen for an hour or two during evening prime time and test signals were seen frequently. I remember thinking to myself that these broadcasters knew nobody was watching! I could tune my outboard HDTV tuner to channel 44 for Fox and see a half an hour or more of count-down test bars giving me technical details of American Idol before it was broadcast at 8:00 p.m.

As time passed, all of the analog channels migrated to digital. It was literally years before all stations were broadcasting digital simulcasts. Seven years after the full DTV transition, new digital TV stations continue to appear now and then. At home and at work, a simple antenna can bring in 70 or more chan-nels, all vying for your attention. This is quite a change from the analog days when you were lucky to have 20 channels to choose from.

Multitudes of channels are made possible by digital multiplexing. Broadcast companies can now use their 6 MHz of allocated spectrum space to send half a dozen or more channels to you if they wish. This is great technology, but all this airtime is hard to fill. The need for cost-effective programming has produced a time tunnel! At this writing, many of these add-on virtual channels are stuffed with ancient shows that may be decades and decades old. There are nightly prime time re-runs of black and white classics from the 1950s like 'What's My Line' and 'I've Got A Secret.' Remember that?

'What's My Line' was a TV panel game from the 1950s — with popular versions running on both sides of the Atlantic.

A majority of television models now include receivers for over-the-air reception making cord-cutting easy. Plug in an antenna and perfect HD pictures appear! 'Smart TVs' also have the ability to cull programming from the Internet. Now very popular, Internet TV is still maturing and becoming more and more standardized. Some sets still require outboard adapters like Roku boxes. Other sets can host only some select Internet channels depending on the make and model of the TV.

This Roku 2 streaming media player offers Wi-Fi or Ethernet connection to the Internet and an HDMI port for output to the TV set.

Investors know building a successful Internet streaming service is difficult to do. In analog times, you could be granted a broadcast license, install a transmitter and antenna, flip a switch and everyone would see you instantly. Companies now must spend countless dollars to launch, advertise and develop their businesses for long periods of time to gain name recognition and acceptance. Obtaining a slot on every Smart TV and streaming box is not easy!

Analog Dollars to Digital Dimes

One must always remember that broadcasting is primarily and foremost a business. Technology has advanced to allow us to access thousands of programming options. Only the strong survive! When analog TV first came to New York City, seven TV stations competed for an audience and split the profits therein. How can you possibly float thousands of channels and survive? The pie slices can only be so thin!

Big changes are afoot! Broadcasters are finding new ways to collect profit dollars. No longer are viewers tied to one time only broadcasts. You can now request show playbacks on demand, through a multitude of devices, sometimes with a subscription fee attached. Sports broadcasts often demand steep dollar amounts to view. Advertising certainly still exists, but new dollars have to be found somewhere to balance out the expense of producing programming to make a profit!

Believe it or not, the concept of 24 hour a day continual broadcast programming is waning. Most viewers want immediate access to exactly what they want to see when they want to see it. Keeping a program stream always on the air is expensive and requires human and technical resources. 24/7 networks are not efficient or effective in delivering entertainment. It often also demands the use of precious RF spectrum. How can television improve profits further?

Enter ATSC 3.0

Here we are approaching the year 2017. Viewing audiences are slowly moving towards viewing programming only over the Internet. Why use precious RF spectrum to distribute television when the Internet can do a much better job? A strong business model has to be built to keep the profits coming!

An organization known as the Advanced Television Systems Committee (ATSC) wrote and established the technical standards needed to launch digital TV in the mid 1990s. They are back in the saddle again, now devising how America will see television in the future. It is a complicated plan that is essential to the survival of this beloved experience we know as television!

See if you can follow their logic: RF spectrum is precious. There are only so many frequencies to use. More money can be made from digital services like phones and data than with television. Let's consolidate television to make more room! The ATSC, along with the Federal Communications Commission, plan to do just that!

In the next few years, today's method of over-the-air DTV will be gracefully abandoned and will be replaced by a new standard known as ATSC 3.0. Instead of using 6 MHz of spectrum per broadcaster to distribute programming, the same space will be used instead as a data portal that can transmit a multitude of programs and more, with much greater efficiency and a much more robust signal.

To broaden the bandwidth further, single 6 MHz TV channels can be combined into teams of channels to allow for transmission of ultra high definition television (known as 4K) or beyond. Picture quality will rival true reality. 3D television might finally come to fruition.

Also on the horizon is VR TV – virtual reality – where you will have a spectacular 360 degree view all around you and above and below you as if you are actually a part of the television experience. Audio will also be expanded to 24 or more channels, creating what designers call 'an immersive experience!' Everyone will enjoy this fun, but businessmen also hope big sales and profits lie within!

I recently attended The National Association of Broadcasters trade show at the Javits Center in New York City. An entire area of the convention floor was dedicated to the display and demonstration of VR TV.

A start-up company called **Visbit** showed a clever melding of cell phone and VR technology making the experience inexpensive and attainable. Visbit has developed a clever method of remarkably efficient transmission of very high quality video over today's Internet. Stereoscopic 4K content is received on a cell phone in a dual screen format. The phone locks into a headset you wear over your head.

The Visbit crew pictured at their home in the Plug and Play Tech Center, Sunnyvale, CA.

Visbit also makes use of the gyroscopic properties of the phone to create a Z axis reference to create an absolutely amazing and full 360 degree surround experience. Don't look down if you have vertigo! It's a long, long way down! Whoa! Read all about them at: https://www.visbit.co (*not* .com).

Repack!

Accessory to ATSC 3.0 is another scheme towards efficiency. In an effort to increase the available RF bandwidth for mobile broadband services (i.e. cell

phones and tablets,) the FCC has offered a 'Broadcast Incentive Auction' to clear the way. Broadcasters have four options: Turn in their license and go off the air, combine the operations of two or more broadcasters to one channel and evacuate unused frequencies, move a UHF operation to either low or high VHF channels or move a high VHF channel to a low VHF channel frequency.

After a fairly complex auction bidding process, mobile broadband users (i.e. Verizon, Sprint, AT&T) would pay their winning bids for new spectrum space. In turn, the broadcasters would receive a proportionate amount in return for their vacating spectrum and moving away from precious UHF airspace. Hopefully, current broadcasters will receive quite a bounty for the TV channels they will abandon, making room for tomorrow's mobile devices!

Digital data transmission is most effectively broadcast on frequencies above 300 MHz. TV channels 14 through 51 are now active, spanning from 470 to 698 MHz. That is a lot of expensive and attractive RF real estate! If broadcasters could consolidate their operations to just 21 UHF channels (channels 14 to 34), a full 102 MHz could be reclaimed and auctioned off to mobile broadband. This expansive spectrum could be worth billions and billions of dollars!

Keep in mind, the FCC is encouraging TV stations to move to the lowest frequencies possible. All re-allocations to low and high VHF (channels 2 through 13) are most welcome! But wait! There's more!

When America converted from analog to digital TV, the federal government did all they could to make

Zenith digital to analog converter box.

it a success. If you recall, inexpensive converters were marketed around 2009 to ease the transition from analog TV to all digital. The government even gave you a chance to apply for a $40 credit card to defray the cost of these 'granny boxes.' You could watch DTV on your analog set. Sweet.

This time around converters won't be possible. Current DTV tuners won't

DTV converter coupon.

be able to resolve complex ATSC 3.0 signals. You'll need all-new equipment to solve that. Just when seemingly everyone has bought a 16×9 perspective digital TV, the supplied method for over-the-air TV will become obsolete.

Adding to the chaos, the ATSC is petitioning to make their standard universal for all TV transmission, covering distribution not just over-the-air but via the

Internet, as well. You'll eventually have to buy a new set to enjoy all the new technology. Today's methods will become obsolete!

What incentives does the ATSC offer in exchange for this tumultuous change? Ultra HD video, fantastic sound, hundreds of channels per carrier, robust transmissions that will be so much easier to get (I swear,) interactive data for advertising and even virtual reality. At home or away, it will make your day. (It will also sell a ton of new hardware and accessories. How's that for economic stimulation?)

You can relax for a while. Although casual experimental tests of this technology have already been attempted in our area, the ATSC 3.0 standard has yet to be finalized and no calendar has been set for transition. Some guess that we will not be offered any sign of ATSC 3.0 technology until at least 2018.

From a DXer's standpoint, this may mean the end of the world of TV DX. Hundreds of TV DXers still enjoy logging distant broadcasts via tropo, E-skip and powerful antenna arrays. When ATSC 3.0 takes over, they may try decoding and resolving distant data streams to identify them via digital SID (station ID) codes and other metadata. Will you even remember trying to eke out a visual ID through the flutter and the snow analog TV brought us in the 20th century?
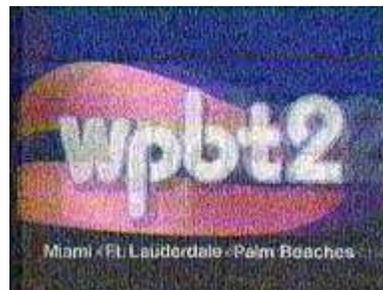
E-skip reception of WPBT analog TV, Channel 2, Miami, FL.

So, ready or not, here comes an even better television experience than ever before. Meticulously detailed simulated reality will be yours! Are you ready to take the plunge? You have at least a couple of years to prepare. Until then, close your eyes and dream all about it!

Straight Key Night

Forget all this high-tech stuff. Tie a knot around your finger. Don't forget the ham radio tradition that starts every year with slow, manually sent Morse Code! ARRL Straight Key Night begins at 7:00 p.m. New Year's eve and continues for 24 hours until New Year's Day at 7:00 p.m. Warm up all your classic vintage tube gear and dust off your straight key. If nothing else, listen in and hear the sound that was CW every day long ago. Ham shacks will be glowing from coast to coast! What a celebration for all who know code. Details at: http://www.arrl.org/straight-key-night .

Until next month, Happy New Year and good DX de Karl N2KZ 'The Old Goat.'

BC125AT review

A handy-scanner for the Manor

If you would like to monitor several different FM frequencies at once, a modern scanner can be an alternative to using multiple amateur radio mobiles or handi-talkies. *PCARA Update* has covered base/mobile scanners in the past — see *PCUD* September 2008 page 4-5 and *PCUD* July 2014, page 10-13 where you will find reviews of the PRO-433 and PRO-197 scanners.

For a recent PCARA event, I thought it would be helpful to carry a **portable** scanner in addition to my usual Icom dual-band handi-talkie. The scanner would allow multiple frequencies to be monitored while maintaining continuous watch on the 2 meter simplex frequency with my HT.

I have a couple of vintage handheld scanners dating from the mid-1990s — a Radio Shack PRO-23 and a PRO-28. They both show their age by characteristic features of their time — a tiny liquid crystal display for the frequency, a limited number of memory channels (30 or 50), no external programming and bulky construction

Radio Shack PRO-23 and PRO-28 portable scanners from the 1990s.

— both radios require *four* AA-cells. Size and batteries add to the weight — around 12 ounces with antenna and batteries installed.

Where to go?

A few years ago, the first place to go for a scanner would have been Radio Shack. But most local stores closed in February 2015, with only the shop at Peekskill's Beach Shopping Center still open. I asked at the Beach about scanners and was told they are no longer stocked, but could be ordered for local pickup.

I was thinking that my only alternative would be mail order. Then the BARA Fall Hamfest came along and I was able to ask KJI Electronics about scanners. Gene, K2KJI had a selection of Uniden/Bearcat models in-stock — the one I selected was an inexpensive Uniden BC125AT.

Uniden BC125AT scanner.

Handy-features

The BC125AT might be a budget scanner, but new features distinguish it from my older handheld models. First is size — this scanner is only 4½" tall by 1" deep, compared with 6¼" × 1½" for my old PRO-28. The main reason for the reduced size is the battery arrangement, which only requires *two* AA cells in place of the four cells in the old scanners. Uniden includes two rechargeable Nickel-Metal Hydride (NiMH) AA cells, with the relatively high

Two rechargeable NiMH cells are included with the BC125AT.

capacity of 2300 mAh. Total weight of the scanner with antenna and batteries is around 9 ounces.

The next distinguishing feature is the large front-panel display. Instead of just showing frequency as calculator-style seven-segment digits, the BC125AT boasts a 2" diagonal 128×64 dot matrix display, capable of presenting four lines of text — with 16 characters per line at the full size of 8×16 pixels. In addition to the frequency in MHz, this display is capable of showing alphanumeric tags for each channel, modulation mode (AM/FM/NFM/Auto), PL™ tone/Digital Coded Squelch and Channel Banks in use. Signal strength is indicated cellphone style with a five-segment bar graph. The display can be backlit with an orange LED — an optional setting allows the backlight to be "on with squelch". Instead of

Dot matrix display of the BC125AT shows signal strength, alpha tag, channel number, frequency, modulation mode, CTCSS (PL tone) and channel banks.

peering at a tiny display, you can easily read the illuminated alpha-tag and frequency from several feet away.

Frequency coverage is good for an inexpensive scanner. The ranges available include:

- 25-54 MHz (CB, 10 meters, 6 meters, VHF Low band)
- 108-174 MHz (Civil air band, 2 meter band, VHF High band including Marine)
- 225-380 MHz (Military air band, *but missing 380-400 MHz*)
- 400-512 MHz (70 cm band, two-way radio UHF bands).

AM mode is available for aircraft reception in the civil and military air bands. The only amateur VHF band missing from the coverage is 1¼ meters, 222-225 MHz.

One step forward, two clicks back

There is one feature of the BC125AT that looks like a backward step to me. All my previous scanners had separate rotary volume and squelch controls. This is such a convenience that I do not enjoy any radio that shrinks these separate controls down to a smaller number of knobs or buttons.

*The BC125AT has a single rotary control which is used to **Sel**ect a channel or menu item, set the **Vol**ume or set the Squelch (**Sql**).*

Unfortunately, the BC125AT only has a **single** rotary control on top of the radio – this serves as channel selector, volume control, squelch control, *and* as the menu scroll up/down control and selection button. You might think this is far too much for a single rotary knob, but in practice the radio software has been well thought-out and works satisfactorily, once you are familiar with its operation. For example…

• To adjust volume — *Press* the rotary scroll control, see volume bar graph on the display, rotate the control up or down for volume level 0-15, then press the control one more time to select the desired level and exit.

• To adjust squelch — First press the orange "Func" key, *then* press the rotary scroll control, see squelch bar graph on the LCD, rotate the control up or down for squelch level 0-15, then press the control one more time to select the new squelch level and exit.

Adjustment of volume level.

In practice, while the volume control will need to be adjusted fairly often, I found the squelch control could be left at its most sensitive setting, Level 2.

The same rotary control can also be used to *select* a memory channel after the "Hold" key has been pressed to stop scanning. The BC125AT has **500** memory channels available, ten times as many as my

old PRO-23. Those 500 channels are arranged in ten banks of 50, making it relatively easy to subdivide sets of memory channels by service or location, or whatever else takes your fancy.

Missing actions

This **is** a budget handheld scanner, so some features are not included. The main difference compared with Uniden's high-end scanners is lack of any digital demodulation — apart from digital coded squelch. There is **no** trunking capability and **no** demodulation of digital voice modes — APCO P25, DMR, etc. A portable scanner with those capabilities such as Uniden's BCD436HP could cost *four times as much* ($450-$600) as a BC125AT. And in our area, there is still plenty of activity on standard FM.

Out of the box

Almost everything you need for portable scanning is included in the Uniden BC125AT cardboard box. As well as the scanner, there is a wrist strap and a 6 inch rubber duck antenna with BNC connector. Two rechargeable NiMH cells are supplied, manufactured by Chinese company Hunan Corun New Energy. The USB cable has a type-A plug at one end, suitable for connecting to a computer — or to a 5V DC USB power supply. A mini-B connector at the other end of the cable plugs into the scanner. Last but not least, there is a 76-page "Owners Manual", printed on actual paper and written in clear English.

Accessories included with the BC125AT. L to R, Owners Manual, NiMH batteries, wrist strap, antenna, USB cable.

If you remove the scanner's belt clip, which is secured by two Phillips screws, the identification plate reveals the serial number, the external power requirement (5V DC at 500mA) and the country of manufacture — which is Vietnam.

Power sources

When running from internal batteries, there is a choice of installing either a pair of standard AA alkaline cells or the supplied NiMH cells. The NiMH batteries

can be charged while in the scanner, using the supplied USB cable to connect to either a computer or a cell phone style charger. The scanner has to be switched off to recharge the batteries and full charging can take a long time — up to 14 hours. For the initial charge, I opted for a different method — I have a Radio Shack "1 Hour AA & AAA Battery Charger" that can recharge two or four AA cells quite quickly. It took over an hour to recharge the two 2300 mAh NiMH cells and they were rather hot at the end of the process.

Initial set up

With the scanner powered up, I carried out a few frequency searches just to make sure the unit was working properly. One of the first signals I heard was an air-to-ground transmission on 132.600 MHz AM — this turned out to be the frequency for New York Air Route Traffic Control Center – Huguenot Sector, covering eastbound

Successful reception of air-to-ground transmission on 132.600 MHz.

arrivals into JFK. (Huguenot VOR/DME is located near Port Jervis).

Storage of scanner frequencies into memory can be performed using the selector knob and numeric keypad. The procedure is fully described in the 'Owners Manual' — though it takes six pages to explain the process if you also need to set an alpha-tag, PL tone / DCS code, modulation mode and delay time.

Thanks for the memory

There is a much easier way to program memory channels into a compatible scanner — by using computer software and a programming cable. In the past I have had success with **BuTel**'s software for base station trunking scanners, so my next action was to pay a visit to the BuTel Software home page, http://www.butel.nl/ . There I found: "Hot Seller: ARC125 for the BC125 and UBC125". On the ARC125 page I could purchase a copy of BuTel's pay-for software. (In hindsight, this may not have been the wisest choice, see later.)

I downloaded the BuTel ARC125 zip file to my Windows 7 notebook computer, extracted the setup exe file using WinZip then ran the installation program. This installed the software onto my computer and placed a USB driver file on the disk drive. I connected the scanner to my notebook computer with the supplied USB cable, and switched on. Automatic driver installation was unsuccessful, instead I had to navigate

in Device Manager to "Other devices-BC125AT", then manually update the driver software, pointing to the folder where the BuTel driver was installed and telling Windows to "Install anyway" after it failed to verify the publisher of the driver software.

After the slightly shaky driver step, I was able to run BuTel's ARC125 software, then communicate with the scanner using port COM7. Reading of data from the scanner was successful, so I began to plan out how to program the 500 memory channels to my liking.
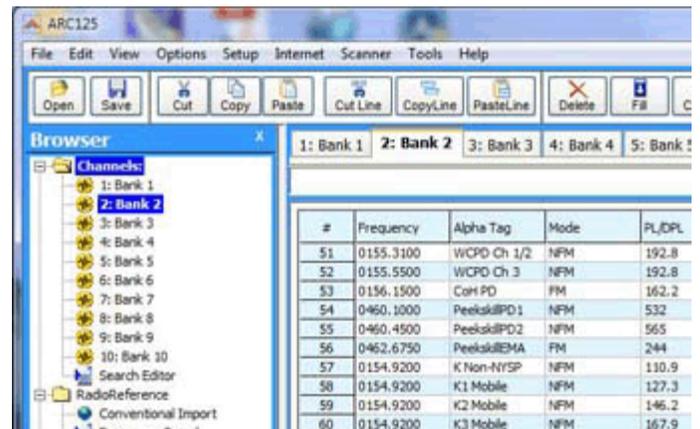
*Screen-shot of BuTel's ARC125 software, displaying the contents of memory in BC125AT channel storage bank #2.*

The BC125AT does not use fancy "object oriented" scanning like my PRO-197. Instead it simply allocates each stored frequency to one of 500 memory channels, split into ten channel storage banks. If you need the same frequency to appear in more than one channel bank then the frequency has to be programmed separately into each desired bank. Any individual channel bank can be turned on or off during scanning by simply pressing the appropriate numeric pad key 1-9 or 0.

I chose an initial bank scheme as follows:

Bank 1 – Local utilities (channel   1- 50)
Bank 2 – Local Police   (channel 51- 100)
Bank 3 – Local Fire   (channel 101-150)
Bank 4 – Local EMS   (channel 151-200)
Bank 5 – Future use   (channel 201-250)
Bank 6 – Marine   (channel 251-300)
Bank 7 – Future use   (channel 301-350)
Bank 8 – Local amateur (channel 351-400)

There is one major advantage of BuTel's scanner software — it can directly import information from the comprehensive frequency databases maintained by web site RadioReference.com. The procedure is similar to other BuTel software — from the ARC125 menu, choose "Internet" → "RadioReference Import". This brings up a window where RadioReference account details can be entered. You can then choose country and state (for example USA – New York), followed by county (Westchester) then click the "Conventional Frequencies" button. A list of Municipalities appears which

can be expanded — for example to show frequencies for just Peekskill.
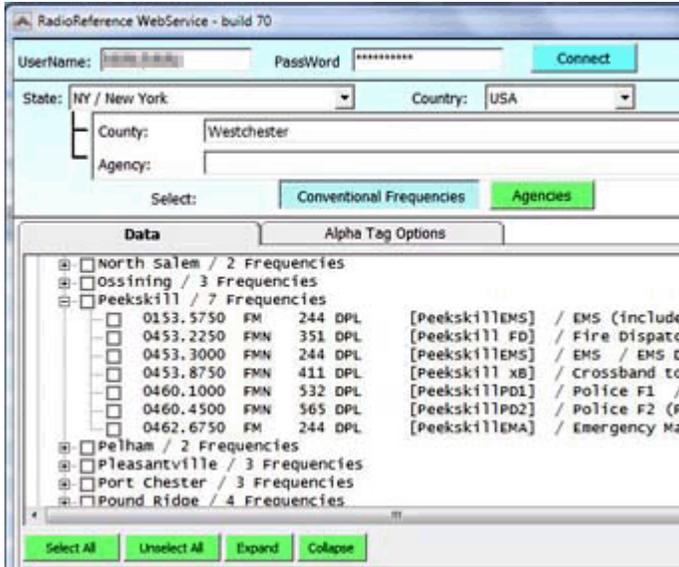
BuTel's ARC125 software can import information from the scanner frequency databases of RadioReference.com.

Bear in mind that *direct* import requires a paid subscription to RadioReference.com, available at https://www.radioreference.com/apps/subscription/. Without a premium subscription, you would have to manually record frequencies of interest from the web then type those details into the programming software.

I was able to import frequency, mode, PL tone and alpha tags for a number of services in and around Peekskill/Cortlandt as well as some services of Westchester County. One downside to the BC125AT is the lack of support for **trunked** radio systems. Trunking employs a limited number of frequencies to serve disparate users arranged into talkgroups. Westchester County's "60 Control" currently employs a trunked UHF-FM system on T-band (470-512 MHz) for communication with fire departments, ambulances and hospitals. The same system is also used by Bee-Line buses. Fire *dispatch* can be heard on other FM frequencies including 46.26 and 453.275 MHz (Mohegan Lake).

After uploading new frequencies to the portable scanner, I was able to check overall performance. Sensitivity of the BC125AT is good, with no sign of overloading from the powerful signals of WHUD (100.7) or Peekskill's Benefield Boulevard water tank, which is line-of-sight

Antennas at Benefield Blvd water tank undergoing maintenance in March 2016.

from my location. Scanning is fast, and the ability to decode PL tones and DCS codes mean the scanner squelch should only open when a desired signal is present.

At your service

Ever since my days in Southport listening to the Liverpool Pilots and Bar Light Vessel, I have enjoyed monitoring Marine frequencies. With the BC125AT, one way to do this is with "Service Search Mode" which covers pre-programmed frequencies for ten different services including "HAM Radio" (Service Search Bank 3), "Railroad" (Bank 5) and "FRS/GMRS/ MURS" (Bank 9). Service Search bank #**4** is pre-programmed with Marine channels in the range 156 – 161 MHz.

Service Search Mode is selected by pressing the orange "Func" key followed by the "Srch/Svc" button. The ten Service Search banks with their pre-programmed frequencies can then be searched. Any bank can be turned on or off just like a channel bank, using number keys 1-9, and 0.

(Incidentally, "Service Search Mode" is not the same as "Custom Search Mode", where a *continuous* range of frequencies is scanned until a signal appears.)

Marine memory mess

In order to fit in with my memory bank scheme, I decided to bypass Marine Service Search Mode and instead program memory channels in Bank 6 with specific marine frequencies. There is a comprehensive list of these frequencies available on RadioReference.com, so I used BuTel's ARC125 software to import frequencies of interest, then uploaded them to the scanner. That is where things began to go wrong!

After the upload, a check on frequencies stored in the scanner and saved by the BuTel software revealed a mess. The correct frequencies for marine channels should increase in 25 kHz steps as shown in the second column below, but some frequencies stored by the BuTel software were quite different.

Channel	Correct freq MHz	Stored freq MHz
Marine 65A	156.275	**156.225**
Marine 06	156.300	156.300
Marine 66A	156.325	**156.300**
Marine 07A	156.350	**156.300**
Marine 67B	156.375	156.375
Marine 08	156.400	**156.375**
Marine 68	156.425	**156.375** (etc.)

Note the incorrect frequencies indicated in bold — those frequencies have all been **rounded up** or **rounded down** to a multiple of 0.075 MHz (75 kHz). Could it be a scanner problem? I checked by entering several marine frequencies manually into scanner memories. They were all stored correctly as multiples of 25 kHz without any rounding errors. I checked

online and found some advice to update firmware and make sure that the latest version of ARC125 was in use. But my new scanner already had the latest firmware from the factory (1.04.02) and the BuTel ARC125 software was at the latest version 1.30.

I sent a message to BuTel explaining the problem — but received no reply. In view of this situation, I cannot fully recommend BuTel's ARC125 product, though all other features of the software worked well.

Cheap and cheerful

My next step was something I should have done in the first place. I paid a visit to the Uniden website and downloaded Uniden's own **free** software for programming the BC125AT. It can be found along with other useful downloads at the following web page: http://info.uniden.com/UnidenMan4/BC125AT .

I followed Uniden's instructions to unzip the downloaded file on my Windows 7 notebook, then ran the "setup.exe" program to install the software. I did not have to install the USB driver again as the driver installed by BuTel was working satisfactorily.

After connecting scanner to computer with the USB cable and running Uniden's "BC125AT_SS" software, communication was established on port COM7. Using the menu choice "Scanner" → "Read from scanner", I was able to read all frequencies and other data stored in the scanner then view details on-screen. I noted the incorrect Marine frequencies, corrected them in the Uniden software then sent them back using "Scanner" → "Write to scanner". I also made sure that I had all the data saved to disk using "File" → "Save".

Uniden's free scanner software for the BC125AT, showing the corrected Marine frequencies in Channel Bank 6.

The Uniden software is significantly faster than BuTel's ARC125 at reading from and writing to the scanner. The only downside is that Uniden's free software cannot import frequency details directly from RadioReference.com.

One hint about using *any* radio programming software — your first step should always be to **read** data

from the radio and save a copy to disk before making any changes within the software then writing data back to the scanner. If you miss out on the **read** step, there is a good chance that you will *overwrite* existing contents of memory when you send data back to the radio.

Accessories

There are a few accessories that I would recommend for the BC125AT scanner. For portable operation always carry some spare batteries, either alkaline or fully-charged NiMH. Current draw of the BC125AT is around 210 mA while scanning, rising to 300mA when a signal is received and the display backlight comes on. Loud audio output adds to the current draw, depending on the volume setting. When fully charged, the supplied 2300mAh cells should be good for 5 – 10 hours of use, depending on the level of activity.

For use in a fixed location, a high-quality 5 volt USB charger plugged into the 120 volt AC supply will be more efficient than using batteries. The external power supply can also recharge the internal NiMH batteries when the radio is switched off. I have successfully

Apple iPod USB power adapter and Motorola phone charger with mini-B plug.

used an Apple power supply with a USB type-A receptacle and an old Motorola phone charger with a mini-B plug at the end of the cable.

One final suggestion — the 6 inch rubber duck antenna supplied with the BC125AT resonates on approx. 162 MHz and works well for portable operation while signals are strong. For weaker signals, a longer antenna can make a big improvement. The **Diamond RH77CA** is a dual-band antenna intended for amateur transmission on 146 and 440 MHz which also acts as an efficient receive antenna for the 120, 150, 300, 450 MHz and higher UHF bands. The RH77CA has a BNC connector, so it is easy to change the antenna over. Length is 14½ inches. A typical signal strength improvement as shown by the BC125AT bar graph is 1-2 bars with the rubber duck, increasing to 4-5 bars with the RH77CA antenna.

- NM9J

RH77CA antenna.

Yahoo! Groups - KD2ITZ

What is the purpose of the PCARA Yahoo! Group?

The PCARA Yahoo! Group allows subscribers to send email messages to other subscribers. This is also known as an **email reflector** or **email list**.

How do I subscribe?

It is an easy three-step process:

1. Send an email to the address below. Even a blank message is fine, the system will automatically process the request.
   peekskill_cortlandt_amateur_radio_assoc-subscribe 'at' yahoogroups.com
2. A message from Yahoo! Groups will be sent to your inbox. Either reply or follow the link to confirm your request. *Please do not ignore this message.*
3. Once a moderator has approved your subscription, a welcome message will be sent.

What sort of messages should be directed toward the Yahoo! Group?

Messages should only pertain to topics surrounding the radio hobby. Examples include radio operating events, technical questions, equipment sales, and club logistics.

How do I send an email to the reflector?

Once you have subscribed, simply send an email to the following address:
peekskill_cortlandt_amateur_radio_assoc 'at' yahoogroups.com

Should I reply to the entire group or just the sender?

Please use your judgement based on the nature of the message. By default replies are sent to the **entire** list.

Are messages delayed until a moderator approves them?

There is no delay.

Can I send an attachment?

Yes.

What is the website address?

https://groups.yahoo.com/Peekskill_Cortlandt_Amateur_Radio_Assoc

Do I need to have a Yahoo! account to participate?

No, the system is open to outside email providers.

Should I subscribe using a secondary address such as W2??? 'at' arrl.net?

No. Many people receive email directed to arrl.net or other forwarding services, then reply with their primary address. Please subscribe to Yahoo! Groups using the primary account you use for message replies. Otherwise, you may experience technical difficulties.

What additional features are available to subscribers with Yahoo! accounts?

Subscribers with Yahoo! accounts can review the archived messages, change their email settings, and post pictures or other files to the Yahoo! Groups website. Members are encouraged to explore other services for photo and file sharing, as most subscribers cannot access the Yahoo! site. The email service is the primary function of our Yahoo! group.

How is my privacy protected?

Messages can only be sent by subscribers to subscribers. Subscribers have been approved by the moderators to prevent access by those who are seeking to send spam messages. The additional information and message archive on the Yahoo! Groups website can only be accessed by subscribers.

What are some suggestions for online safety?

Hacking is always a possibility with online accounts. Yahoo's security has been compromised in the past. PCARA encourages everyone to stay safe online. Create strong passwords, change them regularly, don't reuse them, and don't use the same password on different sites. Two-step verification is another way to prevent unauthorized access.

Why use the PCARA Yahoo! Group instead of sending an email that includes multiple addresses in the cc: field?

Messages sent with multiple addresses in the **cc:** field are often marked as spam by email providers and are not reliably delivered. *[And participants would all need to maintain their own PCARA distribution lists –Ed.]*

Is the Yahoo! Group linked to the Facebook page?

No, messages exchanged among the Yahoo! Groups subscribers do not appear on Facebook.

Whom do I contact for technical assistance?

Lou, KD2ITZ: radiocassetta 'at' gmail 'dot' com

How do I unsubscribe?

Simply send an email to the following address:
peekskill_cortlandt_amateur_radio_assoc-unsubscribe 'at' yahoogroups.com

- Lou, KD2ITZ

Field Day Results

Full results from Field Day 2016 were published in December's *QST* and on the ARRL web site. See: http://www.arrl.org/results-database?event_id=80253 .

After missing out on Field Day 2015 because of the weather, PCARA came back to Field Day 2016 with a vengeance — and plenty of participation. Joe WA2MCR arranged for a rental truck to transport equipment and house two of the stations, while Mike N2HTT launched support ropes high into trees and towers with his pneumatic antenna launcher. Solar cells were supplied by Mike W2IGG and David KD2IRA for "alternate power" points. Points were also claimed for "Youth Participation", "Media Publicity" and the new "Social Media" bonus. PCARA was once again in class 2A with two separate HF stations and one 'free' VHF station, all operating from emergency power provided by N2CBH's Honda generator. See *PCARA Update,* July for a full report. Our 2016 result (in **bold** below) was substantially better than in recent years as shown in the table:

Peekskill/Cortlandt ARA, W2NYW, Class 2A

	2002	2003	2004	2005	2007	2008	2009	2011	2012
QSOs:	718	733	968	853	1019	1109	694	879	968
Power:	2 (<150W)								
Partcpts:	15	11	12	10	14	10	10	14	15
Tot scor:	2,096	2,328	2,996	2,798	2,906	3,460	2,746	2,602	2,920

	2013 *(Class 1A)*	2014	**2016**
QSOs:	775	722	**816**
Power:	2 (<150W)		
Participants:	14	16	**19**
Total score:	2040	2460	**3018**

According to *QST*, there were 36,729 participants in Field Day 2016, the most since 2012. The total number of entries plus check logs (2,735) appears to be a new record. Number of contacts was down on 2015, probably as a result of the low sunspot activity.

Publication of final results by ARRL allows comparison with our neighbors in the Eastern New York section and in ARRL's Hudson Division. Field Day 2016 results show that PCARA was…

- **First** out of two entries in Category 2A, ENY section.
- **Eighth** out of 34 in all of ENY section.
- **Third** out of 13 in Category 2A, Hudson Division.
- **24th** out of 97 in the entire Hudson Division.
- **104th** out of 377 in Category 2A nationwide.
- **498th** out of 2,697 total entries listed.

Congratulations to WECA who came first in the entire Eastern New York section, with 9,584 total points (category 4A). Here is a list of the leading stations in ENY section so you can see how PCARA compared with our friends in neighboring groups, most of whom were in Category 3A or higher.

#	Call	Points	Cat	QSOs	Club
1	N2SF	9,584	4A	2,636	Westchester Em Comm Assn
2	K2CT	8,248	3A	2,372	Albany ARA
3	W2IR	6,830	6A	1,606	Broughton Memorial FD Gp
4	W2WCR	5,216	4A	1,217	Warren Cty RC
5	N2LL	5,040	6A	974	Overloook ARC
6	K2QS	4,650	3A	1,007	QSY Society
7	W2HO	3,502	5A	666	Orange Cty ARC
8	**W2NYW**	**3,018**	**2A**	**816**	**Peekskill / Cortlandt ARA**
9	K2DLL	2,740	4A	535	Saratoga Cty ARA
10	WD2K	2,658	3A	378	Rip Van Winkle ARS
11	W2YRC	2,188	3A	460	Yonkers ARC
12	K2PUT	1,840	3A	2??	Putnam Amateur Em Rep Lgue
13	NY2U	1,826	4A	239	Troy Amateur Radio Assn
14	W2BK	1,778	2E	589	
15	W2EGB	1,316	1A	226	East Greenbush ARA
16	N2FWB	1,150	2B2B	108	
17	W2BEW	1,150	1B2B	82	

Compared with 2014, PCARA made more contacts, scored substantially more points and moved up from 11th to 8th position in ARRL's Eastern New York section. Many factors contributed to this success including increased participation from members old and new, extra attention to Bonus Points, being ready on-time and the innovation of employing a panel truck to move equipment and house stations.

Field Day 2017 is scheduled for the fourth weekend of June — on the 24th and 25th. What could we do to improve matters next time? Your editor suggests moving the multi-band dipole antenna as far as possible from the school buildings because something in the school appears to be a potent source of intermittent noise. On 2 meters, we were only using a mobile whip — it might be worthwhile adding a 2 meter rotary Yagi in order to score more points when the VHF bands are open. Finally, we should try to counter the "audio interference" when two HF stations are operating in close proximity — separation or soundproofing might make the experience more enjoyable for operators and audience alike.   - NM9J

The VHF station for Field Day 2016 was housed under a push-up tent, while the HF stations were kept dry inside a rental truck, visible behind the tent.

Lawn chair Moxon -KD2ITZ

The Moxon Rectangle is a type of a beam antenna comprised of two folded elements. Its performance approaches that of a Yagi and its 50 ohm feed point does not require a matching system. An excellent article written by Malcolm, NM9J, describing the history, physics, construction, and performance of a 2 meter Moxon was published in the October 2016 *PCARA Update* newsletter.
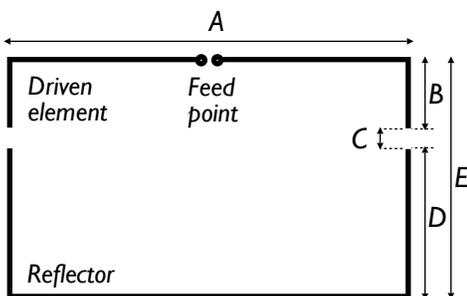
Moxons built with wire elements offer excellent performance, but benefit from structural support, such as the PVC frame described in Malcolm's article. As with any antenna, bandwidth and durability increase in proportion to the diameter of the elements. Large diameters also correlate to greater costs and increased difficulty working with the material. I was fortunate to find a source of aluminum tubing that was both inexpensive and already bent. The aluminum lawn chair is a favorite of both family picnics and antenna builders. A 6 meter squalo design by Dick Stroud, W9SR, has been described in *QST*. ("Six Meters from Your Easy Chair," *QST*, January 2002, pp. 33-34.) A 2 meter Moxon by Julian Blair, WA2WMJ, has been published on the QSY society website: http://qsysociety.org/qsywp/2009/01/2-meter-moxon-antenna/.

Lawn chair employed in the project. Horizontal base was used for the narrow parts of the Moxon Rectangle with vertical legs for the wide parts. [KD2ITZ pic.]

Aluminum lawn chairs are available new from retailers such as the Vermont Country Store. Used chairs, like mine, are often found at low cost when the webbing is no longer intact or attractive. I removed the webbing, and drilled out two rivets from the chair legs. A small rotary pipe cutter easily cuts the tubing. The outer diameter of the tubing is 2.5 cm and the thickness is approximately 1 mm. The width of the chair base is approximately 51 cm. The chair base was used for the narrow parts of the rectangle.

When planning the

Measurements for a Moxon Rectangle are usually given in terms of the dimensions A, B, C, D and E. The gap C between ends is a critical distance.

antenna, I used the calculator on the website of Alan, AB1JX, http://ab1jx.1apps.com/ham/calcs/moxon/index.html. The dimensions for a 146 MHz Moxon are as shown in the table below *[in meters and millimeters –Ed.]*

Freq.	A	B	C	D	E
146 MHz	0.729 m	80.91 mm	49.65 mm	0.1435 m	0.274 m
153.1	0.695 m	76.67 mm	47.79 mm	0.1367 m	0.261 m
Actual	0.695 m	75 mm	48 mm	0.13 m	0.25 m

A careful builder will note that these dimensions are taken from the **center** of the tubing. It wasn't until after I had cut the elements that I realized that I had measured from the outside of the tubing making my dimensions smaller than planned. The width of my antenna was closest to the width of a *153.1 MHz* antenna. I then assembled the antenna to closely match this higher

Moxon Rectangle antenna as originally constructed by Lou KD2ITZ and shown at the November meeting.

frequency. The actual measurements of the antenna are shown in the last row of the table.

Two 20 cm pieces of ½" inner diameter schedule

Driven element feed point showing the internal PVC pipe insulator and hose clamps holding the coaxial cable. [KD2ITZ pics.]

40 PVC pipe were inserted into the aluminum tubing as an insulator between the two elements, and one piece was used as an insulator at the feed point. The spacing at the feed point was 2 mm. The insulators were secured with electrical tape. A 20 cm length of aluminum tubing from the chair was cut lengthwise and used as a clamp to join the two pieces of the reflector. The antenna was fed with 22 cm of RG-58/U coax terminating with an SO-239 connector. The inner conduc-

tor and the outer shield were attached to the feed point using stainless steel hose clamps.

When the antenna was tested at the October

Cut aluminum tubing used as clamp for the reflector.

PCARA meeting with Malcolm's MFJ-259 antenna analyzer, it was resonant at 153 MHz. While I was impressed with how closely the calculations matched the actual performance, I wanted a way to use this antenna without reconfiguring the rectangle. I attached two stainless steel hose clamps to the ends of the driven element to add length. The clamps wrap around the elements and protrude an additional 6 cm from the antenna. This changed the resonant fre-

PVC tubing end-insulator separates the driven element (left) from the reflector. Nearby hose clamp on the driven element was added to adjust resonance.

quency to 146.77 MHz with an SWR less than 1.2:1. The 2:1 SWR bandwidth was between 142.7 and 151.2, making it usable across the 2 meter band.

Final form of Moxon Rectangle as built. The two hose clamps near the end-insulators are not structural, but add length to the driven element to lower SWR on the desired frequency.

I haven't had many opportunities to test the antenna on the air before publishing this article, but the Moxon has outperformed my ¼ wave 2 meter vertical (Diamond MR73S). From my QTH, nearly 19 miles away, I was able to reach the KC2DAA repeater on Mount Beacon. I received a good signal report running 10 watts with the antenna mounted horizontally only 3 feet above ground. Using the ¼ wave vertical, even at heights greater than 12 feet, I have not been able to reach that repeater at all.

I encourage all readers to keep an eye out for old lawn chairs. Although I have spent very little money on this project, it has rewarded me with a wealth of knowledge. I am grateful to NM9J and WA2WMJ for their assistance.

- Lou, KD2ITZ

Holiday Dinner

The 2016 PCARA Holiday Dinner has been arranged at the same location as in recent years, the **Cortlandt Colonial Restaurant** in Cortlandt Manor. The event begins at 5:00 p.m. on Sunday December 4.

The restaurant is located at 714 Old Albany Post Road. Take the Bear Mountain Parkway to the Highland Avenue exit and head north. Proceed down Highland Avenue and cross the bridge. The restaurant and car park are immediately on the left, just before the 'rock cut' (or what's left of it).
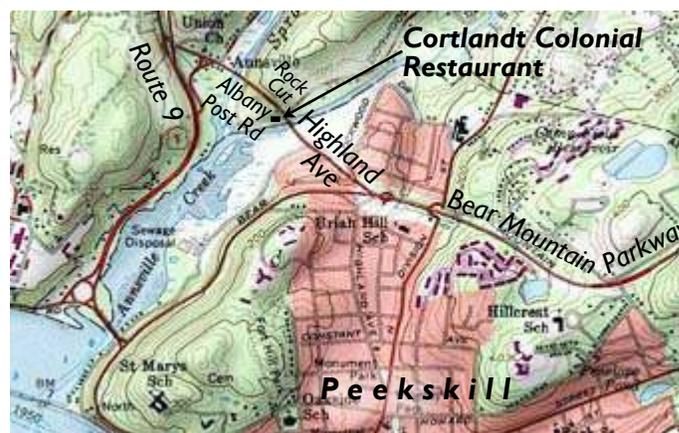
The dinner menu is the same package as in previous years. This includes:

<div style="border:1px solid red">

Open Soup and Salad Bar
Soda, iced tea and soft drinks (unlimited)
❧
choice of:
Prime Ribs of Beef
Grilled New York Strip Steak
Grilled Pork Tenderloin Medallions
Jumbo Shrimp with crabmeat stuffing
Chicken Marsala
Penne ala Vodka
❧
Chocolate cake by Homestyle Desserts

</div>

Cost will be $40.00 per head including service, but not including any alcoholic drinks.

A voice in the night - N2KZ

December 9, 1988 was a cold and blustery night in Manhattan. I had once again found a rare and elusive free parking spot on the Upper West Side. As I was walking downtown to my workplace at ABC Television on West 67th Street, something caught my eye on top of a trash-can. It was the damaged and wounded carcass of an old GE clock radio. After long service, it looked battered and worn and became someone's garbage.

I walked by it and then stopped. Could I let this radio go to waste? Work on the second shift could be long and lonely. I was always looking for a project to occupy my time. Maybe this clock radio was longing to find me. I turned around and picked it up. It was a mess. The clock face was cracked. The white plastic case was damaged and stained. This beastie really needed a lot of love.

GE solid state clock radio from ~1966-7.

I coiled up the A/C cord and carried it with me to work. After taking off my coat and checking in, I decided to dismantle my find to reveal what I had found. It was a typical clock radio: a plastic box with a fiberboard back.

The clock did not work and was damaged beyond repair. The small speaker was intact but also showed signs of wear with a bleached paper cone covered with a thin coating of dust. The radio circuit board was intact and featured a ferrite loopstick antenna. It was more like a self-contained transistor radio than a typical tabletop model. I expected to see a wire loop antenna threaded onto the fiberboard back cover but this was a simple and effective design without elaboration.

I took my chances. I examined everything I had in front of me and decided that it was worthy of an initial test. I used a plier to turn the on/off switch built into the clock to persuade it to go 'on.' Luck was with me. It worked. I could hear some noise come from the speaker. There was hope!

My next step was to completely remove the radio circuit board and clean it off. I persuaded the board out of the plastic chassis. After a few moments of touch-up cleaning with some Q-tips and alcohol it looked pretty good. I had only just begun!

I set aside the board and gave it some thought. I needed a plastic replacement chassis to mount it in, two long stemmed knobs to reach through the box to meet the shafts of the volume and tuning controls, a simple SPST switch to turn it on and off and some sort of replacement speaker. Luckily for me, working in an electronic mainte-nance shop, I had a huge wealth of spare parts at my dis-posal. What could I find?

I used two grey parts bin organizer boxes to make the top and bottom half of the new chassis. The closest long knobs I could find were originally intended as replacement parts for an old Shure microphone mixer that was never put to use. The knob shafts were a little short for what I needed, but they would do. The on/off switch was easy. We had zillions of min-iature bat toggle switches

Radio reassembled inside two plastic bins.

lying around. A replacement speaker for a hefty sounding intercom station gave the little board a voice. Finally, I found a stub of an extension cord to use as a replacement A/C cord. I was all set!

I cored out a couple of large holes for the knobs with a small drill press. I also measured out where the speaker should be and drilled some holes to mount it. Additional holes sufficed as a speaker grille. I was lucky that the new intercom speaker actually came fitted with a nifty thin felt dust cover over the cone.

All I needed now was a small hole for the power switch and another one to fish the A/C cord through. A little bit of quick wiring and soldering, along with a couple of #6 screws and nuts, put it all together. I even found plastic standoffs to neatly mount the radio's circuit board above the surface of the plastic box. A quick align-ment and touch up of the I.F. coils and tuning capacitor trimmers gave it sensitivity enough to pick up stations in a concrete basement. *Voilà!*

I tried to find something to hold the two grey box halves together but there were no brackets about. I used some grey cloth duct tape to temporarily join the two boxes together to make a chassis. This quickie solution remains to this day!

A couple of hours of fussing around and improvisa-tion paid off. I now had a newly reborn AM radio. I used a red Sharpie pen to make a frequency dial and the project was complete. The intercom speaker had a nice big magnet on it and sounded great. It was functional and pleasant to listen to. Nobody would steal two plastic parts bin boxes duct-taped together, would they? This was the perfect radio to complement a workbench!

My co-workers and supervisors liked the results. Sud-denly we had a genuine working radio in our shop. Years later, when I retired the job for another position, I took the grey box radio with me. It became a staple in my base-ment for the longest time and still follows me around the house when I need companionship doing projects or chores now and then. Twenty eight years later the little radio continues to play on and on. Sometimes the best gifts come from quite humble beginnings. I guess it was a good thing I saved it out of the trash!   -Karl, N2KZ

Peekskill / Cortlandt Amateur Radio Association

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Newsletter contributions are always very welcome!
Archive: http://home.lanline.com/~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 NewYork-Presbyterian/Hudson Valley Hospital, Rt. 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 and July/August break.

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 Dec 4: PCARA Holiday Dinner, Cortlandt Colonial Restaurant, 5:00 p.m. Election of officers.
Sun Jan 8, 2017: PCARA Annual Bring and Buy Auction. New York Presbyterian - Hudson Valley Hospital, 3:00 p.m.

Hamfests

Sun Jan 8, 2017: Ham Radio University and ARRL New York City/Long Island Section Convention. Briarcliffe College, 1055 Stewart Ave., Bethpage, NY.

VE Test Sessions

Dec 3, 10, 17, 24, 31: Westchester ARC Radio Barn, 4 Ledgewood Pl, Armonk, NY. 12:00. Pre-reg M. Rapp, (914) 907-6482.
Dec 8: WECA, Westchester Co Fire Trg Cen, 4 Dana Rd., Valhalla, NY. 7:00 p.m. S. Rothman, (914) 949-1463.
Dec 11: Yonkers ARC, Will Library, 1500 Central Ave, Yonkers, NY. 1:00 p.m. Pre-reg John, WB2AUL, 914-969-6548.
Dec 19: Columbia Univ ARC, 531 Studebaker Bldg, 622 W 132nd St, New York. 6:30 pm, Alan Crosswell (212) 854-3754.

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