



Capers

February - 2017

**Candlewood Amateur Radio Association
P.O. Box 741 – Hawleyville, CT 06440-0741**

Visit us on the Web at <http://www.CaraRadioClub.org>

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**CAPERS - the MONTHLY NEWSLETTER of the
Candlewood Amateur Radio Association
Co-Editors: Dan Fegley, W1QK & Jay Albano, N1NRP**

***Next CARA Meeting: Friday, February 13, @ Stony Hill Fire Station
Doors open at 7:30, meeting begins at 8:00 p.m.***

***Meeting topic: Business meeting to include –
Presentation of revised
CARA Constitution and Policy Documents***

President's Message - de AB1WV



Photo Credit: Greg Davis, KB1YHW

Greetings to all:

Well, we had a great presentation last meeting on the ARRL QSL Bureau before our QSL Square Dance and I really learned a lot.

This month we will focus on some business.

We'll have an election for treasurer.

We'll also begin presenting the new constitution and policy documents.

The meeting is this Friday February 10th.

Doors open at 7:30 pm and the meeting will start at 8:00 pm.

I wanted to remind everyone again that it is dues time again.

You must be current on dues to have a vote in meetings - and we have some big votes coming up in the next couple of months, so let's get those dues in.

We will be adjusting the roles for active membership and inclusion in the reflector list before the March meeting.

We are looking for some ideas for more presentations and meeting ideas.

Are there any of you with a project you might like to present?

A 15 or 20 minute presentation goes great with a business meeting.

I'll bet we can all learn a bit too.

Hope to see you all at the meeting.

73
Marcus
AB1WV

**Vice-President's Message -
de N1NRP**



Photo Credit: Greg Davis, KB1YHW

Greetings CARA members.

I had a great time at our January meeting QSL sort. It's been an action-packed month; with many weekends filled with contests. I really enjoyed participating in the ARRL January VHF contest. I operated on 2 meter sideband and 6 meter sideband. I tried out a 2 meter 7-element beam that I picked up at the hamfest for \$10, which didn't seem to work as well as the 3 element yagi that I had up for the last contest. It was fun to see how many stations I could work.

I'm participating in Winter Field Day with the group from the GBARC club in Shelton, CT at the White Hills recreation center. This will be my third year participating – and it sure is fun. Perhaps next year, CARA members would like to set up a station; as this would be a nice club activity.

More Information can be found at:
www.winterfieldday.com.

I'm looking forward to seeing all of you at February's meeting.

73, Jay N1NRP

**January 13 CARA Meeting
Minutes
de N1GSA**

The Pledge of Allegiance was recited. Nominations for Treasurer were presented by Harlan. One name was placed in nomination from the committee: Tom Coury. There was a call for nominations from the floor. Hearing none, a motion to close nominations was presented, seconded, and a unanimous affirmative vote followed.

The Repeater Committee reported on the New Fairfield activation. This location does have some issues, as well as the machine has a few minor problems that are being worked out. Access to this location is certainly convenient to perform these repairs. Motion made to allocate \$1000 for the committee to purchase some further articles for this machine. This should be enough to complete these improvements with some extra funds for incidentals. The treasury is \$6628.73 prior to this expenditure. A vote was called for after some discussion. This carried with a majority. Fund raising has been brought up to help increase our working funds. The Hamfest will be coming up faster than we think. Increased participation by both vendors and visitors is needed.

Our purchase of 2 tripod masts was on display. This includes 13 poles for each, with a center connector piece and a base to make a 28ft guyed mast assembly. W1QK and W1QH have made adapters to put various antennas on top of these masts.

The meeting was closed to move forward with the other business of the evening, which was our annual card sort to help the ARRL card bureau.

Respectfully submitted by:
Gary S. Adams – Secretary

CARA Annual W1-QSL Bureau DX QSL Card Pre-Sort & Pizza Party - another success

de W1QK

Our annual W1-QSL Bureau DX QSL card pre-sort was held on Friday, January 13 at the Stony Hill Fire Department in Bethel, CT. Approximately 4000 cards from the incoming bureau were presorted.

The Yankee Clipper Contest Club, YCCC, co-sponsors the First Call Area bureau.

Many thanks to Eric Williams, KV1J, W1-QSL Bureau Co-Manager, for his presentation about the bureau as well as transporting the boxes of cards to and from our meeting. His son, Matt, W1MAT, is new to the Danbury area and has attended several CARA meetings.

CARA is one of 13 New England clubs who have helped with this process for many years.

All photo credits – KB1YHW



KV1J explained how the W1-QSL Bureau works and how to presort the thousands of cards that we assisted with during our meeting.

Visit the W1-QSL Bureau web site for more information:

<http://www.w1qsl.org/>



KV1J





(L-R) N1CWV, WF1K, W1QH, W1JMA, KC1EHW



KB1ZAC



AB1WV



(L-R) WA1JGA, N1GSA



(L-R) W1QK, W1JGM



(L-R) KC1CYR, W1QH



(L-R) KB1ZAC, AB1WV, KV1J, N1CWV,
WX1T)



W1JGM



W1JMA



WF1K



N1NRP

How the QSL Bureau Works

From the YCCC Website

The W1 QSL bureau receives DX QSLs from outgoing foreign QSL bureaus. We sort the cards and mail them to hams having a first area callsign.

1. The W1 QSL Bureau sells credits rather than SASEs since they are easier to keep track of and postage rate changes are much less of a hassle. We can use exactly the postage which is needed for your shipment. It is also less expensive for you as no funds are wasted on unnecessary postage. When you send credits, a check payable to W1 QSL BUREAU is fine. Send cash at your own risk. The funds are credited to your account, which is then charged a small service fee and face value for postage used.

WE DO NOT ACCEPT ENVELOPES OR STAMPS.

2. Your account is maintained by, and cards shipped from, an individual letter sorter as determined by the first letter following the "1" in your callsign. Each callsign is a separate account. The individual sorters are spread throughout New England. We pick up mail from the Post Office box daily and distribute sorted cards, credits, inquiries, etc. to the individual sorters about 4 times per year.

3. The W1 QSL Bureau sells postage credits. We charge 10 cents plus 10 cents per ounce for each shipment and the face value of the actual postage used. (capped at the first 10 ounces) So a 1 ounce shipment will be 20 cents. A 2 ounce shipment will be 30 cents and so forth and only for the first 10 ounces of large shipments. There are no profits involved. We are all unpaid volunteers. This charge is made to your account when a shipment is made to you. The small amount made from the shipment fee goes toward the cost of the envelope and defraying

the cost of running the bureau. The W1 QSL Bureau also gratefully accepts donations, but these are never required to use the system.

Dave, K1TTT
Software Liaison: Ray, KM1D
Web Development: Matthew, W1MAT

If you have any further questions or comments, please do not hesitate to contact us at the Post Office address given below or by email to w1qsl@w1qsl.org

W1 QSL Bureau
P.O. Box 73
Marlborough, MA 01752-0073

Co-Managers:

Eric Williams KV1J (Administration and Pre-Sort Operations) KV1J @ w1qsl.org
Dennis Egan W1UE (Letter Sort Operations) W1UE @ w1qsl.org

We are thankful for all our volunteers that give many hours of service to help deliver your cards to you.

Pre Sort Team:

We have 18 area hams that presort the incoming cards into bundles for the Letter Sorters. In addition, several clubs hold presorting parties and presort several boxes at a time at club meetings. The following clubs participated during 2015 and 2016:

- Algonquin ARC
- Billerica ARS
- Candlewood ARA
- Clay Center ARC
- Falmouth ARA
- Great Bay RA
- Montachusett ARA
- Nashoba Valley ARC

Letter Sort Team:

A volunteer Letter Sorter is assigned to each first letter of the suffix of the callsigns. These Letter Sorters sort the cards by callsign and mail them to you. They also track the funds you have with the Bureau.

Support Team:

Letter Sorter Program Software Development:



Oh, yes – there was plenty of oven fresh pizza and beverages supplied by CARA for all in attendance.

Many thanks to Eric, KV1J and Dennis, W1UE, and all those who help the W1-QSL Bureau on behalf of New England hams.

CARA's two new GoVerticalUSA Fiberglass Mast Kits:

de W1QK

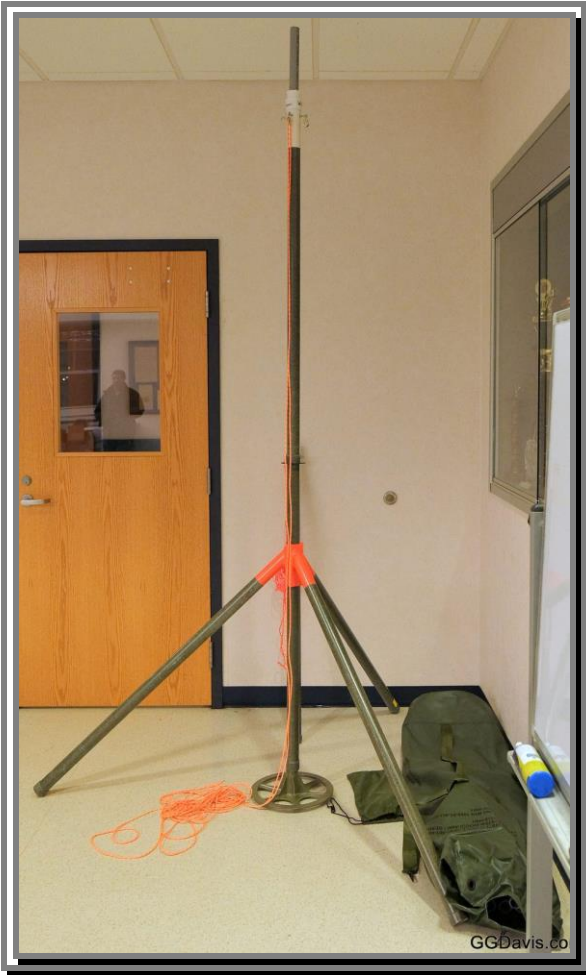


Photo Credit: KB1YHW

On Friday, December 23, Roger, NG1R and Dan, W1QK travelled to Wyoming, Pennsylvania to pick up CARA's two new fiberglass mast kits that were purchased from GoVerticalUSA.

At the January meeting, Harlan, W1QH and Dan, W1QK explained the new fiberglass mast kits that could be used for Field Day and other portable operations.

The special orange colored "tripod", enables setting up a very secure base. Only one each is was used for the demonstration,

Two mast adapters that were engineered and fabricated by W1QK and W1QH were also on display.

One fits over the top section to enable pulling inverted vee wire antennas to the top.

A second type of adapter enables both wire antennas **and** a VHF/UHF Dual-Bander to be installed.

When deployed, this mast system is 28 feet high.

CARA purchased two new complete sets, each of which includes:

- 13 – Four-foot fiberglass mast sections
- 1- Tripod (orange)
- 2- Guy rings
- 6 – Metal guy stakes with carry bag
- 1 – Circular molded plastic base
- 1 – Heavy duty carry bag



28 Ft. Mast with Dual-Bander and Skeleton Sleeve dipole
Photo Credit: W1QK



Photo Credit – W1QH

GoVerticalUSA 28 foot mast kit supporting a 20M/15M Skeleton Sleeve antenna designed and built by NG1R and W1QK.

When deployed in the field, two sections are used to assemble each of the three legs of the base, creating a very stable mounting system.



Mast adapter for lifting wire antennas
Photo Credit: W1QK



Mast adapter for raising wire antennas and supporting Dual-Bander antenna
Photo Credit: W1QK

CARA REPEATER COMMITTEE

4 February 2017

Re: Repeater Committee Feb 2017 Status Report

Greetings CARA Members

CARA Repeater Committee Members 2017

KB1YHW chair, W1QK trustee, AB1WV CARA president-ex officio, N1NRP, W1JGM, W1SOP, WX1T.

CARA members interested in serving, please contact the chair.

CARA Spruce Mountain 2016 Report:

The CARA 70cm repeater on the Yaesu DR-1X repeater unit is behaving and performing well. The KX1EOC Radio Club's APRS digipeater is operating well.

CARA Linked 2m Meter / Motorola Upgrade Project Report:

The Motorola linked repeater system was commissioned at New Fairfield Company A firehouse for initial testing before 26 Nov 2016.



Photo Credit: KB1YHW

On-going tests have revealed an instability with VHF transmit intermittently hanging up

in the TX condition. Testing reveals that the TX hangup VHF MSF5k is concurrent with the COR control line generated within the MSF5k. Our linked repeater system uses an Arcom RC210 external controller / audio router. The COR (carrier-on-receive) is a 0V or 5V logic signal sent from the MSF5k VHF repeater, along with the received / incoming audio.

The Arcom will route the audio back to the MSF5k for TX, and include the courtesy tone, and voice ID features. The Arcom generates a PTT logic control (0v or 5V) to activate the MSF5k transmitter.

Refer to page 26 for the CARA New Fairfield VHF Repeater Block Diagram.

CRC has purchased the programming tool and Motorola RSS (Radio Service Software) required to control the MSF5k units.

Research & Study in the MSF5k documents has been undertaken.

Excellent support info is available here:

<http://www.repeater-builder.com/rbtip/mojoinindex.html>.

Future projects priority:

Motorola 2m Linked Repeater system transplant to Spruce Mtn, Full time CARA 2m Echolink integration from W1QK home station, 6m repeater revival, 1.25 cm repeater revival.

Yours in service,
Gregory G. Davis KB1YHW
CARA 2015-17 Repeater Chair



ARES News & Upcoming events:

Connecticut ARES Net - Area 5

Connecticut ARES Region 5 conducts a monthly net each Wednesday at 7:00 p.m. The CARA Repeater: 147.300 (+600), CTCSS 100.0 will be linked to the NARA repeater for this net.

Please check in - All are welcome.

From the ARRL Contest Update:

The Flex radio folks have shared an [application note regarding grounding in the shack](#). Single point grounding and the differences between RF and electrical grounding are among some of the topics discussed.

<https://helpdesk.flexradio.com/hc/en-us/articles/204779159-Grounding-Systems-in-the-Ham-Shack-Paradigms-Facts-and-Fallacies>



Connecticut Phone Net – CPN

Meets daily: M-F 6:00 p.m. 3.973 MHz.

Sunday: 10:00 a.m. 3.965 MHz.

CARA Contributions:

Wednesday Net control: Harlan, W1QH

Net Manager: Tom, WX1T



Weekly Sunday CARA NETS:

CARA 10M “Rag Chew Net”:

28.490 MHz. 7:00 p.m.

CARA 2M NET:

W1QI Repeater – 7:30 pm

Member & Station News:

Tom Coury, WX1T

Antenna Raising Party

While mowing my lawn late last October I managed to run over my 80 meter double bazooka antenna, which had fallen to the ground a few days before. Unfortunately, the double bazooka did not survive the run-in with my John Deere LT-133 lawn tractor. I felt pretty sad (and foolish). But I lifted my head and went on the Internet to DX Engineering's site to try to find a suitable replacement antenna.



(L-R) N1NRP, W1JGM, W1QH, WX1T, KC1EHW
Photo Credits: N1NRP

Being that I am the Connecticut Phone Net manager and traffic handler on three different National Traffic System (NTS) nets, I need to make sure I'm able to be on the air on 80 and 40 meters twice a day, every day, all year round.

As such, I decided to use my Kenwood TS-440 connected to the N1NRP G5RV antenna to satisfy my 80-meter needs temporarily. For 40 meters, I use my RadioWaze DX40 Off Center Fed dipole with my Kenwood TS-940. So my 40-meter needs were not a problem. To address my 80-meter needs, I decided

to get a Diamond W-735 dual band trapped dipole. This antenna also resonates on 40 meters so I can use this as a backup for my 40 meter OCF. Now that I had a replacement for the double bazooka, I needed to get it up in the air, tuned up, and operational. Finally, the big day came (January 15 – NFL Championship Football Sunday) and I was very fortunate that Jay (N1NRP), Harlan (W1QH), John (W1JGM) and Marlon (KC1EHW) offered to help raise the dual-bander. So Harlan went up to Dan's (W1QK) QTH to secure CARA's pneumatic tennis ball launcher and then the party started.



Assembling the trapped dipole.

The first order of business was to assemble the antenna. So, Harlan and I each took half the antenna and after a little head scratching, the antenna assembly was complete.

While the antenna assembly was taking place, Harlan, Marlon and John were introduced to my grandson's 3-D virtual reality headset. If you haven't ever tried one of these VR headsets, it's quite amazing -as you'll experience total immersion into the game you're playing.

Be aware that there is a risk of getting a little sick or falling down if you are standing. That being said, all three had little or no trouble with the VR headset. I should mention that I tried to get Jay to try out the headset but he did not want any part of it.



KC1EHW immersed in virtual reality.

The second order of business was to decide where to locate the dual-bander - the most important consideration was the antenna proximity to my tower. Soon, I'll have a very large Hy-Gain TH-6 tri-bander up on the tower and the largest element on this antenna is 31 feet long. When I swing the tri-bander around with the rotor, I don't want it to hit the existing wire antennas or the new dual-bander.

After some debate, it was decided that we would get the dual bander as high in the air

as we could so that it would clear the top of the tower and also orient the antenna so that it radiates predominately East/West.

In Harlan's capable hands, the pneumatic launcher did a fine job of getting the ropes up very high (maybe 80 or more feet). Although there was an issue with antenna ropes getting all twisted up in a real mess. But after all was said and done, the dual bander was up in the air and not in danger of interfering with the tower and the tri-bander.

100 feet of LMR-400 coax was connected to the dual-bander, then I used my MFJ-249 Antenna Analyzer to check the resonant frequency on each band.



Both antennas flying high in the trees
Photo Credit: WX1T

As it turned out, the antenna resonates at the low end of each band as advertised. The next step is to raise the resonant frequency of both bands so that the antenna will provide good service on the traffic net frequencies. I also need to get the coax fed into the house, which will be probably be the topic for another CAPERS article.

With the antenna in the air and tested, the

third order of business was eating lunch. I offered to buy lunch for the group and everyone seemed agreeable to that - so off we went to Portofino's Restaurant in New Fairfield.

The food was really good - and a fitting end to this particular antenna raising party.

Stay tuned for the next installment of this exciting adventure, and see you all on the air.

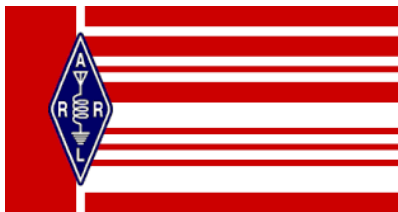
73
Tom WX1T

Thanks for sharing your story with Capers readers Tom – de W1QK

Upcoming Contests:

Feb. 8, 15, 22: CWOps CWT
Feb. 10-12: CQWW WPX RTTY
Feb. 17-19: ARRL DX CW
Feb. 24-26: CQWW 160M SSB
Feb. 26: North Carolina QSO Party

Complete Contest calendar at:
<http://www.hornucopia.com/contestcal/contestcal.html>



From the ARRL

QST de W1AW
ARRL Bulletin 6 ARLB006
From ARRL Headquarters
Newington CT January 26, 2017
To all radio amateurs

SB QST ARL ARLB006
ARRL006 Amateur Radio Parity Act Speeds to U.S. House Passage, Heads to U.S. Senate

Just 10 days after being introduced, the 2017 Amateur Radio Parity Act legislation, H.R. 555, passed the U.S. House of Representatives this week on unanimous consent under a suspension of House rules.

The bill's language is identical to that of the 2015 measure, H.R. 1301, which won House approval late last summer after attracting 126 co-sponsors, but failed to clear the U.S. Senate last fall as the 114th Congress wound down. The new bill, again sponsored by Rep. Adam Kinzinger (R-IL), was introduced on January 13 with initial co-sponsorship by Rep. Joe Courtney (D-CT) and Rep. Greg Walden, W7EQI (R-OR), who chairs the influential House Committee on Energy and Commerce.

H.R. 555 can be found on the web at, <https://www.congress.gov/bill/115th-congress/house-bill/555?r=27>.

"The grassroots effort of Amateur Radio operators across this nation in support of the Amateur Radio Parity Act has been remarkable, nothing like we have ever seen before," ARRL President Rick Roderick, K5UR, said. "To all hams, keep going! Now is the time to charge forward with that same momentum to the Senate. We can do it!" The bill arrives in the U.S. Senate with ample time in which to garner its approval through an education campaign.

"We're very encouraged by the speed with which this bill made it through the House. It's amazing that this happened," said ARRL Hudson Division Director Mike Lisenco, N2YBB, who has been at the forefront of the legislative initiative. "With the help of ARRL members, we believe we can get this done," Lisenco continued. "We came within a hair's breadth last time, with 110,000 e-mails to members of both houses of Congress, as well as letters and telephone calls. Member participation in this final

push is critical."

H.R. 555 calls on the FCC to establish rules prohibiting the application of deed restrictions that preclude Amateur Radio communications on their face or as applied. Deed restrictions would have to impose the minimum practicable restriction on Amateur Radio communications to accomplish the lawful purposes of homeowners association seeking to enforce the restriction.

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/EX

ZCZC AG03

QST de W1AW

ARRL Bulletin 3 ARLB003

From ARRL Headquarters

Newington CT January 12, 2017

To all radio amateurs

SB QST ARL ARLB003

ARLB003 Illegal Drone Transmitters Could Interfere with Air Traffic Control, ARRL Complaint Asserts

In what it calls an "extremely urgent complaint" to the FCC, ARRL has targeted the interference potential of a series of audio/video transmitters used on unmanned aircraft and marketed as Amateur Radio equipment. In a January 10 letter to the FCC Spectrum Enforcement Division, ARRL General Counsel Chris Imlay, W3KD, said the transmitters use frequencies intended for navigational aids, air traffic control radar, air route surveillance radars, and global positioning systems.

"This is, in ARRL's view, a potentially very serious interference problem, and it is respectfully requested that the products referenced...be investigated and removed from the marketplace immediately and that the importers be subjected to normal sanctions," ARRL's letter said. Some of the transmitters operate on frequencies between 1010 and 1280 MHz. "These video transmitters are being marketed ostensibly as Amateur Radio equipment," the League said, "but of the listed frequencies on which the devices operate, only one, 1280 MHz, would be within the Amateur Radio

allocation at 1240-1300 MHz." Even then, ARRL said, operation there would conflict with a channel used for radio location.

ARRL said the use of 1040 and 1080 MHz, which would directly conflict with air traffic control transponder frequencies, represented the greatest threat to the safety of flight. The use of 1010 MHz, employed for aeronautical guidance, could also be problematic.

ARRL cited the Lawmate transmitter and companion 6 W amplifier as examples of problematic devices being marketed in the US. Each costs less than \$100 via the Internet. The device carries no FCC identification number.

"The target market for these devices is the drone hobbyist, not licensed radio amateurs. The device, due to the channel configuration, has no valid Amateur Radio application," ARRL told the FCC.

"While these transmitters are marked as appropriate for amateur use, they cannot be used legally for Amateur Radio communications." In the hands of unlicensed individuals, the transmitters could also cause interference to Amateur Radio communication in the 1.2 GHz band, ARRL contended.

The League said it's obvious that the devices at issue lack proper FCC equipment authorization under FCC Part 15 rules, which require such low-power intentional radiators to be certified.

"Of most concern is the capability of the devices to cripple the operation of the [air traffic control] secondary target/transponder systems," ARRL said. "These illegal transmitters represent a significant hazard to public safety in general and the safety of flight specifically."

The surge in sales of drones has been dramatic. The FAA has predicted that combined commercial and hobby sales will increase from 2.5 million in 2016 to 7 million by 2020.

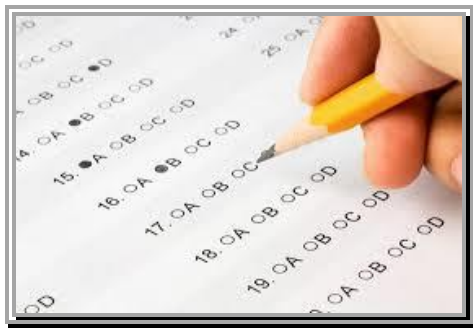
In Exhibit A of the January 10 letter, "Illegal Drones Threaten Public Safety," the League noted that

some of the drones and associated equipment it has come across "are blatantly illegal at multiple levels," with some drone TV transmitters described as "particularly alarming."

"Rated at 6 times over the legal power limit, and on critical air navigation transponder frequencies, these devices represent a real and dangerous threat to the safety of flight, especially when operated from a drone platform that can be hundreds of feet in the air," the exhibit narrative asserted.

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/EX

2017 CARA Ham Exam Schedule:



2017 Amateur radio exams sponsored by CARA at the Stony Hill FD:

March 4
June 10
September 9
December 2

Saturdays - starting at 11:30 a.m. Walk-ins are welcome, but it's helpful if candidates call or e-mail Frank Sileo, N1PE, at 203-438-0218, or send a message to frsileo @ att.net

Other upcoming exam sessions:

There will be VE sessions at the Washington CT firehouse on Bee Brook Road at 9 AM Saturday morning on the following dates:

April 8
July 8

October 14

Please feel free to direct questions to w8zy@hotmail.com

Walk-ins are welcome and we will be testing for all classes.

1/17/2017 & 2/14/17

Sponsor: Northwest Amt

Location: Litchfield Firehouse, Litchfield, CT

Time: 7:00 PM (Walk-ins allowed)

GBARC Winter Field Day

de N1NRP & W1QK

Photo Credits: N1NRP & W1QH

On January 29, Jay - N1NRP, Harlan - W1QH, and Marlon - KC1EHW, went to the White Hills Recreation center in Shelton, CT to meet some friends from the [Greater Bridgeport Amateur Radio Club - GBARC](#), and participate in GBARC's Winter Field Day Event. It was Jay's third, Marlon's second, and Harlan's first time there.



(L-R) NE1CU - Ken, Jay - N1NRP, Marlon - KC1EHW



KB1LTW – David, operating digital modes



(L-R) WD1M – Bob operating CW, W1QH

Our good friends Ned – KA1CVV, David – KB1LTW, and Douglas – WA1SFH and other GBARC members participated. It was a wonderful opportunity for any amateur radio operator to come out and take part in this emergency communications drill. GBARC is a volunteer group of trained communicators dedicated to helping provide vital emergency communications within the greater Bridgeport community.

A portable 30 – foot tower and Tribander for 20/15 and 10 meters, as well as wire antennas and a 40- meter vertical antenna were set up.



Portable tower and Tribander



(L-R) NE1CU – Ken, Gary – WE1M and KC1EHW



Vertical antenna



Mobile mast with 2 Meter Yagi



Mobile antenna base mount



Honda EU-2000i generator

A backup generator provided simulated emergency power.

Gary-WE1M, ensured that there was plenty of hot coffee and goodies to eat for all the operators and their guests. Thank you for your hospitality.

The weather wasn't too bad, the food was great, and we had plenty of fun.

Operating N1KT at the GBARC Winter Field Day 2017 was fantastic.

Perhaps next year, CARA members would like to set up a station; as this would be a nice club activity.

73 - Jay, N1NRP



**CW Ops CW Academy:
Interested in learning CW or improving
your skills?**

Check out www.cwops.org

"CW is an art of incremental improvements over a lifetime, getting ever closer to an ideal of perfection which is always moving and always presents a new horizon to strive for." Carlo Consoli

**CW Keys, Bugs & Paddles, and the
K1EL WinKeyer USB: de W1QK**

Last month's CARA Capers included some brief information about the K1EL Winkeyer. In this issue, I'll explain some of the basics and go beyond to discuss the Winkeyer USB. Many operators like me, who started in the late sixties – the "old days" of ham radio, might remember the advances that were made in "automating" CW transmissions. Of course, there was the reliable J-38 and brass straight keys, and many of us used them during our Novice years to pound out CW contacts on 80M using our crystal controlled transmitters. I used a brass key with my Knight-Kit T-60 transmitter. I remember fellow CARA member, Dave, WA1JGA used a straight key with his Knight-Kit T-150 transmitter.



J-38 Hand Key



Brass CW straight key

As my proficiency and speed improved, I graduated to a semi-automatic key called a Bug. These Bugs were mechanical devices designed to send a string of dits according to the mechanical adjustments that were made to a vibrating (or oscillating) arm depending upon how long the operator held the left lever to the right. However, with the bug, dashes were made separately using the right lever for each dah. I'm pretty sure that my first "bug" looked like this one. Too bad that I sold it at a hamfest many years ago.



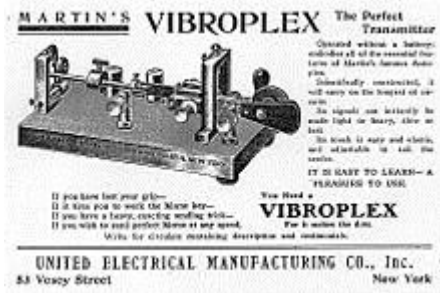
Vibroplex "Bug"

Vibroplex is the brand of side-to-side mechanical, semi-automatic [Morse key](#) first manufactured and sold in 1905 by the Vibroplex Company, after its invention and patent^[1] by Horace Greeley Martin of New York City in 1904. The original device became known as a "bug", most likely due to the

original logo, which showed an "electrified bug". [\[2\]](#)



The Vibroplex Company has been in business continuously for 109 years. As of 2014, [Amateur radio](#) operator Scott E. Robbins, W4PA, became the 8th owner of the Vibroplex Company on December 21, 2009. The company is located in [Knoxville, Tennessee](#).



An advertisement for Martin's Vibroplex from "Telegraph Age", May 1906



A Vibroplex "Iambic Deluxe" keyer paddle

The most common Vibroplex models have a single lever with a flat thumb piece, or paddle, on the left side and a finger piece, or knob, on the right side.

When the knob is pressed from the right, it makes a continuous contact suitable for sending dashes (or *dahs*, as most operators call them).

When the paddle is pressed from the left, a horizontal pendulum at the opposite end of the lever is set into motion, intermittently closing a set of contacts, sending a series of short pulses (*dits*) at a speed that is controlled by the position of the pendulum weight.



The Vibroplex "Bug" logo

A skilled operator can achieve sending speeds in excess of 40 words per minute with a bug. The Vibroplex Original Bug key has been in continuous production for over 100 years, with only minor cosmetic changes.

Numerous Vibroplex keys are available to this day from vendors including DX Engineering. The company presently markets and sells 27 variations of Morse code keys, including the Original Bug, iambic paddles, the Vibrokeyer (an electronic variant of the Original Bug) and traditional straight keys.



Vibroplex Triple Keys – Deluxe \$799.95

Electronic keyers showed up on the commercial market in the late sixties and early seventies with the introduction of the Hallicrafters TO keyer, designed by W9TO (sk). Yep, they used tubes. Many CW operators like me purchased and used these TO keyers as a means to transmit faster code.



Hallicrafters TO Keyer

In the early 1970's, I also built my first electronic keyer using tubes. The schematic was provided by Lou, then WA1GSO, now W1QJ. We had several modifications of these early tube keyers - until we eventually bought the MFJ solid-state models that included memories for contest operating. I still have several MFJ Grand Master memory keyers that I used during CARA Field Days in the 70's and beyond.

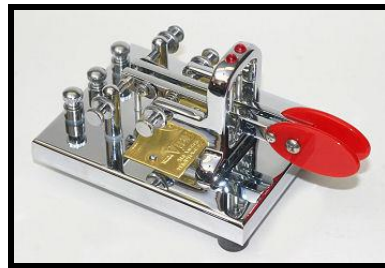


MFJ Grand Master Memory Keyer

The introduction of electronic keyers also created the need for a means to control the keyer, which led to the **CW keyer paddle**. The earliest paddles were introduced by Vibroplex and were marketed as the Vibrokeyer. Both painted and chromed-base versions were brought to the ham radio market.



Vibroplex Vibrokeyer – painted base



Vibroplex Vibrokeyer – chrome base

Similar designs were created. The Brown Brothers Machine company offered their model BTL, followed by the model BTL-A, which are my favorite types of keyer paddles.

They also made the model CTL-B, which combines a straight key with a BLT-A keyer paddle.

Bencher introduced their model BY-1, which is probably the most popular and most widely used CW keyer paddle used today.

What is Winkeyer ?

<http://k1el.tripod.com/WhatisWK.html>

Winkeyer is a low-cost full featured external Morse keyer capable of being fully controlled via a USB interface. It enables software developers to create a fully integrated Morse keyer within their programs, which will operate with Windows XP, Win7, Win8, and now Win10. It ensures accurately timed CW letters and strings; no matter what the host PC is doing.

A Bit of History

Few, if any, serious contesters or DXers would contemplate operating without using a computer-based logging program these days. Contest logging was one of the first serious Amateur Radio applications to appear on the PC and within a few years there were many excellent logging programs on the market. Virtually all of these programs had two things in common:

1. They were DOS-based
2. They offered some form of CW keying

The DOS environment lent itself well to the task of internal CW generation. Firstly, it was possible to capture the internal system clock and harness it to provide the timing for the code generator. Second, DOS inherently supported an interrupt system, which provided an easy way to implement CW keying as a background task. Finally, unfettered access to



Brown Brothers BTL Keyer Paddle



Brown Brothers model BTL-A Paddle



Brown Brothers model CTL-B



Bencher BY-1 Keyer Paddle



WinKeyer USB

the parallel or serial port meant that the key output could be easily interfaced to the rig.

All this changed with the advent of Windows. Indeed, it's fair to state that the huge step **forward** that Windows represented to the general PC user was at least equaled for Radio Amateurs by the step **backwards** in CW keying capability. Windows is a multi-tasking operating system which means that the CPU is shared between many different tasks. This makes it very difficult to accurately time CW due to constant task switching. This results in unevenly timed dits and dahs. For example, in the middle of a word you might have an R with a really long dah in the middle, or an A that sounds more like an M.

WinKeyer is specifically designed to completely overcome this problem.

By offloading CW generation to a separate dedicated microcontroller, all the timing problems disappear. Applications running on the PC send ASCII letters to Winkeyer for conversion to Morse, allowing them to focus on more important things. Winkeyer provides several other crucial features. An external speed control allows the operator to tweak speed based on operating conditions. Having the ability to run fills with a paddle is essential and Winkeyer provides that also. Finally, to add a level of safety, Winkeyer isolates the PC from the radio with optocouplers and provides two sets of KEY/PTT outputs for two radios. Winkeyer provides full control of CW timing and keying options - all programmable from the PC. To add to Winkeyer's utility, a standalone mode is included which means it's a full featured CW keyer able to be operated without a PC connection.



WinKeyer USB kit components



Revised WinKeyer USB



Winkeyer USB rear panel



WinKeyer USB ready for final assembly

So, to summarize, Winkeyer gives the radio operator an ideal morse keyer:

1. Which can be fully integrated with a PC based logging program via a standard USB com port.
2. Supports standard Iambic paddles
3. Provides a physical speed control knob
4. Capable of supporting functions such as call sign type-ahead, paddle interrupt, keyboard CW etc. matching the best practices of internal keyers in existing logging software
5. Simple character by character serial interface, capable of implementation on all platforms and operating systems
6. Fully featured specification, that matches or exceeds the best of the current standalone keyers
7. Capable of being operated standalone or in conjunction with a host
8. Low cost, simple to build kit
9. Compact, unit capable of being powered directly the USB port
10. Open architecture, with schematic (circuit) diagram and full interface specifications published, to enable anyone to integrate the keyer into their software project. A sample 32-bit Windows application with source is also available.
11. Rugged and reliable, including ESD protection and RFI filtering.

If you purchase and assemble the K1EL Winkeyer USB for CW operation at your station, you'll soon discover that your choices of commercially manufactured keyer paddles is somewhat limited, unless you want to really spend the money to buy the "Mercedes Benz" of keyer paddles made by Pietro Begali, I2RTF.

Pietro has designed and is manufacturing a complete line of CW paddles. They're very nice to use, and enable the operator to send flawless high-speed CW. The first time I used a Begali was while operating NEQP at W1AW.

However, using a computer logging program like N1MM+ with a Winkeyer USB is the way to send very nice high speed CW that will get the job done, especially during CW contesting.

Next Month – Homebrew Keyer Paddles

There are many ideas that can be researched on-line on how to fabricate a home-brew keyer paddle as an alternative to buying an expensive Bencher BY-1 paddle for those who want to join in the CW fun. CARA President, Marcus, AB1WV recently fashioned a perfectly usable paddle from some common materials.

While passing through your next hamfest, you may come across several other "vintage" keyer paddles, such as the Brown Brothers model BTL or a Vibroplex Vibrokeyer, which are excellent, even if showing some signs of wear and a bit dusty. I hope that that now, you'll instantly notice the difference between a Vibrokeyer and a Vibroplex Bug.

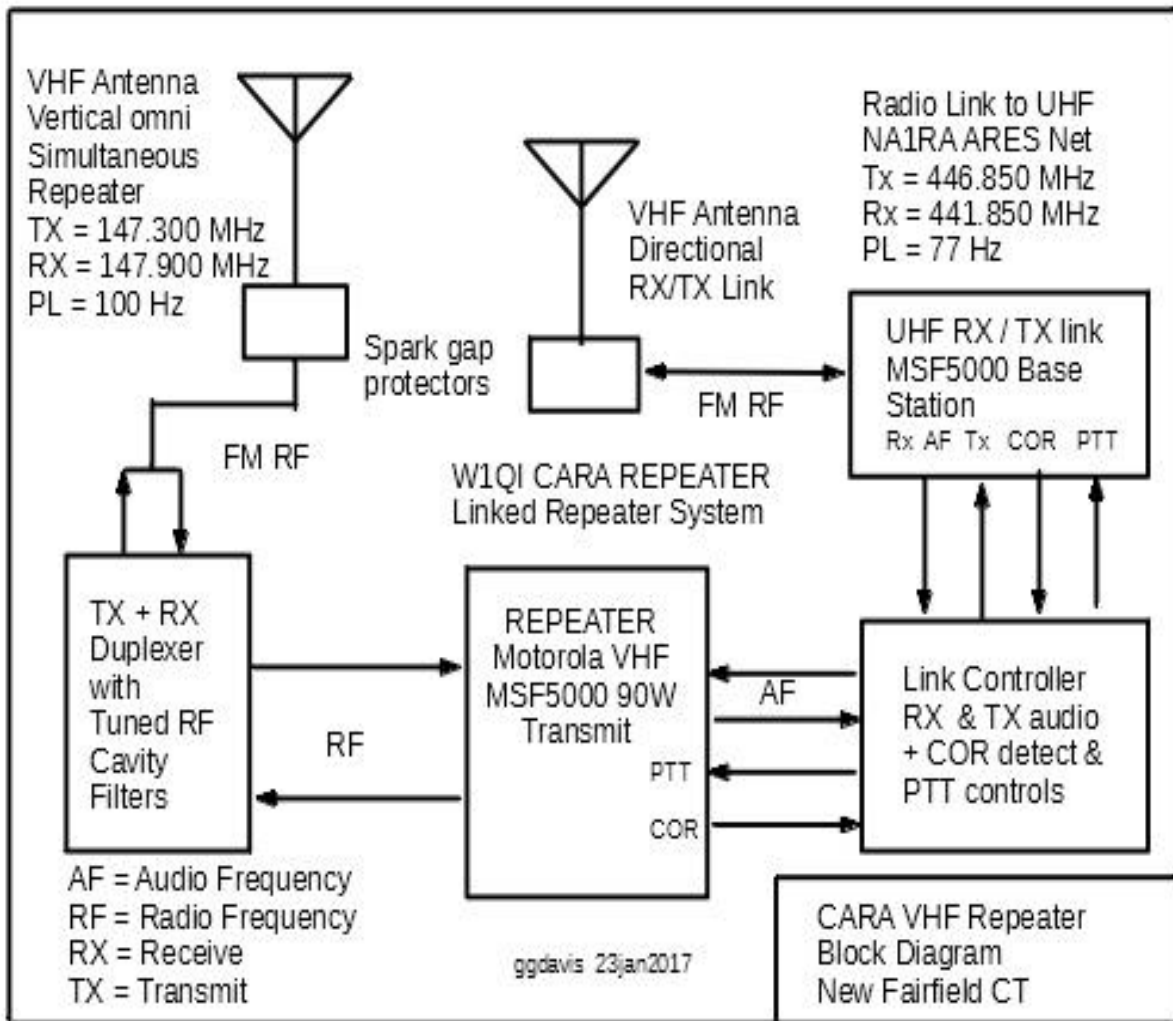
And don't forget that there's nothing wrong with using the reliable J-38 hand key, which to this day is still a viable option – just ask fellow CARA member, Dave - WA1JGA.



To be continued... de W1QK

Worked All Connecticut Counties Award, WACC – Sponsored by CARA:

<http://www.cararadioclub.org/activities>



NOTICE TO CAPERS READERS

CAPERS is an important aspect of our club. It's time for **more participation** with this publication.

CAPERS is looking for ANY and ALL input.

Don't be shy, just send a few words, a picture, link, or short message to Jay Albano, or Dan Fegley, your Co-Editors, and we'll include it.
jjalbano@aol.com, w1qk@snet.net

CAPERS deadline for input:
LAST Friday of the Month preceding the meeting.

CAPERS will be released:
Monday before the scheduled Friday monthly meeting – or earlier if possible.

73- W1QK & N1NRP