CQ de WA2LQO

Seventy Four Years: 1944 -2018

The official independent voice of the Grumman Amateur Radio Club.

JULY 2018 VOLUME 91 NUMBER 7

MEETING - 5:30 PM WEDNESDAY JULY 25 AT HAYPATH ROAD PARK IN OLD BETHPAGE

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

SAVE THE DATE: SUMMER PARTY ON WEDNESDAY AUGUST 15 (third Wednesday of next month) at La Casa Restaurant on Crab Meadow Beach

Every August we dispense with our usual meeting to have a picnic or dinner out. This year we decided again to have dinner at LaCasa, on Long Island Sound at Crab Meadow Beach in Northport. We consistently enjoy it and keep going back. We meet Wednesday August 15th (the THIRD Wednesday in AUGUST) at 5 PM and will sit down to order at 6 PM.

Note that I will send out the August newsletter early enough to remind you.

Directions: Easiest way is Sunken Meadow Pkwy north to last exit, SM5W, for Route 25A west. Proceed to Waterside Rd, turn right and stay on Waterside 2 miles until it ends at the beach. Alternately, you can take Larkfield Rd. all the way north as it becomes Vernon Valley Rd, then Waterside Rd. A third option is to load <445 Waterside Rd, Northport, NY> into your GPS and let it do the navigating.

FIELD DAY DEBRIEF

Field Day was great this year. The weather was perfect, and all in attendance enjoyed it immensely. Our Field Day Chairman, Ray W2DKM reports that the number of stations participating nationwide seemed to be lower than in past years, and band conditions weren't particularly good, especially on Saturday, with a lot of static crashes from distant thunderstorms. At least those thunderstorms remained distant and we did not have to put up with any of them directly. The nationwide weather and propagation improved on Sunday.

The preliminary scoring results, as reported by Ray, are that we had 32 contacts on 75/80 meters, 166 contacts on 40 meters, 66 contacts on 20 meters, and 22 contacts on 15 meters. Our submitted score was calculated as 832 points.

A MEANDERING STORY (WELL, I THINK IT'S CUTE)

I have been a member of both the Grumman Amateur Radio Club and LIMARC for decades now. As such I often chat on the LIMARC flagship repeater on 146.85, which is arguably the most popular repeater in the area. As such I often am asked questions from technician licensees or newly licensed generals about setting up a HF station.

What to do about a starter rig, especially in cases where money is a limiting issue, is quite complicated. Antennas though, in my mind, are a simpler subject. Over the years I've seen ham

after ham paralyzed over deciding what antenna to get. They just keep going around in circles which bands to operate, whether to get a single band antenna (which band?), or multiband antenna (which bands?). Then there are vertical antennas, horizontal antennas, beams, and more. The end result is that they do nothing.

I have developed a standard answer to break the logjam. I tell them to put up a nice simple 40 meter dipole. It immediately gives them 40 meters, the most reliable HF band for just making contacts, plus 15 meters, while notoriously erratic, can still yield incredible DX when the band is open. An antenna tuner, or slapping on some additional 16 foot wires in parallel, can add the 20 meter band to the mix. Something simple and cheap can be slapped together for minimal cost, that allows you to get on the air and learn what HF is about. After a bit, you likely will decide what you want to do on ham radio, and will now be ready to start shopping for the antenna that you now know is where you want to go.

When I tell this to someone, there is always an "expert" who joins in and insists that one absolutely must use an antenna at a specific height, or must use a proper balun, or perhaps specific feedline. I try to say that for optimum performance they are completely correct, but don't let any of that stop you from getting started; I make the point that you can have a nice ragchew with Ohio or Florida without any of that. Yes, without them you cannot be sure of your antenna pattern, but ideal antenna patterns only exist on infinite conducting flat ground planes …. kinda hard to come by 'round these here parts. Running an antenna alongside the house and through the trees, will cause a random coverage pattern regardless of how precisely you make and hang the antenna. Invariably, I am accused of heresy, and expect that one of these days I may be burned at the stake for blasphemy.

Well, some years ago I got a little battery operated SWL receiver (Grundig YB400) to take camping with me. I decided rather than be frustrated with QRP, I would just listen. That radio works decently on the ham bands (if you want to get such a receiver, make absolutely sure it has "SSB" listed in the description; they usually start at $150). I decided to put together a long-wire antenna, and on a whim, I used 33 feet of wire on either side of a cheap plastic insulator, with another cheap plastic insulator and some string on each end. I soldered a length of RG-58/U onto the center and had basically the worst possible 40 meter antenna imaginable.

I have an old Kenwood TS-830S that I usually run on 20 SSB at Field Day. It is one of the old hybrid rigs with vacuum tube finals. This year we noted that the Plate Tuning control was erratic, and once we got it where we wanted it, decided to not touch it again. It served well for Field Day, but when I got home I decided to see if I might be able to troubleshoot; After all, the rig is old enough that it is not all surface mount components on 25 mil spacing like the new rigs, so it might be repairable. It was a piece of cake. It opened right up and I immediately saw that a fiber shaft coupling was worn and the setscrew wasn't holding tight. A slightly thicker screw cut its own thread in the soft fiber and held tightly. The rig tuned up beautifully into a dummy load. The next test was to put it on the air.

I had cannibalized my shack for field day, and setting it back up just to test the Kenwood was daunting. I got an idea. It was a magnificent day, so I set up a folding card table and extension cord in the back yard. I found the old SWL antenna I just described, not quite sure it wouldn't burst into flame when I put power to it, and ran it across the backyard all of 8 feet up, mostly to prevent my strangling myself running into it. To my pleasant surprise, it loaded OK with no fireworks. I tuned around 40CW a bit, and then got a wild and crazy idea. I got my antenna tuner and loaded it up on 20SSB just for grins and giggles. To my surprise, considering it was less than 24 hours since Field Day, I heard a DX station working a small pileup of US stations. It was 9A9A in Croatia, who I now understand, is pretty well known for this. I listened a bit, and with a smirk, I gave him a few calls. To my shock, he CAME BACK TO ME. So, with an absolute minimum HF antenna, I worked Croatia, with a 5-by-9 signal report. Yeah, he gave everyone a 59, so I really don't believe it, but I dutifully recorded it in my logbook.

Just wait'll next time I'm told on the repeater that a 40 meter dipole at the wrong height and without a balun won't radiate. Hah.

ARRL NLI SECTION MEETING

Last week, ARRL Hudson Division Director Mike Lisenco N2YBB had an NLI section club officers meeting locally. I attended, and the discussion focused primarily on two items that have been going on with the ARRL.

The ARRL has been concerned about the low upgrade rates among amateurs in recent years and is trying to figure out a way to encourage upgrading with minimum downside. Old timers recall that they have periodically tried this over the decades, with mixed results. This time the idea is to give technicians just enough additional HF privileges to encourage them to upgrade for more. Of course, the detractors say that it will allow technicians to establish their own voice sub-band and just squat there

Today, technicians have some limited CW sub-bands on 80, 40 and 15 (old timers recall these as analogous to the old novice bands), but the only voice capability is on part of 10 meters. The new proposal would add more bands with some "digital and voice" capability frequency allocations.

The audience I was part of was definitely concerned that technicians with a HF voice sub-band would just stay there and not upgrade anyway. However, there was more flexibility with the digital modes part. Young hams these days tend to gravitate in greater numbers to digital modes than the old timers, and there might be an answer there. The thinking goes that - if any frequency band turf battles could be avoided - having young hams who grew up with computers, get a leg up with digital modes, makes sense. It would also provide an incentive to upgrade to voice.

We'll have to see how that plays out

The other item discussed at the meeting is a status update on the legislation that has been in congress for several years now. The purpose is to fight the proliferation of Homeowner Association bans on any and all antennas. The idea of the law is to allow "reasonable" limitations on antennas, but not an outright ban. It is currently working its way through congress, but the current chaotic political climate in Washington DC is slowing things down, and if it is not completed before the end of the session, all bets are off depending on what happens in the upcoming (and highly controversial) 2018 congressional elections.

For the record, the concept of "reasonable limitations … but no bans" was used by the Supreme Court a few years ago concerning a huge case about Washington DC's outlawing of firearms. The thought was that the courts should determine what is "reasonable" for each contested case. While I shudder to think of needing a supreme court decision for a vertical antenna, maybe if they can get it to work for guns, getting it to work for antennas is possible.

Ed WB2EAV

TREASURER'S REPORT – Ed, WB2EAV
Ed reports that finances continue to be in good shape.
REPEATER REPORT – Gordon, KB2UB
Gordon reports 146.745 Repeater is intermittent.
NET REPORT – Karen, W2ABK
Thursday night net at 8:15 PM on 146.745 MHz had 0 check ins.
Thursday night net at 8:30 PM on 145.330 MHz had 3 check ins
VE REPORT – Ed, WB2EAV
There was one applicant for Technician. He passed.
VEs were: WB2EAV, WB2IKT, WB2QGZ, KC2YRJ
GARC NETS: Net Controller Karen W2ABK **40 Meters: 7.289 MHz at 7:30 AM EST Sundays**
2 Meters (repeaters) Thursdays: 146.745 MHz (-600 kHz) at 8:15 PM
145.330 MHz (-600 kHz) at 8:30 PM. Tone for both repeaters: 136.5 Hz.
ARES/RACES NETS: Mondays.
PROGRAM:
WEBSITE
The GARC web site can be found at http://www.qsl.net/wa2lqo. Webmaster is Pat Masterson, KE2LJ. Pictures of GARC activities, archives of newsletters, roster of members, and other information about the GARC may be found there. The membership roster has not been updated to delete Silent Keys and to enter new e-mail addresses for remaining members and friends. Please inform Pat Masterson if you need to delete, update or edit your roster information.
MEETINGS
Board and General Meetings are now combined. Effective January 2018, unless otherwise notified, meetings start at **5:30 PM** on the **FOURTH Wednesday** of the month, at HAYPATH ROAD Town Park in OLD BETHPAGE. **[This month's meeting is Wednesday July 25]**
GARC Officers:

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NEWSLETTER CQ de WA2LQO is published monthly by the GARC for its members and friends.
WEBMASTER Pat Masterson, KE2LJ Retiree 813-938-4614 Pat-Masterson@tampabay.rr.com

GARC VE EXAMS We normally proctor exams for all classes of ham licenses on the second Tuesday of each month, starting at 5:30 PM, BUT sessions may be cancelled if no applicants make appointments. The fee is $14. All applicants must pre-register with Ed Gellender wb2eav@yahoo.com All new applicants should be aware that they must write their Social Security number on the application form if they have not gotten an FRN number. Applicants for an upgrade must leave with the examiner a copy of their current license. All applicants must show a photo ID such as a driver's license. Study material may be obtained from ARRL-VEC at http://www.arrl.org, or W5YI-VEC at http//www.W5YI.org. All VECs use and update the same Q&A pools.

1 MEGAWATT AT 14 KC: Reaching submarines underwater – PART 2

Submitted by Jim K7JAJ

We've been including an article about a one-time transmitting station used to communicate with submerged submarines. Last month we had the overview and a description of the huge antenna array. The second part describes the transmitter.

The megawatt transmitter consisted of two 500 kW units that could be run separately or in parallel, and was designed around a special 500-kW high-vacuum triode. Each of the two power amplifiers employed two of the tubes in a push-pull circuit, with a third available as a spare. The tubes are cylindrical with disk electrode connections. They are about 10 inches in diameter, 38 3/4 inches in length, and weigh 135 pounds.

The anode, grid supports, and cathode beamformer are water cooled. The six-volt filament structure of thoriated tungsten took 13 kw of heating power. With 11.5KV on the plates and 500 watts grid drive, each tube puts out 285 KW at 80 percent plate efficiency. In total, the four operating tubes in both power amplifiers deliver 1,000 kilowatts to the antenna system.

The transmitter begins with a crystal variable oscillator which is monitored and automatically controlled by crystal-controlled circuits. It is capable of either on-off keying (CW) or frequency-shift keying (FSK). The oscillator output is approximately one watt. There are two oscillators, only one of which is used at a time, selected by switching coaxial cables. The oscillator excites the buffer stages that follow.

The power amplifiers are push-pull circuits, with mica tank capacitors, Litzendraht-cable variometer tank inductances, and inductive antenna couplers. Normally the left power amplifier will drive the left half of the antenna and the right side similarly will drive the right. Provision is made, however, so that either power amplifier may be connected to either half of the antenna or to its own water-cooled dummy load for test purposes.

The transition from the international Morse code keying transmission system to the automatic teleprinter system came about much later on the very-low-frequency circuits than on those in the high-frequency band, This was primarily due to the extremely low bandwidth characteristic of the huge shore station antennas at the very-low frequencies, which imposed a limit on the speed of transmission (20 words per minute, continuous wave, international Morse code keying); about one-half that required for teleprinter operation at its lowest speed. In overcoming this limitation, NRL devised the first teleprinter system providing effective operation on the very-low-frequencies in 1951. The performance of this system was demonstrated in operations using transmissions from the Navy's VLF station at Annapolis, Maryland (NSS, 15.5 kHz) over long distance circuits to Iceland, England, Panama, Canal Zone, and North Africa. This system was self-synchronizing and provided the encoding of a standard teleprinter signal into a four level signal having one half the keying rate of the original, The transmitter was shifted through the four frequency levels by the encoded signal which, as modified, could then be accommodated by the bandwidth of the antenna, At the receiver, a decoding device converted the received four-level signal back into its original form for operation of the teleprinter. A novel, stable, regenerative circuit provided a much higher degree of selectivity in the frequency-shift receiver than had previously been attained (25 Hz bandwidth), A specially designed discriminator permitted segregation of the signals on the four frequency levels, which were separated by a very small difference in frequency (4 Hz).

Next month we will complete the article with more functional descriptions

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