

CQ de WA2LQO

Seventy Years: 1944 -2014

The official independent voice of the Grumman Amateur Radio Club.

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HOW I BECAME A HAM (continued from October 2014)

By Bob Wexelbaum, W2ILP

Synopsis: I continue to discuss inputs from my friends and my teachers during my high school years. Not all were hams, but all were my Elmers.

Because many of my friends and neighbors had bought TV sets and I was working independently as a radio repairman and a TV installer (I had paid off my partner Marvin for his investment in tools and half the cost of Heathkit test equipment). I was determined to see that my own family had a TV set. My father had just received some money that was due him from a settlement of an accident where he was a pedestrian who was injured by an automobile that had driven through a red light. He said that he could pay for a TV set. There were lots of sets being advertised. The RCA, Dumont and Andrea TV sets were the most expensive, but cheaper TVs were being made by Motorola, Admiral, Emerson, and others. My father suggested that we buy an inexpensive TV, which was all that he could afford. I said that I could assemble a TV set that would be a clone of the famous RCA 30 tube set for less than a cheap TV would cost. My parents did not believe that it would be possible, but they finally gave in. I bought a TechMaster TV kit by mail order, paying with a postal money order. The kit did not include a cabinet or the 16 inch rectangular picture tube (CRT) that it was designed to drive, but it did include a plastic frame for the CRT. We had still had an old Victor radio in a large console that my parents had bought in 1931. It was a TRF with type 27 RF tubes and hadn't worked in years, so I removed the old radio from its console/cabinet and found that the TV kit chassis fit in nicely, with room to spare. The cabinet had legs which would place the TV screen at a perfect height for viewing. I pried off the whole front of the old radio and replaced it with a sheet of plywood. I drilled holes in the plywood to accommodate the CRT mask and the control shafts that would eventually come through the plywood and get knobs pushed on them. I bought walnut varnish/stain to match the plywood to the cabinet. The TV kit was not as difficult to complete as I had expected. I assembled it on the floor of my room in our 3 room apartment. The TV's turret tuner came pre-wired and tested. The set had separate IF amplifiers for video and audio that came wired and tested. They required some fine adjustments, but were roughly "in the ballpark." The instructions that came with the kit were quite different in style and technique than those that came with Heathkits. They assumed that you could wire the kit up from the included schematic diagrams, instead of point-by-point instructions. First you had to mount the tube sockets, transformers, capacitors, etc. Then you went to stages of the schematic diagrams, which showed how to wire up each section in detail and explained its operation. The size and color of each wire was detailed, as were all of the shielded wires. Most required soldering wires or components to sockets or terminal strip lugs, as shown on the stage schematics. I found the explanation of the sync separator circuits and the RCA patented horizontal Syncro-lock system quite interesting. The flyback transformer, high voltage rectifier, door knob capacitor, and the horizontal output and damper tubes were all in a shielded cage with the AC line cord riveted to the cover to prevent turning the set on without the high voltage cage fully assembled. Care had to be taken to be sure that all of the solder connections for the high voltage components were smoothly made and looked like round bubbles.. Next I had to buy the CRT. I got it for a low price at the wholesale distributor, where W2LTQ had gotten me accepted as an independent TV technician. The CRT was branded Zedka,, which I never heard of, but it was a 16RP4 that I needed. It was a job bringing it home on the trolley because of its weight and size, but I managed with the help of my friend Marvin. I mounted the CRT on the chassis, which meant

threading its neck through the ion trap magnet, the focus coil, and the deflection yoke and securing it with a retaining strap. Last I snapped the high voltage wire to the anode connection and pushed the socket onto the CRT pins. I turned on the power. No smoke, but no picture either. I checked to see that tubes lit up and various voltages were correct, then started adjusting everything involved with the CRT. Eventually I finished and I received all seven New York TV channels with good pictures, except for slight ghosts on channels 11 and 13, which did not prevent viewing.

I told Mr. Pedro all about how I had assembled the TV set. In spite of the fact that he remained angry at me for my big mouth, he was so impressed that he suggested that I write up a 500 word essay about building the TV set and take some photos of it. He gave my stuff to Dr. Lehman, who he believed would enter it into the Westinghouse Scholarship program for which I had filled out a form.

When the senior year of high school started I found out that in addition to being my Physics Teacher, Dr. Lehman was going to teach a one semester Radio Course. This was great news! I found out that my friends: Al Miller and Byron R. had already been registered for the Radio Course. I had to go to my Grade Advisor to get permission to take the course. To my surprise I was told that I couldn't take the course! The Grade Advisor said that the course was not supposed to be for academic students. I asked "How is it that Byron R. had signed up for it and he is an academic student?" The Grade Advisor replied, "If your grades were perfect like Byron's, you could take the course, but I see that you had once failed the Spanish Regents and you only made B grades in Chemistry and some of the Math courses." I then told the advisor that I was already a Radio and TV repairman and that I had assembled my own TV set. He made a face that showed his disbelief and said "If what you say is true, then you don't need the Radio Course, so forget it." I left the advisor's office feeling frustrated about my rejection, but I became elated to find that I had a free period where I could volunteer in the Physics lab at the same time that the Radio Course was scheduled. I would thus be assisting setting up the experiments for the Radio Course while witnessing the entire course. I borrowed a spare textbook for the Radio Course from Mr. Pedro and read it cover to cover. It only explained triode vacuum tube amplification and TRF radio receivers; much more elementary than I expected. Next month I'll tell you why Dr. Lehman cancelled my entry in the Westinghouse scholarship program.

Dr. Lehman's Physics class was boring, especially since I had already seen his classes as a volunteer lab assistant. He always told the same dumb jokes that never got a laugh. His pet joke was "I'm going to draw a 'lazy dog' on the blackboard (a slow pup) 'a slope up' " (groan).

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

Well, it has happened. Ending an affiliation dating back to 1944, the Grumman Amateur Radio Club no longer has any linkage with Grumman. Northrop Grumman is slowly abandoning Bethpage, but more immediately, my departure means no key member still works there. We have every intention of continuing the club, but there will be an element of flying by the seat of our pants. You will note that I have removed my Northrop Grumman e-mail address and phone number from the newsletter. Be sure to use wb2eav@yahoo.com or 516-507-8969 to reach me.

The club historically has had a holiday dinner instead of the December meeting (December 17th this year). At the November meeting we will decide exactly where we will be going in December, and the next newsletter will contain full information. Meanwhile if you have any suggestions, let me know at wb2eav@yahoo.com.

The other day Bob W2ILP, his XYL, and I attended the ARRL Hudson Division Awards Lunch. For the first time in many years, it was right nearby, so how could we miss it? Hudson Division Director Mike Lisenco N2YBB spoke about how proceeds from the meeting are being used to support new legislation in Congress to expand PRB-1 to prevent local ordinances from outlawing ham antennas. There were loads of door prizes – most of them ARRL books and the like – but despite all the prizes we didn't win anything. I counted 110 attendees, many of them friends that I see at just about every ham-related event on Long Island.

Ed, WB2EAV

**GRUMMAN AMATEUR RADIO CLUB
MINUTES OF GENERAL MEETING 10/15/2014
By Karen, W2ABK**

The meeting was opened by Gordon at 5:30 PM

TREASURER'S REPORT – Ed, WB2EAV

Finances continue to be in good shape.

REPEATER REPORT – Gordon, KB2UB

The 145.330 repeater is working. The 146.745 is down.

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 4 check-ins.

Sunday morning net at 7:30 AM on 7.289 MHz had 0 check-ins.

VE REPORT – Ed, WB2EAV

5 applicants applied: 4 for Technician and 1 for General; All passed. 2 applicants then tried to upgrade to General: 1 passed and 1 failed. 2 Applicants tried to upgrade to Extra: Both failed.

3 VEs were present: Ed WB2EAV, Bill WB2QGX and Karen W2ABK.

OLD BUSINESS

Gordon reported that ARES has been using the 145.330 MHz repeater every Monday with no problem.

NEW BUSINESS

There has been discussion about possibly moving the Bethpage repeater to a site in central Nassau County. Sounds interesting. Let's see how it plays out.

PROGRAM

Ed, WB2EAV brought in the 100 Watt RF Amplifier from the 146.745 repeater to see if we can get it repaired.

GARC NETS: 40 Meters: 7.289 MHz at 7:30 AM EST Sundays

Net Controller: Karen, W2ABK

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.

GARC Net Controller Karen, W2ABK **ARES/RACES NETS: Mondays.**

MEETINGS

General Meetings of the GARC are held on the 3rd Wednesday of each month, starting at 5:30 PM, at the Ellsworth Allen Park in Farmingdale. Driving directions and map can be obtained from <http://www.mapquest.com>. It is suggested that the GARC web site be checked to be certain of meeting location, which may change after this newsletter is distributed. Board meetings are held a week before the General Meeting at the Bethpage Skating Rink. Presently starting a 12:30 PM. *Meetings may be cancelled or relocated. Check the website.*

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.

SILENT KEY

We note with sadness the passing of John "Marco" Marcovecchio, KA2GVD on September 23rd. He had undergone successful open heart surgery but died at home from pneumonia while "recovering". Marco was my good friend and neighbor. He was a Grumman retiree, a former member of the GARC and an ex-Navy man. He was an active, reliable VE who often accompanied me to GARC VE Sessions when I was Contact VE.
—w2ilp—

INTERNET LINK OF THE MONTH FOR INTERNERDS

The internet link for this month is: -

www.pbs.org/wgbh/nova/space/why-planes-vanish.html It includes a report about the missing Malaysia Boeing 777 airliner that we all may be tired of hearing about. It was aired on PBS on October 8th so it contains all that was known as of that date. The airliner or its remains have not been found as of now, so it remains a mystery. What is more interesting to me is the electronic equipment on board the missing aircraft. Apparently the ATC transponders had been turned off but the aircraft to satellite transmitters were still working for as long as seven hours after contact with the plane was otherwise completely lost. There have been several suggestions as to what can be done in order to prevent mysterious situations like this from occurring in the future. There is a suggestion that the transponders not be capable of being turned off by the crew or passengers of the aircraft. This could be accomplished by not making the circuit breakers for the transponder available on the pilot instrument panels or the equipment rack panels where there are breakers for most of the other electronic equipment. A trap door in the passenger area which leads to the equipment racks must be locked. There are also suggestions about making satellite tracking more comprehensive so that it can accurately track the velocity and direction of all aircraft. This would be expensive but looking for lost planes is also expensive.

To see the show through the link, turn your audio on. When you get the video double click on it to get it full screen. There may be a commercial before the actual program begins. Stay with it until the end, because the most interesting information (and lack of information) is discussed toward the end.

Reports of possible wreckage sightings in the Indian Ocean were made after this video was produced. French satellites and others reported sightings, which may have been far from the actual crash site due to ocean currents. Whether they were from the missing aircraft remains unconfirmed as of this time.

Even within the USA there are areas where there is no RADAR coverage. The present RADAR tracking systems are getting old and will eventually be replaced by updated satellite systems. GPS and INMARSAT (part of GMDSS) are used to track ships at sea and land vehicles, as well as aircraft.

PUZZLE

Next month's question is:-

What is meant by the dynamic range of a communication receiver?

- A. The number of kHz between the lowest and the highest frequency to which the receiver can be tuned
- B. The maximum possible undistorted audio output of the receiver, referenced to one milliwatt.
- C. The ratio between the minimum discernable signal and the largest tolerable signal without causing audible distortion products
- D. The difference between the lowest-frequency signal and the highest-frequency signal detectable without moving the tuning knob.

Last month's question was:-

What is the time constant of a circuit having two 100-microfarad capacitors and two 470-kilohm resistors in series?

- A. 470 seconds
- B. 47 seconds
- C. 4.7 seconds
- D. 0.47 seconds

Answer;

The correct answer is B, 47 seconds.

For an RC circuit $\tau = RC$, but first we must combine resistor and capacitor values to come up with a single value for each. Since this is a series circuit the resistor values add to arrive at a total resistance, but for the capacitance (in Farads) we must solve the formula; $C_t = (C_1 \times C_2) / (C_1 + C_2)$ We then can calculate that: $R_t = 940,000$ Ohms and $C_t = 50$ microfarads. Multiplying $0.00005 \times 940,000 = 47$ seconds. This problem requires the proper use of powers of 10 because if you miss a decimal point you will arrive at the wrong answer. You must also know that 50 microfarads $= 50 \times 10^{-6} = .000050$ farads.

GARC Officers

President: Ed Gellender, WB2EAV 516-507-8969 wb2eav@yahoo.com

Vice President: Gordon Sammis, KB2UB 631-666-7463

Secretary: Karen Cefalo, W2ABK 631-754-0974

Treasurer: Ed Gellender, WB2EAV (see above)

WA2LQO Trustee: Ray Schubnel, W2DKM

2 Yr. Board Member: Jack Cottrell, WA2PYK 516-249-0979

1 Yr. Board Member: Dave Ledo, AB2EF

1 Yr. Board Member: Jack Hayne, WB2BED

1 Yr. Board Member: George Sullivan, WB2IKT

Newsletter

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Editor: Bob Wexelbaum, 631-499-2214 w2ilp.RADIO@gmail.com

Contributing writers: All GARC members (we hope). To submit articles or ham equipment advertisements contact the editor. Articles will only be edited when permission is granted by the author.

GARC Webmaster

Pat Masterson, KE2LJ 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. The exams may be given at various locations. Ham Exams are: Element 2 – Technician, Element 3 - General, Element 4 – Amateur Extra Class. All applicants must pre-register to determine the location of a VE session by contacting Ed Gellender WB2EAV. Time and location of exams are subject to change. If there are no applicants VE sessions will be canceled. The fee for 2014 is \$14 for all exams taken at one sitting. New first-time applicants should be aware that their Social Security Number will be required on the application form unless they register with the FCC for an FRN. Applicants for an upgrade should bring their present license and a photocopy of it. All applicants should bring picture ID such as a driver's license. Study material may be bought from the ARRL-VEC or W5YI-VEC <http://www.arrl.org> or <http://www.w5yi.org>. All VECs use the same Q & A pools.

Editorial

Gordon commented that there was no mention of Northrop-Grumman's Bethpage phase out in recent "Newsday" articles. I was wrong in telling Gordon that I had seen such an article. My short term memory is not too good, but I do remember seeing an article about the Bethpage NG proposed lay-off over a month ago when advanced notice had to be given to the people who would be getting laid off by the labor law. There is also another lay-off happening at CDC, as well as the probable migration of CDC off Long Island. I suspect that some of our local politicians don't want to talk about the negative aspects of unemployment or underpaid employment here on Long Island. Instead of talking about hundreds of people losing their jobs, we get positive news about small businesses that hire 20 people or less. I try not to talk politics here. I don't like any candidates myself and hope you all got out and voted for your favorites. I wish that we had an independent candidate like Bernie Sanders to vote for. As always, politicians, teachers and policemen here on Long Island get raises and job security, which we must all pay tax for, but engineers, technicians and mechanics have little job security and must compete with those who work anywhere, all over the world.

Start spreading the news. If we could make it here, they can make it anywhere. Why do it in New York, New York?

Bob W2ILP, (Internationally Linked Positions?) Forget Global Warming. What about Global Manufacturing?

Grumman Amateur Radio Club
215 Birchwood Park Drive
Jericho, NY 11753

FIRST CLASS MAIL

Do Not Delay

THE FUTURE OF MANUFACTURING

By Bob Wexelbaum. W2ILP

I read about science and technology news in the magazines and newspapers that lead me to believe that human labor is no longer required to make anything, regardless of size and shape. It is now possible to “print” 3 D solid objects. A 3D printer was recently demonstrated at the Commack public library, where it printed out some plastic character Halloween toys for kids. That is but the tip of the possibilities for printers that can produce parts of any material, including steel or gold. Once a part is printed to very tight measurements it can be copied as many times as needed with great precision. Looking forward; it can be possible to “print” an entire aircraft wing when providing a belt to run it on. Two D printers have been made to print very large maps and diagrams. Size is no limit for GigaPixel resolution, and the capability can be used in 3D; The software to drive the work can be developed anywhere in the world. The bytes travel well. Will we need a lot of skilled labor and engineers at the 3D factories? No! Remember that it is now possible to control drones and robots remotely from anywhere. The factories may be run entirely by remote operators. What about maintaining the “printers” and associated machinery? Everything in a factory can be tested, troubleshot and repaired remotely just as it is done for manned and unmanned space vehicles. [Hams have been remotely controlling transmitters since the 1940s.]. The technology is already there to do it all. Aside from that we now read about robots that may be controlled directly by human brains. They are doing that sort of work now to control artificial limbs by the brains of people who have lost legs due to war, civilian accidents or diabetes. It is predicted that an entire robot, which has feedback camera “eyes” and touch sensors, may be able to be controlled by a human’s brain. Some philosophers fear that a robot without a mind of its own may become dangerous ... Wouldn’t it be even more dangerous if it did not evolve an ethical empathetic mind (or soul) of its own? Scientists claim that we have nothing to fear about robots. Ever since Frankenstein’s monster, Science Fiction writers have written about computers and robots that have gotten out of control. I think that this is nothing to fear. If a robot interprets commands improperly we can always remove its hard drive...as long as we know the password...I think...

Bob, W2ILP (I Lose Passwords)

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