CQ de WA2LQO

Seventy One Years: 1944 -2015

The official independent voice of the Grumman Amateur Radio Club.

August 2015 VOLUME 88 NUMBER 8

There is still time to contact Jack if you are interested in attending the August Party.
Please See President's message for directions.

How Ham Radio Prepared Me for Full Time Employment

by Bob Wexelbaum, W2ILP

Last month I wrote about my first full time employment at Emerson Radio & TV Corp. I will continue here with my job as a production-line TV Troubleshooter.

On the same floor as the belted assembly line there were four stations, each of which consisted of a Tester and a Trouble Shooter. As TV chassis came off the assembly line, they were placed on wooden boards with ball bearing wheels, to be easily rolled to and from the men who were to test and trouble shoot them. At this stage they were complete except for the picture tube (CRT), loud speaker, and the rear of the high voltage cage with power cord. The first thing that the first Tester did was to plug a "cheater cord" into to the chassis, so named because it was dangerous to power up the chassis without the high voltage cage being closed.

The Tester then inspected the chassis for burned or smoked wires or components. Then he then took several voltage readings with a voltmeter to confirm that the low voltage power supply was working. Next he tested for high voltage at the anode wire that would later be clipped to the CRT. He did not use a voltmeter for that test, instead bringing a well-insulated screw driver close to the anode clip and looking for sparks! Unless there was a total burnout such as a burnt main wire harness, the chassis was then rolled to the First Trouble Shooter (*me!).* A log was kept of each defective part. If a complicated repair was needed, such as replacing a power transformer or horizontal output transformer, the chassis was tagged and rolled to the Repairmen, while the troubleshooter could replace small components himself. There was a soldering iron and solder ready to go, and he could also replace vacuum tubes.

Usually the tester worked with the chassis powered up, to save warmup time after each test or simple fix. The first Troubleshooter had a Dumont oscilloscope and RCA VTVM to align the horizontal frequency locking circuit. There were two variable inductors in the circuit. One came off the assembly line with a jumper wire shorting it out. Once the non-shorted inductor was adjusted for a certain pattern on the 'scope, the jumper wire was cut and the inductor adjusted for a stable pattern on the 'scope, indicating the horizontal frequency of 15750 Hz was locked.

Every tube on the chassis was labeled "Replace only with a genuine Emerson tube." We knew that Emerson never manufactured any tubes; Instead, a code printed on each tube identified the manufacturer and date. Bad tubes were sent back for free replacement. As the Testers and Troubleshooters became proficient, they were able to finish the units as fast as they were coming off the assembly belt; well over a hundred per day. In the

beginning the Testers and Troubleshooters could not keep up and had to work overtime (at time and a half) to keep up production. As things improved, overtime was no longer needed, but most troubleshooters preferred when things went smoothly. The second station men tested the sync separator circuits and aligned the IF transformers. Later the chassis were installed into table-top cabinets or consoles and loaded on trucks or trains that sent them to distributors and/or major retailers.

There were some personal horror stories from my job as a "first stage" TV production Troubleshooter; I had to learn from some bad experiences, but I never repeated the same mistakes. When checking for voltages in a TV chassis I came across a flat power resistor, the kind with a sandy surface to dissipate heat efficiently. There was a voltage on one end of that resistor and zero voltage on the other. In haste to see if the resistor was open, I pressed my index finger on its surface to see if it was hot Ouch! It was so hot I received the worse burn I have ever had and had to see the company nurse. The reason that the resistor had zero voltage on one end of it was from being short-circuited to ground.

When you work with chassis coming off a high speed production line you can expect to find any fault imaginable, and need to be prepared for the worst case at all times. The second trip to the nurse was even more shocking to say the least. I had become so agile at working on the TV chassis that I often worked within the high voltage cage by carefully avoiding touching exposed high voltage terminations. One day I noticed that a 5V4GA damper tube was gassy, with the signature sickly blue glow. As I removed the tube my pinky finger made contact with the horizontal output transformer which caused my hand to involuntarily jerk. I somehow developed an instantaneous super strength that enabled me to pull the glass part of the 5V4GA out of its base, severing all the solid wires that connected it to the socket pins within the Bakelite base as it remained plugged into the chassis socket. It might have been soldered to the socket for all I knew. I was not electrocuted because the high voltages are current limited and do not produce the 35 ma. of current needed to stop a healthy heart. I had a small burned spot on my finger, but the worst part was that I cut the top of my hand on the sharp edge of the high voltage cage. There were no other memorable "accidents".

Next month I will tell you how I advanced to a higher paid job at Emerson and how I trained others to do my production line troubleshooting job. (to be continued)

PRESIDENT'S NOTE by ED GELLENDER, WB2EAV

Last year we decided to forego the summer picnic for a sit-down dinner subsidized by the club. A nice time was held by all, and it was decided to try it again. On Wednesday, August 19th we will gather at the Whale's Tale restaurant in the Britannia Yachting Center, 81 Fort Salonga Rd. (Rte. 25A) in Northport from 5:00 PM until 6:00 PM, when we will be seated. The charge is $20 per person with the club picking up the rest. (Sorry, alcoholic beverages are open bar - cash only.) So far we have 19 people signed up. If interested contact Jack WA2PYK at: jjcottrell@verizon.net or phone: (516) 249-0979. Sorry no last minute walk-ins.

To get there either take Rte. 25A 4.3 miles east from Rte. 110, or take Rte. 25A half a mile west from Elwood Rd. (it is just past Woodbridge Ave.). The Britannia Yachting Center is on the north side of the street along the Long Island Sound.

I have been looking for jobs for about 6 months and have come to the conclusion that there are so few engineering jobs left on long Island that finding one is virtually impossible. There do seem to be jobs in other areas that are a few hours drive away, but if I should take one of those it would leave the club in limbo. Anybody have any thoughts?

Ed, WB2EAV

GRUMMAN AMATEUR RADIO CLUB
MINUTES OF GENERAL MEETING 7/15/2015
By Karen, W2ABK

The meeting was opened by Karen at 5:30 PM

TREASURER'S REPORT – Ed, WB2EAV

Finances continue to be in good shape.

REPEATER REPORT – Gordon, KB2UB

The repeaters are excellent.

NET REPORT – Karen, W2ABK

Thursday night net at 8:15 PM on 146.745 MHz had 3 check-ins. Karen could not hear everyone but check-ins could hear each other.

Thursday night net at 8;30 PM on 145.330 MHz had 3 check-ins. Good copy for all !

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

VE REPORT – Ed, WB2EAV

There was one applicant for Technician who passed. He then tried the General exam and failed. VEs were Ed WB2EAV, Bill WB2QGZ and George WB2IKT.

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.**

PROGRAM

August 19th "picnic" plans were discussed. We plan to go to the Whale's Tale restaurant. We plan on meeting at 5:00 PM for happy Hour and to sit down to eat at 6:00 PM. Those who plan to attend were advised to contact Jack Cottrell WA2PYK by e-mail: jjcottrell2@verizon.net or phone: (516) 249-0970.

MEETINGS

General Meetings of the GARC are held on the 3rd Wednesday of each month, starting at 5:30 PM, at 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 at Haypath Park on the 2nd Wednesday of each month at 12:00 Noon *Meetings may be cancelled or relocated. Check the website. The August 2015 General Meeting will be held at the Whales Tale restaurant. If you wish to attend you must contact Jack Cottrell WA2PYK as soon as possible.*

WEBSITE

The GARC web site can be found at http://www.qsl.net/wa2lq . 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.

FCC NEWS

There is no longer any fee required for requesting a vanity call. Those who may want to change their call can now do without paying the FCC anything.

HAM RADIO ON YouTube

My friend Vince Loschiavo, N2AIE, used to live In Bay Shore, LI, but now he works for Rockwell-Collins in Cedar Rapids. He sent me a YouTube video about building a kit for a 40 meter QRP CW transceiver that can be ordered on ebay from China for only $13.95 plus $2.00 airmail postage. The kit is known as the Frog Sounds QRP transceiver and there are several YouTube videos on it, but the video from K7DO seems to be the best. Even if you don't care to build the actual QRP transceiver, K7DO explains how to work on small printed circuit boards, shows the tools that he uses for that purpose, and tells you where to get the tools if you don't already have them. He prefers using solder that contains some silver and explains why. Although I have built many printed circuit boards for many kits, I must admit that I learned about some better techniques from K7DO's demonstration. Before mounting each component he tests it by using the same multi-meter that we all get free from Harbor Freight. Pre-testing parts and individual circuits individually assures that there won't be a puzzling catastrophe when the transceiver is first turned on. The K7DO presentation is called Part 01 and he promises Part 02 will be available soon. The rig delivers 2 Watts of RF output with a 9 Volt battery, and 3 Watts at 12 Volts. You need a good antenna to work DX, but CW gets through even with low power, so you never know what you can work when conditions are favorable. The instructions for the Chinese kits often contain errors and the component lists may not always be exactly correct, so you must work with the schematic diagram to see if the circuits make sense. The crystals that come with the Frog Sounds kit put it into the Extra Class part of the band, but crystals can be bought for any frequency on 40 Meters.

Once you get to the YouTube page that shows various ham radios you can find other stuff that might interest you. Some of the YouTube ham videos are from Australian or British hams, and I enjoy listening to them because they pronounce electronic terms slightly differently than we do. As with all Internet videos you can expect that there may be advertisements that come on before you may see the presentation that you ask for. The ads are usually very short and there is often an option that allows you to skip them.

PUZZLE

This month's question is:-

How can the antenna efficiency of a HF grounded vertical antenna be made comparable to a half-wave dipole antenna?

A. By installing a good ground radial system
B. By isolating the coax shield from ground
C. By shortening the vertical
D. By lengthening the vertical

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Last month's question was:-

How is antenna "efficiency" computed?

A. Efficiency = (radiation resistance/transmission resistance) x 100 %
B. Efficiency = (radiation resistance/total resistance) x 100 %
C. Efficiency = (total resistance/radiation resistance) x 100 %
D. Efficiency = (effective radiated power/ transmission output) x 100 %

Answer: The correct answer is B. The efficiency of your antenna is an important consideration when you plan to upgrade your antenna system. You want to keep the ohmic resistance low for best efficiency. Generally, larger antenna elements provide greater radiation resistance, lower ohmic resistance, and increased bandwidth. Bigger aperture is always better!

GARC Officers

President: Ed Gellender, WB2EAV 516-507-8969 wb2eav@yahoo.com
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1 Yr. Board Member: Dave Ledo, AB2EF
1 Yr. Board Member: Jack Hayne, WB2BED
1 Yr. Board Member: George Sullivan, WB2IKT

Newsletter

CQ de WA2LQO is published monthly by the Grumman Amateur Radio Club for its members and friends.
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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

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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. Ham Exams are: Element 2 – Technician, Element 3 - General, Element 4 – Amateur Extra Class. All applicants must pre-register by contacting Ed Gellender WB2EAV. Time and location of exams are subject to change, and if there are no applicants the VE session will be canceled. The fee for 2015 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 both 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 ARRL-VEC or W5YI-VEC http://www.arrl.org or http;//www.w5Yi.org. All VECs use the same Q &A pools.

Editorial

I now prefer that you e-mail to me by using the following e-mail address: radio.w2ilp@gmail.com. The ARRL site still recognizes me only because they can verify that I am a member of the ARRL and hold the call sign W2ILP. My ISP now blocks me from e-mail directly at the old address. Why? It is a long story but happened because they don't believe that I am me. I'll say no more about that because I don't know if there is anyone to be blamed for changing my password and my 'phone number…Maybe I did it myself when I wasn't myself.

By the way, are any of you upgrading to Windows 10? It is free to all who now use Windows 7 or 8 (on a PC) as their operating system. I am on the list for a free download which may take place soon.

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FIRST CLASS MAIL

WHY DOES PAGE 6 GET RIPPED?

As one of the GARC members who receives a hard final copy of this newsletter by postal mail, I sometimes get a torn newsletter that was repackaged by the post office with page 6 missing or badly damaged. I have heard that other members have had the same experience. I receive monthly newsletters from other organizations that do not have the problem. I could be wrong but I believe that the difference in how the newsletters are assembled affects how they survive the postal machinery. The GARC closes each newsletter with a single staple, while other organizations use a number of round paper stickers. The stickers make it harder for other mail to get trapped between newsletter pages, while the single staple only protects one of the three sides that are exposed to interleaving with other pieces of mail.

HOW LOW DID THEY GO?

Last month I wrote about new medium and low RF frequencies that may become ham bands, after reading Dave Summer K1ZZ's editorial in the July 2015 QST. I also learned that the FCC had granted special licenses to a small group of hams to experiment with those frequencies during Field Day 2015. I now have the August issue of QST and there is no mention of LF or MF bands, nor of results of the related FD experiments; Perhaps we will get more information in future QSTs. I want to bring up the history of LF/MF here because it is relevant as to how the use of those RF frequencies came to be in England and Europe as opposed to the USA. It was understood that greater ranges could be achieved by using very high RF power, but there were limits as to how much power could be generated from spark coil type transmitters (except in Tesla's dreams). The first practical high power transmitters were then made by using brute force steam driven AC generators using the same technology as electrical distribution grids. It was possible to make a high powered radio transmitter that worked the same way as a 60 Hz power system by rotating the armature faster and/or by adding more poles to rotor or stator for frequencies up to LF. In England and Europe radio transmitters were originally only run by governments, while in the US radio broadcasters were mostly commercial stations. In every major US city the AM broadcast band quickly filled up with local stations serving that specific market, while in England and Europe a smaller number of government owned stations ran very high power to be heard over much longer ranges via ground wave propagation –w2ilp-