

# CQ de WA2LQO

Seventy One Years: 1944 -2015

*The official independent voice of the Grumman Amateur Radio Club.*

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## **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.*

My job working on the TV assembly line at Emerson Radio & TV Corp. gave me a kind of satisfaction that no past or future job ever gave me, as I visualized the hundreds of people who were buying their first Television and I was proud to play my small part. This might seem sort of gung-ho, but it differed from my other jobs where I repaired only one radio or TV set at a time, or worked on onesy-twosy government projects. I was also proud to work on projects that were technically challenging and were to be parts of military aircraft, but it was quite a different feeling. Actually, my first TV assembly line job only required that I unpack TV tuner assemblies and feed them to a basket from which a person would screw one into each TV chassis as it moved past on a moving belt. As I unpacked the tuners I noticed that some did not have the correct number of leads or coaxial cables connected within them, while others had missing or broken vacuum tubes, so I put them aside. The basket held a dozen tuners, and I had to make sure that the screwer, a tall muscular woman who had a man's moustache, always had a tuner waiting. Between feeding tuners, I took the initiative to also keep six other assemblers stocked with resistors, capacitors and jumper wires that they needed to do their jobs. This required running to the area where the parts were prepared by being cut to exactly the required size for wiring, in time for them to be available for assembly. While I made friends with many of the assemblers who worked on the line, the screwer never spoke to me, always spending breaks with a girl friend who I thought was pretty.

When I presented the defective tuners to the line foreman he was quite impressed. They would be sent back to the factory that made them. Previous workers had never done that and defective tuners had to be replaced by repairmen, which not only added time and money, but also with less workmanship than the assembly line. Most of the workers were women coming from Brooklyn or New Jersey. They were a diverse mix: African Americans, Latinas, Italian Catholics, and even a few Chinese or Jewish. We normally worked for 37.5 hours per week because the folks who had originally worked for Emerson in Brooklyn had to be given an extra half hour to make up for the additional time it took them to get to work in NJ. This was made part of the Union contract, which made it apply to everyone. The president of the Union Local was a Black man who was written up in magazines as the first African American in the US to be a union local president. Actually I was earning more than the federal minimum wage per hour because 37.5 hours counted as 40 hours. I worked as a TV line feeder for July and August of 1952 and was commended for doing more than that job required. The foreman told me that there were job openings posted on the bulletin board, and I might want to apply to one with higher pay. I saw openings for TV Testers and TV Troubleshooters and felt I could do the troubleshooting job, so I applied, which led to an interview on the following Saturday (at overtime pay). Present at the interview was an engineer named Harry Clark, and a conjure woman representing the union. (A conjure woman is a female medicine-man). She was dark skinned and wore a large turban; I don't know if she was of African or Asian descent. Mr. Clark did most of the interviewing. He asked me if I had ever gone to a technical vocational school. I said that I had not, so he asked me how I learned to be a TV repairman. I said that I had studied radio technology in order to get a ham license and I had learned about troubleshooting radios and TVs from ham friends who were academic instructors, in retail businesses, had factory or military experience. He asked me to

give an example of how amateur radio experience could be directly applied to TV troubleshooting. I said that many hams used RF power amplifiers such as the 807 vacuum tube, operated in Class C for CW. In most TV sets there was a horizontal amplifier tube such as a 6BG6G that is much like an 807, except that it is not designed for low RF loss at HF frequencies. The 6BG6G drives a horizontal output transformer (called HOT or fly-back transformer) which drives the horizontal coils in the CRT (picture tube) deflection yoke at the rate of 15,750 cps (that was before Hertz was to be used instead of cps). The circuit also develops the high voltage for the CRT anode during the retrace (flyback) time of the picture raster. Operating Class C means that only one side of the complex wave form is generated. If the grid bias is not set properly by resistors the tube will draw excessive plate current and quickly overheat and be destroyed - just as an 807 might. The high voltage must be direct current; thus a vacuum tube diode must rectify the fly-back wave. Mr. Clark seemed impressed. He told me that he was also a ham and I think that did make a difference, because in those days most hams built their own transmitters. I don't think that being a ham today carries that reputation. I was told that I would be informed during the following week whether I had passed the interview and could be transferred to the troubleshooter job, which at pay grade 5 was a big jump from my line feeder pay grade 1 job. After the interview was over the conjure woman winked at me. She said that she had seen me in a spiritual trance to be a special person with a very successful future. I did get the troubleshooter job. Unfortunately several weeks later I heard that the conjure woman had died in an accident when a truck hit a bus she was riding on. I guess that she couldn't predict such accidents. Next month I'll tell you how being a production TV troubleshooter led me to a higher grade job at Emerson.

#### **PRESIDENT'S NOTE by ED GELLENDER, WB2EAV**

Field Day is now over, and we had a very nice time this year. We had nice cool weather for the setup and were working indoors when it started to rain; That worked out well. The rain stopped before we had to take down the antennas at the end, but Murphy reared his ugly head nevertheless as the park watering system turned on (yes, despite all the rain) just as we started disassembly. Of course, as soon as we finished the sprinklers turned off.

In recent years I did not feel that my Morse was up to working Field Day so I had been holding off. Finally this year I got some on-the-air CW time and felt comfortable working 20 CW for a while on Sunday morning and enjoyed it immensely.

Newsflash: Field Day results just came in. We have a cumulative total of 1112 points from 384 contacts as follows: Phone: 91 on 80M, 119 on 40M, 50 on 20M and 27 on 15M. CW: 84 on 40M and 13 on 20M.

Last month I mentioned the difficulty we had expected renewing our liability insurance with a change in agent. The promised ready date of June 1<sup>st</sup> kept slipping and when it reached mid-June I was almost in a panic. Finally they got the system running, and then at least it worked well and things fell right into place.

**SAVE THE DATE:** In the last couple of years the club has changed from having a picnic for the August meeting to a sit-down dinner at a restaurant. We don't know yet what restaurant, but I can promise board members are out there investigating possibilities. It will be on Wednesday, August 19<sup>th</sup>, starting at 5:30 PM. Save the date.

At last year's holiday party, we had a very low turnout, so we are only going to reserve seats for those who tell us in a timely manner that they are coming. No longer can we wait to see who does and who does not come, while the restaurant staff wait impatiently. So, the moral of the story is to let us know if you are coming and remember if you don't tell us, you aren't.

Ed, WB2EAV

**GRUMMAN AMATEUR RADIO CLUB  
MINUTES OF GENERAL MEETING 6/17/2015**

**By Karen, W2ABK**

The meeting was opened by Gordon at 5:35 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.

Thursday night net at 8:30 PM on 145.330 MHz had 5 check-in; unable to hear the net controller.

Sunday morning net at 7:30 AM on 7.289 MHz had 1 check-in, but was noisy.

**VE REPORT – Ed, WB2EAV**

Six applicants applied for Technician Class; and passed.

Three tried to upgrade to General Class; all failed. .

Three VEs were present: Ed, WB2EAV, Bill Fastenau III, WB2QGZ and Ken, KC2YRJ

**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 at Haypath Park on the 2<sup>nd</sup> Wednesday of each month at 12:00 Noon *Meetings may be cancelled or relocated. Check the website.*

**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.

**SILENT KEY**

**William “Bill” Pasternak, WA6ITF** passed away on June 11<sup>th</sup> at the age of 73. While not a GARC member he was well known to many of us; as well known as Gordon West and Fred Maia, having received many awards from both the ARRL and QCWA. You can read about his achievements by googling him, so I will relate some interesting details not covered elsewhere. Bill was first licensed as WA2HVK in Brooklyn in 1959. Unable to pass the 13 wpm CW test for General Class, he held a Technician license for many years. This turned out to be a blessing in disguise, as he made a name for himself on topics that were of special interest to Technician Class operators, with his WorldRadio magazine column “VHF, FM & Repeater News,” and co-founding the Westlink Report webcast (later Amateur Radio Newslines). When he moved to Saugus, CA. he changed his call to WA6ITF. When the CW exam requirement was reduced to 5 wpm, he upgraded to General, but never went further. He controversially lobbied for elimination not only of CW exams, but technical theory exams too, debating on ham chat nets with those who strongly disagreed with eliminating Morse or dumbing down exams. His commendable reasons were to get more hams, especially the young, into the hobby.

## HOW LOW CAN WE GO? (continued from Page 6)

Many people wondered why LF/MF direction finders remained in use after VHF Omni Range receivers were able to more accurately receive bearing information. The old DF system was kept as a backup in case the VOR failed, assuming it was inconceivable that all the VOR, LF and AM radio stations could fail at the same time. Receivers were also placed on different power busses in the aircraft.

Before we had a TV set at home, we listened to AM broadcast radio. I remember the first time that I heard a Morse Code signal. I was listening to Charlie McCarthy and Edgar Bergen and I asked my father about the other sounds I suddenly heard. He said it was Morse code from a ship. When I asked why they used Morse code instead of talking, he said it might be the sailors didn't want anyone who didn't know Morse to understand what they were saying. He let it drop at that, not wanting to go into details about anything that he did not understand himself. I now know that I heard it because the second harmonic of a shipboard station signal was heterodyning with the broadcast station RF carrier to produce very clear Morse. In other cases, strong LF harmonics zero-beat AM stations causing the AM program to go silent during key down CW.

When I worked for the Loral Corp as a field engineer, I had to regularly drive the 250 miles to the Naval Air Station at Patuxent River, MD from my home in The Bronx. To arrive at 8 AM I left home around 3 and drove the whole boring length of the Jersey Turnpike in darkness. Although I had a 20 Meter Heathkit Ham transceiver in my car I did not want to use it while in motion and depended solely on listening to AM broadcasts in the hope that it would help me to keep awake. Falling asleep at the wheel could be fatal. Passing Newark Airport, radio reception was muted by whatever was being transmitted there.

Another strange phenomenon occurred, which I have learned is called "*Night Effect*," where signals from broadcasting stations in Louisiana or Texas would come in strongly for a bit and then flutter out. The fluttering is due to signal phase addition and subtraction of different signal paths, and it occurs on MF as well as HF and VHF. MF and LF communication normally work by ground wave (or sea wave) but not ionospheric reflection, except occasionally when both the transmitter and the receiver are in total darkness.

### PUZZLE

*Last month's question was:-*

How does the length of the reflector element of a parasitic element beam antenna compare with that of the driven element?

- A. It is about 5% longer.
- B. It is about 5% shorter.
- C. It is one-half as long.
- D. It is twice as long.

*Answer:* The correct answer is A.

*This month's question is:-*

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 %

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**Newsletter**

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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 at Bethpage Community Park. 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. If there are no applicants VE sessions 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**

As I mentioned last month there is no longer any need to provide links to websites because even a child can search the internet by clicking on icons. This makes my "Internet Link for the Month for Internerds" column obsolete. I feel sorry to see it expire after running it as long as I have been editor, but I must move forward with the latest ham developments. The two Ts of Ham Radio are Tradition and Technology: from CW to TV video; from the old to the new, because ham radio means different thing to different people and there are always some updates that occur due to the fads and fashions of worldwide sociology and the evolution of technology that exceeded the limits of Millman and Taub's expectations and continues to follow the rules of Murphy and Moore. That being said, please read "How Low Can We Go?" which starts on Page 6. There will always be something old, something new and something blue to consider. British hams have had LF bands for many years. I'll tell you next month what they think about LF ham experiments. After eliminating BPL we may now suffer LF CW over Power Lines. We can then "experiment" with ways to eliminate it.

73, Bob W2ILP (I Like Progress)

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**HOW LOW CAN WE GO?**

ARRL CEO Dave Sumner, K1ZZ gave hams the news in QST that hams will probably soon be able to use two new ham bands. They are a MF Band 472 – 479 kHz (630 Meters) and an LF Band 135.7 – 136.8 kHz. (2200 Meters). These bands can be used for only for CW or low speed digital data. Any other modes would require bandwidths that would not be practical on the MF band which is to be only 7 kHz wide and the LF band which is only 2.1 kHz wide.

American hams have no experience with these frequencies, as new modes and experiments have been mainly on HF and VHF, with the exception of 160 Meters, which is not very popular. Before the Boeing 707, I worked for Trans World Airlines as a radio mechanic on their propeller-driven Lockheed Constellations and Martin 404s. Navigational bearings came from Automatic Direction Finders which were LF / MF receivers with loop antennas in little tear-drop radomes on the fuselage, plus wire sense antennas to eliminate the ambiguities that occur with bi-directional loops. The sense antennas were below the fuselage and wings, while the HF antennas ran above the top of the aircraft from a mast above the cockpit to the tail fins. New black boxes that also provided bearings included VHF Omni Range (VOR) Receivers, VHF communication transceivers, and even the horizontal part of the instrument landing system (the glide slope vertical part utilized a UHF receiver.)

When I worked for Collins years later, there were more complete navigation systems which provide both bearing and range (distance) with VOR and DME respectively. They were driven automatically to tune to the proper VOR-TACAN stations by flight computers so that the aircraft could navigate with less pilot involvement. Note that for good reasons *there was never any LF or MF TRANSMITTING from any aircraft.* LF transmitting was only used by ships at sea and by beacon stations - often at lighthouses – far from populated areas. There was no transmitting within 3 miles of shore to keep radiated harmonics from interfering with AM broadcast receivers, sensitive MF and HF receivers, and even telephone and telegraph lines.

(continued on page 4)