Sidebands

The Newsletter of the EAST GREENBUSH AMATEUR RADIO ASSOCIATION

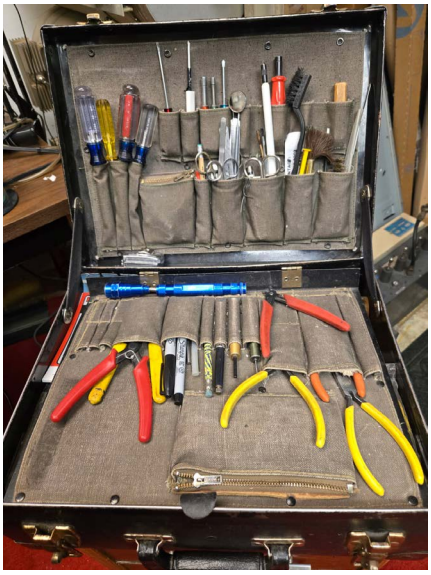
W2EGB

www.egara.org

December 2025

On the Bench: Your Essential Tookit

By Steve VanSickle, WB2HPR



I maintain and store most of my electronic tools in an attaché style carrying case. Nothing too fancy – just a solid old case that was originally made for land line telephone technicians. It just big enough to carry all the essentials needed to perform most routine electronic repairs and basic maintenance. Every so often, I look in its various nooks and crannies to clean up any dust, pieces of wire insulation and other debris that may be accumulated over time, as well as to neaten things up and inventory all the various tools and gadgets that I carry.

While performing this housekeeping, it occurred to me that there are a number of odd ball items in there that, at a glance, look kind of out of place. Then I thought, I lug these little gems around for a reason - because, over the years some have actually become go-too tools for specific operations while performing electronic repairs – especially in the field. I thought others might be interested in this collection of every-day house hold items that can become your best friends in a pinch.

Most equipment failures are due to damage from moisture, vibration, heat, or weather. These problems are often corrected using simple tools and techniques. I have divided this gadget collection into several categories: Cutting, cleaning, probing, burnishing, and gripping.

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Holiday Party Set for December 11th

EGARA's annual Christmas dinner will be held at the Schodack Diner starting at 6 pm on Thursday, December 11th. Reservations must be received no later than Monday, December 8th. RSVPs should be sent by email to EGARARadio@gmail.com.

Once again, Santa will bring a variety of holiday gifts for those who attend, with a 50/50 raffle being added this year.

Dinner will be ordered off the menu and beverage options will include beer and wine. To accommodate the diner's hours, please note that this year's diner will begin at 6 pm.

Holiday Party - December 11, 2025 - 6 pm - Schodack Diner / RSVP by December 8th

The Essential Toolkit...

First – be safe. Use approved eye wear. Be sure that the equipment is de energized – power OFF! It's always good to have a safe comfortable work area, and a small throw-away LED light and magnifier or jewelers loupe from the dollar store can be helpful.

Cutting – A wall paper knife with break-away blades is useful for stripping cable jackets (be careful – they are razor sharp). Its hard to beat a set of bonsai trimming shears for trimming the shield material when installing connectors on coax cable. They are surgically sharp, precise, easy to grip and have pointed tips for getting all those whiskers of shield braid trimmed "just right". In a pinch, a nail clipper or cuticle scissor could be used, as well.

Cleaning – A common problem with electronic gear is corroded and dirty connections. In a pinch, I have used a squirt of hand sanitizer and a piece of tissue or q-tip to clean up contact mating surfaces. Sometimes, it is necessary to reach into some very tiny contacts – that's when I reach for an interdental brush – they are available in several sizes, are tapered, and are just what the doctor ordered for plug and socket connectors with multiple conductors. They work great for cleaning tube socket contacts, too. Larger power supply connections can be cleaned with pipe cleaners, or a discarded toothbrush. If you don't have access to De-Oxit or other electrical contact cleaning solvent, use a little denatured alcohol (90 pct) or hand sanitizer in a pinch. The tip of the PL-259 coax connector can be cleaned using a piece of moistened facial tissue or eyeglass tissue to remove the residual flux after soldering.

Probing - Often times, when trying to locate an intermittent problem child, it's helpful to probe circuits to locate loose contacts, wires, of electronic components. That's when I break out my trusty bamboo skewer or wooden pic left from the BLT or club sandwich I had for lunch. If the power is OFF – I can dig a little deeper with a dental explorer (pick), paper clip, or finishing nail (brad) to clear errant solder splashes or bridges – but be sure that the power is OFF and that the capacitors are discharged.

Burnishing – Its not uncommon find badly tarnished connectors or relay contacts – particularly in older legacy (boat anchor) equipment. These can usually be remedied by using a piece of bond paper, or a business card to restore these contacts. Stubborn cases may require the use of a very small strip of wet/dry 1200 grit sanding media. I have even used a pencil eraser in a pinch. Any remaining dust and debris can be blown away by delivering a puff of air through a soda straw, HS tubing, or plastic coffee stirrer – when you don't have a can of duster.

Gripping – Remember the last time you needed three hands to solder a couple wires? You can easily do it without a vise – by using a hemostat or a clothes pin with a rubber band to hold the parts. In a PINCH – they can act as a needle nose pliers for attaching hardware or bending contacts and wires. Also great for reaching into all those nooks and crannies inside electronic chassis and enclosures, too.

Lastly, if you need to insulate a bare conductor, its handy to have a few small pieces of heat shrink (HS) tubing on board. You can shrink it with a match, cigarette lighter or (my preference) a BBQ lighter. (It holds a LOT of fuel) And for unexpected breaks in small parts, a drop of CA (super) glue can get you out of a jamb. I try to carry a small, fresh unopened tube with me – along with a small roll of Scotch 33 or 88 PVC electrical tape. I've also been known to use a drop of clear nail polish, on occasion.

So – there you have it – Beside a complete electronic tool set, this is a small sampling of odd ball items I carry in my toolbox for making emergency repairs. I've tried all these techniques, and gotten equipment up and running while in the field (several repeaters on hill tops with no access to a work bench!) I hope that this little discourse inspires you to get creative and improvise when need to get back on the air. Just use a little common sense: turn OFF the power first, and use safety glasses for your own well-being. If you have a favorite tool box "hack' – Id love to hear about it so we can share it with others.

Til later – 73 to all – and best wishes for a joyous Christmas holiday!

On the Beam
News & Notes

FCC Extends Renewal Filing Deadlines
ARRL Filing Backlog of More Than 2,500 Ham License Applications

The FCC has extended the filing deadline to March 5, 2026, for amateur radio licenses that otherwise were due to expire from October 1, 2025, to March 5, 2026. The announcement is included in an FCC Public Notice (DA-25-943) released in November.

The news follows the reopening of the federal government on November 13, following a 43-day shutdown. Since reopening, many federal agencies, including the FCC, have resumed activities, though reducing backlogs and rebounding to full operations may take some time. This includes continued delays in filing amateur radio license applications.

Federal Communications Commission

ARRL Volunteer Examiner Coordinator (ARRL VEC) Manager Maria Somma, AB1FM, explained that the announcement means that amateurs whose license expired, or will expire, between October 1, 2025, and March 5, 2026, may continue to operate upon completing a license renewal filing by March 5, 2026.

Despite resuming operations, the FCC ULS systems were intermittently available, which include the license manger system, FCC license search, and application search databases, as well as the CORES system -- all of which affected application processing.

The FCC had also briefly resumed accepting application filings via its Electronic Batch Filing (EBF) system on late Wednesday afternoon, November 19. "The EBF system is used by ARRL VEC and all VEC organizations to file exam sessions, new and upgraded licenses, as well as individual and club license filings, none of which are not being processed at this time," said Somma.

During the shutdown, Volunteer Examiners continued giving ham radio exam sessions. As a result, ARRL had over 2,500 license applications waiting to be filed with the FCC.

EGARA Repeater Project Plans to Add a "U" to the "V"

As the club prepares to relocate its VHF repeater antenna to a higher elevation on the former WTEN analog tower on the Helderberg Mountains, it plans to add a UHF repeater system as well. Club members approved financing the project during their November meeting.

Most of the cost will involve purchasing additional coax line to feed the antenna, as well as required connectors, lightening protection and grounding equipment to ensure proper operation and safety. Bob Isby, K2RHI. who owns of Algonquin Communications, is assisting the club by obtaining the needed items at his cost. Steve VanSickle, WB2HPR, has offered to donate an industrial-grade UHF antenna. The club will provide a tax deduction in return, as it is an IRS-approved 501c3 non-profit organization. The club purchased the repeater from Yaesu over the summer.

The target date for the antenna relocation and installation has not been set and will be dependent on both the weather and Bob Isby's schedule, as he has offered to manage the installation.

The VHF repeater will remain on 147.270 mhz, while the UHF frequency will be determined based on availability and once the project gets underway.

EGARA November Meeting Minutes

- The meeting was called to order at 7:00 PM. Introductions were made by all members (18) and guests (2) present.
- No report was made by President Patrick Negus, W2PMN as he was unable to attend the meeting.
- Old Business: None
- New Business: None
- Vice President's Report: No comments from the Vice President were made.
- Treasurer's Report:
- Treasurer Peter Brickman, KD2YLG updated a report on the club checking account and announced that an anonymous donation of $146.00 was made to be put towards repeater expenses.
- Board of Directors Report:
- Board member Bryan Jackson, W2RBJ noted Channel 10 had approved the club moving its VHF repeater antenna from its current location near the building to up on the old Channel 10 tower. Jackson added that Bob Isby, K2RHI would explain the project in further detail.
- Bob Isby, K2RHI detailed the club on what was needed for the VHF / UHF project (see story on page 3). Isby noted that the club would need two sets of tower mounts for the antennas, and 160 feet of coax in total for the UHF project. Isby noted that the entire project would cost around $1,200.00 (approximately $850 for the coax, and the remaining $300.00 for the tower mounts and any miscellaneous costs that may come up. Club members approved the expenditure.
- Jackson thanked everyone who assisted at the recent work party up at the repeater site and noted that the wall behind the building was patched with hydraulic cement and that the lawnmower was winterized.
- Jackson also noted that VP Walt Snyder, N2WJR was donating a VHF/UHF antenna to be installed in the attic of the RCSAR building, that a 2m/440 radio would be donated to the club by Jackson, and that member Jim Pendolino, KC2HRO, had installed the antenna and coax earlier that day.
- Jackson stated that member Matt Saplin, W2SAP who was now Asst. Chief Engineer at Channel 6 would explore the possibility of the availability of using the old Channel 6 analog tower site for future projects.
- Jackson thanked everyone who attended and helped out at the Club Week Breakfast, noted that the event went well, and that the club ran three stations.
- Jackson also noted that there would be an estate sale for former member Bill Hickey, N2XLH/SK and that club members would have first opportunity to purchase his gear if they were interested.
- Jackson also noted that the recently donated refrigerator had stopped working, and that he would contact Fiden's to repair it.
- Lastly, Jackson stated that the 2025 EGARA Christmas party would be on Thursday, December 11th at the Schodack Diner from 6:00 to 8:00.
- Member Updates: None
- Bryan Jackson, W2RBJ made a presentation on baluns.
- The meeting concluded at 7:52 PM.

Minutes recorded by Secretary, David Jaeger, K2DEJ

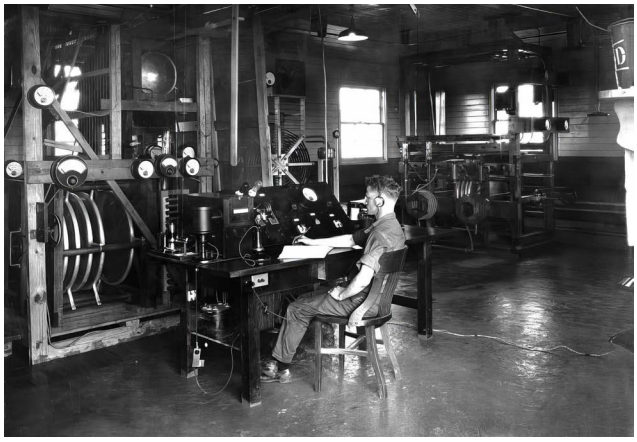
Radio History: WGEO AND WGEA
General Electric's Twin Shortwave Stations

By John F. Schneider W9FGH

General Electric Explores the Shortwaves:

In the early years of radio communications, it was believed that only the long waves (below 500 kHz) were suitable for long distance communications. RCA, the Navy, and other communications interests had invested vast sums of money to construct elaborate radio facilities for trans-oceanic communications on the long waves. General Electric, manufacturer of the prestigious and massive Alexanderson alternator, was a major recipient of these investment dollars, as well as being a major investor in the newly-formed company, RCA.

These commercial interests considered the amateur radio operators to be a source of nuisance interference, and so they successfully convinced the government to banish amateurs to the "useless" frequencies of "200 meters and below" (above 1,500 kHz). But surprisingly, the amateurs discovered that the barren fields of those "short waves" could be highly efficient for long distance communications, requiring less power and smaller antennas to achieve the same distances as the corporate long wave behemoths.



This is an early view of the General Electric radio laboratory in 1925, showing an experimental 109-meter transmitter (2,750 kHz).

In December, 1921, the news that amateur station 1BCG in Connecticut had made the first successful shortwave transmission across the Atlantic rocked the industry RCA, who had been expanding their massive "Radio Central" facility at Rocky Point, Long Island, quickly halted construction of its mile-long antennas and put a hold on all pending orders for G.E. alternators. For its part, G.E. saw the monopoly that its alternator technology gave it evaporate overnight. If they were not to be left behind in the radio communications field, they clearly needed to investigate the "short waves".

General Electric was already developing transmitter technology through the facilities of its medium wave station, WGY, which began broadcasting in February of 1922 from Building 36 at G.E.'s massive Schenectady factory complex. WGY had a dual purpose – to provide programs as an incentive for the public to buy G.E./RCA radio receivers, and to serve as a laboratory for the development of radio transmission technology.

In October of 1923, G.E. installed an experimental shortwave transmitter on Van Slyck Island, adjacent to the G.E. plant in Schenectady, NY. The 10 kW transmitter operated on 105 meters (2,850 kHz), using the experimental call sign 2XI which had been acquired for other purposes in 1916. Its purpose was to investigate shortwave propagation and coverage. The transmitted audio was of little importance, so 2XI simply rebroadcast the programs of WGY. Occasionally, the station was used to relay certain WGY programs to KGO in Oakland, California, G.E.'s newest medium wave station.

As mentioned, G.E.'s engineers and scientists were also exploring the development of medium wave transmitters at WGY, but this experimental work was increasingly interfering with the regular broadcast activities of the station. It was finally decided that a more ample experimentation space was needed, and that it should be located some distance from the industrial electrical interference at the plant. For this new "Radio Laboratory", a 58-acre plot was acquired at the corner of Mariaville Road and Burdeck Street in South Schenectady/Rotterdam Township, three miles west of the plant.

G.E.'s Radio Laboratory:

Construction of the facility took place during 1924/25. A main 60x100 ft. brick building was built, which housed the power equipment, high voltage rectifiers, motor generators, a water-cooling system, and the audio amplifier and modulator equipment. There were four smaller wood-frame buildings located on the property, housing individual transmitters for different projects. Cooling water was piped from the main building to each of these structures, and the modulator power was fed to the transmitters on overhead lines.

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GE's Shortwave Days...

There were three 300 ft. steel towers, arranged in a triangular configuration, which allowed for the construction of many different types of antennas. There was also a fourth steel tower, 150 ft. tall, and three wooden masts which supported a 109-meter wire antenna. The WGY transmitter and antenna were moved to this location and were fed by program lines from the Building 36 studio. The 2XI operation at Slike Island was shut down.

This photo shows the W2XAD 25 kW and W2XAF 50 kW transmitters in May of 1939. The control desk is at left, and the intermediate and power amplifier cabinets for the two transmitters are at right. The W2XAF transmitter would soon be shut down and replaced by a new 100 kW unit.

The main building contained two transmitters– 2XAG was on 790 kHz with 20 kW, and it served as the WGY transmitter; 2XAH operated with 50 kW on 192 kHz long wave. Shortwave operations took place in the wooden buildings – one on 109 meters (2,752 kHz), and another pair on 20 and 40 meters. They were given the experimental licenses 2XAF and 2XAG. The purpose of these stations was to test shortwave propagation, antennas, and transmitter designs. After experimenting with a variety of frequencies, it was determined that 31 meters was the best choice for daytime propagation, while 19 meters worked best at night. This decision foreshadowed the creation of these international broadcasting bands which are still in use today.

As with 2XI, WGY's program audio was used as the shortwave test signal. These programs soon developed a following from regions outside WGY's normal coverage, and letters started coming in from around the world - particularly Europe and South America. Responding to this demand, the stations began broadcasting on a regular schedule - 2XAF starting on February 10, 1924, and 2XAD on August 28, 1925. In 1927, these call signs became W2XAF and W2XAD. (The "X" in these call signs indicated they were licensed as "Experimental Relay Broadcast Stations".)

By 1930, regular operation saw W2XAD operating at 15,480 kHz with 18 kW from 10:00 AM to 3:00 PM Eastern Time, targeting Europe. Then W2XAF broadcast to Latin America on 9,530 kHz using 25 kW from 4:00 PM to midnight. The transmitter powers were later raised to 25 kW and 40 kW, respectively.

The Stations Attract More Listeners:

As shortwave receivers became more common among amateur operators and listeners, the programs and schedules of G.E.'s two shortwave stations became increasingly significant. This was no longer just a grand experiment; it had developed a significant audience around the world. Increasingly, separate programs were being produced for these shortwave audiences, featuring American music, Broadway shows, the Metropolitan Opera, baseball games, and bridge games. Much of this was aimed at American expatriates living overseas rather than foreign cultures. Virtually all programs were in English.

Notable in the early history of these programs were specialty "stunt" events, usually arranged by Clyde Wagoner, G.E.'s News Bureau Director. They originated on the shortwave stations but were also broadcast to the WGY audience. Among these were:

- Trans-Pacific pilot Charles Kingsford-Smith talking over the air to his mother in Australia. (May, 1928)
- The September, 1929 arrival of the Graf Zeppelin at Lakehurst, NJ, broadcast in English and German and aimed at listeners in Europe.
- Boxer Max Schmeling talking to his mother in Germany via shortwave. (May 27, 1930)
- A series of programs transmitted to passengers traveling on the Canadian National Railways.
- A radio bridge game, played between a team in Schenectady and another in Buenos Aires.
- A two-way conversation by shortwave between W2XAD and VK2ME in Australia, transmitted over both stations. (February 4, 1930)
- Transmitting Clyde Wagoner's voice around the world and back to Schenectady in 1/8 of a second, relayed around the planet by a series of three foreign shortwave stations. (June 30, 1930)
- The "Shot Heard Round the World" – the sound of a musket fired by the governor of Massachusetts on Patriot Day, also relayed around the world.

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GE's Shortwave Days...

W2XAD and W2XAF served as an important communications link for the three expeditions of Admiral Richard Byrd to Antarctica (1928-30; 1934; and 1939-40). A special directional antenna aimed at "Little America" in Antarctica, designed by Ernst Alexanderson, amplified the station's signal ten times in the direction of Byrd's camp. Entertainment programs were transmitted to the expedition crew every other Sunday night at 11:00 PM, sponsored by major newspapers around the country and repeated by NBC on 51 domestic stations. Then, after the domestic stations cut away, the G.E. stations broadcast the "Byrd Mailbag", reading letters sent by friends and family to the expedition crew, and averaging 75-100 letters a night. 1

In 1935, a new station slogan was adopted: "The Voice of Electricity". The stations' signature ID sound was the recorded crash of a 10-million-volt arc created in the G.E. laboratories, and it was broadcast at the beginning and end of each transmission.

W2XAF radio studio in May of 1939, broadcasting a program in Spanish. Announcer José Flores is seated at microphone; Prof. Vicente Tovar is standing; and Aida Trennert is at the piano.

In many parts of the world, the two G.E. stations were the strongest signals coming out of the United States. By 1937, the program hours had increased –290 hours per month for W2XAF, and 220 hours for W2XAD. As the notoriety of the stations increased, international goodwill and foreign language programs became an important part of the G.E. stations' schedules. NBC produced a series of special programs aimed at South America, broadcast over the stations in 1938. A weekday news program, called the "American News Tower", was inaugurated in June, 1937, consisting entirely of news of the United States as reported by the Press Radio Bureau. It was designed specifically to counter the false or distorted news being broadcast by the fascist stations in Europe. A weekly "American Travelogue" program was also created, describing the most interesting tourist spots of the country, heard in English, French and Spanish.

Focus on South America:

In the late 1930's, U.S. government officials were becoming concerned about the increasing amount of propaganda coming out of the powerful German and Italian radio stations and directed at South America. Germany's eleven 100 kW transmitters practically dominated the shortwave bands in South America. Their continuous propaganda in Spanish and Portuguese was aimed at winning favor in South America, and was thick with anti-American and anti-British misinformation. Of particular worry to officials was Argentina with its decidedly pro-fascist military government. By contrast, the United States' eleven privately-owned stations were under-powered, under-funded, and mainly repeated domestic network programs in English totaling just 40 hours a week. A "Variety" article complained that the American stations' programs were "practically meaningless" to the South American population. Charlie McCarthy, Fred Allen, Abbott and Costello were cited as being wasted content for non-English speaking listeners. Only a handful of programs were in Spanish or Portuguese.

January, 1941 -- The 100 kW WGEO transmitter is at right; the older 50 kW transmitter at left broadcast for WGEA.

As this attention to South America increased, America's international shortwave stations came under closer government scrutiny. Bills were introduced in Congress to establish a government-owned station, but they went nowhere. Instead, in 1938, the Coordinator of Inter-American Affairs was created, headed by Nelson Rockefeller. Its purpose was to improve the facilities and program content of the private international radio broadcasters, as well as materials being generated by the motion picture studios. Financial grants were given to the broadcasters to improve their transmission facilities. Five new frequencies were authorized by the FCC , and two of these were assigned to the G.E. stations. Pro-government news and commentary material was sent to the stations via teletype for their suggested use, although they were not permitted to identify the government as the source of the material. In September, 1939, all shortwave licenses were upgraded from experimental to commercial, allowing them to generate advertising revenue for the first time. With that change, all stations were given new commercial call signs – W2XAF became WGEO, and W2XAD was now WGEA. A third General Electric shortwave station, just inaugurated in California, was changed from W6XBE to KGEI.

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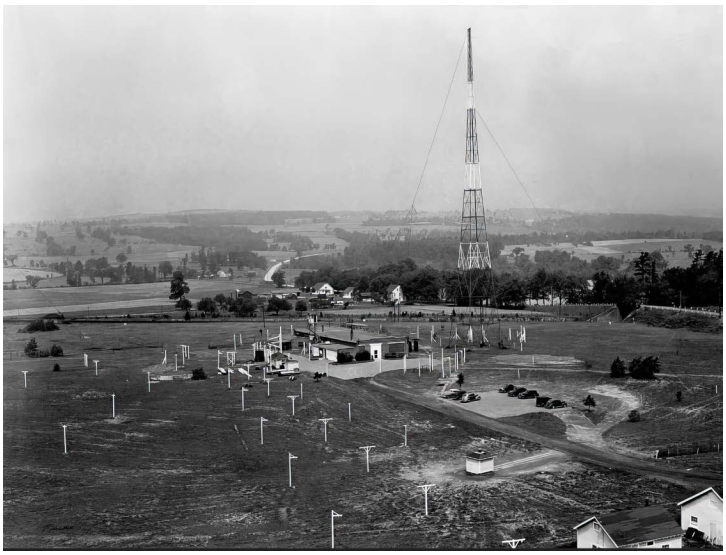
GE's Shortwave Days...



The G.E. transmitting plant at South Schenectady, July 1944. The white posts carried the transmission lines to the different antennas – most of which are out of view.

These additional investments resulted in many improvements at the American shortwave stations, especially after Pearl Harbor and America's entry into World War II. By February, 1942, the eleven stations were broadcasting 132 hours per day in 19 languages, and all were operating with at least 50 kW. In Schenectady, WGEO installed a new 100 kW transmitter, nicknamed "Big Bertha" - the most powerful transmitter in the country at that time. Eight new curtain antennas, designed by Ernst Alexanderson, were constructed for different bearings and frequencies, focusing the signals on their targets with 30-degree beams. This antenna gain gave WGEO an effective power of 1,200 kW aimed at South America. Newly-designed audio peak limiters increased the stations' average modulation.

Additional studio space in the brand new WGY studio building allowed for more programs to be produced for shortwave audiences. By April, 1942, the three G.E. shortwave stations – WGEO, WGEA, and KGEI – were broadcasting 24-1/2 hours per day in fourteen languages. One notable program, beginning in June of 1942, was called "Salute to the Men in Foreign Service", heard on all three stations and aimed at American servicemen and embassy officials overseas. It was also received and rebroadcast by Australian Broadcasting Company on medium wave.

Despite these improvements, and the increase in goodwill and pro-American propaganda being broadcast by America's shortwave stations, the results were still not satisfactory. In August, 1942, "Washington Star" columnist Blair Bolles wrote "The Big Berthas of the United States' shortwave war are 12 transmitters owned by private broadcasting companies, each of which broadcasts its own conception of proper propaganda."

The Government Takes Over:

The ultimate solution was implemented on November 1, 1942, when the government took control of all shortwave broadcasting in the United States. Essentially, it leased the program time of all 14 transmitters belonging to seven private companies on five-year cancellable contracts. These companies retained title to the equipment and facilities, with their engineers continuing to man the transmitters. All operating costs were borne by the government, at no profit to the station owners. The newly-created Office of War Information set up studios in New York and San Francisco where it produced programs in eleven languages, supplemented by certain government-supervised programs created by NBC and CBS. . These were fed over equalized phone lines to the various transmitter locations in what was referred to as the "Bronze Network". The programming staffs of all the shortwave stations were now O.W.I. employees. This government operation would eventually take the name of "The Voice of America". At WGEO and WGEA under the OWI, broadcasting time nearly doubled. The old retired W2XED 25 kW transmitter was updated and put back on the air as WGEX. More rhombic and curtain antennas soon sprouted on the G.E. grounds.

Through the course of the war, the government invested large sums of money to increase the country's shortwave broadcasting capacity. In 1943, it purchased 22 new RCA and G.E. transmitters which were placed into operation around the country. In 1944, three new 200 kW transmitters were inaugurated at Crosley's WLWO in Bethany, Ohio. That same year, CBS opened a new transmitter site in Delano, California, and NBC opened a facility in Dixon, California. By the end of the war, the United States had the most formidable arsenal of shortwave transmitters in the world.

Post-War Uncertainty:

But once the war was over, this vast shortwave complex seemed to many in government to be an anachronism. Much of the wartime infrastructure was being dismantled as the country reverted to a peacetime economy, and there was considerable internal debate as to what should be done with the Voice of America.

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GE's Shortwave Days...

Ultimately, a scaled-back operation was transferred to the State Department in 1945, and this small operation was reluctantly funded by Congress until 1948, when the beginnings of the Cold War and the Berlin Blockade made it clear that international broadcasting still had a future. Nonetheless, the VOA was still nothing more than a producer of programs, and the leasing of 36 private shortwave transmitters continued as before.

In 1953, Senator Joseph McCarthy initiated congressional hearings to investigate the claimed existence of "subversives" at the VOA. While ultimately proven to be unfounded, the negative attention resulted in a drastic reduction of its budget.

Finally, government leasing of a number of the private shortwave transmitters ended on June 27 of that year, and most of these stations were immediately shut down by their owners. The NBC and CBS transmitters in Bethany, Dixon and Delano continued to operate, but its East Coast transmitter sites were closed. In Schenectady, WGEA was discontinued but WGEO continued operations as a VOA relay station.

The WGEO transmitting plant in 1957. This was late in its life, when it served as a transmitting station for the Voice of America. Operations ceased here in 1963.

The end for the Schenectady stations finally came on November 1, 1963, when the VOA took direct control of the shortwave operations in Bethany, Dixon and Delano. That was also the year it opened its sprawling new shortwave complex in Greenville, North Carolina. The Schenectady operation, with its tired old transmitters, was no longer needed and was shut down. The transmitter building was demolished and some of the property eventually morphed into suburban neighborhoods. But one part of the facility continues in operation today as the site of the WGY medium wave broadcast tower, where it has operated continuously since 1924.

Merry Christmas from Santa & EGARA

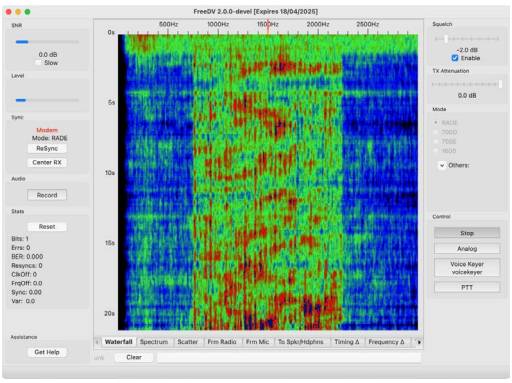
FREEDV: Digital Voice that Loses the Noise on HF

If you're tired of fighting the noise on the HF bands, now there's a way to make contacts using a digital voice mode that breaks through the chatter and splatter. Best of all -- it's Free!

It's FREEDV and it uses your computer to transcode your voice into a data digital stream that is sent by your transceiver to other hams who are also running the system. The result is an FM quality sound that overcomes and ignores interference and adjacent splatter caused by other stations that are operating.

FreeDV is a suite of digital voice modes for HF radio. The flagship mode is the Radio Autoencoder (RADE). You can run RADE using a free GUI application for Windows, Linux and macOS that allows any SSB radio to be used for high quality digital voice on the HF bands.

FreeDV technology is being developed by an international team of radio amateurs working together on Machine Learning, DSP, coding, design, user interface and testing. Current development is being generously funded by an ADRC grant and the Software Freedom Conservancy. All of the software is free to download and use. The FREEDV site is at: ***https://freedv.org/***



The FREEDV program interface

Controlled testing suggests that the RADE technology used by FREEDV compares favorably to SSB on high and low SNR channels. The following guide can help you get started:

What you need

- A SSB receiver or transceiver
- FreeDV GUI software -- It can be download for macOS, Windows and Linux at: **https://freedv.org/download/**

Connecting Your Radio

If you don't have a built-in sound card for digital modes you can use the normal audio inputs and outputs of your radio. The same cables and hardware that you use for other digital modes that are based on PC programs will work with FreeDV, but you will need a second sound interface for the microphone and speaker connections to the FreeDV program. A USB headset of the sort used by gamers is all you need for the second sound interface.

System Requirements

FreeDV is officially supported on the following operating systems and versions:

- Windows: Windows 10 and later
- macOS: macOS Big Sur (11.0) and later (ARM and Intel)
- Linux: Ubuntu 22.04 LTS and later, Fedora 42 and later

While it may be possible to execute FreeDV on additional platforms and distributions (especially ones similar to ones currently supported), this is not guaranteed.

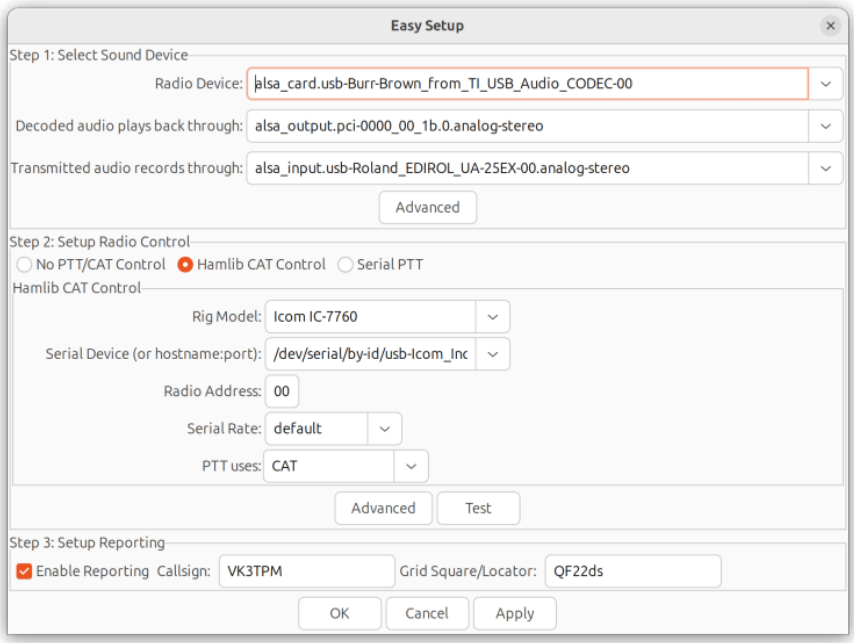
Easy Setup

Upon starting FreeDV for the first time, the Easy Setup dialog will appear. This is a streamlined setup process for FreeDV optimized for hardware commonly used by amateur radio operators and is divided into three sections:

- Sound card configuration,
- CAT/PTT control, and
- Reporting.

-continued on page 11-

FREEDV... Digital HF Voice



These sections are shown at the left. To configure your sound card(s) using Easy Setup, simply select the sound device associated with your radio and the microphone and speaker devices you wish to use to hear decoded audio as well as to transmit audio. If you're setting up a receive-only station, you can choose "None" for the transmit audio device.

Additionally, if you are using a Flex 6000 series radio on the Windows platform, FreeDV will automatically select the DAX TX sound device. It is necessary only to select the correct "slice" for the radio sound device and the two devices to use for analog receive and transmit (e.g. your computer's built in microphone and speaker devices).

Note that some configurations (for example, SDR setups involving multiple radio sound devices) may not be able to be configured with Easy Setup. For those, you can choose the "Advanced" button. You will see a more complex audio configuration window with the ability to test audio in and out. Do try Easy Setup first though.

CAT/PTT control

Easy Setup supports three methods of radio control:

- No radio control (e.g. using a VOX audio device such as SignaLink),
- Hamlib CAT control, and
- Serial port PTT control.

Simply select the option that matches your radio setup and the required fields will appear. For Hamlib, these are typically the type of radio you're using as well as the serial port it's connected to (or TCP/IP hostname:port). Serial port PTT control requires the serial port your radio is using as well as whether your radio's PTT is triggered via the RTS or DTR pin (and the required polarity for either).

If required, the "Advanced" button in this section will allow you to configure PTT input (e.g. for a footswitch) and additional VOX related options. The "Test" button will emit a constant carrier on the selected radio sound device as well as enable PTT to allow you to adjust your radio sound levels (see "Sound Card Levels" below).

Reporting

While not required, it is recommended to enable reporting so that others can see who is currently receiving them. This also allows the FreeDV application to control the radio's frequency and mode. Both sides of a contact must have this enabled in order for contacts to be reported. To configure reporting, simply enable the feature and enter your call sign and current grid square/locator.

Sound Card Levels

Sound card levels are generally adjusted in the computer's Control Panel or Settings, or in some cases via controls on your rig interface hardware or menus on your radio. In-app adjustments can also be done by using the 'TX Level' slider at the bottom of the main screen; anything below 0 dB attenuates the transmit signal. When FreeDV is running, you can observe the sound card signals in the main window tabs (From Radio, From Mic, To Speaker).

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FREEDV... Digital HF Voice

On receive, FreeDV is not very sensitive to the From Radio level, adjust so it is mid-range and not clipping. FreeDV uses phase shift keying (PSK) so is not sensitive to amplitude.

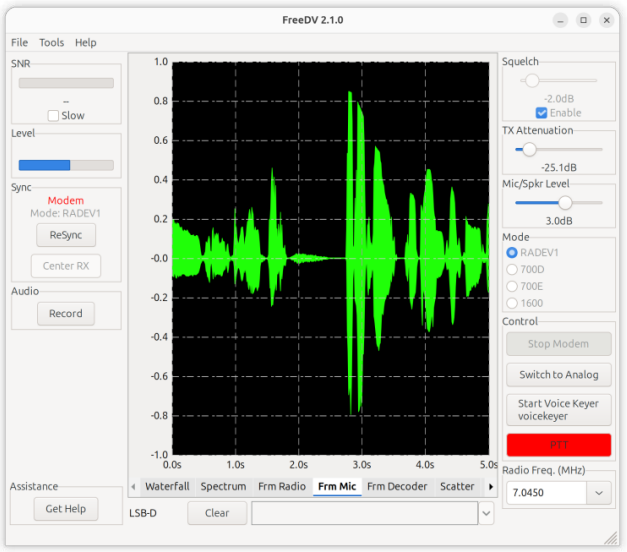
The transmit level from your computer to your radio is important. On transmit, adjust your level so that the ALC is just being nudged. More is not better with the FreeDV transmit signal. Overdriving your transmitter will lead to a distorted transit signal, and a poor SNR at the receiver. This is a very common problem.

FreeDV can drive your transmitter at an average power of 40% of its peak power rating. For example 40W RMS for a 100W PEP radio. Make sure your transmitter can handle continuous power output at these levels, and reduce the power if necessary Adjust the microphone audio so the peaks are not clipping, and the average is about half the maximum.

Rig Audio Processing

FreeDV likes a clean path through your radio. Turn all audio processing OFF on transmit and receive:

- On receive, DSP noise reduction should be off.
- On transmit, speech compression should be off.
- Keep the receive audio path as "flat" as possible, no special filters.
- FreeDV will not work any better if you band pass filter the off air received signals. It has its own, very tight filters in the demodulator.



Microphone level

A good microphone, fairly close to your mouth, at a good level makes a huge difference to how you sound over digital voice.

When you transmit you'll see a waveform display called "Frm Mic". The level should average about 0.5 in general and you should avoid clipping or consistently low level. Since FreeDV 2.0.2 there has been a microphone automatic gain control (AGC) enabled by default in the Filter window. This can help keep your levels right but tends to have a slow initial attack time.

USB or LSB?

On bands below 10 MHz, LSB is used for FreeDV. On 10MHz and above, USB is used. After much debate, the FreeDV community has adopted the same conventions as SSB, based on the reasoning that FreeDV is a voice mode.

As an aid to the above, FreeDV will show the current mode on the bottom of the window upon pressing the Start button if Hamlib is enabled and your radio supports retrieving frequency and mode information over CAT. If your radio is using an unexpected mode -- such as LSB on 20 meters -- it will display that mode on the bottom of the window next to the Clear button in red letters. When a session is not active, Hamlib isn't enabled, or if your radio doesn't support retrieving frequency and mode over CAT, it will remain grayed out with "unk" displaying instead of the mode (for "unknown").

Which mode?

The latest mode, RADE, uses machine learning to significantly improve on the performance of the earlier modes. RADE sounds more natural and performs better in low signal to noise conditions. Earlier modes, such as 700D, have been kept in the FreeDV app for compatibility with hardware such as EzDV and SM1000 which cannot run RADE.

For much more detail about the FreeDV please refer to the user manual, which can be downloaded at:

https://github.com/drowe67/freedv-gui/blob/master/USER_MANUAL.md

A wealth of information is also available at the FREEDV website at: ***https://freedv.org/***

Estate Sale

The family of Silent Key Bill Hickey, KD2WQN, has asked EGARA to assist in the sale of his Amateur Radio equipment and related technology items. Each item listed has been checked and tested (unless otherwise noted) to provide an accurate description of its condition. Prices are based on current market value. All sale proceeds will be forwarded to Bill's family. Additional items will be listed as they become available from the test bench.

- **Alinco DR-MD520T Tri-Band Mobile Radio. Excellent condition with box, Microphone, manual and cables. Power output is 55 watts on the 2 M band, 5 watts on 1.25 M and 40 watts on 70 cm band. Operates in digital and analog with mixed mode in VFO or Memory mode. A Built-in GPS receiver supports APRS in both analog and digital modes. Up to 4000 Memory Channels, 10,000 Talk Groups, 250 zones, 250 scan lists and up to 500,000 digital contact lists. Receiver capabilities include FM Broadcast and AM Aircraft Bands. Color LCD screen. Current retail price $449. Asking $325.**

- **ICOM IC-71A Communications Receiver. Coverage: 100 kHz – 30 MHz, AM, CW, SSB, RTTY, FM. Features include a quadruple conversion receiver, direct keypad entry, two VFOs, 32 memories, notch filter, noise blanker, and passband tuning. Scanning functions are included. Tuning steps are down to 10 Hz increments. In very good condition, checked and working properly. Current Retail market value is $300. Asking $225.**

- **Canon Selphy Photo Printer - Model CP740. Photo printer for 4x6 and 4x8. Prints directly from memory card or USB connected to computer. Includes color LCD screen. Print resolution is 300x300 dpi. Appears to be in good condition, but untested. Make offer.**

December is YOTA!

Youth on the Air
Activities for the Next Generation of Amateur Radio Operators in the Americas

During the entire month of December, many young hams around the world will be active with YOTA — Youth on the Air — as the suffix in their call signs. In the US, look for 1x1 special event calls and regular call signs. Many of these young hams are encouraging other youth to be active on the amateur radio bands.

Some will give demonstrations at their schools, introducing ham radio to friends while making QSOs or enjoying a great pile-up. Licensed and unlicensed youth (with the help of a licensed operator) will be making QSOs. Everyone is reminded that this could be the first radio contact ever for some newcomers. Help fill their logbooks!

Use this direct link to the DX cluster to spot active stations during December YOTA Month:
https://events.ham-yota.com/spots

New Member - Welcome KE2GRD!

Raymond Coonradt, KE2GRD, is the latest Amateur operator to join EGARA. He's a newly Technician who received his license in September. Ray's QTH is East Nassau. Please welcome him to the club! We look forward to his active participation and assisting him as he joins EGARA and the Amateur Radio community.

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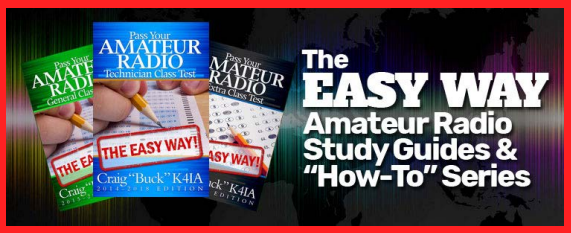

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CALENDAR

December 11, 2025 @ 6 pm - Annual club holiday party, Schodack Diner, Route 20, Schodack. RSVP by December 8th to Egararadio@gmail.com.

January 8, 2026 @ 7 pm - Regular Monthly Club Meeting, Search & Rescue Building

Pro Tip: Use a Computer Power Supply for 12V

You can use a computer power supply to get 12 volts DC to run many ham radios or other devices that require 12 volts in your shack.

Connect the positive lead of your 12 volt device to the yellow +12 volt wire and the ground lead to the power supply's black GND wire. It's also a good idea to place a load on the 5 volt rail using a 10-ohm resistor between the red (+5V) and black (GND) wires. The 12V output rail may not work otherwise.

To get the power supply to turn on, short the green (PS_ON) wire to any black ground (GND) wire.

BEFORE connecting your equipment, it's recommended you use a multimeter to verify the voltage. Also, double check the rating of the power supply to verify it can handle the anticipated load your equipment requires.

Remember safety first! Always work with the power supply unplugged from the wall. Internal capacitors can hold a charge, so be cautious.

The East Greenbush Amateur Radio Association

Organized in 1998, by Bert Bruins, N2FPJ, (SK) and Chris Linck, N2NEH, the East Greenbush Amateur Radio Association, an ARRL affiliate, is committed to providing emergency services, educational programs, and operating resources to amateur radio operators and residents of the Capital Region of New York State. The club station is W2EGB. The club also has several VHF and UHF repeaters open to club members and the public.

GEAR FOR SALE

- Any Tone 5555N 10 meter Radio. AM, FM, SSB, and CW. 30 WATTS. Like New. Radio, Mic, Power Cord, mounting bracket and Manual. 28 to 29.7 MHz. Nice and clean. Factory carton. $155.00 Runs on 12V. Includes shipping From FL to NY.

  Contact John at: radiowizzz@aol.com

- Yaesu 891 HF All Mode Mobile Transceiver. Like new with box and manual. Used only twice for field work. Legendary receiver design in a compact package, providing exceptional performance for both the mobile and stationary Amateur operations. High end 32-Bit floating point DSP enhances the operating experience providing a cleaner, clearer signal and reducing overall operator fatigue. Retail is $650. Offered at $525.

- Kenwood TS-690S Transceiver, 160-6 meters, with user and service manuals. Includes microphone. Runs on 12 volt PS. Great radio in excellent condition and ready to go. $475.

  Contact Bryan @ W2RBJ@outlook.com

Sell your unused gear with a free ad in Sidebands!
Send details to: W2RBJ@Outlook.com