ARCI NEWS

www.antique-radios.org

THE ANTIQUE RADIO CLUB OF ILLINOIS

Affiliated AWA
Antique Wireless Association

Volume 41, Issue 6
December 2021

Upcoming ARCI ONLINE MEET SCHEDULE

BI-MONTHLY LIVE ONLINE MEETINGS CONTINUE
Generally, 3rd Saturday of the Scheduled Month

THE AGENDA FOR EACH LIVE ON-LINE MEET
IS ISSUED JUST BEFORE THE EVENT

10AM – 12 NOON CENTRAL

SATURDAY, December 18, 2021 10AM CT

10:00 AM CT - NOON CT (Zoom Meeting opens 15 minutes before)
Watch your email for Registration Information

Saturday January 15, 2022
Saturday March 19, 2022
Saturday May 21, 2022
Saturday September 17, 2022
Saturday November, 2022

Online Meet Schedule can be found here
http://www.antique-radios.org/schedule.html

Upcoming ARCI IN-PERSON MEET SCHEDULE

December 5, 2021	Indoor Business Meeting 7:00 AM to 11:00 AM	American Legion Hall Carol Stream, IL

Sunday Feb 6, 2022 - Carol Stream, IL
Sunday April 3, 2022 - Carol Stream, IL
Sunday June 19, 2022 - Wheaton, IL - Dupage County Fairgrounds - guests of Six Meter Club
Friday August 5 & Saturday August 6, 2022 - Radiofest - Addison, IL Medinah Shriner Center
Sunday October 2, 2022 - Carol Stream, IL
Sunday December 4, 2022 - Carol Stream, IL

TABLE OF CONTENTS

PRESIDENT'S MESSAGE 3

ARCI UPDATES
October Swap Meet photos by Daniel Schoo..... 4 - 6

RADIOFEST Planning Update - Steve Muchow 7

ARCI ONLINE ZONE - Tom Zaczek
Live Online Meetings on YouTube ..... 9 - 10
Full Schedule ..... Inside Cover

RADIO ZONE
The Speed of Communication
by David Kruh ..... 11 - 17

RADIO ZONE
Teaching Radios
Concord Demonstrator by Tom Kleinschmidt..... 18 - 23
Sonar Wall Unit by Harry Blesy ..... 23 - 26

HISTORY ZONE
The Legacy of the Zenith Broadcasting Station
by Amanda Marcus..... 27 - 29

RADIO ZONE
Restoring a Grundig Drucktasten-Boy-57E Portable AM/Shortwave Tube Radio
by Tom Zaczek ..... 30 - 37

HISTORY ZONE
The J. W. Miller Co. Model No. 555 Transistall Radio Kit
by Steve Muchow ..... 38 - 44

ADS & Classifieds 45

Clubbing Around 47

RENEWAL FORM 48

WELCOME TO ARCI

Visit ARCI on the WEB

Website: www.antique-radios.org

FaceBook: https://www.facebook.com/ARCI.org

YouTube:https://www.youtube.com/channel/UCEyMw9QGrvcquC1vZBvHWbQ

Join ARCI

http://www.antique-radios.org/membershipinfo.html

-or-

Use the application in this newsletter

Leadership

President	Tom Kleinschmidt
Vice President	Jim Novak
Vice President	Tom Zaczek
Treasurer	Rudy Hecker
Secretary	open
Membership	Elaine Hecker
Radiofest chair	Steve Muchow
Director on-line events	Matt Pollack
ARCI News editor	Maureen Blevins

Contact ARCI

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PRESIDENT'S MESSAGE

We will have a business meeting at the December 5th swap meet in Carol Stream. The business meeting start time will be around 9:30 AM. Here is the agenda:

1. Election of slate of officers as listed below by voice vote of attendees – Tom Kleinschmidt

   President – Tom Kleinschmidt
   Vice president - Tom Zaczek
   Treasurer – Rudy Hecker
   Secretary – Jay Stewart

2. Treasurer's report – Rudy Hecker
3. Radiofest 2022 report – John Stone for Steve Muchow
4. New business

The meet schedule for 2022 is complete. It is listed here and in its traditional locations in this newsletter and on the web page.

ARCI on-line meets - 10am start
Saturday January 15th
Saturday March 19th
Saturday May 21st
Saturday September 17th
Saturday November 19th

ARCI Swap Meets – 7am start
Sunday Feb 6th - Carol Stream, IL
Sunday April 3rd - Carol Stream, IL
Sunday June 19th - Wheaton, IL - Dupage County Fair grounds
guests of Six Meter Club
Friday August 5th & Saturday August 6th - *Radiofest* - Addison, IL
Medinah Shriner Center
Sunday October 2nd - Carol Stream
Sunday December 4th - Carol Stream

The ARCI on-line meets are now scheduled every other month; fall through Spring. Many people are busy during the summer with outdoor activities, so those meets have been dropped. The move from monthly to every other month is to maintain quality and respect the time invested by Matt Pollack and Tom Zaczek. As always, dates and venues are subject to change, so keep an eye on the web site, email blasts and newsletters for the latest details.

ARCI UPDATE

A few photos from our **October 2021 SWAP MEET** which was held at the American Legion Hall on S. Gary Ave in Carol Stream, IL. *Photos by Daniel Schoo*

We were fortunate to have full use of the indoor space at the American Legion Hall as there was light rain on and off. The seller turnout was lighter then usual, likely due to the weather. The general member turnout was good. The bar area tables were filled with donated items.

Many thanks to ARCI member Marshall Pochay who graciously loaded up his van in addition to Tom Kleinschmidt's pickup truck load. Happy to report all but a few items found new homes! For a short time after the meet the ARCI storage locker was nearly empty. Look forward to many new items at the December meet.


ZENITH

Here is a link to more photos on the club website. http://www.antique-radios.org/pictures.html

RADIOFEST 2022

Friday August 5 – Saturday August 6

Medinah Shriners
550 N. Shriners Drive
Addison, IL 60101

RADIOFEST 2022 PLANNING UPDATE

By Steve Muchow, *RADIOFEST* Chair

Typically, the yearly ARCI October meeting is our first opportunity to discuss the recently completed *Radiofest* held in August. We review *Radiofest* activities and decide what worked and what areas could be improved for the next event. Obviously, with the cancellation of *Radiofest 2021*, the focus at the October meeting this year shifted to hosting a successful swap meet. Indeed, it was a great event with a huge number of auction items available. We are hoping to be back on track in 2022 to review *Radiofest 2022* at the October meeting.

Initial planning for *Radiofest 2022* is underway. While the planning focus is typically on *Radiofest* activities and logistics, we also realize that we are not yet "out of the woods" with the Covid-19 pandemic. It is still early and even though we are in a "better place" now than last year, there are many unknowns. Time will tell if there may be restrictions or other factors imposed that might influence *Radiofest 2022*. At this point, we are optimistically moving forward with the plans described below.

We are planning to again host *Radiofest 2022* at the Medinah Shriners Facility in Addison, Illinois with the adjacent Hilton Garden Inn providing overnight accommodations. The Medinah Shriners is located at the junction of I-355 and Army Trail Road in Addison, Illinois. This is a very convenient location that can be accessed from all directions within the entire Chicago area. The Hotel has agreed to provide a discounted room block–rate for attendees. This discounted rate along with reservation details will be announced in a future issue of ARCI NEWS and on the ARCI Website. The preliminary plan is to offer the same great activities that *Radiofest* is known for. This includes the world-class Friday Night Auction followed on Saturday by the large outdoor swap meet and donation auction. Additional Saturday activities typically include speaker programs, the popular ARCI outdoor ham station and an evening dinner/banquet. This format tends to offer something for everyone and has proven to be popular with *Radiofest* attendees. Again, this is preliminary and details will evolve over time.

Clearly, there are many elements involved in hosting a successful *Radiofest*. It is the enthusiasm and dedication of the many volunteers that continues to make this world-class event possible. Thank you to all of the volunteers that have helped over the years and we hope that you will, again, be willing to assist next year. Please let me know if you would consider being a part of the *Radiofest* Team. Contact me at smuchow@att.net with questions or comments.

Watch future issues of ARCI NEWS, the ARCI Website and E-mail blasts for future information on *Radiofest 2022*!


A Merry Christmas
You're in my Christmas circuit
And on the waves of thought
A Happy Christmas and New Year
To you is gladly brought.

ARCI ONLINE ZONE
By Tom Zaczek

ARCI Online Meet #17

SATURDAY, December 18, 2021
10AM CT

Join in on your computer, pad or phone to be a part of our online video Meetings
You don't need to be an ARCI member!

Stay tuned to the emails from ARCI for the registration link for this meeting. After registering, you will receive a confirmation email containing the link required to join the meeting

IMPORTANT - You need to receive the confirmation email back because this link gets you into the meeting when the time comes. So, if you don't receive the confirmation email it could be that it is in your spam folder.

Reminder: ARCI is now on YouTube. All the prior Online Meets (through September 2021) are available for viewing. You can find the channel here: https://www.youtube.com/channel/UCEyMw9QGrvcquC1vZBvHWbQ

Check it out! Visit ARCI's YouTube channel where you can click the free "subscribe" button and get notified when a new video comes out!

AGENDA (may be revised without notice)

9:45 AM – OPTIONAL PRE-MEETING – Time to get logged-in and troubleshoot any access issues.

10:00 AM – Meeting Agenda

- Introduction – *Tom Zaczek*
- We're on YouTube – *Matt Pollack*
- PRESENTATIONS: All of the presentations have not been lined up yet for this meet, but this section is where we have several 15-to-25-minute presentations of interest in the areas of radio restoration, company history, and technology, just to name a few.
- SHOW & TELL, TIPS & TECHNIQUES: 1-to-3-minute informal presentation of something you'd like to share with the meeting … Join in and spend a few minutes to show your item, a helpful tip, radio restoration technique, or how you solved a tough restoration problem

- ARCI SWAP MEETS- An update on the upcoming swap meet and the one we just held
- ITEMS WANTED----ITEMS FOR SALE
    - If you want to offer something for sale OR see if others have what you're looking for, please use this time to discuss it.
- OPEN SESSION: Non-moderated chat session as time permits

12:00 PM – Close

Planned ARCI live on-line video meets

We are changing the frequency of our meetings! When we started up, back in the summer of 2020, there was a whole lot of pandemic and social distancing going on, and few other radio club activities to take up our time on weekends. We held these meetings once per month. What we found out this summer is that we now have more events competing for our precious weekend time as the pandemic has waned. We are going to take the summer off in 2022. Also, in those months where ARCI has an "in person" swap meet, we are not scheduling a video meet.

Here is the schedule for 2022: (Meetings start at 10 am CST)
January 15th, March 19th, May 21st, September 17th, November 19th

Be a presenter!

We have seen so many great presentations this past year by folks that never made a presentation before! You can do this! The On-Line meeting team can help you with learning how to make a Power-Point presentation, or prepare some simple photo slides. We can help you dry-run it on Zoom. It's easy!
Share your project and passion with a 10-minute or longer presentation. Send an email to remote-events@antique-radios.org with your topic. Photos help too.

Become a member of ARCI!

These meets are open to everyone interested in antique radio. You do not need to be a member of ARCI. If you like these meets, your support of the organization is truly appreciated. Please consider joining. Your membership dues help support the club's activities. Please click either of these links for the membership form:
Antique Radio Club of Illinois (antique-radios.org) or
http://www.antique-radios.org/membershipinfo.html

I look forward to the upcoming meetings and hope you all get a chance to attend. I encourage you to be a presenter to share your experiences, knowledge, and passions about these old radios!

The ARCI On-Line Meeting Team: Tom Kleinschmidt, Bill Cohn, Matt Pollack and myself are the ARCI On-Line Meeting Team and can be reached via email at remote-events@antiqueradios.org

The Speed Of Communication

by David Kruh

Five billion people sent almost 10 trillion texts last year. Even more remarkable is most of those texts got to their intended recipient within seconds. It is hard to explain to people born *after* Bill Clinton was President, how it wasn't always this easy to instantaneously communicate with anyone, anywhere. (We can debate the merit of all that technology being used to send billions of "LOLs" or cat videos another time.)

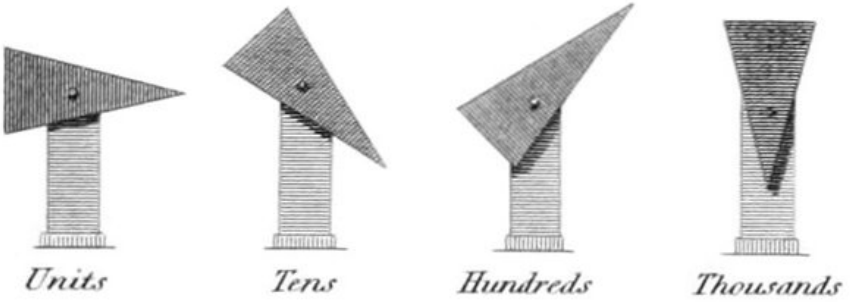
For millennia, a message got to its destination only as fast as a horse or camel could gallop - and it had to be face-to-face. If you were lucky, perhaps a neighbor was heading in the right direction and you could tell them what to say to your distant friend. Saved a trip but now a third person knows what your Aunt Linda did at the bazaar. Or they don't… quite… repeat the message verbatim. They forget a word or two which changes the message. Something about your Aunt Linda *being* bizarre? So, to improve accuracy, the message got written on animal skin or papyrus. Assuming the recipient can read your handwriting, they get the message you intended.

In the 600s, during the Tang Dynasty in China, written communication got an upgrade - we printed from letters carved from wood (called *type*.) Later, in 1439, printing on a mass scale became possible with the twin inventions of the movable press and metal type, both developed by goldsmith Johannes Gutenberg. Delivery still had to be by hand but metal type ensured that neither handwriting nor worn wooden type would render the message unreadable. (Of course, there's still that nagging problem of prying eyes. They've always been a problem. Archaeologists found evidence as far back as 1500 BC of a potter who protected his glazing recipe with a cipher. Funny to think hackers were a problem even in ancient Mesopotamia. We'll talk more about security in a later post. For now, let's focus on speed.)

Credit for the first fast-as-light communication system goes to the defenders of China who, as far back as 800 B.C., realized one could see smoke from a distant fire. Soldiers along the Great Wall used prearranged signals to send messages hundreds of miles through what can best be described as smoke relay stations.

The next leap forward comes from an Anglo-Irish inventor named Richard Lovell Edgeworth. In 1767 he placed a bet with a friend that he could receive the results of a distant horse race in just one hour. Edgeworth's system, according to the Wikipedia entry on Semaphore, used "a large pointer that could be placed into

eight possible positions in 45 degree increments. A series of two such signals gave a total 64 code elements and a third signal took it up to 512." (Not unlike how the Matt Damon character in "The Martian" initially communicated with earth using an old Surveyor lander.) Edgeworth's system was based on a proposal made one hundred years earlier by Royal Academy member Robert Hooke, who presented a plan for a network of signaling sections erected on high ground which could be observed from one station to the next by means of a telescope. It was never built.



Edgeworth's proposed "optical telegraph" signaling system for Ireland. (Image from Rees' Cyclopedia)

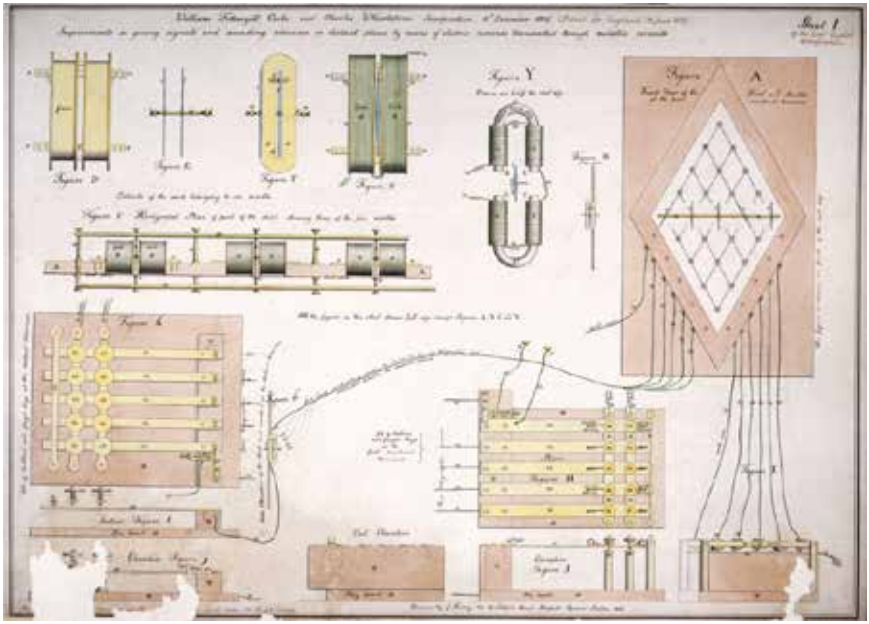
A few years later, across the Channel, French engineer Claude Chappe and his brothers used a variation of Edgeworth's system to set up a network of 556 semaphore stations across France. This was a tremendous leap in speed because, for the first time, messages had the potential to travel long distances rapidly. Though the Chappe system was unusable at night and unreliable in a fog or during a storm, it stayed in use until the 1850s.

Communication v2.0

The next upgrade in communication came from a true wonder of the age: the telegraph. We Americans like to credit Samuel Morse but, like so many groundbreaking inventions, the telegraph has many fathers.

Building on the theories of Michael Faraday (along with other pioneers of the field of electromagnetism) Baron Pavel L'vovitch Schilling built a working telegraph as early as 1832. Four years later medical student William Cooke watched as his teacher, German physicist Georg Wilhelm Munke, demonstrated Schilling's device. Cooke was so taken with the telegraph's possibilities he quit school and returned to England, where he partnered with inventor Charles Wheatstone. Together they built and marketed a device using needles to point to letters of the alphabet arranged in a diamond pattern. Two needles at a time would point to each letter as it was received.

The most brilliant feature of their device was that the message could be read by anyone. No training in Semaphore or smoke signals needed. It also differed from



Schematic for the Cooke & Wheatstone Five Needle Telegraph System

the Chappe system in that it was not subject to the impediments of bad weather. Cooke and Wheatstone made a tidy sum selling their telegraph-based system to several British railway companies. However, these complex devices were tough to repair. They also required three separate wires between devices, adding to the cost of installation. Operators were also forced to watch the device in "real time" so they could transcribe the letters. Blink at the wrong time and your message 'culd gt garbld'.

In 1844, as the Cooke and Wheatstone device was being installed along British railroad tracks, American R.E. House was at New York's Mechanics Institute demonstrating a device with two advancements. To begin, his machine only needed one wire between stations, cutting installation costs considerably. But the real breakthrough was that the device, which looked very much like a piano, was so easy to use. Messages were sent by pressing the keys of the "piano," and when received were printed out on a strip of paper.

The advantages of the Printing Telegraph were outweighed by its complexity and tendency to break down - a lot. It was also very slow.

. . . .– –– ..– . .–.. –– ––– .–. . . . .

In 1832 (just as Cooke, Wheatstone, House and others were testing, building and selling their electrically-based communication devices) Samuel Morse, a young

A 1900 Russian version of House's telegraph text device

Yale-educated painter, was sailing home from Europe. The legend says that a conversation with a fellow passenger sparked (no pun intended) the idea of sending messages along a wire. Lacking a proper understanding of electromagnetism, Morse partnered with NYU professor Leonard Gale (who himself had been inspired by the work of Joseph Henry) and technician Alfred Vail. Together they solved the problems inherent in the Cooke/Wheatstone and House devices. Using a $30,000 appropriation from the federal government, they strung a telegraph line between Baltimore and Washington, D.C. On May 24, 1844 Morse, sitting in the old Supreme Court room in the Capitol, dramatically tapped out a phrase from the Bible's Book of Numbers, '**What Hath God Wrought'**. Waiting on the other end of the line, at Baltimore's train station, was Alfred Vail.

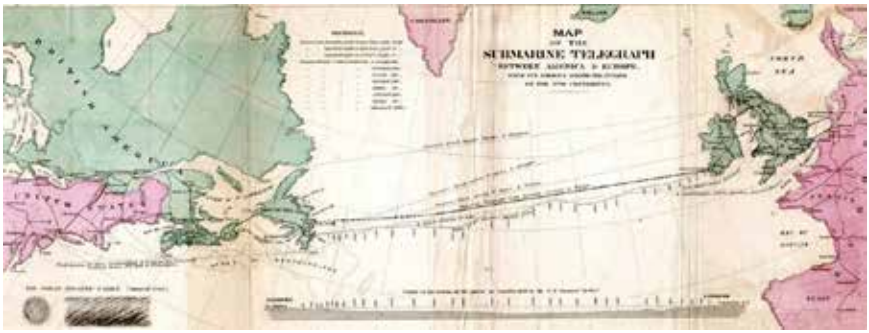
Since the government owned the line (it was their $30,000, after all) Postmaster General Cave Johnson was put in charge. Johnson was prescient in many ways. It was he who changed the collection of delivery fees from the recipient to the sender. This led to his other great innovation, the postage stamp. But it was also Johnson who said "…the importance of [the telegraph line] to the public does not consist of any probable income that can ever be derived from it."

Once released to the public, Morse's telegraph system took off and helped make many fortunes. As Tom Standage explained in his terrific book, The Victorian Internet, the telegraph completely changed the newspaper business. Before the telegraph the public accepted reading stories weeks after the event. By the 1850s

any newspaper that hoped to compete for readers had to have a telegraph news service. World-shaking events were now being published mere days later, as opposed to weeks. (Three weeks before Morse asked what God had wrought, his Washington/Baltimore line had already sent the world's first electronic news bulletin with the announcement of Henry Clay's nomination for President by the Whig party.)

Stock and commodities brokers, always looking to get a jump on their rivals, were among the first to exploit the ability to instantaneously share information. By 1851 there were over 50 companies – each with their own set of wires strung across the eastern United States – competing for brokers' business. One of those financial service firms, later named Western Union, in a pattern that would be repeated in the Oil, Steel, and Railroad industries, began buying up the competition. Soon, Western Union was the 800-pound gorilla of telegraphy. In 1861, they completed the first transcontinental line, putting the riders and horses of the Pony Express (who took ten days to deliver a letter from coast to coast) out of work.

The transcontinental telegraph line to California was still a dream when another entrepreneur looked eastward. Cyrus Field had a plan to lay an underwater telegraph cable between North America and Europe. Using navy ships from both the United States and Britain, Field completed the laying of a cable between Newfoundland and Ireland in 1858. The public went wild over this news, especially after President James Buchanan and Queen Victoria exchanged messages using the cable. Too bad the cable broke down a few weeks later. Field eventually figured out the problem, and in 1866 he succeeded in laying a reliable underwater telegraph line which connected the New World to the Old. Brokers and journalists alike were more than happy to pay for access to international markets and news.



The laying of the first transatlantic cable was a big deal in 1858

Meanwhile the government found plenty of uses for the telegraph, notably during the Civil War. Abraham Lincoln famously spent countless hours at the War Department's telegraph office where he could count on getting the most up-to-date information from the front. Author David Hochfelder contends that the

telegraph was as important a weapon for the victorious Union as any rifle or cannon. The telegraph, he wrote, "…handled some 6.5 million messages during the war and built 15,000 miles of line. In contrast, the South used the telegraph in only the most limited fashion." On the home front, the shortage of men during the war also provided an early opportunity for women to join the workforce as telegraph operators, according to Ronnie Phillips recent article in the Journal of Economic Issues.

It's easy to see why Samuel Morse's telegraph system became the global de facto standard for communication in the 1800s. It was simple to build and repair, and requiring only one wire between devices reduced installation costs. Best of all, in the skilled hands of experienced operators it was fast. As the volume of messages went up, cost plummeted. According to the Economic History Association, messages sent over Western Union lines "…increased from 5.8 million in 1867 to 63.2 million in 1900. Over the same period… rates fell from an average of $1.09 to 30 cents per message." This reduced cost put telegrams within the reach of most people. (We should note that although no horse or camel was needed, one still had to go to a local telegram office – probably Western Union – to dictate and send the message. But now your reach was global.)

Communication v3.0

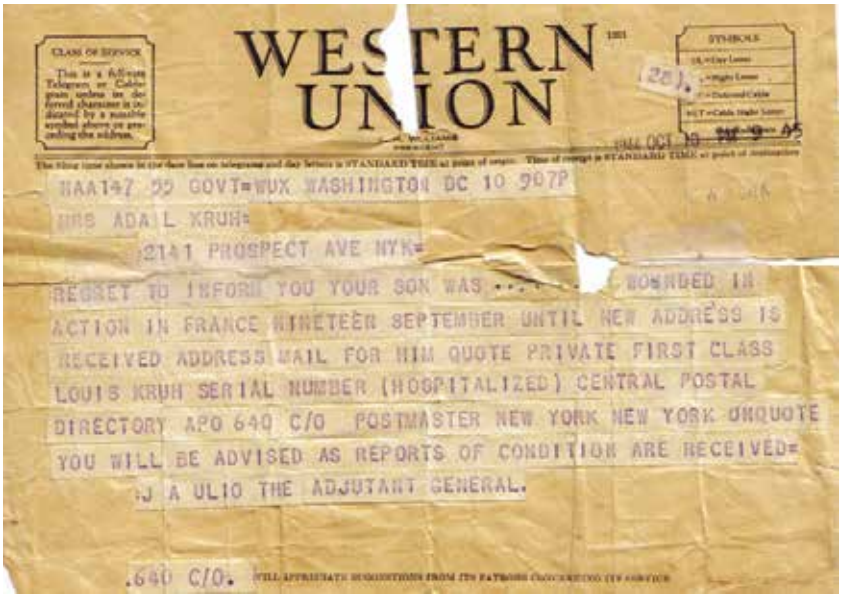
The success of the telegraph would bring about its own demise. By the 1870s telegraph poles were groaning under the weight of an ever-increasing number of overhead wires. And, as I explained in a previous EngineerZone blog, this created an urgency for a way to send more than one message along a single wire. Research into this multiple, or harmonic, telegraph lead one experimenter - a "Professor of the Deaf" at Boston University named Alexander Graham Bell - to the invention of the telephone in 1875.

Telephones had many advantages over telegrams. First on the list would be that one did not have to know Morse Code or operate a telegraph key. All you had to do for instantaneous, person-to-person communication was pick up the receiver and ask the operator to ring your intended recipient. Another brilliant advantage of the telephone was – and still is – that you can have a conversation in real time. (Prying ears, whether the nosy operator or the NSA, notwithstanding.)

Phones themselves evolved, as all technology must. Rotary dials, tone pads, and wireless cell phones are all just different ways to do the same thing; provide a way for you to have real-time conversation with any similarly connected person anywhere on the planet.

Morse Code is still used today by hobbyists like me, although here in the States it is no longer required to get a ham radio license. Western Union is still around, but the bulk of their business is the wire transfer of money. There are also few brave

souls who deliver "singing telegrams" but they are few and far between. Thanks to old movies and the memories of our parents and grandparents, the arrival of a telegram is still imbued in our culture, usually as a harbinger of bad news. This telegram was received by my grandparents after my father was wounded in Europe during World War II. My grandfather, not wishing to upset his wife, "redacted" the message by erasing word "seriously" from the telegram.


WESTERN UNION

NAA147 GOVT=WUX WASHINGTON DC 10 907P

MRS ADA L KRUH=

2141 PROSPECT AVE NYK=

REGRET TO INFORM YOU YOUR SON WAS ... WOUNDED IN ACTION IN FRANCE NINETEEN SEPTEMBER UNTIL NEW ADDRESS IS RECEIVED ADDRESS MAIL FOR HIM QUOTE PRIVATE FIRST CLASS LOUIS KRUH SERIAL NUMBER (HOSPITALIZED) CENTRAL POSTAL DIRECTORY APO 640 C/O POSTMASTER NEW YORK NEW YORK UNQUOTE YOU WILL BE ADVISED AS REPORTS OF CONDITION ARE RECEIVED= J A ULIO THE ADJUTANT GENERAL.

640 C/O.

The telegram to my grandparents informing them of their son's (my father's) injury

One last note.
During the Civil War, telegraph operators, needing a way to indicate the end of a message, used the number 30. Journalists and press agents adopted the convention, sometimes adding a # or - character around the number. This is why, if you've ever gotten an email from me, you'll see -30- as part of my signature. I do that as an homage to the telegram and to the skilled telegraphers who were a critical part of the network that linked the coasts of my country and America with the world.

-30-

This article is from a blog authored by David Kruh and was originally posted on Analog Devices EngineerZone community in The EngineerZone Spotlight blog *on 10 April, 2019. You may find a listing of David Kruh's blogs here:*
https://ez.analog.com/search?q=radio#serpauthor=61394&serp=1
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RADIO ZONE
An Occasional Column on Radio Related Items of Interest

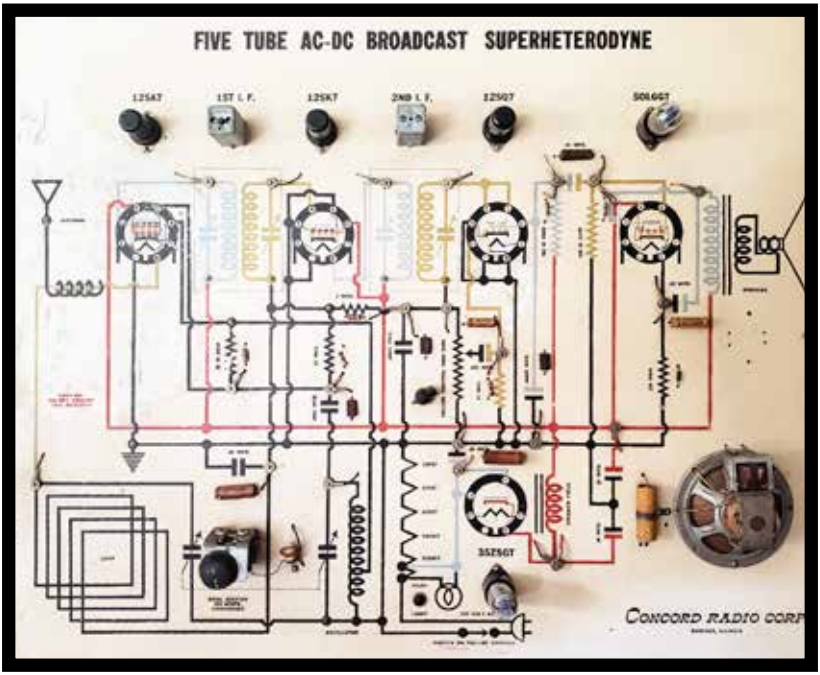
Teaching Radios

This month we have a pair of related articles on radios that were designed for classroom use as teaching tools. The first is from the history perspective and the second is from the student perspective.

Concord Demonstrator Radio

A radio for classroom teaching of radio technology

by Tom Kleinschmidt



Concord Front

Let's start this story with who Concord Radio was and then get into the Concord "5 tube AC DC demonstrator" or "Concord Demonstrator" radio as it was called in Concord's catalogs.

Concord Radio Corp was created by a splinter group from Radio Wire Television Inc. Radio Wire Television Inc. and its predecessor, Wholesale Radio Service Co Inc., used the Lafayette brand on products and catalogs beginning in the early 1930s. The history of the Lafayette has a storied past with many twists and turns. The focus here is limited to history highlights of the Concord Radio Corp. in the

1940s and early 1950s.

The split began in 1942 when the Atlanta and Chicago offices cut ties from their New York parent, Radio Wire Television Inc. Radio Wire Television Inc. retained offices in Boston, Newark, New York, and the Bronx. From 1942 to 1945, Atlanta and Chicago renamed themselves Lafayette Radio Corp. Both Radio Wire Television Inc. and Lafayette Radio Corp. used the Lafayette Radio brand name independently. In 1945 Lafayette Radio Corp. was changed to Concord Radio Corp., an announcement to this effect appears on page two of the 1945 Concord catalog. In 1948 the two organizations merged back together as Lafayette Concord. By 1952 Lafayette Radio catalogs listed only east coast offices; the Chicago and Atlanta offices were gone.

Based on a review of catalogs, the Concord *5 tube AC DC Demonstrator,* or *Concord Demonstrator,* radio was listed in Lafayette Radio, Concord Catalogs and some Lafayette Concord catalogs from 1945 to 1949. There is no apparent model number. The catalog number changed in each year's catalog. Here is a sampling:

Lafayette Radio 1944 – LRC-80 kit $39.50, LRC-81 assembled $57.50 (Unit branded *Lafayette Radio Corporation*)

Concord Radio 1945 - CRC-80 kit, $39.50; CRC-81 assembled, $57.50 (Unit branded *Concord* or *Concord Radio Corp.* from here to end of catalog listings). *It appears the assembled unit was not a big seller as it does not appear post 1945.*

Concord Radio 1946 - CRC-50R kit, $37.30

Concord Radio 1948 - C24530 kit, $36.30

Lafayette Concord Radio 1949 - Catalog 89 - 32N24530 kit, $36.30

Lafayette Concord Radio 1949 - Catalog 949 – not listed

The following text is transcribed from the 1948 catalog 89 listing as shown on page 23.

5-Tube AC-DC Demonstrator

An Excellent demonstration unit designed principally to simplify instruction in the theory of radio circuit design and operation, circuit analysis and troubleshooting, and proper use of test equipment in repair work. Multiple snap connectors are used on each tube element for signal and voltage measurement; also at circuit junctions so that each coil, condenser or resistor may be opened, or, where it will not damage the unit, shorted out to simulate actual conditions in defective receivers. Circuit diagnosis by use of test equipment can be practiced without

necessity of wiring in parts which are actually defective.

All trimmers are easily accessible from the front of the panel for demonstration of alignment procedure.

Consists of a 5-tube AC-DC superheterodyne, covering a frequency range of 540 to 1600 KC, with the following tube line-up: 12SA7 1st detector and oscillator; 12SK7 intermediate frequency amplifier; 12SQ7 2nd detector and 1st audio; 50L6 beam power output; 35Z5 rectifier.

For operation from any 110-120 volt, AV or DC, 50-60 cycle power source. Available in kit form, with every necessary part supplied, and with for-color panel completely finished and drilled. Shpg. Wt. 39 lbs.

***C24530** – CONCORD Demonstrator, in kit form, less tubes.*

Your Cost**…… **$36.30

It is interesting that the unit is "Available in kit form, with every necessary part supplied,.." and shortly after; "C24530 – CONCORD Demonstrator, in kit form, less tubes. Your Cost… $36.30". Radios in the 1920s were sold without tubes and many transistor radio kits in the 1950s were sold without transistors. These expensive active elements were sold separately to keep the price of the kit attractive. A marketing approach to not scare off the prospective buyer right away.

The unit pictured on page 22 was physically neglected, including paint splatter and some extra holes. It is now working. The original paper capacitors have been intentionally left physically in place for originality but electrically disconnected with new capacitors installed on the back side of its approximately two and half foot by three-foot Masonite panel. The frame is black painted solid wood. The image in the catalog shows perpendicular feet attached to the side frames. There is no evidence on this example that there were any such feet installed; no shadow marks, no holes.

Little information exists for this radio and ones from other companies (Welch, RCA[1]…). Anyone wishing to share information and photos please contact the author at clubinfo@antique-radios.org. If significant additional information is uncovered there will be a follow-up article. In addition to technical and marketing information, manuals of any kind would be great, including instructor's guides.

1. As an interesting aside, both Lafayette Radio Corp. (Chicago & Atlanta) 1942 catalog 87 and Lafayette Radio - Radio Wire Television inc. (East coast) 1942 catalog 87 list the *RCA Dynamic Demonstrator II* an AC only (power transformer) training set consisting of 6SA7, 6SQ7, 6SA7, 6F7, 5Y3 at the hefty price of $75.

TRANSVISION Television Kits

SAVINGS—When assembled, either of the kits shown below becomes a modern television receiver worth more than twice its cost. The quality of performance has been acclaimed as superior by over 10,000 satisfied customers.
COMPLETE—With sight and sound high fidelity reproduction. Nothing more to buy. No technical knowledge required for assembly. No test equipment needed, instruction sheet gives all the information to complete and put either receiver "on the air."
BEAUTIFUL CABINETS—Exclusively designed for the kits shown below. Made of selected grain wood with attractive hand rubbed walnut finish. An accessory kit is included for use in mounting the assembled kit.

TELEVISION AND Radio Kits

Standard 12" Television Kit

Sensational new 12" television kit. Engineered for easy, rapid assembly. An outstanding television receiver for use in the home, in taverns, and schools, at a saving of hundreds of dollars. Complete with all tubes, parts, wire, and solder, including magnetic deflection type 12" picture tube, and specially designed folded dipole antenna with 60 ft. of lead-in cable. Finest quality parts are used throughout. Complete with easy-to-follow instructions and schematics.
Picture size 75 square inches. (11½ times larger than with a 10" tube.) R.F. Unit, 3 stages of picture IF, and 2 stages of IF coils are all factory wired, pretuned and aligned before shipment for 7 channels. All television channels have band width of 4 mc. for full picture definition. 9000 volt second anode potential for brightness and contrast. High signal sensitivity only 50 microvolts required for picture circuit. 22 tubes and 12-inch picture tube. Measures 24" wide x 17" high x 18" deep.
C24492—
Your Cost (Less Cabinet) **$289.00**

Deluxe Model with built-in FM Radio. Same as above plus continuous tuning from 50 to 216 mc. Covering entire FM band and all 13 television channels. Cutoff switch to eliminate unused tubes when used as FM receiver only.
C24493—
Your Cost (Less Cabinet). **$359.50**

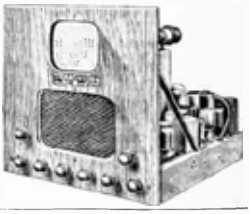
Cabinet for 12" kit. In beautiful hand-rubbed wood finish. Fully drilled, ready for installation of receiver.
C24494—**Your Cost** **$44.95**

7" Television Kit

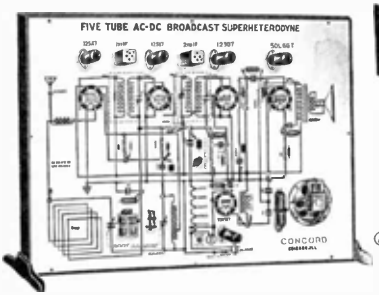
It's easy, quick, anyone can do it. No knowledge of Television or Radio required. Everything is supplied, all tubes (including picture tube), all parts, wire and solder. Complete easy to follow directions, and schematics. All intricate parts are pre-assembled. A boon to those who derive pleasure from creative activity, yet want to keep costs down—for those who want to acquire basic training in television. For experimenters, amateurs, and schools. Opens a new and intriguing field of television to servicemen and repairmen who wish to build and sell this receiver as a complete unit.
Brilliant clear seven-inch picture tube, large six-inch speaker with heavy weight Alnico magnet, provide excellent voice and sound performance. R.F. unit aligned, wired and pretuned to 3 channels before shipment, eliminating need for costly test instruments.
Eighteen-tube set with 3.5 mc. band width picture circuit. Newly designed sweep and synchronizing circuits, 3000 volts second anode voltage. High signal sensitivity, only 100 microvolts required for picture circuit. Measures 17" deep, 17¼" wide, 17¾" high. Shpg. wt. with antenna and tubes 59 lbs.
C24497—
Your Cost **$169.00**

Deluxe model 7" television kit complete with FM radio.
C24495—**Your Cost** **$199.00**

Cabinet for 7" kit. Handsome table model cabinet with all holes and fittings drilled. In smooth hand-rubbed wood finish.
C24496—**Your Cost** **$32.50**



CONCORD Tested Kits for Radio TRAINING



Ⓐ

5-TUBE AC-DC DEMONSTRATOR

Ⓐ An excellent demonstration unit designed principally to simplify instruction in the theory of radio circuit design and operation, circuit analysis and trouble shooting, and proper use of test equipment in repair work. Multiple snap connectors are used on each tube element for signal and voltage measurement; also at circuit junctions so that each coil, condenser or resistor may be opened, or, where it will not damage the unit, shorted out to simulate actual conditions in defective receivers. Circuit diagnosis by use of test equipment can be practised without necessity of wiring in parts which are actually defective.

All trimmers are easily accessible from the front of the panel for demonstration of alignment procedure.

Consists of a 5-tube AC-DC superheterodyne, covering a frequency range of 540 to 1690 KC, with the following tube line-up: 12SA7 1st detector and oscillator; 12SK7 intermediate frequency amplifier; 12SQ7 2nd detector and 1st audio; 50L6 beam power output; 35Z5 rectifier.

For operation from any 110-120 volt, AC or DC, 50-60 cycle power source. Available in kit form, with every necessary part supplied, and with four-color panel completely finished and drilled. Shpg. wt. 39 lbs.

C24530—CONCORD Demonstrator, in kit form, less tubes.
Your Cost **$36.30**

Ⓑ Ⓒ Ⓓ

One and Two Tube Kits

Ⓑ Ideal for use in elementary radio training, for instruction in detector operation, regeneration, and simple alignment procedure. Both kits use a 6J5GT regenerative detector, and the two tube kit has a 6SK7GT RF stage in addition. Identical chassis and panels are used in both kits, so that the one tube kit may be easily converted to a two-tube with an RF stage with a minimum of additional parts. Frequency range 550 to 1700 KC. Operates from either CRC-20R or CRC-30R power supplies. Chassis and panel completely formed and punched. Panel size, 5½x7"; Chassis, 7x4½x1¾". Complete but less tubes, headphones and power supply. Shpg. wt. 3 lbs.
C24523—One tube kit. CRC-10R.
Your Cost **$4.84**
C24524—Two-tube kit. CRC-10BR.
Your Cost **$5.83**

Audio Amplifier Kit

Ⓒ A high gain two-stage resistance coupled amplifier, utilizing a 6SJ7 input stage, and 6F6 output stage. Has sufficient gain to operate with high impedance microphones or phonograph pickups. Because of its excellent response characteristics and simplicity it is ideal for use in schools for plotting response curves and in teaching basic audio theory. Fully shielded output transformer with 4-8-16-500 ohm output impedances. Can be used to amplify the CRC-10R one tube or CRC-10BR two tube kits. One CRC-20R supply will insure very good quality. Complete with input and output connections and all other necessary parts. May be used with any good PM speaker. (Not supplied.) Chassis: 5x9½x1¼". Shpg. wt. 8 lbs.
C24528—Less tubes.
Your Cost **$7.40**

Power Supply Kits

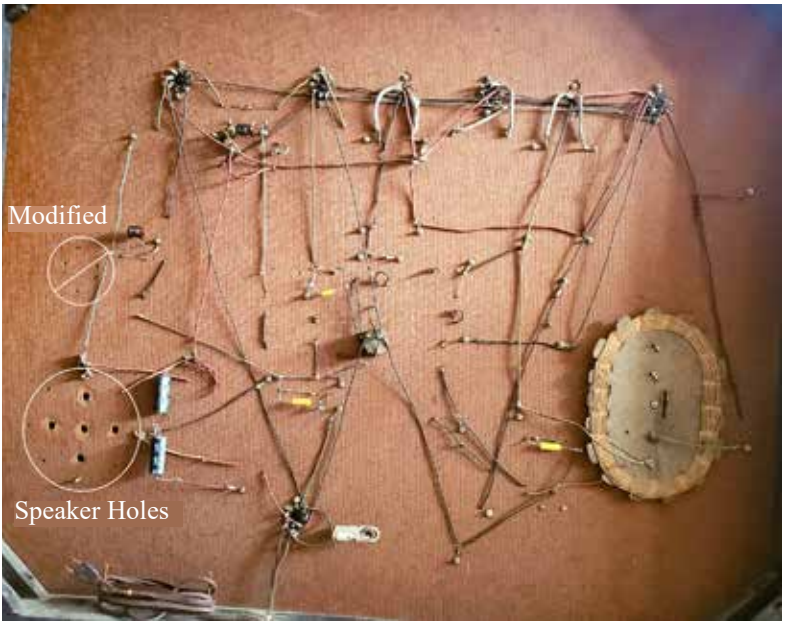
Ⓓ Companion units to operate CONCORD kits requiring external power source. Tapped variable voltage divider provides intermediate voltages which, with both filament and high voltages, are terminated at a standard 7-prong socket. Three-section filter uses two heavy duty chokes. In addition to their use as power source for the CONCORD kits described, these units may also be used as a hum-free supply for other receivers, amplifiers, and small transmitters. Complete with all parts except 80 type rectifier tube. Ready to assemble and wire. Chassis size: 5x9½x1½". For 117 volts 50-60 cycles AC.
C24526—350 V. at 70 Ma and 6.3 V. at 3A. Shpg. wt. 12 lbs. **Your Cost** **$10.89**
C24527—350 V. at 140 Ma and 6.3 V. at 3A. Shpg. wt. 15 lbs. **Your Cost** **$14.30**

IMMEDIATE SHIPMENT FROM CHICAGO OR ATLANTA

Page 111, 1948 Catalog

The: "*Multiple snap connectors are used on each tube element…"* from the first paragraph of the catalog description are shown in this photo.

Below is a photo of the back of the unit referenced on page 20



References and extras:
Lafayette and Concord history
https://worldradiohistory.com/Archive-Monitoring-TImes/2000s/Monitoring-Times-2012-12.pdf
https://en.wikipedia.org/wiki/Lafayette_Radio_Electronics

Concord Catalogs
https://worldradiohistory.com/Lafayette_Catalogs.htm

RCA Dynamic demonstrator
https://www.radiomuseum.org/r/rca_transistor_radio_dynamic.html
https://www.radiomuseum.org/r/rca_dynamic_demonstrator_ii_s.html

Welch
https://www.youtube.com/watch?v=eILuzk31iQg

Sonar School And The Wall Unit Radio

by Harry Blesy

In 1963 I had just begun my13 week U.S. Coast Guard boot camp in chilly Cape May, NJ. During the second week I passed a test and was told that I qualified for Sonar School in Key West, FL. The school was starting in a few weeks so all I had to do was to study up and pass my final boot camp tests. I successfully completed a modified boot camp session and packed my seabag for Key West.

I reported to the Navy Base on Key West. The base is about 90 miles north of Havana, Cuba. Tensions were still present in the military regarding the *Cuban Missile Crisis,* even though the now well known, Kennedy-Khrushchev stand-off had been settled a few months before. The Coast Guard enrolled me into a six month Navy training program at their Fleet Sonar School. The FSS had been in operation on Key West since just before WWII and turned out surface and submarine Sonarmen. The base harbor was almost totally occupied by submarines and a sub tender. The course was conducted by Navy personnel. It featured Electricity, Electronics and Anti-Submarine Warfare.

The Electricity and Electronics part of the course were pretty much based on the Rider series books of the same names. Those books are very well written and are loaded with diagrams and drawings. It was during the electronics phase of the course that I became familiar with the training aide;

which was a working tube type super-heterodyne radio. It was unique in that it was a working radio in the form of a large schematic hung on the class wall.

There only was one AM broadcast station on Key West, WKWF, and it received that station very well. The rest of the dial featured mainly Cuban radio stations. The training aide was used to instruct the class as to the function of each of the components within the super-het radio circuit.

I see that the Concord Demonstration radio, although very similar to the one at my school, was different. The one at FSS used the following tubes: 6SK7-Mixer, 6SK7- IF, 6C5- Oscillator, 6SQ7-detector and 1st audio, 6F6-Power out. Unlike the Concord it had a 5Y3 in a full wave rectifier.

The Concord features the following tubes: 12SA7-converter, 12SK7-IF, 12SQ7-Detector, AVC & 1st Audio, 50L6 Audio Out, and a 35Z5 rectifier. So, I would say that the Concord is an earlier version than the one I was trained on. It is a transformer-less AC-DC set that was first used before WWII. It also features a heater circuit with a pilot light.

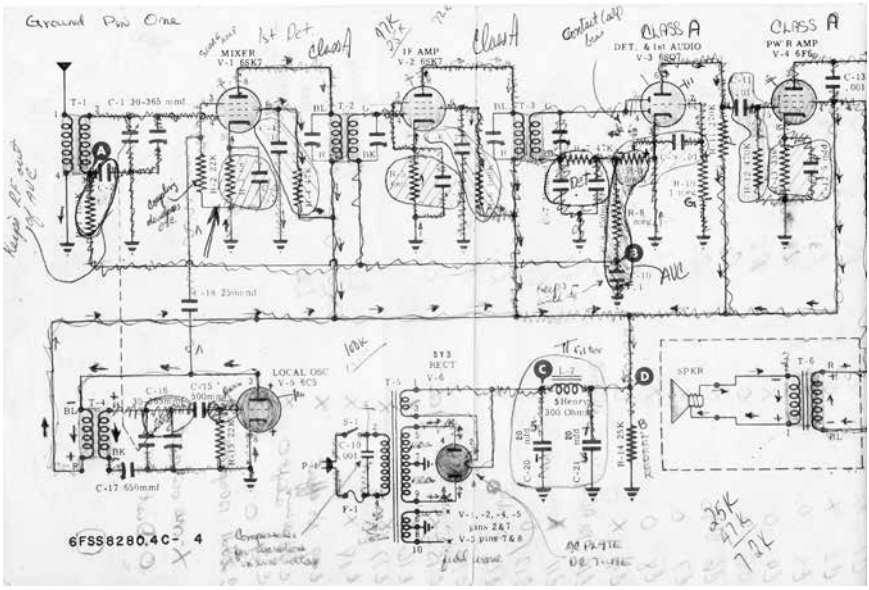
Two important reminders that have been printed in past ARCI publications: To be safe from severe shock or death; use an isolation transformer when operating or repairing these sets. To not put undue current strain on the rectifier tube, make sure the pilot light is not burned out.

The instructor passed out sheets that had the same schematic printed on them as the wall unit. He guided us through the schematic, and we made notes on our sheets. He explained each stage and sub circuit (such as the AVC) to us. The instructor shorted out some of the parts on the board and we could hear the audio of the radio maybe distort, or stop altogether.

We then moved on to hands-on sessions with actual shipboard equipment that was in the school building. There was an actual cut-away portion of a Sonar transducer showing the staves. (The transducer is like a Sonar antenna from the bottom of a ship. Staves are the elements that allow directional aiming when sending out Sonar waves.) We became familiar with safety, and conducted repair manual guided operations. Powering down and using the shorting bar must have been stressful, as I have a strong recollection of that. Extremely beneficial training was gained when we operated the Attack Teacher.

ATs were comprised of functioning shipboard equipment. It had a mock bridge with a piloting position and a Combat Information Center. CIC had a Sonar stack and all the other operating CIC equipment that worked in unison with each other as if the classroom was cruising out at sea.

The final couple of weeks were the most fun. We participated in (hide and seek)



training exercises out in the Atlantic waters off Key West, with Navy submarines. We were pinging with up to 30 kilowatts of subsonic waves. The subs were using thermoclines or water temperature variations that deflected Sonar signals to their obvious advantage. We could actually communicate by voice with the subs over Sonar sound waves using a control head nicknamed Gertrude. The audio kind of sounded like single side band that was not quite tuned in.

Although the buildings still remain, the FSS was closed on Key West in 1974.

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Note: The Key West Fleet Sonar School closed all operations leaving the Fleet ASW Training Center in San Diego and the Submarine Sonar School in New London as the last two U.S. Navy Installations where basic sonar training was conducted. Sonar A School graduated it's last class in 1974. Naval Station Key West was closed in 1974 as part of a nationwide reduction of stateside military bases following the end of the war in Vietnam.

The Legacy of the Zenith Broadcasting Station

by Amanda Marcus

"Worlds Greatest Newspaper" was the slogan of the Chicago Tribune. Robert R. McCormick was its owner and publisher between the 1910s and the 1950s. McCormick oversaw the founding of WGN (after "World's Greatest Newspaper") radio in 1924 and WGN television in 1948.

Ask any Mount Prospect, Illinois long-timer and one of the most universal local memories they have is of the pair of Zenith Radio towers that once stood at the corner of Central and Rand Roads. Constructed in 1925 by Zenith for its WJAZ radio station, they were a fixture in the community for almost 50 years.

WJAZ began broadcasting from the Edgewater Beach Hotel in Chicago in 1923. One of its faithful listeners in those early years was Col. Robert R. McCormick, publisher of the Chicago Tribune. He heard the WJAZ broadcasts and became interested in the power of radio. He even began to lease large time slots on WJAZ.

Simultaneously, McCormick reserved the call letters WGN, which stood for World's Greatest Newspaper, with plans to start his own station. Before long, McCormick bought the WJAZ studio and began broadcasting WGN programming from there. The Zenith Radio Corp. retained the call letters WJAZ.

Even before selling its studio, Zenith had expressed an interest in moving to a more isolated area because of interference with other radio stations in Chicago. First, the company built a portable station inside of a truck so it could broadcast live at events across the country. It could be set up in the middle of a field and could operate on self-sustained power. That was how it became the first radio station to broadcast the MGM lion from Gay's Lion Farm in California.

While using the portable station, WJAZ visited approximately 50 communities in a 150-mile radius of Chicago, testing for interference levels. That is how they settled on Mount Prospect for a permanent location. Since it was still only farmland and boasted the highest point in Cook County, it proved to be the perfect location. In 1925, George Busse sold his land on the corner of Central and Rand Roads to Zenith, and it became the new home of WJAZ.

The studio was operated by Gilbert Gustafson from 1925 to 1935. The broadcasting station was located inside a two-story farmhouse that was situated between the two radio transmission towers. The station ran on 5,000 watts of power, and its transmitter was water-cooled. Each tower had an antennae and a 1,000-watt light bulb at its tip. The word "Zenith" was arranged down one of the radio towers and glowed red at night. These towers could be seen from miles away.

The building and transmitter were designed by J. Elliot Jenkins, who was considered one of the finest radio engineers in the country. The second floor of the house was used as living quarters for the Gustafson family, and the first floor held the transmitter room, motor, generator room, and studio.

Zenith's WJAZ not only developed new innovations for the industry, it also tested the legal boundaries of radio broadcasting and created quite a stir when it ignored the authority of the U.S. Department of Commerce. The DOC had forced WJAZ to share a wave length with another station, allowing it only two hours of air time per week, while the other station, KOA, was allotted 166 hours per week. Because of the unfair arrangement, WJAZ began using an unoccupied Canadian wave length. The government charged WJAZ with piracy of the free air but the courts found WJAZ innocent, due to the lack of legal authority. The Radio Act of 1912 was not enough to charge WJAZ with piracy or any other violation.

Found in the archives of the Mount Prospect Historical Society are two photographs that show the radio operators and assistants of the Zenith Broadcasting Station dressed up as pirates. It is unknown whether this was a photo taken of a live pirate show or if it was taken to mock the accusations against WJAZ as being "pirates of the air." Does anyone know?

Zenith Radio Corp. continued to own the Mount Prospect property and had it looked after by a caretaker. The towers and building were eventually torn down in the 1970s to make room for commercial development. Although the towers are long gone, the memory of this one-time landmark still beats in the heart of Mount Prospect.

This article originally appeared in the Summer 2014 Mount Prospect Historical Society Museum Journal newsletter, Volume V, Issue 2. It was revised in November 2021 to correct content. Reprinted with the permission of the Mount Prospect, IL Historical Society. https://www.mtphist.org/the-legacy-of-the-zenith-broadcasting-station/

The first Zenith testing station 5525 N. Sheridan Rd., 1920.

by Tom Zaczek, ARCI member

Restoring a Grundig Drucktasten -Boy-57E Portable AM/Shortwave Tube Radio

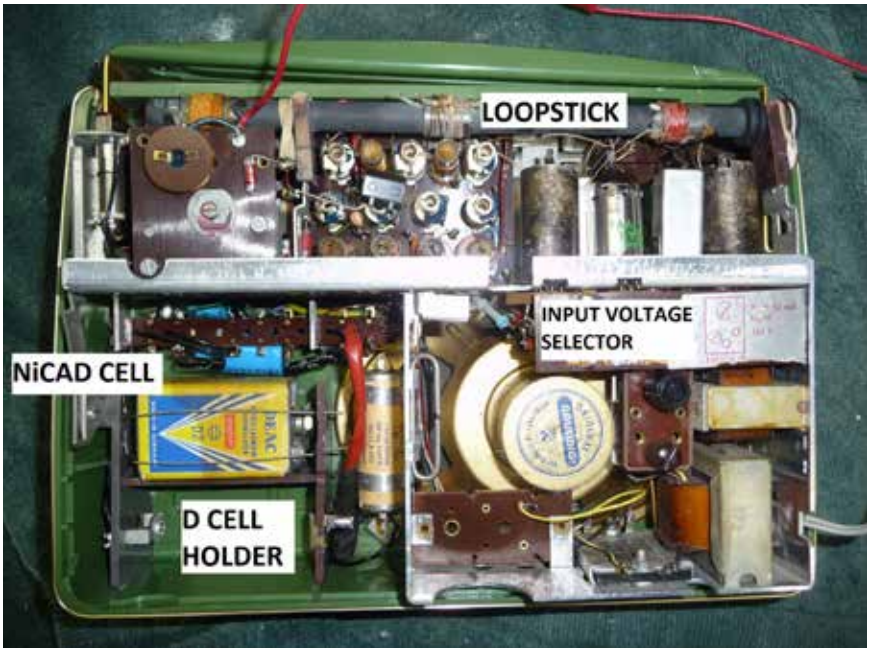
A unique sort of radio

Drucktasten in German means *pushbuttons*, and so this radio would be called the *Pushbutton-Boy-57E* in English. Made in 1957 in Germany by Grundig, the "E" at the end of the name indicates it was the "export model". I suppose that *Pushbutton-Boy* as a product name was ahead of its time in the consumer product arena, as *Game Boys* and *Walkmans* came along many decades later. But this radio is unique not just in its name, but also in a lot of other features.

For a small radio measuring only 10.5" wide x 7.5" tall x 3.5" deep, this radio has a lot packed into it. The highly regarded pushbuttons select between 4 separate AM bands: the standard broadcast band plus 3 shortwave bands covering from 3.16 MHz to 22.5 MHz. It uses four tubes (DK96, DF96, DAF96, and DL96) plus two selenium rectifiers. In addition, there are many, many tuned LC circuits all packed into a very small area that made this "fun" to work on.

You don't see a lot of Grundig tube portables around these days. It is an AC/DC portable, with battery as well as mains power operation using its power transformer. By inserting screws into the desired holes in a small panel in the chassis, it allows setting for 3 different mains voltages (110, 160 and 220 VAC). As far as batteries go, it needs 90 volts for the tube plate voltages and 1.5 V for the filaments. But the 1.5 volts can come from an internal hardwired rechargeable Nickel Cadmium (NiCad) cell, or a standard D-cell battery. There is even a jack for connecting a

6 volt car battery to charge the NiCad cell! There are no provisions to charge the 90 V batteries but the 1.5V one was probably the one that was consumed more quickly of the two. That is a pretty unique arrangement of options that I have not seen in radios of this era.



It has a 3 foot telescoping antenna plus an external antenna jack, to augment the ferrite loopstick inside the case. It has a smooth rotary vernier tuning dial that is labeled in meters for all the 4 bands. Labeling in meters on the standard AM broadcast band is a little awkward for a US market I suppose. It takes some getting used to when you are familiar mainly with looking at an AM radio dial labeled in frequency.

This was an entertaining and satisfying restoration for me (because I got it to work finally!). I learned a lot about a unique German portable radio design, and had to be creative to overcome some challenges. With the help of the World Wide Web, *Google Translate* and a gentleman from France, I got this sweet little portable playing again.

The Finding

I came across this radio in a second hand store where it stood out among a handful of beat up wooden and plastic table radios. Its dusty green case with the brass trim and stylish Grundig logo caught my eye.

The case was a little scratched but not cracked at all, so I opened it up to see what might be inside and saw that most everything appeared to be there. There was

a tube missing and the ferrite loopstick was hanging by only one of the several wires that used to be connected. I also saw this odd looking rectangular metal battery (the NiCad) with a bunch of fuzzy corrosion on its terminals.

"Potential…" I thought. That simple thought starts the chain of events which has put a few too many radios in my basement. "Definitely restorable...." I mused next, noting how different this radio really looked to be. "I don't have one anything like this". I just didn't seem to get around to asking myself if I really needed another radio, and in this case I am really glad I didn't.

So I brought it home. The first thing I wanted to do was figure out what model I had in front of me and try and find a schematic. The only label inside the case just had information about the batteries. I needed some information to figure out what the correct tube numbers were and how to get the ferrite loopstick rewired back into the set. The loopstick, which is almost as long as the radio is wide, looked like a real challenge. Not only were half the wires disconnected, one of the short turn coils had completely unwound off the stick. Here's where the Internet always comes in to help me along, and in this case I used some new resources in ways I hadn't anticipated.

The Search For Information

Knowing only that I had a Grundig portable radio, I went to the European website http://www.radiomuseum.org and looked around at their photo galleries for Grundig and soon found out what the model was, as well as the high level specs

and tube information. The tubes that were in my radio weren't all the correct ones, and I still didn't know where they plugged in. I needed that schematic. I am not a member of radiomusem.org (maybe someday), so I didn't have access to their schematic; I went searching for one elsewhere. Armed with the model number now, and using a Google search, I found a wonderful website of a fellow in France (http://egon.retro.free.fr/) who has restored this exact same model and had posted the schematic and his restoration story out there for all to see.

Here is where I used a new (to me) web resource for the first time in restoring a radio: Automatic Website Language Translation. Since this website is written in French, I used *Google Translate* to make it readable to me. There are other ways to do this, but with Internet Explorer as my browser, I go to www.google.com and type: "egon.retro.free.fr/" into the Google search box. Then you get a list of search results; the first one is the website with a link titled "Translate this page". Hit that link and the webpage comes up translated into English. It doesn't read perfectly, but it does a decent job of it!

Now that I had the schematic, and some key information from someone who had already restored this model, I was really excited that I could get to work on the electrical restoration. The Grundig schematic has text on it in German, French and English for the most part. There are a few scattered words in just German around it. I used the translator up in the cloud again to work through this. Now I know that "stutzpunkt" means "socket-point". (I probably won't remember that next week). But a schematic is sort of a universal language anyway, and I can read this one sufficiently; only some of the symbols on this one were a little unfamiliar to me (like an indicator lamp being a circle with an "X" in it).

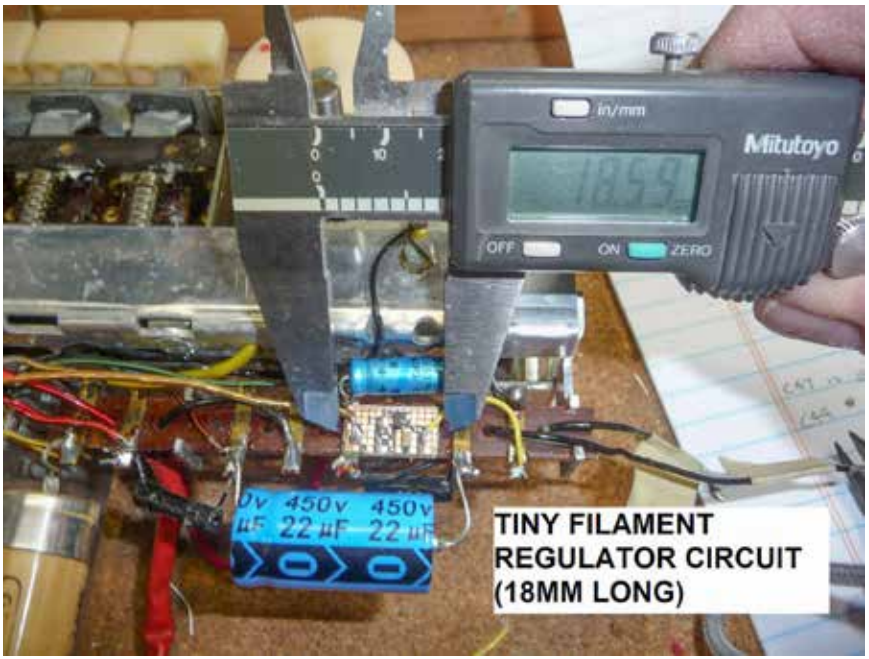
Getting it working

So knowing a bit now about the wiring and what the voltages should be, I disconnected the corroded NiCad battery, pulled out the tubes, plugged it in and slowly ramped up the voltage using my variac. I didn't get any smoke, but the high voltage output of the transformer was only getting to about 50 volts and it should have been up around 85 volts per the schematic. The filament voltage should have been around 1.5 volts and it was way too high, around 7 volts, without the NiCad battery in the circuit. Using the schematic and with some tedious disassembly of the chassis, I was able to isolate the mild short on the high voltage supply to a defective capacitor on the plate of the output tube. After replacing that capacitor, the high voltage was fine, but I still had to get the filament voltage down around 1.5 volts before I could put a tube into the radio.

So I used a small DC power supply to supply the filament voltage, and with some substitution with American equivalents for the tubes I didn't have, I was able to inject an AM signal at the grid of the RF tube through the radio and get it to come out the speaker. That was great, it was a radio! Sort of…But I didn't have the loopstick hooked up at all, so I wasn't able to get any tuned signals to come in

from the antenna input. Even with the schematic, I was pretty lost on which of the 4 coils around the loopstick should be wired to which of the 15 or so little variable capacitors that were sticking up like a little intimidating forest of components. I supposed I could eventually figure this one out, maybe like the million monkeys at a million typewriters eventually coming up with something that could be read in a million years. Maybe with a few educated guesses I could shorten the time span.

A bit dismayed that the schematic wasn't helping with the loopstick problem, I put that on the back burner and set off to find some proper tubes. The DK 96 was the hardest to find, but after few weeks I got what I needed. While I was waiting for the tubes I replaced all the film and electrolytic capacitors and set to work on coming up with a small regulator so the filament voltage would be 1.5 volts when running on the mains power without the NiCad battery installed.



At this point I decided I wasn't going to restore this to run on batteries as I wasn't going to make up a replica 90 Volt battery or find a rectangular NiCad battery to wire back inside. I decided on restoration to mains operation only. I liked the look of the original long-dead German NiCad made by DEAC, cleaned it up and put it back inside (without wiring it up) to preserve that part of the radio. Without a real NiCad in the circuit, I needed a way to get 1.5 volts from the unregulated 7 volt transformer output. I needed something that would act like the NiCad to regulate this voltage at 1.5 Volts. So I settled on a *solid state* regulator design. I know…It's not *authentic*. I felt a bit weird about it at first; almost like feeling guilty about not restoring something to its original configuration. But I had no

time for moral dilemmas; I was intent on getting this thing to work in my near future so I got on with it. It's the first time I've used a modern solid state circuit in a restoration. Well, besides using a single solid state diode as a substitute for a selenium rectifier. But that's really just substituting solid state (silicon) for solid state (selenium). And so I just rationalized that I was again substituting solid state (silicon) for solid state (Nickel Cadmium) to achieve the regulator function. The regulator works real well, it's tiny and hidden, and it got this radio working again.

Back to the web…

Now I had a working filament power supply, and feeling good about having this radio *almost* working, I turned again to the problem with the disconnected loopstick wiring. I came up with an idea: I'll contact the fellow in France that has restored this radio and just ask him how to hook it up. It seemed worth a try. I went back to his website. His name is Pierre Barrat and he has a "Contact" page on his website from where you can send him an email. Simple… if you can write an email in French. In my case, it's like the old song goes… "*Don't know much about the French I took…*" I did take 4 years of French in high school but that wasn't helping me get going off my derrière to write him an email. (My French teacher Ms. Oliver would not be proud of me here). I went to *Google Translate* for help. For the second time in this restoration I employed a new (to me) internet tool; this time to translate my words so I could ask someone for some restoration help in another language.

Going to the free Google Translate site, (http://translate.google.com/) I typed out my short letter to Pierre in English, complimenting him on his great restoration website, and explaining that I was a fellow restorer who had this problem wiring up the loopstick antenna of this same model Grundig that he has. Out popped the French text in another window as I typed my letter into the translate window. I copied that text and pasted it into Pierre's website form, hit the send button and hoped for the best. The next day I was really pleased when I got an email back from Pierre (in French) that had a file attachment! This was very cool! I could understand the gist of a few of the sentences, but I used Google translate to do the rest. He understood my letter, and had sent me a detailed sketch of how to connect the wires of the loopstick! He also requested that I send him a photo of the label inside my radio, so he could make a reproduction for his radio.

With Pierre's diagram I went to work hooking up two of the loopstick coils and soon was receiving radio stations on 2 of the bands! I was elated. I got my camera, took a picture of the label he requested, and sent it off with words of gratitude.

After another email exchange to help with figuring out how many turns and what direction to wrap the missing coil, I got the last 2 coils hooked up and was soon receiving signals on those bands. I mounted the loopstick securely using some rubber bands and grommets. I now had all the bands working; it picked up a lot of stations, seemed very selective, and it sounded good!


CONNECTING THE FIRST LOOPSTICK COILS

Making it shine

Next I needed to clean up the green plastic and the brass trim. The plastic was in good shape and needed some scratch removal with *Novus* polish in a few areas. I used *Meguiar's Plast-X* polish overall as a finishing step along with some elbow grease to get it shiny. For the brass I used *Simichrome* polish which brought the trim to a nice gleam. I even touched up the gold paint in a recessed groove around the front, using some *Testor's* gold model paint with a small brush.


TOUCHING UP THE GOLD TRIM

After putting it all back together it looked very nice and clean, showing off the sophisticated styling of the 2 tone green plastic with the brass trim and logo. However the tuning knob was missing its brass "nosecone". I dug through a pile of old knobs and found a "donor" knob that had a brass nosecone insert that

luckily was almost the same size as the missing one. The donor knob's glue was old and brittle and gave up its insert with no trouble at all. Using some contact cement, I glued the brass cone onto the tuning knob, and I was finished!

I took a few photos and sent them off to Pierre, thanking him again. He congratulated me on my effort. It was a nice accomplishment, and it felt a bit special that I had a fellow restorer from another land pitch in and help me bring this radio back to playing again. I learned quite a bit during this effort, and now I have some more skills and internet tools to help me along as I go off and find that next radio that I'll be restoring.

Postscript

Since I restored this Grundig, I found an impressive repository of European radio schematics and model numbers: http://www.nvhr.nl/gfgf/schema.asp. It is in the Netherlands (.nl domain) and not in English, but now you know how you can use Google to make it appear in English. On this site you will find this page: Link to Grundig radio schematics page on site. Here is where my radio and all the *Drucktasten Boy*s (1953 through 1958 models) reside. They are not orphans; along with them you will find listed: AutoBoy, AutomaticBoy, BoyJunior, CityBoy, ConcertBoy, EliteBoy, EuropaBoy, ExportBoy, FarmBoy, HeimBoy(HomeBoy), HitBoy, MelodyBoy, MickyBoy, MicroBoy, MicroTransistorBoy, MiniBoy, MotoBoy, MusicBoy, OceanBoy, PartyBoy, PhonoBoy, PrimaBoy, RecordBoy, SoloBoy, StandardBoy, StereoConcertBoy, TashenBoy(?), TeddyBoy, TimeBoy, TopBoy, TransistorBoy, UKWBoy, UniversalBoy, and last, but not least: YatchBoy and all his model years. Who knew that the Grundig marketing department was so creative?

Author's note: this article originally appeared in the Colorado Radio Collectors ***Flash*** *Newsletter in 2015 when I lived there. Now I dwell in Illinois*

by Steve Muchow, ARCI member

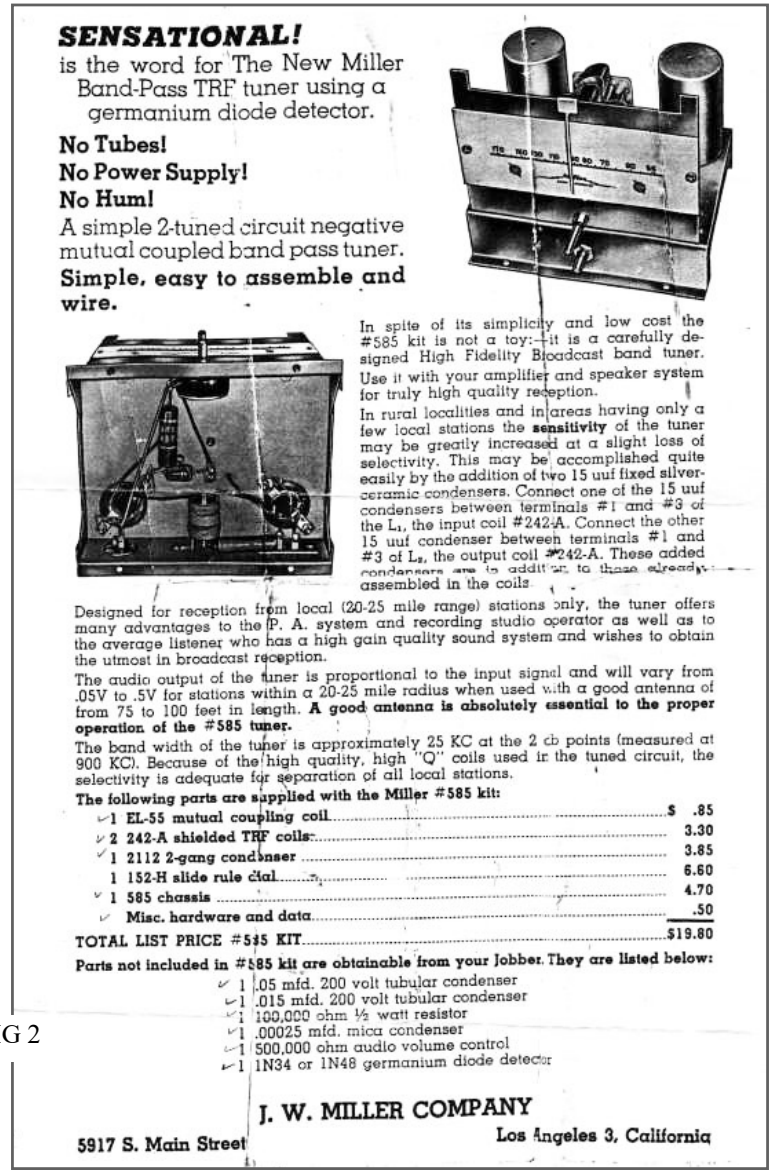
THE J. W. MILLER COMPANY AND THE MODEL NO. 555 TRANSISTALL RADIO KIT

For the radio-TV and audio enthusiast, the "J. W. Miller Company" evokes memories of a seemingly endless variety of RF and IF transformers and coils. Miller products were found in communications products and were, perhaps, the most widely used brand of coils used in early television receivers. There were hundreds of coils available and browsing through one of their early catalogs is a mind-boggling experience. Not as well-known is the fact that they also supplied complete radio receivers and receiver kits.

FIG 1

There was an increasing appetite for radio parts in the 1920's as radio builders and experimenters hopped on the bandwagon of this new hobby called "RADIO". Plans for radios appeared regularly in magazines, newspapers and books. Finding suitable coil forms and winding the wire has always been a formidable task when building radio sets and the J. W. Miller Company came to the rescue. The Miller Company began in 1924 in Los Angeles, CA as a major supplier of coils and inductor-related components. To increase coil sales, the company also gave away free radio construction plans that specified Miller coils in the designs (**FIG 1**).

Plans included vacuum tube radios and passive tuners. For builders with limited workshop capability, the company also offered a pre-punched chassis for several models along with complete coil sets and other hard-to-find parts such as variable capacitors. So, they were already established in the kit business!



SENSATIONAL!
is the word for The New Miller Band-Pass TRF tuner using a germanium diode detector.

No Tubes!
No Power Supply!
No Hum!
A simple 2-tuned circuit negative mutual coupled band pass tuner.
Simple, easy to assemble and wire.

In spite of its simplicity and low cost the #585 kit is not a toy:—it is a carefully designed High Fidelity Broadcast band tuner. Use it with your amplifier and speaker system for truly high quality reception.

In rural localities and in areas having only a few local stations the **sensitivity** of the tuner may be greatly increased at a slight loss of selectivity. This may be accomplished quite easily by the addition of two 15 uuf fixed silver-ceramic condensers. Connect one of the 15 uuf condensers between terminals #1 and #3 of the L_1, the input coil #242-A. Connect the other 15 uuf condenser between terminals #1 and #3 of L_2, the output coil #242-A. These added condensers are in addition to those already assembled in the coils.

Designed for reception from local (20-25 mile range) stations only, the tuner offers many advantages to the P. A. system and recording studio operator as well as to the average listener who has a high gain quality sound system and wishes to obtain the utmost in broadcast reception.

The audio output of the tuner is proportional to the input signal and will vary from .05V to .5V for stations within a 20-25 mile radius when used with a good antenna of from 75 to 100 feet in length. **A good antenna is absolutely essential to the proper operation of the #585 tuner.**

The band width of the tuner is approximately 25 KC at the 2 db points (measured at 900 KC). Because of the high quality, high "Q" coils used in the tuned circuit, the selectivity is adequate for separation of all local stations.

The following parts are supplied with the Miller #585 kit:

1 EL-55 mutual coupling coil	$ .85
2 242-A shielded TRF coils	3.30
1 2112 2-gang condenser	3.85
1 152-H slide rule dial	6.60
1 585 chassis	4.70
Misc. hardware and data	.50
TOTAL LIST PRICE #585 KIT	**$19.80**

Parts not included in #585 kit are obtainable from your Jobber. They are listed below:

1 .05 mfd. 200 volt tubular condenser
1 .015 mfd. 200 volt tubular condenser
1 100,000 ohm ½ watt resistor
1 .00025 mfd. mica condenser
1 500,000 ohm audio volume control
1 1N34 or 1N48 germanium diode detector

J. W. MILLER COMPANY

5917 S. Main Street **Los Angeles 3, California**

FIG 2

The company jumped into the H-Fi craze in the 1940's and 1950's by offering an AM band tuner for connection to a Hi-Fi amplifier. In those days there was plenty of music on the AM band and having an H-Fi tuner complimented the LP turntables and bass-reflex speakers enjoyed by audiophiles. An early tuner, the Model 585

"Band Pass TRF AM Tuner" (**FIG 2**), contained only passive components with no tubes and *"no power supply to cause hum"* per the ad copy. Several companies offered TRF AM tuners which were essentially crystal sets that required an external antenna if other than local station reception was desired. Probably the most recognized AM tuner from J. W. Miller is the model 565 (kit form) and model 595 (assembled) introduced in 1956 (**FIG 3**). Again, the topology is that of

FIG 3

ASSEMBLY AND WIRING INSTRUCTIONS

FOR THE

Miller

NO. 565 MILLER HIGH FIDELITY GERMANIUM DIODE BROADCAST BAND TUNER KIT

You are now the proud owner of a No. 565 Miller High Fidelity Germanium Diode Broadcast Band Tuner Kit . . . the only tuner kit of its kind.

The Miller No. 565 Tuner Kit is the result of masterful engineering and careful planning. Previously sold only as a factory assembled unit the tuner has received overwhelming acceptance by the most critical audiophiles. When assembled in accordance with the following instructions, the No. 565 Tuner Kit will give you a lifetime of trouble-free performance.

Assembly and wiring of your tuner is not difficult. Every possible precaution has been taken to assist you in completing it. Please take the necessary time to assemble and wire the No. 565 Tuner Kit carefully. Read this entire instruction folder before you start the actual assembly. Check each part against the parts list (back page). This way you will become familiar with each part. Refer to the "exploded view" and the photographs to identify the parts and their location.

The Miller No. 565 Tuner is designed to be used with a high gain amplifier or pre-amplifier. It should be connected to the phono or mike jack for best performance. The most satisfactory antenna we have found is a simple long wire approximately 75 feet in length. The antenna should be L shaped, with the vertical portion rising from the tuner to the top of your house and the horizontal portion preferably stretched in a straight line across the roof or to some other support. The wire may be insulated or bare, whichever is on hand. In general, the longer and higher the antenna the better the reception. If space does not permit the use of a long antenna a shorter one may be used and will generally operate quite satisfactorily. No attempt should be made to use the A.C. line as the antenna. This may result in serious damage to the tuner.

To enable the use of earphones with the No. 565 tuner the Miller phono adaptor No. 2705 is available. When earphones are used a good ground connection is also necessary. The tuner may be grounded by connecting the Fahnestock clip on the back of the tuning condenser to a water pipe or equivalent. Soldering methods are very important. Rosin core solder is especially recommended for wiring the Miller No. 565 High Fidelity Tuner Kit.

a crystal set but it was carefully designed to optimize performance over the entire broadcast band. This was accomplished, in part, by utilizing special Miller Hi-Q coils in a dual tuned circuit design. The kit cost was $15.00 in 1956 ($140.00 in 2021 dollars). These models used a Germanium diode (similar to 1N34) and are still usable and collectible today. I can confirm that a passive set such as this really does sound nice when connected into a Hi-Fi system. The challenge of using this set today is finding AM radio stations broadcasting music!

On the heels of the HI-FI craze in the 1950's was a novel concept beginning to take hold in America … the transistor radio. The transistor itself was officially announced in December, 1948 by Bell Labs, and by 1954 the first commercial "shirt pocket" transistor radio was available to the consumer. This radio was a joint effort between the Regency Division of the I.D.E.A. Company (Indiana) and transistor maker Texas Instruments. This new "Regency model TR-1" contained 4 transistors, a built-in speaker and a 22.5 Volt battery that offered 5 times the operating life of typical small tube radios available at the time. Clearly, the advantages of the transistor radio vs. tube radios were lighter weight, smaller size, and longer battery life. While this was the first commercial radio, there were several hobbyist magazines offering new and mostly simple radio circuits for the builder at that time using transistors. Remember Lou Garner's monthly "Transistor Topics" column in Popular Electronics? Early Transistors were expensive due to poor yields and performance inconsistencies. Despite the slow start, the "handwriting was on the wall" that the transistor was the future of portable radios. The J. W. Miller Co's response to this transistor revolution was the Model 555 Transistall (**FIG 4**).

FIG 4

Introduced as a kit in 1957, it was a 3-transistor design housed in a plastic enclosure identical in size to the model 565 AM tuner described earlier (4" H x 7" W X 3.5" D). Operation was simple with two controls for "volume/power" and "tuning". A nice feature was the smooth operating Vernier tuning dial. No effort was made to miniaturize internal components as this was not considered to be in the "shirt pocket" size radio category. The radio was available in several colors: Ebony Black, Ivory, Pearl Gray, Powder Blue and Chinese Red. Electrical components were mounted on a single-sided phenolic printed circuit board and it used a total of four Miller coils including a long loop stick antenna (**FIG 5**). One supplier of the germanium transistors was the Raytheon Corporation. The cost of the kit was $29.95 in 1957 which would be approximately $280.00 today.

FIG 5

A long loop stick antenna

The tuning dial exhibited the mandatory cold war era "CONELRAD" triangle markings at 640 kHz and 1240 kHz. The IF frequency of the radio is 455 kHz and is considered a reflexed superhet.

This is a description of the radio taken directly from the Instruction Manual included with the kit: Refer to the schematic diagram (**FIG 6**).

"Full 4 transistor performance is achieved by a unique circuit employing only 3 transistors and 2 crystal diodes. The receiver uses one transistor (TR-1) as a combined mixer and oscillator stage. The second transistor (TR-2) is used in a special "reflexed" circuit which combines the functions of a separate I.F. amplifier and audio amplifier. One of the crystal diodes functions as a detector, while the second diode is employed in a novel automatic gain control circuit. The remaining

transistor (TR-3) functions as an audio power amplifier delivering approximately 25 milli-watts of audio to a heavy-duty 2 3/4 inch permanent magnet speaker. This power level is more than sufficient for normal listening levels. The receiver requires no external antenna or power source. Power is supplied by a miniature 9 volt battery which will operate the receiver for approximately 300 hours or 6 months of normal listening. Although small in size, no attempt was made to sub-miniaturize the unit since this leads to deterioration of receiver performance."

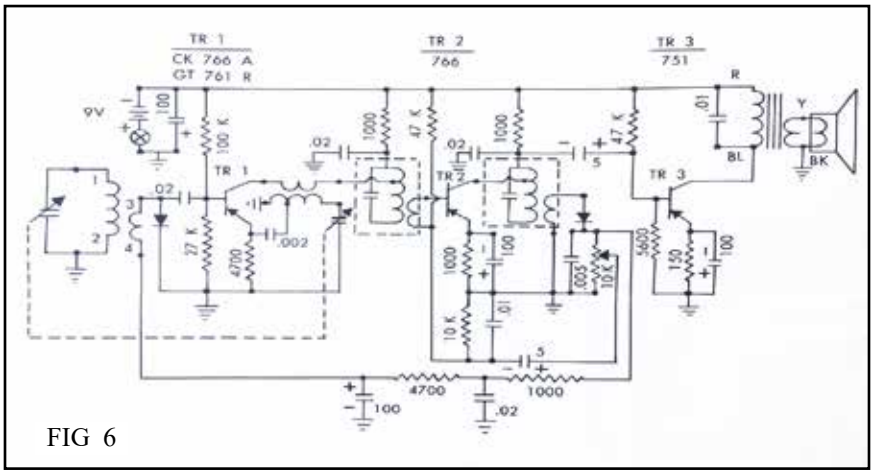


FIG 6

Note: The "reflex" technique described was commonly used in early transistor and tube radios. Rather than using two active devices, it allowed a single tube or transistor to simultaneously amplify both RF and audio signals. This reduction in parts count saved money, space, and reduced the overall product current consumption.

The information provided so far was collected from the instruction manual, J. W. Miller 1958 catalog and advertising. There is little information available and it is a scarce radio among collectors. My father was an avid radio builder and he purchased two of these kits from Grove Electronics Supply in Chicago in 1957. He and I each built one and I can only share my experiences and thoughts about the radio.

The instructions were thorough and offered a "step-by-step, check the boxes" approach very much like a Heathkit or Knight kit manual. There were plenty of hand-drawn sketches and pictorial diagrams. I recall that due to oxidation, solder would not flow easily on the printed circuit board copper traces until they were cleaned. I don't remember any show-stopping construction issues and the radio played immediately after turning it on. Alignment without a signal generator was accomplished the easy way by adjusting IF transformer slugs and trimmers for the "loudest volume" from the speaker on a local AM station. I lived near several 50kW "clear channel" stations in the Chicago area and the radio easily

played them with good volume and separation. Lower signal strength stations could be heard, but only with the volume control near maximum, and getting an ear close to the speaker. Of course, with the internal loopstick, the radio also needed to be rotated for maximum signal pickup regardless of the incoming signal strength. One characteristic of a reflex radio is that often the volume control does not completely attenuate the audio when turned fully counterclockwise. This is known as the "playthrough effect" and was noticeable but not objectionable on this model. While the loudspeaker and enclosure are relatively large, the volume level is only adequate for comfortable listening in a quiet room. This could partially be due to the lack of sensitivity of the loudspeaker and that the overall circuit gain is too low. Audible distortion seemed low at most volume settings. In the 1950's, radio battery chemistry was typically carbon-zinc and the claimed life expectancy between battery changes was 300 hours or 6 months based on "typical" usage. In my daily usage, this turned out to be a true statement. Today, our alkaline batteries would considerably extend that duration! At least one of the radios we constructed was used two hours per day for many years with no problems encountered. One of the radios still works today using the original parts!

Beyond the initial introduction in 1957, it seems like J.W. Miller was never able to really get the Transistall "off the ground". The Transistall's three transistor design is a bit unconventional as most radios (other than Boys Radios) typically used 6 transistors which offered higher performance. We'll likely never know all the reasons, but the following brief history may help explain a part of it.

The transistor radio landscape around 1957 emphasized portable "lunchbox" style radios with handles so they could be taken to the beach and, to a lesser extent, shirt pocket radios offering personal listening with a small earpiece were becoming popular. The Transistall had no handle, was too large for a shirt pocket and had no provision for an earpiece. It really could be considered a "table radio" intended for use in a fixed location. Japan was also starting to import radios with several models hitting our shore in 1957. Rock and Roll music was beginning to dominate the airwaves and teenagers wanted small "personal" radios to listen to "their" music without bothering parents. The emphasis was on making radios smaller and that trend continues to this day. Given that the cost of a Japanese radio (already assembled) was identical to the Transistall (a kit) I believe that the Transistall became obsolete before it fully "hit the streets".

While the Transistall may not be a great performer, I like the overall style and appearance and expect that it will continue to play for many more years.

What happened to J.W. Miller? They were purchased by Bell Industries and the assets then sold to Bourns, Inc, who is currently supplying Miller products to the electronic industry.

Note: An online presentation of the Transistall Radio is available on the ARCI YouTube Channel. Presentation date is November 2020.

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