



ARCI NEWS

www.antique-radios.org

Affiliated AWA
Antique Wireless Association 

Volume 42, Issue 6
December 2022



ARCI CALENDAR

EVENT	LOCATION	DAY & DATE	TIME
Swap Meet	American Legion	Sunday, December 4, 2022	7:30 am
Virtual Forum	Your Computer	Saturday, January 21, 2023	10:00 am
Swap Meet	American Legion	Sunday, February 12, 2023	7:30 am
Virtual Forum	Your Computer	Saturday, March 25, 2023	10:00 am
Swap Meet	American Legion	Sunday, April 23, 2023	7:30 am
Virtual Forum	Your Computer	Saturday, May 20, 2023	10:00 am
Swap Meet	American Legion	<i>To be announced</i>	7:30 am
Radiofest	Medinah Shriner Center	Friday, August 4, 2023 Saturday, August 5, 2023	see program
Virtual Forum	Your Computer	Saturday, September 9, 2023	10:00 am
Swap Meet	American Legion	Sunday, October 1, 2023	7:30 am
Virtual Forum	Your Computer	Saturday, November 18, 2023	10:00 am
Swap Meet	American Legion	Sunday, December 3, 2023	7:30 am

American Legion Hall Meetings are located at: Post 76
570 S Gary Ave
Carol Stream, IL 60188

About ARCI Virtual Forum video sessions

10 AM to 11:30 AM Central time, check-in starts: 9:45 AM Central Time

Generally held on the 3rd Saturday in non-summer months

Agenda items (subject to change): History Tips & Tricks
 Technical How-to's
 Show & Tell Items for sale
 Open chat session

To find out more, email: remote-events@antique-radios.org

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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/UCEyMw9QGrcquC1vZBvHWbQ>

Join ARCI

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

-or-

Use the application in this newsletter

Leadership

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

Contact ARCI

Antique Radio Club of Illinois

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ARCI News is published bi-monthly, February through December.
Antique Radio Club of Illinois is a registered non-profit in the state of Illinois.



PRESIDENT'S MESSAGE

December 2022

October election and business meeting

At the American Legion Hall meet ARCI Vice President Tom Zaczek presided over the business meeting and annual election. The 2022 officers have been reelected by voice vote for 2023:

President: Tom Kleinschmidt

Vice President: Tom Zaczek

Secretary: Jay Stewart

Treasurer: Rudy Hecker

There was a motion to eliminate sellers fees for swap meets to encourage more participation by sellers and those that want to display their treasures, how-to, works in process, history and enthusiasm for the hobby. At this time, it is financially feasible for ARCI events held at the American Legion Hall in Carol Stream to waive sellers' fees. The officers decided to waive sellers' fees for American Legion Hall events through December of 2023. Fee policy will be reviewed periodically and may be continued if finances allow.

In addition: If we get a new volunteer(s) to bring “coffee and donuts” to the American Legion Hall events, the club will pay for them and provide them to participants free of charge.

ARCI Articles

Many of us are working on a repair, a restoration, tracing history or exploring other aspects of radio. Sharing what we have done enriches everyone. As time passes details are lost, an article in ARCI preserves that information. Nothing is too small or unimportant. Radio related articles WILL get published! We are happy to assist in the process too. Consider being an author, it is rewarding for you and others.

2023 event schedule

The schedule for 2023 is set except for the June swap meet. We are exploring several options for June. An update will be published when the June swap meet date and venue are determined. All events are subject to revision, we will notify you via appropriate media – email blast, website, Facebook page - in the unlikely case that a change occurs. The schedule is on the website, below and elsewhere in this newsletter.

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Swap Meet	American Legion	Sunday, December 3, 2023	7:30 AM

December 4th swap meet

The next swap meet is on December 4th, 7:30 AM doors open.

Location: American Legion Hall Post 76
570 S Gary Ave
Carol Stream, IL 60188

See you there!

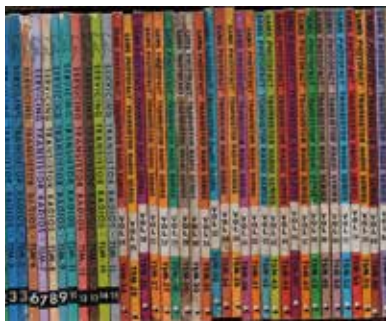
Tom Kleinschmidt
President
Antique Radio Club of Illinois



ARCI UPDATES

October Swap Meet

photos by Daniel Schoo







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

The RADIOFEST UPDATE

by Steve Muchow, RADIOFEST Chair

Those who attended *Radiofest 2022* really enjoyed being able to get together again with fellow collectors from across the country after a two-year hiatus. In addition to the scheduled activities, attendees continue to appreciate the familiarity of the location, the convenient hotel accommodations and the ease of parking throughout the event.

The good news is that ARCI is currently planning for *Radiofest 2023* to again be hosted at the Medinah Shriners facility with accommodations available at the adjacent Hilton Garden Inn Hotel in Addison, Illinois (same as last year). It is too soon to offer event details except for a single important one! **The selected dates are Friday, August 4th and Saturday, August 5th in 2023.** So, be sure to circle these dates on your calendar and watch future issues of ARCI NEWS, e-mails and the ARCI website over the next months for *Radiofest 2023* program updates.

The ARCI club and the radio amateur community was saddened to learn of the passing of ARCI member Jim Novak (WA9FIH) in late September, 2022. Jim served many years as club Vice President and established a popular, long running column in ARCI NEWS dedicated to vintage amateur radio equipment. A popular event at *Radiofest* is the special event ARCI ham radio station where he showcased vintage amateur radio equipment. The equipment is operational and many 2-way radio contacts are made with other radio amateurs under the special ARCI club FCC call sign WA9RCI. Jim's vision was to extend the awareness of collecting vintage radios to include ham gear, as well. The Ham Tent provides a way to expose hams and non-hams to the operation of this older equipment through actual 2-way ham radio contacts. I know he enjoyed operating and demonstrating the equipment and we now appreciate even more his dedication and enthusiasm. He leaves many fond memories from past *Radiofests* and he will truly be missed.

Each year, following *Radiofest*, we review aspects of the event that worked well and areas needing improvement. Much of the input for this review is based on comments and suggestions from attendees. Should you have any thoughts from past *Radiofests* that you would like to share, please contact me at smuchow@att.net. Again, we welcome those that can volunteer some time during the event. The success of *Radiofest* depends on our great volunteers. Please let me know if you can help out.

Should you want to reminisce and review highlights from *Radiofest 2022*, check out the October 2022 issue of ARCI NEWS in the ARCI NEWS ARCHIVES section on the ARCI website at www.antique-radios.org.

Again, stay tuned to future ARCI media for *Radiofest 2023* information. In the meantime, we'll stay in touch via ARCI's scheduled in-person swap meets and virtual forums!

Steve Muchow, *Radiofest* Chair

ARCI ONLINE

By Tom Zaczek

ARCI VIRTUAL FORUM #23

SATURDAY January 21, 2023, 10AM CT

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

New name, same great program! ARCI on-line meet is now ARCI Virtual Forum.

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 2022) are available for viewing. You can find the channel here: <https://www.youtube.com/channel/UCEyMw9QGrcvquC1vZBvHWbQ>

Check it out! Each video has a "table of contents" (where it says SHOW MORE) beneath the main video window that you can click on and go directly to that topic or presentation, so it's easy to watch just one specific presentation. 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 YOU TUBE** – *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 just a few. Let us know if you have an idea for a presentation!

- **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 Virtual Forum video meets

We have planned 5 Virtual Forums for 2023. They are generally on the 3rd Saturday of the month. We take most of the summer off so as not to compete so much with vacations and travel to other clubs' events. Also, in months where ARCI has an "in person" swap meet, we are not scheduling a Virtual Forum.

After January, here is the schedule for the rest of 2023's Virtual Forums:

March 25, May 20, September 9, November 18

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 Virtual Forum 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.

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 this link for the

membership form: [Antique Radio Club of Illinois \(antique-radios.org\)](http://antique-radios.org) or [membership form editable pdf](#) or use the form on the last page of this newsletter.

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!

~ Tom Zaczek

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



Remembering ARCI members who have passed



James E. Novak
January 8, 1945 – September 30, 2022



Roger K. Smith
July 24, 1944 - October 5, 2022



William S. "Bill" Miedema
June 2, 1942 - March 24, 2022

Bill's daughter, Faith Nobile, would love to hear from his friends about her dad: faith.nobile@yahoo.com. Bill's radio collection is remaining intact for now - please respect the family and do NOT ask!

Radio Centennial

Editor's Note: This article originally appeared in the October-November 1967 issue of *Radio-TV Experimenter* magazine. It highlights many of the discoveries and experiments that are the building blocks of radio technology. The article references two patents, those patents are included after the article.

Radio-TV NOV. 1967
EXPERIMENTER
OCTOBER-NOVEMBER 75¢

WHITE'S RADIO LOG
AM-FM STATIONS • WORLD-WIDE SHORTWAVE LISTINGS

SPECIAL ISSUE: Celebrating 100 years of radio!
Trace radio's exciting history • Enjoy our new ham column
Dig those cool CB clubs • Pick the SW receiver kit for you

1-tube budget SW converter

2-tube beginner's superhet

3-tube, 2-meter superregen

Centennial SPECIAL!
3 Great Radio Projects
you can build!

PLUS —
Add color to any TV set
Build poorman's drunkometer
DX crooks and clandestines

100 YEARS OF RADIO

MAHLON LOOMIS



By C. Hansen

□ "But," someone is saying, "radio 100 years old? It can't be. Why, even phonographs were unheard of in 1867, lights had yet to become electric, and Marconi was still to be born."

True. Yet inventions have the strange habit of appearing years ahead of their real selves, and radio was no exception. The first cars were made long before there were roads for so-called horseless carriages. The first modern symphonies were composed long before there were orchestras to play them. The first LPs were released long before there were instruments specifically designed to handle this johnny-come-lately of the record field. (A second attempt to unseat 78s, this one by Columbia, not Victor, proved successful largely because Columbia deliberately saw to it that appropriate, low-cost players were available for the microgroove disc.)

And so it was with radio. For radio was to be born long before there were receivers to tune in or audiences to hear what had been transmitted. Fact is, radio was born before science was even remotely capable of explaining what it was all about. (Heinrich Hertz, for example, would wait 11 years before he would conduct his studies and ultimately demonstrate the existence of an entity we now know as radio waves.)

The Beginning. The time was just after the U.S.'s savage Civil War; Abraham Lincoln was more than a year dead. Mahlon Loomis, a New Yorker who had since moved to Washington, D.C., where he practiced dentistry, entered the following in his notebook: (Turn page)

100 YEARS OF RADIO



BARON HERMANN VON HELMHOLTZ

"From two mountain peaks of the Blue Ridge in Virginia which are only about two thousand feet above tide water two kites were let up, one from each summit, eighteen or twenty miles apart. These kites had each a small piece of fine copper wire gauze about fifteen inches square attached to their under side and connected also with the wire six hundred feet in length which held the kites when they were up. The day was clear and cool in the month of October with breeze enough to hold the kites firmly at anchor when they were flown. Good connection was made with the ground by laying in a wet place a coil of wire one end of which was secured to the binding post of a galvanometer.

"The equipments and apparatus at both stations were exactly alike. The time pieces of both parties having been set exactly alike, it was arranged that at precisely such an hour and minute the galvanometer at one station should be attached, or be in circuit with the ground and kite wires. At the opposite station the ground wire already being fast to the galvanometer, three separate and deliberate half-minute connections were made with the kite wire and instruments. This deflected, or moved, the needle at the other station with the same vigor and precision as if it had been attached to an ordinary battery.

"After a lapse of five minutes, as previously arranged, the same performance was repeated with the same result until the third time. Then fifteen minutes precisely were allowed to elapse, during which time the instrument at the first station was put in circuit with both wires until the opposite one

was detached from its upper wire, thus reversing the arrangements at each station. At the expiration of the fifteen minutes the message or signals came in to the initial station, a perfect duplicate of those sent from it, as by previous arrangement. And although no 'transmitting key' was made use of nor any 'sounder' key to voice the messages, yet they were just as precise and distinct as any that ever sped over a wire."

Tubeless Wireless. What had Loomis really done? Little, it seems, that would be well remembered or adequately acknowledged, and next to nothing that would have discernible effect on the development of radio that was to come. Yet judged on their own terms, Loomis' experiments must be held as the very first in the realm of radio.

For it must be remembered that wires, not ether, were the accepted media of the time. Few this side of the nuthouse would have dreamed of communicating through the air. Wires, anyone in his right mind would have informed you, were the only way of pumping this mysterious juice called electricity from one point to another, and anyone who argued they had done same without benefit of iron conductors (copper was introduced along about 1877) was properly viewed only an imbecile or a fool.

Loomis, it seems reasonable to assume, was neither. And to him must go credit for conceiving of a means of wireless communications—i.e., radio.

For Loomis had launched radio. Shortly thereafter, Ludwig V. Lorenz was to write a mathematical paper suggesting that light vibrations are, in effect, electrical currents. And in 1872, Loomis was to receive Patent



THOMAS ALVA EDISON



PROFESSOR HEINRICH HERTZ



GUGLIELMO MARCONI

No. 129,971 for his "Improvement in Telegraphing," in which he used an "aerial" "to radiate or receive pulsations caused by producing a disturbance in the electrical equilibrium of the atmosphere."

In that same year, Baron Hermann Von Helmholtz was to demonstrate how electrical impulses having a constant time interval between them can be fed into a circuit have a contact maker attached to one of the arms of the tuning fork so that contact is made through a battery with each of the fork's vibrations. Later (1873), Sir James Maxwell was to publish his "Treatise on Electricity and Magnetism," in which he advanced the theory of electromagnetic waves and thus helped further explain the nature of this thing called wireless.

The Developing Storm. Other "firsts" followed with whirlwind vigor. In 1883, Thomas Edison was to discover that electric current can flow through space (from filament to plate in an incandescent light bulb), and thereby coin what is called the Edison Effect. In 1889, Sir John Fleming was to conclude that "negative electricity can pass along the flame-like projection of the arc from the hot negative carbon to the cooler third carbon *but not in the opposite direction.*" (Italics are ours.) And in 1885, Edward Branly was to invent the "coherer," first detector of radio waves and an invaluable instrument to Marconi and others to follow.

In 1888, Prof. Heinrich Hertz was to design an oscillator for producing electrical waves and develop a means for measuring and varying wavelengths. And in 1891, Edison was to be granted Patent No. 465,971

for "Signalling between distant points . . . without the use of wires connecting such distant points" (though it should be noted that the patent refers to the process as one of "induction," not radiation.)

Came 1892, and another now all but unknown inventor, Nathan Stubblefield of Kentucky, was to demonstrate a radio broadcast. Repeated in 1902 in Philadelphia's Fairmont Park, the first-time-ever display was described by its inventor (in an interview with the *Washington Post*) as follows:

"My invention . . . is capable of sending simultaneous messages from a central distribution station over a very wide territory. For instance, anyone having a receiving instrument, which would consist merely of a telephone receiver and a few feet of wire, and a signaling gong could, upon being signaled by a transmitting station . . . be informed of weather news. My apparatus is capable of sending out a gong signal as well as voice messages. Eventually, it will be used for the general transmission of news of every description.

"I have as yet devised no method whereby it can be used with privacy (scramblers were to await another year). Wherever there is a receiving station the signal and the message may be heard simultaneously. Eventually, I, or someone will discover a method of tuning the transmitting and receiving instruments so that each will answer only its mate. The system can be developed until messages by voice can be sent and heard all over the country, to Europe, all over the world."

Signals Across The Sea. Daring though Stubblefield's forecasts were, less than 10 years would pass before their fruition. For

100 YEARS OF RADIO

in 1895, Guglielmo Marconi began his experiments from his home in Bologna and succeeded in transmitting signals roughly a mile without wires. In 1897, Marconi was to transmit Morse the nine miles across the Bristol Channel.

In 1898 (this time using an aerial), Marconi was to send signals between Bournemouth and the Isle of Wight, a distance of some 14 miles. And in that same year, Sir Oliver Lodge was to patent his system for "tuning," thus making it possible for the first time to put a transmitter and receiver in tune with one another.

One year later—in 1899—Marconi was to transmit a message over some 32 miles (between Folkestone and Boulogne) and thus lay claim to the world's first international wireless transmission. And in 1901, Marconi was to bring off the feat that was to win him universal fame and cause many (including the *Encyclopedia Britannica*) to credit him with the discovery of radio.

His accomplishment: to transmit a radio signal—the letter S in Morse—across the

Atlantic Ocean. In doing so, he established radio as a communications medium the world would soon invite into a million living rooms as the "Music Box" another of radio's great pioneers (RCA's David Sarnoff) was to envision.

The Box At Last. That "Music Box" was a long way off, of course. Coming to pave its way were, among other developments, to be Sir John Fleming's valve detector (1904), Dr. Lee De Forest's triode (1906), Edwin Armstrong's regenerative circuit (1913) and his superheterodyne (1916).

Came 1920, and the world's first station to broadcast regularly scheduled programs, Pittsburgh's KDKA, made history by airing the November 2 Harding-Cox election returns. Came 1921, and the White-Sarnoff team aired radio's first championship fight (the July 2 Dempsey-Carpentier bout). Came 1922, and the Queensboro Realty Company broadcast the first commercial program over New York's WEAf. Came 1923, and the first network broadcast was transmitted (on January 4) by WEAf, New York, and WNAC, Boston.

Three decades and a fraction later, radio and its stepchild, television, are far more ubiquitous with humans than fleas with canines and even more universal with housewives than the kitchen sink (007 and his crew have no doubt uncovered a spy set or three even in that unlikely locale). And to Loomis, Stubblefield, Marconi & Co. go credit for conceiving, developing, and pioneering this most valuable means of communication.

Imagine, if you can, a world *without* radio! ■



DR. LEE DE FOREST



EDWIN ARMSTRONG



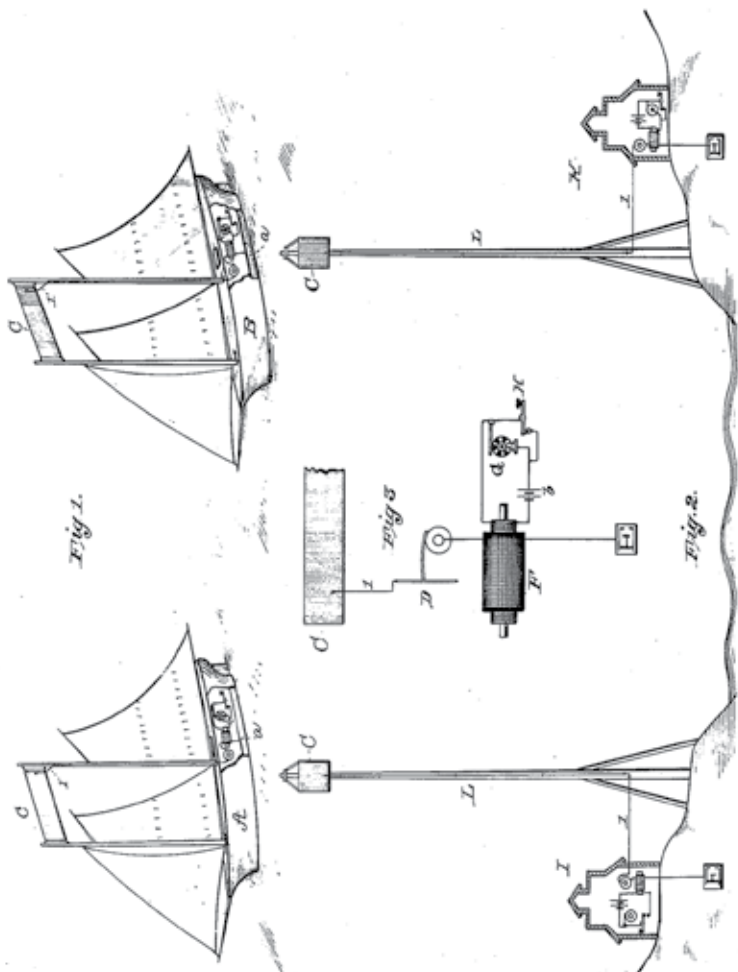
DAVID SARNOFF

T. A. EDISON.

MEANS FOR TRANSMITTING SIGNALS ELECTRICALLY.

No. 465,971.

Patented Dec. 29, 1891.



ATTEST:
W. R. Hooper
Attorney

INVENTOR:
Thomas A. Edison
By J. S. & S. S.
Atty.

(No Model.)

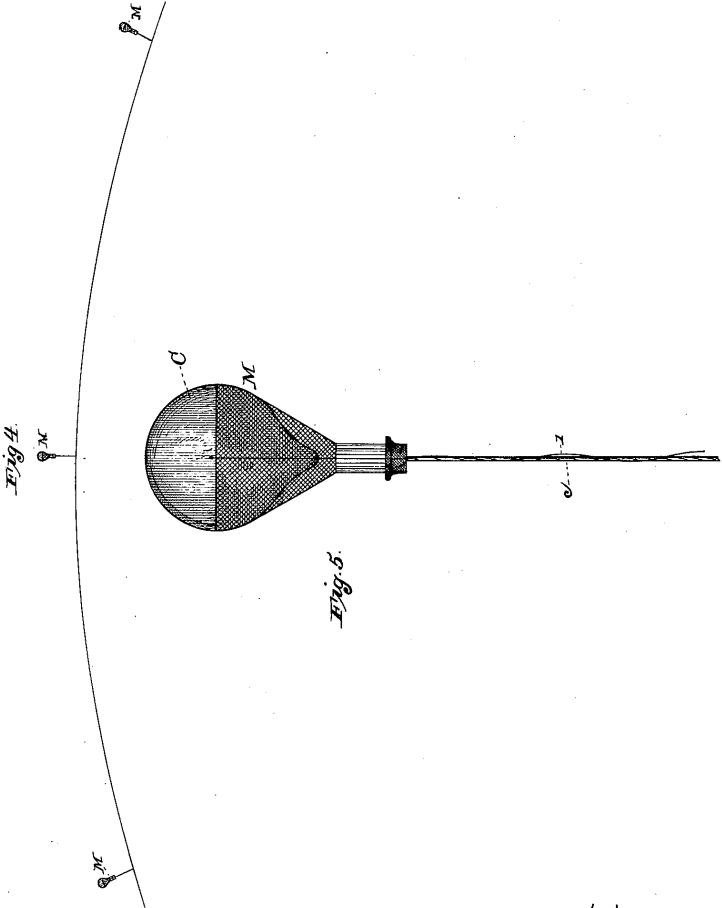
2 Sheets—Sheet 2.

T. A. EDISON.

MEANS FOR TRANSMITTING SIGNALS ELECTRICALLY.

No. 465,971.

Patented Dec. 29, 1891.



ATTEST:
E. Rowland
Att. Exch.

INVENTOR:
Thomas A. Edison
Per Dyer & Seels
Attys.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

MEANS FOR TRANSMITTING SIGNALS ELECTRICALLY.

SPECIFICATION forming part of Letters Patent No. 465,971, dated December 29, 1891.

Application filed May 23, 1885. Serial No. 166,455. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have discovered a new and useful Improvement in Means for Transmitting Signals Electrically, (Case No. 652,) of which the following is a specification.

The present invention consists in the signaling system having elevated induction plates or devices, as hereinafter described and claimed.

I have discovered that if sufficient elevation be obtained to overcome the curvature of the earth's surface and to reduce to the minimum the earth's absorption electric telegraphing or signaling between distant points can be carried on by induction without the use of wires connecting such distant points. This discovery is especially applicable to telegraphing across bodies of water, thus avoiding the use of submarine cables, or for communicating between vessels at sea, or between vessels at sea and points on land; but it is also applicable to electric communication between distant points on land, it being necessary, however, on land (with the exception of communication over open prairie) to increase the elevation in order to reduce to the minimum the induction-absorbing effect of houses, trees, and elevations in the land itself. At sea from an elevation of one hundred feet I can communicate electrically a great distance, and since this elevation or one sufficiently high can be had by utilizing the masts of ships signals can be sent and received between ships separated a considerable distance, and by repeating the signals from ship to ship communication can be established between points at any distance apart or across the largest seas and even oceans. The collision of ships in fogs can be prevented by this character of signaling, by the use of which, also, the safety of a ship in approaching a dangerous coast in foggy weather can be assured. In communicating between points on land poles of great height can be used or captive balloons. At these elevated points, whether upon the masts of ships, upon poles or balloons, condensing-surfaces of metal or other conductor of electricity are located. Each condensing-surface is connected with earth by an electrical conducting-wire. On

land this earth connection would be one of usual character in telegraphy. At sea the wire would run to one or more metal plates on the bottom of the vessel where the earth connection would be made with the water. The high-resistance secondary circuit of an induction-coil is located in circuit between the condensing-surface and the ground. The primary circuit of the induction-coil includes a battery and a device for transmitting signals, which may be a revolving circuit-breaker operated continually by a motor of any suitable kind, either electrical or mechanical, and a key normally short-circuiting the circuit-breaker or secondary coil. For receiving signals I locate in said circuit between the condensing-surface and the ground a diaphragm-sounder, which is preferably one of my electro-motograph telephone-receivers. The key normally short-circuiting the revolving circuit-breaker, no impulses are produced in the induction-coil until the key is depressed, when a large number of impulses are produced in primary, and by means of the secondary corresponding impulses or variations in tension are produced at the elevated condensing-surface, producing thereat electrostatic impulses. These electrostatic impulses are transmitted inductively to the elevated condensing-surface at the distant point and are made audible by the electro-motograph connected in the ground-circuit with such distant condensing-surface. The intervening body of air forms the dielectric of the condenser, the condensing-surfaces of which are connected by the earth. The effect is a circuit in which is interposed a condenser formed of distantly-separated and elevated condensing-surfaces with the intervening air as a dielectric.

In the accompanying drawings, forming a part hereof, Figure 1 is a view showing two vessels placed in communication by my discovery; Fig. 2, a view showing signaling-stations on opposite banks of a river; Fig. 3, a separate view, principally in diagram, of the apparatus; Fig. 4, a diagram of a portion of the earth's surface, showing communication by captive balloons; Fig. 5, a view of a single captive balloon constructed for use in signaling.

A and B are two vessels, each having a me-

tallic condensing-surface C, supported at the heads of the masts. This condensing-surface may be of canvas covered with flexible sheet metal or metallic foil secured thereto in any suitable way. From the condensing-surface C a wire 1 extends to the hull of each vessel and through the signal receiving and transmitting apparatus to a metallic plate *a* on the vessel's bottom. This wire extends through an electro-motograph telephone-receiver D or other suitable receiver, and also includes the secondary circuit of an induction-coil F. In the primary of this induction-coil is a battery *b* and a revolving circuit-breaker G. This circuit-breaker is revolved rapidly by a motor, (not shown,) electrical or mechanical. It is short-circuited normally by a back point-key H, by depressing which the short circuit is broken and the circuit-breaker breaks and makes the primary circuit of the induction-coil with great rapidity. This apparatus is more particularly shown in Fig. 3.

In Fig. 2, I K are stations on land, having poles L supporting condensing-surfaces C, which may be light cylinders or frames of wood covered with sheet metal. These drums are adapted to be raised and lowered by block and tackle and are connected by wires with earth-plates through signal receiving and transmitting apparatus, such as has already been described.

In Fig. 5, M is a captive balloon having condensing-surfaces C of metallic foil. The ground-wire 1 is carried down the rope *c*, by which the balloon is held captive. In Fig. 4 three of these captive balloons are represented in position to communicate from one to the other and to repeat to the third, the curvature of the earth's surface being represented.

What I claim as my discovery is—

1. Means for signaling between stations separated from each other, consisting of an elevated condensing surface or body at each station, a transmitter operatively connected to one of said condensing-surfaces for varying its electrical tension in conformity to the signal to be transmitted, and thereby correspondingly varying the tension of the other condensing-surface, and a signal-receiver operatively connected to said other condensing-surface, substantially as described.

2. Means for signaling between stations

separated from each other, consisting of a condensing-surface at each station at such an elevation that a straight line between said surfaces will avoid the curvature of the earth's surface and intervening induction-absorbing obstacles, a signal-transmitter operatively connected to one of said surfaces for varying its electrical tension and thereby correspondingly varying the electrical tension of the other surface, and a signal-receiver operatively connected to the latter surface, substantially as described.

3. Means for signaling between stations separated from each other, consisting of an elevated condensing surface or body at each station, an induction-transmitter operatively connected to one of said condensing-surfaces for varying its electrical tension in conformity to the signal to be transmitted and thereby correspondingly varying the tension of the other condensing-surface, and a signal-receiver operatively connected to said other condensing-surface, substantially as described.

4. Means for signaling between stations separated from each other, consisting of an elevated metallic condensing-surface at each station, a conductor from the surface at one station, including the secondary of an induction-coil, a primary coil including a source of current and a transmitting key or device for changing the primary circuit for signaling, and a conductor from the condensing-surface at the other station, including a telephone-receiver, substantially as described.

5. Means for signaling between stations separated from each other, consisting of an elevated metallic condensing-surface at each station, a conductor from the surface at one station, including a signal-receiver and the secondary of an induction-coil, a primary coil including a source of current and means for making and breaking or varying the primary circuit for signaling, and a conductor from the condensing-surface at the other station, including similar receiving and transmitting instruments, substantially as described.

This specification signed and witnessed this 14th day of May, 1885.

THOS. A. EDISON.

Witnesses:

PHILIP S. DYER,
JOHN C. TOMLINSON.

UNITED STATES PATENT OFFICE.

MAHLON LOOMIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN TELEGRAPHING.

Specification forming part of Letters Patent No. **129,971**, dated July 30, 1872.

To all whom it may concern:

Be it known that I, MAHLON LOOMIS, dentist, of Washington, District of Columbia, have invented or discovered a new and Improved Mode of Telegraphing and of Generating Light, Heat, and Motive-Power; and I do hereby declare that the following is a full description thereof.

The nature of my invention or discovery consists, in general terms, of utilizing natural electricity and establishing an electrical current or circuit for telegraphic and other purposes without the aid of wires, artificial batteries, or cables to form such electrical circuit, and yet communicate from one continent of the globe to another.

To enable others skilled in electrical science to make use of my discovery, I will proceed to describe the arrangements and mode of operation.

As in dispensing with the double wire, (which was first used in telegraphing,) and making use of but one, substituting the earth instead of a wire to form one-half the circuit, so I now dispense with both wires, using the earth as one-half the circuit and the continuous electrical element far above the earth's surface for the other part of the circuit. I also dispense with all artificial batteries, but use the free electricity of the atmosphere, co-operating with that of the earth, to supply the electrical dynamic force or current for telegraphing and for other useful purposes, such as light, heat, and motive power.

As atmospheric electricity is found more and more abundant when moisture, clouds, heated currents of air, and other dissipating influences are left below and a greater altitude attained, my plan is to seek as high an elevation as practicable on the tops of high mountains, and thus penetrate or establish electrical connection

with the atmospheric stratum or ocean overlying local disturbances. Upon these mountaintops I erect suitable towers and apparatus to attract the electricity, or, in other words, to disturb the electrical equilibrium, and thus obtain a current of electricity, or shocks or pulsations, which traverse or disturb the positive electrical body of the atmosphere above and between two given points by communicating it to the negative electrical body in the earth below, to form the electrical circuit.

I deem it expedient to use an insulated wire or conductor as forming a part of the local apparatus and for conducting the electricity down to the foot of the mountain, or as far away as may be convenient for a telegraph-office, or to utilize it for other purposes.

I do not claim any new key-board nor any new alphabet or signals; I do not claim any new register or recording instrument; but

What I claim as my invention or discovery, and desire to secure by Letters Patent, is—

The utilization of natural electricity from elevated points by connecting the opposite polarity of the celestial and terrestrial bodies of electricity at different points by suitable conductors, and, for telegraphic purposes, relying upon the disturbance produced in the two electro-opposite bodies (of the earth and atmosphere) by an interruption of the continuity of one of the conductors from the electrical body being indicated upon its opposite or corresponding terminus, and thus producing a circuit or communication between the two without an artificial battery or the further use of wires or cables to connect the co-operating stations.

MAHLON LOOMIS.

Witnesses:

BOYD ELIOT,
C. C. WILSON.

A Zenith Refurb

by Bob Lang

Zenith 10S464, Chassis 1005

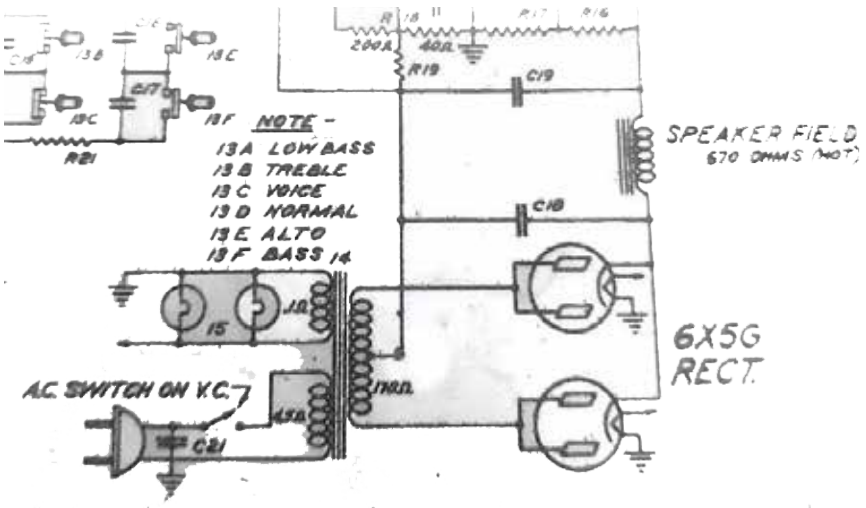
6X5 rectifier tubes

In the repair or refurbishment of vintage radios, challenges will always be presented from electrical / electronics to finishes. I am going to go over my refurbishment that I am doing with a Zenith 10S474. My overview may or will be different from many that do radio repairs.

I had gotten a 1940 Zenith 10S464 radio. As with many of the radios that I work on, I always review forums on the radio challenges. This radio was noted by many that the power supply is a challenge with the full wave rectification using 6X5G tubes. The caution was about the failure rate of the 6X5 with the heater to cathode short noting that, if it occurs, it will take out the power transformer. This is due to the limited capacity of the transformer to take an overload. There may be opinions that modification will affect the authenticity of the unit. Any work that I change in a radio is to help ensure its longevity over time.

With the radio repair, I use a variable isolation power supply so that I can view the current when doing initial startups. I remove all the tubes and then do a slow power up of the radio while monitoring the current draw. Once I obtain around 60v input to the radio, I will check the power transformer and verify that is working correctly. This radio had no issues with proper B+ and heater voltage. Testing of tubes was done, and no shorts were found. I then address the power supply electrolytic capacitors and replace them.

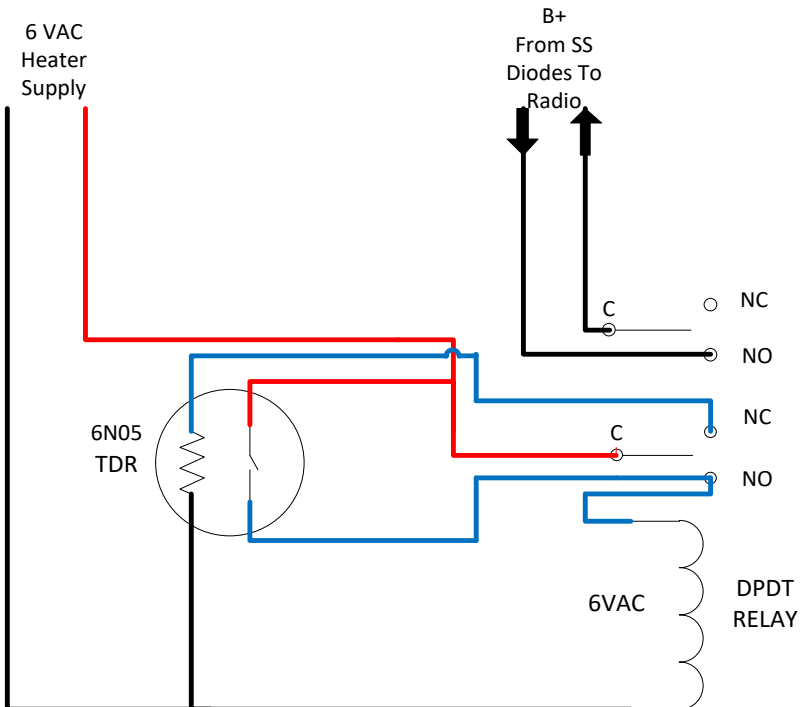
Here is a view of the initial power supply:



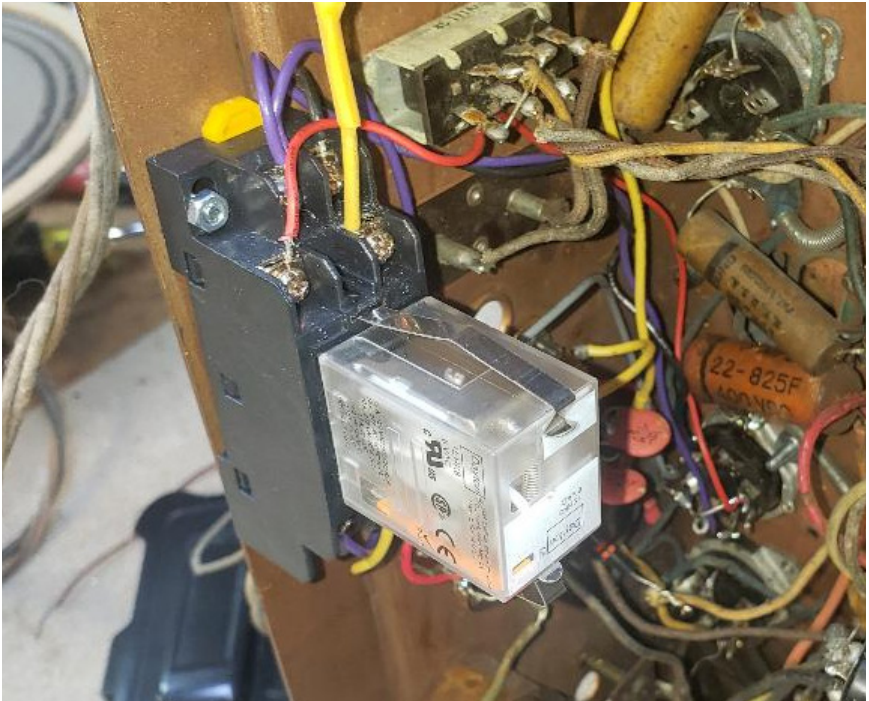
Once that is done, I focus on the 2- 6x5's and add a terminal strip to the bottom of the chassis with a four 1N4007 diodes and .01 capacitors. Since the 6x5 tubes do provide around a 30-50 volt drop each to the initial transformer B+ output, I added a dropping resistor (200 ohm) in series with the speaker field coils to ensure that the voltages to the rest of the radio will be in tolerance, since the diodes do not add that great of a voltage drop. The PIV of these tubes is around 1250v each and a 1N4007 has a PIV of 1000v so replacing one tube with two diodes will provide a 2000 v PIV. There are many opinions on additional protection, but I used the diodes and added capacitors across each diode. The capacitors will help with any surges or spikes that could affect the diode. The capacitors are rated over 2kv each.

When replacing the 6x5 tubes with diodes, the startup of the radio can be affected as the diodes do not provide any warmup time for the other tubes. I used one of the octal sockets for the 6x5 and replaced it with a Amperite 6N05 time delay tube and 6-volt DPDT ac relay. The tube has a spst switch that closes when it is turned on after 5 seconds. I installed the relay right after the full wave diodes. I used the time delay tube to activate the relay coil to latch in a section of the relay contacts and deactivate the tube as that is only to be used intermittently. Once latched in the other unused relay section is connected to add B+ to the rest of the power supply.

Here is a sketch of the circuit:



Here is the actual circuit inside the chassis. You can see the terminal strip with the capacitors and diodes to the bottom right of the relay.



I also added a dropping resistor 25Ω / $25W$ to the main input circuit into the transformer to keep it around 110vac to keep the transformer cooler and added a 3 wire cord and fuse. Cord and resistor are at the bottom of the chassis.



These modifications addressed the power transformer and the 6x5 tubes.

The other modifications were to the overall condition of the veneer. Here are some before and after pictures showing this.



To the final overall condition of this radio, you just have to allow the lacquer to setup and then add the rest.



ZENITH

Plant A & Other Puzzles

by Tom Kleinschmidt

Private Brand Radio Manufacturers Revealed

This is the corresponding article to the presentation on the ARCI Virtual Forum for 19 November 2022.

Information on mainstream radio makes and models can be easily found via an internet search, radio collector books, forums, and talking with other collectors. Sometimes those conventional methods yield little or nothing. Many radio brand names are orphaned with little to no information remaining, yet there are ways to determine the manufacture of an obscure radio brand.

Finding the manufacturer tells the story of who, where and when the set was built. Knowing the set manufacturer is the gateway to servicing information. The same radio or components thereof were often used under multiple brand names, thus unfolding a rich network of company interconnections. In the exploration process many unexpected companies marketed radios, some of which remain today in entirely different lines of business.

To solve the puzzle of who made and sold radios it is important to know the business relationships of manufacturers, brands and retailers. There are many ways to determine a radio manufacturer, a few will be explored here, including sources of information.

The nature of this information, being names and numbers, steers the text away from a narrative form article and more to a technical paper or math textbook approach. While not a detective novel it contains those factual elements contained therein.

Manufacturers – Brands - Retailers

Manufacturer brands

In the manufacturer brand business model, the company makes and distributes their own radios under their own brand. The manufacturer controls product creation through customer experience. Products are sold through many different retailers.

Scenario 1: The company name is the same as the brand name.

Examples: Atwater Kent, Philco, RCA, Zenith

Scenario 2: The company name is secondary, and the brand is prominent.
Examples:

Brand
 Motorola
 Capelhart
 Sparton

Company / manufacturer
 Galvin Manufacturing
 Farnsworth
 Sparks Worthington

Brand managers

These are house brand /private label products sold only through the retailer that owns the brand. The company is generally not a manufacturer but contracts out to manufactures of radios. Examples:

Retailer
 Allied Radio
 Montgomery Ward
 Sears & Roebuck
 Spiegel

Brand(s)
 Knight & Roamer
 Airline
 Silvertone
 Air Castle

Large retailers contract with manufacturers to create products to the retailer's specification. Examples:

Retailer
 Sears & Roebuck
 Montgomery Ward

Manufacturer
 Air King, Colonial, Detrola, Noblitt-
 Sparks, RCA, Stewart Warner....*
 Belmont & Wells Gardner

Both manufacturer and private label

Manufacturer has their own brands and also does private labeling. HOME radio examples:

<u>Manufacturer</u>	<u>Manufacturer brand</u>	<u>Private label brand</u>
Belmont	Belmont	Airline
Colonial	Colonial	Silvertone

The same companies that primarily sold their own home radio brands through multiple retail channels also made private label Car radios for OEMs. Philco & Zenith built radios for many of these car makes:

GM – Chevrolet, Pontiac, Oldsmobile, Buick, Cadillac...
 Ford – Ford, Mercury, Lincoln...
 Chrysler – Dodge, Plymouth, Chrysler...
 Hudson, Nash, Packard & *more*.

There is a myriad of other manufacturer, brand, and retailing arrangements, including co-branding. As in all industries, arrangements changed over time. Per various sources, Sears bought Colonial Radio Corporation as early as 1929. Sears moved into manufacturing in addition to brand management for those Silvertone sets made by Colonial.

*Source Book: Sears Silvertone Catalogs 1930-1942 by Mark V. Stein, Pg239

Finding the radio set manufacturer

The following case studies contain multiple methods to determine the manufacturer with a high level of certainty.

Case 1: Fidelitone model 210

No, it's not from Cuba (Fidel's private brand).



To start, collect information from the radio. This may seem obvious, but it is important to be thorough.

1. The small Fidelitone Superheterodyne badge below the dial was the only branding or company name.



2. Tube lineup: 7) 42, 76, 80, 6A7, 6D6, 6F5, 6G5
3. Rear chassis; paper license & patent tag
 - a. Model number 210



b. Serial number C7374 – Note the “C” prefix - it plays a role in identification.



Searching documentation for Fidelitone along with the collected information above reveals the manufacturer.

Step 1: Look in *Riders Perpetual Troubleshooters Manual* index -No Fidelitone listing

Step 2: Search *Mallory Yaxley* book on-line. Insert data into the on-line search tool: <https://www.grillecloth.com> click Radio Finder

Free radio look-up information

Type in any known information. At least one field needs to be entered or nothing will be shown.
 Additional instructions and background info can be found [here](#).

Company or Tradename: _____ Model or Chassis: _____ #Tubes: ? Tube1: cat Tube2: cat Tube3: ? Tube4: cat

Please select the database to search: Sylvania
 Mallory-Yaxley (3rd & 5th edition)
 G. Larsen's Locator (no model number info)
 Howard Sam's Red Book (1st edition)
 Sylvania-Yaxley-Red Book (all 3 DBs)
 Additional Redbook 2nd Edition (1948-50 models only)

Records 1 to 11 of 11

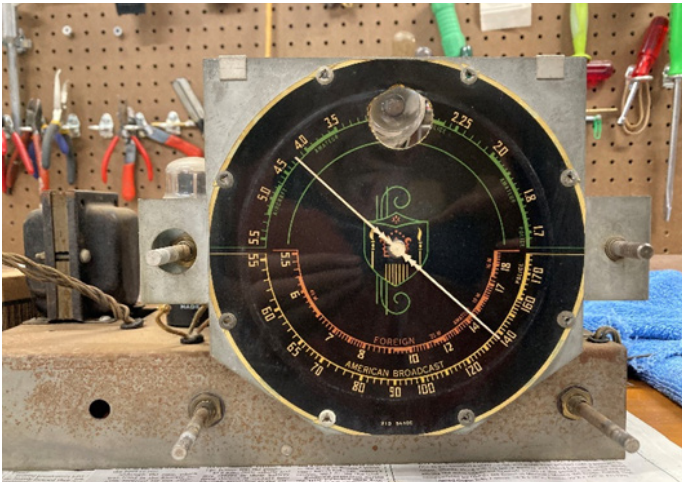
Company	Tradename	Model	Chassis	# Tubes	Tube List	Ballast	I.F.
Air King Products Company, Inc.	Air King	824		7	6A7, 6D6, 76, 6G5, 6F5, 25L6, 25Z5		450
Air King Products Company, Inc.	Air King	826		7	6A7, 6D6, 76, 6G5, 6F5, 6V8, 80		450
Air King Products Company, Inc.	Air King	834		7	6A7, 6D6, 76, 6G5, 6F5, 25L6, 25Z5		450
Air King Products Company, Inc.	Air King	838		7	6A7, 6D6, 6G5, 76, 6F5, 6V8, 80		450
Climax Radio And Television, Inc.	Climax	AC 60		7	6A7, 6D6, 76, 6G5, 6F5, 42, 80		
Climax Radio And Television, Inc.	Climax	AC 64, AC 64B		7	6A7, 6D6, 76, 6G5, 6F5, 42, 80		450
Climax Radio And Television, Inc.	Climax	AD6		7	6A7, 6D6, 76, 6F5, 6G5, 42, 80		450
Corona Radio And Television Corporation	Corona	210		7	6A7, 6D6, 76, 6F5, 42, 6G5, 80		450
Helson Radio Manufacturing Corp.	Helson	106		7	6A7, 6D6, 76, 6G5, 6F5, 41, 80		450
Pacific Radio Corporation	Aetna, Knight, Manchester	37-6322		7	6A7, 6D6, 76, 6F5, 43, 6G5, 25Z5		465
Zephyr Radio Company	Zephyr	6308		7	6A7, 6D6, 76, 6G5, 6F5, 43, 25Z5	L405	450

[Back to Home](#)
 Comments welcome

By looking for the matching tube lineup along with the model number, Corona Radio and Television Corporation is a likely manufacturer. This is strong but not conclusive, there could be other sets with that tube lineup and model number.

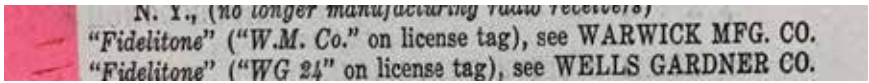
Step 3: Search Radio Museum site for Corona. Compare the radio museum

model 100 dial closeup to the Fidelitone 210—they are the same. https://www.radiomuseum.org/r/corona_100.html#



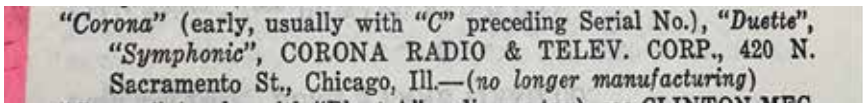
This is the second point for Corona.

Step 4: Look up Fidelitone in *Radio Troubleshooter's Handbook* – Pg 713:



These license tag markings do NOT match.

Step 5: Look up Corona in *Radio Troubleshooter's Handbook* – Pg 711:



The serial number "C" prefix matches.

Step 6: Look for Corona 210 in *Riders Perpetual Troubleshooters Manual*. The Corona 210 is listed in Volume 9 (1939) Corona page 9-4. The tube line-up matches as does the circuitry. <https://worldradiohistory.com/Rider-Manual.htm> click through options.

With four pieces of corroborating evidence, Corona is the manufacturer of this Fidelitone 210 radio. The Fidelitone brand had multiple manufacturers and models over the years: Corona, Wells Gardner, and Warwick.

The Fidelitone brand became more known as a manufacturer of diamond phonograph needles. The Fidelitone company is now in the distribution and logistics business. <https://www.fidelitone.com/about/history>

Case 2: Club brand radio



This investigation started as an email request to the Antique Radio Club of Illinois:
benny @ xxxx
To: clubinfo@antique-radios.org
Sun, Jan 23 (2022) at 3:58 PM
Do you know or have ever seen a club radio? I would like to find info on radio.
Benny

The message arrived with pictures of the radio – more were shared subsequently.

Step 1: read license and patent tag.



The manufacturer's mark is on lower right of the label: W.G.-24 = Wells Gardner per *Radio Troubleshooting Handbook* pg. 718.

Step 2: What model Wells Gardner set is it? Here is the profile:

1. Dial markings: 0-100 vs. 540-1600 kHz



2. Tube lineup: 9) 26, 26, 26, 24(in can), 26, 26, 45, 45, 80

a. Green mark proves to be bonus information

3. General form of chassis



Green
mark on
rivet head

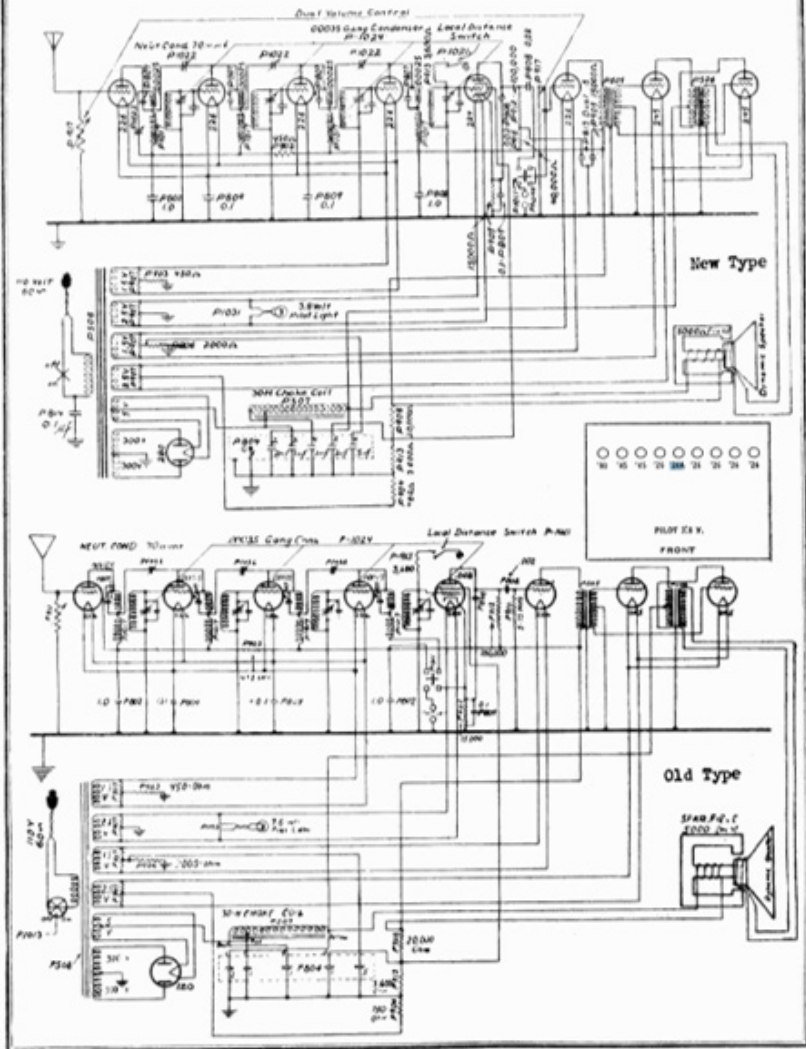
Based on the above profile and personal experience, this is a circa 1930 AC mains (vs. battery) TRF radio.

Step 3: Search *Rider Perpetual Troubleshooters Manual* for Wells Gardner model with equivalent tube line-up by type numbers and physical arrangement.

1. Found a match: Volume 1 Riders – 1931, WELLS -GARD. PAGE 1-1 & 1-2, Model C, CG. https://www.radiomuseum.org/r/wells_gard_c.html

WELLS - GARDNER & CO.

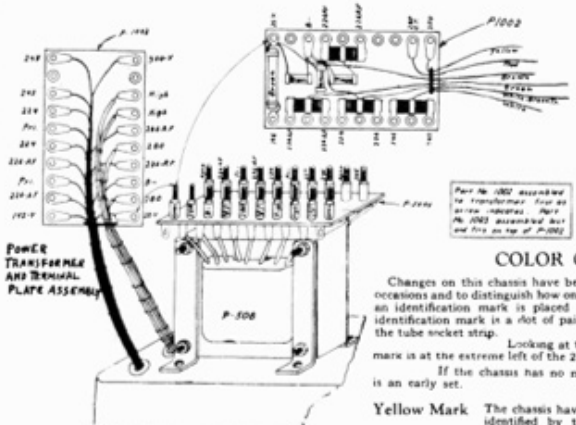
MODEL C,CG
Schematic
1st & 2nd Types



The green mark information is on Page 1.2

MODEL C,CG
Voltage - Data
1st & 2nd Types

WELLS - GARDNER & CO.



COLOR CODE

Changes on this chassis have been made on several different occasions and to distinguish how one chassis differs from another, an identification mark is placed on each one changed. This identification mark is a dot of paint found on the end rivet of the tube socket strip.

Looking at the chassis from the back the mark is at the extreme left of the 226 tube sockets.
If the chassis has no mark it is understood that it is an early set.

Yellow Mark The chassis having the first changes may be identified by the yellow indicating mark. This involves four changes.

1. A "dual volume control" in place of the single type. The new volume control is made in two sections, with five lugs. The section nearest the chassis, having two lugs, operates exactly the same as the single volume control. The section behind the 80K, having three lugs, is placed in the first audio circuit to reduce the audio amplification and operates in tandem with the antenna volume control.
2. An interchange of position of the two audio transformers. The re-arrangement of the audio transformers has not altered their connections in the circuit.
3. An addition of a "dual half microfarad condenser" and two carbon resistors in the "B" circuit of the detector and first audio tubes. The 40,000 ohm black resistor with one section of the dual condenser is placed in the detector circuit (224) and the 15,000 ohm blue resistor with the other section of the dual condenser is placed in the first audio circuit (226). You will note that the yellow and blue leads in the cable connecting to the terminal strip have been interchanged.
4. A change in the location of the grounding of No. 1 lug on the condenser block. This lug is now grounded to the condenser case with a short piece of bare wire.

OPERATING VOLTAGES

Type of Tube	Position of Tube	TUBE IN TEST SET										
		"A" Volts	"B" Volts	Control Grid ("C") Volts	Screen Volts	Screen Current	Cathode Volts	Normal Ma.	Grid Test Ma.			
226	1st R.F.	1.35	116	8.5							4.7	8.7
226	2nd R.F.	1.35	116	8.5							4.7	8.7
226	3rd R.F.	1.35	116	8.5							4.7	8.7
226	4th R.F.	1.35	116	8.5							4.7	8.7
224	Det.	2.2	80	1.3	15							
226	1st A.F.	1.4	110	1.0							4.0	5.0
245	2nd A.F.	2.2	232	42							27	32
245	2nd A.F.	2.2	232	42							27	32
280	Rect.	4.6										84

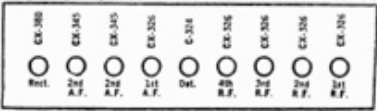
Line Voltage During Test—115 Volts

REVISION OF OPERATING VOLTAGES

Type of Tube	Position of Tube	TUBE IN TEST SET										
		"A" Volts	"B" Volts	Control Grid ("C") Volts	Screen Volts	Screen Current	Cathode Volts	Normal Ma.	Grid Test Ma.			
224	Det.	2.2	75	1.3	15							
226	1st A.F.	1.4	77	1.0							4	5

200, 291, 292, 9950

(A.C.)



Red Mark
(Serial Number 39,000-42,999)

All chassis having a red mark on the rivet of the tube socket strip have all of the changes mentioned above and in addition, have a one-tenth microfarad condenser connected from ground to one side of the 110 volt line.

A peculiarity that may be experienced by the addition of this condenser is a loud hum on every station tuned in only when the antenna wire coming from the set is connected to ground. This can be eliminated by reversing the plug in the socket. Also be sure your antenna is not grounded, either by some other set being connected to y, or aerial or through any other means.

Green Mark
(Serial Number 43,000 and up)

All Chassis with a green mark on the rivet of the tube socket strip contain the above changes and in addition have a change in the "combination phonograph switch" circuit. This changed circuit makes use of only the audio system of the set for phonograph reproduction, whereas the original circuit included the detector tube.

The Phonograph, Radio, On, and Off positions of the switch are the same as in the early sets. To obtain maximum volume and best tone quality a pick-up coupling transformer should be used to match the pick-up used.

The detail on this page outlines three cumulative revisions to the model indicated by Yellow, Red, then Green mark on the chassis rivet.

There are three pieces of collaborating evidence that confirm it is a Wells Gardner model C, CG: license and patent tag, tube configuration, and revision mark.

Step 4: Who was Club?



Located on
cabinet

Doing an internet search for Club Aluminum Company yielded: *Club Aluminum started in Chicago as the Club Aluminum Utensil Company in 1923. The company sold the cookware (pots and pans) on the party plan (i.e., Tupperware style parties) by selling it “directly to home managers through health lectures,”* according to the Club Aluminum cookbook. Club Aluminum went bankrupt circa 1933. Mirro owns Club Aluminum today. <https://homesteady.com/about-6503363-universal-food-grinder-history.html>

Step 5: Search for other brands using the C, CG chassis

From the 1930 *Wholesale Radio Service Co. Inc.* catalog, their Lafayette brand Duo-Symphonic series Models 342, 316, 324, 370, 343, 300, 362, 357, 325, 329, 350 and 352, all used the C, CG chassis. https://www.radiomuseum.org/r/wells_gard_c.html

The OEM producer’s product was sold by multiple retailers or marketers under individual private brand names. It is expected that others sold the C, CG chassis too. More research is needed.

Plant A - Who and Where



Many have speculated on the manufacturer behind the Plant A marking on radios. These sets are generally small table models. Thanks again to *Radio Troubleshooters handbook* pg 711

- (Cont'd from preceding page)
- "Blindfold" (see PHILMORF MFG. CO.)
 - "Blue Roof" (see PHILMORF MFG. CO.)
 - BOND PRODUCTS CO., 15139 Hamilton Ave., Detroit, Mich.
 - "B. O. P." (see UNITED MOTORS SERVICE)
 - "Book" (see AMERICAN BOSCH CORP.)
 - "Bostonian," CLINTON RADIO MFG. CO., 1217 W. Washington Blvd., Chicago, Ill.
 - "Boulder," ROLLSTER RADIO CORP.—(no longer manufacturing)
 - BRAUN, WALTER C., INC., 401 W. Randolph St., Chicago, Ill. (see listings under RADLEY CO.)
 - Bronze City, BREMER TUBULE MFG. CO.—(no longer manufacturing)
 - "Brevin'," BREETING RADIO MFG. CO., 1835 Yates Blvd., Los Angeles, Cal.
 - BROWN & HANBART CO., ("Empire"), Los Angeles, Calif.
 - "Browning" (see DEUTSCHMANN, TOBE, CORP.)
 - BROWNING-DRAKE CORP.—(no longer manufacturing)
 - "Brooming Lab," BROWNING LABORATORIES, 75 Main St., Winchester, Mass.
 - "Brookside" (line of radio receivers under this name now being made by MERRILL BROS. CORP., Collins, Ohio—also by BRUNSWICK RADIO & TELEVISION DIVISION, 244 Madison Ave., New York, N. Y.)
 - BRUNSWICK BALKS.—(no longer manufacturing radio sets)
 - BRUNSWICK RADIO CO.—(no longer manufacturing radio sets)
 - BRUNSWICK RADIO & TELEVISION DIVISION, 244 Madison Ave., New York, N. Y.
 - "Buckingham" (original), "Washington," "La Salle (1888)," "Remington," BUCKINGHAM RADIO CORP., (no longer manufacturing)
 - "Buckingham" ("Plant A" on license tag), see CLINTON RADIO MFG. CO.)
 - "Buckingham" (Serial Number preceded by "B"), FACIFIC RADIO CORP.
 - "Buick" (see UNITED MOTORS SERVICE)
 - "Buick," BULOVA WATCH CO., 580 Fifth Ave., New York, N. Y.—(no longer manufacturing radio sets)
 - "Burling" (see BENTLEY RADIO CORP.)
 - "Bush and Lane," BUSH & LANE PIANO CO.

— C —

- "Cable-Nelson" (see HOWARD RADIO CO.)
- "Caldice Motors" (CALMILLAC DIVISION, GENERAL MOTORS CORP., Detroit, Mich.)
- "Calicut" ("Casualty," "Mild-Linda"), CALVERT MOTORS ASSOCIATES LTD., 1825 Linden Ave., Baltimore, Md.
- "Canada" (see RADIO PRODUCTS CORP.)
- "Canadian" ("Westinghouse"), CANADIAN WESTINGHOUSE CO., LTD., Ha-Tsim, Canada
- "Capetown," "Finnmark," THE CAPEHART CORP., INC., now a division of FAIRWORTH TELEV. & RADIO CORP., Fort Wayne, Ind.
- "Caracas" (see WARDIC MFG. CO.)
- "Carson" (see U. S. RADIO & TELEV. CORP.)

—(Cont'd)

- (Cont'd)
- "Case" (original), CASE ELECT. CORP., Marion, Indiana—(taken over by U. S. RADIO & TELEV. CORP.)
 - "Case" (present)—(see MAJESTIC RADIO & TELEV. CO.)
 - "Casualty" ("Casualty"), CALVADEE RADIO CO., 29 E. North Water St., Chicago, Ill.
 - "Casualty," CALVADEE RADIO CORP., 271-7th St., San Francisco, Calif.
 - "Cassidy" (see CALVERT MOTORS ASSOCIATES LTD.)
 - "Castaway" (see RADIO PRODUCTS CO.—(no longer manufacturing radio sets)
 - "Champion" (see RALLICRAFTERS, INC.)
 - "Champion" (old), CHAMPION RADIO MFG. CO.—(no longer manufacturing)
 - "Champion" (present), "La Salle," "Marshall," "Victory," CHAMPION RADIO LABS., 1825 Madison Ave., Lakewood, Ohio
 - "Charger" (see UNITED MOTORS SERVICE)
 - "Chicago-Phelan" (see PHILCO RADIO & TELEV. CORP.)
 - "Chicago," "Hightale," "Woodhouse," CLADO RADIO CORP.—(no longer manufacturing)
 - "Clarion" (early), TRANSFORMER CORP. OF AMERICA, 20 Wooten St., New York, N. Y.—(no longer manufacturing radio receivers)
 - "Clarion" (early), CLARION RADIO CORP., 25 E. Wacker Drive, Chicago, Ill.—(no longer manufacturing)
 - "Clarion" (present, "W. H. Co.") on license tag (see WAIWICK MFG. CO.)
 - "Class" (see INSULINE CORP. OF AMERICA)
 - "Classier" (see BELMONT RADIO CORP.)
 - "Clearodyn" (see CLEARSTONE RADIO CORP.)
 - CLEARSTONE RADIO CORP., ("Clearodyn," "Goldcrest") — (no longer manufacturing)
 - "Climax," "Cunningham," CLIMAX RADIO & TELEV. CO., 511 S. Sangamon St., Chicago, Ill.—(now operated as GENERAL TELEV. & RADIO CORP.)
 - "Clinton" ("Crown," "Crusader," "Cub," "Bostonian," "Buckingham," "Federal," "Harmony," "Marshall," "Nightengale," "Universal," "Westminster" (with "Plant A" on license tag) CLINTON MFG. CO., 1217 W. Wash. Blvd., Chicago, Ill.—(no longer manufacturing)
 - "Clapper" (see RADIO PRODUCTS SALES CO.)
 - "Colonial," COLONIAL RADIO CORP., 254 East St., Buffalo, N. Y. (no longer manufacturing radio sets under Colonial name—now owned by Snow Reuben)
 - "Columbia" (old), COLUMBIA PHONO CO.—(no longer manufacturing radio sets)
 - "Columbia" (old), COLUMBIA RADIO CO., (no longer manufacturing)
 - "Columbia" (model C100), (see MAJESTIC RADIO & TELEV. CORP.)
 - "Comer" (old), COLIN B. KENNEDY—(no longer manufacturing)
 - "Comer" (see HAMBARD MFG. CO., INC.)
 - COMMONWEALTH RADIO MFG. CO., ("Almanac," "Com-Ed," "Star Rider"), 488 Lincoln Ave., Chicago, Ill.—(no longer manufacturing radio receivers)

—(Cont'd on next page)

Here is the magnified listing from page 711:...

"Clinton," "Corona," "Crusader," "Cub," "Bostonian," "Buckingham," "Federal," "Harmony," "Marshall," "Nightengale," "Universal," "Westminster" (with "Plant A" on license tag) CLINTON MFG. CO., 1217 W. Wash. Blvd., Chicago, Ill.—(no longer manufacturing)

Plant A is Clinton Manufacturing Co., 1217 W Washington Boulevard, Chicago, IL

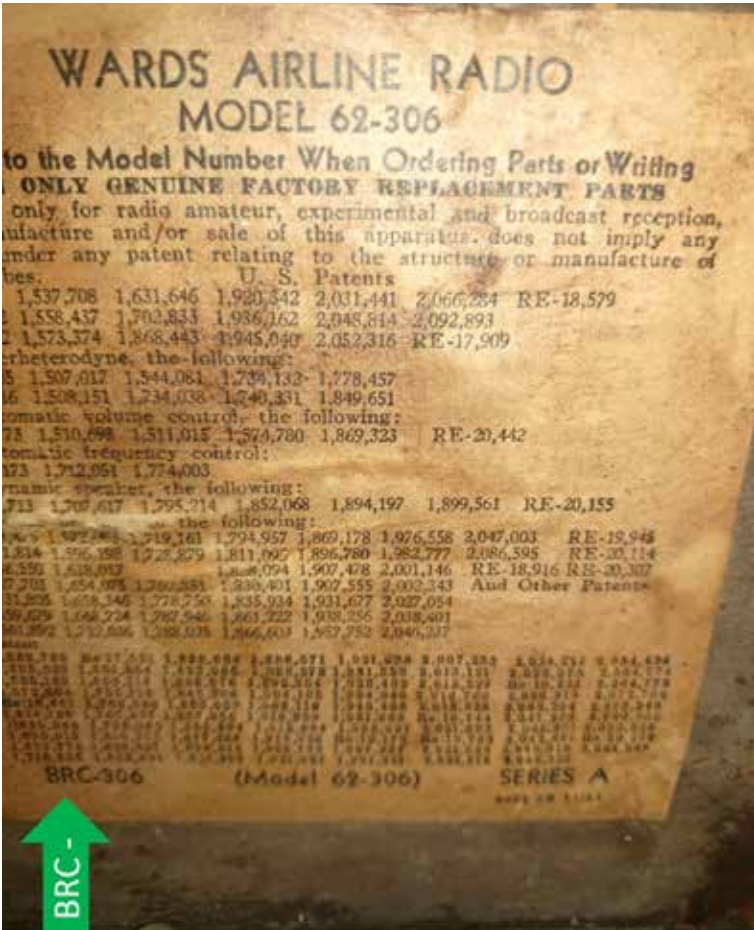
711

Sec. 68 Directory of Radio, Television, or Facsimile Receiver Mfrs.—and Trade Names

Manufacturers Marks

In some instances, marks on the back of the radio label identify the manufacturer. Confirmed in *Radio Troubleshooters Handbook*

<u>Manufacturer</u>	<u>License tag marking</u>
Belmont Radio	BRC or OA
Clinton Manufacturing	Plant A
Continental Radio	RPC
Radiolek Company	T. R. & T.
Wells Gardner	W.G.-24 or W.G.
Warwick	W. M. Co. or W. M.
<u>Manufacturer</u>	<u>Serial number prefix</u>
Corona Radio and TV	C (on early sets)
Pacific Radio	P or 25



Acknowledgments

Jeff Aulik – Compilation of radio manufacturers, brands and retailers

Tom Zaczek – Fidelitone model 210 investigation, Online *Mallory Yaxley* search, *Radio Troubleshooters Handbook* manufacture's list

Wrap up

These are but a few ways to identify the manufacturers of house brand / private label radios and components. Others include RMA / EIA source codes and Sears manufacturer codes. There are many books that have been authored on the collecting hobby along with other in period publications beyond magazines and catalogs. This is a glimpse into the many manufacturers of radios from the first half century of radio, it is by no means comprehensive.

Information sources (specifics referenced in text)

1. Book: *Radio Troubleshooters Handbook*, 3rd edition, Pgs. 710-719, Alfred A. Gerardi
2. *Riders Perpetual Troubleshooters Manuals* – multiple volumes
 - a. <https://worldradiohistory.com/Rider-Manual.htm> click through
3. www.radiomuseum.org
4. www.worldradiohistory.com
5. *Mallory Yaxley*
 - a. 3rd & 5th editions - searchable - <https://www.grillecloth.com/> click Radio Finder
 - b. Books: *Mallory Yaxley Radio Service Encyclopedia* – multiple editions (revisions)
 - c. Books: *Mallory Service Encyclopedias* - multiple editions (revisions)
6. Radio companies
 - a. Club Aluminum – Mirro
 - i. <https://homesteady.com/about-6503363-universal-food-grinder-history.html>
 - ii. <https://www.mirro.com/our-story>
 - b. <https://www.fidelitone.com/about/history>
 - c. *Sears Silvertone Catalogs* 1930-1942, Mark V. Stein
 - d. <https://wellsgardner.com/>



Radio Aboard the "Hindenberg"

by Herbert Lennartz, *Radio News*, August 1936

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Successful two-way radio communication with Chatham, Mass., was maintained by the latest Zeppelin, LZ129 on its second trial flight. This meant bridging a distance of 4375 miles by radio. Readers will no doubt be interested in the type of equipment employed on this latest airship. There are two transmitters, one for long waves and one for short waves, and two all-wave receivers. The aids to navigation consist of three sets of direction-finding apparatus.



The Transmitters

The long-wave transmitter can be tuned to any wavelength between 575 and 2,700 meters if 525 to 11 kc. Plate circuit modulation is employed. The power in the antenna is 200 watts for c.w. and 125 watts for telephony. The radiator consists of a two-wire antenna, 120 meters in length which can be unreeled by motor-winch. The receiver and transmitter employ the same antenna, equipped with an automatic device which switches it over when one speaks into the microphone. As soon as the speech stops for more than half a second, the installation automatically returns to receiving conditions.

The short-wave transmitter has the same power as the long-wave transmitter and can tune from 17 to 70 meters (17,700 to 4,280 kc). This range is divided into two overlapping bands. The antenna consists of a quarter-wave trailing wire, which is reeled out to the required length for the frequency in use.

The necessary power is supplied by an internal combustion motor and a generator which furnishes the electrical power for lighting of the ship. The power for the radio equipment and the heating current for the electric kitchen. The filament and plate supplies are obtained by means of the usual transformers. The necessary filters are placed in the lines in order to eliminate interference.

Two all-wave receivers are employed for reception, one to be used in conjunction with each transmitter. They are four-tube receivers employing two tuned r.f. circuits with a frequency range from 15 to 20,000 kc. subdivided into 10 bands. Switching from one band to another can be done quickly because all coils are

mounted on the edge of a disk which can be rotated by hand.

The power supply for the receivers consists of a storage battery for both A and B supply, These batteries can be charged during the flight.

Radio Compass

Three different direction-finding receivers are employed on board the airship. The first one serves for the navigation during the flight, to find the location of the ship by means of cross bearings and to follow a course indicated by beam transmitters. It has a wave-length range from 300 to 1,800 meters. Two other directional receivers are employed for landing in bad weather.

A large loop is connected to two of these receivers by means of a transformer. A small loop is coupled to the third directional receiver.

The output of the three receivers is connected to two indication instruments. Each instrument has three pointers and each pointer is controlled by one of the three receivers. When the airship lands the ground crew of the airport operates three radio transmitters which give complete directions for grounding the ship, releasing the grab-lines, etc.



As a sub-post office of the Frankfurt post office, Hindenburg offered mail service during flight. The postmaster changed the date stamp daily to postmark mail with the special onboard marking. The radio room was located in the hull of the ship, just above the control car. The Hindenburg's radio call sign was "DEKKA". Wireless messages for the crew and passengers were sent and received from the radio room (above left).



Photo of NBC News reporter Max Jordan interviewing Hindenburg captain Ernst Lehmann after the airship's first US landing in Lakehurst, New Jersey in 1936. Captain Lehmann died from his injuries when the Hindenburg crashed in Lakehurst in 1937.

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WISCONSIN ANTIQUE RADIO CLUB, INC.

www.warci.org

NORTHLAND ANTIQUE RADIO CLUB

www.northlandantiqueradioclub.com

MICHIGAN ANTIQUE RADIO CLUB

<http://michiganantiqueradio.org/>

INDIANA HISTORICAL RADIO SOCIETY

<http://www.indianahistoricalradio.org/>

MID-ATLANTIC ANTIQUE RADIO CLUB (MAARC)

www.maarc.org

THE COLORADO RADIO COLLECTORS CLUB

<http://coloradoradiocollectors.com>





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