THE FLASH!
THE NEWSLETTER OF THE COLORADO RADIO COLLECTORS ANTIQUE RADIO CLUB

Volume 37, Issue 4 | ***Next CRC Meeting - July 12th*** | ***July/August 2026***
Castle Pines Library Event Hall

The Infradyne System

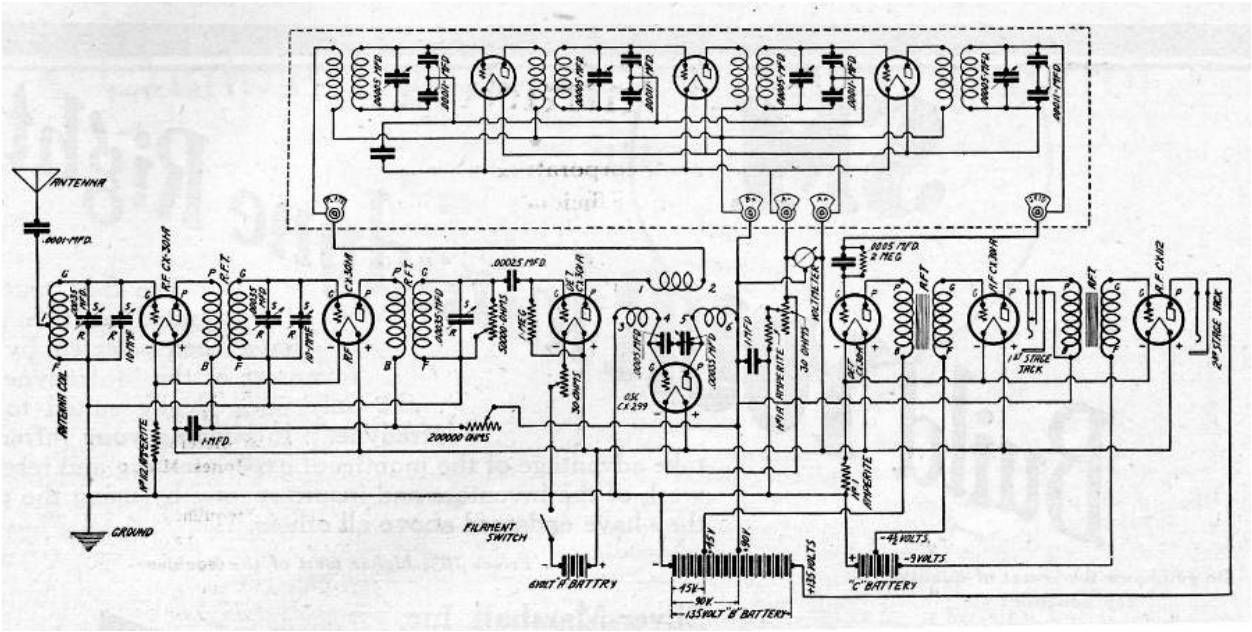
A Brief History - by Bill Potorti - Flash Editor

Of all the 'dyne' (Dyne from the Greek 'Power') systems (heterodyne, neutrodyne, superheterodyne,etc.) the one least spoken of is the infradyne system.

Most of you are familiar with how the superheterodyne circuit operates-the incoming frequency is mixed with a local oscillator to produce an additive as well as a subtractive resulting frequency. Normally the subtractive result was used as the IF frequency and amplified requiring only a single dial to tune the radio, as opposed to a TRF set with each RF section being tuned independently. This was a huge improvement.

Early superhets faced a problem. The IF frequencies were low, often in the 50-150 kHz range. This resulted in the same station being found at multiple places on the dial (images). Later superhets with the IF around 450 kHz lessened that occurrence.

What the infradyne system attempted to do was eliminate that problem altogether by using the additive frequency from the mixer circuit instead of the subtractive. This resulted in an IF frequency of around 3200-3500 kHz. The circuit was designed by E.M. Sargent, in 1926.



Shown Wiith RF Amplifier at top

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Newsletter for The Colorado Radio Collectors Club, founded in the Fall of 1988
"Dedicated to the preservation and education of wireless, antique radio, television, and associated equipment"
View Past Issues of the Flash! here: https://coloradoradiocollectors.com/CRC2/index.php/flash

CRC MEETINGS: Meetings are held on the 2nd Sunday of every other month starting in January (except May is the 3rd Sunday) at 1 :00 pm. The meetings consist of business, "show & tell", raffles, auctions, swap meets, technical discussions and other subjects of interest. Visitors are welcome!!
CRC MEMBERSHIP: Current annual dues are $20 and membership in the CRC runs from January to January. New memberships will be prorated to the following January. Members are entitled to attend meetings, participate in our Spring show and our Fall auction, and receive our newsletter, **The Flash!**. Submit dues payable to: ***Merril Campbell - 4723 Woodbury Dr. - Colorado Springs, CO 80915***

UPCOMING EVENTS: CRC Meeting July 12th at the Castle Pines Library-1PM

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Message From The President

Infradyne! Who would have thought! What an amazing article from our own Flash Editor, Bill Potorti!

Rather than a typical President's message, I would to repeat something. I sent it electronically recently, but I want to make sure that you saw it.
Just to make sure everybody is clear, the official group email list for our club is ColoradoRadioCollectors@groups.io. We can thank Bill Potorti for giving us a new list that works better and that we can control.
Historically, we had another one with a very similar name: colorado-radio-collectors@googlegroups.com. That is no longer the correct list to use! Like many of you, I was still subscribed to the old googlegroups list, even though I use the new groups.io one. Recently I was reminded why we created the new list: I received junk mail from the old list. This reminded me to unsubscribe from that list. It is very easy to unsubscribe: send an email to colorado-radio-collectors+unsubscribe@googlegroups.com and you are unsubscribed.
It really is time to abandon that old list, and I encourage each of you to do so.

Paul

(Continued from Page1)

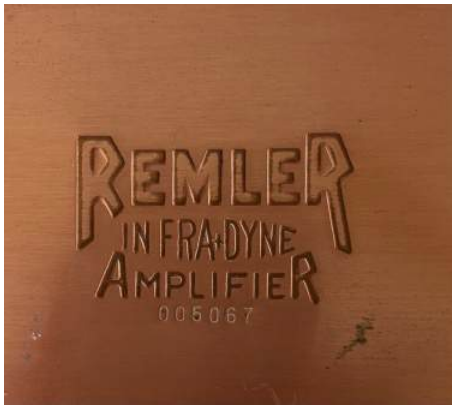
E.M. Sargent was an old shipboard radio operator. He started the E. M. Sargent Co. in his home in 1924. He designed the infradyne system in 1926, in part to circumvent the superheterodyne patents.

It was an interesting idea that met reality head on when it was realized that the vacuum tubes of the day (mostly 01A's and 199's) were not capable of operating well at such high frequencies without breaking into oscillation. Changing the circuit to eliminate the oscillation resulted in poor gain.This receiver operated very poorly. The Remler Company (a division of Gray and Danielson Mfg. Co, San Francisco, California) came to the 'rescue' with an add-on RF amplifier powered by 3 199 tubes. There was some debate as to whether the sets worked better with the amplifier or not.

Infradyne disappeared around 1927 without much impact, and limited commercial production.

Typical Infradyne Receiver with Remler RF Amplifier

Remler RF Amp from author's collection



Sources for further reading:

The Infradyne Receiver - https://www.antiqueradios.org/gazette/infradyn.htm

Infradyne/Remler - https://www.duanesradios.info/html/infradyne_superheterodyne.html

Message From The Editor

In the past, we've had articles entitled "Meet the Collector" wherein 1 member would interview another and show their collection, etc.

I'd like to revive that, but I realize it's not always easy to get together with another member. The new format doesn't need to be in an interview form (although it could be). A brief bio written by yourself and photos of your collection, your favorites, your shop etc.

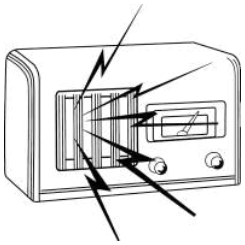
This is your chance to make yourself known to other members and to toot your own horn and show off your collection.

So please put your thinking caps on, sharpen your pencils or clean off your keyboard and contribute to the Flash. We all like to see others' stuff! I'd be happy to help with formatting your photos with the article, and any other way I can.

Send any contributions to me billpot@gmail.com

Thanks,

Bill



The Latest CRC Club News

Our last meeting was at the Highlands Ranch Library. We had 25 attendees including a new member, George Scott from Berthoud. Dave Merrill from the Illinois Antique Radio Club was also present as well as Carl Irman, a past member, who brought in some equipment to donate to our raffle table. And what a raffle table it was! More on that later.

Paul Heller officiated. The first item on the agenda was comments about the past show at the Vintage Voltage Expo. Everyone seemed to agree that it was very successful. We had a lot of interest from the public. They also enjoyed being involved in voting for their favorites with the 'star system' we used this year. Since Dana Cain has relinquished ownership of the event, it's not known at this time what,if any, changes will be made to next years event.

We have $8332 in the treasury.

Matt Amaturo will keep us updated on his efforts in utilizing the library concierge service to help us schedule our meetings. He's also looking for alternative meeting places,if anyone has suggestions.

Paul brought up the idea of creating a club calendar for next year. Investigations into the costs and determining how many to produce are ongoing. Wayne Russert will check with Tri-Lakes printing in Monument. We also discussed having club business cards printed to be handed out and/or posted on boards. 2 sides was preferred, with room for your name. Bill Lettow, as our graphic artist in residence, was asked if he could come up with some of the graphic designs for the calendar and business cards.

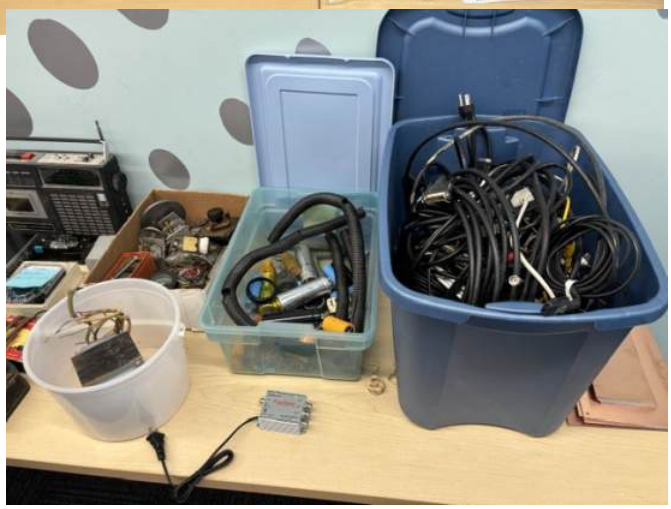
We turned our attention to the fall auction. One question was whether it was worth the expense to have the copy of the Flash prior to the auction printed and mailed to everyone, as had been done in the past before everything had become digital. The purpose would be to try to reach everyone even if they're not subscribed to the e-group. Another option would be to send out postcards. The date has been set for September 20, at Tectonics. Tom Pouliot once again has generously agreed to act as auctioneer. A question was raised if we'll have enough lots to make the auction worthwhile. In the past we've often had contributions from estates or donations from outside which we so far don't have this year. Is there a way to promote more interest or to find donors?

Since our normal raffle ticket dispenser and announcer, Rich Kubersky, wasn't present, Paul and Merril took over the duties.We added an additional $83 to the teasury from ticket sales.

Speaking of the raffle table...

Raffle Table

This was one of the larger raffle tables displays I've seen in a while.



From turntables to a tv to heat thermometers to spare parts,transistor radios and books-there was something for everyone. In fact,there were several somethings for everyone. It was a fun raffle.

Paul Heller speaking with Carl Irman, a former member, who brought in several tubs of equipment to donate to the raffle

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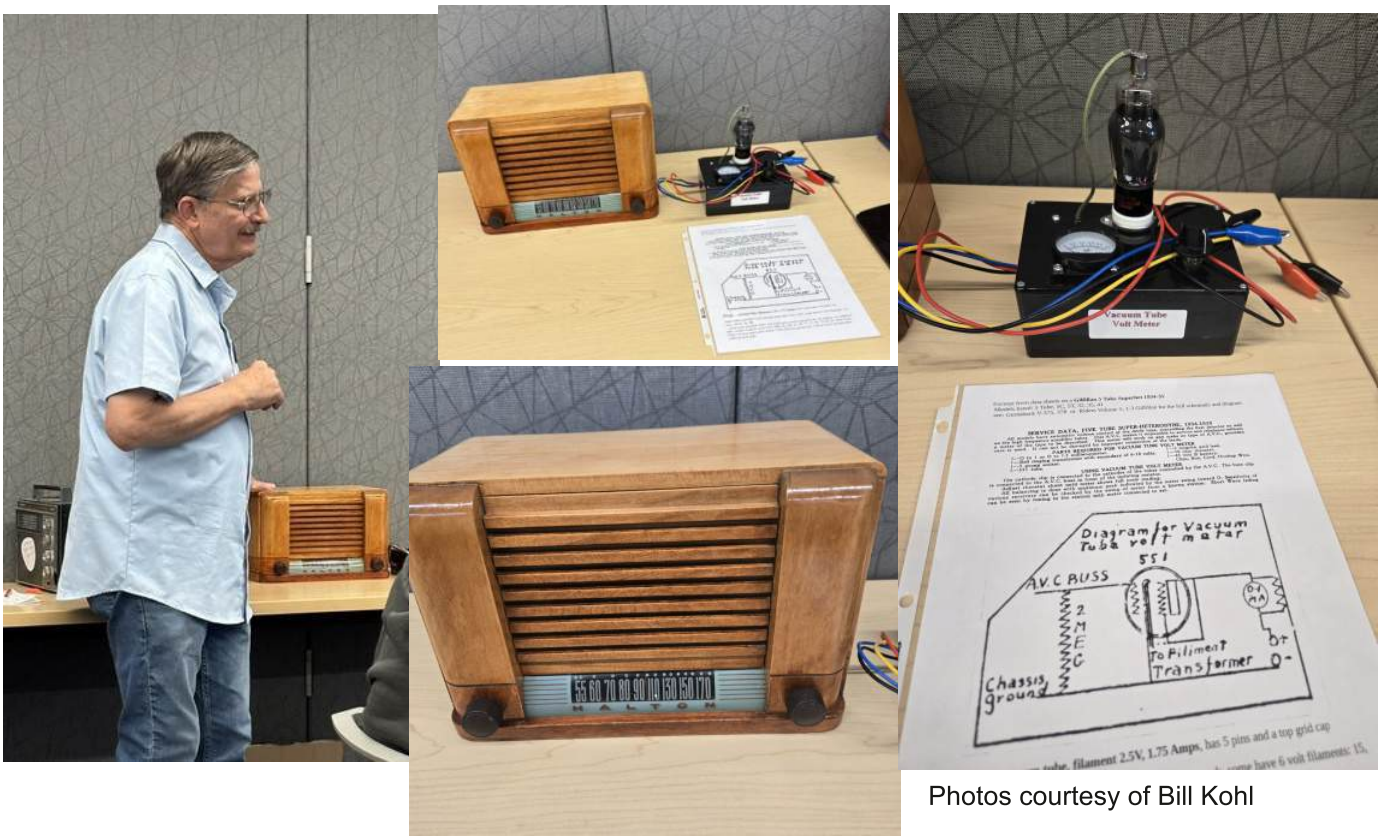
Show 'n Tell



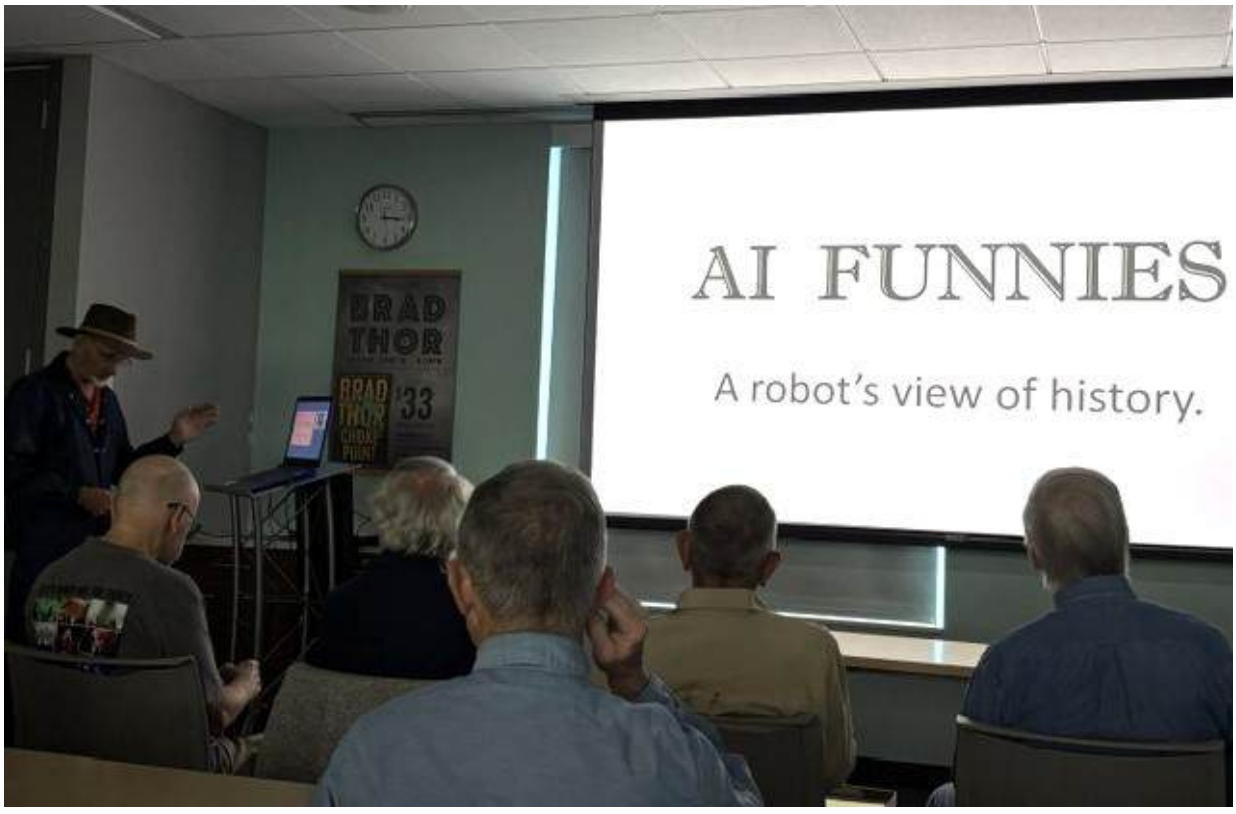
Photos courtesy of Bill Kohl

Steve Touzalin brought in his Halton 9-21 radio that he had repaired. He had trouble finding a schematic for it and determined it was made by GE, and the same as a GE YRB-81. The Coronado 43-8330 had the dial string diagram.He also found a supplement that described a 1 tube voltmeter used to align the radio. Of course, Steve was determined to build one, and it turned out very well.

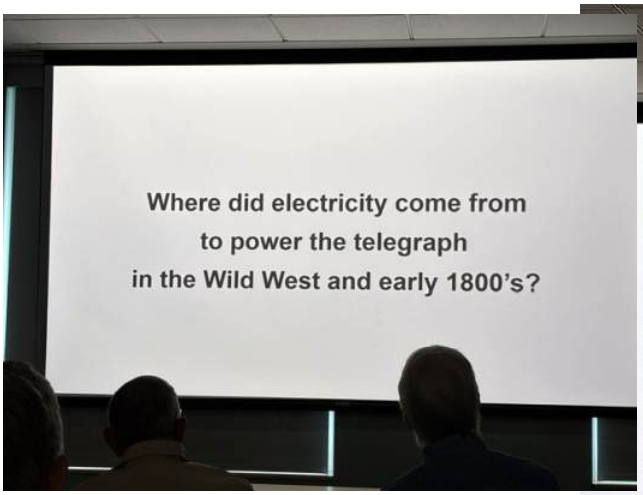
Scott Thomas brought in the faceplates that he had laser cut at a local library. He explained some of the process in learning the software involved as well as choice of materials. 2 pieces of 1/8 inch thick material worked better than 1 piece Of 1/4 inch thick. Lining them up to glue together can be a little tricky.

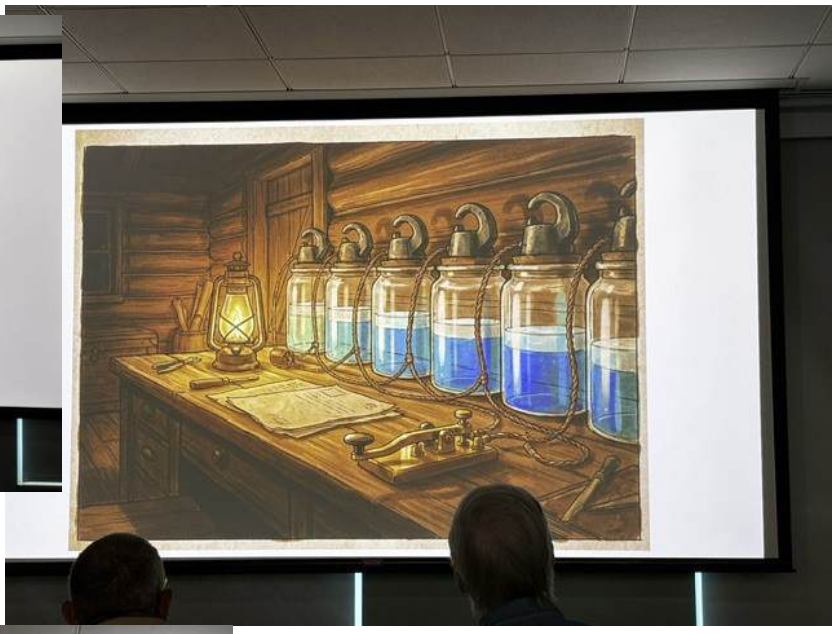
Presentation

Wayne Russert entertained us with a slide show of AI questions and answers.

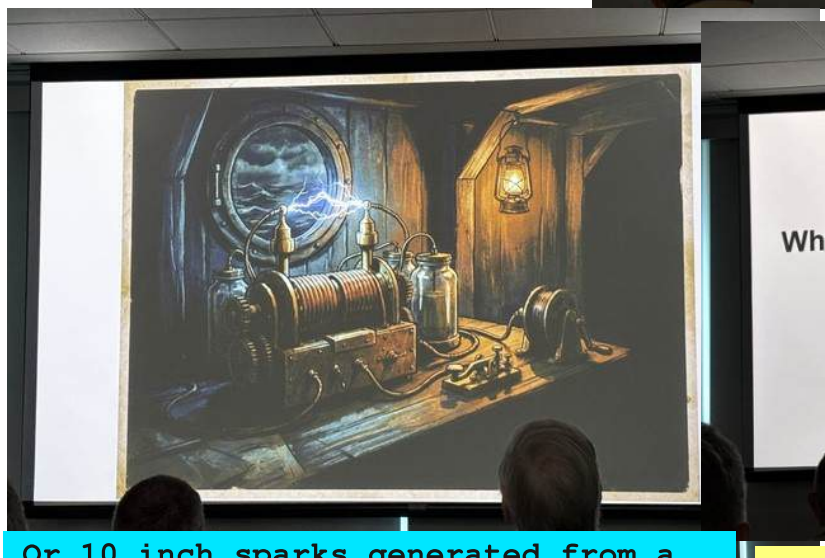


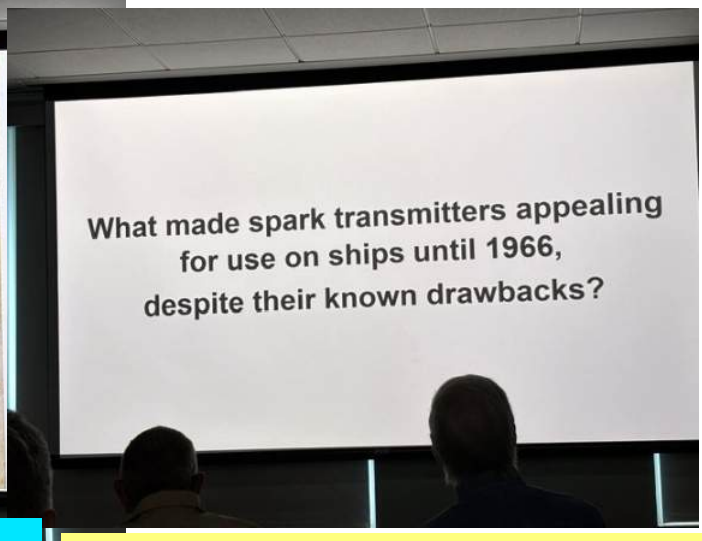
The responses from AI were often humorous, as in the long left arm of the bear in this response





Or occasional disconnected wires





Or 10 inch sparks generated from a couple of batteries in a wooden ship

These and other examples kept us entertained. Thanks Wayne!

Radio data notes found in a search of several radio service manuals

By Steve Touzalin

In 2016 I created a program to search through a self created database for my Montgomery Ward's Airline radio manuals. The program, running in a Linux terminal screen, asked for the desired model number and would then return the page or pages that were present in the Airline manuals for the entered model number. Lacking a written index for the Airline manuals, the program was very useful.

Databases for other radio schematic manuals were later added to the search program. Listed herein is an edited search report from all the radio schematic databases that are in the program, for the word "DATA". Hopefully the listed results prove to be useful. Some of the results may be of interest to only a select few individuals, but were included. Most of these radio schematic manuals are now available on-line or on CD/DVD for those that don't have printed copies of the manuals.

Riders Perpetual Troubleshooting Manuals, Volumes 1-23

Volume	Page	Information	Page Name - Brand
3	177-178	Service Notes, Tubular Resistors	ATWATER KENT
5	22	Capacitor & Resistors Data	ATWATER KENT
5	22	Knob Data	ATWATER KENT
12	39-40	Recorder Data	CROSLEY
3	1-3	Alignment Notes and Tuning Condensers	CROSLEY
3	1-3	Table of Dynacoil Speakers	CROSLEY
4	1	Motorola Auto Antenna Data	GALVIN
4	17	Majestic Vibrator Data	GRIGSBY-GRUNOW
15	79-90	Model Identification Chart – 1937 to 1946	MAGNAVOX
1	10	Ballast Data for Majestic Power Units	MAJESTIC
1	24	Power Pack and Chassis Coding 1928-1929 Models	MAJESTIC
2	14	Bakelite Blocks	PHILCO
2	17	Adjusting Philco Superheterodynes	PHILCO
2	25	Capacitor Blocks	PHILCO
2	6	Coil part numbers, Standard Compensating Condensers	PHILCO
3	38	Adjustment of Shadow Tuning	PHILCO

3	44	Chassis & Speaker Data	PHILCO
3	46	Changes - Lower Freq – tuning 540kc	PHILCO
3	53-54	Tubes/Ballasts/Pilot Lamps	PHILCO
4	44-46	Data on all Philco Speakers	PHILCO
4	47	Automobile Ground Polarities	PHILCO
4	47	Vibrator Date Codes	PHILCO
4	49-50	Flexible Control Shaft Guide List	PHILCO
7	147-150	Model Change Bulletins	PHILCO
7	151	Dial Drive Assemblies	PHILCO
8	87-89	Alignment trimmers	PHILCO
11	171-175	Gain Data	R.C.A. VICTOR
13	14	Ballast tube data	R.C.A. VICTOR
3	13	Vibrator Service Data	R.C.A. VICTOR
3	77-8	Radiotron Tube Specs	R.C.A. VICTOR
1	8-9	Carbon Resistors – color codes & part numbers	SPARTON
2	28-29	Carbon Resistors – color codes & part numbers (revised)	SPARTON
2	42	Antenna and Condenser Data	SPARTON
2	51	Resistors used in Sparton sets	SPARTON
2	60	Characteristics of Sparton Tubes	SPARTON
5	6	Special Sparton Tubes	SPARTON
4	11	Various Circuits Explained and Illustrated	SPECIAL SECTION
10	1	“How it Works” – TV, also Signal Tracing	SPECIAL SECTION
11	1	“How it Works” – Various Circuits	SPECIAL SECTION
15	1	“How it Works” – Alignment, Oscillators	SPECIAL SECTION
16	1	“How it Works” – Selenium Rectifiers	SPECIAL SECTION
17	1	“How it Works” – FM Tuners, General AM Alignment	SPECIAL SECTION
18	1	“How it Works” – Detectors, Oscillators	SPECIAL SECTION
19	1	“How it Works” – Tuning Eye Circuits	SPECIAL SECTION
20	1	“How it Works” – Full Index to “How it Works”	SPECIAL SECTION
8	1	“How it Works” - FM	SPECIAL SECTION
9	1	“How it Works” - Alignment	SPECIAL SECTION
Front Cover of		“The Complete Cunningham-Radiotron Manual”, Vol 1-3	
		- Set Catalog and Index, 1921-1933	SPECIAL SECTION
1	13-14	Resistor Data – Variable and Wire-Wound	STEWART WARNER
1	15	A-F Transformers	STEWART WARNER
8	6	Phono. Circuit Data 1938	ZENITH

Beitman’s Most-Often-Needed Radio Diagrams 1926-1969

Volume	Page	Data	Brand name-Brand
4 (1941)	182-183	FM Data	ZENITH

Gernsback's Official Radio Service Manuals 1931-1937 (Volumes I -VII)

Page-Volume	Data Information	Company/Location
142-VI	I.F. Chart of A.K. sets	ATWATER KENT
142-VI	Metal tube symbols in AK sets	ATWATER KENT
168A thru168X-IIs	Electrical Values of Components 1924-32	ATWATER KENT
537 thru 544-II	Circuits Used for Volume Control (w/part #'s)	CENTRAL RADIO
545 thru 547-II	Replacement Volume Control Information	ELECTRAD
76N-I	Condenser and Resistor Data w/color codes	FADA
986 thru 991-V	Trade Name Chart	MISC.
1188 thru 1192-VI	"Who Makes Them?" Trade Names	MISC.
630, 631-III	Eveready Tube Tables	NAT CARBON
984, 985-V	I.F. Chart for Receivers	NAT UNION
1000 thru 1006-V	National Union Radio Voltage Divider Chart	NAT UNION
326E-IIs	By-Pass Condenser Data (Bakelite)	PHILCO
326F-IIs	Chassis & Speaker Data	PHILCO
326G-IIs	Checking I.F. Oscillator Calibration	PHILCO
608 thru 611-V	Philco Speaker Data	PHILCO
76O-Is	Condenser and Resistor Data w/color codes	PHILCO
632-III, 633-III	I.F. Chart for Receivers	RADIO CRAFT
35-VI	RCA All Metal Tubes Data	REFERENCE
76I-I	Amperite Line Voltage Controls	REFERENCE
76P-I	Converting DC Milliameters and Voltmeters	REFERENCE
42-II	DC Receivers (110 Volts DC)	REFERENCE
76C thru 76H-I	Voltage and Current Readings for Early Sets	REFERENCE
162 thru 199-III	Vacuum Tubes – Lots of Theory, Types, Examples	REFERENCE
54 thru 89-II	Early Tube Data (includes Arcturus & Kellogg tubes)	REFERENCE
31 thru 37-I	Early Vacuum Tubes	REFERENCE
992 thru 998-V	RCA Radiotron Tube Chart	REFERENCE
10-II	Kilocycles to Meters chart	REFERENCE
117-II	RMA Color Codes (Resistors)	REFERENCE
12 thru 41-II	Servicing Radio Receivers	REFERENCE
10 thru 76-I	Lots of Radio Theory, Diagrams, Resistance Formulas	REFERENCE
26B-V	Cross-Index for RCA, GE, Westinghouse & Graybar Models	REFERENCE
200 thru 208-III	Coils – Tables, Charts and Design Data	REFERENCE
121-III	Commercial Equipment	SERVICE
634 thru 637-III	Sparton Receivers Tube Line-ups	SPARTON
638-III	Sparton Tubes Table	SPARTON

Most of you are aware of Nikola Tesla and the contributions he made, not the least of which was supplying us with AC into our homes, but did you know that he once resided in Colorado? Tesla had a laboratory in Colorado Springs from 1899-1900

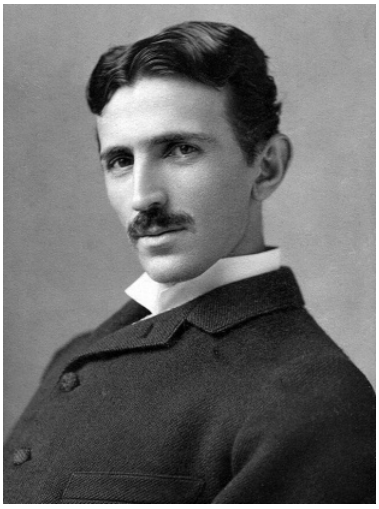


Photo by Nicholas Sarony

Tesla looking out of his Colorado Springs lab in1899. The sign reads 'Great Danger-Keep Out"

Tesla sitting in his Colorado Springs laboratory next to his magnifying high voltage generator. 1899 (produced by a double exposure)

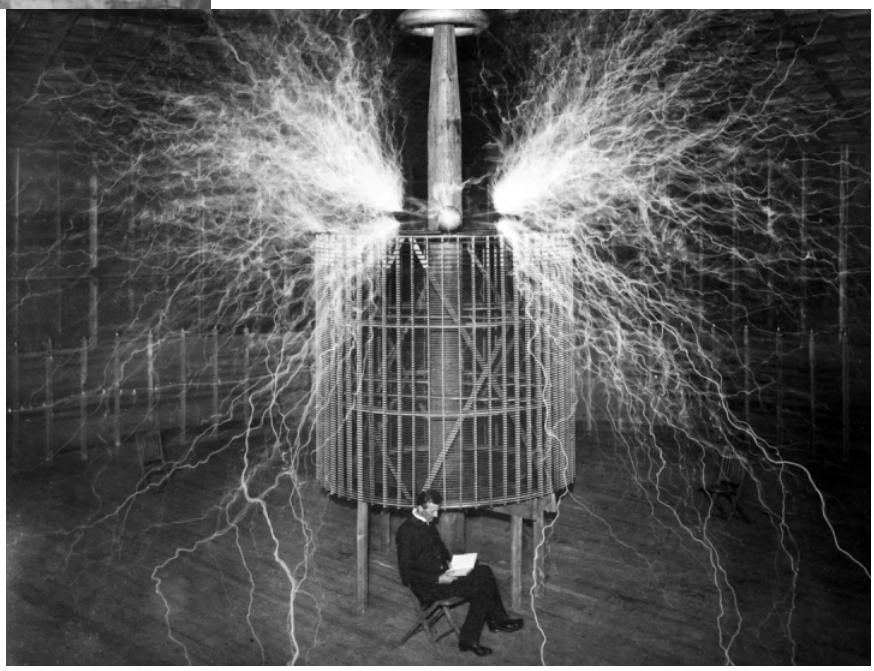
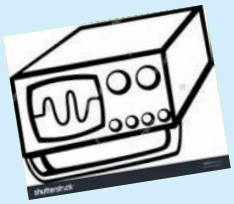


Photo by Dickensen V. Alley, via Wikimedia Commons

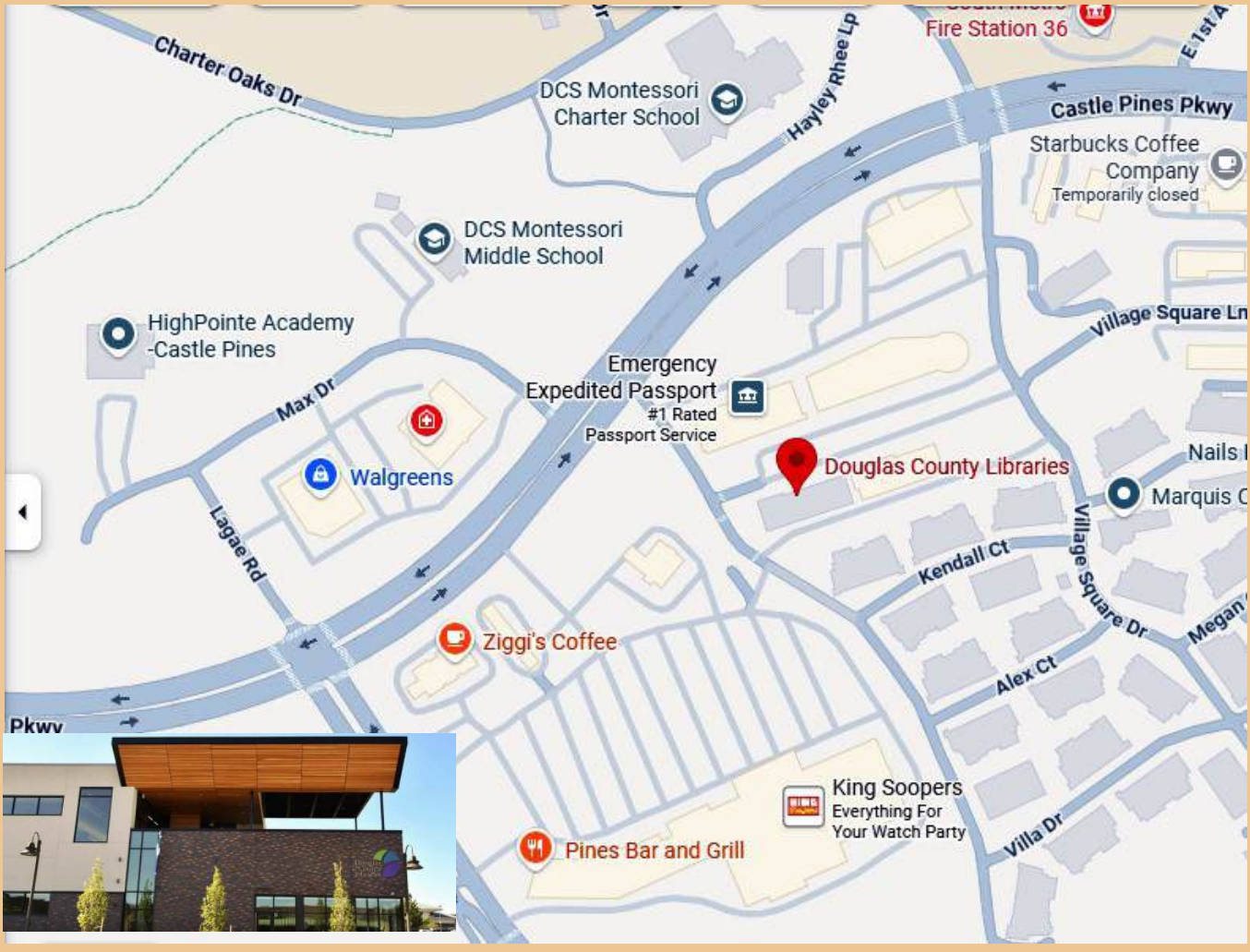
For more information, read
The Wizard in the Mountains
https://www.historycolorado.org/story/2023/07/14/wizard-mountains



Classified Ads

Ads are free for CRC members. To place an ad send your ad description along with personal contact information to the Flash Editor or or one of the CRC officers.

FOR SALE: New old stock & quality used vacuum tubes. Please refer to my business card pictured to the right. Thank you! Sean Duffy (573) 999-6187 acmetubesupply@gmail.com

WANTED: Articles for the Flash. Long or short, please submit your articles or ideas for articles to billpot@gmail.com

CRC Meeting - July 12th - Castle Pines Library
360 Village Square Ln, Castle Pines, CO 80108