

The

FLASH!

35 Years!!

35 Years!!

The Newsletter of
The **Colorado Radio Collectors**
Antique Radio Club

Volume 35, Issue 5

Next CRC meeting - Sept. 8th

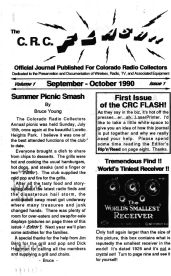
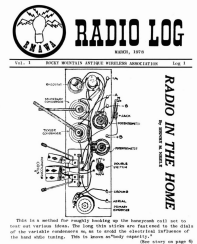
September/October 2024

35 years as a publication!!

"The Flash!"

September/October 1990 - September/October 2024

The Rocky Mountain Antique Wireless Association, RMAWA, was the predecessor to the CRC. They published their own club newsletter titled "Radio Log", a copy of the cover of their first edition is shown to the right. When the RMAWA disbanded, the CRC was then founded in the Fall of 1988 and lacking an official newsletter, used small one page club newsletters mailed out to CRC members to provide club information to the membership. The first **Flash**, the front cover is pictured below, was published in September/October 1990. It was composed on a Amiga computer by CRC member Richard T. Ammon and was named "The CRC Flash". In 1994 the name was shortened to "The Flash". The Flash in its early years provided valuable information to the club members on restoration techniques, sources for supplies and parts, want ads, and book reviews before the "on-line" era became the norm. The Flash newsletter was also the sole source of club news and upcoming events, providing information on the



CRC's auctions and shows to the club membership, even to those who were unable to attend the events. The first edition of the Flash covered the previous Spring CRC show in 1990 and the First "Annual" Auction was reported in the Nov/Dec 1992 issue. The Flash has covered all the other shows and auctions since then. The Flash has also continuously documented the problems and growth of CRC club and gave the membership a chance to contribute to the club.

The Flash has had several editors since it began. We need to extend a special thanks to all of them. Some of them took the position because no one else was available, others did maybe just an issue or two. They may have been editor for a couple of years or several years, and possibly did

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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."

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: September 8th, 2024 CRC meeting - Castle Rock Library Conf. Rm. F, 1PM.
September 15th, 2024 - Annual Auction and BarBQ. November 10th, 2024 CRC meeting - Highlands Ranch Library, Event Hall B, 1PM.

CRC contact information.

President

Paul Heller 303-432-0434
phesopheon@comcast.net

Vice-President

Michael Cook 303-885-8034
mldcook@hotmail.com

Treasurer

Merril Campbell 719-596-3482
campbell321@juno.com

The Flash! Co-Editor's

Larry Snyder 303-279-9711
Lsnyder200@cs.com

Steve Touzalin 303-988-5394
stevetou@comcast.net

CRC Facebook Group address:

<https://www.facebook.com/groups/1132691767366259>

eGroup posting address:

colorado-radio-collectors@googlegroups.com

Webmaster

Paul Heller
phesopheon@comcast.net

Website address:

<http://coloradoradiocollectors.com/CRC2/>

MESSAGE FROM THE PRESIDENT



Auction time is coming up! This is always a fun event that is liked by all. We already have some donations radios coming in, whose proceeds go directly to the club.

Don't forget, it is also a pot luck. The club buys food and drinks, but its your side dishes and salads that really spice things up. I always look forward to trying the different dishes that are home made, and I usually eat far more than I should. Please keep those great side dishes coming again this year!

A special thanks to Scott Thomas for taking the treasurer duties in our last club meeting. Scott, we are grateful to have you backing up Merrill (I'm sure he's grateful as well).

If you missed it, we had a fun meeting. There is an article about it in this issue of the flash. David Boyle had a fantastic idea: spend some time getting to know each other. A few of us stood up and talked about our backgrounds, how we became interested in radios, other hobbies that we have, etc. We will do that again.

I hope you enjoy Don's article in this issue as much as I have. The enigma machine is an amazing piece of engineering. Don does a great job relaying both the history of the machine as well as how it worked. I thought I knew a fair amount about this machine, but after reading the article I realize I hardly knew it at all. Thank you, Don!

There are so many examples in this issue of members who do things. You are what make this a great club, whether you are running the club, filling in for others who can't make a meeting, writing articles for the flash, editing and publishing the flash, donating time for our show and auction events, bringing food and radios to the auction, bringing show and tell items to the meetings, helping me with the website (thanks, Steve), storing and transporting club equipment, and so on (I'm sure I've missed some obvious things). If you are not already doing so, I hope you will consider helping out in some way.

Enjoy your summer, and we will see you in September on the 8th and the 15th.

Paul

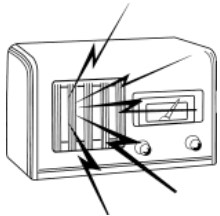
(Continued from page 1)

multiple tours. In no particular order they were: Rick Ammon, Larry Weide, Robert Baumann, Mark Dittmar, Mark Gibson, Rich Kuberski, Alan Burch, Brian Buell and now currently Larry Snyder and Steve Touzalin as co-editors.

There were also special editions of The Flash created. A special 15 year CRC anniversary edition as well as a 20 year special CRC anniversary edition were published. Covers of both issues are pictured to the right. A digital Flash edition created on a DVD was also produced for the 25 year Flash anniversary edition which contained all the 25 years of back issues of the Flash and photos of all the previous shows and auctions that were available, as well as a few of the early RMAWA newsletters.

Like most other publications now, The Flash is now primarily a digital edition. Maybe not as much of a necessity as in the past, the Flash still tries to provide information to the club membership. All of the Flash back issues are now available on the CRC website. The way clubs share information has evolved. The Flash issues are now eagerly shared with other radio clubs in exchange for copies of their digital club newsletters.

35 years is long time for a publication, hopefully The Flash will continue to be a resource to the CRC in the future!



The Latest CRC Club News



The July 14, 2024, club meeting was held in The Douglas County Library located in Highlands Ranch. Paul Heller called the meeting to order and welcomed the 22 attendees.

Scott Thomas sat in for Merrill Campbell who could not attend and presented the treasury report for him.

Another future "Great Radio Giveaway" was discussed to help liquidate Larry Weide's radio collection that Wayne Russert and other club members been keeping for several months in what was originally to be "temporary" storage.

Photos of the items will soon be available on the club website for viewing.
and

More details will be sent out when they become available.

During the break before the Raffle and Show & Tell, Paul Heller brought in ice cream bars, courtesy of the club, for everyone to enjoy.

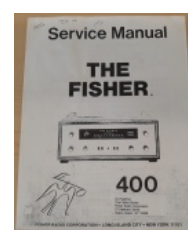


The Raffle Tables

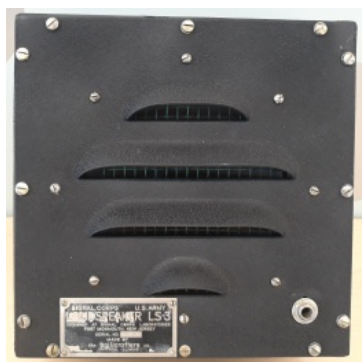
The raffle tables contained the usual fare of at least four radios, several meters, parts cabinets, and a wide variety of miscellaneous radio related paraphernalia.

The Show and Tell

The show and tell tables contained five items.



Jerry Stone brought in and discussed his wooden Majestic 'Pirate Treasure Chest' radio, the yellow Arvin 243TI metal box radio, and the Fisher 400 service manuals. All shown above.



Rich Kuberski displayed the LS-3 military speaker shown above. It was painted green with house paint when he got it at the last meeting.

Now it now has a nice black wrinkle finish due to his restoration efforts.

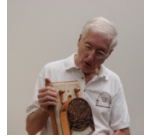


Paul Heller brought in the orange or caramel colored Emerson radio from a contact via the club website. It is thought to be Catalin. This radio will be offered in the upcoming CRC September auction.

The 8LW-267A-2 number seen in the photo of the back could be the antenna part number or the model number, we do not know.

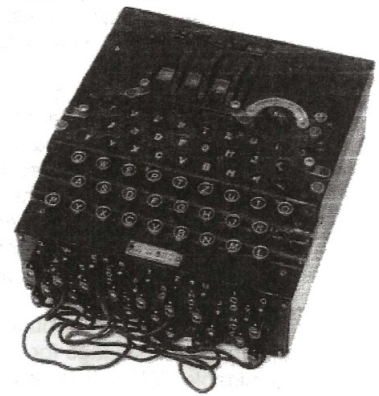
The German Enigma Machine - How it worked

By Don Andrus, CRC member



WW2 seems to be of considerable interest to our present crop of seniors for many different reasons. Those with a decidedly technical curiosity often find that the Enigma story holds a particular fascination. As more becomes known of this exceptional and once highly secret story, the details now being exposed shed new insights on this true tale of an almost unbelievable accomplishment, the breaking of the ultra-secure secret message coding system known as the Enigma. What follows is a description of the machine and may give the reader an idea of just how complex the concept of breaking the encryption it generated actually was.

Enigma began in 1918 with the development by Arthur Scherbius, a German, of an encoding device to enable the banking industry to securely handle international banking transactions. It was based on a mechanical adaptation of Vigenere's encoding method of 1523, a system that was used by the Confederacy in the American Civil War. Scherbius' considerably more complex mechanical system was marketed worldwide but did not gain many customers. Germany, having been defeated in WW1, in part to the breaking of their naval codes by the British, began searching for a more secure system of enciphering secret military communications.



The Enigma machine, as Scherbius named it, seemed to offer such possibilities. Since the Enigma machine was already a known entity, top military officials felt that additional security was needed, and suggested alterations to the Scherbius machines. Multiple physical alterations, done over a period of years preceding and during the war, kept increasing the security and complexity of the original Enigma machine design. Changes were also periodically made to the method the operators used to set up the machine for each message, to further enhance message security.

As signs began to occur that indicated Germany was rearming itself after its WW1 defeat, among other observations by drastically increasing its National Police force, something not prohibited by the terms of the surrender agreement, intelligence gathered by monitoring of German wireless traffic became more difficult. It appeared that a new and more complex encoding system had been implemented by the German armed forces. This was the Enigma system.

The Poles were the first to determine that the Germans were using the Scherbius Enigma machine for their military communications. The theory of how the Enigma machine operated was known by nearly every code breaking organization since the 1920s when it first appeared on the world market. In the 1930's a number of nations began devising their own Enigma

based encoding machines, including the U.S. and Britain. Those agencies that had looked at Enigma generated ciphers felt it would be impossible to break such a cipher, so no effort was made towards that end when the German military began using the Enigma machine to mask their communications. However, the Poles, feeling their existence as a nation was threatened, began to seriously look at some method to break the new cipher system the German military was using.

The Polish code breakers quickly realized that the German's were using a machine generated cipher and that it might be they were using the Scherbius Enigma machine to generate it. However, the German military Enigma had already been modified considerably from its original design and the first attempts to crack its secrets were unsuccessful.

Then a bit of real luck came when a low-level German Bureaucrat offered to sell classified German military documents to the French Intelligence Service. Plain and simply put, the bureaucrat needed money. These documents prove to be the German military's operation manuals for their version of the Enigma, and documents that detailed the wiring modifications that had been made to the original Scherbius Enigma design. The French, even having this information, felt an Enigma produced cipher would still be unbreakable, and passed these documents to the Polish code breakers.

The Enigma machine could be set up in many different ways before actually encrypting a message for transmission. It was this feature that made it so formidable. Without knowing the exact, step by step procedure used to set up the different machine settings, which changed every day, and in some cases with each message, breaking a cipher created by the machine was thought to be impossible. Only by using another Enigma machine that had been set up in exactly the same way, could an Enigma enciphered message be converted back to its original plain text. The modifications the Germans had made to the original Scherbius Enigma appeared to make that impossible unless they knew exactly how the machine was used and had been modified.

The classified German documents given to the French spelled out the procedures the Germans use to set up and operate their Enigma machines, and how the machines were wired. What remained unknown were the day-to-day initial machine settings. Secret lists of the new daily setting were issued each month by the German Security Service. Without these daily settings, breaking the cipher would require many thousands of 'trial & error' test settings. Theoretically it could take months to work through every conceivable setting combination needed to break just one message. In total there were nearly 10,000,000,000,000,000 possible machine settings on the modified German machine. This was the awesome power and secret of the Enigma machine.

The heart of the Scherbius Enigma were the rotor wheels, pictured on the next page. Each rotor was a roughly 4" diameter, one-inch thick, hollow hard rubber disk with a bushing located in the center that allowed it to be slipped over and rotate on a metal shaft, adjacent to additional rotors. On one face of the disk there were 26 embedded, equally spaced, brass

contacts. On the opposite face of the disk, directly opposite the embedded brass contacts, were 26 spring loaded brass pins that protruded out of the disk about one quarter of an inch. Three of these rotor disks were positioned next to each other on a central shaft. When aligned in the Enigma machine, the spring-loaded contacts of one disk pressed against the flat contacts of its neighboring disk, allowing a current to pass from one rotor to another.



Each German enigma machine originally came with five of these rotor disks, each rotor having its own number (1-5). The rotors each had within the hollow area inside them, 26 wires connecting a flat contact on one face to a different spring-loaded pin on the opposite face. Each of the 5 available rotors had a different internal wiring pattern. All #1 rotors had the same secret wiring pattern within it, all #2 rotors, a different secret wiring plan, and so on.

Each day, the daily machine settings list instructed the machine operator to assemble, by number, three of the five available rotors onto the removable machine shaft in a particular order. For example on June 27 the order might read Rotor #4, then Rotor #1, then Rotor #3, in that order, left to right.

Attached to each rotor disk was a metal sprocket containing 26 thumbwheel like indentations, and 'ratchet' gear with 26 teeth. When the rotor shaft with the three rotors assembled in the correct order on the shaft was inserted into the Enigma machine, the teeth of each thumbwheel engaged with a spring detent, and the ratchet gear engaged with a rotor advancing pawl, both part of the machine's rotor advancing mechanism. The detents caused each of the three rotors to position themselves to line up exactly, contact to contact, with its' neighboring rotor, the detents holding each of the rotors firmly in one of 26 positions.

The flat contacts of the far-left rotor faced left and when inserted into the machine aligned with 26 spring-loaded pins of a fixed contact disk of a different design. On this fixed disk, which was permanently attached within the machine, wires connected twelve of its spring-loaded contacts to the remaining twelve spring-loaded contacts in a specific, but what only appeared to be random, order. This non-turning, far-left, contact disk was termed the 'reflector'.

At the far-right end of the three rotors, also fixed in the machine, was another special fixed contact disk, this one having the 26 flat brass contacts that aligned with the spring-loaded contacts of the third or low order rotor on the shaft.

A current applied to any one of the 26 flat contacts of this fixed, right hand contact disk would then pass into the third, or low order rotor on the shaft, come out on a different flat contact of

that rotor and pass into one of the pins on the second rotor on the shaft. The same then occurred with the second rotor, in one pin and out some other flat contact, again depending on the internal wiring of that particular rotor. Then into the third rotor, thru its internal wiring, and out another flat contact.

The third rotor's flat contacts being in contact with the spring loaded pins of the 'reflector', passed the current into one pin of the 'reflector', thru one of the 12 internal wires, then out another pin of the 'reflector'. The current then began its reverse trip back thru each of the three rotors and their internal wiring maze, finally reaching one of the flat contacts on the fixed, right hand contact disk.

Since each rotor could be sitting in any one of 26 positions, with all their pins and flat contacts aligned and in contact with its neighboring rotor, the reflector, or the fixed right-hand contact disk, a circuit was completed thru the three-rotor maze. Any one rotor being moved just one position would change the path thru the maze and which contact on the right-hand fixed contact disk the current passing thru the rotor maze came back out of. Unless one knew the internal wiring of each of the five rotors, which rotors were being used on that day for that particular message, what position each of the three rotors in the machine was sitting at, at that particular moment, as well as how the reflector was wired, and knowing which of the 26 contacts on the special right hand fixed contact disk a current had been applied to, it would be impossible to know which pin of the 26 contacts on the fixed right-hand disk the current would emerge from after going thru the rotor maze... with one exception. The current could never come back out of the contact that the current was first applied to on the right-hand fixed contact disk. This was a physical impossibility that once known, helped in many cases, to simplify the breaking of Enigma ciphers by eliminating some possible solutions.

Around the outside edge of each rotor was a separate metal ring that could be rotated around the circumference of the rotor. This movable ring sat adjacent to the 26 sprocket like teeth on the rotor. On this metal ring were engraved the letters A to Z in consecutive order. (Some models used the numbers 00 thru 26 in place of letters.) A detent on the rotor allowed the numbered ring to be rotated to any one of 26 positions around the rotor. This in turn placed a number next to each sprocket tooth. An index mark on the rotor was used to set the position of the ring on each rotor to the number indicated to be used for that particular rotor in that day's machine settings listing. This ring setting was done to each rotor prior to the rotors being placed on the rotor shaft. This adjustable ring setting position added yet another level of encryption security to the Enigma machine as it changed the secret internal wiring pattern in relation to the letter positions on the ring.

Once the rotor shaft containing the three rotors was placed in the Enigma machine, a cover was closed over it. Slots in the cover provided access to the protruding disc with the thumb-wheel like indentations of each rotor. This thumbwheel allowed the operator to rotate each rotor's position by hand. A small window in the machine's rotor cover plate allowed the operator to see only one of the 26 letters on each of the rotor's rings. The operator would manually turn each rotor in the machine, using the thumbwheel, to display the specified

letter for each rotor, as called for in that day's rotor starting position listing. These settings were spelled out on the secret daily machine setting list, just as the particular rotors to be used that day, and the order in which they would be assembled on the rotor shaft was spelled out. Later, the rotor starting positions for each message to be encrypted were determined by a more complex and supposedly more secure method, replacing the standard daily initial settings.

With each key depression the low order rotor advanced one position. At some point in its first complete rotation, the low order rotor advanced the adjacent rotor one position, similar to a mathematical 'carry' operation. The same carry type operation occurred between the second and third rotor as well. Following which key depression that happens depended on the rotor's ring setting of each rotor for that particular day, and each rotor's starting position.

Thus, with every key depression, a different electrical pathway is established through the rotors. This pattern could only repeat itself after 17,576 keystrokes. As it was very doubtful that any one message encrypted on an Enigma machine would ever have that many characters in it, and since the starting rotor settings were different for each message, it was felt that a pattern (something that repeats itself regularly) would not become evident to aid someone attempting to 'break' an Enigma encoded message.

Each key in an Enigma machine had a switch it operated, similar to a micro switch, with both a normally open and a normally closed contact. At the very bottom of any key's depression, the switch is actuated and the normally open contact of the switch contacts the common contact. This normally open contact has a constant 4 volts DC, supplied by batteries, applied to it whenever the machine is turned on. When the circuit is completed upon a key's depression, the 4 volts DC on the normally open contact emerges from the switches' common contact. Each of the 26 common contacts of the individual key switches is wired to one of the 26 contacts on the far-right fixed contact disk, by way of the plug board which will be discussed in a moment. Each of the 26 contacts of this fixed disc are in contact with the 26 contacts of the low order rotor. From there the 4volts DC current passes thru the contacts and wiring maze of each rotor, thru the reflector at the far-left end of the rotor shaft, then back thru the rotors again, on a different rotor wiring path, and back out a different contact on the far-right fixed contact disk. From there it passed thru one of the other 25 wires, again thru the plug board, and finally connecting to one of the common contacts of the 25 other key switches that have not been pressed. Emerging from the normally closed contact of whichever switch that is, a wire carries that 4 DC to the particular lamp on the Enigma's lamp is associated with that key's assigned letter. Each lamp sits behind and illuminates celluloid transparency of the letter of the associated key. The lamp illuminates and a second operator, observing the lamp board, writes down the illuminated letter. He does this for each key the primary operator presses in encrypting a message. What emerges appears to be a jumble of letters, one for each key pressed. With this system, multiple or repeated pressing of the same key will illuminate a different lamp nearly every time.

For example, if the primary operator presses down the 'A' key, the low order rotor will advance one position, and then a lamp, other than the 'A' lamp, would light for as long as the

key was held down. If the operator again immediately pressed the 'A' key down again, the rotor would turn again, and a different path thru the rotors and reflector maze would be created, and a different lamp would be in effect, if the operator pressed the 'A' key down 17,576 times in succession, some lamp other than the 'A' lamp would illuminate each time before what had appeared to be a totally random pattern of the lamps being illuminated would again begin to repeat itself.

This is what the Enigma was designed to do, create what appeared to be a long, random appearing pattern of letter substitutions. Add to this that the entire pattern was changed every day with a different set of rotors, rotor positions, rotor ring settings, and new rotor starting positions for each rotor, often for each message sent, and it is nearly impossible to determine any type of pattern of encryption from the encrypted message. An encrypted message would need to be composed of more than 17,000 letters before any type of pattern might be discerned.

Feeling that still more security was needed: they soon added a plug board to the Enigma. This plug board scrambled the wires from the switch each key operated, to the far-right fixed contact disk. By changing the plug board wiring each day, the switch on the 'A' key would send a current to a different contact on the far-right fixed contact disk each day, and likewise redirect the returning current from the rotors to illuminate a different lamp. All 'this added still more complexity to the encryption patterns generated. This was a simple modification to make to the original Scherbius Enigma design. and in effect added another non-rotating rotor, which changed each day. This enhanced the encryption security even more.

Later in the war the German Navy felt that even more security was needed for their message transmissions, and a new Enigma model was built that used 4 of 9 available rotors at a time, increasing the Enigma's encryption patterns repetition rate to once every 456,976 keystrokes. This modification required the availability of a dummy rotor, rotor number nine, to allow for the decoding of any messages received that had been encrypted on a three-rotor machine. The dummy rotor simply passed the current straight thru from the contacts on one side of the rotor to the other without any of the internal rotor wiring normally used to scramble the current's path.

For the Enigma enciphering system to work successfully all the daily setting of both the message encoding Enigma at the transmitting end, and the Enigma decoding machine used at the receiving end had to have exactly the same machine settings. The clever design of the Enigma allowed the same machine to both encrypt and decrypt a message using exactly the same procedures.

A message was entered in plain text, letter by letter, with no spaces or punctuation. The lamps that one by one illuminated on the lamp board as the plain text message was entered, were noted by the secondary operator who wrote them down. This was the encrypted message, which appeared to be pure gibberish.

This ‘gibberish’ was then sent, often in five letter groups, by wireless or some type of written form, to the intended recipient, At the receiving end the ‘gibberish’ was, letter by letter, entered back into the keyboard of the decrypting Enigma machine which had been set to the same exact setting as the encrypting machine had been set to, and again the lamps on that machine illuminate one after another. The secondary operator at the receiving end noted down the letter of each lamp as it illuminated, and the original message miraculously reappeared in plain text. It had no spaces or punctuation and depending on who the message was for, it may have to be re-written so it could be easily read by higher authority.

The complexity of the cipher generated by an Enigma machine was its strong point. This is what made the users feel it was a completely secure enciphering system. However, like all enciphering methods, the weakest point remains the method by which the person or machine deciphering the communication is aware of exactly how the communication was first enciphered. If this can be kept secret, the communication is completely secure.

This was the formidable Enigma machine used by Germany in WW2. One other significant security aspect of the machine’s operation, the setting of the rotor positions prior to enciphering each message, has not been mentioned. Throughout the war the procedures for setting the starting positions of the individual rotors for each message were modified several times in an effort to affect even more security.

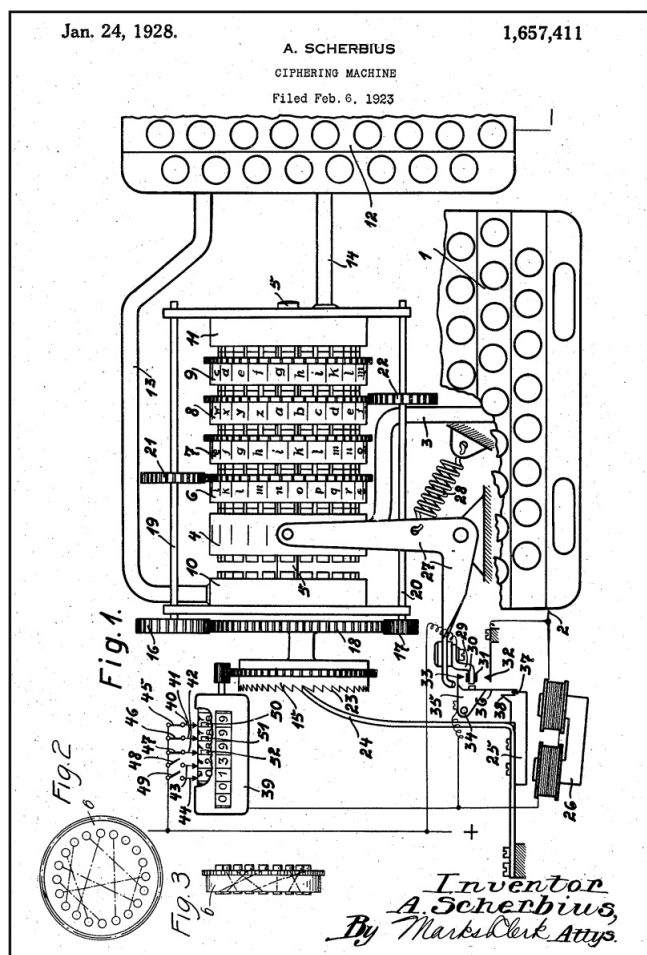
Some additional information on Arthur Scherbius provided by the Flash editors.



Pictured below and to the left is a photo of Arthur Scherbius, born in Frankfurt, Germany on October 30, 1878. Arthur Scherbius was a German electrical engineer and the inventor of the mechanical cipher Enigma machine. He

patented his invention, shown to the right, and later sold the machine under the brand name Enigma. Scherbius however did not live to see the widespread use of his machine. In 1929, Scherbius died in a horse carriage accident in Berlin, where he had lived since 1924.

Source: https://en.wikipedia.org/wiki/Arthur_Scherbius



Enhance your show displays

by CRC member Bill Potorti



I've been experimenting with a method that some of you might like to incorporate in your show displays, that being linking a video you make of your radio using a QR code that the public can scan with their phone. For example:

If you'd like more information on this radio and see it playing, scan this code with your phone:



This will provide a [link](#) to the video you uploaded to YouTube.

To accomplish this you must have:

1. A YouTube account. If you don't have one, sign up, it's free.
2. A video (duh). Phones work well for this, but old school cameras are fine, as long as you save the video where you can access it. Personally, I would keep the video fairly short to keep the audiences' attention. (less than 2 minutes?)
3. You don't have to have software to edit the video unless you want to add text, and intersperse photos.
4. There are a lot of QR code generators online. Many of them are geared to businesses and charge a fee. The one I found that is free is: qrcode-monkey.com. There may be others, but this one works pretty well.
5. Once you have your video uploaded, goto [qrcode monkey](http://qrcode-monkey.com) and paste in the link. It will generate a QR code. I download it as a .png (Portable Network Graphic) that can be used in a text editor,
6. Use a text editor to generate a 'sign' to tell the public what to do, as I did above. You'll probably need to adjust the size of the .png once you insert it, as it's pretty big.
7. If you're in need of a text editor, I use Apache OpenOffice (openoffice.org). It's an open source editor and is a free download.
8. If you have any questions, contact me at billpot@gmail.com.

IT'S TIME FOR THE CRC 2024 ANNUAL AUCTION AND BAR/BQ !

Once again, through the efforts of club member Rich Kuberski, we are privileged to hold our annual auction in a park-like setting. In addition, we will also be continuing our tradition of combining the auction with a pot luck BarBQ.

The club will provide the burgers, hot-dogs, condiments, chips and soft drinks while the members bring side dishes to share with all. Family members are encouraged to attend!!!

WHAT: An auction of radios, televisions, documentation, parts, test equipment and associated items. The public is encouraged to participate in **both** buying and selling.

WHEN: Sunday, September 15th

Seller's Registration: Sellers need to pre-register --
-- see included registration form.

Buyer's Registration: 10:00am until 11:15

Viewing: As items are delivered

Auction Starts at 12:00 noon SHARP

BarBQ Lunch Served 10:30am - 11:30 am

Bring a side dish to share with everyone;

Slaw, Potato Salad, Fruit Salad, Desserts, Chips, Beans, Your favorite recipe, etc.

WHERE: Tectonic Management Group Inc. Office grounds and picnic facilities (see map on the bottom of this page).

AUCTION RULES:

There is no cost to register as a buyer or seller. **If you are a seller, your seller number is also your buyers number.** There is a sellers commission that will be equal to \$1 or 10% (which ever is greater) of the "hammer" price on each lot sold to any buyer - including the sellers who may elect to "buy back" their lots.

Minimum value of each lot to be \$5.00

Sellers may optionally, **at registration time only**, set a secret minimum bid (reserve) on any lot.

No commission will be incurred on any lot that is not sold. All seller commissions will be deducted from and before the payment to the seller, and these commissions will become the property of the C.R.C. treasury.

Buyers can **not** take possession of any lot(s) until the total cost for all purchases are paid. Collection of buyers fees will commence at the conclusion of the sale of the last lot entered into the auction. A buyer's receipt is required for pickup of purchased lots from the lot/item display area.

Buyer fees will be collected before sellers are paid.

The C.R.C. only accepts CASH or CHECKS.

Identification may be requested from those paying for their purchases by personal check.

* Sellers will be paid only by C.R.C. check and may for a \$1.00 surcharge, elect to be paid by mail.

* This auction is limited to radio and electronics related items as described above. The CRC reserves the right to reject items deemed inappropriate.

* Any item registered for sale by auction may not be sold outside of the auctioneer's control, and can not be removed from the sale once the auction commences.

SELLERS: Please pre-register your items with Steve.

Send your information to:

stevetou@comcast.net

Registration will close at 11:15 on Sunday, September 15th.



CRC AUCTION SELLERS

Be prepared for the 2024 CRC Annual Auction on Sunday, September 15th. Pre-register by filling out this form and email it to Steve, plain text in an email is also fine. Or fill out this form and bring it to the September 8th CRC meeting. If you plan to sell items in the auction, you **MUST** pre-register them! Please send your form to Steve **NO LATER** than September 9th. Please send your email registration information to: stevetou@comcast.net

Seller's Contact Information

Name: _____

Phone: _____

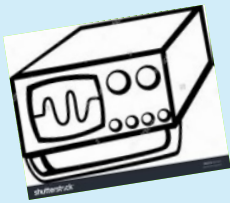
Address, City, State: _____

email address: _____ Zip-code: _____

Sellers - you MUST pre-register your sale items!!

	Make/Model – Description – Year – Note	Reserve (optional)	Donation? check if yes
1.	_____	_____	<input type="checkbox"/>
2.	_____	_____	<input type="checkbox"/>
3.	_____	_____	<input type="checkbox"/>
4.	_____	_____	<input type="checkbox"/>
5.	_____	_____	<input type="checkbox"/>
6.	_____	_____	<input type="checkbox"/>
7.	_____	_____	<input type="checkbox"/>
8.	_____	_____	<input type="checkbox"/>
9.	_____	_____	<input type="checkbox"/>
10.	_____	_____	<input type="checkbox"/>
11.	_____	_____	<input type="checkbox"/>
12.	_____	_____	<input type="checkbox"/>
13.	_____	_____	<input type="checkbox"/>
14.	_____	_____	<input type="checkbox"/>
15.	_____	_____	<input type="checkbox"/>

Enclose a second sheet for additional items.



Classified Ads



Ads are free for CRC members. To place an ad send your ad description along with personal contact information to Steve at stevetou@comcast.net or Larry at Lsnyder200@cs.com.

FOR SALE:

Starting to gradually sell off restored radios from my extensive collection to club members and friends. Prices are very reasonable and will gladly negotiate. Range from the early 1920's to mid 1950's.

Mostly wood radios from the 1930's...my favorite styles! Castle Rock Area
David Boyle 303-681-3258
email: djboylesr@msn.com

REPAIR SERVICE: Radio repairs for club members. Reasonable rates. Good references. Please call Mike Cook 303-885-8034 mldcook@hotmail.com

FOR SALE:

Tube Radios - Tombstone, Cathedral and Novelty Transistor Radios.
I have collected radios of all types for 35 plus years and now it is time to let them go to new home/s. I have over 250 tube type and over 5,000 transistor (both novelty and shirt pocket type)
Please call 303-238-1384
radios4us@aol.com

Thank You, Ron Smith

WANTED - Austrian Minerva 388 wood table radio, vintage about 1937. Bob Krassa ACØJL. bob@krassa.com or 303-475-2824 Thanks!

LOOKING FOR: Reasonable priced radio-related advertising signs to decorate a new workshop. Please text pictures and price to Bo (719) 661-4985. Thanks.

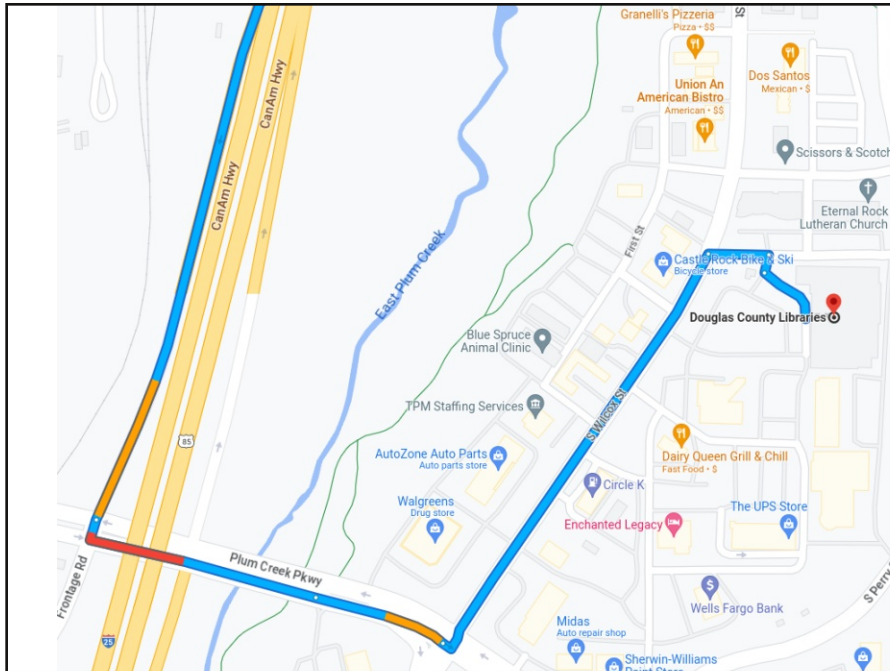
FOR SALE: New old stock & quality used vacuum tubes. Please refer to my business card pictured below. Thank you!
Sean Duffy (573) 999-6187
acmetubesupply@gmail.com



As in the the previous two years, Wadsworth Boulevard is STILL undergoing major construction. A suggested route to attend the auction is to use 44th Avenue to Pierce St. and then proceed north to the auction location. There is a map on page 13 of this newsletter with a detailed view.

SUBMISSION OF ARTICLES & AND ADVERTISEMENTS: Classified Ads and articles of any radio/electronic or historical related subject to be published in The Flash! are encouraged and welcomed. The article(s) should be submitted in Microsoft Word, OpenOffice, RTF, or as plain text, to Steve Touzalin by email at: stevetou@comcast.net or Larry Snyder at Lsnyder200@cs.com or by postal mail to 417 So. Queen Circle, Lakewood CO 80226. Formatting isn't necessary as it won't transfer into our software, but if you do, set the font to Times New Roman, size 10, left justified. If you have graphics (.jpg files) to be inserted, please name them and be specific about how you would like them placed. We will do our best based on space limitations.

CRC Meeting Sunday, September 8th 1 PM at the "NEW" Castle Rock Library in Castle Rock.



Directions to The "New" Castle Rock Library in Castle Rock:

From I-25: Take the Plum Creek Parkway, exit #181. Turn East onto Plum Creek Parkway.

Turn Left (North) onto S. Wilcox Street and continue north 2-tenths of a mile.

The Castle Rock Library is on the east side of the street at 100 S. Wilcox St. The parking may be limited or some distance away from the entrance.

1st Class Mail

Colorado Radio Collectors
Antique Radio Club
4723 Woodbury Dr.
Colorado Springs, CO 80915

