

The FLASH!

The "Colorado Radio Collectors Antique Radio Club" Newsletter

Dedicated to the preservation and education of wireless, radio, television and associated equipment.

Volume 29, Issue 4

CRC Annual Auction - Sept. 16th

Sept/Oct 2018

Restoration

1925 Atwater Kent Model 20 Compact No. 7570 Serial No. 322131

By Larry Snyder

This paper discusses the repair and restoration of a model 20C No.7570 compact which I obtained at the CRC auction in 2008. Atwater Kent made three versions of the model 20, cabinet type battery-powered radios. They are:



For comparison, the FINISHED model 20 compact No.7570 is on top a previously restored model 20 No.4640 "Big Boy"

Model 20 No.4640; large cabinet, 5 tubes, 3 dials, antenna tap switch, 2 rheostats

Model 20 No.7570 compact; small cabinet, 5 tubes, 3 dials, antenna tap switch, 2 rheostats

Model 20 No.7960 compact; same as 7570 but with "UX" type sockets and improvements

In 1924 AK produced the model 20 No. 4640 aka the "Big Boy" at about 15,000 sets a month. The "Big Boy" cabinet dimensions are 26 wide; 8½ high; 7½ deep.

In 1925 AK produced 163,376 of the model 20 Compact No. 7570. The electrical parts in the model 20 Compact versions are essentially the same as those in the "Big Boy" but rearranged to save space. The cabinet dimensions of the compact are 19½ wide; 6¼ high; 5½ deep. The selling price was \$80.00 without speaker, tubes or batteries.

The front plate was covered with yellow stick-on shelf paper that was messily painted over with a thick layer of shellac that had runs and sags. The underside of the chassis was painted black and there were large drops of dried shellac at the edges, where the shellac had run down from the sides of the radio.



Dried drops of shellac on the bottom of the radio



The yellow shelf paper wrapped around the metal panel.

After disassembling all the components from the metal panel, the shelf paper was removed, and the surfaces cleaned with a wire brush. The front of the panel was sprayed a glossy chocolate brown and the back of the panel a flat black. The result was a dark brown matt finish on the front surface which brings out the luster of the Bakelite dials, knobs, and brass accessories.

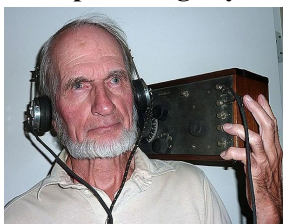
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Club Announcements

MESSAGE FROM THE PRESIDENT

CRC Members

Many years ago on our first trip to Europe, a few hours into the evening flight the Captain banked the plane slightly to the left and mentioned that the bright light we Johns, Newfoundland. wife Bonni that there and find that About 10 years ago we motorhome to St. Johns guy I just had to visit Signal Hill overlooking the city. As we made our way up to the always windy observation deck the source of our light so many years before was obvious. A 30" diameter spotlight aimed directly UP to illuminate the Canadian flag. We had found it!



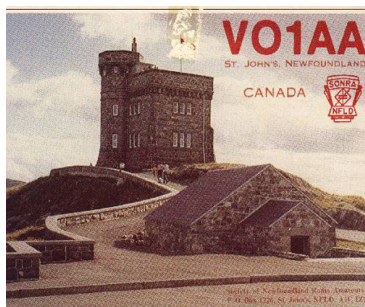
could see below was St. Optimistically, I told my someday we would visit light. finally drove our and of course, as a "radio" the Cabot Tower atop the harbor entrance and

Last summer we returned to Newfoundland to count whales and chase icebergs and made several more visits to Signal Hill. If you read Marconi's account of the antenna challenges during the December 1901 transatlantic radio transmission you will get an idea of the constant and fierce winds always blowing off the ocean. Marconi's actual receiver was not in the Cabot Tower but in a small, cold building nearby and Signal Hill is not named for radio signals but for the fact that it was where signal flags were raised for ships entering and leaving the harbor.

There are numerous historic sites in Newfoundland and Nova Scotia pertaining to early transatlantic telegraph, telephone and radio. Also the natives are friendly, they drive on the correct side of the road, food is affordable and the air is really (really) fresh. A great place to visit.

Please plan to attend the Sept. 9 meeting at the Castle Rock Library so we can receive our marching orders from Alexis, et al, concerning the Sept. 16 club auction and BBQ. Gather up your excess equipment and make some money for yourself and the club.

In the new era, thought itself will be transmitted by radio - Guglielmo Marconi
Apparently Marconi foresaw the future and realized that Twitter starts with a twit.



Meeting Locations

(Unless noted otherwise)

Littleton	Castle Rock
January	March
May	July
September	November

CRC MEETINGS

Meetings are held on the 2nd Sunday of every other month starting in January (except May is 3rd Sunday) at 1:00 pm. The meetings consist of business, "show & tell", raffles, auctions, swap meets, technical discussions and other subjects of interest.

CRC MEMBERSHIP

Annual membership in the CRC runs from July to June. Dues entitle members to attend meetings, "The Flash!" our newsletter, participation in our spring show and Fall auction. Current annual dues are \$20. New memberships will be prorated to the following June.

Upcoming Events

Sept. 9th	CRC meeting
Sept. 16th	CRC auction
Nov. 11th	CRC meeting

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Reminder: Club dues were due in June !!

CRC Contacts

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All the wires were cut off near the components. The intermediate wiring was missing as was the *battery cable*, *clamp strap*, and *screws*. These were all replaced during the restoration.



The No. 7618 – #1 RF Tapped Transformer and Tuning condenser assembly was complete and functional; but it was mounted in the #3 location as shown above. I moved it to the left side location closer to the antenna tap switch where it should have been.

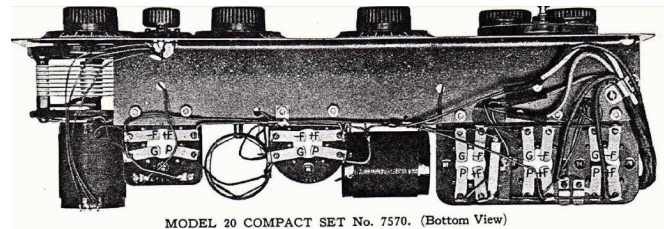
Identification

The name tag indicated the radio was model 20, serial number 322131. The same serial number was glued to the backside of the AK logo emblem found on the front panel.



There were deep, hand-written impressions on the inside of the lid indicating it was a “model 1913”. AK manufactured a model 19 but it was a 4-tube radio with 2 dials and it did not use a battery cable. I concluded this radio was not a model “1913” and sanded the notation off the lid during refinishing.

The bottom view diagram of the model 20 compact set No.7570 can be found in the AK Radio Service Manual on pg. 31 and is shown to the right. It matches the parts layout of the radio.



The RF Transformers

The 7638 #2 RF and 7712 #3 RF transformers were missing from their respective tuning condenser assemblies. Replacement RF transformers were available from internet sources, but I decided to try my hand at making them. Fortunately, I had the “Big Boy” version of the model 20 to use to measure the details of the RF coils to make the replacements. For the RF transformer secondary spools, I made two plastic tubes 2” outside diameter, 17/8” inside diameter, 2 21/32” long which I machined out of plastic pipe I had on hand. Plastic tubing of the proper diameters is readily available from many sources, but typically in long lengths and not black.



The spool in the photo is wrapped in paper with grid lines 45 degrees apart which were used to help locate and orientate the wire and bolt holes. The paper was removed after the drilling was completed. The brass mounting spacers were made, and the brass screws & nuts in the photo were purchased.

For the secondary coils, 90 turns of #26 cotton cloth covered wire were wound on the outside of each 2” diameter spool. (a slightly smaller #28 wire would fit on the spool length better and should have been used.) However, performance wise the #26 wire works just fine, and I decided not to change it. I stained the white cloth covered wire with Minwax Special Walnut 244 wood finish stain to match the brown color appearance of the 1st RF coil.



The secondary coil as wound



After staining



For the primary coils I wound 9 turns of the #26 cotton cloth covered wire on a 1½" (across flats) hex shape using a 1" steel hex nut as the bobbin. A slightly larger, possibly 15/8 (across flats) hex shape would allow the coil to fit the

inside of the secondary spool better.

To maintain the coil's hex shape when it was removed from the nut I placed green frog tape on the outside of the coil. Then, with the green tape in place, I removed the coil from the nut and painted shellac on the inside surface to hold the wires together. When the shellac dried the green tape was removed, and shellac was brushed on the outside surface. The result is the rigid hex-shaped primary coils shown below.



These primary coils were then sprayed brown. The primary coils were then glued at two corners inside the secondary coil sleeves, as shown, to complete the assembly of the missing RF transformers.

The AF Transformer

The 2nd AF transformer No. 7661 primary coil was found to be open. The construction of the A.F. transformer is described in the AK radio service manual and is shown below.

Audio Frequency Transformers

Our audio transformer No. 7661 (see Fig. VI) consists of a soft iron core made of a number of soft iron wires, a primary winding of about 6,000 turns of wire and a secondary of 15,000 turns of wire (gauge 40). The ratio of the number of turns of secondary to primary is 2.5 to 1, which is likewise the ratio of output to input. The first stage transformer (No. 8060) has a ratio of about 4 to 1. (Fig. VII).

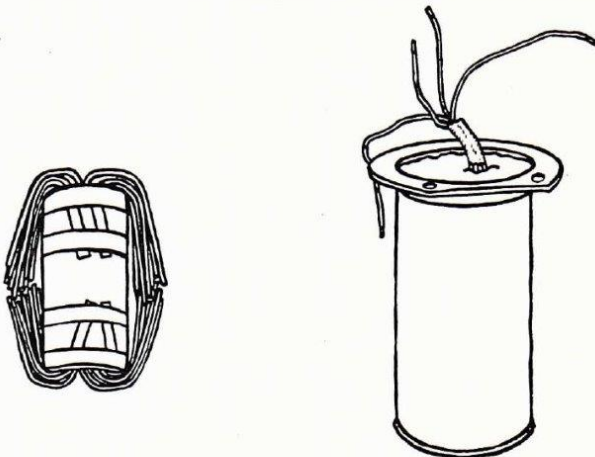


FIG. VI. AN ATWATER KENT AUDIO FREQUENCY TRANSFORMER (2d stage).



Reworked

Original

The tar was melted out of the defunct transformer can and the old transformer was removed. It was replaced with a modern transformer from Antique Electronic Supply, part no. P-T156. This transformer fits inside the can and work flawlessly.

Transformer - Audio Interstage, 10 mA

Type Audio Interstage

Equivalent to Stancor A53-C. 1:3 ratio overall. Center tapped secondary may be used for push-pull grids. **Specifications** Max. Primary Current: 10 mA Impedance Primary to Secondary (Ohms): 10,000 to 90,000 Mounting centers: 2" Weight: 0.4 lbs.

[View Product Measurements](#)



Rewiring

The battery cable and all the wires were replaced.



The bottom side of the *panel and angle base assembly* rewired with parts temporarily identified

Refinishing the Cabinet

The exterior of the mahogany wood cabinet was sanded down to bare wood and stained with Mohawk brown mahogany wiping stain to give it a rich dark brown color. It was then given three spray coats of Deft Clear Lacquer Gloss wood finish.



Backside of the cabinet

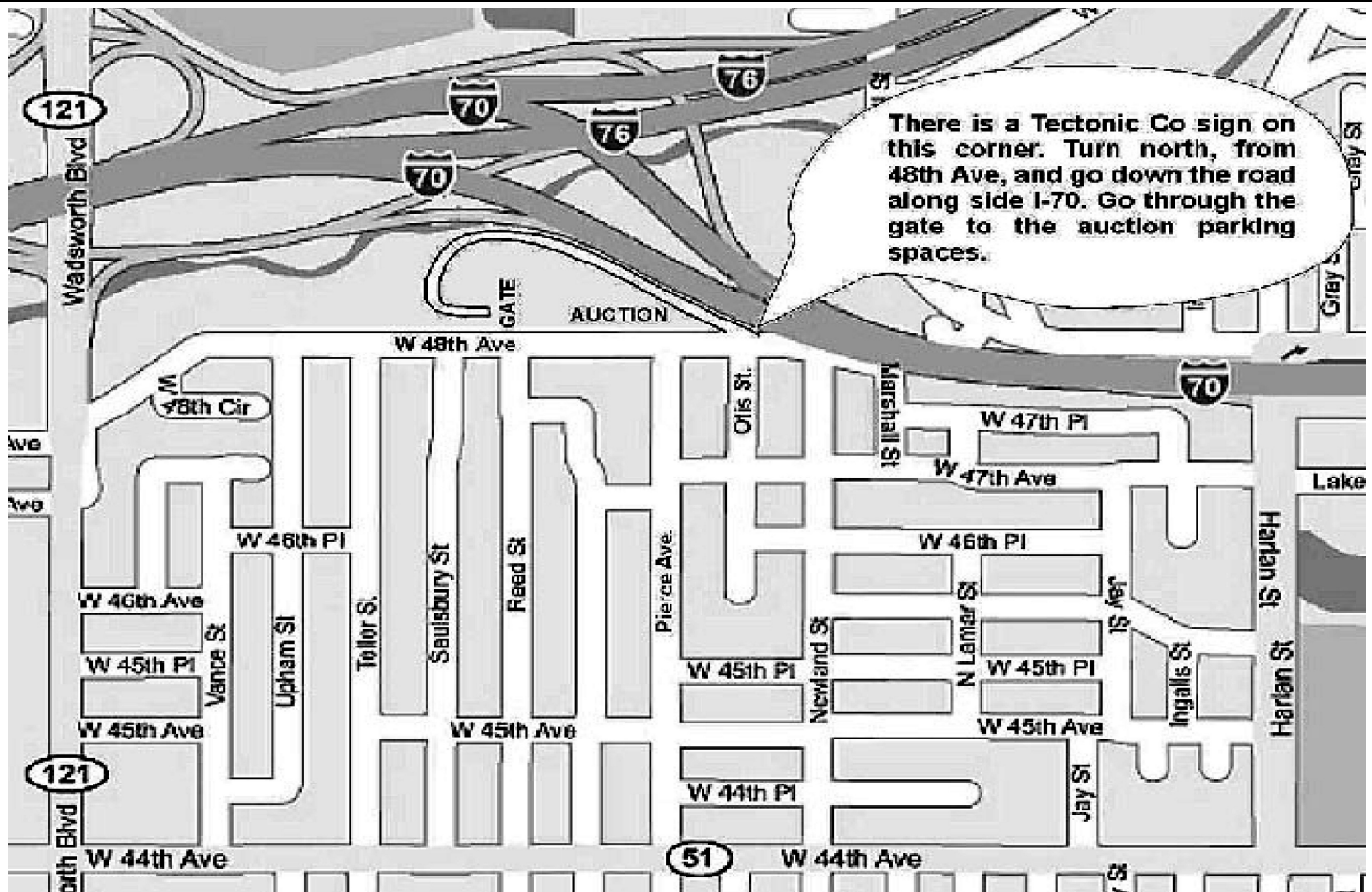
The Ground and Antenna Name Plate located over the two small holes on the right is missing.
A replacement name plate has not been found.

The restored radio is shown in the comparison photo at the beginning of this article.

Helpful References

- 1) Atwater Kent Radio Service Manual, September 1927
- 2) Atwater Kent Radio Electrical Values of Resistors & Condensers in all receivers 1924-1932, December 1932
- 3) Atwater Kent Radio Parts list for model 20C, October 1927
- 4) A. Atwater Kent The Man, the Manufacturer and His Radios, 2002

THE CRC 2018 ANNUAL AUCTION



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 16th at 12:00 noon

Seller's Registration 9:30am - 11:45am

Buyer's Registration 9:30am until end

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.)

AUCTION RULES

There is no cost to register as a buyer or seller.

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.

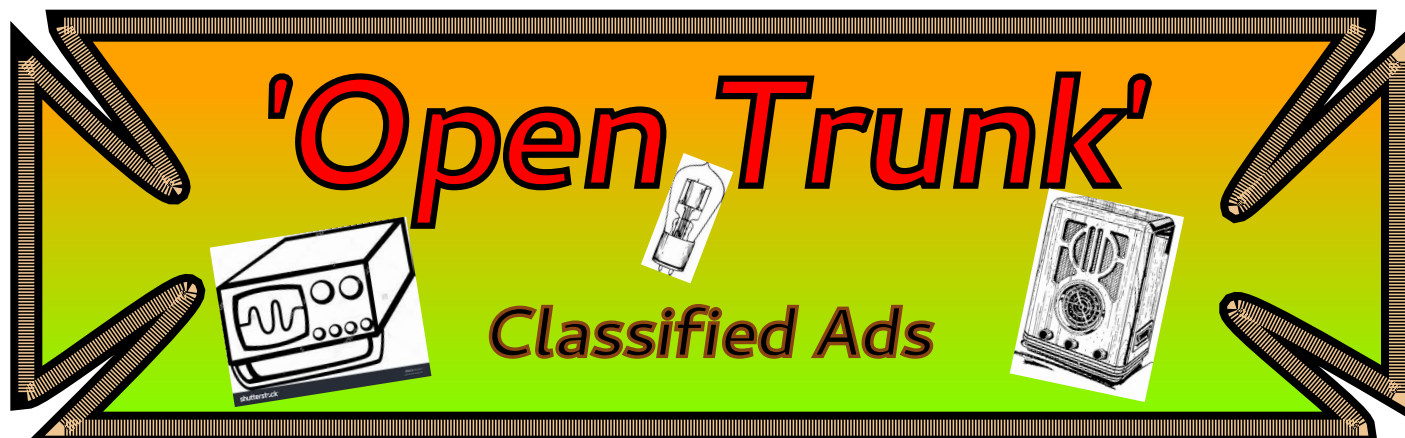
Buyers can **not** take possession of any lot(s) until the total cost for all purchases are paid. Collection of buyers fees will commence at the conclusion of the sale of the last lot entered into the auction. A buyer's receipt is required for pickup of purchased lots from the lot/item display area.

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.



REPAIR SERVICE: Radio repairs for club members. Reasonable rates. Good references.

Call David Boyle 303-681-3258

Radio Chassis For Sale:

1) RCA Radiola Model, 80, 82, 86 complete dual chassis and mounted speaker. VG condition, with tubes including 2ea VG 45 tubes. Make offer.

2) Philco Model 91. Complete working chassis with 12" good speaker. Working tuning meter too! Make offer.

3) Philco Model 37-610 complete chassis with tubes, good condition complete with bezel and glass. Make offer.

Call David Boyle, 303-681-3258

For Sale : Radio Tubes. From time to time I have sold tubes to club members. I have decided to advertise that fact. I will sell previously used "very good" to "good" tested and boxed tubes. I test them on some of the the top-end and calibrated Hickok testers for this determination. Have around 3000 plus tubes, tested and boxed ready to go. Also new ones too. Prices typically would be 50% or less, of AES posted prices. Every tube selling price can be somewhat negotiated. Need to trim down on my inventory...win-win for both of us.

David Boyle 303-681-3258 or better yet: djboylesr@msn.com

For Sale: Radiola 1925 Super-heterodyne Second Harmonic "Semi Portable" (AR-812). Cabinet has some scratches on original varnish. Contains 6 RCA 199 triodes that test good. Sub chassis components are encased in wax

and are difficult to access. The receiver does not play. Battery power. \$250

Jerry Knievel 303-766-0845

jerryknievel@gmail.com

For Sale: Full size/console TV 1950's B&W RCA 6-T-65 "Eye Witness" Farnsworth small console radio/record player k-262

Larry Steele (719) 596-8883

larrysteel@comcast.net

in Colorado Springs

WANTED TO BUY: 1980's Atari 520 or 1040 ST computer components (keyboard, monitor, etc.). I still need it for several specialized programs I wrote including a simulator for transistor and tube circuits.

Dave Laude dlaudel@msn.com

Answers to the crossword puzzle in the May/June issue of the Flash

ACROSS

1. Troupe
4. Short cut
9. Privet
10. Aromatic
12. Trend
13. Great deal
15. Owe
16. Feign
17. Newark
22. Impale
24. Guise
27. Ash
28. Center bit
31. Token
32. Lame dogs
33. Racing
34. Silencer
35. Alight

DOWN

1. Tipstaff
2. Olive oil
3. Pseudonym
5. Horde
6. Remit
7. Cutter
8. Tackle
11. Agenda
14. Ada
18. Wreath
19. Right nail
20. Tinkling
21. Sennight
23. Pie
25. Scales
26. Enamel
29. Rodin
30. Bogie

FOR Sale:

◇ AK breadboard no. 4700 model 10C, excellent condition, operating, asking \$900 with tubes OBO.

◇ "Wide World Broadcast Receiver", manufacturer unknown, 5-tube TRF (2-RF+grid-leak detector+2-audios), good condition, nice cabinet, operating, asking \$75 with tubes OBO.

◇ Also have 1920's battery sets, telephones, WWII field telephones/telegraph, telegraph sets, toy electric motors, toy stationary steam engines, Cretors popcorn wagon steam engine, clocks, misc. electrical/radio parts

◇ Two Radiola III's and one Radiola IIIA. All restored and operational. No tubes. One III missing bottom of box. \$75/100 for Radiola III, \$100 for Radiola IIIA, OBO.

Don Wick 719-488-9469

Monument, CO dowick@comcast.net

FOR SALE: mostly new Tubes - 10, 26, 27, 30, 42, 45, 2A3, 864, 807, 5U4-GB, 71A, 6SN7-GT, and more! Also - Violin Radio, Aeriola JUNIOR, RCA Catalin (cracked), Radiola 3, Radiola 3A.

George Stevens, P.O. Box 704

Longmont, CO 80502

woata1947@gmail.com

WANTED:

Articles for the Flash!

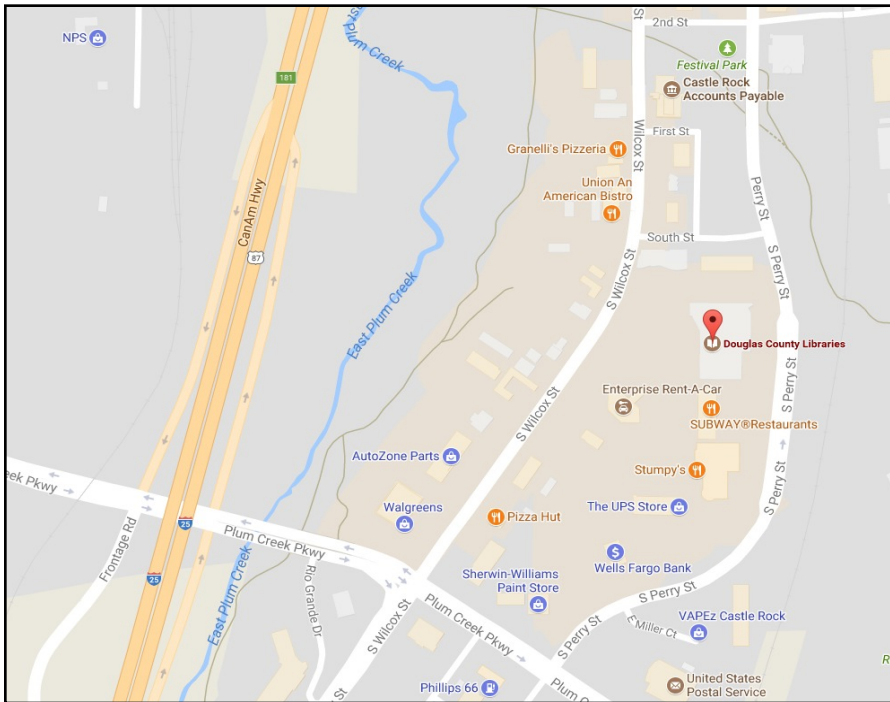
We need articles!!

SUBMISSION OF ARTICLES & AND ADVERTISEMENTS

Classified Ads for The Open Trunk 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**. Submit ads and/or articles to Steve Touzalin by email at: stvetou@comcast.net or by postal mail to 417 So. Queen Circle, Lakewood CO 80226.

Formatting isn't necessary, 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 September 9th at 1:00 PM



Directions to Miller 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 Philip S. Miller Library is on the east side of the street at 100 S. Wilcox St. The building is towards the back of the parking lot, past the Dairy Queen .



Colorado Radio Collectors

Antique Radio Club

417 So. Queen Circle

Lakewood, CO 80226

1st Class Mail