

Reverse engineering a Sencore Vibrator Tester By Larry Weide

The other day a group of us old farts got together for our usual Wednesday lunch. Wait, don't get upset, the name is actually a term of endearment. Its the acronym for **OLD Friends And Radio Technician Society**.

Anyway, Robert Baumann brought over an interesting device that tests car radio vibrators. This little unit manufactured by **Sencore**, known for many types of radio/TV test gear, was designed to plug into the 8-pin socket of any tube tester.

All you have to do is set the tube type to a **6SN7** or a **12SN7** depending on the voltage rating of the vibrator. The tube

tester's setting is simply to provide the correct filament voltage to the correct pins - 6 or 12 volts to pins 7 and 8. The vibrator to be tested is then plugged into the tester's socket and the

condition of the vibrator is determined by two lights on top.



If the lamps have the same brilliance the vibrator is deemed good.

If the lamps have an uneven brilliance the vibrator is questionable.

If one or both of the lamps are unlit the vibrator is defective. After a brief demonstration, we all had to see what was inside of this gizmo. Rich Kuberski got out a screw driver and proceeded to open it up. I got out a pencil and a piece of paper and we began to "reverse engineer" it.

Actually, one of my grandsons could have

done the job since the circuit is about as simple as you can get.

However, its operation is actually quite clever.

COLORADO RADIO COLLECTORS ANTIQUE RADIO CLUB

Founded October 1988

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Message from the President

Hello from Africa...you guys get a well-deserved break from me while Margie and I are off being chased by lions. Merrill Campbell has "volunteered" to preside in my absence. Please afford him the same high level of courtesy you give me! (?)

I would suggest that the major subject discussed will be the upcoming Annual Auction and BBQ preparations. As usual, Rich Kuberski will have made arrangements for use of the facility...definitely the best spot for us we could have dreamed of ever having. Elsewhere in this Flash edition will be all the particulars. The date is Sunday the 29th of September.

I, once again, will be responsible for the BBQ. Remember to please bring a side dish such as salad, baked beans or other side courses, or a desert....plus serving spoons! Please no chips! The club will provide hamburgers, hot dogs, and all the condiments and chips. Cold drinks will also be provided.

Someone or several members can assist in the cooking, thanks. We have had many of these events in the past, all quite suc-

cessful so...you all know what to do. Merrill will ensure all tasks are spoken for.

At the July meeting the club voted on several things: 1) We will go forward on printing the Flash in color (should be this issue). 2) The "specialty" category at the next March Show will be *Novelty Radios*. Examples...Guild Mfg. radios, lamp radios, Charley

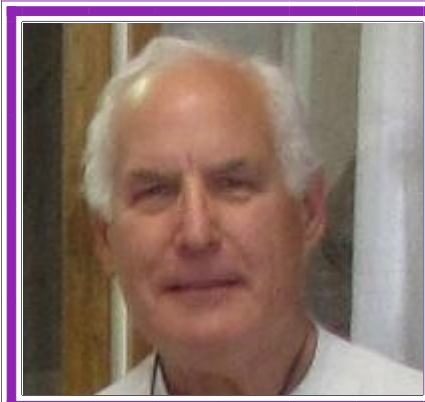
McCarthy, etc.,etc., and transistor novelty styles. A very broad based category, indeed. 3) September meeting "special interest" topic will be *military radios and equipment*.

It appears that the VVE show will not be moving elsewhere next year so, hopefully, good for now.

And as a final reminder both the September and the November meetings will be in Castle Rock at the library, of course. The November meeting will include a club provided luncheon featuring pizza and soda pop. That otta get you all there.

Stay Tuned,

David Boyle



CRC CONTACTS

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NOTE: at = @ in email addresses

Upcoming Events

9-29 CRC Auction

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, discount book prices, participation in our spring show and Fall auction. Current annual dues are \$20. New memberships will be prorated to the following June.

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The circuit does two things; It supplies the tube tester's filament voltage to the vibrator's operating coil (actually through one of the lamps) and it also lights the lamps through the contacts in the vibrator. Because the voltage supplied to the operating coil is AC it causes the vibrator assembly to operate without any relationship to its contacts or the need for any other connected circuitry. This action opens and closes the vibrator's contacts and interrupts the voltage through the lamps. If one or the other of the contacts are bad, or the unit won't vibrate, this will affect the brilliance of one or both lamps.

One of the first thoughts that came into our minds after seeing what this unit was all about is that it would be very easy to make a copy of it. I built one up on my bench with clip leads and a 6V filament transformer.

Although the **Sencore** unit uses #51 bulbs I found that #47 bulbs work just as well - the voltage and current ratings are close enough. If you had a 12V center tapped transformer and a switch you could make up a "universal" model.

For what it's worth here's a few thoughts; The first law of car radio repair is **ALWAYS** replace the vibrator arc suppressing capacitor(s). I've opened up a few vibrators in my day and found

that some of them can be fixed.

The usual thing to go wrong is that the contact points have been arced and pitted. The points can often be resurfaced with something like a contact point file. If there's too much gap left after filing it might take some contact arm adjustment. This can be touchy and frustrating.

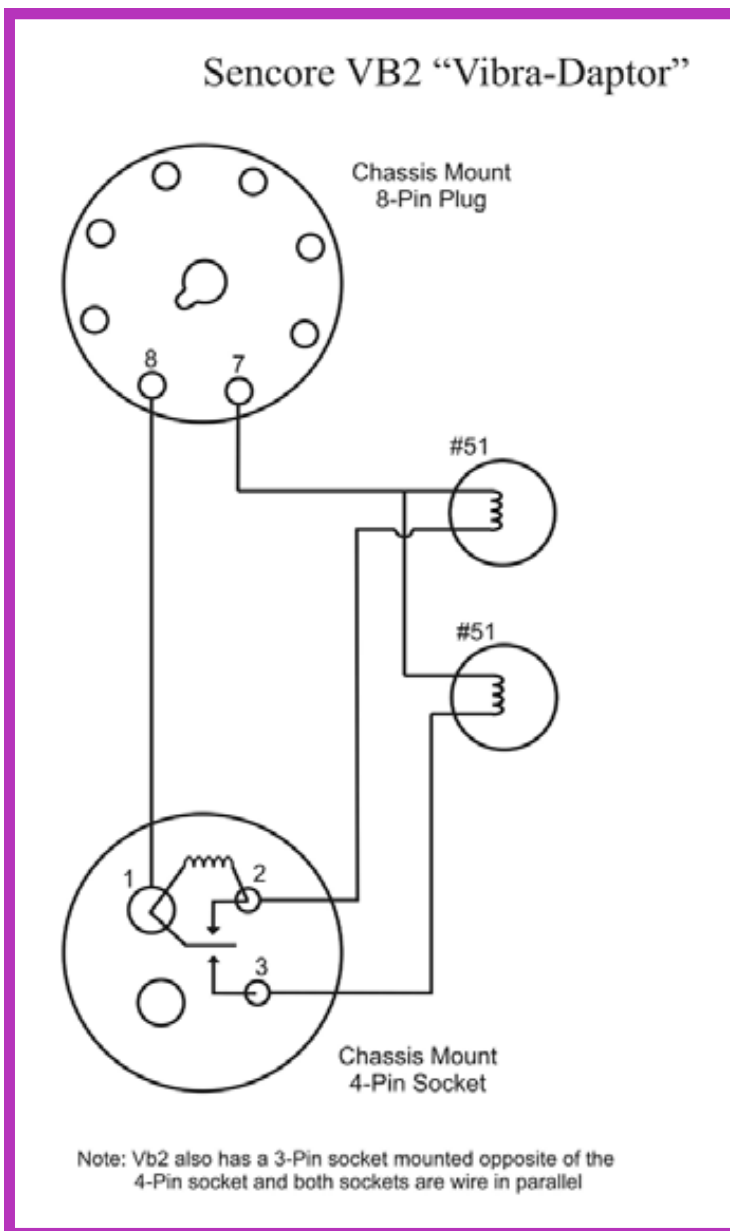
However, some vibrators do have adjustable points.

Another fairly common operational problem is that the sound insulating and shock mount foam rubber found inside of many vibrators has turned to a gooey mess after all these years.

Speaking of models, there are a couple of caveats that bear mentioning; This is a simple device that does a very basic test, and this tester is wired for only two types of non-synchronous type of vibrators.

Yes, two types. What you can't see in the above picture is that there's a socket for a three pin vibrator opposite the 4-pin socket - they're simply wired in

parallel. Also keep in mind that even the "standard" 4-pin vibrator has models where the connection that I show for pin 1 would need to go to pin 4 instead. So this tester can be quite handy but it has its limit, unless you use a little of your own ingenuity.



Spark and Tweet

by Wayne Gilbert, CRC member

[Originally printed in the *Chronicle*, the publication of the *Michigan Antique Radio Club*]

At 11:55 p.m. (Newfoundland Standard Time), on 14 April 2012, exactly 100 years after the *Unsinkable* ship *Titanic* sank, messages to and from its wireless room were once again received by listeners all over the world. In 1912 these messages were sent by the most modern equipment available, a rotary spark gap transmitter, and in 2012 the messages were sent as Tweets, one of the most modern ways of sending a message today.

In 1912 these messages flowed through the atmosphere as dots and dashes, to be received almost magically on wireesses across the world; in 2012 they traveled as binary codes which seemed to almost mystically materialize on the computer screens as words received over the Internet. But just as the emotion and urgency was evident in the dots and dashes heard by the wireless operators in 1912, so were they conveyed in the Tweets sent by re-enactors 100 years later.

This re enactment had been the idea of one of the curators at the **Nova Scotia Maritime Museum**. The museum maintains a full time display of *Titanic* memorabilia, including copies of the messages sent and received that fateful Sunday, and it was their idea to re-transmit these messages as Tweets 100 years exactly after they were first transmitted by wireless.

Tweets are short messages, containing no more than 140 characters, transmitted over the Internet. These transmissions are usually associated with cell phones and text messaging, but can be received on any computer connected to the Internet and the Twitter home page. Coin-

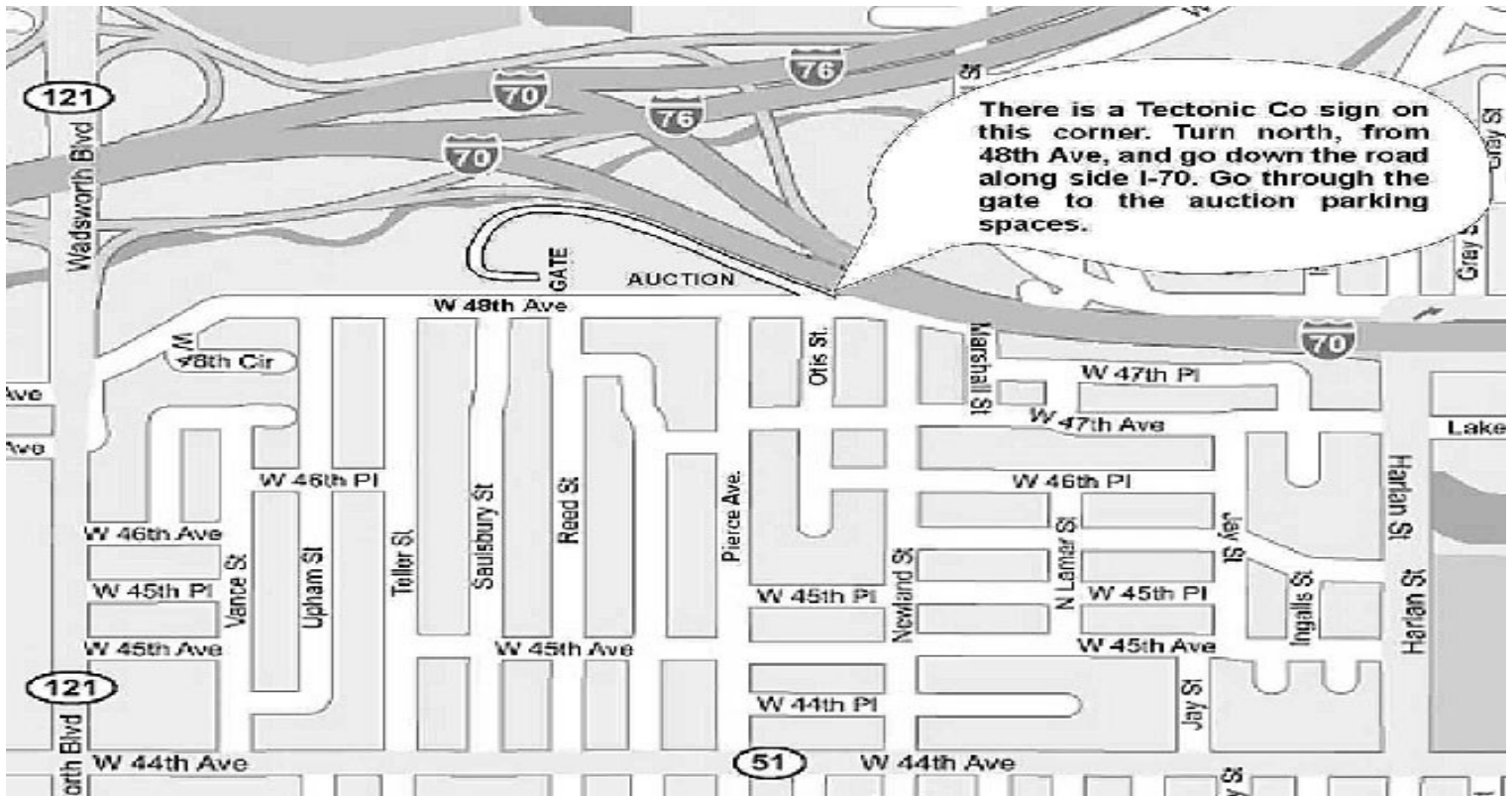
identally, most of the original messages were also very brief due to the restrictions imposed by spark gap technology.

Wireless transmitting was in its infancy in 1912, and messages were sent in code consisting of dots and dashes representing each letter of a word. Wireless operators strained to hear and distinguish these messages from the background noise that was a by-product of the transmitting. *Titanic*'s wireless room was equipped with the most modern transmitter use at the time, a rotary spark gap transmitter, which gave the dots and dashes a bird-like chirping sound, and making *Titanic*'s transmissions somewhat easier to distinguish from the background noise. However, messages were still limited in length due to the heat generated by the tremendous amount of current passing through the transmitting key.

Although listeners in 1912 heard the messages as a series of electronic dots and dashes, and modern listeners read the messages as words printed on a computer screen, both groups could not help but feel the disbelief, and fear the messages contained. At first it was obvious that the Marconi wireless operator didn't really believe the ship was sinking as can be seen in this response to one of his first messages: "**CQD We have hit an iceberg Position 41.46 N. 50.14 W.**" Earlier in the afternoon he had even been abrupt when the wireless operator of the Virginia tried to advise him their lookouts had spotted ice in the vicinity. "**Shut up! Shut up!," "I'm busy,"**" he literally shouted over his wireless, as he tried his

(Continued on page 7)

THE CRC 2013 ANNUAL AUCTION



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

That is, the club will provide the burgers, hot dogs, condiments, chips and soft drinks while the members bring side dishes to share with all.

So plan on not only on being part of the auction, by both buying and selling radio treasures, but also by bringing your family where they can enjoy the picnic and the surrounding park facilities.

WHAT:

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

WHEN:

Sunday, September 29th at 1:00pm

Seller's Registration 10:00a - 12:45p

Buyer's Registration 10:00a until end

Viewing As items are delivered

Auction Starts at 1:00pm SHARP

Barbecue Lunch Served 10:30a-11:30a

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 seller's 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.

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 Colorado Radio Collector's 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. 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

Be Prepared for the 2012 CRC Auction

Fill out this form and bring it along when you register!!!

	<u>Brand</u>	<u>Model</u>	<u>Year</u>	<u>Reserve</u>
1				
2				
3				
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11				
12				

September meeting
is in Castle Rock

(Continued from page 4)

hardest to catch up with the backlog of passengers' messages, after the *Titanic*'s wireless had been broken for seven hours.

By 12:55 a.m., his messages became more uneasy, as can be seen in this message: ***"We have collision with iceberg. Sinking"*** urging any ship within hearing range to come to the help of the *Titanic*. He sent his relief operator out on deck to see for himself what was happening, and when he reported back that the ship was indeed sinking, the messages became more and more frantic until it's possible to feel the distress he was feeling was in response to a message from the *Carpathian*, ***"Shall I tell my Captain? Do you require assistance?"*** ***"Yes,"*** McBride answered, ***"Come quick."***

In one of the last messages sent from the *Titanic* he transmits:

"Require immediate assistance. Sinking. Can hear nothing for noise of steam," a message that shows the finality of the situation, and the absolute urgency he is feeling.

Almost magically these words carried the same emotions when transmitted by wireless through the ether or via a Tweet to a computer screen, 100 years later. Wireless operators hearing McBride's messages, and Tweeters watching his words materialize on their computer screen felt his impatience when his transmissions were interrupted by what he thought were unimportant messages about floating ice earlier in the day, just as they

could detect the stress and fear mounting in the messages sent as the *Titanic* was sinking.

Those who were monitoring these messages could feel the tension rise as messages from the *Titanic* evolved from the slightly personal, ***"It's a CQD OM (it's a distress situation, old man) Position 41.26 N. 50.14 W."*** to the very distressed final transmission, ***"We have collision with iceberg. Sinking. Can hear nothing for the noise of steam!"*** sent about an hour later.

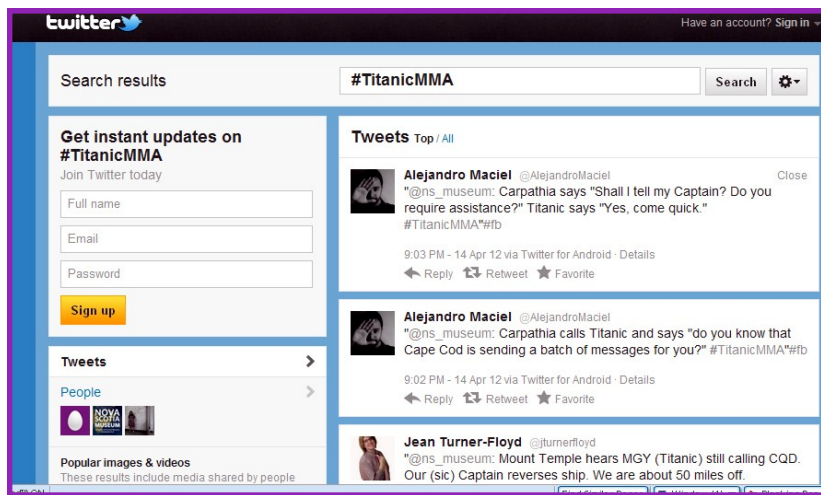
When the messages from the *Titanic* stopped, all that could be heard or read were from others, some acknowledging the receipt of an earlier message, while others like those from the *Carpathian* advised that they were racing at full speed toward the sinking ship.

Just as the wireless messages became more emotional and frantic, the passengers were also slowly becoming aware that the ship was sinking and that many of them would certainly die that night. Some were heroic that night, while others

hysterically merely tried to save themselves.

Many things have changed since the night of April 14, 1912, but for a few hours on April 14, 2012, modern communication technology successfully re-created how it must have felt to be listening to the messages in the air that night, 100 years ago.

Sources: Wilson, Andrew. *Shadow of the Titanic*. Atria Books, 2011 New York. Pg 36,309, 302, 331, 344-351,



Photos from March 10th Meeting at the Miller Library in Castle Rock



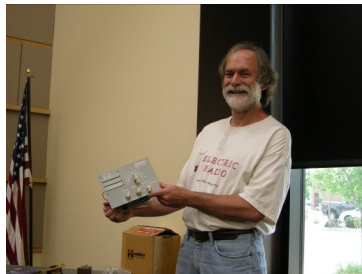
Tom Pouliot with his WWII military
Type C1H-46159A Rec/(cont)



and Type COL-52245 Trans.
Power by dynamotor



Bob Slagle with his homemade wood horn
speaker made from 1923 publication



Robert Baumann with Philmore
Model 7001-CR AM/SW Rec. kit.



Bill Harris with Guild Clock radio AM/FM
(Old Timer) & Philco 561 clock radio



Bill Harris with Emerson clock radio
with pens



Mark Kuligowski with Westinghouse
Clock Radio 968 Model PRB



Mark Kuligowski with Bulova
Clock Radio



Dennis Laurence with Crosley
Model D25Gn Clock Radio



Dave Boyle with Philco 852C-1 Radio
with Clock



Marty Phillips with Emerson Clock Radio



Bill Dial with Emerson "Transtime"
model 888 radio with clock



Wayne Russert with Telechron/G.E. Pres-
entation of the Evolution of the clock radio



Wayne's radios



The Open Trunk

Member submitted advertisements



WANTED: Buy/Sell/Trade: "Heavy Metal" communications gear, telegraph related items, vintage calculators & micro-phones.

Robert Baumann, 303-988-2089
HQ180A@aol.com. (07/09)

REPAIR SERVICE:

Radio repairs for club members. Reasonable rates. Good references.

Call David Boyle
303-681-3258 11/09

For Sale: by Dave Boyle

All the following instruments have been completely refurbished, repaired as needed, and calibrated (unless otherwise stated.)

Most have manuals and test leads.

Prices may be negotiable.

1) Eico Capacitor Tester, Model 950 , also tests for leakage and resistance. \$63.00

2) Knight Tube Tester, Model KG600 Not checked out, sold as-is. \$20.00

3) Eico 5inch oscilloscope, Model 425 Completely gone-thru, new hi-voltage caps, all out of spec parts replaced,

NEW CRT!, etc. \$68.00

4) Eico "Professional" VTVM.6 inch wide meter. \$45.00

5) RCA Institute RF Signal Generator All standard frequency ranges and 400 Hz audio frequency too. \$30.00

6) Heathkit TV Alignment Generator, Model IG-52. \$55.00

David Boyle, 303-681-3258

Philco Model 91 *complete working* radio chassis with two good speakers and a working tuning shadow meter! One 8 inch and one 12 inch. Call for negotiable price.

David Boyle, 303-681-3258 3/10

Wanted: 1920's Wooden Horn Speakers and a Crosley Musicone Speaker.

Also 1920's battery sets, especially Neutrodyne sets, Pre 1930 AC Radios and a Crosley Widget Console Radio
 Michael O'Leary 602-354-7011

moleary9@cox.net.

WANTED: To buy: 1948 Motorola 5A9B portable radio, Maroon color. Good condition only.

Dewey Reinhard 719-596-5516

deweyfly30@gmail.com

WANTED: Broadcast or recording mics, especially from 20's to 1950's.

Shirt pocket transistor radios, working or not.

NBC chimes, all eras.

Tom Keeton 303-797-8073

I'm selling my radio collection both tube and transistor radios.

Selling by appointment only.

Ron Smith

303-238-1384

RADIOS4US@aol.com

For Sale; Philco 37-116 works has low hum; Philco 37-675 lights no sound, RCA 9K Superheterodyne works good, GE Radio Phonograph Comb 11 radio makes noise record player does not work, Majestic Model unknown but all there chassis # 4810 , Zenth 6-V-27, Midwest Tomestone (Battery powered) model unknown, Delco

R 1132 work but needs work on push button controls. Two T V and Radio repair Suitcases one has the Sylvania logo on it the other has no markings. Most of the cabinets are in pretty nice shape but would still need to be refinished. Both are full of Tubes and small test equipment. Many other big older tubes but sure some of them are no good. I have a couple of small boxes (around 50 per box) of smaller Tubes all in original boxes my guess these are more then likely good. There are a few Military Tubes in them. I'm down sizing and need to get some of these moved. Any reasonable offer on all or individual pieces will be considered. For pictures e-mail me at djclark@bbc.net djclark@bbc.net or call 308-760-4094 cell, or 308-762-8048. Dennis Clark Alliance, Nebraska

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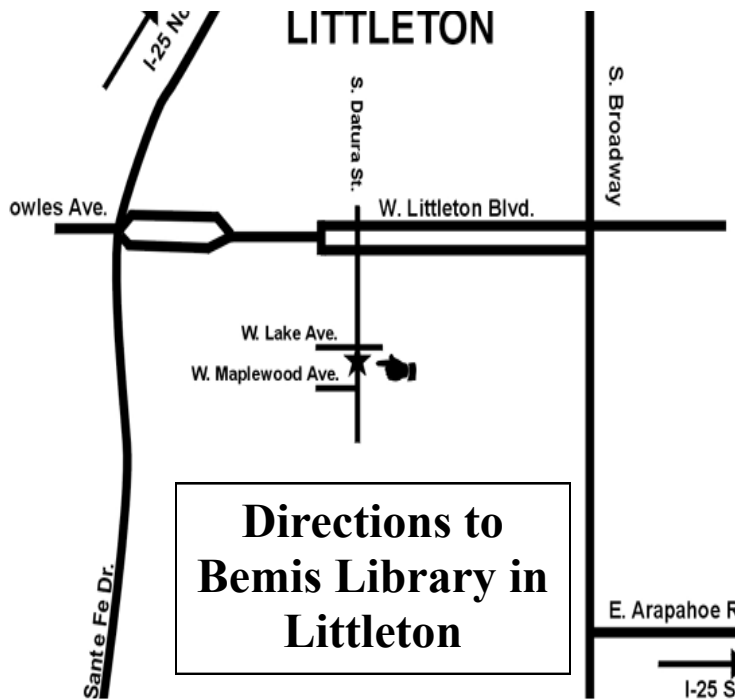
Highlands Ranch, Colorado

SUBMISSION OF ARTICLES & 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, RTF, or as text cut/paste into your email. Submit to Steve Touzalin by email at: stevetou@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.

The September 8th, 1:00 meeting will be at the Miller Library in Castle Rock



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 S. Queen Cir.
Lakewood CO 80226

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