



Dedicated to the Preservation and Education of Wireless, Radio, Television and Associated Equipment

**the 2008 Annual CRC
Antique Radio Show, Contest and Sale - March 30th
Ramada Inn - I-25 & 120th**

**In conjunction with the
2nd Annual Vintage Voltage Expo**



Full details - on the inside!

Also in this issue ...

- ✓ *Volume Control and AVC Circuits*
- ✓ *Collector Books Specials for CRC Members*
- ✓ *Want/Sell ads*

VISIT OUR WEBSITE AT WWW.RADIOACE.COM

COLORADO RADIO COLLECTORS ANTIQUE RADIO CLUB

Founded October 1988

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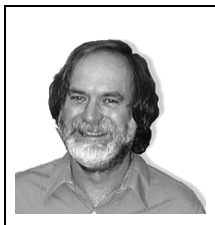
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March/April 2008

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MESSAGE FROM THE PRESIDENT



Fellow CRC members:

Updating and eliminating any errors or omissions in the membership list has become our #1 priority as we begin 2008. I hope everyone will please complete the enclosed questionnaire now and return it **ASAP**.

Thanks to those who participated during our January meeting including each member who made raffle donations - especially **Dan Houfek** and **Bill Grimm**. Please join me in welcoming our new **Vice President Bob Cofer** and **Treasurer-elect Mike Cook**. During the course of each club meeting and event, I am reminded how many contribute to our success. Not only those who manage the money, take responsibility for The Flash! and put in a full day to make each annual show and auction lots of fun, but also those who set up and break down the meeting room, assist with A-V equipment and make snacks available. A sincere "**Thank you!**" to each and every one of you!

Our next regular meeting is just around the corner: **March 9** in Castle Rock.

Plan now to participate in and enjoy our annual show at the **Vintage Voltage Expo** on **March 30**. The specialty contest category this year was voted to be "**Obscure Brand Radios**" - radios not manufactured by the big names we're all so familiar with, but rather by lesser known companies and those not so widely distributed. Check your collection and try to bring out something the rest of us have never heard of or seen before!

A special 20th anniversary CRC retrospective publication is in the works with distribution planned this Fall. Let's continue to all work together to keep the interests we share and everything we do as the CRC fun for all!

CRC CONTACTS

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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 \$12. New memberships will be prorated to the following June.

CRC MEETINGS

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

Are you ready for the 2008 Annual CRC Show and Sale?

This year the CRC will be holding it's Annual Show and Sale at the Ramada Inn, in conjunction with the 2nd annual "Vintage Voltage Expo" collectibles show. As many of you know, this is our biggest and splashiest opportunity to not only show the community what antique radio collecting is all about, but it also allows those CRC members with radio and associated equipment for sell to put their wares before a crowd of hundreds of people who will be there specifically to look AND to purchase.

So, get those beauties down off the shelf and win a prize and/or make a buck. For further information, contact Dave Boyle at (303) 681-3258

See page 4 for Vintage Voltage Expo details

- ✓ Our contest and show space is in the hotel's main entrance atria, where all show visitors and participants must pass.
- ✓ Unloading and access will be through the North entrance.
- ✓ Tables will be available but final layout and arrangement will be when full setup is done Sunday morning
- ◆ 7:00 am - Unloading, begin setup and reg.
- ◆ 9:30 am - CRC Contest Registration Cutoff
- ◆ 10:00 am - Complex opens to public, begin selling
- ◆ 10:15 am - Judges briefing
- ◆ 10:30 am - Judging commences
- ◆ 1:00 pm - Awards posted
- ◆ 3:00 pm - Show closes, begin breakdown

Costs for Space and Table Rental:

The collectable show promoter will provide the CRC gratis show space and tables. CRC members will pay for tables that are used for selling. **The cost this year is only \$35 for each table or four tables for \$100.** Sellers may share this cost with each other in any combination they choose.

Contest Judging Categories:

- Accessories
- Bakelite
- Battery - 1926-1929
- Catalin
- Cathedral
- Classic Audio
- Communication Gear
- Console - Full Length
- Console - High/Low Boy
- Crystal Set
- Kits/Homebrew
- Metal Box - 1920's
- Metal Case
- Novelty - Transistor
- Novelty - Tube
- Plastic - Tube
- Portable - Pre 1939
- Portable - Post 1938
- Pre 1925
- Speakers
- Specialty - "Obscure Radio Brands"
- Television
- Tombstone
- Transistor
- Tube/Parts Display
- Wooden A/C
- People's Choice *
- Best Restoration **
- Best of Show **

*=Popular vote by public

**=Popular vote by CRC members

Please have your **Brand, Model, Age and Category** info ready when registering!

Judging Criteria:

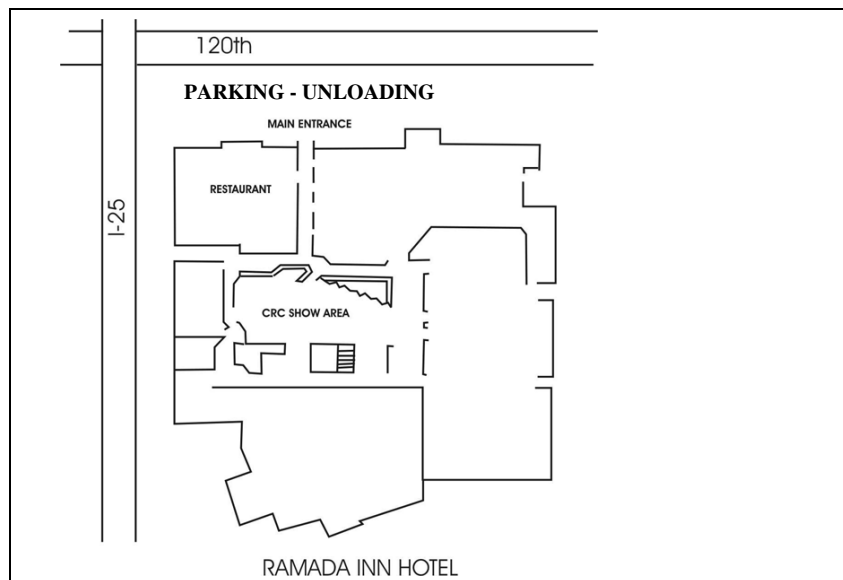
- Internal Condition - Judged if visible from the outside
- External Condition
- Rareness - Few are in existence
- Uniqueness - Novel, and not many like it
- Presentation - How well displayed, documented, etc.

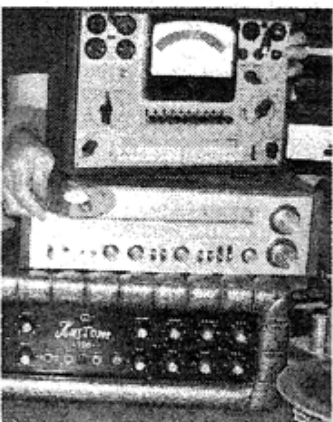
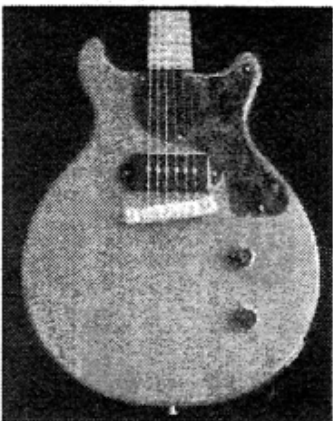
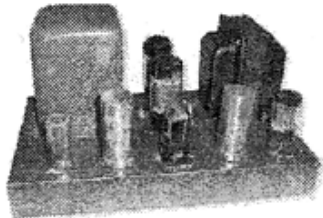
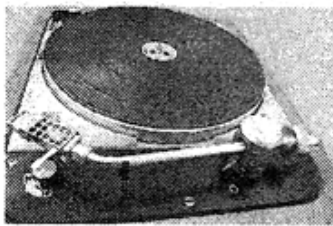
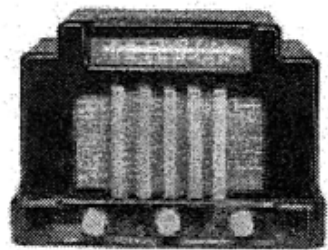
Note that these criteria are weighted, with an emphasis on condition and presentation - **Preparation counts! Every radio counts!**

Additional Items of Interest:

- Power will be available, but consider bringing an extension.
- As in the past shows, sellers may include any items that fall into the category of "collectable" - they need not be strictly radio related.
- Volunteers are needed to watch over displays. Please consider coming and staying for at least a while even if you're not entered in the contest or selling.
- You are highly encouraged to wear your CRC membership badge. You will need your badge for free entry into the building for you and your family.

The CRC, and the "Vintage Voltage Expo" promoters, do not assume any liability for lost, stolen or damaged articles, brought to this event by anyone, for show or for sale.





Vintage Voltage expo

classic gear for audio, radio, TV and music

Sunday March 30 2008

10 am - 3 pm

Ramada Plaza Convention Center

I-25 at 12-th, Northglenn/Denver CO,

Loads of Regional Vendors Selling:

vintage electronics - old school audio gear - tube amps
 antique radios - ham radios - transistors - speakers - turntables
 vintage LPs - hi-fi - stereos - synthesizers - 8 tracks - electric guitars
 guitars amps - vintage TVs - test gear - weird stuff - parts - etc!

It's like a:

- Antique Radio Swap Meet
- Vintage Audio Convention
- Record Collector's Show
- Electronics Flea Market

ALL IN ONE

- ✓ **BIGGER Sales Room!**
- ✓ **Colorado Radio Collectors Antique Radio Club's Huge Annual Display & Contest**
- ✓ **Live Surf Guitar Music by**

The AquaSonics

1 - 3 pm!

Admission: \$5

Kids < 12 FREE

Early birds 9 am: \$10

Info:

Pete or Dana

(303) 347-8252

dana.cain@att.net

Vendors

6-ft table: \$35

or 4 for \$100

10x10 booth:

\$75 (BYO tables)

www.DanaCain.com

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VOLUME control and AVC CIRCUITS

by Dave Boyle, CRC Member

This is another article in a continuing series in the basic technical aspects of old radios and their operation and repair.

In the early years of radio there was no need for volume controls because reception was weak and audio amplification was poor at best! As radio technology advanced and sensitivity and amplification improved some means had to be devised to decrease volume on strong stations and improve volume on weak stations. This is where radio manufacturers employed rather crude volume controls by placing rheostats in the antenna circuit or controlling the gain of amplification stages by varying tube filament voltages by adjusting a rheostat.

The downside of these first “volume controls” included not attenuating internally generated circuit noise, distortion of the audio signal, reduced sensitivity to weak stations, and no provision for inherent station fading in and out due to normal atmospheric. Plus—blasting your ear drums through your ear phones when a strong signal was tuned in!

Volume control developed into “true” audio circuit controls by the end of the 1920's. Philco still used their popular hold over approach whereby a potentiometer (pot.) was on the antenna input to vary the rf signal strength but then combined that with a second pot located in the 1st. audio amplifier circuitry to further control the audio. This second pot also aided in reducing inherent noise generated in all the previous stages.

Today it is almost impossible to find one of these dual pots which has two separate sections on a single shaft. We all know that volume and similar controls are worn out and noisy by the time we start to repair the radio. My method of workaround is to place a fixed resistance, or none at all in the antenna input and then install the appropriate new pot wherever it was located around the 1st audio stage

Eventually all these “old fashioned” methods of volume control gave way to just a single pot located in the resistance coupling network in or between the 1st audio tube and the audio output tube. This turned out to be the logical choice as these circuits further evolved into “tone compensated volume controls” as the *golden age* of radio began. More on tone compensated volume control later in this article. Circuits still needed to be developed that would remedy these deficiencies and provide for the automatic leveling out of the audio output while providing maximum gain for weak rf inputs.

Automatic volume control circuits (AVC) evolved by the end of the 1920's and have remained pretty much the same to the end of the tube radio era. The remainder of this article is my attempt to explain their operation and describe some of the popular embellishments to these AVC circuits

The ideal arrangement would be some sort of circuit that would adjust the receiver automatically so that full gain would be available on weak signals, whereas strong signals would be attenuated to a level that would not hurt your ears. In other words, the incoming signal itself would control the gain of the receiver. The most popular approach is described below:

Shown in figure 1 (next page) is a conventional diode detector circuit that contains added parts for AVC action. **The heavy line is the AVC circuit.**

- “R-load” is the detector load resistor usually ½ to 1 megohm.
- C1 (~ 100-200 pfd) bypasses the RF voltage component.
- C2 is the coupling cap. That blocks out the dc voltage component and passes the audio frequency (AF) on to the first AF amplifier.

If you trace the electron flow path from the cathode of the tube, on to the plate, thru the secondary winding of the If transformer and then back thru the cathode you will see that point “A” of the load resistor “R-load” becomes negative with respect to point “B”. The stronger the signal, the more negative point “A” becomes. The reverse for

weak signals. Here is the basis for our AVC. All that is required is to apply this negative voltage from point “A” to bias the proceeding stages of rf/af amplification.

- R1 and C3 form a filter circuit to prevent audio signal voltages from sneaking back into the rf/af stages.
- R1 is usually about 2 megohms and C3 is usually about .05 ufd. In this circuit rendition note that “R-load” is a potentiometer which acts as the manual volume control to vary the input to the audio output stage and on to our ears.

Figure 2, below (next page) represents a simplified/typical radio rf and af amplifier circuit (less the first detector/mixer stage) and how the AVC voltage is interjected back into these stages to control the gain.

Remembering that the AVC voltage is negative with respect to ground the AVC voltage acts as a bias to the control grid of the rf amp. C1 blocks the dc bias voltage but allows the rf voltage to pass thru thus maintaining the tuned circuit return path. In the if transformer the trimmer capacitor is not grounded, therefore, this circuit does not require this capacitor and the return path is thru C1. The values of C1 & R1 and C2 also act as additional filters to eliminate any unwanted AF voltages that may remain on the AVC. Repeating myself, the more AVC voltage available (negative bias) the less gain of these controlled tubes. AVC voltage can be applied to different rf and af stages to accomplish the AVC action.

Another variation of this action is called a delayed AVC (DAVC) which overcomes the difficulty encountered when weak signals coming thru the receiver generate an AVC voltage, no matter how small, which tends to further reduce sensitivity during a time when *maximum* gain is required. This dave action is derived by impressing a small positive potential of several volts in the AVC circuit, thus AVC action is delayed until the incoming signal becomes strong enough to generate sufficient negative AVC voltage to overcome the positive potential—got that? In other words:

there will be no AVC action for very weak signals allowing the radio to always work at maximum sensitivity.

Other more sophisticated AVC circuits were developed during the *golden age* of radio. Some of these circuits include separate tubes for AVC function alone or combined with another tube circuits for quieting or otherwise reducing noise when tuning between stations—these were designated as QAVC circuits. I recently repaired a mid-1930's Midwest 16 tube high-end radio that contained a separate AVC amplifier stage, a special QAVC tube, and a unique "tune-a-lite" tube operating a signal strength glow lamp. Two of these circuits had multiple part failures which effectively shut down the radio operation to zip at the 2nd. detector—a real bugaboo to fix.

Tone compensated volume controls (TCVC)---At low volume the human ear is less sensitive to bass tones, therefore, another development was interjected into these circuits. TCVC are volume control pots with taps at certain resistances. These taps are connected to resistor and capacitor networks that attenuate higher frequencies which falsely boost lower frequencies. It is imperative that TCVC are combined with AVC to keep the audio level constant. Tip-of-the-month: never throw away any fairly good multiple tapped pot—they are hard to find these days!

We have learned in our discussion of the AVC circuit that they tend to level off the processed/controlled signal as it proceeds thru various circuits. Slight mis-tuning cannot always be detected by ear. Tuning indicators may be used to provide a visual indication when the station is tuned accurately. Various means have been used to provide this clue:

- Milliammeter in the plate circuit of IF amp tube .Or, likewise, a milliammeter like coil with a vane and light source attached to cast a moving shadow on a miniature screen viz-a-viz some Philco models of the 1930's.
- Neon glow tubes in the IF amp circuit.
- And, my favorite—the tuning-eye or magic-eye tube (6E5, 6U5, & etc.). The official moniker is the "electron-ray" tube. The electron ray tube is connected directly to the AVC bias. Variations in the AVC voltage produce

corresponding opening and closing of the "magic-eye" shadow.

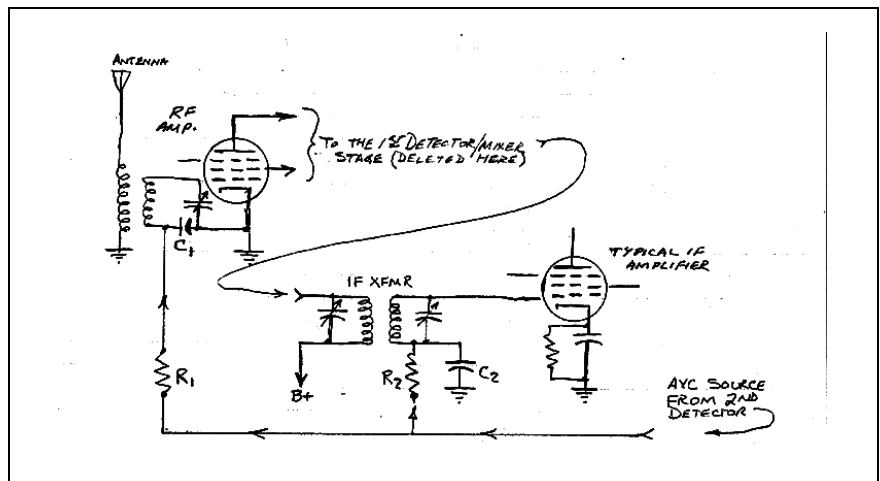
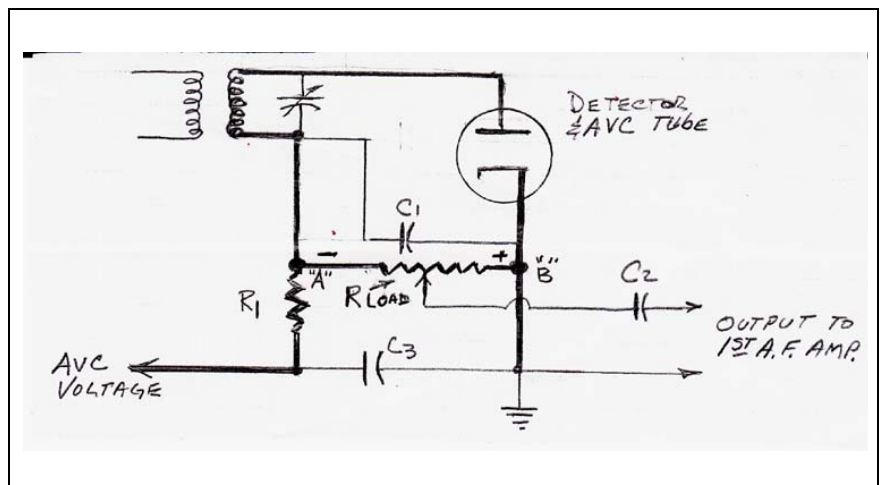
Summation: AVC provides for the elimination or reduction of the affects of fading and freedom from sudden bursts of unwanted audio noise when tuning in a powerful station—that's about it!

A little more info for those of us who like to repair these relics of yesteryear:

- AVC can only be used in radios using tubes whose amplification constant can be varied over a wide range by a change in grid bias. Classic tube type 6SK7/12SK7 (octal) and 6BA6/12BA6 (miniature) are examples used in radios we typically collect and repair. This class of tubes are *remote cutoff pentodes* (variable gain/mu).
- Typical failure modes in AVC circuits could be: (refer to figure 1)
 - ✓ Excessive load on the final If transformer caused by leaky or shorted capacitors C1, C3.
 - ✓ Change in the resistance value of the AVC load resistor Rload or in this case a worn out volume

control.

- ✓ Any capacitor or resistor value changes producing *time constant* changes in the audio filter circuits (R1, C3). Likewise, changes in similar component values in figure 2.
- ✓ Some forms of audio distortion or can be traced way back into the rf/lf stages by inadequately filtered AVC bias, whereas, some of the audio signal is still present in the must be pure dc grid bias bus. Here again, recapping of all caps in this area may help.
- ✓ One can disconnect or isolate complicated AVC, QAVC, or DAVC circuits from the rf/lf stages to assist in troubleshooting. Once the rf/lf stages are isolated a signal should "get-thru" to the 2nd. detector providing they are operable. Once working, turn your attention to the previously disconnected AVC type circuits. Remember, a fubar AVC circuit can kill a otherwise good radio.



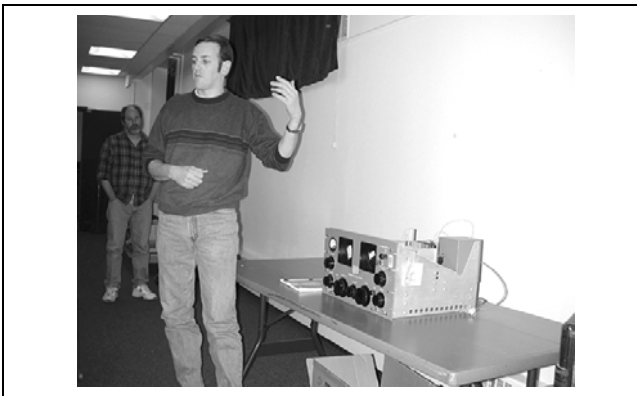
JANUARY '08 MEETING - ACTIVITIES



Yuri Yedidovich show his rare 1930 Silvertone 1152



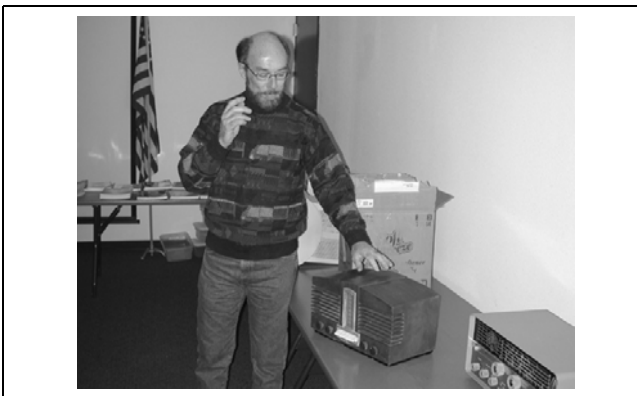
Watching over the raffle; Julie McKeown, our new Pres. Robert Baumann and Charles Brett



John Bellini talks about the Hammarlund SP600 he found in his company's storeroom dumpster



Bill Harris displays the rare Radio Shop 1922 one tube radio that he bought at a recent auction



Here Tom Pouliot is using his famous skills to conduct one of the meeting's radio auctions



As always, Tom brings in another unusual piece. This time it's his homebrew radio from the early tradition



Dave Boyle describes his restored homebrew radio



Barney Wooters and his industrial size X-ray tube

Collector Books for Sale

Special CRC prices. Order at club meetings. Mail order shipments: add \$2.00 postage for each book ordered. Info/order: Charles Brett, 5980 Old Ranch Road, Colorado Springs 80908, (719) 495-8660, brett3729@aol.com. void all other listings	Retail	Club				
RADIOS, (GENUINE PLASTIC) OF THE MID CENTURY Jupp & Pina, hard bound, 219 pgs, 1998 PG, 450+ color pics			\$39.95	\$28.00		
ANTIQUE RADIOS, COLLECTOR'S GUIDE - 4th EDITION Bunnis, 1997 values, revised & updated, new photos, 248 pgs			\$18.95	\$15.00		
GUIDE TO OLD RADIOS, POINTERS... - 2nd EDITION Johnson, 277 pgs, 1995-96 prices			\$19.95	\$15.00		
ANTIQUE RADIO RESTORATION GUIDE - 2nd EDITION Johnson, 144 pgs, repairing, refinishing, cleaning			\$14.95	\$12.00		
RADIO, EVOLUTION OF THE - VOLUME ONE 227 pgs, 118 in color, More than 800 radios pictured, 1992			\$22.95	\$18.00		
RADIO, EVOLUTION OF THE - VOLUME TWO 226 pgs, Radios of the 1920s to 1960s, with 93-94 values			\$24.95	\$19.00		
TRANSISTOR RADIOS, COLLECTOR'S GUIDE VOL II Bunnis, 1996 prices, Full Color			\$16.95	\$13.00		
ZENITH TRANSISTOR RADIOS, 1955-1965 Smith, 1998 PG, 160 pgs, 226 color pics, info, descr.			\$29.95	\$22.00		
THE ZENITH TRANS-OCEANIC (THE ROYALTY OF RADIOS) Bryant and Cones, 160 pgs, 1995			\$29.95	\$22.00		
ZENITH RADIOS THE EARLY YEARS 1919-1936, Cones 1997-98 Price Guide, 223 pgs, 100's Photos, Desc., Hfst.			\$29.95	\$22.00		
RADIOS BY HALLCRAFTERS, revised 2nd edition Dachs, 1999 values, 220 pgs, 1000+ pics, id's, history			\$29.95	\$22.00		
CLASSIC TV'S, PRE-WAR THRU 1950'S 86 pgs, color & b/w pics, descriptions, etc.			\$18.95	\$15.00		
Machine Age to Jet Age, Radiomania's Table Radio Guide 'III, 33-62 Stein, 256 pgs, 100's of b/w photos			\$29.95	\$24.50		
TRANSISTOR RADIOS, 1954 TO 1969 Norman Smith, with prices, 160 pgs, 1000 photos, 1998			\$29.95	\$22.00		
PHILCO RADIO: 1928 - 1942 Ramirez & Prosisie, 160 pgs, 828 pics & drawings, 1993			\$29.95	\$22.00		
RADIO AND TV PREMIUMS Jim Harmon, 256 pgs, 200+ photos, 1997			\$24.95	\$19.00		
RADIO MANUFACTURES OF THE 1920'S VOL I Alan Douglas, 225 pgs, 1988			\$24.95	\$19.00		
RADIO MANUFACTURES OF THE 1920'S VOL II Alan Douglas, 266 pgs, 1989			\$29.95	\$22.00		
RADIO MANUFACTURES OF THE 1920'S VOL III Alan Douglas, 285 pgs, 1991			\$29.95	\$22.00		
CRYSTAL CLEAR VOL I Maurice Sievers, 282 Pgs, 1991			\$29.95	\$22.00		
CRYSTAL CLEAR VOL 2 Maurice Sievers, 252 Pgs, 1995			\$29.95	\$22.00		
RADIO TUBES AND BOXES OF THE 1920'S George A Fathauer, 112 Pgs, 1999			\$26.95	\$20.00		
70 YEARS OF TUBES AND VALVES, 2ND EDITION John Stokes, 264 Pgs, 1997			\$29.95	\$22.00		
RADIO DIAGRAM SOURCEBOOK Richard Gray, 264 Pgs, 1996			\$18.95	\$15.00		
THE RADIO COLLECTOR'S DIRECTORY AND PRICE GUIDE, 2ND ED. Robert Grindler, 524 Pgs, 1995			\$26.95	\$21.00		
COLLECTOR'S GUIDE TO VINTAGE TELEVISION Durbal & Glenn Bubenheimer, 200 Pgs, 1999			\$15.95	\$13.00		
NOVELTY RADIOS, VOLUME 1 Marty Bunnis & Robert Breed, 223 Pgs, 1995			\$18.95	\$15.00		
NOVELTY RADIOS, VOLUME 2 Mary Bunnis & Robert Breed, 199 Pgs, 1999			\$19.95	\$15.00		
COMPLETE PRICE GUIDE TO ANTIQUE RADIOS: PRE-WAR CONSOLES Mark Stein, 235 pgs, 100's of b/w photos			\$29.95	\$22.00		
TUBE TESTERS AND CLASSIC ELECTRONIC TEST GEAR Alan Douglas, 166 Pgs, 2000			\$25.95	\$19.50		
COLLECTOR'S VACUUM TUBE HANDBOOK, VOLUME I Robert T. Millard, 196 Pgs, 2001			\$25.95	\$19.50		
SILVERTONE ANTIQUE RADIOS 1930 - 1942 Stein, 239 pgs, 2001			\$34.95	\$25.50		
ANTIQUE RADIOS COLLECTOR'S GUIDE 5th EDITION John Slusser, 264 Pgs, 2001			\$19.95	\$15.00		
RADIOCRAFT JUBILEE - REPRINT OF 1938 EDITION Hugo Gernsback, Vestal Press			-----	\$12.00		
CLASSIC CONE SPEAKERS Buford & Jane Chidester, 122 Pgs, 2001			\$25.95	\$19.50		
TUBE LORE Ludwell Silbey, 186P gs, 1996			\$29.00	\$15.00		
ARTHUR COLLINS RRADIO WIZARD Ben Sterns, 394 Pgs, 2002			\$18.95	\$14.00		
MACHINE AGE TO JET AGE - VOL I Mark V. Stein, 256 Pgs, 1998			\$24.95	\$21.00		
MACHINE AGE TO JET AGE - VOL II Mark V. Stein 358 Pgs, 1997			\$28.95	\$23.00		
TABLETOP RADIOS - Vol I Mark V. Stein, 240 Pgs, 2002			\$29.95	\$22.00		
A. ATWATER KENT Williams & Wolkowitz, 108 Pgs, 2003			\$25.95	\$19.50		
THE WOOD FINISHER Bruce Johnson, 341 Pgs, 1993			\$12.00	\$10.00		
THE WEEKEND REFINISHER Bruce Johnson, 296 Pgs, 1989			\$12.00	\$10.00		
THE PLATING MAN'S MANUAL Johnson			---	\$10.00		
THE FABULOUS VICTROLA "45" Phil Youniss, 176 Pgs, 2002			\$29.95	\$22.00		
ZENITH RADIOS THE GLORY YEARS 1936 - 1945 Cones, Bryant & Blankinship, 256 Pgs, 2003			\$34.95	\$25.50		
ZENITH ILLUSTRATED CATALOG AND DATABASE 1936 - 1945 Cones, Bryant & Blankinship, 182 Pgs, 2003			\$29.95	\$22.00		
THE ALL-AMERICAN FIVE RADIO Richard McWhorter, 92 Pgs, 2003			\$19.50	\$15.00		
E.H. SCOTT...THE DEAN OF DX, 2ND EDITION Marvin Hobbs, 240 Pgs, 2003			\$29.95	\$27.50		
ANTIQUE RADIOS 6TH EDITION John Slusser, 320 Pgs, 2004			\$24.95	\$19.50		
OLD TIME RADIOS Joseph Carr, 256 Pgs, 1991			\$19.95	\$15.00		
The Early Development of Radio in Canada 1901-1930 Murray Editor, 154 Pgs, 2005			\$26.95	\$19.50		
Plastic Radios Stein, 255 Pgs, 2006			\$37.95	\$26.25		
Novelty Radio Handbook Weaver, 160 Pgs, 2006			\$29.95	\$22.00		
Philco Radios 1928-1942, 2nd Edition Ramirez & Prosisie, 192 Pgs, 2006			\$29.95	\$22.00		



The Open Trunk

Member submitted advertisements



WANTED: Morse keys/bugs/paddles, Allied Radio/Knight Kits, "heavy metal" communications gear (Collins, National, Hallicrafters, Hammarlund).

Robert Baumann (303) 988-2089
rgbdenver@aol.com **03/08**

FOR SALE: The following test instruments:

- Hickok # 209 VTVM and multimeter with capacitance measurement. 8 inch large dial, like new, rebuilt and fully calibrated. Includes manual and new test leads. Top of the line in its day. \$85 obo.
- RCA WO505, 5 inch 'scope, professional radio and TV repair model. Solid state, AC/DC. Looks and performs like new. Refurbished and ready for repair or experimental needs. \$65 obo.
- Heathkit # O-12, 5 inch "Professional" scope built by myself. Hardly used and in VG condition, still meets original specs. \$30.00.
- RCA WA-44C audio oscillator. VG, refurbished and tested. \$30.00.
- BK #801 Capacitor Analyzer with 5" meter. A beautiful looking and sensitive capacitor tester, all parameters. With manual, fully rebuilt and calibrated. Every radio hobbyist needs one. NOTE: Today's modern capacitance testers may not test for leakage, which is so important in repairing old radios. \$60 obo.

David Boyle (303) 681-3258 **3/08**

WANTED: Old transmitting components, such as coils, high voltage capacitors, transformers, etc..

Mark McKeown (303) 278-3908
mmckeown@hughes.net **03/08**

WANTED: Broadcast reception letters and/or EKKO stamps.

Wayne Gilbert (303) 431-6774
wagil@aol.com **03/08**

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

David Boyle 303-681-3258 **03/08**

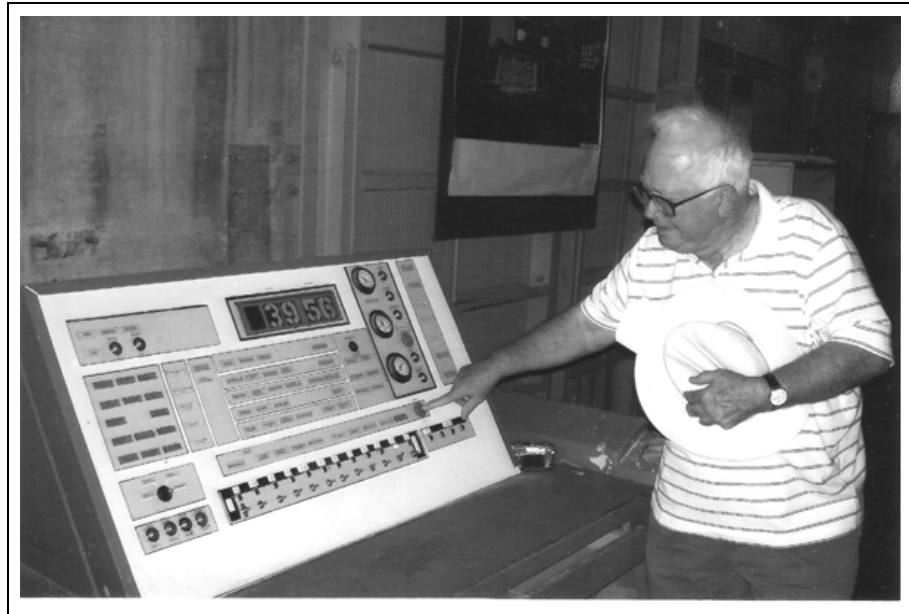
Wayne and Don's Big Adventure

As told by Don Andrus, CRC Members

On September 1st 2007 Wayne Gilbert and I decided to visit a 1961 but now decommissioned ICBM launch site in Greeley Colorado.

This is one of 90 similar sites in the Colorado, Wyoming and Nebraska area constructed at the height of the Cold War in response to the Russian nuclear build-up. They were considered "one time use" facilities.

Everything was going along just peachy when Wayne entered a room with a large, computer-like console. When he thought no one was looking, Wayne, mumbling something about "those dirty Commie &#%'s, pressed the RED button, initiating a pre-emptive thermo-nuclear strike. He later told Congressional investigators he thought it was a coffee machine and that was the button you pushed for extra sugar.



*For our March 9th, 1:00pm meeting
We will be meeting at the Castle Rock Public Library Building*

**From I-25, take the Plum Creek Pkwy exit
Turn East onto Plum Creek Pkwy
Turn LEFT/North onto S. Wilcox St.
Go to the CR Public Library building at 100 S. Wilcox St.
The meeting is at the back of the lot, past the Dairy Queen.**



**Colorado Radio Collectors
Antique Radio Club
417 S. Queen Cir.
Lakewood CO 80226**

FIRST CLASS MAIL