



The FLASH!



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

Volume 15, Issue 5 ** SEPT. MEETING ON 3RD SUNDAY - 19th ** September - October, 2004

The Colorado Radio Collectors Annual Auction - 2004 SUNDAY, OCTOBER 10th "Everything you need to know to get ready and be part of this classic event"



- ☑ 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 indicate, **at registration time**, an unannounced 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 Collectors Antique Radio Club's treasury.
- ☑ Buyers can not take possession of any lot(s) until the total cost for all purchases are paid. Collection of buyer fees will commence at the conclusion of the sale of the last lot offered in 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 for those paying for their purchases by personal check.
- ☑ Sellers are encouraged to participate in buying as well, but payment for these purchases will be paid and accounted for separately from the C.R.C settlement check for any sales.
- ☑ Sellers will be paid only by C.R.C. check, and may elect to be paid by mail for a \$1.00 surcharge.
- ☑ This auction is limited to radio and electronics related items as described above. The CRC reserves the right to reject items deemed inappropriate for sale at this auction.
- ☑ The C.R.C. assumes no responsibility for the condition or ownership of any items and/or lots offered for sale in this auction.
- ☑ 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.

WHAT:

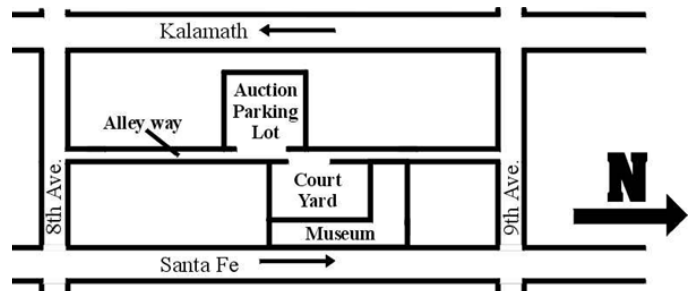
An auction of radios, television, documentation, parts, test equipment and associated items. The public is encouraged to participate in **both** buying and selling.

WHEN:

Sunday, October 10th at 1:00pm
 Seller's Registration ♦ 10:00am - 12:45pm
 Buyer's Registration ♦ 10:00am until end
 Viewing ♦ As items are delivered
 Auction ♦ Starts at 1:00pm **SHARP**

WHERE:

Museum of the Americas, Rear Courtyard
863 Sante Fe Ave., Between 8th & 9th Ave's.
Access through alley, Parking on street or lot
Entry to Courtyard for drop off and auction only



COLORADO RADIO COLLECTORS ANTIQUE CLUB

Founded October 1988

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Volume 15, Issue 5

September/October

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MESSAGE FROM THE PRESIDENT

Did the summer really go by that fast? Here we are with only two meetings left for the year, and the auction approaching on **October 10th**. See the details in this issue. Tom Pouliot has agreed to be our auctioneer again this year, he did such a great job last year! Let's make this another great auction!

Since I maintain the membership lists and print out the Flash mailing labels I need to remind everyone that this is the last Flash issue you will be getting if you have not paid your 2004 dues!

We are scheduled to see a short video on Tesla for this next meeting which has been delayed a week to **September 19th** so as not to coincide with a celebration in and around the museum that is taking place on the 12th.

For those who missed the July meeting we had an incredible selection of items for the raffle so you missed out on some good stuff!

Thanks again to all the members who have helped out throughout this year so far, it is looking to be a good year overall.

Dennis

P. S. We need Flash Articles, Flash Articles, Flash Articles, Flash Articles, Flash Articles, Flash Articles, Flash Articles

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CRC MEMBERSHIP

Annual membership in the CRC runs from **June to June**. Annual dues entitles members to a full year (6 issues) of the club publication "The Flash!". Membership provides participation in club events such as the annual April Show, mid-summer picnic, September auction as well as our semi-monthly meetings and swap meets. Dues also entitle you to club officer elections, excellent discount prices on current hobby publications and the Antique Radio Classifieds annual subscription raffle every May!

Current annual dues are \$12. New memberships will be prorated to renewal on the following June, i.e new members joining in May should submit \$12, in December \$5, etc.

CRC MEETINGS

Meetings are held on the second Sunday of every other month starting in January (except 3rd Sunday of May) at 1:00pm at the Museum of the Americas Bldg., 2nd floor, 863 Santa Fe (between 8th & 9th Aves.). The

Ross Opie - Langdon

By Wayne Gilbert

Date: 5 /24/1915

"Time Started: 12:07 Noon

Comments: Picked up Dr. Taylor UND sending time and weather reports. Call 9XN Signals clear and high toned. Distance 82 miles air line. Used single 1000 ohm receiver. A loose coupler, Galena Detector. Primary 1/3 distance, mid point on secondary Conditions: sunny, clear, cloudless, no static"

It is with these few words that Ross Opie christened his radio log, a document that is a history of one boy's experiences with the wireless age preceding World War I.

Ross was a 17-year-old Langdon, North Dakota, school boy when he started making entries in his radio log. He adopted the call letters ROL (an abbreviation for Ross Opie, Langdon) as his call sign, then like most budding amateur radio operators, he began listening to others' transmissions. He must have been studying wireless magazines prior to beginning his log because even his first logentry uses proper early wireless terminology – loose coupler, primary, secondary, and galena detector, all terms that were not in the everyday vocabulary of the day.

Everything points to his being a typical young man of his era, caught up in the enthusiasm for the new phenomena of wireless that was sweeping the country. He, like most young men of his age, probably felt isolated from the exciting world that existed just over the horizon and may have seen wireless radio as the way to



bridge the gap into the wider world. It only takes one look at the map to see why he may have felt isolated; his hometown of Langdon sits near North Dakota's northern border, surrounded by miles of open farmland that extends north and east into

Canada and Minnesota, and south and west as far as the eye could see, into the heart of North Dakota.

Ross's first receiver could have been home-made or purchased ready-made, but regardless of how he acquired his set, he understood the principles of how it worked and describes it well in the first few terse words of his log, "...a loose coupler," with a "galena detector." Although he may have been experimenting with his equipment before he started keeping a log of his radio related activities, May 24, 1915, became significant to Ross either because it was the first time he heard the station 9XN or because it was the first time he could identify the station's operator as Dr. Taylor, thus confirming that the station's location was at the University of North Dakota's Devils Lake campus. It would have been this information that proved to everyone he was picking up a wireless transmission from a station 82 air miles away-well over the horizon from his receiver!

With so much excitement in his words, and an evident desire to share his experiences via a radio log, why did Ross Opie then wait until the following February, nearly nine months later, to make his next entry in his still-new radio log? We know from this second entry that by this time he had purchased or built a "new station, [with] a 2400 meter loose coupler [and] a headset with two earphones." Catalogs and magazine advertisements show a purchase of this equipment would have required an investment of approximately \$20, about what a teenager could have saved over the last nine months.

Although his notes are cryptic, they show he was experimenting with both galena and silicon detector crystals, and we can deduce that this new loose coupler, although probably commercially made, was not the most modern then available and may have been designed for use in a ship' wireless station.

It's easy to believe that the nine months had not dampened his enthusiasm or excitement for radio and that he was stretching his investment so he could get back on the air as quickly as possible. His log is a constant reminder that he was a radio pioneer, continually experimenting and

learning for himself many of the radio facts that are taken for granted today. For instance, he was surprised to find that high winds and snowy weather would cause sparks to flow across the contacts in his equipment. He found this so fascinating that he spent hours testing the strength of these sparks with a lightbulb and/or with his finger, the latter method resulting in his receiving some fairly severe electrical shocks

Although many of his log entries are at night, a surprising number of them were recorded at noon, making one wonder why he wasn't in school, instead of at home, playing with his radio equipment. He was the valedictorian of his high school class, and the leader of the debating team, but he was also a possible truant who skipped some of his less interesting classes in order to be home to hear the time and weather transmissions from Arlington, Virginia. and Key West, Florida.

By the end of the month of February 1916, the temperature was minus 40 degrees in Langdon, so cold that Ross writes in his log that even the ether above Langdon was thick and "muddy," but there were either more stations competing for space on the airways or his techniques were improving because in each entry he records hearing more and more call signs, many for the first time.

Although there is no evidence that Ross ever received a license to broadcast, by the end of March 1916, he writes in his log that he "talked until five to 9", breaking only to allow the air to be free for the time and weather broadcasts from NAA at Arlington VA. This is quite an improvement from hearing only the Devil's Lake transmissions just about 60 days earlier. Later that same evening he records listening to even a more distant station, NAR in Key West, Florida.

The improved performance of his receiver may have, in part, been a result of his modifying his receiver to use an "audion" tube as the detector, but the fact that he didn't fully believe that an audion tube detector was always reliable is evident because he repeatedly records that the "audion isn't fulfilling expectations --- the silicon detector performs equally as well." Perhaps some of the audions he purchased had manufacturing defects, or perhaps it was simply due to his inexperience in using them; but whatever it was, within a week he reports that the "audion has a broken filament." It is also interesting to note that, in 1916, the term "audion" generally was used to describe a DeForest tube, which could cost over \$100 in today's dollars, seemingly a very expensive

investment for a high school student.

Ross's knowledge of the practical operation of a wireless receiver increased over the next year. Each recorded disappointment in some aspect of his receiver's performance is offset by a notation about a marked improvement in another area, and there is a continuing increase in the number of identifiable stations he can receive. The improvements that resulted from increasing his original 100 foot single wire antenna to a four wire 60 x 250 foot antenna, and those he noticed when he replaced his second loose coupler, were fairly non technical and easy for him to understand. But there were other experiments whose results were far more subtle and harder to understand.

In one of these subtle experiments he "touches" various connections on his receiver, and notes that this makes an improvement in the performance of the radio, but he never really seems to understand why this is so. Even today's reader of his log cannot be sure how each of these 'experiments' actually affected the radios circuitry, but at least one appears to have decreased the value of his grid leak resistor; which could have increased the performance of a marginally performing detector tube. (His repeated reference to this phenomenon may be a further indication that the detector tubes he had purchased varied in quality.)

He also records having "burnt out the filament" of his detector tube on several occasions, which may have occurred as a result of his having to twiddle with the filament voltage of tubes in an attempt to make them perform better, before realizing just how easily their fragile filaments could be destroyed. There is a photo of Ross taken at about this time, sitting in front of a wireless set looking very intent. Viewers are initially struck by the fact that he is dressed in a suit and tie, hardly the attire expected of a present day ham operator, but those who look more closely are even more mystified, as Ross's hand is poised just over his key, seemingly ready to transmit a message to the world. The problem is that there is no record of Ross ever having had an amateur radio operator's license, without which he could not have legally transmitted a message over the airways, even in 1916-17. Perhaps this was another 'perk' of living in a very isolated part of the northern U.S.

"Quite as a grave." This was the entry in Opie's log on 4/6/1917. It very accurately describes the airways after the government ordered the shutdown and dismantling of all amateur stations at the

beginning of WWI. He listened for two more days before packing his equipment away for the duration of the war.

The next log entry is dated 4/1/1922, and once again Ross Opie's enthusiasm for radio is apparent. Radio technology had changed dramatically during and just after the war and commercial radio stations were just beginning to broadcast regularly scheduled programs. It is in this entry that he first mentions his Cutting & Washington (type 2) radio, which would be sold in the 1970s to a Colorado radio collector.

Another eight more months would pass before Ross again makes an entry in his log, but he had not been totally idle during this period. He reports that he now has the best aerial in all of Langdon, a 165-ft single wire, running north to south. This log entry also lists more than 30 different radio stations that he identified from their broadcasts, but by this time there were many people listening to these broadcasts, and even he seemed to know that he was no longer a radio pioneer.

The last entry in Ross Opie's log was made on February 1, 1923, and this like all of the entries made after WWI, seems anticlimactic. The thrill of Opie's radio log came from reading the entries made by a high school student, using a loose coupler and a set of earphones, who strained and experimented just to hear transmissions from a station over his horizon, just 82 air miles away.

Notes:

Ross Opie's fascination with radio did not end with his last entry in his radio log, nor was his Cutting and Washington receiver to be his most cherished radio. As he grew older and gained more family responsibilities, he channeled his enthusiasm and knowledge of radio into becoming one of the best Philco radio salesmen in the U.S. He traveled throughout northern North Dakota for several years, selling Philco radios, until in the late 1930s when he opened his own Philco radio store in Fargo. Newspaper clippings and certificates of achievement attest to his success and commitment as a seller of radios. Although he won several trips to the Caribbean during the years he was involved with the Philco company, it was his winning of a Philco Model (37-) 690x that was the highpoint of his radio selling career.

This radio, the Philco Model (37-) 690x, is believed to be the best radio receiver Philco ever manufactured, and it currently sits proudly in the home of his son John, replacing both the Cutting and

Washington receiver and the loose coupler sets of his youth.

Many thanks:

To Lee Bruton for giving me a copy of the Opie radio log and the interest to decipher it

To Charlie Brett, Mark Dittmar, Jim Mize, Larry Weide & Barney Wooters, who helped translate the log, and helped me understand its technical worth.

To Connie Wyatt and Rita Maisel for helping me locate the Opie family

And finally to Ross's children, Carolyn Motter, Suzanne Parries, and John Opie for all their wonderful assistance.

The Hickok 6000, How it works, How to Repair it and Maintain it

By Ed Brady

Part 2 of 2

Powering the Unit Up

After inspecting the unit and performing all the required maintenance, it is ready to be powered up. Apply power and let the unit warm up for a few minutes. Begin by testing the "short" test indicator lights. Set the cathode and suppressor switches to the same position, 1-1 for example, and verify that the cathode to suppressor short is indicated; third neon light from left should go out. Continue by going through the remainder of the positions except for 0-0, which will not cause a short. Verify that the other short indications work as well by aligning the positions of two selector switches to the same position. Note, as the cathode and suppressor switches are rotated through their positions additional short indications will occur where the position number aligns with the position of the other selectors.

Next set the tester to HS-5348-1, the setting for a 6L6 tube. Connect a voltmeter, setup for AC measurements, to pins 2 and 7 of the octal socket. Turn the filament selector through its ranges and verify the filament voltages. With no load and the line adjust pot adjusted to place the meter pointer exactly over the mark "LINE TEST" the voltages should be slightly higher than the values indicated on the tester.

Next connect the AC meter to pins 5 and 8 of the octal socket. Set the bias and shunt controls to zero and press the "TEST" button. The voltage should be 2.5V +/- 0.2V. If this voltage is not correct, the unit

will need to be calibrated to obtain good readings.

If all these simple tests are good, then set up the tube tester for a known good tube, one with a known measured output, and check the tube. If the tester provides a reasonably close reading to the known measured output the tester is probably working ok. No two testers will result in the same reading even if they are both well calibrated. If the reading is low, check the filament voltage at the tube with the tube installed. If filament voltage at the tube is significantly lower than the specified filament voltage for the tube, further cleaning of the filament selector switches, tube sockets etc. may be necessary. For high current filament tubes, there may simply be too much inherent resistance in the wiring, selector switches etc. to prevent too much filament voltage droop at the tube. If this is the case, than you may have to adjust the filament voltage selector switch to the next higher selection. Do not use the line voltage adjustment to increase the filament voltage, because this adjustment will affect the other bias voltages as well and the transconductance reading will be un-reliable.

Calibrating the Tester

If the tester fails to operate properly, then calibration may be in order. The calibration procedure assumes the tester generally works. All measurements are made with a 20,000 ohms per volt meter. If a new digital meter is used, a 20,000 ohm resistor should be placed in parallel with the meter leads to simulate a 20,000 ohm input resistance.

1) Check the shunt and bias dials for indexing at zero when set to zero.

2) Set the selector switches to HS-5348-1. This setting will be used for all the remaining tests

3) Adjust the Line Voltage control so that the meter pointer sits on top of the "LINE TEST" mark. Place negative lead of meter in pin 8 of octal socket and the positive lead in pin 3. Set the voltmeter to its DC mode and press the "TEST" button. With the "TEST" button depressed, the voltage reading should be between 189V and 192V. This measures the plate voltage. If this reading is not correct, adjust R17 until the correct reading is obtained.

4) Set the voltmeter to its AC mode and connect it to pins 5 and 8 of the octal socket. Set the bias control to zero and press the "TEST" button. The meter should read between 2.6V and 3.0V. This measures the grid signal voltage. Its value is critical to the operation of the tester. If it is not correct check the resistance of the bias pot is zero, bias

selector switch contact resistance, the bias fuse bulb is correct, the value of R9 (47 ohms) and finally the output voltage at the transformer taps.

5) Set the voltmeter to its DC mode and connect the positive lead to pin 8 and the negative lead to pin 5. Set the bias dial to 100 and press the "TEST" button. The meter should read between 42.8V and 43.2V. If this reading is not correct, adjust the sliding tap on R14. When this voltage is correct, adjust the bias dial to 22. The meter should read between 3.28V and 3.32V. If this reading is not correct carefully bend the bias pot wiper arm to obtain the correct reading.

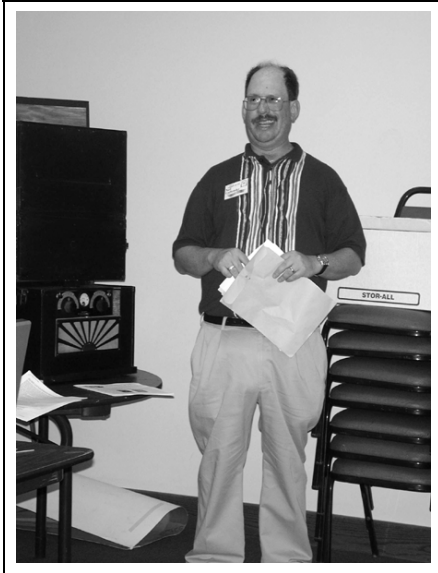
6) Set the voltmeter to its DC mode and connect the positive lead to pin 4 and the negative lead to pin 8. Set the function switch to position "A" and press the "TEST" button. The meter should read between 134.8V and 135.2V. With the function switch set to position "B" and the "TEST" button depressed the meter should read between 59.8V and 60.2V. If these readings are not correct, adjust the sliding tap on resistor R14 .

7) The final step is to calibrate the micromho reading of the tube tester. This check requires a calibrated 6L6 tube. Assuming one is available, the calibration procedure is as follows. Set the tube tester up for the 6L6, install the calibrated tube and press the TEST button. If the micromho rating of the tube is less than 6000 Mhos, the calibration of the 6000 range will be made. If the rating is more than 6000 Mhos, the 15,000 range is calibrated first. Assuming a 6000 or less rating, adjust the shunt dial, with TEST button pressed, until the index reads the correct micromho rating of the tube on the 6000 Mhos scale. This is the 6000-scale mark on the shunt dial. If the setting of the shunt dial is not on the red dot marked with the number 6000, factory set 6000-scale calibration setting, mark the dial to indicate the new location. Next increase the bias dial until the meter reads 3000 Mhos on the 6000 Mhos scale. Adjust the shunt dial until the meter reads 3000 Mhos on the 3000 Mhos scale. This is the 3000-scale mark on the shunt dial. If the setting of the shunt dial is not on the red dot marked with the number 3000, factory set 3000-scale calibration setting, mark the dial to indicate the new location. Finally rotate the shunt dial until the meter reads 3000 on the 15,000 Mhos scale. This is the 15,000-scale mark on the shunt dial. Again if this does not align with the red dot marked with the

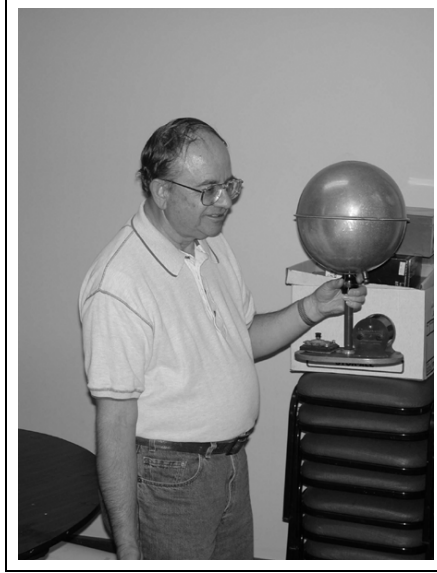
(Continued on Page 9 - right hand column)

July/04 CRC Meeting "Doings"

Neil Gallensky gives the CRC a report on his trip to the Michigan Antique Radio Club's Extravaganza in Lansing MI

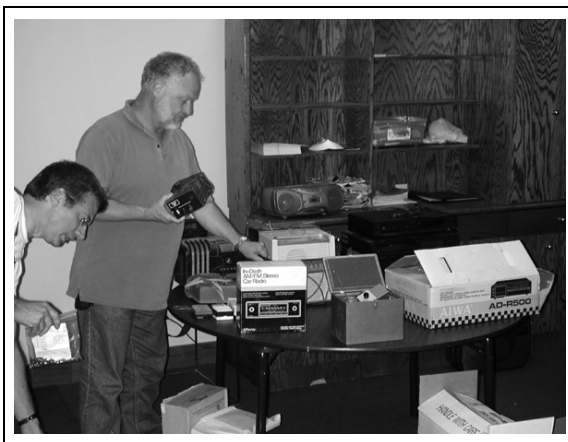


Bill Dial shows his "Superball" Antenna of the mid 20's



Dan Becker displays his collection of early 20's tubes and bulbs

Tom Pouliot reviews his new find of a 1923 Operadio portable



Dan Becker and Dennis Laurence arrange the items for this month's raffle



Submission of Sell/Want ads are always free to CRC

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 Bums, 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 Bums, 1996 prices, Full Color	\$16.95	\$13.00
ZENITH TRANSISTOR RADIOS, 1955-1965 Smith, 1998 PG., 160 pgs, 226 color pics, info, deser.	\$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., Hist.	\$29.95	\$22.00
RADIOS BY HALLCRAFTERS, revised 2nd edition Ducis, 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, Radionama'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
PHD CO RADIO: 1928 - 1942 Ramires & Prosser, 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 1930'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. 1 Maurice Stevens, 282 Pgs., 1991	\$29.95	\$22.00
CRYSTAL CLEAR VOL. 2 Maurice Stevens, 252 Pgs., 1995	\$29.95	\$22.00

RADIO TUBES AND BOXES OF THE 1920'S George A Fehner, 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 Ginder, 524 Pgs, 1995	\$26.95	\$21.00
COLLECTOR'S GUIDE TO VINTAGE TELEVISION Dudral & Glenn Bubenheimer, 200 Pgs, 1999	\$15.95	\$13.00
NOVELTY RADIOS, VOLUME 1 Mary Bums & Robert Breed, 223 Pgs, 1995	\$18.95	\$15.00
NOVELTY RADIOS, VOLUME 2 Mary Bums & 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	\$26.95	\$22.00
TUBE TESTERS AND CLASSIC ELECTRONIC TEST GEAR Alan Douglas, 166 Pgs, 2000	\$25.95	\$19.50
COLLECTOR'S VACUUM TUBE HANDBOOK, VOLUME 1 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 Shusser, 264 Pgs., 2001	\$19.95	\$15.00
RADIOCRAFT JUBILEE - REPRINT OF 1938 EDITION Hugo Gernsback, Vestal Press	-----	\$12.00
CLASSIC CONE SPEAKERS Batford & Jane Chidester, 122 Pgs, 2001	\$25.95	\$19.50
TUBE LORE Ludwel Silbey, 186P'gs, 1996	\$29.00	\$15.00
ARTHUR COLLINS RADIO 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 1 Mark V. Stein, 240 Pgs, 2002	\$29.95	\$22.00
A. ATWATER KENT Williams & Volkonowicz, 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 PLAYING MAN'S MANUAL Johnson	----	\$10.00
THE FABULOUS VICTROLA "45"		

Paul Vourakis, 176 Pgs, 2002	\$29.95	\$22.00
ZENITH RADIOS THE GLORY YEARS 1936 - 1945 Cones, Bryant & Blankship, 256 Pgs, 2003	\$34.95	\$25.50
ZENITH ILLUSTRATED CATALOG AND DATABASE 1936 - 1945 Cones, Bryant & Blankship, 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

An important note from Charles Brett, CRC Treasurer and Book Sales Manager

Due to banking laws and the status of our club, **all** checks written for dues, auction payments, book sales, etc. **must** be made out to the club Treasurer **by name**.

That is, please make sure that **all** checks that you write to the club are made out to "**Charles Brett**". If you mail in a check please send it to;

**Charles Brett
5980 Old Ranch Road
Colorado Springs, CO 80908**

The Open Trunk

Member submitted advertisements



members. Non-members may advertise in the Flash for \$0.20 a word. Display advertising is available by contacting the CRC publisher for info and rates.

WANTED:

- Philco model 70. Need speaker, tube shield, front grille panel, rear cabinet arch support, knobs.
- Mirrored dial and knobs for sparton 1568. Would take same from 1068 or 1268. Would buy whole chassis or parts radio.
- Center bakelite section for Emerson 149. Will buy whole radio.
- Good cabinet for Airline "little miracle"
- One knob for a Grunow radio. Measures 1-1/16" x 5/8" deep.

Bob Cofer, (303) 257-9598
radiocowboy62@hotmail.com

05/04

WANTED: Morse keys/bugs/paddles, Allied Radio/Knight Kits, "heavy metal" communications gear (Hallicrafters, Hammarlund, etc.). **Robert Baumann** (303) 988-2089, rgbdenver@att.net
07/04

FOR SALE: A/K model L chassis with speaker, Airline Cathedral, Various Bakelite & Plastic radios, Various Transistor radios, Fluke 12 multimeter, Numerous 1940s radio magazines, Spool of old style coil wire, and "1926-38 Radio Diagrams" by Beitman. Photos available online. **Wayne Gilbert** 303-431-6774 wagil@aol.com
07/04

FOR SALE: 330 folders of Sam's Photofacts, covering folder numbers 386 through 4227. Make Offer. Contact **Richard Beckman** at (303) 344-8565

09/04

(From Page 6 - Hickok)

number 15000, mark the dial to indicate the new location.

Since most hobbyists are not lucky enough to have a calibrated 6L6 an alternative is needed. A 6L6 simulator can be constructed using a variac, an isolation transformer, a 10Kohm resistor with at least a 4 watt rating, a fused AC current meter and an AC volt meter. These are all commonly used pieces of equipment on any radio repair test bench so everything needed here should be readily available. Figure 1 below shows the circuit.

Connect this circuit to pins 3 and 8 of the octal socket and with "TEST" button pressed adjust the variac until the AC current meter reads 15 mA. Dividing the current in mA by the grid signal voltage, 2.5V for the 6000, and multiplying by 1000 gives the transconductance in Mhos. For these values the meter should read 6000 Mhos on the 6000 Mhos scale. Use this setting to calibrate the 15000 and 6000 scales. Next adjust the variac until the AC current meter reads 7.5 mA. Now calibrate the 3000 scale by marking the position where the transconductance meter reads 3000 on the 3000 Mhos scale.

References

- 1) The Hickok Archive web site at:
<http://www.hickokinc.com/hickok90/hphotomain.html>
- 2) The Padgett's Hickok web site at:
<http://www2.gdi.net/~padgett/>
- 3) "Tube Testers and Classic Electronic Test Gear " by Alan Douglas ISBN 01-886606-14-5
- 4) The Wendell Hall web site at:
http://www.wendellhall.net/Wendell_E_Hall.html
- 5) The Hickok Tube Tester web site at:
<http://www.hickoktubetesters.com/>
- 6) Operating Instructions for Dynamic Mutual Conductance Tester Model 6000

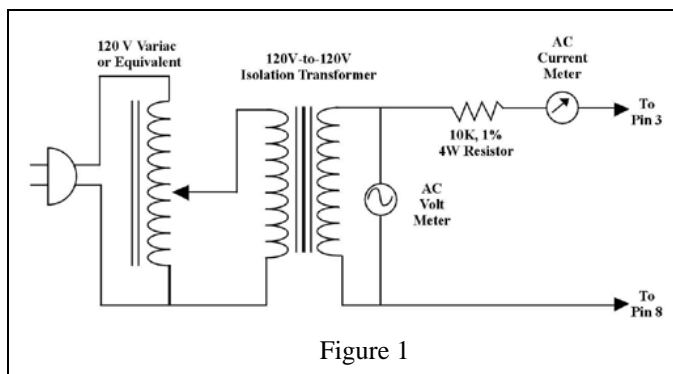


Figure 1

***** PLEASE NOTE THE MEETING DATE *****

**WE ARE MEETING ON THE 3RD SUNDAY OF
SEPTEMBER**

**Next CRC Meeting - Sept. 19th - Museum of the Americas
863 Santa Fe - 1:00pm**

Tailgate Sale After the Meeting in the Museum Courtyard



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