



The **FLASH!**



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

Volume 15, Issue 1

Happy New Year!

January-February, 2004

Fixing a Bad Transformer by Ed Brady, CRC Member

Several years ago I picked up a basket case radio at the Elgin radio meet. I am a sucker for basket case radios, especially if I like the styling. I view them as a challenge. From the looks of this radio, someone had left it in a damp cellar for a long time. Every piece of veneer had delaminated, the bottom of the radio was attached at only one corner and the chassis was covered with an inch of black dust.

The radio is a 4 tube (80, 224A, 224A and 47) TRF set housed in a small cathedral cabinet. All the tube sockets are screwed into the chassis, so the set is either a pre-production model or a kit. There are no identifying marks on the set so I do not know who manufactured it. I have reviewed several Riders schematics having the same tube complement but none exactly match this one.

Well after about a month of work restoring the cabinet and the electronics, I was finally able to put the radio back together. The radio played, but I was never able to get it to tune well across the dial. A radio repairman I know, had once told me that many of these old TRF sets required you to bend the plates on the tuning capacitors for proper align. I had never tried this so I quickly called my friend and he agreed to look at the set. As usual Jim called a day later and informed me he had it working properly with one exception. As luck would have it, he uncovered that the high voltage winding in the transformer had a short and that the transformer heated up excessively after 10 or 15 minutes. My first thought was "GREAT"!!!! After all the work I had put into restoring the cabinet and the radio was unusable. The odds of me ever locating another transformer having 2.5 Volt CT, 5 Volt and 500 Volt CT secondary windings was slim.

I picked the radio up from Jim, thanked him and headed home. Once home I started rummaging through the transformers I had hoping I would find a replacement. I didn't, but I did find a transformer that was the correct size. This transformer only had two secondary voltages: 400 Volts CT at 50 mA. and 6.3 Volts at 2 amps. The high voltage winding was a little low but I was sure it would work. I decided that it was worth the effort to see if I could remove some turns from the 6.3 Volt secondary to reduce it's voltage to 5 Volts and to add a third secondary to obtain the 2.5 Volt CT voltage. There was still one issue I could not be certain about and that was the current rating of the primary. As designed, neglecting losses, the primary winding should draw 280 mAs while both secondaries are supplying their rated currents. I computed this value given that neglecting losses, the output power supplied by the transformer is equal to the input

power. The modified version of this transformer would have the same high voltage requirements but would now have a 5V at 2 amp secondary and a 2.5V at 5.25 amp secondary. This would increase the primary current to 366 mA. I was not sure if the primary it could handle an additional 90 mA but I still

decided to give it a try. My hope was that the transformer was designed with some margin and that the additional current would be within that margin.

I started the project by carefully removing the transformer metal covers so I could get to the windings. Luckily there was about a 0.125" gap between the outer windings and the transformer core. This gap left more than enough room to add a few turns of magnet wire. Further examination revealed that the outer most winding was the 6.3 Volt one. This would make the job much easier because I would have direct access to the winding
(Continued on Page 3)

CRC Membership Roster
Pg. 5

CRC Service Awards and
November meeting pictures
Pg. 6

COLORADO RADIO COLLECTORS ANTIQUE CLUB

Founded October 1988

The Flash! Copyrighted 2004, all rights reserved

Volume 15, Issue 1

January/February, 2004

IN THIS ISSUE

| | |
|---|---|
| Fixing a Bad Transformer - by Ed Brady | 1 |
| Amateur Radio Swap Meets - by Jay Carlblom | 4 |
| The CRC Membership Roster | 5 |
| CRC November Meeting and Awards | 6 |
| What Neutrowound - Comes Round - by Ray Windrix | 7 |
| Collector Books for Sale - by Charles Brett | 8 |
| Open Trunk - Classified Advertisements | 9 |

MESSAGE FROM THE PRESIDENT

This message will find us all in the middle of the holiday season. I wish all the members a Merry Christmas and wish you all a Happy New Year!

I hope that 2004 brings us yet another good year for the club, and although I will miss the first meeting of the year I am sure that the members will be off to a good start without me.

I encourage all members to take an active part in the running of the club by submitting articles for the flash, providing programs and activities of interest, and helping out with the club sponsored events.

So again Happy Holidays, and I will see you in March.

Dennis

CRC OFFICERS 2003-2004

President

Dennis Laurence
(719) 278-9181
drl@pcisys.net

Treasurer

Charles Brett
(719) 495-8660
Brett3279@aol.com

Vice President

Archive/Books

Open Position
Brett

Charles

(719) 495-8660
Brett3279@aol.com

Flash! Publisher

Steve Touzalin
(303) 988-5394
stevet@wideopenwest.com

Internet Egroup Mgr.

Mark Dittmar
(303) 403-0669
mark_dittmar@maxtor.com

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

needing modification. The trick would be adding the third winding without nicking the enamel wire coating on the sharp edges of the transformer's iron core. My solution here was to slide electrical tape through the gap between the core and windings and wrap it around the core. This was done on both sides of the core and provided an effect way of covering up the sharp edges of the core. Before I could remove turns from the 6.3 Volt winding, I needed to determine how much each turn contributed to the total voltage output. To determine this, I wrapped 4 turns of 20-gauge magnet wire around the existing transformer core. Then I carefully connected the transformer to an electrical outlet and measured the voltage developed by the four turns. Making this measurement is very dangerous, because the transformer is completely exposed and it requires working with 120 Volts. If you decide to try your hand at modifying your own transformer, **use extreme caution.**

I decided to use 4 turns because it would yield a higher voltage from which I could make a more accurate measurement. Once I measured the total voltage I obtained the volts per turn measurement by dividing by 4. For this transformer, each winding developed 0.2 Volts. From this, I knew I would need to remove 6.5 turns from the 6.3 Volt winding to obtain a 5 Volt output. I chose only to remove 6 turns so that I could keep all the wires exiting the transformer on the same side. This would make re-assembly easier. I did not worry about the voltage drop in this winding under load because I knew this had been accounted for when the transformer was originally designed.

The next step was to carefully remove the outer paper wrapping so that I could get to the windings. I carefully made one clean cut through the wrapping making sure that I did not cut any of the wires underneath. I then removed it and set it aside so that I could use it later to close everything back up. Next I began removing the 6 turns from the 6.3-Volt secondary. In this case I unwound the 6 turns intact so that if I make a mistake in my calculations, I could add turns back. Once I had removed the six turns, I made a measurement of the output voltage under a simulated load representing the filament of the 80 rectifier. I did this by attaching a 2.5 ohm 10 watt resistor across the windings and applying power to the primary windings. For a 5-Volt output, the 2.5 ohm resistor would generate 2 amps of current through the windings. This current is approximately the same as the current needed by the

80-tube filament. Under these conditions, I measured an output voltage of 4.98 Volts. I felt this was more than acceptable. I finish the modification of this winding by trimming off the excess magnet wire, connected some cloth-covered wire to the ends of the windings to allow access from outside the transformer and wrapped the windings with electrical tape.

The next step was to create the 2.5 Volt CT winding. This winding supplies the filament voltage for the 224A and 47 tubes. Each of these tubes requires 1.75 amps to properly heat the filament. This meant that the 2.5-Volt winding would need to supply 5.25 amps of current. The selection of wire size is critical here because it effects the resistance of the winding. Too high a resistance could cause excessive heat dissipation and over heat the transformer. The following chart provides a correlation of wire size to resistance per 1000 feet.

| Wire Size | Resistance / 1000 ft. |
|-----------|-----------------------|
| 14 | 2.53 |
| 16 | 4.02 |
| 18 | 6.39 |
| 20 | 10.15 |
| 22 | 16.14 |
| 24 | 25.67 |

I selected 18-gauge magnet wire for the job. The primary and only reason I selected the 18-gauge wire was that it was the largest gauge I had on hand. This wire gauge as shown above, has approximately 6.39 ohms of resistance per 1000 feet. My assumption based on the diameter of the core, was that I would need approximately 11 feet of wire. Assuming this length, the winding would have a 0.068 ohm equivalent series resistance. At 5.25 amps, this would result in a .35 Volt drop in the winding and approximately 1.84 Watts of power dissipation. I was not sure, but I assumed this was acceptable. Given my previous measurement of 0.2 Volts per turn, I would need 12.5 turns to generate the 2.5 output voltage plus account for the 0.35 Volt internal drop.

To make the winding center tapped, I would need 6.25 turns per tap. I chose to make each half of the winding 7 turns to keep everything symmetric and simple. To make the center tap, I first wound 7 turns onto the core, bringing both ends of the winding out of the transformer. I then attached the start of the next winding to the end of the first and

winding in the same direction, added the next 7 turns. I then verified under load that the winding voltage was what I wanted. With the windings installed, I wrapped them with electrical tape, reinstalled the outer paper wrapping and reassembled the transformer.

I completed the job by removing the old transformer and installing the newly modified one. I then crossed my fingers and hoped everything would work. As a precaution, I first powered up the radio without tubes. Once I verified all the voltages were correct, I re-installed the tubes and powered up the radio again. I can not tell you how happy I was when the radio started playing. After about 10 minutes I checked the transformer to see if it was getting hot. It was warm by not excessively warm. I am happy to say the radio is working great. I was worried about the additional primary winding current but even after 20 hours of use everything appears to be fine.

This type of repair can be quite dangerous and should not be undertaken unless you are comfortable working with household voltage levels. If you need to have a transformer rewound and you do not feel comfortable with doing the job yourself then don't. Find someone to do it for you. Repairing a radio is not worth risking your life. One option for having your transformer rewound is ACR Electronics. I ran across an article on the Internet indicating that they did quality transformer rewinding. I can not make a recommendation on their abilities since I have not used them. The gentleman that wrote the article had nothing but praise to say about them however. If you are interested in using them or finding out what they charge to rewind transformers, they can be contacted using the following address:

Joe Russo
ACR Electronics
17 Joice St.
Lynn, MA 01902
781-598-5908

Amateur Radio Swap Meets

by Jay Carlblom, CRC Member

I think some of our club members are missing the boat by not attending some of our local Ham Radio Swap meets. Believe it or not, there are some really cool radio finds at these meets, plus the added bonus of tubes, sockets, parts and the smell of burnt transformers and musty old radio books. You'll find neat and weird looking old radio gizmos, variometer coils and the added bonus of meeting people that have a mutual interest in old radio equipment and receivers. Yep, some of those Hams have quite a collection of old radios!

Another thing that's overlooked is that this is a good place for our members to sell/unload some the their old spare radios & equipment! You can buy and sell at these meets and you DO NOT have to be a amateur radio operator. You can be a "Ham" though!! In fact ham it up and have a good time. There are a lot of nice people there that have a lot of electronic knowledge and are full of "BS" stories too! I think you would be surprised at what you would find if you attended one of these meets sometime soon!

List of up coming meets in the area:

Aurora Repeater Association Swap Fest,
February 15, 2004, 8:00 AM to 2:00 PM
at the Adams County Fairgrounds
Contact:
Wayne Heinen, N0POH
(303) 699-6335, n0poh@arrl.net

Longmont ARC, April 3, 2004
Contact:
Brian Steege, K0BRS
PO Box 86 Longmont, CO 80502-0086
(303) 678-0406, <http://www.ql.net/larc>

| NAME | CITY | TEL. No. |
|------|------|----------|
|------|------|----------|

CRC Membership Roster for 2003 - 2004

| | | | | | |
|--------------------|------------------|-----------------|-------------------|------------------|----------------|
| Don Adams | Longmont | (303) 776-3180 | John Miner | Denver | (303) 759-9152 |
| Dave's Antique Svc | Tucson | (520) 790-2618 | James Mize | Boulder | (303) 499-5894 |
| Carl Armon | Boulder | | Steve Morton | North Platte | (308) 534-4778 |
| Lee Baker | Arvada | (303) 420-9691 | Travis Ogden | North Platte | (308) 534-6337 |
| Fred Bantin | Greeley | (303) 343-7508 | Warren Parkes | Ft. Collins | |
| Robert Baumann | Lakewood | (303) 988-2089 | Tom Pouliot | Lakewood | (303) 988-1669 |
| Richard Beckman | Aurora | (303) 344-8565 | Robert Schineller | Longmon | (303) 682-1749 |
| Jim Berg | Northport | (509) 732-4047 | Dennis Schmidt | Morrison | (303) 761-1091 |
| Dave Boyle | Castle Rock | (303) 681-3258 | Garold Bud Slagel | Madison | (605) 745-3265 |
| Ed Brady | Albuquerque | (505) 292-0487 | Bob Slagle | Colorado Springs | (719) 635-6208 |
| Charles Brett | Colorado Springs | (719) 495-8660 | Dan Smith | Denver | (303) 321-8779 |
| Leamon Brooks | Littleton | (303) 979-0331 | Riggs Smith | Littleton | (303) 973-8792 |
| David Cain | Glendale | (623) 561-6228 | Ron Smith | Lakewood | (303) 238-1384 |
| Merril Campbell | Colorado Springs | (719) 596-3484 | David Solliday | Edgewater | (303) 233-8957 |
| Jay Carlblom | Littleton | (303) 973-7711 | George Stevens | Longmont | (303) 776-9036 |
| Otis Chartier | Parker | (303) 841-3329 | Dick Stewart | Colorado Springs | (719) 392-9694 |
| Bob Cofer | Denver | (303) 257-9598 | Robert Sticher | Thorton | (303) 410-9819 |
| Charles Combs | Albany | (660) 726-3038 | Bob Stutzman | Centennial | (303) 770-3406 |
| Mike Cook | Highlands Ranch | (303) 471-9596 | Philip Szoelloesi | Northglenn | (303) 280-8113 |
| Richard Craft | Montrose | (970) 240-1378 | Paul Thompson | Littleton | (303) 973-8483 |
| Bill Dial | Lakewood | (303) 986-0716 | Ronald Totten | Thornton | (303) 452-2896 |
| Mark Dittmar | Westminster | (303) 403-0669 | Steve Touzalin | Lakewood | (303) 988-5394 |
| Tom Duffy | Castle Rock | (303) 750-3105 | Jerry Tynan | Golden | (303) 642-0553 |
| Bill Eccher | Highlands Ranch | (303) 471-2547 | Larry Weide | Englewood | (303) 758-8382 |
| Neil Gallensky | Westminster | (303) 466-0976 | Craig Wilson | Lakewood | (303) 987-0204 |
| Wayne Gilbert | Westminster | (303) 431-6774 | Ray Windrix | Colorado Springs | (719) 597-5098 |
| William Grimm | Aurora | (303) 690-1330 | Barney Wooters | Denver | (303) 770-5314 |
| Martin Guth | Colorado Springs | (719) 495-3912 | Layne Wright | Denver | (303) 368-9783 |
| Dick Hagman | Littleton | (303) 794-6674 | Bruce Young | Centennial | (303) 458-7408 |
| Bill Harris | Colorado Springs | (719) 632-4644 | | | |
| Dana Hauschulz | Boulder | (303) 494-0542 | | | |
| Jack Heavey | Colorado Springs | (719) 633-2277 | | | |
| Larry Higgins | Aurora | (303) 752-0898 | | | |
| George Huizinga | Golden | (303) 273-9848 | | | |
| Craig Iverson | Denver | (303) 752-1840 | | | |
| Bob Jensen | Alliance | (308) 762-7391 | | | |
| Johnny Johnson | Wheatridge | (303) 274-5474 | | | |
| Don Jones | Arvada | (303) 423-1902 | | | |
| Ray Kilcoyne | Lakewood | (303) 278-4084 | | | |
| Curtis Kimball | Sterling | (970) 522-2557 | | | |
| Richard Kuberski | Arvada | (303) 422-9510 | | | |
| Henry Lamb | Cheyenne | (307) 778-2081 | | | |
| David Laude | Colorado Springs | (719) 495-3800 | | | |
| Dennis Laurence | Colorado Springs | (719) 278-9181 | | | |
| Bill Lees | Mercersburg | (717) 328-3539 | | | |
| Matthew Lutkus | Westminster | (303) 255-8880 | | | |
| James Mallory | Aurora | (303) 341-1815 | | | |
| Henry Marsh | Colorado Springs | (719) 471-7142 | | | |
| Rick McCarty | Englewood | (303) 796-7827 | | | |
| Jim McCutcheon | Aurora | (303) 343-9177 | | | |
| Mike McCutcheon | Aurora | (303) 343-2956 | | | |
| D. H. McDowell | Littleton | (303) 791-3559 | | | |
| NAME | CITY | TEL. No. | | | |
| Mark McKeown | Golden | (303) 278-3908 | | | |

BUY YOUR NEW **SPARTON** **RADIO**

**From This 46-Year
Old Music House**

Dependable Servicing . . . Complete Satisfaction

**Phone KEystone 5201, Branch 3,
for Details of Easy Payment Plan**

SEE SPARTON ADVERTISEMENT ON PAGE 20

**The
Denver Music Co.**

1536-40 Stout St. Dependable 46 Years

Like Mr. ^{Denver Post, August 1929}

Rogers said, "I never met a radio I didn't like" ... or

CRC November Meeting



Robert Baumann receiving the "CRC Special Service Award" for his many years of service



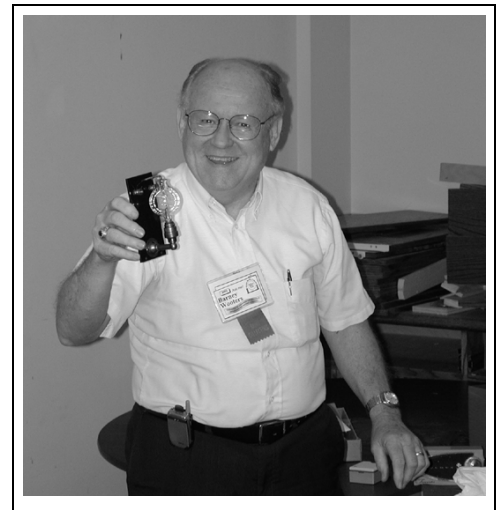
Wayne Gilbert receiving the "CRC Service Award" for his significant contributions



Ray Windrix displays his rare mid 30's cathedral portable radio



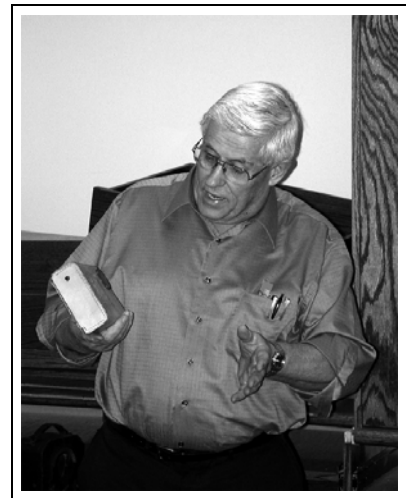
Rich Kuberski explains his restoration of a mid twenties kit radio



Barney Wooters shows us a very early dual filament Audion tube



Neil Gallensky, "Mr. Transistor", tells of his newest finds



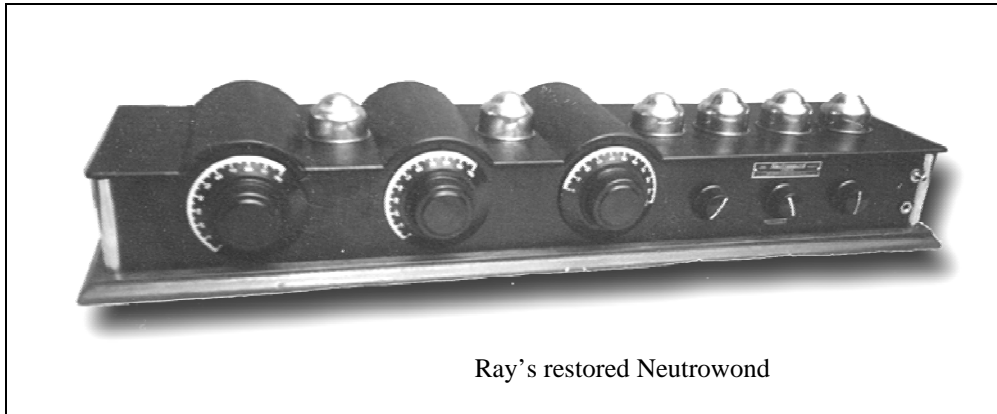
David Solliday reviews a tube portable that he restored

What Neutrowound - Comes Round

Ray Windrix, CRC Member

was it Roy? Oh well, my main interest is novelty tube sets. You know the stuff, from the 30's, 40's and 50's that look like book, house, horse, keg, chest etc.

However this is the true story (hope drop dead)



Ray's restored Neutrowound

of a 1926 Neutrowound. As you know it's a six tube battery set. People sometimes bring me sets nobody wants. I usually get third "dibs" after a couple of others have turned it down.

A dealer brought me the Neutrowound, and as you know it's kind of a breadboard. The thing should have had about three chrome tube caps, a couple of large tuning dials, a chrome corner piece all which were missing. Plus the actual "board" was warped.

Well, I take about anything that comes down the pike, always with the options of passing such stuff on should I not do anything with it. Hope drop dead, just like "de ja fudge", a couple of weeks later another guy shows up with a second Neutrowound - but in much, much worse condition. In fact it's so bad that it's hard to describe. The thing had been sitting (maybe submerged) in water. It was a complete hunk of total rust. The board and all the parts mounted on it had all but completely rotted away.

The guy had taped or tied the set to another board to keep the whole thing from falling apart. But, "hole-ly Marconi", it had five beautiful chrome tube caps, chrome corner pieces and a couple of large tuning dials along with the smaller dials as well. The chrome tube caps were selling at the time for \$25 each. I understand it's now about \$50 each. If a person was desperate, say for one cap, he may

have to pay \$100 for it! Anyway, everything that was needed was here to make one good set of the two!

Well, I wouldn't win no "Oscar" if I pretended to act like I had the sense and talent to pull this off, but we have club members that do. My pal Bob Slagle was over at the house one day and noticed the rusty Neutrowound. I explained I had another one and showed it to him, remarking that surely one could be made out of the two.

About six months went by and I thought "Bob A-louie" has been really helpful to me, so I just gave

him the darn things. Well, several more months went by before Bob "the little smarty pants" began working on the set. His first job was to straighten out the warped board. It took him about a month to accomplish that. Well short story long, I go over a few months later and there the Neutrowound is, a beautiful restoration! And, working! Believe me, it took a lot of work and skill! [with pictures - LW]

As I continued to visit Bob, for one thing or another, I began to "lust" after the Neutrowound! So, I asked Bob if he had any particular plans for it. He replied he might trade it. I offered him a kings ransom or maybe the equivalent of a used "Yugo". Naturally that didn't work, be we did later make a trade! So, now I have the Neutrowound back again. Sometimes it's strange how we acquire these old sets. I guess what goes round - really comes round. I regret I don't have before pictures, you wouldn't believe them. These set were really rough!

WANTED: Old Colorado and Denver radio history info. I have quite a number of 1930's-40's radio magazines to trade for earlier radio documentation.

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 | \$30.95 | \$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. | \$20.95 | \$22.00 |
| THE ZENITH TRANS-OCEANIC (THE ROYALTY OF RADIOS) Bryant and Cones, 160 pgs, 1995 | \$20.95 | \$22.00 |
| ZENITH RADIOS THE EARLY YEARS 1919-1936, Cones 1997-98 Price Guide, 223 Pgs, 100's Photos, Desc., Hist. | \$20.95 | \$22.00 |
| RADIOS BY HALLCRAFTERS, revised 2nd edition Duchis, 1999 values, 220 pgs, 1000+ pics, id's, history | \$20.95 | \$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 |
| PHO 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 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. 1 Maurice Stevers, 282 Pgs., 1991 | \$29.95 | \$22.00 |
| CRYSTAL CLEAR VOL. 2 Maurice Stevers, 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 Ludweil Silbey, 186P' gss, 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. I Mark V. Stein, 240 Pgs, 2002 | \$29.95 | \$22.00 |
| A. ATWATER KENT Williams & Volkowicz, 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" | | |

| | | |
|---|---------|---------|
| Phil 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 |

Two new books this month!

- E.H. Scott Radios
- All American Five Radios

The Open Trunk

Member submitted advertisements



Wayne Gilbert (303) 431-6774, wagil@aol.com

10/03

WANTED: Any WWII Japanese radio, working or not. Thanks. **John A. Miner**, (303) 759-9152

10/03

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

10/03

FOR SALE: Five tabletop radios, including Airline, Stewart-Warner, Motorola, RCA clock-radio, some work, some don't, one with schematic. **Dan Smith** (303) 321-8779, after 7:30 p.m.

10/03

WANTED: Russian or foreign radios and/or radio gear, working or not. Contact **Robert Sticher**, 303-410-9819. Thank you.

01/04

A Note Of Thanks

The Last Word

from Robert Baumann

By the time you read this, Charles Brett will have assumed the office of CRC Treasurer. Starting immediately, all payments to the club should be made out to "**Charles Brett, CRC**" and forwarded to him. I'd like to thank all who have supported the CRC during the past several years I have acted as Treasurer. I have appreciated the opportunity to serve the CRC in this capacity.

In an effort to make things go more smoothly for Charlie, please consider the following. Banks are tightening their policies on accepting checks. Please be sure all CRC payments are made out to "**Charles Brett, CRC**", not "CRC", "Colorado Antique Radio Club" or "The Flash". It's getting to the point such checks will no longer be valid for deposit into the CRC account. Please think about the value of club membership throughout the year and be ready to pay your annual dues promptly either at the May meeting or by mail in June. Delinquent, staggered payments are a big headache for the officers and those responsible for the Flash. Finally, please wear your name tags to CRC events. It's difficult to remember who everyone is all the time and this helps to avoid potential accounting errors.

The CRC is strong as we enter 2004. Thanks again for all of you who have helped make this possible!

Next CRC Meeting - Jan. 11th - Museum of the Americas
863 Santa Fe - 1:00pm
Tailgate Sale After the Meeting in the Museum Courtyard



Colorado Radio Collectors

Antique Radio Club

5270 E. Nassau Cir.

Englewood CO 80110

FIRST CLASS MAIL