



The FLASH!



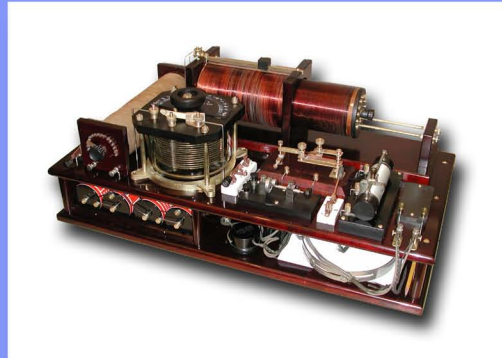
Dedicated to the Preservation and Education of Wireless, Radio, Television and Associated Equipment

Volume 19, Issue 6

20th Anniversary Issue!

November/December 2008

Members, History, Activities, Articles



Colorado Radio Collectors Antique Radio Club

CRC 20th Anniversary Commemorative Newsletter - November 2008

Fellow CRC members: It is my pleasure to provide an introduction to this 20th anniversary edition of The Flash! The basis for my interest in vintage radio dates back over 45 years when as a small child, I was captivated by the low boy console my grandparents had in the living room of their home in the Richmond Hill section of New York City. Sitting on the floor facing that radio, it truly appeared larger than life. I was fascinated by the unfamiliar languages and unusual sounds which emanated as I turned the tuning dial with its warm backlit glow across the shortwave bands. I discovered the CRC three decades later and have enjoyed my association with its members who all seem to share a similar enthusiasm. Dick Hagman inspired me to contribute more than just my annual dues and I have considered it a privilege to preside over club activities during this anniversary year.

This issue is intended to document some of the people who have helped accomplish the club's mission during its first two decades. I hope everyone will enjoy what we've put together and that it will inspire you to maintain your membership for many years to come and lend a hand to ensure the future of the CRC as the volunteer spirit has been the one key ingredient to all past success. Please join me in expressing appreciation to Larry Weide for fifteen years as the driving force behind this publication and for his ongoing, unselfish support.

Robert Baumann

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Mark Dittmar	e-group Manager

Thanks to the following CRC members whose time and effort has made this 20th anniversary Flash! edition possible:

Robert Baumann
Charles Brett
Wayne Gilbert
Bill Grimm
Steve Touzalin
Larry Weide
Barney Wooters

CRC Members Remember 20 Years

By Wayne Gilbert

This is a collective history, not a chronological history of our club. Barney Wooters' article is a chronological history of the CRC, setting out dates of important club events in a clear, accurate, portrayal of the history of the club. This article, on the other hand, is a history of our club as seen through the collective eyes and memories of members of the club.

These memories have been edited somewhat, because not every memory is accurate, some are less than complimentary, and in many cases I could not record the member's memory exactly as it was told to me. Then, too, not surprisingly, many members' memories are very similar, in both their factual and psychological context. Similar memories of such things as where and when we held club meetings and had events, are not only expected, but required, and while we all bring different personalities and backgrounds to the club, we all tend to remember that the club either "has improved" or "has deteriorated" over the years.

Memories have also been slightly edited to smooth any jagged edge that might be an embarrassment to someone, and some editing was made to emphasize a particularly interesting point of view or perspective. Repetitive memories were not repetitively repeated, and erroneous memories were either corrected or omitted, and while some of these memories are humorous, some humorless, all are as much a part of our club as the radios we all admire so much. All, like the few gathered and paraphrased here, make us the club we are today, and all are what makes up our history.

Just how and when our current radio club, the CRC came into being seems to be somewhat of a mystery. There was a predecessor club, the Rocky Mountain Antique Wireless Association, which finally was disbanded in the 1980s. Lee Bruton remembers that there was a small amount of money left in the predecessor club's

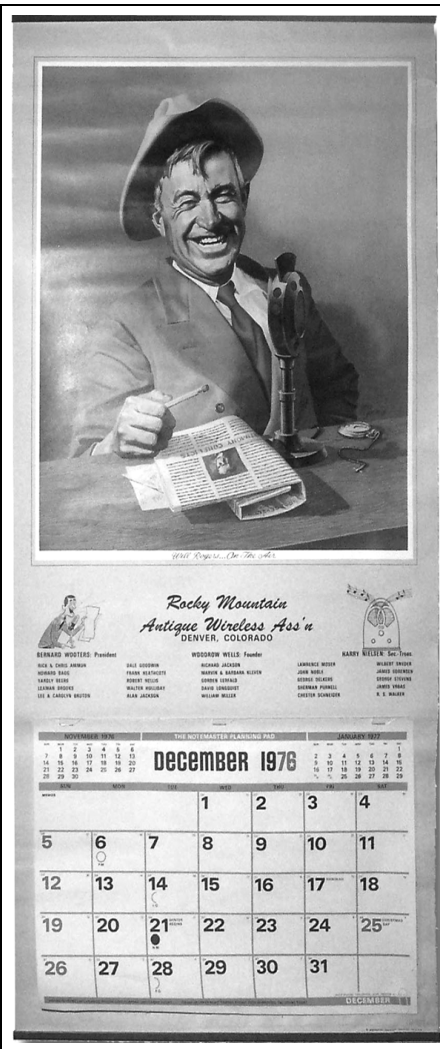
treasury when it officially disbanded, which he and a couple others decided to spend on a space at a collectable fair being held in the Denver stock show complex. He and his wife **Carolyn**, with the help and enthusiasm of a couple other collectors, set up an "old radio" display and, with it, recruited enough new members to restart the old club, with a few of its original members, under the new name of the CRC!

"One of the first meetings I attended," mused one of our club's longest members, "now mind you, this may have been the old-club, but I think I recall some of those early meetings of the new club were held at Lee Bruton's Sandwich Shop."

Other "older members" share memories of early club meetings being held in members' homes. After a pot luck lunch, and after the club's business was conducted, came the part of the meeting that members liked best, viewing the host's radios! Many members feel this was the most interesting time in our history, and **Dan Busetti's** description of being awestruck the first time he saw **Leamon Brooks'** collection, describes the feelings of many other old-timers during these home-style meetings. While some radios changed hands at these meetings, it was this camaraderie that made these meetings memorable.

Not all club meetings were staid affairs held around the dining room table. **Barney Wooters** remembers meetings where friendly competitions were held to determine whose radio could receive the most stations, and/or perhaps the most-distant station, from a member's mountain home.

Membership has fluctuated over the years, with new members joining to replace those who have had to leave the club. These new members have found their way into the club's folds via various routes, but it is generally remembered that many of the earliest CRC members were recruited at either the club's annual show, or the



annual auction. The earliest shows were often held in a shopping center mall, but by the early 1990s finances permitted these annual shows to be held at the stock show complex. Now, of course, we have a wonderful venue at the Holiday Inn in Northglenn, but many members remember when we were only a smallish part of an antique or collectable show, sometimes shoved into an out-of-the-way corner or hallway of the complex.

One of the more unusual ways a new member was recruited was by radio! One local public-relations-program talk show host mentioned that a fellow named **Barney Wooters**, a member of the local antique radio club, would repair old radios. **Bob Stutzman** used this clue to track Barney down and has been a member ever since. Other members, like **Robert Baumann**, recall seeing fliers posted in Fistell's, which drew him to the club. Although Robert is the current club president and has held offices in the club for a number of years, he still views himself as a hobbyist and continues to be amazed at the professional skill level of the club's members.

Charles Brett was a member of the club one year before he moved back to Colorado. He remembers how surprised he was to find out that Barney wasn't the club president for life, as was the policy in some of the California radio clubs he had joined.

CRC's members bring a diversity of talents and skills to the club, some of these skills from their professional life, and some from an otherwise suppressed desire or interest. Although it might be assumed that all of our club members share a skill or at least an interest in electronics, the reality is that less than 50% of the club's members can or even want to, repair an old radio. About as many bring wood-working skills to the club, while some bring computer expertise, and others bring their knowledge of radio history.

Riggs Smith, another long time club member, insists that he has always been intimidated by the electronics of an old radio, but finds relaxation in cabinet restoration. With this in mind, he and a few friends created what they referred to as the Big Deals Book, a transaction register to record these traded services. "When I needed some electronic work done, I would consult the Big Deals Book to see who owed me a little work, and they would do the same. It really worked pretty well and was a friendly reminder of how things stood."

Johnny Johnson's special contribution is to be a member who makes it possible for other members to own a special radio. Johnny has a network of friends who alert him of the availability of a radio, which he

will often pick up and restore - to be sold later to another club member. (The owner of a small antique store in Buena Vista CO, once refused to sell this author a morning-glory-horn-speaker she was holding for Johnny to pick up on his next trip through town.)

Regardless of which skills members bring to the club, or how they exchange them, all freely admit they are somehow fascinated by the technology that Marconi made practical when he sent a few bursts of static over the hill to his brother.

The formality, (or lack thereof) of the club has remained in the memories of some members over the years. **Mark McKeown** remembers being attracted to the club because it is a very informal group. He quipped that the club's president (**Tom Kelly**, at the time mentioned) even conducted the meetings in shorts! **Julie**, Mark's wife, and one of the club's most loyal attendees, admits preferring quilting as a hobby. She, and many others, would prefer more talks about radios and not so much time being devoted to the formalities of club business. The most common negative memory of the club is that we used to be a gathering of folks with a common interest and somehow grew into a club with too formal and rigid agendas.

Over the years the club became too big to hold its meetings in someone's home, or as stated above, in Bruton's sandwich shop, and by about 1990 the club had expanded and was forced to hold its meetings in a more formal setting. The first of these was in a conference room at a library in western Denver. This proved to be a poor fit, with several members recalling that the library disapproved of our tailgate sales. A new meeting location was found at the Vectra bank on South Federal. Here we shared a conference room with a fledgling church group that didn't always appreciate our boisterousness. Several members remember holding tail gate sales and raffles under the drive-thru windows' shelter at the bank, and one remembers that **Rick Ammon's** significant other, **Vicki**, was always chosen to pull names from the raffle hat - was it that she was too pretty and petite to argue with, or was it because Rick was a really big man?

After that, members have memories of meetings and events being held in various other locations around the city, including the Wazee Electric Company and the Museum of the Americas. One member remembers that **Bob Cofer** sold one of the nicest highboy radios he has ever seen at a car trunk sale in the parking lot of the electric company, and many members commented on how convenient the meetings were when held at the Museum of the

Americas, although the parking lot got really hot during the late afternoons, especially during the club's annual auctions.

Current members may find it nearly impossible to believe, but there was a time when **Tom Pouliot** was not our auctioneer, and when **Jerry Tynan** and **Brian Hagrman** didn't keep the auction table filled. **Steve Touzalin** remembers the first CRC auction was held at **Dick Hagrman's** house, with Dick standing on his step ladder, hanging on with one hand while balancing a cathedral with the other, a radio which was probably purchased by **Ray Kushnir**, who never saw a cathedral radio he could resist bidding on.

Current club member, **Brian Hagrman**, Dick's son, who carries the radio collecting gene in his body, remembers trips with his Dad to Fistells and the flea market, searching for bargains – both radios and components.

Love is the word **Larry Weide** uses often in relation to his memories of the Club. "It was love at first sight," is the way he describes his attraction to the club. "Here was a bunch of guys that had the same interest as I did." "It was a labor of love." is the way Larry describes his contribution to the Belmont show that was one of the highlights of the club's history. Many members cannot remember a time when Larry was not the 'man behind the computer' at all the club shows and auctions.

While **Bart Whitehouse** claims he is not even a radio collector, he has flown his own airplane across the country several times in search of radios and radio-related items to display in the avionics and wireless museum he started in 1996 with the help of several other club members. This is the only radio museum in this part of the country, and Bart sees it as extension of the club members' talents.

Bruce Young remembers being introduced into radio collecting by his father-in-law. He, and many others, remember that his Bakelite radios were the most colorful radios on display at some shows. Recently he shared his memory of the radio-find of his collecting life. It was a basket-case Zenith Walton, for which he paid \$100. Now, after much restoration, this radio is worth over a \$1000.

Mark Dittmar remembers that the early members of the club were more eager to buy, trade, and sell radios amongst themselves. He believes there are just not as many radios out there for collectors as he remembers were available when he joined the club.

Many club members share the same or similar memories of the club of friendships they've developed, and the admiration they have for other club members. Many have also expressed a view that the

club is improving in many ways. We have the nicest place for our annual auction that anyone can remember, thanks to **Rich Kuberski**, and several regard the auction-picnic combination as nicer than when these were separate activities. Although not a longtime memory yet, many members can't recall that we have ever had a nicer location for our annual show. Many note how the emphasis has changed from collecting 'older sets' when they first joined the club. As many of the older members remember it, today's club members have more modern tastes in radio collecting, preferring a radio they can play over a much older battery operated set.

"Don't touch that, Bob, it'll knock you flat on your butt!" "Robert, you wanta buy back that Radiola 3 you sold me last year?" "I think Van Dyke brown looks more original." "We got way too many Extra large, and not enough mediums." "And when I got back to the store, Leamon had already bought it!" "Tom's apartment is filled with GE Clock radios." "Dammit, that was *still hot!*" "Ask **Neil Gallensky**; he knows about all transistor radios." These and other comments come quickly to mind when club members relate their more current memories. These are purposely not identified to protect the innocent.

And finally **Doug Furney**, when he reminisces about the club, believes that the "texture" of club members has changed or evolved over the years he's been involved. He recalls that when he first joined the club, most collectors didn't collect consoles, transistor radios, or even the common mass-produced radios of the 1930s, but now he feels that there are club members to collect anything. He remembers the older collectors didn't always care whether a particular radio played, as long as it had original parts and an original finish, but now collectors seem to want all the radios restored to factory appearance, and all must play, even if it requires substituting modern components.

These are only a few of the memories shared by CRC members, and the next 20 years will bring more memories. Some of these will be forgotten, but with good luck, there will still be a CRC, with people bound together by a common fascination in the technology that Marconi made practical.

Note: Apologies to those whose memories were not included. Many thanks to those who shared their memories; I hope you remember telling me what I remember hearing you say.

Speculation on the Origin of the Arcturus Name

by Dana Hauschultz

Originally appeared in Jan/Feb 2000 Flash!

The radio boom of the 1920's created a very large demand for vacuum tubes. Although RCA dominated the business there was a proliferation of independent tube manufacturers who also sought to participate in the rapidly growing market. Gerald Tyne¹ lists approximately 278 different independent tube manufacturers in his book "Saga of the Vacuum Tube". Among the 278 is a concern called Arcturus Radio Tube Company. Today, tube collectors prize Arcturus blue glass tubes when they can be found.

Selection of a company name is not a trivial matter even under normal circumstances. But with so many companies in the fray, vacuum tube entrepreneurs likely gave a great deal of thought before bestowing a name on their new venture. Certainly, they were aware of each other. And there were so many others that name selection might tend toward the unusual. It may not have been enough to just steer clear of preexisting names which is a legal requirement, but better to confer a moniker that would somehow resonate in the mind of a potential customer. Indeed, careful attention was probably also directed at company logos and the supporting artwork printed on the tube box. While it is just a hunch at this time, I believe that there is much behind the choice of "Arcturus" for the name of a certain independent vacuum tube manufacturer.

As it happens, Arcturus is an orange-red star, one of the 20 brightest, located in the constellation Botes. The picture below shows two tube boxes made by the Arcturus Radio Tube Company. Both boxes depict the astronomical theme, especially the box on the right that shows an observatory under a dark blue sky. Further, the star placement over the observatory resembles the Big Dipper to the right with a very bright Arcturus correctly positioned beyond the handle of the Big Dipper on the left. Is this just a coincidence, or was attention to stellar detail provided by a vacuum tube businessman who also possessed a passion for astronomy?

And why Arcturus and not, say, Alpha Centauri or Vega? I believe the choice was quite deliberate, the intent being to create a favorable association between the orange-red color of the star and the new longer lived dull emitter filaments that glow with a similar orange-red hue. Both Tyne and Stokes² indicate that Arcturus began selling tubes in 1927. However, the box on the left in figure 1 says "Since - 1925". Either way, dull emitter (thoriated) filaments had only been invented a few years prior in 1922. These filaments greatly extended the working life of a vacuum tube because of their cooler, orange-red operating temperature. While Arcturus did not invent the thoriated filament, the company did make several noteworthy technical contributions to vacuum tube filament design. One of these innovations was a unique 15-Volt carbon

heater that had a negative temperature coefficient³. The negative temperature coefficient gave low start-up current surges ultimately arriving at a desired orange-red operating temperature after about 30 to 40 seconds.

While the color association between an orange-red star and dull emitter filaments is a little obtuse, Arcturus, nevertheless did succeed in creating a strong association between Arcturus Company and blue. Their boxes were blue and their glass was blue (until about 1933). I don't think that it is an accident that the box on the right portrays the night sky in a dark blue color. It is interesting, that after many years of sales, the message on the tube box shifted away from astronomy toward statements of longevity; I.E. "Since - 1925" and "Arcturus the oldest name in electron tubes". Apparently it became more important to reassure customers that the company had staying power rather than a whimsical tie to astronomy. The depression of the 1930's wiped out most of the independents. Stokes indicates that Arcturus survived until about 1941, while Tyne says the company continued to manufacture until 1952.

Maybe it's a little corny, but when I see an Arcturus tube in operation, I see the orange-red star itself radiating through nature's vacuum on a dark blue night. And I wonder, if the founder ever saw the day that the vacuum tube he and others produced principally as a means toward earning a livelihood would ultimately enable the design of radio telescopes? His vocation may have been closer to his heart's avocation than he ever knew!

So, was the founder of Arcturus an amateur astronomer? Maybe. I acknowledge that the evidence presented here is circumstantial and I welcome thoughts and comments.

1 - Tyne, Gerald F. J., *Saga of the Vacuum Tube*, pages 351 - 365, Prompt Publications, Berkeley Heights, New Jersey, third printing 1994.

2 - Stokes, John W., *70 Years of Radio Tubes and Valves: a guide for electronic engineers, historians and collectors*, second edition, pages 167 - 171, Sonoran Publishing, Chandler, Arizona, 1997.

3 - Ludwell, Sibley, *Tube Lore: a reference for user and collectors*, Chernay Printing, Coopersburg, PA, 1996, page 12.



The box on the left is dated after 1935. The artwork shown on the box on the right appeared as early as 1928. The cosmic theme on the earlier box may reflect a corporate founder's interest in astronomy.

Radio at War

by Martin Guth

Originally appeared in Sept/Oct 2001 Flash!

We all collect radios for a variety of reasons. Some have a passion for collecting primarily wood, plastic, novelty or even clock radios. Deciding which to add to your collection is mostly a personal choice, based upon whatever radio mania you may have. As for myself, I have relatively few radios, and mostly select those that have some bearing on past experience. For example, my first radio was an Allied Knight Kit Space Spanner, and a short search uncovered one of those. Another radio, this one from my father's past, proved a more difficult challenge to acquire.

SOME HISTORY

The year was 1942, and with the war raging in Europe and the Pacific, the U.S. government began to draft young men into service. An option was to volunteer, as you were able then to select which branch of the service most suited your preference. My father, living in Cleveland, Ohio at the time, noted a news article whereby Case Western Reserve University had made special arrangements with the Air Force to provide evening training courses, the passage of which guaranteed your admission into the Air Force. Having just read a book about Thomas Edison describing his years as a railroad telegraph operator, my Dad was thus inspired to sign up for a course as communications specialist. Having passed the course at age 20, he reported to the Air Force recruiting office, and on March 3, 1943, was inducted and ordered to report to Jefferson Barracks near St. Louis for basic training.

After the typical physical abuse of basic training, he reported to Truax Field in Madison, Wisconsin for more specialized radio training. This involved work with various transmitters, receivers, direction finders and test equipment used by the military. In addition, there was an intense Morse Code training period, during which one had to be able to handle 20 WPM or better before moving on. His graduation papers stated he was able to transmit at 25WPM, and receive 30, rather enviable figures most hams would appreciate.

In September, 1943, the journey began via train through the forests of New England to Presque Isle, Maine, where my father and his fellow communication specialists awaited further orders. The entertainment at that site consisted of a pinball machine with the "tilt" mechanism defeated, and picking potatoes for the local farmers. Soon after, orders arrived for the final destination - Iceland.

From the base in Maine, eight of the radio operators were flown to Goose Bay, Labrador, where they boarded a B-24 for the trip across the North Atlantic. This plane was to stop in Greenland and continue onto Iceland, but far out over the icy seas, past the point of no return, the right inboard engine quit. At this point, they were unable to return to Maine, having only enough fuel to reach

Greenland. The good news was they could maintain current altitude and reach a base called Bluie West 1 at the southern tip of Greenland. The bad news was that the base was surrounded by a series of mountain ranges, and the current altitude wouldn't clear the hills. With the plane heavily loaded with cargo, there was only the obvious option of ditching everything overboard, including the personal possessions of most of the guys on board heading to Iceland for who knew how long. My Dad was fortunate in that his bag was delayed and didn't make this flight, thus saving his Telegraph Apparatus Co. "bug" (which I now have) from a watery grave next to the Titanic. After ditching all of the cargo, the plane was able to barely clear the mountains of the southern fjords of Greenland and make a safe landing at BW1. After a few days, the crew continued on to Keflavik, Iceland in a DC-4 that was passing through.

During 1943, German survey flights occasionally passed over Iceland, and with Iceland being a strategic stopover point connecting the U.S. with Europe, a major U.S. presence there was deemed important. Up to several hundred flights per day passed through the base at Keflavik, keeping the communications operators busy with incoming and outgoing flights. It was at this base that my father spent the remainder of the war.



THE RADIO

Thirty years later, my Dad and I were looking through the advertisement section in the back of his 1945 ARRL handbook. He pointed out an ad for the Hammarlund Super Pro SP-200 series, a commercial version of the type he used during the war. Later, when I started collecting antique radios, I knew I had to find one of these.

For several years, I scrounged the hamfests, flea markets and antique radio shops to no avail. During the early 90's, the World Wide Web was in its infancy, and provided no help. However, I did have access to the UNIX notes groups, and ran across rec.radio.antiques the first day it was created. I believe I was the third posting on that group, and my request was for a SP-200, any condition. The response was immediate, and shortly thereafter, a five foot high stack of boxes arrived at my front door.

(Continued on Page 8)

CRC "CLOCK" AWARDS FOR EXCEPTIONAL SERVICE



Rick & Vicki Ammon
Flash! Editors
1990 - 1995



Dick Hagrman
CRC Founder, Officer & Supporter
1988 - 2005



Tom Kelley
CRC President
1999 - 2001



Robert Baumann
CRC Treasurer
1998 - 2003

Presented To



Charles Brett
July/2002



Jerry Tynan
July/2002



Tom Pouliot
Jan/2004



Barney Wooters
Sept/2002



Larry Weide
July/2002



Wayne Gilbert
Nov/2003

In appreciation of
outstanding contribution
to ensure the continued
success of the CRC



The Colorado Radio Collectors - Then and Now

By Barney Wooters

Five years have passed since my article written for the fifteenth anniversary issue was published. Where did the time go? During those five years, we have changed meeting location and have both gained and lost members. Overall, change has made the CRC a strong organization. While we do indeed miss those no longer with us, the new members bring a wide background of experiences. As we share knowledge and experience among ourselves and with others, we will become a yet stronger organization. It is pleasing to me to know that we will survive and thrive.

There seems to be radios waiting to be found and cared for, even at this late date. Yet, as most of us are aware, the "good stuff" rarely shows up. Then there is the occasional "find" which replenishes the spirit. I don't know what will become of all these treasures in the long term, but for the present, is it not our duty to "preserve and protect"? I think so!

I'm sure that daily checks on Ebay and other such sources will continue and may even yet provide great radio artifacts. While I'm at it, wouldn't it be great if there were a way to download knowledge and experiences from old guys to new guys! As a ham friend of mine says, "Keep those filaments lit".



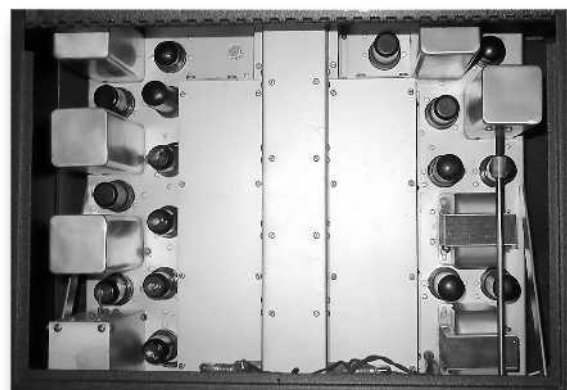
The author "then" with Carolyn Bruton at a CRC field day

(continued from Page 5)

I was not quite prepared for the magnitude of this boat anchor, with its separate power supply and 12" speaker cabinet. The model I have is the SP-220-SX, but many variations were made, some not by Hammarlund. The most common military version was the BC-779A, made for Hammarlund by the Howard Radio Corp. of Chicago. Production of all versions was from 1939 to 1945.



The SP-220-SX weighs in at 73 lbs., plus 39 lbs. for the power supply. Frequency coverage of this single-conversion design ranges from 540 KHz to 20 MHz in 5 bands, with some models running 1.25 MHz to 40 MHz. The I.F. consists of 3 stages operating at 465 KHz, with variable selectivity from 3-16 KHz. Two RF stages, and a 14 watt audio amplifier complement the design. For CW reception, the SP-200 series has a variable BFO, and a 5 step crystal filter that ranges from 100 Hz to 16 KHz. The filter also has a variable phasing control to tune out heterodyne whistle interference. There are 16 all metal tubes in the receiver, with type 5Z3 and 80 rectifiers in the power supply. Control of all of this is via 14 knobs and switches on the front panel (fig. 4), plus main tuning and band spread dials, and an S-meter. Power consumption is 180 watts, but it can be run on (LARGE!) batteries.



I have learned with a radio such as this that one does not merely listen to it - one does indeed "operate" it. On occasion, I warm it up and tweak the dials to pick up faint signals from across the Atlantic, just as my father did from the opposite direction some 57 years ago.

Atwater Kent 82 Basket Case Challenge

By David Boyle



Originally Appeared in Jan-June 1994 Flash!

It all started with an Antique Radio Classified "For Sale" ad: "Cathedrals AK 82, etc., etc., excellent condition". You know how it goes! I needed an AK 82 to fill out my series of AK 80, 82 & 84. I believe it's the most attractive of the three. The East Coast seller assured me the radio was in fine to excellent condition; the finish was good, the radio tubes lit up when plugged in, the grill cloth was pristine, etc. So, as usual, I paid a "Bunis Plus" price for the radio. What the heck! Money is only a tertiary criteria for us emotionally-driven collectors. Besides, I always buy high and sell low to help our economy!

Upon arrival the shipping box looked undamaged so I proceeded to unpack. What a disappointment! Here's what I observed:

- 1) The cabinet was literally falling apart at all glue seams.
- 2) Much of the veneer was loose around the speaker cut-out; not unusual but still a letdown.
- 3) The chassis was extremely deteriorated and rusted. Being a consummate Philco radio collector/restorer, I'm used to chassis corrosion. But since AK radio chassis of this era were nickel-plated, they are typically found in good shape.
- 4) All the above chassis wiring was threadbare!
- 5) The tuning condenser did not mechanically function.
- 6) The power transformer cover was broken away from the chassis.
- 7) The above chassis trimmer condensers were not recognizable due to corrosion and dirt.
- 8) All the parts appeared to be there except the "80" tube (rectifier).
- 9) The speaker seemed to be in good condition as well as the speaker grill cloth.

The next step in the continuing physical assessment (remember - this is a saga!) of the AK 82 was to remove the chassis from the cabinet. At this point I was again slowed down due to the "rusting together" of the under cabinet chassis retention screws to the "ears" on the chassis bottom. I had to use a Dremel shearing tool to decapitate the screw heads.

Now at this point I'm already thinking terrible thoughts about the seller and his misrepresentation of this radio. But wait! The best was yet to unravel (literally) before my eyes.

There it is: Mickey and Minnie Mouse and li'l rug rats had set up housekeeping in the basement of this radio...

evidently for quite some time. The entire under chassis was filled with who-knows what debris, excelsior, mouse droppings, pieces of "edible parts", and wire insulation. I've seen this before but not to this extent. The really bad news was many hook up wires were eaten down to bare metal. That combined with the fact that this generation of AK radios used some wiring with colored rubber insulation that would naturally discombobulate, given age and environmental exposure. What a mess!

Now I'm really ticked off. Further investigation and overview took place after a preliminary cleaning of cabinet parts. Yes; parts! And after blowing of the chassis and under chassis areas with compressed air. There was a dead short on the primary side of the power transformer.

Well, I called the seller and negotiated a 15% refund. He offered to buy back the radio for the full purchase amount, but if I returned radios like this I wouldn't have any "BASKET CASE CHALLENGES" in my life. Can't have that, can I!

Some important information I want to cover concerning the restoration of radios like this:

- ✓ Remember to always use a isolation transformer and variac when first powering up old AC sets.
- ✓ Remove the rectifier tube and check AC voltages on secondary windings while exciting the primary with approximately 25 percent of normal input voltage.
- ✓ Then proceed upward in voltage, very carefully. I don't recommend going too high without a B+ circuit load because AC rectifier plate voltages could exceed breakdown limits of old insulation!

I completed my visual evaluation of the chassis and cabinet. It appeared that no crucial parts were physically destroyed or missing and that the chassis was restorable.

My first step is to remove as many parts as practical from the topside of the chassis. This included the tuning condenser and drive mechanism, the power transformer (remember the dead short on the primary side!), topside wiring which was decomposed anyway, and several RF transformers and IF transformers. Keep a pencil diagram of coil positions and wire terminations of all removed parts as a "wiring road map". Small boxes or plastic bags will allow for safe storage, identification, and segregation of removed parts.

Each part then gets a detailed electrical and physical check. Resistance readings of coils or both winding integrity and isolation is important. Many RF and IF coils may be required. Experience tells me where the RF plate voltage were applied through these coils, they usually failed at the fine wire termination point or near by that terminal. Many times you can just unloop one coil turn and re-terminate without affecting circuit performance. I've also successfully rewound air core type coils. Part of the coil refurbishment is to preserve it for another 60 plus years. I use Q-Dope to paint over the entire assembly. It enhances dielectric strength, coil structural integrity, and makes it "shine" like new.

New lead wires of the proper color and insulation type are then soldered on the correct terminals and left as

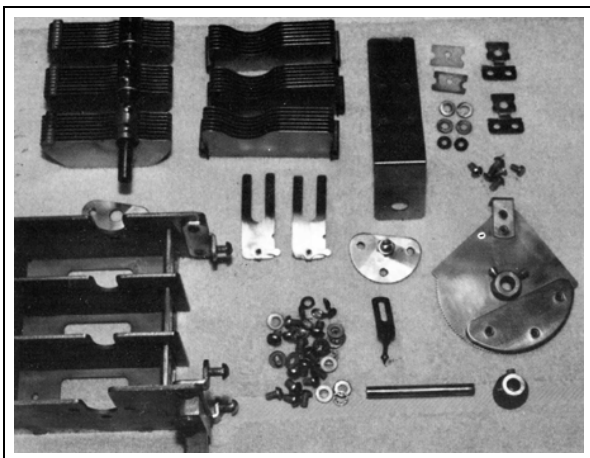
pigtails for future assembly.

The next step was to start removing corrosion and dirt using small wire brushes, 3M Scotch Brite pads, and 409 spray cleaner.

The IF transformers were removed and taken apart for restoration. The coil has been checked, new pigtails added, Q-Dope and pigtails wrapped with insulating tape to preclude shorting to its "can" cover during re-assembly.

The power transformer was a service replacement years ago and is not the original factory type. I found the primary shorted at the entry point of the lead wires. Old and deteriorated wire insulation was evidenced on all leads. I carefully covered each wire all the way to its entry point to the coil with "spaghetti" and "shrink" tubing. The actual exposed coil layers were impregnated with "Red Glyptol" but Q-Dope would have been acceptable.

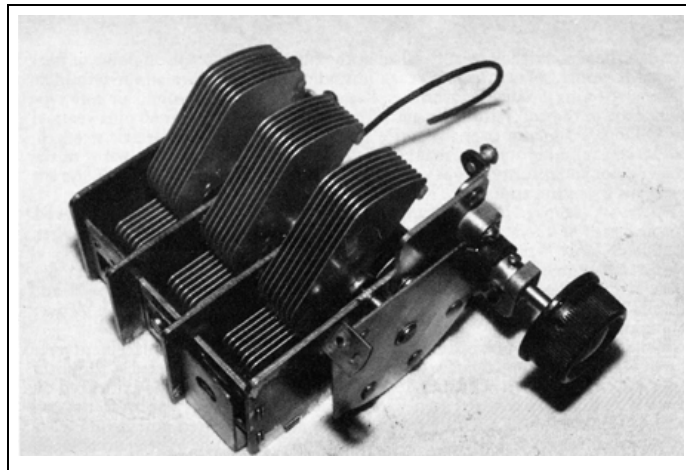
The leads were appropriately bundled into pigtails. At the points where the pigtails emerge from the transformer, I "potted" the coil with silicone RTV to aid structural strength and prevent future lead to lead or lead to transformer frame shorts. The power transformer was now essentially refurbished, but more importantly preserved for the future.



The above photo is an "exploded" view of the tuning condenser and tuner drive mechanism detail parts. Each part has gone through a cleaning and polishing process. I typically soak the rotor and stator sections of the condenser in a hot water/dishwasher soap concentrated solution for up to twelve hours. Using various brushes I then clean and polish each detail, including the screws and washers.

In this case, the drive pulley rubber "wheel" was replaced with a 3/8 inch length of rubber hose of the proper outside and inside diameter, then bonded on to the hub with rubber to metal cement. Silicone or urethane adhesives would also work well. The mica insulators in the trimmers may be replaced (if needed) by cutting out some plastic (vinyl) from sheet protectors sold in stationary stores.

The following photo is the re-assembled tuner assembly. Don't forget to keep track of original trimmer adjustments and stator to rotor plate alignments (always count the turns of your screwdriver blade) This will reduce downstream grief when you expect the radio to work at the first attempt! Looks good - and I sure do good work! Pride in the quality of our workmanship is what drives us all!



Under chassis electrical repair and restoration process sequences that were applied to this AK82 are both outlined and detailed as follows:

- 1) Power supply, both primary and secondary sides
- 2) Filament circuit
- 3) Audio output, including detector and first audio stages
- 4) Intermediate frequency amplifier circuits
- 5) Oscillator and RF front end circuits, including under chassis adjustment trimmer capacitors and RF coils up to the antenna input

1) Power Supply. Earlier we addressed the restoration of the power transformer. This was reinstalled and hooked up. Rubber insulated wire that showed insulation deterioration was replaced (typical AK of this era!) My philosophy on AC set restoration allows for extreme liberties (artistic license) for under chassis work. Above chassis should replicate original "visuals". However, above all we want these radios to work and be safe and reliable. Always keep the original filter capacitor cans. Just simply disconnect from circuit, then clean and polish the can. On the old copper - plated cans (early Philco, etc.) I coat the polished copper with clear lacquer spray paint to preserve the polished copper look. I don't want to have to restore these radios again in sixty years!

2) At this point you may want to apply power; leaving the rectifier tube out. Verify proper AC voltages including those to the filament circuit (2). I have a small tapered round metal file I use to stick through each tube socket hole and clean the tube socket contacts. This is a good time to do this. You don't want to experience voltage drop, especially in the 2.5 volt filament circuits. Don't forget the speaker socket.

3) In the audio output and detector circuits I replaced the complying capacitors, checked the various resistors, and replaced out-of tolerance or "suspicious" looking ones. The wiring insulation was "repaired" by coating with Q-Dope. Any clear vinyl or polyester coating are acceptable. You could even get some polyurethane P. C. board conformal coating. This will restore electrical insulation integrity and also preserve what's left of the wire insulation.

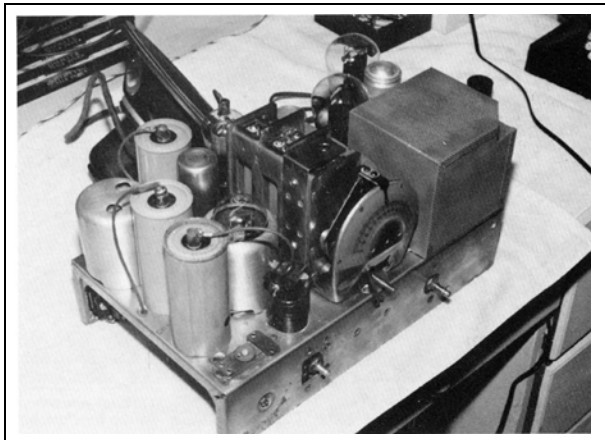
4) Other than replacing or preserving wiring the only note worthy item was the attempted repair of several

inter-circuit RF chokes. AK used to love these little dudes! They can be rewound if they are a single choke coil. But better yet, I just by-pass them with a resistor of the equivalent D.C. resistance. The refurbishment of the IF transformer was accomplished in part two of this series. I would like to mention that the IF frequency alignment of the transformer was set by the factory and sealed in the IF can. No access was possible for services and adjustment in the field. Evidently, AK had confidence in their tuned circuit elements not to change with age and environment. Sixty years later IF transformer "packing" may be required. While the IF transformer guts were out of the aluminum can, I drilled holes in the top of the can corresponding to where the trimmer adjustment screws are located. After final IF alignment using a signal generator and output meter, I "sealed" the access holes with "homemade" rubber plugs.

5) Several trimmer condensers were entirely decomposed and I rebuilt them using some miscellaneous copper washers I had along with sheet vinyl to emulate the original mica dielectric. I had to drill out the chassis attaching rivets. I replaced the rivets with 4-40 machine screws. I now have a stock of various sized brass rivets.

Once all circuits were individually restored and repaired, I slowly brought life back into the radio. Shortly after this, I completed the cleaning and polishing of the chassis top side and reinstalled the timing condenser and drive mechanism. Next step was to hook up the separately restored speaker and interconnecting cable, the antenna, and then reapply power (slowly - using the variac). I always monitor DC voltage on the audio output tube plate. A "good health" indicator for the power supply and audio circuits including the field coil in the speaker and the audio output transformer. It works! I let it operate for a while... maybe up to an hour while I watched for circuit component overheating. This also drives moisture out of the coils and trimmer condensers and affords some stability to all active components. Now you can align all stages for optimum performance.

I used spot tie cord (judiciously) to bundle up some of the wires as was originally done on many old radios.

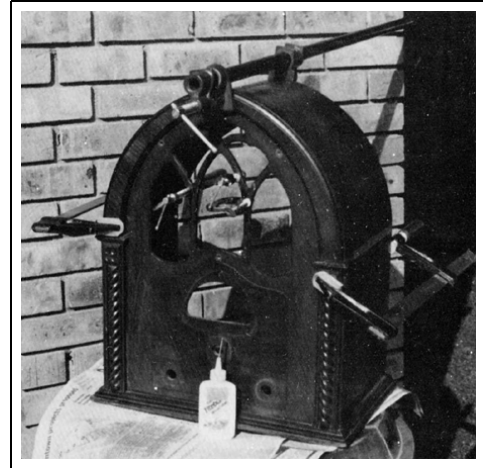


The above photo is the completed Basket Case Challenge radio. Completely aligned and operated for several hours to gain confidence that operational reliability

has been achieved .

This article is not intended to address cabinet restoration but a brief synopsis of this activity is as follows:

Completely separate the cabinet front (face) from the base and body (cathedral). I glued these sections back together.



The above photo shows the clamping including small clamps on the speaker cut out where veneer was simultaneously repaired. Next was re-gluing base and side trim pieces. The inside of the cabinet was cleaned and re-stained to treat the mud and water damage. I cut out a piece of house roof flashing... galvanized sheet steel for a new heat shield between the chassis and floor of the cabinet. Conventional re-stripping and finishing followed.

Total hours exceeded forty and restoration cost (parts & supplies) was approximately \$15.00. It is now a beautiful addition to my "museum".

Finally , I hope I've given you all encouragement never to throw away those helpless looking ol' wrecks of radios. Our responsibility is to protect and preserve these relics, for not only us, but for the future.



The author's Atwater Kent collection

In Remembrance

The CRC takes this opportunity to recall members and spouses who are no longer with us.



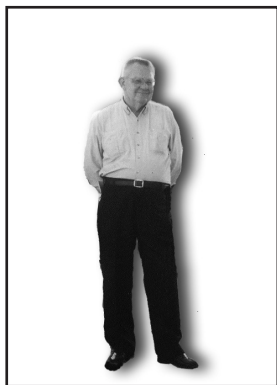
W. E. Adams was an AK salesman back in the 20s and ended up as the head of the Iowa Power Consortium. After retirement he traveled the world for the US government, fixing power stations for other countries.



Leamon Brooks enlisted in the USAF soon after high school for a career in communications that lasted 26 years. Along the way his interest in early radio developed and his collection grew into one of the best in this part of the country. He worked in the computer department at School of Mines for another 26 years. A quiet, unassuming person, he was always willing to share his extensive knowledge.



Lys Carey, KØPGM, joined the CRC in January 1997. He and wife Virginia, NØMUT, were well known in the amateur radio community and active supporters of the Denver Radio Club.



Dick Hagrman was a founder of the CRC, held every office, supported every event and was a friend to all those in the club that knew him.



Gerry Labbe started his adulthood as a bombardier on WWII B-17, then became a mechanical engineer. He was also a master woodcarver, Ham and champion horseshoe thrower.



Karl Jesness (left), was a Ham (KØMGG), high power transmitter and antenna technician & engineer and technical writer. Through his work and wide ranging avocations he traveled extensively around the world.

John Thomas (right) was an engineer for Martin Satellite System Engineering. Along with restoring and collecting communication receivers John collected Western American history items and toy steam engines.

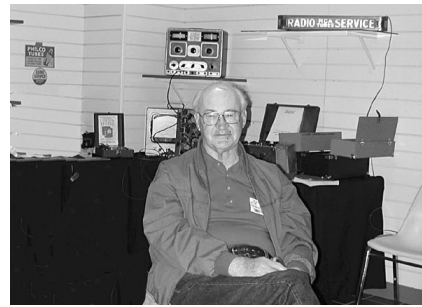
We also remember:

*Willa Brooks
Hal Burt
Virginia Carey*

*Anne Hagrman
John Noble
Ray Tomlin*



Ray Kilcoyne was an accomplished and respected Radiologist and Professor Emeritus at UCHSC. Upon retirement he devoted much of his time to his other passions; model trains and antique radios.



Doug McDowell Sr. bought his first radio in Paris where he was working as an aircraft mechanic following WWII. Doug worked for a time at Collins Radio. He enjoyed restoring gear for the WOTR museum.



Steve Ralston had many skills and his accomplishments included Eagle Scout and two tours of duty in Viet Nam in the USAF. Steve did jukebox and radio restorations. He and his wife had a successful antique shop in Lyons.



Bill Shultz was a CRC member even when he lived in Nebraska and New Mexico. He came to our shows and auctions and sold us great radios and books.



David Tripe worked for both the Denver newspapers. He was a CRC member since 1992 and wrote a number of articles for the Flash!. He was the quite young man who often wore his Zenith T-shirt.



Ray Windrix was a barber in Colorado Springs. His shop was almost more of a radio museum than a hair salon. Ray often came to CRC meetings with very unique radios that were the highlight of our Show 'N Tell sessions.

