

Colorado Radio Collectors'

Antique Radio Club

FLASH!

Volume 13

September

October

2002

Issue 5



Complete Information About October's CRC Auction!

"Rock And Roll! Here To Stay?" / CRC Web Site Future!

"T.R.F. Super Heterodynes!" / Wings Over The Rockies A Success!
CRC Service Awards Presented! / "Improving Safety Of The AA5"!

**I HAVEN'T GOT EUROPE YET,
BUT I OFTEN GET CHILI**





Colorado Radio Collectors' Antique Radio Club

Founded October 1988

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

Volume 13

September / October 2002

Issue 5

TABLE OF CONTENTS

Annual Auction Details	6
Auction Registration Form	7
July C. R. C. Membership Meeting	8
C. R. C. Service Awards Presented	9
Map to the Annual Auction	10
Mystery "Wha'z'it!"	11
"T. R. F. Super Heterodynes" <i>By Richard T. Ammon</i>	12
"Improving Safety & Reliability of the Classic AA5" <i>By Doug Moore</i>	16
"Rock and Roll! Here to Stay?" <i>By Wayne Gilbert</i>	20
<hr/> <hr/>	
Membership Information	4
Message from the President	15
FLASH! Publication Information	19
Collector Books For Sale For Members	24
"The Open Trunk" (For Sale and Want Ads)	26

About The Cover...

**September's Meeting Has Been Postponed!
Annual Auction Has Been Re-scheduled
For October 6th! Page 6 For Full Details!**



CRC MEMBERSHIP



Annual membership in the CRC runs from June to June.

Members are requested to pay their \$12 dues during the month of May.

Please submit dues to the Treasurer.

All payments should be made out to "Robert Baumann, CRC Treasurer".

If you're cannot attend the CRC meetings and need to mail your dues, note the Treasurer's phone number and email address at the bottom of this page.

Annual dues entitles members to a full year (six issues) of the club publication, *The Flash!* It provides participation in club events such as the annual April Show, mid-summer picnic, September Auction, as well as meetings and swap meets every other month. Dues will entitle you to club officer elections, excellent discount prices on current hobby publications, and the *Antique Radio Classifieds* annual subscription raffle every May!

New members are encouraged to join throughout the year. Only new memberships will be prorated to ensure renewal on the following June. New members who join from May to August should submit \$12, September & October \$10, November & December \$8, January & February \$6, and March & April \$4.

Renewing members who fail to submit dues in a timely fashion risk interruption in the delivery of *The Flash!* Upon payment of late dues, recent past issues may be requested from the CRC Publisher. Older issues require contacting the CRC Archivist. For bookkeeping reasons, all renewing memberships run June to June at the \$12 rate regardless of when one might realize their membership has lapsed.

CRC MEETINGS

Unless otherwise noted in this journal, regular meetings are held on the second Sunday of every other month starting with January (except: 3rd Sunday of May) at 1:00PM at the Museum of the Americas Bldg., 2nd floor, 863 Santa Fe (between 8th & 9th Avenues), Denver. Meetings normally include technical and historical presentations, discussions, "show and tell", an equipment raffle, and an "open-trunk" swap meet. We also plan upcoming events at these meetings as well as discuss association business matters.

CRC OFFICERS FOR 2001-2002

President

Mark Dittmar

Westminster 303/ 403-0669

Mark_dittmar@maxtor.com

Treasurer

Robert Baumann

Lakewood 303/ 988-2089

RGBdenver@att.net

Vice President

Dennis Laurence

Colorado Springs 719/ 278-9181

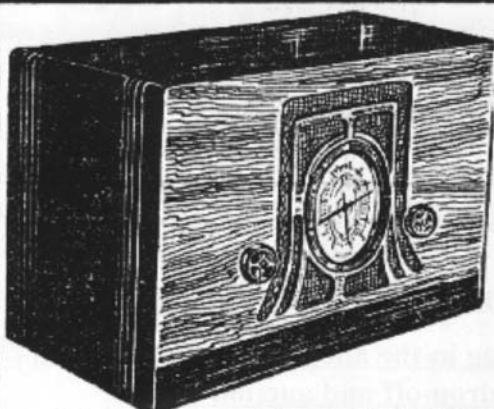
CRC Archives & Book Sales

Charles Brett

Colorado Springs 719/ 495-8660

Brent3729@aol.com

Big Radio Scoop!



HUDSON 4-TUBE A.C.-D.C. Compact Set

Here indeed is the lowest-priced set in the history of radio! Nothing else to buy. Think of it! Only \$6.95 for an instrument which will give you an unlimited amount of entertainment—and its R.C.A. licensed, too! Employs four tubes: viz., 1-35, 1-40, 1-75 and 1-6C6. Operates on any 110-volt outlet, either A.C. or D.C.

\$6.95
Small in size, light in weight, you can carry it anywhere. Incorporates a very sensitive magnetic speaker. Has large illuminated airplane dial mounted in center of speaker grill. Dial is calibrated in kilocycles and meters. Tunes from 550 to 1750 kilocycles (175-545 meters). Very economical to operate. Consumes no more power than a 30-watt electric bulb. Ship. wt., 6 lbs. Size 9 1/2" x 11 1/2" x 11 1/2".

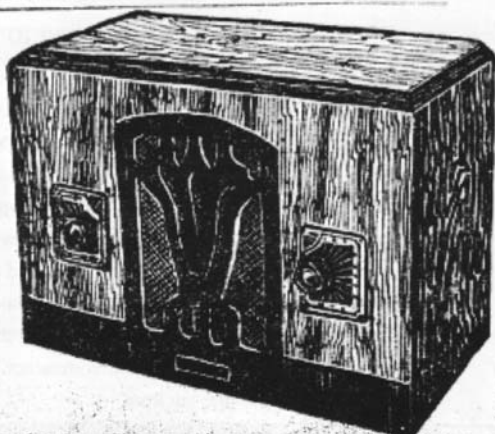
HUDSON 5-TUBE A.C.-D.C. Receiver Dynamic Speaker Illuminated Dials

Here is one of the lowest-priced 5-tube radio receivers on the market. Has a high quality full-tone dynamic speaker. Sold complete with set of matched tubes. Incorporates a sensitive T.R.F. circuit using high-gain R.F. coils and 2-gang condenser. When in operation, both volume-control and station-selector switch-plates, which are translucent, become illuminated. Neat, compact chassis mounted in a handsome two-tone cabinet. Tubes supplied are 2-6CG's, 1-25Z5, 1-6DE and 1-43. One of the 6CG's is used merely as a filament-voltage reducer. Cabinet measures 11" wide x 7 1/2" high x 5 1/2" deep. Works on any 110 volt line, either A.C. or D.C. Very economical to operate. Ship. wt., 9 lbs. No. R-CD—Hudson 5-Tube A.C.-D.C. Receiver.

No. R-CD

\$9.75

With Tubes



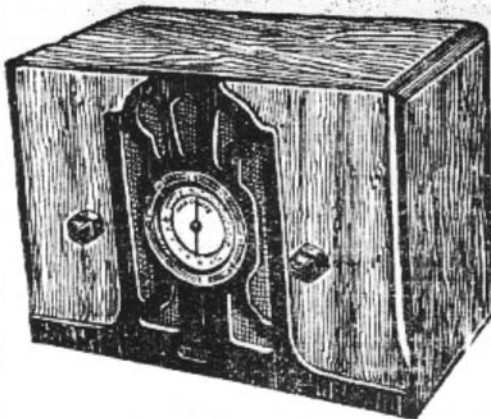
HUDSON 5-TUBE A.C.-D.C. Receiver Dynamic Speaker Airplane Dial

A low-priced, high-quality receiver covering the entire broadcast band. Incorporates a dual-calibrated illuminated airplane dial, high-quality, full-tone matched dynamic speaker and five modern tubes, all contained in a neat chassis and housed in a handsome two-tone cabinet. This is one of the very first low-priced receivers ever offered with a full-vision illuminated airplane dial. Uses 2-6CG's, 1-25Z5, 1-6DE and 1-43 in a sensitive T.R.F. circuit. One of the 6CG's is employed merely as a filament-voltage reducer. Uses high-gain R.F. coils and 2-gang condenser. Operates from any 110 volt outlet, either A.C. or D.C. Cabinet measures 10 1/2" wide x 7 3/8" high x 5 5/8" deep. Has self-contained aerial wire. Sold complete with tubes and cabinet. Nothing else to buy. Excellent tone quality. Ship. wt., 12 lbs. No. R-A3—5-Tube A.C.-D.C. Hudson Receiver.

No. R-A3

\$10.85

With Tubes



RADIO TRADING CO., 101 HUDSON ST., N. Y. C.

Colorado Radio Collectors' Antique Radio Club

AUCTION

Antique Radios, TVs, Test Gear, and Related Items

Sunday October 6th 1:00PM

Museum of the Americas 863 Santa Fe Drive (between 8th & 9th Avenue)
Rear Court Yard - Access by the alley way

Seller and buyer registration 10:00am - 12:45pm — View items as delivered

No parking in the alley way
Court Yard for drop-off and auction only

The public is invited to buy and sell!

- ✎ There is no cost to buyer or seller.
- ✎ There is a seller's commission that will be equal to \$1.00 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, a minimum opening bid on any lot.
- ✎ No commission will be occurred 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' treasury.
- ✎ Buyers cannot take possession of any lot(s) until the total cost for all purchases are paid.
- ✎ Collection of buyers fees will commence at the conclusion of the sale of the last lot entered into the auction.
- ✎ A buyer's receipt is required for pickup of purchased lot(s) 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.
- ✎ This auction is limited to radio and electronics related items as described above. The C.R.C. reserves the right to reject items deemed inappropriate.
- ✎ The C.R.C. assume no responsibility for the condition or ownership of any items and/or lot(s) offered for sale in this auction.
- ✎ Any item registered for sale by auction may not be sold outside the auctioneer's control and cannot be removed from the sale once the auction commences.

Museum of the Americas - Rear Court Yard
863 Santa Fe Avenue - Denver
10:00am - 12:45pm Registration - No Registration Fees!

C. R. C. Annual Auction Seller Registration Form

Please provide the following information for each item/lot you wish to register. Each seller will be allowed to initially register a maximum of ten (10) lots. After all the waiting sellers have had the opportunity to register their maximum of ten lots, then, if time and space permits, additional lots will be considered for registration. Be aware that the lots will come up for auction in random order and will have nothing to do with the order in which they registered.

Registration ends at 12:45am SHARP.

NAME: _____ **TELEPHONE:** _____

Prefer to be paid by mail? (Y/N) ___ If YES, provide your address on line below:

LOT DESCRIPTION: (Include brand, model, and year built, if at all possible)

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

(Include any additional lots on a separate piece of paper.)

The C. R. C. July At The Wings Over



Charles Brett (back to the camera) and Mark McKeown examine fine examples of early radio.



Jay Carlblom, Karl Jesness and John Thomas talk over the finer points of avionics.



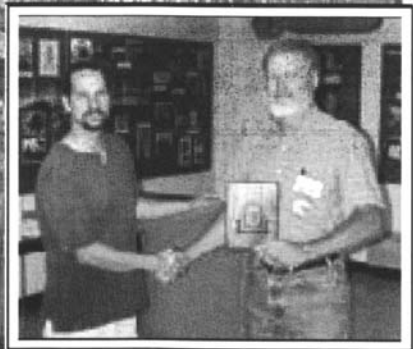
Bart Whitehouse, Avionics Curator, discusses early telegraphy technology with Mark Gibson.



Charles Brett shows the CRC membership some of the discount books available to members.



Membership Meeting The Rockies Air Museum



Mark Dittmar presents the **CRC Service Award** to Larry Weide (top/right), Charles Brett (mid/left), and Jerry Tynan for their continuing contributions to the club. "Way to go guys!"

CRC Web Site Future

www.antique-radios.info/CRC/

The CRC web site is available for pertinent information, including last minute changes in meeting dates, times, or places.

The statement above is a major reason for the CRC web site! It particularly became critical when not just the date of the auction change dramatically, but the September 8th meeting was postponed to coincide with the October 6th auction.

In no specific order, other reasons for the site are 1) to have a "presence" among the other clubs across the nation, 2) to introduce prospective new members to the CRC and the activities we have, 3) to be used to advertise For Sale and Want ads, 4) to display pictures of our collections, 5) our own area for chats and discussions, 6) our links to hundreds of antique radio sites, and other reasons yet to be declared.

To make our site interesting to visitors and our own membership, the next area to be set up will be the Gallery. *We need pictures of your individual items and pictures even of your entire collection!* Your name will NOT be associated with any of the pictures in the Gallery. All that is asked is you add a brief description to each picture. Everyone wants to see your collection! Now, you can do that without inviting anyone into your radio room!

Don't worry about how good the pictures are. We will edit the pictures to look their best. If they're too dark or light, in most cases, they can be corrected. If they seem too small or large, they can be sized electronically without hurting originals.

If you mail your pictures and want them returned, the Webmaster will gladly do that promptly. Of course, emailing them is also possible. See the "FLASH! Submissions" column on page 19 for mail and email addresses.

Please, send your pictures **TODAY** so you don't forget! - Ed. ▶

PROGRAM

SUNDAY, JULY 23, 1922.

**Beginning at 8 o'clock this evening,
KLZ will broadcast an interesting concert
of music suitable to the day.**

Musical Selections from DN4 --- 390 m.

C. R. C. Mystery "Wha'z'it!"

This picture and caption were taken from a June 1947 *Model Railroader* magazine. So, why is it in the *FLASH*? See how many antique radio parts can you find on this contraption?



Harry Bondurant of Milwaukee, a telephone circuit engineer and a pioneer O gauge model railroader, unveiled a new gadget a few months ago — his "electronic dispatcher." The *Model Railroader* crew and a few old cronies attended the ceremonies. Harry dramatically engaged the huge knife switch, checked a vent labeled "remove ashes daily," and adjusted a dial conveniently calibrated in Arabic lettering. Sounds of moving machinery were heard. The sprockets and chain began to revolve. Bells rang. Bulbs glowed. Harry put the receiver to his ear (there is no mouthpiece) and listened intently. Then he pressed a hand switch as he's doing here. Immediately the box emitted loud and horrible noises — like loose machinery running wild. Harry's usual poker-face expression changed to one of concern. He quickly pulled out the electric plug, but the fearful racket continued. Harry ran for the door. So did his alarmed guests. Then, with no one near the dispatcher, the noise ceased abruptly and all was quiet. Harry returned to the machine. No one else did. Don't ask us what it's for. We're afraid to go back and find out. We know that it dispatches guests!

Tuned Radio Frequency Super Heterodynes!

Contributed By Richard T. Ammon

Circuit designers in the mid-1920s were obsessed with developing a receiver that would work at its peak on all frequencies for both distant and local stations. If it was a great "local" receiver, typically, it fell down on distance.

When it came to the Super Heterodyne, distance was a natural, but local signals could be distorted and, depending upon the set, came in at more than one spot on the dial, interfering with other stations.

The Tuned Radio Frequency circuit and the Neutrodyne (also a TRF) were excellent at receiving local signals, but lacked the capability to reach out for the distant ones. So, why not combine the Super Heterodyne and the Tune Radio Frequency circuits, creating the best of both worlds?

At least nine manufacturers created such a Jekyll and Hyde receiver. With information found in periodicals of the day, we can study the "Camfield Super Selective" models "Nine" (shown here) and "Ten" and the "De Luxe" from Haynes-Griffith. Also, included in this oddball list from 1924 to 1927 are the Fenway "Everyman's Receiver", the Turner, and Uniradio's "Super Unidyne". Slightly different in approach were the Sargent "Infradyne Combination Set", the "Richardson

'Kan't-Go-Wrong' Super-Heterodyne 9", and O'Connor & Company's "Frequency Changer".

Of course, the distinguishing feature of these radios means they weren't double-dial receivers as one would expect of a mid-1920's Super Het. In order to be efficient, these TRF combos needed the typical stages of tuned radio frequency and their associated tuning capacitors accessible from the front panel. With several noted exceptions, they have at least three tuning dials. The Turner and the Uniradio displayed a fourth. The O'Connor only had a single tuning knob, as will be explained later in this article.

Opening the lid of one of these three-dial TRF Supers reveals a crisscross of wiring expected when two radio circuits are morphed into one. The three Tuned RF coils, not found in other Super Hets, are usually strategically placed at ninety-degrees to each other. Another major clue to this hybrid is a panel switch that allows either the TRF or the Super Het to operate at the owner's choosing.

As an example, (*Continued on page 14*)



RF stages, a detector, and two-stages of audio make up the typical five-tube TRF receiver. Perfect for near-by stations.

But, if the user wants to be adventure-some, then, the switch is the key for coast-to-coast reception. The circuit now converts the leading TRF sections into a tunable RF stage that helps signal rejection and adds the variable oscillator. (Rejection minimizes terrible howling in a neighbor's radio.) Next comes the Super Het's "First Detector", originally used as the only detector in the TRF circuit. Three Intermediate Frequency stages follow, providing input to the "Second Detector", unused in the TRF configuration, which comes alive to pass the audio signal. And, of course, the last two audio stages play themselves in this unusual scenario. In this particular example, the user now has a powerful nine-tube Super Heterodyne to drag in the most distant signals.

On the previous page is a layout of the Camfield Nine. If you're good at tracing the lines, you'll understand the complexity of this 1927 set that uses binocular-coils in the TRF section. Assembling this radio would be a nightmare for all but the most experienced radio builder!

The Richardson "Kan't-Go-Wrong", the

O'Connor "Changer", and the Sargent "Infradyne Combination Set" (not to be confused with the standard "Infradyne") deviated from the previous example. They were little more than frequency changers inserted at the detector after the TRF stages of a pre-existing home radio, such as an Atwater Kent 20, Freed Eisemann 5, or a Freshman Masterpiece. The Sargent used the famous Infradyne three-tube IF Module wired between the detector and the audio stages. The O'Connor had a single dial. However, when you wired it to your TRF, you then had a four dial Super Het!

The more complex wiring and an increased number of parts added to the expense of the hybrid over that of the typical Super Het. Therefore, the success of these hybrids was modest, at best.

As the quality of vacuum tubes increased and the development of the Screen-Grid tube made a higher degree of RF amplification attainable, these receivers disappeared overnight, giving way to better radios over all. By 1928, the need for a TRF/Super Het went the way of the loose coupler and the spark gap transmitter. ▶

Copyright © 2002 Richard T. Ammon
All Rights Reserved



A Message From Our President...

By Mark Dittmar

Last month's meeting at the "Wings Over the Rockies" air museum was a great success, with good member turnout and an excellent guided tour of the facilities by Bart Whitehouse and Dave Boyle. I would like to extend a special "thanks" to these two gentlemen for making this meeting possible. In the future, perhaps this can be made an annual event.

This meeting was also special in that we formally recognized three of our members for their many consistent contributions to the CRC over the years: Larry Weide, Charles Brett, and Jerry Tynan. One other member, who was not present at this meeting, will be recognized at the next formal club meeting. These members were given a special plaque of recognition and given a round of appreciative applause from the rest of the members. See the pictures on page 9 in this issue.

Our auction this year has been moved back to October 6th for various reasons. There will be no regular meeting in September. Hopefully, we will have cooler weather during the auction. Tom Pouliot has graciously volunteered to perform the function of auctioneer. Be sure to try to attend this event and make it a success! Auction rules and details are on pages 6 and 7.

Starting with this issue we have added an additional member to the FLASH editorial committee, Rick Ammon. Rick will be performing the task of putting the FLASH together (layout work) and sending it to the publisher. The other members of the committee will be responsible for soliciting/collecting/editing articles and forwarding them to Rick. I would like to thank Rick for volunteering his time and expertise! I think this issue turned out great!

Of course, no "President's Message" would be complete without the usual request for article submissions to the FLASH! Photos of your favorite radio, web site/book reviews, experiences at various radio meets across the country, etc are all WELCOME, in addition to formal articles. Send them to ANYONE that is a member of the FLASH editorial staff.

One other item of club business....we currently have club officer positions open, Vice President and Treasurer. If you are interested in either position, please contact any of the club officers.

In addition to the CRC activities, on Sunday, September 29, the 49th annual Boulder Amateur Radio Club 'BARCfest 2002' (hamfest) will be at the Boulder County Fairgrounds in Longmont. Doors open to the public @ 8 AM and admission is \$4. The CRC will have a display table (no sales) to show off members' stuff and promote the club by displaying our banner and distributing CRC brochures. These events allow us to attract new members and are often a source of leads for unwanted vintage stuff. Jay Carlbloom will be organizing the show table. Please contact him (jaycarl@idcomm.com) if you wish to participate by bringing display items or simply wish to help man the table and mingle with hams. You will be responsible to pay your \$4 entry fee, but there will be no charge to display your goodies. The Boulder County Fairgrounds building is a large venue and the BARCfest has usually been one of the best annual hamfests in this area.

Improving the Safety and Reliability of the Classic "AA5"

Contributed by Doug Moore
KB9TMY, and Chief Engineer for Lowery Organs

Be aware that radios, such as the kind described in this article, contain high and potentially lethal voltage. All precautions and safety procedures associated with handling of such equipment must be observed and maintained at all times. The author and the CRC assume no responsibility for any adverse results connected with the reader's use of any information contained in this article. - Ed.

The "All American Five" or 5 tube AC/DC radio was manufactured in vast quantities from the 40's until the late 50's or early 60's. Many models and styles were produced. Certain "classic" case styles have become collectors items and bring high prices at auctions and flea markets. Chances are the average radio collector will have several of this type in their collection.

All of these radios had very similar circuitry, and alas, also had certain safety and reliability problems. The worst of these is the "hot chassis" problem. Since there is no power transformer, the circuitry is powered directly from the AC line. In many of these sets, one side of the AC line is connected directly to the chassis. (See Fig. A) That means contact with the chassis could result in a nasty shock at best, and electrocution at worst. Many sets relied on plastic knobs and cases as the only user isolation from the chassis, yet the screws holding the chassis were exposed underneath the cabinet, or the back of the chassis could be touched through openings in the rear cover. Many models employed a "floating" common bus, but since it was impractical to float the ground on the tuning condenser, it was

necessary to have a fixed capacitor between the floating bus and the chassis for RF purposes. (See Fig. A or B) While not a direct connection, typical values of .05 - .25 Mfd used for this capacitor would still allow substantial AC current to pass, so the danger was not eliminated.

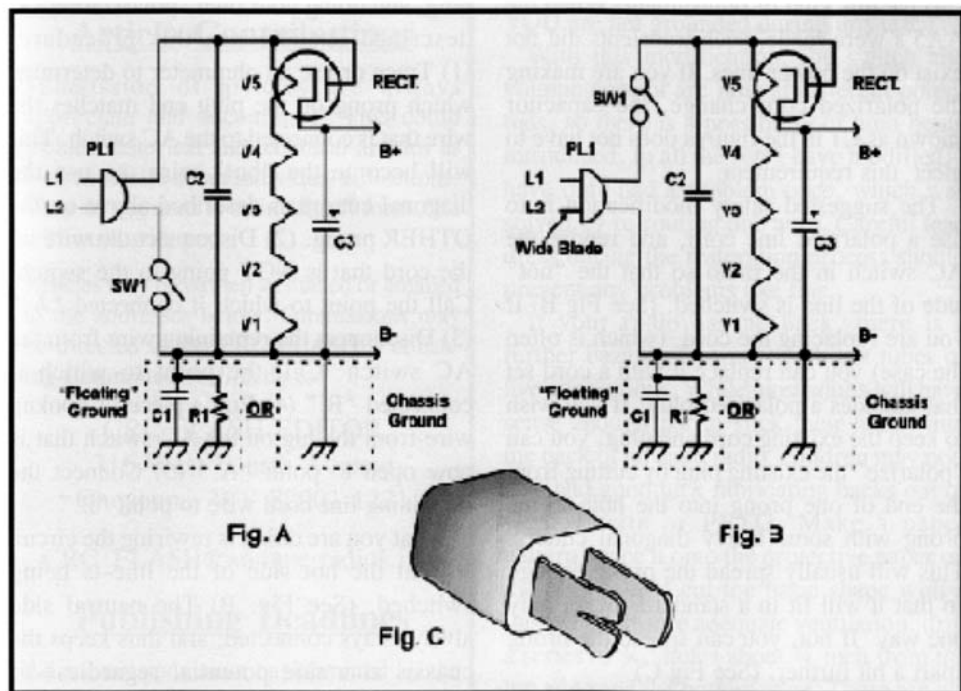
The final blow to any semblance of safety was the manufacturers almost universal placement of the power switch in the negative or "ground" side of the circuit. This means that no matter which way you happen to insert the plug, you are in danger. In one case, you are in danger when the radio is on, and in the other case you are in danger when it is off, since the "ground" is now connected to the hot side of the line through the resistance of the tube heaters. This is still more than enough energy to kill you. The manufacturers probably placed the switch in this location to keep it close to the potential of the volume control (on which the switch is usually located) to minimize hum.

With reference to Fig. A, assume that a human body is connected to an external ground. If the cord is plugged in so that L1 ends up the "hot" side of the line and L2 ends up the "neutral" side of the line, with SW1 in the closed position, the potential between the chassis ground and the external "real" ground will be close to zero, and you would be safe. But, when SW1 is in the open position, the chassis ground will be at the potential of the "hot" side of the line, because of the relatively low resistance of the tube filaments. There is more than enough current through this path to kill a person.

If we reverse the plug, putting the hot side of the line on L2, we have a similar result. With SW1 in the closed position, we have the full line voltage on the chassis. The only thing limiting the current flow through a human body would be the resistance of the

at .22 Mfd (not uncommon), the current available rises to about 9 ma, enough to kill.

On the assumption that the restored radio is going to be played, and not just sit on a shelf somewhere, it is advisable to address these inherent problems along with the usual



body and the size of the fuse or breaker associated with the wall socket. With the switch in the open position, the hot side of the line is disconnected from the circuit, so we are safe as long as we leave the radio off.

The exact same condition exists with the "floating ground" circuit. The only difference is the amount of current that will flow through the R1 C1 combination. (R1 may not be present in all models, but is usually somewhere around 220K.) With C1 at .05 Mfd, and assuming 60 Hz, the available current is about 2.6 ma. This may not be enough to kill you, but it is more than enough to cause heart fibrillation. With C1 at .22 Mfd (not uncommon) the current available

electrical restoration. It is well known that the wax/paper capacitors are the most common components to fail. It is suggested that all of these be replaced with modern poly dielectric capacitors of at least 400V ratings. These are available from many sources. The capacitor that is across the line should be replaced with a capacitor specifically designed for this use. (Shown as C2.) You can find these in the Digi-Key and Newark catalogs. Panasonic ECQ series capacitors are typical. They usually say 125VAC or 250VAC on them, rather than a DC voltage rating, and have the safety agency mark(s) imprinted on the capacitor body. The reason this capacitor is critical is that it is the one that must handle all the

“crap” that exists on modern power lines. Light dimmers, electric shavers and the like may introduce spikes as high as 1500V on standard AC lines. The agency approved (UL, CSA, VDE) line bypass capacitors (called “X” capacitors) are designed to survive this kind of punishment. When the AA5’s were made, such transients did not exist on the power lines. If you are making the polarized cord change, the capacitor shown as C1 in the figures does not have to meet this requirement.

The suggested safety modification is to use a polarized line cord, and rewire the AC switch in the radio so that the “hot” side of the line is switched. (See Fig B) If you are replacing the cord, (which is often the case) you can replace it with a cord set that includes a polarized plug. If you wish to keep the existing cord and plug, you can “polarize” the existing plug by cutting from the end of one prong into the hole in the prong with some heavy diagonal cutters. This will usually spread the prong enough so that it will fit in a standard socket only one way. If not, you can spread the prong apart a bit further. (See Fig C)

For new, polarized cords, use this procedure. (1) Disconnect the existing cord and remove it, leaving a “stub” or some mark on the point where the wire from the line that does NOT go to the switch connects. (Usually the rectifier socket.) (2) Disconnect the remaining wire on the AC switch. This either connects to a “floating ground” tie point, or to the chassis. (3) Connect the “neutral” wire from the line cord (the one connecting to the wide pin of the plug) to the chassis or ground bus where the switch wire previously connected. (Remove the piece of wire that formerly went to the switch, if necessary.) (5) Connect the “other” wire from the line cord (this will be the “hot” lead) to one lug of the AC switch. (6) Run a piece of hookup

hookup wire from the other lug of the AC switch to the point you marked or left a stub in step 1. When replacing a cord, remember to include some kind of strain relief such as a knot tied inside the chassis.

If you are keeping the original cord and plug, and doing your own “polarization” as described earlier, use this procedure. (1) Trace or use an ohmmeter to determine which prong on the plug end matches the wire that is connected to the AC switch. This will become the “hot” wire, so use the diagonal cutters as described above on the OTHER prong. (2) Disconnect the wire on the cord that is NOT going to the switch. Call the point to which it connected “A.” (3) Disconnect the remaining wire from the AC switch. Call the point to which it connected “B.” (4) Run a piece of hookup wire from the lug on the AC switch that is now open to point “A.” (5) Connect the remaining line cord wire to point “B.”

What you are doing is rewiring the circuit so that the hot side of the line is being switched. (See Fig. B) The neutral side always stays connected, and thus keeps the chassis at a safe potential regardless of whether the radio is on or off. The only hitch to this scheme is that the outlet into which the radio is plugged must be wired correctly. I suggest you purchase an inexpensive outlet tester at your local hardware store and go over all your outlets, making sure they are wired correctly. The suggested modifications to the radio will not interfere with the operation of Ground Fault Interrupters. (Schemes using a 3-wire cord will.)

To verify your work, set your meter to AC on a scale to read 120V. Check your outlet by measuring from the hole for the round ground pin or the screw holding the cover to the slot for the wide blade. You should measure zero volts. (If you don’t the outlet is wired wrong so do not proceed.) Leaving the ground lead in place, switch the

lead in place, switch the other test lead to the slot for the narrow blade. You should read 120V. (Or thereabouts.) Now plug in your radio, and measure from your ground



FLASH!



Article Contributions

Submission of articles are always appreciate and encouraged! This could include historical and technical articles as well as stories about individual collections. They do not need to be in "final" form. We will work with you.

Articles may be written and mailed or emailed to the addresses below. Submissions may be directed to the CRC FLASH! Publishing Committee or directly to:

CRC FLASH EDITOR
316 West Fourth Avenue
Cheyenne, WY 82001-1221

CRC_FLASH@antique-radios.info

Publishing Deadlines

All submissions must be submitted by the 1st day of February, April, June, August, October, and December for publication the following months.

Wanted & For Sale Ads

Submissions of For Sale/Wanted are always FREE to CRC members. Non-members may advertise in the FLASH for 20¢ per word.

CRC Publishing Committee

Mark Dittmar, Steve Touzalin,
Richard Beckman, Rick Ammon

A Special Thank You!

Thanks to **Pressworks** for printing the FLASH! **Pressworks** 303/ 934-8600

to the chassis of the radio. You should still have zero volts. Try this with the radio both off and on. There should be no difference in the readings. (For an eye opener, try this measurement before you modify the radio, with the plug inserted both possible ways, and turning the switch on and off. Be sure YOU are not grounded during this test.)

With this modification, the switch and volume control are now at different potentials, so there is a possibility of hum being introduced. In all the sets I have modified, I have only had a problem once, which was solved by re-routing one wire. Careful lead dress during the restoration process should prevent any problems like this.

If your radio has no back, there is a further hazard of contact with hot tubes or live connections. While most adults will have sense enough not to stick their hands into the back of an open radio, children may not. I've had good luck fabricating backs out of clear Lucite or PETG. Make a paper pattern, trace it onto the protective paper on the plastic, and cut the basic shape with a jigsaw. To insure adequate ventilation, drill a series of 1/4" holes about 3/4 inch from the top edge and the bottom edge. These are not critical, but the idea is to let air in at the bottom and out at the top. You will also need a "mouse hole" for egress of the line cord, which you can make with a rattail file. If there were no "T" pins to hold the back, you can find a self-tapping screw that will thread snugly into the back mounting holes, but not so snugly that it might crack the case. Remove the protective plastic from your new back, de-burr the edges and holes if necessary, and screw in place. The nice thing about the clear back is that you can see the tubes light up when the radio is on.

Following these suggestions will result in a radio that will play for many years, and be as safe as any other modern household appliance. ▶

Rock and Roll! Here to Stay?

Contributed By Wayne Gilbert

Rock and Roll is no longer just a term to describe the music of another generation, but rather "Rock" and "Roll" are the names of XM Radio's geo-stationary satellites, orbiting about 22000 miles above the Earth. These satellites are positioned to blanket the United States with digital signals from 100 broadcast channels, whose programming formats vary from talk shows to 1950s rock and roll music.

Broadcasts from these satellites are beamed to paying subscribers as digital data, the latest in radio broadcast transmission technology, and therefore free from unwanted contamination, be it radio frequency static or audio frequency commercials.

Well, that's not quite true, only some of XM Radio's currently available channels are commercial free, and although there is no RF frequency interference detected by the subscribers to this service, there are still locations where no signals of any sort can be detected. Assuredly the satellite broadcasting companies are hurriedly trying to cover all 'dead' areas with earth-based repeaters which, they hope, will make it possible for a subscriber to listen to the same channel (station) all across the US without interruptions or fade-outs.

Although only recently being heavily marketed to the U.S. public, the concept of satellite radio has been around for a number of years. In 1992, the FCC had already recognized its potential and assigned the "S" band (at 2.3 Ghz¹) as the frequency reserved for Digital Audio Radio Service in the U.S.

Since that time there have been at least two licenses² granted to companies wanting to broadcast on that band.³ The first to be licensed was the company now named Sirius Satellite Radio, quickly followed by the

company now named XM Satellite Radio. Both XM Radio and Sirius are said to have paid over \$80,000,000 for the rights to broadcast in the "S" band, demonstrating the confidence these companies have in satellite based digital radio's future.

Although the second to be licensed, XM Satellite Radio currently is the forerunner in implementing the new technology, launching its service in limited areas around the US, on 9/25/01, and increasing its service area nearly daily since. It is their geo-stationary satellites named "Rock" and "Roll" which are positioned over either US coast.



These satellites have caught the imagination of the American public and also have provided the company with the stable broadcasting platforms needed to get their digital station off to a good start. XM Radio's continued success, however, will be at least in part determined by its ability to quickly reach their goal of 400,000 subscribers, believed to be the break even point financially for the new station.

Sirius Satellite Radio, the only other U.S. based satellite radio company, has a slightly different concept of how to blanket the planet with digital transmissions. They orbited their satellites in an inclined elliptical path they claim will position at least one of their satellites over the continental US at all times, thereby providing a more constant and complete coverage by their transmissions.

Although Sirius Radio got off to an early start, technical problems with positioning their satellites and firing up their transmitters have plagued the company from the start, and have already delayed their scheduled implementation dates several times. Both Sirius and XM Radio plan to have a replacement satellite available and ready to launch in the event of any failure of their primary 'birds'.

The Sirius Satellite Radio corporation has decided to, at least initially, limit its marketing to the car/truck radio listening public. While both companies are beaming signals with approximately 2-kilowatts of power toward the earth, neither system's signal is strong enough to be picked up with a small handheld transistor radio, similar in physical size to those we've become accustomed to using.

There is another company, WorldSpace, that is currently broadcasting over Africa, Asia, and South America. WorldSpace may well have the widest listening audience for sometime to come, and while they are not currently targeting the US market, they are well established in their areas, and more importantly, they are filling a definite need of the people in these areas.



There are several reasons that satellite radio broadcasts have been slow to evolve into the replacement for local AM or FM broadcasting stations in the U.S. The most obvious one is that satellite radio service is currently available only to those who pay a subscriber's fee ranging between \$8.00 and

\$12 per month. While this monthly fee may not seem significant, there seems to be a large segment of the listening public who can see no reason to pay anything for something they feel that they already have for free.

Certainly this is a viable view for those listeners who live in large metropolitan areas where there are already a wide variety of programs being broadcast daily. Not unexpectedly, while the satellite radio companies are not totally writing off these areas, they are initially focusing on those lesser-covered areas of the U.S., where the average listener may be willing to pay for a broader range of listening choices, or at least pay for stations whose signal will not fade out over long distances or in mountainous terrain.

If the subscriber's fee is not an enough of a deterrent to satellite radio's success, then consider the cost of the radio receiving equipment that is required to receive the service. The basic AM/FM radio in your home or car cannot be used with the new satellite radio services! And since there are currently less than a dozen manufacturers making equipment with the technology necessary to receive satellite radio signals, there is still too little competition to force manufacturers to produce a low-cost system. (Although prices vary from locality to locality, and store to store, a consumer anywhere in the U.S. must be prepared to pay a minimum of several hundred dollars for an antenna and receiver).

Both XM Radio and Sirius have their own encryption technology and their own licensed radio equipment manufacturers, each producing their own line of 'separate but equal' receivers to choose from. It is (currently) impossible for subscribers to one system to use the same equipment should they decide to change services. This enforced loyalty may be a boon to the satellite company, but will certainly cause some consumers to pause before committing to the expenses required to join the satellite radio circle.

And then there is the quality of the service. It has been quoted many times that “digital sound is not automatically better sound.” Both the transmission techniques and the antenna-to-receiver connection techniques can affect the quality of the audio that reaches the listener’s ear. Lower transmission bit-rates have economical advantages to the satellite service provider, but they also reduce the quality of the final product. While this is not an issue today, it is likely to become one when the satellite service provider’s bottom-line numbers must be improved.

The issue of how the antenna is connected to the receiver is even more significant to the potential listener. The best way is to connection to a satellite-ready digital receiver. This can provide the quality of sound that the satellite companies are promoting and the consumer is normally expecting.

However, other techniques have been developed that allow a subscriber to adapt a AM/FM receiver having a CD or tape player to act as a satellite receiver. This reduces the initial cost to the subscriber, but the quality of sound produced on these adapted radios is not normally any better than the sound produced by a normal FM signal, thus defeating the purpose for subscribing to a satellite radio service.

This antenna-to-receiver connection issue is further complicated by the fact that most of the data decoding is preformed by a module contained in the antenna. Both Sirius and XM Radio have their own decoding modules (and methods), but it is generally believed that the Sirius technology provides better quality sound, but has a limited expansion capability. The average listener will probably not detect any loss of quality in the XM Radio’s method, but the limited expansion capacity of the Sirius system may become a problem very quickly.

And to further influence the consumer,

there are also several earth-based digital broadcasting technologies currently being developed and sold. Although the future of this technology appears more certain, the biggest threat that they pose at the present is to the satellite based digital stations.

In summary, it would seem that despite the satellite radio provider’s hype, the world of satellite radio may not be here yet. Quality, price, availability of components, must all be improved and then the question of whether there is a large enough market may still prohibit the widespread use of this kind of radio system for some time to come. Maybe our parents were right when they said “Rock and Roll is (are) not here to stay.”

Footnotes:

¹ The U.S. and India are the only countries currently using this frequency for their DARS systems. Other countries have chosen to use the 1452-1492 Mhz band.

² Both companies were sold a 12.5 MHz slice of the DARS frequency.

³ As in all new, cutting edge technologies, the actual numbers and names of license holders, channels they are broadcasting, and even the technology itself, is in a state of flux, changing nearly daily—what can be stated as a fact today is likely to be different tomorrow.

Sources:

Bonsor, Kevin. How Satellite Radio Works. <http://www.howstuffworks.com/satellite-radio1.htm>.

Grossman, Lev. The Race for the Future of Radio. <http://www.onmagazine.com>. June 16, 1999.

Kleinschmidt, Kirt. The Digital Audio Radio Service. QST. December, 1997.

Kushnir, Ray. CRC club member and engineer. Personal interview May 2002. ▶



MODEL N-12
(WALNUT CABINET)

MODEL N-14
(OAKOGANY CABINET)
ALL-ED'TRIC

with Peerless Dynamic Speaker, using
UNION POWER TUBES.

\$195.00 (less tubes)

See prices at your nearest radio store.

FRESHMAN
YOUR ULTIMATE RADIO

Collector Books For Sale

For C. R. C. Members!

Special CRC prices! Order at the club meetings. Mail order shipments, please add \$2.00 postage for *each* book ordered. For information or to order, contact:

Charles Brett ✎ 5980 Old Ranch Road ✎ Colorado Springs, CO 80908
719/ 495-8660 ✎ brett3729@aol.com

(This list supersedes all previous lists.)

	<u>Retail</u>	<u>Club</u>
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 Bunis, 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 - 3rd 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 Bunis, 1996 prices, Full Color	\$16.95	\$13.00
ZENITH TRANSISTOR RADIOS, 1955-1965 Smith, 1998 PG, 168 pgs, 226 color pics, info, descr.	\$29.95	\$22.00
THE ZENITH TRANS-OCEANIC (THE ROYALTY OF RADIOS) Bryant and Cones, 160 pgs, 1995	\$29.95	\$22.00
ZENITH RADIOS THE EARLY YEARS 1919-1936, Cones 1997-98 Price Guide, 223 pgs, 100's Photos, Desc., Hlst.	\$29.95	\$22.00
RADIOS BY HALLICRAFTERS, revised 2nd edition Dachis, 1999 values, 220 pgs, 1000+ pics, id's, history	\$29.95	\$22.00
CLASSIC TVS, PRE-WAR THRU 1950S 86 pgs, color & b/w pics, descriptions, etc.	\$18.95	\$15.00
Machine Age to Jet Age, Radiomania's Table Radio Guide 'III, '33-'62 Stein, 256 pgs, 100's of b/w photos	\$29.95	\$24.50
TRANSISTOR RADIOS, 1954 TO 1969 Norman Smith, with prices, 160 pgs, 1000 photos, 1998	\$29.95	\$22.00
PHILCO RADIO: 1928 - 1942 Ramires & Prosisse, 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 Sievers, 282 pgs, 1991	\$29.95	\$22.00
CRYSTAL CLEAR VOL 2 Maurice Sievers, 252 pgs, 1995	\$29.95	\$22.00
RADIO TUBES AND BOXES OF THE 1920'S George A Fathauer, 112 pgs, 1999	\$26.95	\$20.00
70 YEARS OF TUBES AND VALVES, 2ND EDITION John Stokes, 264 pgs, 1997	\$29.95	\$22.00
RADIO DIAGRAM SOURCEBOOK Richard Gray, 264 pgs, 1996	\$18.95	\$15.00
THE RADIO COLLECTOR'S DIRECTORY AND PRICE GUIDE, 2ND ED. Robert Grinder, 524 pgs, 1995	\$26.95	\$21.00
COLLECTOR'S GUIDE TO VINTAGE TELEVISION Durbal & Glenn Bubenneimer, 200 pgs, 1999	\$15.95	\$13.00
NOVELTY RADIOS, VOLUME 1 Marty Bunis & Robert Breed, 223 pgs, 1995	\$18.95	\$15.00
NOVELTY RADIOS, VOLUME 2 Mary Bunis & Robert Breed, 199 pgs, 1999	\$19.95	\$15.00
COMPLETE PRICE GUIDE TO ANTIQUE RADIOS: PRE-WAR CONSOLES Mark Stein, 235 pgs, 100's of b/w photos	\$29.95	\$22.00
TUBE TESTERS AND CLASSIC ELECTRONIC TEST GEAR Alan Douglas, 166 pgs, 2000	\$25.95	\$19.50
COLLECTOR'S VACUUM TUBE HANDBOOK, VOLUME I Robert T. Millard, 196 pgs, 2001	\$25.95	\$19.50
THE PLATING MAN'S ELECTROPLATING MANUAL, 2ND EDITION Don Culver, 38 pgs, 2000	-----	\$10.00
TUBE DATA ON CD ROM Holm, 27,000+ tubes, for Windows 95/98	\$39.95	\$28.00
SILVERTONE ANTIQUE RADIOS 1930 - 1942 Stein, 239 pgs, 2001	\$34.95	\$25.50
ANTIQUe RADIOS COLLECTOR'S GUIDE 5th EDITION John Slusser, 264 pgs, 2001	\$19.95	\$15.00
NEW <i>RadioCraft Jubilee - March 1938 - Hugo Gernsback - Reprint - Vestal</i>		\$12.00

Today, send pictures of your collection, favorite sets, speakers, unusual items, and the family pet to use on the CRC Web Site Gallery! See page 19 for mail and email addresses! Let's fill the Gallery pages!

"The Open Trunk" Classified Advertisements

✎ See page 19 for ad insertion details ✎

FOR SALE: Beautiful Gloritone 99-A Cathedral \$300. Rare Airline Tombstone \$190. Trav-Ler Tombstone and 6 volt battery \$165. Philco 41-221 \$80. Philco P.T. 94 \$75. Firestone 2-tone leather \$50. Stromberg Carlson 500H \$45. Emerson 301 \$40. Olympic leather suitcase \$40. All working and in good condition. Radio Club T-Shirts \$8.00 each. See these items at the Denver Auction. **John Moore** Des Moines, IA.

WANTED: White or beige knobs for a GE 401, 410, or 411. They look like the smaller size of Reeses' Peanut Butter Cups. **Mark Gibson** Loveland, CO 970/ 593-3032 mark_gibson@hp.com

WANTED: General Electric clock radios, models 935 & 936. **Tom Kelley** 971½ Pleasant Street, Boulder, CO 80302 303/ 444-1837

WANTED: Stewart Warner model R-123 chassis, used in receiver models 1231 to 1239 (see Riders volume 6, page 6-2 for picture of chassis). Chassis for AK 217 and Majestic 371. **Jerry Tynan** 303/ 642-0553 jtynan@worldnet.att.net

WANTED: Female power (battery) plug for a Kemper portable K-52. Similar to octal except it has 7 pins and 2 round locating pins (edge and center). Knobs for a Crosley 601 Bandbox. **Mark McKeown** 303/ 278-3908, mmckeown@tde.com

WANTED: KLH model 8 receiver with or without the matching speaker. Parts for 1934 Zenith 880 console (835, 880, 881 parts will work): Dial glass, black "Z" pointer, knobs (round wood, no "Z"), 5-tube shields. Plastic dial strip (with frequency) for Philco 89 and 19 with separate short-wave band (late version) **William Hinkley** 303/ 730-8539 philcobill@aol.com

WANTED: Hoffman Nugget pencil tube pocket radio. Japanese WWII Morale receiver. Will pay your price. **John A. Miner** 303/759-9152, hohum@quest.net

WANTED: "Heavy metal" radios, accessories, and literature. Communications gear from manufacturers such as Hallicrafters, Hammarlund, Collins, National, etc. Also Allied Radio/Knight-Kits and anything related to telegraphy. Cash or trade. **Robert Baumann** 303/ 988-2089 rgbdenver@att.net

WANTED: Novelty radios: Pink Panther WB-122, Mr. & Mrs. "T" Boody Mary Mix BB-106, Spam radio BB-77, Bikini Girl BB-243, Blinking Cat BB-244, Good/Bad News BB-261. Fiddler On The Roof BB-366, Minizoo Snow White BB-429, Gun Beam radio BB-522, Allied Chemical Building radio BB-598, Helmet radios (NY Giants, NY Jets, Philadelphia Eagles, New Orleans Saints, San Francisco 49'ers Atlanta Falcons. **Rod Smith** 145 Carr Street, Lakewood, CO 80226, 303/ 274-7522

WANTED: Super Heterodyne literature, brochures, books. Also, **CRAVE** Super Het radios (Camfields) and parts, all prior to 1930. Preparing a book on the subject, "The Rolls Royce of Reception". Thanks!
Rick Ammon 970/ 221-4001, wireless@antique-radios.info

WANTED: Amateur (ham) transmitters by Aero Products, Globe (WRL), Gross, Harvey Radio Labs, Leeds, Stancor, Thordarson, & Utah. **Mark B. Dittmar** 8551 W. 95th Drive, Westminster, CO. 303/ 403-0669, dittmar@bwn.net

WANTED: Parts for 1934 Zenith 880 console (or 835, 880, 881): dial glass, black "Z" pointer, tube shields (5), knobs (round wood without the "Z"). Also need plastic dial strip (with frequency) for Philco 89 and 19 with separate short-wave band (late version). **Dan Buseti** 719/ 473-2443 menwagoh@msn.com

FOR SALE: Copper rod, several diameters available to make your own soldering iron tips (or I can for you). **David Boyle** 1058 Colt Circle, Castle Rock, CO 80104 303/ 681-3258

WANTED: Novelty **tube** radios, such as books, horses, lamps, houses, kegs, etc. **Ray Windrix** 617 N. Murray Blvd. Colorado Springs, CO 80915, 719/ 597-5098 or 719/ 596-7196

WANTED: Old horn speaker parts, drivers, and incomplete units. Also, old light bulbs with tip and good filaments. **Charles Combs** 508 E. Daniel Street, Albany, MO 64402, Phone/Fax: 660/ 726-3038

WANTED: Old radio magazines for my research library in Antique Radio. Need publications like Radio Design, Radio Age, and Radio Craft - 1920s through 1940s. Will provide home or will purchase singles or full sets at a fair price. Also, interested in publications from various companies: Aerovox, RCA, Sylvania, Bell Labs, etc. Need old test equipment literature and manuals. **Charles Brett** 5980 Old Ranch Road, Colorado Springs, CO 80908, 303/ 495-8660



ARBORPHONE

*Perfected Reception
in this 1926 Model*

You will be proud of your Arborphone for the vast reaches of radio are yours. Whether you are an adventurous rover or just demand a purity of reception from your favorite stations, Arborphones will satisfy you. Beauty—good taste—Arborphone possesses both virtues. Fashioned in a design of simplicity the cabinet instantly commands admiration for its maker's artistry. A most interesting radio message, in which Arborphone is described will be given you upon request.

DEALERS

In every community will be an Arborphone dealer. Priced at \$55 Arborphone is one of Radio's choice opportunities. Fully guaranteed by a thoroughly reliable organization.

MACHINE SPECIALTY COMPANY

Ann Arbor Michigan

"All You Could Ask of a Radio"

\$55

Add \$5 West of the Rocky Mountains

**AD DEADLINE
FOR THE NEXT ISSUE**

OCTOBER 1st

Email your ad to
wireless@antique-radios.info

**Radio Repair and
Restoration Service**

David Boyle ✈ 303/ 681-3258
1058 Colt Circle
Castle Rock, CO 80104

**Colorado Radio Collectors
Antique Radio Club**

316 West Fourth Avenue
Cheyenne, Wyoming 82001-1221



FIRST CLASS

No September 8th regular CRC meeting.

It's been postpone till October 6th, the revised date for the Annual CRC Auction.

See pages 6 and 7 for details!

110-5103-13