



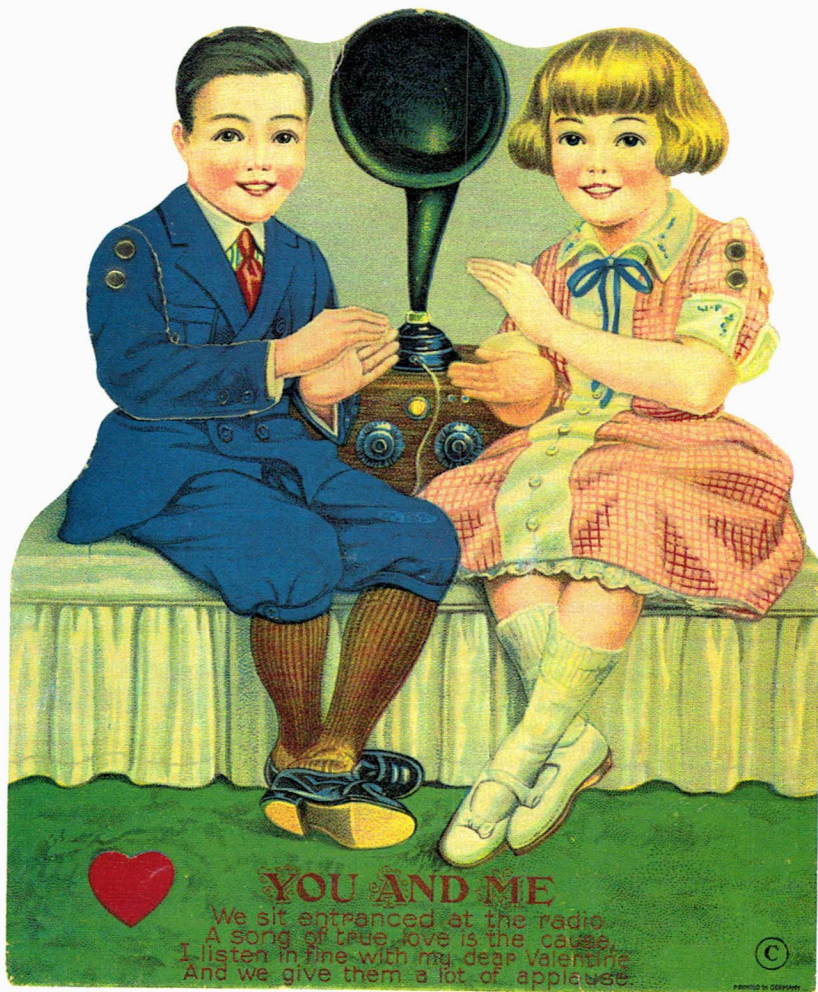
ANTIQUE RADIO CLASSIFIED



VOLUME 15

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NUMBER 2



A.R.C. — THE NATIONAL PUBLICATION FOR BUYERS AND SELLERS
OF OLD RADIOS AND RELATED ITEMS — PUBLISHED MONTHLY

ANTIQUE RADIO CLASSIFIED

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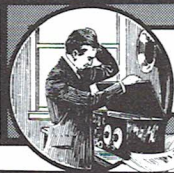
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Full	12 7/16 x 7 1/2	7 3/4 x 4 3/4	7 3/4 x 4 3/4	4 3/4 x 3 3/4	\$289.00	\$769.00	\$1329.00*	\$2325.00**	\$69.00†
1/2 H	5 1/4 x 7 1/2	3 5/16 x 4 3/4	3 5/16 x 4 3/4	2 1/4 x 3 3/4	146.00	389.00	675.00*	1175.00**	37.00†
1/2 V	12 7/16 x 3 9/16	7 3/4 x 2 1/4	7 3/4 x 2 1/4	4 3/4 x 2 1/4	146.00	389.00	675.00*	1175.00**	37.00†
1/4	5 1/4 x 3 9/16	3 5/16 x 2 1/4	3 5/16 x 2 1/4	2 1/4 x 2 1/4	74.00	197.00	342.00	595.00	19.00†
1/8	2 5/8 x 3 9/16	1 5/8 x 2 1/4	1 5/8 x 2 1/4	1 1/4 x 2 1/4	38.00	101.00	177.00	305.00	9.00†
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* Full & 1/2 page, 6-mos.: 1/2 due with order; 1/2 due in 3 mos. ** Full & 1/2 page, 12-mos.: 1/2 due with order; 1/2 due at 3, 6 & 9 mos.

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ANTIQUE RADIO CLASSIFIED



EDITOR'S COMMENTS

For as long as anyone can remember, February has meant valentines. A little research tells us that the association of a day for the exchange of cards of affection and the St. Valentine of ancient Roman times is purely accidental. Still, our cover reflects how Valentine's influence has pervaded all aspects of our culture for generations — even the phenomenal growth of interest in radio in the 1920s.

A few statistics tell the story: In 1922, 100,000 radios were sold. By 1925, only three years later, 2,000,000 were sold. The boy and girl applauding the love song they hear on the radio are indicative of America's love affair with radio. We collectors know what that is all about.

Of course, this love affair has extended far beyond America's shores, as we know from our international subscriber base and from the reports of collectors like Australian Richard Begbie. In our lead article this month, Richard, a journalist and radio collector, tells us that early interest in radio in Australia lagged that in the U. S. by only a few years. Although early sets were largely American-made, the "Golden Age" of Aussie-manufactured radios began in 1929, a result of heavy import restrictions. Of added interest to the story is the rapid growth of the modern-day Historical Radio Society of Australia (HRSA), modeled on our A.W.A.

A.R.C. staff member Dick Desjarlais writes about a unique piece of equipment found at a flea market. The Raid-O-Larm, an accessory with only a few simple components, converts an ordinary receiver into a household World War II air raid warning device. Dick and our in-house consultant Ray Bintliff found it hard to figure out just how this seemingly simple gadget operates. They met the challenge, needless to say.

Just by chance we have more than one staff contributor this month. Dave Crocker has contributed two articles on crystal sets. One he built from rare, authentic Murdock parts, knowing that to find an original would be practically impossible and expensive; the other, a Crocker-Wheeler, was obviously bought for its name, and Dave hopes readers will be able to supply more information about his "family set."

Alan Douglas has been unrelenting in his search for information about the 1931 Minerva Midget, which he first inquired about in the November 1996 A.R.C. He now owns one that surfaced in South Dakota, but his search for information goes on.

Once again we feature a *Staff Profile* by Managing Editor Dorothy Schecter. The subject is Scott Young, our production manager, who has moved on to "Corporate America" after ten years with A.R.C. This is our third amicable parting in the past year — one due to family relocation, a second to full-time motherhood, and now Scott, to the career ladder. However, we are fully restaffed, and the show goes on! As always, we're ready to carry on the multiple tasks involved in bringing A.R.C. to you in top form.

A favorite subject among you radio collectors ap-

pears to be permeability tuning. Ray Bintliff has compiled another batch of reports on this subject, including that of another down-under contributor — John Stokes, author of *70 Years of Radio Tubes and Valves*. John reports on radios using permeability tuning only for bandsread purposes, while other collectors report "sightings" in auto, FM, home brews, and communications receivers.

Hank Trabold shares an interesting, short human-interest story about hearing basketball history being made on his first homemade crystal set.

The 9th of Alan Douglas' tube-tester articles is most interesting because it talks about Hickok's development of a new and revolutionary (in the 1930s) circuit for tube testers. This circuit measured transconductance directly, and Hickok used it into the 1970s.

Photo Review features a number of unusual sets. In contrast are a 17-pound crystal set and a feather-weight, palm-sized British set. A classroom demonstrator set is also of interest.

New Area Code. Our telephone area code has changed from 508 to 978. We hope to get all phone references in A.R.C. changed by the March issue.

A.R.C. Mail Dates for March & April Issues. The mailing dates for these issues will be the 27th and 28th of the previous month. Thus, most subscribers will receive their issues after the first of the month. "Mailing of Issues" on the opposite page gives more details.

Coming Radio Events. As always, there are multiple radio events in the coming months. In particular, we hope to see you all at Radio XXIX on Sunday, February 22, at the Westford Regency Inn in Westford, Mass. Sponsored by the Greater Boston Antique Radio Collectors, this annual event was attended by over 800 last year. February also is the month for the Houston Club's Annual Convention and Auction and the San Francisco area Vacuum Tube Weekend. More information on these and dozens of other events are detailed in our *Coming Radio Events* pages.

Happy Collecting.

John V. Terrey, Editor

ON THE COVER

Our cover, appropriate for February, is a 1920s cutout valentine, printed in Germany, and chosen from your editor's collection. The couple's arms pivot on brass fasteners, allowing them to clap hands for the love song they hear on the early radio with horn speaker. The verse reads as follows:

YOU AND ME

*We sit entranced at the radio
A song of true love is the cause.
I listen in fine with my dear Valentine
And we give them a lot of applause.*

The inscription on the back in ink is, "To Teacher, from Harold, Calvin, and Martella." We wonder if teachers still receive something special on Valentine's Day.

Signals from Down Under

BY RICHARD BEGBIE

"Interest in old radio is booming in Australia. Specialist shops in state capitals, a national society, and dozens of local groups have sprung from nothing over the last decade." So reports "Canberra Times" writer Richard Begbie from near Canberra — the nation's capital. A.R.C. considers it a lucky break to be able to present this view of the radio collecting world "down under" from the pen of a newspaper reporter who is experienced in ferreting out the facts. (Editor)

Sometime in 1970 an officer of the Australian Broadcasting Control Board set out from Melbourne for the Victorian town of Ballarat, famous as a gold boomtown of the 1850s. He was to carry out the Board's annual technical inspection of local broadcast station 3BA. His name was Ray Kelly, and he wasn't ready for what followed.

To celebrate 40 years of broadcasting, 3BA had invited listeners to bring in old radios for display. A terrific response led to founding a museum in the station's basement, and as Ray wrote recently, "Once I saw this museum, I found it hard to concentrate on the task of inspection. Until that day my sights had been set on innovations in the electronic field. But all this lovely old gear started me on the great nostalgia path which has kept me so busy ever since."

So began what is now a nationwide revival of interest in old radio. Ray began collecting and restoring old sets. Then he met the owner of another museum in the central desert town of Alice Springs, who encouraged him to start a society along the lines of the original Antique Wireless Association of America (A.W.A.). Having seen the possibilities at the New York State A.W.A. Conference in 1981, Ray finally formed the Historical Radio Society of Australia (HRSA) with a couple of like-minded souls.

The society has come a long way since. Two or three old radio nuts have grown into a paid-up membership topping 800 — a significant figure from a population base of 18 million. Clubs meet

across the country for hardware and information exchange. Specialized interests vary widely, and a meet might feature military equipment, crystal sets, early portables, etc. No gathering is complete without the mandatory auction, and while prices fluctuate here as everywhere, quality gear appreciates in value by the year. Interest focuses on Australian sets, though what is "Australian" takes us back to the beginnings of radio down under.

EARLY RADIO IN AUSTRALIA

With its great distances and sparse settlements, Australia took to radio early. In the 1920s, legendary inland medical pioneer John Flynn inspired the development of the pedal radio, which became a lifeline for remote homesteads in the lonely outback. And it was Ernest Fisk, a young Marconi shipboard wireless operator, who made

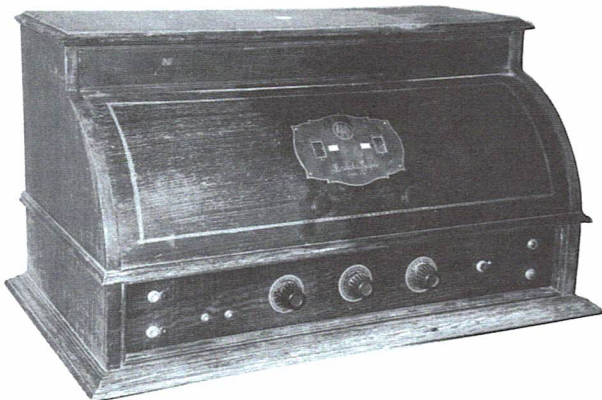


Figure 1. The A.W.A. Radiola C26, the 1926 version of the superhet — the "cash register radio."

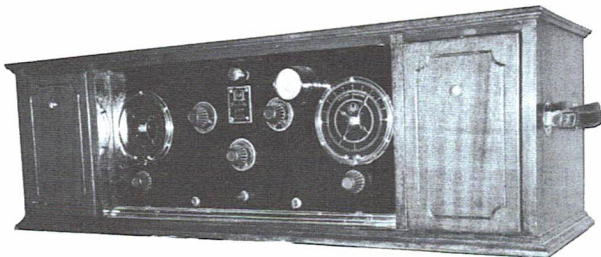


Figure 2. The A.W.A. Radiola C-25, a 1925 6-tube superhet, is very similar to the U.S. catacomb model.

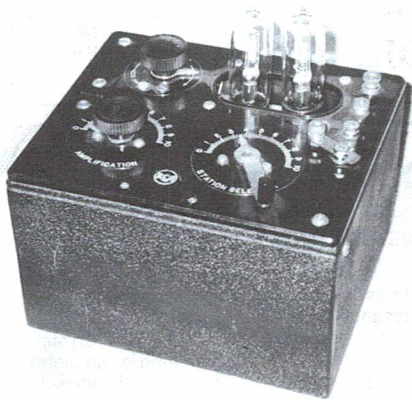


Figure 3. An RCA Radiola III was sold in Australia by Australian General Electric on condition that the Radiola brand name be removed.

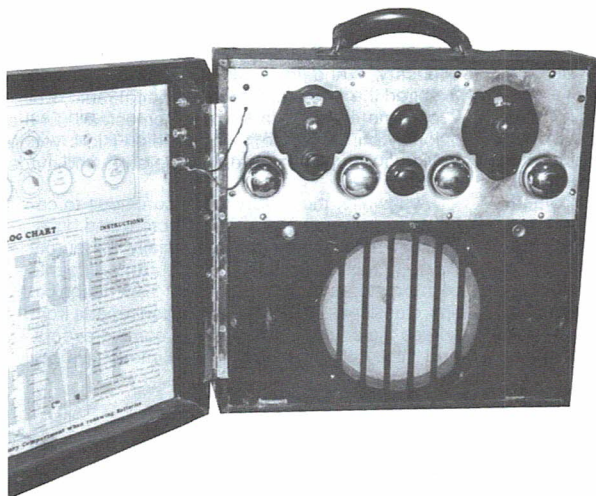


Figure 4. A 4-tube Airzone. Airzone went on to become one of the most highly regarded Australian manufacturers.

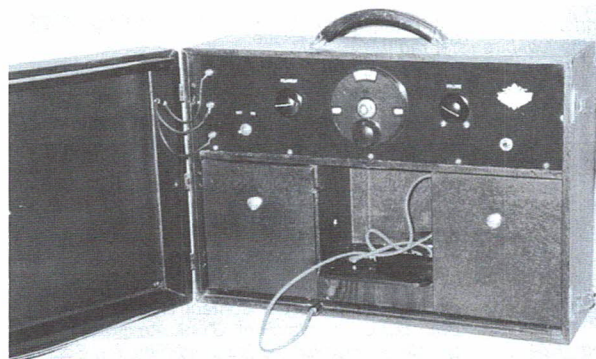


Figure 5. A 3-tube Grodan. The plate reads "Manufactured by Grodan Wireless Appliances, Sydney."

the first Morse and voice radio contacts between Australia and England.

Fisk was appointed resident engineer for Marconi in Sydney, New South Wales, in 1911. When a patent dispute with the already established Australasian Wireless, Ltd., broke out, he engineered a merger. Thus was born Amalgamated Wireless (Australasia), Ltd., and for Aussie buffs, A.W.A. means only one thing — the company that Fisk would dominate for over 30 years.

A.W.A. soon hitched its wagon to RCA, importing spark equipment and other components before beginning manufacture in its own right. When general public broadcasting began in Sydney in 1923, Fisk at once planned a line of commercial receivers. In 1924, the first of A.W.A.'s Australian Radiolas were produced, and by 1926, the *A.W.A. Radio Guide and Price List* shows over a hundred pages of receivers, speakers, headsets, and components. Its line of receivers ranges from RR1 — a \$7 crystal set — to the Model C-26, the A.W.A. Radiola Super.

This A.W.A. Radiola Super was Fisk's version of the RCA superhet, and because of its shape, this 1926 model, shown in Figure 1, soon became known as "the cash-register radio." Its floor version, set on a handsome cabinet with cabriole legs and a top-of-the-line Amplion speaker, was priced at 120£ (around \$240) — definitely only for the rich.

The A.W.A. Radiola Super Model C-25, shown in Figure 2, is similar to the original RCA Superhet. Most A.W.A. Radiolas bore little relation to their U.S. counterparts. The Australian III and IIIA, for example, were 3-tube sets with RF, detector, and AF stages.

To confuse the issue still further, the Australian branch of General Electric (AGE) actually did import RCA's Radiolas. Though the sets pictured in AGE's ads clearly carried original nameplates, the copy ignored the Radiola name. By the time these sets came to be sold, "Radiola" had been obliterated.

Figure 3 shows an RCA Radiola III sold on the Australian market. It remains true that, despite the efforts of Fisk and other budding Australian manufacturers, most radios were imported during the 1920s. Thus, there are a number of American TRF sets in most Aussie collections.

AUSSIE GOLDEN AGE OF RADIO

All that changed at the end of 1929, when draconian import restrictions effectively brought straight-out importing to a halt. It was then that the "Golden Age" of
(Continued on following page)

(Signals from Down Under, continued)

Aussie radio manufacture began.

Hundreds of companies, from 1- and 2-man backyard operations to A.W.A.'s huge Sydney plant, turned out an incredible variety of radios. Local companies came and went at a bewildering rate. Some stayed on to become Australian icons. Names like Airzone and Tasma came to enjoy an enviable reputation for fine electronics and reliable performance. Two portable radios — the Airzone and the Grodan — are depicted in Figures 4 and 5.

Consoles were a feature. By 1933, more consoles than mantels were being produced, and historian John Stokes calculates that in the years 1936-1939, production of consoles varied from 60 to 100 percent of all radios made. The Model C64, shown in Figure 6, is a fine example of an A.W.A. console.

However, in Australia as elsewhere, the early Depression years also saw the development of the cheaper mantel set, and Fisk was at the forefront in this market too. While RCA's R-5 Radiolette cathedral was one-of-a-kind in the States, Fisk's 1932 Model C87 (a 4-tube TRF) saw not just the first local use of a Bakelite cabinet, but also the start of a 6-or 7-year hallmark series.

Radiolettes with an Art Deco step-sided cabinet emerged in late 1934 and became the most instantly recognizable of Australian 1930s classics. In fact, the Fisk Radiolette, in one form or another, continued to be popular well into the 1950s. An example of these Art Deco radios



Figure 6. This 1930 A.W.A. Radiola Model C64 console performed well for a 6-tube TRF. The 1-dialer made radio far more accessible.

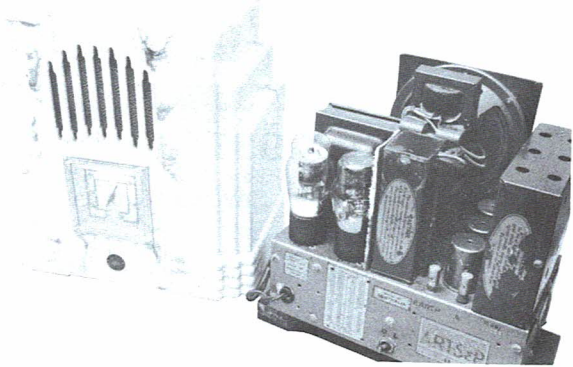


Figure 7. A 1934 A.W.A. Radiolette Model 28 cabinet and chassis. The Radiolette step-sided series has taken the fancy of Australian collectors.

appears in Figure 7.

While Fisk and A.W.A. are central to the Australian story, they remain only part of it. Hundreds of brand names emerged during the '30s, '40s and '50s, and even a casual glance at period trade magazines will still produce surprises. And there are other stories at least as fascinating as commercial radio. Tales of the outback, of military radio, of make-do ingenuity, must wait for another time.

Meanwhile, the HRSA today continues to catalyse a growing network of collectors and buffs, through ham contact and especially its journal *Radio Waves*. A typical edition will carry accounts of the restoration of three or four sets, technical tips, classifieds, meeting and auction reports from across the country, and notes of coming events. And Ray Kelly, who set it all in motion, is still going strong.

References:

A.W.A. *Radio Guide*. Sydney, Australia: Printers Ltd., Roseberry, 1926.

Stokes, John W. *More Golden Age of Radio*. Invercargill, New Zealand: Craig Printing Co., Ltd., 1990.

Photo credit: Ralph Kettle, Canberra.

Thanks to Bill Smith of Glen Iris, Victoria, owner of the A.W.A. Radiolette.

(Richard Begbie, RMB 113, Bungendore 2621, Australia. Email at rbegbie@atrax.net.au)

Richard Begbie lives on a farm near Canberra, where he divides his time between merino sheep, writing, and a fascination with unusual 1920s broadcast receivers, from crystal sets to consoles. He is a columnist for the "Canberra Times," which he describes as Australia's "nearest thing to the 'Washington Post.'"

For information about HRSA membership, including "Radio Waves," contact: Rex Wales, P.O. Box 2283, Mt. Waverley 3149, Australia. U.S. travellers may visit the National Film and Sound Archive in Canberra, or talk to its radio/TV technical consultant, Ron Snashall.

WITH THE COLLECTORS

The 1931 Minerva Midget

BY ALAN S. DOUGLAS

Thanks to Marvin Paul and Jonathan Nadenicek at Auto Radio Specialists in Sioux Falls, South Dakota, an honest-to-goodness AC/DC Midget Minerva has surfaced (see my inquiry in A.R.C. November 1996). The set was owned by one of Marvin's customers who hadn't called for it in a year. Marvin had to find the guy and convince him to sell the set to me rather than spend money having it repaired.

The set, as shown in Figure 1, does appear to me to be the very first AC/DC radio using auto-radio tubes, nearly a year ahead of the International Kadette and a full year before the Emerson Compact. At \$19.95 with free service (\$26.95 with speaker), it was cheaper too.

Leo Gibbs, who provided a great deal of information for my books, tells me he used to repair these sets in Chicago as a sort of factory-authorized service station. Minervas were popular in the DC districts, particularly among live-in domestic help who couldn't afford the usual radios. However, Leo could never discover the location of the factory, or even obtain an official schematic. In 1931!

Two manufacturers made the tubes: Sylvania had developed the Types 36, 37 and 38 by April 1931, while National Union (NU) had its own 64, 65, 67 and 68 series. The Sylvania tubes, with 0.3A filaments, soon became the industry standard. The NU tubes with 0.4A filaments were used only by a few makers. The Minerva's sockets are stamped with the NU numbers, as listed in an original sales flyer, but later sets were made with 30-series tubes.

The original Sylvania series was identified as Types 171C, 224C, and 227C, reflecting the characteristics of their prototype AC tubes. The 224C became the 36, while the 227C became the 37, but the 171C was dropped in favor of a new power pentode, the Type 38. Leo recalls the 171C being used as a rectifier, but most such AC/DC sets,

including the later Minerva, used the 37 triode.

The Minerva was serviced in Los Angeles in 1937, and at some point was converted to 30-series tubes and a resistance line cord, as shown in Figure 2. The original dropping resistor mounted at the back of the set dissipated 35 watts and was a shock and a fire hazard. Marvin reported that with a temporary filter cap added the set did receive stations when he tried it out. I haven't dared.

Fritz Czapek in Austria tells me that Minerva was a well-known radio company in Vienna with several foreign affiliates. I'm sure this Chicago outfit had no connection, but European immigrants, of which Chicago had many, might well have recognized a familiar name. Minerva, incidentally, was the Roman goddess of wisdom.

One puzzle remains — how did International's chief engineer Robert Wuerfel ever get a patent on this AC-DC circuit, or why it was ever worth any more than scrap paper? Unless Wuerfel was behind this Minerva too, but I have no idea who the original designer was. Can anyone add more?

I could add a few more tidbits that I didn't know before, such as that RCA, who bought the patent, eventually filed a disclaimer in 1944 abandoning all claims. So, evidently this patent really wasn't worth any more than scrap paper. I'm now waiting for a copy of the original application.

(Alan Douglas, Box 225, Pocasset, MA 02559)

Alan Douglas, an electrical engineer, has written over 100 articles for A.R.C. and other publications. His books "Radio Manufacturers of the 1920s," Volumes 1, 2, and 3, are highly regarded resources for the radio-collecting community.

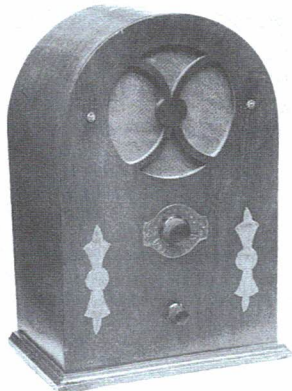


Figure 1. The 1931 Minerva Midget receiver.

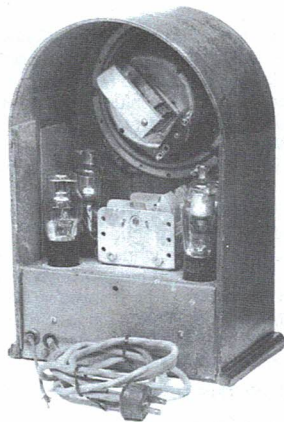


Figure 2. Rear view of the Minerva Midget.

WITH THE COLLECTORS

Raid-O-Larm

BY DICK DESJARLAIS WITH TECHNICAL INPUT FROM RAY BINTLIFF

Over a year ago, Dick Desjarlais discovered a device called the "Raid-O-Larm." The claim was that this unit operated as an air raid warning during World War II. It predates CONELRAD (Control of Electromagnetic Radiation), an emergency civilian defense broadcast system effective from 1954 to 1965. See Fred Geer's article on Conelrad in the June 1994 A.R.C. (Editor)

One never knows what will turn up at the Brimfield, Massachusetts, flea market, one of the largest and most reputable antique flea markets in the country. One item which attracted my attention during the July 1996 show was the small wooden box, measuring 6" x 3" x 3", shown in Figure 1, with the name RAID-O-LARM just below the single knob. A Masonite back was glued securely to the box, providing no access! Although an installation sheet came with the unit,



Figure 1. The tiny Raid-O-Larm cabinet, measuring only 6" x 3" x 3".

there was no clue as to its internal circuitry or its function. Did this mysterious box contain a top secret circuit, never to be revealed?

Figure 2 shows the blunt warning about telephone use during an air raid as crudely stamped on the Masonite backing. One side of the original carton, with its identifying label, is shown in Figure 3. The manufacturers, Black Out Control, Inc., 545 Fifth Avenue, New York, N. Y., claimed the Raid-O-Larm "Safeguards Offguard Hours."

Still curious about what ingenious circuitry and components remained hidden in the mystery box, I couldn't resist the urge to carefully pry loose the Masonite backing. What a disappointment! Inside the box, shown in Figure 4, were only two discrete components — a rotary switch and a resistor!

HOW THE RAID-O-LARM WORKS

The Raid-O-Larm is not a complicated device. As the schematic diagram in Figure 5 shows, it consists of a SPDT rotary switch (S1), a 250 K

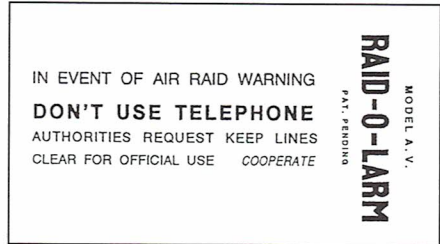


Figure 2. Stamped warning on the Raid-O-Larm's Masonite back.

ohm resistor (R1), and a small capacitance (C1). C1 is a gimmick. This low cost substitute for a discrete capacitor is formed by wrapping the ends of two insulated wires around each other.

The designers kept the number of electrical components at a minimum. Raid-O-Larm did not use terminals or connectors. The four color-coded wire leads that extend from the rear of its cabinet were used to make the necessary connections to a radio.

Although the availability of radio parts for civilian use was limited because of wartime priorities, the simple components used in the Raid-O-Larm must have been fairly easy to scrounge. The following footnote from the Raid-O-Larm instruction sheets serves as a reminder of many wartime shortages that affected not only business enterprises but the general population as well during World War II:



Figure 3. Label on the original carton with the slogan, "Safeguards Offguard Hours."

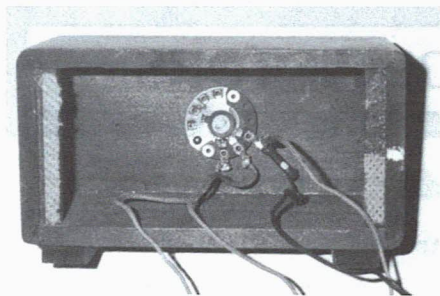


Figure 4. An inside view of the "mystery box" — cluttered it's not!

"Important: Due to war conditions, it will not always be possible to secure vari-colored leads. For example, all may be white covered wire or black, but in every case the ends will be dipped red, yellow, green or black, as called for."

HOOKUP

Connecting the unit to a radio was not a simple task, although it was remarkable for its overall simplicity. It required the services of a knowledgeable technician to hook it up. The manufacturer provided three options for wiring, depending on whether the radio being rewired has bias or plate detectors, an automatic volume control system, or grid-leak detectors. Figure 5 shows the recommended connections to a typical AVC radio.

The Raid-O-Larm's operation in the "Radio" function leaves the radio's circuitry basically unchanged, as shown in Figure 6. In this position, S1 connects the arm of the volume control to the grid of the first audio tube.

The "Alarm" function utilizes C1 to produce an audio alarm signal and S1 to turn the alarm on or off. When switched to the "Alarm" position, the grid is connected to 1, which, in turn, is connected to the plate of the audio output tube. C1 couples sufficient energy back to the grid of the first audio tube to cause the two audio stages to go into

oscillation and produce a loud audio tone in the radio's speaker, but only in the absence of a strong radio signal.

R1 is connected to the radio's AVC bus, and its function is to apply the AVC voltage to the grid of the first audio tube. When a strong local station is tuned in, the AVC bias voltage will cut off the tube and prevent the alarm from sounding. The radio would not sound an alarm as long as the station remained on the air.

OPERATION

The theory behind the Raid-O-Larm was that in the event of an emergency, all AM broadcasting stations would go off the air, and the radio would emit a howling sound to alert the user. Unfortunately, if the station ended its normal broadcasting schedule and closed down in the wee hours of the morning, the user of a Raid-O-Larm would get an early, and unwanted, wake-up call.

At best, the Raid-O-Larm probably operated only marginally, but it does bring many of us back to those trying days when we all had to "make do" with what we had, putting our Yankee ingenuity to the test.

(Dick Desjarlais, 48 Foster St., Littleton, MA 01460)

Dick Desjarlais is on the staff of A.R.C. His interest in radio began at age 14 when he was an apprentice in a radio repair shop. This interest renewed itself when he retired from school administration, and since 1987, he has been an active collector and dealer.

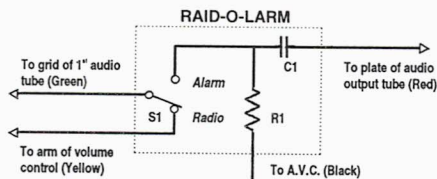


Figure 6. The Raid-O-Larm schematic.

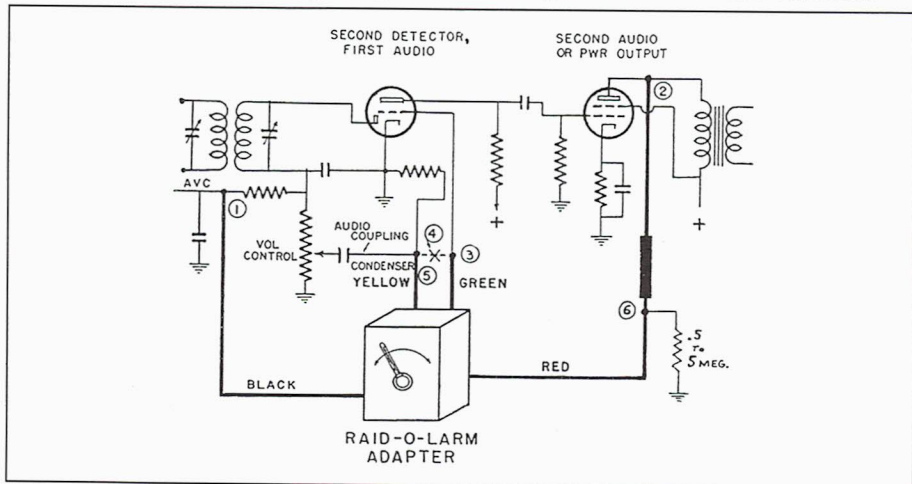


Figure 5. The schematic for hookup to a typical radio with AVC (from Raid-O-Larm instructions).

WITH THE COLLECTORS

Murdock Crystal Receiver

BY DAVE CROCKER

If you look on page 65 of McMahon's *Vintage Radio* no doubt your eyes will slowly drift over to page 64, to all those fantastic monster receivers like the I-P-501A made by the Wireless Specialty Apparatus Co. But, back on page 65 are shown some beautiful examples of really early component receivers, assembled by pre-1920s craftsmen unwilling to spend the big bucks for what the exotic items on page 64 cost (then and now!)

The early "board-type" receivers shown on page 65 are beautiful to behold. Imagine owning one. Well, I did imagine it, and the object of my imaginings was the Murdock long-wave receiver at the very top of that page. So, many years ago, I vowed to possess one for my very own someday. Because these sets are seldom parted with, I began the slow process of locating all the right parts to put one together.

Since the replica set consists entirely of Murdock parts, it took over two years to acquire the components needed to assemble this piece of 1915 technology, as shown in Figure 1.

This receiver is comprised of a Murdock Type 334 loose coupler, a Murdock 43-plate variable condenser, a Murdock selective loading inductance, a Murdock 23-plate variable condenser and a Murdock silicon crystal detector with built-in phone condenser. All this fits nicely on a 17" x 13" decorative mahogany board. A closer view of these components can be seen in Figure 2.

For frosting on the cake, I added a pair of rare Murdock 2000-ohm, Type 55 headphones (which I had found in the original box!). These and an original Murdock metal nameplate really complete the piece.

The wiring under the board,

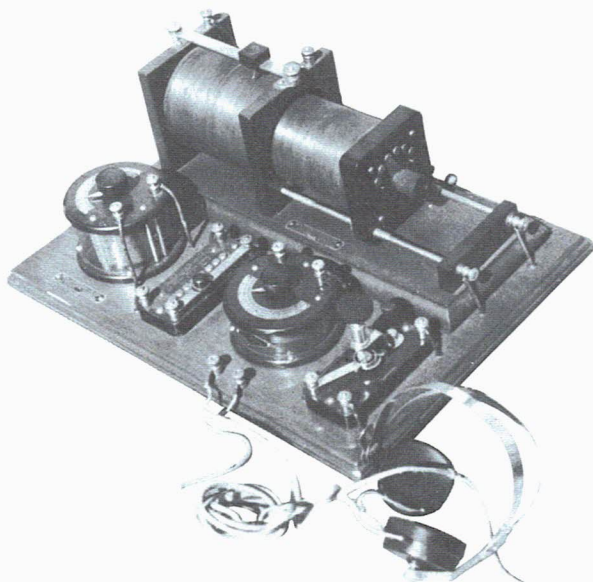


Figure 1. The replica Murdock crystal set board-type receiver constructed with hard-to-find genuine Murdock components, including the older Murdock Type 55 headphones.

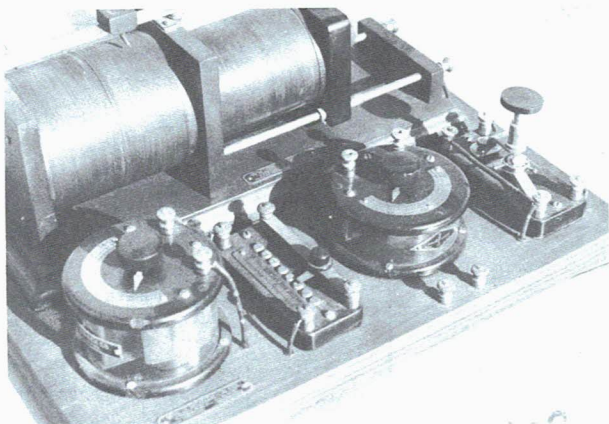


Figure 2. A close-up of my homebrew Murdock long-wave receiver. If you have a copy of "Vintage Radio," check the photo at the top of page 65 for a comparison.

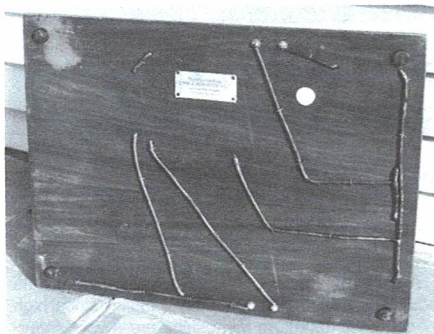


Figure 3. In this bottom view, note the primitive wiring consistent with that used in early "board-type" receivers.

shown in Figure 3, was accomplished using old spaghetti-covered (a varnish-impregnated cloth tubing used for insulation) bus bar wire. Where the wire went through the upper surface of the board, I placed brown grommets for neatness and appearance. Authentic Murdock binding posts were used in the rear of the board (for the antenna connections) and in the front (for the head-phone connections) and labeled such by stamping the lettering into the wood with a metal die.

And there you have it!

(Dave Crocker, 4B Beechwood Point Dr., Mashpee, MA 02649)

Reference:

McMahon, Morgan E. *Vintage Radio*, Rolling Hills Estates, Cal.: Vintage Radio, 1981.

The Crocker-Wheeler Crystal Set

BY DAVE CROCKER

I had to buy it! It had my name on it! I couldn't resist it, even though it was incomplete.

"It" is the Crocker-Wheeler crystal set shown in Figure 1. The cabinet was missing, along with most of the wiring underneath the panel; however, all the panel controls were there, including the usually missing binding posts — a good start.

The bright red metal tag on the panel, shown in Figure 2, indicated that the set was manufactured by the Crocker-Wheeler Company of Ampere, New Jersey. I checked all my antique radio books but came up empty-handed. Even *Crystal Clear* had no mention of the set in its listings — a bad sign.

The detector is very similar, if not identical, to the AMCO Paragon No. 45 of the Adams-Morgan Co. of Upper Montclair, N. J. (Both companies were in New Jersey!?) Even the binding posts are the same as the Paragon. The flat tapped coil under the panel is simple, but it has a rather unique system of windings through a series of slots to each switch point.

To restore the set I need information on the missing cabinet. One collector said he thought he had seen one like it in a flat Bakelite box. Yet another person advised that it should have a flat wooden cabinet.

Any suggestions? If an A.R.C. reader out there either has this set or can locate an advertisement or picture, I would surely appreciate the help with the restoration.

(Dave Crocker-(Wheeler), 4B Beechwood Point Dr., Mashpee, MA 02649)

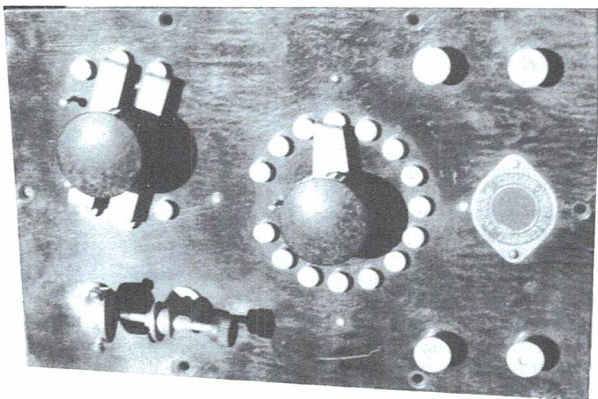


Figure 1. The panel of the Crocker-Wheeler crystal set. Judging from the way the nameplate is positioned, this panel view should be turned vertically so that the nameplate is at the top of the set. Correct?



Figure 2. The Crocker-Wheeler nameplate.

Dave Crocker is on the A.R.C. staff and has been actively collecting radios since 1970. A good part of these years has been spent researching and collecting radios manufactured by the Crosley Company.

A.R.C. STAFF PROFILE

Scott J. Young — Future CEO

BY DOROTHY A. SCHECTER

The New Year brought a major change to A.R.C. Scott Young, our production manager for almost ten years, has left us for "Corporate America." He has taken a position with Pegasus Communications as the Information Systems Manager — a giant step on his career ladder.

In this new job, Scott's charge is the installation and development of Windows NT, a powerful new database, and the related software, hardware, and peripherals. He will also train personnel in the efficient use of the PC environment. The company is in transition from Mac to PC's, and so Scott's experience with MacIntosh here at A.R.C. will stand him in good stead.

We knew it was inevitable in this thriving economy that a young man of Scott's talents would have to move on, but we had hoped for another year or two of his invaluable services. We already miss his upbeat personality and his exceptional skills more than we thought possible.

You subscribers had no way of knowing that without Scott, you would never have received A.R.C. When you submitted display ads, often in pretty illegible form, he would transform them into the polished layout you have come to expect. He was responsible for the layout of both display and classified ads. He also scanned photos for the articles, was the troubleshooter for computer problems, and followed the whole magazine through the printing and mailing processes. Scott's new company has probably already realized how lucky it is to have him aboard.

GROWING UP AT A.R.C.

What prompted this major shift in Scott's professional life? Opportunity, no doubt, and perhaps a bit of the wisdom that comes with age. Scott turned thirty last June. He came to A.R.C. as a very young man who left college after two years because it had not yet shown him a meaningful direction. He was obviously computer-savvy, and we soon came to rely on his expertise.

Over the years, we have enjoyed watching his typical "young man" exploits with sports cars, electronic gadgets — the big sound/big screen home theatre fills his apartment to such an extent that even Parker, the cat, has trouble squeezing in — and general fun and games. It was hard to believe, for example, the tales of paintball war game skirmishes on an island in New Hampshire. There, grown people, like Scott and friends, actually run about shooting each other with pellets that mark the human target with paint!

And then there were the tales of outings with "the bros" (short for brothers) — his buddies since high school days. Longterm friendships are a very important part of Scott's life.

Stories of escape weekends to his family's summer home on Lake Winnepesaukee in New Hampshire revealed his love of water sports, especially speedboating — macho power, yes, but with a difference. Scott has a great need to know every detail of a new machine, theory, or enterprise. So, the prospect of handling a new powerboat did not mean jumping in and roaring off into the sunset. Instead, he took a course at a nearby college and learned all the tricks of the boating trade. He even talked his girlfriend into doing the same.

Through many of these years, Scott lived in a basement apartment in his parents' home. For a "swinging" guy, why give up such a comfortable "pad"? It was the perfect spot for those staged, romantic evenings by the necessary fireplace with the necessary wine and the necessary lovely lady. Scott hasn't missed much, and he has certainly kept us entertained. But, somewhere along the

line, winds of serious change began to blow.

THE CHANGE

First came college the hard way — night courses at the University of Massachusetts, Lowell. He will complete that long road to a degree in computer science in June. Then came the jolting trade of the sporty Eagle Talon for a Volkswagen Rabbit, vintage 1980! And finally, Helen — the special girl who became his bride on November 29, 1997. As might be expected, this event had a definite sobering effect.

All these milestones meant that the handwriting was on the wall — Scott had grown from boy to man while serving A.R.C. well. It was time for him to take the leap into the "big time." It is not surprising that his new company is named for a winged horse — Pegasus — as he is definitely a man on a fast track.

For Scott, leaving A.R.C. may have been something like cutting a second umbilical cord, since here, we are almost like family. But, now he is well able to conquer new worlds as a man of strong convictions, integrity, intelligence, and good humor. We miss him, but we take a measure of pride in his guaranteed success. The bets are on that Scott is a future CEO, and the A.R.C. staff will be there in spirit to cheer him on.

(Dorothy Schecter, c/o A.R.C., Box 2, Carlisle, MA 01741)





PHOTO REVIEW

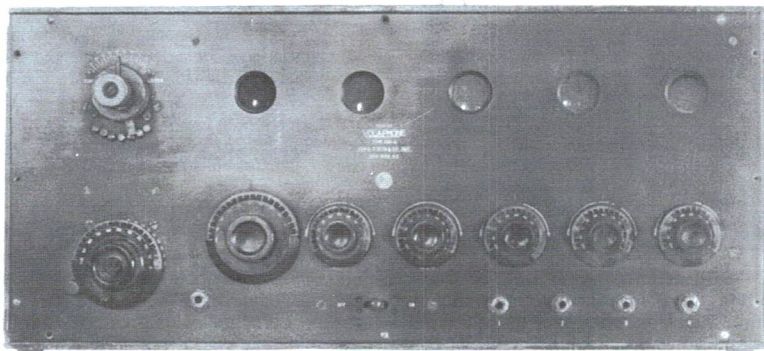


This column presents in pictorial form many of the more unusual radios, speakers, tubes, advertising, and other old radio-related items from our readers' collections. The photos are meant to help increase awareness of what's available in the radio collecting hobby. Send in any size photos from your collection. Photos must be sharp in detail, contain a single item, and preferably have a light-colored background. A short, descriptive paragraph **MUST** be included with each photo. Please note that receipt of photos is not acknowledged, publishing is not guaranteed, and photos are not returned.



ARVIN 400 SERIES — This 4-tube set is similar to the Model 444, but it is equipped with a handle. The handle is not a "field modification," since the metal top was formed to provide mounting surfaces. (*Milt Margolis - Springfield, VA*)

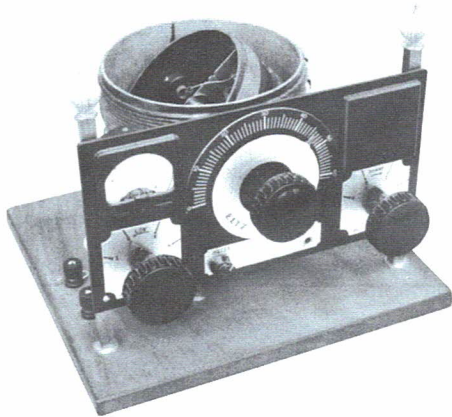
BRITISH ERICSSON CRYSTAL SET, TYPE 0/1050 — This miniature crystal set, with polished ebonite case and built-in detector, still has its original box. (*Erwin Macho - Vienna, Austria*)



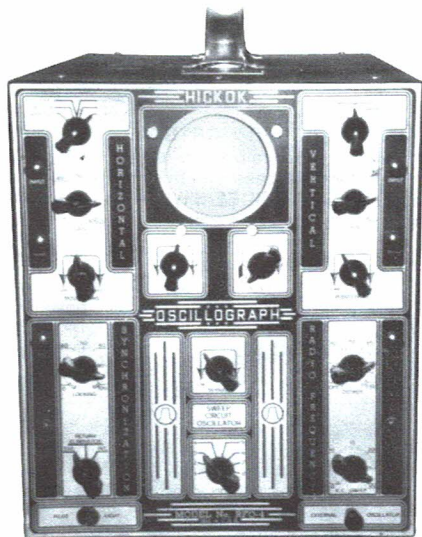
FIRCRO RADIO VOCAPHONE MODEL A-A, TYPE 240A — This ca. 1923-1924 battery set made by Fircro Radio, John Firth and Co., New York, N. Y., uses six Type 201-A tubes, of which five can be seen through peepholes on the front of the Bakelite cabinet. Note on the lower right, the four headphone jacks. The top of the cabinet (note pull ring) has a hatch for access to the interior. Any information sent to A.R.C. on this set or on the John Firth Company will be appreciated. (*Tim Twombly - Cape May, NJ*)



MOON HORN SPEAKER – This all aluminum, headphone-driven speaker was produced in Dayton, Ohio, by the Wilson Utensil Company, which also manufactured a line of pots and pans. Headphones fit over the two rubber pads, and the horn neck can swivel completely around. (Dave Crocker – Mashpee, MA)



HOME BREW CRYSTAL SET — I built this set in two weeks in March 1990. This set, weighing 17 pounds with a solid Bakelite base 1" thick, has to be one of the world's largest crystal sets. The 7" diameter variometer is wound with over 300 turns of Litz wire. (H. Eltz – Juniata, NE)



HICKOK OSCILLOGRAPH MODEL RFO4 – This 1930's test instrument contains a conventional oscilloscope plus a 455 kHz generator and a sweep circuit variable from 0-30 kHz. A demodulator circuit enables sweep alignment of the IF section of an AM receiver. I have aligned several receivers with this unit and have been able to obtain the typical IF response curve on each one. (Francis Buren – Postville, IA)

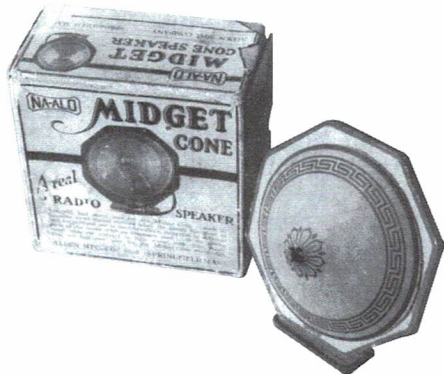


SPARTON MODEL UNKNOWN — This interesting and unusual 1937 Sparton tombstone radio has neither dial nor tuning capacitor. Tuning is done with the six push buttons located just above the clock dial. The radio can be turned on manually or automatically with the built-in timer. The white dot between the knobs is the pilot light. A socket in the chassis will accept a Type 6E5 tube to help in setting up the push buttons. Please contact A.R.C. if you know the model number of this truly unique set. (W. R. Cobb – Laguna Hills, CA)

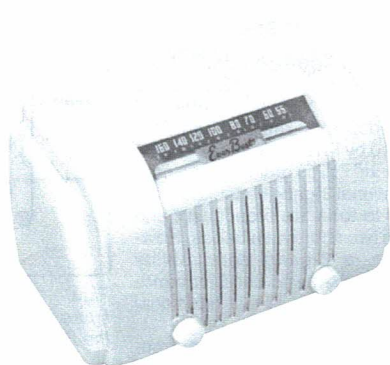
PHOTO REVIEW

IMPERIAL HEAREVER PERSONAL RADIOS —

I own two versions of this radio, one in black, shown on the left, and one in white, shown on the right. On the right-hand original carton the fine print says, "Personal Radio with Telescopic Antenna, For Outdoor Use, No Batteries, No Tubes, No Electricity, Nothing to Replace, Germanium Radio, Designed to Last a Lifetime." (Erwin Macho - Vienna, Austria)

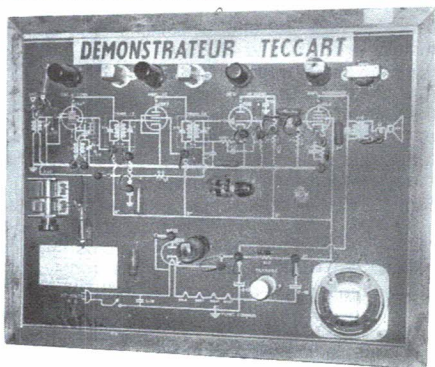


NA-ALD MIDGET CONE SPEAKER — This tiny speaker is mounted on a 5" octagon wood frame. It was manufactured by the Alden Mfg. Company, of Springfield, Mass. Its original box is at the left. (Dave Crocker - Mashpee, MA)



"EVERBEST" MODEL TW56H — This well-made radio has five loktal tubes: 14A7, 14B6, 14Q7, 35Y4 and 50A5. The cabinet has factory paint over Bakelite. A label on the bottom has the name "Hardware Merchandising Corporation" (no address). Does anyone have any information on this radio? (Chuck Regen - Sheboygan, WI)

AC/DC DEMONSTRATOR RADIO — This working demonstrator radio was used in electronic classes in Montreal, Quebec, Canada. It measures 24" long by 19" high. The tube Types are 12SA7, 12SK7, 12SQ7, 50L6 and 35Z5. Jacks are provided on the unit to allow simulation of typical problems/faults. A note on the lower left corner states (in French): "This demonstrator is part of a suite of experiments prepared by TECCART Institute personnel for teaching radio. TECCART Institute, 3155 Hochelaga, Montreal, Canada." Incidentally, this renowned electrical school for technicians is still standing at the same address. (Sylvain Gregoire - Laval, Quebec, Canada)



WITH THE COLLECTORS

More On Permeability Tuning

BY RAY BINTLIFF COMPILED FROM INFORMATION PROVIDED BY ALTON A. DUBOIS, JR., CHESTER GEHMAN, JOHN T. MARSHALL, JOHN STANLEY, JOHN W. STOKES, BEN TONGUE AND PAUL L. WIEGNAM

Permeability tuning continues to be of interest to our readers. This article, based on readers' letters, describes applications of permeability tuning not covered in previous articles in A.R.C. (August and September 1994). (Editor)

From "down-under," New Zealand reader John Stokes told us about a unique series of bandspread radios manufactured by Philco. Starting in 1941, 8-band Philco radios used a conventional 3-gang variable capacitor to tune the broadcast band and two shortwave bands. However, a 3-gang permeability mechanism was used for bandspread tuning of five additional shortwave bands.

The use of 3-stage permeability tuning is unusual because most radios used only two tuned stages. One of the earliest, if not the first, of these radios with hybrid tuning was the Model 41-788. Its tuning range, using a conventional tuning capacitor, is 540 Kc to 1750 Kc, 2.3 to 7.2 Mc and 7.2 to 22 Mc. Permeability tuning was employed for the 9.4 to 9.9 Mc, 11.4 to 12.0 Mc, 14.8 to 15.6 Mc, 17.3 to 18.2 Mc and 20.9 to 21.9 Mc bands.

John also provided detailed information on two other Philco radios that were made under license in New Zealand. These models — 42-760 and 42-788 — used the same hybrid tuning arrangement. As Figure 1 depicts, the dial cord stringing for the Model 42-760 was about as complicated as the one shown for the Silvertone Model 6220 in the September 1994 issue of A.R.C.

Another New Zealand Philco radio with hybrid tuning is Model 888, shown in Figure 2.

COMMUNICATIONS RECEIVERS

Collins Radio used permeability tuning quite successfully in its line of amateur radio receivers. (See the June 1996 issue

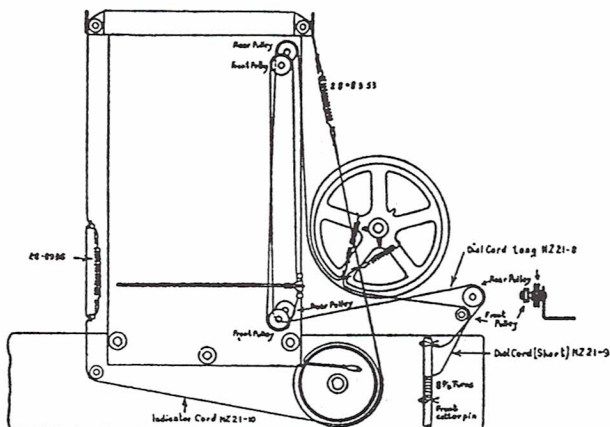


Figure 1. Although the labeling on this diagram is unreadable, this figure shows the complexity of the dial cord stringing arrangement of the Philco Model 42-760.

of A.R.C. for a review of *The Pocket Guide to Collins Amateur Radio Equipment*.) Collins Radio was not alone. John Marshall described his experiences with a Hallicrafters Model SX-71 that used permeability tuning. He reported that it was "the best receiver I ever owned."

HOME BREWING

If you are interested in radio construction, Alton DuBois, Jr., wrote to tell us about a publica-

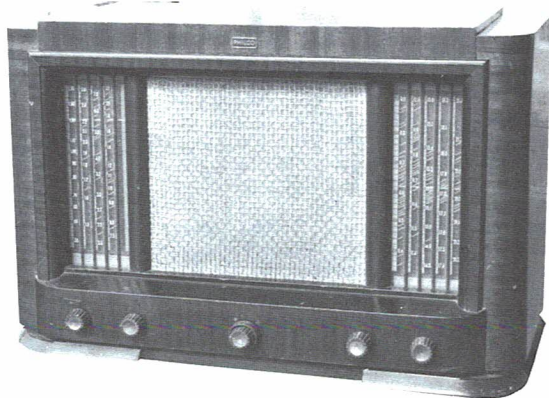


Figure 2. The New Zealand Philco Model 888.

tion that includes an article about building a permeability-tuned radio. *Radio for the Millions*, published by Lindsay Publications, contains a construction article taken from a 1945 issue of *Popular Science*.

AUTO RADIOS

Permeability tuning was ideal for automobile radios because its small size permitted the construction of more compact radios, and this application is hardly novel. However, Chet Gehman identified a rather unusual tuning arrangement employed in some Philco auto radios. In addition to the antenna and oscillator coil/cores, Philco used a third "trap" coil/core.

The purpose of the trap is to minimize image frequency interference. As the radio was tuned to the desired frequency, the trap coil tracked along and rejected the image frequency. For those readers interested in pursuing this subject, the tuning mechanism is illustrated in Rider's XIV, under Philco page 14-131.

FM RADIOS

Previous articles have concentrated on the use of permeability tuning in AM radios because this application was the one addressed in John Stanley's original request for information (A.R.C. March 1994). However, permeability tuning found wide application in FM radios and tuners as well.

Ben Tongue of Blonder-Tongue Laboratories wrote to tell us about some of his company's products from the late 1950s. The company produced a Model T-88 AM/FM tuner, shown in

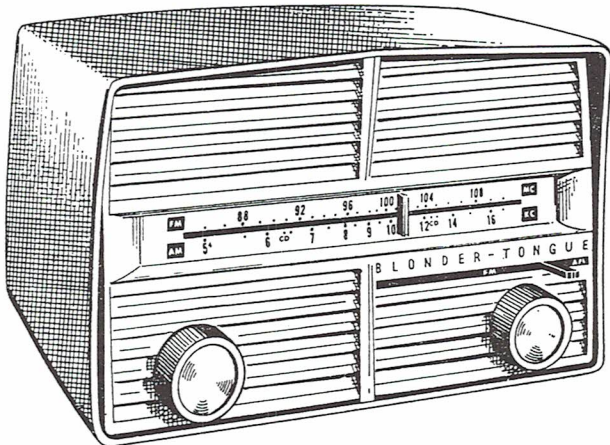


Figure 3. The Blonder-Tongue Model T-88 tuner.

Figure 3, and a Model R-98 radio. These models employed permeability tuning for both AM and FM.

Viewed from the front, the tuner and radio appear to be identical — the same front panel and cabinet style. However, the radio differs from the tuner in that it uses a rear-firing speaker.

OTHER APPLICATIONS

There were probably other uses for permeability tuning in electronic devices. I have a hazy recollection that permeability tuning was used in some TV boosters.

Figure 2 photo courtesy of John Stokes.

(Ray Bintliff, 2 Powder Horn Ln., Acton, MA 01720)

My Homemade Crystal Radio and Basketball History

BY HANK TRABOLD

I am not a big fan of professional basketball but history was made in a game between the Philadelphia Warriors and the New York Knicks on March 2, 1962. A single game record for the highest points scored by an individual player was set by Wilt Chamberlain playing for the Philadelphia Warriors. That evening Wilt Chamberlain scored 100 points. This was the biggest scoring thrill of his career, and this monumental, single-game, highest scoring record still stands.

I remember listening to that game on WCAU Radio 1210 AM, broadcasting from Philadelphia, Pennsylvania. I was only 12 years old at the time and did not realize the historical significance of the basketball record achieved that evening.

I too was caught up in the thrill and the excitement on that night but not so much due to the historical sporting event. I can still recall listening in amazement because I was receiving this event

shortly after I had just completed the assembly of my first homemade crystal radio set.

I built this set from plans out of a book that I had borrowed from the school library. The plans called for building the radio from some common household items. The radio tuning coil was made by wrapping many turns of wire around the cardboard insert from a toilet paper roll. The crystal detector was made from a safety pin, razor blade, and a lead pencil point. I have recently seen some articles on this type of radio and believe it is referred to as the "foxhole" radio.

Looking back now, I realize this was an unusual introduction to the fascinating radio hobby that we all share.

(Hank Trabold, 2058 Nakiska Ct., Toms River, NJ 08755)



Tube Testers — Part 9 Hickok's First Tube Testers

BY ALAN DOUGLAS

This is the ninth in the series of Alan Douglas' articles on vintage tube testers. For easy reference, the previous articles appeared in the issues of July, October, and December 1995, of March, June, September, and December 1996, and of October 1997. (Editor)

Hickok claimed to have been in business since 1910 but the company does not appear in a 1925 trade directory, and Robert Hickok may have been working for Sterling in Cleveland, makers of meters and tube testers in the 1920s. He advertised set analyzers with five panel meters in 1928, and his first successful product under his own name was the Model AC47 tube tester from early 1930. The Model AC47 is shown in Figures 1 and 2.

Most tube checkers up to that time used the "grid shift" method of measuring a tube's amplification. At a fixed grid bias, the plate current was noted on a DC milliammeter; then the bias was shifted by a known amount and the new plate current determined. The difference in plate currents, divided by the difference in grid bias voltages, was the mutual conductance.

Hickok's idea was to use a sensitive AC milliammeter in the plate circuit (not an easy thing to make in 1930) and to apply a 60 Hz grid signal. His meter could then be calibrated directly in micromhos, speeding the measurement, and perhaps making it less mysterious to skeptical radio-shop customers. Figure 3 provides a close-up view of the direct-reading meter used in the Model AC47. The meter scale is calibrated in micromhos and provides "doubtful" and "satisfactory" readings for a total of 22 tube types.

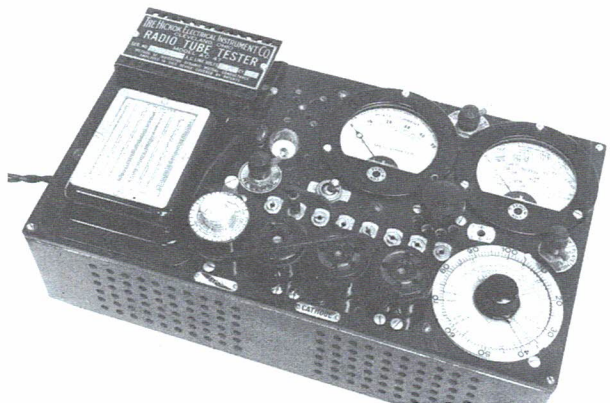


Figure 1. This Hickok Model AC47 tube tester dates from early 1930. Note the tube chart on the left side of the tester.

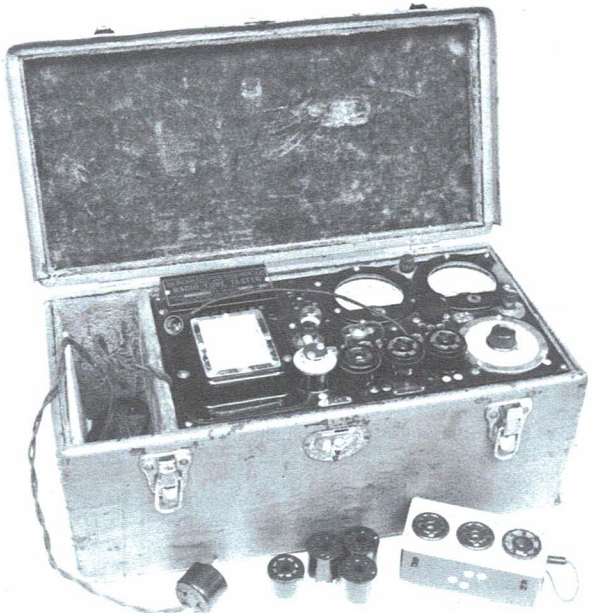


Figure 2. An AC47 outfit in its plush-lined case, with the adapters needed to keep it up-to-date for its first five years.

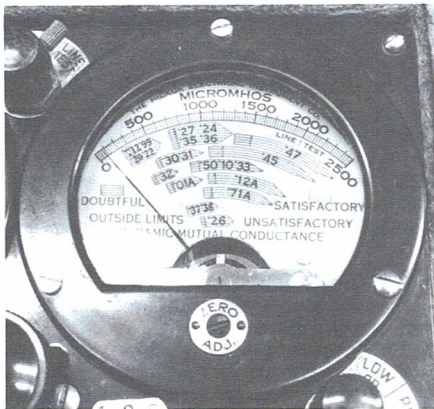


Figure 3. A close-up view of the direct-reading meter used in the Model AC47.



Figure 4. AC51 (1935), the first model to use the "Hickok" (Barnhart) circuit. The edgewise meter saved panel space. The auxiliary socket panel was built from plans in the data booklet pictured, probably in the late 1940s.

However, \$75 was beyond most Depression-era budgets, and the AC47 had additional problems. Printing the tube types on the meter face, guaranteed instant obsolescence when new tubes came out, and a growing collection of makeshift adapters was necessary to test them. There was no space for new tube sockets or function switches on the overcrowded and confusing panel.

Luckily for Hickok, a former Sterling employee, Job R. Barnhart, invented a circuit that allowed a single DC meter to function as a sensitive AC milliammeter. Barnhart applied for a patent on April 23, 1934, and once it was issued on April 30, 1935, Hickok could offer the much improved AC51 for only \$45. The only carryover from the older model was the automotive lamp in series with the AC line acting as an overload/shorted tube indicator and fuse — a nifty idea used right up to the last models in the 1970s.

Barnhart's circuit went into every subsequent

Hickok tube tester other than the Cardmatics; into every military Model TV2, TV3, TV7 and TV10; and (after the patent expired) into several B&K and Mercury testers. It proved to be far better than anyone could have predicted in 1934.

To counter obsolescence, the AC51 and later models used two rotary selector switches (labelled A and B) that interchanged pairs of socket connections until the right combination was found. This arrangement kept up with new tubes as long as they used standard basing, but inevitably new tubes appeared that the A and B switches would not cover (dual triodes for instance). Hickok supplied plans for an adapter panel that could be added to older models to handle 7-pin miniature tubes and some octals; one of these is shown with the AC51 in Figure 4.

After the war, with the flood of television tubes and 9-pin bases, the Hickok Model AC51 and other models with A and B selectors were hopelessly out of date, and Hickok stopped issuing test data for these in 1953.

(Alan Douglas, Box 225, Pocasset, MA 02559)

Alan Douglas, an electrical engineer, has written over 100 articles for A.F.C. and other publications. His books "Radio Manufacturers of the 1920's, Volumes 1, 2, 3," are highly regarded resources for the radio collecting community.



RADIO MISCELLANEA

"Radio Miscellanea" includes items of general interest selected from A.R.C.'s incoming correspondence. "In The Marketplace" items are based on information submitted by the businesses themselves. "From The Internet" items are obtained from internet newsgroups and other internet resources. Submitted items should be verified for accuracy; items may be edited by A.R.C. for publication, and publication is not guaranteed. See the masthead for more details.

Tube Prices in 1933

Dear Editor:

After seeing your very nice picture of the RCA tube testing equipment on the cover of the [over-a-year-ago] September 1996 A.R.C., I thought your readers might like to know what tube prices were like in the early radio days. I checked my original Tung-Sol Radio Tube Price List, dated June 1933, and found the following: 201A - 60c; 171A - 75c; 112A - \$1.30; UX99 - \$1.50; 210 - \$5; 2A3 - \$4; 224 - \$1.20; 227 - 70c; 247 - \$1.30; 250 - \$4; and 280 - 70c. No WD-11 was listed, perhaps because, by this late date, it was considered obsolete or perhaps Tung-Sol did not manufacture this tube.

Harry Cap, Bridgewater, MA

Extending Harry's research, a 1923 RCA Radiotron brochure shows the following prices: UV-200 - \$5.00, UV-201-A - \$6.50 and UV-199 - \$6.50. (Editor)

Dating Sets via Component Codes

Dear Editor:

Here's a bit of lore not found in the books: the numbers rubber-stamped on the back of a speaker and tuning capacitor are manufacturer and date codes. Other components, such as potentiometers and wirewound resistors, may have them too. The first three digits are the E.I.A. (Electronic Industries Association), while the last three are the date.

For instance, my Trans-Oceanic 8G005YT, which is dated 9/23/47 inside in pencil, has 273725 on the capacitor and 343716 on the speaker. 273 is the code for the Radio Condenser Company, Camden, N. J., and 725 is the 25th week of 1947 (mid-June). 343 is the code for Zenith Radio Corp. (no surprise), and 716 is the 16th week of 1947. Neat, eh?

Tubes always have codes too, sometimes decipherable, sometimes not. Ludwell Sibley's *Tube Lore* has the latest information on those. Can anyone help with the GE dot code, or some of the RCA letter codes?

The E.I.A. lists were distributed with some Sams folders: set 537 had the list from July 1961, for instance. A copy of that is available from Infotronics, P.O. Box 2045, Waterbury, CT 06722 for \$1 postpaid.

Alan Douglas, Pocasset, MA

Vacuum Tube Repair Questions

Dear Editor:

Just a couple of questions for A.R.C. readers: 1. Can anybody out there recommend a way to securely reattach a tube that has come loose in its base? How about reattaching a loose plate or gridcap? Some kind of epoxy or high-temperature silicone perhaps? 2. Most of us probably have at least a box or two of dud or otherwise useless tubes lying around. Is there any practical way to recycle these or are they destined only for the local landfill?

C.J. Poulos, Columbia, CT

Christie's Marconi Catalog

The latest word from Christie's on the publication of the Marconi Catalog is that there have been problems with the printing, and it is not yet off the press.

Orders are being taken, preferably by credit card, and the price is \$55, ppd. Orders may be sent to Christie's South Kensington, Mechanical Music Dept., 85 Old Brompton Rd., London, SW7 3LD, U.K. To those of you who have already put in your orders, Christie's reports that your checks and credit card charges will not be processed until the catalog is available.

The catalog contains just over 200 pages with photos in black and white and color. It includes the lots planned for the cancelled April 1997 auction, minus estimates and information about how to buy and sell.

A.R.C. readers will remember our coverage of this event throughout the spring of 1997 (see the March, April, May, and June issues). This catalog will be a handsome record of the Marconi archives saved from sale and dispersal throughout the world by public outcry and now in the care of the British Science Museum. (Editor)

Insuring Your Radio Collection

Dear Editor:

As a radio collector, I am trying to insure my collection. My homeowner's policy won't cover it. Is there any insurance carrier that you know of that would write a policy? Is this a common problem?

Ed Koment, W. Milford, NJ

Information from our insurance agent indicates that you should be able to insure radios as fine arts/antiques at replacement cost, subject to a deductible, as part of your homeowner's policy. You must supply a list of items, including photos, identification (such as serial numbers) and appraised replacement values. If you need to purchase additional coverage, it is generally no more than 1 percent of the total appraised value. For example, a collection worth \$10,000 would cost no more than \$100 per year to insure. In the case of a loss, the company will strive to replace the items as opposed to paying for them. Only if they cannot be replaced will the company pay. For ham radio equipment, A.R.R.L. has an official insurer. (Editor)

Web Site Kudos

Dear Editor:

I am impressed! I haven't fully toured the A.R.C. web site yet, but the first impression is tremendous. Very nice job in web-site design. I've been interested in antique radios and have been a ham operator for many years. I always try to seek out antique radios at the Dallas First Monday Sidewalk Sale. This is great! I'll read every page you folks have posted. Thanks a million!

Larry Woods, larry_w@cyberramp.net

CLASSIFIED ADVERTISING POLICY

ONE FREE 20-WORD AD for subscribers in each issue; additional words are 29¢ each. See details below. Classified ads sent by mail, fax or by any other method must be received (not just postmarked!) by **Noon Eastern Time** on the classified ad deadline date to guarantee inclusion in the current issue. Late ads are held for the following issue. Please enclose correct payment with all ads. Stamps or cash are OK for small amounts. (Canadian and other foreign advertisers, please see "Payment" on page 2 for methods.) "Free words" cannot be accumulated from month to month; free words must be requested when ad is submitted.

Faxed & e-mailed ads: Please see additional information on the inside front cover.

When including ads with other A.R.C. correspondence, write the ads on a separate piece of paper. Include SUB# with ad. Ads may be sent in advance; but, write each ad on a separate piece of paper and indicate the month (or successive two months) you want the ad to run.

To minimize our typing errors: Please write legibly. Use both capital and small letters. Do not use a dash between words. Carefully write the following numbers and letters (especially in model numbers) since some can look alike; for example 1, I and l (the number one, the capital i and the small L.) Also: 0, O, o, Q and D; r and n; 6, b and G; V, U, u, v and Y; A and R; 5, S and s; 2, Z and z. We try to correct spelling errors, so when using an uncommon word or manufacturer which we might mistake as a more common word or manufacturer, note it so that we do not "correct" it. Editor's annotations are in [brackets].

Advertising is accepted only for early items related to radio, communication, etc. All items must be described fairly; reproductions, reprints and not-original items must be so identified. Advertisers must agree to respond promptly to inquiries and orders, to resolve problems promptly if the buyer is not satisfied, and to comply with a buyer's refund request on unaltered returned items.

The publisher reserves the right to edit ads without notification to the advertiser and to reject ads for any reason. Names other than the advertiser will be edited out of ads. Ads with non-radio-related items will be returned or edited unless the non-radio-related items are for trade of radio-related items, or they are incidental to and appear at the end of an otherwise acceptable ad. The publisher is not responsible for errors due to illegibly written ads or for any other reason.

Clubs: Since club activities receive free coverage on the *Coming Radio Events* pages, the free 20 words may not be used for club activity ads. See inside front cover for additional information.

CLASSIFIED AD DETAILS

Deadline: NOON ET— 10th of the month!

Classified ads must have a standard heading such as **WANTED, FOR SALE, FOR TRADE, FOR SALE/TRADE, SERVICES, MESSAGE, HELP, AUCTION, MEET**, etc. This heading is the only bold or all-capitalized words allowed in the ad. Capitalize only manufacturer names, model names, etc. This standard ad format makes scanning the ads easier.

Before writing your ad, please look over the ads in a recent issue of A.R.C., and try to write your ad in the same style. Full name (or company name) and address is required in all classified ads; we will add it if you forget.

To encourage varied content of the ads, the same classified ad may be run only once per issue and for only two consecutive months. (To run an ad longer, use a boxed classified or display ad.)

Classified Ad Rates per Month

Subscribers:

First 20 words: **FREE***

29¢ per word for extra words over 20 **plus**

10¢ per word for a shaded ad (count all words including free words).

* Subscribers may take 20 free words on only **one** ad each month.

Non-Subscribers:

47¢ per word **plus**

10¢ per word for shaded ad.

Please do not forget to send in the extra 29¢ per word when your classified ad runs over the free 20 words; your payment will be appreciated, and it will help to keep A.R.C. healthy.

BOXED CLASSIFIED AD DETAILS

Deadline: 1st of the month!

Boxed classified ads can run unchanged for three months or more. No words are free. Ads may be shaded and may include bold and all-capitalized words freely. The ad need not begin with "For Sale," etc. Minimum run is 3 months, prepaid. Discount: 10% for 6 months; 20% for 12 months.

Boxed Classified Ad Rates per Month

Nonshaded ads:

40¢ per word for all words,* none free, **plus**

10¢ per word for each bold word **plus**

10¢ per word for each all-caps word.

Shaded Ads (All words are bold at no charge):

50¢ per word for all words* **plus**

10¢ per word for each all-caps word.

Non-Subscribers:

Add 20¢ per word to above costs.

*Three words can be bold-all-caps at no extra charge.

PHOTO & DRAWING DETAILS

Deadline: 1st of the month

for all ads with drawings or photos!

Drawings and photos are encouraged as the response to your ad is much larger and the reader knows better what you want or are selling. Send in your drawing or photograph, and A.R.C. will reduce it or enlarge it as needed.

Photo and Drawing Rates per Month

\$23.00 per month for each photo or drawing (If ad is canceled, this amount cannot always be refunded.)

CHANGES & CANCELLATIONS

Please check your ads carefully before sending them in. Once ads are received, it is not always possible to refund the amount sent, pull the ad or make changes.

IMPORTANT — COUNTING WORDS — IMPORTANT

The **standard headings:** WANTED, FOR SALE, etc., count as **one word** each time used in an ad. **Name, address** and (one) **telephone number**, count as **6 words**, regardless of length. Ham call letters and business name can be included in the 6 words and do not count extra. Full name (or company name) and address is required in all classified ads. Each additional word, abbreviation, model number or number group, extra telephone numbers, fax, e-mail, etc. count as one word each. Hyphenated words count as two words.



PERIODICALS

A.R.C., P.O. Box 2, CARLISLE, MA 01741
ADDRESS SERVICE REQUESTED

**CLASSIFIED AD
DEADLINE FEB. 10th
Noon Eastern Time**