The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

September 1999 Volume 5 Issue 9

MEETING/ ACTIVITY NOTES

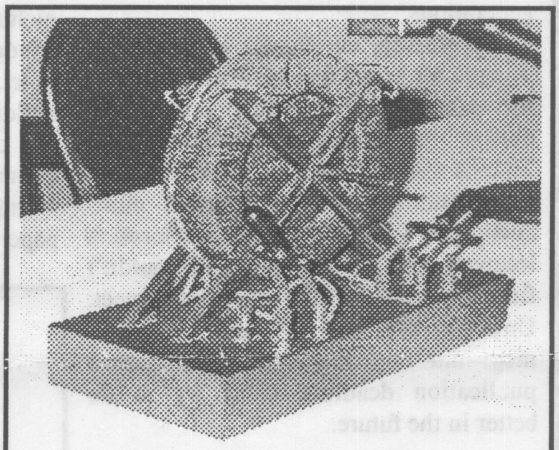
MEETING NOTICE

The next meeting of the NJARC will take place on Friday, September 10th at 7:30 PM in the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold. Contact Marv Beeferman at 609-693-9430 or Phil Vourtsis at 732-446-2427 for directions. This month's meeting will again feature our very popular show-and-tell session and, as always, interesting artifacts, recent acquisitions, restorations and tips and techniques are all welcome. We'll also try to encourage attendees at the recent AWA conference in Rochester (your President and editor included) to share their thoughts and observations.

Reported by Marsha Simkin and Marv Beeferman

The NJARC August meeting provided the opportunity to air some questions regarding the tax responsibilities of New Jersey vendors stemming from events at our Summer swapmeet. Although your editor was unable to attend the meeting and participate in the discussion, it appears that there may be some undue concern regarding this matter. It would probably be best if these issues were dealt with by NJARC's Board of Directors rather then through an open forum since the Board has the responsibility and the available information to speak directly for the club. Basically, although some issues may require further clarification from objective sources, the club operates within state guidelines: club officers are not paid for their services and money derived from dues, club activities and donations are utilized to propagate the club's educational and historical preservation goals as described in our bylaws. In this regard, requesting an admission "donation" at swapmeets (with the right of denial) is not out of the question.

As far as state sales taxes are concerned, they are the sole responsibility of vendors who are considered "dealers" in the state of New Jersey. Our swapmeets are provided only as a service to our members to help them maintain and supplement their individual collections which in turn can be extended to supporting the goals of the club; the majority of attendees are considered casual sellers. Remember, the keys here are frequency (our meets are held only 3 to 4 times a year) and sale of an individual's personal property (similar to a garage sale). Refraining from advertising our events is a sure sign that we consider our activities "questionable" from a tax standpoint which they certainly are not.



This early induction motor (two-phase AC) was displayed at the AWA Rochester conference. It is presently being researched as a potential Nikola Tesla prototype and was retrieved from Cornell University's junk pile for 25 cents. It was later sold on eBay for $89, with the buyer's representative living around the corner from the seller. NJARC is looking forward to a talk by Tesla's grandnephew in October.

The question of swapmeet hours was also brought up; it appears that a local reporter showed up in the afternoon to find that most vendors had already left. The club cannot control this - most people were glad to get out of the intense heat by noon. Phil Vourtsis and your editor did not leave until 1:30 and there was no one left exhorting us to "keep the meet open." A recent, very successful hamfest in the South Jersey area that was advertised from 8:00 AM until 3:00 PM started breaking up at 10:30. Both buyers and vendors must realize that club swapmeets are not similar to events organized by professional promoters where vendors are required to maintain their presence throughout the advertised period. This caveat will be posted on future promotions.

Upcoming Events

- Our fall swapmeet is scheduled for late November or early December; the location has not yet been finalized.
- The Raritan Valley Community College library display theme will be "Radio from Beginning to Now." Jon Butz Ficina, the display coordinator, reports that the display cases are similar to those offered at the Morris County Library.
- Nikola Tesla's grandnephew and only living relative is still scheduled to speak at our October meeting. Perhaps he can shed some light on a recent eBay find.
- An all-day radio troubleshooting session is still scheduled for November.
- September is the last month for

THE JERSEY BROADCASTER, published a minimum of ten times each year, is the newsletter of the New Jersey Antique Radio Club (NJARC) which is dedicated to preserving the history and enhancing the knowledge of radio and related disciplines with special emphasis on contributions made by the state of New Jersey. Dues are $15 per year and meetings are held the second Friday of each month at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold N.J. The Editor or NJARC is not liable for any buying and selling transactions or for any other use of the contents of this publication.

submitting nominations for the Tony Flanagan Memorial Award, recognizing an individual (member or non-member) who has been instrumental in promoting and preserving any aspect of radio history.

Ray Chase reports an **upcoming auction** at Dennis Auction, Rt. 57 in Stewartsville, NJ on September 17th. A worthwhile amount of radios will be offered including 25+ consoles (many are Atwater Kents), speakers, chassis and a nice Kennedy cathedral. Ray will be adding some of his own items to the sale which is open to additional consignments up to September 8th. The auction starts at 4:30 PM. For further information, contact Ray at 908-757-9741 or the auction house at 908-859-3424.

John Dilks and his mobile amateur radio museum was featured in QST for September 1999 on page 71. John, an ARRL Life Member and a Board member of the Antique Wireless Association, stressed his philosophy that good collections should occasionally see the light of day and newer hams should be afforded the opportunity to view the homebrewing techniques of earlier generations.

In closing, our thanks again to Ben Tongue for presenting his unique method for comparing earphone capabilities during the club's technical session. Thanks also goes out to Jon Butz Ficina for presiding over an informal mini-auction of a fellow collector's relocation leftovers and a few items that couldn't find a home at the July swapmeet. Unfortunately, the auction's announcement did not meet the *Broadcaster's* publication deadline...we'll try to do better in the future.

INFOAGE UPDATE

Ray Chase attended the InfoAge Board meeting on Wednesday, August 25th as the NJARC representative. Here's a summary of the project's recent developments:

•InfoAge will not be chartered as part of Brookdale Community College; it is applying directly to the Department of Interior for Landmark status which will entail establishment of its own charter. Presently, the site has been selected by the National Trust for Historic Preservation as part of the 'Save America's Treasures' project, a public-private partnership between the White House Millennium Council and the National Trust for Historic Preservation dedicated to the preservation of our nation's irreplaceable historic and cultural treasures.

•Kick-off plans to begin renovations in conjunction with the celebration of the 100th anniversary of Marconi's first visit to America in October have been scaled back. Mercury has been found in some of the old sewer pipes and these must be torn up and replaced. Therefore, property turnover will be delayed for several months. However, the QCWA (Quarter Century Wireless Association) will still set up ham sites at Camp Evans and the Twin Lights and some activities will take place at Camp Evans.

•Director Fred Carl wants to use one room of the Marconi Hotel as a poster and picture display area and also as a hub for conducting small guided tours of the hotel. Ideas were offered regarding the building of display stands, room painting and cleanup but definite plans are yet to be made. NJARC, through its members, is still offering to display artifacts and paper items related to the event.

PARENTAL DISCRETION ADVISED

Recent events regarding violence in our nation's schools has directed the finger of blame in numerous and diverse directions - some deserving some thoughtful consideration, others better left in the realm of the outrageous. Today, the movies and television are considered prime culprits. In the '30s, radio was thought to be exacting a milder

yet just as worrisome toll on the youth of its day.

*In the following "**Open Letter to the Radio Industry,**" noted author and commentator Hugo Gernsback offered his thoughts on the subject. The article was published in **Radio-Craft** for September 1938. Perhaps the fact that Gernsback considered his "lock-radios" as more of a novelty for boosting slumping sales and repairs (note the "Service Angle" heading) rather than a method to save the fragile minds of the youth of the time was the reason that the idea never bore fruit. At least, I've never come across any...Ed.*

Now that we are in the midst of a major depression I believe that I violate no confidence when I state that the Radio Industry as a whole has been very hard hit not only due to lack of sales, but mainly due to the fact that the industry has produced nothing of outstanding novelty that the public really desires and wishes to buy ...

...Depression or no depression, if people want things badly enough they will buy them at the expense of other things which they do not need as badly.

As I have stated many times, I do not take any particular joy or pride in a score of radio predictions which I made in the past; many of which have come to pass and are now accepted as part and parcel by the Radio Industry. Thus I predicted and showed illustrations of the first Radio Console. I predicted the first Radio Set with Self-contained Loudspeaker (remember when we used to have separate loudspeakers?). I predicted the first Single-Control (1-knob) Set when we used to have 10 or 15 knobs; but why go on with the list? Back numbers of my various publications give the facts to whoever wishes to look for them.

A Boon to Elders

At the present time, there is a distinct use for a special type of radio set which, believe it or not, is not being made today. Large newspapers, notably *The New York Times* and other metropolitan newspapers, have been flooded for months with letters from parents and educators who bemoan the fact that their young children, ages, usually 6 to 12, have become such addicts to "the radio," and particularly to certain types of adventure programs and others, that parents are becoming more and more exasperated on account of this condition. In lengthy letters to the editors of newspapers they complain that the children will sit for hours before the radio forgetting to do their home-work and oblivious to anything except the latest radio serial. Anyone who has young children in his home will know exactly what this means and what a dissension the situation creates, and how the children are actually failing to do their home-work, practice the piano or violin and, worst of all, instead of going to bed they spend untold hours before the radio set, making them hollow-eyed and interfering with their health. These are facts which can easily be checked by anyone interested enough.

Now then, let it be understood that I have no idea whatsoever in condemning the broadcasting companies for sending out these programs. After all, if the children are interested in the programs they must be good enough to hold their interest. It is not in my mind at all to denounce the broadcasters or radio in general. Indeed, nothing is further from my mind. It is exactly as if I were to condemn an excellent candy manufacturer because he makes candy.

The point of the entire controversy is that there can be too much of a good thing. There can be too much listening to radio to the detriment of one's education and health, just as a child can get too much good candy and get ill from it too. The fault, therefore, does not lie intrinsically with the radio program itself but rather with the radio industry. If my child eats too much candy there is an easy way of stopping it--I can give him one piece and lock the rest up where he can't reach it. With radio this, unfortunately, up to now was not possible, unless you disconnected the entire radio set and put it into a closest which you locked. This, however, is a foolish procedure when it can be done so much easier.

The answer to the entire problem is ridiculously simple. So much so, that it is difficult for me to understand why the radio industry has not turned out by the thousands, long before this,--"lock-radios!"

" ock-Radios"

Here, then is a radio set that will appeal to every *parent*, to every *educator,* to every *school.* Indeed, it has dozens of other uses, apparent to any one. I have shown (*see next page..Ed)* a number of simple table sets which can easily be provided with special locks for special purposes.

Observe the first set (Fig. 1) which instead of the usual off and on switch apparently has no switch at all--but instead has a *key.* You insert the key which turns the set off or on just as the knob did, but unless you have a key that fits you cannot operate the set.

Next on the list we have the radio set (Fig. 2) that has no key but utilizes instead a *combination lock.* Such combination locks are on the market today and you probably have seen them. They usually have 4 or 5 rollers parallel to each other, each one equipped with a number. Unless you know the combination the lock will not work. In this case, of course, the lock is attached to the off and on switch on the inside.

The third variation (Fig. 3) is to have about 6 miniature pushbuttons; the right combination, when pushed or twisted completes the circuit, whereupon the set becomes operative.

There are of course, other variations of this scheme and I have refrained purposely from showing a safe-lock combination tumbler as it probably is too expensive. Incidentally, this lock is too much like a radio dial and therefore should not be used.

The Service Angle

Incidentally the lock switch is a cheap addition to any radio set and does not cost much to install and what should be of particular interest to Servicemen, is that such a switch can be installed on present-day radio receivers for those who cannot afford to buy a complete new lock-radio set. If I am not mistaken such locks will soon appear on the market so that any Serviceman can install them. He should make quite a few extra dollars on this idea.

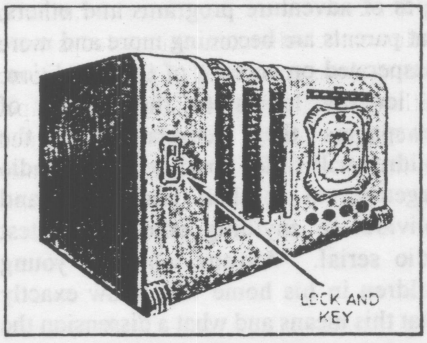
The installation, whether key, combination or pushbutton, may be made to

existing receivers by Servicemen as (a) a replacement of the existing off-on switch, (b) an additional, front-of-panel control (thus, in the "on" position of the lock switch, the regular off-on switch would still function normally); and (c) as either a replacement or additional switch it may be mounted on the side, rear, or inside the cabinet so as to be less conspicuous or to prevent altering the front appearance. Servicemen who also are good salesmen will reap benefits in direct proportion to their abilities as technicians and businessmen; the price range is quite wide and depends upon the neatness and convenience of the particular installation, and the type and quality of the particular switch selected for the job. Thus we see that "it's all up to the radioman," for he can adjust his labor and material, and hence his charges, to suit the size of the customer's pocketbook; and consequently, it will be seldom he need take "no" for an answer.

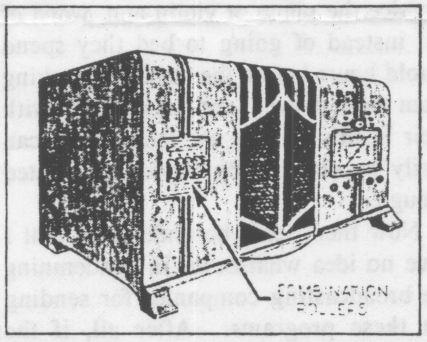
Radio for Jack and Jill

Suppose the parents go out and wish their children to be in bed by 9 o'clock. The children mean well and probably promise to turn the set off at 9 o'clock. What usually happens, however, is that they become so much interested in the program that they forget all about the time and the result is that it will be 10 o'clock or later before they remember the command to turn off the set. But why leave it to the children? The last illustration (Fig. 4) shows a "robot radio" which has a *time clock*.

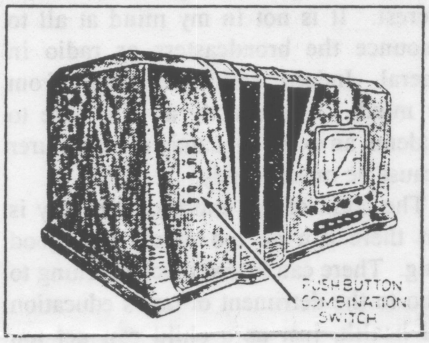
Let us consider, for example, that the parents wish to allow the children to listen to a program between 5 and 6 and between 8 and 9, but no other time. The clock robot takes care of this. All we need to do is open by means of the lock a hinged ring which covers the time clock. The time keys are then set and the clock does the rest. The ring is then locked and it becomes impossible to interfere with the time-setting device. It can only be changed by someone who has a key and for all purposes the radio set will only go on at specified times. Remember that electrically this is a "24 hour" clock and therefore the set will not go on at 6 or 8 o'clock in the morning, unless of course you wish to set it in that manner.



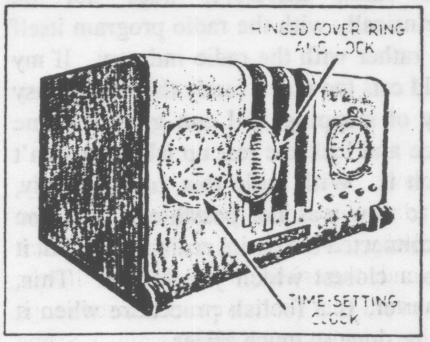
Radio set with lock and key on-off switch.



To turn the set on you must know the combination.



Set with pushbutton combination switch.



This set turns on or off at any pre-set time.

Here then you will find a number of ideas, all geared to sell to the public a radio receiver which is really needed and wanted today. And, incidentally, such a radio set will have the blessing of every parent and educator.

Note--Yes, I am of course aware of the fact that a few auto-radio sets have been equipped with locks, but to the best of my knowledge, no home radio sets were ever manufactured with locks.

LOOP ANTENNA BASICS

The following is based on an article that appeared in "Service" magazine for August, 1939 written by Mark and Edward Glaser.

Loops are almost as old as radio itself. Some of the earliest experiments carried on by Hertz utilized a single turn loop for a receiving antenna. But loops did not become generally popular in broadcast receivers until about 1939. Earlier, their principal use had been in direction-finding equipment, mainly on ships and airplanes and at government-operated shore stations. In the late '20s, some custom built receivers and a few RCA superhets, which used 199s, appeared with loop antennas. Later, various models, mostly portables, appeared each year but were not generally accepted. The principal reason for this was high price; the poor response of loops necessitated a very high gain receiver with less efficient stages then was later possible. The battery requirements also were too severe. However, the 1.4-volt series of low drain tubes introduced in 1938 combined with the efficient design of small loops gained wide acceptance for battery-operated portables at the beginning of 1939. The year also saw the general application of loops in table models and consoles of all types, started by General Electric with their Beam-A-Scope. An important selling point of all loop sets was that they

were completely independent of antenna and ground connections. However, most required supplemental antennas for distant reception.

General Considerations

Small loops, commensurate with the dimensions of portable sets, had limited pick-up at broadcast station frequencies. This was due to their small size compared to a wavelength--say, 1 foot as compared to 1000 feet (300 meters equals 1000 kHz). Tuning greatly enhanced response, however, and since loops could be built with constant electrical characteristics and are independent of the ground, gang tuning was possible. Since reception was proportional to the area of the loop, a square loop would offer the most efficiency. However, in consoles, the space available allowed a greater height than width, so these loops were consequently rectangular and utilized the maximum possible area.

Loops were made in two general forms: the flat, or "pancake" type, starting with a small turn and ending with a much larger turn, and the helical type with all turns the same size. Fundamentally, their performance was equally good. Most loops for direction finders were of the latter type, and generally, where the loop was fairly well isolated this was the preferred design. However, when the loop was required to be contained in a small cabinet and placed only an inch or two from the chassis and batteries, the flat type was used since less distributed capacitance was obtained. The grid was connected to the inside turn, the outside turn going to the avc bus or low potential input. This minimized hum modulation as well as stray capacitance if an outer coupling turn was used. Since the loop was required to track with standard type coils, it was essential to keep stray capacitance as low as possible; otherwise either the tuning range would be insufficient or excessively large variable condensers would be required. High distributed capacitance also lowered the Q of the loop.

Under ideal conditions, Qs as high as 400 were obtained using an 85-strand Litz wire. More practical values ran 150 to 250 out of the cabinet which dropped to about 70 to 120 when the loop was mounted in plac . (The Q also varied with the frequency of measurement.) Loops had to be mechanically rigid to maintain their calibration and coated to avoid variation with weather changes. Many loops were wound more or less self-supporting, some with the aid of special acid-free tape. Others were wound on cross-sticks treated against moisture. Litz wire was usually triple cotton covered or a very close spiral-wound double cotton covered.

Sets covering more than one band required more than one loop or a single tapped loop. A convenient form of dual loop consisted of a large helical loop for the lower frequency band and a small, flat spider web loop for higher frequencies.

The G.E. Beam-a-Scope had a cylindrical shield of woven material in which the vertical threads were metallic.

Shields

Some loops utilized an electrostatic or Faraday shield, consisting of a cage of parallel wires grounded to a plate or bus at one end, the other ends left free. It was important that there were no closed loops in the shield wires. GE's Beam-A-Scope had a cylindrical shield consisting of a woven material in which the vertical threads were metallic and metal discs at the top and bottom. All the wires were connected to the top disc while only a single wire was connected to the lower one. Thus, the entire shielding system was at ground potential and there were no closed conducting circuits to absorb power from the loop.

Shields had many advantages. First, they eliminated pick-up from the electrostatic field around many types of man-made noise sources, particularly devices that caused sparking, such as electric motors, razors, ignition systems and also high tension leakage. This was a very important feature in cities, especially in apartment houses. If a shielded loop receiver was compared with an identical chassis using the flexible a-c, d-c type antenna cord strung around the room, the improvement in the signal-noise ratio was significant. The second advantage was the elimination of electrostatic interference between the loop and various parts of the receiver. Another advantage was in the reduction of antenna effect which resulted in improving the directional qualities of the loop.

Directional Characteristics

Loops were further classified as fixed and rotatable. Having marked directional qualities, they had to be oriented to bring in desired stations at maximum volume or to cut the level of interfering stations. In a portable set, the loop was fixed to the cabinet so the entire cabinet had to be rotated. In a table model receiver this was a bit awkward, but still feasible. In a console, it was out of the question so the loop was made rotatable. Motorola utilized a dual fixed loop with the loops 90 degrees apart. Since there was no weak minimum position with this arrangement, rotation was unnecessary for picking up a station, but the reduction of noise by placing the noise pick-up at the minimum position was impossible. The Zenith Wave-Magnet portable shielded loop was removable from the cabinet for a short distance to achieve best reception. Removing the loop from the cabinet resulted in a change of the loop's the Q and tuning somewhat, but the advantages outweighed the disadvantages. Several trick handbag and sport model receivers had shoulder straps using

the straps as loops. No doubt , the Q in these cases depended somewhat upon what the owner had for dinner.

The voltage developed in a loop is due to the phase difference in the field of the incoming signal between its front side and back side. Thus, the sensitivity of the loop is greatest when the plane of the loop is parallel to the path of the incoming wave because there will be a maximum phase difference between the front and back sides. On the other hand, when the plane of the loop is at right angles to the path of the incoming signal, there is no phase difference between the sides so that no voltage is produced. This means that, in the case of a fixed loop, when either the front or back of the cabinet is facing in the direction of a transmitting station, a minimum or no signal will be produced. Similarly, turning the cabinet edgewise toward the station will develop maximum volume. In the perfect case, the directional pattern produced is a figure 8. To produce anything near a true figure 8, the loop must be balanced to ground. That is, both leads of the loop must be equally above ground potential, the point nearest ground being in the electrical center of the loop. This lends itself to a push-pull input stage, which is found in many direction finders. However, one end of the loop in a broadcast receiver is invariably at chassis potential since it is connected directly or through a condenser. The minima are no longer sharp and 180 degrees apart, but are less pronounced and separated much less than 180 degrees. The directional pattern is a distorted 8 with a small lobe and a large lobe connected by a smooth curve; they are tangent in the perfect case. Nevertheless, the ratio between maximum and minimum is still very pronounced so that, when a nearby station is interfering with other stations, the interference can often be eliminated by placing the local station at a minimum point. Noise arriving from a particular direction can likewise be considerably reduced. Electrostatic shielding of the loop improves its directional qualities, sharpening the minima.

External Antennas

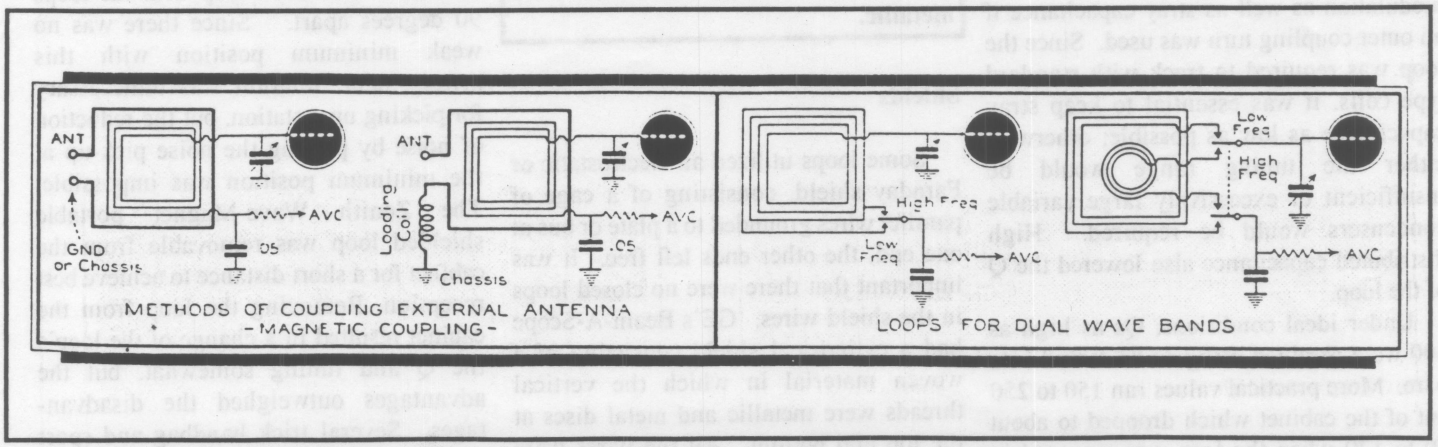
When a loop did not offer sufficient pick-up for satisfactory reception, which might be the case in remote locations, an external antenna was coupled to the loop. Most manufacturers recommended between 50 and 75 feet, including the lead-in. Many portable sets had an antenna and ground wire or posts for this purpose. Some manufacturers merely advised wrapping one turn of the lead-in around the loop and grounding the end. In the latter case, some experimenting was probably required to produce optimum results. The most common early coupling method consisted of running a turn of wire around the outside of the loop and connecting the ends to aerial and ground. With long antennas, considerable hum modulation was often encountered. It was then found that, instead of using a ground connection, returning the coupling turn to chassis, either directly or through a condenser, reduced the hum modulation. Some sets used a loading coil in the chassis return to increase the wavelength of the external antenna, thereby increasing its effectiveness.

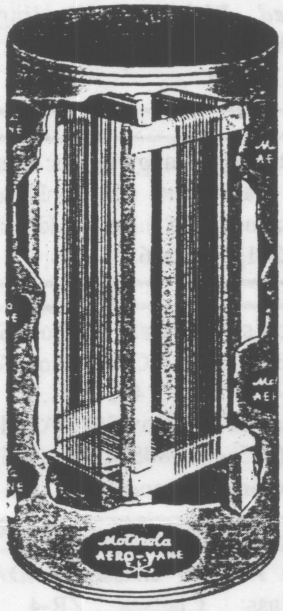
Another method of coupling consisted of connecting the antenna to a primary of many small turns placed within the loop, the return being to chassis or ground. This provided a high degree of magnetic coupling and the minimum of electrostatic coupling. When this type of primary was placed outside an electrostatic shield, the results were still more satisfactory. A more radical capacity coupling system for the external antenna was used by a few companies, notably Stromberg Carlson. In this method, a 0.002-mfd condenser was inserted in series with the loop on the low potential side, one terminal being grounded. The antenna was connected through a 0.01-mfd condenser to the high side of the 0.002 condenser and to the avc bus. One disadvantage of this arrangement was that the 0.002-mfd condenser was practically in series with the loop tuning condenser and, consequently, limited its tuning range.

Calibrating Loop Sets

In calibrating receivers with loops using vintage equipment, it's best to run a shielded wire from a signal generator to a single turn loop radiator having a diameter of 8 to 12 inches with 100 to 300 ohms in series. The usual dummy antenna cannot be used. It is important that there be no magnetic coupling from the signal generator itself.

The recommended method of aligning a loop set is to open its gang condenser all the way and peak the oscillator only. The point is usually around 1700 kHz, but the dial reading should, of course, be consulted. Then set the dial at 1500 kHz and peak the detector only. Finally, rock or pad 600 kHz. The loop must be in its normal operating position when aligning and should be well removed from any metal objects.



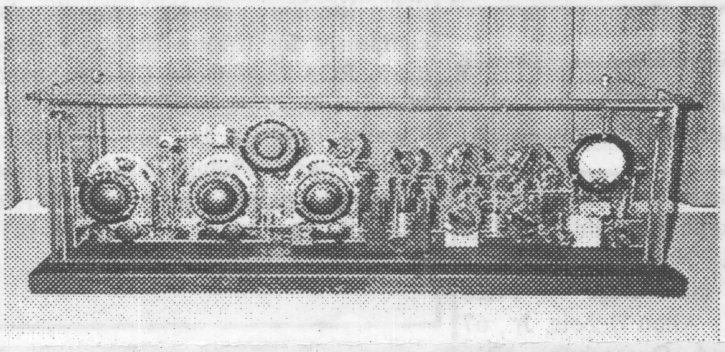


Motorola utilized a dual fixed loop with the loops 90° apart.

The Admiral Aeroscope employed an electrostatic shield which consisted of a cage of parallel wires grounded to a plate at one end.

In smaller Motorola models, a flat pancake loop was used.

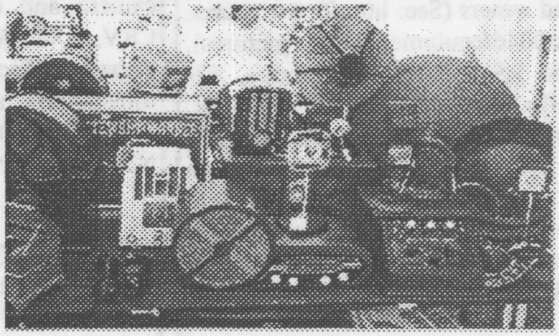
ROCHESTER PHOTO JOURNAL



Your editor couldn't pass up this glass-enclosed superhet.

Marsha and Jerry Simkin displaying their wares.

Another "couldn't live without" buy - a Crosley "Pup" in excellent condition with original box. A similar unit went for $530 at auction.



A nice assortment.

CONNECTIONS

Free exposure for buyers and sellers! Unless requested otherwise, each ad will run for two months in both the *Jersey Broadcaster* and the Delaware Valley *Oscillator*. All buying and selling transactions are the responsibility of the parties involved.

FOR SALE

Check out NJARC's capacitor program for those most commonly needed replacements. Contact John Ruccolo at any club meeting or call him at home (609)-426-4568 to find out what's available. All proceeds go to the club.

7JP4 CRT, good filament, screen looks OK, make offer. Alton Dubois Jr., 67 Peggy Ann Road, Queensbury, NY 12804 (518)-792-3130.

Radio schematics and service data, $2.50 plus #10 SASE (price is for 1 to 5 pages of data per model; over 5 pages, copy charge is 20 cents per page). US & Canadian models 1920s to 1960s. Questions/quotes answered with a SASE. Steve Rosenfeld, PO Box 387, Ocean Gate, NJ, 08740. Phone (732) 269-2022 Fax (732)-269-2897. srosenfeld@ems.att.com

Assorted: 3 homebrew amplifier chassis with UTC and Acrosound transformers - tubes-and meters (See: http://www.netaxs.com/-am004d/equipment for pictures), Amprobe RS3, AKG D109 mike, EV 660A mike, Sony VP2011 3/4U matic-NR, Simpson 371 AC voltmeter, Simpson 260 manual, RCA T2K radios (2), 12" Jensen speaker from floor console radio/with field coil, Triplett frequency counter Model 7000. Mike Muderick, (610)-449-6970 or Mike@Muderick.com

The ever-handy reference ***Tube Lore*** gives 186 pages of insightful scoop on about every North American tube there is. Reviewed by Eric Barbour in *Vacuum Tube Valley* as "an instant classic." Available from Ludwell Sibley, 102 McDonough Road, Gold Hill, OR 19725-9626 for $19.95 postpaid in the U. S. and Canada, $24.95 by air overseas. Clubs get a discount on multiple copies.

The NJARC tube program offers clean, tested, boxed tubes at very reasonable prices with availability at any club meeting (no dealers, please...not for resale). Proceeds go to the club. Of course, donations of radio-type tubes in any condition are welcome. See Gary D'Amico at the next meeting.

Parted out Stromberg Carlson 19-20 (AC). Power transformer appearsOK; IF's are O.K. Electrodynamic speaker is electrically OK (needs cone repair). Make offer. Alton Dubois, Jr., 67 Peggy Ann Road, Queensbury, NY 12804. (518)-792-3130.

WANTED

Cast aluminum lid for Eveready #2 radio, circa 1928. Good photo would help if lid is not available. Need two, four-inch black No. 488 dial knobs for Fried Eisemann NR-6. Alton Dubois, Jr., 67 Peggy Ann Road, Queensbury, NY., 12804. (518)-792-3130.

WWII military television receiver, camera and dynamotor with numbers CRV, AXT, ATJ, ATK, purchased from Denson Electronics. WWII Navy transmitters and receivers. Maurice Schechter, 590 Willis Ave., Williston Pk., NY 11596 Phone/fax: (516-294-4416)

Japanese tubes: UF134, UZ135, UF109A, UF111A, UY133A. Lewie Newhard (610)-262-3255

The May 1966 issue of *Electronics Illustrated*. Richard C. Yingling, 2 S. Locke Ave., Yeagertown, Pa. 17099 (717)-242-1882

Information on "Lang" radios: literature, pictures, pricing, etc. Charles J Dreitleio, 515 Elizabeth St., New Milford, NJ 07646 (201)-384-3862

Gernsback's Official Radio Service Manuals: 5,7,8. RCA Victor Service Data: `47, `48, `49, `51. Mike Tannenbaum, PO Box 386, Ambler PA 19002. (215)-540-8055 Fax (215)-540-8327 or k2bn@agtannenbaum.com

Emerson AU-190 chassis; FADA 659 dial glass; Chelsea ZR-4 audio transformer; Sentinel 400 Television; Plastic CRT cover (front) for 17" Philco Predicta; Pilot TV-37 tuning knob (wood). Frank Johnson, 530 Elford Rd., Fairless Hills, PA 19030-3624. (215)-943-8295

Sales literature, service manuals, and equipment for theatre sound/broadcast use by RCA Photophone, Century Sound, Motiograph, Altec, Western Electric, etc. Theatre catalogs by Jay Emmanual Publications, Philadelphia. Scott Stillwell, 2328 Cambridge Circle, Hatfield, PA 19440. (215)-393-1833 Pager: (800)-717-9306

Chassis and speaker for Sparton 517B (Machine Age to Jet Age, pg. 187) or Sparton 527-2 (Machine Age to Jet Age II pg. 283). Joe Bentrovato, 84 E. Munson Ave., Dover, NJ 07801. (973)-361-7392

Buying European Radios! Grundig, Telefunken, Saba, Normende, Blaupunkt, Phillips, Goplana, etc. Must be in good to fair condition. Richard Brill, P.O. Box 5367, Old Bridge, N.J. 08857. (732)-607-0299. Fax: (908)-679-8524 or rgbent@aol.com