

Indiana Historical Radio Society
BULLETIN

VOL. 20

WINTER 1991

NO. 4

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

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INDIANAPOLIS, IN 46224

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DONATIONS, SCRAPBOOK MATERIAL
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NEWS, ARTICLES, RADIOADS
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SHERIDAN, IN 46069

* IHRS IS A NON-PROFIT ORGANIZATION FOUNDED IN 1971. ANNUAL MEMBERSHIP DUES ARE \$8.00 WHICH INCLUDES QUARTERLY IHRS BULLETIN. RADIOADS ARE FREE TO ALL MEMBERS. (PLEASE INCLUDE S.A.S.E. WHEN REQUESTING INFORMATION)

Annual MID-WINTER Swap Meet

INDIANA HISTORICAL RADIO SOCIETY

Saturday February 22nd 1992

HOLLIDAY INN SOUTHEAST

5120 Victory Ln. - I465-Emerson EXIT 52

8:30 AM - 3:00 PM

FREE setup for Swap and Sell...

CONTEST:

Your Favorite Radio

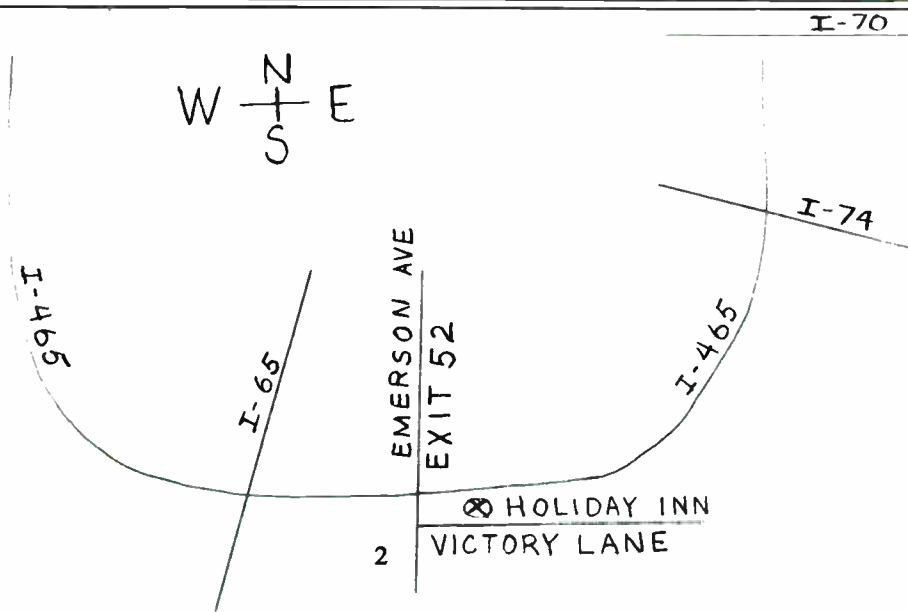
Special overnight rates -

Mention IHRS

Holliday Inn (317) 783- 7751

Other Information-

Bob Shuck (317) 849-0381



PRESIDENT'S CORNER

I feel we had a very successful meet in Greenfield this year, but then I have a certain prejudice since I arranged it. We had over fifty register and took in \$55.00 in donations. Our expenses were \$37.00 for donuts, coffee, and \$75.00 for the use of the building. So, we came up a little short. But then, these meets (in my opinion) were never meant to pay for themselves in the past. We've been making up the difference out of the treasury. However, I think it would be a good idea to have a \$2-3.00 registration fee next time.

The day started out drizzly and cold but the sun came out and the leaves were nice and several people set up outside as well as inside, so that we had a lot of merchandise to choose from. But more than that, a lot of people simply sat around and talked which made for a nice meet. Since a large majority seemed to enjoy it, we will have next Falls meet at the same place.

The pitch-in was great to which we can attest, since there was hardly any food left.

I would like to recognize some members. In our contest of old homebuilt crystal sets, Ed Taylor took first prize, Ross Smith second, and George Hauske third. Also, Bill Morris, one of our younger collectors from Carmel, had a nice display of RCA table model sets with a 45 record changer connected and working playing period music. We thank them all.

After the meal we had a lively business meeting and we elected officers for 1992. There was plenty of discussion on both the election of officers and on where and how our next Spring meet will be next year. It seems that I was voting with the minority quite a bit. And in one case, I believe I was the only one voting no. Anyway, the slate of officers was approved.

We also approved three meets for next year, and a fourth was arranged later by Ross Smith. Despite his current illness, and with the help of some other members in his area, Ross expects us to plan for a meet in June.

1992 schedule:

WINTER MEET- February 22, 1992 Holiday Inn I-465 & Emerson
Indianapolis, In Chairman-Bob Shuck
317-849-0381

SPRING MEET- April 30, May 1, 2, 1992 Ramada Inn US 31 Bypass
Kokomo, In Chairman-Don/Marilyn Johnston
317-945-7735

SUMMER MEET- June 27, 1992 Highdive Park,
Elkhart, In Chairman-TBD

SUMMER MEET 2 (maybe)- August 1, 1992 Biddle Park,
Sheridan, In Chairman- Eric Sanders

FALL MEET- October 10, 1992 Riley Park E. Main & Appel
Greenfield, In Chairman-Glenn Fitch
317-565-6911

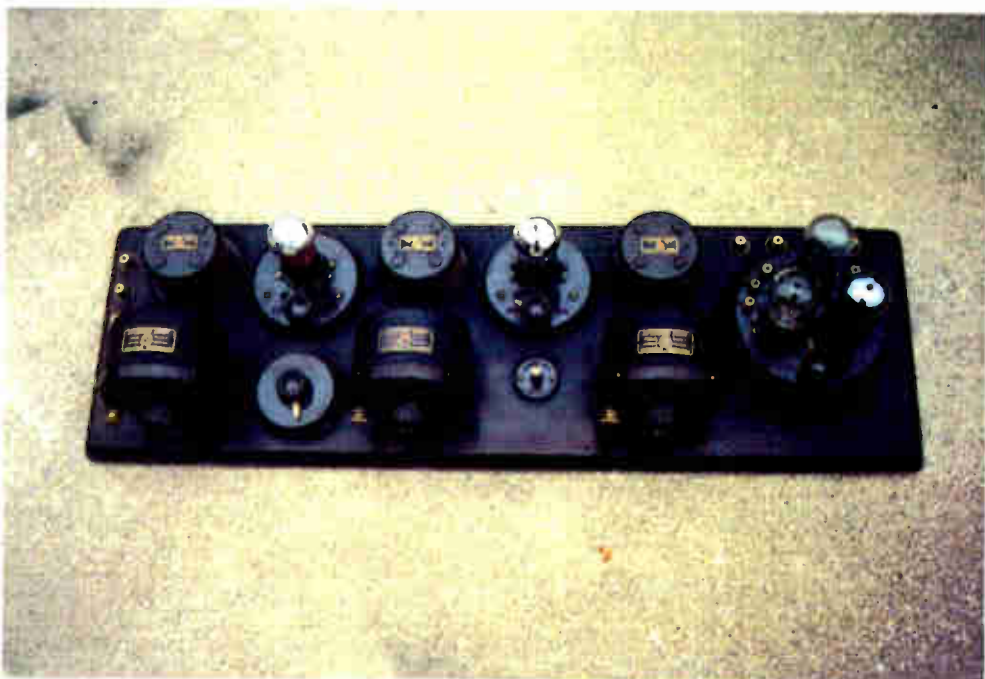
THE A.K. #4600 OPEN SET

by Walter Sanders

Of the over 105,000 Model 10 open set "breadboards" produced by Atwater Kent, only 2,840 (about 2.7%) are the #4600 set. In his epic history of AK breadboards (Radio Age, Volumes 3 and 4, 1977-1978), Ralph Williams conjectures that during late 1923 and 1924, when the #4340 "Radiodyne," the Model 10A, the Model 10B, and the #4600 sets were manufactured, the #4600 was produced at the new Wissahackan Avenue plant in Philadelphia while the other models were produced at the main Stenton Avenue plant. This conjecture seems quite plausible since the wiring below the board is distinctively "4600" even though the sets were hand wired. In fact, if the identifying tag tacked to the bottom of the board is missing, the wiring is the only way to distinguish the #4600 sets from the #4340 sets. All the other model 10 sets (Models 10A, 10B, and 10C) can be identified because they have a battery cable rather than the thumb screws for the battery connections.

Picture #1 shows a black #4600 while Picture #2 shows three #4600 sets: a gray-green, a black, and a brown version. The gray-green (Serial # 7425) and the brown (Serial #A 16533) have tags identifying them as #4600 sets. Since the black set has the identical wiring, it also is a #4600 set. It is interesting to speculate how the serial numbers were assigned to the various models of the model 10 breadboards, especially if the #4600 was manufactured at a separate facility. The serial numbers of all these versions are intermixed, and give an estimate of when in the late 1923-24 period the set was manufactured. Since my #4700 Model 10C set has a five digit serial number beginning with P, rather than a serial number beginning with an A, it is possible that the numbers began over, but I doubt it. If a #4700 set with serial number with six digits is found, we would know that the numbering continued on.

The usual tag affixed to the RF coil forms, shown in Picture #3, appears on the gray-green and black sets, but the brown version has the tag shown in Picture #4 on each coil. The tag is the same as often was attached to the potentiometer and occasionally other AK components, but I have not seen it on RF coils before.



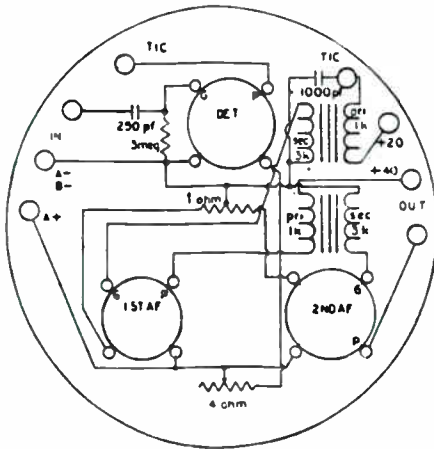
1



2

Interestingly, the three colors of paint used on AK components - gray-green, brown, and black - are also three types of paint. The gray-green is ordinary enamel while the brown is a "wrinkle" type, and the black is a crystalline, very much like the paint used by Magnavox on their later R-3 horns (see Picture #5). I have looked at a number of open sets and components and seen no deviations from these paints as described. Picture #5 shows the bottoms of the 3-tube TA units from the three #4600 sets pictured. The black is clearly the crystalline finish, and the green is smooth enamel, as they should be. But the bottom of the brown is not wrinkle texture although the sides of the unit are! It would seem that the wrinkle texture was applied first, then the brown enamel applied for the finish coat.

The author would like to hear from those who possess #4600 Model 10 sets to find out whether they all have tags on both condensers and coils, the range of serial numbers, and the proportion of gray-green, brown, and black sets produced.



TOP VIEW TA DET-2 STAGE AF



4



3



DUES-DUES-DUES _____ -----
----- -----

QUESTION: When do I pay my 1992 dues and how much are they ?

ANSWER Pay your dues each year in JANUARY. 1992 = \$8.00

QUESTION How do I pay my dues ?

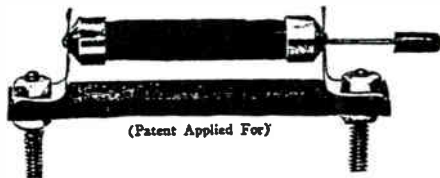
ANSWER Remit \$8.00 to the IHRS treasurer.
Glenna E. Sanders, 15 Todd Drive
Terre Haute, In 47803

QUESTION To whom do I make the check payable?

ANSWER To I.H.R.S.

****REMINDER****

EACH YEAR IN THE MONTH OF MAY, THE NAMES OF MEMBERS WHO HAVE NOT PAID THEIR DUES FOR THE YEAR ARE REMOVED FROM THE FILE AND ALL FURTHER IHRS BULLETINS MAILINGS ARE DISCONTINUED...



THE ONLY ONE IN AMERICA

With the usual type of "Grid Leak," which is of fixed value, it is necessary to try a number of them to determine the one best suited.

The Durham Variable High Resistance (Adjustable Grid Leak)

is the only one of its kind now on the market, because it is *adjustable* over a wide range and will maintain its value permanently after initial setting—It is non-inductive and has negligible capacity.

Made in two sizes: No. 100—1,000 to 100,000 ohm range
No. 101—100,000 to 5,000,000 ohm range

Price 75c. Base 40c.

DURHAM & COMPANY

1936 Market Street

Radio Engineers

Philadelphia, Pa.

November 1991

Dear IHRS Members,

On Saturday, October 19, 1991, at the Annual Meeting in Greenwood, Indiana, some decisions were made by the IHRS Members present.

The 1992 Spring Meeting will be at the Ramada Inn in Kokomo, Indiana on April 30, May 1 and 2, 1992. The site for the meeting is across the street from Delco Electronics Corporation, a subsidiary of GM Hughes Electronics. We are applying for a tour of a portion of this facility.

It seemed appropriate, to us, to share the GENERAL MOTORS--AND RADIO article with the membership. The growth and progress that has occurred since the birth of General Motors Radio Corporation is amazing.

Kokomo Motels (on or very near U. S. 31)

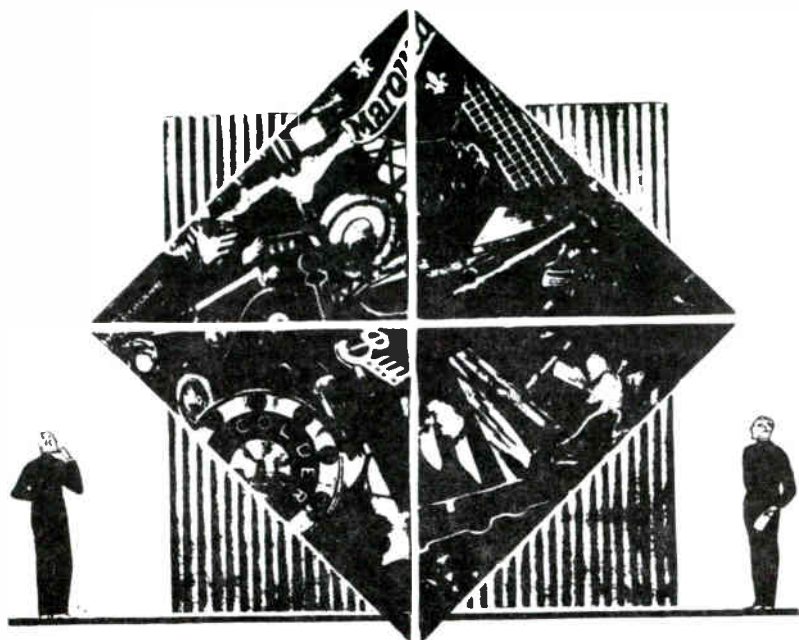
- Comfort Inn 1-800-228-5150
- Econo Lodge 1-800-553-2666
- Howard Johnson 1-800-654-2000
- Koko Motel 1-317-452-6715
- Manor Motel 1-317-452-7265
- Ramada Inn 1-800-228-2828
- Signature Inn 1-800-822-5252
- World Inn 1-317-453-7100

Remember--ask for the AARP or the Sr. Citizen's rate if you are eligible. Ramada Inn has a limited number of rooms at the discount rate.

Many of you have volunteered to work on some of the committees for the Spring Meeting. We still need volunteers and would appreciate hearing from anyone that wants to offer their services.

Please, do make plans to attend the 1992 Spring Meeting and enjoy the auction, contest, hospitality room, tour, Friday evening dinner, large swap and sell arena, workshops, and much more.

Marilyn and Don, Co-Chair 10
317/945-7735



GENERAL MOTORS —AND RADIO

A New Star has risen in radio. It is called the General Motors Radio Corporation, and early in October it was incorporated in the state of Delaware for \$10,000,000. The new company will manufacture and distribute apparatus covered by all the "Radio Group" patents "in radio, sound, and picture receiving and reproducing sets for use in homes and automobiles."

General Motors owns fifty-one per cent of the \$10,000,000 of capital stock and Radio Corporation, forty-nine per cent. Management of the new corporation, as announced jointly by David Sarnoff, for RCA, and Alfred P. Sloan, Jr., for General Motors, will be in the hands of General Motors.

Nine men comprise the Board of Directors of which five are connected with the General Motors organization, two with the RCA, one representing Westinghouse, and one General Electric.

It is understood that General Motors will direct the new company through a separate executive personnel not yet announced.

Directors:

John Thomas Smith, vice president and general counsel (General Motors Corporation (chairman of Board)).

R. J. Emmert, president, General Motors Radio Corporation.

James G. Harbord, president, Radio Corporation of America.

John L. Pratt, vice president, General Motors Corporation.

A. W. Robertson, chairman, Westinghouse Electric & Manufacturing Co.

David Sarnoff, executive vice president, Radio Corporation of America.

Alfred P. Sloan, Jr., president, General Motors Corporation.

Gerard Swope, president, General Electric Company.

C. E. Wilson, vice president, General Motors Corporation.

The new company will have the widest manufacturing scope under the patents to which it has access. Radio receiving sets for home use, the superheterodyne circuit, electric phonographs, combination radio-phonographs, radio sets for automobile installation, and apparatus for still and motion pictures are all covered in the patents available for use by the General Motors Radio Corporation.

No official of any of the four companies represented in General Motors Radio has been willing to comment on how the products of the new company will be distributed. It is apparent at this time, however, that products of General Motors will be separately designed, separately manufactured, bear a separate trade identity, and, unless some new development is uncovered, will be separately merchandised.

In an announcement to all Radiola distributors, J. L. Ray, president of Radio-Victor, says: "The Radio Corporation of America and its wholly owned subsidiary companies will continue independently as heretofore, to manufacture and distribute their own products. The General Motors Radio Corporation will manufacture its own product and develop its own distribution."

It is pointed out that RCA in absorbing Victor, continued the merchandising policies and avenues of distribution of the old company, while maintaining the separate product and merchandising avenues of the Radiola line. Thus far, this policy has apparently not interfered with either complete line.

Charles F. Lawson, president of Day-Fan, the organization absorbed into General Motors Radio Corporation, has announced to his dealers and distributors: "The enormous advantages which General Motors' backing gives to us--manufacturer, distributor, dealer--are obvious. At once, there is the authority of a great name in engineering, research, and manufacturing behind the claim of excellence in our product. There is the distinct advantage of the General Motors Acceptance Corporation plan of financing deferred payments. Looking to the future, the implications of General Motors' entry in the radio field, with its great resources, are tremendous.

"The Day-Fan dealer franchise is a most valuable one today. It is potentially the most important franchise in radio."

Those in the industry who have given serious thought to the implications of the General Motors Radio Corporation's entry into the field, feel that it means first, the coming into radio of a new manufacturing company with ample financing and an important history of experience in mass production, secondly, the entry of skilled merchandising experience suggesting many possible innovations, thirdly, the further extension of radio deferred payment sales through the large resources of General Motors Acceptance Corporation, and fourthly, the probable building up of a new distributing group. Radio is already linked closely to sales outlets for refrigerators, automobiles, and automobile accessories, and it is expected that this new company would not confine its dealer outlets exclusively to those now handling Frigidaire on the one hand or automobiles on the other. It is more likely that the distributing set-up (sic) will include outlets from each of these major groups and build up a primary set of radio outlets rather than select one complete ready-made (sic) dealer group.

Bibliography: "General Motors--And Radio". RADIO BROADCAST, Published For The Radio Industry.

Vol. XVI, No. 2. December 1929, Pp. 71, 122

THE HOME MADE CRYSTAL RECEIVER

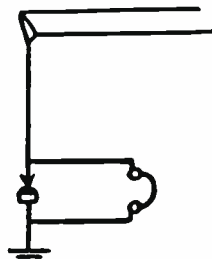
The eight "Home Made" crystal receivers on display at the October 1991 IHRS meeting in Greenfield Indiana were all of a quality I would be proud to display. I regret I was not prepared with my camera to take pictures for this article.

Home Made could be best defined as a "start from scratch" crystal receiver where some or all of the set was hand crafted. Start from scratch means the builder decided to build a receiver and then ordered parts from a catalog, or went to the corner store and purchased parts, or was inspired to create from extra parts, and/or followed *How To Build A Crystal Receiver* directions found in newspapers, magazines and books. The end result, as indicated by the receivers on display, is a variety of crystal receiver designs. The home made construction ranged from one set that looked just about completely home made (the brass binding posts and straps may have been machined by the builder) to a home assembled set (where the builder creatively reassembled a unique receiver with on hand parts).

FOUR CIRCUIT DESIGNS

As with all receivers, picking up and selecting a station is the intent. Run a long wire to a detector and we can receive stations on top of each other (or none at all). Coil a wire to add length, interwinding capacitance and a method to "tap" the coil at different lengths we improve the tuning ability of a receiver.

So, while the simplest of home made crystal receivers can be assembled using a long wire antenna, a detector with headset, and a wire to ground, the reception can be improved considerably by trying different things with the long wire.

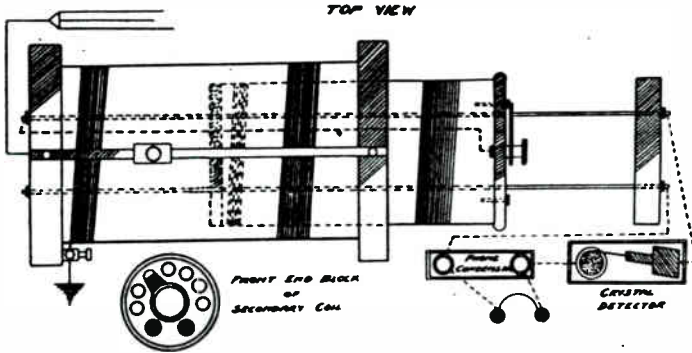


The crystal receivers on display represented four variations of tuning coil construction to "tune in" a station.

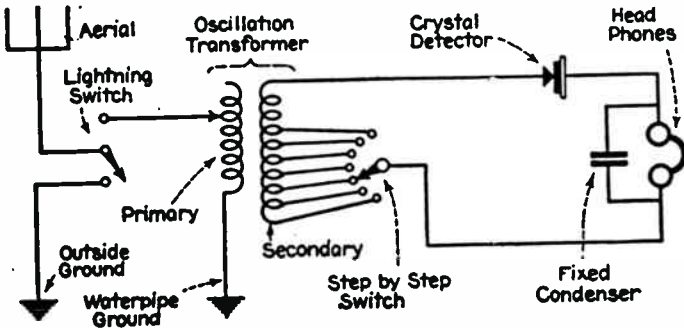
The LOOSE COUPLER Circuit



Merle Dustin's *Radio Construction For The Amateur*, 1923 provides a top view drawing of a loose coupler crystal set.



Station selection is accomplished by physically moving a secondary coil of wire within it's primary coil. Sharper tuning is possible by sliding a contact on the primary coil and/or switching taps on the secondary windings.

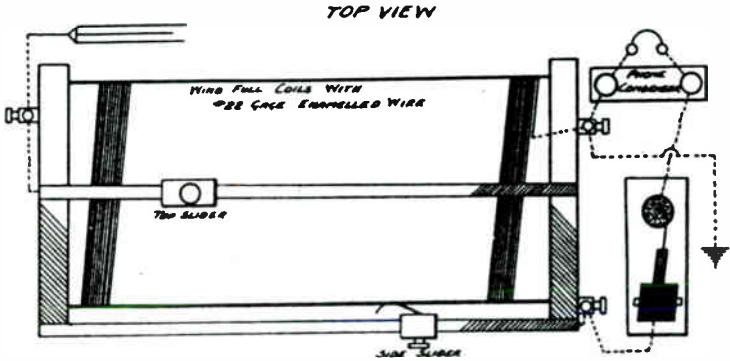


The above schematic (lifted from A. F. Collins *The Radio Amateur's Handbook*, 1930) is a good representation of a typical loose coupler crystal receiver. The primary coil is electrically separated from the secondary. The antenna is connected to the primary by a sliding tap, effectively changing the number of turns in the primary. The secondary in this schematic (as well as the display loose coupler) is tapped through a switch, providing a change in number of coil turns. Not all loose couplers will have tapped secondaries.

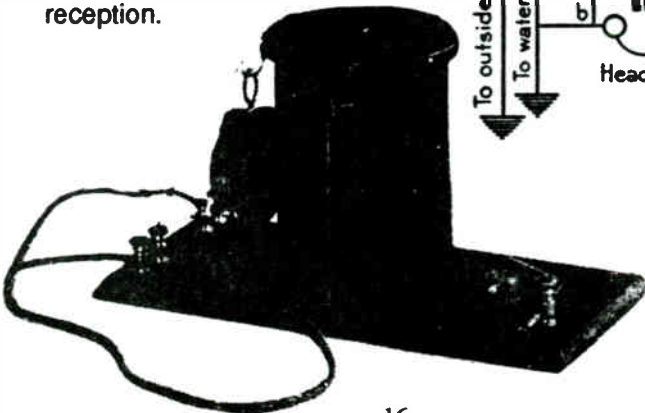
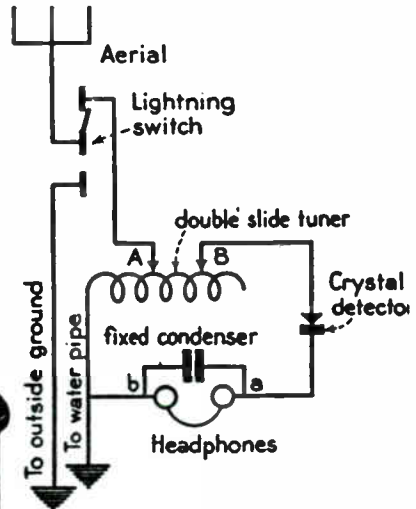
TWO SLIDE TUNER CRYSTAL SET



Three of the crystal receivers on display used a two slide tuning coil for station selection. Merle Dustin provides a top view drawing of the receiver.

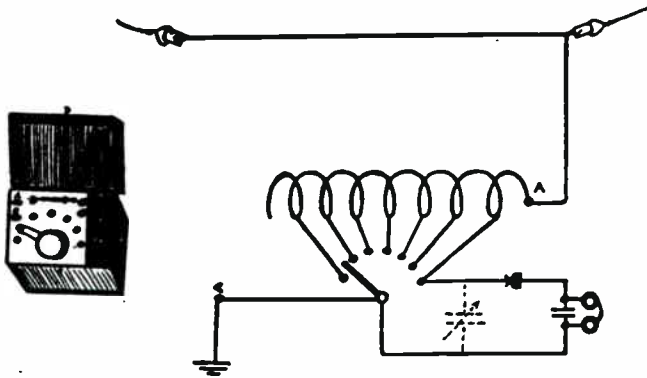


Simpler to build, this design will not tune as closely as the loose coupler circuit. As shown in the Collin's schematic to the right, the primary and secondary of the tuning coil consists of one continuous coil of wire. The tuned length of primary and secondary is determined by the position of the two sliders. An interesting two-slide tuner on display had a coil of approximately 24 inches long, designed for long wave reception.

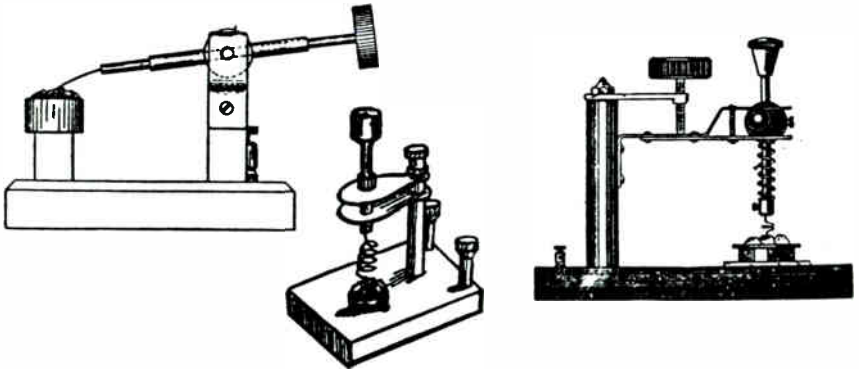


TAPPED COIL

Three of the receivers in the display used a tapped coil for station selection. Since the design of these receivers boxed in the coil, the exact circuit was not visible, but typically the switching from one set of coil windings circuit was similar to the following drawing found in the book by Mary Texanna Loomis, *Radio Theory and Operating*, 1930.



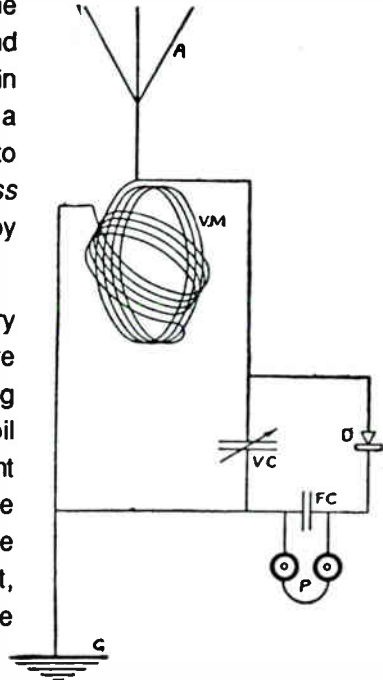
The tapped coil method of tuning was not as selective as the previous two circuits, but still provided the builder the needed reception of the one and only station in the area. The addition of a variable capacitor (shown dotted line in the above circuit) provided much closer tuning to the transmitted frequency.



The VARIOMETER CRYSTAL TUNER - Plus

The fourth design best fits the "handfull of parts, let me see what I can do" construction technique. This nicely done receiver used a variometer and variable capacitor placed in series (I think) resulting in a circuit similar to the drawing to the right from *The Wireless Experimenters Manual 1920*, by Elmer E. Bucher.

The primary and secondary coils of a variometer are connected in series. Tuning occurs when the secondary coil is rotated from center alignment with the fixed primary coil. The addition of the variable capacitor provides, I suspect, the sharpest tuning of all the receivers on display.



The just described methods of "playing" with or "adjusting" the design of home made sets are four of the more frequently found circuits from the early years of radio. Many other configurations can be found, all designed with some variation on the primary and secondary coil windings of the receiver's tuning stage. For many of "build it at home" enthusiasts the crystal detector was replaced by the vacuum tube, retaining the same tuning design. In the next issue of the *Bulletin* a unique home assembled vacuum tube detector set using three honey comb coils to select a station will be described.

Comments or questions? Send them to Fred Prohl, 7520 Satterfield Rd, Columbus, OH 43235.

During the twenties there were more radio manufacturers in the United States than in any other decade. Those that had the largest number of manufacturers include New York, California, Illinois, and Ohio. Even though Indiana is situated between Illinois and Ohio, it had only a modest number of radio manufacturers.

Here is a list of the "known" Indiana Radio Manufacturers :

COMPANY -----	MODELS -----
1) Alladin Manufacturing Company 602 E. 18th St., Muncie, Indiana	"Aladyne"
2) Allison-Pickett Company 106 South 7th St., Terre Haute, Indiana	"Apcodyne"
3) American Apparatus Company 30 N. 19th St., Richmond, Indiana	"Amaco"
4) American Radio Corporation Indianapolis, Indiana	"American"
5) Anylight Electric Company 1418 Wall St., Fort Wayne, Indiana	"King Cole" ("Everyhome" ??)
6) Better Radio Products 2625 S. Walnut St., Muncie, Indiana	"Melody"
7) Cardinola Radio Corporation 339 N. Capital Ave., Indianapolis, Indiana	"Cardinola"
8) Circulix Radio Corporation 217, 230 E. Ohio St., Indianapolis, Indiana	"?"
9)Continental Radio Corporation Fort Wayne, Indiana	"Star Raider"
10)Diamond T manufacturers 526 N. Niles St. and 615 Crescent St.,South Bend, In.	"Diamond T"
11) Electric Machine Corporation 529 N. Capital Ave.,Indianapolis, Indiana	"Elmco"
12) Guerrier Radio Corporation Fort Wayne, Indiana	"??"

- | | |
|---|-----------------------|
| 13) Hammond Radio And Supply Company
Hammond, Indiana | "??" |
| 14) Hatfield Electric Company
102, 104 S. Meridian Ave., Indianapolis, Indiana | "Hatfield" |
| 15) Hiday Electric Company
209 Main St., Fortville, Indiana | "Handcock" |
| 16) Imperial Electric Company
201 S. Colombia St., Union City, Indiana | "Le Pilote" |
| 17) Eisenhour L. J. Manufacturers
213 E. South St., Rm 113, Transportation Bldg, Indianapolis, Indiana | "Vizo" |
| 18) Indiana Manufacturing & Elec. Company
530 Case Bldg., Plant 33 St. & S. Adams, Marion, Indiana | "Hyperdyne"
"Case" |
| 19) Laurel Moters Company
5Th & Sycamore St., Anderson, Indiana | "Sinclar" |
| 20) Lyradion Manufacturing Company
N. Main & E. Front St., Mishawaka, Indiana | "Lyradion" |
| 21) Midland Electric Manufacturing Company
107 S. Capital, Indianapolis, Indiana | "Midland RF Receiver" |
| 22) Nicholson Expermental Laboritories
New Augusta, Indiana | "Nicholson" |
| 23) Okay Radio Corporation
22 1/2 W. National Ave., Brazil, Indiana | "Okay" |
| 24) Queen Quality Radio Corporation
12 Pine, Evansville, Indiana | "Queen Quality" |
| 25) Showers Brothers Furnature Company
601 Morton St., Bloomington, Indiana | "Showers"
"Future" |
| 26) Skylark Radio Corp. (Div. of J.W. Whittlock Company)
Rising Sun, Indiana | "Skylark" |

- | | |
|--|--------------------------|
| 27) Slagle Radio Company
530 Masterson Ave., Fort Wayne, Indiana | "Slagle" |
| 28) Starr Piano Company
1ST & A,B,C,D,& E St., Richmond, Indiana | "Starr" |
| 29) Thomas and Simmerman
221 Spencer Ave., Marion, Indiana | "??" |
| 30) Tilman Radio Corporation
Wabash, Indiana (manufactured in Lagro, Indiana) | "Tilman"
"Challenger" |
| 31) United Radio and Manufacturing Company
Gary, Indiana | "??" |
| 32) Washburn Burner Corporation
303 N. Buckeye, 3rd floor, Kokomo, Indiana | "Washburn Burner" |

There is also a radio called "Amplex" that was made in South Bend. I do not know the complete name of the manufacturer at this time.

If any one has any information on any of the manufacturers listed, or not on this list, let me know. If sufficient information is aquired, a revised and expanded version of the list may be printed in a future issue.

Michael Feldt
12035 Somerset Way E.
Carmel, Indiana 46032
317-844-0635

new officers are:

President-Glen Fitch

Vice-president-Marilyn Johnston

Secretary-Paul Gregg

Treasurer-Glenna Sanders

Historian-Dr. Ed Taylor

RECOLLECTIONS

By Robert F. Miller

'Cheap' Crystal Sets

A friend recently asked me if I could repair an old crystal set. I said, "Why, sure. Bring it over." Famous last words!

A Howe crystal set appeared with coil and slider in a metal box with crystal and cat's whisker on top. The coil turns were sagging and crossed over with probable shorts. I closed the patient back up, and told the owner that it was just junk.

Shortly afterward I saw an identical set at a swap meet with a \$90 asking price! Upon questioning, I heard that some collectors even go to the trouble of somewhat repairing them without winding a new coil. Unscramble the convolutions while working a toothpick in the side opposite the slider. Wow!

Since I had had a Carco crystal set with a neat variometer and dial, I remain 'spoiled' and have a low opinion of the likes of Howe and Philmore with their cheap sliders which short turns and reduce the Q of the inductance. I have never seen another Carco which was made by a Carter Mfg. Co. located, I believe, in nearby Cleveland. (I lived in Akron, Ohio.) It looked like a close relative of the one tube set shown on page 122 of 'Vintage Radio', with the variometer and dial mounted on the bottom metal base along with the crystal detector and name plate.

Unfortunately I gave it away in favor of a three tube homebrew. Collecting old radios didn't bite me until over 60 years later.

The Laboratory Super for 201 A Tubes

This is the famous Laboratory Super that has enjoyed continued popularity throughout the 1927-28 season, and it will continue to be a leader for some time to come. It consists of a regenerative first detector, oscillator, 3 stages of sharply tuned intermediate R.F. (112 K.C.), a super sensitive detector, and two stages of S-M audio using the famous S-M 220 transformers. Complete shielding for all stages including the intermediate amplifiers provides remarkable selectivity. The complete instructions accompanying each kit of parts make it an easy matter to assemble and wire this set in an evening's time. Supplied with or without detector and oscillator shields, depending upon whether or not you live in congested broadcasting areas. For those who prefer a standard tube set we heartily recommend this set, for it provides 10 K.C. separation between stations and is without a doubt the most efficient set of its kind ever designed. Uses seven 201A type tubes and one 171A power tube.

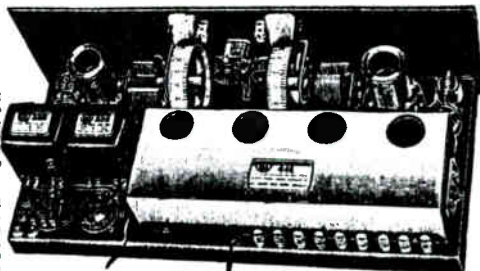
Price of Complete Kit

Complete kit with oscillator and first detector stage shields.

List Price, \$83.46. **\$54⁹⁵**
3R5903—Net.....

Complete kit, but without oscillator and first detector stage shields.

List Price, \$89.45. **\$52⁶⁰**
3R5902—Net.....



List of Parts

1 Van Doorn Panel and Chassis Unit pierced with holes, \$4.50; 1 Carter .00015 cond. with clips, 50c; 1 Carter M200 Potentialometer, 15c; 2 Tube 1/2 mf. cond. at 15c, \$1.00; 1 Carter 3 ohm Rheostat, 50c; 4 Carter No. 10 Hip Jacks @ 10c, 40c; 1 Carter Battery Switch, No. 2 Imp., 50c; 1 Tube 3 meg. Grid Leak, 50c; 4 S-M No. 511 tube sockets @ 50c, \$2.00; 2 S-M 220 Audio Trans. @ \$3.00, \$10.00; 2 S-M 505 Vernier Drum Dials @ \$2.00, \$4.00; 1 S-M 275 R.F. choke, 90c; 1 S-M 342 Condenser, \$1.50; 1 S-M 410 line signal amplifier, \$35.00; 2 S-M 615 coil sockets @ \$1.00, \$2.00; 2 S-M 111A coils @ \$3.50, \$7.00; 2 X-L Shielding Posts @ 15c, \$1.35; 2 S-M 320 .00035 mf. Cond. @ \$3.25, \$6.50.

Color television as an idea and objective dates back to the earliest days of television, when most of the pioneers were forming images with spinning disks and drums outfitted with a variety of apertures, lenses and mirrors, John Logie Baird of England was the first to demonstrate color television in 1928. In the early thirties, General Electric patented a method of using two color primaries instead of three. Meanwhile, the electron beam was gradually but effectively sweeping the spinning disks into oblivion. The TV colorists (Ted Turner wasn't around yet), then turned their efforts to tinting the monotonous grays of the kinescope with all the colors of the rainbow.

Because of signal bandwidth limitations, early color television development activity centered on the "Field Sequential System." In this system, the transmitter sends out image fields containing signal information for one color primary at a time. The viewer might see a red only field, followed by a green only field and finally a blue only field. Then the sequence repeats. The receiver with its black and white cathode ray tube (CRT) develops the colors by rapidly rotating a set of three primary color filters between the viewer and the CRT. Colors other than the three primaries and black would appear in at least two or possibly three fields. Because the fields are produced rapidly, persistence of vision causes them to appear to combine into one full color picture.

The NTSC method of television differs from the field sequential system in that all color information in each picture element is reproduced simultaneously. It is referred to as a "Dot Sequential System." Therefore, each field contains all red, green and blue information for that field and the combining of colors is done on screen instead of at the eye. To present the colors simultaneously, a NTSC receiver must use a tri-color CRT or group of single color types, to produce and control the three primaries on a common screen.

An example of the field sequential system was one developed by CBS and authorized for use by the FCC in 1951. Each camera had a small motor driven color filter wheel in front of its lens. Receivers used a similar but much larger color wheel in front of a black and white CRT. This wheel rotated in synchronism with the one at the camera. Because the CBS system sweep frequencies were not compatible with existing black and white receivers, the FCC canceled their authorization in 1954. They then approved a compatible all electronic dot sequential system developed by RCA, known as the NTSC system.

Between 1951 and 1954, there was a great interest in receiving the new CBS color programs. Since the CBS system was not compatible, black and white sets needed modification before they could receive color programs in black and white. These modifications consisted of simple changes to the vertical and horizontal sweep circuits. To receive color programs in color required those changes plus color decoding/synchronizing circuit changes and a color wheel. Electronic magazines of the period featured articles describing these changes for the home constructor, but due to lack of color programs, very few conversions were made.

Following the FCC authorization of the NTSC system, RCA and others began placing their new compatible color sets on the market. Sales were slow,

partly because these sets carried price tags around \$1000. The multitude of knobs and adjustments didn't help either. So there were many people looking for a simple low cost way of viewing color programs on their black and white sets. Some were satisfied with the simple addition of a rainbow colored filter "stuck" to the front of the CRT. The cost was less than \$2 and the manufacturer promised beautiful color even on black and white programs. But what most were looking for was a "color adapter" and it looked like the now obsolete color wheel might be an answer.

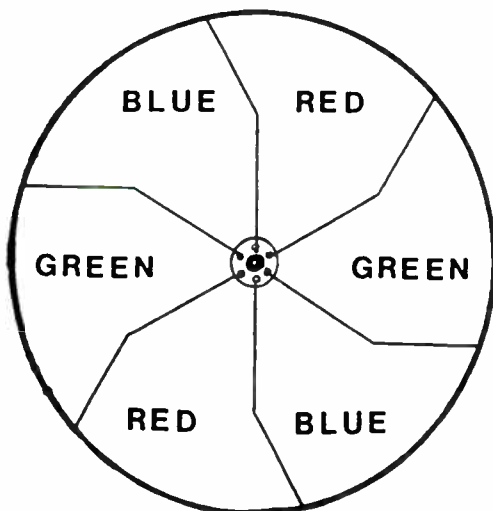
Since the color wheel was developed for use in a field sequential system that is very different from the NTSC system, there is much more to an adapter than just spinning a color wheel in front of a black and white set. First it was necessary to convert the NTSC system to field sequential. There were people who worked this out and some like COLORTELE sold kits to be built up and connected to your existing set. Others published their ideas in popular magazines of the day. An example of this can be found Radio-Electronics for January and February, 1956. Another is in Radio and Television News for December 1954 and January 1955. Most anyone with some background in electronics can build a color adapter from these articles.

Those fortunate enough to have witnessed one of Dave Johnson's demonstrations of a COLORTELE adapter know that the results are quite satisfactory. Not as a replacement for the sets we have today, but for an interesting demonstration of how things were 40 years ago. (My goodness, has it been that long!)

As color receivers improved and dropped in price interest in color adapters disappeared and the manufacturers left the market. The most difficult part to fabricate or locate separately then as now, was the color wheel and very few of these have survived to this day.

Peter Yanczer of St. Louis, Missouri is now producing a 23" diameter color disk for use with 10" television sets and a 18" one for 7" sets. The disk comes with a metal hub, which fits a 3/8" diameter shaft. The Radio-Electronic construction article mentioned earlier and a copy of the Colortel kit manual are included. This would be an excellent science fair project or a great addition to any radio or television collection. The cost of either disk is \$139.95, postpaid.

Peter Yanczer
835 Bricken
St. Louis, MO
63122



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REBIRTH of a #4700 "Breadboard"

Many of the members who went to the Greenfield meet witnessed the auctioning of an Atwater Kent Model #10 (4700) Breadboard and "H" horn. For those not in attendance, the set may have been best described as "AWFUL" !

Picture #1, page 27 shows the unrestored set. Obviously, I purchased the "DOG". One of the main reasons I became a radio collector, is that I find great pleasure in taking an old broken down relic, and "pumping life back into them..." I have generally had little success resisting challenges like this when they have come along.

The first step was to disassemble the complete set.. I recommend the creation of a sketch for components mounted under the board parts. This step went rather smoothly. However, I did strip two of the brass heads of a couple of screws. After the parts were removed, it was time for removing the "bus-wire" from under the board. As it turned out, the wiring was holding the wood pieces together.

When I stripped the wire from the board, it fell into four pieces. The top 1/32nd inch of wood was rotten. After cleaning the wood thoroughly, I glued & clamped it. While it dried, I began work on the metal Condenser cans. I used a wire brush drill attachment to "knock off" the worst of the rust.(see pic.#6 p. 28)

I then used a non-rust primer and applied the first coat.

I was able to locate a few cans of "WRINKLE" paint at a local autoparts store. Unfortunately, it only was available. in black. For the next two days I tried in vain to get the "Wrinkle" right !! (no success ...) Finally, my friend Jim Thomas told me to try "HEATING" the metal while painting it. Amazingly, this made it much better. I set up two electric space heaters on my bench and turned them up. I ran the parts until they were too hot to touch comfortably. The type-writer wrinkle turned into more of an AK style this time as I painted.

I was not able to achieve a consistent wrinkle over the whole parts. I did the best I could in the 3-4 days I was willing to spend. I carried the 3-tube TA unit SANS top to the local hardware store. They had a large assortment of spray can colors to choose from. Although the paint was gone from the upper surface, it was well preserved on the bottom of the can. I was able to obtain an acceptable match .

The former owner had drilled holes in the unit to run wires through. I used some masking tape on the inside of the can to provide an acceptable surface for the hole to fill. I then applied spackle to the surface and let it dry. I then sanded this smooth. After getting a coating of wrinkle on all of the parts, I put a thin coating of brown paint over the wrinkle.

I then revisited the wood. It was ready for filler. I applied it generously (see pic.#5 p. 28) I used "plastic wood" but it really isn't very good. I had trouble getting the plastic wood to sand correctly, and stain correctly. I let the plastic wood dry over-night. I then used a belt sander to remove the "dead" wood. Next, I used progressively lighter sandpaper until an acceptable surface was reached.



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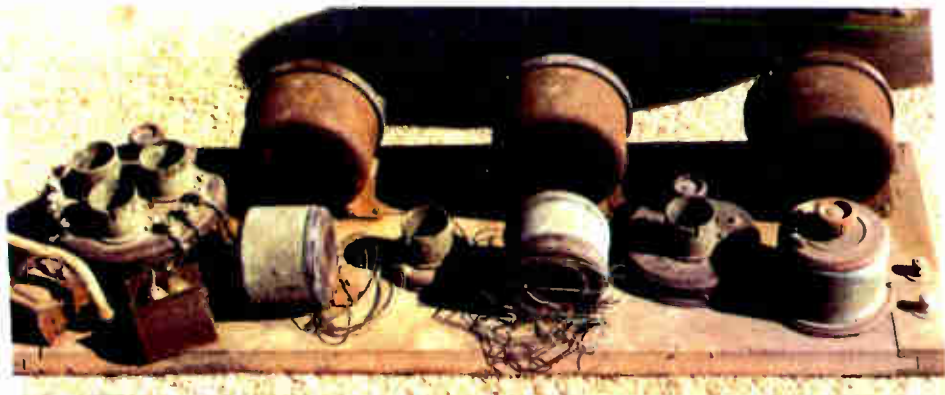
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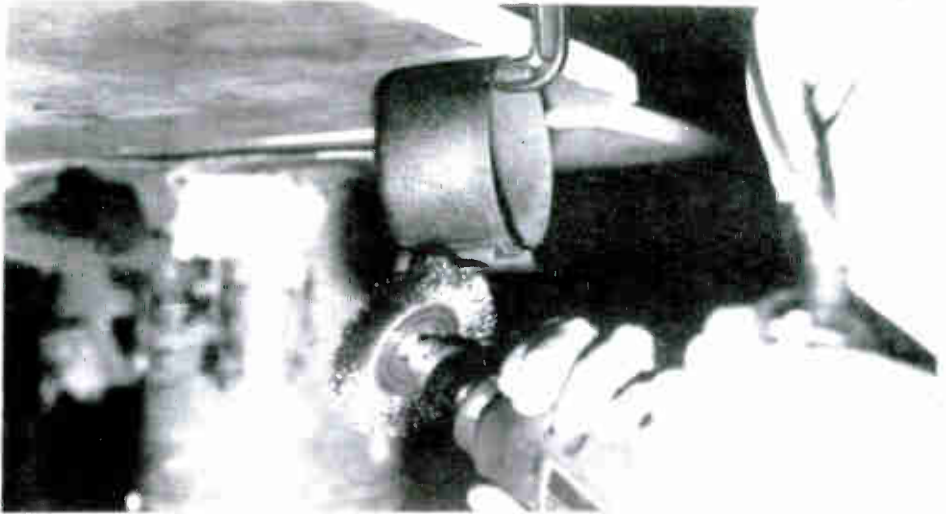
1



2



3



5



4





I applied "ROSEWOOD WOOD-SHEEN" by Minwax (\$4.99) to stain the wood, filler and return the "redish" breadboard appearance. This stuff is the greatest thing since sliced bread in my opinion. I was able to use the very same product to "stain" the bakelite parts back to their unfaded status. It is not perfect, but sure beats trying to find replacement or REPRO parts. (pic# 2 p. 27 BEFORE, pic#7 p.29 AFTER)

Several products were used in succession to restore the brass. The first treatment was a two hour soak in "Tarn-X". (\$4.79) Then I used a wet scrub with "Twinkle"(\$3.50). And finally, I thoroughly polished each part with a drill attachment (pic#4 p28) and a generous use of "Brasso"(\$2.15) These three products worked well together.

It was then time to work on the coils. These turned out to be the greatest source of difficulty. The original wire was BEYOND HOPE. This meant finding an acceptable substitute. I was able to find enough of the correct gauge coil wire among parts sets in my collection (just barely !). Unfortunately it was all bright green. I just couldn't live with that.

In a talk with Don Patterson he suggested that I try DYEING the wire. I thought WHY NOT...! My wife K.C. is a hair stylist. She became my COLOR EXPERT. I used a couple of pieces from inside the color form for color match. I was surprised to find out that the original color for the wire on this set was a light brown instead of a dark tan.

I wonder if the coil wire we see the most on these sets hasn't faded to some extent, even on a "nice" radio. Through the use of RIT #16,#18,#25, and #5, I was able to get pretty close to the desired result. I began by first lightening it with an off white.

I then gradually darkened to the desired brown. The result was somewhat satisfactory. I was a little disappointed that I couldn't get the DYE to evenly stain along the whole surface.

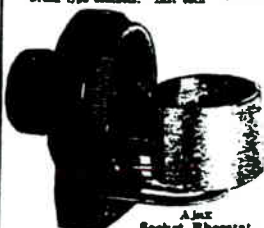
I finished up the restoration by rewiring the set. I used another #4700 as a pattern. See pic#3 p. 27 and pic#8 p.29. I then "stole" grid resistors from a junque AK20 and installed them (pic#9 p.29). Although the project did not turn out perfectly, I had fun, and the old "Dog" can be displayed (AND PLAYED...).

I spent HOURS carefully tuning-in-one-knob-at-a-time. I was pleased to pick up a few stations . AND I have the satisfaction in knowing that I ALONE saved this radio from the SCRAP HEAP...

By Eric Sanders



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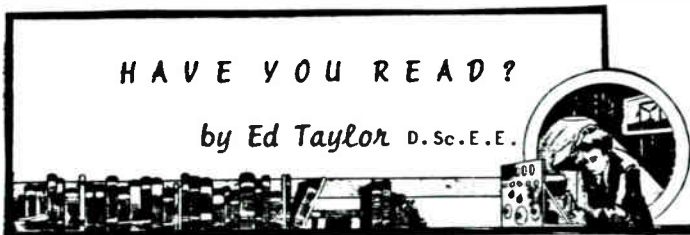
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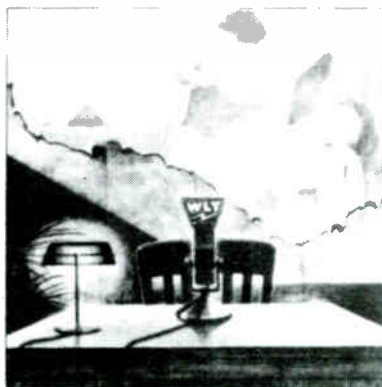
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For the fans of the now defunct radio show *A Prairie Home Companion*, this new book is on your wavelength. If you liked Keillor's folksy style in his short story collections: *Leaving Home* and *Happy To Be Here* you will also enjoy reading his latest effort.

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For Sale: Aproximately 25 1940's - 1950's tube type table radios / all excellent condition. SELL ALL FOR \$750.00 .FIRM, Bob Miller 616-429-3143

Wanted: Continuous Crosley TV TUNER as used in Dumont & Crosley. Need schematic & manual for model #304A Oscilloscope by Dumont, Tad Drogoski N3JZQ 507 Coal Valley, JeffersonBoro,Pa. 15025-3703

For Sale: Crosley "SHELLTRAN" audios, Silvertone Tombstone, Philco 20 chassis, Walt Sanders, 15 Todd Ave. ,Terre Haute, In 47803

Wanted: Restorable junque chassis for the following:: Jackson Bell model # 62, Amrad Bouble Decker, etc. Want junker ship parts for Majestic Melody Cruiser. (need hardware, masts, etc.

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For Sale: Desirable Books, Magazines, and misc. SEND S.A.S.E. to: Don K. Johnston, RR1 Box 218A, Windfall, In. 46076

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Daniel Kirkham

Daniel Kirkham, 60, Pierceton IN died Sunday, October 6 in his home, following an extended illness. Born in February 1931, in South Bend, he was the son of Daniel and Ruby Kirkham. On July 2, 1960, in Hampton IA he married Dolores Fink, who survives.

Mr. Kirkham was a pipe fitter at Winona Corp. and co-owner of Kirkham Korner Antiques, Pierceton IN. He was a member of Pierceton Menzie Reece American Legion Post 258, Masonic Lodge 377, and a former member of Pierceton Kiwanis. He was a U.S. Air Force veteran of the Korean War.

Surviving in addition to his wife are one daughter, Nancy, two sons, Brent and Scott, and his mother, Ruby Riemersma, all of Pierceton; four sisters, Frances Wittig, Althea Caudill, Verna Hathaway, and Vera Drudge; and two brothers, Robert and Glenn Riemersma.

Memorial services were held at 6 p.m., Wednesday, October 9 in McHatton-Sadler Funeral Chapel, Pierceton, with Rev. Jonathan Walters officiating.

- - -

Dolores and Daniel have been members of IHRS for several years and have been good friends of many of us in the radio club. When Dolores telephoned us on October 8, it was a big shock. We enjoyed having them visit us in our home; Dan will be missed at the meetings and in his shop. A memorial donation was made by IHRS to the Cancer Society in Dan's memory. s/D. and M. Johnston

TIP - Black lacquer trim peeling or cracked
on a cabinet?

Sand and feather chipped areas and apply necessary coats of black shoe dye. When thoroughly dry, apply black shoe polish and buff.

SOLUTION TO FALL PUZZLE



12/2/91

Dear IHRS Friends,

Many of you already know that Ross blacked out while lap swimming at the Y pool on 11/6. Fortunately, two CPR men were with him. After numerous tests it was determined not to be a stroke and no damage was caused to the heart. He had open heart six-bypass surgery 11/20 and is starting his exercises, eating well, and recuperating.

Thanks to Ross' good physical condition, and wonderful specialists and doctors he was able to come home 11/26. Please be reassured that with good care and good doctors he is progressing well.

We both thank all of you who have sent cards and notes, called and prayed.

Wava Smith

Terry Garl had surgery 11/29 and is recuperating at home. He will start his chemotherapy 12/9. He said thanks for the cards, calls, and prayers he has received.

