

THE

FLASH!

An Official Journal Published For Radio Collectors
Dedicated to the Preservation and Documentation of Wireless, Radio, TV, and Associated Equipment

Volume 5

MARCH



APRIL 1994

Issue 1



CLARKE
87

...APRIL REMINDER...
C. R. C. ANNUAL SHOW & SALE
Details on Page Two

The C.R.C. Radio Show!

and Annual Sale

BEST OF SHOW
BEST RESTORATION
PEOPLE'S CHOICE

AC
(Wooden Table)

ACCESSORIES

ART DECO

BAKELITE

BATTERY SETS
(Prior To 1928)

BREADBOARD

BREADBOX &
TREASURE CHEST

CATALIN

CATHEDRAL

CHAIRSIDE

CONSOLES
(Full Length)

CONSOLES
(Zenith Black Dial, Scott, Kennedy)

CONSOLES
(Hi/Lo-Boys)

CRYSTAL SETS

METAL CASE

METAL BOX
(1920s)

NOVELTY
(Transistor)

NOVELTY
(Tube)

PLASTIC
(Tube)

PORTABLES
(Pre-1926)

PORTABLES
(Post-1925)

"PHILCO"

SPECIALTY BRAND
(THIS YEAR'S THEME)

SPEAKERS

TELEVISION

TOMBSTONE

TRANSISTOR

TUBE DISPLAY

Each of the categories above will sport a first, second, and third place winning ribbon, except "Best...." and "People's Choice" awards. Polish and preen that equipment and meet the Colorado club at the National Western Complex - Denver (one mile East of I-25 on I-70 at the Brighton exit). Show dates are April 23 and 24...Saturday from 9 to 6 and Sunday from 10 to 3. Drive into the West entrance Friday afternoon for setup, but NOT Saturday morning with 8 to 9 setup of carry-in items only!

The entire contents of this publication copyright 1994 by the Mountains 'N' Plains Radio Collectors Association. No part may be printed or otherwise reproduced without written permission from the Editor / Publisher

Official Journal of the
**Colorado Radio
Collectors**

Founded October 1988

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

MEETING LOCATION

Unless otherwise noted in this Journal, beginning in January, meetings are held on the second Sunday of every other month (exception: third Sunday in May) at 1:00 PM at the *SouthWest Bank Building*, Community Room, 1380 South Federal, Denver. A swap meet follows the meeting in the bank parking area.

C. R. C. OFFICERS

President:

Barney Wooters (303) 770 • 5314
Denver

Vice President:

Jerry Tynan (303) 642 • 0553
Golden

Treasurer:

Larry Weide (303) 758 • 8382
Englewood

Journal Editor / Secretary:

Rick Ammon (303) 224 • 5446
Ft. Collins

**All Dues Payable
on June 1st**

(Joining dues are prorated)

\$12⁰⁰ Annually

Larry Weide

5270 East Nassau

Englewood, Colorado 80110

Please do NOT make checks to CRC,
rather to "Larry Weide, CRC Treasurer"

WANT ADS

AND

ARTICLES

Should be directed to the

M.P.R.C.A. Editor

1249 Solstice Lane

Fort Collins, CO 80525-1239

DEADLINE NOTES

It's the intention of this Editor to broadcast our journal bi-monthly just prior to the C.R.C. meetings. Articles about, and pictures of your treasures, are welcomed as are *Wanted-Sale* ads and any letters or comments about our hobby. All materials used are the copyrighted © property of the Mountains 'N' Plains Radio Collectors Association.

Your Editor will put together articles about your best finds, restoration and electrical repair techniques, or your recollections and stories about radio. Just provide a handful of information in any form.....and we'll put it together!

Our club can only succeed when we share our experiences, talents, needs, and adventures; you're being asked to contribute in whatever way you can. **SHARE** with us today!! Thank you!

DEADLINES

February 1 • April 1 • June 1
August 1 • October 1 • December 1

MINUTES OF THE JANUARY CRC MEETING

From Vicki's Cryptic Notes

To everyone's surprise, even with a Bronco play-off game during the meeting, we had an attendance of fifty-two! The biggest crowd yet. Everyone agreed, a terrific turnout. And an excellent open-trunk swap session after the meeting!

Treasurer Larry Weide reported the coffers have over \$700 currently.

Larry also told the club the Belman Historical Park and Museum would be doing a radio display in July. This will be a small, short-term display of about 6 weeks. Owners volunteered their "prides" by a show of hands and a deadline was set to gather a good cross-section of those radios.

Rick Ammon informed the club we have an additional book, "Philco Radios 1928 - 1942", added to the list available from L-W books. (See the entire L-W radio catalogue elsewhere in this issue - *Editor*)

Lists of those members currently delinquent in paying dues or ready to have their subscription dropped were passed around by Rick with the request that anyone knowing any of these ex-members, contact them and get them back into the club.

Rick was asked about the direction of the newsletter and the *Mountains 'N' Plains Radio Association* tie-in. He explained the MPRCA is an outreach to other clubs, groups, and individuals in the region to form an association that combines strengths into a unified organization. The content of the club newsletter will not be changed and in time we might qualify for the postage of a "non-profit" group with 200 + mailings per issue. It's hoped that a "mega-auction" and a "mega-meeting" could be created with the combined strengths. Comments were positive with the general consensus being that a need might be filled; the evolution of the newsletter is a positive one.

Specialized Articles/What's Your Interest?/Photos of Members And Their Radios/(more) Restoration Articles are all features we'd like to include in near-future newsletters. Rick, also, reminded the group Wanted/For Sale/Services ads in the newsletter are always welcome from members.

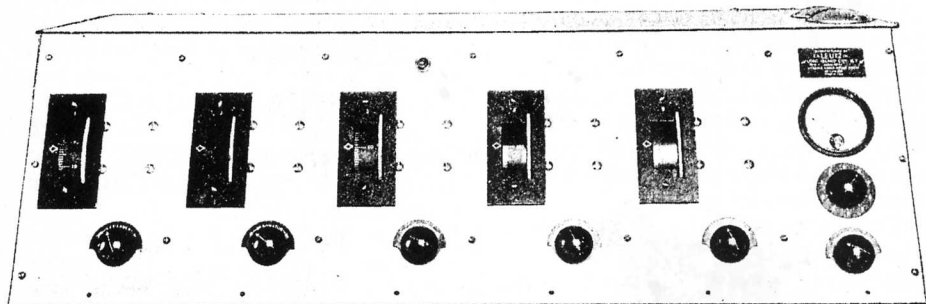
Philco was chosen as the brand name to be featured in this year's radio show by a majority vote. Zenith was a distant second.

Show & Tell: Lee Bruton

- * Raytheon model 2500 transistor - a 1st generation transistor. Being rather big and gaudy by comparison to Japanese shirt pocket radio was a major reason America lost out to Japan. We didn't miniaturize or consider appearance.
- * A white Regency TR-1...the first transistor introduced in 1954 by a company in Indiana. Lee mentioned there's a report of a clear plastic Regency TR-1 which could have been a salesman's sample. If so, the value of that transistor is beyond imagination.
- * A "KIMN Radio" transistor set used to promote the once local powerhouse station. Several members wanted Lee to sell that one due to the nostalgia it brought!
- * A Grundig clock radio where the small transistor radio separates from the tabletop clock/speaker unit for portable use

THE NEW LEUTZ UNIVERSAL TRANSOCEANIC

9 TUBES



WITH FOUR UX222's AND 2—UX210's OR 2—UX250's NEW IMPROVEMENTS

THE UNIVERSAL TRANSOCEANIC has now been completely redesigned to use the new 222 Screened Grid Tubes in the four stages of radio frequency amplification. The total radio frequency amplification is now approximately 810,000 compared with only 10,000 obtained with the 201A tubes. This allows increased receiving range, greater volume on distant signals, and without any loss in selectivity. The detector circuit has been altered to use the new 200A type detector.

The audio amplifier has been further improved, a total of four stages being employed, two of these stages in a

push-pull system. The push-pull power amplifier will take either two 210 or two 250 power tubes, the most powerful audio amplifier one could desire. The undistorted output available for the loud speaker is approximately five times greater than a receiver using only one 210 or 250 power tube.

The 400/500 Volt BC Current Supply has been changed to the full wave type, using two 281 rectifier tubes for increased output. Provision has been made to use a Dynamic speaker if desired. The addition of the Leutz "A" Current Supply having a capacity of 3 amperes at 6 volts makes the set available for all electric operation.

PRICE — COMPLETELY CONSTRUCTED AND LABORATORY TESTED — \$250
(NO ACCESSORIES)

Complete Constructional Blueprints—3 Large Sheets—\$2.00 Postpaid

A NEW RADIO BOOK for Custom Set Builders, Broadcast Listeners, Experimenters and Radio Engineers: "MODERN RADIO RECEPTION"—by Charles R. Leutz
PRICE — \$3.00 — POSTPAID

384 PAGES—OVER 250 ILLUSTRATIONS—FULLY BOUND—6 x 9 INCHES
Subject to refund if returned as unsatisfactory within 7 days

C. R. LEUTZ, INC.

195 PARK PLACE, LONG ISLAND CITY, NEW YORK

Please say you saw it in Radio News

Radio News ♦ October 1928

THE COLLECTORS

Alex Scarbrough...

Alex has been collecting since '92 and is from the Colorado club. He followed the interest his Dad had in mid-1920s battery sets. Alex limits his collection to basically those radios dating from the 20s to the 40s, especially battery sets from the mid-1920s and cathedrals with no specific brand focus.

His favorite sets range from the mid to late 1930s Zenith consoles to the 1920s battery sets to the cathedrals. His interests extend to cone and horn speakers, battery superheterodynes, mantels and tombstones.

Alex likes to do cabinet restoration and invites you to see his collection anytime with an advance phone-call.

David Tripe...

David, of the Colorado club, has been collecting since '92, too, but interest goes

back to his youth. At age eight he became fascinated with old radios.

Today, his main interest involves consoles...1935 to 1942...with tuning eyes, push-buttons, and lots of knobs of virtually any brand. His favorites, however, include Stromberg Carlsons, Zenith "Shutter-Dials", and Zenith Trans-Oceanic model 7000s. David has over 30 sets and does his own electrical restoration.

David, like many of us, is somewhat impulsive. He tells the story of going to the Michigan "Extravaganza '92" and like a kid loose in a candy shoppe, brought 15 radios back to Colorado!

David's interests also include mantels and tombstones, Bakelites and Plaskons, early transistors, and portables. He'll gladly show you his assemblage in the evenings or weekends with "reservations only".

He mentions he "found that collecting radios is like eating 'Lays' potato chips....ONE IS NOT ENOUGH!"



**HYMN
TIME**

with

**SMILIN' ED.
McCONNELL**

presented by

The American Group Agency Co.

KLZ—3:00 P. M., Sundays

Listen As Smilin' Ed Sings and Tells You
How to Obtain a Hymn Book

From the *Western Radio* pulp magazine published in Denver December 1938

Restoration Hints

By Barney Wooters

Here are a few hints and suggestions for those of you who do your own radio repairs. They're based on my forty years of radio and television repair work.

First, always practice "safe radio". That is to say, use an isolation transformer when servicing radios, especially the A.C. - D.C. types where one side of the line cord is often tied to the chassis. This will save you a nasty jolt, or worse-to-say nothing of possible damage to your test equipment. Safety pays! I learned that the hard way when I once serviced a transmitter in the early 1960's.

Related to the above item, don't just plug in your recently acquired radio. Chances are you have no idea how long its been out of service or what condition its in electrically. Failure to exercise care here can be costly in terms of damaged and ruined parts

which just experienced the "Fourth of July". Use a VARIAC (a variable-voltage transformer) and bring up the line voltage slowly. Even then, keep your eyes open for signs of trouble.

If you decide to take apart your radio for cleaning or repairs, be sure to make lots of notes and sketches of what goes where. Tag the wires and keep removed parts in some orderly manner. I find that egg cartons work well for smaller parts. You may even consider taking POLAROID photos if you are doing extensive work.

Whatever work you may do, always do your very best; take all the time you need and proceed carefully so that you will be proud of your work now and ten years from now. To the extent possible, steer clear of "unauthorized modifications" to your radio...no extra holes or add-ons, so you retain originality. (Continued on page 17)

FLASH FEATURES

Sixth Annual Show & Sale.....	2
The Collectors.....	4
Restoration Hints.....	5
Boyle's Restoration Series - Pt 2.....	7
Collector Books.....	11
Collector's Pride.....	18

REGULAR FEATURES

Ye Ole Junkbox.....	6
The Scrounge Box.....	12
Wanted/4Sale/Service Ads.....	16 & 17
Club News / Minutes of Last Meeting.....	Insert
New Members.....	Insert
On The Air.....	Insert

REGULAR NOTICES

Contributors.....	5
Deadline Dates.....	Insert
Dues Notice / Dues Information	Insert
General Mailing Address.....	Insert
Meeting Location.....	Insert

Contributors! Thanks!

Sandra Sendtko,
Larry Weide, Robert Baumann,
David Tripe, David Boyle,
Bruce E. Young, Dick Hagrman,
Leamon Brooks, Paul Thompson,
Ray Kushnir, Dan Busetti,
Dave Gonshor, Barney Wooters,
and Jim Mise for the 1943 *Popular Science* service info on page six.

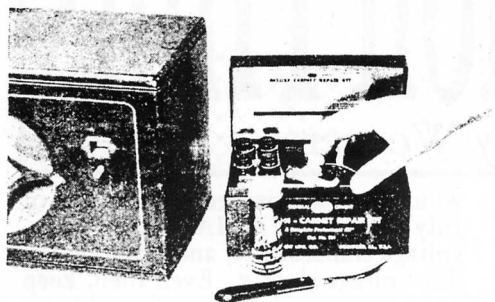
We sincerely thank C.R.C.
member Lonnie Smith and
his Denver company

PRESSWORKS

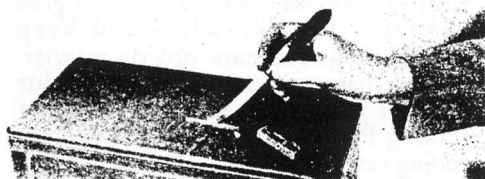
for providing us with a
professionally printed
issue of the **FLASH!!**

YE OLE JUNKBOX

Servicing Your Radio



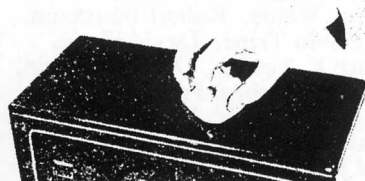
You can get a repair kit for fixing up your old cabinet



Deep scratches and dents are filled with stick shellac

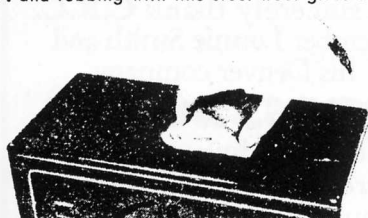


... while slight ones are removed by a special polish



French polishing can be done with new synthetic materials

... and rubbing with fine steel wool gives a satiny finish

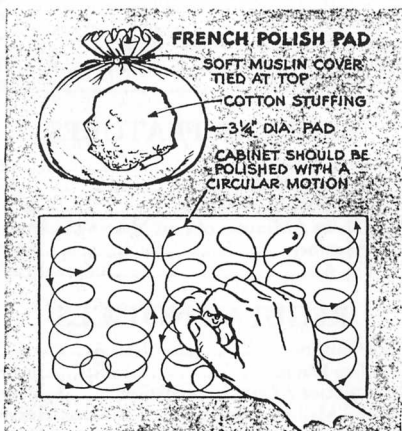


MANY radio cabinets today are in sad need of repair. The old finish has peeled off in places, nicks have been made in the wood, and maybe a few scratches have appeared.

Various kits are now on the market which will enable even an inexperienced person to patch up anything from a small scratch to a bad dent. First take the spatula which comes with the kit and heat it over the alcohol lamp. With the heated spatula melt a shellac stick cement of the proper shade and color into the hole, scratch, or dent. Once the imperfection is filled, it is smoothed off as well as possible with the spatula. The high spots are scraped off with a razor blade or sandpaper, and then rubbed down with fine steel wool and polished. Care should be taken not to injure the surrounding finish. Always make sure the spatula is clean and *never* use matches or a candle to melt the shellac stick.

For slight faults and scratches on the cabinet, you can use a special scratch remover and polishing liquid. This usually is made up into a convenient applicator with a felt brush at one end. Touch the injured spot with the brush and the mark disappears.

Synthetic materials now on the market make French polishing a simple matter. A small additional amount of the liquid is placed on a pad already saturated with the French polish and rubbed over the surface of the cabinet with a circular motion until a high gloss is obtained. Fine steel wool, lightly used, will tone down the gloss.



A. K. 82

BASKETCASE

CHALLENGE

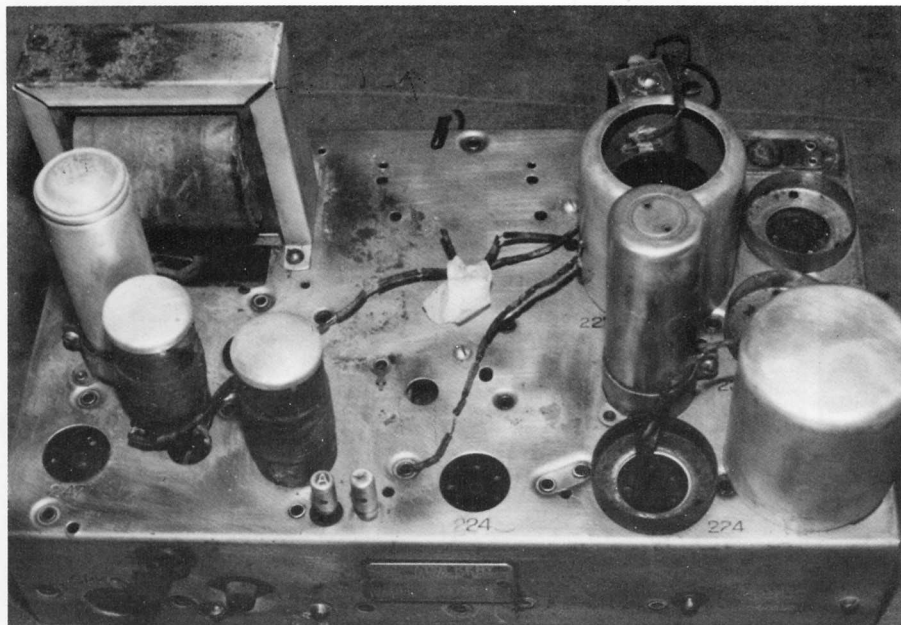
By David Boyle - Part 2 of 3

*In the last issue of the **FLASH**, David warning us, ever so subtly, about buying through the mail sight-unseen, gave readers a report of an Atwater Kent that surely had better days. David detailed split seams, loose veneer, rust on nearly every part of the chassis, and the mound of mouse "leftovers" removed from the innards of the radio. This installment leads us into the actual Boyle restoration procedures.*

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

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

Each part then gets a detailed electrical and physical check. Resistance readings of coils for both winding integrity and isolation is important. Many RF and IF coils maybe required. Experience tells me where the RF plate voltage were applied



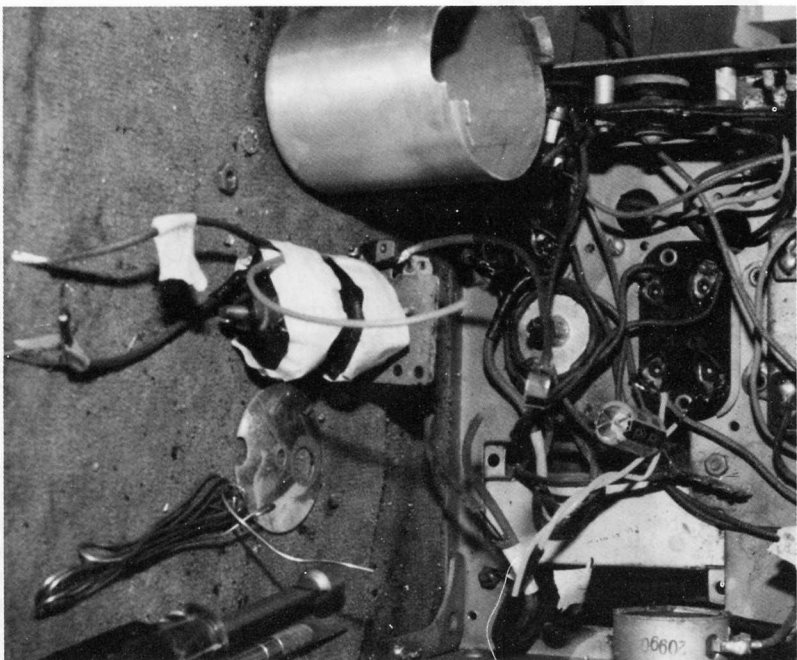


PHOTO 7

IF transformer removed and taken apart for restoration

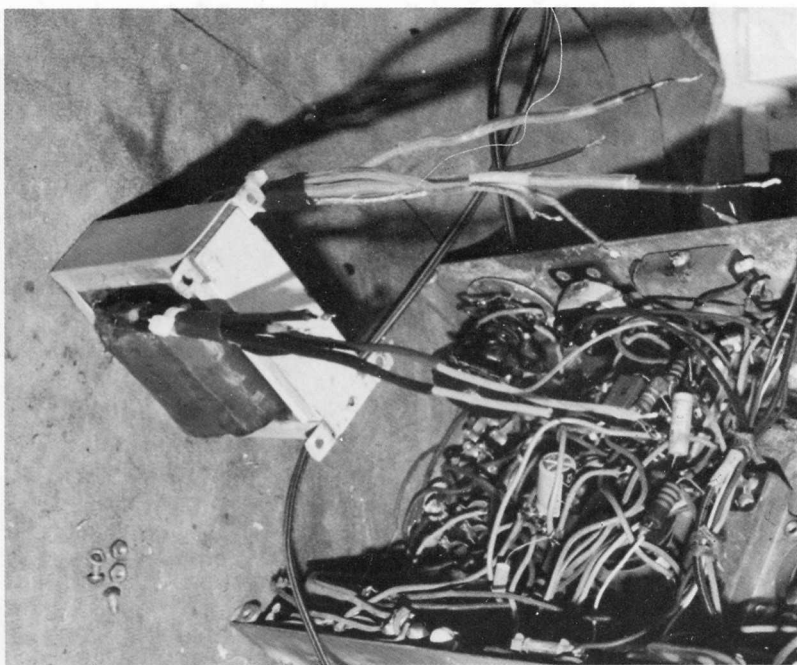


PHOTO 8

Power transformer...original was replaced years ago

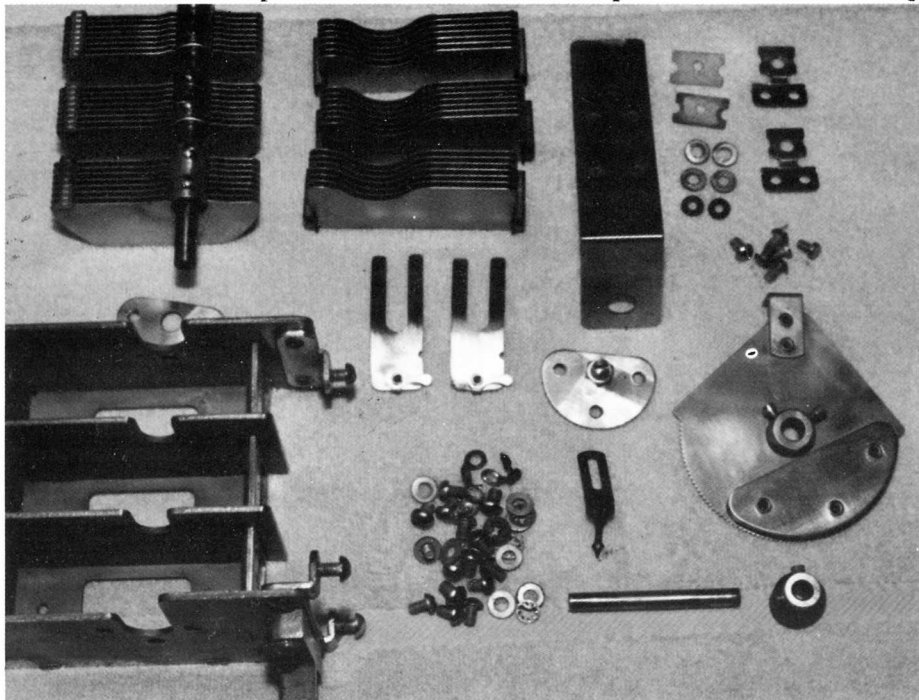
through these coils, they usually failed at the fine wire termination point or near by that terminal. Many times you can just unloop one coil turn and re-terminate without affecting circuit performance. I've also successfully rewound air core type coils. Part of the coil refurbishment is to preserve it for another 60 plus years. I use Q-Dope™ to paint over the entire assembly. It enhances dielectric strength, coil structural integrity, and makes it "shine" like new. New lead wires of the proper color and insulation type are then soldered on the correct terminals and left as pigtails for future assembly.

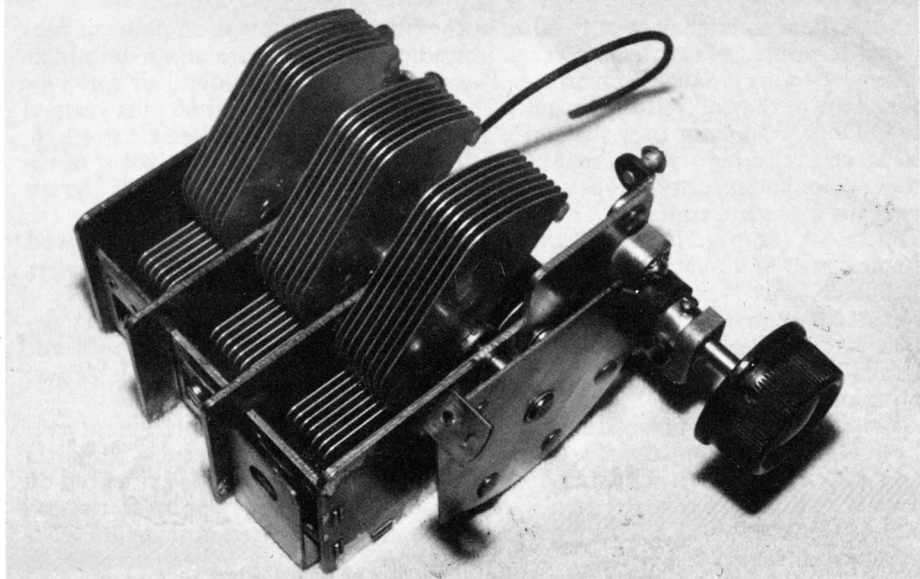
Photo Six (on page 7) shows tuning condenser and drive mechanism removed. The next step was to start removing corrosion and dirt using small wire brushes, 3M Scotch Brite™ pads, and 409™ spray cleaner.

Photo Seven shows an IF transformer removed and taken apart for restoration. The coil has been checked, new pigtails added, Q-Dope™ and pigtails wrapped with insulating tape to preclude shorting to its "can"/cover during re-assembly.

Photo Eight is the power transformer. This was a service replacement year ago and is not the original factory type. I found the primary shorted at the entry point of the lead wires. Old and deteriorated wire insulation was evidenced on all leads. I carefully covered each wire all the way to its entry point to the coil with "spaghetti" and "shrink" tubing. The actual exposed coil layers were impregnated with "Red Glyptol™" but Q-Dope™ would have been acceptable. The leads were appropriately bundled into pigtails. At the points where the pigtails emerge from the transformer, I "potted" the coil with silicone RTV to aid structural strength and prevent future lead to lead or lead to transformer frame shorts. The power transformer was now essentially refurbished, but more importantly preserved for the future.

Photo Nine (below) is an "exploded" view of the tuning condenser and tuner drive mechanism detail parts. Each part has gone through a cleaning and polishing process. I typically soak the rotor and stator sections of the condenser in a hot water/dishwasher soap concentrated solution for up to twelve hours. Using





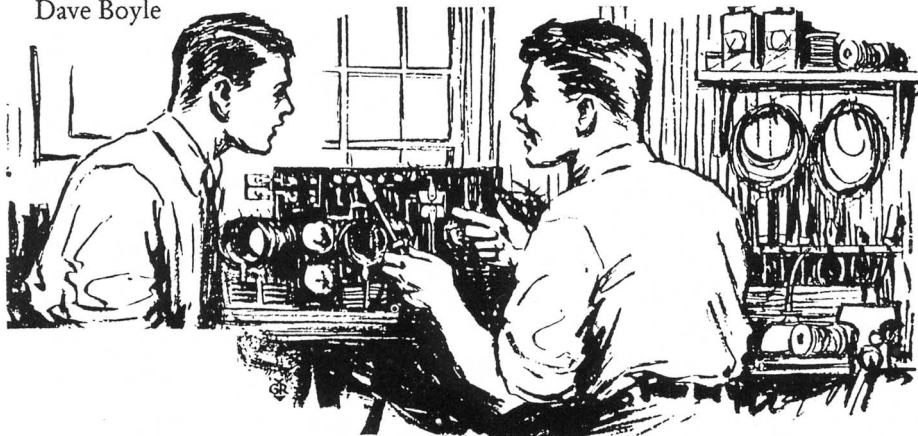
various brushes I then clean and polish each detail, including the screws and washers.

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

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

In Part Three, continued in the next **FLASH**, I'll go on to explain the under chassis electrical repair and restoration and we'll conclude with the final assembly, electrical checkout, power up, alignment and cabinet repair. Stay tuned!

73's
Dave Boyle



COLLECTOR BOOKS

Thanks to Dick Hagrman of the Colorado club, we have access to popular radio and TV collector books, as well as other areas of collecting, at special pricing. Your Editor has the list of hundreds of other non-radio titles. You should see him at the meetings to order. Members get specially reduced prices, most up to 40% off the suggested retail, but the club must order six (6) titles or more at a time. Have your money or check ready at this meeting and get those books ordered!

Here are some of the other categories of books available that might interest you and/or your other half including, in part: Glassware, Pottery & Porcelain, Oriental & Occupied Japan, Cowboy & Sports Collectibles, Silver, Jewelry, Furniture, Advertising, Toys, Dolls, Art, Tools, and etc.

Descriptions and comments below are taken from the catalogue. The first price is the suggested retail and the second is what you pay. All have paperback covers unless otherwise noted.

TRANSISTOR RADIOS, COLLECTOR'S GUIDE

Bunis, 256 pages, 1994 prices, Full Color\$ 15.95 \$ 9.57

PHILCO RADIOS, 1928 - 1942

Ramirez, Rarity Scale, 185 pages, All Color, No pricing\$ 29.95 \$ 17.97

NOVELTY RADIOS, COLLECTING TRANSISTOR

Robert Breed (with a lot of help and pictures from the collection of our own CRC members Carolyn and Lee Bruton!), Over 500 radios, 1990 values, Full color, 217 pages.....\$ 24.95 \$ 14.97

RADIO, EVOLUTION OF THE - VOLUME TWO

All different from Volume One, 226 pages, Color, Radios of the 1920s - 1960s, With 93-94 values.....\$ 24.95 \$ 14.97

RADIO, EVOLUTION OF THE - VOLUME ONE

227 pages, 118 in color, More than 800 radios pictured and priced for 1992\$ 22.95 \$ 13.77

ANTIQUA RADIOS, COLLECTOR'S GUIDE - 2nd EDITION

Bunis, 2nd Edition, 1992 values, 1920-1960, color, 215 pages.....\$ 17.95 \$ 10.77

OLD RADIOS, POINTERS, PICTURES, AND PRICES

Johnson, 1989 prices, 225 pages.....\$ 16.96 \$ 10.17

ANTIQUA RADIOS RESTORATION GUIDE - 2nd EDITION

Johnson, 144 pages, No prices.....\$ 14.95 \$ 8.97

CLASSIC TV'S, TELEVISIONS PRE-WAR THRU 1950's

1992 values, 86 pages, color.....\$ 16.95 \$ 10.17

The Scrounge Box

A Continuing Column

By Larry Weide, CRC Treasurer

Hi... all you CRCers! Well, this month I thought I'd try something new...a construction project. As the local CRCers know (those who come to meetings, that is) we will be presenting a museum quality show of radio artifacts in July of this year. In order to facilitate planned displays we have the need for what has always been called a "phono oscillator". This is a gizmo that will take a tape player output, or whatever, and transmit it to a nearby radio. In this way we can have appropriate pre-planned program material coming out of an antique radio.

I found, and doctored up a bit, what has to be the most bare-bones circuit that actually works. In addition to this, I used a quasi-printed circuit technique anyone can duplicate without photography or great expense.

If you look at Figure 1 on page 14, you'll see the circuit is a simple inductor-capacitor (LC) oscillator driven by a pre-amp that modulates the carrier. More specifically, the radio frequency (RF) section is a Hartley oscillator. That is, a single resonate circuit with a tapped inductor. The audio frequency (AF) section simply varies the RF transistor's base bias by a small amount depending on the audio input through the coupling capacitor. The power is taken through a zener diode regulator. It turns out this circuit (with the components I used) works better at a lower voltage than at the nine volts supplied by the battery.

The low circuit voltage does cause an interesting problem and the consequent addition of a component whose function might not be obvious. At this low supply voltage the RF oscillator is not self starting. Therefore, I added a capacitor across the input series load resistor so the resistor appears to be momentarily shorted out of the circuit when the voltage is first applied, thus providing a higher starting voltage. If you find this low voltage causes you problems, perhaps because of your selection of parts, simply delete the zener diode and its series load resistor and capacitor.

It turns out, however, this power setup does provide an advantage. You can use a battery until it has been drained down to almost half voltage and the circuit will still work. Couple this with the fact that since there's a total battery load of only 4 milliamps, you know you're going to get excellent battery life. But you're right, you clever devils out there, you don't have much power here. Still, you should be able to transmit across a small room - more than enough distance for the intended service.

There's nothing at all critical about this circuit. You can use any construction technique you like. The transistors can be almost any NPN small signal types. My criteria was...which one is the cheapest? In fact, the original circuit called for germanium types, but I used those of silicon.

Even the resistor and capacitor values need only be in the ballpark - use those similar parts you've squirreled away in your "scrounge box". I would suggest, however, although it's a little more costly, you do specifically use a silver mica capacitor in the tuned circuit for stability. The coil on my board is a small

transistor radio AM band oscillator coil where the primary and secondary were combined, by connections on the PC board, to create a single coil with a tap. I used this coil because it was small, shielded and mounted well on the board. However, an AM band ferrite antenna loop stick would work equally as well, perhaps even better in terms of tuning range. The requirements are that the coil you use must have a tap as the circuit diagram shows, have a tuning slug, and have a nominal inductance such that, in conjunction with the tuning capacitor you choose, the oscillator will end up operating somewhere in the AM band.

When it came to a construction technique, I decided I wanted a printed circuit board (Figure 2 on page 15 - *Ed.*) so that the project would be compact and potentially replicatable. I didn't want to go to the relative expense and involvement a photographic process would require for such a simple project. So, I decided to "paint" my circuit pattern on the copper-clad board with (of all things) finger nail polish and a very fine brush. This meant that all I would need is some circuit board material and a small amount of copper etchant, in this case, Ferric Chloride.

If you want to duplicate my PC board construction process, then review the following instructions:

1. Using a fine-toothed hacksaw blade or a coping saw, cutout a piece of PC board according to the subscribed dimensions (Actual-sized PC board is shown as Figure 3 on page 19 - *Ed.*). I would recommend that you cut out a piece large enough to make more than one circuit at a time in case you screw up one of them. The truth is you'll find out that hand-painted circuits require patients and a fair amount of dexterity and will still leave a lot to be desired, but what the heck, it's cheap and it does work. If you layout multiple circuits, don't forget to leave room for the saw blade to cut the boards apart later.
2. Now, the next thing to do is use a center punch to mark where the holes will be drilled. Tape the pattern down on the first board to be made and mark the holes. Pick up the pattern and place it on the remaining positions and repeat the marking until all the boards you are going to make are marked. Your circuit lines can be "squiggly", but the holes must be as accurate as possible in order to have the component parts fit properly.
3. When all the holes have been marked, and it's easy to miss one, drill out the holes with the smallest drill size that will easily accept your part leads. Components like a board mounted switch will require a larger hole.
4. Since the circuit is quite simple, you can now paint the required lines in free-hand. Yea, I know, it'll look as ugly as you do in the morning! However, my experience was that painting over a tracing (which you certainly can do) didn't look much better (than I do in the morning), and I was saved the time and effort of the tracing job. Keep in mind the lines can be very thin and you **MUST** be very careful where two or more lines come closely together. Brightly colored nail polish will clearly show you how you painted and will allow you to scrape off or otherwise fix your "artwork" after it's dried.
5. Your board(s) are now ready for etching. Ferric Chloride is easy and fairly safe to use, but I would be sure to heed no less than the following precautions: (Continued on page 19 →)

AM Band Phono Oscillator

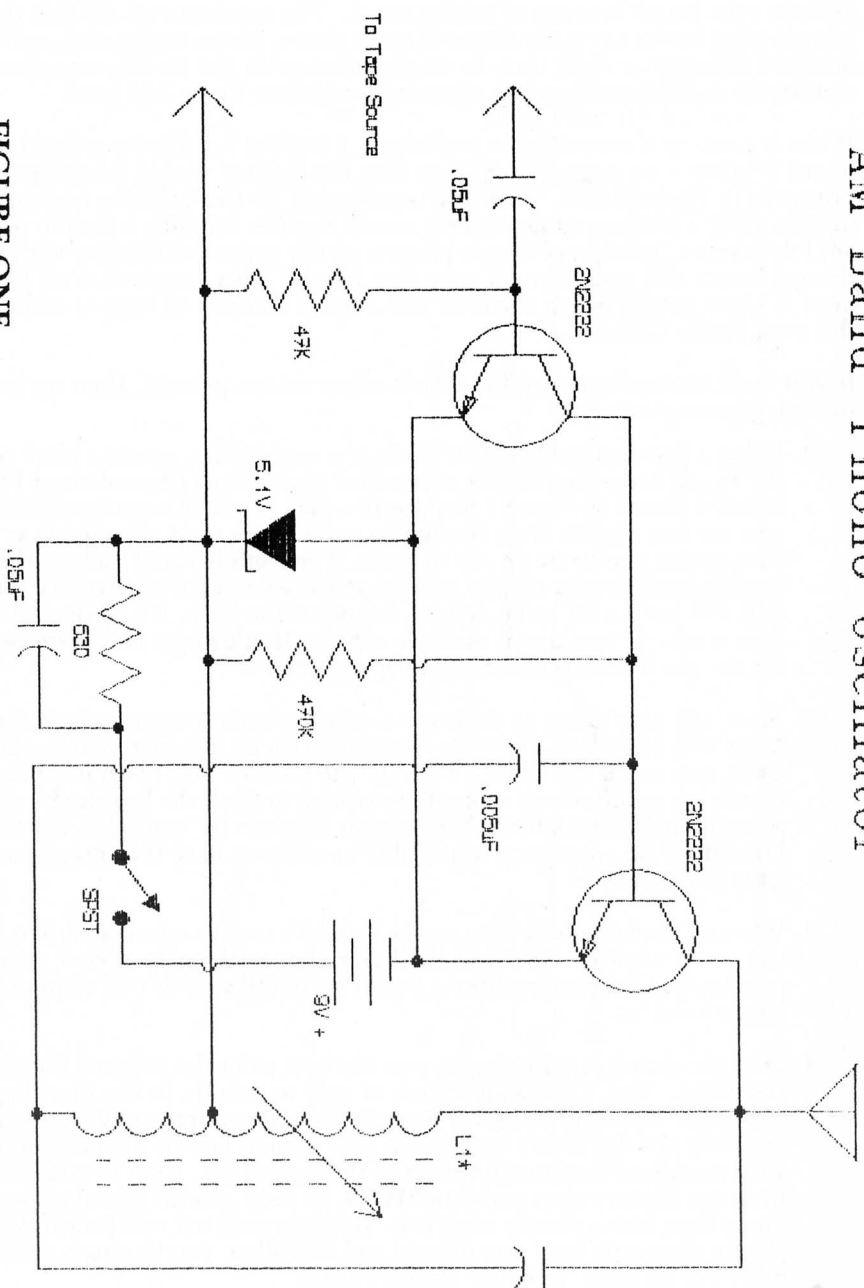


FIGURE ONE

Larry Waide - 12/16/93

Larry Weide - 12/16/93

Phono Osc. Component Side

Components

L1 - Oscillator Coil, See Text

T1, T2 - 2N2222

C1 - .005uFd

C2 - 335 pFd, Silver Mica

C3, C4 - .05uFd

R1 - 47K

R2 - 470K

R3 - 690

D1 - 5.1V Zener (- = Cath.)

SW1 - SPST PC Board Mount Slide Switch

A - Antenna, Apx 2' in Length

B - To Tape Input, 1/8" Mono Plug

C - 9V Battery

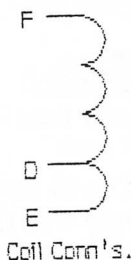
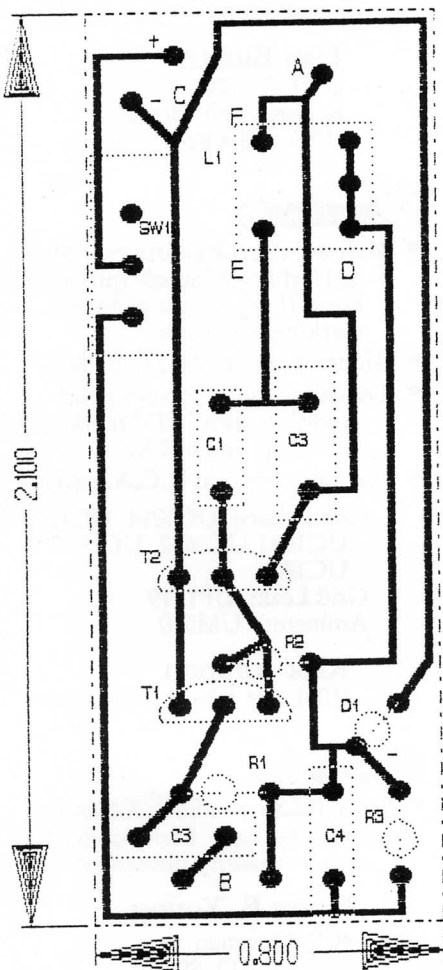


FIGURE TWO

The Open Trunk

4 Sale:

- Hallicrafters SX•1000
- Hallicrafters CRX•2
- Hallicrafters S•38
- Hallicrafters S•38E

(Continued Below)

Wanted:

- Hallicrafters SX•25
- Knight Kit "Ocean Hopper"

Robert Baumann
(303) 998 • 2089

**As A Member...
Ads Are FREE!!**

Wanted:

- Chassis (or model identification) for **Airline** cathedral, 3 knob, disk dial, bottom knobs 6 1/2" apart.

Dave Gonshor
7121 South Jellison Street
Littleton, CO 80123
(303) 979 • 9511

4 Sale:

- **Atwater Kent** battery & early AC set parts

David Boyle
7169 West David Drive
Littleton, CO 80123
(303) 979 • 5403

Wanted:

- Speaker for a **Zenith** Model 9H081

David Tripe
1673 Macon Street
Aurora, CO 80010
(303) 364 • 2812

Wanted:

- **Riders** Volumes 6, 8, 11, & 12
Willing to pay up to \$13.00 each or trade...what do you need?

Dan Busetti
P. O. Box 706
Bennett, CO 80102
(303) 398 • 8251

Wanted:

- **Majestic** (Grigsby-Grunow) Model 92 HighBoy Console (pictured in **Bunis II**, pg 109) in good and working condition.
- **Riders** Volumes 24, 25, 26, & 27
- Transistor radios in very good condition with "CD" marks ("▼") at 1240 Kc and 640 Kc.
- The following old **R.C.A.** parts:
Condensers: UC1014 UC1015
UC1631 UC1632 UC1635
UC1803
Grid Leak: UP1719
Ammeter: UM530

Rick Ammon
(303) 224 • 5446 after 7pm

4 Sale:

- Many **Bakelite** radios....Cleaning out the garage. Many under \$20 each + quantity discounts!

Bruce E. Young
4030 Quitman
Denver, CO 80212
(303) 458 • 7408

4 Sale:

- Old tubes: 01's, 26's, 27's, etc.

Leamon Brooks
10718 W. Marlowe Avenue
Littleton, CO 80127
(303) 979 • 0331

Wanted:

- I am searching for a curved glass dial piece for a 1946 Admiral console 6C71-10A1.

(Sandra has asked for special help in finding parts...where to look and where to advertise...addresses for parts houses and newsletters, as well as help in restoring her radios. Can we help her? *Editor*)

Sandra Sendtko

(303) 477 • 3569

Wanted:

- Speaker for use with **Atwater Kent 20B**
- #45 and # 27 - type tubes

Paul Thompson

6355 South Dudley Way

Littleton, CO 80123

(303) 973 • 8483 (Home)

(303) 361 • 7239 (Work)

4 Sale:

- Riders 1-5 abridged, 6 → 16 \$250.00
(Continued Below)

Services:

- Transistor and tube sets

Ray Kushnr

2213 Alpine Drive

Colorado Springs, CO 80909

Hints (Continued from page 5)

Also, don't carve your name on your radios or write in or on original paperwork. Unless you're a DeForest or a Marconi, no one else will want your name on the paperwork.

If your radio was factory-equipped with purple tube shields, and they need repainting, you may do so, however, gold or black tube shields or I.F. cans does not enhance the value of the radio. Also, think long and hard before you polish that metal bezel or dial escutcheon to a bright and shiney finish. Most of these were chemically treated to appear "aged" when the radio was new.

Remember, if you get "boxed into a corner" when doing any repairs, there're several club members who do repair work. Most I am aware of are willing to share information with others in technical matters. So, give one of us a call, rather than damage or disable your radio.

Some members have put on demonstrations in the past during "Show & Tell"* and the results are good testimony to what can be done with care and effort. There are lost of good supplies-paints, cleaners, etc.-on the market to help us in our work to preserve these pieces of history.

*of both cabinet and chassis repairs

Some Radio Humor--(maybe???)

We all know about TV dinners, but I can remember radio dinners. They were made up of Marconi and cheese!

TRIMM PHONES

Light, Easy and Comfortable

\$5

DEPENDABLE 2400 ohm. Guaranteed. Highly polished aluminum back. Scientifically correct, matched phones.

\$7.65 Professional

3000 ohm. Guaranteed 2 years. All bakelite. Ask

your dealer. If he cannot supply you, write in giving your dealer's name.



CARL A. STONE CO.

Representing Trimm Radio Mfg. Co., Chicago

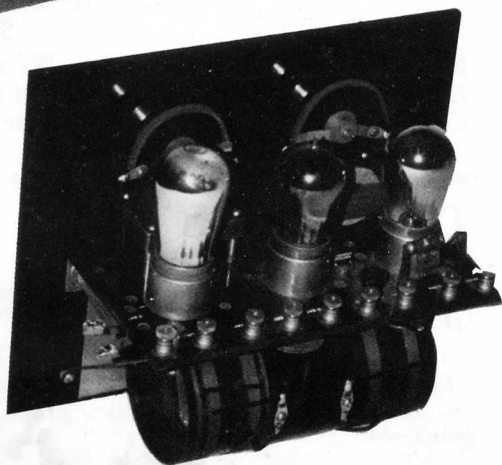
538 San Fernando Building
Los Angeles, Calif.

315 Foxcraft Building
San Francisco, Calif.

COLLECTOR'S PRIDE



One of the *Colorado Radio Collectors'* most dedicated members wanted to share one of his prides. Although he preferred not to have his name published, he mentioned his rare set appeared some years ago in the last edition of the D. H. Moore's *Vintage Radio Sketch Book*. This Echophone Model "A" was manufactured in 1923 in Sunnyvale, California. The **Radio Shop** had two other stores in the USA including one in Denver in the mid-20s.



CONTRIBUTIONS NEEDED



Seeking articles and stories relating to radio, TV, or associated equipment for use in our publication. Tips, suggestions, hints, and descriptions of restoration techniques solicited

Show & Tell: David Boyle

- * Philco 98 Chassis....A junker turned gorgeous through non-traditional means. Paid \$10.00 for it. Spent \$25.00 for parts and 26 hours in fixing it. He said a purist might cringe but his goal is to make it work.

Dave also told the group Robert Cooper (he would appear to be from Australia or New Zealand) wrote him a letter asking for information on world-wide radio history for a book he is working on. Dave is communicating with Robert.

Show & Tell: Barney Wooters

- * Company certificates, bonds. Paper artifacts can be found at antique shows, flea markets, etc. A **Sentinel Radio** stock certificate was shown.

Recent Great Finds: Attending CRC members

- * An AK55 in good shape was found in the neighbors trash. The finder was thanked for removing the "junk".
- * A nice, white Regency TR1 was purchased for \$2.00 at a local flea market.
- * A Federal 61 joined the collection of a CRC member purchased from ad.
- * A GE Rechargeable radio from 1958 complete with leather case and recharger was displayed.

Book Review: *Made In Japan* Lee Bruton

A transistor book well done, even with a few errors according to Lee. More of a "coffee table" book, but a must for any transistor collector. It has no pricing, but prices are changing daily not depending entirely on a book.

Don't forget the next meeting coming up Sunday, March 13th at the Southwest Bank on Federal. Bring Show & Tell items and a car trunk full of swap stuff!

Vicki Ann....

Congratulations, Riggs Smith!

Enjoy your brand new granddaughter! She was born the morning of January 9th, 1994 - the day of our meeting. Happiness to you and your entire family Gee, Riggs, did you really HAVE to miss the meeting?

!! ARE YOUR DUES DUE?? !!

If your address label reads "9403" or earlier,

DUES'R'DUE IMMEDIATELY!!

ANNUALLY PRO-RATED TO JUNE 1ST

ON THE AIR

Barney Wooters, C.R.C. President

I think we radio collectors have one of the best hobbies around. Most of our radios are interesting to look at, fun to own, nice pieces of furniture, or all of the above. Most of them can be used on a daily basis, too. When I began collecting in 1964 (my first one was an AK 40 with E-Z speaker for \$2.00), I didn't realize collecting these old things would ever be where it is today.

So, it is our "duty" to protect and preserve all these great old radios and related items and give them a home. I've also told this to my wife. We are all aware that some of our collectibles

have become increasingly more difficult to find and more costly. However, there are other related items not so costly, such as old test equipment, tubes, some advertising items, old batteries, old panel meters, etc.

Be thinking about which radios each of you will bring to our annual show/sale at the Western Stock Show Complex in April. There will be judging of all entries and ribbons awarded just like last year. Remember the "Radio Of Choice" for 1994 is Philco, but any and all are welcome.

Fistell's Has Parts!

By Dick Hagrman, Past CRC President

Fistell's is now selling at competitive prices most of the electronic parts and hardware we use in our restorations. They have a large stock of older tubes, transformers, capacitors, resistors, coils, dials, phone parts, and other items which we commonly have a need for. To obtain these prices ask for Darlene ("Dar") in the mornings or her brother, Mark, at other times. Let them know that you are a member of the *Colorado Radio Collectors* club.

In the next issue of the "**FLASH**", we'll present an interview with Dave Fistell, who at the age of 78, is still active in the day-to-day operation of his company.

Old Members...Really "Old"!

In researching for an article to fill this space, your Editor ran across a few ancient newsletters. These aren't just any newsletters. These are the "RADIO LOG" produced by the *Rocky Mountain Antique Wireless Association*. Yes, the original group from which splintered the **Colorado Radio Collectors**. Sadly, the RMAWA faded into obscurity as have many of the radios it sought to preserve.

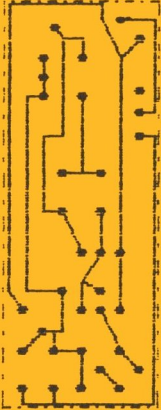
From a membership list of forty in the September 1978 issue, we found those who are *still active* in the CRC today. These really are the "old" members....Mr. & Mrs. Leamon Brooks, Mr. & Mrs. Kenneth Lee Bruton, Jr., Mr. & Mrs. Doug Furney, Jim Wize, Bob Slagle, Ray Windrix, Barney Wooters, and Rick Ammon. George Stevens was a '78 RMAWA member who visited the CRC last meeting.

Note that Doug Furney was President and Barney Wooters was Treasurer. Lee Bruton was Editor of many of these issues. In fact, an open discussion at the March '78 meeting (at the Southwest State Bank!) would consider categories and judging for an upcoming contest. A seminar was then given by Bruton that might be considered for our March meeting: "Preparing for a Radio Contest!"

Scrounge Box

(Continued from page 13)

- A. Do all your work in a glass or plastic container. In any case, don't use a metal container as you might etch it!
- B. Work in an area where potential stains from drippings will not be a problem. **DON'T** use a sink with decorative chrome. Sure as Hell, you're going to etch admissible evidence for divorce proceedings right into it!



Land Pattern Side
Full-Scale

- C. Be safe and wear rubber gloves and an apron. FeCl will likely stain any absorbent material it touches.

It's important to keep the FeCl solution in constant circulation as you go through the etching process in order to keep fresh etchant on the copper. I found it's easier to keep the board in constant motion instead by looping a piece of thread through a drilled hole and use this thread to move or jiggle the board around without having to dip my hands in the solution.

It will probably take about 20 minutes or so to complete the etch. In any case, do **NOT** stop until both sides of the board are **COMPLETELY** finished. It's likely that one side of the board will finish before the other. Don't worry...your lines are not at risk.

6. When the etching is done wash the board completely, cut the board apart, and go over the pattern lightly with "0000" steel wool or a metal polishing compound in order to get ready for the last step of soldering in the components.

At this point I have to assume anyone who would build this project would know something about soldering and other construction techniques. For those who are interested, I've included full scale (above) and part placement copies of my circuit board.

When construction is complete you're ready to test and tune (or smoke and choke - depending). After checking and going over the project for "boobos" connect a battery to the oscillator, plug the oscillator into an 8-ohm audio source such as a tape player, Walkman, or portable radio and turn the oscillator on. Turn on the radio that will be receiving the transmissions, tuning it to a quiet spot somewhere near the middle of the band. Now adjust the oscillator until you here what sounds like the input program material. You will likely have to adjust the volume of the input audio as this circuit overmodulates quite easily. In addition, since there are harmonics generated, be sure to tune the oscillator over it's entire range to make sure you are receiving its strongest or fundamental output signal.

That's it! You're now on the air. If you have kids, you might want to try a crystal microphone as a substitute for the audio input (and possibly the input capacitor) so that they can have a "Walkie-Talkie". 'Have fun!

**MOUNTAINS
'N' PLAINS
RADIO
COLLECTORS
ASSOCIATION**

1249 Solstice Lane
Fort Collins, CO 80525-1239



POSTMASTER: FIRST CLASS MAIL RUSH!!

If undeliverable, please return to sender. Thanks!