MRL CLASSIFIED ADS.

4¢ per word; 3 insertions same ad 8¢ per word. Circulation above 3500 per issue, plus back/numbers, which continue to sell over long period. Numerals (3-34) means three times, ending with #34. Send in your ad for next issue. A three-time ad always pays better than a 1-timer.

Electrical & Antique Clocks repaired. Write for estimate, giving full description. The Electric Clock Shop, 214 Market St., Denton, Md. (1-34)

Wish to swap Radio ideas and parts with anyone interested. Am interested in experimenting Let's hear from you-all. Ole B. Tollefsrud, Gardner, North Dakota. (3-34)

CRYSTAL-Radio Experimenters. Write Leslie Hulet, Route 4, Lakewood, New Jersey. (3-36)

Exchange Radio parts and wire. Write Wilburn Clay, 1803 Childress Drive, Atlanta, Ga. (3-36)

MRL DISPLAY ADS.

Display ads always pull better than Classified ads, as they are easier to spot with the eye.

With next RB we will allow you to place as many as you wish. We have purposely kept the prices down - in comparison to some of the larger mags. Radio-TV News gets $850 page; Mail Sale Advertiser (ad sheet) gets $50; Stamp Wholesaler gets $28, etc.

They will be photo'd on metal plates, and will appear exactly as you send them in. Draw your pictures with India ink to suit your style.

Width of column 2¼"; 2-column ad is 4¾" wide. Prices, height of ad:

1 column inch, 35 words.....1.50
1/4 page, limit 140 words...4.50
1/2 " " 280 " ...8.00
Full page, " 560 " ..15.00

We can print your ad on Varityper, but prefer you to make up all drawings and headings.

MRL CORRESPONDENCE CLUB.

2¢ per word, per insertion. Count name, address and interests as words, the same as for Ads. Many friendships have developed by the use of this column. Many use the Cory Club and Ads for trading used Radio Parts as we do not buy used parts. It doesn't cost much to try. Numerals figured same as for Ads.

P. J. Kavaleski, Box 17, Franklin Mine, Mich. Ham Radio; Crystal Sets; minerals; swap Radio magazines; letters. (4-34)

Crystal-Radio Experimenters. Write Leslie Hulet, Route 4, Lakewood, New Jersey. (1-34)

Den Nichols, 5486 Nichols Road, Mason, Mich. Interested in receiving news and information on TV-DX. Would like to know more about it by person who has received it. (2-35)

Fred Mertin, Jr. Rt. 1, Scranton, Arkansas. Ham Radio, Electricity. (1-34)

LAST MINUTE ITEMS.

It took us 5 months to get the following magnet wire:

#14 Enamel. **7-71. 100 ft... 1.25**
#20 "... **7-45.** " ... **.40**
#24 DCC.... **7-90.** " ... **.30**

New Fixed Carborundum and Iron pyrites Crystals. For some time we have been working on an idea to give you larger fixed Xtals. Parts were finally obtained, so now our Xtals are half again as big as before. Now you can have more space to adjust them sidewise for more spots. Same prices as before **50¢ for each.**

MRL Switch levers. We used up hundreds of the **CAT. 9-20**, and it is impossible to obtain more at any price. However, our **CAT. 9-20 A** really work better and take up a heck of a lot less space, so we are taking the liberty of filling your orders with them.

SUBSCRIBE TO RB NOW!

No 34 RADIO BUILDER & HOBBIES.

FOR THE EXPERIMENTER.

By Subscription:
12 issues $1.50; 3 for 40¢; per copy 15¢. Only available back numbers 25, 26, 27, 28, 29, 30, 31, 32, 33 at 15¢ each.

Published in U.S.A. by MRL.

Lucky is the Man who can make a living from his Hobby. - Shaw.

CONTENTS.

EDITORIAL NOISE LEVEL.

Ink, water, paper, wrinkles, smears, jams, tears, weak spots, and #?@?? - temper! —

Our $1400 printer didn't pan out, so we decided to spend another thousand, to get a good-looking RB to you. If you detect a wrinkle now and then - please forgive us, as it wasn't intentional. At least, now we have the best Multilith money can buy - as used by large firms, Navy, etc. Sheets fly out at 6000 per hour - so now the next obstacle is to keep it filled up! Hi. We had RB almost ready to run by Xmas, but the above trouble came up. Several days can now be saved in running the RB.

The name of RB has been changed a little - to make it more interesting, altho it will always be slanted toward Radio. The fellows are sending in lots of good data for future RB's, and am sure you're going to like it.

Our next project, which is a **MUST** is the **Handbook 4**, revision of BP-2, 1-tuber. Please send in any new DX reports you have.

STAMP COLLECTORS! We now have several more sheets, like **CAT. sheet S-1**, which is yours for a postal. Lists 1395 Country packets, sets, supplies, etc.

This trip we are giving Buyers their last chance at a free copy of RB - as we must make it pay, or else! A subscription price is very small - in these days of hi prices. Even a 3 for 40¢ will be appreciated.

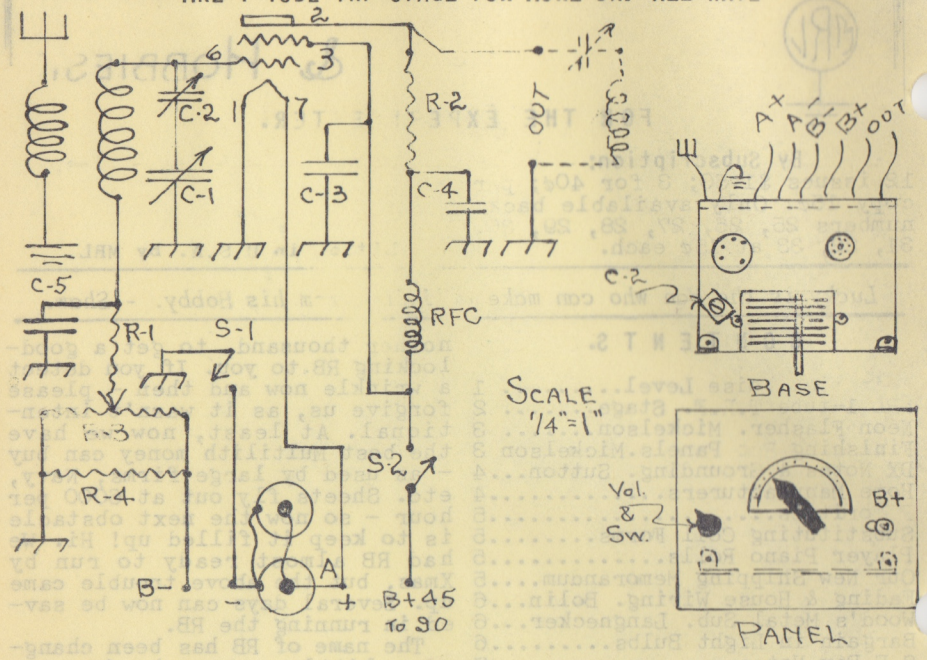
Best wishes from us — M R L.

#20 DCC Magnet Wire just received. **CAT. 7-88. 100 ft.... .50**

1½" Bakelite Tubing is a new item. **CAT. 7-69. Per inch.... .11**

SUBSCRIBE TO RB NOW!

MRL 1-TUBE TRF STAGE FOR MORE DX. ALL-WAVE



Parts list:

C-1. .00035 Var. 8-7. 1.25
C-2. 25-280 Trimmer. 8-117. 15¢
C-3,4,5. .05 Bypass. 8-43. 12¢. Ea.
R-1. ½ w. 100M. Res. 5¢.
R-2. " 75M. " 5¢
R-3. 50M Vol. & sw. 75¢.
R-4. ½ w. 500-ohm. 5¢.
RFC. RF Choke. 6-2. 30¢
S-2. SPST Toggle. 23-2. 25¢
Coils MRL. See text.
1 Compo. panel 4x5. 5¢.
1 " base 3x4. 3¢.
1 1¼ Bar/scale. 12¢.
1 Small pointer knob. 10¢
1 4 or 5 pr. wafer. 10¢.
1 Miniature " 10¢.
2 ½ x ½ brackets. 3¢ Each.
1 1T4 tube. MRL $1.00.
#20 hookup wire, Foot 1¢.
2 Flash. cells. 3-1. 2/25¢.
1 Plywood strip ¼"x¾" x 4".

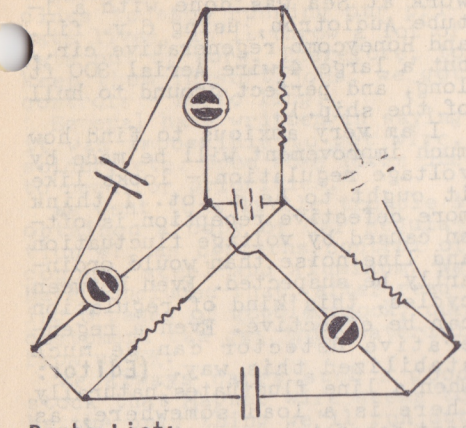
Many MRL Fans are interested in adding a tuned Radio Frequency stage on ahead of their present rig. This will get a lot of the weaker stations your present set-up will pass over. Besides more DX, it will greatly increase the selectivity of your present detector stage. Dotted lines show the output, feeding into a 1-tuber (BP-2). It may be fed into a Crystal set, just as well. We have used separate A and B batts to eliminate as much inter-stage coupling as possible. Its small size makes it easy to set next to any set. Being just one stage it is easy to construct.

Panel and base sketches show approximate layout of parts, and don't believe it can be much improved. Use ¼" to 1" scale, and take measurements from drawings. Mount the coil socket as far back as possible, so the condenser won't interfere with taking coils in or out. Mount a UX wafer if using our Type RF; 5-prong if using our 5-RF. Our Compo. may be used for both panel and base. If you find any body capacity on

(Continued on page 18)

A NEON FLASHER.

By Robert D. Mickelson. Chicago.



Parts List:
3 .25 x 600 Cond. (CAT. 8-45. .20)
3 1/10 Neon (CAT. 20-18. 15¢)
3 500,000 x ¼ w. (CAT. 19-2. .05)
1 90 volts or more, B-Battery.

Here is a schematic diagram for a gadget, in which I'm sure, RB readers will be interested. Altho it has no practical application, it is really a curiosity arousing gadget. The lights will flash individually, in rotation, either clockwise or counter-clockwise, depending on one's desire. Direction of rotation may be changed merely by placing the fingers across one condenser until the cycle is halted. Remove the fingers and the lights will flash in the opposite direction. As very little current is drawn, the lights will flash indefinitely, depending on how soon the battery deteriorates. A unit, built by the writer, has been going continuously for over 2 months. (**Editor:** A good idea to make your friends curious. Also, for attracting attention in a store window. Any moving gadget will stop them. Rig it up on a piece of Compo. panel).

FINISHING RADIO PANELS.

By Robert D. Mickelson. Chicago.

Here is a neat trick you may wish to pass on to RB readers. It's a formula for a metallic grey paint that gives a nice appearance to chassis and panels. Mix 1 part of Aluminum paint; 1 part clear Varnish; and 1 part black Paint, preferably one with a rubber base, altho not essential. Mix well and spray on. To brush on makes it streaked. But if you wish a hammertone effect, you may brush it on and dab the surface with a synthetic sponge, to make a professional stippled finish. Baking with an ordinary heat lamp results in a glossy finish. Be careful not to burn the paint.

Aluminum panels may also be finished by dipping them in a solution of Lye (Sodium or Potassium hydroxide) and water. In a very short time the chemical action will cause a boiling effect, and you may observe the satin finish appearing. If necessary to bring out the finish, and remove manufacturer's marks, brush the metal with a brass brush. When the right amount of finish has been obtained, wash thoroughly and dry.

Altho not related to Radio, this formula for a paper Barometer may prove helpful. It is one that has been used for years by formula books:
Cobalt chloride.....1 oz.
Sodium chloride (salt).½ oz.
Calcium chloride.....75 grains
Water.....3 oz.

Dip white blotter, or white cloth in solution. Let dry, and cut to size. Indications:
Rose red - rain.
Pale red - very moist weather.
Bluish red - moist.
Lavender blue - nearly dry.
Blue - very dry weather.

Your article on Lighting (RB-33) reminded me of a time in Peru, Ill. when I was hooking DX on a stormy night. A bolt of lightning came down the Aerial & arced over to ground. I had no lightning arrester at the time. No damage was done, but it gave me a good scare. (**Ed.** Lucky the leadins were close together).

It's very interesting to read other DX reports. One gets a good idea as to results to expect.

Want to compliment you on your

celluloid SW coils, - they are excellent. Can see why so many like them.

Layout of HB-17 and [illegible] lent. It seems strange that so many Xtal circuits exist. No other organization possesses such a variety.

DX NOTES and GROUNDING.

By H. Sutton, St. Helena, Calif.

I believe a super-regenerative would help a lot in summertime as DX is poor in June.

It's noticeable how an Equatorial spot, like Central Africa, comes in pretty regularly any time of the year, but some places off the Equatorial belt vary a good deal with season. Australia varies, usually better in winter. North and central China are better in summer here. Maybe the Ionosphere is more uniform over the Equatorial belt than at each side.

(Editor: Along this line, I believe that magnetic lines of force between the Earth's poles affect reception. I haven't seen anything written along this line so far. On trips in the Tankers, as Radio Operator, to Ketchikan and Juneau, Alaska, and northern Canada, I noticed U.S. stations all over came in very loud and clear. Much better results were had by receiving South instead of North from the U.S.

Also, while 1200 miles west of Panama I made the World's record for KDKA at that time. Hundreds of U.S. stations boomed in. However, stations like S.F., Seattle and others along the Coast were hard to get. So were stations on the southern end of South America. In the harbor of Iquique, Chile, I worked WNY (New York) 4500 miles around Midnite on a spark set. Off Panama 1200 miles - while copying press. Guam to the West 5500 miles, drowned it out when it was sunrise at Panama. Then I'd shift to Guam and get the same press. One night in this same location I got 3 SOS signals that sounded like locals but were on the East coast 3000 miles away. This location was practically **ON** the Equator, so Mr. Sutton does have a good point about the erratic reception. All work at Sea was done with a 1-tube Audiotron, using 6 v. fil. and Honeycomb regenerative cir., but a large 4-wire Aerial 300 ft long, and perfect ground to hull of the ship.)

I am very anxious to find how much improvement will be made by voltage regulation - looks like it ought to be a lot. I think more defective reception is often caused by voltage fluctuation and line noise than would ordinarily be suspected. Even between cycles, this kind of regulation can be effective. Even a regenerative detector can be much stabilized this way. **(Editor:** When a line fluctuates, naturally there is a load somewhere, as most generators run steady. Loads produce noise, etc. With all the gadgets rigged to a line, it's a wonder we even get locals good).

If the power supply of Fig. 2, page 1, RB-30, be fed from two filament transformers, like Fig. 1, wouldn't that eliminate the ground hazard? **(Editor:** Yes - 2 sets of transformers could be hooked with power outputs in series, to double the output- or similar to the seriee arrangement shown in Fig. 2).

Suppose chassis for sets be made of wood, Compo, or Bakelite - then a copper strip, or heavy busbar wire could be used for the grounding strip. Strip could be cleaned bright and painted with MRL Light Coil Cement **(CAT. 7-57. 15¢)**, giving better conduction of RF currents. Also it would be free of dust and corrosion collected by Aluminum chassis. Would do away with poor soldering to Aluminum as it may be lockwashered to front panel. One could then group-in the ground leads to one place.

HOME MANUFACTURING.

In Oct., 1952, gov't freed from price controls home mfrs. making less than $1000 worth per mo. No outside employees, tho.

The Chain Store Guide of N.Y. (no address) lists 2700 Chain Store buyers for $22.50.

PRIORITIES.

When our nosey Government decides to stop running our private lives, it'll throw a lot of jets out of work. Therefore, to keep them in soft jobs, we got controls - no fooling!

Several have written in saying it was impossible to get wire, solder, etc. from some firms due to need for priorities.

We went to a little trouble & obtained a copy of CMP Regulation #7, as concerns control of copper, steel and aluminum. We have concluded that, after reading 3 pages of gobbledegook, our customers can get this material from us OK.

We always carry such a good stock that Magnet wire seems to be the only thing we'll run out of within the next year. To date it has been impossible to get #20 and #24 DCC, but we are always in there trying. If you can substitute Enameled wire, we can get all that you need, in fact, have a good supply on hand at present. Of course, it's cheaper than DCC. You will have to be a little more careful in making connections than DCC. A sharp-pointed knife, or Model maker's knife is good for scraping off the shellac from the wire.

We see no more need of controls than a dog has for two tails. When we think of the tons of metal that were junked after the last War, it makes us sick. At the same time, we had to sign our life away to get a piece of brass or copper. Also, mfrs. of knick-knacks were allowed to flood the market because it "used up the surplus money and prevented inflation." The only concerns that should be controlled are ones buying in carload lots, and not we little fellows. If you compare the extent of this Korean business with our big War - when we were fighting all over the World at once, one cannot see any need for controls now. But, after all, it takes a lot of soft jobs to run these controls like OPS, etc. - so why should we be in favor of throwing anyone out of work?

SUBSTITUTING COIL FORMS.

This from Julian Cervantes, 662 Dimasalang St., Pasay City, Philippines: "Received RB and appreciate your thoughtfulness for your old customers. I ever recognize your fine service, but our purchases are small, due to the Government restrictions on buying in the U.S. Suggest using cardboard forms on #2 flashlight cells, when the Experimenter is short on coil forms, or money. Paint form with MRL Heavy Cement **(CAT. 7-58. 15¢ dz.)** and let dry. Punch 2 holes in form at each end for winding. When finished, paint MRL Light Cement **(CAT. 7-57 15¢ oz.)** over entire winding."

PLAYER PIANO ROLLS.

We often hear "Why! Do people still make Crystal Sets?" Yep, and how! And they still pump the old player pianos, too. Likewise the train hasn't given up all its business to the Aeroplane and fast busses. Each has its own field of endeavor.

Louis F. Goelzlin, 138 McAllister St., San Francisco, has 10,000 player piano rolls at $1 each. He has a mailing list of customers from China to Minnesota. He claims there are 1000 player pianos in the S.F. Bay region, alone. If interested, you may write this firm. It has been in business since 1911.

Hit Parade tunes are available altho the old steady pullers are "Nola," "Alexander's Ragtime Band," and the old "Merry Widow Waltz."

OUR NEW SHIPPING MEMORANDUM.

Our new memo. helps keep things in order and save time. Customers desiring ans. to questions will leave space for ans. and send a stamped envelope. We welcome long letters giving results of experiments to be passed along via RB and so do the readers.

Definition of Time: The stuff between pay days.

Business: This is what, when you don't have any, you go out of.

FADING DUE TO HOUSE WIRING.

By Al. Bolin, Chicago.

Here is something you may, or may not know, but let me tell U of a recent experience. I'll make it short and to the point.

On several occasions I have found Radios, expecially those with built-in Aerials, were affected by vibrations set up in the building due to persons walking or slamming doors. The set would work perfectly before. Inspection of the set showed no loose connections and one station seemed to be most affected, usually around 900 k.c. It was discovered, after thoro search, that the conduit, or BX, within the walls was the cause of the interrupted signals. In all cases it was found a joint, or junction box had worked loose over a period of years. This condition is very common in buildings where the wiring is rather old. Also, buildings which were wired for A.C. after gaslights, or some 30 years. In this time, many loose joints and corrosion may occur.

Sometimes the BX may run over a steel beam, or pipe, This may have the same effect. It is very hard to locate the joint giving trouble and often there are more than one. Cleaning and tightening the anchoring, or fitting at the point of entrance to the receptacle, or switch box, is the only remedy.

The reason such trouble in the wiring armor, or BX causes a set to operate improperly is due to the fact the light line is picking up the signal, as well as is the set's Antenna. Electrical wiring, acting as an Antenna introduces a circuit problem, i.e. the wiring itself becomes a tunable H.F. circuit, since it has both capacity and inductance. It really assumes part of the set's R.F., or Antenna circuit. Just as in any tuned circuit, variations in both resistance and/or continuity will change the circuit's balance and affect it's resonance at H.F.

If you ever run into the described trouble, bring it. It is not only a nuisance to said reception, but a potential fire hazard. Loose joints cause sparking if the inductance is high enough. If the sparking is strong enough, you know what can happen.

Editor: One time, while we were selling sets in Los Angeles, we ran into a similar problem that cost us money. A restaurant owner offered $500 for any Radio that would play for 10 minutes, without cutting out. Even with an outside Antenna and ground, - sure enough, after 4-5 minutes, out the station would go. If we had thought to check the electrical circuit, we may have made the sale.

Also, when other occupants of the house, or neighbors, switch a light on or off, it will vary the tunable length of the Antenna by induction from the light circuit.

SUBSTITUTE FOR WOOD'S METAL.

Editor, RB:

"In your RB-27 I noticed a very good article on mounting Crystals in Wood's metal. Here is a very good substitute for Wood's metal, and altho somewhat more expenisve, is considerably easier to obtain. Add Mercury to ordinary 60-40 or 50-50 solder (less rosin core). You can add Mercury until the solder will melt as easily as wax. Mercury is a good conductor of Electricity and this special solder is excellent for mounting Crystals.

"This special solder is an old time Jeweler's secret, used for soldering pewter and various other articles of Jewelry where it is impossible to heat to the melting point of regular solder. You may publish my name."

Chas. Langnecker, Jr.
Electrical Engineer.
1205 Penn Av.
New Brighton, Penna.

BARGAIN IN LIGHT BULBS.

Higher wattage bulbs are the best buy. A 150-watt produces 10 times the light of a 25 watter, yet uses only 6 times the juice.

SAN FRANCISCO BAY NOTES.

Varian Associates.

In Feb., 1952, Varian, 1625 Bayport Ave., San Carlos, reported additional construction to house experimental Labs., etc. Also, we see a T-shaped building in Palo Alto, on El Camino Hwy., going up, with their name on it. Employees 459; and sales volume of some 4 million a year.

Varian Associates started in 1938, at Stanford Univ., by the Varian brothers, a couple of Amateurs who invented the Klystron tube. It is used in HF microwave range for Radar and Relays.

Kaar Engineering Corp. sold.

Pacific Associates, Inc. of S. F., purchased the Kaar company in Sept., 1952. It was established 16 yrs. ago. Kaar was the largest West Coast manufacturer of Radio telephone equipment. Anticipated 1952 sales are half million, with 60 employees. Most of equipment is 2-way mobile. Also some marine depth sounders, direction finders, etc. Kaar retains a small interest.

Mackay Radio Anniversary.

July 28, 1952, marked the 40th anniversary of the Mackay Radio and their starting of regular telegraph communication to Honolulu. They are an aftermath of the old Federal Telegraph arc system. Their first station used a large wooden tower at South San Francisco. One time the tower got afire and the ops carried buckets of water up to put it out. Half burned down before it could be stopped. The half-tower remained there for years. We may have some photos around. They R dismantled now. This station was taken over by the Navy during World War 1.

Mackay Radio's present transmitting station at Palo Alto has the tallest Radiotelegraph tower west of the Rockies. The receiving station, first located at Daly City, was moved to Lobitos, near Half Moon Bay, in 1930. By these circuits it connects the Orient and New York.

Sylvania on the Coast.

In Aug., 1952, Sylvania Electrical Products Corp. of N.Y., announced construction of Labs. in Mountain View, Calif. To be devoted to microwave electronic tubes for defense purposes. This 40,000 sq. ft. building is located on a 14 acre site. 250 to be employed about December. This site was chosen to enable them to work closer with electronic, aircraft and defense industries on the Coast.

Guided Missile Safety Aids.

Beckman & Whitley, Inc., 985 East San Carlos Ave., San Carlos announced formation of a guided missile division. It will make instruments for safety aids to Servicemen, when using guided missiles. They had formerly done work with race timing devices, & climate survey systems. Emp. 36.

Lenkurt in San Carlos.

Lenkurt Electric, 955 Brittain Ave., San Carlos, claims to be one of the largest independent electronic mfrs. on the Coast. It also has another plant in Vancover, B.C. Total S.C. plant coverage is 122,000 square feet.

Len Erickson and Kurt Appert formed Lenkurt in S.F. in 1945. In a year they had 18 people and now employ about 840.

The company makes carrier systems that enable the 'phone Co. to use micro-wave relays for the sending of many messages and TV at once over a circuit. The result is a complicated panel, and housed in a metal case. Most of the work is for the military.

Many women operate coil winding machines, resembling sewing machines. They also claim the largest toroidal-coil plant in the country. They also are developing facilities for making Polystyrene, oil-filled and metallized paper condensers.

The plant has its own printery - probably a Multilith deal like ours.

Every plant boasts the largest this or that, which we old timers take with a grain of salt, and not much pepper!

#2 and #2-A DX NOTES.

50-in-1 Tuner on #2.

Brian Murphy, 209 E. Arcadia, Peoria 4, Ill. says:"I made Ur 50-in-1 Antenna Tuner. It's perfect; couldn't be better. I use it on my #2 set. I get the signals louder and even get Short waves during the daytime, loud. About 300 miles one day."

Panama on #2. 3600 miles.

P.J.Kavaleski, Box 17, Franklin Mine, Mich. wrote:"I put in a 3-30 mmfd. trimmer **(MRL 15¢)** in series with Aerial on my #2 & it eliminates our local swell, ¼ mile from me, with a terrific ground wave. Before adding the condenser, it drowned out most outside stations. I'm using a diode in my #2 in conjunction with Steel galena. By the way, I hooked S.W. station HOXA, 15,100 k.c. 7500 watts on the #2, on 19 meters about a month ago. I have a picture postcard,with pictures of their station.HOXA is Panama, Rep. of Panama. Dealing with you and MRL is always a pleasure. U have a customer for life. You may use any of this in RB. Instead of the celluloid fronts on MRL Dial Scales, I use a clear fingernail polish over the whole dial scale, before cutting it out. It also acts as a glue. It gives a nice, shiny finish, and can be wiped off when dirty. PJK over and out."

Cracking Germaniums.

Richard Arnold, Wayside, Kans. reports:"On my #2 I got Montreal Canada, N.Y. and assorted Hams. If you find a 1N34 that goes bad and want to use the crystal, you may take pliers and crack the ceramic shell holder and it will come apart easily. You may use it with MRL Catwhiskers. U will find it very sensitive."

Lamp Shade Speaker on #2-A.

John Warnica, Rt. 4, Barrie, Ont., Canada, comes up with a FB report:"Here are a couple of kinks. I use the Fahnstock clips on Assembled stands when I want to hook up Diodes. Also, I take an old lamp shade and fit a wooden block in the small end & mount an earphone on it. (Don't use a lamp shade from the living room; women don't appreciate progress!). I finished a pocket radio crystal set of parts I got from you. As customary, they're not too selective, but it picks up Cleveland (250 miles) and the Cincinnati (400) station during night. Here are stations I get on the 2-A:

	miles
St. Louis, KMOX	700
Boston, WBZ, WBZA	500
Richmond, WRVA	500
Cincinnati, WCKY, WLWO	400
Wheeling, WWVA	280
Pittsburgh, KDKA	275
Cleveland, WGAR	250
Buffalo, WKBW, WGR	110
Hamilton, CKOC	65
Toronto, CKEY, CBL, CJBC,CFRB	50

Also S.W. Hams from Cleveland, N.Y., Louisville, Detroit, etc. Reception has not been tried in the winter,but it'll be better."

No QRM From Dad.

James Cantor, 3745 3rd Av. Los Angeles, Cal. sez:"Owner of #2 Long Distance Set, and want to tell you how much I enjoy it. Am 15, and share room with dad. Now I can listen to my own programs with no arguments. Hi."

Many Testimonials.

Space forbids publishing more of the hundreds of testimonials on 2 and 2-A this trip. More in next issue. We have been giving almost immediate shipment of the 2 kits, altho parts are hard to obtain. When ordering the 2-A be sure to send enough for 3 pounds postage, as condenser is a little heavy. A little kink, when U wire them up - leave the coil to the last.Hold switch point wires down with screwdriver to the panel.Cool joint with pliers, or some cold object. Yank the leads to see if they hold OK. Leave a little slack in leads so they won't break off. Our new switch levers take the place of the SPDT switch on kits. This gives more separation than switch connections.

MOST HOMES HAVE RADIOS.

A research firm announced in Sept. that 98% of the 44 million homes have one or more Radios.

NOTES ON OUR NEW #10 KIT.

We are beginning to receive reports on our new revised #10 Country Crystal set. Here are 2 of the first reports:

Lee Shoblom, Box 205, Spring Valley, Calif.:"Thought I'd let you know about my MRL #10 set. The first night, using 130' Antenna I got 46 stations. 13 were from Mexico; 6 Police; and 2 air craft. That was with a low ohm pillow speaker.Wait until I send you my DX log, when I get some phones, later.

"About 6 houses down the St. is W6RMG, operated by a swell fella "Holly" Hollins. He has a 150 watt Collins transmitter. I get him on #10 without Aerial or ground, but still #10 has enough selectivity to cut him out for other stations.I also get another Ham W6BHF."

And his later report:"Got 4 more BC stations and 6 Hams on #10. Got all DX on a 1N34, which works best here. I re-arranged the switch so I can play on 1N34 or Steel galena at will. Best DX was Oxnard."

Editor: Very few Xtal sets can be worked on a 130' Antenna and still be selective. Also, note Mr. Shoblom was using a pillow speaker, which can't possibly let you hear all the weaker DX stations. Also, the Ham down the street can be cut out at will - some of them even spill over on BC, especially on a Xtal set.If you can afford the extra $1, I'd have the 1N34 substituted for the Steel galena. Then, together with the fixed Carborundum and battery, you have no adjustments to bother you. As seen in our literature, the Carborundum and Steel galena are more selective than the 1N34. But the latter is fine for the Country, where selectivity is not too important.

Here is another from Mr. **Roy Slaughter, Jr., RT. 2, Lewisburg Tenn.:**"Just finished building the #10 Country set. I've built your #2 and #10 but like the #10 the best here.I think your Steel galena is the best Crystal. Here is a complete list of stations:

Del Rio, Texas, XERA (950 miles)
Omaha, KFAG (700).
Dallas, WFAA (650).
Fort Worth, WBAP (650).
Pittsburg (550).
Tulsa, KRMG (500).
New Orleans, WWL (450).
Chicago, WENR, WJJD (450).
Dayton, Ohio, WLWO (350).
Cincinnati, WCKY (325).
St. Louis, KMOX (300).
Louisville, WHO (250).
Also WHBS, WHIN, WJJM,WLAC,WSM"

NOTES ON BUILDING #10 SET.

When mounting condenser, first put bushings and screws in easy. Put Cond. on the screws and then tighten nuts, etc. with a small hex wrench. Adjust shaft extender so it doesn't rub on panel. Cut dial scale and cement on the panel with MRL Heavy Cement **(CAT 7-58. 15¢ oz.)** Hold panel at a distance to get it level.

When mounting switch levers, bend them down to make a good contact. Put on lug and setscrew on back. Then screw a 6-32 nut down on the shaft until you get the right tension on the lever, and then set up the setscrew, & remove nut. A touch of vaseline, rubbed off, will help lever to run smoother.

Mount fixed Carborundum in a convenient position, as shown on DP-34, using the piece of #14 busbar, furnished with kit.Don't get crystal too hot. Adjust Xtal only when necessary, and then on a weak station.

Remove insulation from coil taps with light sandpaper, and tin leads with iron. Then, mount the coil, after everything else is wired up. Use heavy wire for the set, but small #22 solid for the coil leads.

When soldering leads to switch points, tin the wire and bend it into switch point holes. Hold it down to panel with screwdriver, and cool with pliers, or file. Yank it to see if it holds OK. Then, run leads up to coil in a round, loose manner, so they can not break off. Be sure to see if coil clears condenser and switch levers.

You may try the battery upside down, to see if it is louder. If it works better on Carborundum this way, then reverse crystal. The battery should stand upright or solution may run out. Be sure to cut off switch to battery if not in use to preserve battery.

When ordering the #10, send 3 lbs. postage instead of 2, as it was overweight from **CAT. sheet K-2.**

CAT. 14-7. #10 kit. 3 lbs. **5.00**
CAT. 14-7-D. Same, but with 1N34 diode instead of Steel galena. It also includes 2 small Fahnstock clips to fit on back of stand screws. 3 lb..... **6.00**
Wired up and tested, add **2.00**
DP-34. Revised plan.....**07**

WHAT'S IN THE MAGS.

Radio Electronics. Nov., 1952.

"J.E.Smith, NRI." p. 19. The man who never ages - looks the same as he did in 1921. Hi?

"Neon Glow Tube." p. 36. Uses 1/4 watt Neon. **(CAT. 20-7 or 8. 50¢).** Neon gives sawtooth response, as it builds up and the condenser discharges.

"Relaxacisor." p. 49. Uses a 2 watt Neon **(CAT.20-9. 65¢).** If U have been in a Chiropractor's office to get your muscles relaxed before they' jerk them'you will get this treatment for some 10 minutes.

"Transistor Sawtooth Oscillator." p. 50. Uses a CK-7)6 Transistor. We don't know where you can get one.

" Reactance."p. 72. A good article for the fellow with a Tech trend, and a little knowledge of Algebra.

"Bridges." p. 78. One of few applications of this balancing circuit. Also see p. 118 to use a bridge circuit for Xtal set.

"Screen Metal Chassis." p. 82. A quick, practical idea for the Experimenter who doesn't like to keep wrecking panels. Shielding is sufficient to prevent body capacity.

"Field Strength Meter." p. 117 A good idea for the Transmitter using 1N34.Note the taps to give more selectivity in tuning.

RADIO Electronics. Oct., 1952.

"Universal Shop Speaker." p. 49. In Radio repair one always needs a lineup of speakers to test sets, especially when output stage is haywire.

"DX Crystal Receiver." p. 102. By our good friend Joe Amarose. It is a good rig to build up. We can't add much to details. We can furnish the tapped coil for $1.50 plus 3¢ postage. We prefer to let 2 paper strips down under the 2 rows of taps **(See MRL HB-17, page 23, for details. 27¢).** It has about everything a Crystal Fan can desire in flexibility of tuning. The 17-point switch may be a switch lever and points like the 10-point one. For the Carron coil, use one of our Antenna or Detector coils **(CAT.7-44 or 45 at 40¢ each).** L-1,2 is a MRL QRM Coil **(50).** Balance of parts can be found in our Catalog, in the index.

"Hi-resistance Leakage." p.120 You may use our Neon **(CAT.20-18. 15¢)** for this.

"Space-charge Receiver." p.128 We contacted Labs. of Sylvania and they say space-charge detectors, where control and screen-grids are reversed, should be made with non-shielded tubes. So this means older types as 6C6, 6D6, 24-A, 32, 34, 49, 57, 58, 76, 77, etc. The novel feature of this rig is that it uses 12 volts of B - maybe less. Type A or 5-A coils may be used **(CAT. page E-2).** (Refer to **DP-43 (7¢)** for a hookup using down to 1½ v. of B. Xtal may be substituted by conventional .00025 and 2 meg. grid leak. A regeneration control to the tickler may be added

"Why Small Shop Will Stick." p. 138. Be sure to read this. Think how most stores used to stay open holidays and nites & no rest for the owner. Our Radio shop used to be open 9-9 and a half day Sunday.

Radio Electronics. Sept., 1952.

"Radio Svc is a Biz." p. 47. Re NRI rate system. Charge for your work because "all Radio Men get too much" - no matter how little you charge for repair. Usual practice is to double the rate you have to pay a Service man. Even then, you may find you lose money at the end of the mo.

"Bandswitching Regen. Set." p. 56. By our good friend Welz, of Alameda, Calif., writing under a pen name. Note how bands are all separated. Values of resistors may be close, as they are never critical. We suggest a 3-plate Ant. cond. for the 3-30 postage stamp cond. for better control & DX reception. If you want to use separate coils, our Type C or 5-C are just the thing. Switching may still be used as per diagram with switch leads running to the coil socket. 6V6 may be substituted for 6F6. We have the 6SQ7 and 6V6 in stock.

"Cathode Followers." p. 72. A good article. Running from Cathode into amplifier gives better tone and control. Also more on CF on p. 102, using a couple of tubes in the cathode of the top tube. (What won't they do next?)

Radio & TV News. Nov., 1952.

"Novice Xmtr Kit." p. 45. Good simple Xmtr. with Xtal control, etc. Not hard to build. Works on 20, 40, 80 meters.

"Survey of Transistor Development." Part 3. p. 68. Don't know where they get all the Engineering data on them now-a-days. Also note photo-transistor, where the light changes resistance of Germanium, etc.

"Versatile Wavemeter." p. 70. Uses 1N34 diode, or any Xtal is OK. Type A or 5-A coils may be used to make a plug-in arrangement. May be coupled near a receiver, or to the same Aerial by a .0001 mica cond. in series. When signal on receiver drops, the Wavemeter is in tune with the same station, and may then be calibrated.

Radio & TV News. Oct., 1952.

"Midget Radio-controlled Auto" p. 35. Gives good, clear info. on remote control. Xmtr, Rec'r & Forward-stop-reverse actions.

"Sub-miniature 75-m Converter" p. 39. Uses 3 sub-miniatures in a rig not over 5" long. Gives U coil data, altho wire sizes are not critical.

"Rdo-TV News' Test Bench." p. 51.A slick layout for servicing.

"35-watt Novice Xmtr." p. 55. Uses only 2 tubes and minimum of parts. For use on novice band of 80 meters.

"Remote Control Tuner." p. 56. Not so much interested in the remote control, but if you'll note the Xtal diode as detector. May be any kind of diode. Input comes thru a 500M ohm vol. control, with .0001 mica across it to stop noise. You will note two power supplies using Selenium rectifiers,which may be 100 m.a.

"Survey of Transistor Development." Part 2. p. 64. Note on p. 65 about point contact Transistors having a gain of 200:1 and junction Transistors to 10,000:1 ratio. The point type uses catwhiskers, while apparently, the junction type uses 2 pieces of Germanium placed in junction, & next to plate as shown, but no catwhiskers.

"Selenium Rectifiers." p. 66. A good discussion. For most rectifier circuits our 100 m.a. **(CAT.3-19. $1.00)** can be used. Several hookups for various types of rectifiers are shown.

"Hi-Quality Speaker." p. 69. Good data. May surpass the Bass-reflex in quality.

"Super-regenerative TVI checker." p. 70. Here is a good layout for Super-regenerative set, at least. Uses 1S4 tube **(MRL at $1.50).** You may put a pair of phones in series with the plate for a receiver.

Radio &TV News. Sept., 1952.

"Survey of Transistor Development." Part 1. p. 43. Especially describes the atomic structure and characteristics of Germanium crystals. Also fabrication, Xtal growing process. Now, Engineers can take a "hunk of nothin'" and run it into a 500-page book. It seems no end to searching in the field of Science. Note, on p. 170, the bias on crystal for the input Emitter is positive. The

output Collector is negative. It has been breezed around for ages that a Crystal only detects and does not amplify. But, now the Transistor can amplify. By reading the article, you can solve the theory of operation.

"Converter Receives Phone and CW." p. 60. Hooks to any AC-DC midget (or any set) to make a Communication receiver from it. Has own power supply and BFO to get code. Doesn't look like a hard rig to build. With the hi-gain of AC-DC sets, it should be FB for DX. Other tubes may be substituted, if desired.

Popular Science. October, 1952.

"Midget Brains for Mechanical Men." p. 134. A good article on Transistors. Shows how they set the Catwhiskers, by microscope. Describes junction-type, as being 2 pcs. of Germanium sandwiched between 2 thin layers of Indium, which acts as contact. Indium, an element, is found in Zinc ores, and looks something like Aluminum. As Germanium is obtained from Zinc ores, there may be some connection between the 2 elements. Article describes sensitivity, which is amazing. Writer's prophecy about buying them for a dime is exaggerated; let us say, maybe for a dollar.

"Now You can build a Transistor Radio." p. 237. Cir. shows a detector and 2-stages of Audio. They recommend W.E. point-contact Transistors. Obtainable from Western Electric Co., Allentown, Pa. for $6.50 each. Article says it won't replace Super-het as Transistors are amplifiers and not oscillators. Note the (x) on first tuning coil for selectivity. Also, note it uses a parallel booster at L-1, with 2-gang condenser, for greater selectivity. An interesting article.

FLEXTAL CIRCUIT - RB#33.

We omitted total turns on Coil **B**, which should have been 90 ts, same as **A**. Coils **$1 each**, plus postage. All parts can be bought via our Catalog. No DP or Kit for this set. Many reports of DX.

ANNOUNCEMENTS.

LAST CALL FOR MRL "RADIO BUILDER" SUBSCRIBERS.

Our present plans call for a greater concentration on getting out the "Radio Builder" and literature, and less on parts in the future. As it takes both time and money, we are making several changes.

Starting with our next issue (#35) we will send the RB **ONLY** to Subscribers, no matter how much anyone has bought. This is only fair to present Subscribers - which include most steady buyers. In other words, RB is to be a separate Department of MRL, and must be self-supporting.

Answers to [illegible] will receive the following issue of RB, because [illegible] cost 7¢. However, ones requesting HB-25, via the ads, will receive but the one issue.

However, it isn't as bad as it sounds. Many have credits, but we want your OK to put them down on subscriptions. Send a postal at once, giving us your Okeh.

Also, the price is very low, 12 issues $1.50, or trial 3 for 40¢. In these times, this isn't very much money!

As for parts, we aren't quitting them. Apparently, to sell circuits, etc. we need certain standard parts at good prices. Standardization and cutting corners in stock-keeping, etc. will make handling of parts fairly automatic.

Many are sending in articles for RB. We don't pay for them, but will be glad to attach your name and address to them, if you wish. Please advise when sending them in, as it will bring you a lot of correspondence. Others are always interested in the results of your experiments, etc.

DON'T WAIT - send in your subscription, or renewal, at once, so you won't be cut off on RB-35

See Catalog page **C-1** for more details on Radio Builder.

.00014 Var. Cond. impossible to obtain, but we furnish you

with a **(CAT. 8-7. .00035 Var. at $1.25)** and a **(CAT. 8-117. 25-280 mmfd trimmer .15)**. Hook them in series to get 0-.0002 mfd, which is better than .00014. Plug in MRL Coils and let trimmer screw out until it oscillates over the whole scale. You may adjust the bands by ear. You will have a greater band coverage with this combination.

Used .00025 Var. cond. of 5 large plates 1/16" thick. Gives straight-line wavelength; OK for Xmtr; plates adjustable. In good condition. 1 lb. wt. .50

50-500 mmfd Trimmers out of stock temporarily. Substitute a **CAT. 8-117. 25-280 mmfd.....15**

Crystal Diodes in stock:
1N21 Silicon.....**CAT. 9-38. 1.25**
1N34 Germanium....**CAT. 9-37. 1.50**
1N51 " ....**CAT. 9-41. 1.00**
CK706 " ....**CAT. 9-40. 1.00**

Rheostats. can fix you up with following - 6-10-60 ohm. Ea..15

Phones. Rex 20,000 imp. not made now, during emergency. New Rex 10,000 imp. of 2000 ohms DC in stock. **CAT. 17-51.** 1 lb. 2.41

NEW Acme 4000 ohm DC. Same as Acme de Luxe, except resistance higher. Lightweight and easy on the earlops. **CAT. 17-52.** 1# 2.41

Phone cushions. CAT. 17. pr..90

Phone cords in stock.
Double. Lugs/tips. **17-35.** .45
" Tips/tips. **17-36.** .45
Single. Lugs/tips. **17-37.** .35
" Tips/tips. **17-38.** .35
" Lugs/lugs. **17-39.** .25

Electric juicer. We purchased a complete mixer, so have a Sunkist, Jr. juicer on hand in good condition. 10" high. OK for a fruit stand, etc. Parts may be removed for cleaning. Motor is worth price asked. Wt. 8# 5.00

Emery wheel grinder to mount on bench. Wheel furnished. Crank furnishes hi-ratio, so may be used for coil winder. 7 lb. 1.00

8" KNAP Auto Electric Fan. All overhauled & tested. Adjustable base. Works on 6 v. storage battery in car. 3 lb. wt. 1.75

Soldering lugs. Due to raises in prices, when re-ordering, we have had to increase some lugs:
Types C-F-N-R.....**20 for .05**
" D-H-K-M..... " " .06
" A-E-G-I-P..... " " .12

Audio Transformers. Hard to get unless around $2.50 each. Ar[illegible] 3-1 ratio. Plenty in stock. Very essential. **CAT. 24-18. 1 lb.....1.50**

Bell Transformers. Back again. In two sizes. Plenty of amps.
CAT. 24-1. 10 volt. 1 lb.....1.50
CAT. 24-20. 16 v. chimes. 1½#1.80

Filament Transformers now in stock. 6.3 v. 2 amps. Needed by all Fans. **CAT. 24-8. 10 oz...1.50**

Audio, or filter chokes. Add to Catalog items, **CAT. 6-9.** 12 henry; 80 m.a.; 300 ohm. **1 lb.....1.50**

Rider's Manual #10. In good condition. Ship. Wt. 12 lbs. [illegible]. Reg. price 19.80.....10.00
Rider's MANUAL #11. Also fine condition. Wt. 12 lb.....10.00
Rider's Manual #12. Same. Ship. wt. 11 lbs. Sells 19.80.....10.00
Rider's Auto Manual #2. in good condition. 3 lb. weight.....1.50
Ghirardi'S Troubleshooter's Manual. 518 pages. Essential for Repairman. Sells 3.00.....1.50
Reference Data 4 Radio Engineers. By Fed. Tel. 200 p. .50
Aligning Philco Receivers. By Rider. Not obtainable now. Much data. 147 pages.....50

G. E. TV Service Guide. 84 large pages of late circuits. Reg. $1. Good condition..Postpaid.... .75
Shoot TV Trouble Fast. Cisin. A dilly for fast work. Reg. $1. .75

MRL Handbooks. HB-1, 2, 17, 25 all ready for delivery at 27¢ ea Don't pass up one of them, as they are a "must" for every Rdo. Fan. **HB-4** will be the next one to come out, as our BP-2 stencils are all worn out. Can take back/orders at 27¢, if you care to wait a little. We had hoped to have it ready by now. **HB-3** will

be out in the near future.

Radio Operator's Code Manual. Only 1 copy left. Bound. Best of all the code manuals, as it gives you touch typing with code, like the Navy teaches you. Ppd. **2.00**

Editors & Engineer's Books are priced postpaid, to meet Eastern competition. Postage comes out of our pocket. Here is latest:

Radio Handbook, 13th Ed.....**6.00**
" " 12th Ed.....**3.00**
Antenna Manual.....**3.50**
Amateur Newcomer, sold out.
Radio TV Q & A. " "
Radiophone License Manual...**3.75**
Surplus Conversion Man. 1...**2.50**
" " " 2...**2.50**
World's Radio Tubes, rev....**5.00**
Better TV Reception.....**2.50**

Labels of 3-4 lines. 500....**50**

1/8" Compo. Panels. CAT. 16-2. Price up to **36¢ sq. foot.** Add price of panel again for postage and we'll remit unused balance. Any size cut to order.

Eyelets for 3/4" Fahnstocks R back in stock. **13-161. Doz....06**

Crystal Set Coils not previously listed, from HB-17:

#39. (1-2-3-4).**7-175. 8 oz..1.50**
#40. IFT **7-116 or 117. Each. .90**
#41. L-1 or L-2. **7-176. " 1.00**
L-3 on Bak. **7-177. oz. 1.00**
#42. AC-DC set. **7-44,45 (2) .80**
43. Bucking coil. **7-178. 1.50**

Litz Coils. Some taken out of Grebe sets. Tune with .000$_{35}$ var 1-5/8" dia. x 3" long. Also 2" dia. x 3½" long. Either at **.75**

MRL Variocoupler. Ready to go. Can be used for Xtal or regenerative set. Coil mounts to panel with bearing nut, which takes a variable rotor. Also has tapped secondary. Also a small coil to be used for aerial circuit. Also used now in #22 DX Marvel Xtal set. **CAT.7-172. 1 lb..... 2.50**

Magnet wire. Getting harder to get every day. #20 DCC is out of stock, so please substitute Enameled, as per Catalog. We'll keep trying to have our standard sizes in stock.

Kits. Many are forgetting tha postage is extra on all kits.

Kitcraft Xtal Set Kit. Plastic kit, that's easy to build. Similar to Philmore Supertone Set. All instructions, etc. **1#...1.35**

Scott's Popular Stamp Catalog. Abridged edition. New 1262 pages. Omits hard varieties, etc. Postpaid to you for only....**3.00**
Dennison Stamp Hinges. M/ .20

New Tubes. Prices based on our ability to get them reasonably. Tubes tested before shipping. All listed are in stock at time this RB was written up:

Type	List	MRL
0Z4	1.65	1.10
1B4	3.90	.75
1C5gt	2.20	1.25
1C6	3.20	1.50
1D8gt	3.90	2.0
1Q5gt	2.65	1.50
1S4	2.40	1.50
1T4	2.00	1.00
1U4	2.00	1.25
1V	2.20	1.00
5Z3	1.80	.95
6A7	2.20	1.00
6B8g	3.20	1.00
6BE6	1.80	.90
6BJ6	2.00	1.25
6C5gt	1.65	.80
6C6	2.20	1.00
6D6	2.20	1.00
6F8g	3.20	1.50
6H6gt	1.80	.85
6J5gt	1.50	.80
6K5gt	3.90	.85
6K7	1.80	.85
6R7g	1.80	.90
6R7gt	2.65	.90
6SD7gt	2.90	1.00
6SK7	1.80	.85
6SQ7gt	1.50	.85
6U6gt	2.20	.8
6V6gt	2.00	1.0
6X5gt	1.50	.80
6Y7g	3.20	1.00
6Z4/84	1.80	1.00
7E6	2.20	.95
7N7	2.20	1.20
12J5gt	1.50	.80
12SL7gt	2.40	1.15

Type	List	MRL
19	3.20	1.00
24-A	2.20	1.25
25L6gt	1.65	.85
5Z5	1.65	.80
[illegible]	2.20	1.00
27	1.80	.75
30	2.20	1.20
32	3.55	1.10
33	3.20	1.10
34	3.55	1.10
35L6gt	1.65	1.00
35Z5gt	1.25	1.00
37	1.80	1.00
38	2.20	1.00
39/44	2.65	1.00
42	2.00	1.00
46	2.90	1.00
50B5	2.00	1.25
50L6gt	1.65	1.00
53	2.65	1.25
56	1.80	.95
57	2.00	1.00
70L7gt	3.90	1.25
80	1.35	.70
81	4.80	1.25
82	2.65	1.00
83	2.65	1.00
84/6Z4	1.80	1.00

DX REPORTS.

MRL #2 Xtal Set. (HB-2. 27¢).

Ed. Dumas, Shelby, N.Car. reports: "Am very much pleased with my #2 Crystal set. I have received London (4400 miles) and Berne, Switzerland (4900 miles). Also Montreal (800) and other foreign stations. I've listened to many Amateurs, including one in Waco, Texas, which is 850 mls from here. I've been looking over reports of the #28, and it looks like a good DX set."

MRL #4 Xtal (DP-58); 1-Tuber.

Don Fitch, Kingston, N.S., Canada writes: "Recently built Ur #4 Crystal set. Received quite a few locals. Has about the sharpest tuning of any Xtal set I ever built. Your 1-tuber (BP-2) is working swell. Best distance has been 1100 miles."

MRL 28 SW Xtal Set (HB-25.-27¢)

Bill Drewel, Chesterfield, Mo. sez: "Built your #28 plug-in Xtal set about 3 weeks ago. It sure is a DX-getter. I have logged the following DX stations:

Location	miles
Del Rio, Texas, XERA	825
San Antonio, Texas, WOAI	750
Richmond, Va., WRVA	675
New Orleans, La., WWL	562
Fort Worth, Tex., WBAP, XEP	525
Dallas, Tex., WFAA	487
Atlanta, Ga., WSB	485
St. Paul Minn., WCCO	412
Omaha, Nebr. KFAB	337
Cincinnati, O., WCKY, WLW	300
Nashville, Tenn., WSM	262
Chicago, Ill., WBBM, WGN	262

Also 7 local stations. Hooked the #28 across Aerial and ground of old tube set and got Police & Short wave. This is really a swell little circuit. RB is fine, keep up the good work." (Editor: Please note this was late August reception. Wait until winter).

MRL DC SW 1-tube Set. (DP-29).

Gene Herrmann, Terrace Park, Ohio, comes back: "I have had excellent results with your 1-tube triode DC SW Receiver. Australia (10,000 miles) and Russia (7500). I have Type A-HF-BC coil, but need A-LF-BC to cover BC Band."

MRL 2-tube AC Set. (DP-31) and MRL Universal Power Supply (49).

Harry Rasmussen, East Syracuse New York writes: "Have built both DP-31 and power supply. They both work swell. Your Receiver sure is a fine DXer. I pick up Moscow (6100 miles) and OTC, Leopoldville, Belgian Congo (5600) on a 4" PM speaker, loud enough so U can hear it plain anywhere in a large room."

CHANGES 50 to 60 CYCLES.

Buzzini, S.F. farm broadcaster over KSFO, recently made some tape recordings from farmers on a recent plane trip over Mexico. But, they were on 50 cycle, and would not reproduce perfectly.

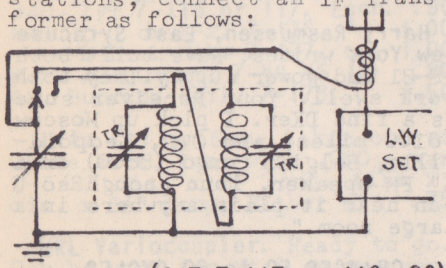
Emeryville PG&E light company rigged a motor-gen. to operate on 50 cycles. They were then run off and re-taped on 60 cycle.

QUESTIONS and ANSWERS.

What is the purpose of Aeroplane strain insulators **(CAT. 1-23. .06)** in guy wires? **ANS.** Mr. R.B.Richardson, Los Angeles, so aptly steps up and gives us more data:"Noted in RB-33, page 7, about insulators in guy wires. An elaboration of your answer given us, when I attended RCA Institutes is as follows.It discourages resonance at harmonic or sub-harmonic frequencies. It also eliminates interference and unwanted-directional and reflectional effects. This can be very quickly seen with the example of a TV receiver Antenna. Resonant guy wires, or even nearby receivers, will cause 'ghosts,' or double images to appear on the Picture tube."

What is the best Wave trap for a 4-tube Long Wave receiver?ANS. As most QRM on the long waves stems from nearby BC stations, we suggest one of our QRM Coils **(CAT.7-42. 50¢)** and Cond.in series with Aerial and set. Tune Cond. to unwanted station, which will go out, or be cut down. Then, go ahead tuning the Long Wave set.

If you want a booster, which also acts to squeeze out nearby stations, connect an IF Transformer as follows:



IF Trans. **(CAT.7-117 or 116..90)**
.00035 Var. **(CAT.8-7. 1.25)**
SPDT Tog. Sw. **(CAT.23-3. .45)**

It doesn't make any difference which side you call **A.** Try reversing **B** after it is connected up and working, to see if it is pushing or bucking the other **A.** With an IF Trans. peaked at 456 k.c. and shunted with a .00035 Var. cond. you can go a long way up into the Spectrum. Connect a piece of insulated hookup wire to center of switch. Wrap other end loosely around leadin. The more turns you put around the leadin, the more effect it will have on incoming signals.It will boost the long-wave signals and squeeze out others not wanted.

How do I get names of Farm newspapers? **ANS.** See your Librarian. Or, write to Nelson Advertising Service, 356 S. Broadway, Los Angeles 13, Calif. Most any paper will send you a sample free - but some require a dime.

Do filament windings need a center tap? **ANS.** We find the 2.5 volt do, but the 6.3 don't. 6.3 v. winding may be grounded on 1 side of filament, with no hum resulting. Consequently, most power trans. and fil. trans. for 6.3 v. output do not center-tap.

My Radio calls for a magnetic speaker. Would a PM speaker with no output trans. work OK? **ANS.** A PM speaker must have an output trans. to work. Secondary of the trans. must match the 4 ohm of the PM voice coil winding. Not enough electricity could be collected by a 4 ohm winding in series with the Plate and B-pwr. to actuate the cone. Also, note that output imp. of trans. are fairly well standardized at about 4 ohms, more or less.Change in impedance of primary affects the secondary. Many list their output at 3.2 ohms. Look in the tube manual for correct load resistance for output tube to be used, as 5000, 7000, etc. and select the proper transformer.

What is difference between 500 micro-microfarads (mmfd) and .005 microfarads (mfd)? **ANS.** One. When changing from mmfd to mfd, just move the decimal point to the left, as .000500. Micro means million, or 6 points. Mili means thousand, or 3 points.

I have a transformerless Radio that hums, when plugged in one way, but is swell when reversed. **ANS.** Refer to article on page 6.

One side of AC line acts as an Aerial, while the other is connected to ground. In other words - a positive and negative, just like your whole Radio system.

What is used for enameling magnet wire? **ANS.** Each company usually has its own much-guarded formula for their varnish. Robling calls it Rovar; Belden names it Beldenamel, etc.It is said the basis for their compound is Stearin pitch. There may be some form of Shellac varnish contained therein, also. Usually most of the Old Timers have called it Shellac, and forgotten about it. Stearin pitch consists of many animal and vegetable fats and oils. There may also be some form of resin in it.

The machine, for coating the wire, runs it thru a warm bath of the compound, until a very fine layer has been deposited. This may be in tenths of a mil. It is then baked.If another layer is needed, it is fed thru again. Small wire may finish up with ½ mil, while larger wires may run to 2 mil in thickness.

Enameled wire may be bent around its own diameter without cracking. Dielectric strength is about 500 volts per mil of enamel thickness,or 4 times the value of silk covered wire. It will stand up to 100 deg. C. or boiling point of water, continuously or - 300 deg. C.before breaking down electrically. Turpentine, shellac, alcohol, paint remover, coal-tar solvents, etc. will attack it.

Advantages of Enameled wire is its smaller spaced windings. It has more distributed capacity, because wires wind closer together. Therefore, an enameled wire winding takes a few less turns than DCC or Silk. At one time, when stations were weaker, it was considered better to use DCC or silk for coils. But now it seems the factories all use enameled for almost everything. So much,in fact, that it is getting harder every day to get cotton-covered wire.

Fine enameled wires may give out in transformer windings, - mostly where there was a flaw. This may break from heat expansion, high-voltage or moisture. Also, pin holes from bubbles may occur during the enameling process.

Extreme care must be exercised in soldering enameled wire. Be sure to scrape it off clean, or solder won't stick. We use a pc. of plywood 1/4" x ½" and 6" long with sandpaper around one end to knock off enamel, when making up coils. Many faults with factory sets result from poor soldered connections to enameled coils. Due to Litz wire having so many fine enameled wires, it may be dipped in one of the above solutions to remove enamel. Then, twist the wires and solder them before hooking in circuit. Litz (Litzendraht) is ideal for BC,or long waves, but NG for SW. 32-38 means 32 strands of #38 enamel. They are twisted together so each wire comes to the surface at a given time. In a test of 32 strands it was shown broken wires showed: none broken 3.1 ohms; 4 broken 3.3; 10 broken 3.8; 20 broken 7.4; 31 broken 51.6 ohms.

FIRST VOTE RETURNS BY RADIO.

First voice BC of votes took place on the Harding-Cox election in 1920 over KDKA. The BC was heard only by a few pioneers using Xtal sets and phones. Beginning with that event,KDKA began the first regular programs.

Too well do I remember that election. I was Radio Opr. on the Standard Oil Barge 93,tied up at the Grand Trunk Pacific dock in Vancouver, B.C. The Captain and Pumpman (self-styled Chief Engineer??) insisted we get election returns direct. NPG, S.F., was the only station sending CW on long waves, to the Orient. A speedy Opr., with a Bug, was used for the trick, and only being 5 mo. at Sea, I was hard-pressed to keep up! Besides frequent QRM from the Pumpman, as to who was ahead, now? I was certainly relieved when the "flash" came over that Harding had won. Then, Sparks could go ashore and run up and down Hastings St. Hi.

the weaker stations, you may slip a piece of tin between condenser and panel, and ground to chassis line. If using Compo. the chassis sign lines can all be hooked together. If using a metal base, then hook all chassis signs to the base with lugs and lockwashers to make a good connection.

Mount cond. on panel, and cut out dial scale. Cement latter on with MRL Heavy Coil cement **(CAT. 7-58. 15¢)**. holding it off at a distance to get it level. Mount volume control and the SPST toggle switch. Mount parts on base, and assemble the two units. It's a good idea to drill some holes thru the back Plywood strip, to carry the battery, input and output leads. Be sure to mark them, so you won't burn out the tube. Put 3 brads thru base into the strip.

We have had good luck with the 1T4 tubes, so made the circuit for them. However, you may also use a 1L4, 1LC5, 1LG5, 1N5, 1P5, or 1U4. We have the 1L4, 1T4 and 1U4 in stock at present.

You will note the C-bias at R-3 and 4. You may vary this, and affect the volume on incoming sigs, as some may be pretty loud and hard to tune. Changing the bias will also affect the selectivity to a certain extent. Switch S-2 cuts the B off by itself, because with the C-bias we cannot put A-B- together. This C bias does not affect the bias on the next tube.

See Catalog page **E-2**, for the prices on RF coils. $2 for a set of 4 Short wavers; 40¢ each for HF, BC and LF; 75¢ for Long wave. When ordering type RF, be sure to send us 4-prong bases, as per page **E-2**. At present we do not require bases with 5-prong coils but we can always use them.

You will find the adjustment of the trimmer condenser very easy. Mount it flat so it may be adjusted with screwdriver. Let's put a 40 meter coil in detector and RF stage. Set the condensers in similar positions. Then, unscrew the trimmer until signal is loudest, at the same time cut the volume on the RF stage. You do not need a meter for this ad-

MRL 1-Tube TRF. (Cont. from p. 2)

justment. It may take a little more adjusting later, in order to get the 2 stages to track. If you get too much BC interference you may place a .01 bypass **(8-40 10¢)** in series with Aerial. You will note the unit keeps the Ant circuit separate from the chassis connection, to help the selectivity a lot.

Regarding the A-batteries, we prefer to solder 2 flashlight cells together in series-parallel, as shown on schematic. This makes them last about half as long again.

For B-batteries, you'll have to experiment as to voltage. But we find 45 volts to be OK.

We **DO NOT** have a kit, or DP for this set. However, it is an easy matter to order from above parts list. Drilling, and assembling are easy from details.

ADVANTAGES OF TWO CRYSTAL SETS.

By Joe Amarose.

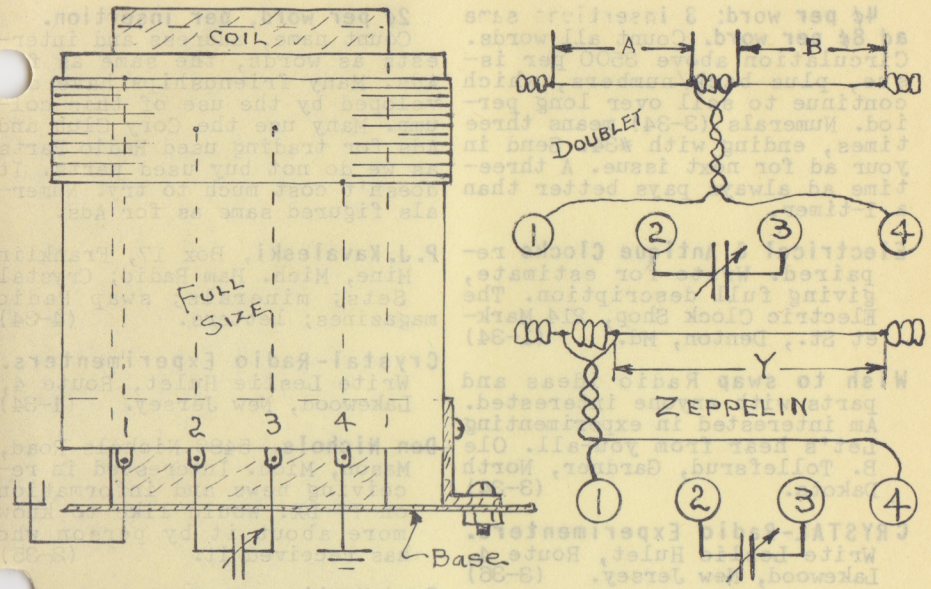
A good pointer for Xtal Fans is to use 2 Xtal sets instead of 1, in areas where a long Aerial cannot be erected. A set with 1 50' Ant. won't give much volume, but 2, with separate A & G, will give more volume. I have used meters to prove it. Also, adding extra grounds to each set, will bring the "S" meter up. Aerials should be more than 2' apart for best results. Too close is NG. I thought this might be of interest. Two sets permit the Fan to get reception, when the signal from one is not enough. In other words, one set acts as a booster for the other.

Your RB is splendid. I always read it with relish. I recommend it strongly to all serious-minded Xtal Set Fans.

TV and the Future Scientist.

With TV, we are up-to-date -
And, believe me, up too late!
Radio, Stamps - all undone;
TV surely will make me a Bum!
The Xtal Fan adds his "Amen!"

MRL LOW-LOSS ANTENNA COUPLER for plug-in coils.



We have had our MRL Type D Coupler ever since 1934, in San Francisco. We used to sell them by the dozens, when plug-in coils were the rage. Later, we just neglected to push them. But its advantages still remain.

Mount it above the base on a spacer, so it clears the lugs. Also, over a plug-in coil socket so coil will fit inside. The D-coupler acts as a tuned primary, so eliminates the 3-plate series Antenna condenser. The .00035 Var. Cond. **(CAT. 8-7. 1.25)** tunes to the wavelength, or harmonic of same, which increases the volume of the signal. It also tends to sharpen up the station, due to the loose-coupling between primary and plug-in coil. It may be used with any type of 1½" dia. coil. It helps all rigs from 10 to 600 meters wavelength.

Mount the Var. cond. on an insulated bracket, on base, and bring insulated shaft control out to bar knob and scale on the front panel, if desired.

Drawings show uses on L, Doublet or Zeppelin type Aerials. Leadins may be twisted, or of 2 parallel feeders.

As the top of the Doublet, or Zeppelin, is all that tunes, this is where the length may be critical. You probably know a SW set may work good on 40 meters, when tuned with a 20 meter Ant. This is the principle of the D-coupler in operation.

To measure a Doublet, use

$\frac{2 \times (A \text{ plus } B)}{3\text{-}1/3}$ **Meters** of natural period to work on.

To design a Doublet:

$\frac{\text{Meters} \times 3\text{-}1/3}{4}$ **Ft. on a side.**

Best all-around Doublet is 58 ft on a side.

To measure a Zeppelin, Y is as long as A & B together, or

$\frac{2Y}{3\text{-}1/3}$ - **Meters** to work on.

To design a Zeppelin:

$\frac{\text{Meters} \times 3\text{-}1/3}{2}$ - **Total of Zepp.**

It is not essential that the cut lengths be exact, but it may help in tuning some DX stations. Also, stranded wire may be used for the flat-top. Even lamp cord, run thru tar, is OK for leadin.

CAT. 7-43. D-Coupler. 4 oz. .75