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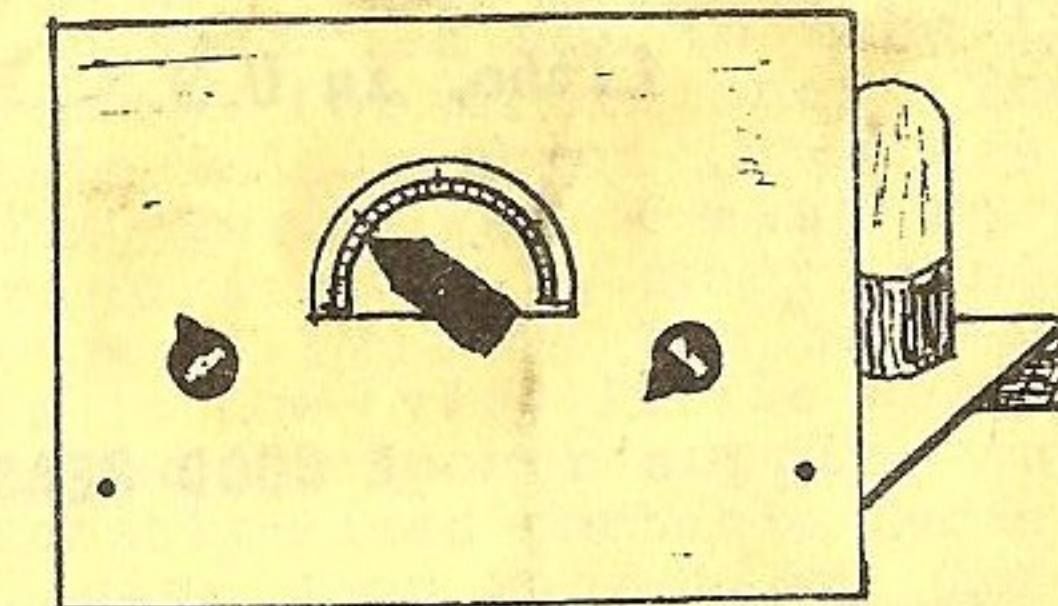
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Above answers are on specified pages of MRL HB-17 "20 Crystal Set Circuits." Order at same price and source as this one. Most of the information is not found in Radio texts or libraries. This Handbook contains nothing but Crystal Set circuits- all tube data having been eliminated. Data has been compiled from experiments and notes taken on circuits for many years. Circuits, layouts, parts lists and methods represent the latest information available. A goodly amount of theory is covered as work progresses. HB-17..another MRL Handbook.

MRL 1-TUBE D.C. ALL-WAVE RECEIVER

By Elmer G. Osterhoudt.



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A GOOD REASON FOR THIS HANDBOOK.

Over 13 years ago we rigged up this 1-tuber, in answer to requests for the next step after Crystal sets. We described it on BP-2 - a 6 page mimeographed set of plans. Since then, we have sold thousands of these plans. In fact, so many have been run off that our stencils have disintegrated and become impossible to use.

Besides the plans, many hundreds of kits were sold. These, in turn, brought many, many letters as proof of its performance and DX ability. As the World War 2 came along, the original parts became increasingly hard to obtain. As a result, several of the parts had to be substituted by others, or built up by us. Needless to say - the same original circuit continued to hold its own, even under adverse conditions. During the last decade we have often tried to re-vamp

this set, but outside of minor re-arrangements of layout - the original could not be improved.

So, - after all, we have been practically forced to come out with this HB-4. Even so, we'll stack it up against any 1-tuber, on or off the market, when operated under the same identical conditions.

To the skilled Technician, well versed in up-to-date set nomenclature, we wish to make an assertion. Small sets, like this one, represent a single field of Radio. While a "1-lunger" looks simple, there are many important kinks that have been applied to get the greatest DX and efficiency.

And, to the average set Builder, we offer this advice, which is paramount "Follow Directions" - at least, read it all thru before starting to build.

— good DX'n.

THE ONE-TUBER IN ACTION.

(1) Learning Radio. To successfully learn Radio, one must begin from the bottom. We have always insisted that the building of several Crystal sets is the first step, regardless of one's feelings of dignity, et cetera. Logically, the One-tube set is the second step. After you have mastered a few of these - then, go up gradually to the more complicated multi-tube jobs. What you learn this way will stick with you forever. Hundreds of Radio Fans have quit the game because of their desire to tackle a set that would give an Engineer a nightmare! Frankly, none of us are that smart - that we can begin at the top. Our formula is "Start slowly; read; experiment; read."

Many schools have had occasion to use this little set at some time in their experiments, or the explanation of Radio to a class. From the number of these sets in operation - maybe you, too, have already heard about its performance.

Due to good reception of code stations, many find this set ideal for learning the code. Many stations are run by ARRL, and others, with certain schedules for code practice at different speeds. Most point-to-point stations operate around the clock.

(2) Small sets as a Hobby. The set is usually built by Experimenters and DX Fans. However, many an Engineer, Scientist, Teacher or Mechanic, on our list - who possess large sets, find diversion in small set building. Experimenting with small sets can become a lifetime Hobby.

Years ago, when the 24 and 27 tubes had the highest gain - our only alternative was to improve the circuits. During the 1920's almost every fellow, who could read, was experimenting with Radio. As a result, many a good circuit was developed. In fact, most of the present developments

originally came from some little "kitchen sink mechanic." Now, to make a most interesting Hobby - let's take some of these old DX circuits and mix them up with the modern hi-gain tubes, of which there are some 15,000 Worldwide types. If this doesn't make an interesting lifetime Hobby - what does?

(3) One evening project is a name we often give to this set. It is easy to assemble and wire, in fact, we do the kit in an hour or so. The set has been designed for standard parts, easily obtainable. By using the full size drawings, as templates, the layout is made much easier. Yes, we can say it may be built in one evening.

(4) Compact. While the set is made small enough for a suitcase - we have tried not to make it too small for efficiency. The chassis weighs about 12 ounces. During World War 2 many were carried around by Servicemen (see page 17). As the battery drain is low - very little weight is added for power supply. Any reasonably-sized portable Aerial will give good reception. Consequently, it may be rigged up on bikes and boats, or used on a camping trip by throwing an insulated wire over a tree limb.

THE CIRCUIT.

The type of the circuit is not entirely new. But, many points in the layout, etc. are new, and help to make the circuit much more efficient.

It uses the single circuit tuner, which couples direct to the Aerial thru the series condenser (C-1). It is called single circuit because the Aerial, coil and ground make up one tuning circuit. A two-circuit may be one using an aperiodic primary coupled to the secondary. Single circuit tuners are most efficient due to the greater transference of energy from the Aerial circuit to the rest of the circuit. There is some loss

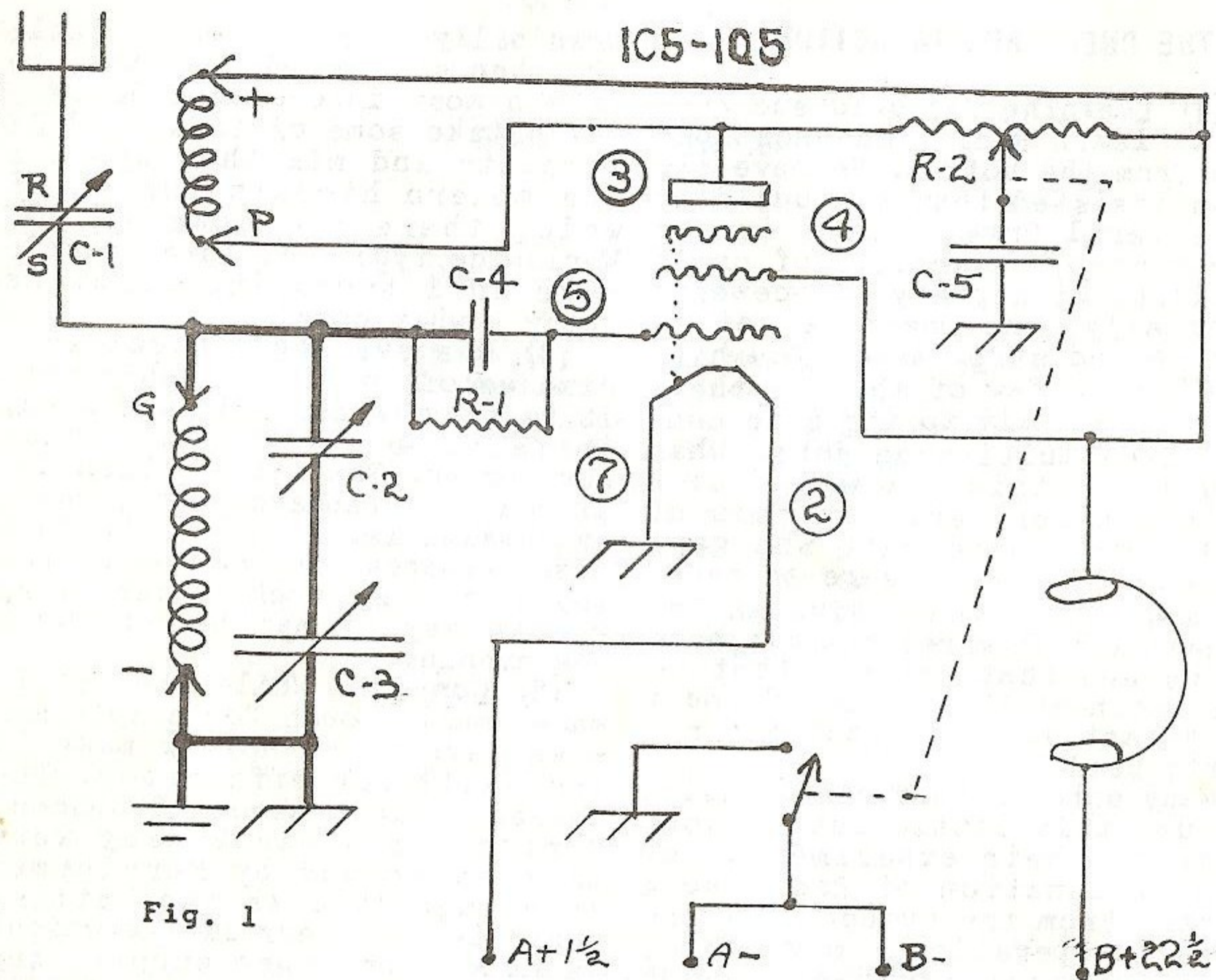


Fig. 1

between a primary and secondary. Regeneration is obtained by the tickler feed-back method from the plate back to the grid. The volume control (R-2) is placed across the tickler winding, and giving it equal resistance the whole length. By varying the center tap we regulate the amount of capacity feedback of R.F. thru the condenser (C-5) back to ground. This gives a fairly smooth method of regeneration.

Due to so much trouble, now & then, in obtaining .00014 midget variable condensers, we decided to eliminate them altogether. You may use one if you wish. By placing the trimmer condenser (C-2) in series with a standard .00035 variable (C-3) we obtain a lower minimum capacity than the lowest capacity in series. Therefore, when the condensers are adjusted, we get from about 10 to 200 mmfd. in range.

Coils are plug-in, which have much lower loss than coils using switches, taps, etc.

PARTS LIST.

- C-1. 2-plate Aerial cond. assembly, bracket & extender, or make. See text.
- C-2. 25-280 mmfd (or near) trimmer condenser.
- C-3. .00035 mfd. standard Variable condenser & screws.
- C-4. .0001 mica grid condenser.
- C-5. .0001 mica regen. "
- R-1. 2 meg x 1/4 watt grid res.
- R-2. 10,000 ohm to 50,000 ohm Volume control & switch.
- 1 Alum. panel 16 g. x 4 1/2 x 6.
- 1 Compo. base 1/8 x 4 x 5 1/2.
- 1 Ply base strip 1/4 x 3/4 x 5 1/2
- 1 1 1/2" Bar Knob.
- 1 Scale for knob.
- 1 Binding post strip.
- 1 Small pointer knobs.
- 2 Tip jacks.

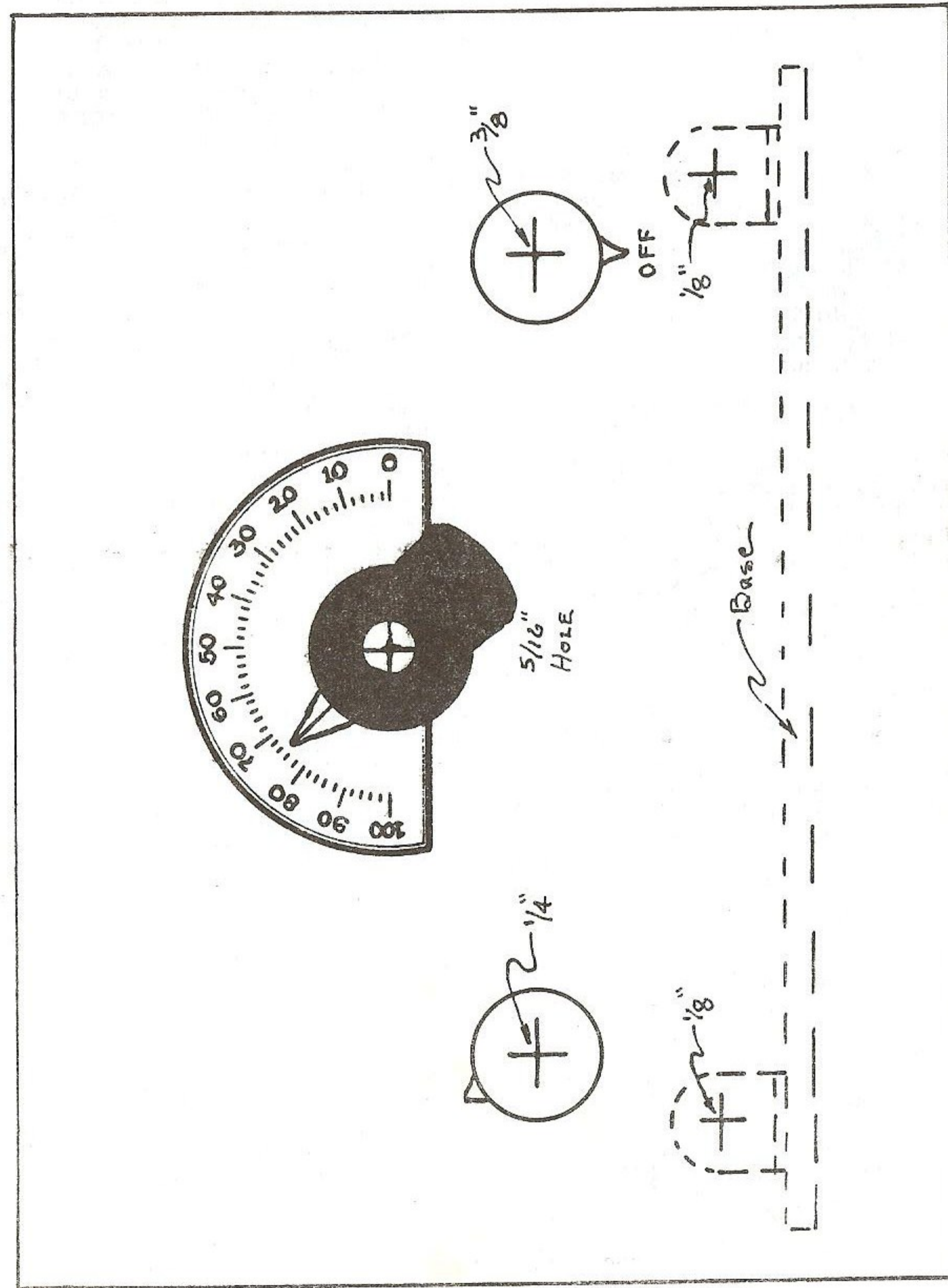


Fig. 2. 4 1/2 x 6 Panel. Drawn full size

Laying Out the Chassis.

- 1 Octal wafer socket & screws
 1 4 pr. " " " "
 1 A-Hi-F Broadcast coil. Text
 1 A-Lo-F " " " "

Hardware.

- 2 $\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$ Brackets.
 2 2 x $\frac{1}{2}$ FH wood screws. Strip
 2 6 x $\frac{3}{8}$ " BH screws. Panel.
 4 6 x $\frac{3}{8}$ " RH " Base.
 6 6 x $\frac{1}{4}$ Hexagon nuts.
 3 #6 Soldering lugs.
 4 #6 Lockwashers.
 10" #18 solid hookup wire. RF.
 7 ft. #22 stranded " " .
 6" Rosin core solder.

LAYING OUT THE PANEL.

The following layout plan appears to be a pretty good scheme for simplicity. Just remove the staple from the center of the Handbook, and place it so you can find it again. You may use a composition panel, with a tin backing, for shielding, if you wish.

5 holes. As drawings are made full size - you may lay the page (Fig. 2) over the panel and then center punch the 5 holes. For centering mounting holes for the variable condenser you'll have to make up a paper template, unless you can procure a condenser with a one-hole mounting. Then, drill all holes with a $\frac{1}{16}$ " drill for centering. Next, drill them according to sizes shown. When finished drilling, you may rotate steel wool over the panel for a gingerbread effect, and to remove scratches. If you use the condenser screws for mounting, countersink them flush with the panel.

LAYING OUT THE BASE.

10 holes. Take the page (Fig. 3) for the base, and do likewise with the center punch. You will find 10 marks to punch. Drill these with a $\frac{1}{16}$ " drill for the centering marks. Countersink the two back ones for the FH wood screws, and these two holes are all finished.

For the sockets, use a circle cutter, set at 1" in diameter. We prefer an expansive bit for wood. Mount the base in a strong vise with a piece of wood at the back to drill into. Mount the coil and tube sockets in positions shown. Be sure to get them right or you'll have trouble in wiring up later. See (Fig. 4) for positions of 4 or 5 prong coil sockets, in case you decide to use 5-prong forms. In the kits we usually place rivets thru the sockets, principally because so many fellows get them in the wrong positions. This seems to be the biggest point at fault in assembly.

The only other large hole is the one for leads to the volume control. Make this about $\frac{1}{4}$ " in diameter.

There are 5 holes left. Make these $\frac{1}{8}$ " (#26 drill) in diameter, or near.

LAYING OUT THE BACK STRIP.

Use $\frac{1}{4}$ " plywood, as it is easy to drill into, and being dry, is a good insulator. Cut to size $\frac{3}{4}$ x $5\frac{1}{2}$ ", and lay it under the page (Fig. 5) and center-punch it. Drill all holes with a $\frac{1}{8}$ " drill. Then, re-drill the $\frac{1}{4}$ " holes for the tip jacks and mount them in permanently. Then, glue the binding post strip so it fits over the holes for the wire leads.

ASSEMBLING THE CHASSIS.

Mount the two brackets to the base - and place a lug and lock-washer under the one at the side toward the volume control. Mount the brackets and base to the panel, using Binding Head screws to make it neat.

Mount the back strip to the base, with the FH wood screws. It is a good idea to place the strip in a vise so you won't split the wood.

Now, mount the variable condenser. Glue the dial scale on - holding the panel off at a dis-

Laying Out the Base.

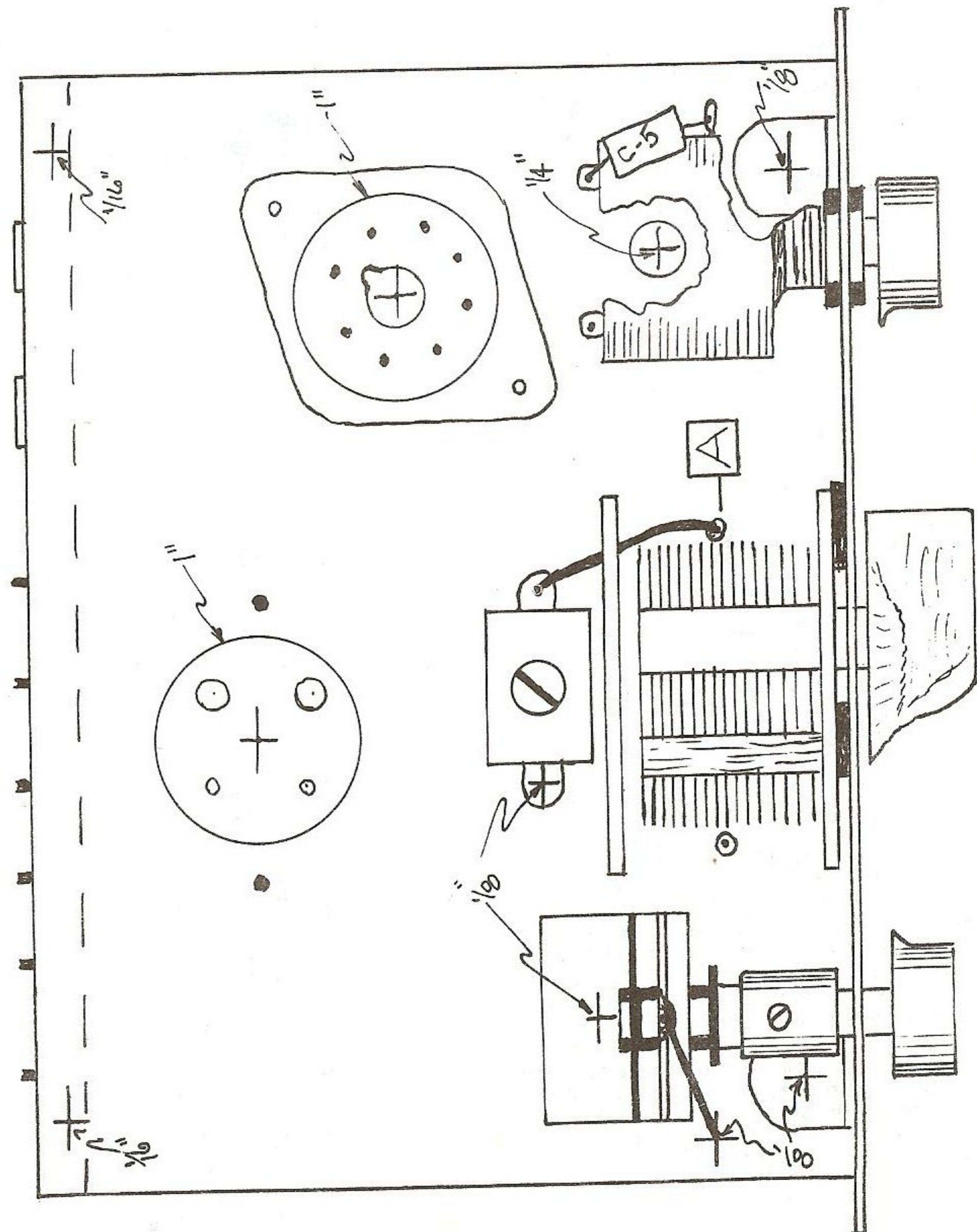


Fig. 3. 4 x $5\frac{1}{2}$ Compo. Base. Full size.

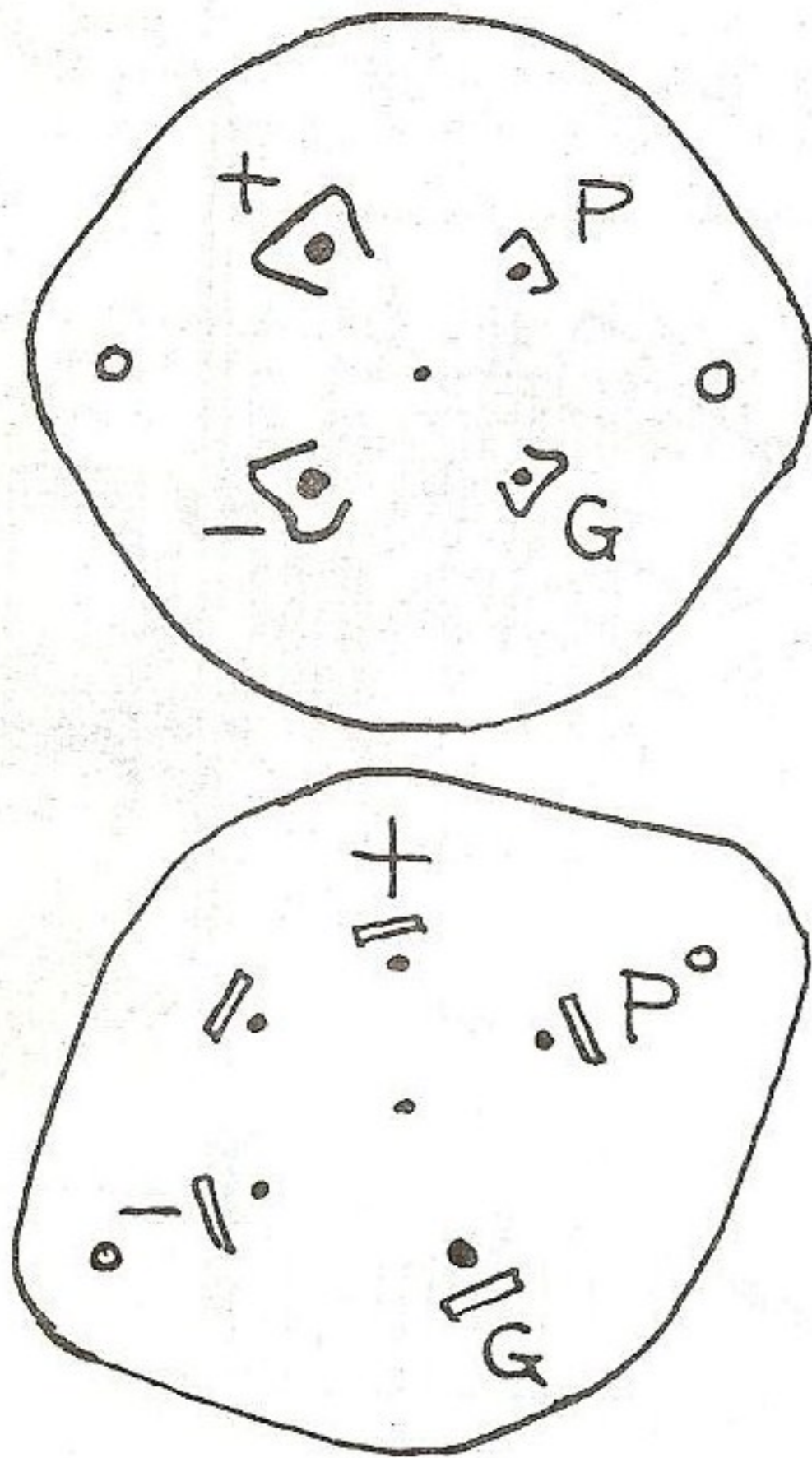


Fig. 4. 4 or 5 prong coil sockets.

tance to get it square. Place a piece of cardboard over the dial scale - and hold it down with a bar knob, until it dries.

Mount the volume control-cutting the shaft off to the correct length. Place the 3 lugs toward the right, so they'll be easy to connect. Tighten up the locknuts securely as they work loose easily.

Put a 6-32 screw thru the lug of the trimmer condenser and thru the base, with a lug and a lockwasher on the bottom. Be sure to use plenty of lugs and lockwashers, and get all joints secure. Many fellows hesitate to tighten up the nuts on their assemblies.

We assume you have already mounted the coil and tube sockets in the correct positions.

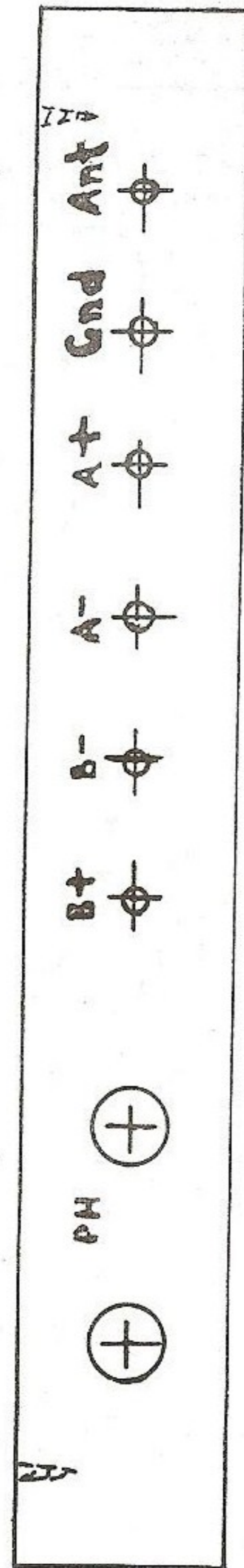


Fig. 5. Drilling the 3/4 x 5/8 base strip.

THE ANTENNA CONDENSER.

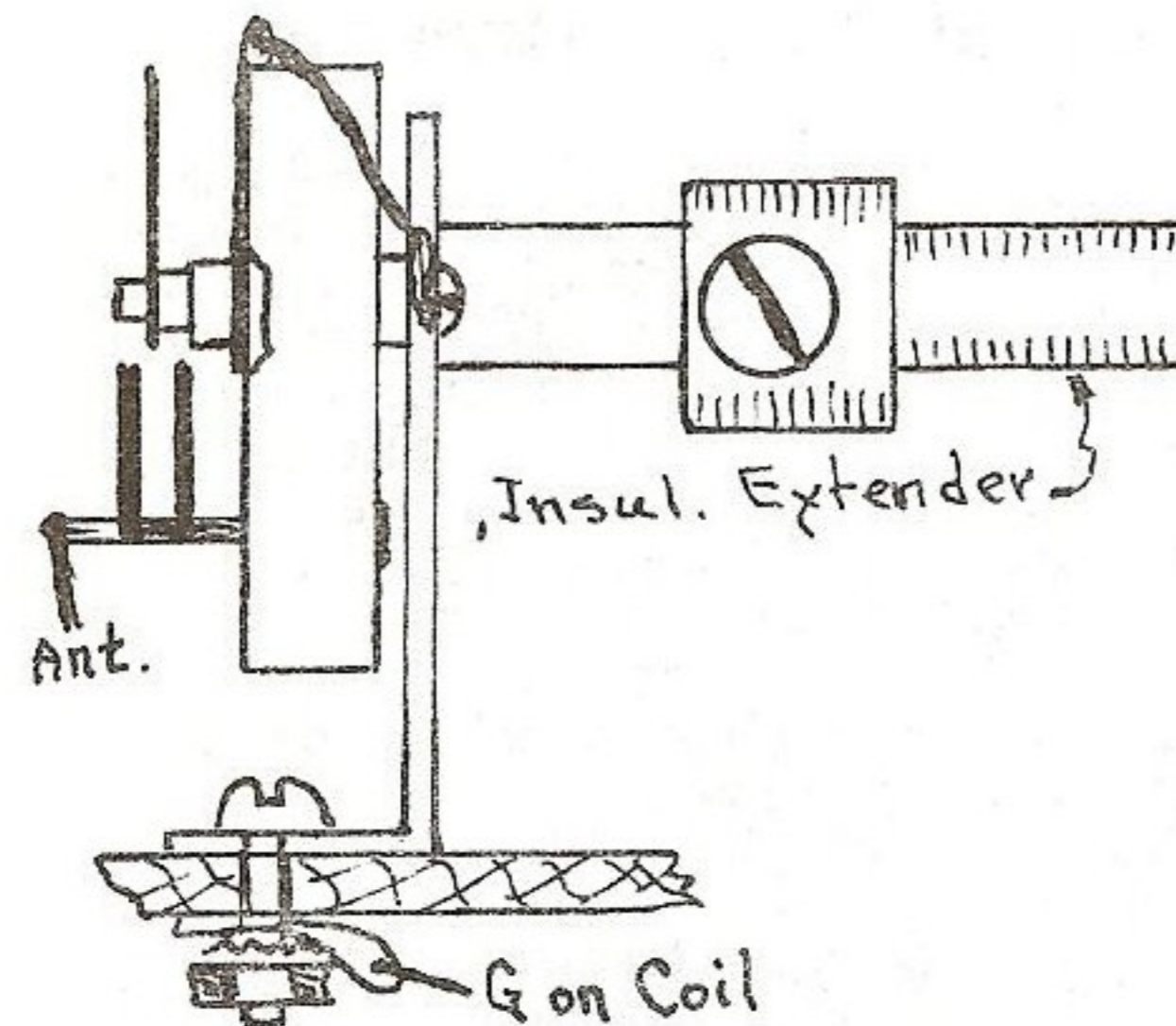
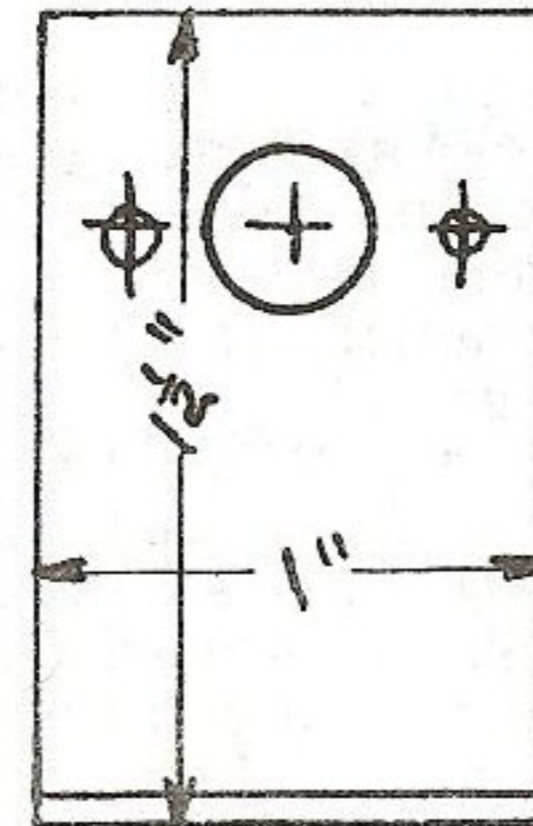


Fig. 6. Using a manufactured Variable condenser.

This type of series Antenna condenser is about the most important part of the set. Most manufacturers of small sets or kits, to save money, throw in a small postage stamp type trimmer condenser. Then, you mount it in the rear, and if lucky, you can get within a mile of it with a wooden or Bakelite rod, to adjust it. When you get our panel control type rigged to your set you will know what we mean, especially on the 20 and 40 meter stations. You will also find it

works very well as a vernier adjustment to "true up" on 20 and 40 meter stations.

If you possess a 2 or 3 plate midget variable condenser, you may use it for the series Antenna condenser. Build the bracket 1" wide x 1 1/2" high, as shown in (Fig. 6). While the drawing is an APC type variable, any type as a 1-hole mounting may be used if desired. Be sure you get a good ground connection from the rotor to the bracket, or you may get intermittent reception. Put the insulated extender on and run it thru panel to knob.

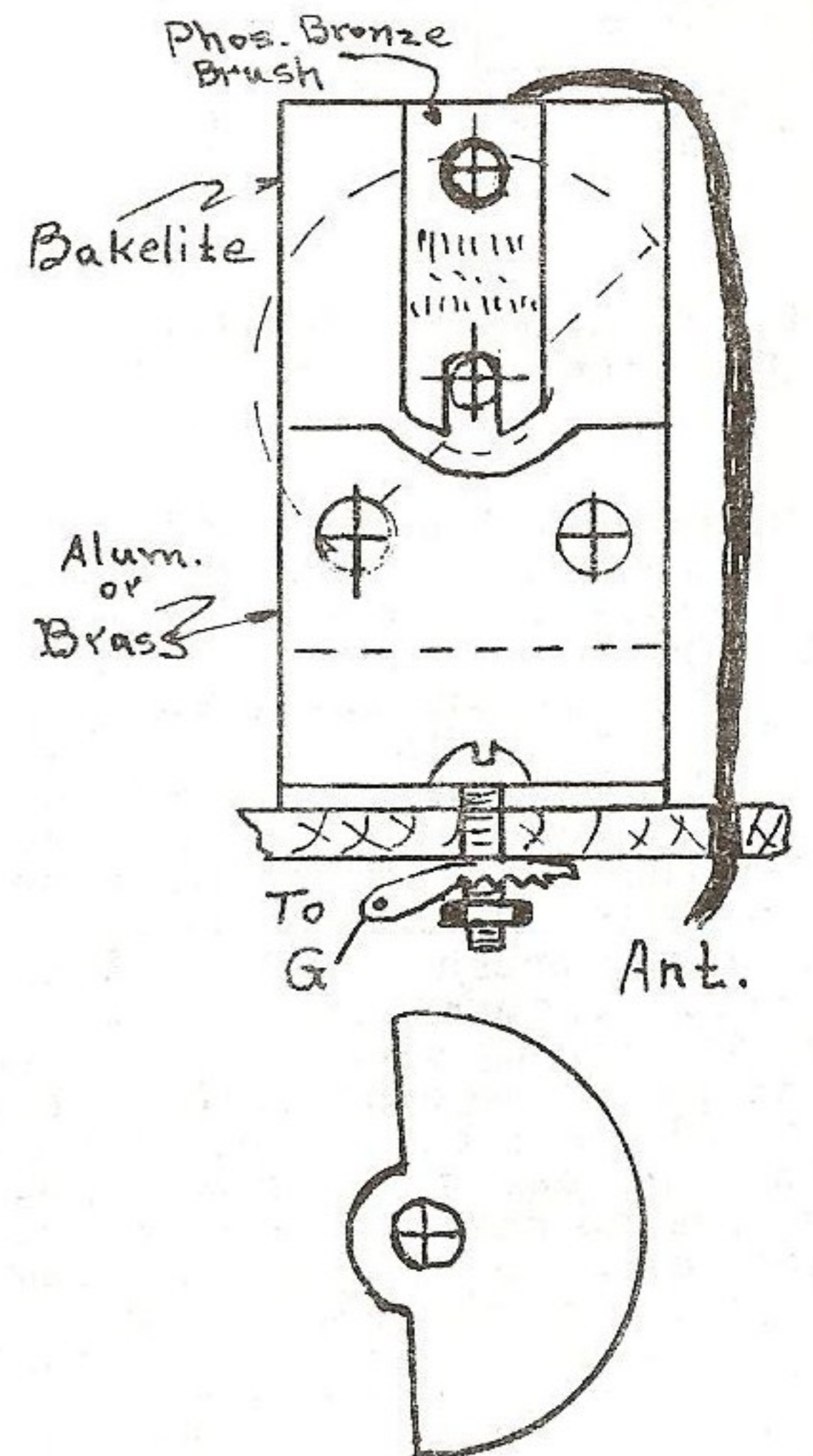


Fig. 7. Layout for built-up Variable condenser.

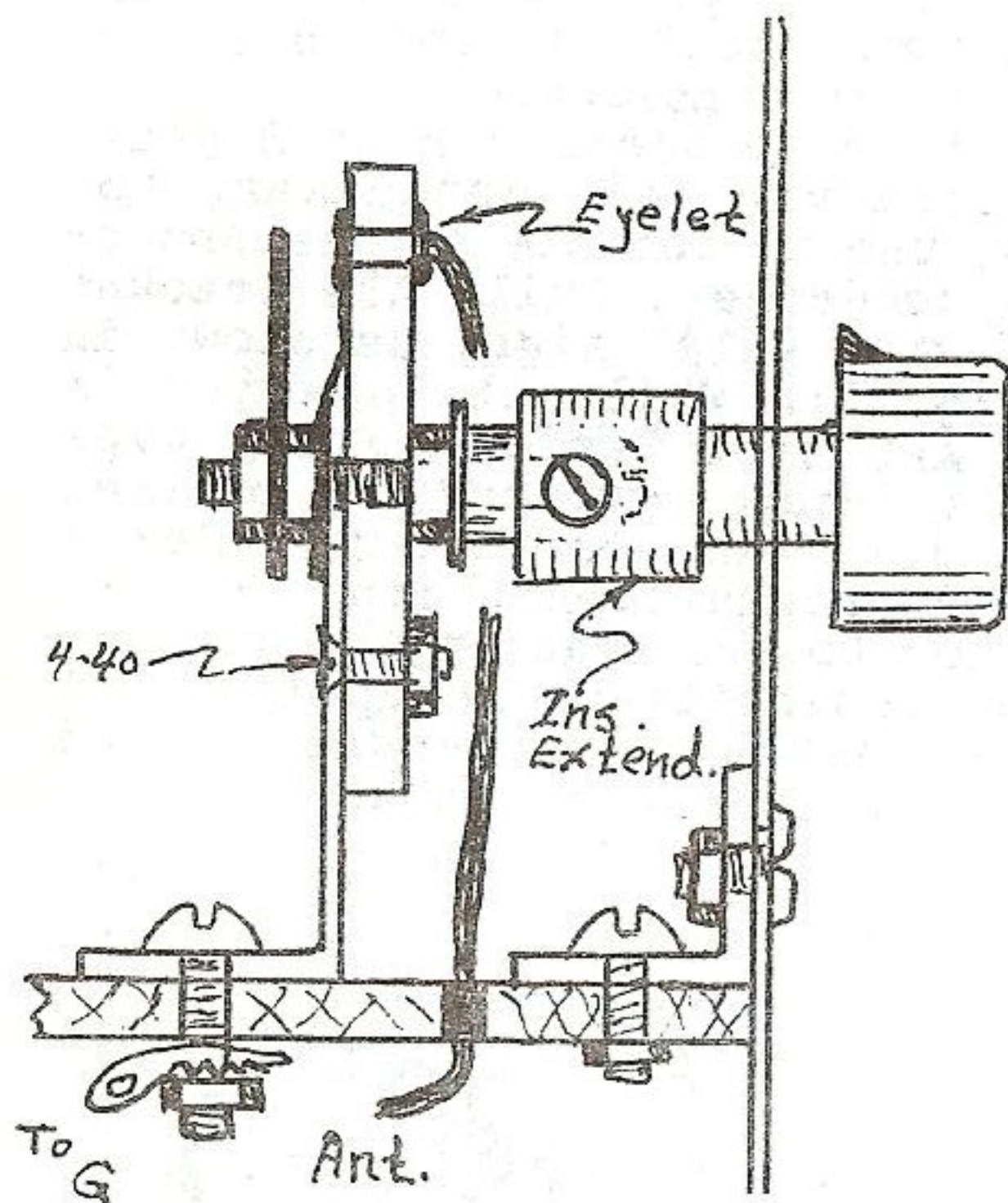


Fig. 8. Showing side view of Condenser and parts.

In (Figs. 7 & 8) is shown layout, to size, for the condenser we designed, which works very well. Our scheme was to make it as simple as possible, and use the bracket for the stator plate also. Bracket may be made from 16 guage Aluminum or brass. Make the holder for the rotor from 1/8 or 3/16 Bakelite, or plastic. The center brush is .008" thick Phosphor bronze. If you don't have it, spring brass is OK just so it makes a good wiping contact and prevents end play.

Use the parts as shown. You may have to devise a 1/4" metal spacer over the 6-32 shaft screw to fit inside the 1/4" extender. The small washer in between the bushing and nut is a good idea to keep the shaft from wobbling. Note that the less space between the rotor and stator plates, the higher the capacity. Any kind of eyelet, or screw, is OK for the brush. Cut the rotor plate from

Aluminum as shown. Drawing shows all measurements fairly clear.

There is one advantage of our condenser. You'll note that with our type the Aerial connects to the moving, or rotor contact. But, on the manufactured ones it connects to the stator plate. Because HF stations are so "delicate" our method is better, because all components of the grid circuit remain stationary.

The insulated extender is used for both types. The metal panel (or tin shield, if used) prevents body capacity. This would be in evidence whether using our condenser or a postage stamp trimmer type.

GENERAL WIRING INSTRUCTIONS.

You Old Timers may have your own way to wire this set. However, thru painstaking efforts and study on our part for over ten years, we have made changes. A change here - a wire there - a shortcut between. All help in getting that elusive DX. So, if you'll oblige us, and wire it up the way we present it - am sure your efforts will be rewarded many times.

Heavy wire for RF circuits is most essential. You may use any kind you wish. However, the type suggested has proven to be the best. We have made extensive Hi-Freq. tests and know that large or small wire can make a difference of 1000 miles on reception. This is especially true on 20 & 40 m. bands, but not too important on the low frequency bands. As an instance, on our Type C coils, using electron-coupling, we can increase the regeneration by using large wire between the cathode of tube and tap on coil. Anyway, a TV man doesn't require any lecture on HF!

Make all leads short as possible, unless otherwise shown, for various reasons. Keep under-base wiring up close to base, to keep wires out of the way, and in position. Grid, or ground

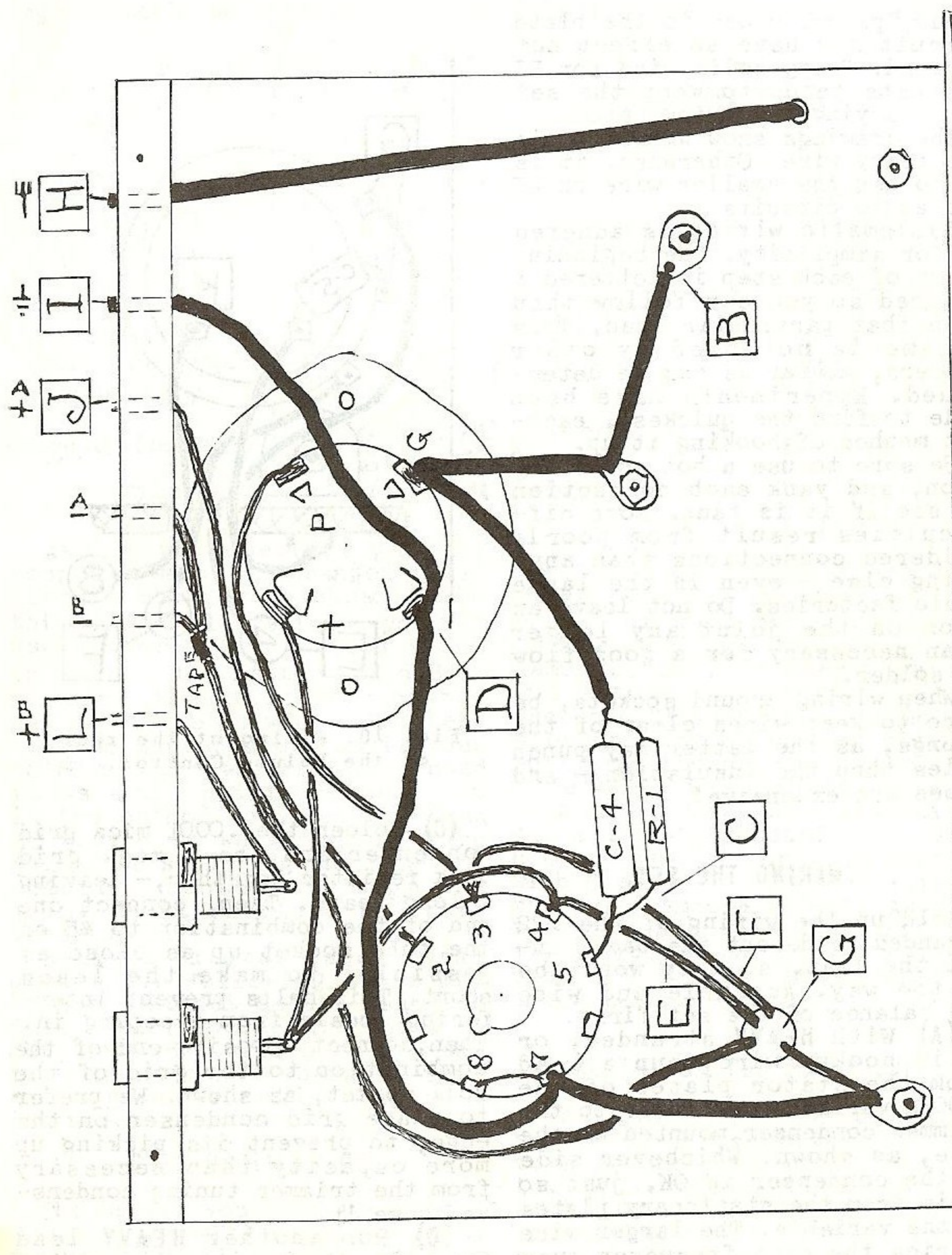


Fig. 9. Under base view of wiring.

leads, placed close to the plate circuit may have an effect not desired. Heavy solid wire for RF circuits tends to keep the set from varying in tuning, etc.

The drawings show where to use the heavy wire. Otherwise, it is OK to use the smaller wire on DC and audio circuits.

Systematic wiring is adhered to for simplicity. The beginning point of each step is lettered & planned so you can follow thru with that particular lead. This scheme is not used by other writers, as far as can be determined. Experiments have been made to find the quickest, easiest method of hooking it up.

Be sure to use a hot soldering iron, and yank each connection to see if it is taut. More difficulties result from poorly soldered connections than anything else - even in the large Radio factories. Do not leave an iron on the joint any longer than necessary for a good flow of solder.

When wiring around sockets, be sure to keep wires clear of the prongs, as the latter may punch holes thru the insulation - and tubes are expensive!

WIRING THE SET.

Hold up the wiring of the #22 stranded leads out the back, until the last, so they won't be in the way. Assemble and wire the balance of the set first.

(A) With **HEAVY** stranded, or solid hookup wire, run a lead from the stator plates of the .00035 variable condenser to the trimmer condenser, mounted on the base, as shown. Whichever side of the condenser is OK, just so it is from the stationary plates of the variable. The larger wire carries the high frequency currents better. The smaller wire is used for audio, or DC cir.

(B) Run **HEAVY** wire from the lug under the Antenna condenser bracket, up to the trimmer condenser lug, and then to the grid lead on the coil socket.

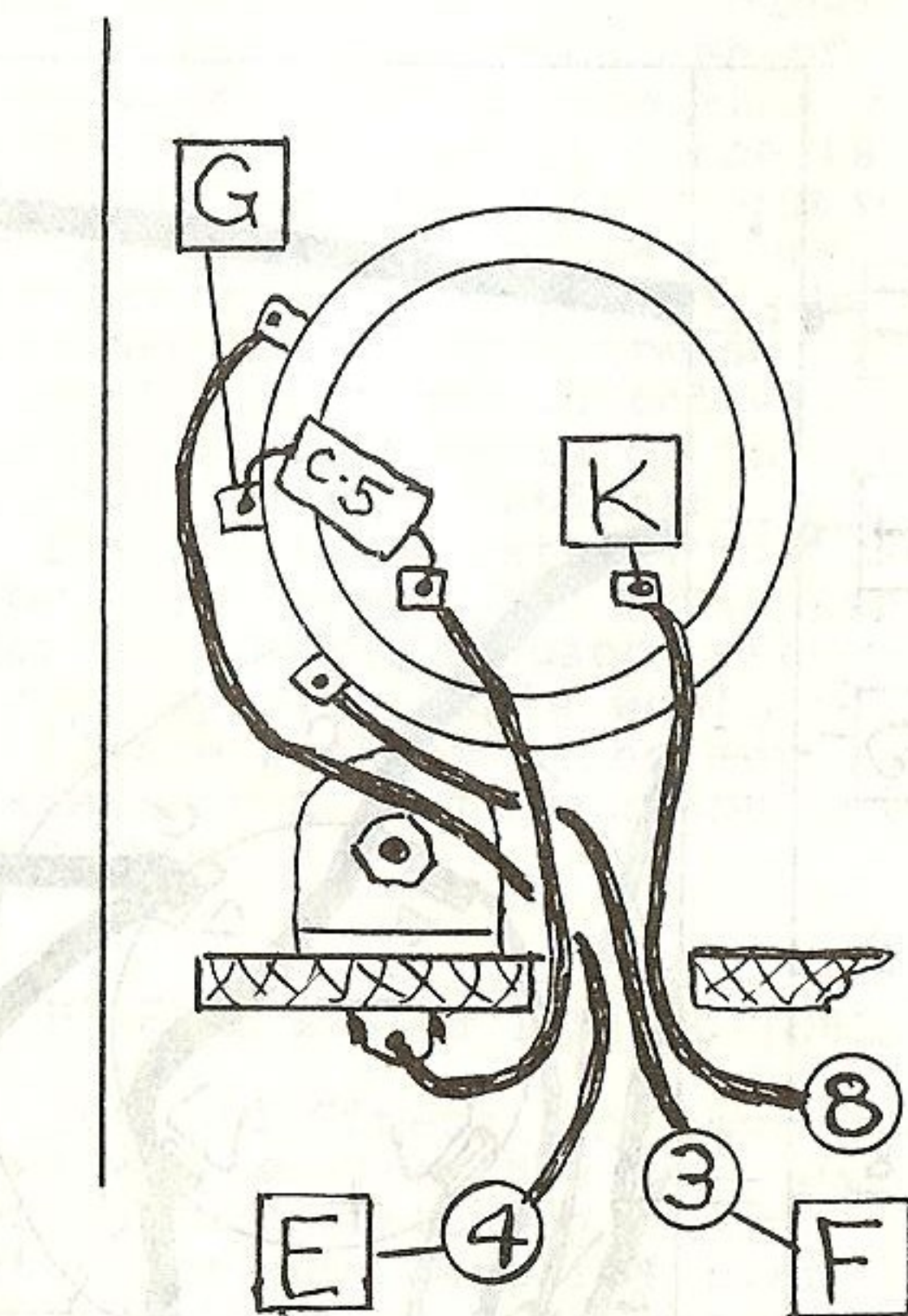


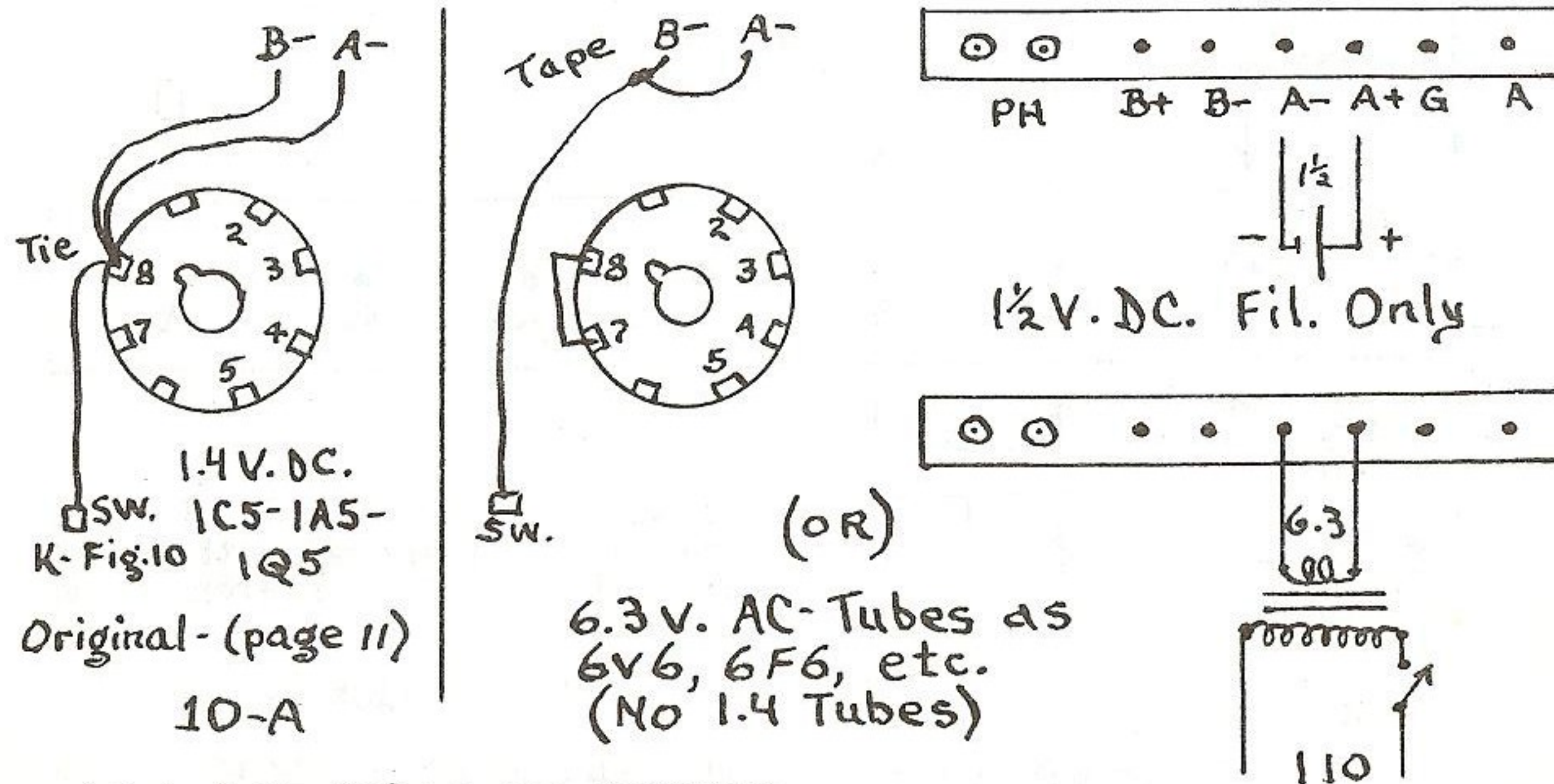
Fig. 10. Wiring at the rear of the Volume Control.

(C) Solder the .0001 mica grid condenser and the 2 meg. grid leak resistor together, - leaving 2 long leads. Then, connect one end of the combination to #5 on the tube socket up as close as possible, to make the leads short. This helps prevent interfering locals from creeping in. Then, connect opposite end of the combination to the grid of the coil socket, as shown. We prefer to place grid condenser on the edge, to prevent its picking up more capacity than necessary from the trimmer tuning condenser above it.

(D) Run another **HEAVY** lead from the ground (-) side of the coil socket, around the socket to #7 on the tube socket. This keeps ground leads away from the grid lead. Continue a new **HEAVY** wire to the bracket lug to the chassis. Be sure soldering iron is hot when making connections

Page 12 cont. on page 13

CIRCUIT CHANGES FOR AC TUBES



As 1.4 v. tubes are getting scarce - we have arranged these circuit changes as shown. With this slight alteration - you may use either 1.4 v. or 6.3 v. AC tubes. For the latter - a 6.3 v. filament transformer is used - but don't use it with 1.4 tubes.

As no tube connection is used to #8 prong - we originally used it as a tie point. However, it is the cathode connection of an AC tube - so we ground it thru #7. After soldering the B-A together - be sure to tape the joint as it is close to other connections.

Believe diagram is self-explanatory. Following tubes may be used without socket changes: 6EY6, 6EZ5, 6F6, 6G6, 6K6, 6L6, 6U6, 6V6, 6W6 or others by making minor socket changes. This extra power should bring in a lot more DX for you.

OVER OSCILLATION.

The better you wire your set - the more it will oscillate. The tickler windings are more or less standard. Certain tubes may

oscillate more than others - so we've found by experience. Some tubes, of same mfr. are softer (detectors) and others harder (amplifiers). We used to shift 201-A tubes in early sets and increase DX many times. Also the elements may be spaced differently and change capacities.

Cutting the B-battery will help to control this situation. Put a 10K VC, shunted by a .1 by 600 v. bypass cond. in series with B as shown. Correct adjustment will smooth it out. As your batts. run down - a slight adjustment can be made. One Fan uses a 5K VC, set at 650 ohms on a new 22½ v. B-battery.

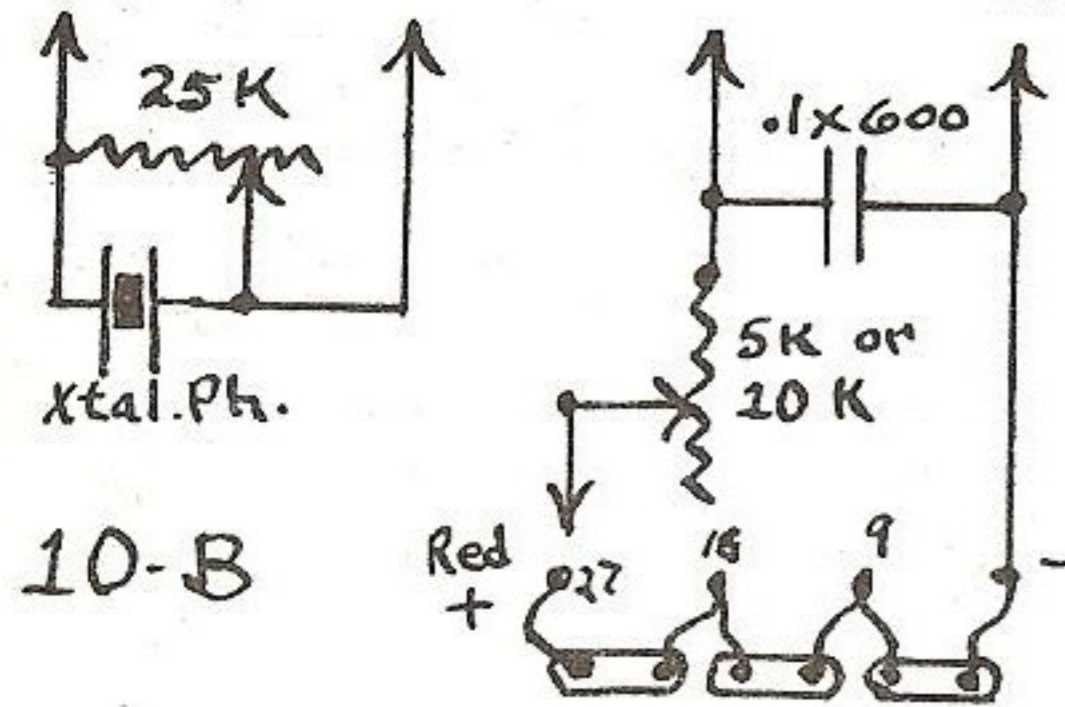
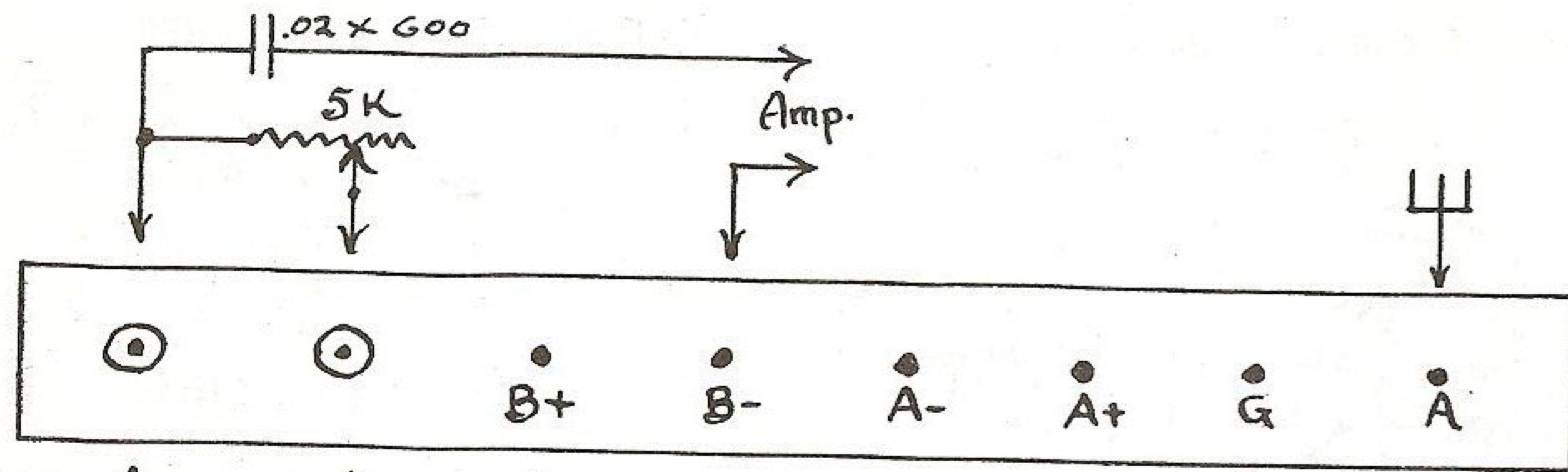
USING TRX BATTS. FOR B-SUPPLY.

Use 2 or 3 TRX 9 v. batts. in series by using battery connectors as shown. B drain is very low in a regenerative set - as it helps feed itself like an electrical motor. With connectors, batts. may be easily replaced at will.

Detail Print by Modern Radio Labs.

If DP received separately, fold and push staple thru from center of HB-4. Trim off.





USING CRYSTAL PHONES.

Good results with matching impedance of Xtal phones is shown in diagram. Use about 25K for 1-tuber. 50K for Xtal sets - because 25K may cause Xtal sets to tune broadly.

ANOTHER WIRING CHANGE.

As HF signals on 20-40 meters prefer a very short path - we've helped them along by about 2". In our kits, some have wondered why the extra hole in the base. Solder a piece of #20 stranded hookup wire to frame of tuning condenser. Run thru hole and hook to (-) on coil socket for a more direct ground connection. Should help a lot in DX on SW BC.

A DIFFERENT GRID LEAK.

We have found a 3 or 3.3 meg. resistor is better than the regular 2.2 meg. as shown in most circuits. It helps weak stations a lot. Grid currents should be allowed to "leak off" at just the exact speed for utmost efficiency. 2 1/2" Fahnstock clips soldered to #5 prong and grid of

coil will allow change of grid leaks and condensers on those DX weak stations. No Difference can be detected on locals.

CHANGE IN BACK STRIP

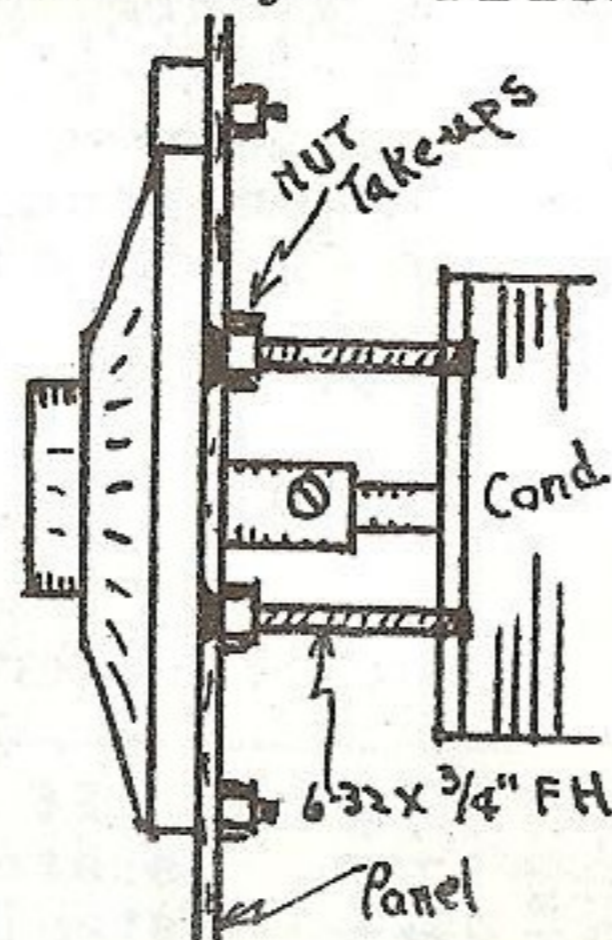
We find that a 11/16" back strip is better than 3/4" - due mostly to types of brackets in current use.

VOLUME CONTROL.

Often a 3/8" hole washer, put behind the panel, will place the VC in better position. Also when soldering the .0001 regeneration cond. - be sure leads don't short on frame. While we usually recommend 50K - 25K and others will work OK.

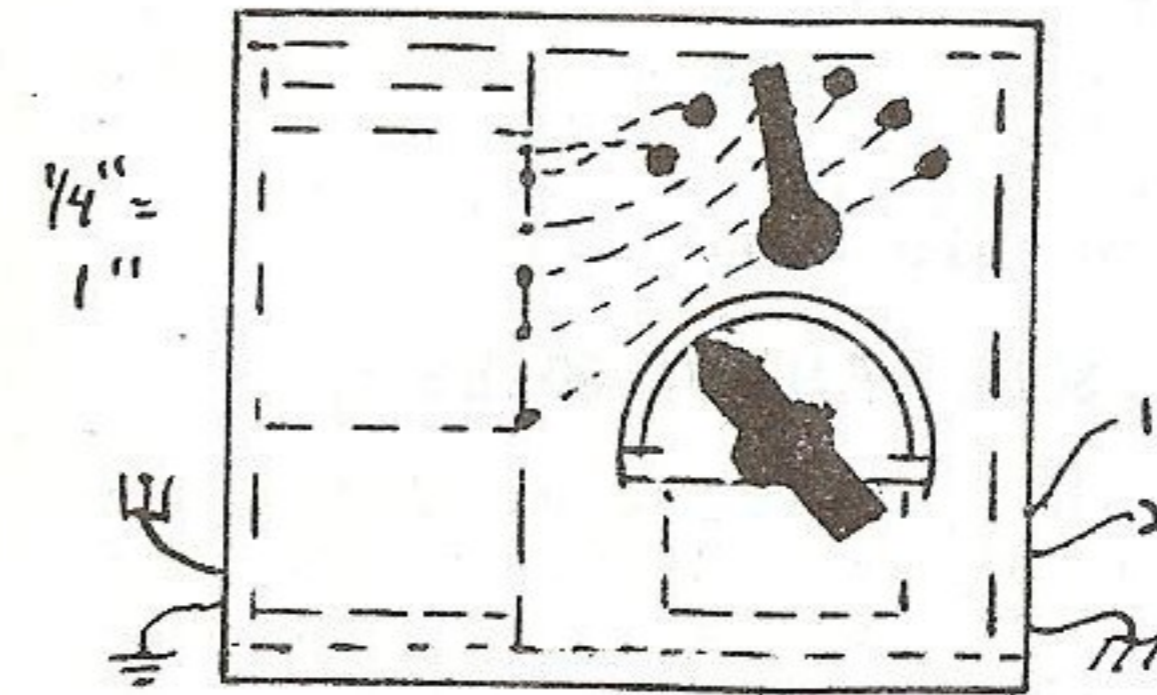
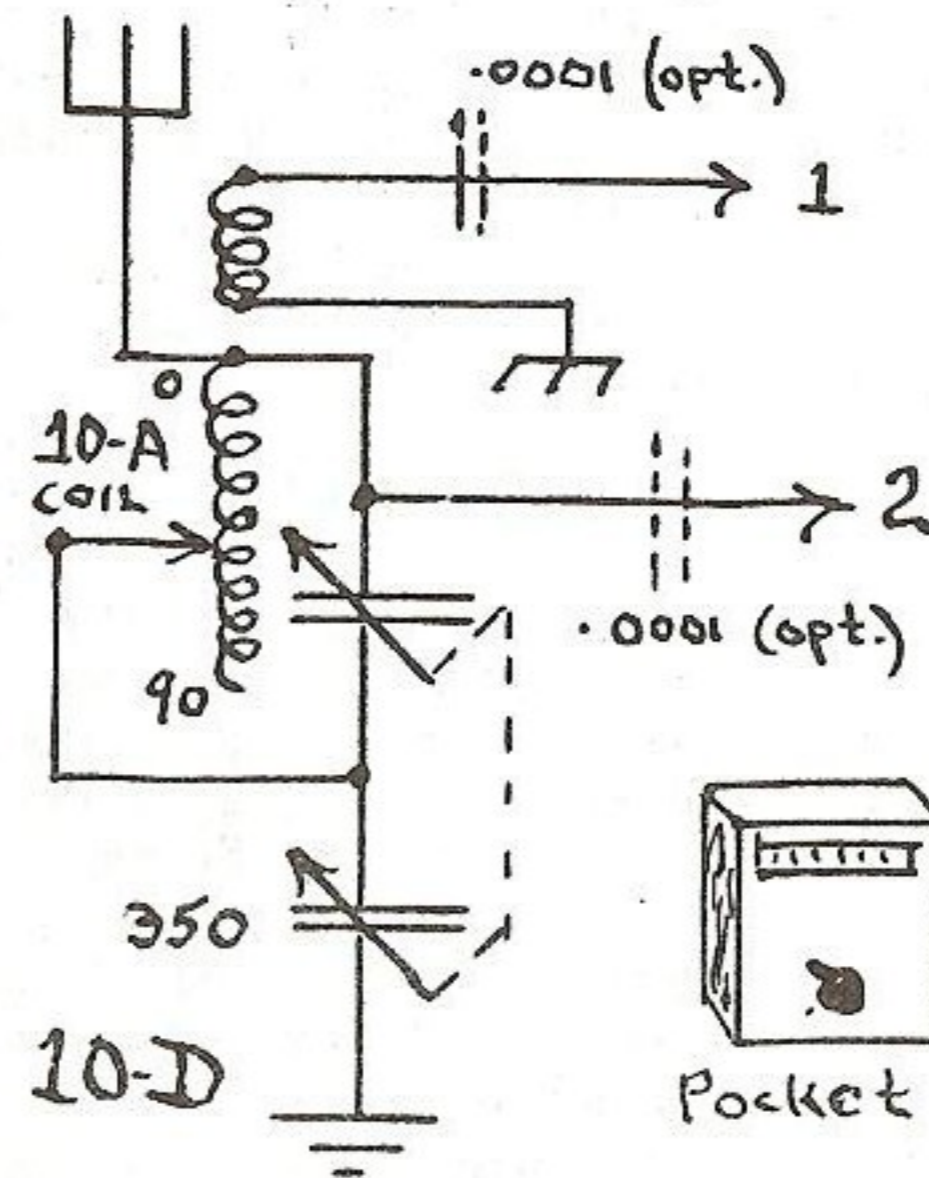
MOUNTING MRL VERNIER DIALS.

One of the best parts the Japs make - are their vernier dials. Their literature says "flush mounting" but, as languages differ, it is not what we call it. So Ur cond. must set back as shown. Use 6-32 x 3/4 FH screws and nuts as shown. Mount screws 4 dial loosely. Tighten up the lock nuts.



10-C

A GOOD SELECTIVE RF BOOSTER UNIT FOR ANY SET.



PARTS LIST.

- 1 2 gang .00035 var. condenser.
- 1 1 1/2" bar knob and scale.
- 2 .0001 mica or ceramics.
- 1 Switch lever.
- 6 Switch points. 2 stops.
- 1 Compo. panel 5x6.
- 1 MRL 10-A coil.

This is an uncanny unit. It should be made up as a test instrument for your Lab. It should be mounted in a dust-proof box. It can be controlled from the top.

Input is to Aerial and ground. Output can be directly inductively-coupled to the set from (1) or capacitatively-coupled to the set from (2). An optional, more selective coupling may be had thru the .0001's. You can set a Pocket TRX set alongside this unit and increase volume

many times - besides eliminating directional effects. Latter is one of the disadvantages of the Pocket sets - especially on DX. You will also find the Booster is effective when Pocket set is several feet away from it. It is amazing how the waves travel. It will also affect other nearby sets - if they have an Aerial or not. In apartments - where an Aerial is a big problem - it will also help. As Loopstick Aerials in Pocket sets are usually placed horizontally - try to lay the Loopstick parallel to the coil in the Booster.

The 1-tuber can hook to either (1) or (2), whichever you wish. Because the 10-A coil has taps to 5 turns - you can get down on SW stations very well. If you want lower than this - substitute a 3 turn coil on a 1" form for the 10-A coil.

10-A is wound on a 2XM Celluloid form (2 x 4 1/2" long). At the end - wind 30 turns #26 enameled wire. Next to this - wind 90 Ts #24 DCC tapped at 5-10-20-40-65-90. We prefer #24 as it is more selective than #22.

Drill Compo. panel and spray it black or ? Use 1/2" plywood box so coil fits snugly. Lift coil from panel with 6-32 x 3/4" BH-screw. Wire it up before putting in box. Run taps 5-10 shortest path. Lo-F taps as shown.

Many experiments can be made with this tuning unit. The 30 T. coil may couple direct to a TRX. It may be used as tuning unit for all kinds of circuits.

FINISHING PANEL AND BASE.

As time goes on - we get different methods of finishing. The base can be drilled and sprayed with Aerosol spray cans.

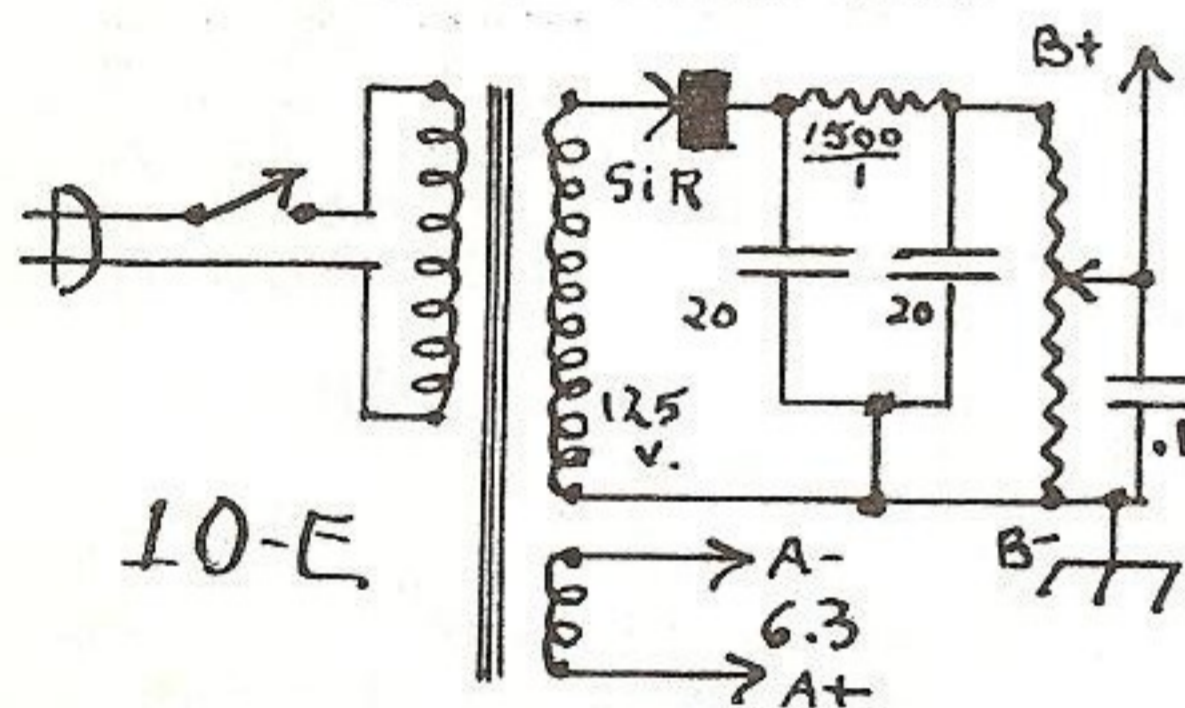
For the Aluminum panel - you can grain it by fastening a pc. of felt to a block of wood. Hold 0000 Sandpaper on this and run lengthwise in one direction. It can then be washed and sprayed with clear Lacquer. If you wish color - drill and clean with Ajax or other cleanser. Then spray

with a light coat of colored Aerosol enamel lacquer. It may be baked in the oven for awhile and then let dry overnight.

Before mounting condensers - be sure to countersink the paint out of the screwholes for better connections.

Aluminum is a peculiar metal. They claim the Oxide, that is formed on the surface - offers $\frac{1}{2}$ volt resistance to HF circuits. So, it is a good idea to always use lockwashers when making up a screw/nut joint.

A SIMPLE, SAFE POWER SUPPLY FOR 1-TUBER OR OTHER SETS



PARTS LIST.

- 1 Isolation transformer.
- 1 400 PIVoltage Silicon rect.
- 1 20x20 - 150 v. filter cond.
- 1 .1 x 600 v. bypass cond.
- 1 100K volume control and switch
- 1 Small pointer knob.
- 1 1500 ohm x 1 watt resistor.
- 1 110 cord and plug.
- 4 Binding posts.
- 1 Compo. panel and box.

This power supply can also be made up into a separate unit. It has lots of uses around the Lab. It is safe because the 110 v. is isolated by transformer. It can be hooked directly to the one-tuber when using 6.3 v. AC tubes and make a complete AC job. But, don't use the 6.3 v. on 1.4 v. tubes - but the DC B supply is OK. Switch, on volume control, will cut off everything. It can be mounted in a box with Compo. top. Leave a couple of holes in the side of box for ventilation

of rectifier unit and transformer. With your DC meter - calibrate output voltage at no load. You can then see how much your sets drain. Parts are over-rated so power supply should last a long time. Your regulated voltage will help smooth out any regeneration problems.

10 METER BANDS.

While the set is not designed for highest frequencies - we've often had good results down here with the following coil. Take a 1" Celluloid plug-in form and punch up about $\frac{3}{4}$ ". Wind 3 TS #20 DCC - closewound. For tickler - use about 4 turns #26 enameled. Also closewound and up against the secondary. A little experimenting with spacing and number of turns may be to your advantage. It depends a lot on how good your set was built as to how this range will work.

SOME REAL DX ROLLS IN!

Paul T. Stroud, N. Car.: "I'm 16. I wired up 1-tuber. Been SWL for 3 yrs. but 1-tuber best yet. So. Africa (8400).. Peking (7500) Moscow, Albania (5200).. Prague (4800).. Cologne (4600).. Holland (4200).. Lisbon, London (4000).. Quito (2800).. Panama pt-pt(2000) Cuba (900).. VOA, 40 m. coil and about every nite. Peking at 0330 GMT and loudest on 40 m. Raleigh police on HF-BC and airports. The point-to-point station, in Panama, was on SSB, but finally I got the regeneration adjusted OK. Above logged in one month. I think you know what we Experimenters want and need. You may print this."

DISTANCES measured on a Globe. No other way is accurate. When you receive a DX station - write it down - giving dial setting as well as Antenna trimmer position as latter often works as a trimmer on SW stations. It isn't too hard to mount a Vernier dial on the 1-tuber. See page 12-B.

to wafer sockets, as they do not always stick good.

(E) Run a small hookup wire up thru the hole in base to the #4 lug on volume control. Then, run other end down to #4 lug on the tube socket. Then, another of same kind of wire from there to the outside tip jack. Then, another one from there to Bplus on the coil socket. Be sure each joint of 2 or more wires is well soldered. Keep all wiring next to the base.

(F) Fish a small wire up thru chassis hole and solder to #3 lug on volume control. Then, the other end down thru to #3 lug on tube socket. Another of the same wire then goes over to P of the coil socket to tickler winding.

(G) Hook the .000 mica regeneration condenser from center tap of volume control to the ground side of the switch in the back, as shown. The size of this condenser shows how good a job U did, in building the set. If you have to change it to a .0005 mica, you are adding more regeneration to make up for the additional loss somewhere in the circuit. Continue another lead from this switch lug, down thru the hole in the chassis to the bracket lug, where (D) lead is finally anchored.

(H) Now we're ready for the leads to the back, thru the 6-32 holes in base strip. Push a small wire thru the Antenna hole and up thru hole in base to the Antenna condenser rotor lug. Be careful not to obstruct the condenser with solder. Press lead up close to base, so it won't jump around. Leave about 6" leads out the back for connections.

(I) Fish the ground wire thru hole to the B- lug on the coil socket. Be sure to clear the prongs on the coil socket.

(J) Push another wire thru the Aplus hole and solder it onto #2 lug on the tube socket. Run the lead in back of the coil socket next to the base.

(K) Fish a lead thru base hole and hook to other side of switch lug on volume control. Then, run

it down to #8 lug on the tube socket. We are using this #8 lug as an anchor tie-point, to prevent shorting of batteries, on bottom of coil socket. #8 has no connection inside the tube. Next run another lead thru the A-hole and hook it to #8 lug on tube socket. Then, another one thru B- hole and onto the same #8 lug on tube socket. Leave 6" leads on all connections out the back.

(L) Push last lead thru the Bplus hole and to the phone tip jack, and she is wired up.

WINDING THE COILS.

We have always preferred Celluloid type forms for getting extreme DX reception. However, one may use Bakelite, or other plastic forms, if desired. Most forms are $1\frac{1}{2}$ " in diameter, so the winding data is suitable.

The ranges given are approximate, depending on the condenser combination, wire sizes, spacing and other conditions. However, no two condensers are alike, even with the same model numbers of the same manufacturer. Different forms, than Celluloid will also give different readings.

Other sizes of wire may be substituted, but we find the ones given to work the best.

Under Winding, on the Chart on page 14, the word "up" means the distance up from the bottom of the form. "to" is the top end of the secondary winding. You'll note the 20 and 40 meter bands are the only ones using spaced windings. Punch these holes with a safety pin before winding the secondary. The heavy #22 is essential for the 20 m. band, but be careful you don't tear the Celluloid. Divide the wire over the space given, and cement it in place with MRL Light Coil Cement, or a good coil dope before winding on the ticklers. For the other bands, just the starting holes are given.

Windings may be in any direction, but keep the coils all un-

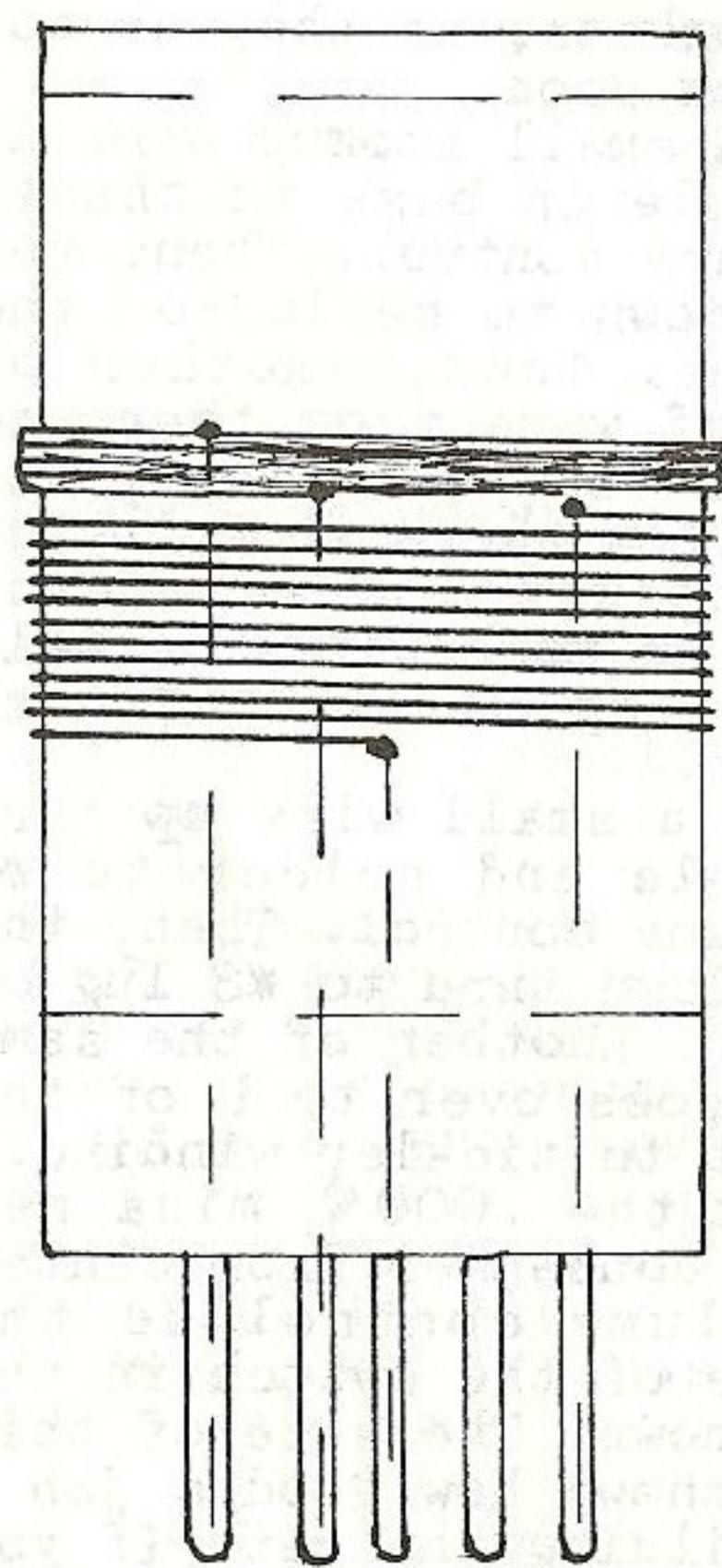
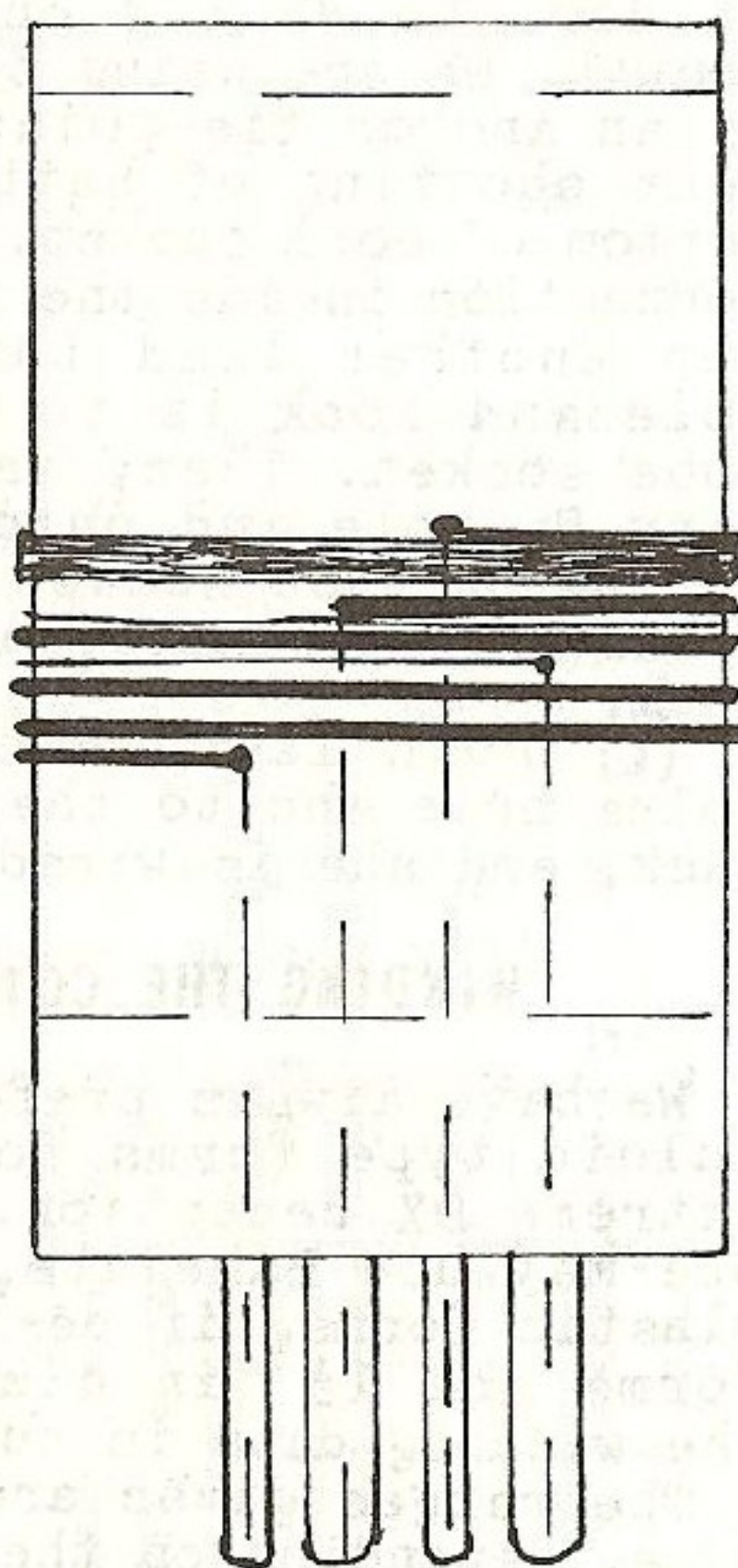


Fig. 11. 20 Meter Coil on 4-prong Form.

Fig. 12. 40 Meter Coil on 5-prong Form.

Band	Kilocycles	Winding	Secondary	Space	Tickler
m.	HF	LF	Ts	Wire betw.	Ts Wire
20....	19,000-12,300..	.1"-1-3/16"	4	22 En.. Over*	5-26 En.
40...	13,000- 6,000..	.1"-1-7/16"	10	24 En.. CL ..	6 "
80....	6,200- 2,700..	.7/8"-end.	22	" CL ..	" "
160...	2,800- 1,250..	.1/2"- "	65	" 1/16".	12 28 En.
HF-BC.	2,100- 950..	.5/8"- "	84	28 En.. CL ..	.14 " En.
Broad.	1,350- 600..	" - "	120	32 En.. 1/8".	20-32 "
LF-BC.	1,000- 436..	1/2- "	170	34 En.. CL .	25 32 En.
Long.	600- 360..	.3/16- "	350	" "	.60 34 En.

iform. If you reverse a tickler winding, you'll have to reverse connections, or the tube won't oscillate. A delusion some of us have had is "if coil is reversed - change ends." Well, it's still in the reverse position.

All tickler windings are close wound at the ground end of the secondary. The 20 meter band is the only variation, where two turns (Fig. 11) are inter-wound for more oscillation, due to the band's reluctance to oscillate at times.

ADJUSTING THE TRIMMER CONDENSER.

Our substitution of the trimmer and .00035 for a .00014 mfd. Variable does have an advantage. Loss is negligible in a porcelain trimmer. As coils are standard, one can match all of them up by correctly matching one coil. For instance, we prefer the 40 meter coil for adjusting.

(1) First method is by a signal generator. Make a loop of hookup wire around the coil and fasten to generator. Get the set into oscillating condition and open .00035 far as possible. Set oscillator at 13,000 kc, and unscrew the condenser (C-2) until you hit the signal. Then, with .00035 clear in, re-adjust the generator to 6000 kc. It should be fairly close. The other coils will line up fairly well. If you have enough lap, the trimmer can be adjusted some later.

(2) Second method is to close the .00035 far as possible. Then let out the trimmer until the set starts oscillating. The var. cond. should oscillate over the whole band.

20 and 40 METER BANDS.

The 20 m. coil may not oscillate to the bottom. This may depend on length of Aerial, loss in the set, and other things. It gives best results with Antenna Cond. (C-1) open. If you hear BC harmonics down here - log them down. Harmonics are steady, while

DX stations usually fade. The series cond. may be used to trim up a high frequency station.

The 40 meter band is the best all-around coil. Scads of DX and others may be logged.

80 and 160 METER BANDS.

Usually the best position of the Ant. cond. is partly open. Experimentation will prove best. Police, Amateurs and Aircraft R not always on, so don't get discouraged. Best results from sunset thru the night.

HI-F and LO-F BROADCAST COILS.

Refer to (FIG. 13) and you'll see why it is impossible to cover the BC band with 1 coil. Our BC coil is about 2500 kc short on the HF end and 50 on the top. A big advantage results, as we can now spread the "peanut" stations all over the dial and give us more Police stations. The ordinary set jumbles them all up on the HF end.

Likewise, the LF-BC coil goes up to the Ship band, and brings in more LF BC stations.

Naturally one cannot expect the same selectivity of larger, more complicated sets with several stages of TRF to sharpen up the stations. Best selectivity is obtained with this set with Ant. cond. open, or near. The fellow in the Country is to be envied when it comes to getting thru on a big Aerial. In the city, a 25' Antenna may be best because BC stations have a ground wave that carries several miles. Best results on this band are at night.

Take this set into the Country

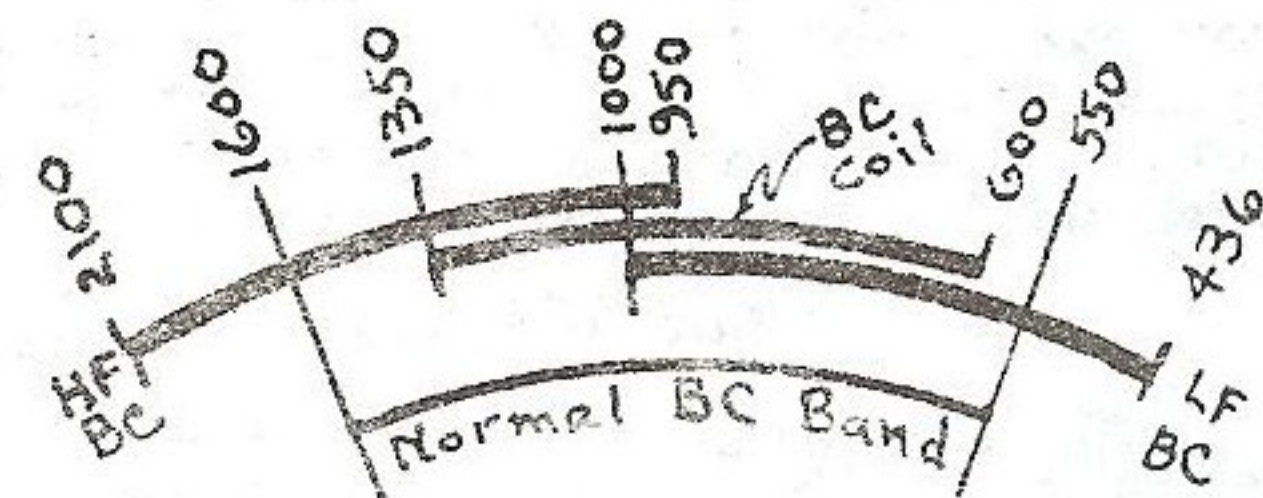


Fig. 13. Showing Need for 2 Coils to cover Broadcast.

and throw a 100' length of lead-in wire over a limb. Drive a pc. of pipe down for a ground, and U are all set for some good DX.

LONG WAVE BAND.

The long wave coil goes from the ship stations, up to the Rdo Beacons. The latter carry fairly well, and easy to log, as there is lots of separation there. They usually use 1 or 2 letters of code slowly, and easy to figure.

Notes

Set is very economical on batteries - some getting 2 yrs. on a B. Many operate with 16½ volts of B-supply. No need to disconnect batts. if switch is off. Do not get A & B connections mixed.

Two drycells in series-parallel makes the A last. Also, if a DPDT knife switch is used to reverse polarity on the A, it may help on some stations.

Others get better results with a 1Q5gt. Luckily, it fits the same socket connections. Filaments cannot be seen except in the dark. If set works - OK.

Some may prefer to connect #4 on SG of tube to opposite side of phones for better control on BC. We had better luck as given.

One may add stages of TRF for more selectivity and DX. Or, a stage of Audio, for volume.

Compiling this Handbook has taken a lot of time. However, if we have helped to make your enjoyment of Radio a little easier - we are glad. We enjoy passing on many interesting facts from many of our generous friends - like in turn, are helped by ones you passed along.

One thing we request is that you exercise lots of patience in operating this sensitive little set. A good operator can do wonders with a regenerative set.

PERFORMANCE REPORTS

Long distance reception depends on a lot of things. First of all, it depends on having a real good, sensitive set that'll go out after them. Operators in

good locations naturally get a lot more DX. The more patient manipulator of a regenerative set will also get more DX.

Following reports are taken from letters on file. Numbers in parentheses are approximate air-line miles. Due to lack of space we cannot list all the stations submitted, but we feel the ones shown are exceptional. Do not compare reception of this tiny set with a large multi-tube job. But tube-for-tube we believe the little set does a lot more than can be expected.

The writer makes no guarantee of distance, due to the many conditions under which a set is expected to work. But, if worked under fair to good receiving and operating conditions, you can pull some real DX. At this writing we just had **Moscow (6000)** on the 20 meter coil - and it was the loudest thing on the band. Maybe tomorrow it won't be there at all. Test was conducted with Aerial laying on the roof!

Foreign.

Bahamas, Cat Island. B.H.L.: "Your 1-tube SW set I received from you, sure is a swell set. Remarkably free from static and selectivity is astounding, also ability to reach out for DX. And next to your #2 Crystal set, I'd put this Radio set in the list of Radios that have proven themselves. I have the opportunity to try many Radio sets, but I have never found the equal of these two sets."

Mexico, Durango, Dgo. F.M.: "I had the pleasure of receiving 1 of your 1-tube sets. To say it is grand is not enough, for it really is wonderful, and a surprise for everyone who put on the earphones. I heard **Japan (6000)** on the 20'm. coil; **New York (2400)** on the 80 m. coil; **San Francisco (1500)**. This isn't to mention the Hi and Lo freq. BC coils, on which I pick up so many I never dreamed. This is on an old rusty and parched Aerial 20 ft. high. This is in the vi-

cinity of one of the biggest solid Iron mountains in the World. Your praise of the 1-tube set can also go for the #2 I got before. I am sorry so many on this side cannot understand your literature."

Pacific War Zone.

D.C.: "In the A.F. now but am still operating the little 1-tuber after 2 years. Have never had a bit of trouble with it."

J.L.J.: "The 1-tuber is doing fine. I get Tokyo, San Francisco, Australia and several others I cannot mention."

D.F.: "1-tuber is swell here."

Alabama.

Mobile. E.A.: "Don't think there is as hot a set on the market as your 1-tuber. Here are some of the BC stations I logged: **XERA, Del Rio (1000); Des Moines (1000) Fort Wayne (1000); Richmond (800) Cincinnati (800); St. Louis (600) Nashville & Shreveport (500); Memphis (400)**. These are just a few of the stations."

Prichard. R.P.: "On 1-tuber I get **Detroit (1000); Chicago (900) Cincinnati (750); Atlanta (450)** on Broadcast band."

Arizona

Phoenix. E.S.L.: "Received 1-tuber knocked/down. Swell set & sure brings them in."

Phoenix. J.C.D.: "I put the 1-tuber together and it works just swell."

Arkansas.

Little Rock. D.H.: "On my 1-tuber I get DX all over U.S.A."

North Little Rock. C.R.: "Had very good success with your 1-tuber. Got 3 states on B.C."

Mountain View. D.S.F.: "Received quite a few Hams on the 1-tuber. Farthest was Dawson Creek

Alaska (2800). Also got Auburn, Ky., Milwaukee and lots of others on 80 meter coil."

California

Alameda. B.W.W.: "The 1-tuber is excellent. I play Boston SW (2750) with very little distortion."

Fallbrook. B.M.M.: "Your 1-tuber is tops so far. Everything comes in from Los Angeles to Mexico on the BC coil. My Antenna consists of 30 ft. bell wire across the top of my room."

Hanford. Dr. C.C.C.: "Your one-cylinder Radio works fine. Plays clearly on 3 to 67½ volts of B-battery. Best on 16½. Boys use it in their Physics' class."

Joshua Tree. A.G.: "Made your 1-tube kit and works fine. I get good reception on BC here."

Lodi. E.W.: "I received my 1-tube DC set, and am well pleased. The first night of operation I received 2 Los Angeles stations with no ground - a distance of over 400 miles."

Los Angeles. H.B.: "Built 1-tuber from your plans. It really worked swell. The first Short wave station I received was WRCA New York (2600). I also received **Italy (7500); England (7300)** on 2 occasions; **Japan (6000)** twice; **WIWO many times. South America (4500)** is so easy to pick-up - it doesn't count. We took it about 20 miles from Los Angeles and received 4-5 locals with no Antenna. About 30 miles away we had to use about 4-5 feet."

Los Angeles. J.P.: "The 1-tuber is all you claim for it, and I have had many 1-tube sets. This one is the best for selectivity, and any kind of ground, or none, is OK here."

Los Angeles. A.K.: "I built the 1-tuber from your plans and it is the best SW set I ever built and many times better than a 3-tuber I have. I have only used the 1-tuber a few days and have gotten the following stations: **London (7300); Moscow (6000);**

Tokyo (6000); New York (2600); Cincinnati (1900). These are besides many un-identified stations. Now I put a 1Q5 tube in & get better reception than the original 1C5, as signals come in much louder."

Parlier, K.S.: "Very enthusiastic about my 1-tuber. I received 5 locals, besides Los Angeles & Salt Lake (750), all with good reception and volume. I have made other sets, but none as good and simple as this one."

Petaluma, H.A.: "Here are the results I got on the 1-tuber. New Orleans (2000); Des Moines (1600); San Antonio (1550); Portland (550) and about 25 more in Washington, Idaho and Calif. all on Broadcast band."

Sacramento, C.S.: "My 1-tuber is a pip. With just a BC coil I get dozens of stations from Mexico to Marysville, and as far E. as Denver. Use 75 ft. Aerial 15' high. Here are some of my stations: Denver KOA (900); Spokane KFIO (700); Seattle KIRO, KJR, KOMO (675); Salt Lake KSL (550); Portland KGW, KOIN (525); Los Angeles KFI (400) on BC band."

San Diego, R.C.: "I built this set while on East coast, and I picked up all the large European stations 5000 miles away. I'd like to build one for use in the barracks."

Santa Rosa, J.W.: "I-tube pip."
Spring Valley, L.S.: "1-tuber almost outperforms my Halli-crafters S-41-G."

Stockton, P.D.: "After using UR 1-tuber 6 months I sure got my money's worth out of it. I get BC stations over 500 miles away with it."

Canada

Alberta, Heisler, C.S.: "I got your 1-tuber and am well satisfied with it. I played **Australia (8000)**; **London (7000)**; **South America (5000)** and lots of U.S. Short wave stations, as well as plenty of Broadcast stations."

Alberta, Millet, K.E.: "I built your 1-tuber and amazed at its performance. I can get stations

all over the U.S. with it."

Alberta, Tomahawk, N.R.: "Wired 1-tuber up the first night and got excellent results. Best DX so far is **Australia (8000)** on 20 m. coil. Using new Antenna 22 ft. high and 60 ft. long and ground. Other stations that bang in are

New York WABC (2100); Los Angeles KCBR (1400); Omaha KFAB (1230); San Francisco KGO, KGEI (1200); Sacramento KFBK (1100); and many California Hams. Also a 5000 w. in Eureka KIEM (1000)."

Alberta, Viking, W.R.: "On the 1-tuber I can get most all BC stations we are getting on a 5-tube set, and I can use a speaker on some of them."

British Columbia, New Westminster, F.H.: "I have an old 7-tube Radio, which doesn't work like the 1-tuber. Sure works fine."

Nova Scotia, Halifax, F.W.: "I bought the 1-tuber and it sure works fine and worth the money. Get New York stations and many others."

Nova Scotia, Kingston, D.F.: "I tuber still working swell. Best distance 1100 miles. This includes Maryland airport (700); Norristown, Pa. Police (625) on the High Frequency BC band."

Colorado

Hale, W.G.: "Received **Rio de Janeiro, Brazil (6000)** on the 1-tuber, on 20 m. coil. Also get 22 BC stations including San Francisco (1100); Los Angeles KFI, KNX (1000); Cincinnati (1000). I get more volume on BC coil when tube is shielded."

Palisade, A.J.H.: "Have wired up 1-tuber, and very pleased with performance. Neat appearance, sharp tuning, and efficiency is good. Also uses very little current. The 1Q5 seems to give more volume than the 1C5."

Connecticut

Bristol, A.B.: "Obtained wonderful results with your 1-tuber using 30 ft. of #18 for Aerial across my attic. Receive **London (5000)** and **Paris (5000)** nightly.

On 20 m. I get Cincinnati WWZ, WLWO, WLW (700); Detroit WTB (600); Raleigh WPTF (600); Pittsburgh KDKA (450); Wheeling WWVA (450); Toronto CBL (400) and many others, including many Amateurs and aircraft."

Florida

Miami, W.H.: "Just received 1-tuber, and it works fine. All stations come in good."

Pensacola, J.D.: "Made 1-tuber, and find it to be very good."

Illinois

Chicago, E.T.D.: "Still operate my 1-tube set with plug-in coils I got from you, and get quite a bang out of it."

Macomb, Major R.W.M.: "On 40 m. **London (6000)** is too loud for comfort, most evenings. Using 100 ft. Antenna. **Berlin (7000)** comes in fair. Very well pleased with it. Have now added a stage of TRF with 1T4 tube, which increases selectivity and DX. Also 2 stages of audio with (2) 1S4 tubes, which drives a 5 inch PM speaker with plenty of volume. I have built many SW sets before, but none with DX like this. I also shielded the tube, and made regeneration more stable. I find 22½ volts of B to work the best, more is less efficient."

Peoria, B.M.: "About 3 weeks ago I received Cincinnati (330) and Chicago (150) on my 1-tube."

Quincy, W.E.S.: "My little 1-tube set is doing alright. On the 40 m. band I have had the **Belgian Congo (7300)** and **Mexico (1100)** and other good U.S. Stations."

Indiana

Indianapolis, J.E.R.: "1-tuber I bought from you last summer is still working fine. All BC comes in like bells, including WLW. On 80 m. band I get **South America (2500)**, on lower end of dial, about 12 setting. Next to it I get **London (6000)**. Am using a good Aerial and ground."

Iowa

Red Oak, J.P.: "Your 1-tuber works fine, much better than I expected." (?)

Soldier, J.G.C.: "Never saw a set like the 1-tuber. Wound a SW coil and got **London (6200)**."

Kansas

Lebo, D.R.: "Have made your 1-tuber and also Xtal sets, and I have had good luck with them."

Wichita, D.J.F.: "Your 1-tube set works swell."

Louisiana

Camp Claiborne, D.F.: "Received 1-tuber the other day. I can pick up New York (1250); Huntington, W.Va. (1000); Chicago (900); Cincinnati (800); San Antonio (500) and any of the large BC."

West Monroe, J.W.R.: "Am well pleased with 1-tube set."

Maryland

Baltimore, M.M.S.: "One-tuber received and perkin' OK. Found 1 mfd. condenser from Bplus to A-improved it."

Westminster, T.Y.: "Your 1-tube from you is a humdinger. Most every night I get **Leopoldville, Belgian Congo (7300)** and **London (4900)** on 40 m. coil. I use a loop Aerial with about 25-30 ft. of wire on it, and a radiator for a ground."

Massachusetts

Cambridge, G.J.: "Am getting very good results on the Short waves with your 1-tuber. I got **London (4700)** one evening with only 3-5 ft. of wire behind my desk, and no ground except thru the B-Eliminator. My great ambition was to get the BBC. My parents and friends think it's miraculous and I doubt if they believe it. Now I get **London** on the outside Aerial. This is the best kit I have ever gotten. I have tried to make SW sets be-

fore, but the parts ran too hi."

Michigan.

Hantramck. H.K.:"Received the 1-tube receiver and like it very much. It works very well. I rigged it to an amplifier to work a speaker."

Petersburg. F.R.:"Received 1-tuber and it works OK. Have now had it about 15 months and, in my opinion, it is worth its wt. in gold, for economy and performance. Was surprised to get 7 mo. service with one B-battery, and I played a speaker most of the time. Thanks to MRL for creating such a powerful little set."

Minnesota

Brooten. E.R.B.:"Am writing because you deserve it. Your 1-tube DX all-wave receiver is a marvel. I can get 53 BC stations - also many on SW, including Spanish, American and German (6800) and literally millions of code stations. I did a little experimenting, by substituting a Steel galena crystal for the grid leak and condenser, and get WCCO (110) with good volume on an old 10" speaker. I think you should have a SPDT switch on the panel to switch from Xtal to the grid leak-cond., and back. You can't get as many stations with Xtal, but ones you do are much louder. I do not use a B-battery as we have 32 volt light plant, and just plug the B into the socket and listen." (Ed. Due to body-capacity effects, an inductance switch mounted in back, to be controlled from knob on panel would be much better. Also, a Crystal diode may be better; as no adjustment is necessary.)

Delavan. B.W.:"Am very well pleased with your 1-tuber. I get three stations from the Belgian Congo (8400) on 16 meters; London (6000) and 2 stations from Spain (5400). I like to listen to London the best. Have Aerial about 50 ft. long and 50 ft. high. On the Hi-freq. BC coil I get lots of low-powered stations from all

over. Still using the same batteries after a long time. Some of the BC stations are Los Angeles (1750); Denver (950); Toronto (500); etc."

Mississippi.

Biloxi. G.A.:"Received 1-tuber and it is a pip. First night I hooked 3 New Orleans' stations (90) and had to cut volume because they were so loud. Also got Nashville (500). Boy what a set! Since have pulled stations from all over the globe - no kidding! It is a real powerhouse. Don't believe it can be beaten."

Missouri.

Fulton. Westminster College. R.E.C.:"On one of your 1-tubers I get XELO, XEB (2000); New Orleans (650); Fort Worth (550); St. Paul (500); Cincinnati (450); Chicago (350); Nashville (350) and a great many others on BC."

St. Louis. H.W.:"This is the second 1-tuber I got from you."

Nebraska.

Creighton. D.C.:"Send another 1-tuber, as was well pleased with other one. I got Orlando Radio, Delhi, India (8000) on it and believe this is a good record. Best kit I ever used."

Lincoln. G.S.:"The first night I tried your 1-tuber I got Chicago (500). Since then I have played Australia (9356); London (5800); Mexico City XEW, XEQ (1454). To date I have logged 521 stations. 385 of these are Hams; 53 Short wave, with 10 of latter up to 1375 miles; 82 BC stations and 35 of these up to 850 miles. Got Washington WWV (1100) on a 4" speaker. Transmissions of Radio Australia are heard here at 7-8:15 a.m. CST from VLB on 31 m. band and VLB-7 on 25 m. band. Have added audio stage and worked same B-battery for 8 months." (Ed.: B's last a long time on regenerative detectors, due to feed-back system. When you add an audio, or TRF

stage it begins to take more in proportion from the battery).

West Point. R.P.:"Haven't had time to do much on Short waves, but have received lots of BC stations. These include New Orleans WWL(900); San Antonio WOAI (850); El Paso KTSM and Corpus Christi KRIS (810); Salt Lake KSL (770); Cincinnati WLW (680); Albuquerque KOB (675); Nashville WSM (665); Dallas KRLD, WFAA, & Ft. Worth WBAP (625); Chicago WBBM, WBN, WENR, WLS, WMAQ(480); Denver KOA (450); Oklahoma City WKY, KOMO (450) and dozens of others with no call letters."

New Mexico.

Springer. C.R.W.:"Set arrived OK and looks like a honey. Should be good to travel with. I have played Honolulu (2700); New York (2400); Havana (2000) on the 40 meter coil."

New York.

Amsterdam. T.O. (WN2LOH):"Received 1-tuber. Great! BC coil brings in locals, NYC and Hartford. 160 m. coil brings in local BC and NY marine Opr. 80 m. coil brings in 75 m. Hams, WWV, Montreal, Halifax, general overseas' service in NYC, foreign aircraft. 40 m. coil also brings in WWV, BBC, Voice of America, "Canada calling Europe," and Rdo Argentina. 20 m. brings in lots of English and CW stations. Using 30 v. B; 1 1/2 A; 65 ft. Aerial and ground rod. All this in 2 nites. Coils are the best I've seen. U can print this. Following is the latest list. Numbers (248) mean station received on 20, 40 and 80 meter coils. (4) means received only on 40 m. coil:

Station	Miles	Coil
Melbourne, Australia...	10457	4
Australia, 9 meg/cy....	10457	4
Leopoldville, Congo....	6393	4
Brazzaville, Fr. Equ.Af.	6393	4
Ankara, Turkey.....	5055	4
Rio de Janeiro, Brazil.	4956	4
Sofia, Bulgaria.....	4559	2
Moscow.....	4460	4
Budapest, Hungary.....	4262	4

Rome.....	4163	2
Prague, Czechoslovakia.	3965	4
Switzerland.....	3756	2
Holland.....	3568	4
Denmark.....	3568	4
Madrid, Spain.....	3469	4
Paris, France.....	3469	4
London.....	3370	24
Quito, Ecuador HCJB....	3072	4
Los Angeles, Calif.....	2478	2
Guatemala TNGA	2180	4
Jamaica.....	1734	8
Dominican Republic.....	1685	48
Haiti 4VEH.....	1610	4
Cincinnati, Ohio WLWO...	575	248
Montreal, Ont.....	560	48
Halifax, N.S.....	529	8
Boston, Mass. WRUL.....	160	4
New York, WABC.....	150	4

Here is list of BC stations I have received: Chicago WCFL(665) Charlotte WBT (620); Richmond WRVA (398); Wheeling WWVA (374); Pittsburgh (333); Washington WTOP Baltimore WBAL (265) and many others.

Besides being a receiver, it's a good broadcaster. Use phones as a mike and pick it up on our SW set, anywhere in the house. Also, it makes a good booster. I set it alongside my big SW set and it increases volume of the stations on Short waves."

Brooklyn. J.B.:"Received 1-tuber some months ago, and am well pleased with it."

Central Islip. E.W.R.:"1-tube DC receiver works fine."

East Syracuse. H.R.:"1-tuber I made from plans works swell. I have picked up many European stations, including Denmark (6000) quite often, to which I like to listen. Best 1-tuber I ever saw."

Jamestown. R.M.:"Overjoyed with 1-tube set. Has worked fine here. Received about 25 BC stations, including Waterloo KXEL (1300) and New Orleans (1250)."

Ogdensburg. G.D.:"Friend of mine bought one of your 1-tubers and having excellent results."

Olean. R.K.:"Built your 1-tube SW set. So far have received London (4800); Des Moines (800); St. Louis (750); Louisville (600) 4 Chicago stations (500); Boston (400); Cleveland (225); others."

Rochester. R.B.: "Finished the 1-tuber. I space-wound the 20-40 m. ticklers over the secondary winding. I have received **Australia (9500)**; **Leopoldville, Belgian Congo (7200)**; **Holland (5200)**; **London, Paris and Switzerland at (5000)**."

North Carolina.

Charlotte. B.H.F.: "During the past 12 years I have experimented with Radios and Crystals of practically all descriptions. But I must say your little 1-tube DC SW set is certainly tops in DX. I have used your plug-in coils & find they work unusually well. Among the stations I have received are **Berlin (6000)**; **Paris and London (5400)**. Los Angeles (2300) comes in almost like a local station."

Ohio

Amesville. W.M.: "Just a note on your 1-tube SW set, I built for a friend. I got **Perth, Australia VLM6 (12,000)**; **Berlin (6000)**; **2 in Rome (5400)**; **two in London (5300)** and many good ones much closer. Sure is some set."

Terrace Park. D.K.: "Built 1-tuber and think it's tops. Received **Moscow (7200)**; **Switzerland (5600)**; **London (5500)** and long wave stations all over the U.S.A."

Wooster. L.D.M.: "I have two of your 1-tubers and they are the best I've ever seen. Have received many long distance and overseas' stations."

Youngstown. L.M.: "Your 1-tuber is swell. Am surprised at its low battery drain. I've received dozens of DX stations on it."

Oregon

Colton. A.L.V.: "While at Guadalcanal, during the War, I played **Berlin (10,000)** on the 1-tuber."

Cornelius. C.C.S.: "1-tuber, I recently purchased from you, continues to perform like a million and very well pleased with its

action. It's quiet, and its ability to reach out makes a hit with me. The Aerial condenser is a new kink to me. It is good. I recently hooked a variable condenser across the phones. This has improved reception and tone on the Broadcast bands."

Myrtle Creek. H.N.: "The 1-tube is working OK. I get 20 BC stations on it at night."

Newport. E.L.W.: "This little 1-tuber is best I have ever seen and it testifies in its own behalf. Batteries seem to never wear out. **Australia (7200)** is a cinch here. **Tokyo (6000)**; **Ecuador (4500)**; **New York (2600)** and **5 San Francisco (600)** SW stations come in on 40 m. coil. Some good BC records are **San Antonio (1810)**; **Tulsa (1650)**; **Dallas (1560)**; **Juares, Mexico (1350)**; **Denver (1090)**; **Tijuana & Rosario (1050)**; **Calgary & Lethbridge, Alta. (700)** and dozens of others. Also, on long waver we get beacons, etc."

Pennsylvania

Philadelphia. H.K.: "Your 1-tuber sure is a honey. I made a whip Aerial from a 5 ft. curtain rod attached to bicycle. Hook 1-tuber up in back, and can play 5 locals on it OK."

Smethport. W.A.D.: "Had good results with the 1-tuber built from kit. Most recent DX is **Switzerland (5400)**; **London (4900)** and **South America (2500)**. Also 75 m. Hams in a 350 mile radius. Also, ship-to-shore phones from **New York & Boston**. Some of the good BC stations are **New Orleans (1150)**; **Nashville (750)**; **Cincinnati (500)**; **Montreal (400)**."

South Carolina.

Glendale. D.H.: "Here are some of the BC stations I received on the 1-tuber: **San Antonio (1250)**; **New Orleans (800)**; **Chicago (600)**; **Detroit (600)**; **Nashville and Cincinnati (400)**."

Orangeburg. L.W.: "Received 1-tube kit and wired it up. Used a 3-in-1 Antenna Tuner between my

Aerial post and ground pipe, and nothing else for pickup. I got **WBZ (1000)**; **WVL (550)**; **WTAM (525)**; **KMOX (500)**; **WSM (400)**; Re member, I used a substitute Ant. - the 3-in-1 Tuner."

Tennessee.

Camp Forest. E.A.M.: "Received 1-tuber, and have used it in the field. Is a honey for selectivity. Have played **London (5600)** on it. Comes in like a local."

Clarksville. J.W.: "Built the 1-tuber and got excellent results. Am using 100 ft. Antenna about 25 ft. high and a 2 foot ground rod. No audio stage is used. Following stations received on the 20 meter band: **VK2BX Australia (9000)**; **ZL1CD, ZL2JB New Zealand (8500)**; **ZS6DY South Africa (8000)**; **Brazzaville, French Equat. Africa (7500)**; **L1YJ Italy (6300)**; **DL4HE Germany (6300)**; **HER6 Berne (6000)**; **G2PDZ, GWG England (5000)**; **E13J Ireland (5000)**; **CN8EA MOROCCO (5000)**; **CT1PK Portugal (4900)**; **KH6BA Honolulu (4500)**; **CE2CC Chile (4800)**; **PY7AB Brazil (4000)**; **HC2F, HC2KQ Ecuador (2400)**; **VP4TB Trinidad (2400)**; **VP3LF Br. Guiana (2400)**; **FY8AC Fr. Guiana (2400)**; **HK3DA Colombia (2300)**; **KP4ES Puerto Rico (2000)**; **YN4NW Nicaragua (2000)**; **TI2EV Costa Rica (2000)**; **H16EC Dom. Republic (1500)**; **HR2RF Honduras (1500)**; **VP9RR Bermuda (1500)**; **VP5RS Jamaica (1200)**; **XE1AC Mexico (1200)**; **C02FH Cuba (1000)**. In many cases I heard both ends of the conversation so know identification is right."

Texas

Comfort. M.T.: "Built your 1-tuber and got good results. Added one stage of audio later and got good volume on 5" speaker on stations within 50 mile radius."

Houston. D.R.: "Happy to say I am pleased with 1-tuber. On 20 m. coil I have received **London (6800)**, as well as numerous Mexican stations."

Paradise. V.H.M.: "Get almost nightly reception on these stations: **Boston (1600)**; **Newark (1400)**; **Salt Lake (1000)**; **Chicago & Cincinnati (900)**; **Nashville & Denver (700)**; **Des Moines (650)**."

Velasco. B.K.: "On your 1-tuber on 40 and 160 m. coils I received **London (6400)** and **Boston S.W. (1750)**. Got 25 BC stations and lots of Spanish-speaking ones."

Virginia.

Norfolk. G.E.T.: "Built the 1-tuber and get stations from all over the U.S. and many foreign countries. Includes **London (4900)** and **France (4900)**. Best I ever built."

Richmond. E.E.J.: "Made the 1-tuber and it really pulls stations from all over the U.S. - and good!"

Washington.

Bremerton. J.C.U.: "Had 1-tuber a year, and it is a remarkable little set. Get 2 stations near **Melbourne, Australia (8400)**; **London (7300)**; **2 in Tokyo (6500)**; **Boston (2600)**; **New York (2500)**; **Cincinnati (2000)**; **Los Angeles (1000)**; **S.F. (750)**. Also built 1 for a friend in Western Montana, who gets stations all over the U.S. on BC. Also many SW stations including **Tokyo (6800)**. Sure are neat sets."

South Bend. J.P.: "My Antenna is bum, but Hollywood comes in like dynamite on the 1-tuber."

Yakima. M.H.: "The 1-tuber sure pulls in the stations."

Wisconsin.

Janesville. B.W.: "Have heard so much about this set from a friend, who plays **Berlin and London**, as well as **WMAQ, WLW**."

Shell Lake. E.C.K.: "Have used the 1-tuber all summer with 250 ft. Antenna. Have had wonderful results with it."

Well...have fun!