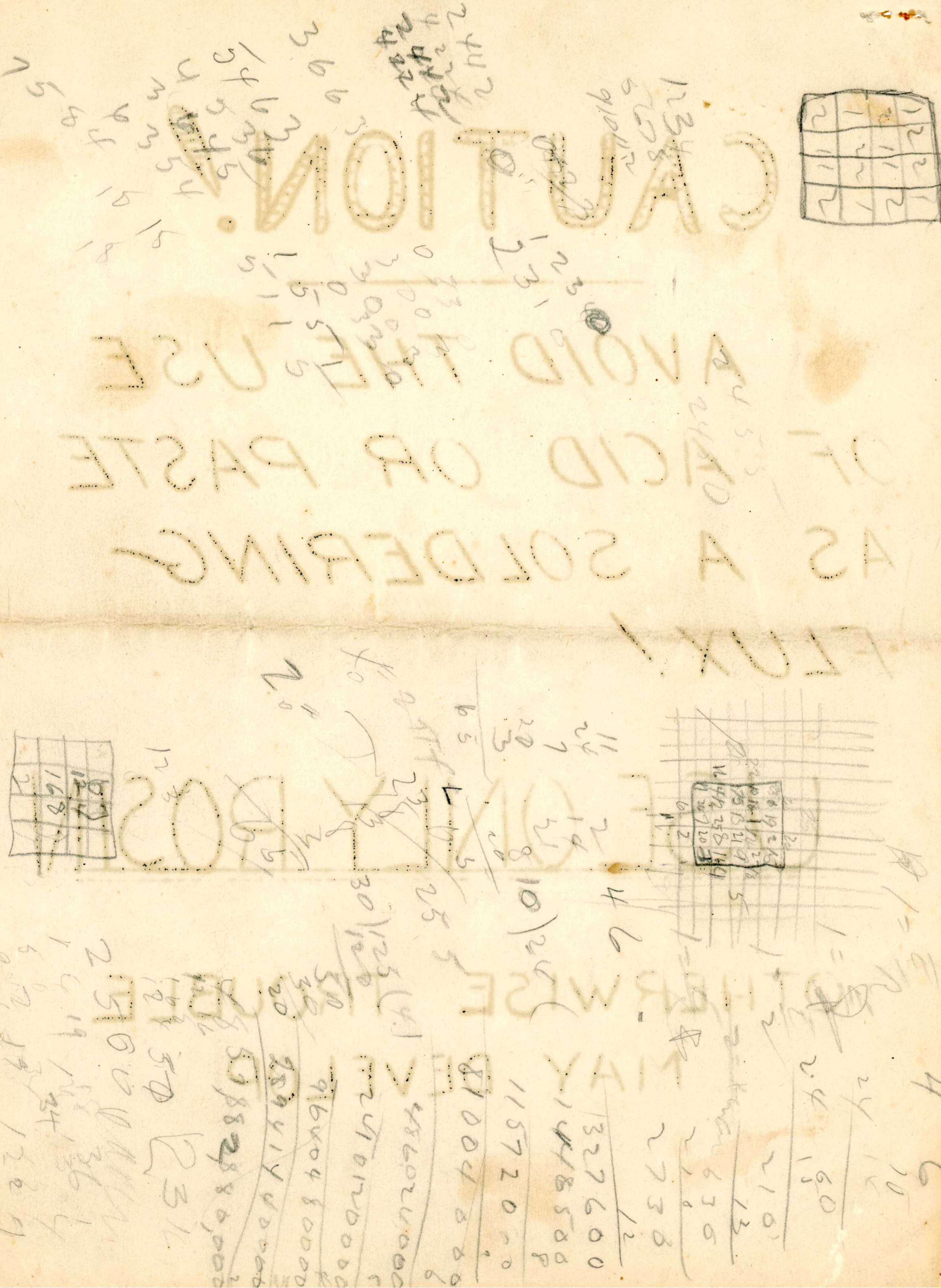
CAUTION!

AVOID THE USE OF ACID OR PASTE AS A SOLDERING FLUX!

USE ONLY ROSIN

OTHERWISE TROUBLE MAY DEVELOP.



INSTRUCTIONS FOR ASSEMBLING AND WIRING THE

TOBE AMATEUR COMMUNICATION RECEIVER

The TOBE AMATEUR COMMUNICATION RECEIVER has been so designed that the average amateur experimenter will find building this receiver is but a few hours of pleasant work. It presents a rare opportunity to amateurs who heretofore believed that the construction of a high frequency receiver, fitting for good amatour communication work, was too intricate a problem and required complete laboratory set-up in order to obtain satisfactory results. All that is required to build this receiver are such tools as a screw driver, pliers, and soldering iron. This great advancement is made possible by the use of the pre-wired, pre-adjusted, complete tuning catacomb.

The first step in the successful construction of the TOBE Amateur Communication receiver is to understand the general plan of design incorporated in it.

THE TOBE 35H TUNER

The heart of this new modern receiver is the TOBE 35H TUNER, consisting of the coils and tuning condenser for a sharply tuned antenna circuit, a stage of radio frequency amplification on all bands and an oscillator circuit. A six-gang, four-point switch changes the bands at will. This switch short-circuits all coils, including primaries, secondaries, and ticklers, which are not being employed in the circuit. This eliminates any resonant effects in the coils which would produce dead spots in the tuning range.

The Tuner is so constructed that the amateur bands are placed in the middle of the dial and cover approximately two-thirds of the scale. The other one-sixth of the scale on either side of the amateur bands is left for foreign amateur and adjacent channel reception.

There are only seven connections and a ground which the set builder has to make to this TOBE 35H TUNER. The tuning catacomb is completely wired and tracked at the factory. As the frequency ranges are very small, however, it will be necessary in a majority of the cases for the set builder to make minor adjustments for this tuner is absolutely single controlled.

CIRCUIT EMPLOYED

The superheterodyne circuit in which this tuner is used consists of a sharply tuned antenna circuit, a stage of radio frequency amplification (sometimes called pre-selector stage), a band-pass intermediate frequency amplifier, diode detection, automatic volume control, and a beat frequency oscillator for CW reception. A double-pole single-throw switch is provided which turns off the automatic volume control when the beat-frequency oscillator is switched on. A volume control is placed in the cathode circuit of the IF tube so that when maximum amplification is not needed the sensitivity of the IF stage is reduced which in turn increases the signal-to-noise ratio. The signal-to-noise ratio on this amateur communication receiver is extremely good due to the sharply tuned antenna stage and the well-designed tuned radio frequency transformers.

The sensitivity of the receiver is one microvolt or less all over the bands covered, which is greater than can be used except under extremely favorable atmospheric conditions as the noise level in most locations is usually considerably above one microvolt with the possible exception of the 20 and 40 meter bands.

CONSTRUCTIONAL DATA

Great care has been taken throughout in the selection of parts, for the complete receiver is no better than its components. Amateurs who elect to use their own stock of resistors, condensers, etc., should be careful to select parts identical to those which come with the complete receiver kit. These parts have been selected with great care for accuracy and uniformity and good operation is not guaranteed unless the parts used are identical in quality.

The base and panel are drilled so that the assembly of parts is relatively simple. In constructing the receiver it is advisable to mount all the tube sockets and shield bases first. The same mounting screws are used for both the tube sockets and the tube shield bases. The tube sockets are held below the chassis and the tube shield bases above. (See picture wiring diagram). It is important to have all tube-socket contacts in the position shown on the diagram, for great care has been taken to make all leads carrying radio frequency currents as short as possible. The insulating straps should then be fastened in the position as shown on the diagram. The power transformer is mounted as indicated, and the filament wiring done. The transformer has an electrostatic shield between the primary and secondary windings which helps to eliminate any noise being fed into the set from the lighting circuit. An added precaution against modulation hum is taken by connecting a .05-mfd. condenser across the primary. In some cases this further reduces line noise which might be introduced into the set through the lighting circuit.

MOUNTING I.F. TRANSFORMERS

The IF transformers should be mounted so that the adjusting screws on the side of T1 face the rear and the adjusting screws on the side of T2 face the outside of the chassis. These IF transformers, as will be noted on the diagram, consist of three tuned circuits which give a band-pass effect. The middle or link circuit in these transformers is not connected to any tube but is merely grounded. The IF transformers have been carefully adjusted at the factory for an intermediate frequency of 456 kilocycles and care should be taken not to change the adjustment, especially of the link circuit. After the filament wiring, screen grids, power supply, and plus B leads have been connected (it is advisable to have these leads run along close to the chassis out of the way) the IF transformer leads are soldered in place. These leads are cut to the proper length. The resistors and by-pass condensers should then be soldered in place. The placement of these has been worked out so that they mount on the tube sockets or the insulating straps provided for that purpose. The placement of the parts is shown on step-by-step drawings and should be followed. Be sure to follow the wiring diagram in by-passing, for a number of the condenser leads return to cathode and not to ground.

The volume controls and switches on the front of the chassis may then be temporarily mounted and wired. This temporary mounting will have to be removed when the front panel is put on as these controls hold the front panel to the chassis. All the wiring possible should be done before the tuner is mounted. This tuner is mounted on soft rubber grommets which should be placed between the main chassis and the tuner. Beside the grommet, an insulating washer is furnished which is placed on the other side of the chassis before the metal washer is put in place. (See detailed drawing of grommet assembly). If the tuner is properly mounted, it will be entirely insulated from the main chassis. The purpose of the soft rubber grommets is two-fold, for it not only insulates the tuner from the main chassis but also gives a cushioning effect which tends to reduce mechanical acoustical feed-back which might be caused by the actual vibrations of the condenser plates due to sound waves from the loud-speaker.

There are only three high frequency leads to the tuning catacomb; one is from the plate of the RF tube (type 6D6) which is used as a radio frequency amplifier; the other two are from grid #1 and grid #2 of the Pentagrid converter tube (type 6A7) which are connected to the tuner through a .0001- and a .002 mfd. condenser. These condensers should be mounted in a vertical position on the tube socket and heavy wire run over to the tuner. The purpose of this heavy wire is to keep these leads from vibrating mechanically which would change the frequency of the oscillator. It will be noted that the tuner has a heavy flexible metal lead soldered to it. The other end of this should be well soldered to the main chassis. This grounds the tuner in one point only, which is essential.

PANEL ASSEMBLY

The receiver is now ready for assembly of the front panel. Before the panel is put in place, be sure to place the long pointer with collar and set screws attached on the main shaft of the tuning condenser. As will be noted, the two volume controls, the automatic-volume-control and

beat-frequency-oscillator switch, the tone control and power supply switch, phone jack, and stand-by switch hold this panel in place. When the panel is mounted by means of these, the coil switch and tuning-condenser shaft should extend through the holes in the panel. These holes are ample in size and the shaft should not touch the front panel. In fact, care should be taken that none of the pointers touch the front panel. Otherwise, some chassis currents might be set up if the tuner is grounded at more than our point.

A short pointer with collar attached is provided. This is slipped over the vernier tuning shaft which extends through the front panel. This should not touch the front panel itself. The dial card may then be slipped into the dial holders in the rear of the front panel. A slot has been cut in the dial card which fits over the collar of the pointer. The adjustment of the dial is made by means of this slot rather than the dial holders as their relative position may change slightly according to the mounting of the tuner.

To obtain the correct position of the large tuning pointer, proceed as follows: Turn the tuning knob until the movable plates of the variable condenser are fully in mesh. (Maximum capacity--lowest frequency). Bring the large pointer exactly in line with index No. 100 on the dial card and tighten the set screws in the collar of the pointer shaft. This should allow the pointer to be in line with index No. 0 when it is moved to the extreme opposite side of the dial and the condenser plates are fully out of mesh. In the event the pointer does not line up exactly with these index numbers, it should be adjusted on the shaft so that an equal difference is obtained on each end of the dial.

FINAL ADJUSTMENTS OF RECEIVER

After carefully checking the wiring of the receiver it is ready for trial operation and if correctly constructed should, when antenna and ground are connected, bring in signals. Be sure to plug in the loud-speaker before turning on the set, otherwise an abnormal amount of voltage is thrown on the filter condensers. If no signals are received, check all connections before changing alignment of either the IF transformers or the trimming or padding condensers in the tuner itself. The set should receive some signals before any changes in alignment are made.

ALIGNMENT OF IF TRANSFORMERS

It is advisable to use an insulated screw driver for all alignment adjustments as this minimizes the effect of body capacitance.

Although the IF transformers have been carefully aligned at the factory for the intermediate frequency of 456 kilocycles, tube and lead capacitance will slightly change the tuning of all circuits with the exception of the link circuits, and it will be necessary to make slight adjustments on the four circuits which are connected to the plates or grids of the tubes.

For final adjustments the following directions are given to the set-builder who does not have available either an all-wave signal generator or an output meter:

1. Remove antenna lead.

2. Turn on the receiver.

3. Turn both volume controls to the point of maximum response (rotate clockwise as far as possible).

4. Turn tone control as far counter-clockwise as possible without turning off the set.

5. Set selector switch on the fourth band.

6. Turn on automatic volume control and off the beat-frequency oscillator, (rotate AVC switch counter-clockwise).

7. Set tuning condensers so that no signals are being received.

The IF transformer which feeds the detector should be aligned first. Its location is given on the drawing as T2. It has already been mounted so that the adjustment screws face out from the chassis. Three of these adjustment screws will be found. The center adjustment screw is the link-tuned circuit and is not connected to either the IF amplifier tube or the detector tube, and as a consequence will be correctly tuned to the 456-kilocycle intermediate frequency. The set screw that adjusts this link circuit is in the middle of the transformer. Do not change the adjustment of this link circuit, for tube or lead capacitance has no effect on its frequency.

The top and the bottom adjustment screws may be rotated slightly until the maximum hissing sound is heard. A similar procedure should be followed on T1 remembering not to change the tuning of the link circuit in this transformer which is adjusted by the middle screw. In order to set the adjusting screws on T1 the beat-frequency-oscillator tube should be removed from its socket. When these transformers are brought into alignment a hiss will be heard even with the tube used as an RF amplifier removed from its socket.

If the wiring has been carefully done the IF will not oscillate during these adjustments with the 10,000 ohm volume control fully advanced.

ADJUSTING THE PADDING AND TRIMMING CONDENSERS IN THE TUNER ITSELF

After the intermediate frequency has been carefully adjusted slight final adjustments may be made on the trimming and padding condensers in the tuner itself. The antenna should be disconnected and the variable tank condensers should be set near minimum. (Rotate the main tuning knob so as to bring the large pointer near the left side of the dial.) (In making all adjustments set condensers so that no signals are received.) The band selector switch should be set on band #4. This throws into the circuit the coils marked Band No. 4 on the picture diagram of the tuner. As will be noted, the location of the antenna coil, RF coils, and oscillator coils are marked.

With the volume control set at maximum (the beat frequency and automatic volume control switch should be set so that the beat-frequency oscillator is not on - rotate counter-clockwise) adjust the antenna and RF coil trimmers for maximum hiss. The oscillator coil trimmer should be left fixed.

After the minimum capacitances have been componsated for on band #4 repeat the process with the selector switch on band #3, adjusting the antenna and RF coils on band #3 for maximum hiss. To adjust band #2 set the selector switch on band #2. This band, and band #1, has series as well as trimmer condensers. The trimming condensers across the coils in band #2 are the ones mounted directly above the coil (see diagrams) and have one terminal connected to a switch point. The antenna and the RF trimmers should then be adjusted for maximum hiss as before. The selector switch may then be turned to band #1. A distinct reduction in noise will be noticed on this band and it will be necessary to attach a short antenna to make the proper adjustment on this band. As before, the trimming condensers on this band are mounted directly over the coils and have one terminal connected to a switch point (See diagrams). Again adjust the antenna and RF trimmers for maximum hiss. (The tuning condensers should be set in such a position that no signals are being received while making the above adjustments)

Thus, having adjusted the minimum capacitance on all bands, the next process is to adjust the padding condensers on bands 3 and 4 and the series condensers on bands 1 and 2. To adjust these padding and series condensers, set the tank condensers near maximum. (Rotate the tuning knob so as to bring the large pointer near the right side of the dial) To adjust the padding

condensers on band 4, set the selector switch on band 4. The padding condenser adjustment for bands 3 and 4 extend through the rear of the tuner, the band 4 padder being the lower one. With the antenna disconnected and the tank condensers set near maximum as mentioned above, adjust this padder for maximum hiss. The adjustment may be made through the large hole in the rear of the chassis by means of an insulated screw driver. It will be noted that the adjustment is not nearly as critical as the adjustment of the trimming condensers. Turn the band selector switch to band 3 and with the tank condensers set near maximum adjust the padder on band 3. (This padder is adjusted by the upper screw extending through the rear of the tuner chassis) Again adjust for maximum hiss.

The first and second bands have series condensers for each of the six inductances used on these bands. The adjustment of these series condensers may be made as follows: With the antenna removed as before and the gang tuning condensor set near maximum and the volume controls fully advanced, set the band selector switch on band #2. Adjust the series condensers (see picture diagram) (The series condensers have a terminal grounded to the tuner chassis) on the RF and antenna coils on band #2 for maximum hiss. To adjust band #1, turn the selector switch to band #1 whereupon a considerable reduction in noise will be noted so that it may be necessary to connect a short antenna to the receiver. With a short antenna connected and the tank condensers set near maximum (it is advisable to set these condensers so that no signal is being received), again adjust the series condensers on the RF and antenna coils on band #1 for maximum hiss.

ADJUSTMENTS FOR CHANGING POSITION OF BANDS

It will be noted that no adjustments have been made on the trimming or series condensers on the oscillator circuits for these change the frequency to which the receiver is tuned. If it is desired to shift the tuning range slightly so that the amateur bands occupy the positions shown on the model card supplied with each receiver, slight adjustments may be made on the oscillator circuit trimming and series condenser. To determine this, connect the regular antenna to the receiver, turn the band selector switch to position #4 and locate a signal which is on the extremely high-frequency end of this band. Then if the end of this band does not coincide with the marking of the model dial, slight adjustments may be made on the oscillator circuit trimming condensers. Change the oscillator trimmer condenser of this band very slightly by means of the insulated screw driver. After a very slight adjustment has been made, rotate the tuning knob and again locate the signal heard before. In this way the high-frequency end of the band may be shifted to the correct position. After shifting the band position by means of the oscillator trimmer a check as to the line-up of the antenna and RF stage trimmers should always be made as described above. To change the position of the high-frequency end of band #3, repeat the process as above, setting the band selector switch to position #3.

To change the position of the high-frequency ends of bands #1 and #2, the same process as described above should be repeated, although in this case it will be noted that above the oscillator coils of bands #1 and #2 are mounted both the trimming and padding condensers. As in the case of the antenna and RF circuits, the trimming condensers are those having a terminal connected to the switch point. These trimming condensers are the ones to adjust slightly to change the position of the high-frequency ends of band #1 and #2. Always be sure to re-adjust trimming condensers of the RF and antenna coils of each band after making adjustments to the oscillator trimmers.

After making the above adjustments to bring the high-frequency limits of the amateur bands to coincide with those marked on the model dial card, the last step is to bring the low-frequency limits of amateur bands #1 and #2 in line with the corresponding markings on the model dial. To do this, it is necessary to make adjustments on the oscillator series condensers of bands 1 and 2. Bands #3 and #4 do not have to be adjusted to bring the lower frequency limits of the amateur bands into line, inasmuch as this was accomplished automatically when adjusting the padders as aforementioned.

The oscillator series condensers (see picture diagram) on bands #1 and #2 determine to some extent the spread on these bands. The lower the capacitance of these series condensers the greater the band spread; i.e., the low-frequency end of the band will be farther to the right. Consequently, the experienced amateur may spread these bands to suit himself. The process is as follows: Locate some station on the low-frequency end of the band; change the adjustment of the series oscillator condenser slightly on that band; and again tune in the station. Only a very slight movement of the adjusting screw should be made at one time. When the pointer's position on the dial card is at the correct point, leave the series condenser fixed and re-align the antenna and RF series condensers on that band, as before described, for maximum hiss, with the antenna disconnected. A check should then be made on the antenna and RF trimming condensers with the tank tuning condensers set near minimum as before described; i.e., the antenna should be disconnected and these condensers adjusted for maximum hiss. Changing the oscillator series condensers will change the high-frequency end of the band somewhat as well as the low-frequency end.

INSTRUCTIONS FOR ADJUSTING BEAT-FREQUENCY OSCILLATOR

The beat-frequency oscillator has been adjusted at the factory for a frequency which will give about a 1000-cycle note. The capacitance of the wiring, however, will differ somewhat and it will be necessary for the set-builder to re-adjust the tuned circuit. The adjustment screw for the beat-frequency oscillator will be found on the top of T3. With the set in operating condition and connected to a short antenna, tune in a station, turn on the beat-frequency oscillator by means of the switch on the front of the chassis. (Rotate clockwise) This switch automatically cuts off the AVC. If the oscillator is adjusted to the right frequency a beat-note, or whistle, will be heard. If it is not adjusted to the right frequency only a slight reduction in signal strength will be obtained. Rotate the adjusting screw on the top of T3 very slowly. With the proper adjustment a note will be heard. This may be varied from a very high pitch to a low pitch. The beat-frequency oscillator should then be turned off and another station tuned in. The beat-frequency oscillator should again be switched on with the result that the beat-note should be obtained.

The reason for re-checking this adjustment is that it is possible to adjust the beat-frequency oscillator so that one of its harmonics beats with the incoming signal. In this case a beat-note will be heard on one particular station and will not be heard on any other.

ALIGNMENT OF IF TRANSFORMERS BY MEANS OF A SIGNAL GENERATOR

If the amateur has at his command a signal generator accurately calibrated in frequency, alignment may be conveniently made on the IF stages by this apparatus. The signal generator should be set accurately on the intermediate frequency of 456 kilocycles and its output connected between ground and the cap of the Pentagrid converter tube. This will supply a signal to the grid of this tube which in no way upsets the adjustment of any of the IF circuits. The transformer marked T2 should be first aligned starting at the grid circuit and working back. After this transformer has been adjusted for maximum response T1 should be adjusted in a similar manner.

ALIGNMENT OF THE TUNER BY MEANS OF A SIGNAL GENERATOR

The bands covered by this receiver are extremely small and generally the calibration of an ordinary service signal generator is not sufficiently accurate to allow calibration of the tuning range of the receiver. Alignment may be made on band #4, as before described, on the various trimming, padding and series condensers by connecting the output of the signal generator to ground and through a 200-mmf. condenser to the antenna terminal of the receiver. In aligning bands 1, 2, and 3, however, a 400-ohm non-inductive resistor should be used instead of the 200-mmf. condenser

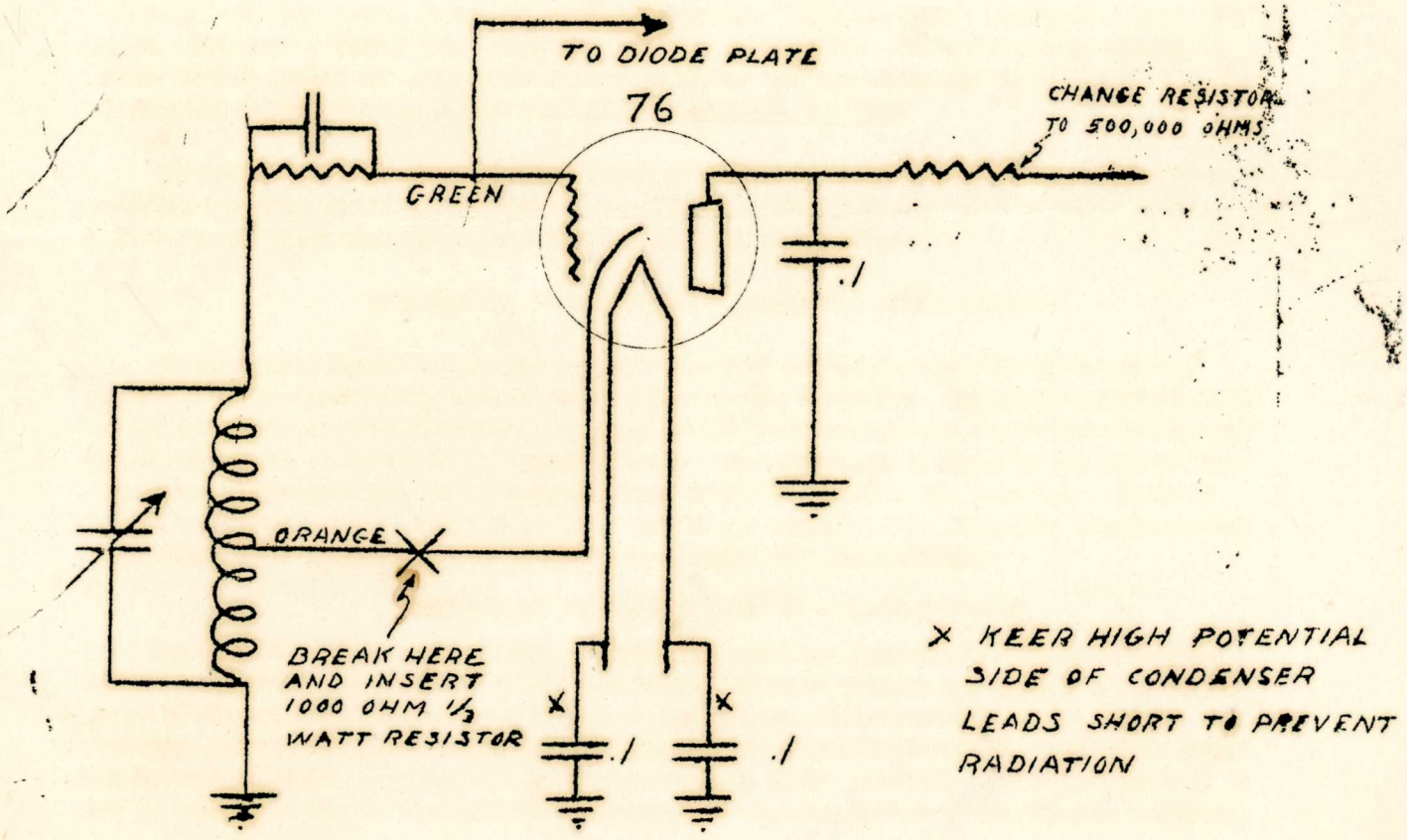
USE OF CRYSTAL WITH THE TOBE COMMUNICATION RECEIVER

At the present time no IF transformer incorporating a crystal for single-signal reception is available though the amateur may use any of the well-known circuits. However, work is being done to incorporate a new crystal circuit which has distinct advantages. This circuit will be constructed so as to replace one of the IF transformers, allowing the crystal to be switched in or out at will.

ADDITIONAL INSTRUCTIONS FOR THE INSTALLATION OF THE BEAT FREQUENCY OSCILLATOR

Due to variations in the manner of wiring the receiver as well as variations in the characteristics of the type 76 tube used for the B. F. O. there may be present at one or two points on the dial when no signal is received, harmonics of the B. F. O.

Should these harmonics prove troublesome to the operator they can be eliminated by making the changes shown in the diagram below.

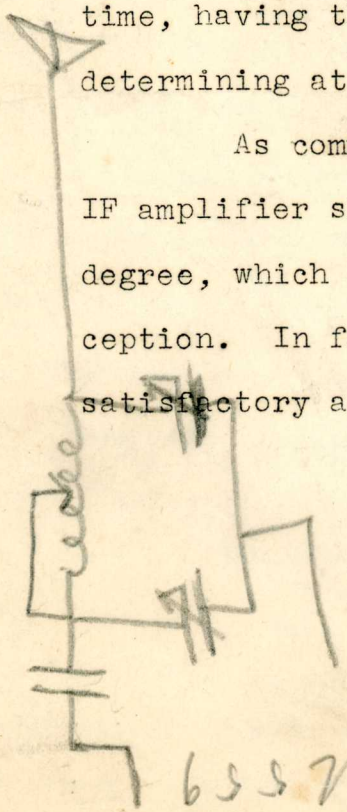


TOBE DEUTSCHMANN CORP.
CANTON, MASS.

Obtaining regeneration in the IF amplifier of the Tobe Communication Receiver.

As the Tobe Communication Receiver has one volume control which varies the bias of the IF amplifier tube it is relatively simple to obtain IF regeneration and use this volume control to set the IF amplifier just under the oscillation point. If the shield is omitted from the IF amplifier tube, the IF stage will oscillate violently. By partial shielding, however, the IF amplifier may be made to oscillate only when the IF volume control is fully advanced. This condition may be obtained by cutting down the shield of the IF tube approximately an inch and a quarter. This of course will vary somewhat according to the tubes used and according to the wiring of the receiver, consequently it is advisable to cut down the shield a little at a time, having the IF volume control fully advanced and determining at what point oscillation starts.

As commonly appreciated, regeneration on the IF amplifier sharpens up the receiver to a marked degree, which is extremely advantageous in CW reception. In fact, this is frequently nearly as satisfactory as the use of a crystal.



Halifax N.S. Sept 1

Miss Daisy Scott
20th Sydney
N.S.

Hello dizzy how is everything stop ray and I were just over to our convention in saint john where we had a swell time stop best ever

Ralph sent VE1KL Sept, to route three u but cudnt hear u know that u were at convention so sent it direct was fer w 4 abbo ok on ur swell time ph congratsula on taking home the prize ph ralph will make ph rig haventheardve1 kl bill havnt been on either think he was away the country for awhile.

Obtaining Regeneration in the [illegible]
Tobe Communication Receiver

As the Tobe Communicator has [illegible] the volume control which varies the bias of the IF amplifier the [illegible] is relatively simple to obtain regeneration and use this volume control to set the IF amplifier just under the oscillation point. If the shield is omitted from the [illegible] amplifier tube the IF stage will oscillate violently. By partial shielding, however, the IF amplifier may be made to oscillate only when the IF volume control is fully advanced. This condition may be obtained by cutting down the shield of the IF tube approximately [illegible] inch and a [illegible]. This of course will vary somewhat according to the tubes used and [illegible].

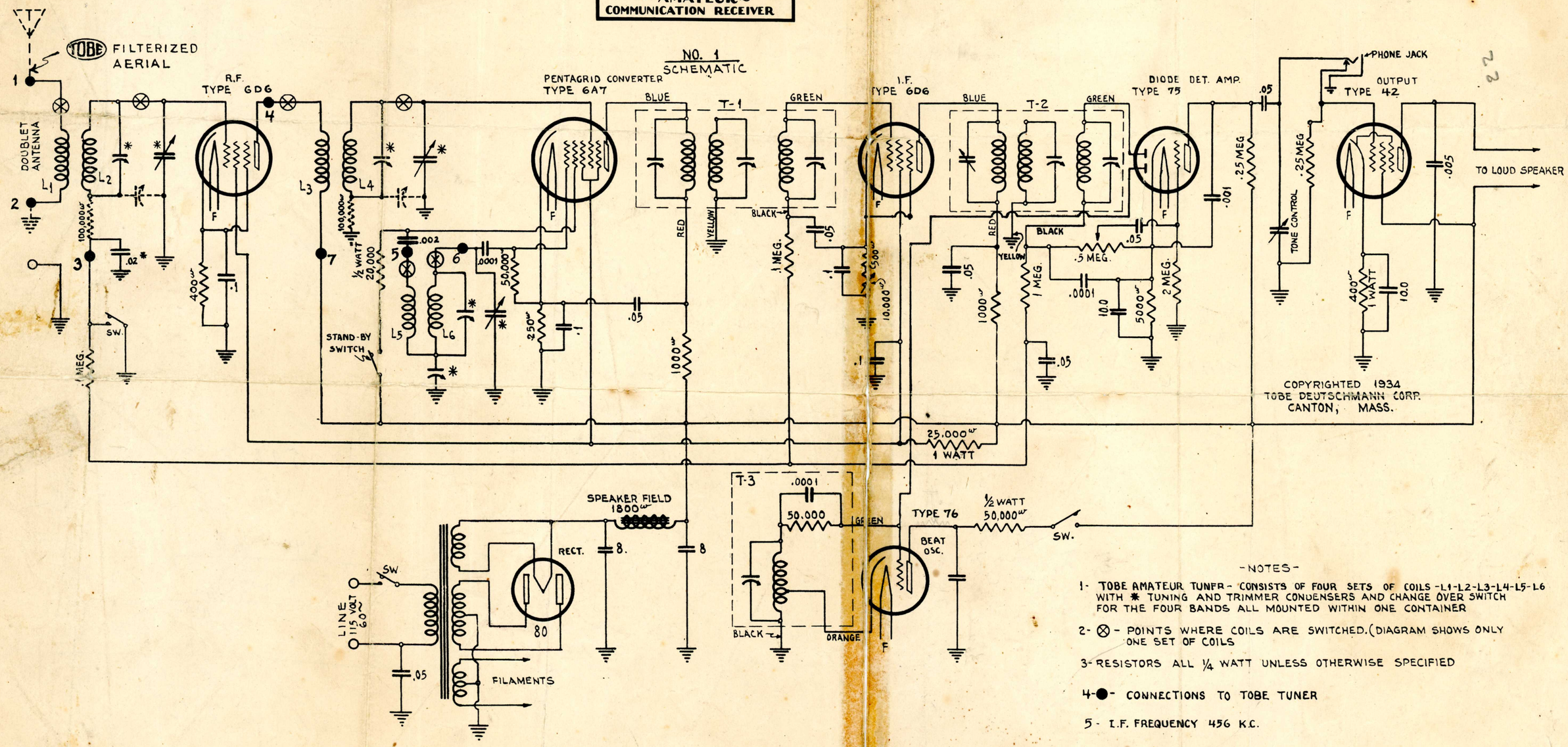
It is advisable to cut down the shield a little at a time, having the IF volume control fully advanced and determining at what point oscillation starts.

As commonly appreciated, regeneration on the IF amplifier sharpens up the receiver to a marked degree which is extremely advantageous in CW reception. In fact, this is frequently nearly as satisfactory as the use of a [illegible].

2-1-35

TOBE ~ AMATEUR ~ COMMUNICATION RECEIVER

NO. 1 SCHEMATIC



-NOTES-

1- TOBE AMATEUR TUNER - CONSISTS OF FOUR SETS OF COILS - L1-L2-L3-L4-L5-L6 WITH * TUNING AND TRIMMER CONDENSERS AND CHANGE OVER SWITCH FOR THE FOUR BANDS ALL MOUNTED WITHIN ONE CONTAINER

2- ⊗ - POINTS WHERE COILS ARE SWITCHED. (DIAGRAM SHOWS ONLY ONE SET OF COILS

3- RESISTORS ALL ¼ WATT UNLESS OTHERWISE SPECIFIED

4- ● - CONNECTIONS TO TOBE TUNER

5 - I.F. FREQUENCY 456 K.C.

SM5WN rst 579 uto
23/4 9.30
r ok es tnx fer call it w vy nice or
me ur rst 579. ngt QRM neutno sold
mij 8 90 is wro på agn abt 20 m 579
ngt abt 50 watts rx is bc 312 but so good jusi
df

OH2OV

doug beeringes
carol ...
will listen for you on sked

VO2AX

jack
as

gm piet es rest
r ok solid psc hw mqw
ur rst 59
... dat zit op veel locaal
alle 19 sets
... dacht wel QRM
dat je zou zitten te luisteren daarom
gaf ik een test op fregk zijn QRG
het is voor mi ook prettig om
mqw te werken omdat ik dan
zelf kan meeluisteren hw is
... gezondheid? in verband
met vanavond?
VE1NK 589
r ok zeg OPR dat hij dan
8.30 599
bij hem zelf thuis blijft wacht
jack wintersburne
mi broer weet nu niet waar
gij woont ok eet ze es betersd op
9.35 ve1 bl 569
es 73

96
25
480
192
2400

59250 SM5QO
5,—
5 m l straler
240 96% dir
buisdikte 2½ m 0,1 λ 50 oll
W.52 0,15 75 oll
105% refl.
2,625

rst 569 15/6 22.30
w2ua
r fb ur rst 579x hr in moores
town nj near phila wx fine
clear sunny warm running 400
watts to 8 ... antenna recvr
ar88 with panadaptor and
built r9er awe
ok fb ro om ok QSL wl QSL
73 best luck ge gb

2x807 ...
mod 6 SH
QRM
15 ma x600V
150
600

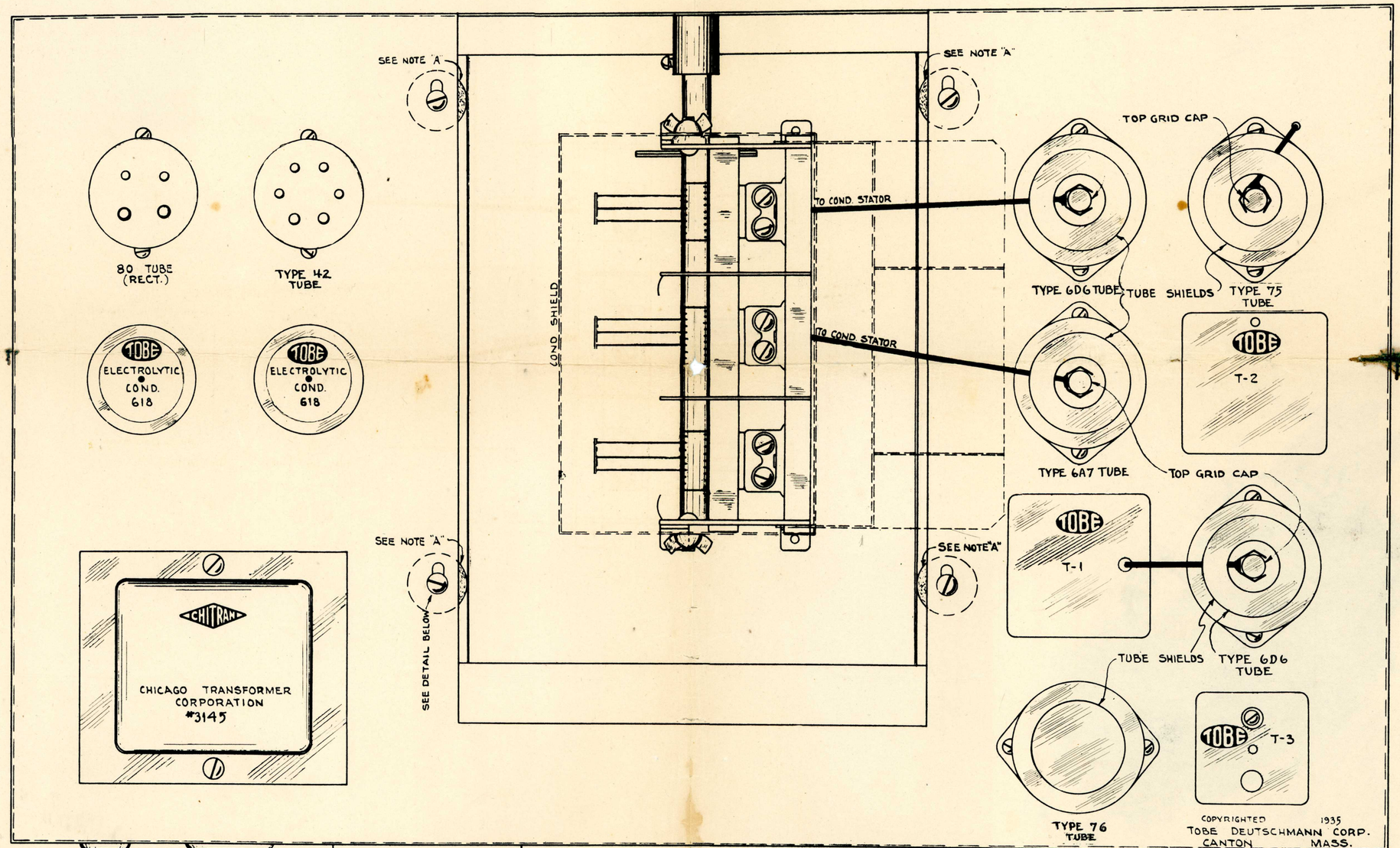
VE1 7G

LU1CA
r ge om tnx call es vy psed ago ...
rst 569 fb hr be ob psc hw?

TOBE
~ AMATEUR ~
COMMUNICATION RECEIVER

NO. 2

ARRANGEMENT OF EQUIPMENT
TOP VIEW



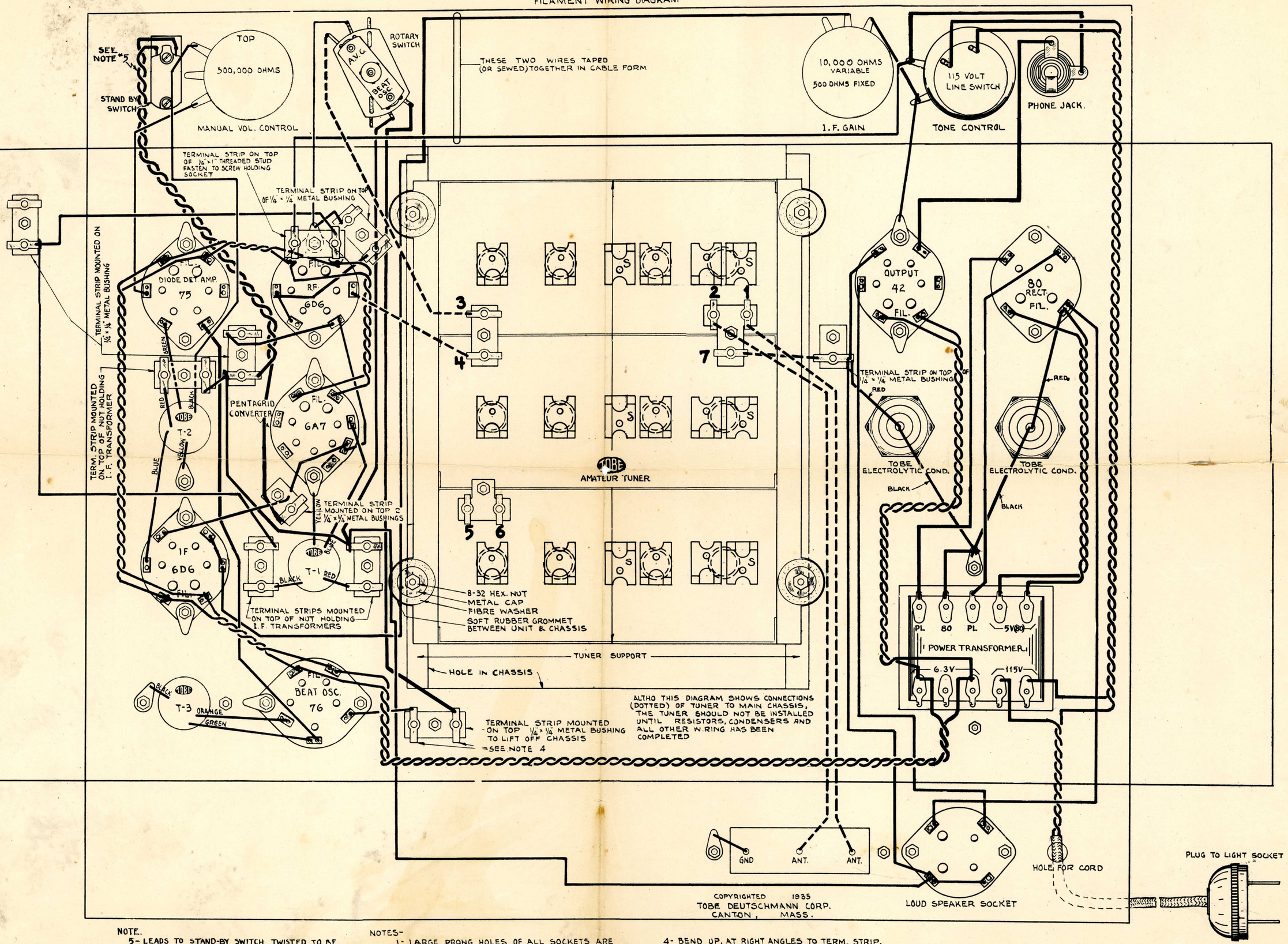
NOTES-
A- INSULATE FROM CHASSIS WITH RUBBER GROMMETS

RTH

TOBE
~ AMATEUR ~
COMMUNICATION RECEIVER

NO. 3

FILAMENT WIRING DIAGRAM



NOTE.
5- LEADS TO STAND-BY SWITCH TWISTED TO BE KEPT AWAY FROM OTHER LEADS AND CHASSIS AS FAR AS POSSIBLE.

NOTES-
1- LARGE PRONG HOLES OF ALL SOCKETS ARE MARKED FIL. AND MUST BE MOUNTED AS SHOWN
2- MOUNT TERMINAL STRIPS AS INDICATED
3- DRAWING SHOWS UNDERSIDE OF CHASSIS

4- BEND UP, AT RIGHT ANGLES TO TERM. STRIP, ALL FREE ENDS OF LUGS AFTER WIRING INDICATED ON THIS DRAWING HAS BEEN COMPLETED. THESE ENDS ARE THEN USED TO FASTEN ALL RESISTORS, RESISTERS MUST NOT TOUCH ANY METAL PARTS EXCEPT CONNECTING LUGS

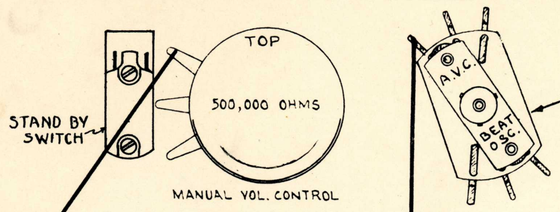
ATH

2-1-35

TOBE ~AMATEUR~ COMMUNICATION RECEIVER

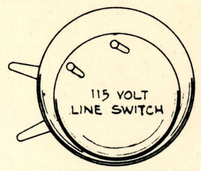
NO. 4

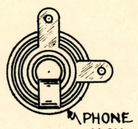
WIRING OF RESISTORS

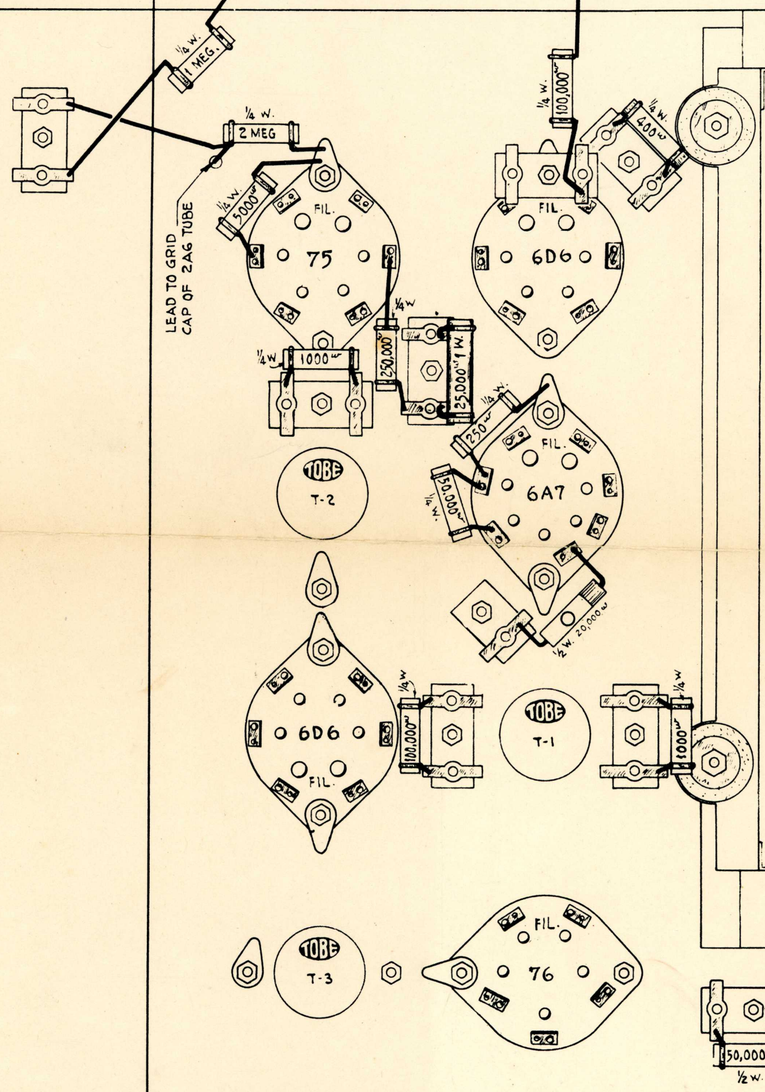


NOTE

ROTATE CLOCKWISE TO TURN OFF A.V.C. AND ON BEAT OSC.







RESISTORS					
NO. USED	RESISTOR VALUE	* COLOR CODE BODY	END	DOT	WATT'S
1	1 MEG.	BROWN	BLACK	GREEN	1/4
1	2 MEG.	RED	"	"	1/4
1	5,000 ω	GREEN	"	RED	1/4
1	400 ω	YELLOW	"	BROWN	1/4
2	250,000 ω	RED	GREEN	YELLOW	1/4
1	250 ω	"	"	BROWN	1/4
2	50,000 ω	GREEN	BLACK	ORANGE	1/4 & 1/2
1	20,000 ω	RED	"	"	1/2
2	1,000 ω	BROWN	"	RED	1/4
2	100,000 ω	"	"	YELLOW	1/4
1	25,000 ω	RED	GREEN	ORANGE	1
1	400 ω	BODY YELLOW	END BLACK	DOT BROWN	1

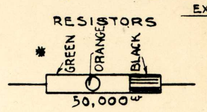
CONDENSERS					
NO. USED	MMF. CAP.	1	2	3	MICA MOULDED CONDENSERS
2	100	BROWN	BLACK	BROWN	
1	2000.	RED	"	RED	
1	1000.	BROWN	"	"	

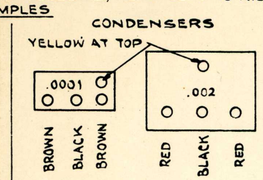
ALL TOBE TUBULAR CONDENSERS DIRECTLY MARKED IN CAPACITY

WHITE END OF ALL TOBE COND'S SHOULD BE CONNECTED TO GROUND SIDE (LOW POTENTIAL END) OF CIRCUITS OR TO CHASSIS GROUND LUGS WHEN DIRECTLY GROUNDED

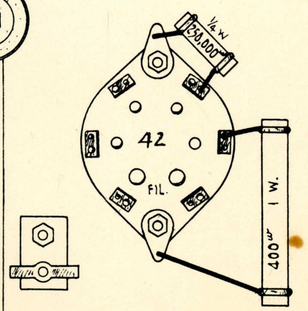
RESISTOR AND CONDENSER COLORS MUST BE READ CORRECTLY AS FOLLOWS, READ LEFT TO RIGHT

EXAMPLES

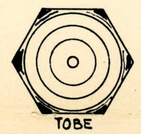




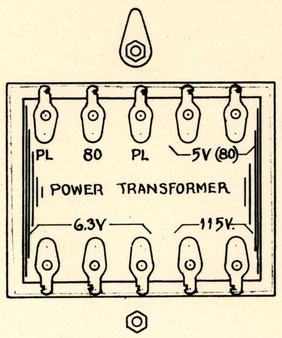
MMF. = MFD.
100 = .0001
2000 = .002
1000 = .001

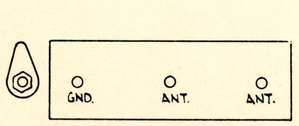


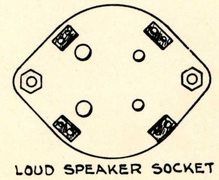
TOBE ELECTROLYTIC COND.



TOBE ELECTROLYTIC COND.







HOLE FOR CORD

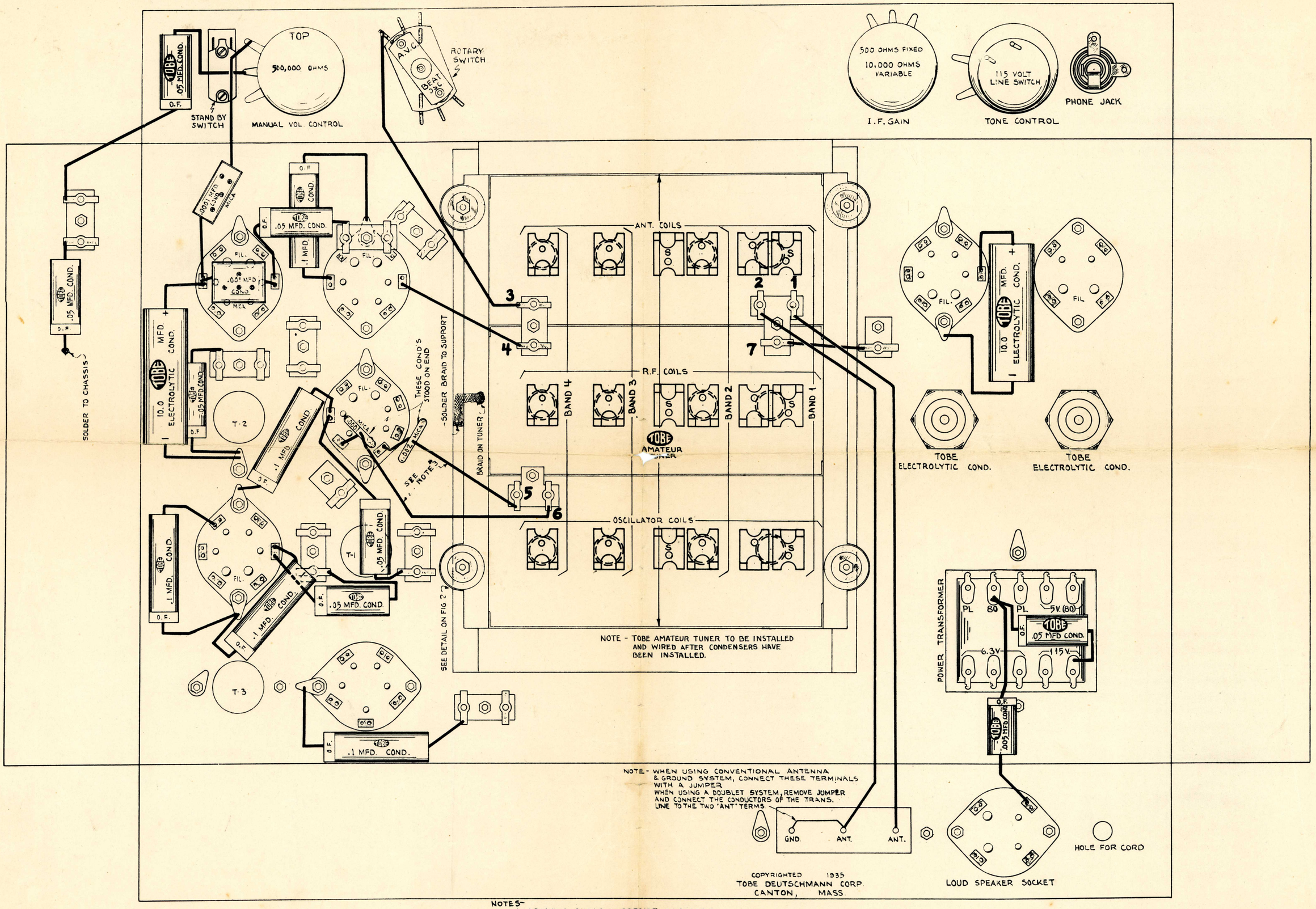
LOUD SPEAKER SOCKET

NOTE-
DRAWING SHOWS UNDERSIDE OF CHASSIS

RTH

TOBE
~ AMATEUR ~
COMMUNICATION RECEIVER

NO. 5
WIRING OF CONDENSERS



NOTE - TOBE AMATEUR TUNER TO BE INSTALLED AND WIRED AFTER CONDENSERS HAVE BEEN INSTALLED.

NOTE - WHEN USING CONVENTIONAL ANTENNA & GROUND SYSTEM, CONNECT THESE TERMINALS WITH A JUMPER
WHEN USING A DOUBLET SYSTEM, REMOVE JUMPER AND CONNECT THE CONDUCTORS OF THE TRANS. LINE TO THE TWO "ANT" TERMS

NOTES-
1- DRAWING SHOWS UNDERSIDE OF CHASSIS
2 O.F. ON CONDS = OUTSIDE FOIL
3 SHOULD BE #14 SOLID INSULATED WIRE TO BE KEPT FREE FROM ALL METAL PARTS.