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Despite the above, we will be making copies of essential technical information (circuit diagram, parts list, layout) freely available to all via our website from late 2004 onwards. This will be done to try and encourage and enable the maintenance of our remaining stock of vintage electronic equipment.

Guidance on using this electronic document

Acrobat Reader version

You need to view this document with Acrobat Reader **version 5.0** or later. It is possible that the document might open with an earlier version of the Acrobat Reader (thus allowing you to get this far!), but is also likely that some pages will not be shown correctly. You can upgrade your Acrobat Reader by direct download from the internet at http://www.adobe.com/products/acrobat/readermain.html or going to http://www.adobe.com/ and navigating from there.

Printing the document on A4 paper

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This document is of fairly simple format in that it can be made to print out using an A4 format printer (this is the common paper size available in UK and Europe, which measures 29.7cm by 21.0cm). By "simple" I mean that there are no large diagrams on fold out sheets, which will require multiple A4 pages to print out at full size.

Original document sizes do vary a lot – from the small manuals, which approximate to A5 size (21.0 x 14.8 cm) up to the now obsolete foolscap size (21.6 x 33.0 cm). US documents tend to use their "letter" size paper (21.6 x 27.9 cm). All these sizes can be printed on A4 paper by simply getting Acrobat to shrink or enlarge the pages as necessary. This is done as follows:

1. Select "File – Print" or click on the printer icon. This will bring up the print dialog box.
2. Select the correct printer if necessary.
3. Select the pages you want to print – even if you want to print all of the document, you will probably not want to print this notice and help page, so start the printing at page 3.
4. In the "Page Handling" area, next to "Page Scaling", select "Fit to paper". The press "OK"

Printing the document on an US Letter format printer

Since A4 and US Letter sizes are similar, it is expected that this document should print satisfactorily on the latter format paper. This has not been tested however, and is not guaranteed. Follow the steps as for A4 printing, and make doubly sure that "Fit to paper" is selected (step 4).

Any other problems?

Please get in touch with me at archivist@vmarsmanuals.co.uk.

Richard Hankins, VMARS Archivist, Summer 2004

RECEPTION SET CANADIAN R. 103 Mk. I

2nd - 4th ECHELON WORK

Testing

Test Equipment

1. The following test equipment (or equivalent) will be required:

(a) Multimeter, Stark No. KM .....ZB/C 00024

5 D.C. ranges, 2.5—1,000 volts at 20,000 ohms per volt.

5 A.C. ranges, 2.5—1,000 volts at 1,000 ohms per volt.

5 D.C. current ranges, 100 uA.—500 mA.

4 ohmmeter ranges; 400, 40,000, 4 meg., 40 meg.

(b) Voltmeter, Valve, Measurements Corp. No. 62.....ZB/C 00034

5 ranges; 1, 3, 10, 30, 100 volts full scale A.C. or D.C.

Frequency range—30 cycles—350 Mc/s.

A.C. Input Impedance—
2 meg. at .01 Mc/s.
1 meg. at 1.0 Mc/s.
.01 meg. at 100 Mc/s.

D.C. Input Impedance—10 meg.

(c) Generator, Signal, Hickok No. 19X .....ZB/C 00006

Range—100 Kc/s. to 60 Mc/s. directly calibrated.

100 Kc/s. and 1000 Kc/s. crystal oscillator.

Calibrated output:
R.F.—½—100,000 uV.
A.F.—400 cycles, 0 - 1.0 V.
Decibel meter— —10 to +6, +6 to +22, +22 to +28.

(d) Meter, Output Power, G.R. No. 583A.....ZB/C 00012
Power range—0.1—5,000 mW.
Impedance range—2.5—20,000 ohms.

(e) Meter, Q, Boonton No. 160A .....ZB/C 00010
Frequency range—50 Kc/s.—75 Mc/s. in eight ranges.
Capacity—30—450 uufd.
Q—0—625.

Resistance Tests

2. To test for proper resistances:

(a) Remove the valves from their sockets.

(b) Turn the LIGHT CONTROL fully counterclockwise.

(c) Turn all remaining controls fully clockwise.

(d) Turn the OFF-ON switch to ON.

(e) Test for 14 ohms resistance between the 6 V., D.C. input terminals and ground.

(f) Remove the pilot lights.

(g) Test for 25 ohms resistance between the 6 V., D.C. input terminals and ground.

(h) Remove the vibrator.

(i) Test for 80 ohms resistance between the 6 V., D.C. input terminals and ground.

(j) Short pin 7 of V7 to pin 8 (or to ground).

(k) Take the resistance measurements shown in Table 1. All resistances are measured to ground.

TABLE 1—RESISTANCE CHART

Valve	Resistance to Ground in Ohms							
	Pin No.							
	1	2	3	4	5	6	7	8
V1 (7H7)	80	10,500	50,500	0	0	2.5 meg.	150	0
V1 (7H7) with R.F. GAIN fully counterclockwise							15,150	
V2 (7S7)	80	700	25,650	25,000	50,650	500,000	0	0

TABLE 1—RESISTANCE CHART (Continued)

	Resistance to Ground in Ohms							
	Pin No.							
	1	2	3	4	5	6	7	8
V3 (7A7)	80	535	50,650	0	0	1.5 meg.	150	0
V3 (7A7) with R.F. GAIN fully counter-clockwise							15,150	
V4 (7B6)	80	500,500	15 meg.	0	525,000	525,000	0	0
V5 (7C5)	80	425	535	Infinity	Infinity	500,000	300	0
V6 (7B6)	80	1 meg.	50,000	0	0	Infinity	0	0
V7 (7Y4)	80	Infinity	325	Infinity	Infinity	325	0	0

(l) Take the resistance measurements shown in Table 2.

TABLE 2—POINT TO POINT RESISTANCE MEASUREMENTS

From	To	Resistance in Ohms	
Jct. of R1 & C16	Gnd.		100,000
Jct. of R1 & C16	C1A Stator	Band 1 Band 2 Band 3	3 1 .5
C22 (Switch Side)	C1B Stator	Band 1 Band 2 Band 3	3 1 .5
C27 (Switch Side)	C1C Stator	Band 1 Band 2 Band 3	2.5 .75 .5

Voltage Test

3. The voltages in Table 3 were measured with a L.T. input voltage of 5.8 V. at the fuse.

TABLE 3—VOLTAGE CHART

Valve	Voltage to Ground					
	Pin No.					
	1	2	3	5	6	7
V1 (7H7)	5.7	145	115	0	0	1.25
V2 (7S7)	5.7	196	96	65	-.7	0
V3 (7A7)	5.7	196	65	0	0	.85
V4 (7B6)	5.7	80	0	0	0	0
V5 (7C5)	5.7	198	196	0	0	9.3
V6 (7B6)	5.7	40	0	0	0	0
V7 (7Y4)	5.7	0	225 V., A.C.	0	255 V., A.C.	206 V., D.C.

Removal and Replacement of Parts

Tuning Condenser

4. To remove the tuning condenser:

(a) Remove the front panel of the set.

(b) Loosen off the two screws on the steel coupling to the shaft of the tuning condenser. Remove dials and gears.

(c) Remove 4 bolts with retaining nuts, which go through the front of the chassis.

(d) Remove the two nuts from the anchor bolts protruding through the top of the chassis.

(e) Remove the 4 bonding braids.

(f) Unsolder the six leads under the chassis and tag.

(f) Unsolder the six leads under the chassis and tag.

(g) Remove the four mounting screws (under chassis) and remove the condenser.

Tuning Coil Assembly

5. To remove the tuning coil assembly:

(a) Unsolder the leads to SW1 and tag.

(b) Unsolder the bonding braid between C12 and C7.

(c) Remove one screw at the bottom of the six trimmer condenser assembly.

(d) Remove 6 nuts from the anchor bolts protruding through the chassis.

(e) Lift out the tuning coil assembly.

Vibrator Unit

6. To remove the vibrator unit:

(a) Remove condensers C49 and C50.

(b) Unsolder the yellow lead from pin 3 of V5 to CH1.

(c) Remove the 4 screws from the mounting bracket and take out CH1.

(d) Remove 4 nuts from the anchor bolts under the chassis, and one round washer nut, taking care not to damage the rubber grommet.

(e) Lift out unit.

Output Transformer, T3

7. To remove the output transformer, T3:

(a) Unsolder the 5 leads from the 4 terminals under the chassis and tag.

(b) Remove the 4 retaining bolts and lift T3 out.

Speaker

8. To remove the speaker:

(a) Unsolder the green and the black lead to the speaker.

(b) Remove condensers C49 and C50.

(c) Remove 4 bolts and lock nuts.

(d) Remove the speaker.

Adjustment and Re-Alignment

I. F. Alignment

9. I.F. alignment is carried out as follows:

(a) Disconnect the black lead from the speaker.

(b) Set the gang condenser, C1, to minimum capacity.

(c) Turn the BAND switch to Band 1.

(d) Connect an output meter across the phone terminal. Set the meter multiplier to 10 and the impedance matching multiplier to :1.

(e) Set the signal generator to 465 Kc/s. and feed the output through a .05 ufd. condenser to pin 6 of V2.

(f) Adjust the output meter OHMS to read 60. A reading of 50 on the meter scale = 500 mW.

(g) Adjust LA and LC located on the top of the chassis and LB and LD located on the bottom of the chassis for maximum output on the output meter. These adjustments should be repeated twice with the output of the signal generator kept to a minimum for the second adjustment.

(h) The I.F. sensitivity with the R.F. and A.F. GAIN controls fully clockwise should be approximately 60 uV. for 500 mW. output.

(i) After completing the I.F. alignment, coat the adjusting screws with a good grade of lacquer or varnish to secure adjustment.

Dial Calibration

10. For correct calibration rotate the dial control until the gang condenser is in full mesh. The pointer should be in line with the extreme end of the dial at the low frequency end. If not, proceed as follows:

(a) Loosen the flexible coupling screws on the dial side and rotate the dial until the pointer is in line with the marker at the low frequency end of the dial.

(b) With the gang in full mesh, tighten the coupling set screws and check operation.

R. F. Alignment

11. Band 1 Alignment:

With the output of the signal generator connected between the antenna connector and chassis through a 50 uufd. condenser proceed as follows:

(a) Set the receiver dial and signal generator to 2.5 Mc/s.

(b) Adjust C8 until the signal is heard.

(c) Adjust the R.F. and antenna trimmers, C5 and C4 respectively, for maximum output.

(d) Set the receiver dial and the signal generator to 1.05 Mc/s.

(e) Rocking the gang condenser slightly, adjust C9 for maximum output.

(f) Recheck the high frequency end of the band. If the receiver is properly aligned the calibration should check within ½ of 1% (12.5 Kc/s.).

(g) Check for the image signal at 1.57 Mc/s. (Sig. Gen. at 1.57 + 2 × .465 =2.5 Mc/s.) at approximately 1000 uV. sensitivity.

12. Band 2 Alignment:

(a) Proceed as in Band 1 (Para. 11), adjusting C10, C6 and C3 respectively at 6.5 Mc/s. for the high frequency end of the band.

(b) Adjust the padder C11 at 2.6 Mc/s. for maximum output while rocking the gang condenser slightly.

(c) Recheck the alignment at the high frequency end of the band.

(d) Check for the image at 5.57 Mc/s. (Sig. Gen. at 5.57 + 2 × .465 = 6.5 Mc/s.) at approximately 300 uV. sensitivity.

13. Band 3 Alignment:

(a) Proceed as in Band 1 (Para. 11), adjusting C12, C7 and C2 respectively at 15 Mc/s. for the high frequency end of the band.

(b) Adjust the padder C13 at 6.5 Mc/s. for maximum output, while rocking the gang condenser slightly.

(c) Recheck the alignment at the high frequency end of the band.

(d) Check for the image at 14.07 Mc/s. (Sig. Gen. at 14.07 + 2 × .465 = 15.0 Mc/s.) at approximately 100 uV. sensitivity.

NOTE:—All three bands should normally be below 5 uV. sensitivity for 500 mW. output.

B.F.O. Adjustment

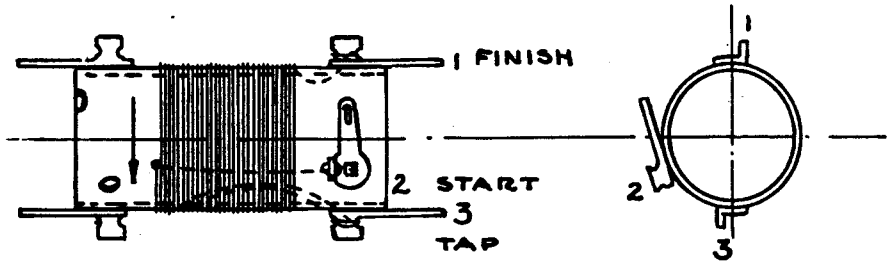
14. With the B.F.O. TONE, C32, set to such a position that the plates are one-half in mesh, proceed as follows:

(a) Set the signal generator to 465 Kc/s. and connect the output between pin 6 of V2 and chassis through a .05 ufd. condenser.

(b) With the receiver gang condenser set to minimum capacity, adjust the B.F.O. trimmer condenser, C34, at the rear of the chassis for zero beat.

(c) Proper operation is obtained when rotating the pitch control in either direction a variable tone is produced of about 3 Kc/s. either side of zero beat.

Reconstruction Data

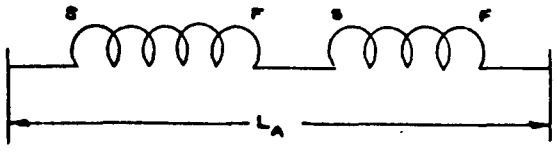


T EZ 124/1 1-1

FIG. 1—L1, BAND 1 ANTENNA COIL

TABLE 4—L1, BAND 1 ANTENNA COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030
Turns	81-2/3 close wound.
Conductor	No. 32 enamel.
Tap	10-1/6 turns.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.
Q	86 at 1.6 Mc/s. with resonating capacity of 129 uufd.
Inductance	77 uH.
Mutual Inductance (See Note)	5.6 uH.



SERIES AIDING INDUCTANCE

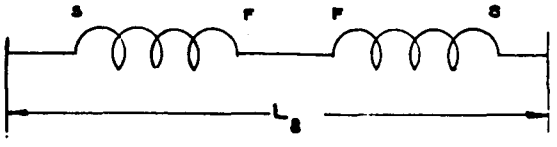
NOTE:—Formula for finding Mutual Inductance.

$$M = \frac{La - Lb}{4}$$

where M = Mutual inductance

La = Series aiding inductance

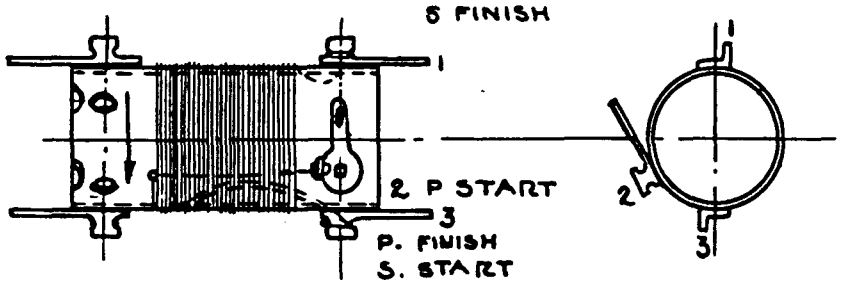
Lb = Series bucking inductance.



SERIES BUCKING INDUCTANCE.

T EZ 124/1 1-2

FIG. 2—CONNECTION OF COILS FOR MUTUAL INDUCTANCE MEASUREMENTS

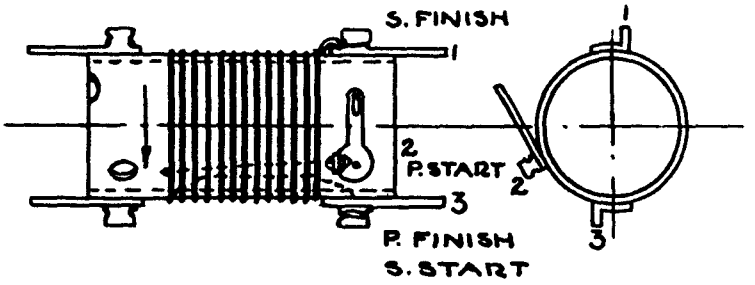


T EZ 124/1 1-3

FIG. 3—L2, BAND 2 ANTENNA COIL

TABLE 5—L2, BAND 2 ANTENNA COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030	
Windings	Primary	Secondary
Turns	5-1/6 close wound	29½—wound at 42 turns per inch.
Conductor	No. 34 enamel	No. 26 enamel
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.	
Q (Pr. & Sec. in Series)	116 at 4.15 Mc/s. with resonating capacity of 120 uufd.	
Inductance	11.91 uH.	
Mutual Inductance	1.55 uH. (See Note and Fig. 2).	

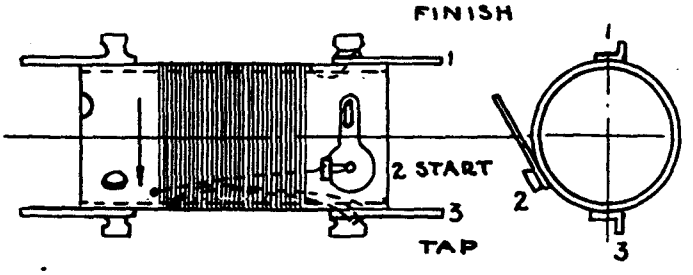


T EZ 124/1 1-4

FIG. 4—L3, BAND 3 ANTENNA COIL

TABLE 6—L3, BAND 3 ANTENNA COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030	
Windings	Primary	Secondary
Turns	3-1/6 close wound	12½ wound at 16 turns per inch.
Conductor	No. 29 enamel	No. 22 tinned copper.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.	
Q (Pr. and) (Sec. in) (Series)	132 at 10 Mc/s. with resonating capacity of 114 uufd.	
Inductance	2.22 uH.	
Mutual Inductance	.34 uH. (See Note and Fig. 2).	

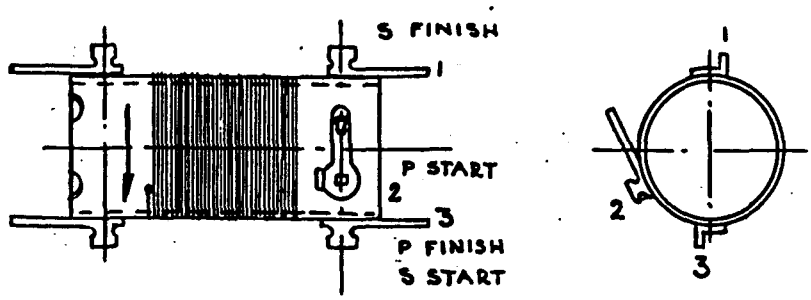


T EZ 124/1 1-5

FIG. 5—L4, BAND 1 R.F. COIL

TABLE 7—L4, BAND 1 R.F. COIL

Form	1 .635/.0620 X .7515/.7485 Bakelite .035/.030
Turns	82-2/3 close wound.
Conductor	No. 32 enamel.
Tap	10-1/6 turns.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.
Q	86 at 1.6 Mc/s. with resonating capacity of 128 uufd.
Inductance	77.6 uH.
Mutual Inductance	8.5 uH. (See Note and Fig. 2).

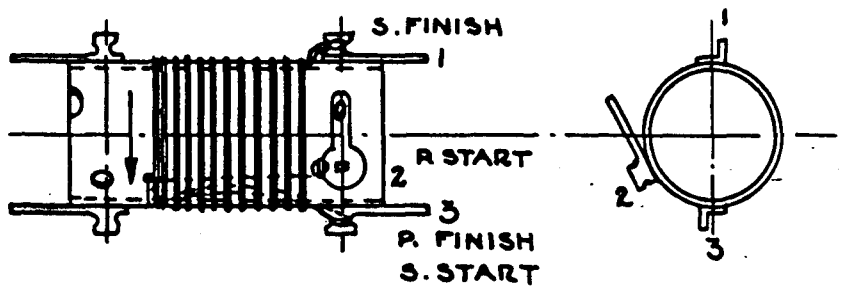


T EZ 124/1 1-6

FIG. 6—L5, BAND 2 R.F. COIL.

TABLE 8—L5, BAND 2 R.F. COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030	
Windings	Primary	Secondary
Turns	6-1/6 close wound	29½ wound at 41 turns per inch.
Conductor	No. 34 enamel	No. 26 enamel.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.	
Q (Pr. and Sec.) (in series)	115 at 4.15 Mc/s. with resonating capacity of 121 uufd.	
Inductance	12.05 uH.	
Mutual Inductance	1.66 uH. (See Note and Fig. 2).	

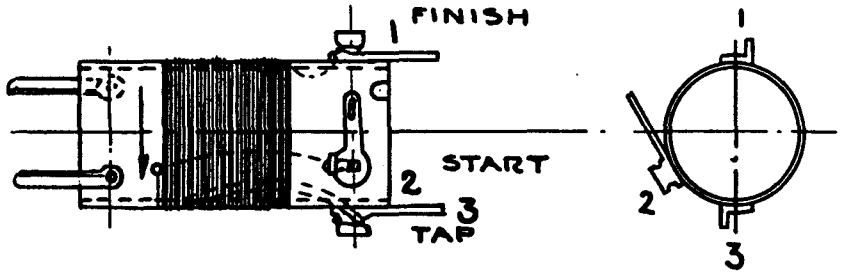


T EZ 12/41 1-7

FIG. 7—L6, BAND 3 R.F. COIL

TABLE 9—L6, BAND 3 R.F. COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030	
Windings	Primary	Secondary
Turns	6-1/6 close wound	12½ wound at 16 turns per inch.
Conductor	No. 29 enamel	No. 22 tinned copper.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.	
(Pr. and Sec.) (in series)	125 at 10 Mc/s. with resonating capacity of 114 uufd.	
Inductance	2.218 uH.	
Mutual Inductance	.65 uH. (See Note and Fig. 2).	

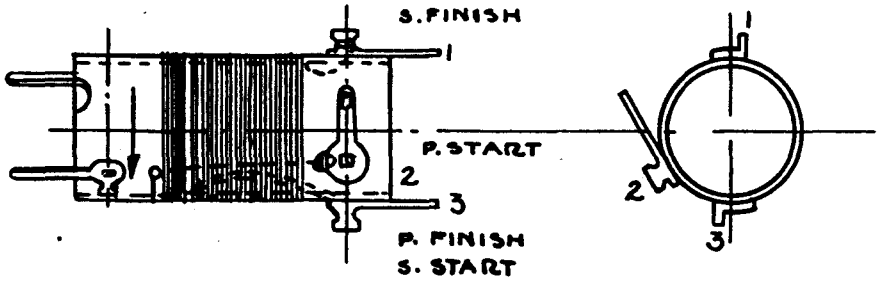


T EZ 124/1 1-8

FIG. 8—L7, BAND 1 OSCILLATOR COIL

TABLE 10—L7, BAND 1 OSCILLATOR COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030
Turns	65 2/3, wound at 100 turns per inch.
Conductor	No. 32 enamel
Tap	10-1/6 turns.
Tfeatment	Thoroughly impregnate with B1-wax, then with Hallowax.
Q	86 at 1.6 Mc/s. with resonating capacity of 200 uufd.
Inductance	49.3 uH.
Mutual Inductance	6.25 uH. (See Note and Fig. 2).

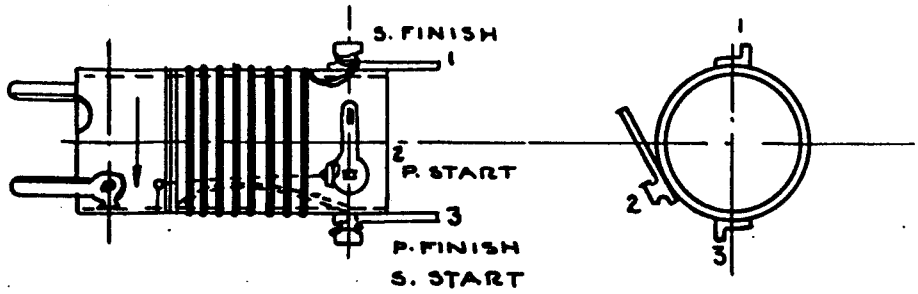


T EZ 124/1 1-9

FIG. 9—L8, BAND 2 OSCILLATOR COIL

TABLE 11—L8, BAND 2 OSCILLATOR COIL

Form	1 .635/.620 X .7515/.7485 Bakelite .035/.030	
Windings	Primary	Secondary
Turns	4-1/6 close wound	27½ wound at 38.5 turns per inch.
Conductor	No. 34 enamel	No. 26 enamel.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.	
Q (Pr. and Sec.) (in series)	116 at 4.15 Mc/s. with resonating capacity of .141 uufd.	
Inductance	10.28 uH.	
Mutual Inductance	.982 uH. (See Note and Fig. 2).	

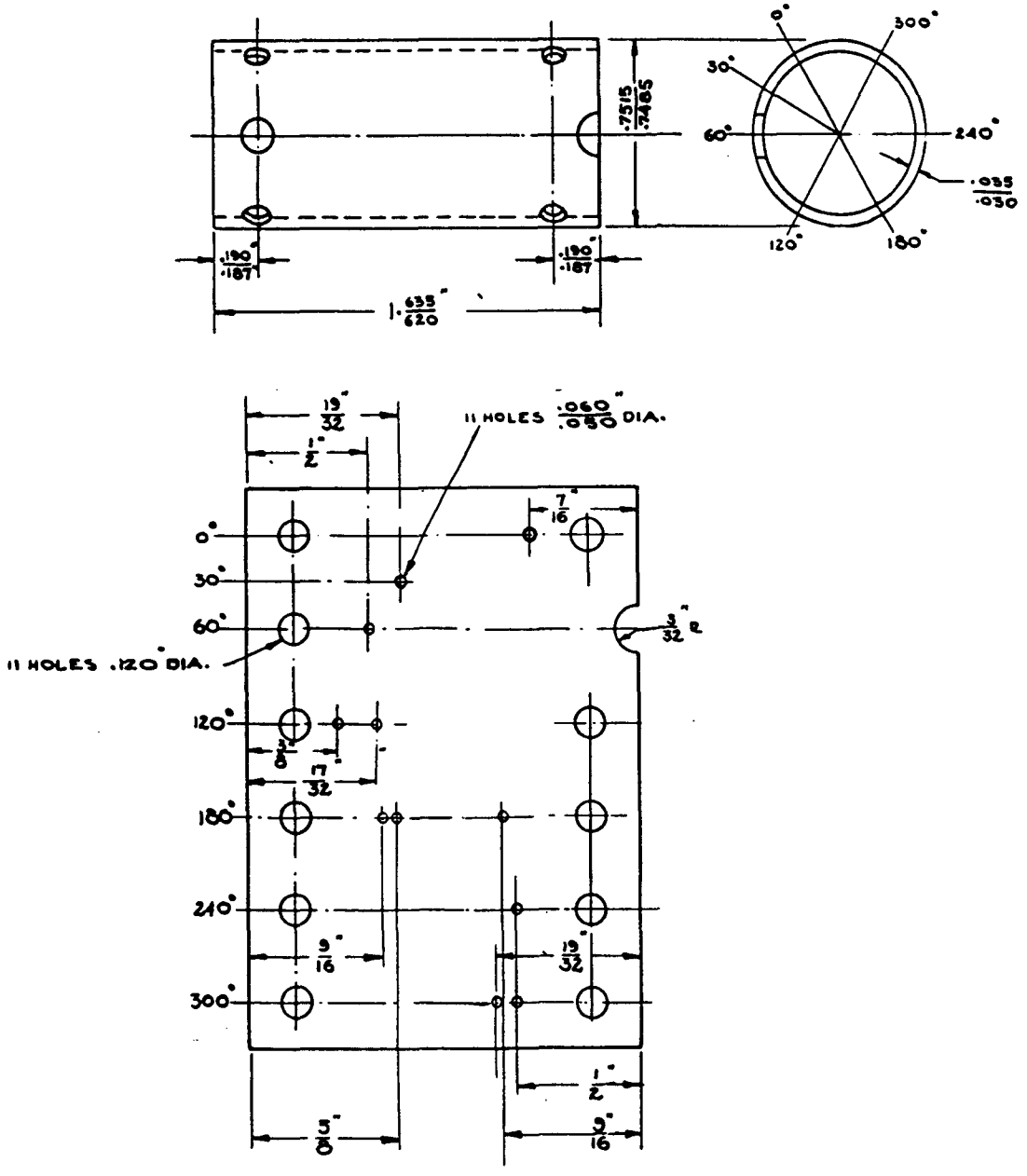


T EZ 124/1 1-10

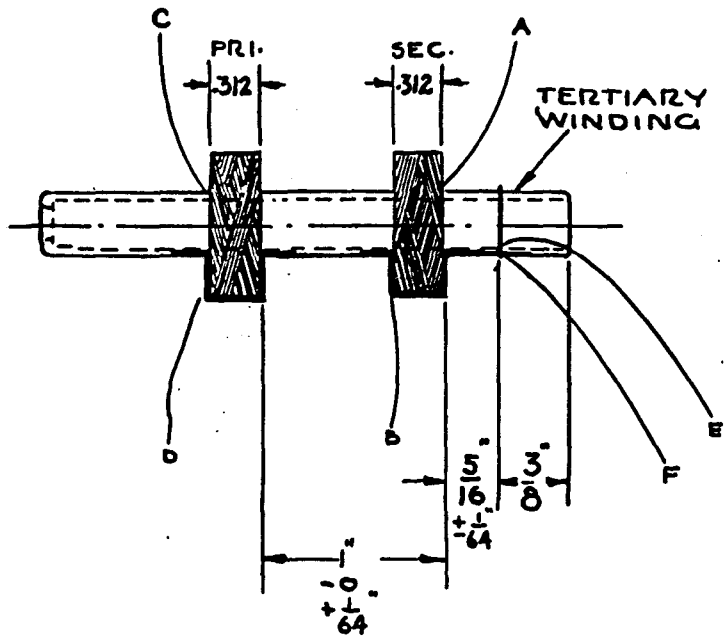
FIG. 10—L9, BAND 3 OSCILLATOR COIL

TABLE 12—L9, BAND 3 OSCILLATOR COIL

Form	1 .635/.620 X .7515/.7485	Bakelite .035/.030
Windings	Primary	Secondary
Turns	4-1/6 close wound	11½, wound at 16 turns per inch.
Conductor	No. 29 enamel	No. 22 tinned copper.
Treatment	Thoroughly impregnate with B1-wax, then with Hallowax.	
Q (Pr. and Sec.) (in series)	127 at 10 Mc/s. with resonating capacity of 126 uufd.	
Inductance	1.99 uH.	
Mutual Inductance	.272 uH. (See Note and Fig. 2).	



T EZ 124/1 1-11 FIG. 11—FORM FOR ALL ANTENNA, R.F., AND OSCILLATOR COILS



T EZ 124/1 / 1 - 12

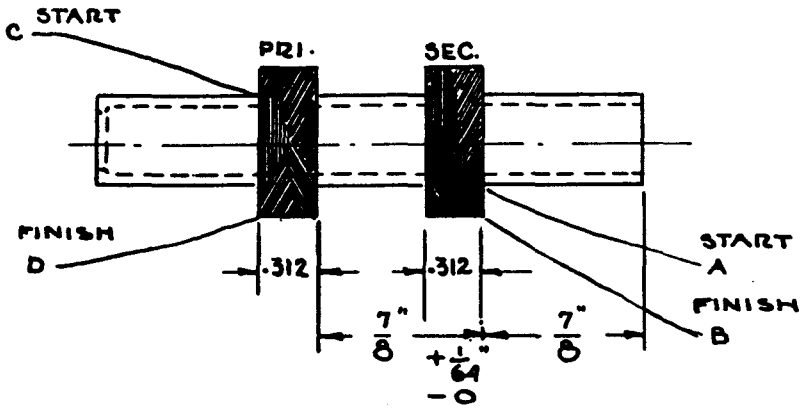
FIG. 12—T1, I.F. TRANSFORMER

TABLE 13—T1 COIL DATA

Form	2 7/8" x 7/16" x 11/32". 3/64" seamless paper tubing with .010" conite paper centre.		
Windings	Primary	Secondary	Tertiary
Turns	295	295	1
Conductor	7/42 Litz	7/42 Litz	No. 32 S.S.E.
Wire Length	44 ft. approx.	44 ft. approx.	
Winding Length	.312"	.312"	
Winding Data	Cam .312" Idler 1:1 Gears 41-80	Cam .312" Idler 1:1 Gears 41-80	Wind in same direction as secondary.
Treatment	Impregnate with B1-wax, then with Hallowax. Plug ends of coil form when dipping.		

TABLE 14—T1 TEST DATA

Test	Primary	Secondary	Freq. Used
Q	111	111	465 Kc/s. in air.
Inductance	1010 uH. ± 11 uH.	1010 uH. ± 11 uH.	300 and 600 Kc/s.
Distributed Capacity	11.3 uufd.	11.3 uufd.	300 and 600 Kc/s.
Mutual Inductance	31.3 uH. between pri. and secy.		250 & 500 Kc/s.
D.C. Resistance	10.5 ohms	10.5 ohms.	



T EZ 124/1 1-13

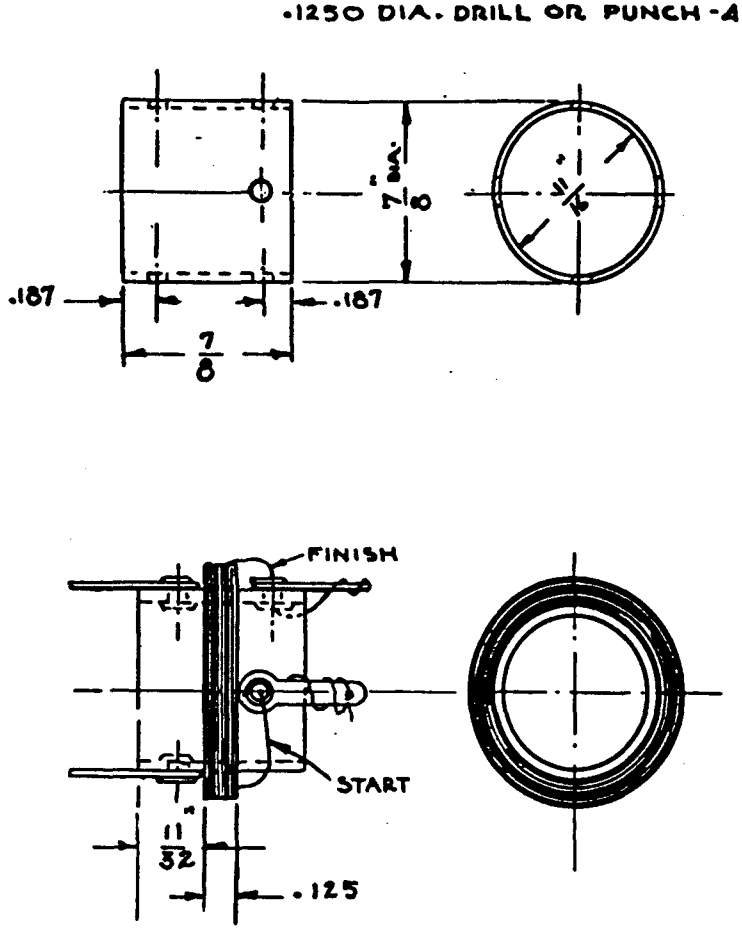
FIG. 13—T2, I.F. TRANSFORMER

TABLE 15—T2 COIL DATA

Form	2 7/8" x 7/16" x 11/32". 3/64" seamless paper tubing with .010" conite paper centre.	
Windings	Primary	Secondary
Turns	295.	295.
Conductor	7/42 Litz	7/42 Litz.
Wire Length	44 ft. approx.	44 ft. approx.
Winding Length	.312"	.312"
Winding Data	Cam .312" Idler 1:1 Gears 41-80	Cam .312". Idler 1:1. Gears 41-80.
Treatment	Impregnate with B1-wax, then with Hallowax. Plug ends of coil form when dipping.	

TABLE 16—T2 TEST DATA

Test	Primary	Secondary	Freq. Used
Q	114	114	465 Kc/s. in air.
Inductance	1010 uH. ± 11 uH.	1010 uH. ± 11 uH.	300 & 600 Kc/s.
Distributed Capacity	11.3 uuf.	11.3 uufd.	300 & 600 Kc/s.
Mutual Inductance	31.3 uH. between pri. & secy.		250 & 500 Kc/s.
D.C. Resistance	10.5 ohms	10.5 ohms.	

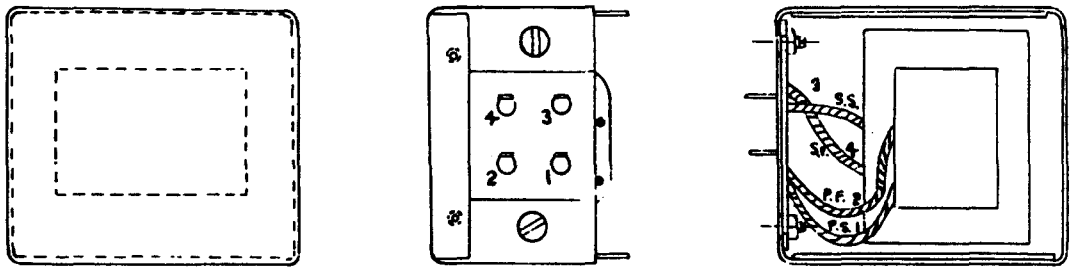


T EZ 124/1 1-14

FIG. 14—L10, B.F.O. COIL

TABLE 17—L10 COIL DATA

Form	Bakelite 3/32". Length 7/8" Diameter 7/8"
Turns	320.
Conductor	No. 38, single silk enamel.
Winding Length	.125".
Treatment	Bakelite form to be varnished before winding. Thoroughly impregnate coil with B1-wax, then impregnate with Hallowax.
Q	50 at 300 Kc/s. with resonating capacity of 66 uufd.
Inductance	4.26 mH.

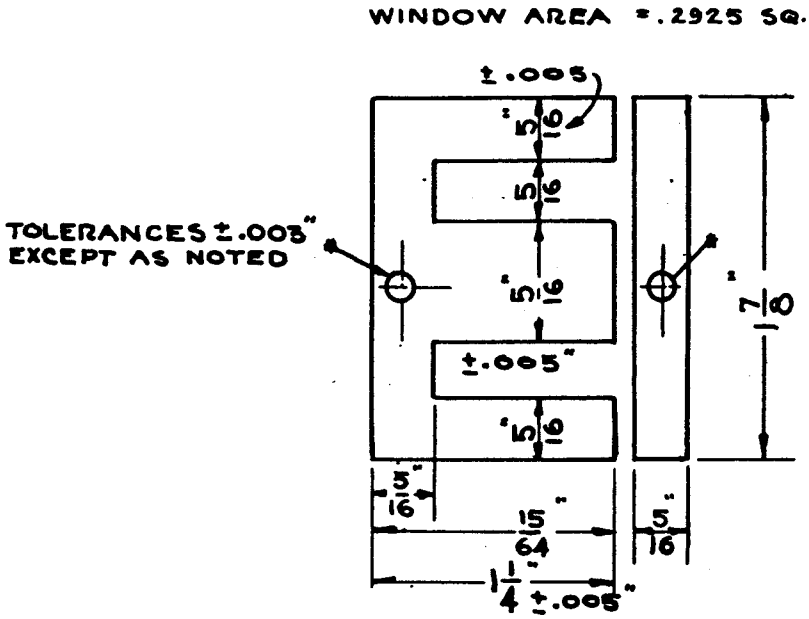


T EZ 124/1 / 1 - 15

FIG. 15—T3, OUTPUT TRANSFORMER

TABLE 18—T3, OUTPUT TRANSFORMER WINDING DATA

Form	5/8" x 29/32" x .640".	
Windings	Primary	Secondary
Turns	2926	77.
Conductor	No. 37 enamel	No. 22 enamel.
Winding Length	.70"	.70"
Turns per Layer	133	26.
No. of Layers	22	3.
Paper Layers	.0007" C.T.	.004" Kraft.
Wrapper	2 layers .006" Kraft	2 layers .006" Kraft.
Lamination	E1-625 (See Fig. 16). Stack to 5/8".	
Butt Stack	.002" Kraft spacer.	
Treatment	Impregnate with Tropical Vacuum Varnish.	
Test Data	392 ohms. .34 Ma.	



CORE PROPERTIES OF STACK HAVING SQUARE CENTRE

V = 1.46 CUBIC INCHES = 24 CUBIC CM.

CORE WT.(SOLID) = .398 LB. = 181.0 GR.
(HIGH SILICON STEEL)

CORE WT.(SOLID) = .441 LB. = 199.0 GR.
(ALLEGHENY ELECTRIC METAL)

A = 2.52 SQ.CM. = .39 SQ.INCHES

ℓ = 9.53 CM. = 3.75 INCHES.

STACKING FACTOR (K_1) = .94
(BUTT-JOINT)

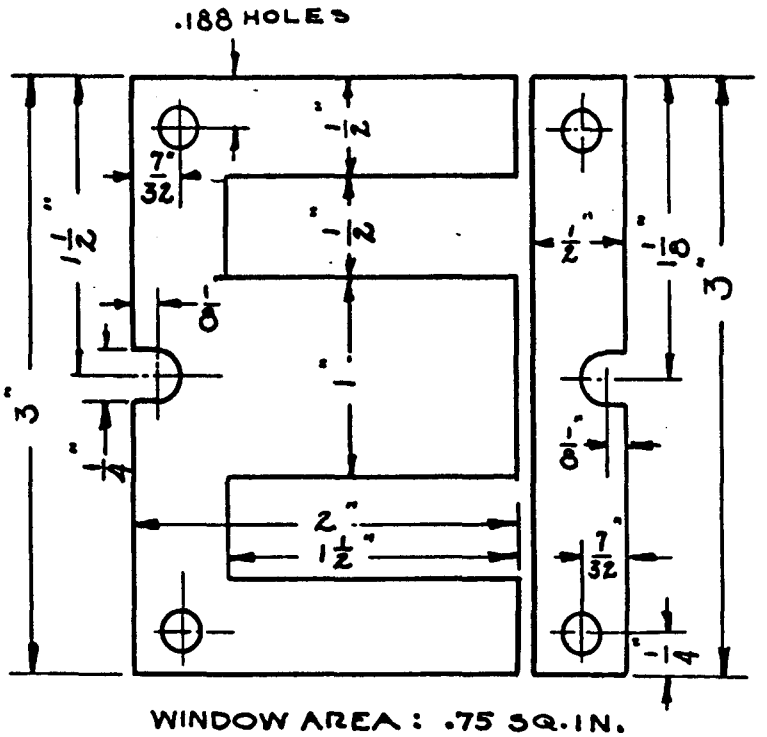
STACKING FACTOR (K_1) = .88
(100% INTERLEAVED)

• NOTE •

* IN ORDER TO REDUCE HANDLING COST, ANNEALED LAMINATIONS OF THIS TYPE CARRY .125" DIAMETER HOLES AT THESE POINTS.

T EZ 124/1 1 - 16

FIG. 16—LAMINATION E1—625.



CORE PROPERTIES OF STACK HAVING SQUARE CENTRE

V = 6 CUBIC INCHES = 98.2 CU. CM.

CORE WT.(SOLID) = 1.62 LBS. = 735 GR.
(HIGH SILICON STEEL)

CORE WT.(SOLID) = 1.8 LBS. = 818 GR.
(ALLEGHENY ELECTRIC METAL)

A = 6.45 SQ.C.M. = 1 SQ.INCH

ℓ = 15.25 C.M. = 6 INCHES

STACKING FACTOR (K_1) = .94
(BUTT-JOINT)

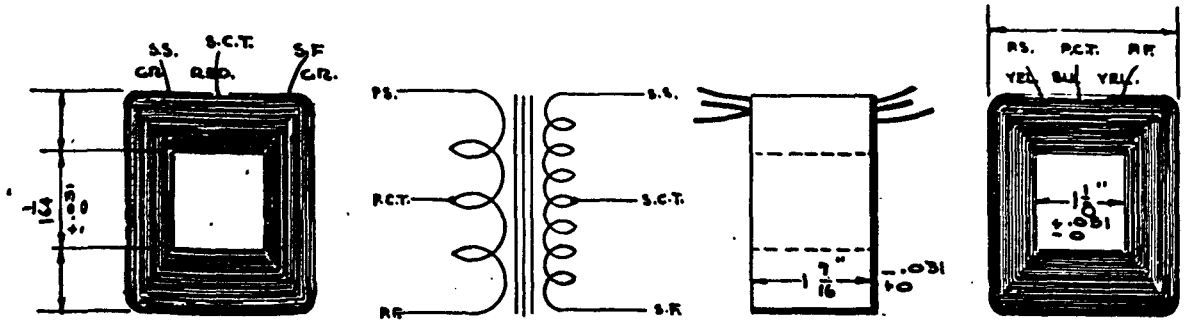
STACKING FACTOR (K_1) = .88
(100 % INTERLEAVED)

• NOTE •

ABOVE DESIGN IS STANDARD WITH SLOTS AND HOLES.
SLOTS CAN BE OMITTED.

T EZ 124/1 1-17

FIG. 17—LAMINATION E1—12



T EZ 124/1 1 - 18

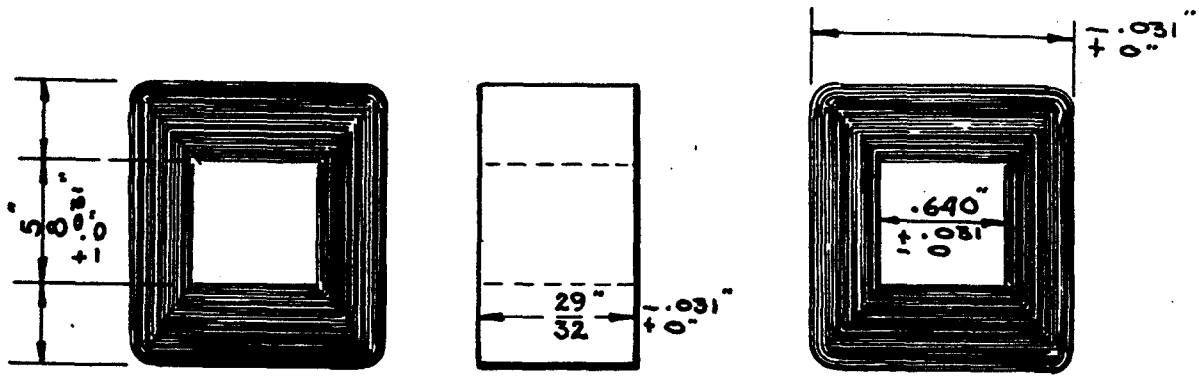
FIG. 18—T4, VIBRATOR TRANSFORMER

TABLE 19—T4 WINDING DATA

Form	1-1/64" x 1" x 1-7/16" Wall .04".	
Windings	Primary	Secondary (Wound next to core).
Turns	80	4700.
Conductor	No. 18 enamel	No. 35 enamel.
Tap	40	2350.
Winding Length	1.1875"	1.1875".
Turns per Layer	20	181.
No. of Layers	4	26.
Paper Layers	.006" Kraft	.001" Glassine.
Wrapper	2 layers .006" Kraft	3 layers .006" Kraft.
Lamination	E1 - 12 (See Fig. 18) Stack to 1-1/8".	
Treatment	Impregnate with Tropical Vacuum Varnish.	

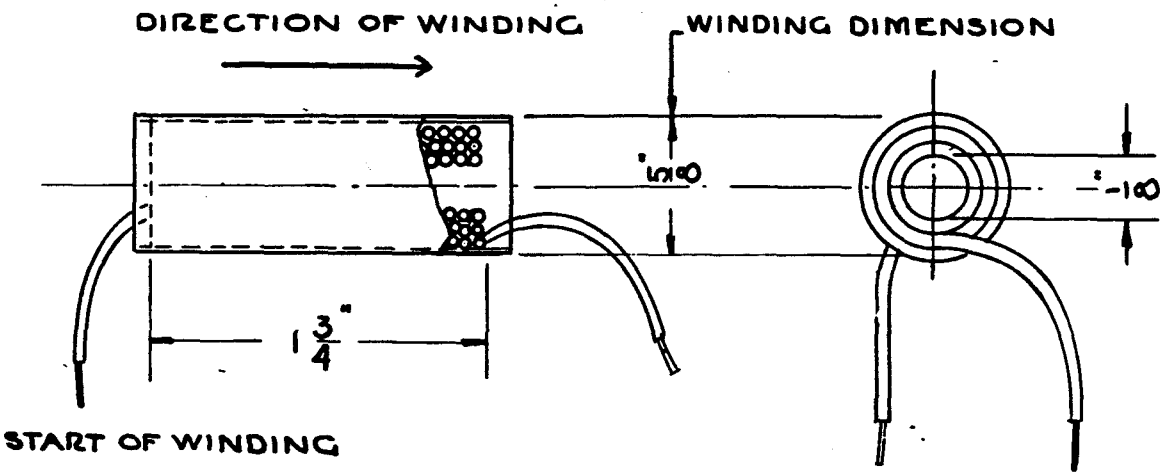
TABLE 20—CH1 WINDING DATA

Form	.625" x .640" x 29/32" Wall .04".
Turns	4284.
Conductor	No. 36 enamel copper.
Winding Length	.70"
Turns per Layer	119.
No. of Layers	36.
Paper Layers	.0007" C.T.
Wrapper	2 Layers .006" Kraft.
Laminations	E1-625 (See Fig. 16) Stack to 5/8".
Butt Stack	.004" paper spacer.
Treatment	Varnish core edges. Impregnate with Tropical Vacuum Varnish.
Test Data	Resistance 535 ohms.



T EZ 124/1 1-19

FIG. 19—CH1 CHOKE

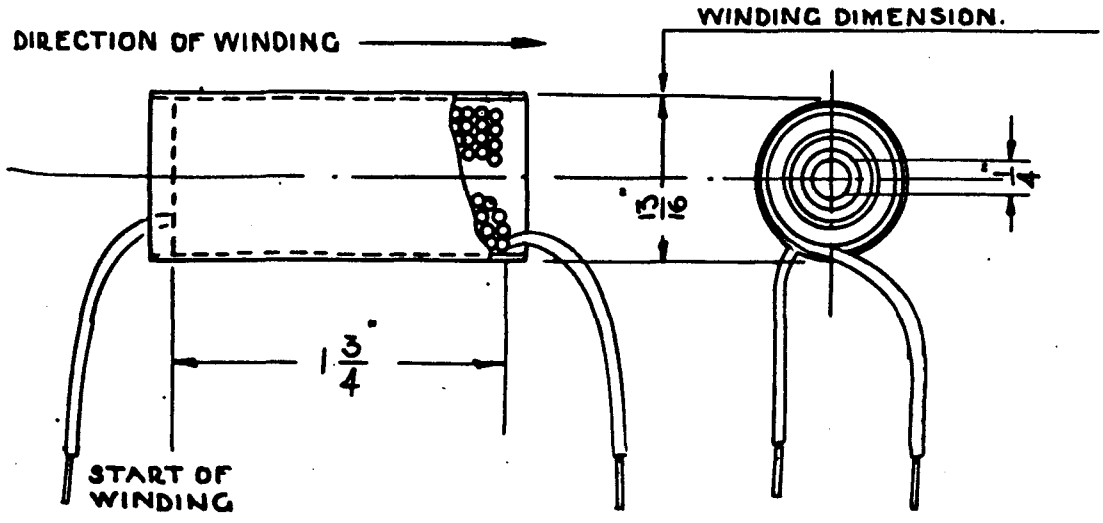


T EZ 124/1 1-20

FIG. 20—CH3 CHOKE

TABLE 21—CH3 WINDING DATA

Form	Air space 1/8".
Turns	66.
Conductor	No. 14, B & S., Copper, D.C.C.
Winding Length	1¾".
Turns per Layer	22.
No. of Layers	3.
Treatment	Complete coil to be covered with 6 layers of Kraft paper and impregnated with wax. Melting point of wax to be above 71° C.
Test Data	Inductance 5.34 uH. Resistance .02 ohms.



T EZ 124/1 1-21

FIG. 21—CHOKES CH2 AND CH4

TABLE 22—CH2 AND CH4 WINDING DATA

Form	Air space ¼".
Turns	140.
Conductor	No. 16, B & S, copper D.C.C.
Winding Length	1¾".
Turns per Layer	28.
No. of Layers	5.
Treatment	Complete coil to be covered with 6 layers of Kraft paper and impregnated with wax. Melting point of wax to be above 71° C.
Test Data	Inductance 24 uH. Resistance .1 ohms.

H.Q. 70-48-16-13

END