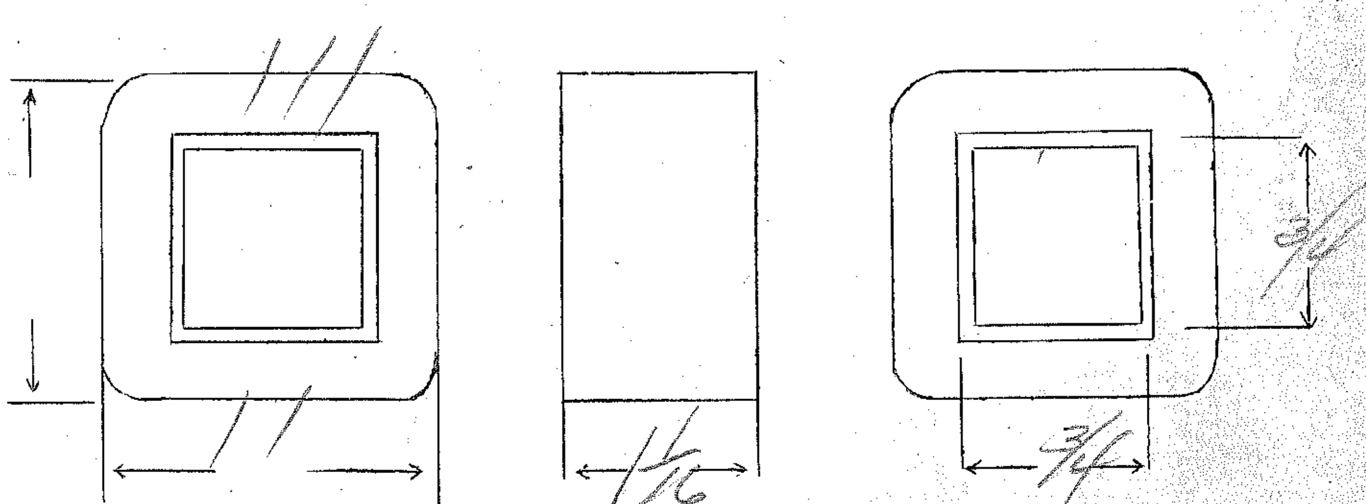
PP2A5 to 9Ω VC

SPEC. NO. 2900

Winding	P	S					
Turns	4000	100					
Taps	2000	—					
Wind. Lgth.	7/8						
Wire Size	#36	#23					
T.P.L.	145	—					
Kind Term.	sil Br	wire only					
Term. Lgth.	3"	3"					
Layer Insul.	20#	—					
Test Volt.							
Wrapper	2100 5GA	2100 5GA					

TUBE	52007	IMPREGNATION	wax
CORE	3/4 x 3/4 – 24 ga – 2x2	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY GW DATE 4/6/37

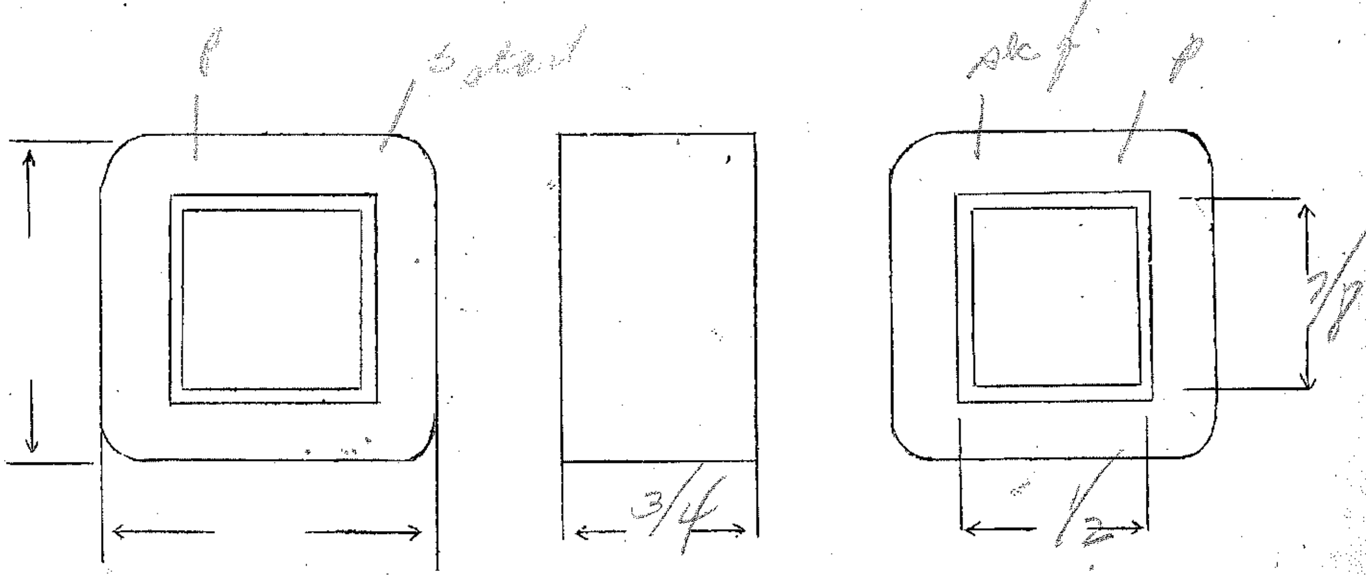
30 Ω to ribbon — RCA 44A microphone

SPEC. NO. 2901

Winding	P_1	S	P_2				
Turns	20	210	20				
Taps							
Wind. Lgth.	9/16	✓	✓				
Wire Size	#22	#29	#22				
T.P.L.							
Kind Term.	Par Braid						
Term. Lgth.	6"	6"	6"				
Layer Insul.		30#					
Test Volt.							
Wrapper	2100 56A	2100 56A	2100 56A				

TUBE	5007	IMPREGNATION	wax
CORE		PRIMARY V.A.	
MOUNTING	in microphone		

P_1 + P_2 are parallel



DESIGNED BY GW DATE 4/15/37

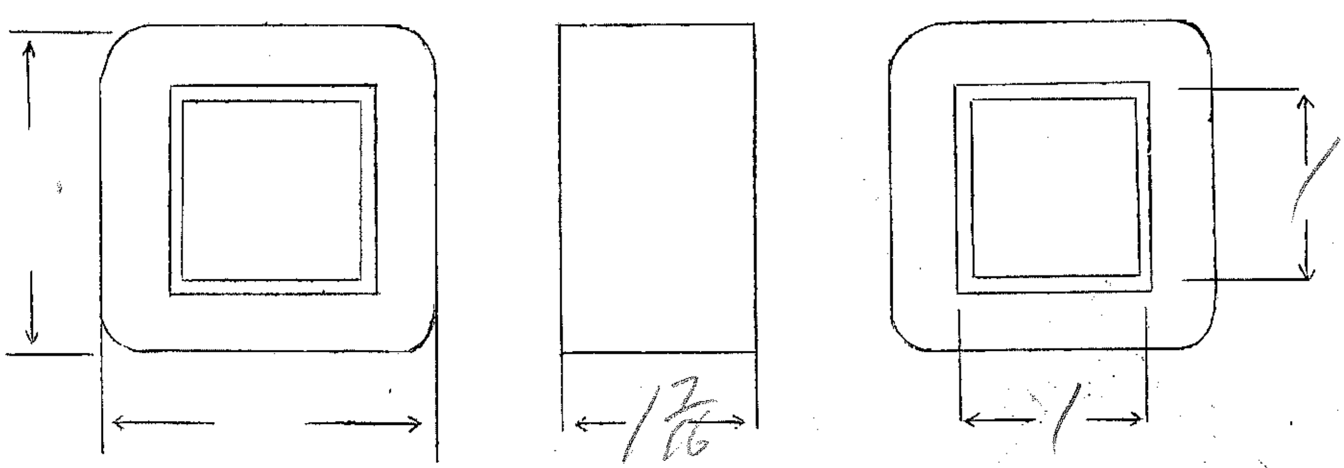
500 to 1.5 Ω VC

SPEC. NO. 2902

Continuous

Winding							
Turns	1000	60					
Taps	—	—					
Wind. Lgth.	1.25	—					
Wire Size	#27	#17					
T.P.L.	74-14	24-3					
Kind Term.	sil B	wire only					
Term. Lgth.	3"	3"					
Layer Insul.	40#						
Test Volt.							
Wrapper		2600 5 GA					

TUBE	7L007	IMPREGNATION	Varnish
CORE	1 X 1 - 2600 B Grade	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY Gw

DATE 4/3/37

OD 6V6 to 3 n VC

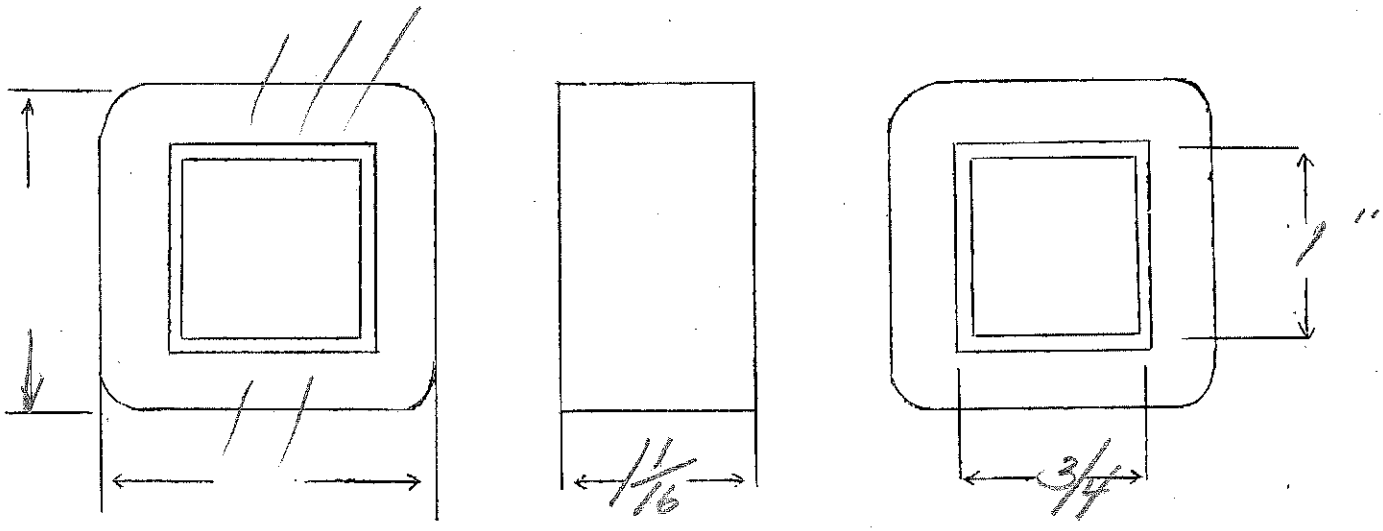
SPEC. NO. 2903

Winding	P	S					
Turns	3500	61					
Taps	1750	—					
Wind. Lgth.	7/8	7/8					
Wire Size	#36	#20					
T.P.L.	1/6-24	3L					
Kind Term.	Sil Gl	W.O.					
Term. Lgth.	3"	3"					
Layer Insul.	2 ply						
Test Volt.	1250						
Wrapper	2 x 5 GA	2 x 5 GA					

TUBE 5L007 | IMPREGNATION Varnish

CORE 3/4 x 1 - 2 1/2 - Grade 29 Aa | PRIMARY V.A.

MOUNTING D



DESIGNED BY GWS DATE 4/2/57

Ep - 120V - 25 ~ Ef2 - 1.5V C.T. - 3 amps 49

Es 600V CT - 50 ma Ef3 - 2.5V CT - 1 amp

Ef1 - 5V - 2 amp Ef4 - 5V CT - .5 amps

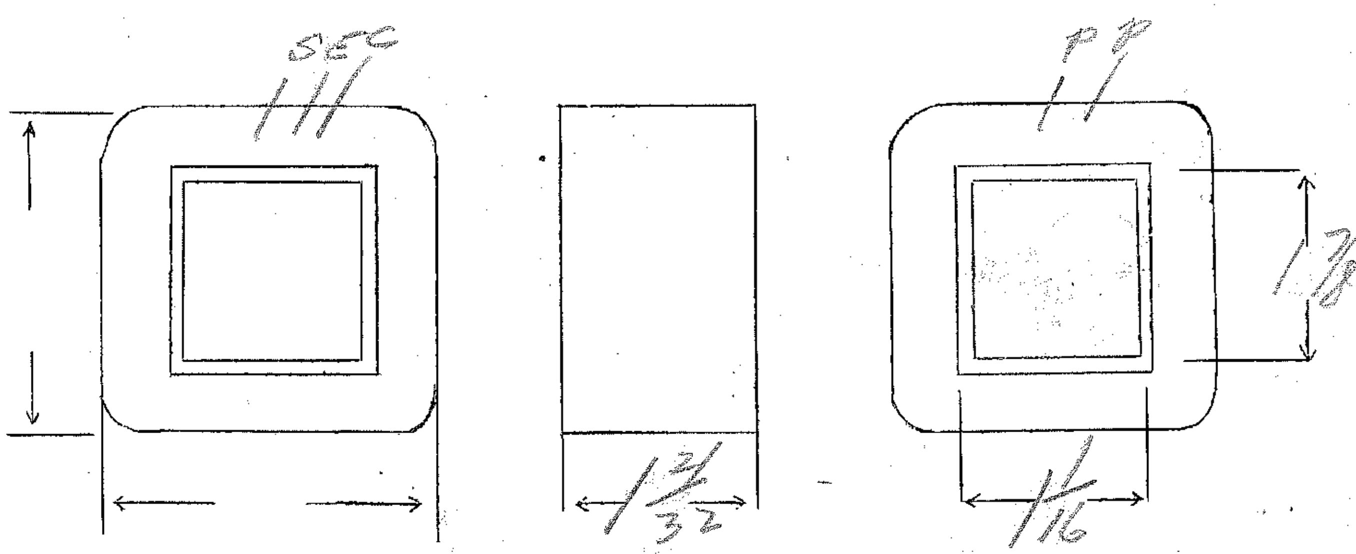
SPEC. NO. 2904-25~

Winding	SEC	SHIELD	PRI	F1	F2	F3	F4
Turns	3360	70	588	28	8	14	28
Taps	1680			—	4	7	14
Wind. Lgth.	1 15/32	✓	✓	✓	✓		
Wire Size	#35	#25	#25	#20	#15	#23	#23
T.P.L.	214-16		70-9				
Kind Term.	#20 [illegible]	W.O.	#20 [illegible]	WIRE ONLY Sleeving			
Term. Lgth.	9"	3"	9"	✓	✓	✓	✓
Layer Insul.	double 16#		50#				
Test Volt.	2500		1250				
Wrapper	1600 TVC	1600 TVC	2100 SGA	✓	✓	✓	2100 SGA

TUBE 76007 IMPREGNATION VARNISH

CORE 1 1/16 x 1 7/8 PRIMARY V.A.

MOUNTING A



DESIGNED BY DATE 4/12/37

OUTPUT 5000 volts 2.5 ma ALLIED PHONOGRAPH

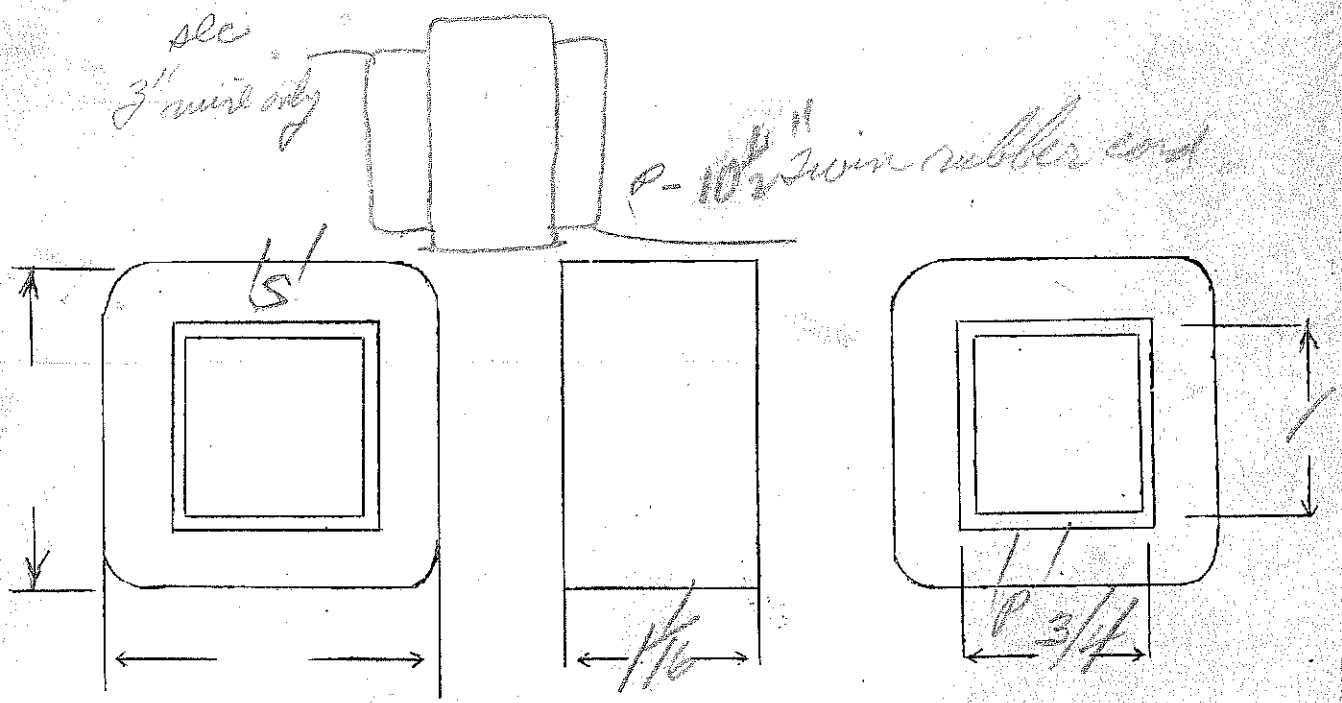
SPEC. NO. 2905

Winding	P	S					
Turns	3100	70					
Taps	—	—					
Wind. Lgth.	7/8	7/8					
Wire Size	#35	#21					
T.P.L.	130-24	26-3					
Kind Term.	oil bk	WP.					
Term. Lgth.	3"	3"					
Layer Insul.	30#	.005"					
Test Volt.							
Wrapper	2 thick	2 thick					

TUBE 5L007 | IMPREGNATION VARNISH

CORE 3/4" - 72 laminations .003" thick | PRIMARY V.A.

MOUNTING D - use "D" panel over top of can - 2 lugs -



DESIGNED BY BW DATE 4/15/37

Pri 5000 CT — 2500 — [illegible]
Sec — 2000, 3000, 4000 — 160 ma
[illegible]

SPEC. NO. 2907

Winding	PRI	SEC					
Turns	2200	2100 / 1800					
Taps	1560 / 1100	1500					
Wind. Lgth.	1 3/8	1 3/8					
Wire Size	#33	#29					
T.P.L.	158-14	100-22					
Kind Term.	Sil Br.						
Term. Lgth.	6"	6"					
Layer Insul.	[illegible] 16#	[illegible] 16#					
Test Volt.	5000						
Wrapper	2001 VC	1001 VC / 2100 SGA					

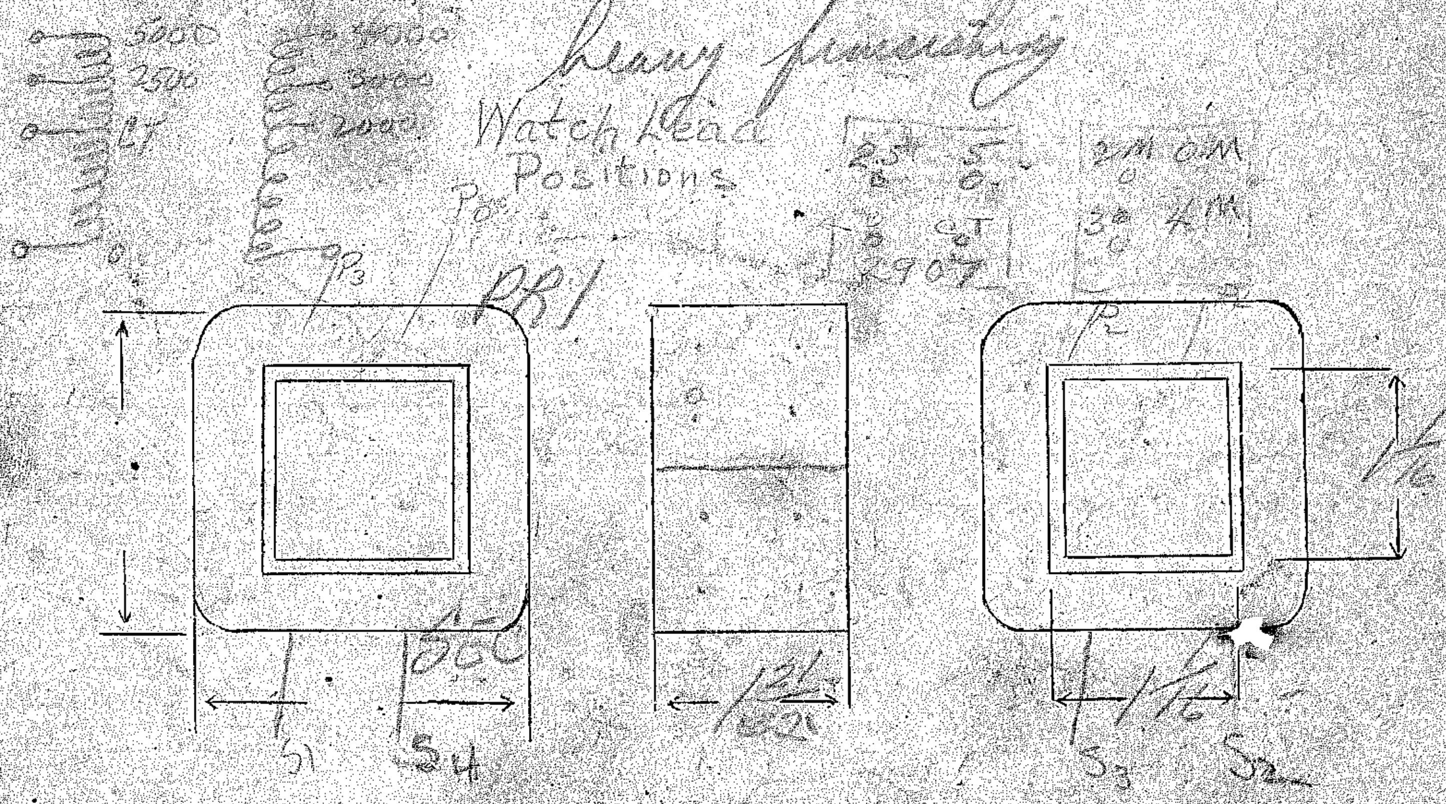
TUBE | 7007 | IMPREGNATION | [illegible]

CORE | 1 1/16 x 1 1/16 – [illegible] | PRIMARY V.A.

MOUNTING F

Heavy [illegible]

Watch Lead Positions



IGNED BY [illegible] DATE 4/20/37

25A6 (4000-2) to 5R-2 watts

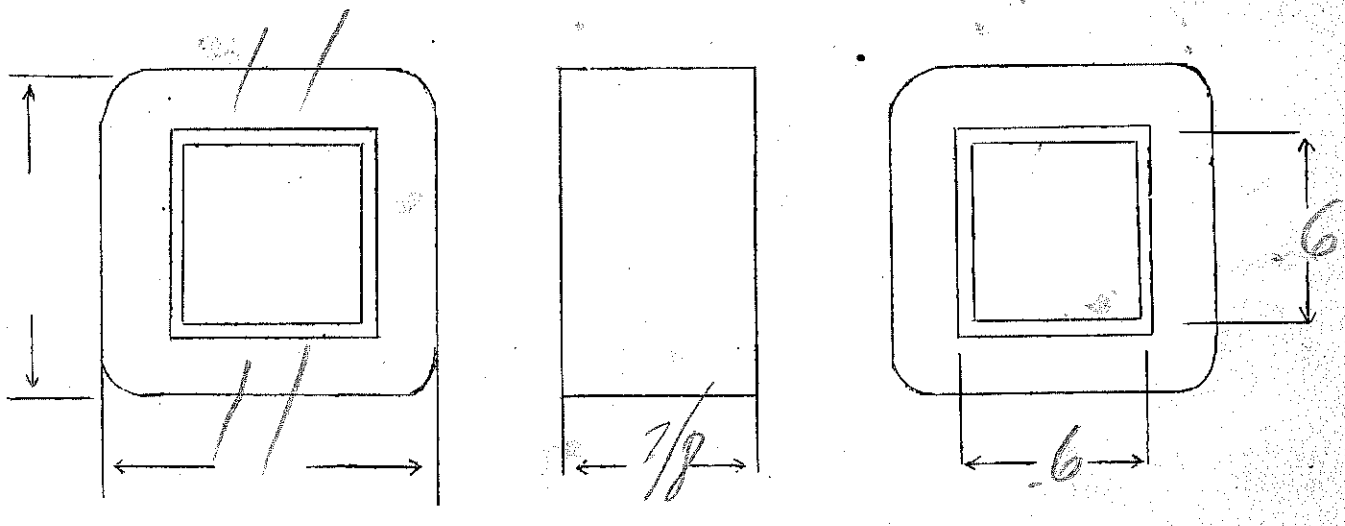
SPEC. NO. 2908

Winding	PRI	SEC					
Turns	2160	76					
Taps	—	—					
Wind. Lgth.	3/4	〃					
Wire Size	#37	#22					
T.P.L.	136-16	26-3					
Kind Term.	Sol B.	W.O.					
Term. Lgth.	3"	3"					
Layer Insul.	20#						
Test Volt.							
Wrapper	2 thin	2 thin					

TUBE 5Z007 | IMPREGNATION VARNISH

CORE 6x6 - 29ga, .003 Gap | PRIMARY V.A.

MOUNTING D



DESIGNED BY GW DATE 4/20/37

PP 6V6 to 2.2 Ω VC

Custom

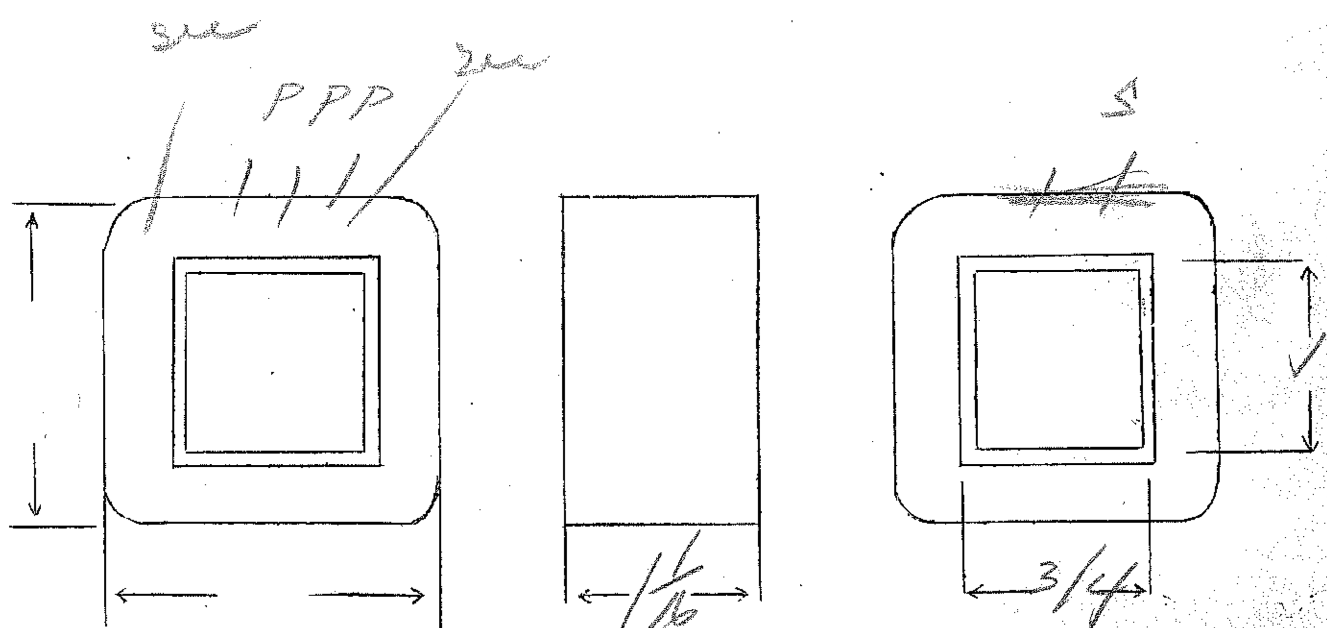
SPEC. NO. 2909

Winding	PRI	SEC	PRI				
Turns	1700	52	1700				
Taps	—		—				
Wind. Lgth.	7/8	7/8	7/8				
Wire Size	#35	#21	#35				
T.P.L.	125-14	2L	125-14				
Kind Term.	#20	W.O.	#20	Leads 12" long			
Term. Lgth.	6"	6"	6"				
Layer Insul.	20#		20#				
Test Volt.							
Wrapper	1100 7VC 3L	1100 7VC 3L	2400 50A + 14.005 VC				

TUBE 1100 7 + 14.005 VC | IMPREGNATION |

CORE 3/4 X 1 - 2 X 2 29 Ga | PRIMARY V.A. |

MOUNTING D



DESIGNED BY Gw DATE

Class B output
PP 250 TH (Eimac) to 5000-6000-7000 Ω (radio)
1200 watts audio

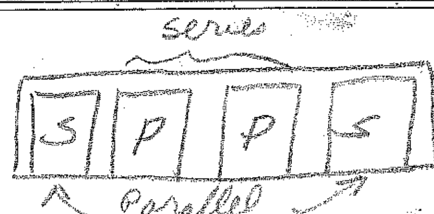
SPEC. NO. 2910

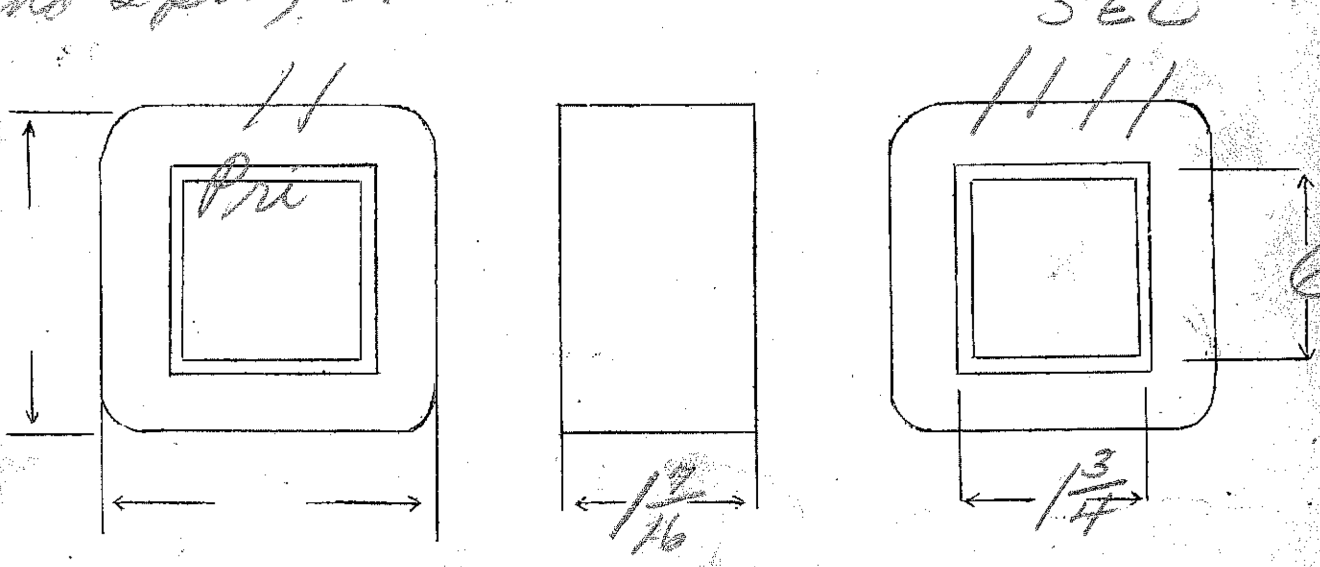
Winding	P		S				
Turns	1600		2380				
Taps	—		2000 - 2220				
Wind. Lgth.	1"		1"				
Wire Size	#24		#26				
T.P.L.	42-38		53-45				
Kind Term.	W.O		W.O				
Term. Lgth.	6"		6"				
Layer Insul.	double 40 #		double 40 #				
Test Volt.	10M		10M				
Wrapper	3100 TVC 4100 56A		3200 TVC 4400 56A				

TUBE	10100 TF 2100 TVC	IMPREGNATION	none
CORE	1 3/4 x 6 double E - 2x2	PRIMARY V.A.	
MOUNTING	J - oil immersed		

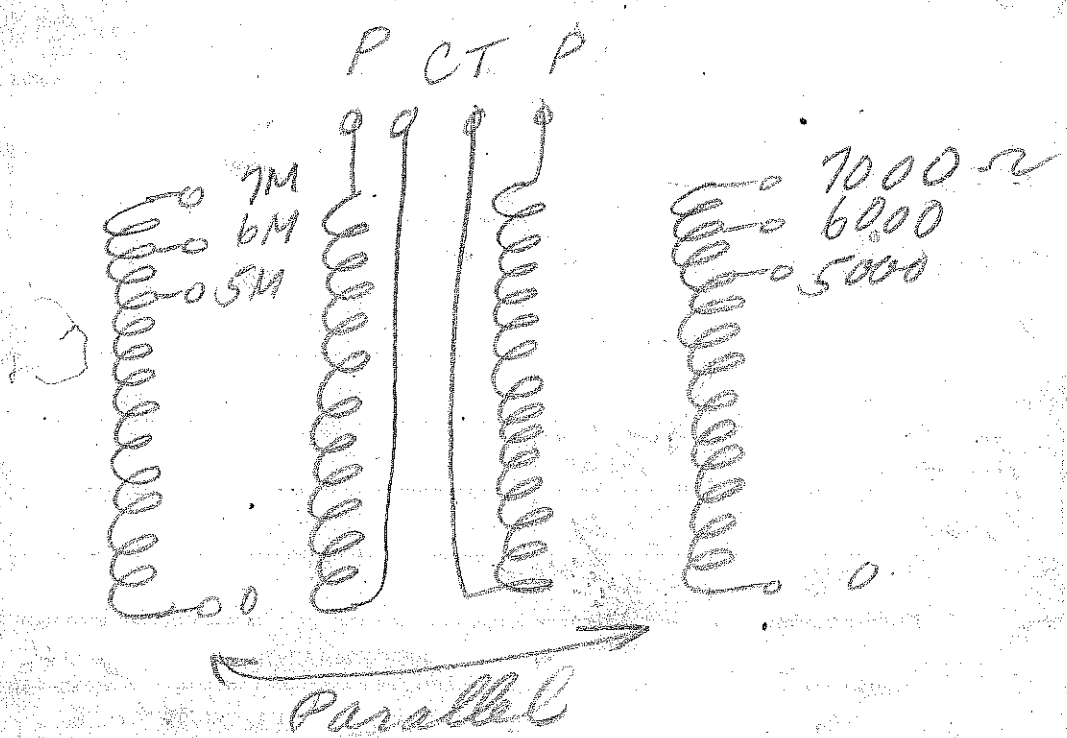
all primary leads out (over)

wind 2 pri, 2 sec.





DESIGNED BY GW DATE 4/24/37



14000 – 118.2 P-P

7000 – 83.7 (88)

6000 – 77.5 (81)

5000 – 70.5 (74)

P – 300 ma } ~200 watts

S – 500 ma }

250Ω 500Ω to grid - inter-office communication

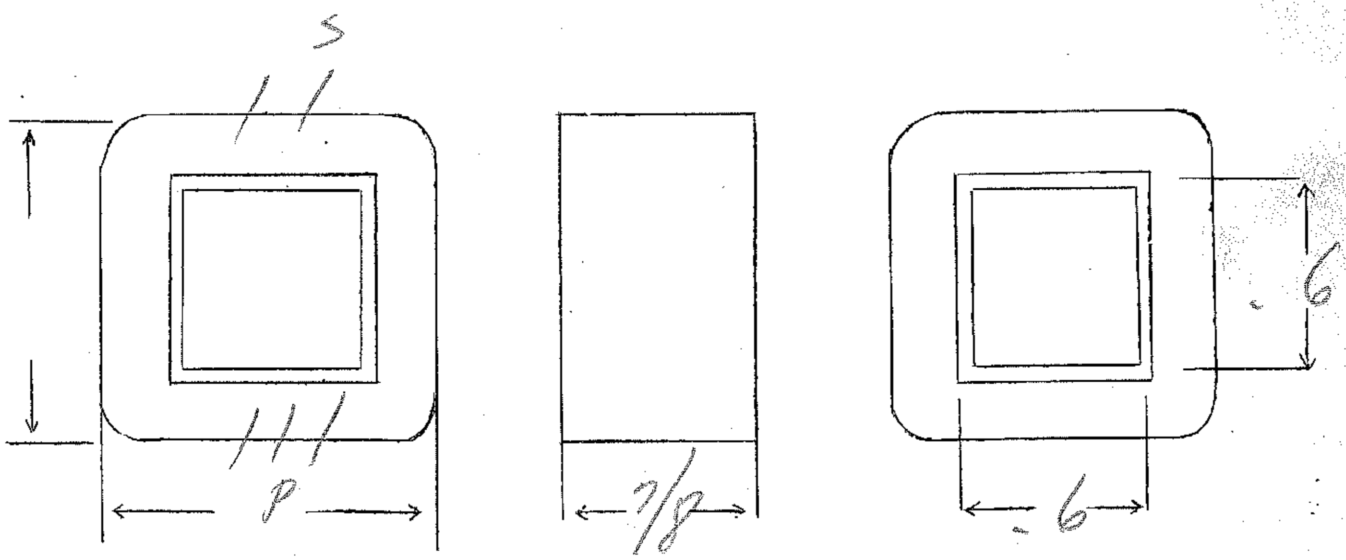
SPEC. NO. 2911

Winding	SEC	PRI					
Turns	7000	500					
Taps	—	350					
Wind. Lgth.	3/4	3/4					
Wire Size	#40	#34					
T.P.L.	195-36	100-6					
Kind Term.	sil braid						
Term. Lgth.	3"	3"					
Layer Insul.	12#	30#					
Test Volt.							
Wrapper	2003VP	2005GA					

TUBE 5400TF, 1003VP | IMPREGNATION wax-sealed

CORE 5/8 X 5/8 - 29 Ga 2X2 | PRIMARY V.A.

MOUNTING D



DESIGNED BY JW DATE 5/5/37

2546 to 5002

4002 (37 ma)

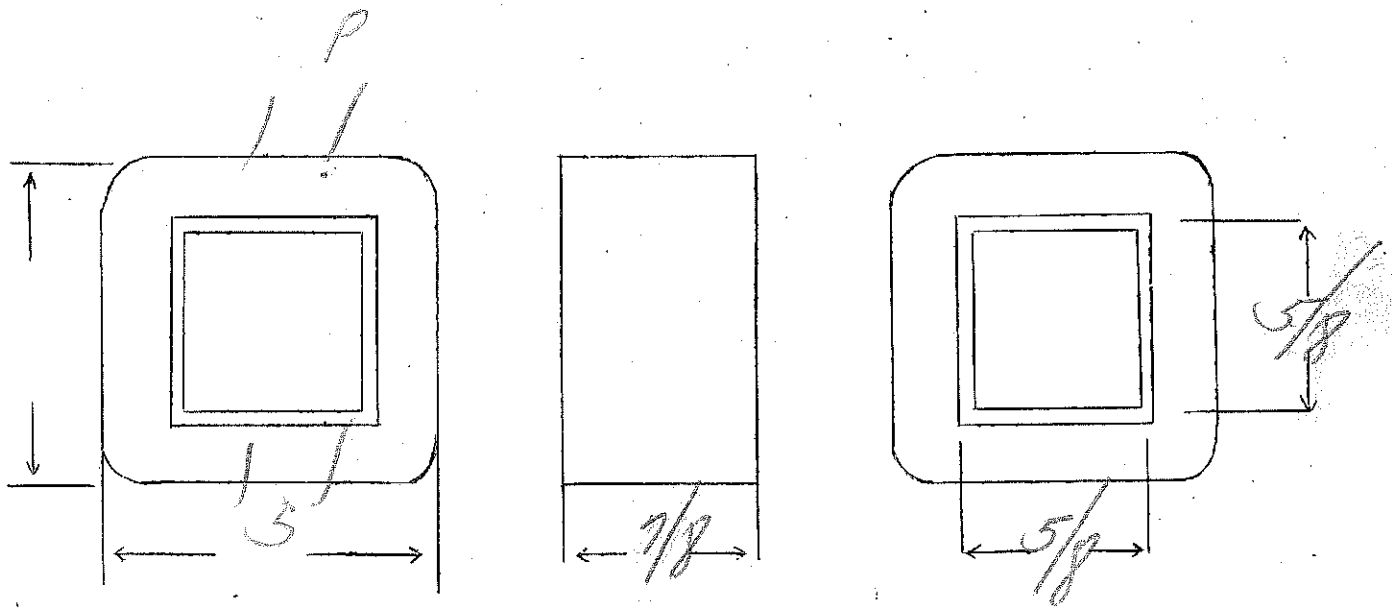
SPEC. NO. 2712

Winding	PRI	SEC					
Turns	1740	620					
Taps	—	—					
Wind. Lgth.	3/4	3/4					
Wire Size	#36	#32					
T.P.L.	24-14	18-8					
Kind Term.	#30 Enam.	#30 Enam.					
Term. Lgth.	6"	6"					
Layer Insul.	30#	30#					
Test Volt.							
Wrapper	1400 MC	2405 CA					

TUBE 52007 | IMPREGNATION Varnish

CORE 5/8 x 5/8 - 1005 Laps | PRIMARY V.A.

MOUNTING D



DESIGNED BY RWB DATE 5/5/37

5 Ω to grid - interoffice

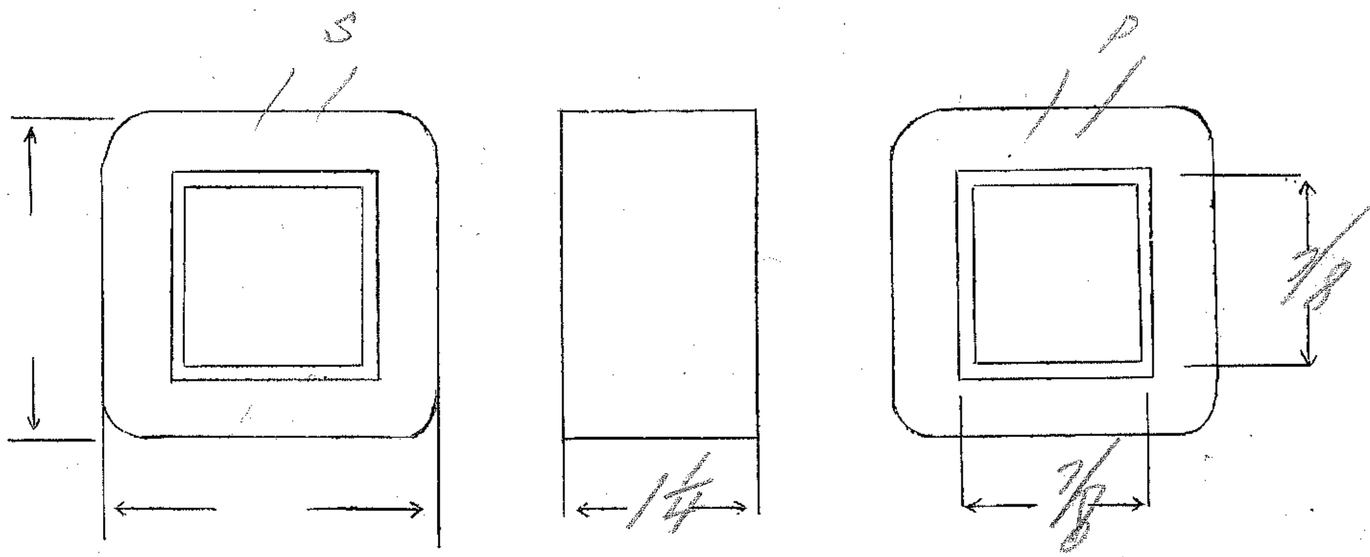
SPEC. NO. 2913

Winding	SEC	PRI					
Turns	8000	56					
Taps	7	1					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#39	#21					
T.P.L.	250-32	2L					
Kind Term.	#20 [illegible]						
Term. Lgth.	9"	9"					
Layer Insul.	16#						
Test Volt.							
Wrapper	2003VP	21005GA					

TUBE 700 7 F 16003 VP | IMPREGNATION wax

CORE 7/8 x 7/8 - 24 ga 15 - 2x2 | PRIMARY V.A.

MOUNTING A



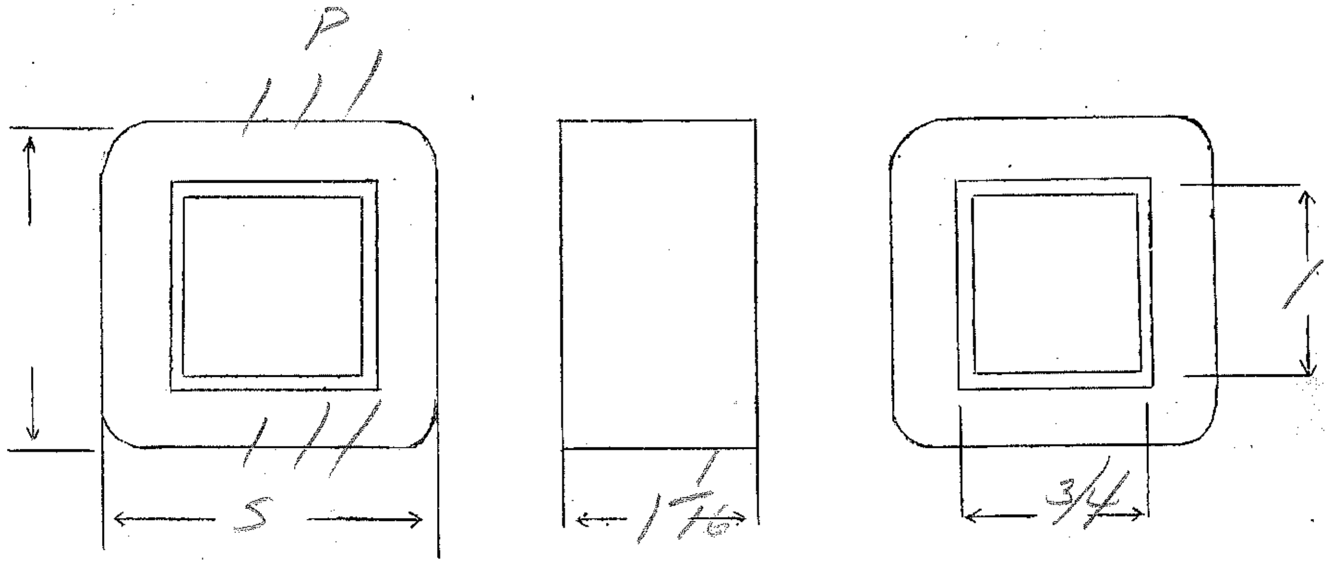
DESIGNED BY Gw DATE 5/5/37

6A6 to 250-500 Ω
10000 Ω P.P. - 10 watt

SPEC. NO. 2914

Winding	PRI	SEC					
Turns	2260	520					
Taps	1130	390					
Wind. Lgth.	7/8	7/8					
Wire Size	#34	#24					
T.P.L.	114-20	66-8					
Kind Term.	oil Braid						
Term. Lgth.	3"	3"					
Layer Insul.	30#	30#					
Test Volt.	-						
Wrapper	V4007VC 3½ ...	V4056A					

TUBE	5V007	IMPREGNATION	varnish
CORE	3/4x1. 29 Ga "B" 2x2	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY Gw DATE 5/15/37

250 n to grid

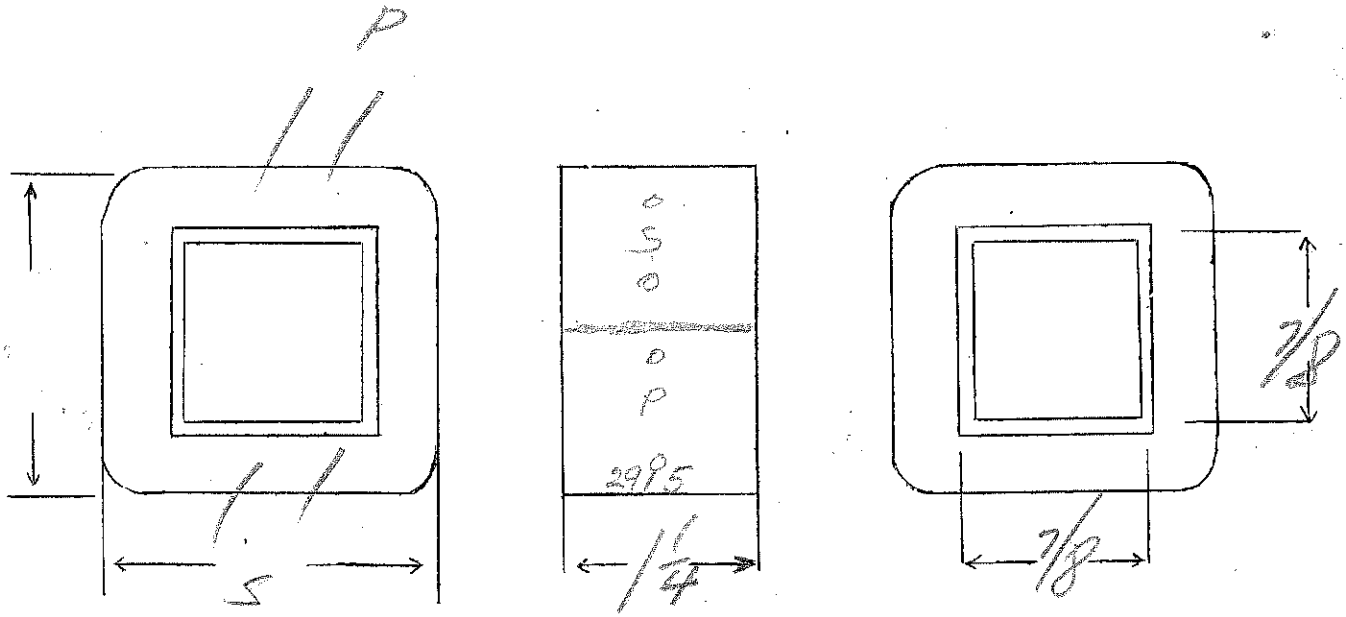
SPEC. NO. 2915

Winding	SEC	PRI					
Turns	10,000	500					
Taps	—	—					
Wind. Lgth.	1/16	1/16					
Wire Size	#39	#29					
T.P.L.	250-40	12-7					
Kind Term.	Sol Bv.						
Term. Lgth.	3"	3"					
Layer Insul.	#2	30#					
Test Volt.	none						
Wrapper	2W03VP	2W0502					

TUBE 2W07 | IMPREGNATION Wax

CORE 7/8 x 7/8 - 2W20 B - 2x2 | PRIMARY V.A.

MOUNTING F



DESIGNED BY [illegible] DATE 5/15/37

P.P. Pwr. 46 to 5000 n (1000V - 175 ma)
P-3000 or 6000 n

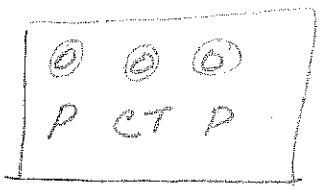
SPEC. NO. 216

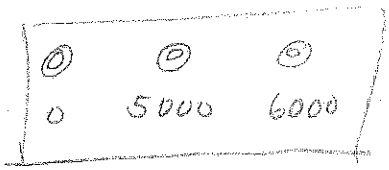
Winding	PRI	SEC					
Turns	1600	2400					
Taps	800	2200					
Wind. Lgth.	1 9/16	1 9/16					
Wire Size	#29	#29					
T.P.L.	116-16	116-22					
Kind Term.	WIRE	OUT					
Term. Lgth.	6"	6"					
Layer Insul.	double 20#	double 20#					
Test Volt.	5000 V						
Wrapper	2400 TVC 4 thk	2400 TVC 2 thk SCA					

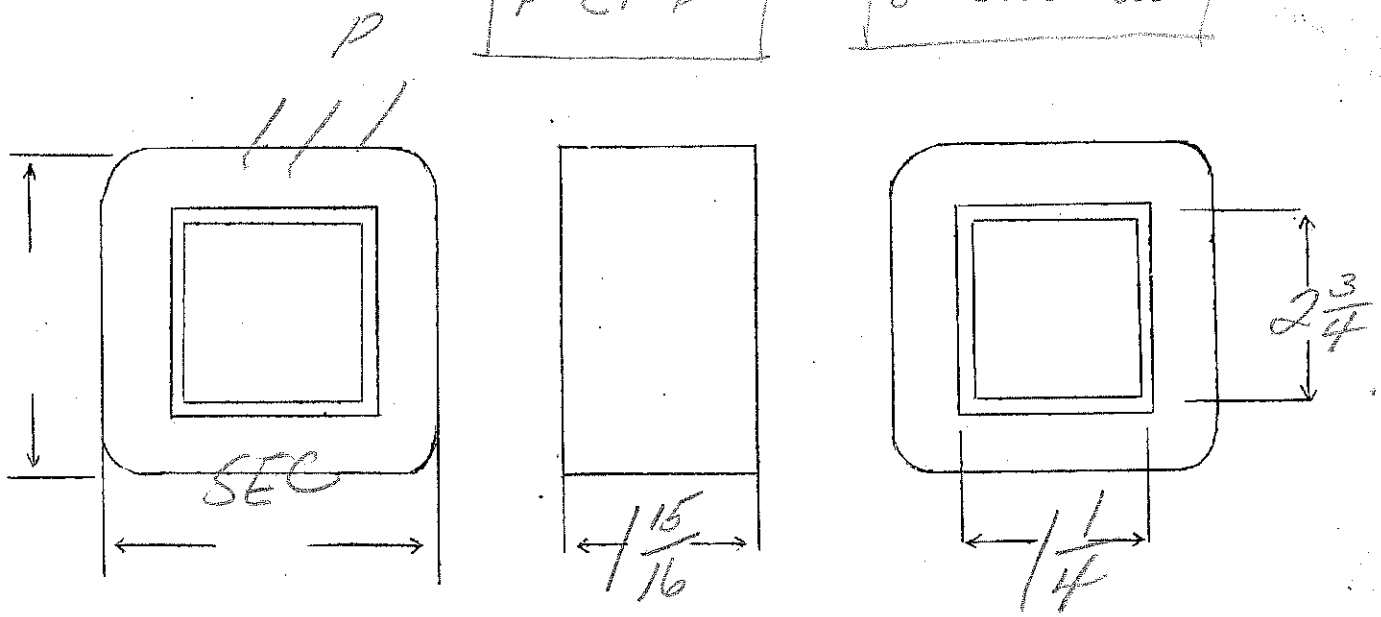
TUBE | 9697 | IMPREGNATION | VARNISH

CORE | 1/4 x 2 3/4 - Dynamo Grade - Lap | PRIMARY V.A.

MOUNTING J







DESIGNED BY Greaves DATE 5/20/37

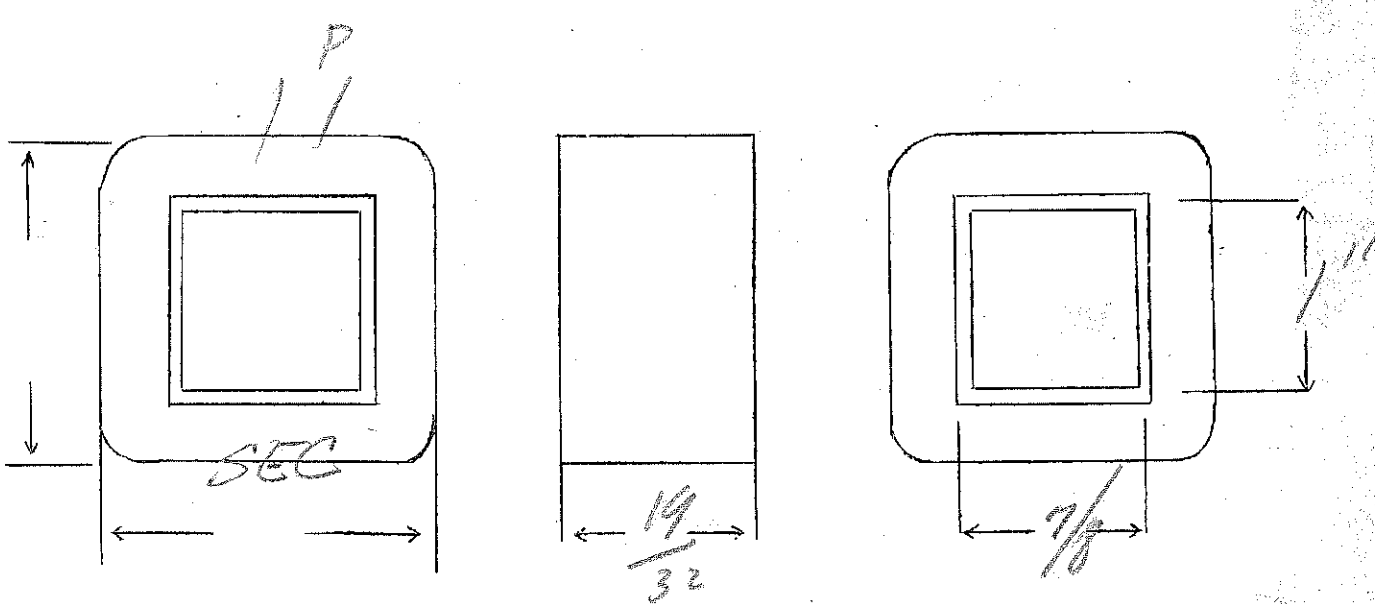
PP 6C5 or 56 to 50 + 500 Ω

SPEC. NO. 2917

		Continuous					
Winding	PRI	SEC					
Turns	2100	215	460				
Taps	—						
Wind. Lgth.	7/16	1 1/16					
Wire Size	#38	#26	#29				
T.P.L.	90-24	56-4	80-8				
Kind Term.	Sil	Braid					
Term. Lgth.	5"	5"	5"				
Layer Insul.	16#	30#					
Test Volt.							
Wrapper	1600 [illegible] 3 [illegible]						

TUBE	56007	IMPREGNATION	Wax
CORE	7/8 X 1 - 29 ga A Grade annealed	PRIMARY V.A.	
MOUNTING	HAI		

two pri pies — wind sec over pies



DESIGNED BY GW   DATE 5/21/37

500
50
P
CT
P

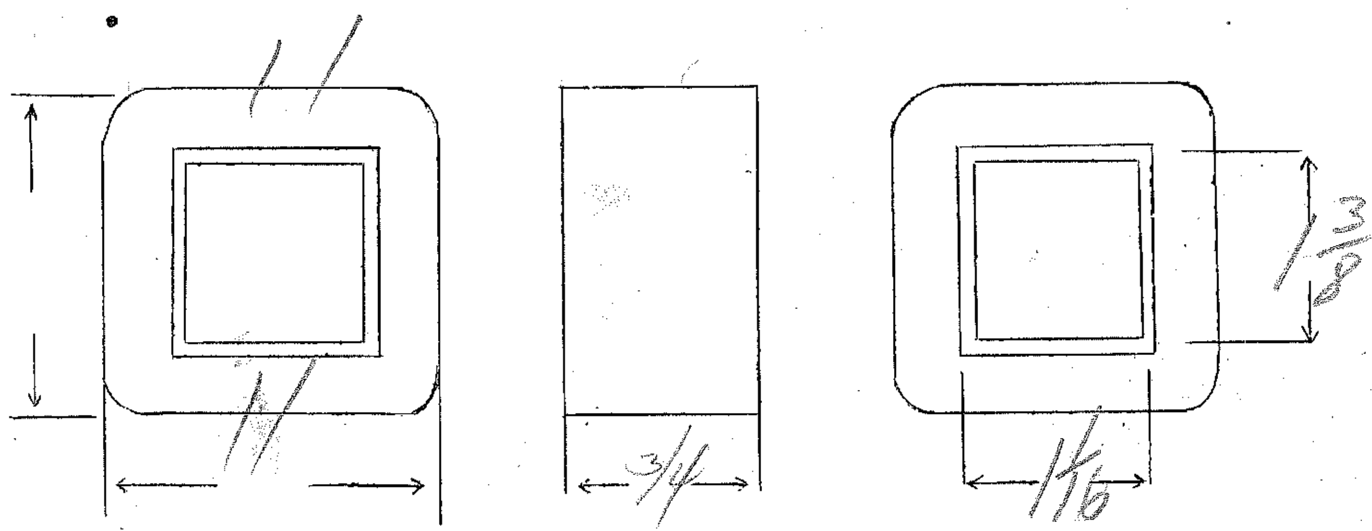
input PP 2A3 - PP AB 845

SPEC. NO. 2918

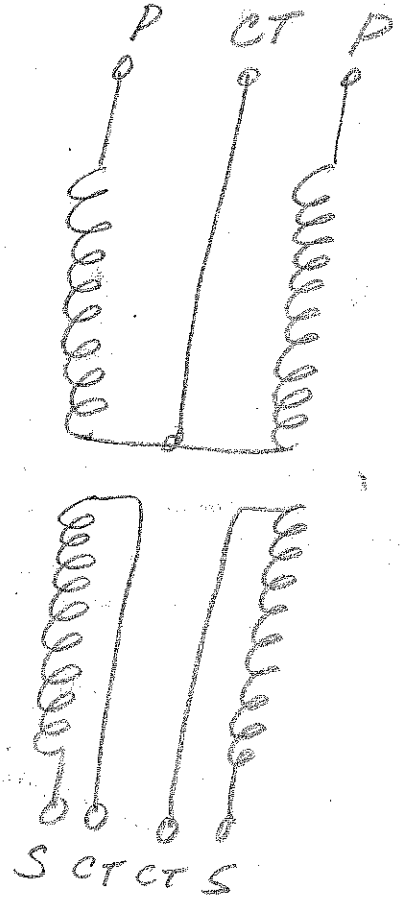
Winding	SEC	PRI					
Turns	1920	1250					
Taps	—	—					
Wind. Lgth.	11/16	11/16					
Wire Size	#33	#32					
T.P.L.	80-24	70-18					
Kind Term.	Sil Braid		6"				
Term. Lgth.							
Layer Insul.	40#	40#					
Test Volt.	2500						
Wrapper	16L 40#	2100 5GA					

TUBE	7600?	IMPREGNATION	Varnish
CORE	1 1/16 x 1 3/8 - 29 ga A Grade 2x2	PRIMARY V.A.	
MOUNTING	HA		

wind two pies



DESIGNED BY GW DATE 5/13/3[illegible]


P
CT
P
S
CT
CT
S

P P AB 845 (30 watt) to 2-4-8-16-136-500 Ω
8000 Ω P.P.

SPEC. NO. 2919

P—16 Henries

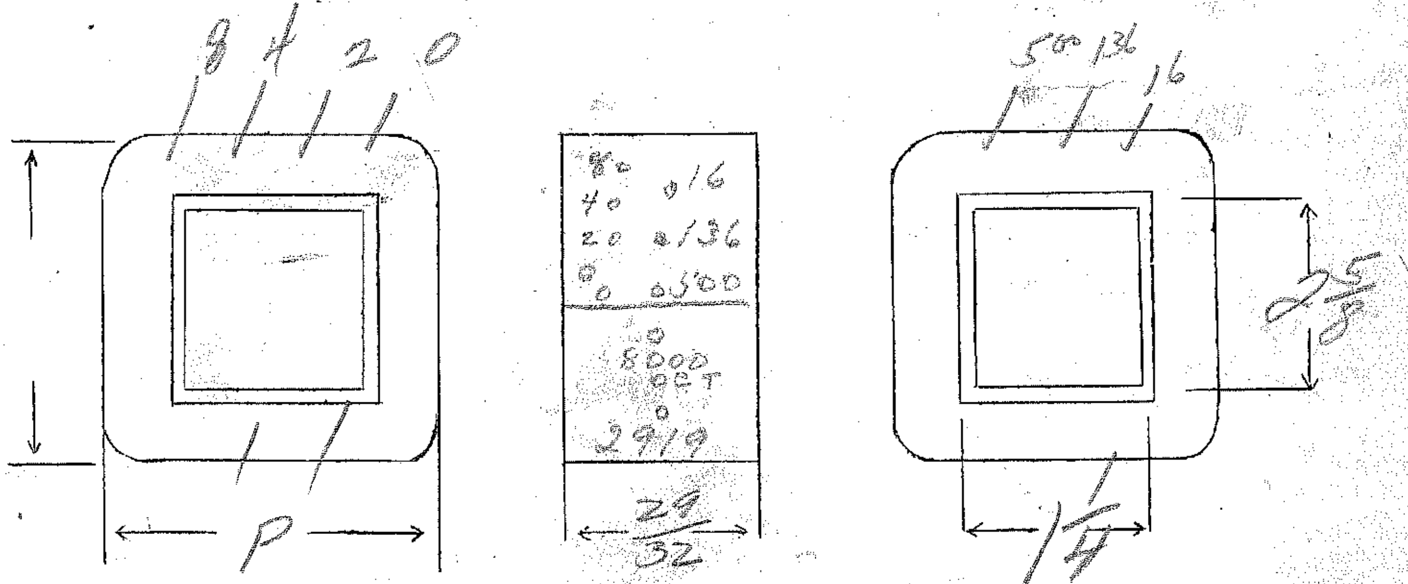
Winding	P	Continuous SEC				0-2	
Turns	935	226 (500)	160 (136)	24 (16)	30 (8)	30	
Taps	—				18 (4)		
Wind. Lgth.	11/16	1.75					
Wire Size	#29	#26	#23	#20	#17	#14	
T.P.L.	52-18	90-3	67-3				
Kind Term.	WIRE ONLY						
Term. Lgth.	4"	✓	✓	✓	✓	✓	
Layer Insul.	40#	50#	50#				
Test Volt.							
Wrapper	1400 VAC 5L [illegible]						

TUBE	96007	IMPREGNATION	Varnish
CORE	1 1/4 x 2 5/8 29 ga A-2x2	PRIMARY V.A.	
MOUNTING	F		

end of sec is start

Harper Radio

2919 X — see back of spec for secondary



DESIGNED BY GW DATE 5/14/37

2 — 1.41

4 — 2.0

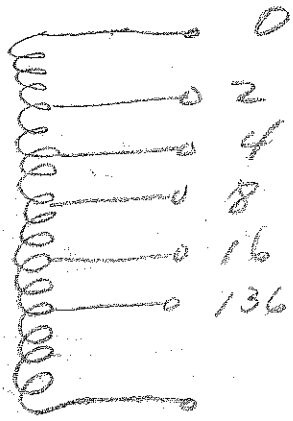
8 — 2.83

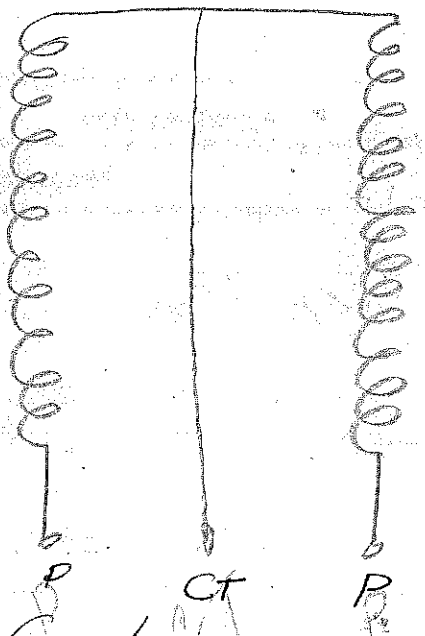
16 — 4.0

136 — 11.6

500 — 22.2

8000 — 895 —





Reverse assembly

Sec Continuous 2919X Harper Radio

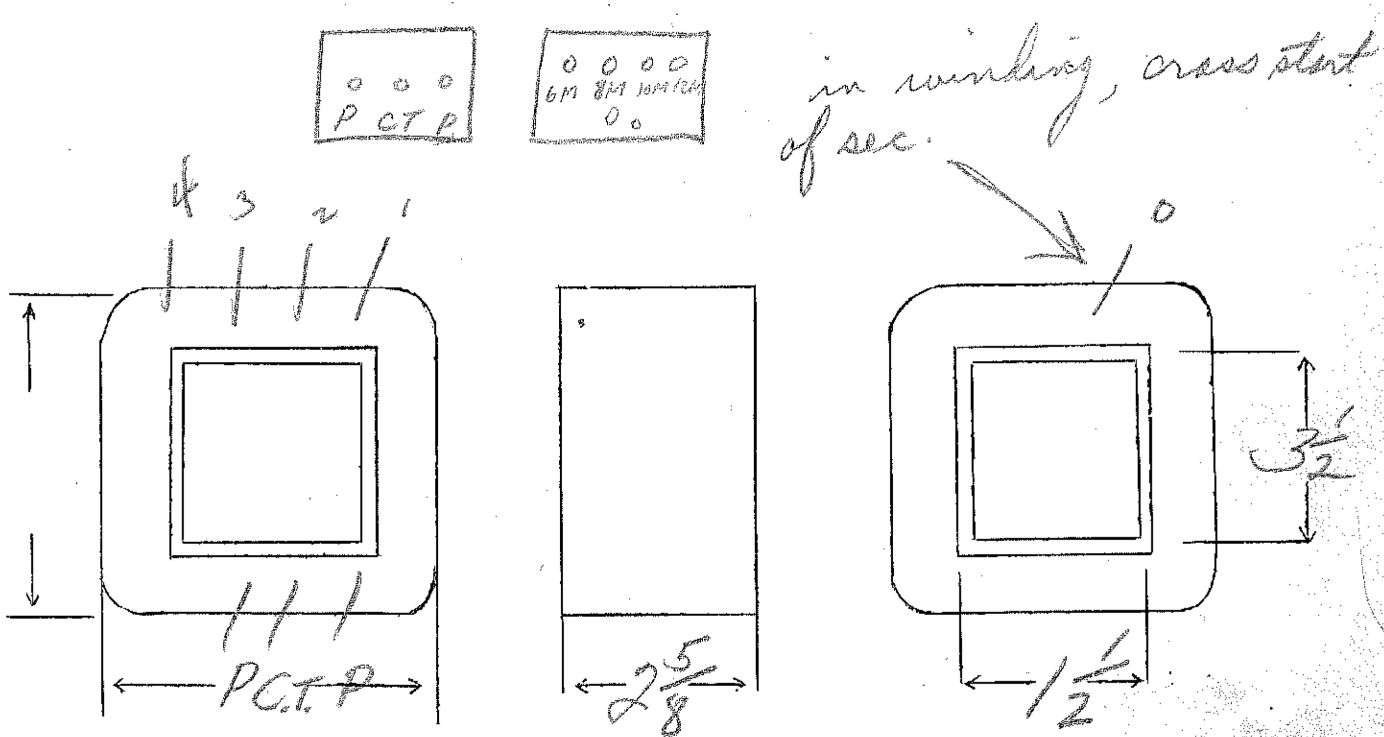
Turns	157	219	24	30 18	30
Winding Length	1.75"				
Wire Size	#26	#24	#20	#17	#14
T.P.L.	52-18		67		

PP 100 TH (Eimac) to 6,000-8,000-10,000-12,000 Ω - 250 ma
class B
275 watts
Pri 8000 Ω (P-P)

SPEC. NO. 2920

Winding	PRI	SEC					
Turns	1920	2400					
Taps	960	1680-1920-2160					
Wind. Lgth.	2"	2"					
Wire Size	#27	#27					
T.P.L.	120-16	120-20					
Kind Term.	WIRE	only					
Term. Lgth.	6"	6"					
Layer Insul.	double 30 TT						
Test Volt.	7500						
Wrapper	4 100 TVC 4 100	4 100 TVC 2 100 SGA					

TUBE	9 100 T + 2 100 TVC	IMPREGNATION	Varnish
CORE	1½ x 3½ 24 ga Butt stack .005" gap	PRIMARY V.A.	
MOUNTING	J		



DESIGNED BY G. Weaver DATE 5/15/37

5,000 — 89.5

6,000 — 77.5 — 80.5

8,000 — 89.5 — 93

10,000 — 100 — 104

12,000 — 110 — 114

500 or 200 Ω to 2-3½-5-7½ Ω V.C.

12 watt Capacity

Continuous

SPEC. NO. 2921

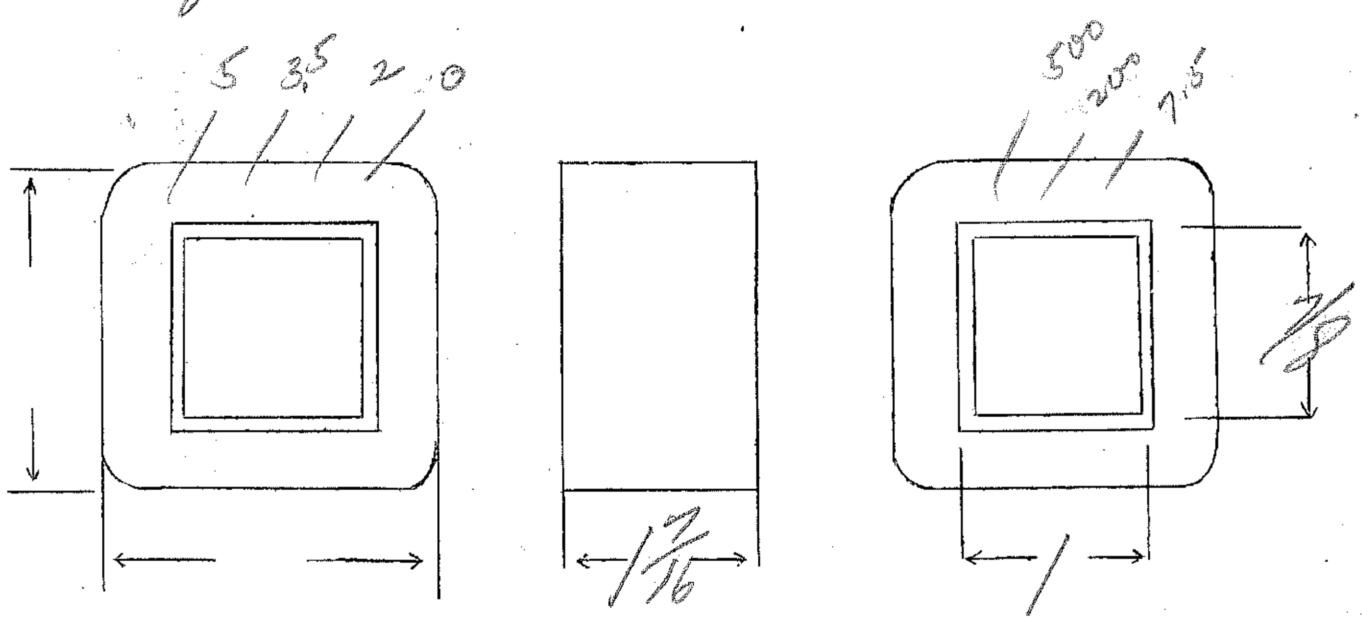
Winding							
Turns	835	20 (7.5)	35 (5)	60 (0-2)			
Taps	350 (200)		16 (3.5)				
Wind. Lgth.	1.25						
Wire Size	#28	#22	#22	#19			
T.P.L.	83						
Kind Term.	Sil Br	wire only					
Term. Lgth.	3"	3"	3"	3"			
Layer Insul.	40#	.005GA					
Test Volt.							
Wrapper				2L.005GA			

TUBE 7L.007 | IMPREGNATION Varnish

CORE 1X 7/8 - B Grade audio 2K2 | PRIMARY V.A.

MOUNTING F

End of sec is common



DESIGNED BY Gw

DATE 5/24/37

500 or 200 Ω to 2-3½-5-7½ Ω VC

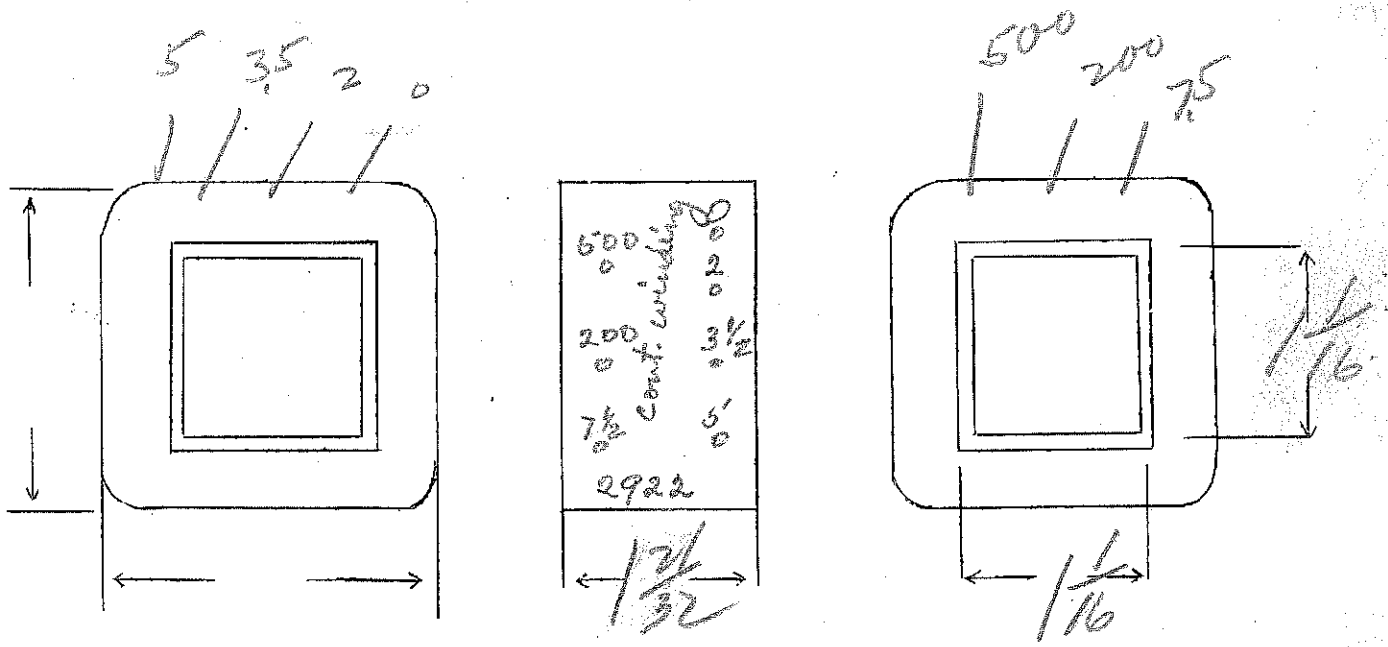
30 watts audio

SPEC. NO. 2922

Continuous

Winding			(25)	(5)			
Turns	835	20	35	60	(0-2)		
Taps	350 (200)		16 (35)				
Wind. Lgth.	1 15/32						
Wire Size	#27	#30	#18	#16			
T.P.L.	99						
Kind Term.	WIRE ONLY						
Term. Lgth.	3"	3"	3"	3"			
Layer Insul.	40#						
Test Volt.							
Wrapper				2 wraps			

TUBE	7007	IMPREGNATION	Varnish
CORE	1 1/16 x 1 1/16 - 29 Ga B - 2x2	PRIMARY V.A.	
MOUNTING	F		



DESIGNED BY Lew DATE 5/14/37

PP 2500 - 50ma per tube - balanced (high fidelity)
to PP class A or slightly class A' 845's
(845's drive a class B mid stage)

SPEC. NO. 2923

Winding	SEC	PRI					
Turns	2400	1600					
Taps	800	—					
Wind. Lgth.	11/16	11/16					
Wire Size	#33	#33					
T.P.L.	80-30	80-20					
Kind Term.	oil Braid						
Term. Lgth.	6"	6"					
Layer Insul.	30#	30#					
Test Volt.	2500						
Wrapper	20L30#	2L005A					

TUBE 76007 | IMPREGNATION Varnish

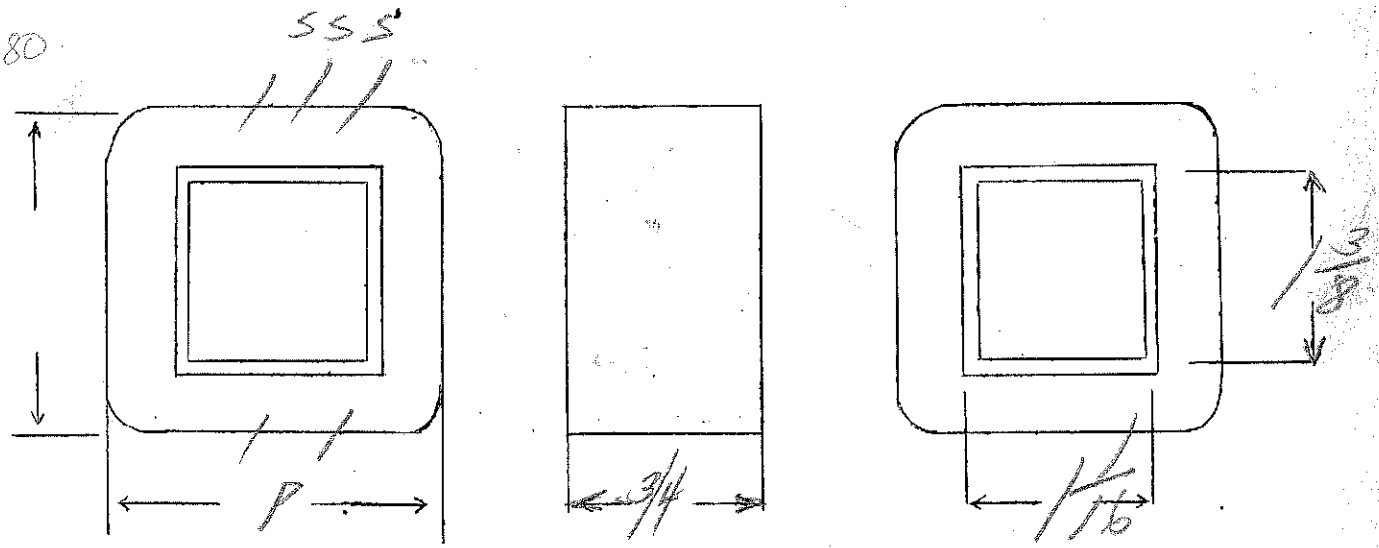
CORE 1 1/16 x 1 3/8 - 29 lb. A Grade 2-43 | PRIMARY V.A.

MOUNTING H/A

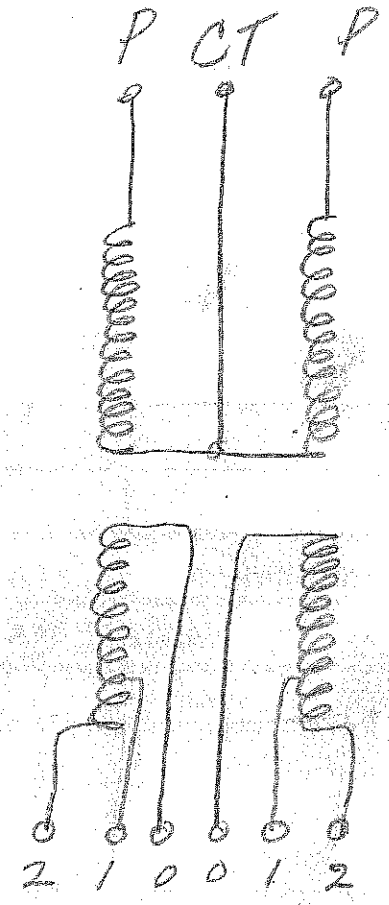
wind two pies

(over)

Co 0780



DESIGNED BY Lmr DATE 5/13/37


P
CT
P
2
1
0
0
1
2

30 Ω to 100,000 — 30 to 10 000 ~ response

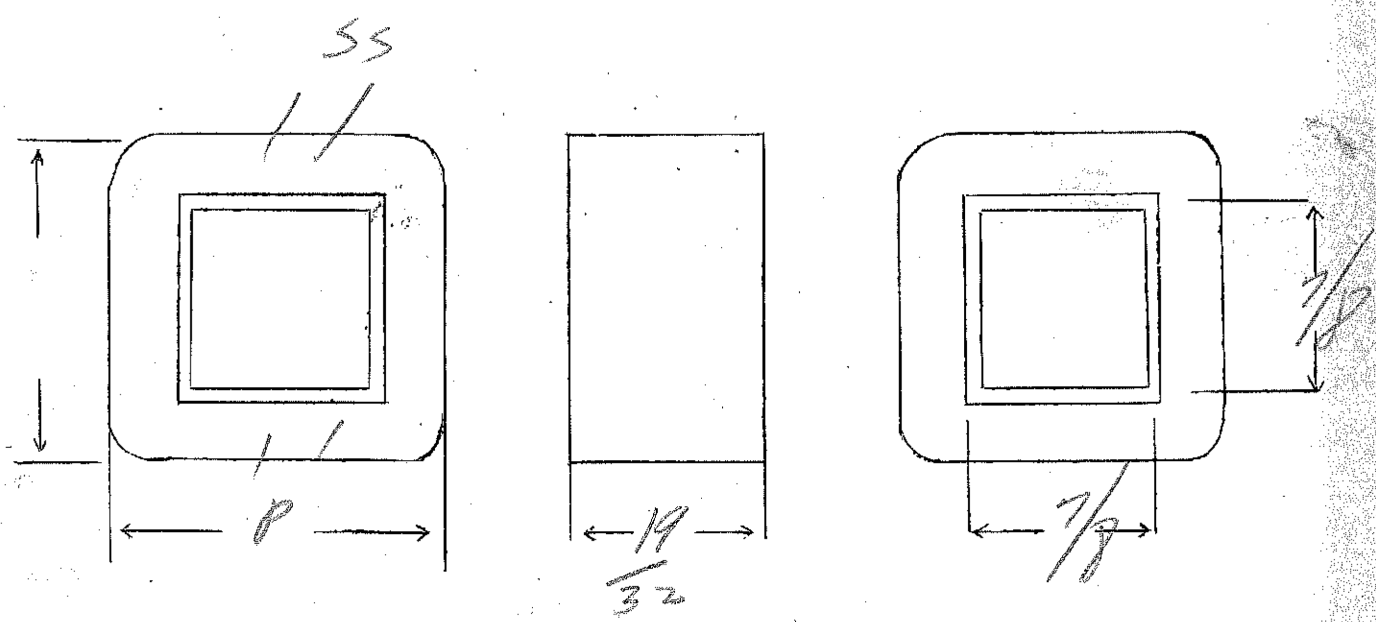
SPEC. NO. 2924

Winding	SEC	PRI					
Turns	5000	172					
Taps							
Wind. Lgth.	7/16						
Wire Size	#40	#28					
T.P.L.	113						
Kind Term.	silk						
Term. Lgth.	3"						
Layer Insul.							
Test Volt.	12 #						
Wrapper	1400 7VC	2400 56A					

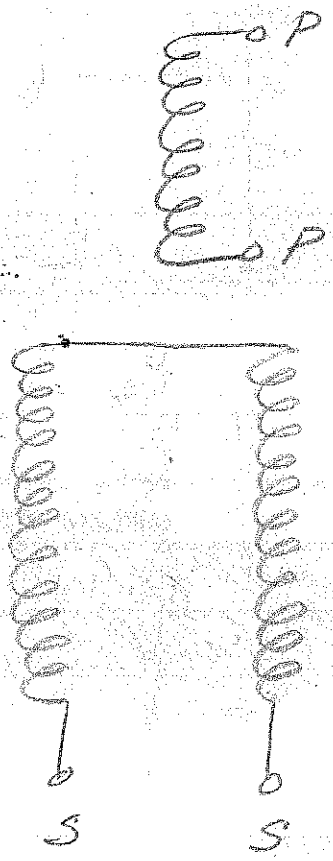
TUBE 7007 IMPREGNATION wax

CORE 7/8 x 7/8 - 2 x 2 ammo [illegible] PRIMARY V.A.

MOUNTING F - cover with band



DESIGNED BY GW DATE 5/17/37



$\frac{100\,000}{30} = 3330$

$\frac{1000}{55} = 18$

$\frac{N_1}{N_2} = 55$

Universal Modulation

150 Watt

SPEC. NO. S-2925

Winding	P #1	S #2	S #3	P #4			
Turns	1100	1300	1300	1100			
Taps	500	900	400	600			
Wind. Lgth.	2-1/16"	2-1/16"	2-1/16"	2-1/16"	= 2.06"		
Wire Size	#28	#28	#28	#28			
T. P. L.	139 - 9L	139 - 10L	139 - 10L	139 - 9L			
Finish Pitch	91%	91%	91%	91%			
Type Lead	WIRE ONLY -		IRROLITE TUBING				
Lead Lgth.	5"	5"	5"	5"			
Layer Insul.	2L 20#G	2L 20#G	2L 20#G	2L 20#G			
Test Volt.	6500	-	-	-			
Wrapper	2L .007" VC	2L .007" VC	2L .007" VC	2L .007" VC 2L .005 GA			

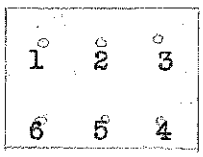
TUBE	10L - .007" GK + 1L - .007" VC	IMPREGNATION	VARNISH

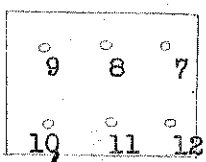
CORE 1-1/2" x 2-1/2" E & I GA. 26 GRADE D STACK Butt .020" Gap

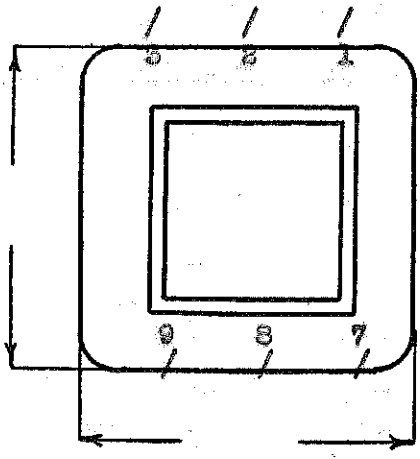
MOUNTING "J" NOTE: Spiral leads into position - double paper

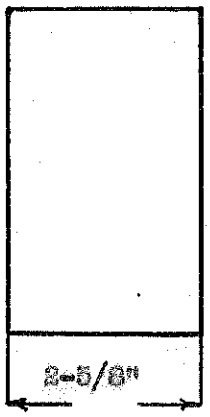
Cu =
Fe = 45.9 @ 100 Cycle
TTV = 1.39 (1500V on 16,000 Ohm)
Wire Net = 0.724" (0.677")

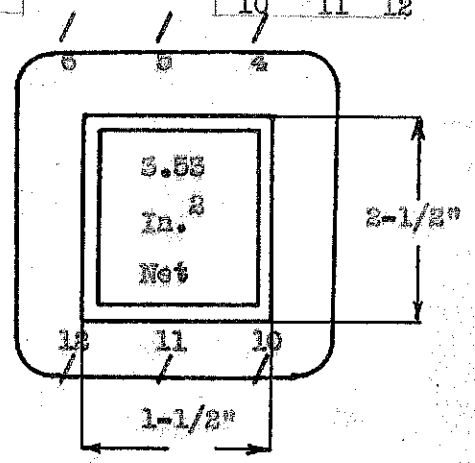
Above & Below Panels



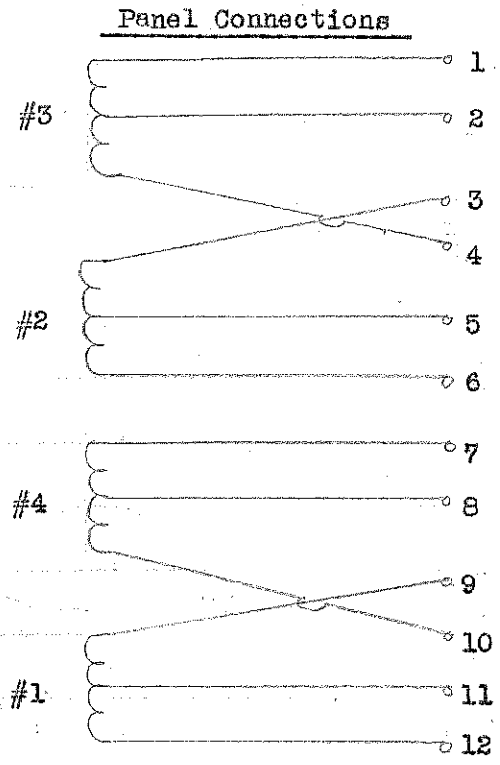


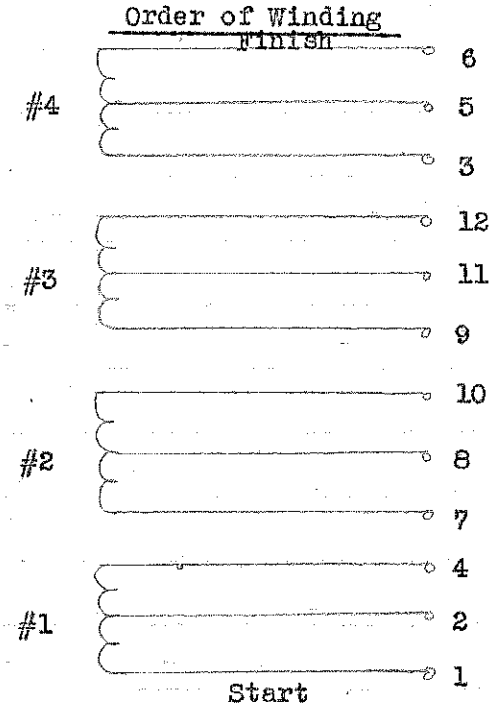






Re-DESIGNED BY HWS DATE 8-12-41





NOTES: Catalog for correct can 5 x $5\frac{1}{2}$ x $6\frac{1}{2}$
Metal Stamp Panel.

UNIVERSAL MODULATION

STOCK

150 watts
200 Ma. D.C. Series
400 Ma. D.C. Parallel

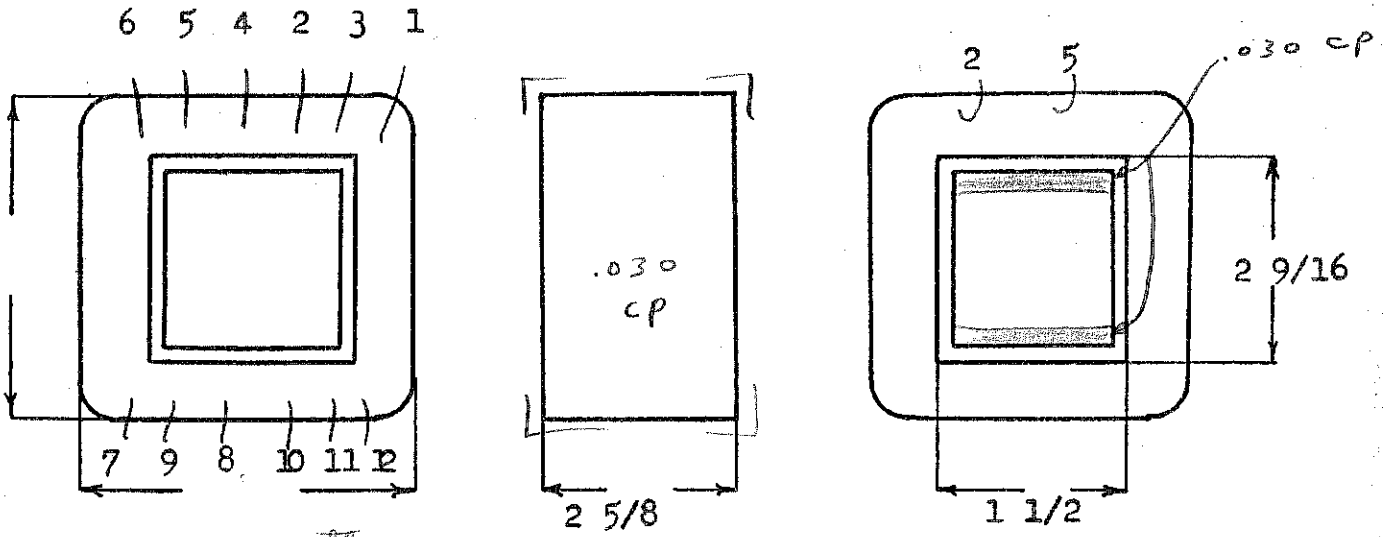
SPEC. NO. S-2925-M

Winding	1-2-4 #1		7-8-10 #2		9-11-12 #3		3-5-6 #4
Turns	1265		1495		1495		1265
Taps	575		1035		460		690
Wind. Lgth.	2 1/16		2 1/16		2 1/16		2 1/16
Wire Size	#28		#28		#28		#28
T. P. L.	138-10L		138-12L		138-12L		138-10L
Finish	90%						
Type Lead	W.O. Silver Braid #22 DuLac vinyl sleeve						
Lead Lgth.	6"						
Layer Insul.	~~Double~~ SINGLE ~~20#~~ #40 DOUBLE BETWEEN 1st & 2nd LAYER and 2nd TO LAST & LAST LAYER						
Test Volt.	6000						
Wrapper	3L007VC 3L40# interleaved	USE 2L005VC 2L007VG	2L007VC		3L007VC 3L40# interleaved		2L007VC 3L007GA

TUBE	10L007GK ✗ 2L007VC	IMPREGNATION	Varnish Double

CORE 1 1/2 x 2 1/2 GA. 24 GRADE D STACK Butt .015 gap

MOUNTING M



DESIGNED BY Re-written F. F.

DATE

DESIGN AND TEST DATA

Rating:

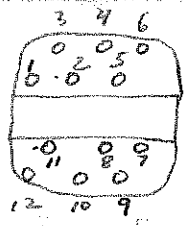
Winding	1		2	3		4	
Mean Turn	9.325		10.79	12.28		13.75	
Resistance 25° c	65.0		89.0	101.0		95.8	
Pounds Copper	.482		.660	.752		.711	
Copper Density	-		-	-		-	
Ratio Volts	110 50		130 90	130 40		110 60	
Test to Ground	6000		6000	6000		6000	

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:



P. P. 6V6 to ~~3~~ - 4 - 8 - 15 - 500 ohm - 10 Watt

14,000 w C T

20 Watt

SPEC. NO. S 2926

Continuous

Winding	SEC	PRI	SEC				
Turns	560	2600	34	43	42		
Taps		1300		25			
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	#31	#33	#23	#22	#19		
T. P. L.	115-5	145-18					
Finish							
Type Lead	#20 Par. Braid						
Lead Lgth.	9"	9"	9"				
Layer Insul.	30#	30#	50#				
Test Volt.							
Wrapper	4L.G1 1L.007VC	4L.G1 1L.007VC			2L.0050A		
Lead colours	Brown		Green Tracer / Blue	Yellow / Green	Red		

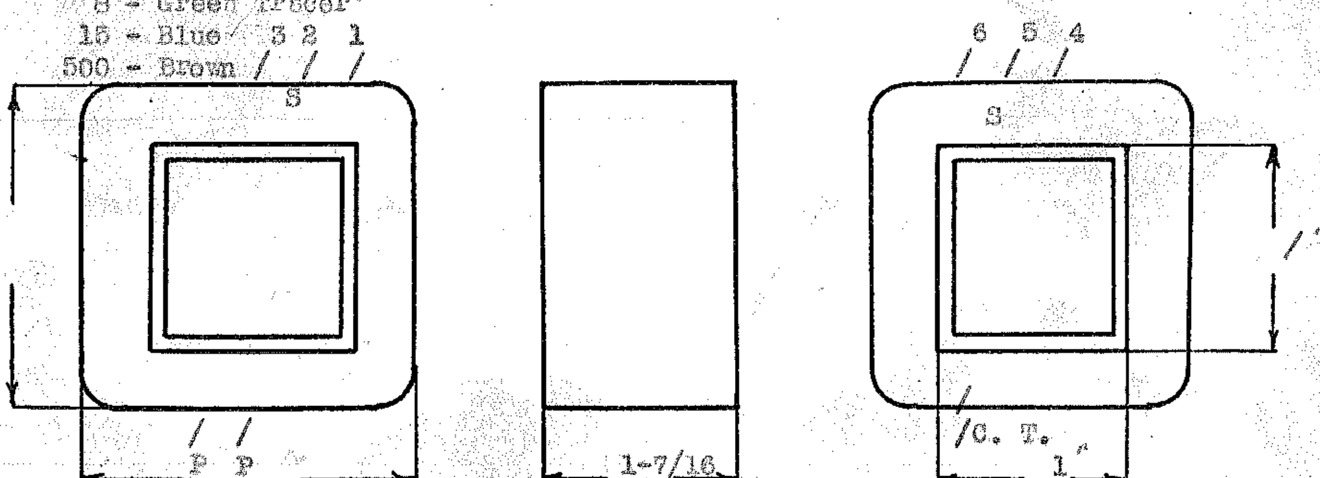
TUBE	5L.007	IMPREGNATION	VARNISH

CORE 1 x 1 GA. 29 GRADE B STACK 2 x 2

MOUNTING AA

Finish is Electrical Start
M. W. Right
S. W. Left
End of S_2 is Common

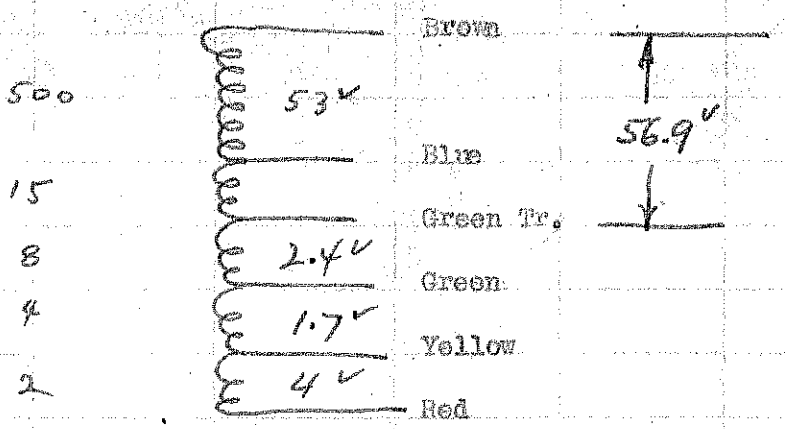
P - Black, White C.T.
S Start - Red
2 - Yellow
4 - Green
8 - Green Tracer
15 - Blue
500 - Brown

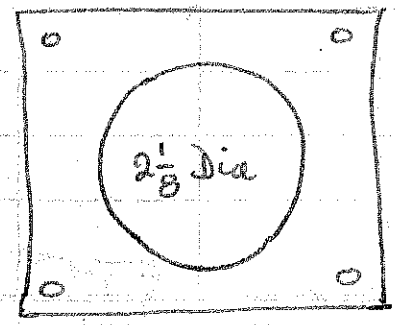


DESIGNED BY GW

DATE 6/28/37

Copied from orig.





4 Mounting holes (1/4 dia ?)
2-7/8 x 2-7/8
Tapped for 8/32

Box Size #6A

H. 3 1/4
W. 2 1/4 I. D.
L. 3 1/2

S - 560 T.
P - 230, 250
S. Gr. T. - Bl - 7.4
S. Gr. T. Gr. Y - 5.45, 5.9
Bl. R - 2.6

P-P 6V6 to 2-4-8-[illegible]
25 Watt
8000Ω pri

OLD

SPEC. NO. S2927

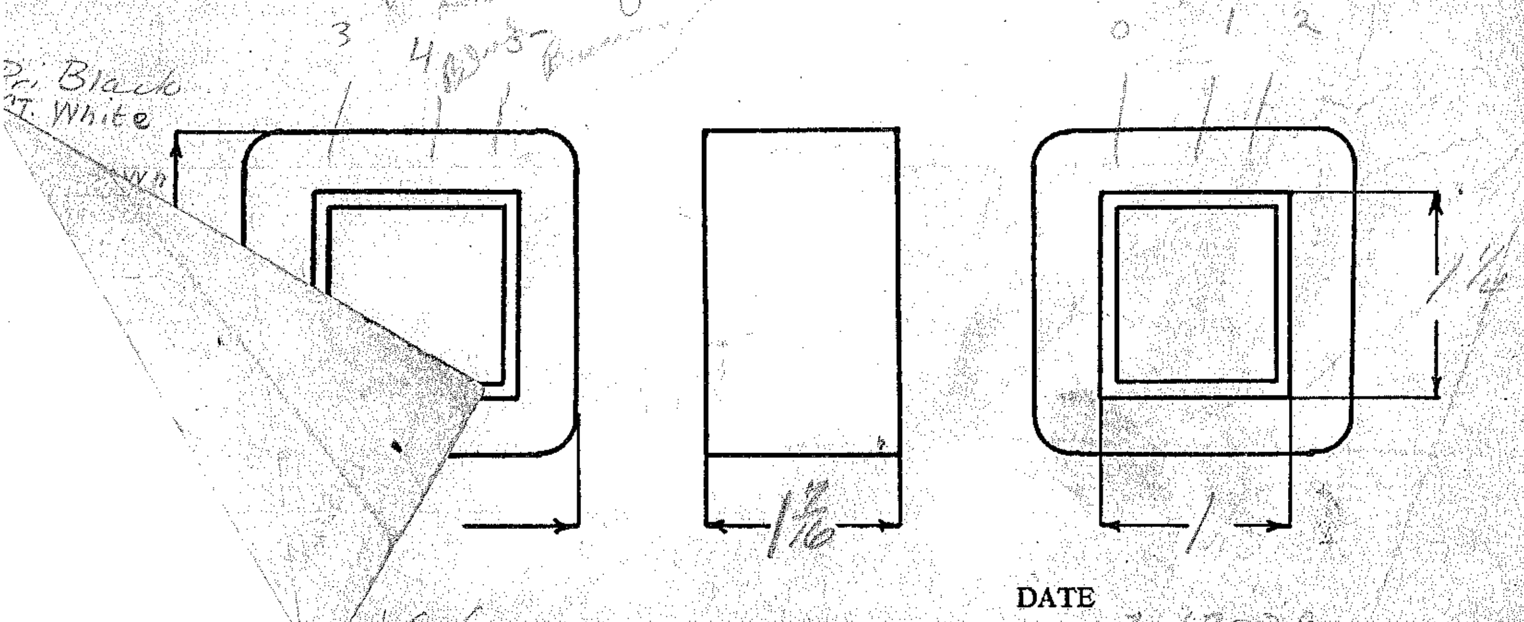
Winding	Sec (Continuous)	Pri (Continuous)	Sec (Continuous)				
Turns	525	2540	31	42	42		
Taps	Start Brown / Finish Blue	1270 White Black	Green Tracer	24 Green Yellow	Red		
Wind. Lgth.	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4		
Wire Size	#30	#34	#23	#21	#19		
T. P. L.	105-5	110-16	7l	1.25l	65l		
Finish							
Type Lead	#20 Pr Br			W. O.			
Lead Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	30#	30#	30#	— .007K —			
Test Volt.	—	—	1250	—	—		
Wrapper	4l Gl 1L007VC	4l Gl 1L007VC			2L005GA		

TUBE	7L007GK	IMPREGNATION	Varnish

CORE 1X1 1/4 GA. 29 GRADE B STACK 2X2

MOUNTING A

Keep direction of winding same
anchor finish of Pri.



DATE 7-17-39

J.C.G

10,000Ω to 500Ω — or 125Ω — SOUND PRODUCTS Co

sec - series or parallel connection

SPEC. NO. 2928

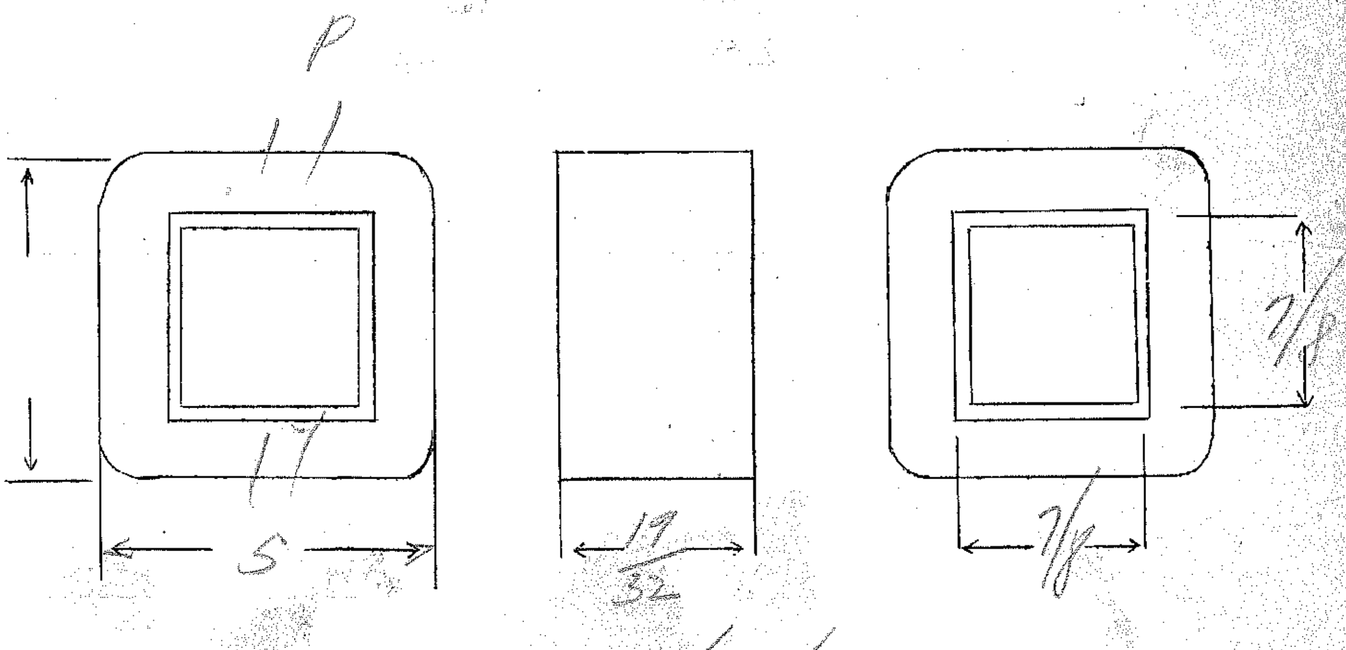
Winding	P	S					
Turns	1680	360					
Taps		—					
Wind. Lgth.	7/16	7/16					
Wire Size	#37	#30					
T.P.L.	79-22	36-10					
Kind Term.	#20 Par B	~~Special~~ shielded wire					
Term. Lgth.	8"	15" — 12" out of case					
Layer Insul.	20#	20#					
Test Volt.							
Wrapper	16 Wlams	2600584					

TUBE 2007 | IMPREGNATION VARNISH

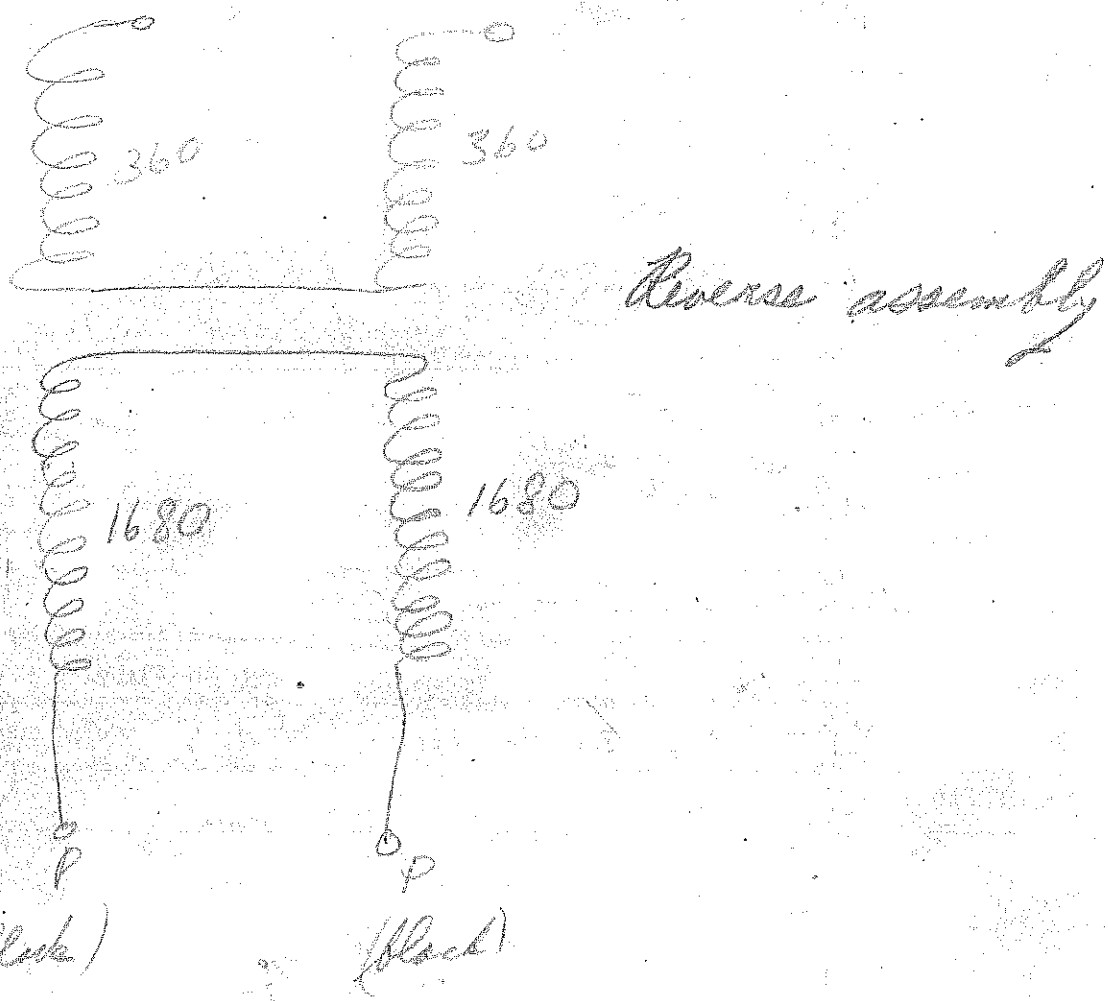
CORE 7/8 x 7/8 - 29 lbs annealed AL | PRIMARY V.A.

MOUNTING A - (flat grey paint)

over



DESIGNED BY GW DATE 5/21/37


360
360
Reverse assembly
1680
1680
P
P
(Black)
(Black)

Audio-Driver Transformer
Class AB Interstage
Ratio 2 to 1 (Down)
20,000 Ohm Single to 5,000 Ohm P.P.
(One Watt Primary)

SPEC. NO. S-2929

Winding	Sec. #1		Pri.		Sec. #2		
Turns	1140	(4)	4548	(2)	1140	(6)	
Taps (3) (1) (5)	-		-		-		
Wind. Lgth.	1-1/16"		1-1/16"		1-1/16" =	1.06"	
Wire Size	#36		#36		#36		
T. P. L.	175 - 7L		175 - 26L		175 - 7L		
Finish Pitch	91%		91%		91%		
Type Lead	#22 Pr. Br.		#22 Pr. Br.		#22 Pr. Br.		
Lead Lgth.	9"		9"		9"		
Layer Insul.	1L 20#G		1L 20#G		1L 20#G		
Test Volt.	1500V		1500V		—		
Wrapper	1L .005" VC 4L 20#G		1L .005" VC 4L 20#G		2L .005" GA		

TUBE	7L - .007" GK	IMPREGNATION	VARNISH

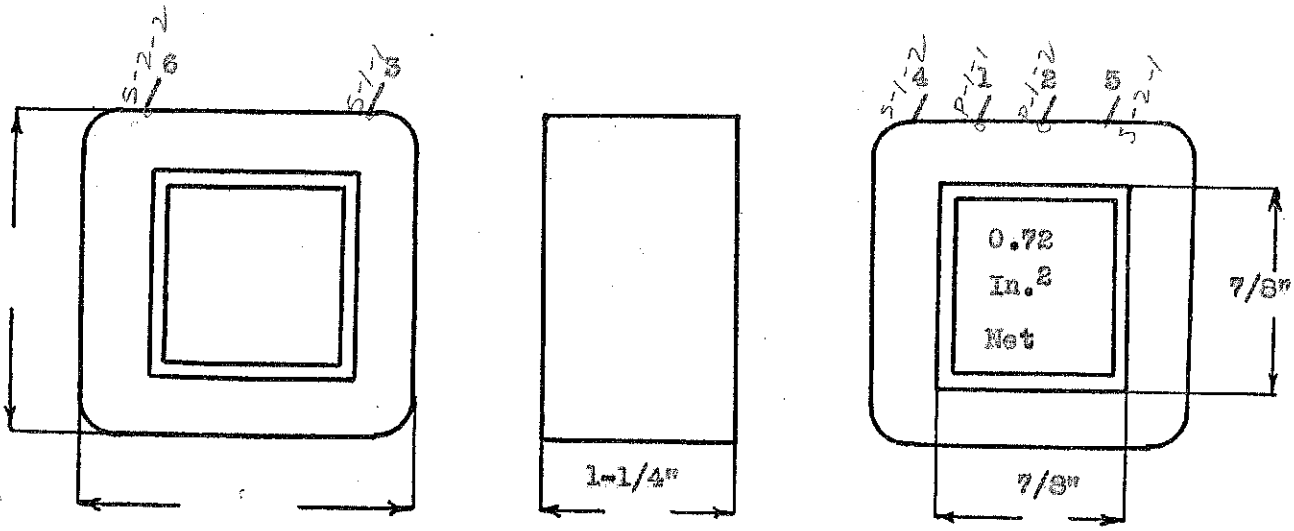
CORE 7/8" x 7/8" E & I GA. 29 GRADE D - Annealed STACK Butt - No Gap.

MOUNTING "A" - Leads Only.

Cu = 2500 @ 10 Ma.
Wire Net = 0.294" (0.260")

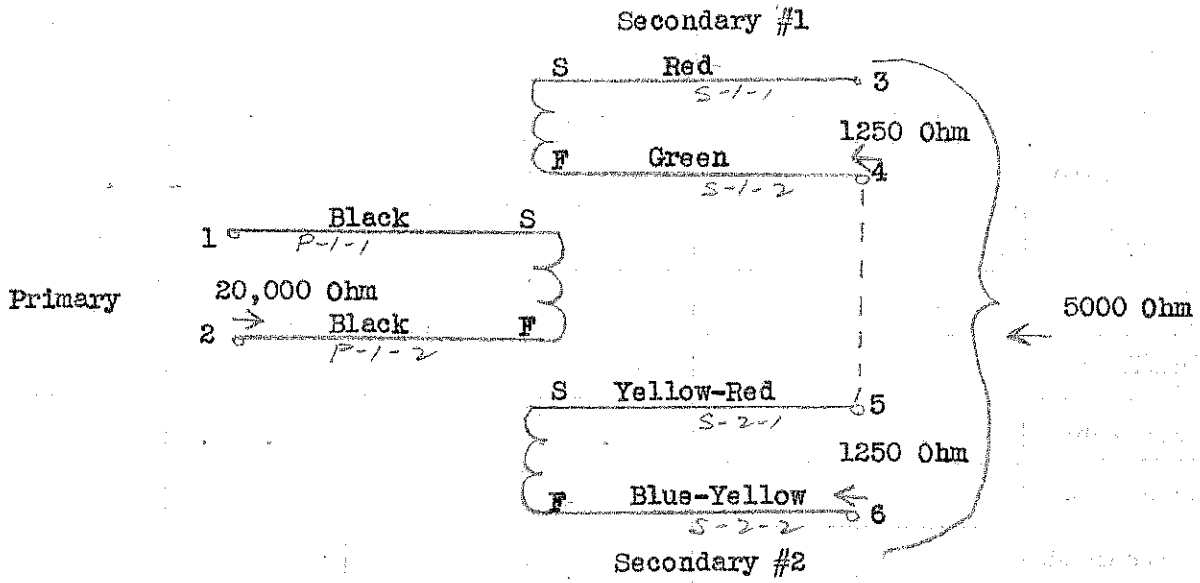
$\frac{4548}{140}$ = 32.4

Ze = 38.6 @ 25 Cycle



Re-DESIGNED BY H. W. S.

DATE 8 - 1 - 41



$Z = 20,000 - 5,000 - 1,250$

$Z_R = 16 - 4 - 1$

$T_R = 4 - 2 - 1$

$T = 4560 - 2280 - 1140$

PP 666 Class A to 2-4-8-15-500 Ω
15 watt capacity
5000 Ω P-P

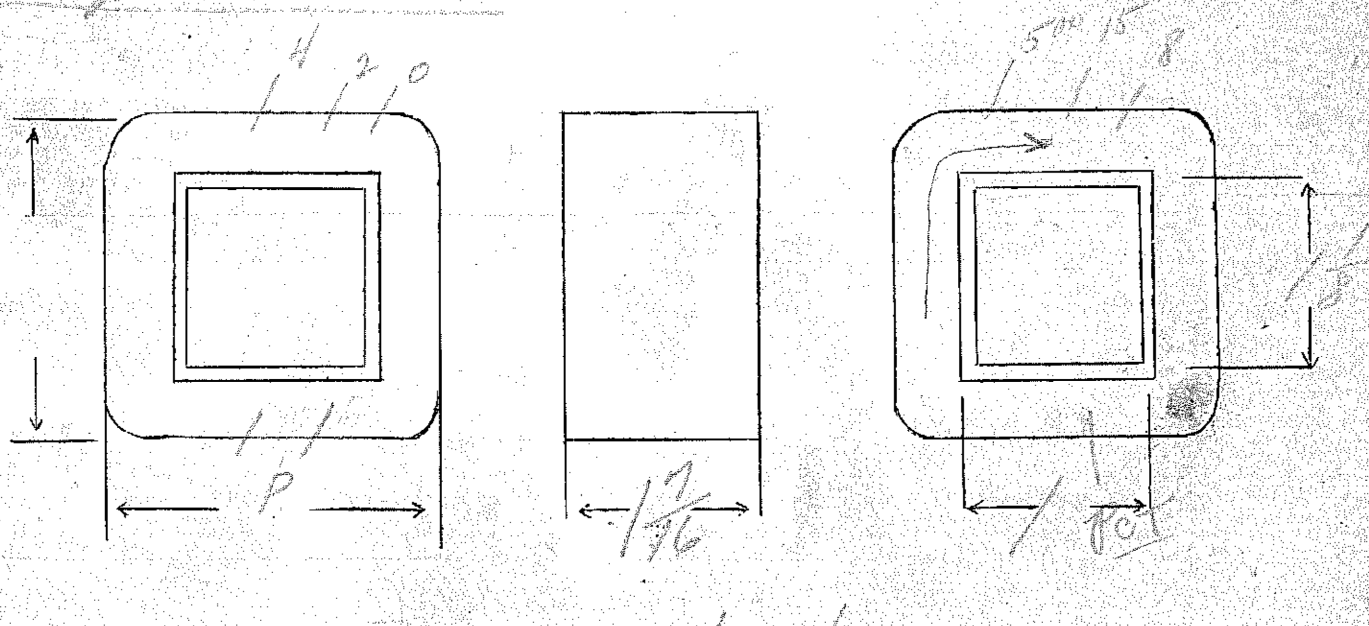
SPEC. NO. 2930

Continuous

Winding	SEC	PRI	SEC				(Bottom)
Turns	525	2000	31 GREEN TRACER	42 GREEN/YELLOW	42 RED		
Taps	START- BROWN FINISH- BLUE	1000	—	24			
Wind. Lgth.	1.25	1.25	—	—	—		
Wire Size	#30	#33	#33	#21	#19		
T.P.L.	105.5	145.14	.7L	1.25L	1.5L		
Kind Term.	#20 [illegible]	#20 [illegible]	#20 [illegible] wire only with sleeving				
Term. Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	30#	30#					
Test Volt.	1250	2500	1250				
Wrapper	[illegible]	[illegible]			[illegible]		

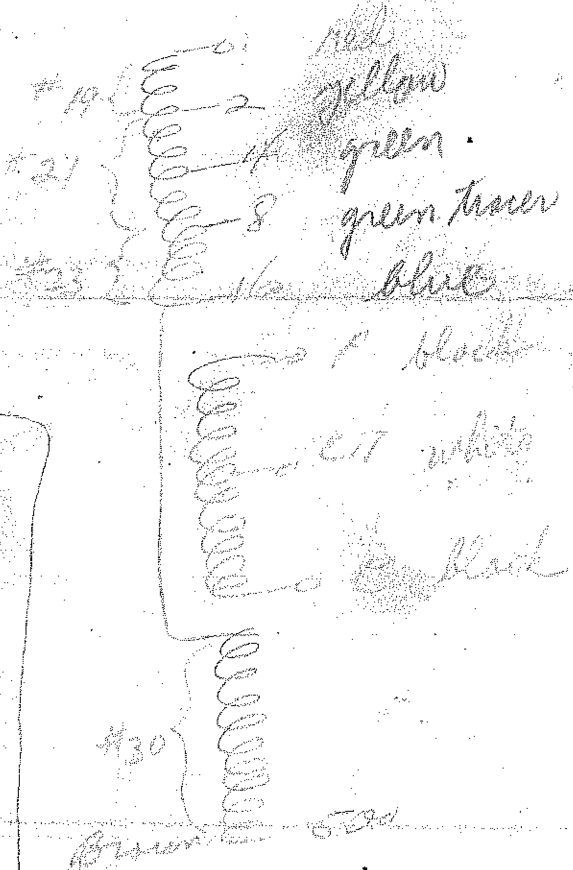
TUBE	7L007	IMPREGNATION	VARNISH
CORE	1 x 1 1/8 [illegible]	PRIMARY V.A.	
MOUNTING	A		

When winding sec 2 be sure that the direction of winding is the same as that of sec 1 (over)
End of sec is start



DESIGNED BY [illegible] DATE 5/23/37

		(V)		(I)
Black/white	5000 —	70.5		.155 (70 per tube actual dc)
Brown	500 —	22.5		.15
blue	15 —	3.88		1.0
green tracer	8 —	2.83	#24	1.38
green	4 —	2	#21	1.94
yellow	2 —	1.41	#18	2.75
red	short			



Pri #24 (2001)

Brown 0
blue 30V } 2
green tracer } 4.5
green
yellow
red 6.8

Brown to red 40V

Audio Output

Push Pull 6L6's
6600 Ohm CT to
500, 15, 8, 4, 2 Ohm
- 20 Watt -

SPEC. NO. S-2031

Winding	Sec. #1	Pri. #1		Sec. #2	Pri. #2		Sec. #3
Turns	680	1230		118	1230		118
Taps	118	-		62	-		56 - 62 - 43
Wind. Lgth.	1-7/16"	1-7/16" = 1.4375"		1-7/16"	1-7/16"		1-7/16"
Wire Size	#29	#31		#25	#31		#31
T. P. L.	118 - 6L	137 - 9L		56 - 3L	137 - 9L	SINGLE	43 - 3L
~~Finish~~ Pitch	69%	91%		91%	91%	WIND	69%
Type Lead	#22 Pr. Br.	#22 Dulac		#22 Pr. Br.	#22 Dulac	Sec. #3	#20 Pr. Br. & W.O.
Lead Lgth.	9"	9"		9"	9"		9"
Layer Insul.	1L 30#S	1L 20#S		1L 30#S	1L 20#S		1L .005" GA
Test Volt.	-	2000V		-	-		-
Wrapper	1L .007" VC	1L .007" VC		1L .007" VC	1L .007" VC		2L .005" GA

TUBE	7L - .007" GK	IMPREGNATION	VARNISH

CORE 1-1/16" x 1-3/4" E & I GA 29 GRADE B STACK 2 x 2

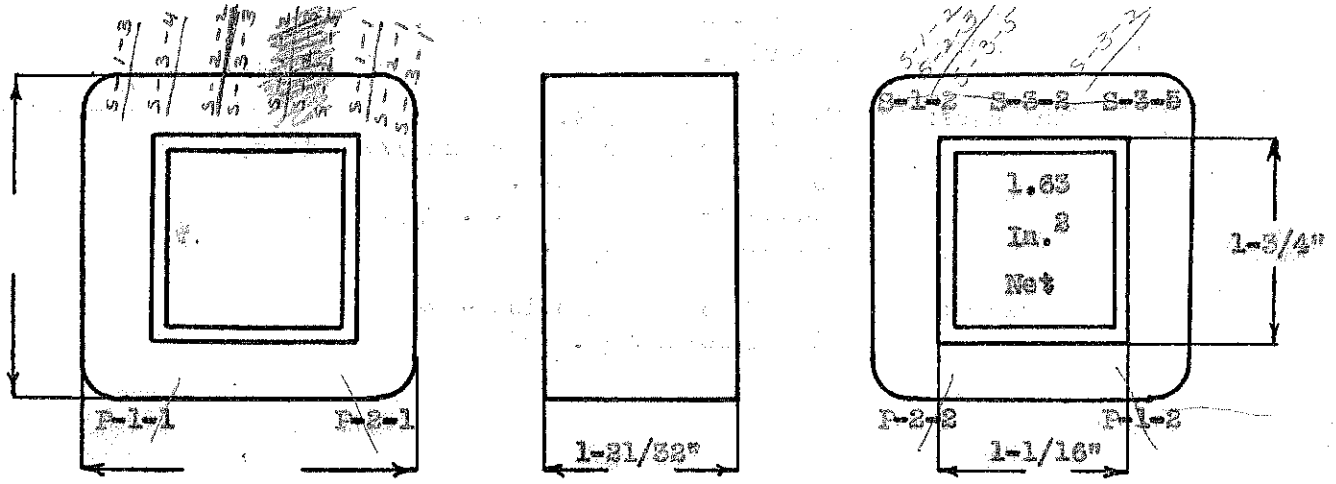
MOUNTING "AA" - Leads

NOTE: All Exact Turns!

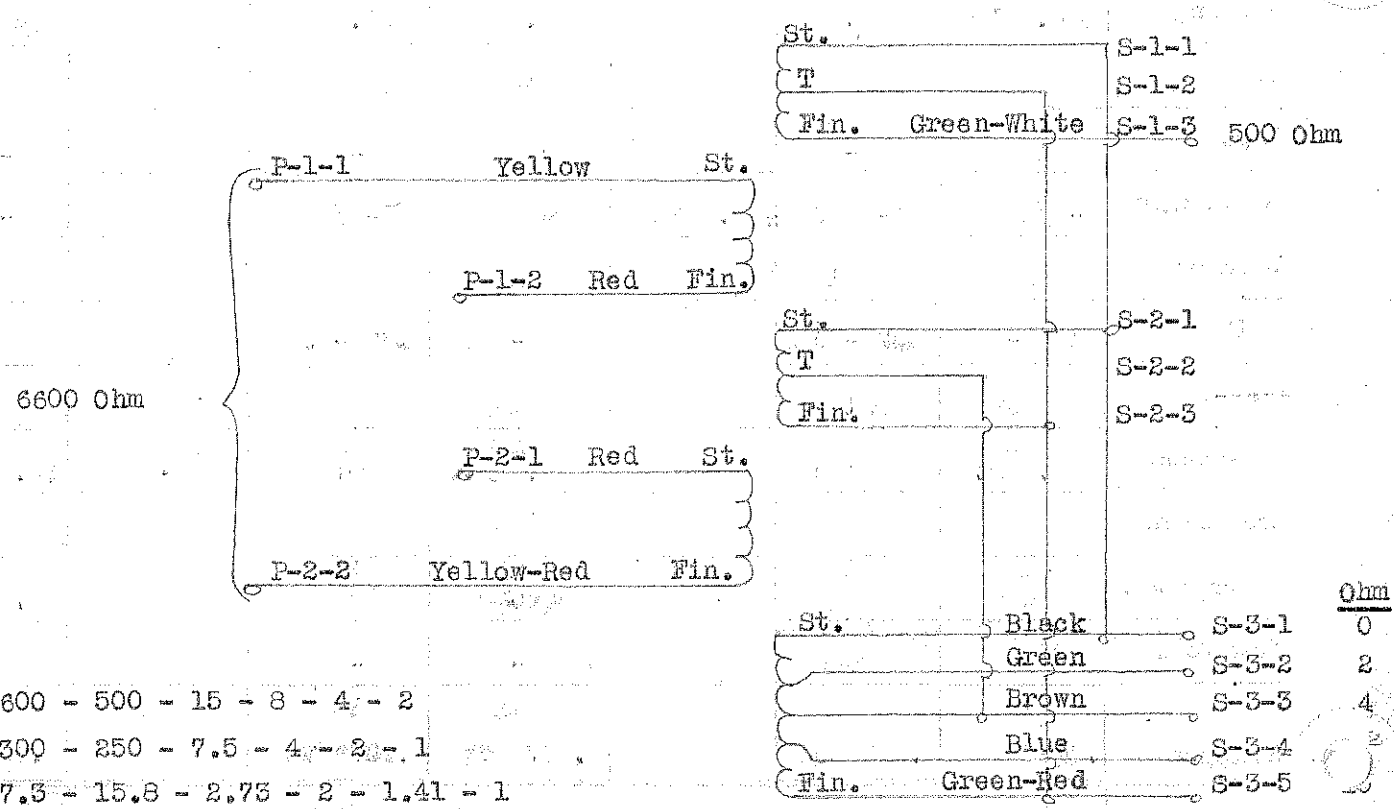
Cu =
Fe = 81 @ 25 Cycle
TPV = 6.8
Wire Net = 0.482" (0.464")

$\sqrt{20 \times 6600} = 362V$

See Reverse Side



Re-DESIGNED BY H.W.S. DATE 12/30/41



$Z = 6600 - 500 - 15 - 8 - 4 - 2$

$Z_R = 3300 - 250 - 7.5 - 4 - 2 - 1$

$T_R = 57.3 - 15.8 - 2.75 - 2 - 1.41 - 1$

$T = 2460 - 679 - 117 - 86 - 60.5 - 42.8$

2460 - 680 - 118 - 86 - 62 - 43 - 0

- Gr-Wht - Gr-Rd - Brn - Org - Gr - Blk

NOTES:

Multi-Winders: Sec. #2, after 62T tap, spiral out.
All taps and winding exact!
Use colored paper markers. Land all wires as shown.

Single Winder: Sec. #3 wound in same direction as all other windings.
Taps S-3-2 and S-3-4 are W. O. with Sleeving.

Finishers: Note: Color Code.
Install stickers under and over leads, coming up to saddles.
Saddles - Irroslot (V.C. Type .015")
Cut leads 12" long.

Stackers: End of coil insulation -
Mica Irroslot - .015"

Audio Output
Push Pull 6L6
3800 Ohm CT or 3000 Ohm CT to
500 Ohm, 15, 8, 4, 2 Ohm
- 60 Watt -

SPEC. NO. S-2952

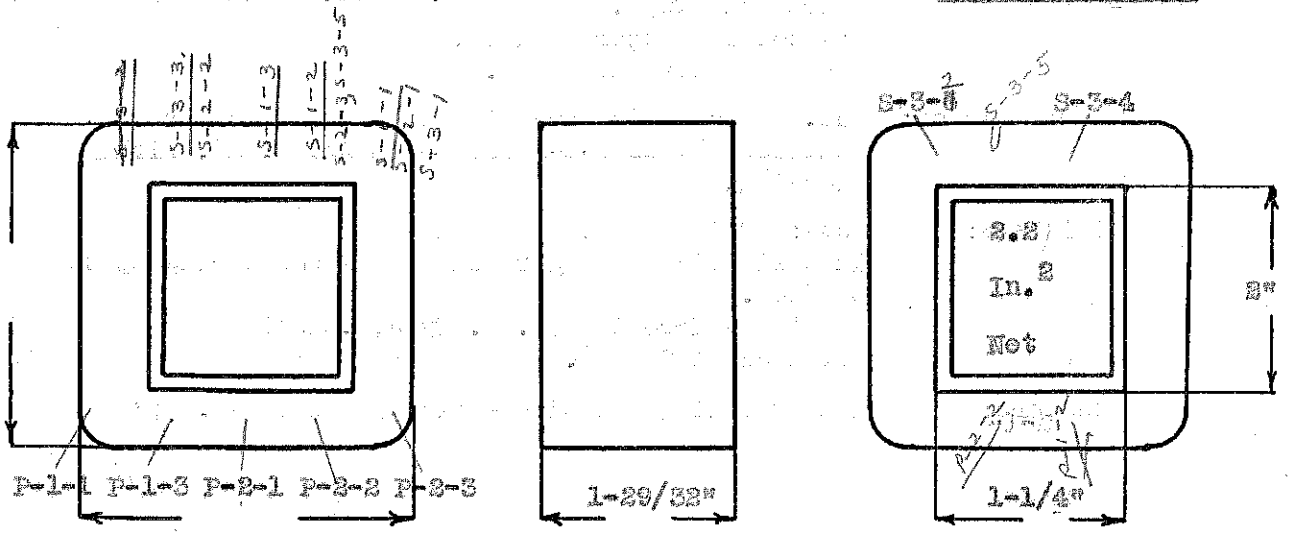
Winding	Sec. #1	Pri. #1		Sec. #2	Pri. #2		Sec. #3
Turns	800	1100		138	1100		138
Taps (2nd)	138	75 - 1	(2nd)	70	1035 - 9th	4 102	3 - 70 - 2 - 51
Wind. Lgth.	1-11/16"	1-11/16"	1.6875"	1-11/16"	1-11/16"		1-11/16"
Wire Size	#28	#31		#21	#31		#20
T. P. L.	113 - 8L	158 - 8L		51 - 4L	158 - 8L		46 - 3L
~~Finish~~ Pitch	90%	90%		91%	90%		91%
Type Lead	#22 Pr. Br.	#22 Dulac		#20 Pr. Br.	#22 Dulac		#20 Pr. Br. & W.O. Sleeve
Lead Lgth.	9"	9"		9"	9"		9"
Layer Insul.	1L 50/G	1L 50/G		1L 50/G	1L 50/G		1L .005" GA
Test Volt.		2500			2500		
Wrapper	1L .007" VC	1L .007" VC		1L .007" VC	1L .007" VC		2L .005" GA

TUBE	7L - .007" GK	IMPREGNATION	VARNISH
CORE 1-1/4" x 2"	GA 29	GRADE B	STACK 2 x 2
MOUNTING	"AA" - Leads		

Cu = 550 @ 150 Ma. D. C.
Fe = 87 @ 25 Cycle; 43.7 @ 50 Cycle
TPV = 4.68
Wire Net = 0.567" (0.552")

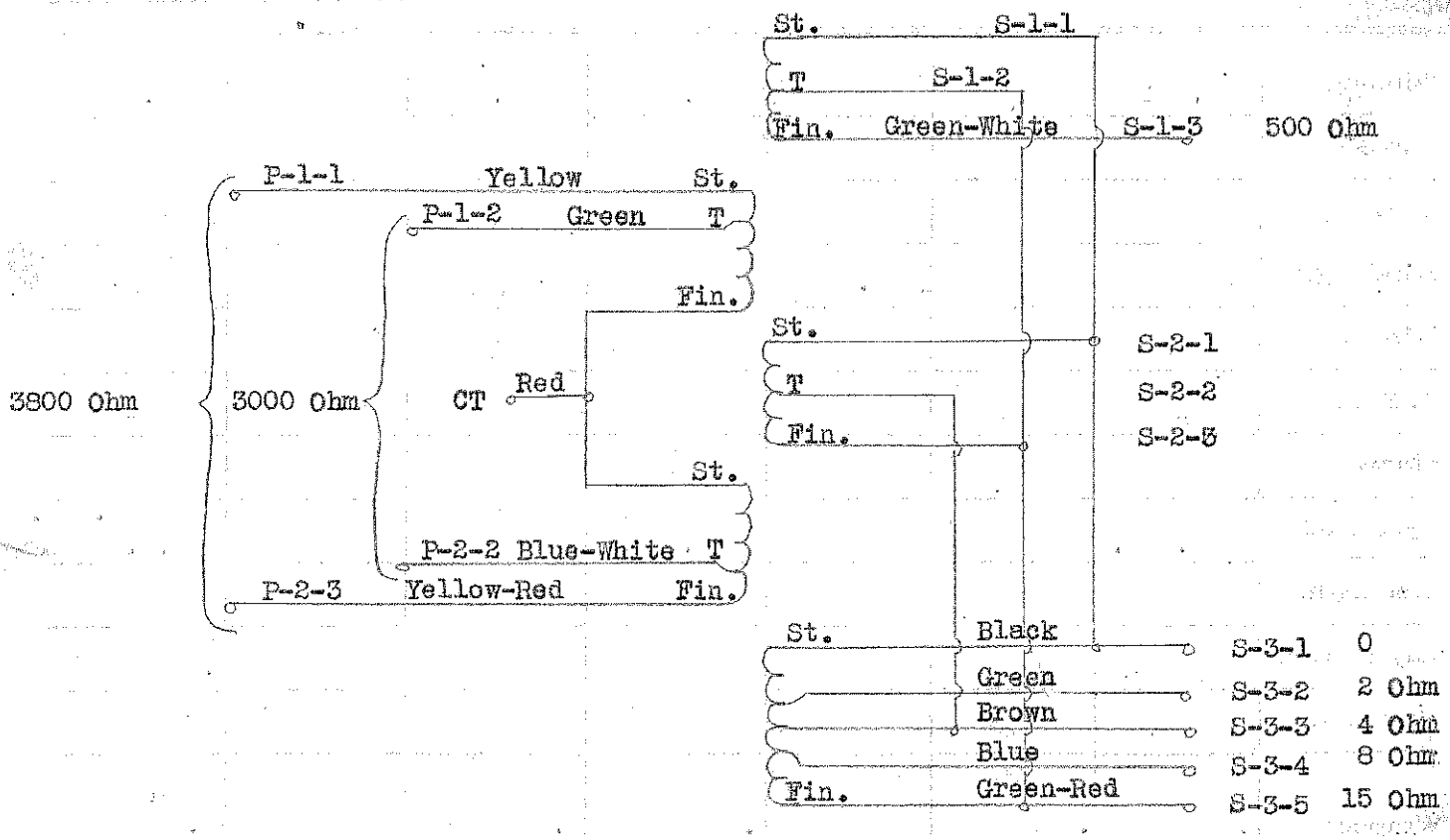
$\sqrt{60 \times 3800}$ = 470V on Pri.

See Reverse Side



DESIGNED BY H. W. S.

DATE 12-30-41



Z = 3800 - 3000 - 500 - 15 - 8 - 4 - 2

Z_R = 1900 - 1500 - 250 - 7.5 - 4 - 2 - 1

T_R = 43.5 - 38.6 - 15.8 - 2.73 - 2 - 1.41 - 1

T = 2220 - 1970 - 807 - 140 - 102 - 72 - 51

T = 2200 - 1950 - 798 - 138 - 101 - 71 - 50.5

1300 - 2250 - 790 - 138 - 102 - 70 - 51

NOTE:

Multi Winders: Taps of Secondary #1, Pri. #1, Sec. #2, & Pri. #2 Spiral out Taps.
Use colored paper markers.
Land all wires as shown.

Single Winder: Sec. #3 Wound in Same Direction as all other Windings. Taps S-3-2 and S-3-4 are W. O . with Sleeving.

Finishers: Note: Color Code.
Install Stickers under and over leads coming up to saddles.
Saddles - Irroslot (V. C. Type, .015")
Cut leads 12" long.

Stackers: End of Coil Insulation - Mica Irroslot - .015"

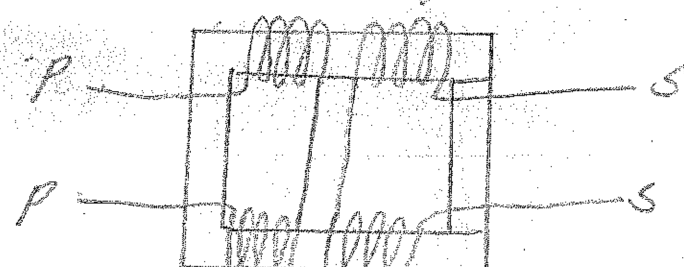
4Ω to grid   Rp - 2.0Ω?
Rs - 1386Ω

SPEC. NO. 2933

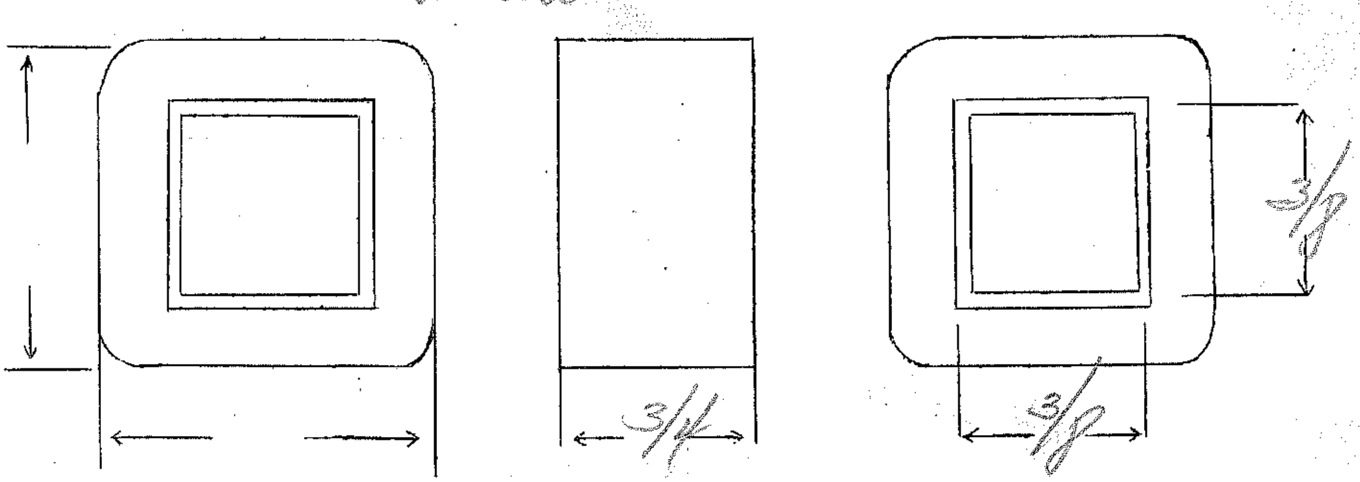
Winding	SEC	PRI					
Turns	3400	75					
Taps							
Wind. Lgth.	9/16						
Wire Size	#41	#28					
T.P.L.							
Kind Term.	#20 Pa?	Braid					
Term. Lgth.	9"	9"					
Layer Insul.	12#	30#					
Test Volt.							
Wrapper	2100SGA	2100SGA					

TUBE	46007	IMPREGNATION	wax-dip luminating?
CORE	3/8 x 3/8 - U - (cut from 7/16" 29 Ga E)	PRIMARY V.A.	

MOUNTING special 1" deep D mtg with band to enclose



leads out above shielding - stand grounded



DESIGNED BY GW   DATE 6/14/37

Audio Output
14,000w CT
Sec. 500w, 15, 8, 4 & 2w

Old Stock

Continuous

SPEC. NO. S-2934

Winding	Sec #1	Pri	Sec #2	Sec #3	Sec #4		
Turns	525	3400	31	42	42		
Taps	—	1700	—	24	—		
Wind. Lgth.	1 1/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"	=1.06"	
Wire Size	#31	#36	#24	#23	#20		
T. P. L.	88-62	173-202	45-12	40-12	21-22		
Finish	80%	90%	90%	90%			
Type Lead	#22 Pr. Br.	#22 Duke	#22 Pr. Br.	#22 Pr. Br.	W.O. Sleeve		
Lead Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	1/2 Sht 6	2 Sht 4	1/2 .005 GA		2 .005 GA		
Test Volt.							
Wrapper	1/2 .007 VC	1/2 .007 VC 2 .005 GA	—	2 .005 GA	2 .005 GA		

TUBE 5A-007 GA

IMPREGNATION Varnish

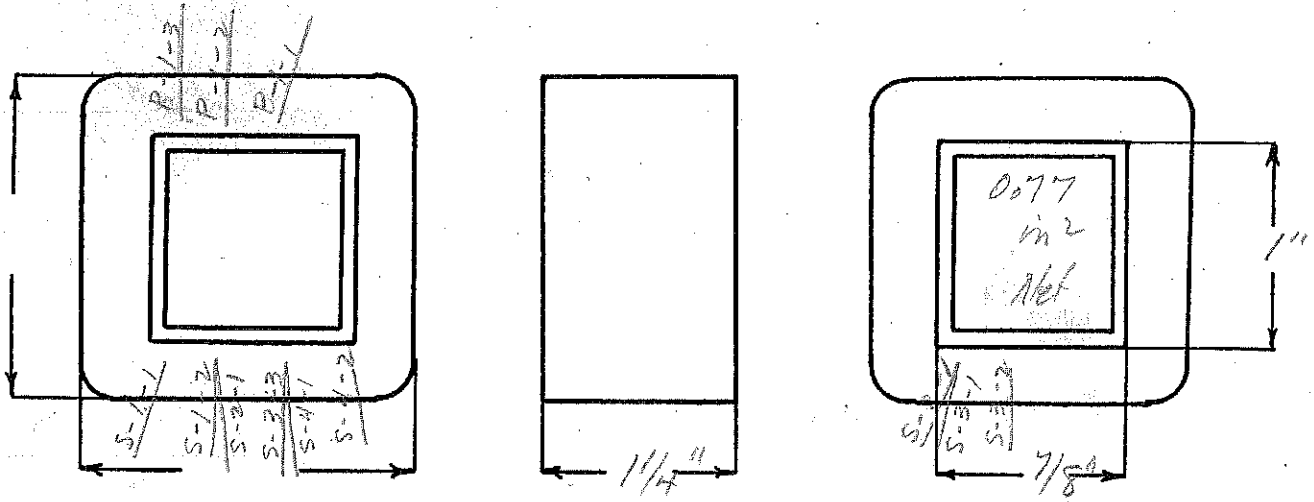
CORE 7/8" x 1" E&I GA. 29 GRADE Audio 2 STACK

MOUNTING "A"

Note: Single wind Sec # 2, #3 & #4.

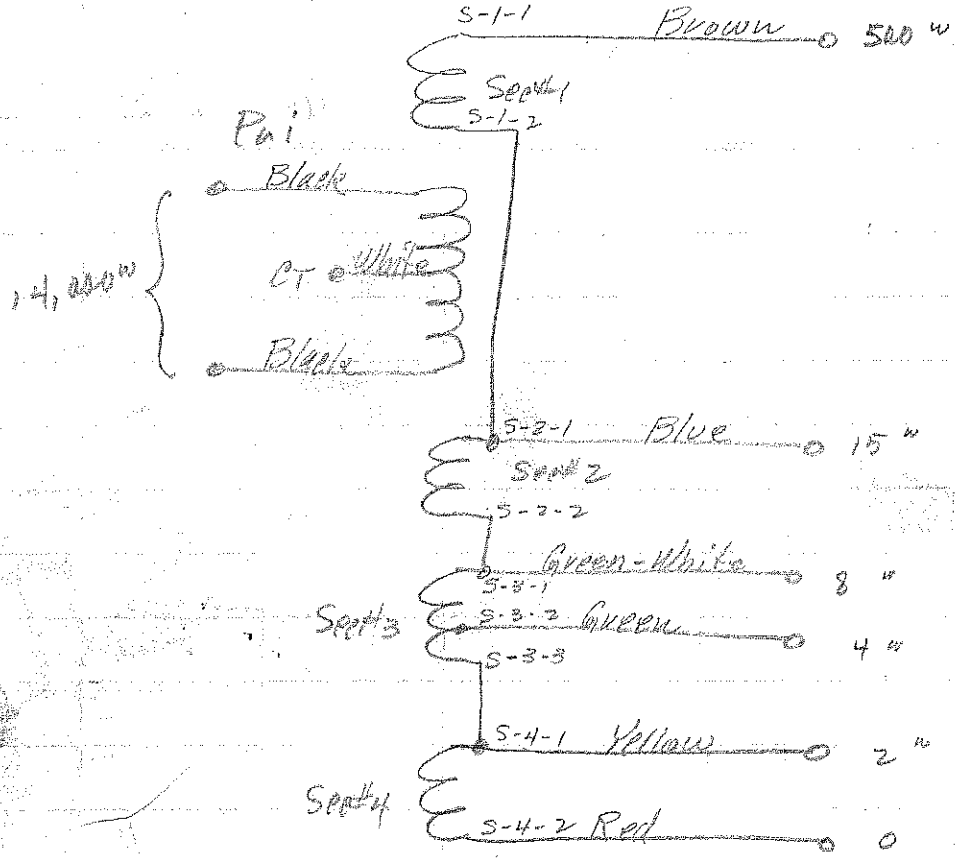
$\sqrt{12 \times 14{,}000} = 409v$

Cv =
Fe = 70.2 @ 50w
TPV = 8.32
Wire Nd = 0.300" (0.308")



DESIGNED BY NHR

DATE 4-8-42



$\Sigma = 14,000 - 500 - 15 - 8 - 4 - 2$

$\Sigma R = 7000 - 250 - 2.5 - 4 - 2 - 1$

$TR = 83.5 - 15.8 - 2.73 - 2 - 1.41 - 1$

$T = 3510 - 665 - 115 - 84 - 60 - 42$

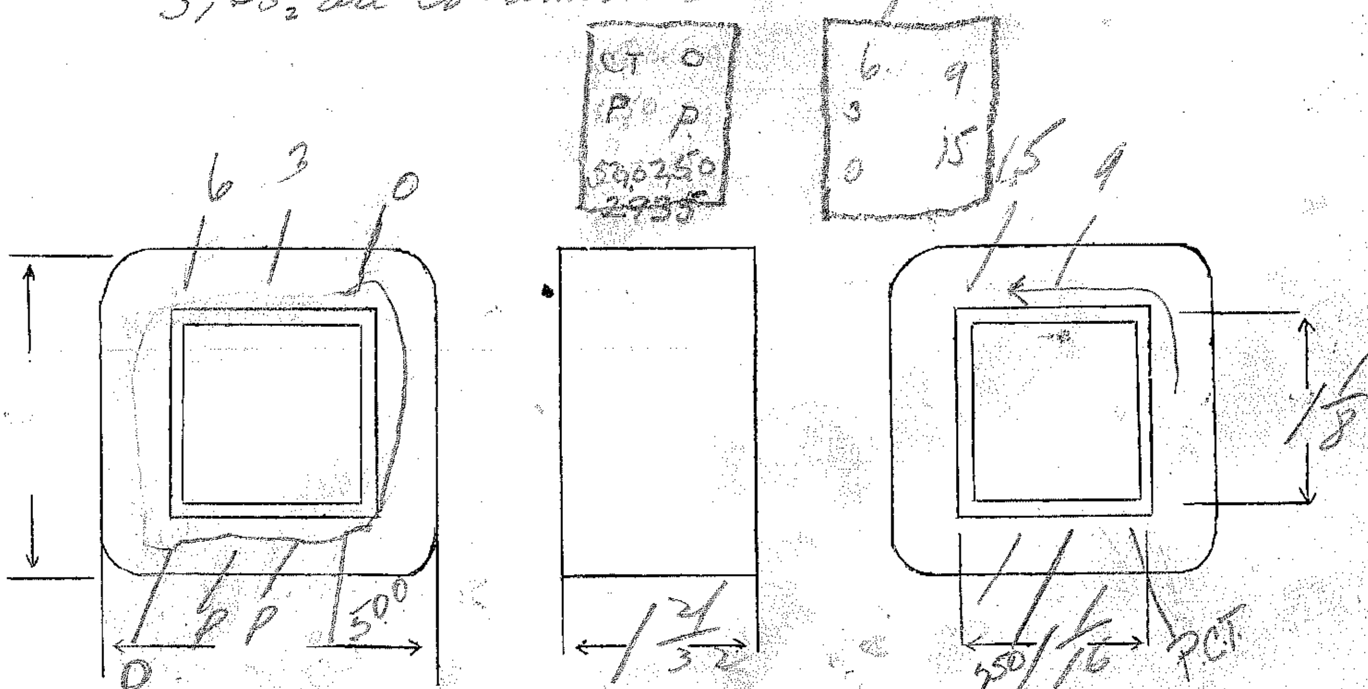
PP6B5 [illegible] 3-6-9-15-500[illegible]-250--

SPEC. NO. 2935

Winding	SEC	P	S (Continuous)				
Turns	700	3800	34	48	66		
Taps	263	1900		21			
Wind. Lgth.	1 15/32						
Wire Size	#24	#35	#23	#21	#19		
T.P.L.		214-18					
Kind Term.	silver Br.		WIRE ONLY				
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	d-#16	d-#16					
Test Volt.	600 AC	600 AC					
Wrapper	1600VC	1600VC			2400SGA		

TUBE	71007	IMPREGNATION	varnish
CORE	1 1/16 x 1 1/8 2410B Grade 212	PRIMARY V.A.	
MOUNTING	F		

$S_1 + S_2$ are Continuous - end of sec is common



DESIGNED BY [illegible] DATE 6/8/32

6F6 plate to PP6L6 Grids

9/1/25-313

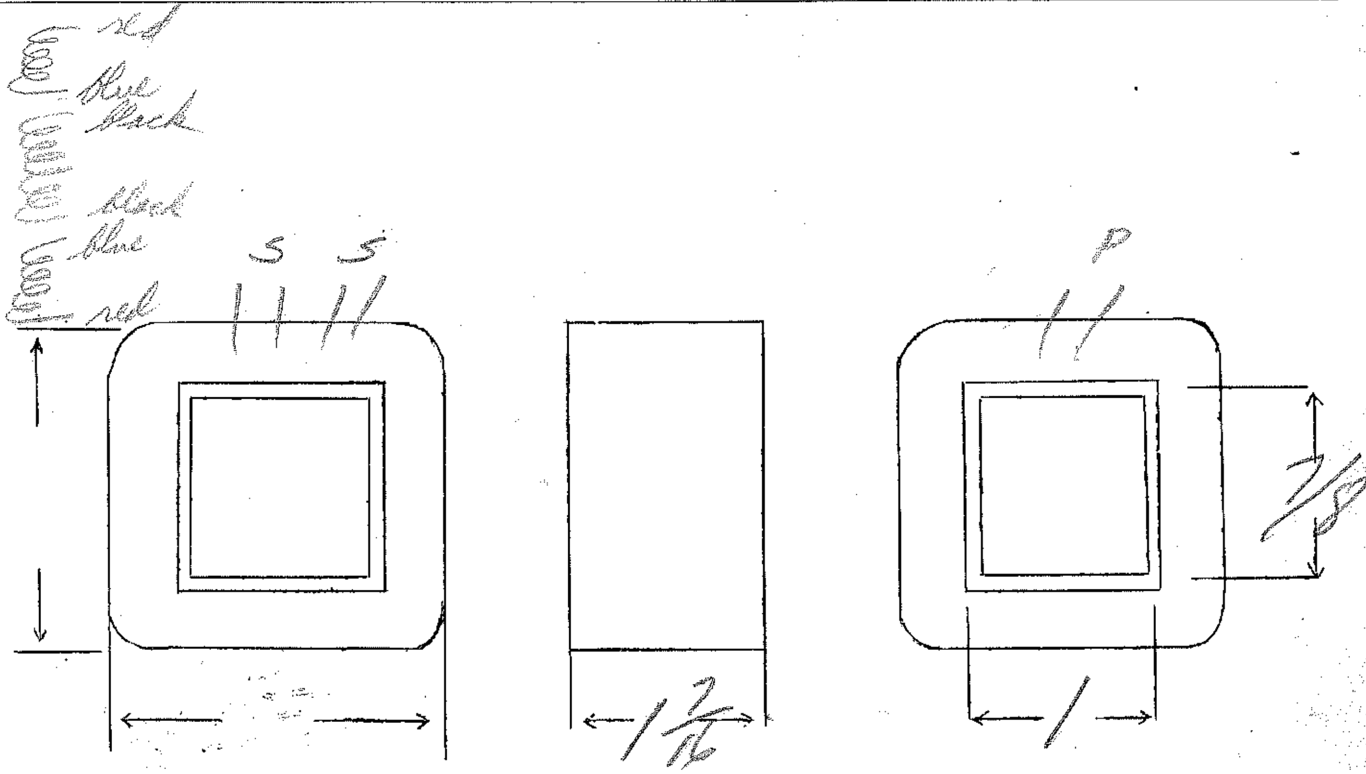
SPEC. NO. 2936

Winding	SEC.	PRI	SEC_2				
Turns	1250	4200	1250				
Taps	—	—	—				
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	#37	#34	#37				
T.P.L.	220	163	220				
Kind Term.	#20 Bar. Braid						
Term. Lgth.	9"	9"	9"				
Layer Insul.	20#	20#	20#				
Test Volt.							
Wrapper	1005MC 6Wll	1005MC 6Wll	21005GA				

TUBE 7007 | IMPREGNATION VARNISH

CORE 1 x 7/8 - 29 Ga-6 Grade - Butt stack, no gaps | PRIMARY V.A.

MOUNTING A



DESIGNED BY G.W. DATE 6/10/37

see Dwg N14
Output from PP6L6 AB (3800 Ω) to 4000 / 6000 / 8000 Ω
60 watts audio

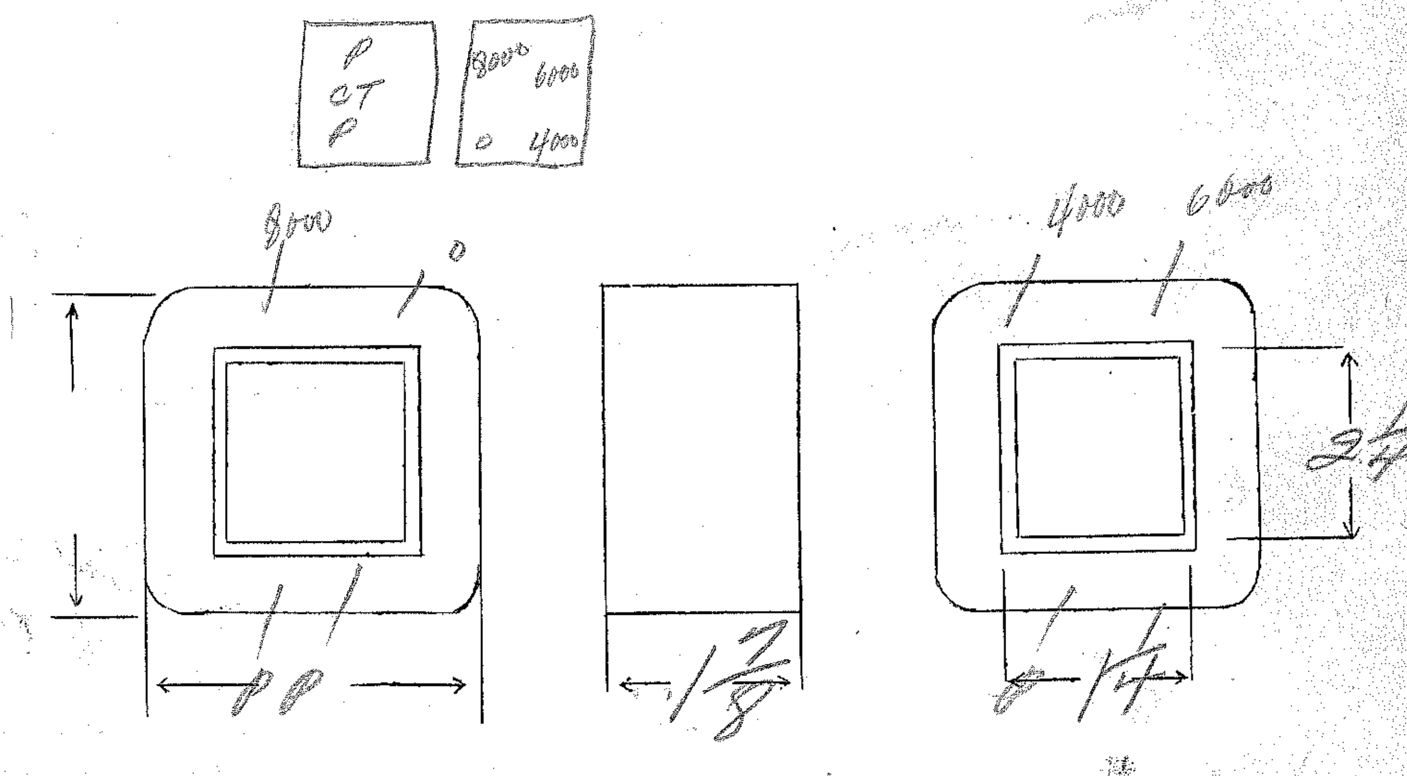
SPEC. NO. 2937

Winding	PRI						
Turns	1700	1900	780				
Taps	850		420				
Wind. Lgth.	1 5/8	1 1/2	1 1/2				
Wire Size	#29	#28	#30				
T.P.L.	123-14	100-19	125-7				
Kind Term.	WIRE ONLY						
Term. Lgth.	6"	6"	6"				
Layer Insul.	40#	✓	✓				
Test Volt.		5000					
Wrapper	3L007VC		2100?VG 2100S6A			Double	

TUBE 9L007 | IMPREGNATION | VARNISH

CORE 1 1/4 X 2 1/4 Dynamo Grade | PRIMARY V.A.

MOUNTING F — Gap .020"



DESIGNED BY GW DATE 6/10/37

30 or 200 Ω to grid

SOUND PRODUCTS CO.

SPEC. NO. 2938

(INPUT) Continuous

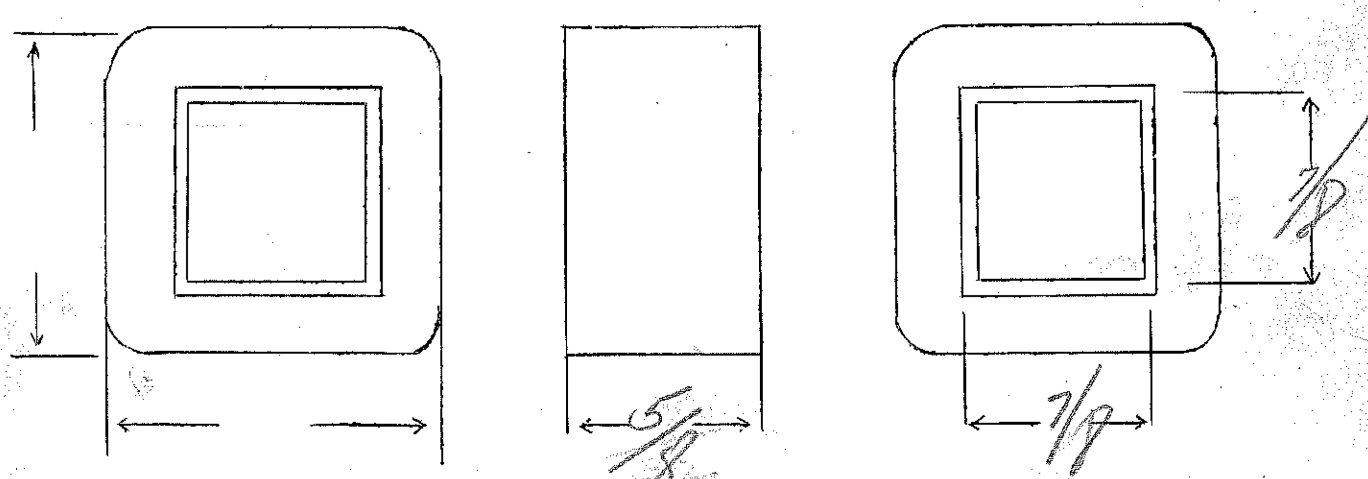
Winding	SEC	PRI					
Turns	5000	450	Red				
Taps	—	175	Red-Green T.				
		0	— Silbr				
Wind. Lgth.	7/16	1 1/16					
Wire Size	#40	#28					
T.P.L.	115-44	71-7					
Kind Term.	Special shielded hookup wire						
Term. Lgth.							
Layer Insul.	12#						
Test Volt.							
Wrapper	1007VC [illegible]	2100SGA					

TUBE 71007 4/2 MR— IMPREGNATION wax

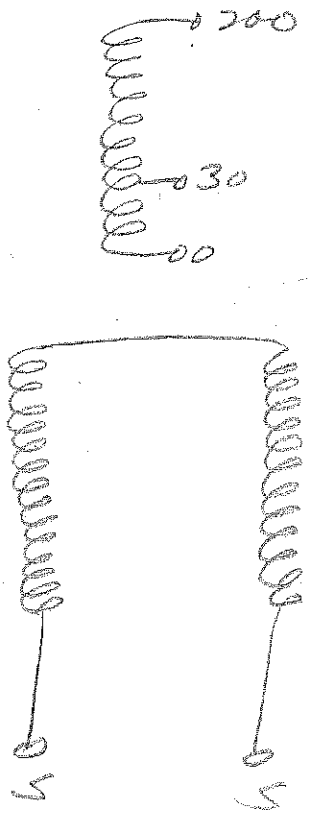
CORE 7/8 x 7/8 - 29 D A" - 2x2 PRIMARY V.A.

MOUNTING A-

Pri - double strand inside shielding 8" outside wire
Sec single strand inside shielding - see job sheet



DESIGNED BY GW DATE 6/19/37



Sec. Start—Ground Sheath of Sec Finish Lead.
Pri. Start—Ground Sheath of Pri Tap + Finish Lead.

PP 6N7 (plates tied together) to 4-8-15-500 Ω

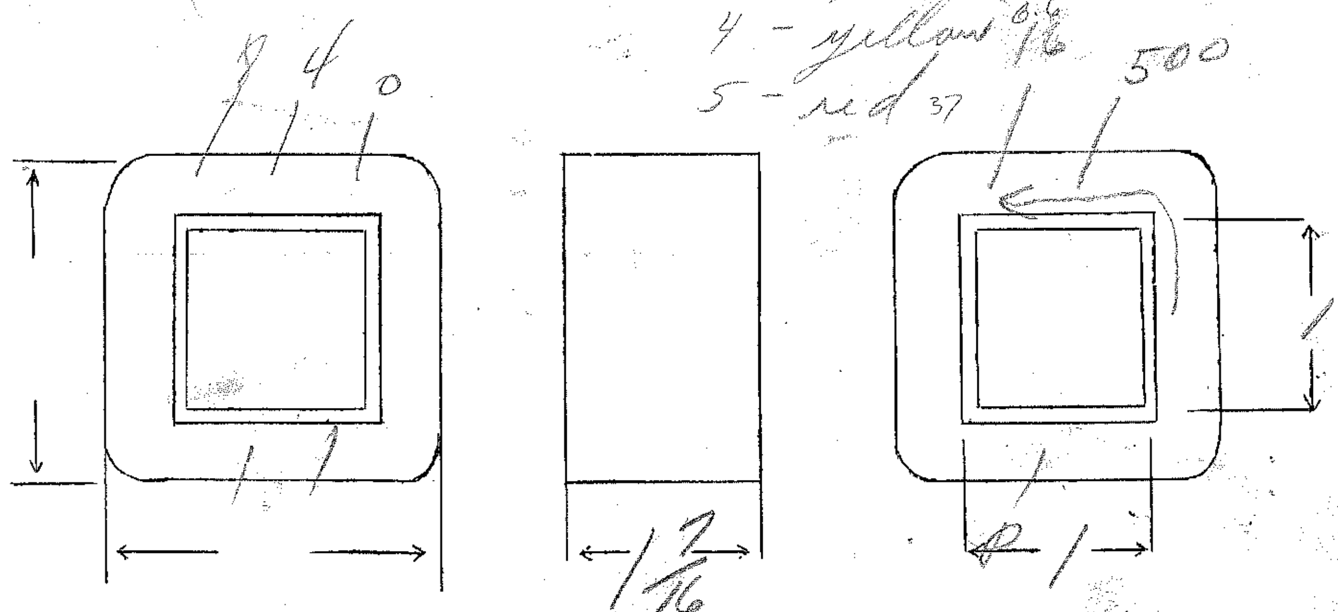
SPEC. NO. 2939

		Continuous					
Winding	PRI	SEC					
Turns	3200	420	43	45			
Taps	1600		23				
Wind. Lgth.	1.25						
Wire Size	#37	#29	#22	#20			
T.P.L.	230-14	93-5					
Kind Term.	#20 Par Br	#20 Par Br	#20 Par Br				
Term. Lgth.	9"						
Layer Insul.	20#	30#	50#				
Test Volt.							
Wrapper	[illegible] 1400 VC			[illegible] GA			

TUBE	52007	IMPREGNATION	VARNISH
CORE	1 x 1 - 29 Ga B	PRIMARY V.A.	
MOUNTING	A		

Indy sec is start

sec start - blue 0
2 - green 3.5
3 - brown 4.95
4 - yellow 6.6 16
5 - red 37



DESIGNED BY [illegible] DATE 6/10/37

PP2A3 to 3-6-9-15 — 400 — 500

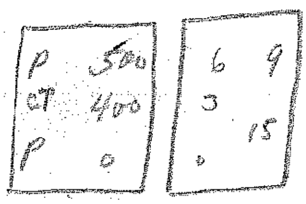
SPEC. NO. 2940

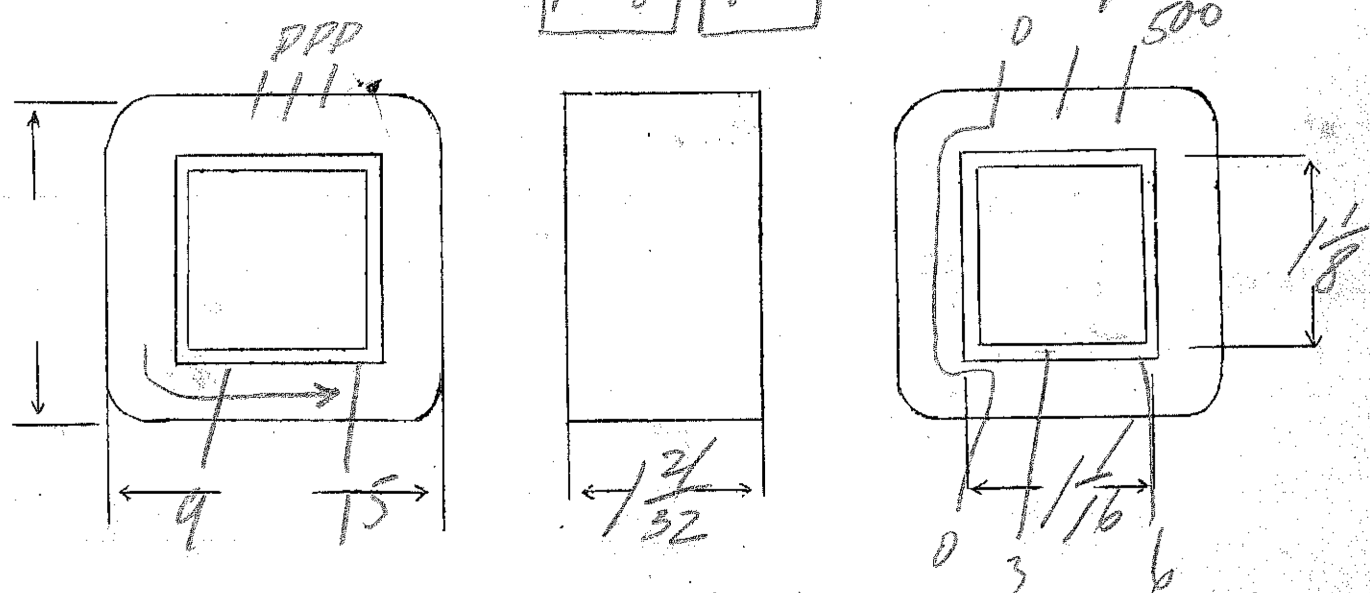
Continuous

Winding	P	500-400 S	15-9	6	3-0		
Turns	3000	894	68	34	84		
Taps	1500	104	42				
Wind. Lgth.	1 15/32	✓	✓	✓	✓		
Wire Size	#33	#30	#23	#21	#19		
T.P.L.	172	123	✓	✓	✓		
Kind Term.	sil Br	sil Br.	WIRE ONLY				
Term. Lgth.	4"	4"	4"	4"	4"		
Layer Insul.	30#	50#	50#				
Test Volt.	2500	—	—	—	—		
Wrapper	4 High 1600 TVC				2400 SOA		

TUBE	7600 T	IMPREGNATION	VARNISH
CORE	1 1/16 X 1 1/8 -2X2 - 1/2 29 Ga 1/2 Dyn.	PRIMARY V.A.	
MOUNTING	F		

end of one is start





DESIGNED BY JAW DATE 6/23/37

single 6L6 to (350V-60 ma sec) 11 watts audio
P. 4000Ω - 60 ma
S-5800Ω - 60 ma

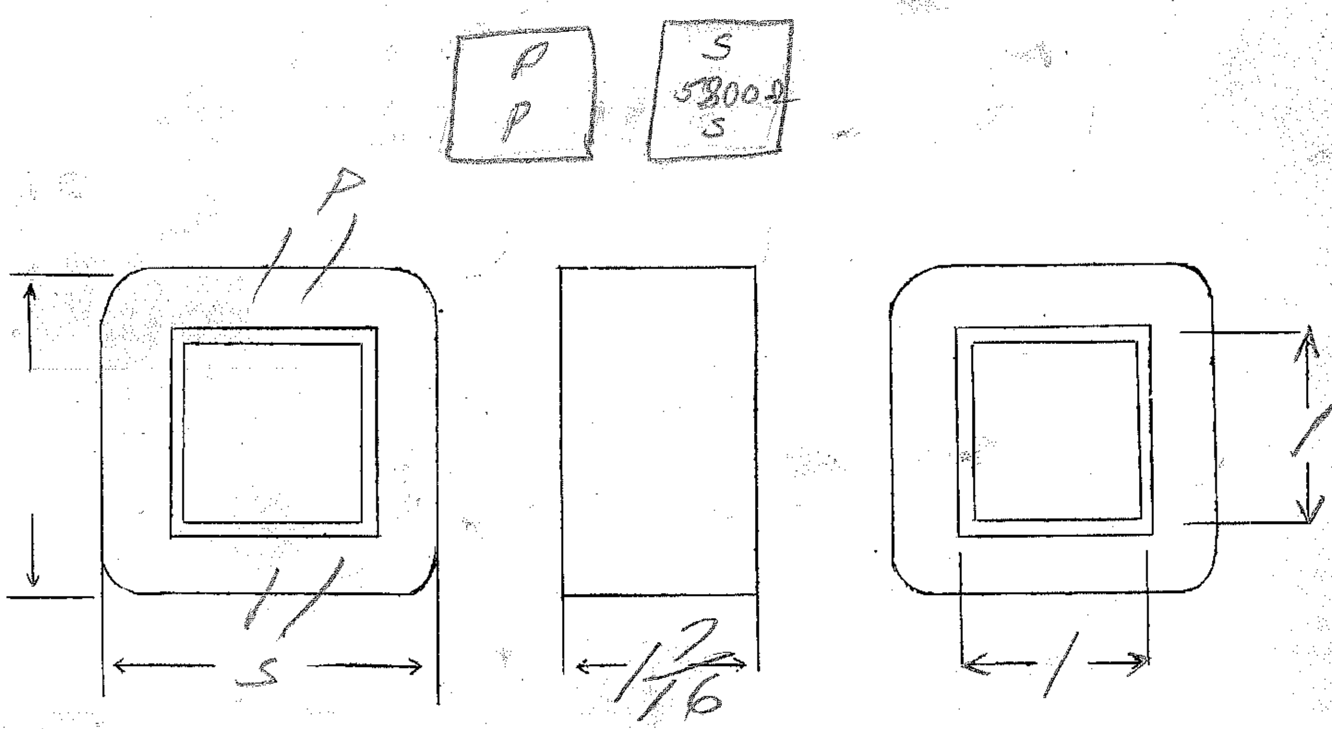
SPEC. NO. 2941

Winding	PRI	SEC					
Turns	2200	2700					
Taps	—	—					
Wind. Lgth.	1 3/16	✓					
Wire Size	#33	#33					
T.P.L.	139						
Kind Term.	WIRE	ONLY					
Term. Lgth.	4"	4"					
Layer Insul.	30	30#					
Test Volt.							
Wrapper	2407VC	3605GA					

TUBE 7007 | IMPREGNATION

CORE 1 X 1 29 1/2 B - .005" Gap | PRIMARY V.A.

MOUNTING F



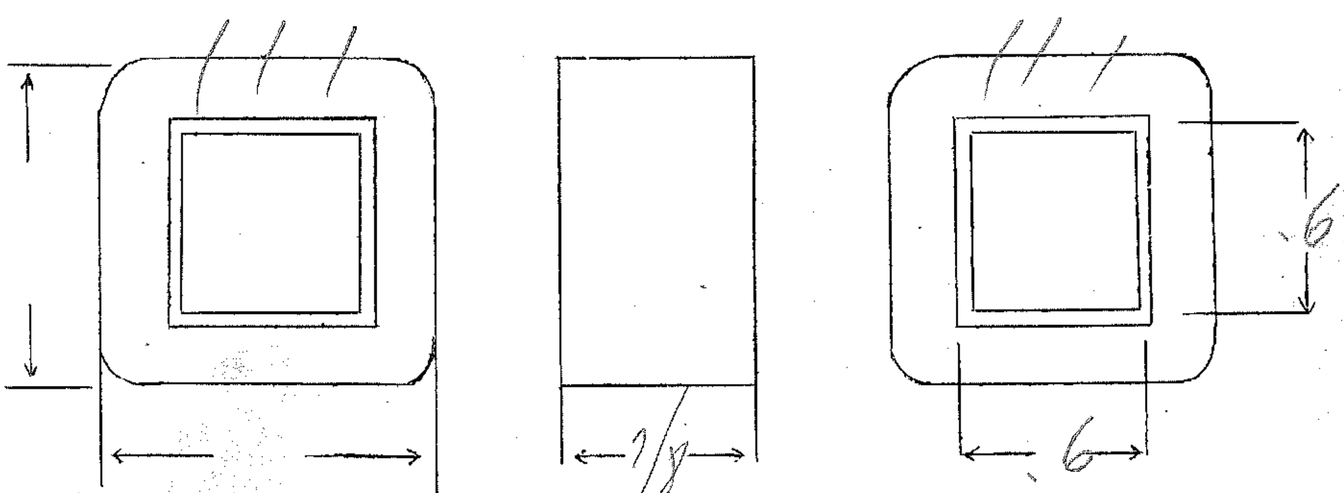
DESIGNED BY Gweaver DATE 6/24/37

40 - 30 - 22 - 16 - 12 H (u = 410)

SPEC. NO. 2942

Winding							
Turns	5400						
Taps	4700 -	4050	- 3440	- 3000			
Wind. Lgth.	3/4						
Wire Size	#37						
T.P.L.	138						
Kind Term.	Sil Br						
Term. Lgth.	3"						
Layer Insul.	16 #						
Test Volt.							
Wrapper	2600SSA						

TUBE	52007	IMPREGNATION	
CORE	.6 X .6 — 2X2 (special size)	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY GW DATE 7/1/37

P Ser. 6L6 to 2-4-8-15 Standby [illegible] 3300 R.P.P. 60 [illegible] 15 [illegible] continuous

STD [illegible] WITH Both [illegible]

SPEC. NO. 9945 / 9915

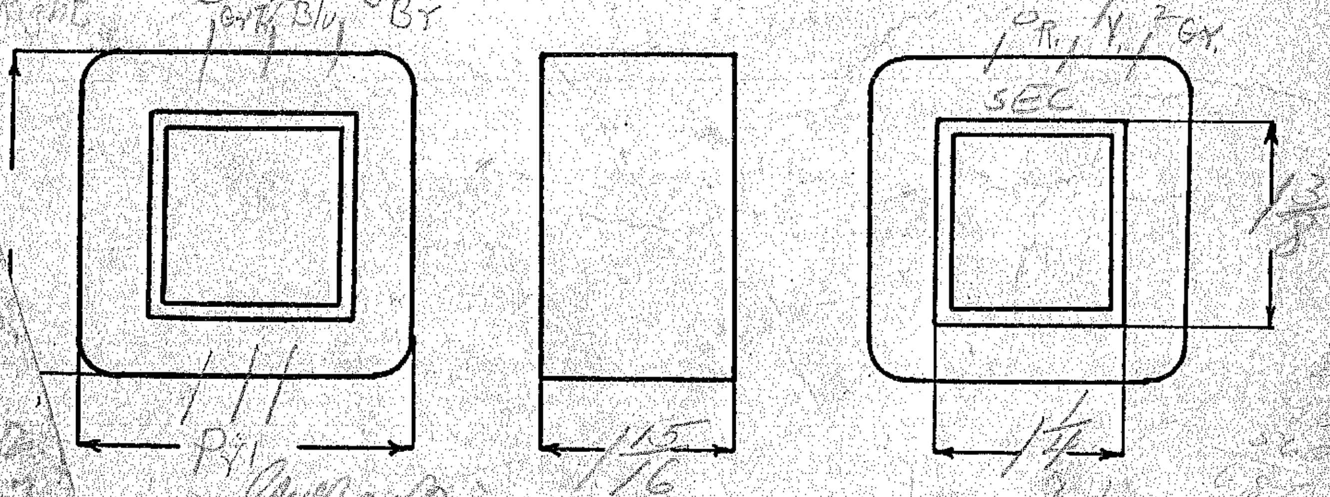
Winding	SEC	PRI	SEC				
Turns	560	1700	33	44	43		
Taps	START-BROWN FINISH-BLUE	850		26			
Wind. Lgth.	1.75	✓	✓	✓	✓		
Wire Size	#27	#29	#20	#18	#16		
T. P. L.	102-6	124-14					
Finish	~~#30~~						
Type Lead	[illegible]		WIRE ONLY				
Lead Lgth.	9"	✓	✓	✓	✓		
Layer Insul.	40#	40#					
Test Volt.							
Wrapper	[illegible] 1000 TVC	[illegible] 1000 TVC			2400 TBK		

TUBE 7007 IMPREGNATION VARNISH

CORE 1 1/4 x 1 3/8 GA. 24 GRADE S STACK 2½

MOUNTING A

when winding Sec2 be sure that direction of winding of S1 + S2 are same — end of S2 is common in [illegible]



[illegible]ED BY [signature]

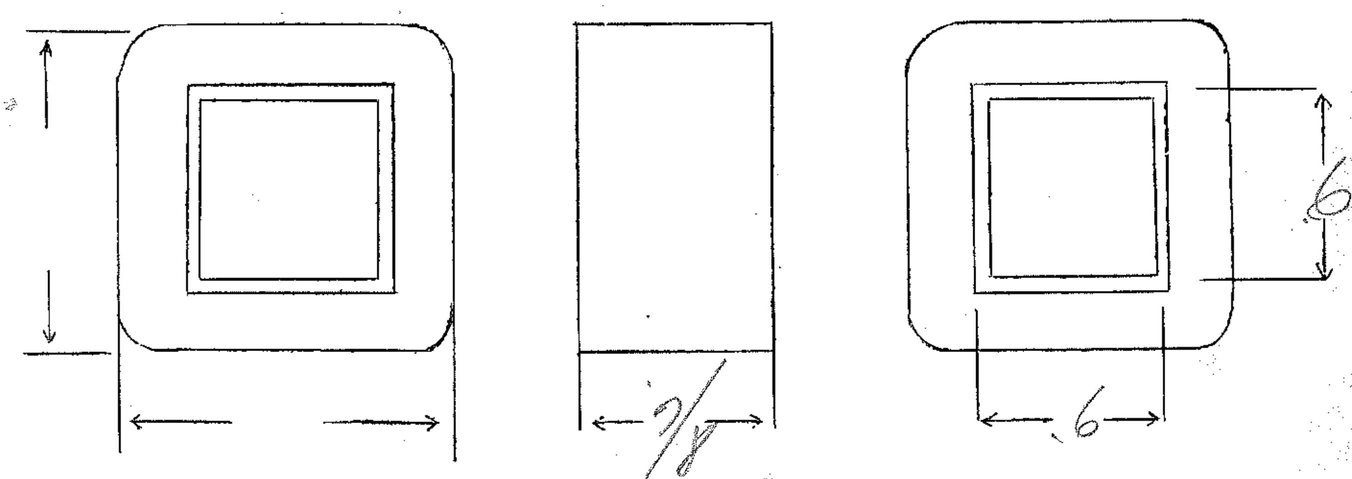
DATE 11/3/37

SPEC. NO. 2943

Winding	PRI						
Turns	14000						
Taps							
Wind. Lgth.	3/4						
Wire Size	#41						
T.P.L.	230						
Kind Term.	sil Br						
Term. Lgth.	3"						
Layer Insul.	10 #						
Test Volt.							
Wrapper	2V005 GA						

Spec [illegible] for [illegible] Obsolete?

TUBE	54007	IMPREGNATION	WAX
CORE	.6 X .6 2X2 – A Grade 29 Ga.	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY GW DATE 7/1/37

4-6L6 (3300 ohm) to 125, 250, 333, 500 ohm

OLD

15 watts

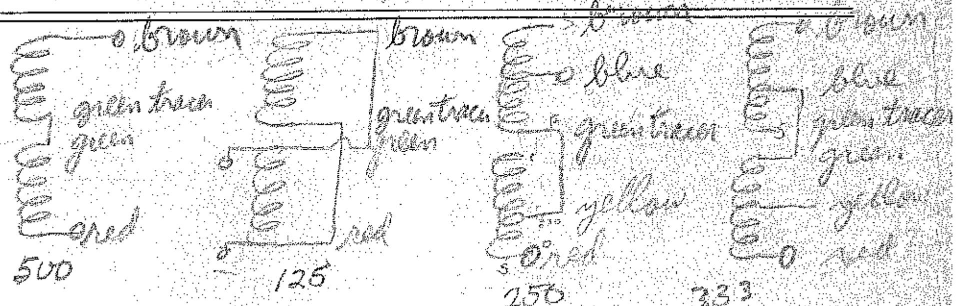
SPEC. NO. 52944

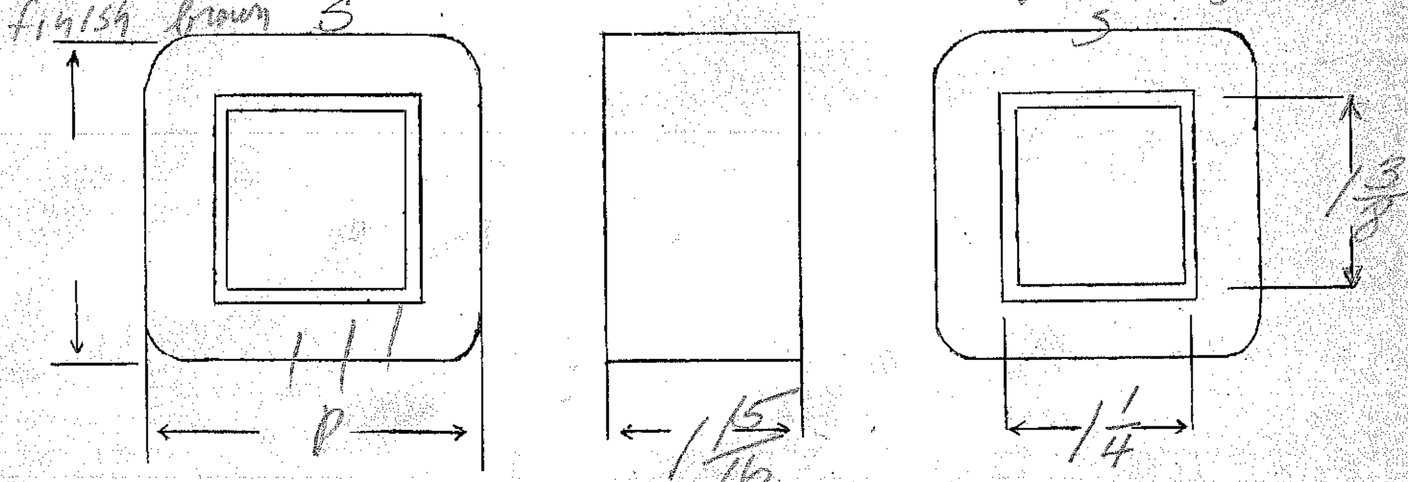
Winding	SEC1	PRI	SEC2				
Turns	360	1840	360				
Taps	230	920	230				
Wind. Lgth.	1.75						
Wire Size	#25	#28	#25				
T.P.L.	83	115-16	83				
Kind Term.	#20	Par Br					
Term. Lgth.	9"	9"	9"				
Layer Insul.	50#	40#	50#				
Test Volt.	1100WC	1100WC					
Wrapper	5L Gl	5L Gl	2100 TBA				

TUBE	7607	IMPREGNATION	VARNISH
CORE	21G-B-2x2	PRIMARY V.A.	
MOUNTING	A		

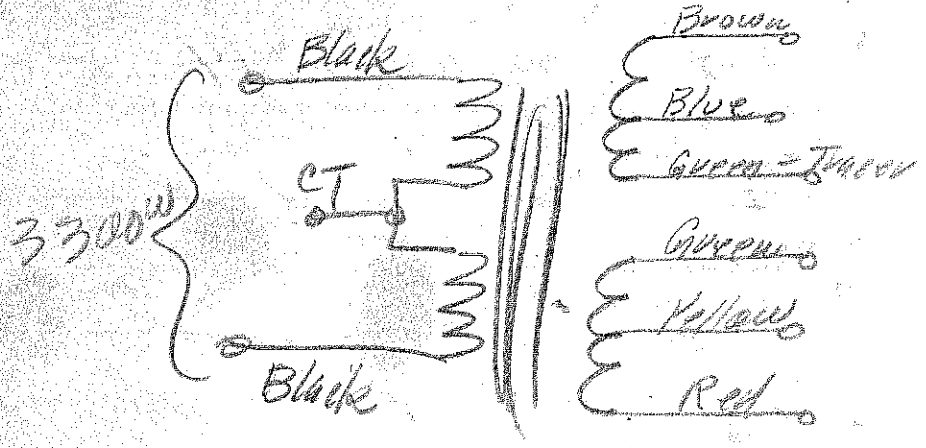
S_1 — Start red
Tap yellow
finish green

S_2 start green tracer
Tap blue
finish brown





DESIGNED BY GW DATE 7/7/38


Black
CT
3300W
Black
Brown
Blue
Green-Yellow
Green
Yellow
Red

38 plate to 150 Ω

11 000 Ω to 150

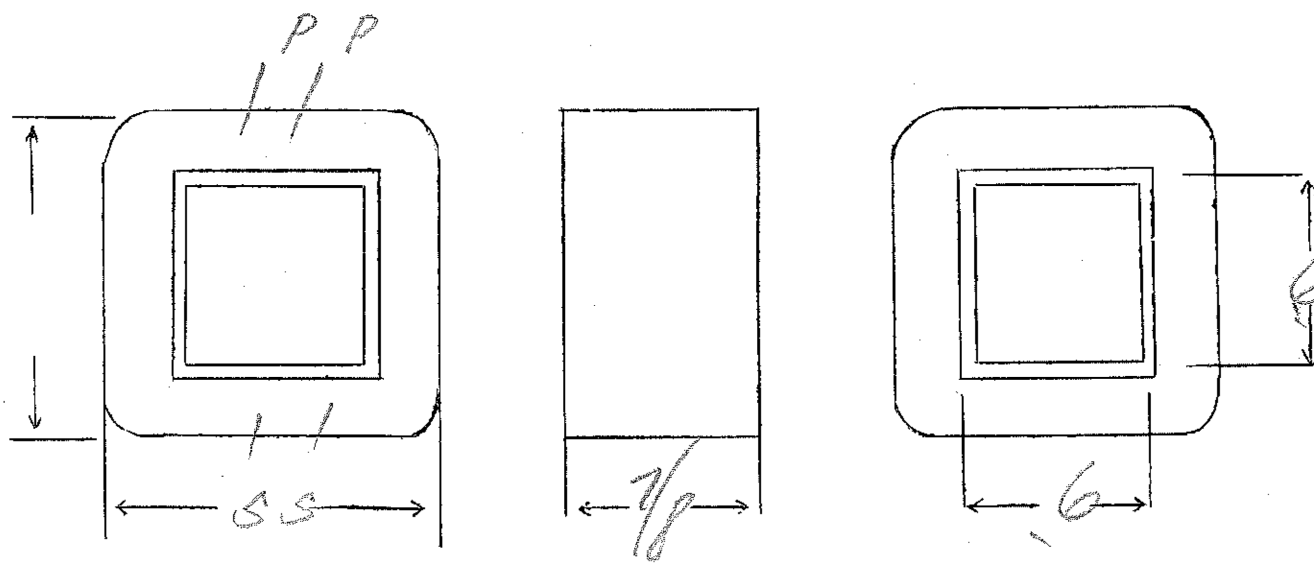
SPEC. NO. 2945

Winding	P	S					
Turns	3000	350					
Taps	—						
Wind. Lgth.	3/4	3/4					
Wire Size	#38	#28					
T.P.L.	155-20	50-7					
Kind Term.	Sil Braid	Sil Braid					
Term. Lgth.	3"	3"					
Layer Insul.	16#	30#					
Test Volt.							
Wrapper	1100 7VC	2100 56A					

TUBE 41007 IMPREGNATION Varnish

CORE .6 x .6 - Butt stack B Grade 29 ga. PRIMARY V.A.

MOUNTING D .005" gap



DESIGNED BY GW DATE 7/10/37

UNIVERSAL MODULATION

STOCK

80 watts
150 Ma. D.C. Series
300 Ma. D.C. Parallel

SPEC. NO. S-2946-FF

Winding	1-2-4 #1		7-8-10 #2		9-11-12 #3		3-5-6 #4
Turns	917		1083		1083		917
Taps	417		250		333		500
Wind. Lgth.	1 1/2		1 1/2		1 1/2		1 1/2
Wire Size	#30		#30		#30		#30
T. P. L.	125-8L		125-9L		125-9L		125-8L
Finish	90%		90%		90%		90%
Type Lead	~~Silver Braid Vinyl 81.~~		~~Silver Braid Vinyl 81.~~		~~Silver Braid Vinyl 81.~~		~~Silver Braid Vinyl 81.~~
Lead Lgth.	6"		6"		6"		6"
Layer Insul.	~~Double 20#~~ OR SINGLE #40		~~Double 20#~~		~~Double 20#~~		~~Double 20#~~
Test Volt.	5000		5000		5000		5000
Wrapper	~~3L007VG 3L40# interleaved~~		2L007VG		~~3L007VG 3L40# interleaved~~		2L007VC 2L007GA

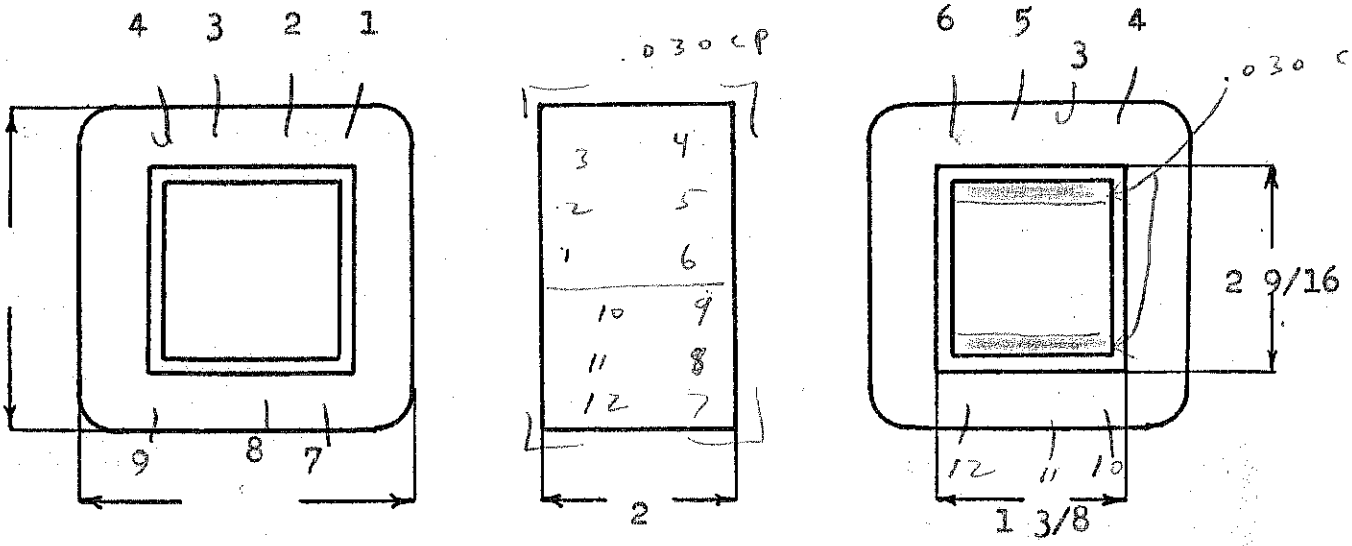
ALL LEADS #22 PLASTIC PINK

TUBE	9L007GK plus 2L007VG	IMPREGNATION	Varnish

CORE 1 3/8 x 2 1/2 GA. 29 GRADE D STACK Butt .007 gap

MOUNTING FF

T. P. V. —
window — .1605/.1688 = 88%



DESIGNED BY F.F.

DATE

DESIGN AND TEST DATA

Rating:

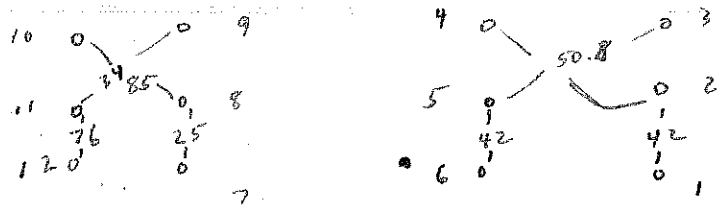
Winding	1		2		3		4
Mean Turn	8.825		9.785		10.785		11.785
Resistance 25° c	71		93		102		94.5
Pounds Copper	.209		.274		.32		.279
Copper Density							
Ratio Volts	93.2 42.3		110 76.2		110 33.8		93.2 50.8
Test to Ground	5000		5000		5000		5000

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:



110 V on 7-10 Ratio Test.

Universal Modulation

80 Watt
300 Ma. Parallel
150 Ma. Series

OBSOLETE

SPEC. NO. S-2946

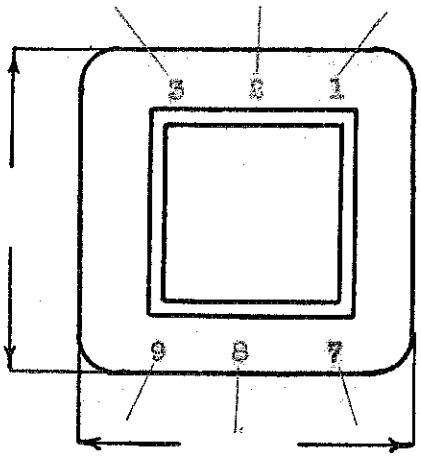
Winding	P #1	S #2	S #3	P #4			
Turns	(4) 1100	(10) 1300	(12) 1300	(6) 1100			
Taps	(2) 800	(8) 900	(11) 400	(5) 600			
Wind. Lgth.	(1) 1½"	(7) 1½"	(9) 1½"	(3) 1½" ± 1.5"			
Wire Size	#30	#30	#30	#30			
T. P. L.	125 - 9 MIL	125 - 12 MIL	125 - 12 MIL	125 - 11 MIL	NOTE:	HEAVY FINISHING.	
~~Finish~~ Pitch	91%	91%	91%	91%		USE MICA SADDLE.	
Type Lead	W. O.	W. O.	W. O.	W. O.		3L - 015" Irreslot	
Lead Lgth.	4"	4"	4"	4"		2L - 010" A	
Layer Insul.	2L 16#C	2L 16#C	2L 16#C	2L 16#C		2L	
Test Volt.	5000						
Wrapper	2L .005" VC	2L .008" VC	2L .005" VC	2L .005" VC 2L .005" GA			

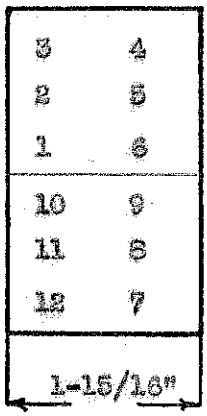
TUBE	7L - .007" OK ≠ 11 .007" VC	IMPREGNATION	VARNISH - DIP LAMINATION

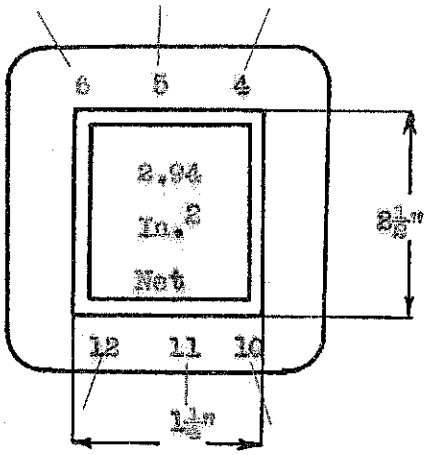
CORE 1½" x 2½" E & I GA. 26 GRADE D STACK Butt - .015" Gap

MOUNTING "F" NOTE: SPIRAL LEADS INTO POSITION - DOUBLE PAPER ABOVE AND BELOW.

Cu = 667
Fe = 38.2 @ 100 Cycle, 77.8 @ 50 Cycle
TPV = 1.97 (1130V @ 16,000 Ohm)
Wire Net = 0.550" (0.550")



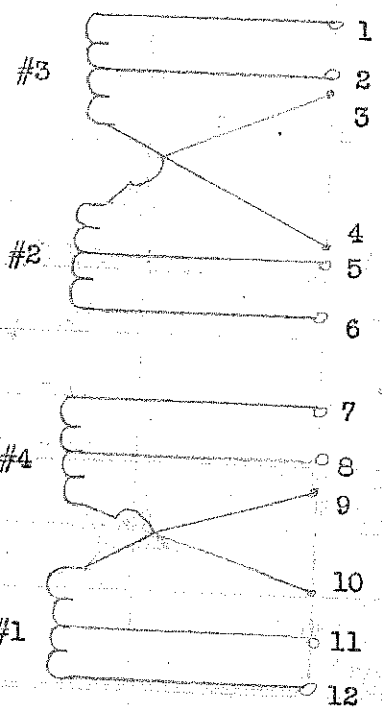




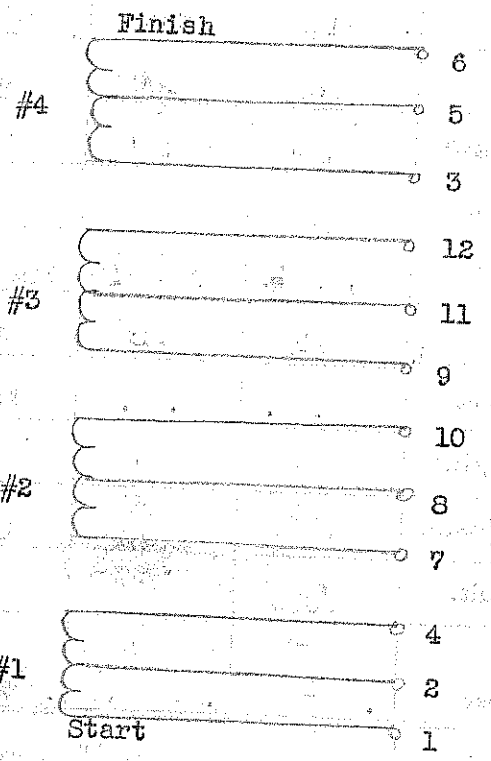
Re-DESIGNED BY H. W. S.

DATE 8 - 12 - 41

Panel Connections



Order of Winding



UNIVERSAL MODULATION

STOCK

80 watts
150 Ma. D.C. Series
300 Ma. D.C. Parallel

SPEC. NO. S-2946-FF

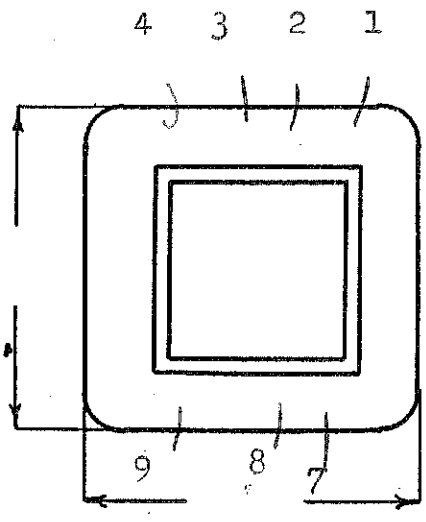
Winding	1-2-4 #1		7-8-10 #2		9-11-12 #3		3-5-6 #4	
Turns	917		1083		1083		917	
Taps	417		250		333		500	
Wind. Lgth.	1 1/2		1 1/2		1 1/2		1 1/2	
Wire Size	#30		#30		#30		#30	
T. P. L.	125-8L		125-9L		129-9L		125-8L	
Finish	90%		90%		90%		90%	
Type Lead	Silver Braid Vinyl Sl.		Silver Braid Vinyl Sl.		Silver Braid Vinyl Sl.		Silver Braid Vinyl Sl.	
Lead Lgth.	6"		6"		6"		6"	
Layer Insul.	Double 20#		Double 20#		Double 20#		Double 20#	
Test Volt.	5000		5000		5000		5000	
Wrapper	~~2L007VG 3L40# interleaved~~		2L007VG		~~2L007VG 3L40# interleaved~~		2L007VC 2L007GA	

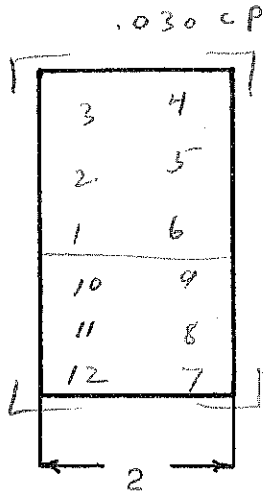
TUBE 9L007GK plus ~~2L007VG~~ IMPREGNATION Varnish

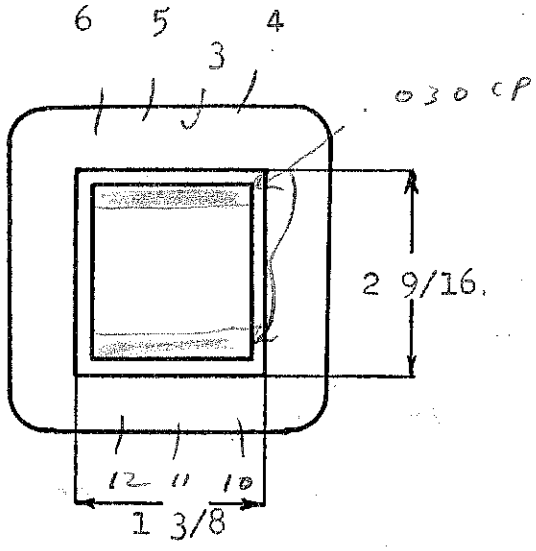
CORE 1 3/8 x 2 1/2 GA. 29 GRADE D STACK Butt .007 gap

MOUNTING FF

T. P. V. —
Window - .605/.688 = 88%







DESIGNED BY F.F. DATE

DESIGN AND TEST DATA

Rating:

Winding	1		2		3		4
Mean Turn	8.825		9.785		10.785		11.785
Resistance 25° c	71		93		102		94.5
Pounds Copper	.209		.274		.32		.279
Copper Density							
Ratio Volts	93.2 42.3		110 76.2		110 33.8		93.2 50.8
Test to Ground	5000		5000		5000		5000

Iron Induction ______ @ ______ Cycles ______

Exciting Current ______ amperes @ ______ volts 60 cycles on ______

Induced Test: Apply ______ Volts at ______ Cycles ______ on ______ with ______ grounded

Remarks:

assume 2-807's @ 80 watts
6400 Ω on 7 $\frac{8-10}{}$ 12
120 ma D.C. in 1 $\frac{2-4}{}$ 6

use 29 ca-8

$\frac{NI}{\ell} = \frac{1834 \times .120}{21} = 10.5$

for 4% sil. $\frac{LI^2}{V} = 5.38 \times 10^{-4}$

sec $L = \frac{5.38 \times 10^{-4} \times 465}{144 \times 10^{-4}} = 17.4$ Hy

pri $L = \left(\frac{2166}{1834}\right)^2 17.4 = 24.3$ Hy

R par = 6400

2 db down $X_p = \frac{6400}{.77} = 8320$

Freq 2db dn. $= \frac{8320}{2\pi \times 24.3} = 54.4$ ~

about 135 ~ for 16,000 Ω on 7 $\frac{9-10}{}$ 12

$\frac{a}{e} = .00145$

$a = .012$ use 2(.007)

200 VA 60 2-755 Class B

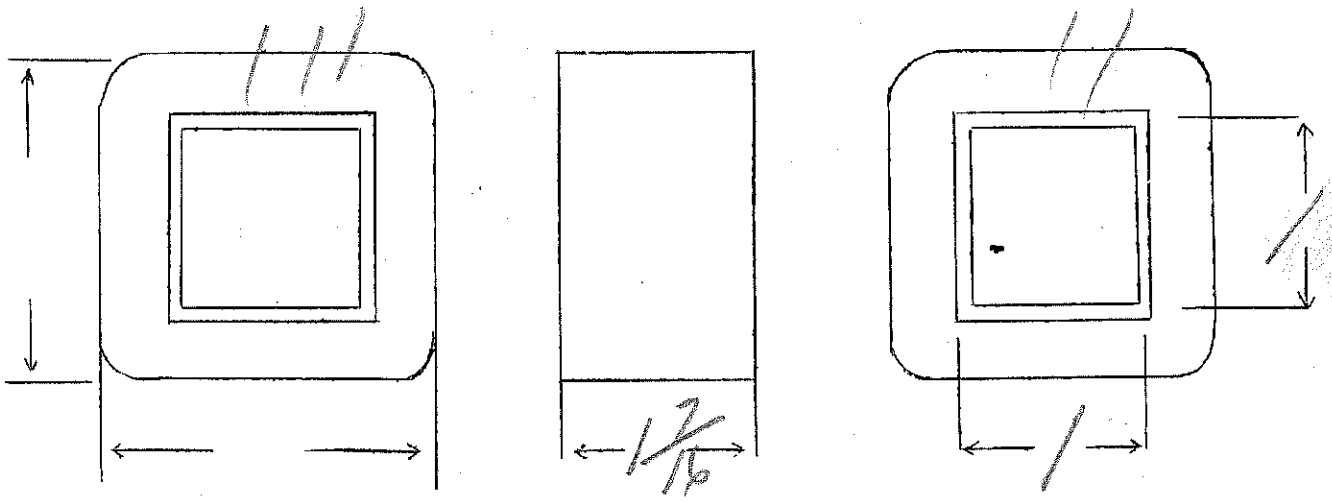
SPEC. NO. 2947

Winding	SEC	PRI					
Turns	1500	450					
Taps	750						
Wind. Lgth.	1.25	1.25					
Wire Size	#30	#27					
T.P.L.	15-14	25-6					
Kind Term.	#20 Par Bc						
Term. Lgth.	9"	9"					
Layer Insul.	40#	40#					
Test Volt.	1250						
Wrapper	2007/C	32005C					

TUBE 7007 | IMPREGNATION VARNISH

CORE 1x1 - 29 Ga Blank - 2x2 | PRIMARY V.A.

MOUNTING A



DESIGNED BY GW DATE 7/21/37

PP photo cells - note 500CT winding
200,000Ω to 500Ω CT

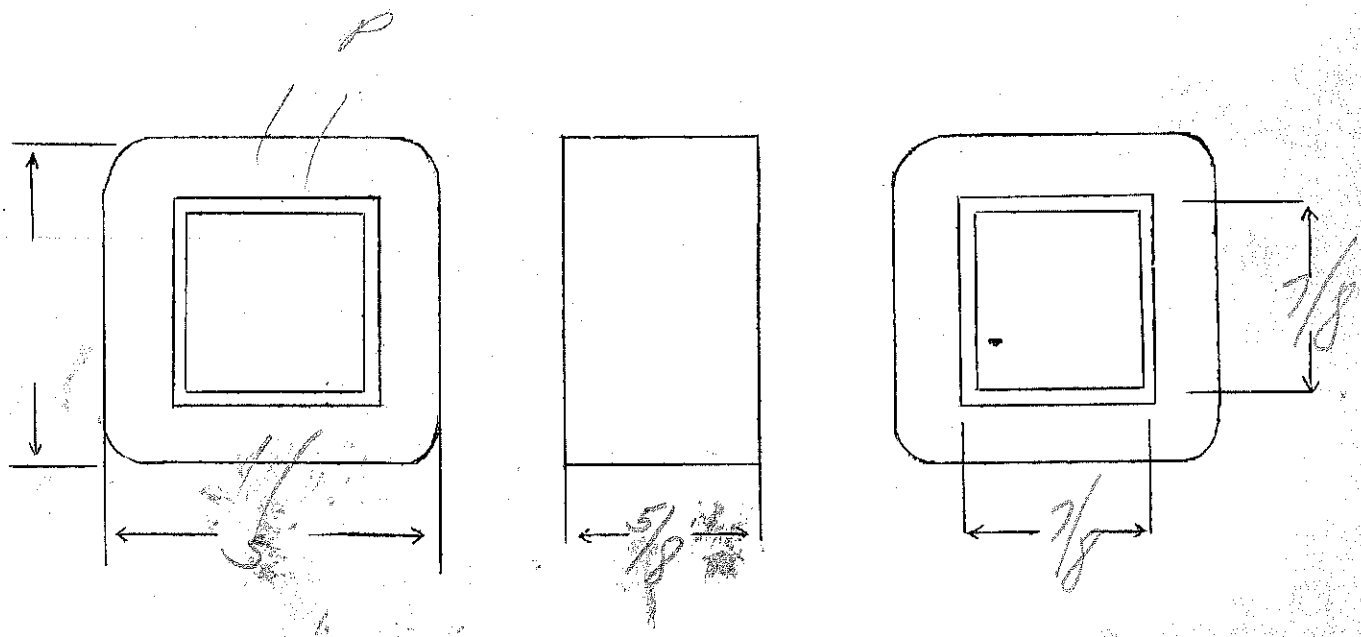
SPEC. NO. 298

Winding	PRI	SHIELD	SEC				
Turns	6000	1	300				
Taps							
Wind. Lgth.	7/16		7/16				
Wire Size	#41		#30				
T.P.L.	135-45	Shim stock	35-9				
Kind Term.	Sol Br		W.O.				
Term. Lgth.	4"		4"				
Layer Insul.	12#		30#				
Test Volt.							
Wrapper	Roll NC	Roll NC	2005 (2)				

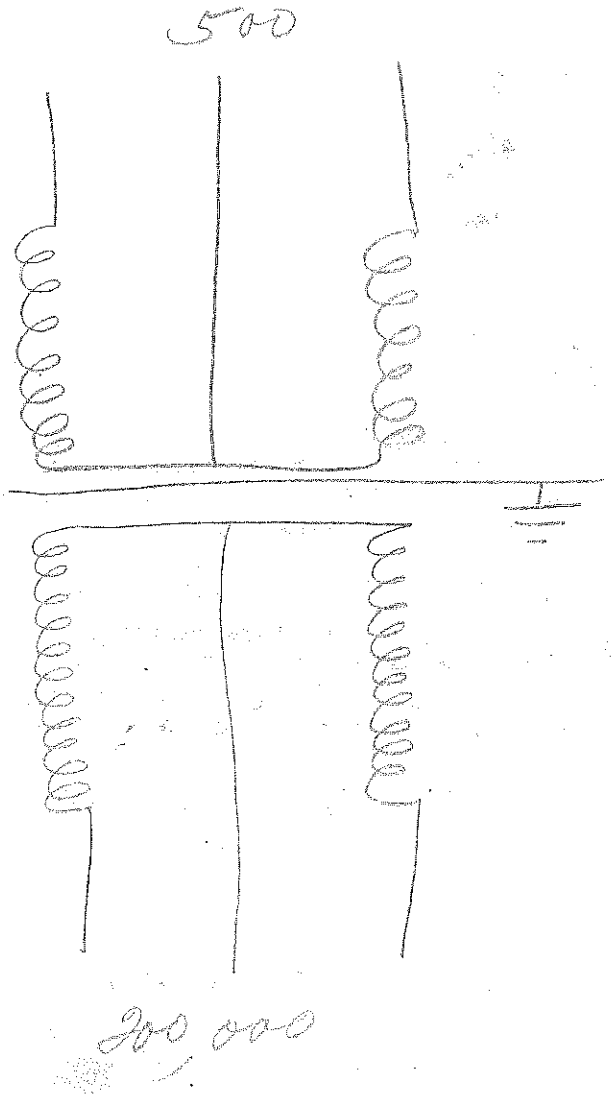
TUBE 7609 | IMPREGNATION WAX

CORE 7/8 x 7/8 - 29 M. "A" Grade | PRIMARY V.A. 2 x 2

MOUNTING AA



DESIGNED BY [illegible] DATE 7/26/37

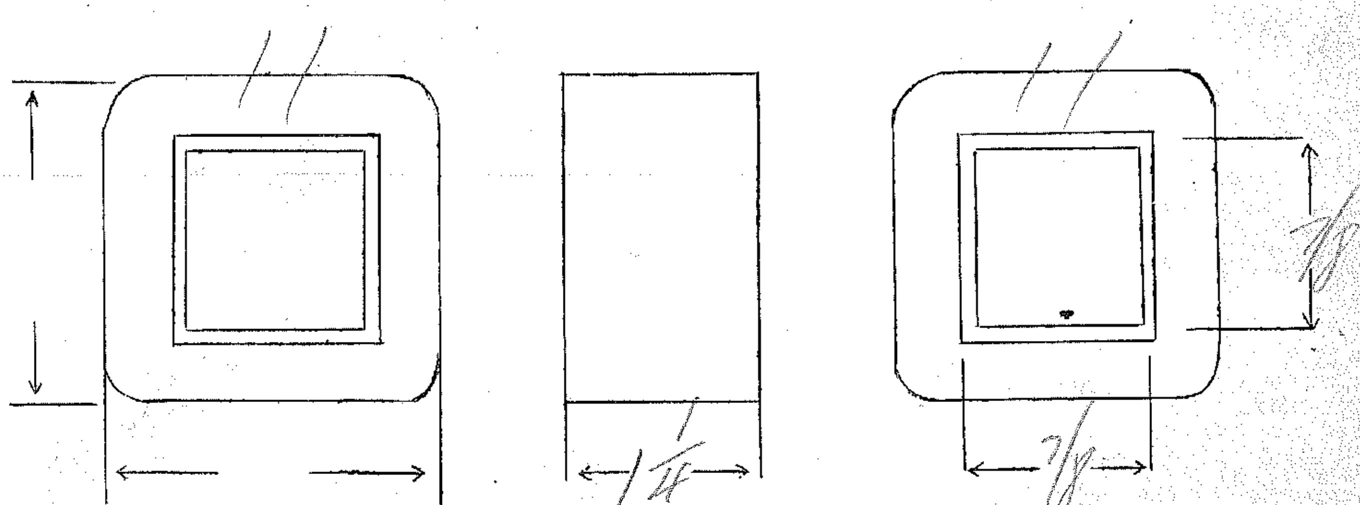

500
240 000

500 Ω to 8000 Ω

SPEC. NO. 2949

Winding	PRI	SEC					
Turns	700	2800					
Taps	—	—					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#28	#35					
T.P.L.	70-10	157-18					
Kind Term.	#20 Pa Br						
Term. Lgth.	9"	9"					
Layer Insul.	30#	30#					
Test Volt.							
Wrapper	1600 7VC	2600 5GA					

TUBE	2600 7	IMPREGNATION	VARNISH
CORE	7/8 x 7/8 Butt stack - no gap	PRIMARY V.A.	
MOUNTING	A	2949 B	

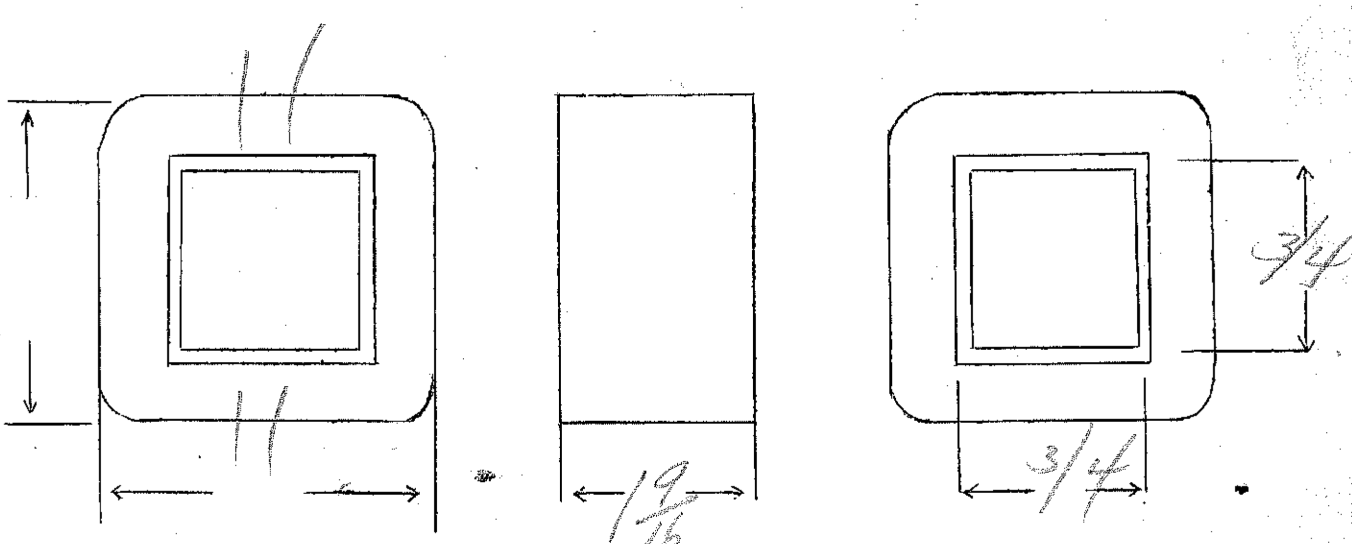


DESIGNED BY GW DATE 7/23/37

SPEC. NO. 2950 coil

Winding	P		S				
Turns	10,000		4000				
Taps							
Wind. Lgth.	1 3/8		1 3/8				
Wire Size	#40		#35				
T.P.L.	360-28		200-20				
Kind Term.	Sil Br		Sil Br				
Term. Lgth.	6"		6"				
Layer Insul.	12#		20#				
Test Volt.							
Wrapper	1L007MC		2L005GX				

TUBE	7L007	IMPREGNATION	WAX
CORE	—	PRIMARY V.A.	
MOUNTING			

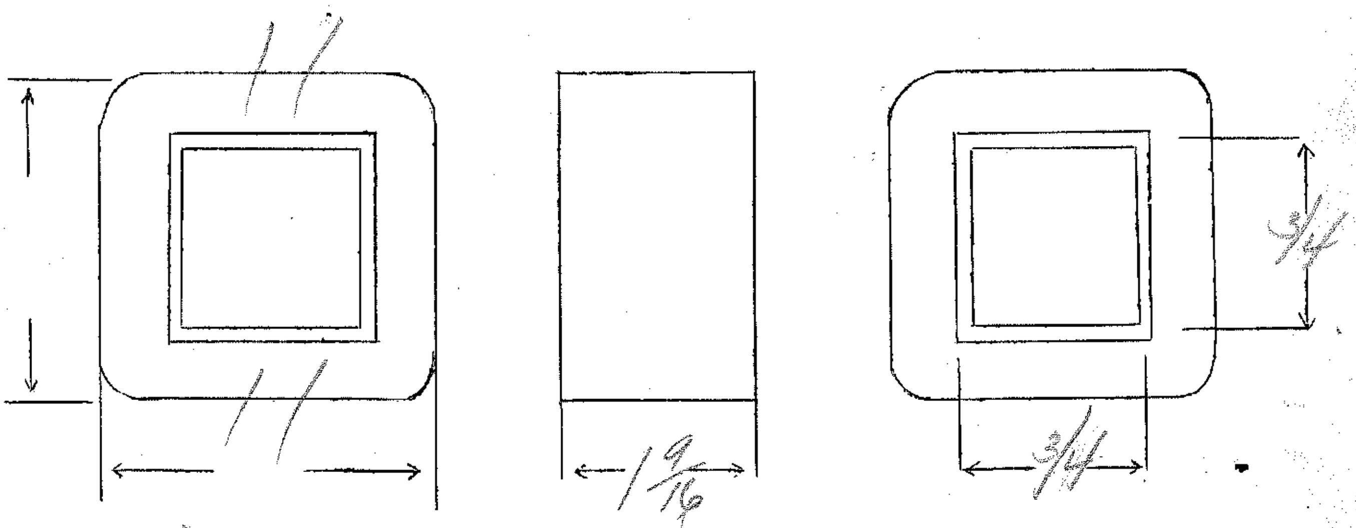


DESIGNED BY GMW DATE 7/24/37

SPEC. NO. 2951 Coil

Winding	P		S				
Turns	10,000		283				
Taps							
Wind. Lgth.	1 3/8						
Wire Size	#40		#24				
T.P.L.	360-28		58-5				
Kind Term.	s[illegible] Br						
Term. Lgth.	6"						
Layer Insul.	12#		50#				
Test Volt.							
Wrapper	71007VC		71005BA				

TUBE	71007	IMPREGNATION	WAX
CORE	—	PRIMARY V.A.	
MOUNTING	—		



DESIGNED BY [illegible] DATE 7/21/37

15000 Ω to 20,000 Ω CT

1 coil, 2 coils

SPEC. NO. 2952

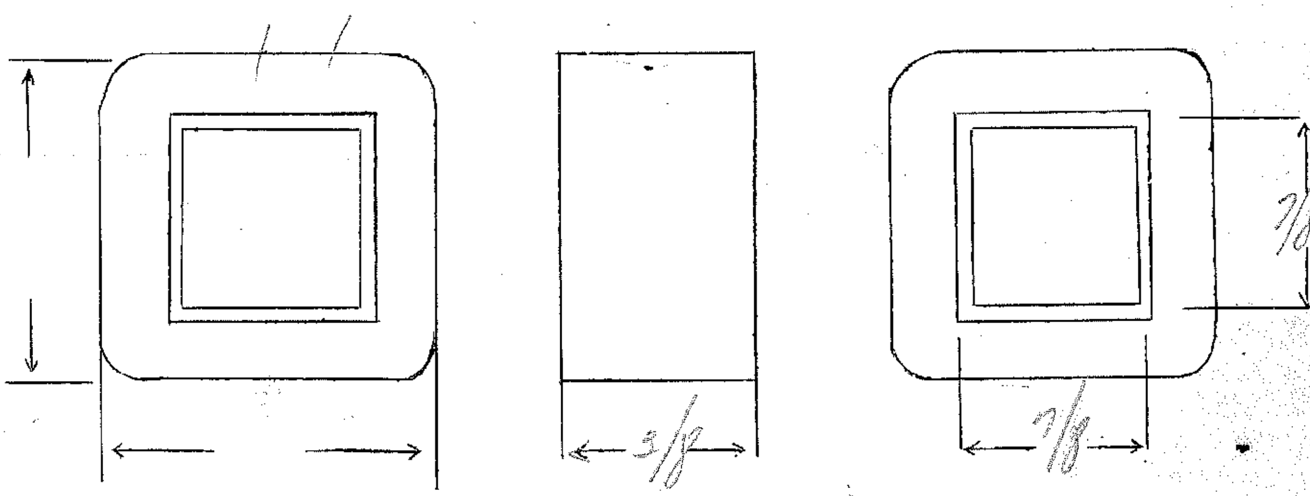
Winding	P	S					
Turns	2000	1150					
Taps							
Wind. Lgth.	9/32	9/32					
Wire Size	#37	#37					
T.P.L.	51-40	51					
Kind Term.	# 20 [illegible]	Braid					
Term. Lgth.	9"	9"					
Layer Insul.	20#	20#					
Test Volt.							
Wrapper	240056A	240055A					

TUBE	7600.7	IMPREGNATION	WAX
CORE	7/8 x 7/8 - 290 B -	PRIMARY V.A.	
MOUNTING	A		

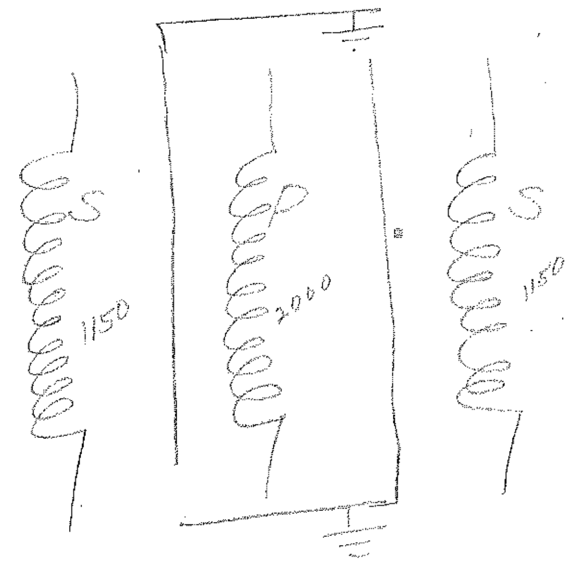
Copper shield above and below primary

Pri & Secd separate coils

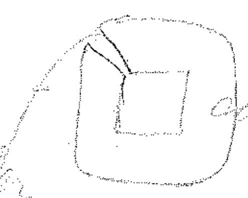
Start Red
Finish Blue



DESIGNED BY GW DATE 8/2/37



shield above and below pri
and on side



PP 45, 59, 53, 6A6, 6N7, 2A5, 42, 6F6 to 2, 4, 8, 16, 500 ohm — OLD

Pri - 6000 ohm p-p - 20 watts

SPEC. NO. 52953

Continuous (S1 – P – S2)

Winding	S1	P (BLACK)	S2 (GREEN TRACER)	(YELLOW)	(GREEN)	(RED)	
Turns	525	2200	31	42	42		
Taps	ST- Brown FIN- Blue	(WH) 1100		24			
Wind. Lgth.	1.25	—	—	—	—		
Wire Size	#30	#34	#23	#21	#19		
T.P.L.	105-5	158-14	.7L	1.25L	1.5L		
Kind Term.	#20 Par. Braid			WIRE ONLY			
Term. Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	30#	30#					
Test Volt.	1250 →						
Wrapper	1L005VC 5L	1L005VC 5L			1L005GA		

TUBE 1L007 | **IMPREGNATION** VARNISH

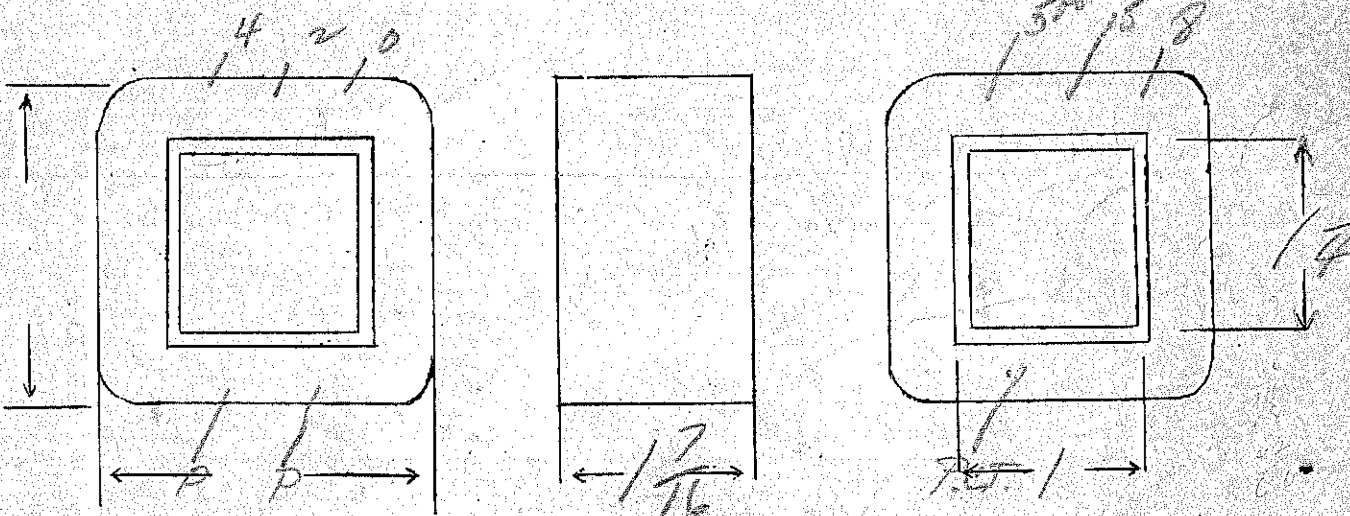
CORE 29 Ga - B Grade - 2X2 | **PRIMARY V.A.**

MOUNTING A A

when winding S2 be sure that the direction of winding is the same as that of S1

M.W. - Right
S.W. - Left

End of S2 is common



DESIGNED BY [signature] **DATE** 6/18/38

0 red
2 yellow
4 green
8 green trace
16 blue
P Black
CT white
BT
P Black
Brown
500

C-D665

PP Ou. AB, 6L6 to 5000 - 7500 - 10000 Ω
200 MA 150 MA 150 MA
P. 3800 Ω

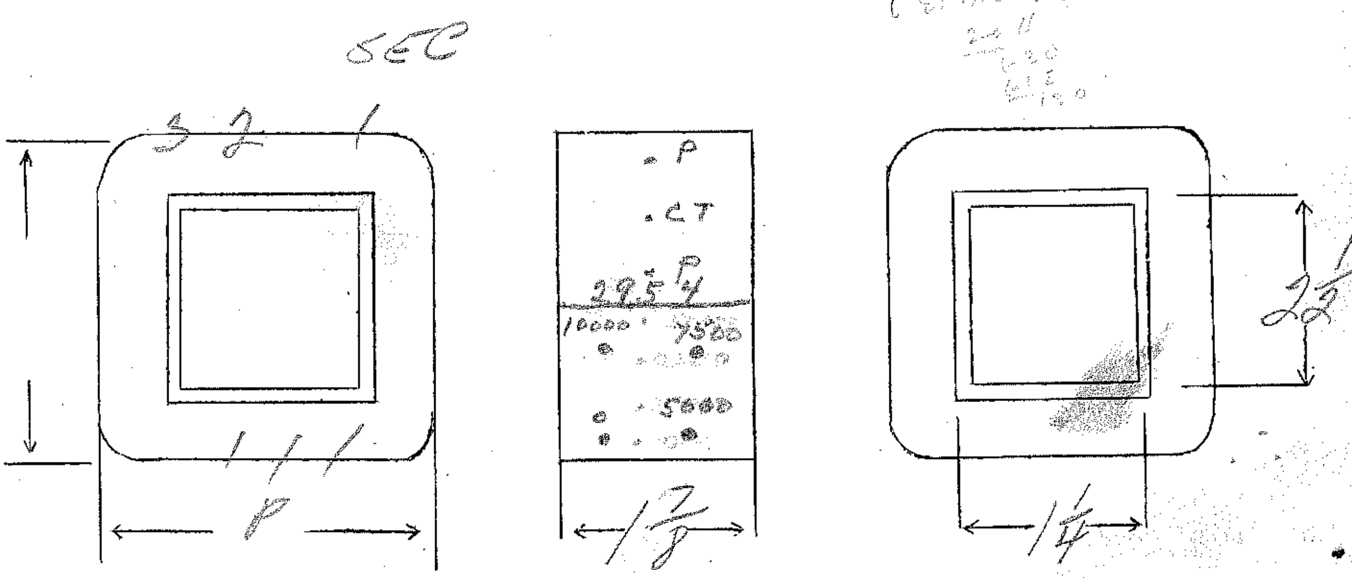
SPEC. NO. 2954

Winding	PRI	SEC	Continuous				
Turns	1640	1880	790				
Taps	820		350				
Wind. Lgth.	1 5/8	1 9/16	1 9/16				
Wire Size	#28	#29	#31				
T.P.L.	103-16	118-16	146-6				
Kind Term.	WIRE ONLY						
Term. Lgth.	6"	6"	6"				
Layer Insul.	double 20#						
Test Volt.		3000					
Wrapper	3 L007VC		2 L007VC 2 L007BA				

TUBE 9L007 | IMPREGNATION VARNISH

CORE 1 1/4 EX 24 GA ... .020 | PRIMARY V.A.

MOUNTING F



DESIGNED BY G Weaver DATE 8/12/37

100 watt mixing - 500 Ω to 1.5Ω VC
Push P.A. response

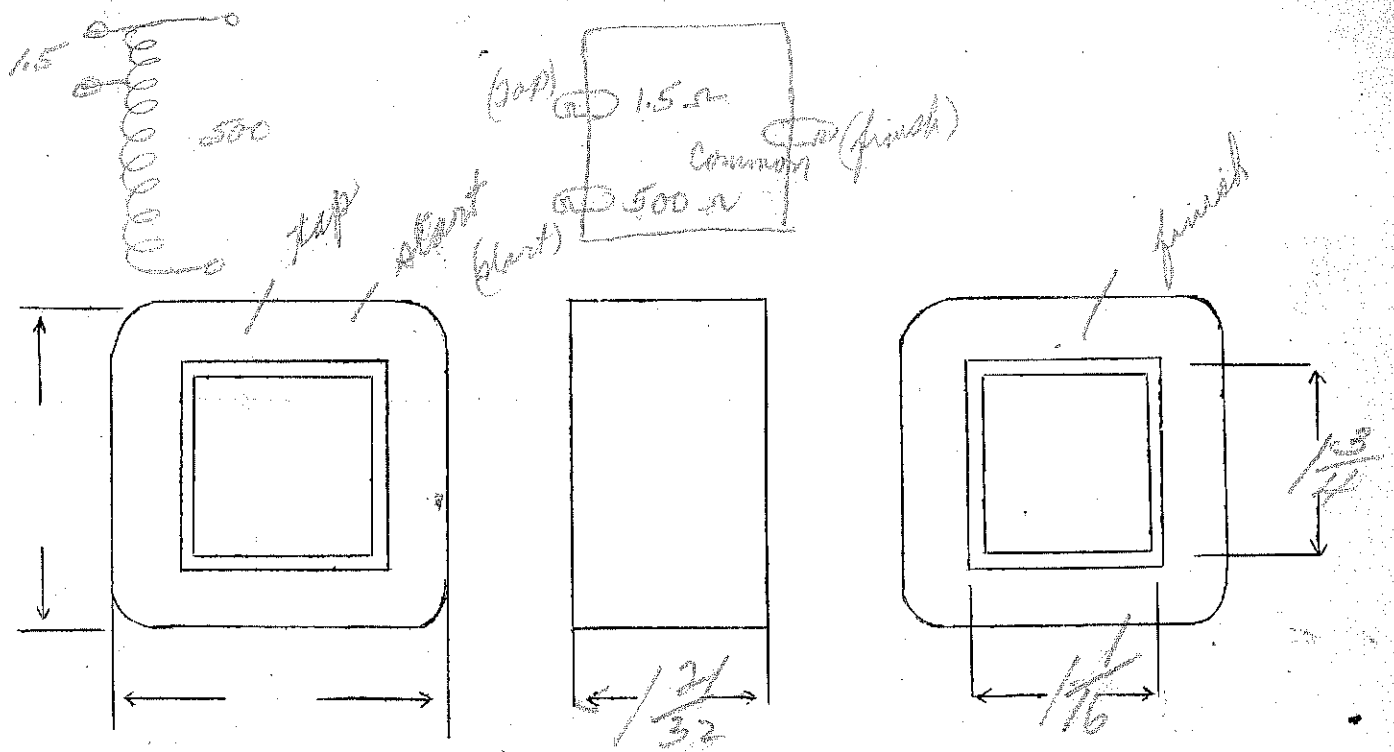
SPEC. NO. 2955

	Primary	Secondary					
Winding	PRI	SEC					
Turns	850	52					
Taps							
Wind. Lgth.	1.75	1.75					
Wire Size	#25	#13					
T.P.L.	71-12	32					
Kind Term.	WIRE	ONLY					
Term. Lgth.	3"	3"					
Layer Insul.	50#	007K					
Test Volt.							
Wrapper	2W056A	2W056A					

TUBE 7W007 | IMPREGNATION VARNISH

CORE 1/16 X 29/32 E-2X2 | PRIMARY V.A.

MOUNTING B



DESIGNED BY [signature] DATE 8/4/37

20 watt mixing
2600 Ω line to 6 Ω VC — High fidelity response
continuous

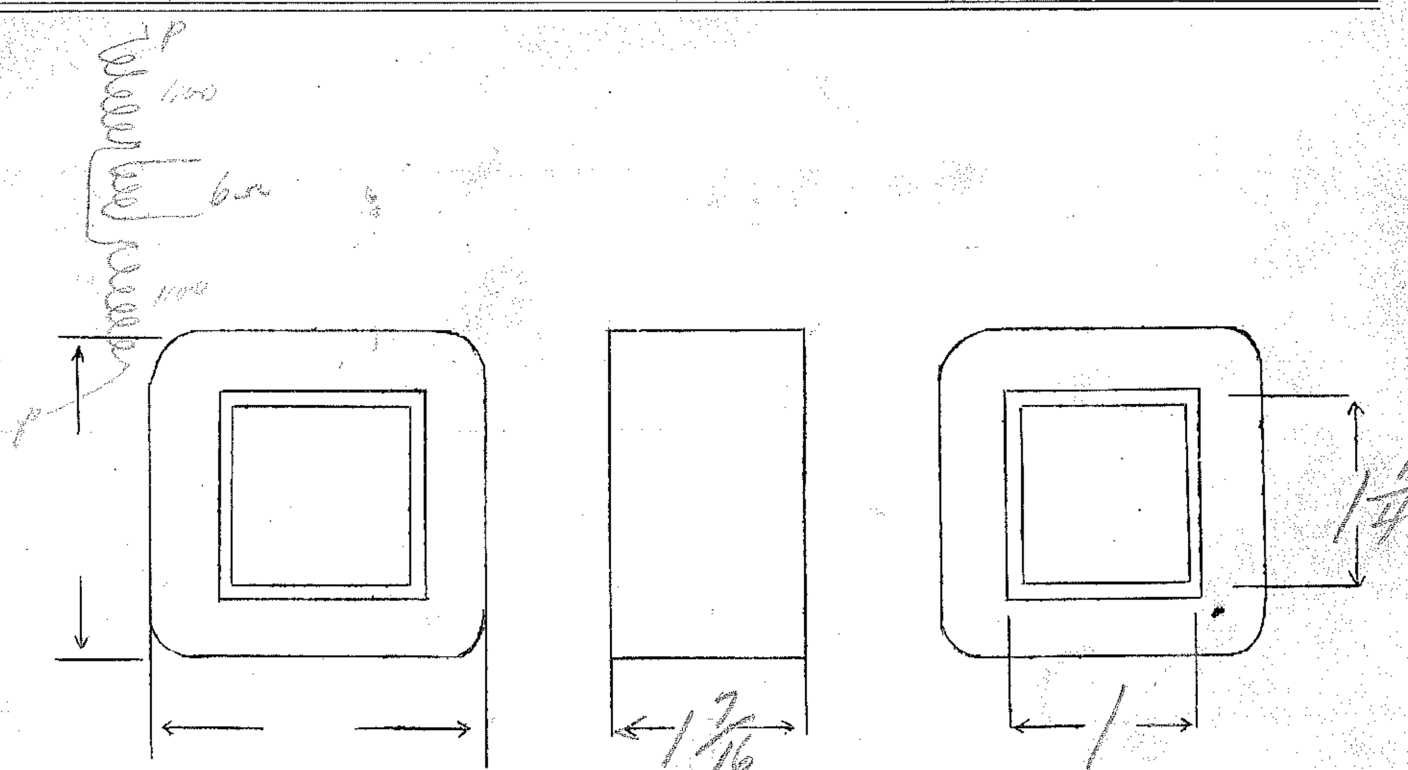
SPEC. NO. 2956

Winding	PRI	SEC	PRI				
Turns	1100	110	1100				
Taps							
Wind. Lgth.	1.25	-	-				
Wire Size	#32	#19	#32				
T.P.L.	128-9	42	128-9				
Kind Term.	Sil Br	W.O.	Sil Br				
Term. Lgth.							
Layer Insul.	40#		40#				
Test Volt.							
Wrapper	10L-40#	10L-40#	2 mil 5 FA				

TUBE 71007 IMPREGNATION VARNISH

CORE 1 X 1 1/4 - A Grade - 2x2 PRIMARY V.A.

MOUNTING B



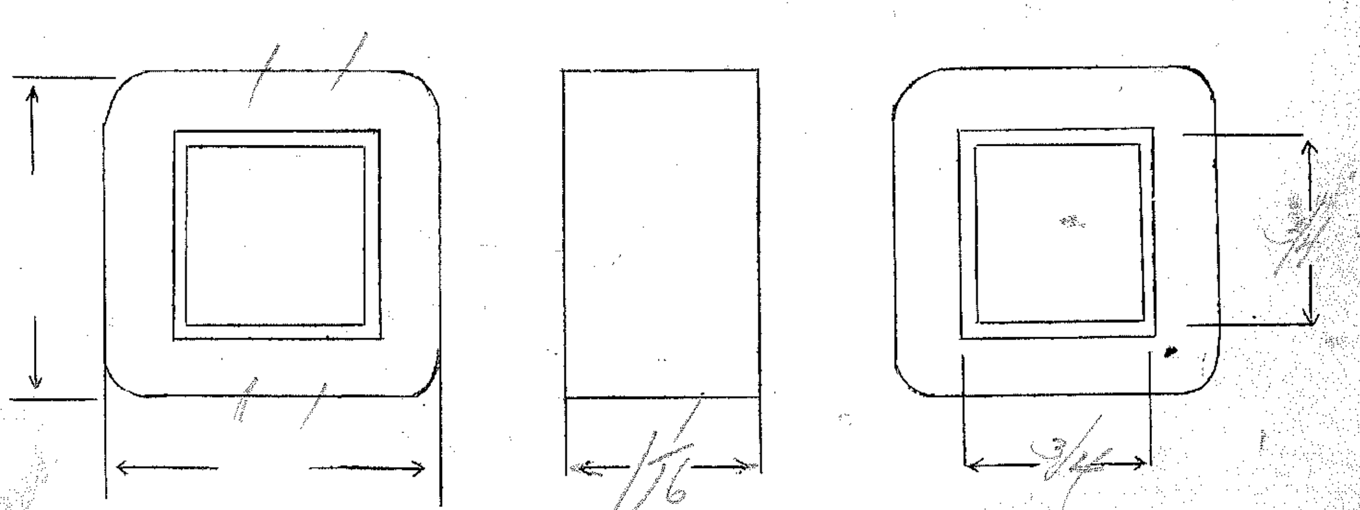
DESIGNED BY [signature] DATE 8/11/37

100 Ω to 40,000 Ω

SPEC. NO. 2957

Winding	SEC	PRI					
Turns	13,500	210					
Taps							
Wind. Lgth.	29/32	29/32					
Wire Size	#41	#27					
T.P.L.	280 - 49	53 - 4					
Kind Term.	Sil Br	W.O.					
Term. Lgth.	3"	3"					
Layer Insul.	12 #						
Test Volt.							
Wrapper	3 W 2600 WC	2400 SGA					

TUBE	7400	IMPREGNATION	Wax
CORE	29 Ga B - 2 x 2	PRIMARY V.A.	
MOUNTING	3/4 x 3/4 - D		



DESIGNED BY Jw DATE 8/10/37

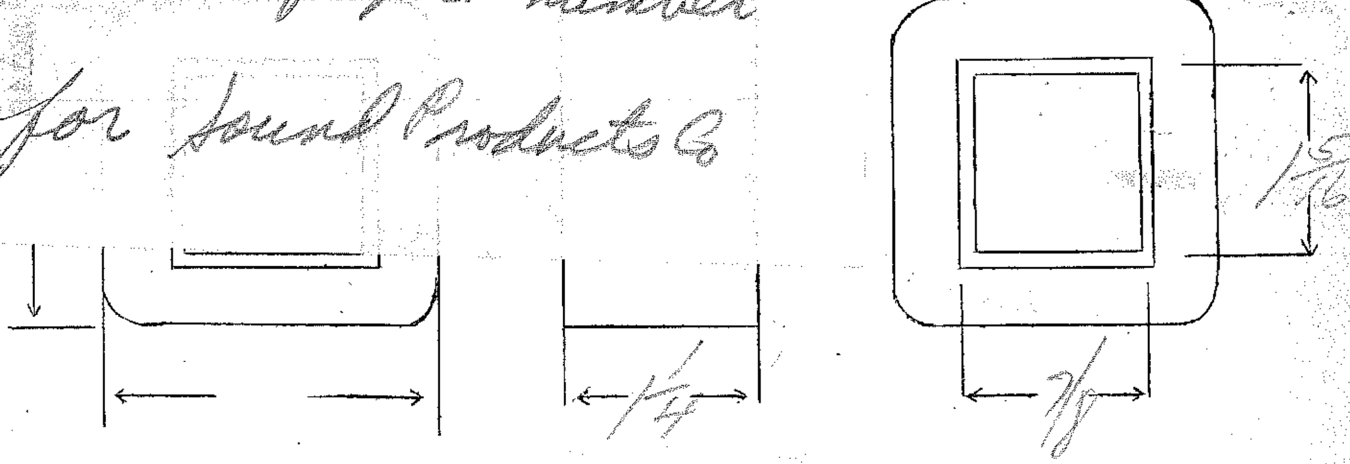
See # 1146
Wholesale Radio Service
single 6F6 (triode connected) to PP AB1 6L6 (45 watt level)

SPEC. NO. 2958

Winding	start black / finish white P	S	start white / finish black P				
Turns	1320	2400	1320				
Taps		1200					
Wind. Lgth.	1 1/16	✓	✓				
Wire Size	#37	#34	#37				
T.P.L.	190	136	190				
Kind Term.	#20 Per Braid						
Term. Lgth.	9"	"	"				
Layer Insul.	30#	30#	30#				
Test Volt.							
Wrapper	1200 MC 4 lay	1200 MC 4 lay	2600 SGA				

TUBE	2607	IMPREGNATION	VARNISH
CORE	7/8 x 1 5/16 - 29 Ga B - .005" Gap	PRIMARY V.A.	
MOUNTING	A		

wrong spec number
This is not Catalog #2958
duplication of spec number
for Sound Products Co



DESIGNED BY JMW DATE 8/11/37

PP 2A3, 6A3, 6B4, 6A5 to 2-4-8-16-500 ohm

P-P - 3000 ohms

OLD

20 watts

SPEC. NO. S2958

Continuous ←→

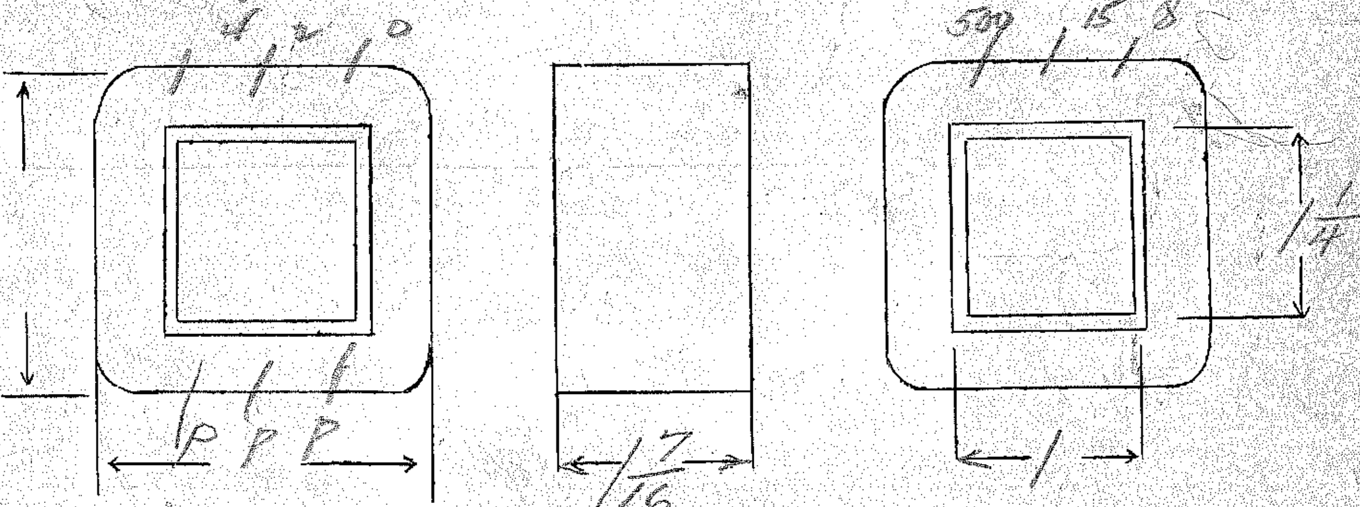
Winding	S	P	S	S	S		
Turns	525	BLACK 1700	31 GREEN TRACER	42	42 RED		
Taps	ST. BROWN F- BLUE	WH 850	—	24 GREEN YELLOW	—		
Wind. Lgth.	1.25	—	—	—	—		
Wire Size	#30	#33	#23	#21	#19		
T.P.L.	105-5	145-12					
Kind Term.	#20	Par. Braid		w.o.			
Term. Lgth.	9"	9"	9"	9"	9"		[illegible]
Layer Insul.	30#	✓					
Test Volt.	1250	———					
Wrapper	~~1100SVC~~ 5LP	1100SVC 5LP			2400SGA		

TUBE	76007	IMPREGNATION	Varnish
CORE	29 G - B - 212	PRIMARY V.A.	
MOUNTING	A		

when winding sec₂ be sure that the direction of winding is the same as that of sec₁

end of sec is common

M.W. - Right
S.W. - Left



Cross finish

DESIGNED BY Gw DATE 7/15/38

wrong spec number
This is not catalog #2959
duplication of spec number
for Sound Products Co.

NO. 2959

T.P.L.	130-18	130					
Kind Term.	WIRE	ONLY	or #20	varnish	or Dulac		
Term. Lgth.	6"	6"					
Layer Insul.	double	20 #					
Test Volt.		5000					
Wrapper	2400 VC	2400 VC 2400 SCA					

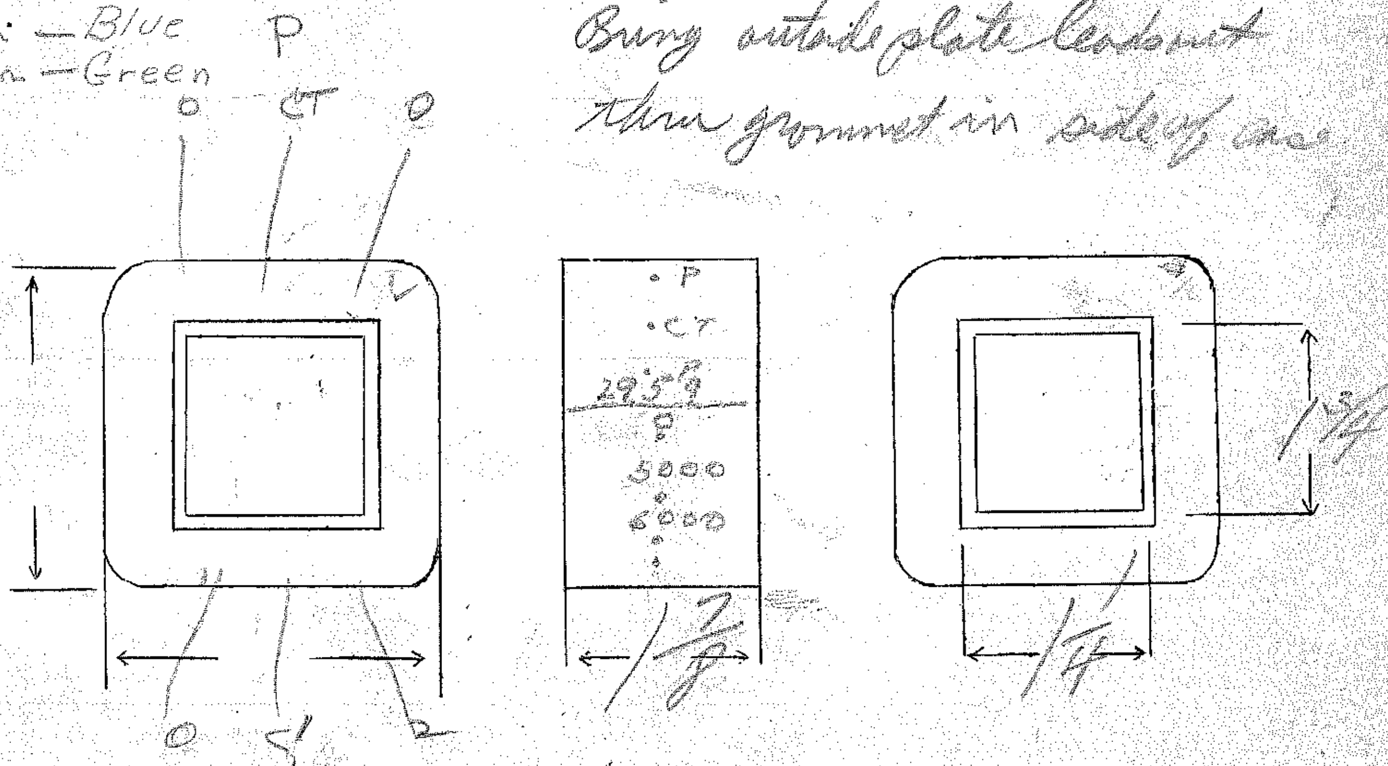
TUBE 9609 | IMPREGNATION VARNISH

CORE 1 1/4 X 1 3/4 24 Ga - .020" Gap | PRIMARY V.A.

MOUNTING F or A

Sec-C-Red
5000Ω - Blue
6000Ω - Green

Bring outside plate lead out
thru grommet in side of case



DESIGNED BY Geo DATE 8/12/39

PRI - 1500 Ω = 4-2A3 PP. PAR. OUTPUT TO LINE AND V.C.
SEC - 2, 4, 8, 16, 500 Ω

CATALOG ITEM OLD

SPEC. NO. S - 2959

Continuous

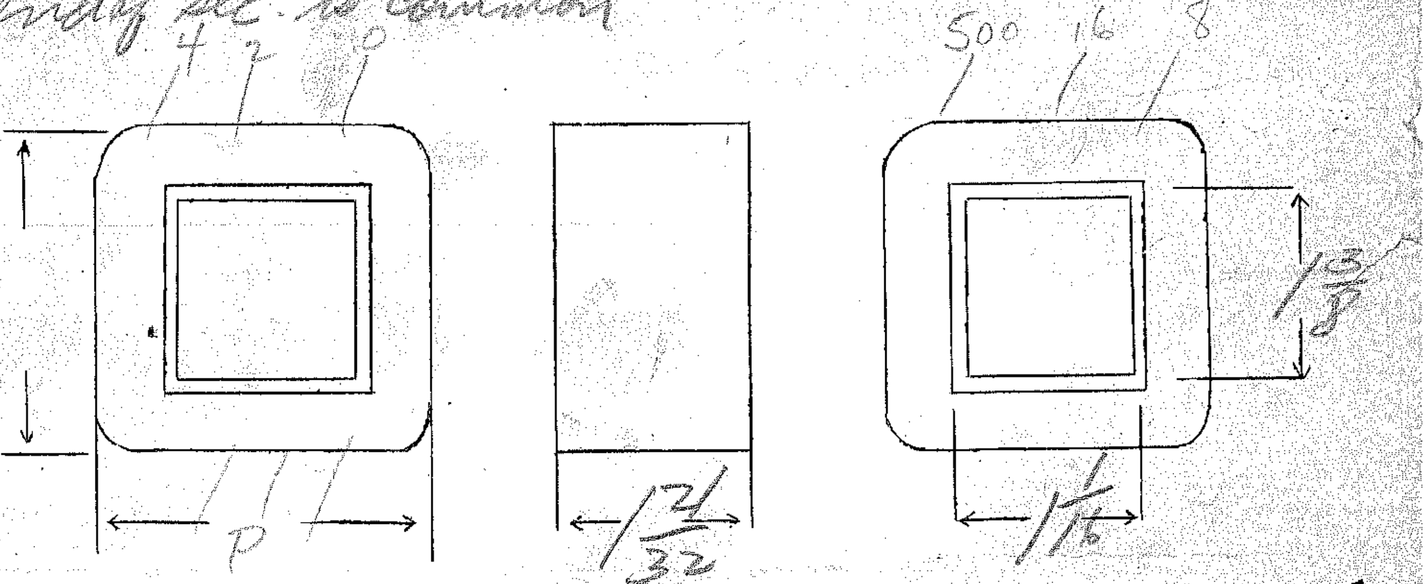
Winding	SEC	PRI	SEC (WH-BLACK)	(GREEN TRACER)	(GREEN YELLOW)	RED		
Turns	540	1200	35	40	40			
Taps	ST-BROWN FIN-BLUE	600		25				
Wind. Lgth.	1 15/32	✓	✓	✓				
Wire Size	#29	#29	#21	#19	#17			
T.P.L.	108-5	108-12						
Kind Term.	#20 Per Br.			W.O.				
Term. Lgth.	9"	9"	9"	9"	9"			
Layer Insul.	40#	✓						
Test Volt.								
Wrapper	7600 TVC 4L[illegible]	7600 TVC 4L[illegible]			2600 SGA			

TUBE	7L007	IMPREGNATION	Varnish
CORE	29 Ga - B - 2x2	PRIMARY V.A.	
MOUNTING	A		

when winding sec₂ be sure that direction of winding is the same as that of sec.

M.W. Right
S.W. Left

end of sec is Common



SIGNED BY Gw DATE 7/15/38

single 6A6 class B to 3000 & 5000 Ω — 100 ma. modulator

SPEC. NO. 2960

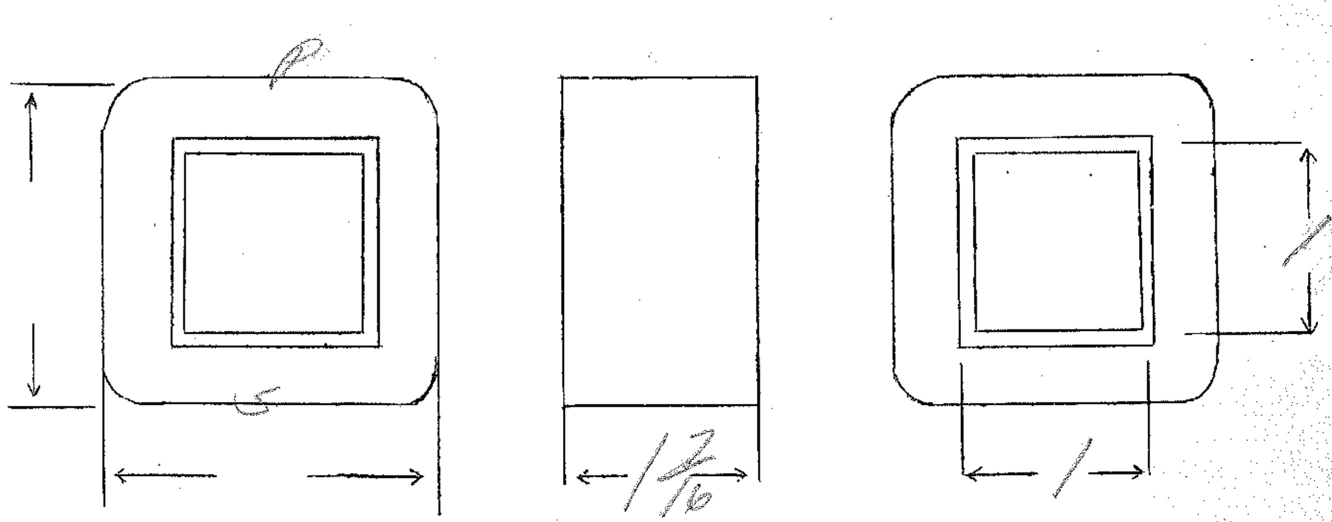
Winding	PRI	SEC					
Turns	2950	2200					
Taps	1475	1700					
Wind. Lgth.	1.25	1.25					
Wire Size	#34	#32					
T.P.L.	164-18	130-17					
Kind Term.	#20 Pan Br						
Term. Lgth.	9"	9"					
Layer Insul.	#30	#30					
Test Volt.							
Wrapper	1400 TVC	1400 TVC 2100 SGA					

TUBE 76007 | IMPREGNATION Varnish

CORE 1X1 — 24 lbs .005 [illegible] | PRIMARY V.A.

MOUNTING A

Sec — C — Red
3000 — Blue
5000 — Green



DESIGNED BY GKW DATE 8/27/37

1500 Ω to 3-6-9-15 Ω (1387)

SPEC. NO. 2961

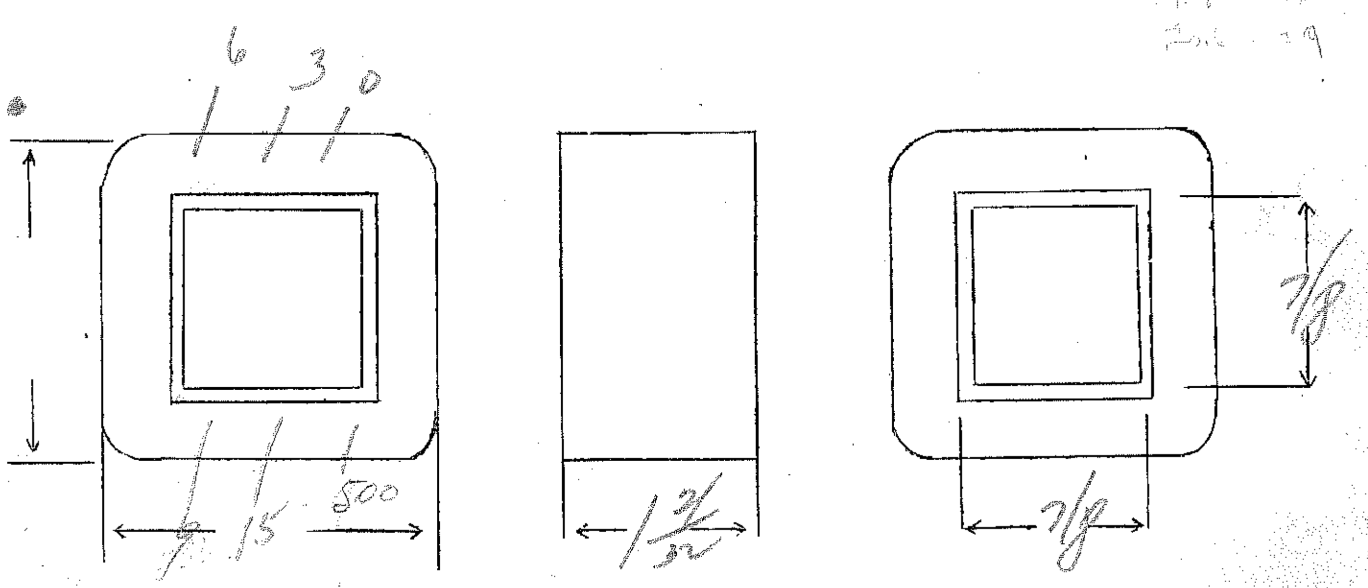
Winding	P	S (Continuous)					
Turns	675	74	42				
Taps		52	16				
Wind. Lgth.	1 1/16						
Wire Size	#29	#21	#23				
T.P.L.	81-9	23.2	12				
Kind Term.	Sil Br	WIRE ONLY					
Term. Lgth.	3"	3"	3"				
Layer Insul.	30#						
Test Volt.							
Wrapper	74025GA		74025GA				

TUBE 71007 | IMPREGNATION VARNISH

CORE 7/8 x 7/8 - 29 Ga B - 2 1/2 | PRIMARY V.A.

MOUNTING D

Join start of primary and secondary for common



DESIGNED BY GW DATE 8/27/37

PP 6B5's to Class B Ermac 35T grid.
2.25:1 step down

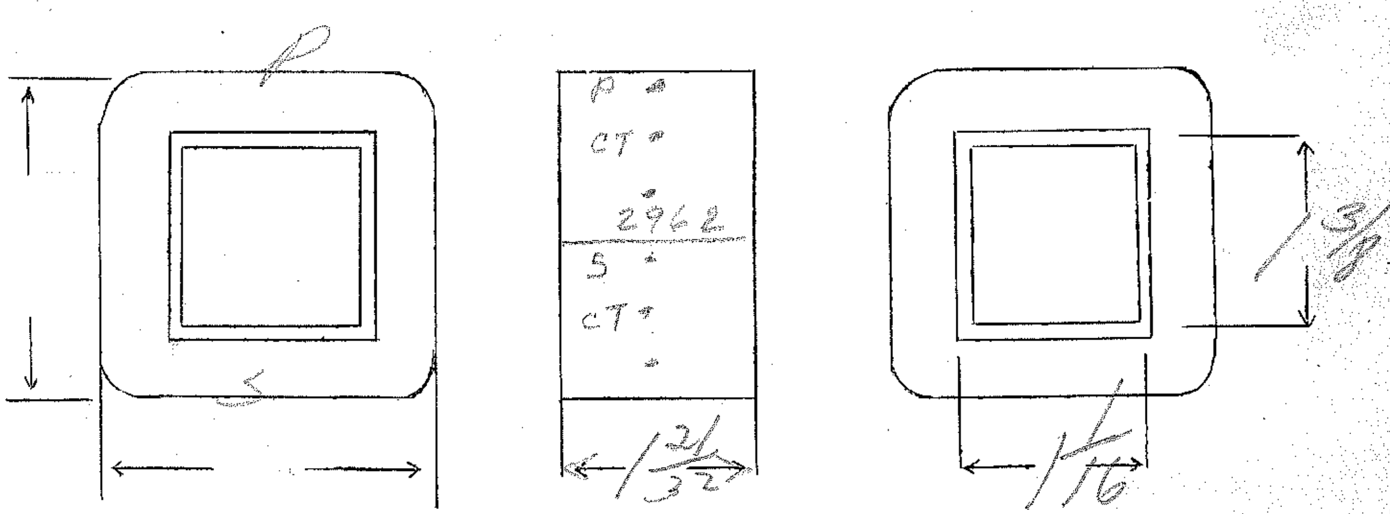
SPEC. NO. 2962

Winding	PRI	SEC					
Turns	2400	1100					
Taps	1200	550					
Wind. Lgth.	1 15/32						
Wire Size	#32	#29					
T.P.L.	150-16	110-10					
Kind Term.	Sil Br						
Term. Lgth.	5"	5"					
Layer Insul.	30#	30#					
Test Volt.							
Wrapper	4L [illegible]	2400SGA					

TUBE 76007 IMPREGNATION VARNISH

CORE 1 1/16 x 1 3/8 - 1/2 24 Ga B PRIMARY V.A.

MOUNTING F 1/2 - 24 Ga - 2x2



DESIGNED BY GW DATE 8/27/37

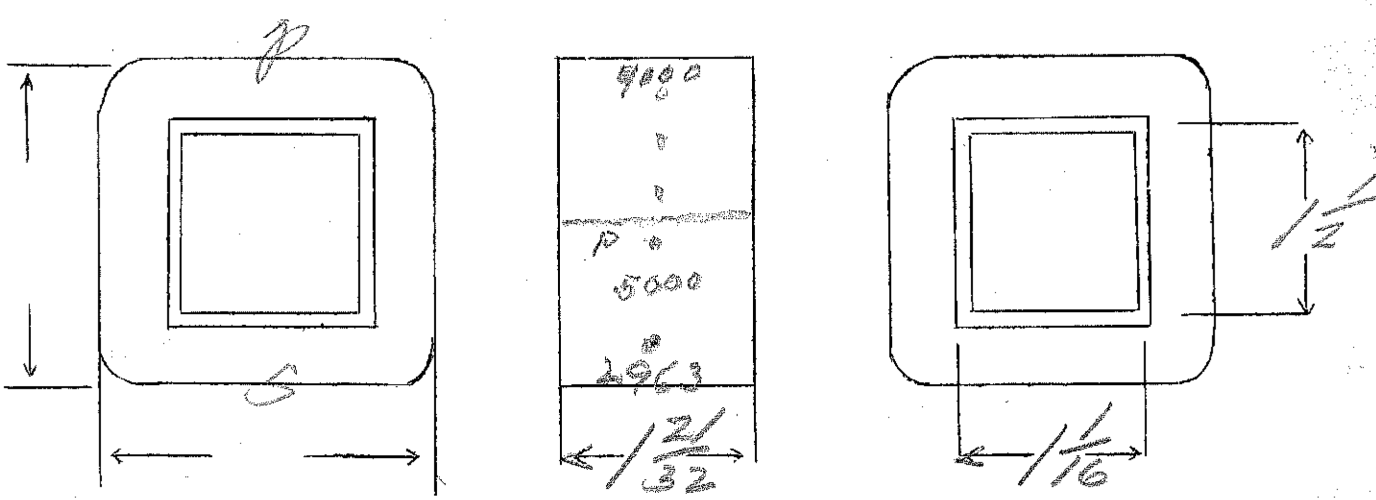
PPAB 2A3's to 5000 Ω - 20 watts audio

P - 4000 -
S - 5000 - 150 Ma

SPEC. NO. 2963

Winding	PRI	SEC					
Turns	~~1100 TVC~~ 2400	2800					
Taps	1200	—					
Wind. Lgth.	1 7/16	1 7/16					
Wire Size	#32	#30					
T.P.L.	150-16	120-24					
Kind Term.	WIRE	ONLY					
Term. Lgth.	6"	6"					
Layer Insul.	double	20 #					
Test Volt.	2500V						
Wrapper	2400 TVC	1100 TVC 2400 SGA					

TUBE	74007	IMPREGNATION	VARNISH
CORE	1 1/16 x 1 3/4 - 24 Ga .010 "gap"	PRIMARY V.A.	
MOUNTING	F		



DESIGNED BY GW DATE 8/30/37

902 – 6L6 – (4000 ...)

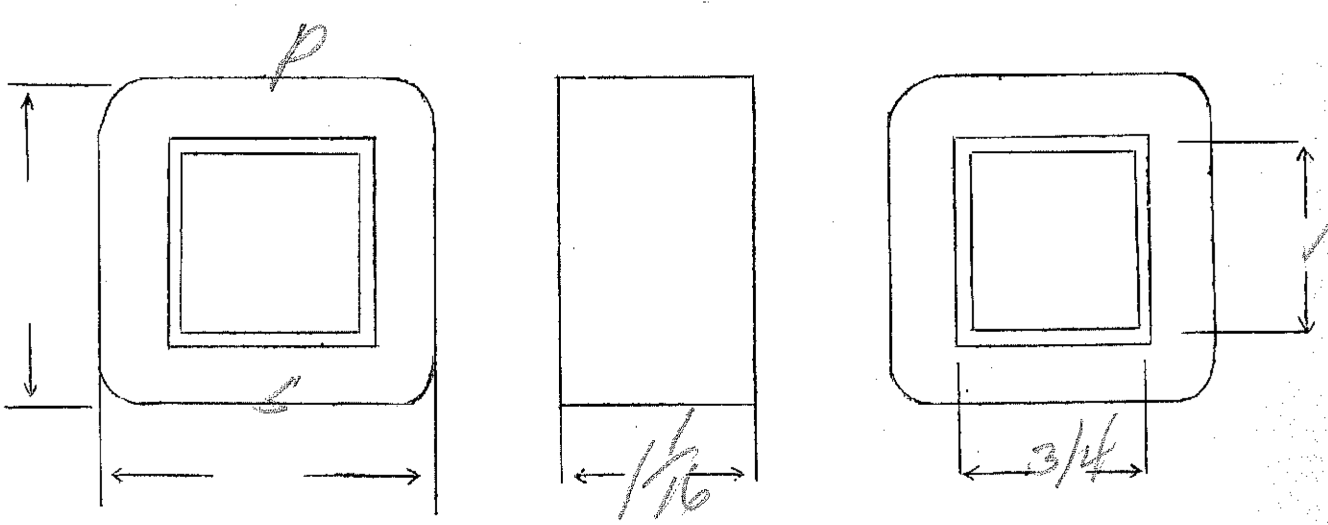
single 6L6 class A to 3500-5000 Ω modulator

4000 Ω

SPEC. NO. 2964

Winding	P	S					
Turns	1500	1700					
Taps	—	1430					
Wind. Lgth.	7/8						
Wire Size	#33	#33					
T.P.L.	106	106					
Kind Term.	sil	br					
Term. Lgth.	3"	3"					
Layer Insul.	20#	20#					
Test Volt.							
Wrapper	1100 9VC	3600 SGA					

TUBE	4L007	IMPREGNATION	VARNISH
CORE	3/4 x 1/2 24 ... .005 gap	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY [signature] DATE 9/7/37

2- 2A3, 6A3, 6A5, 6B4, to 2-4-8-16-500 Ohm
or 2- 6L6, 45

File Copy
old

Pri - 5000 ohms P-P 30 watts SPEC. NO. ~~S~~2965

Winding	- continuous - S1	P	S2	S	S		
Turns	525	2000 Black	31 Green Tracer	42 Yellow	42 Red		
Taps	st. Brown fin. Blue	wh. 1000	-	24 Green	-		
Wind. Lgth.	1.25	-	-	-	-		
Wire Size	#30	#33	#23	#21	#19		
T. P. L.	105-5	145-14	.7L	1.25L	1.5L		
Finish							
Type Lead	#20 Par. Braid----			Wire	Only		
Lead Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	30#	30#					
Test Volt.	1250 - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -		
Wrapper	1L005VC 5L G1	1L005VC 5L G1			2L005GA		

TUBE	7L007	IMPREGNATION	Varnish

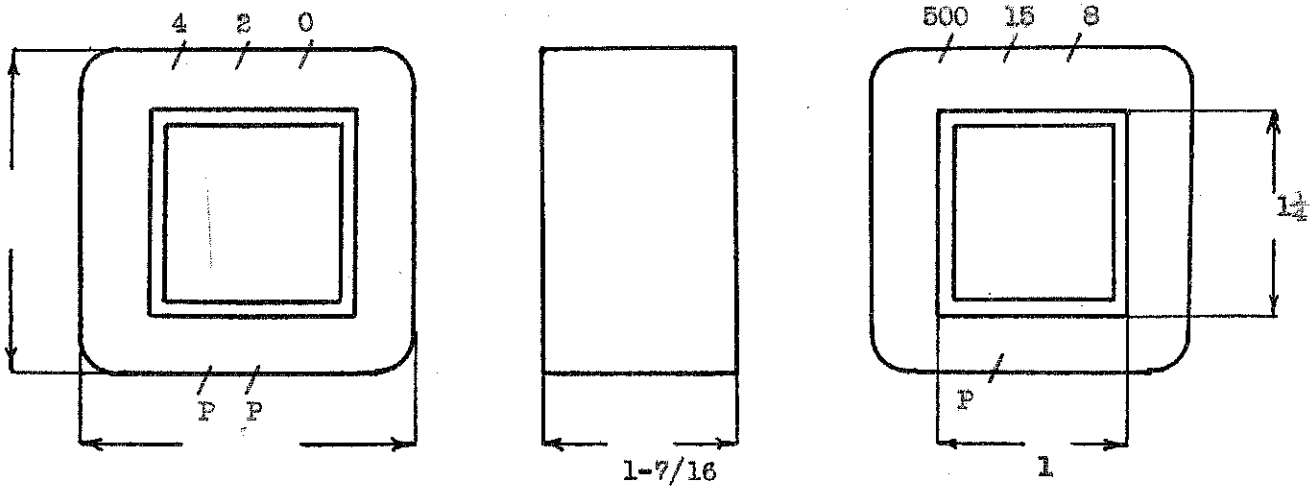
CORE 1 x 1¼ GA. 29 GRADE B STACK 2 x 2

MOUNTING A

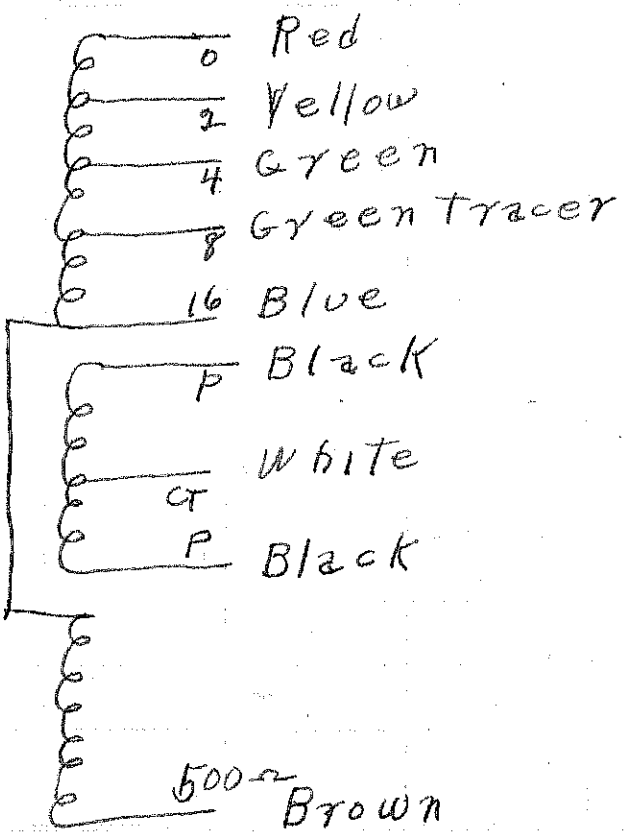
When winding sec. be sure that the direction of winding is the same as that of sec..

M. W. - Right
S. W. - Left

End of sec. is common.



DESIGNED BY G. W. DATE 6/18/38


0
Red
1
Yellow
2
Green
4
Green Tracer
8
16
Blue
P
Black
White
CT
P
Black
500~
Brown

AUDIO OUTPUT

Stock #2965

P-P 2A3's 5000 ohms CT to
2-4-8-16-500 ohms 10 watts

SPEC. NO. S-2965

Winding	1-2 Sec #1	3-4-5 Sec #2		6-7-8 Pri		9-10-11 Sec #3	
Turns	597	65		2300		65	Wind in same direction as Sec #1 Sec #2
Taps	—	38	260 - 1150 - 2040			19	
Wind. Lgth.	1 1/4	1 1/4		1 1/4		1 1/4	
Wire Size	#30	#22		#33		#20	
T. P. L.	100-6L	38-2L	130 - 184	~~144-16L~~		33-2L	
Finish	86%	81%		90%		88%	
Type Lead	#22 Pr. Br.	#22 Pr. Br.		#22 Pr. Br.		#20 Pr. Br.	
Lead Lgth.	9 Cut 14½	9 Cut 14½		9 Cut 14½		9 Cut 14½	
Layer Insul.	30#	Double 30#		30#		1L005GA	
Test Volt.	1250			1500		1250	
Wrapper	4L30#	1L007VC		2L005GA		2L005GA	

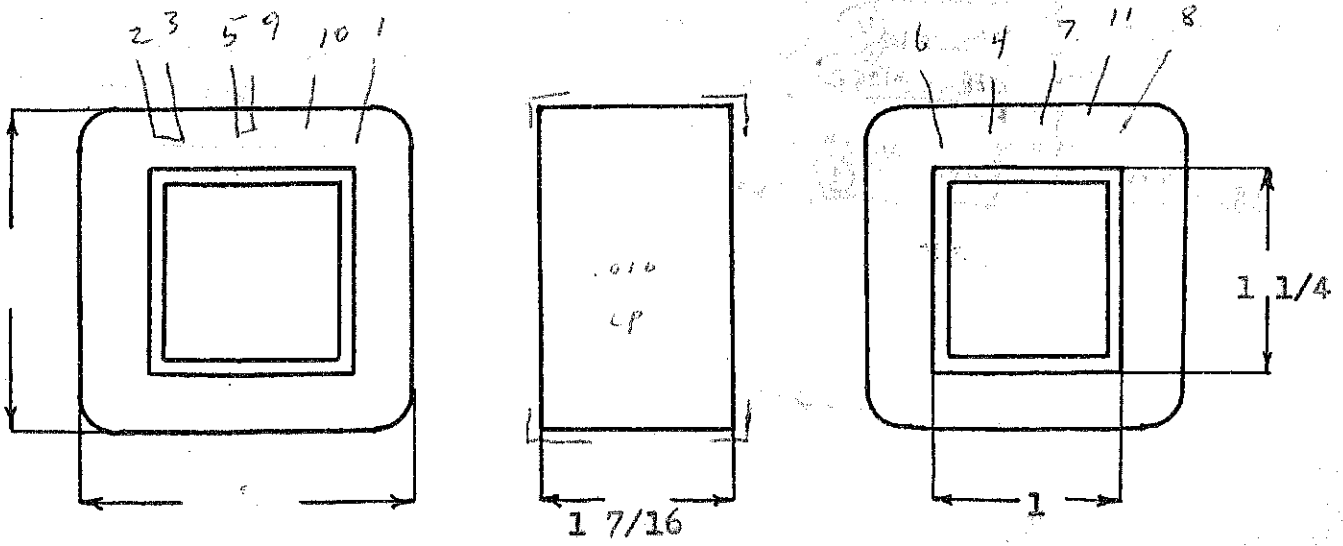
TUBE GL007GK ✗ 1L003VP

IMPREGNATION Varnish

CORE 1 x 1 1/4 GA. 29 GRADE B STACK Butt no gap

armite keepers

MOUNTING A



DESIGNED BY F. Frazee

DATE 4-47

DESIGN AND TEST DATA

Rating:

I_s (2Ω) = $\sqrt{\frac{10}{2}}$ = 2.24
I_s (4Ω) = $\sqrt{\frac{10}{4}}$ = 1.58
I_s (8Ω) = $\sqrt{\frac{10}{8}}$ = 1.12

I_s (16Ω) = $\sqrt{\frac{10}{16}}$ = .79
I_s (500Ω) = $\sqrt{\frac{10}{500}}$ = .141

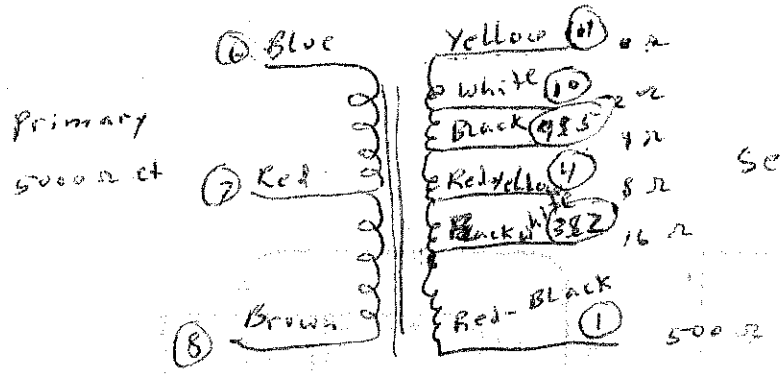
Winding	Sec. #1	Sec. #2		Pri.		Sec. #3	
Mean Turn	5.11	5.65		6.47		7.36	
Resistance 25° c	26.7	.502		262		.413	
Pounds Copper	.0785	.063		.192		.125	
Copper Density							
Ratio Volts	28.5	3.11 1.82		110		3.11	
Test to Ground	1250			1500		1250	

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:



$Z = 5000 - 500 - 16 - 8 - 4 - 2$
$Z_R = 2500 - 250 - 8 - 4 - 2 - 1$
$T_R = 50 - 15.8 - 2.83 - 2 - 1.41 - 1$
$T = 2200 - 727 - 130 - 92 - 69 - 41$

for design data see other spec.

AUDIO OUTPUT

Stock

P-P 2A3's 5000 ohms CT to
2-4-8-16-500 ohms 10 watts

SPEC. NO. S-2965

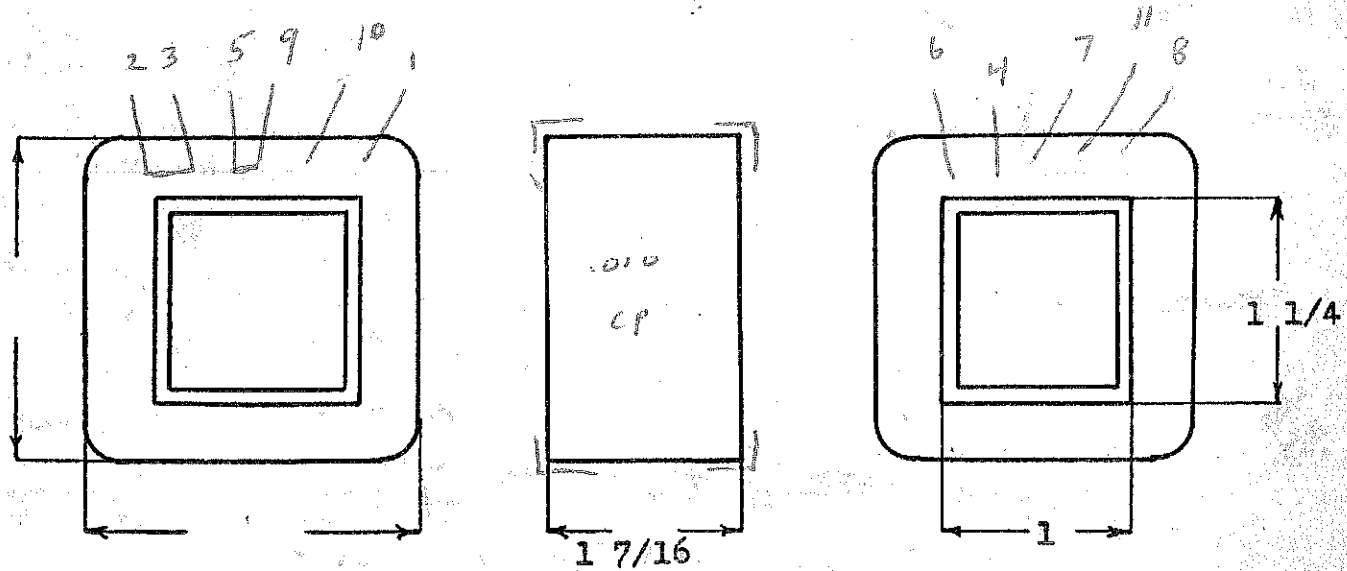
Winding	1-2 Sec #1	3-4-5 Sec #2		6-7-8 Pri		9-10-11 Sec #3	
Turns	597	65		2300		65	
Taps		38		1150		19	
Wind. Lgth.	1 1/4	1 1/4		1 1/4		1 1/4	
Wire Size	#30	#22		#33		#20	
T. P. L.	100-6L	38-2L		144-16L		33-2L	
Finish	86%	81%		90%		88%	
Type Lead	#22 Pr. Br.	#22 Pr. Br.		#22 Pr. Br.		#20 Pr. Br.	
Lead Lgth.	9 Cut 14½	9 Cut 14½		9 Cut 14½		9 Cut 14½	
Layer Insul.	30#	~~Double~~ 50#		30#		1L005GA	
Test Volt.	1250			1500		1250	
Wrapper	1L30#	1L007VC		2L005GA		2L005GA	K

TUBE	GL007GK / 1L003VP	IMPREGNATION	Varnish

CORE 1 x 1 1/4 GA. ~~29~~ 26 GRADE B STACK Butt no gap

armite keepers

MOUNTING A



DESIGNED BY F. Frazee

DATE 4-47

DESIGN AND TEST DATA

Rating:

$I_s(2\Omega) = \sqrt{\frac{10}{2}} = 2.24$ $I_s(16\Omega) = \sqrt{\frac{10}{16}} = .79$

$I_s(4\Omega) = \sqrt{\frac{10}{4}} = 1.58$ $I_s(500\Omega) = \sqrt{\frac{10}{500}} = .141$

$I_s(8\Omega) = \sqrt{\frac{10}{8}} = 1.12$

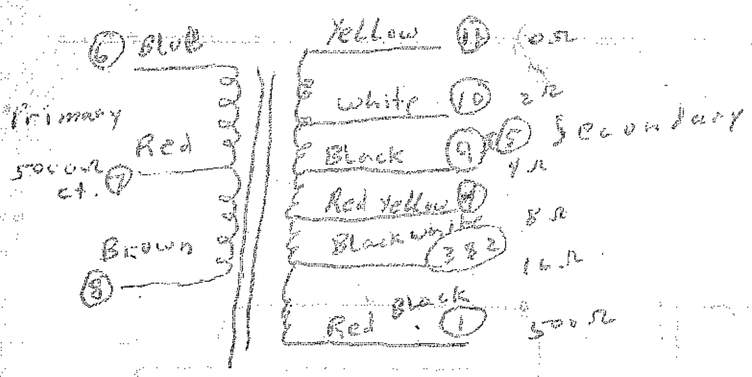
Winding	Sec. #1	Sec. #2		Pri.		Sec. #3	
Mean Turn	5.11	5.65		6.47		7.36	
Resistance 25° c	26.7	.502		262		.413	
Pounds Copper	.0785	.063		.192		.125	
Copper Density							
Ratio Volts	28.5	3.11 1.82		110		3.11	
Test to Ground	1250			1500		1250	

Iron Induction ______ @ ______ Cycles ______

Exciting Current ______ amperes @ ______ volts 60 cycles on ______

Induced Test: Apply ______ Volts at ______ Cycles ______ on ______ with ______ grounded

Remarks:



$Z = 5000 - 500 - 16 - 8 - 4 -$

$Z_e = 2500 - 250 - 8 - 4 - 2 - 1$

$T_R = 50 - 15.8 - 2.83 - 2 - 1.41 -$

$T = 2300 - 727 - 130 - 92 - 64 - 46$

P.P. 2A3's $R_L = 5000\Omega$ 8 ma unbalance

$B_{AC} = \frac{34.4 \times 10^5 \times 224}{50 \times 1.16 \times 2300} = 5850$

$B_{DC} = \frac{.495 \times 1150 \times .008}{.005} = 910$ $H = .25$

$\mu_\Delta = 1800$ Hall of Audio A

$L = \frac{3.18 \times 10^{-8} \times 1.16 \times 2300^2}{.005 + \frac{6.00}{1800}} = 21.9$ Hy

Freq $1\frac{1}{2}$ db down $= \frac{5000}{.61 \times 2\pi \times 21.9} = 157$

High End 8Ω

$L = \frac{2.447.11 \times 2300^2}{1.25}\left[.010 + \frac{.149 \times .072}{3}\right] \times 10^{-5}$

$L = .0732$

Freq for $1\frac{1}{2}$ db down $= \frac{.64 \times 5000}{6.28 \times .0515}$

$= 7000$

High end for 500Ω

$L = \frac{.72 \times 6.57 \times 2300^2}{1.25}\left[.0074 \; .010 + \frac{.14 \times .174}{3}\right]$

$L = .0274$

Freq for $1\frac{1}{2}$ db down $= \frac{.64 \times 4000}{6.28 \times .0274} = 15000$

3 a - 500 a

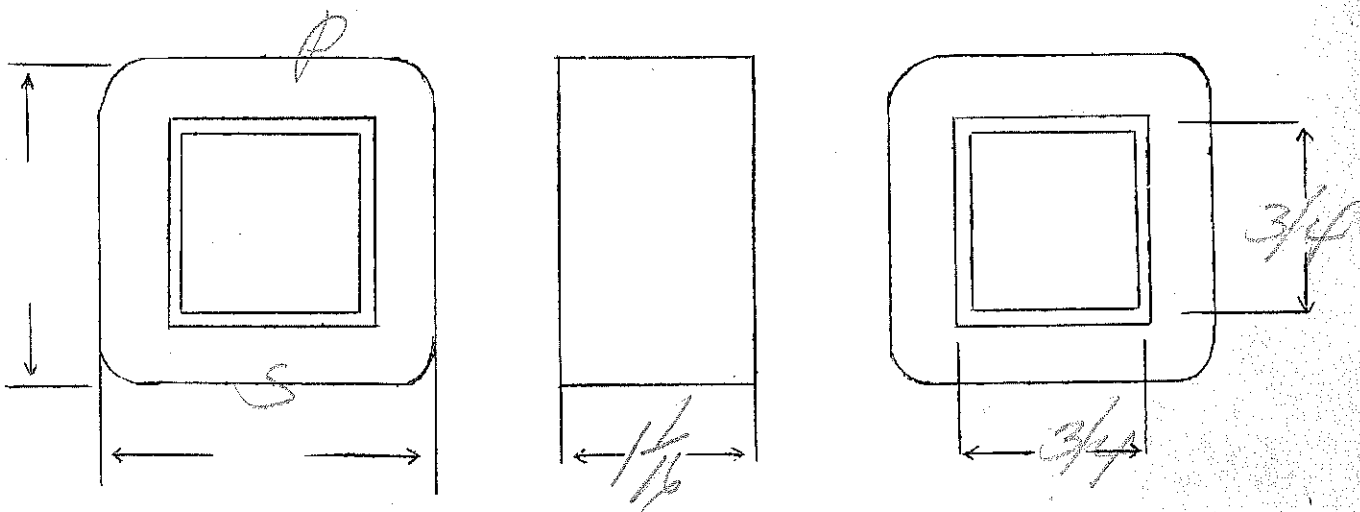
SPEC. NO. 2966 -

Winding	SEC	PRI					
Turns	610	45					
Taps	—	—					
Wind. Lgth.	7/8	7/8					
Wire Size	#28	#20					
T.P.L.	58-11	2L					
Kind Term.	Silk Bu	W.O.					
Term. Lgth.	3"	3"					
Layer Insul.	30#						
Test Volt.							
Wrapper	2005GA	2005GA					

TUBE | 7L007 | IMPREGNATION | VARNISH

CORE | 3/4 x 3/4 - 29 Ga E - 2 x 2 | PRIMARY V.A. |

MOUNTING D



DESIGNED BY LW DATE 9/3/37

6Ω to grid

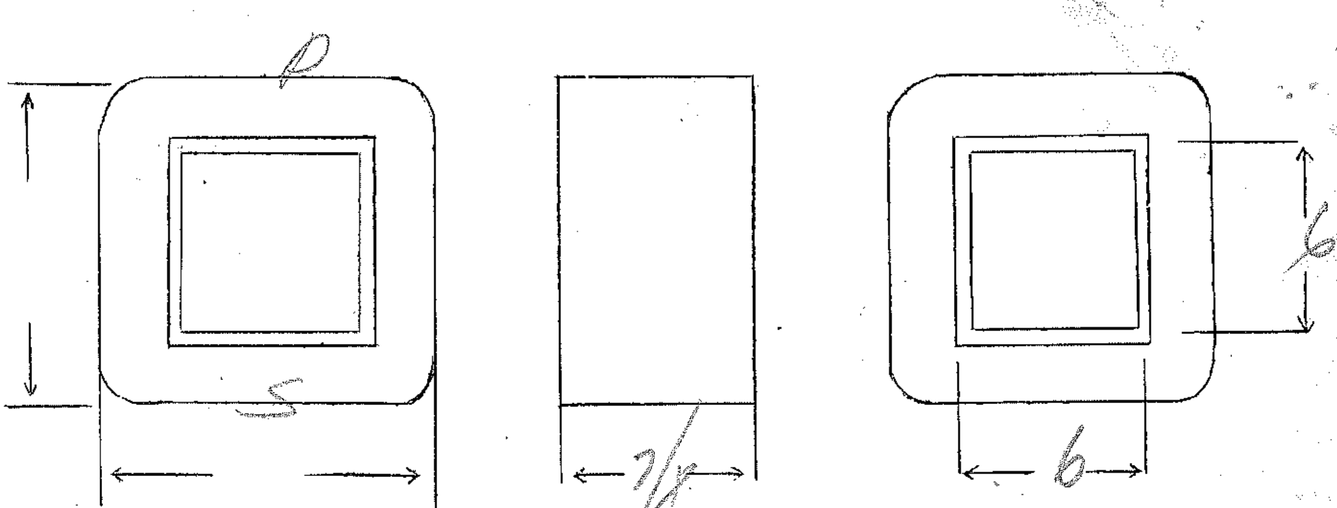
SPEC. NO. 2967

Winding	SEC	PRI					
Turns	7600	58					
Taps	—	—					
Wind. Lgth.	3/4	✓					
Wire Size	#40	#23					
T.P.L.	190-40	29-2					
Kind Term.	Sol Br.	W.O.					
Term. Lgth.	3"	3"					
Layer Insul.	12#	50#					
Test Volt.							
Wrapper	1400 SUP 3 LGP	2400 SGA					

TUBE: SL007 | IMPREGNATION: Wax

CORE: 5/8 x 5/8 - B - 24 - 2x2 | PRIMARY V.A.

MOUNTING: D



DESIGNED BY GW DATE 9/11/27

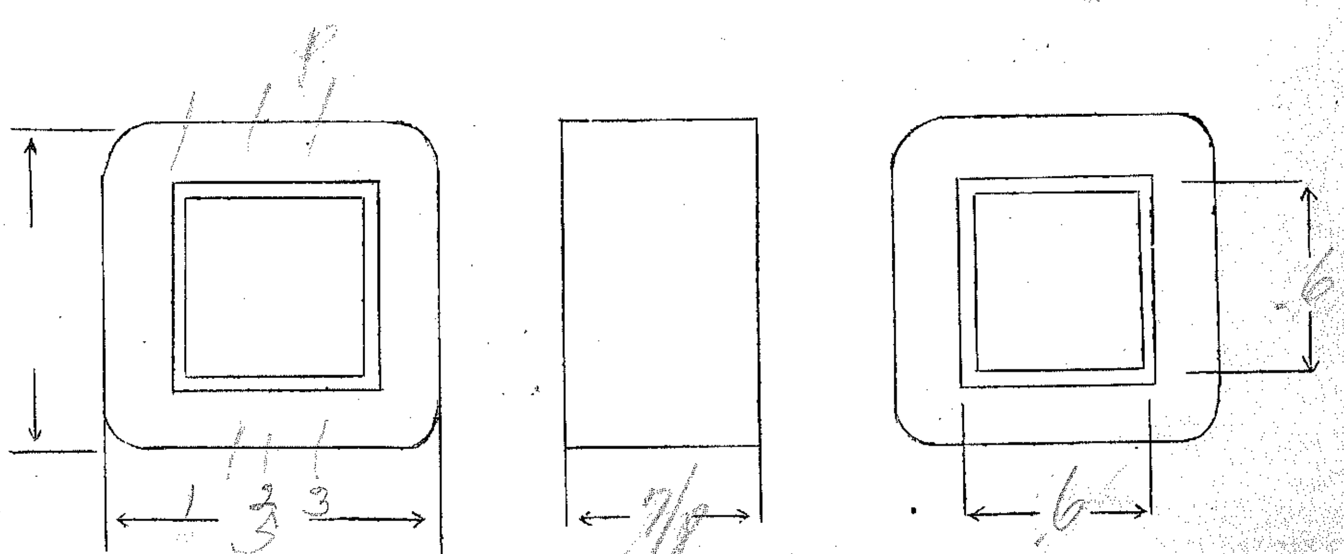
504 or 250 Ω to 100 or 5 Ω - 3 Watt

SPEC. NO. 2968

Winding	PRI	SEC	Cont.				
Turns	740	78	32				
Taps	250						
Wind. Lgth.	3/4	-	-				
Wire Size	#32	#22	#25				
T.P.L.	87-9	26.3	12				
Kind Term.	Sl Br.	wire only					
Term. Lgth.	3"	3"	3"				
Layer Insul.	40#	50#					
Test Volt.							
Wrapper	100 NC		2 Lay 50 FA				

TUBE	5007	IMPREGNATION	VARNISH
CORE	.6 x .6 - 24 Ga B - 2x2	PRIMARY V.A.	
MOUNTING	D		

end of pri is common



DESIGNED BY Haaman DATE 8/4/37

PP choke — 250-750 H — for impedance coupling from PP 77 Pentode
Pt — 7 ma per tube — unbalance — 2 ma max.

SPEC. NO. 2969

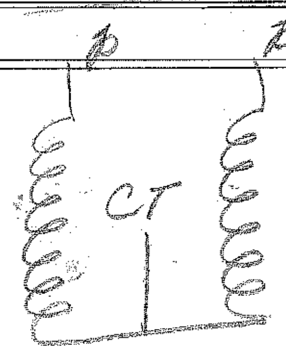
Winding	2 Coils PRI						
Turns	8500						
Taps	—						
Wind. Lgth.	7/16						
Wire Size	#40						
T.P.L.	112-76						
Kind Term.	51 Br						
Term. Lgth.	6"						
Layer Insul.	12#						
Test Volt.							
Wrapper	2400 TGA						

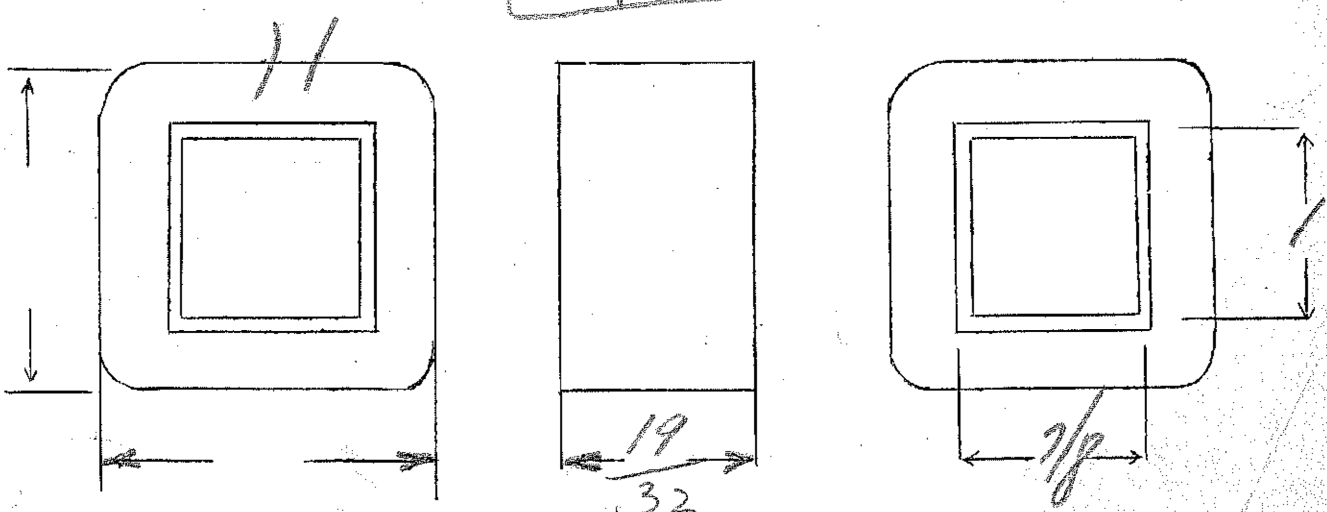
TUBE | 7L007 | IMPREGNATION | WAX

CORE | 7/8 x 1 - 29Ga annealed | PRIMARY V.A.

MOUNTING | HA

stack 4x4





DESIGNED BY GW DATE 9/21/37

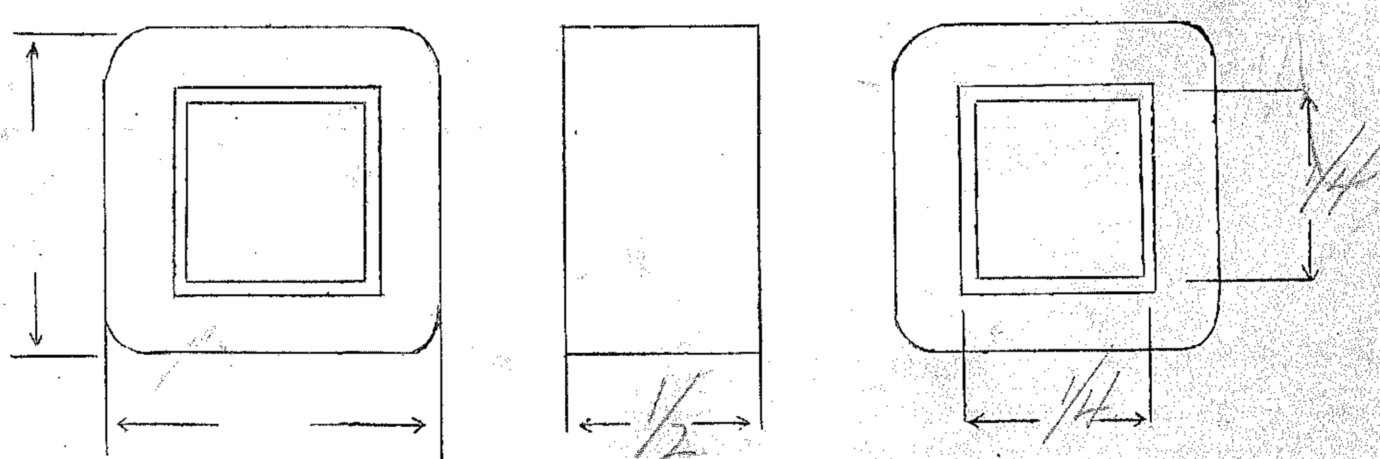
50Ω to 12,000 Ω ohm

SPEC. NO. 2970

Winding	PRI	SEC					
Turns	192	3500					
Taps	—	—					
Wind. Lgth.	3/8	3/8					
Wire Size	#34	#42					
T.P.L.	48-4	117-30					
Kind Term.	#24 P. Braid	S.P. Br					
Term. Lgth.	6"	1"					
Layer Insul.	20#	12# linen					
Test Volt.	none						
Wrapper	1L005YC	1L005GA	Carry 26 glassine under wrapper				

TUBE	slot 5-007	IMPREGNATION	WAX
CORE	allegheny electric metal E24/E25 15 of each	PRIMARY V.A.	
MOUNTING			

laminations to be stacked loosely, then dipped in airdry varnish to coat laminations



DESIGNED BY GKV (13) DATE 9/21/37

50 Ω to 12000 Ω

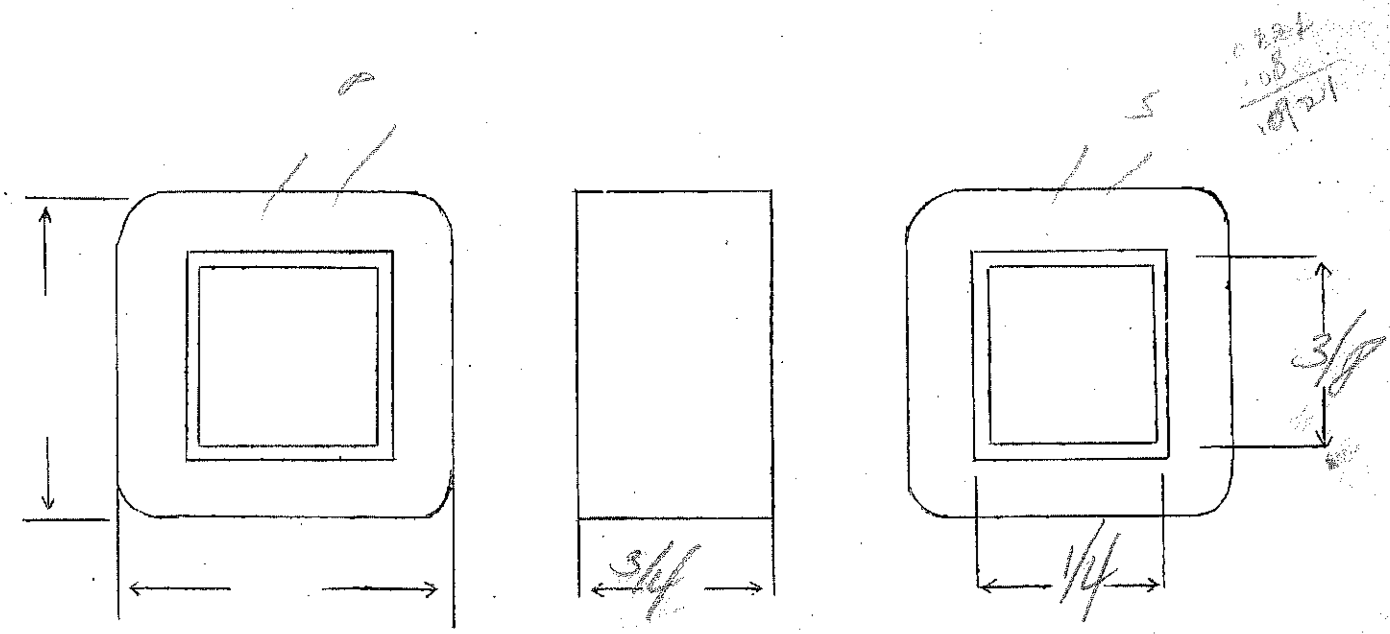
two coils

SPEC. NO. 2971

Winding	S	P					
Turns	2900	160					
Taps							
Wind. Lgth.	5/8						
Wire Size	#41	#34					
T.P.L.	183-16	80-2					
Kind Term.	Sil Br	#24 B Br					
Term. Lgth.	6"	6"					
Layer Insul.	12#	20#					
Test Volt.	none						
Wrapper	1007VC	1005GA					

TUBE	4007	IMPREGNATION	wax
CORE	1/2" cut in half 29	PRIMARY V.A.	
MOUNTING	n		

Coils connected in series on lamination



DESIGNED BY [illegible] DATE 9/21/30

modulation Transf — PPTZ20 to PPT20
P — 10000 Ω — (60 watts) — 70 ma per tube
S — 5000 Ω — 150 ma

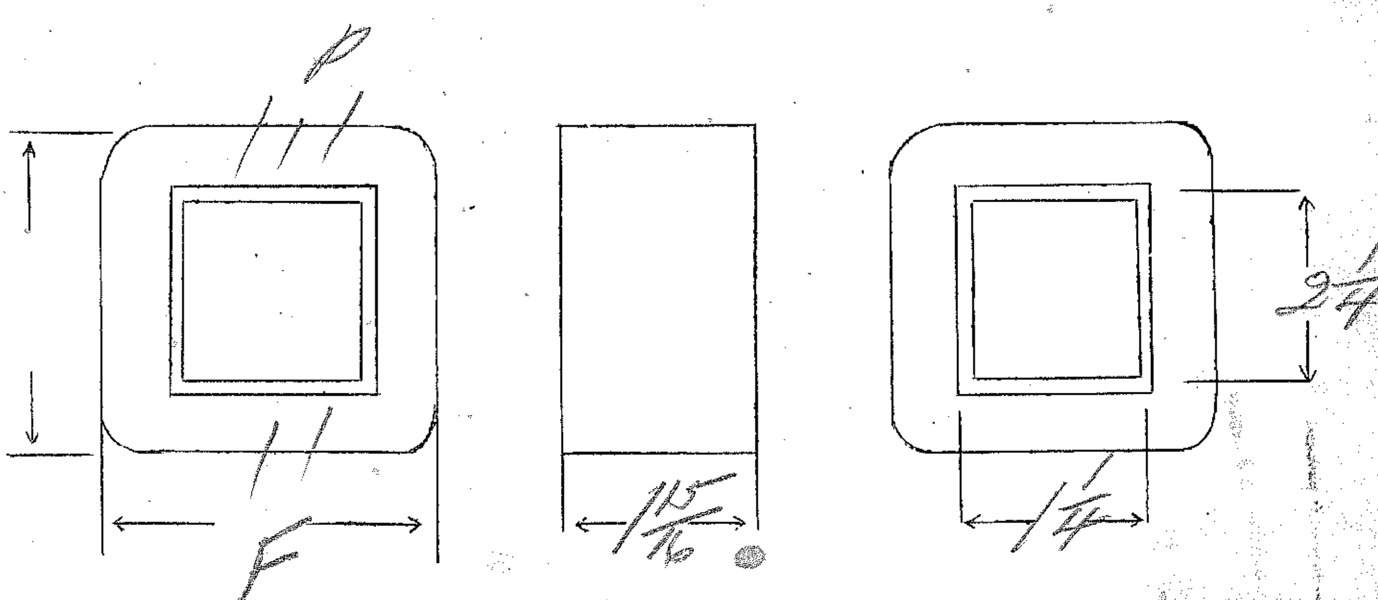
SPEC. NO. 2972

Winding	P	S					
Turns	3000	2180					
Taps	1500						
Wind. Lgth.	1 5/8	1 5/8					
Wire Size	#31	#28					
T.P.L.	150–20	109–20					
Kind Term.	WIRE	ONLY					
Term. Lgth.	5"	5"					
Layer Insul.	double 16#	40#					
Test Volt.							
Wrapper	2400 TVC 4L.R	2400 TVC 2400 SGA					

TUBE 9407 | IMPREGNATION VARNISH

CORE 1 1/4 x 2 1/4 24 Ga — .015 Gap | PRIMARY V.A.

MOUNTING F



DESIGNED BY GW

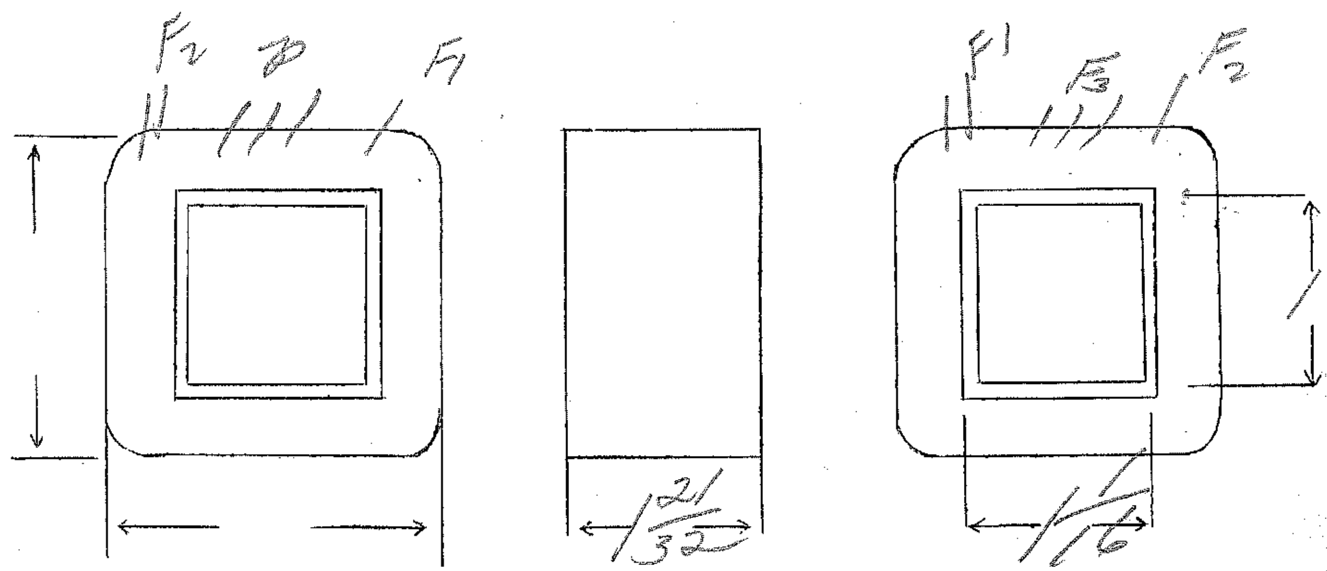
DATE 9/18/37

Ep-110-120
EF2 - 6.3VCT-3.5amp
EF3 - 5V.C.T.-3amp
EF1 - 7.5VCT-3.5amp

SPEC. NO. 2973

		White	Blue	Green 5.43			
Winding	PRI	F1	F2	F3			
Turns	650	45	38	30			
Taps	600	22	19	15			
Wind. Lgth.	1 15/32						
Wire Size	#24	#17	#17	#18			
T.P.L.	60-11	3½		12			
Kind Term.	#20 PBR	WIRE ONLY					
Term. Lgth.	9"	✓	✓	✓			
Layer Insul.	50#						
Test Volt.	1250			2500			
Wrapper	2400SGA	2400SGA	3400SGA	3400SGA			

TUBE	7007	IMPREGNATION	VARNISH
CORE	1 1/16 x 1	PRIMARY V.A.	
MOUNTING	A		



DESIGNED BY GW

DATE 9/15/37

PP A' tube connected 42's to 200 Ω + 5000 Ω (no dc)
P-8000 Ω. High fidelity type

SPEC. NO. 2974

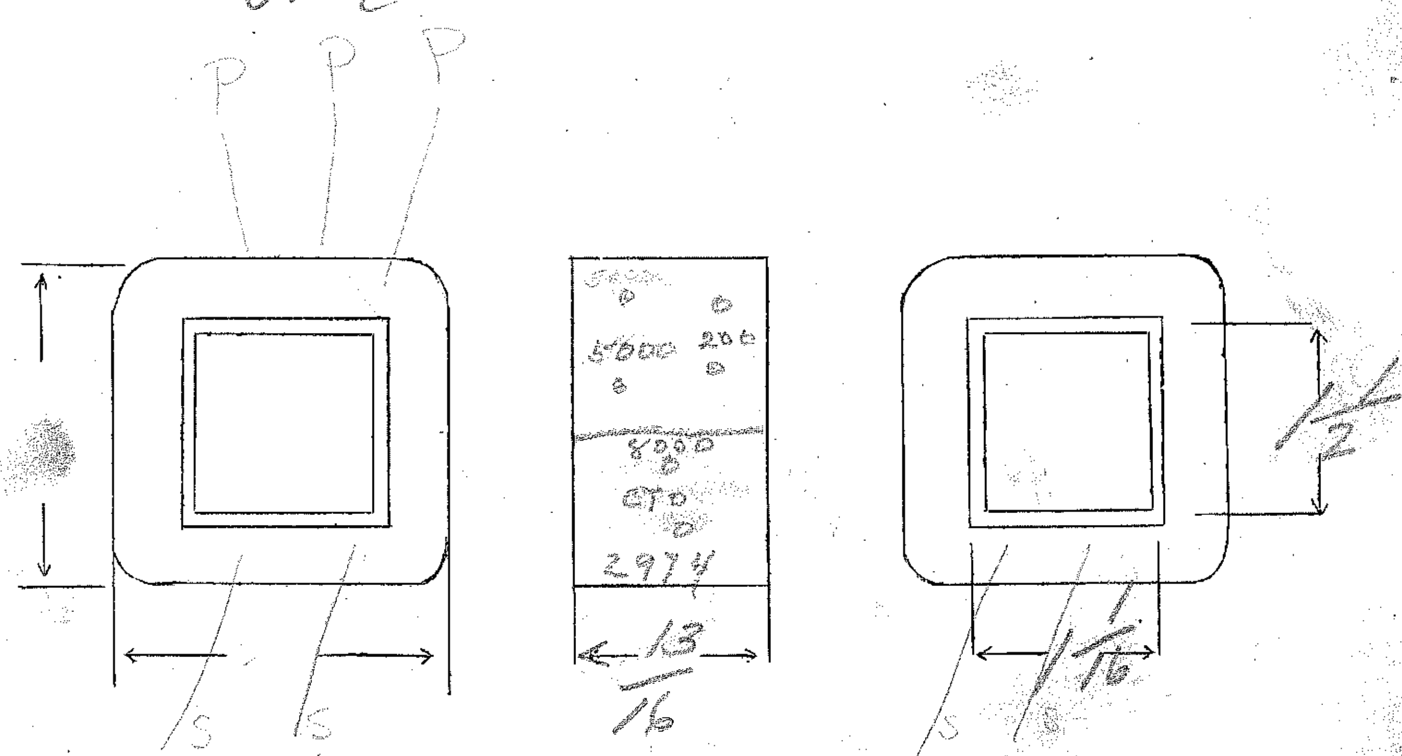
Winding	S	P	S				
Turns	230	1400	1150				
Taps	—	—	—				
Wind. Lgth.	5/8	✓	✓				
Wire Size	#26	#33	#33				
T.P.L.	33-7	73-20	73-16				
Kind Term.	Sil Braid						
Term. Lgth.	6"	6"	6"				
Layer Insul.	40#	40#	40#				
Test Volt.	2400 TVC	2400 TVC	2400 TVC				
Wrapper	2L ##						

TUBE 7607 | IMPREGNATION VARNISH

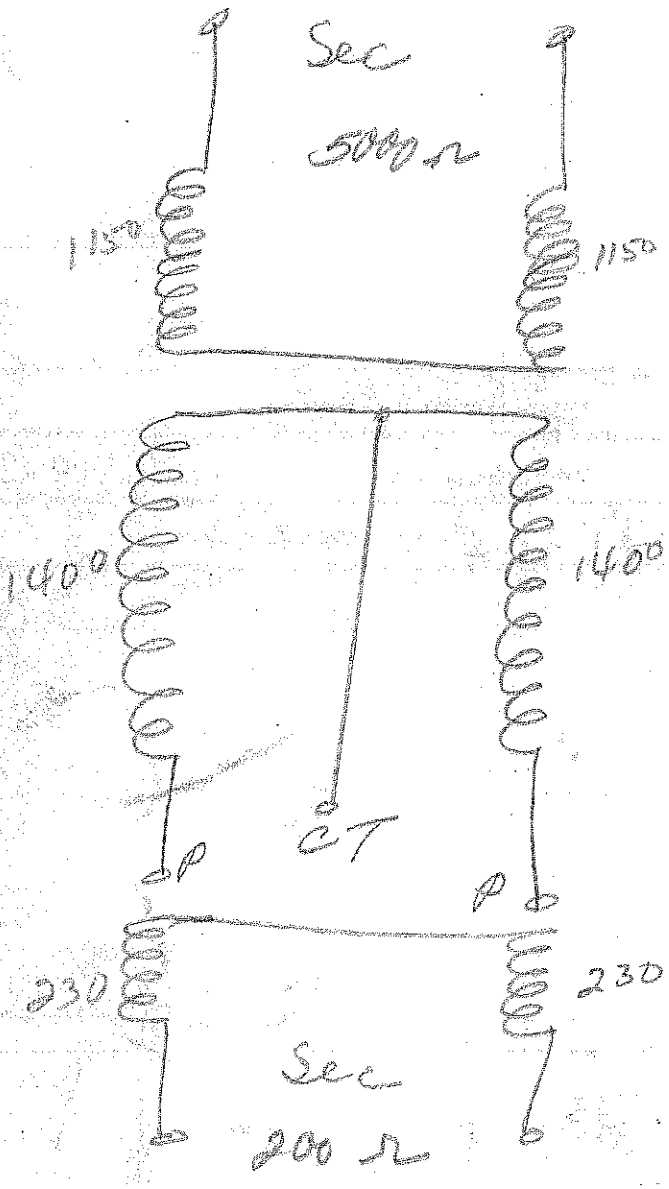
CORE 1 1/16 x 1 1/2 - 29 Ga - 2 x 2 - A Grade | PRIMARY V.A.

MOUNTING F

over



DESIGNED BY Gruenauer DATE 9/21/37



500 — 29.5 — #33
200 — 18.1 — #26
500 — 29.5 — #33

PP6V6 to 2.5 ave

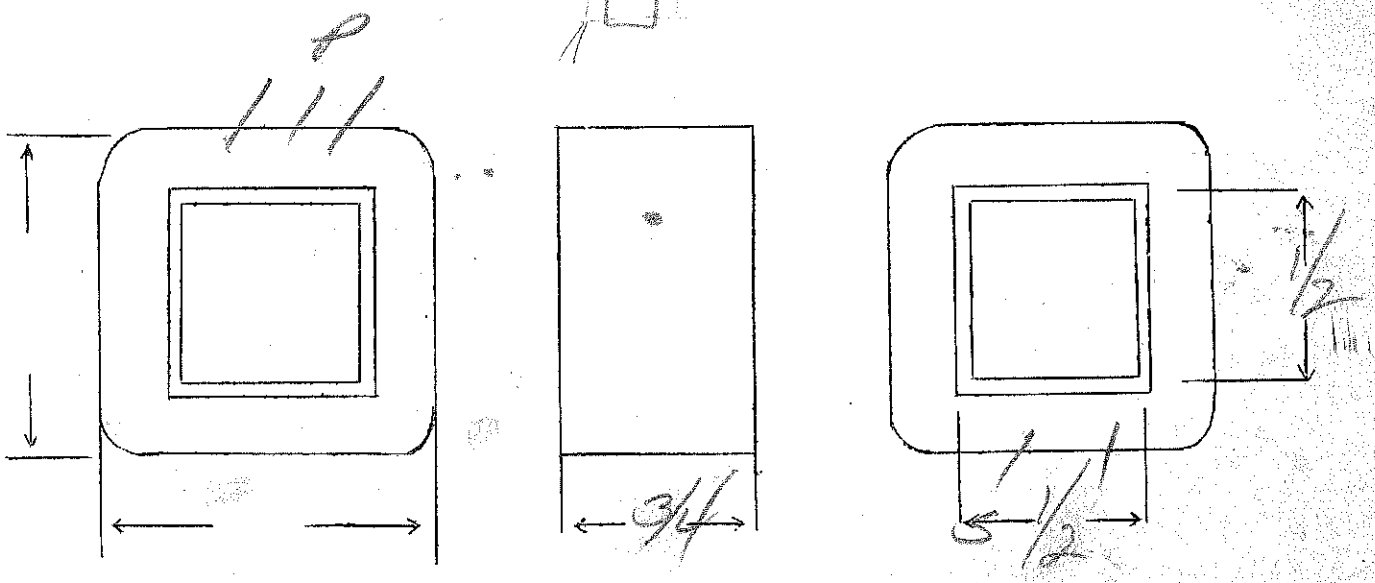
SPEC. NO. 2975

Winding	P	S					
Turns	3100	52					
Taps	1550	—					
Wind. Lgth.	5/8	5/8					
Wire Size	#30	#24					
T.P.L.	129-24	26-2					
Kind Term.	#20 DAV	WIRE ONLY					
Term. Lgth.	18"	3"					
Layer Insul.	20#	50#					
Test Volt.							
Wrapper	NO25GA	NO25GA					

TUBE | 5L007 | IMPREGNATION | VARNISH

CORE | 1/2 x 1/2 — 2 x 2 stack | PRIMARY V.A. |

MOUNTING unmounted



DESIGNED BY [illegible] DATE 9/10/57

PP 45 - A" (9200 Ω) to ?? sec — 10 watts

N1/N2 = 32   40 - 9000 ~

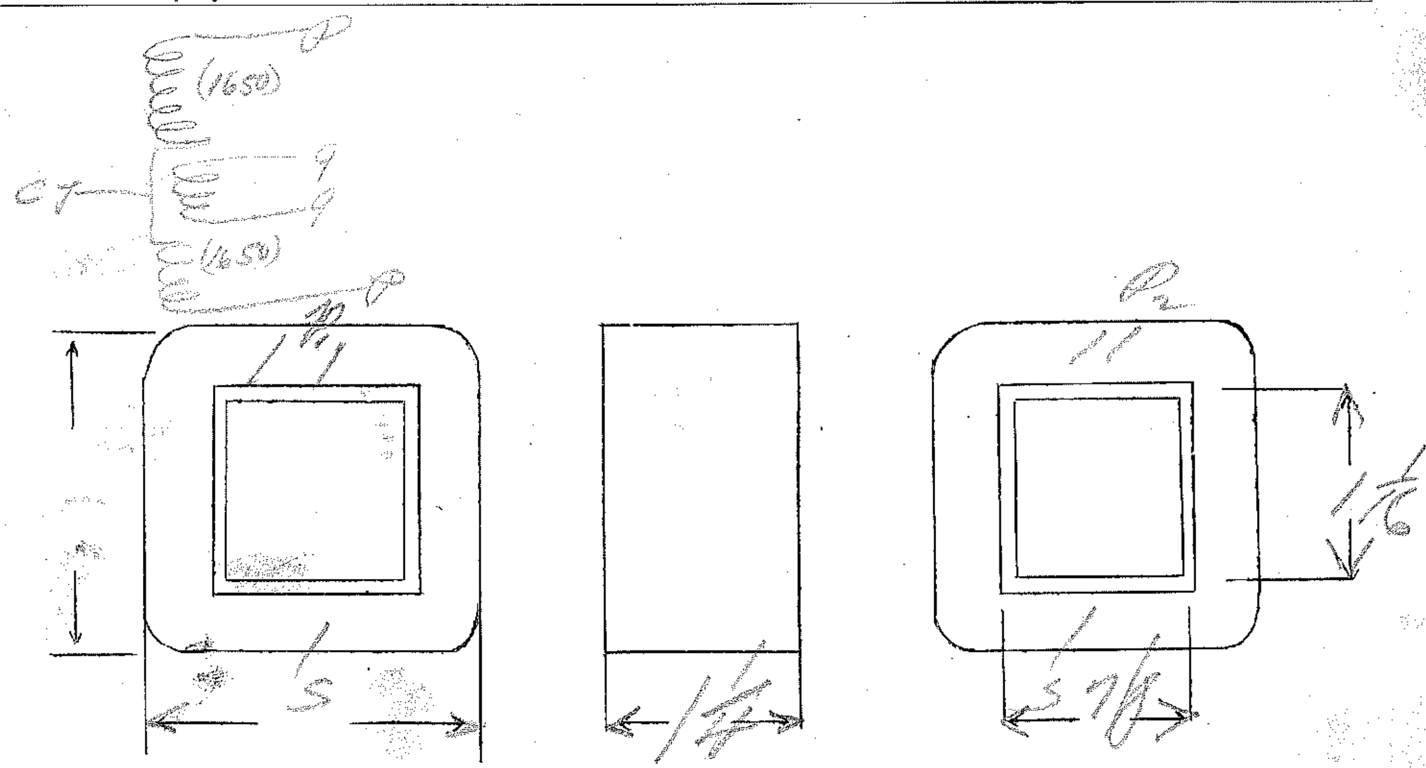
SPEC. NO. 2926

Winding	PRI	SEC	PRI				
Turns	1650	106	1650				
Taps							
Wind. Lgth.	1 1/16						
Wire Size	#34	#22	#34				
T.P.L.	139-12	36-3	139-12				
Kind Term.	#20 Bz	✓	✓				
Term. Lgth.	9"	✓	✓				
Layer Insul.	30#	50#	30#				
Test Volt.	~~1100 TVK~~	~~1100 TVC~~					
Wrapper	32 GP	32 GP	2400 SGA				

TUBE: 74007 | IMPREGNATION: Varnish

CORE: 7/8 X 1 1/16 - 29 Ga Annealing 2x2 | PRIMARY V.A.

MOUNTING: A



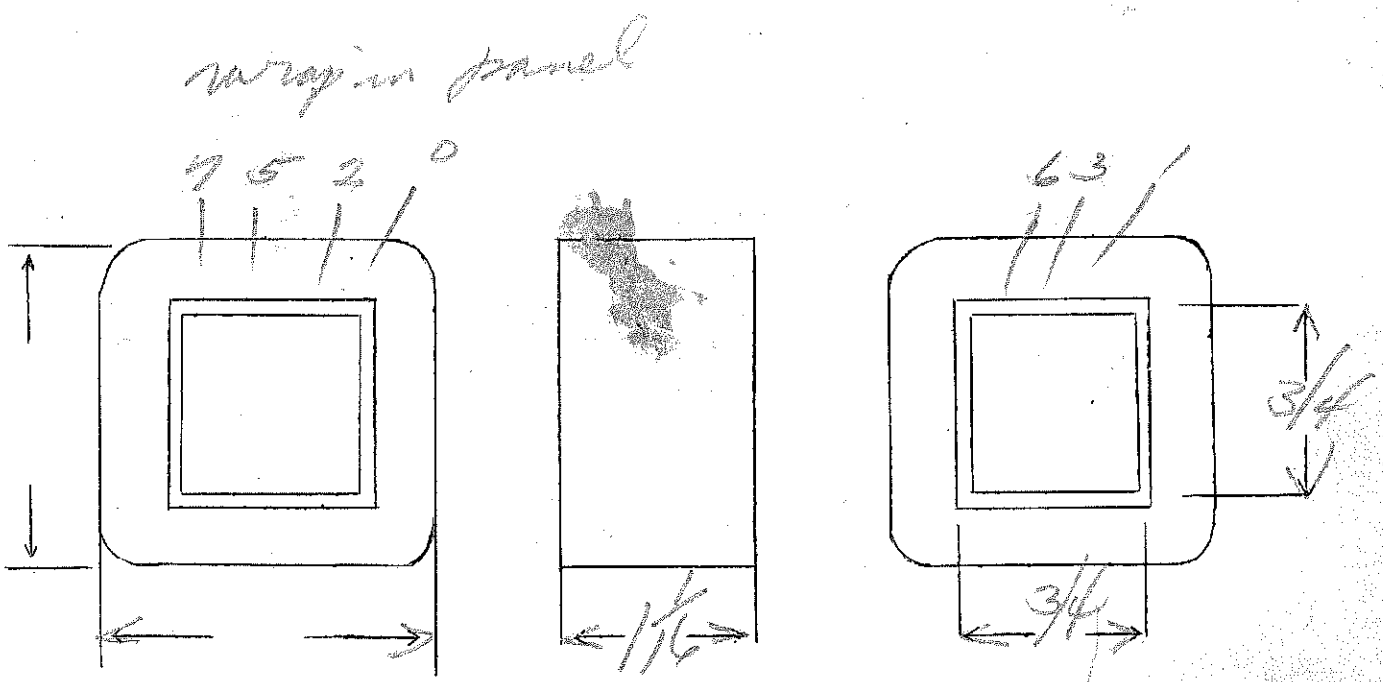
DESIGNED BY JRW   DATE 9/24/37

CT Iron Core choke — .66 Henries — used in tuned circuit (some dc in circuit due to grid current)

SPEC. NO. 2907

Winding							
Turns	1170						
Taps	1110 - 1040 - 585 - 130 - 65						
Wind. Lgth.	7/8.						
Wire Size	29						
T.P.L.	65 - 18						
Kind Term.	S/I Eye						
Term. Lgth.	3/4						
Layer Insul.	.30 ✱						
Test Volt.							
Wrapper	2 LOOSE A						

TUBE	7W07	IMPREGNATION	VARNISH
CORE	3/4 x 3/4 - 29.08 - .005 Gap	PRIMARY V.A.	
MOUNTING	D		



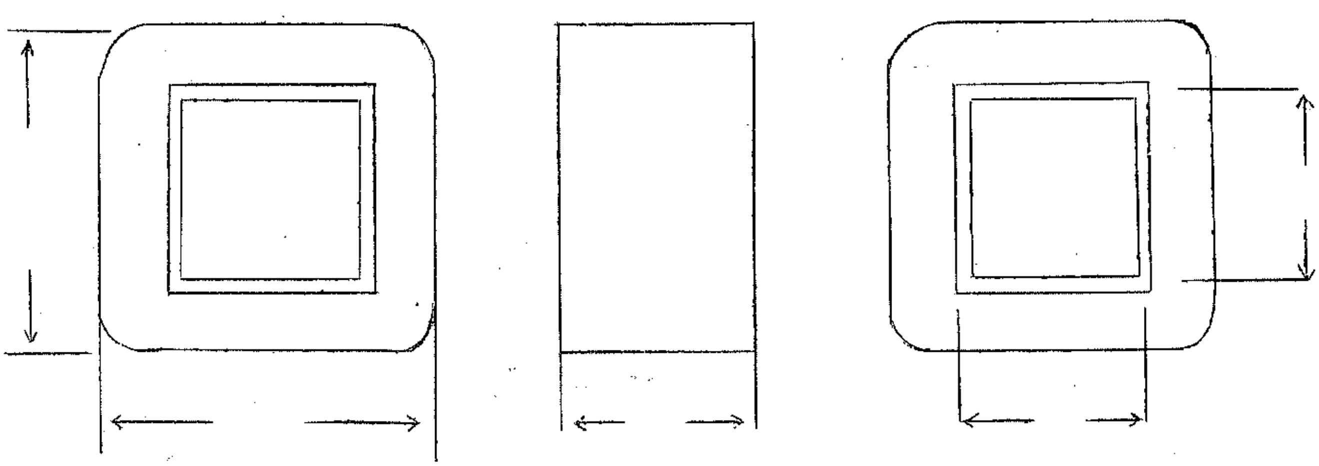
DESIGNED BY [signature] DATE 9/29/37

PP 6L6 (6600) to 8-15-250-500 Ω - 30 watt

SPEC. NO. 2978

Winding							
Turns							
Taps							
Wind. Lgth.							
Wire Size							
T.P.L.							
Kind Term.							
Term. Lgth.							
Layer Insul.							
Test Volt.							
Wrapper							

TUBE		IMPREGNATION	
CORE		PRIMARY V.A.	
MOUNTING			



DESIGNED BY

DATE

RP 2B6 Class A to 2 - RK 31 Class B (400 V on 2B6 / 1250 V on RK 31)

3/½s = 2

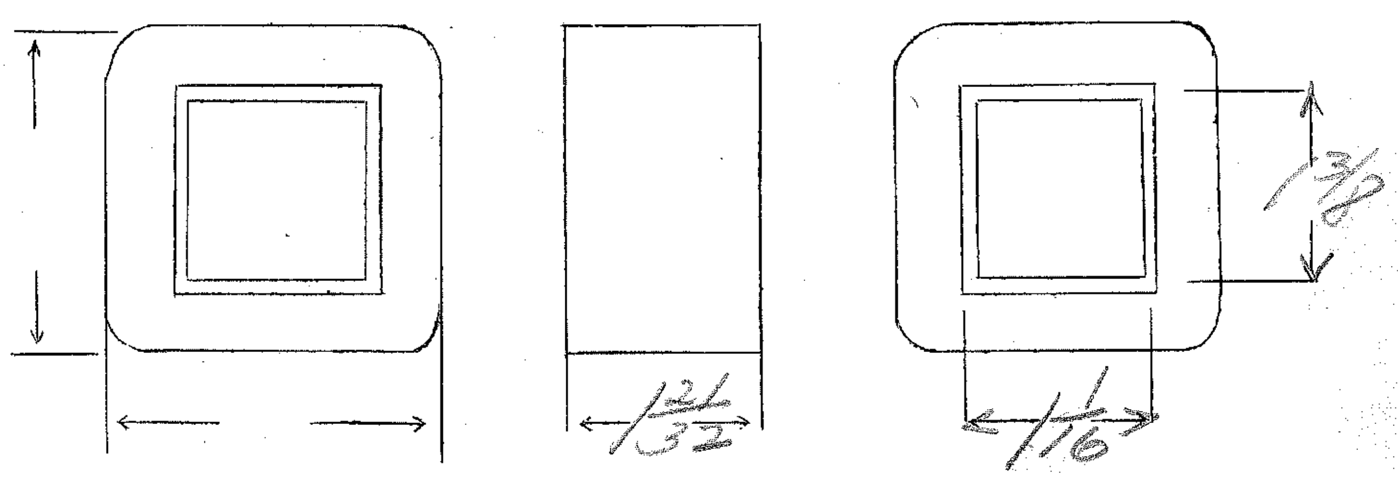
SPEC. NO. 2979

Winding	P	S					
Turns	4200	4200					
Taps	2100	2100					
Wind. Lgth.	1 15/32	—					
Wire Size	#34	#34					
T.P.L.	191-22	191-22					
Kind Term.	#20 ??						
Term. Lgth.	9	9					
Layer Insul.	40#	40#					
Test Volt.							
Wrapper	1100 ?? 4	2400 SGA					

TUBE 7L007 | IMPREGNATION VARNISH

CORE 1 11/16 x 1 3/8 - 29G B-2½ | PRIMARY V.A.

MOUNTING A



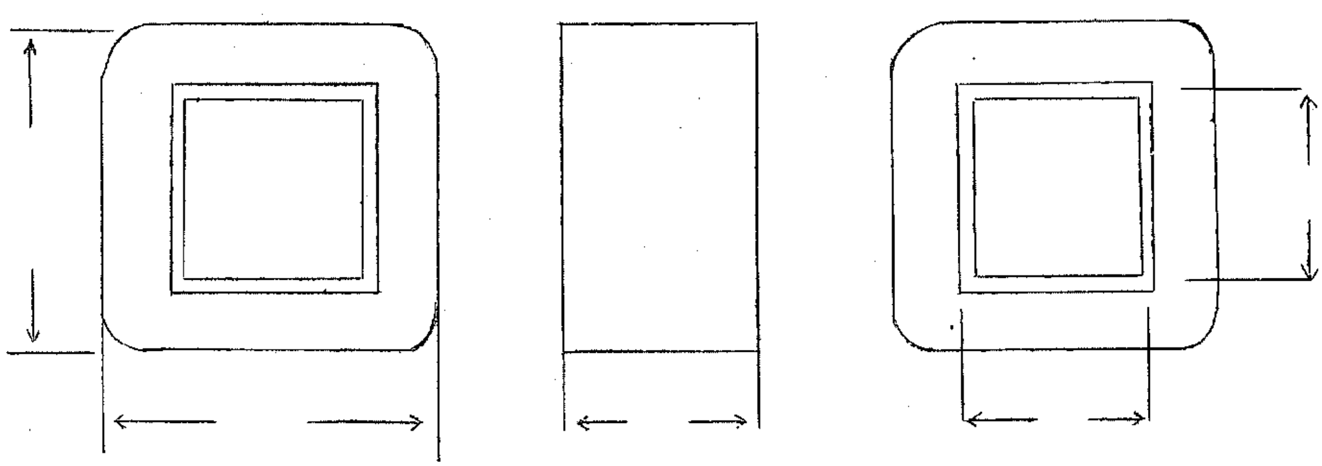
DESIGNED BY [signature] DATE 9/29/37

Same as 574 D except for mounting

SPEC. NO. 2980

Winding							
Turns							
Taps							
Wind. Lgth.							
Wire Size							
T.P.L.							
Kind Term.							
Term. Lgth.							
Layer Insul.							
Test Volt.							
Wrapper							

TUBE		IMPREGNATION	
CORE		PRIMARY V.A.	
MOUNTING	D - vertical		



DESIGNED BY DATE

Pri – 5000 Ω (6L6s)   45 watt audio

Sec – 3000 Ω – 170 ma

SPEC. NO. 2992

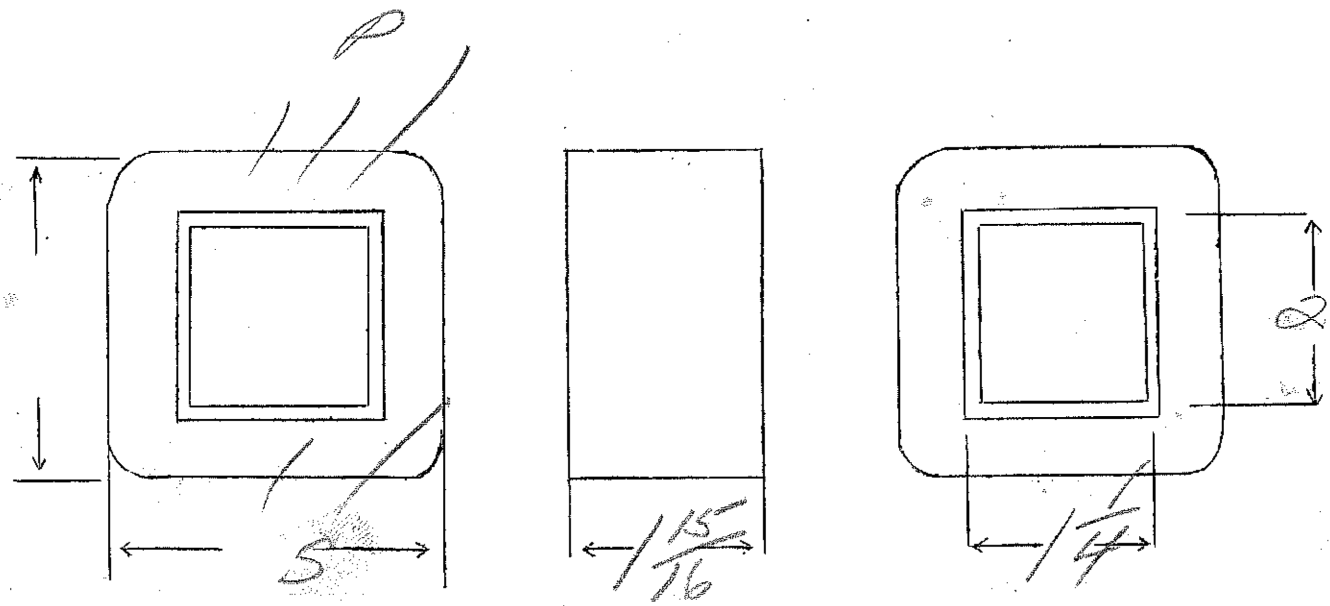
Winding	P V.C.	S					
Turns	1950	1600					
Taps	975						
Wind. Lgth.	1 5/8	✓					
Wire Size	#29	#28					
T.P.L.	122-16	108-15					
Kind Term.	#20 Dulac	#20 Dulac					
Term. Lgth.							
Layer Insul.	double 20#	double 20H					
Test Volt.	5000						
Wrapper	2100 7VC	2007VC 2100 7GA					

TUBE 9100 7 + 1L007VC | IMPREGNATION Double varnish

CORE 1 1/4 x 2 – Dynamo Grade – .020" | PRIMARY V.A.

MOUNTING AA

heavy finishing! 5000 volt breakdown



DESIGNED BY GW   DATE 10/13/37

Single button mike to grid — Num balanced

SPEC. NO. 2993

wind two coils

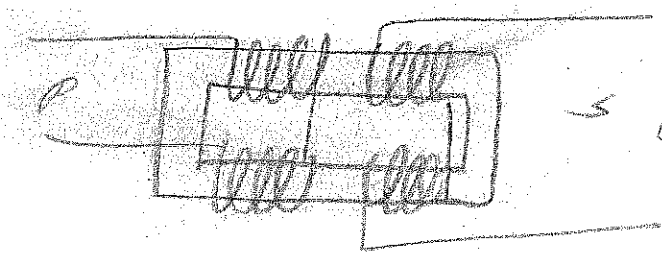
Winding	S	P					
Turns	4150	185					
Taps	—	—					
Wind. Lgth.	7/8	7/8					
Wire Size	#41	29					
T.P.L.	260-16	65-3					
Kind Term.	#20 PBr	#20 Pbr					
Term. Lgth.	9"	9"					
Layer Insul.	12#						
Test Volt.							
Wrapper	1200 TVC	2200 5GA					

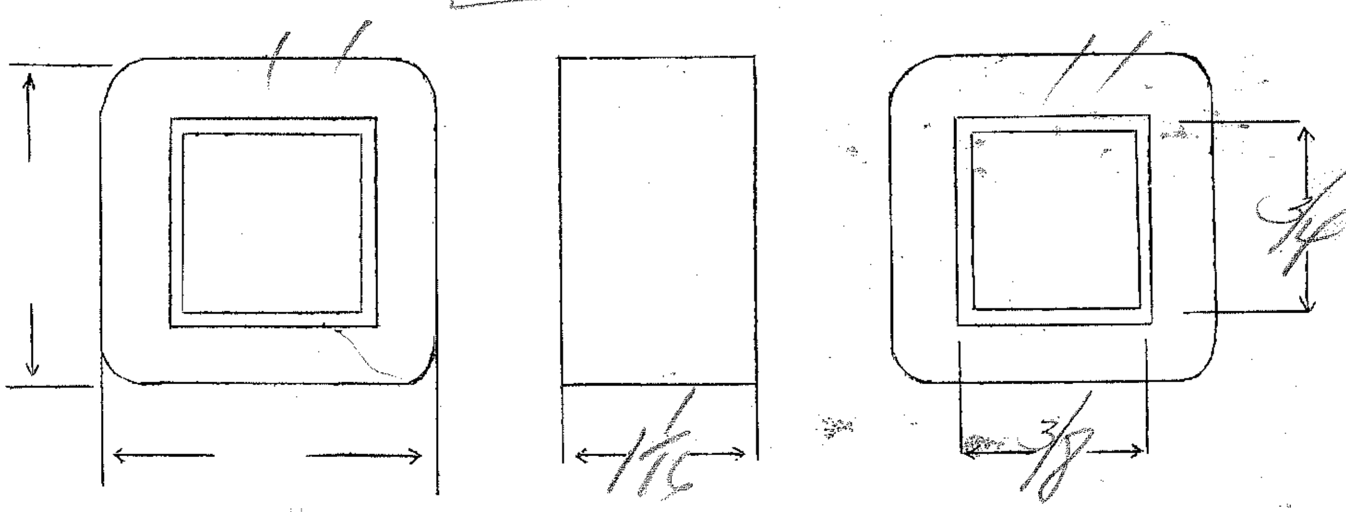
TUBE 52007 (B Brooks) IMPREGNATION Dunkle NM

CORE 3/8 x 3/4 (cut 3/4 each half) PRIMARY V.A.

MOUNTING uncased

2.25





DESIGNED BY Geo DATE 10/23/37

20 Ω to 100,000 Ω - High Fidelity

SPEC. NO. 2994

two coils

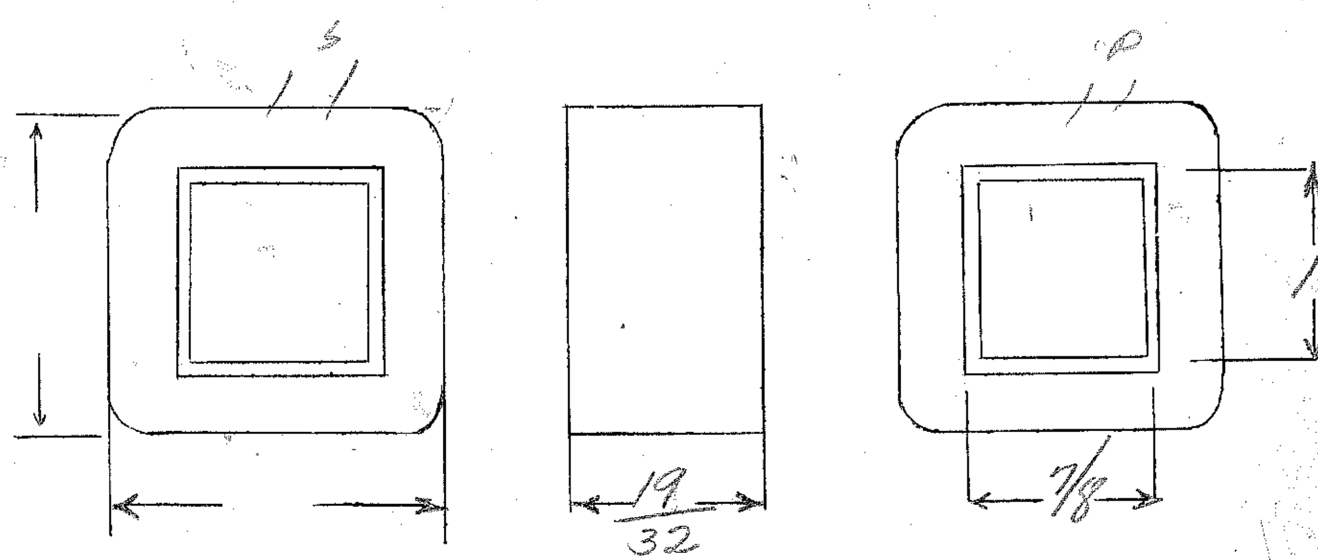
Winding	SEC	PRI					
Turns	5500	78					
Taps	—						
Wind. Lgth.	7/16	7/16					
Wire Size	#41	#24					
T. P. L.	128-43	18-5					
Kind Term.	Sil Br						
Term. Lgth.	6"	6"					
Layer Insul.	16#	50#					
Test Volt.							
Wrapper	1200 VC 6L G	2100 5 OH					

TUBE TL007 | IMPREGNATION WAX

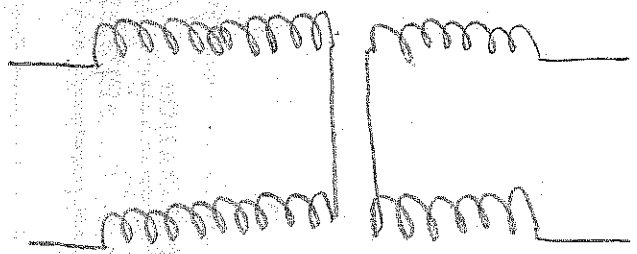
CORE 7/8 H - A-annealed - 2x2 | PRIMARY V.A.

MOUNTING HA

over



DESIGNED BY GW DATE 10/13/37



P.P. Par 2A3 to PP Eimac 100TH

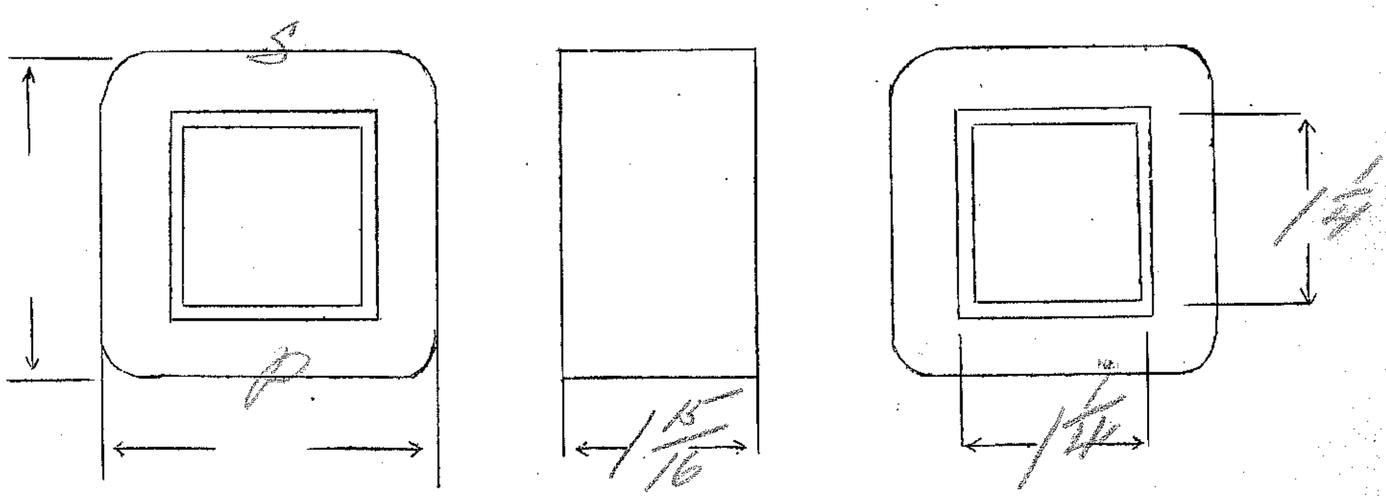
2000 Ω to 4000 & 6000 ohms

SPEC. NO. 2995

Winding	PRI	SEC					
Turns	2000	3500					
Taps	1000	405	1750	3100			
Wind. Lgth.	1 5/8	1 5/8					
Wire Size	#30	#30					
T.P.L.	135	135					
Kind Term.	#20 Par Braid						
Term. Lgth.	9"	9"					
Layer Insul.	Double 16#						
Test Volt.	2500						
Wrapper	~~2400TH~~ 6LH 3400SGA						

TUBE	7007 Hwood VC	IMPREGNATION	VARNISH
CORE	1 1/4 X 1 1/4 - 29 Ga B - 2x2	PRIMARY V.A.	
MOUNTING	A		

See Blue CT
White 4000
Red 6000



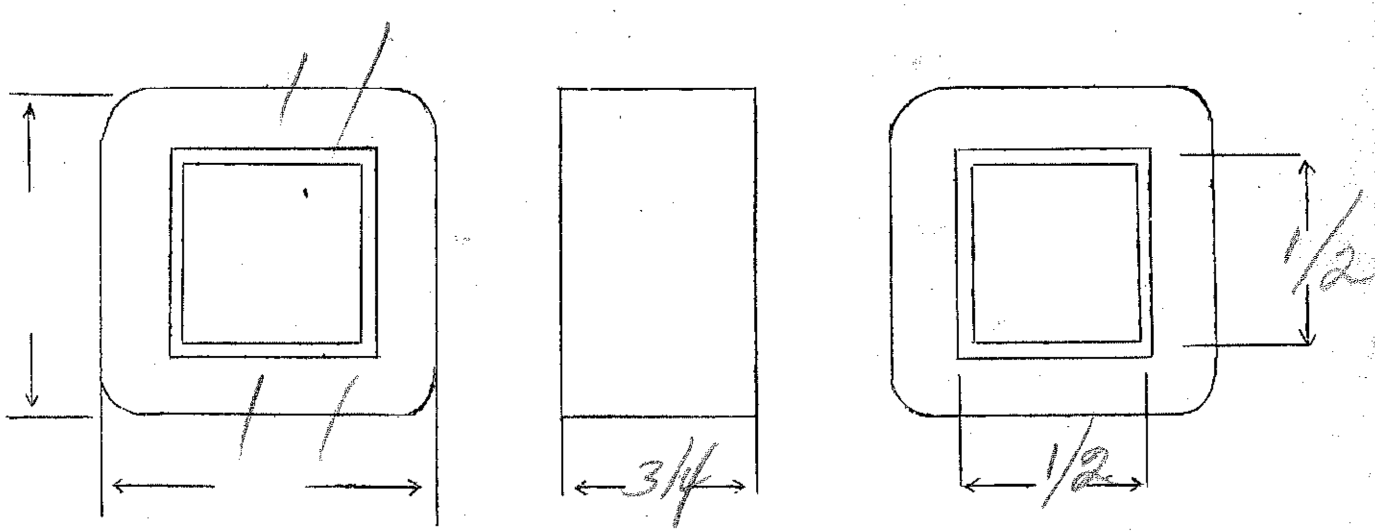
DESIGNED BY KAW DATE 10/28/39

200 Ω to grid

SPEC. NO. 2996

Winding	SEC	PRI					
Turns	7600	320					
Taps	—	—					
Wind. Lgth.	5/8						
Wire Size	#41	#34					
T.P.L.	185-38	80-4					
Kind Term.	Sil Braid						
Term. Lgth.	3"	3"					
Layer Insul.	12 #	20 #					
Test Volt.							
Wrapper	1005VC	2105GA					

TUBE	5L007	IMPREGNATION	WAX
CORE	1/2 x 1/2 – 2 x 2 stack	PRIMARY V.A.	
MOUNTING	D		



DESIGNED BY [signature] DATE 10/19/37

50 Ω to 8000 - 9000 - 10000 - 11000 - 12000 Ω - 50 cycl

130 ma primary - 4 watt - high efficiency

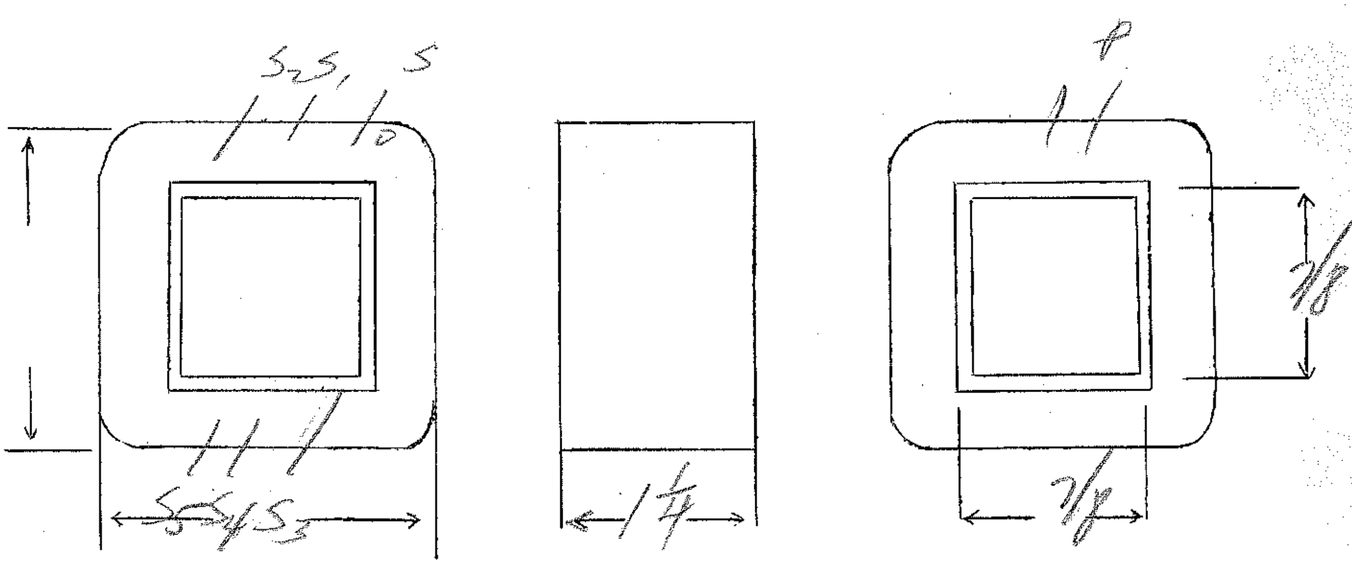
SPEC. NO. 2997

Winding	PRI	SEC					
Turns	370	6200					
Taps		5870	5480	5075	4700		
Wind. Lgth.	1 1/16						
Wire Size	#27	#37					
T.P.L.	63-6	195-32					
Kind Term.	Sil Br						
Term. Lgth.	4"						
Layer Insul.	30 #	20 #					
Test Volt.							
Wrapper	1400 VC	2400 SGA					

TUBE 56037 — IMPREGNATION VARNISH

CORE 7/8 X 7/8 - Butt stack, ... — PRIMARY V.A.

MOUNTING D



DESIGNED BY DW DATE 10/21/37

Filter Choke 7.81 henries
400 V
2 mfd

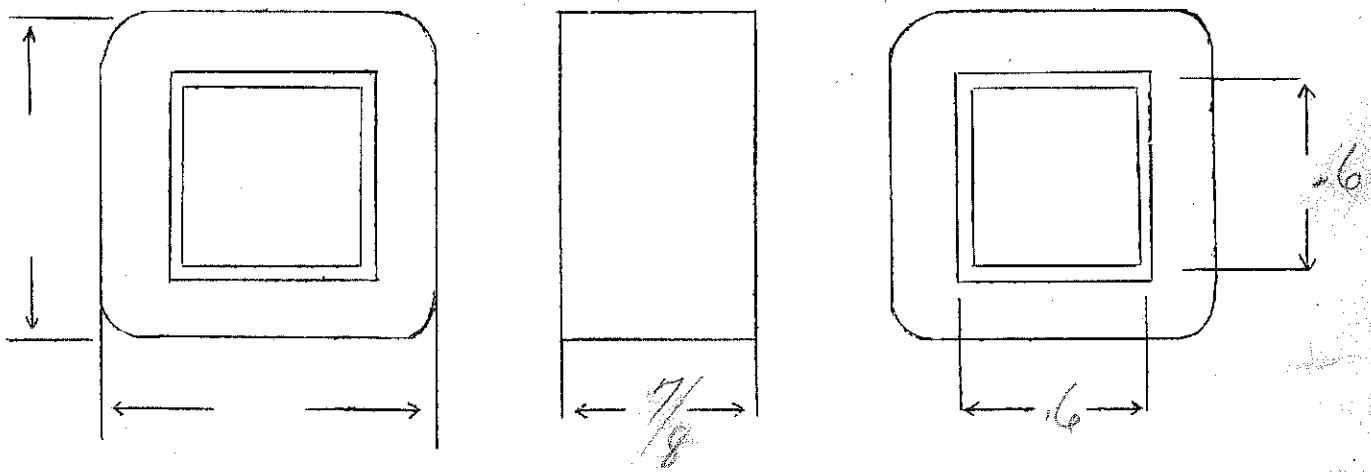
SPEC. NO. 2998 Coil

Winding							
Turns	3450						
Taps	—						
Wind. Lgth.	3/4"						
Wire Size	36						
T.P.L.	124-28						
Kind Term.	S.I.B.						
Term. Lgth.	3"						
Layer Insul.	2061						
Test Volt.							
Wrapper	2L005						

TUBE 4L007 | IMPREGNATION |

CORE .6 | PRIMARY V.A. |

MOUNTING



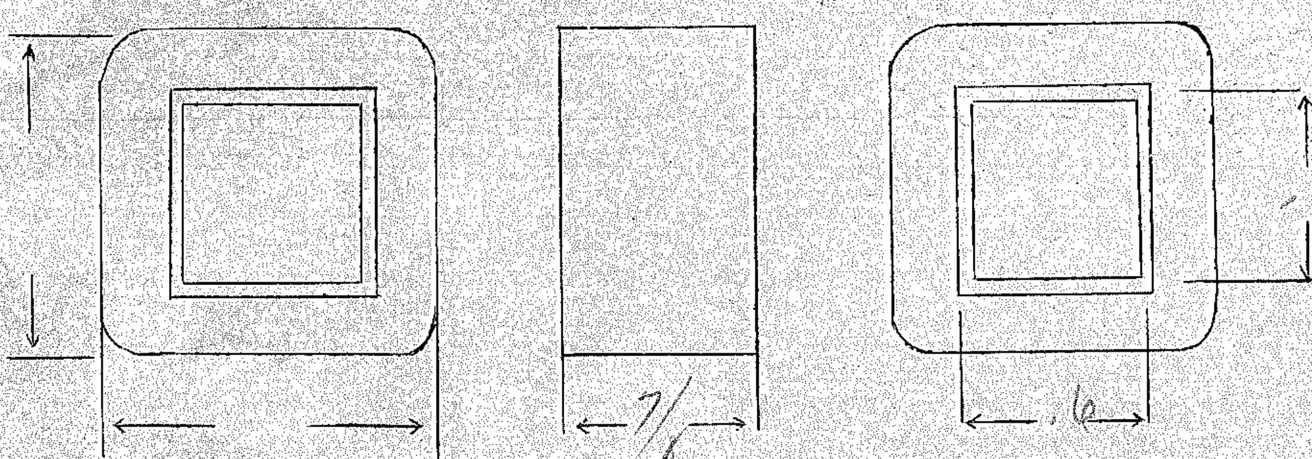
DESIGNED BY DATE

Filter Choke = 1.04 henries .139
160 Ω .016
1 mfd .155

SPEC. NO. 2999 Coil

Winding							
Turns	1220						
Taps	—						
Wind. Lgth.	3/4						
Wire Size	32						
T.P.L.	79-16						
Kind Term.	Sol Br						
Term. Lgth.	3"						
Layer Insul.	30#						
Test Volt.							
Wrapper	2L005						

TUBE	1L007	IMPREGNATION	
CORE	.6	PRIMARY V.A.	
MOUNTING			



DESIGNED BY DATE