TRANSCEIVER INPUT

NEW STOCK

Single Button Mike Plate
to
Single Grid

SPEC. NO. ~~D951~~ A800

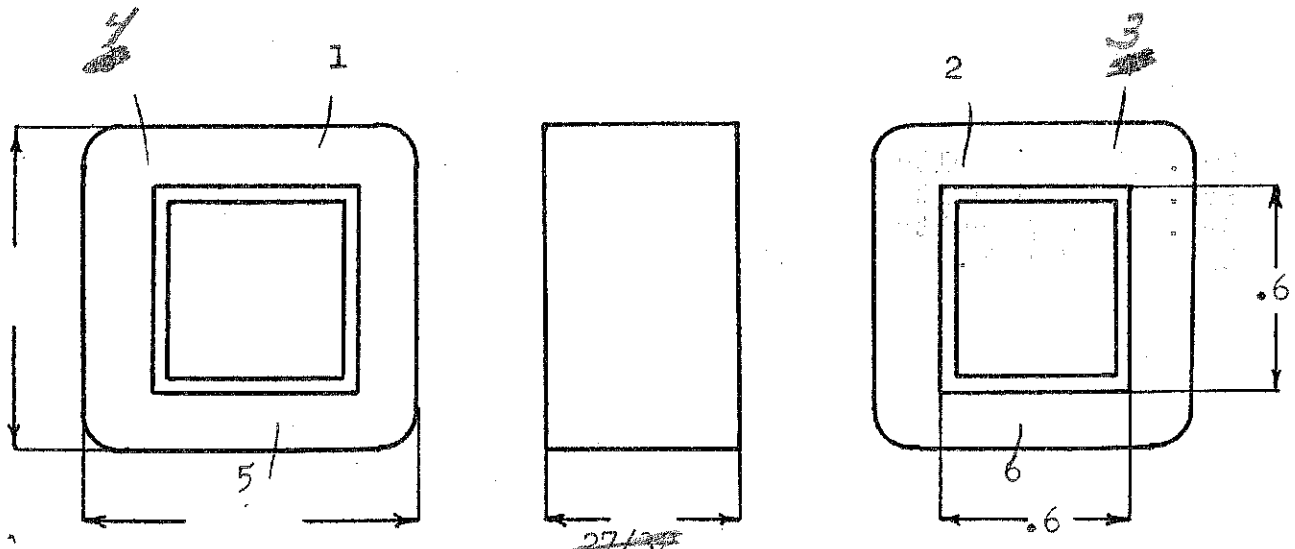
Winding	1-2 Pri. #1		3-4 Sec.		5-6 Pri. #2		
Turns	2000		4900		230		
Taps	---		---		---		
Wind. Lgth.	11/16		11/16		11/16		
Wire Size	#40		#40		#33		
T. P. L.	182-11L		182-27L		77-3L		
Finish	90%		90%		86%		
Type Lead	~~Silver Braid~~		~~Silver Braid~~		~~Silver Braid~~		
Lead Lgth.	~~3"~~ 9"		~~3"~~ 9"		~~3"~~ 9"		
Layer Insul.	16#		16#		16#		
Test Volt.	1250		1250		1250		
Wrapper	.047 1L005VC		.116 1L005VC		~~.026~~ 1L005GA		

TUBE	5L007GK	IMPREGNATION	Varnish

CORE .6 x .6 GA. 29 GRADE B STACK Butt no gap

MOUNTING D - ~~Lugs~~ Leads

T. P. V.
Window - .249/.297 = 84%



DESIGNED BY E. E.

DATE

DESIGN AND TEST DATA

Rating:

T - 4900 -2000 -230
Tr - 21.3 -8.7 -1
Zr - 454 -75.7 -1
Z - 45,400 -7570 -100

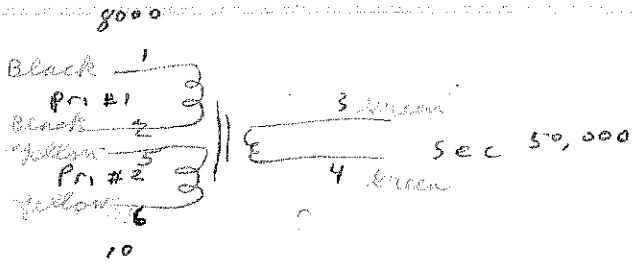
Winding	Pri. #1	---	Sec.	---	Pri. #2	---	
Mean Turn	2.83		3.47		4.03		
Resistance 25° c	504		1510		16.9		
Pounds Copper	.0145		.0434		.012		
Copper Density	---		---		---		
Ratio Volts	49		110		5.17		
Test to Ground	1250		1250		1250		

Iron Induction _____ @ _____ Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Pri. #1 120 volts
Pri. #2 11 volts
Sec. 230 volts
Ix 70 Ma.

DESIGN AND TEST DATA

Rating:				
	T	4900	-2000-230	
	T_R	21.3	8.7	1
	Z_R	454	75.7	1
	Z	45,400	7570	100

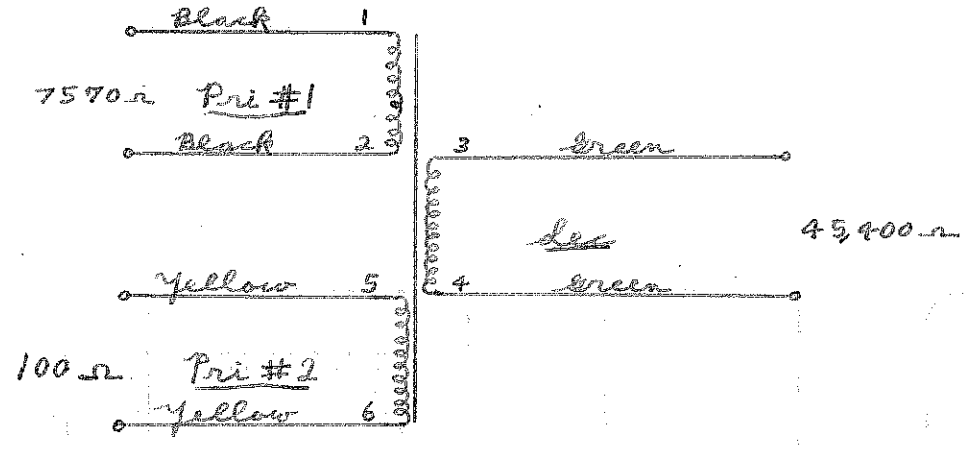
Winding	Pri #1	Sec	Pri #2				
Mean Turn	2.83	3.47	4.03				
Resistance 25° c	504	1510	16.9				
Pounds Copper	.0145	.0434	.012				
Copper Density	—	—	—				
Ratio Volts	49	110	5.17				
Test to Ground	1250	1250	1250				

Iron Induction _____ @ _____ Cycles

Exciting Current 70 milli amperes @ 117 volts 60 cycles on 1-2

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

Remarks:



Transceiver Input
Single Button mike Plate
to
Single Grid

New stock

SPEC. NO. A 800
See D 951

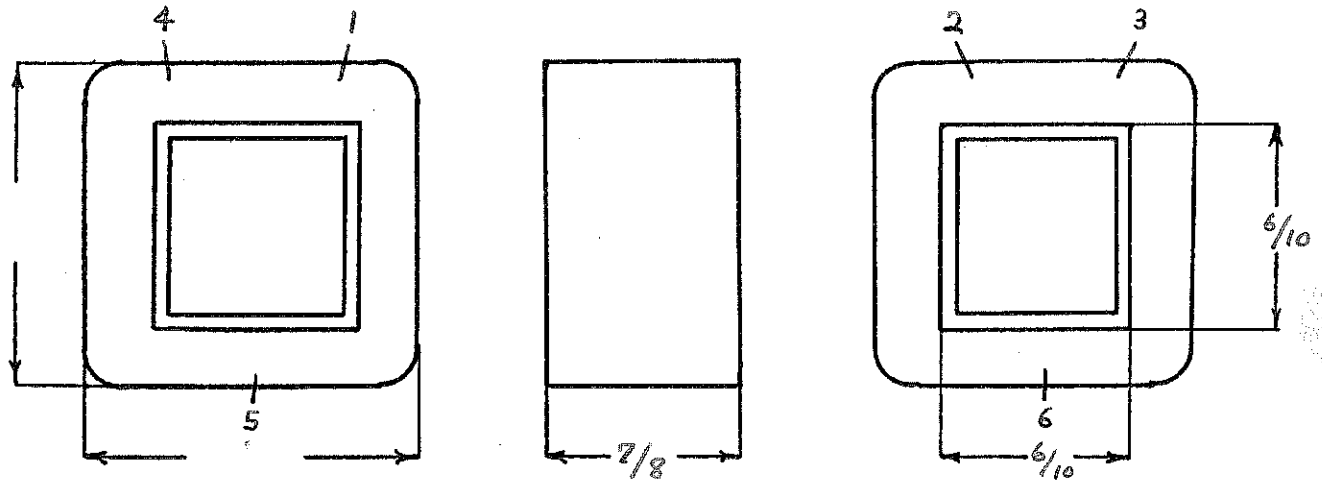
	1-2	3-4	5-6				
Winding	Pri #1	Sec	Pri #2				
Turns	2.000	4900	230				
Taps	—	—	—				
Wind. Lgth.	11/16	11/16	11/16				
Wire Size	#40	#40	#33				
T. P. L.	182-11L	182-27L	77-3L				
Finish	90%	90%	86%				
Pitch							
Type Lead	#22 P.B.	#22 P.B.	#22 P.B.				
Lead Lgth.	cut 9"	cut 9"	cut 9"				
Layer Insul.	16#	16#	16#				
Test Volt.	1250	1250	1250				
Wrapper	IL007VC	IL005VC	IL005GA				

TUBE	5L007GK	IMPREGNATION	Varnish

CORE 6/10 X 6/10 GA. 29 GRADE B STACK Butt no lap

MOUNTING D-Leads

Finish = 84%



DESIGNED BY H. W. S.

DATE 12-9-41

DESIGN AND TEST DATA

Rating:				
	T	4900	-2000-230	
	T_R	21.3	8.7	1
	Z_R	454	75.7	1
	Z	45,400	7570	100

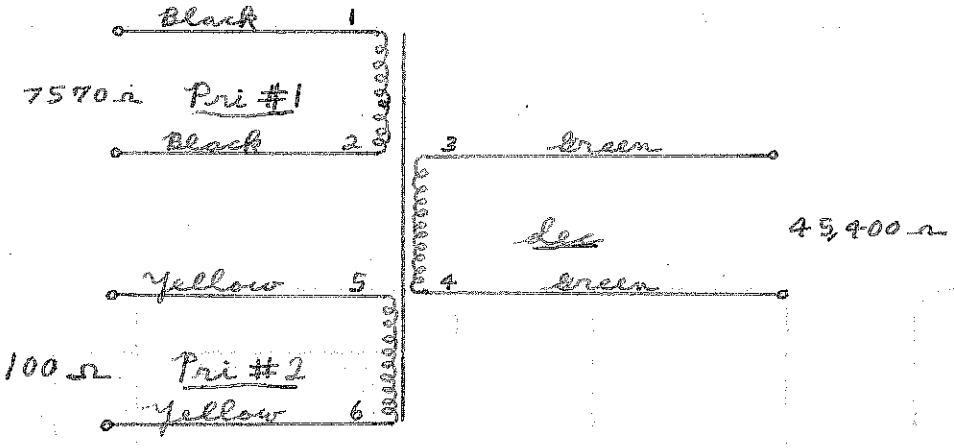
Winding	Pri #1	Sec	Pri #2				
Mean Turn	2.83	3.47	4.03				
Resistance 25° c	504	1510	16.9				
Pounds Copper	.0145	.0434	.012				
Copper Density	—	—	—				
Ratio Volts	49	110	5.17				
Test to Ground	1250	1250	1250				

Iron Induction _____ @ _____ Cycles _____

Exciting Current 70 milli amperes @ 117 volts 60 cycles on 1-2

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

Remarks:



Radio Television Power Supply

E_p = 105 – 110 – 115 V.

E_s = 600 V.C.T. – 50 Ma.

E_{f_1} = 5V – 3 amps

E_{f_2} = 6.3V – 6 Amps

$\frac{N}{E} = 5.15$

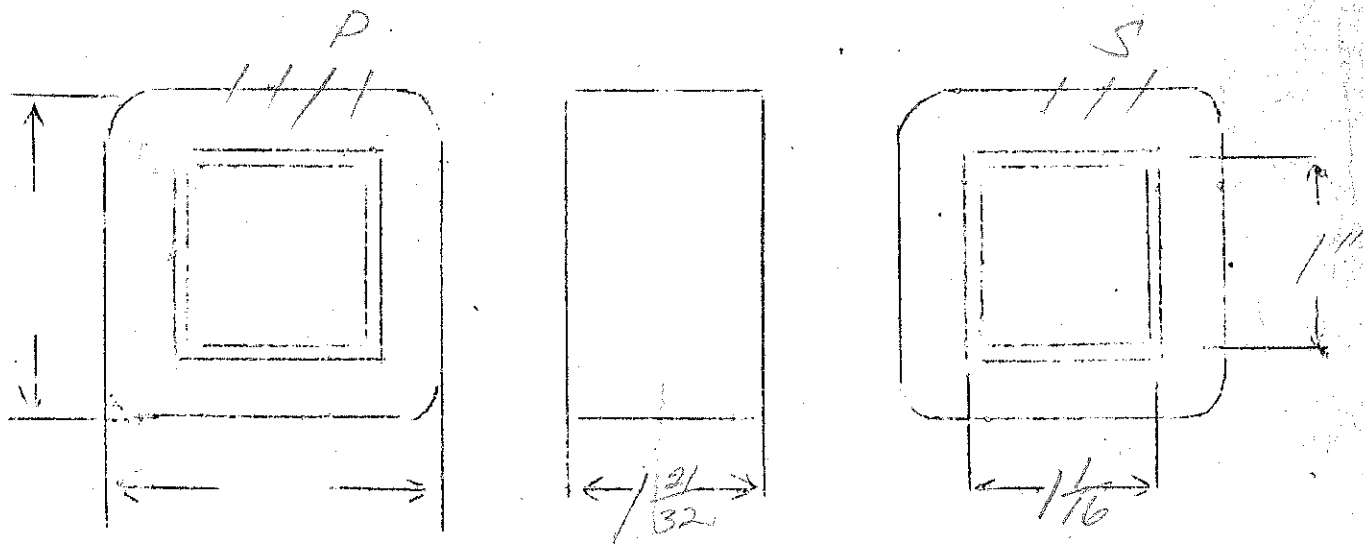
$\frac{57}{15} = \frac{1}{15}$ (C?)

SPEC. NO. 801

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	593	61	3500	28	36		
Taps	566 340	—	1750	14	18		
Wind. Lgth.	$1\frac{15}{32}$	$1\frac{15}{32}$	$1\frac{15}{32}$	—	—		
Wire Size	#24	#24	#35	#18	#15		
T.P.L.	61	61	200-18	—	—		
Kind Term.	wire	wire	Sil 62	wire			
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	30#	—	20#	—	—		
Wrapper	2L005VC	2L005VC	2L005GA	2L005GA	—		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | $1\frac{1}{16} \times 1$"



Input

New stock

single Button mike to single grid

TR = 22.5 : 1 200/50 ohms to 100,000

SPEC. NO. A802

Winding	1-2 Sec	3-4-5 Pri					
Turns	8600	384					
Taps	—	192					
Wind. Lgth.	7/8	7/8					
Wire Size	#40	#29					
T. P. L.	227 ~~225~~ -38L	64 - 6L					
Finish Pitch	90%	89%					
Type Lead	#22 P.B.	#22 P.B.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	12 #	30 #					
Test Volt.	1000	1000					
Wrapper	1L005VC	2L005GA					

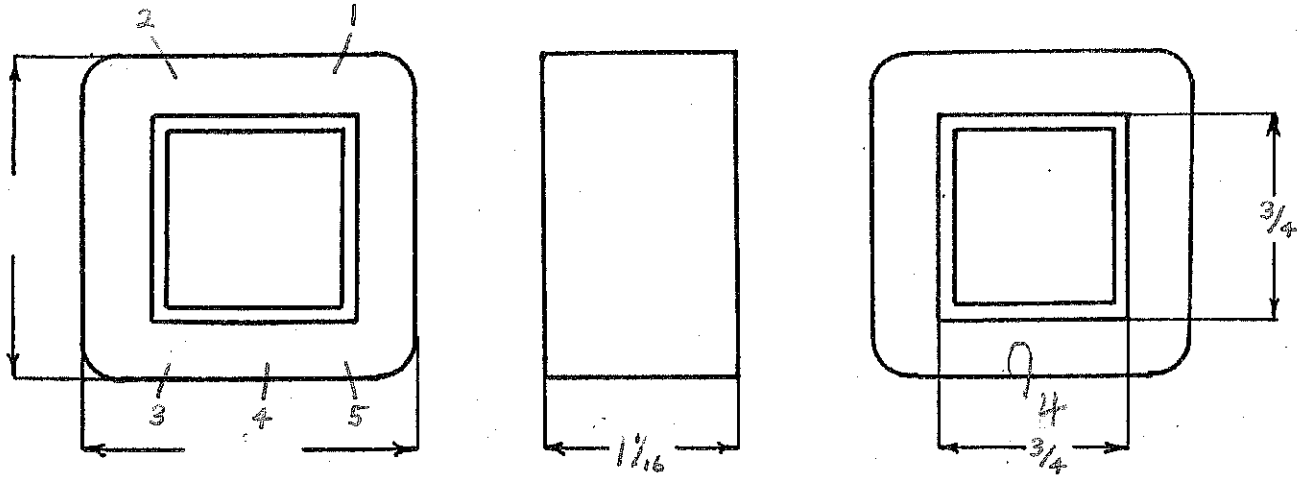
TUBE ~~5~~L010GK+1L003CA

IMPREGNATION Varnish

CORE 3/4 x 3/4 GA. 29 GRADE B STACK Butt no cap

MOUNTING D-Leads

Imp = 81 ~~80~~%



DESIGNED BY S. BABCOCK

DATE 6-17-49

DESIGN AND TEST DATA

Rating:

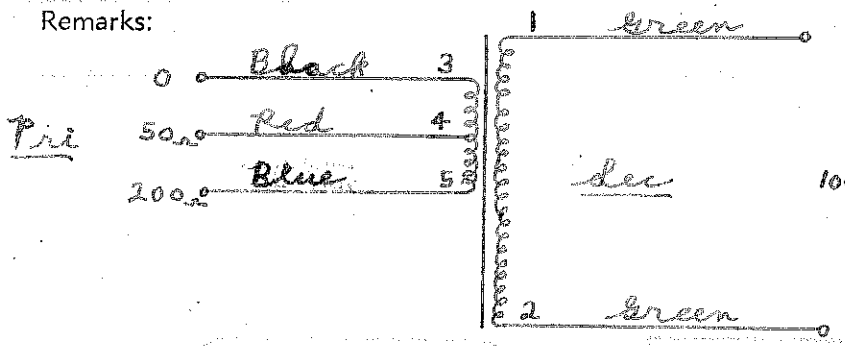
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current 1 ma amperes @ 120 volts 60 cycles on 1 – 2

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

Remarks:



pri sec

$Z = 200 - 100{,}000$

$50 - 100{,}000$

$Z_R = 1:500$

$1:2000$

$T_R = 1:22.3$

$1:44.7$

Input

New Stock

Single Button Mike to Single grid.

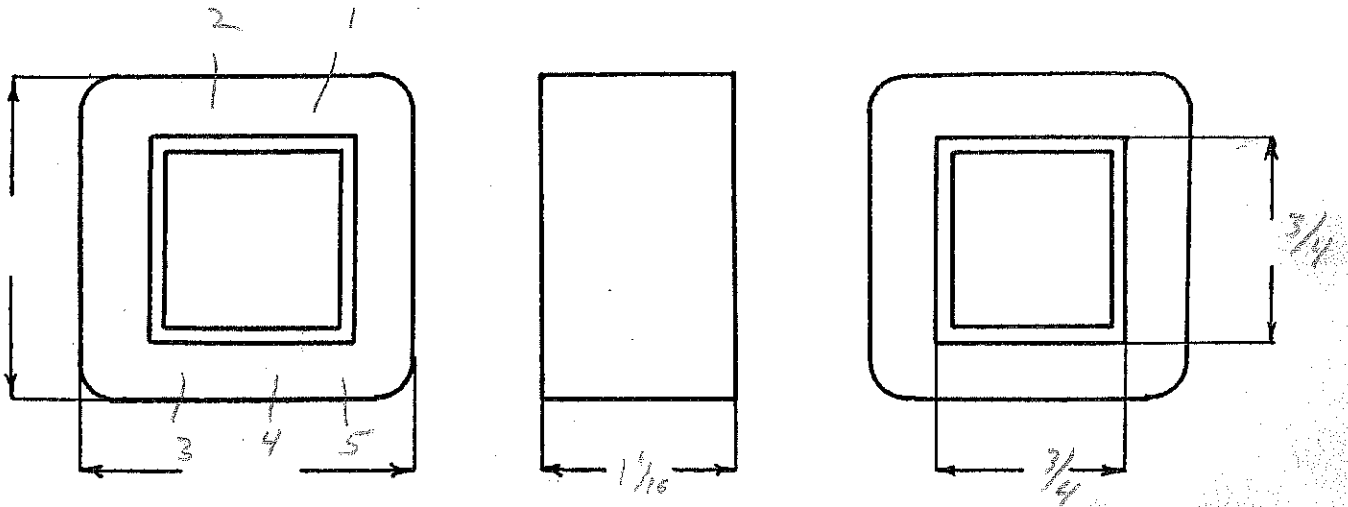
TR = 22.5 : 1 200/30 ohms to 100,000

SPEC. NO. A 802

Winding	1 - 2 Sec	3 - 4 - 5 Pri					
Turns	8600	384					
Taps	—	192					
Wind. Lgth.	7/8	7/8					
Wire Size	#40	#29					
T. P. L.	225 — 3 3L	6T — 6L					
Finish Potash	90%	89%					
Type Lead	#22 P.E.	#22 C.B.					
Lead Lgth.	9"	9"					
Layer Insul.	12 1/2 #	30#					
Test Volt.	1000	1000					
Wrapper	1L 005 VC	2L 005 GP					

TUBE	5L 010 GT		IMPREGNATION	Varnish	
CORE	3/4 X 3/4	GA. 29	GRADE B	STACK	Butt Interlap
MOUNTING	D. - Leads				

$\mu m = 52\%$



DESIGNED BY S. Babcock

DATE 6-17-48

DESIGN AND TEST DATA

Rating:

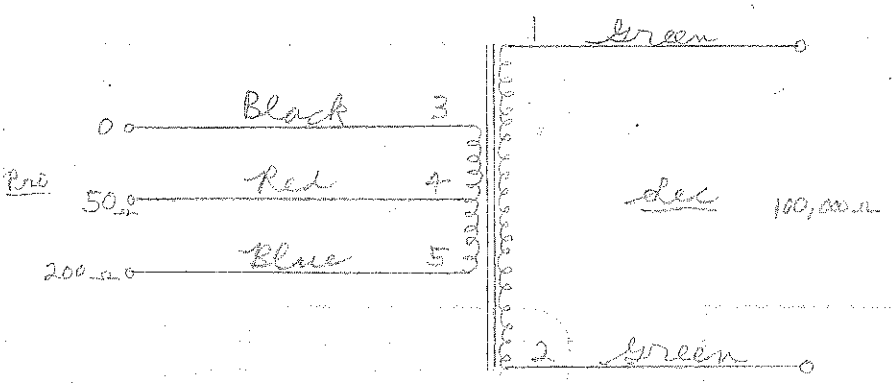
Winding	1–2 Sec	3–4–5 Pri					
Mean Turn	3.96	4.88					
Resistance 25° c	3040	13.06					
Pounds Copper	.0872	.0611					
Copper Density	—	—					
Ratio Volts	86	3.84					
Test to Ground	1000	1000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Pri Sec

$Z = 200 - 100,000$
$50 - 100,000$

$Z_R = 1:500$
$1:2000$

$T_R = 1:22.3$
$1:44.7$

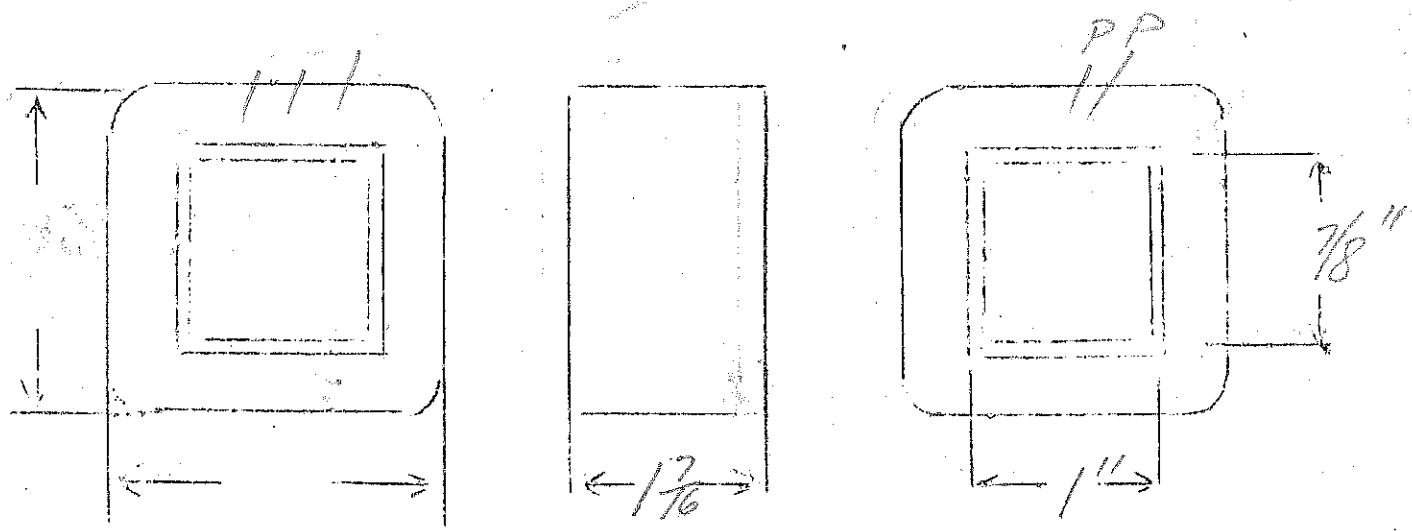
E_p = 230V.
E_s = 600V – 40MA.
E_{F_1} = 5V – 2 amps
E_{F_2} = 2.5V – 5 amps

Same as #209 – 230 volt primary

SPEC. NO. 802

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	1380	98	4060	33	17		
Taps	—	—	2030	—	—		
Wind. Lgth.	1.25	1.25	1.25	—	—		
Wire Size	#30	#30	#36	#21	#17		
T.P.L.	98-14	98	210	—	—		
Kind Term.	P.Braid	S.Braid	P.Braid	WIRE	ONLY		
Term. Lgth.	9"	3"	9"	9"	9"		
Layer Insul.	30#	—	25#	—	—		
Wrapper	KRAFT	KRAFT	KRAFT	—	→		

TUBE	4007	IMPREGNATION	VARNISH
CURE	1 X 7/8 (HR)		



E_p = 1150 volts — Silverman

E_s = 650 volts — 50 ma — $S = 1580$

E_{f_1} = 5v — 2 amps — $\frac{K}{E} = 6.6$

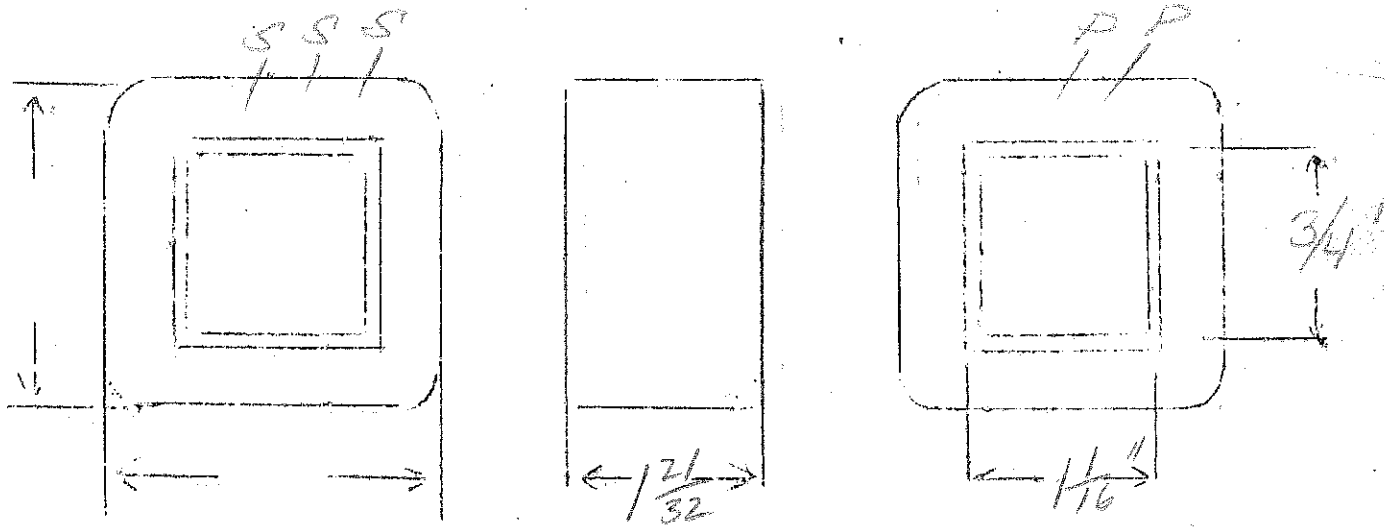
E_{f_2} = 2.5v — 5 amps

SPEC. NO. 803

Winding	PRI	SHIELD	SEC.	F_1	F_2		
Turns	790	79	4600	36	18		
Taps	—	—	2300	—	9		
Wind. Lgth.	$1\frac{15}{32}$	$1\frac{15}{32}$	$1\frac{15}{32}$	—	—		
Wire Size	#26	#26	#36	#20	#16		
T.P.L.	79-10	79	234-20	—	—		
Kind Term.	#20 Rbr	wire	#22 Rbr	wire only			
Term. Lgth.	9"	5"	9"	9"	9"		
Layer Insul.	30#	—	20#	—	—		
Wrapper	2 coats	2 coats	2 coats	2 coats			

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | $\frac{1}{16}$ & $\frac{3}{4}$



E_P = 120V – 2 amps

E_S = 750V – 100 Ma

E_{F_1} = 2.5V – 4 amps

E_{F_2} = 5V – 3 amps

E_{F_3} = 6.3V – 4 amps

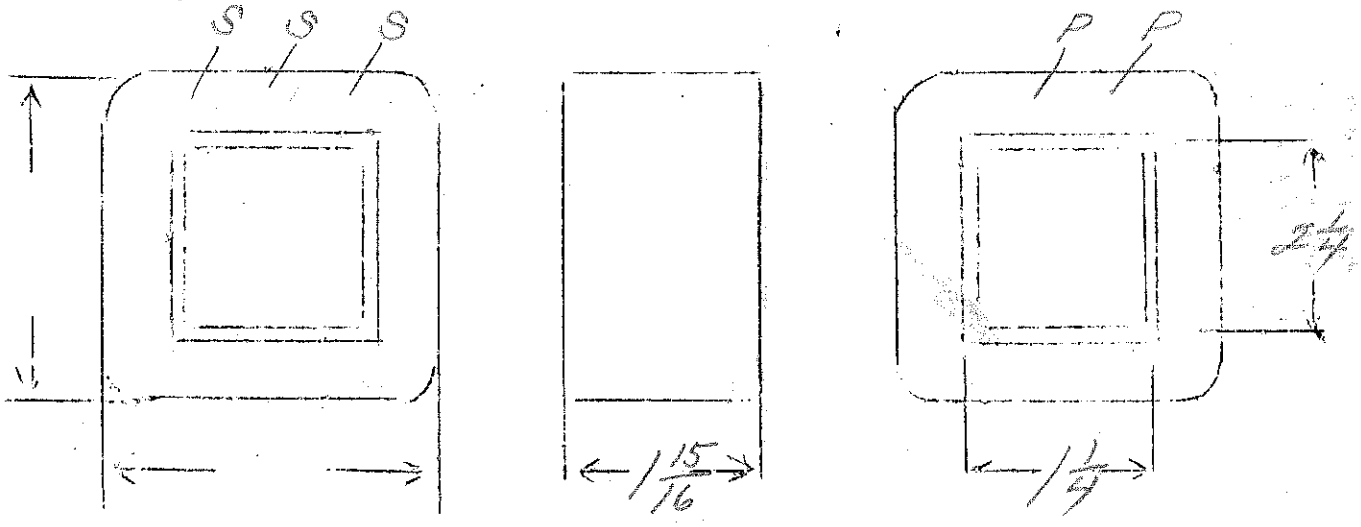
$\frac{N}{E}$ = 4.1

SPEC. NO. 804 – 35 CYC.

Winding	PRI	SHIELD	SEC	F_1	F_2	F_3	
Turns	500	204	3520	23	29	12	
Taps	—	—	1760	—	—	6	
Wind. Lgth.	1.75	1.75	1.75	—	—	—	
Wire Size	#22	#33	#33	#18	#17	#17	
T.P.L.	56-9	204	204/18	—	—	—	
Kind Term.	#22 Braid	Sil Braid	#20 Braid	Lure	—	—	
Term. Lgth.	9"	3"	9"	9"	9"	9"	
Layer Insul.	40#	—	20#	—	—	—	
Wrapper	2L007C	2L007C	2L056A	2L095A			

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1½ x 2½



Intercom Input

New Stock

4 ohms to 100,000 ohms

SPEC. NO. A804

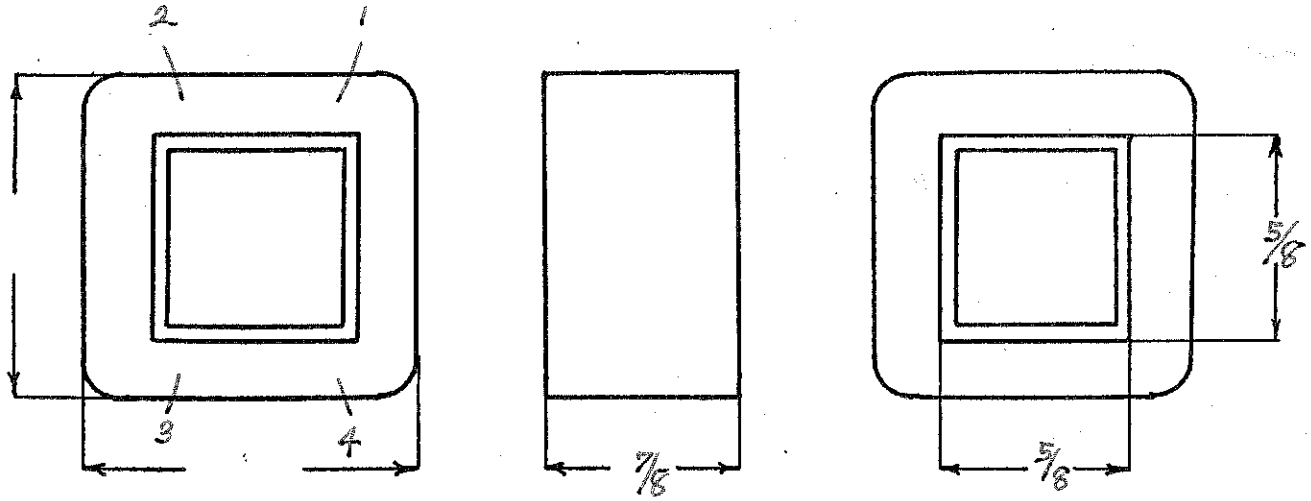
Winding	1-2 Sec	3-4 Pri					
Turns	7150	45					
Taps	—	—					
Wind. Lgth.	11/16	11/16					
Wire Size	#41	#22					
T. P. L.	188-38L	23-2L					
~~Finish~~ Patch	85%	90%					
Type Lead	#26 Audio	#22 P.B.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	12½ #	60#					
Test Volt.	750	500					
Wrapper	1L003CA 1L60#	1L007GA					

TUBE 4L010 GK + 1L001CA | IMPREGNATION Varnish

CORE 5/8 x 5/8 | GA. 29 | GRADE D | STACK Butt no lap

MOUNTING D - Leads

non = 83%



RE-DESIGNED BY A. Hadley

DATE 7-2-51

DESIGN AND TEST DATA

Rating:

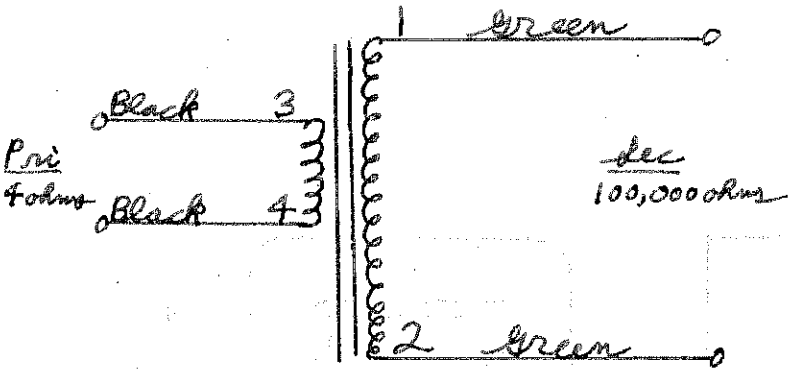
Winding	1-2 Sec	3-4 Pri					
Mean Turn	3.34	4.13					
Resistance 25° c	272.0	.260					
Pounds Copper	.0500	.0312					
Copper Density							
Ratio Volts	73.0	0.46					
Test to Ground	750	500					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Intercom Input

4 ohms to 100,000 ohms

New Stock

SPEC. NO. A 804

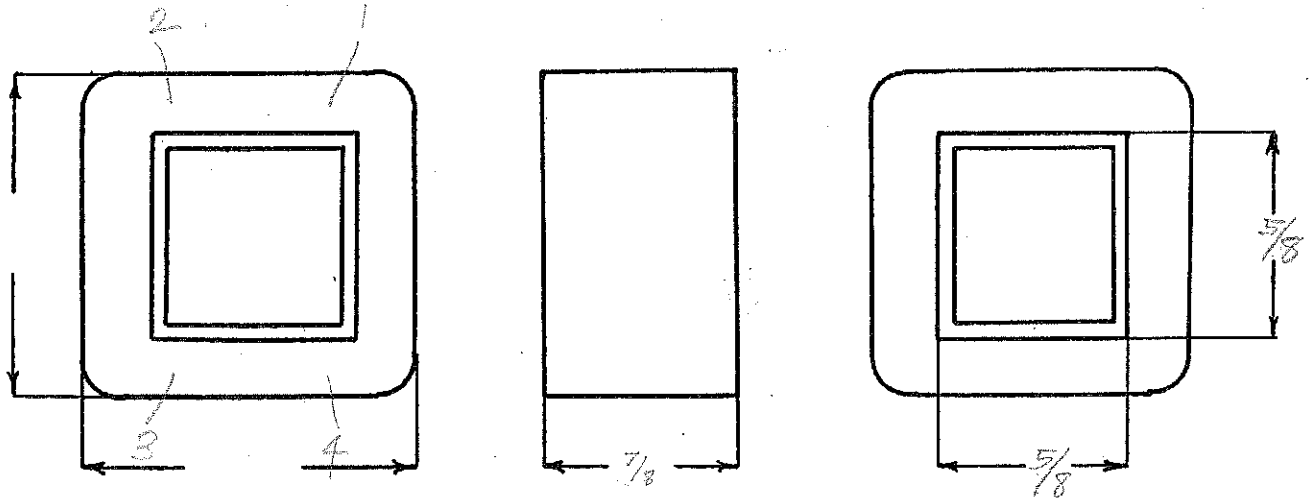
Winding	1-2 sec.	3-4 Pri.					
Turns	7150	45					
Taps	—	—					
Wind. Lgth.	11/16	11/16					
Wire Size	#41	#22					
T. P. L.	188-38L	23 - 2L					
Finish Parkerized	85%	90%					
Type Lead	#26 Audio	# ... Pri. Bk.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	12½ #	60#					
Test Volt.	750	500					
Wrapper	1L003CA 1L60#	1L007GA					

TUBE 4L010GH+1L001CA IMPREGNATION Varnish

CORE 5/8 x 5/8 GA. 29 GRADE D STACK Butt no gap

MOUNTING D

wn = 83%



RE-DESIGNED BY A. Hadley

DATE 7-2-57

Intercom Input

4 ohms to 100000 ohms.

New stock

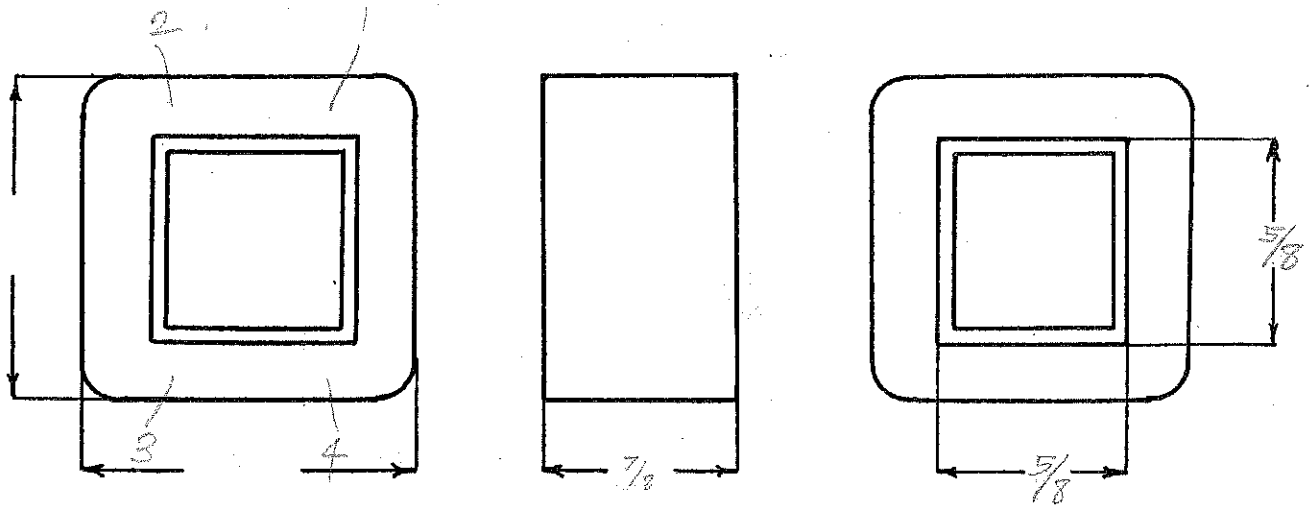
SPEC. NO. A 804

see D-2531

Winding	1-2 sec	3-4 Pri					
Turns	7150	45					
Taps	—	—					
Wind. Lgth.	11/16	11/16					
Wire Size	#41	#22					
T. P. L.	188-38L	23 - 2L					
Finish Painted	85%	90%					
Type Lead	#26 Audio	# Pr. Br.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	12½#	60#					
Test Volt.	750	500					
Wrapper	1L003CA 1L60#	1L007GA					

TUBE	4L010GH+1L001CA	IMPREGNATION	Varnish		
CORE	5/8 X 5/8	GA. 29	GRADE D	STACK	Butt no gap
MOUNTING	D				

wn = 83%



RE-DESIGNED BY A. Hadley

DATE 7-2-57

DESIGN AND TEST DATA

Rating:

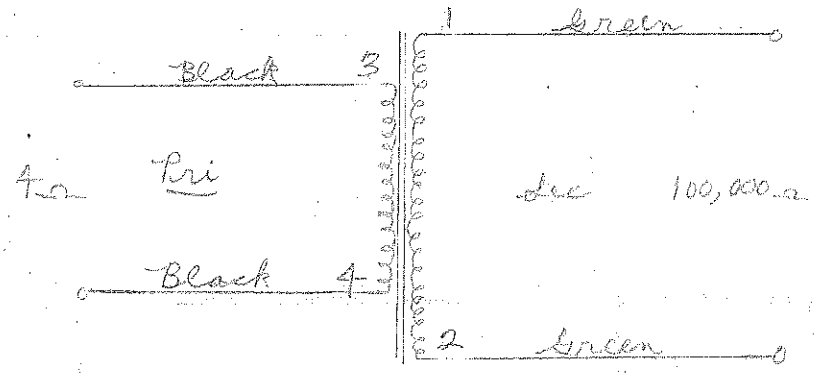
Winding	1-2 Sec	3-4 Pri					
Mean Turn	3.34	4.13					
Resistance 25° c	2720	.260					
Pounds Copper	.0500	.0312					
Copper Density	—	—					
Ratio Volts	73.	0.46					
Test to Ground	750	500					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = \frac{\text{pri}}{4} - \frac{\text{sec}}{100,000}$

$Z_R = 1 - 25,000$

$T_R = 1 - 158$

$T = 45 - 7158$

Intercom Input

4 ohms to 100,000 ohms

New stock

OBSOLETE

SPEC. NO. A804

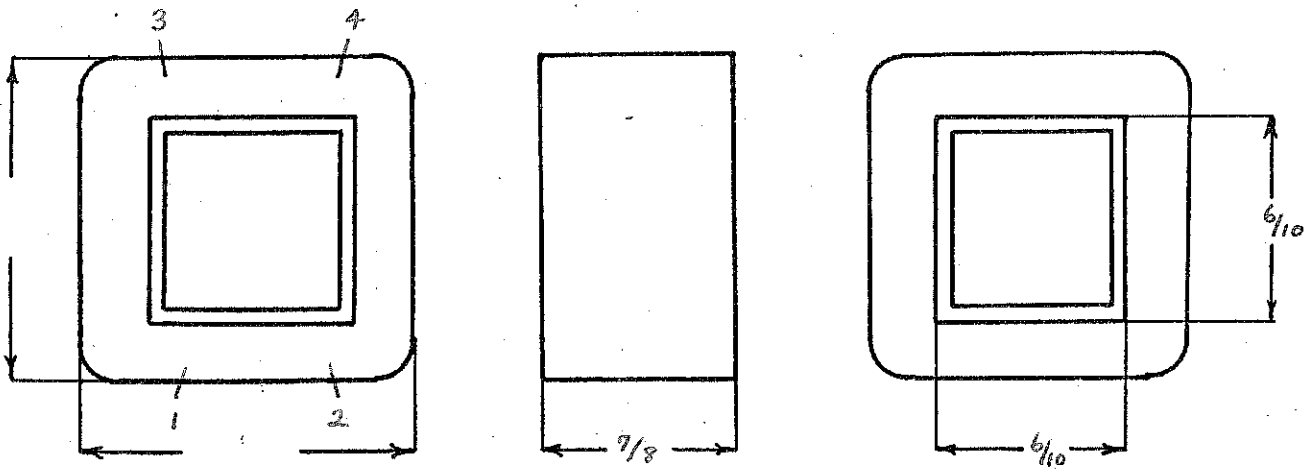
Lee D2539

	3-4	1-2					
Winding	Sec.	Pri.					
Turns	7300	46					
Taps	—	—					
Wind. Lgth.	3/4"	3/4"					
Wire Size	#40	#22		Redesign on 5/8" Core.			
T. P. L.	192 -38L	23 - 2L					
Finish Pitch	90%	82%					
Type Lead	#22 P.B.	#22 P.B.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	12 #	50 #					
Test Volt.	750 ~~1000~~	500 ~~1000~~					
Wrapper	1L0056A ~~1L0056C~~	1L0056A ~~2L0056A~~					

TUBE	4L010GK + 1L002CA	IMPREGNATION	

CORE 6/10 X 6/10 GA. 29 GRADE B STACK Butt No Gap

MOUNTING D - Leads



DESIGNED BY A. HADLEY

DATE 6-18-49

DESIGN AND TEST DATA

Rating:

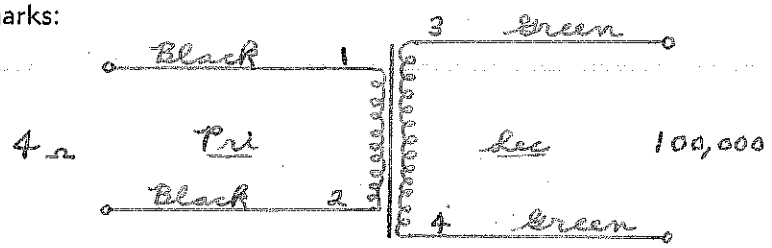
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current 1.5 ma amperes @ 100 volts 60 cycles on _____

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

Remarks:



pri sec
$Z = 4 - 100,000$

$Z_R = 1 - 25,000$

$T_R = 1 - 158$

Pri: 115

F1 10 V – 8 amps

F2 2½ V – 10 amp

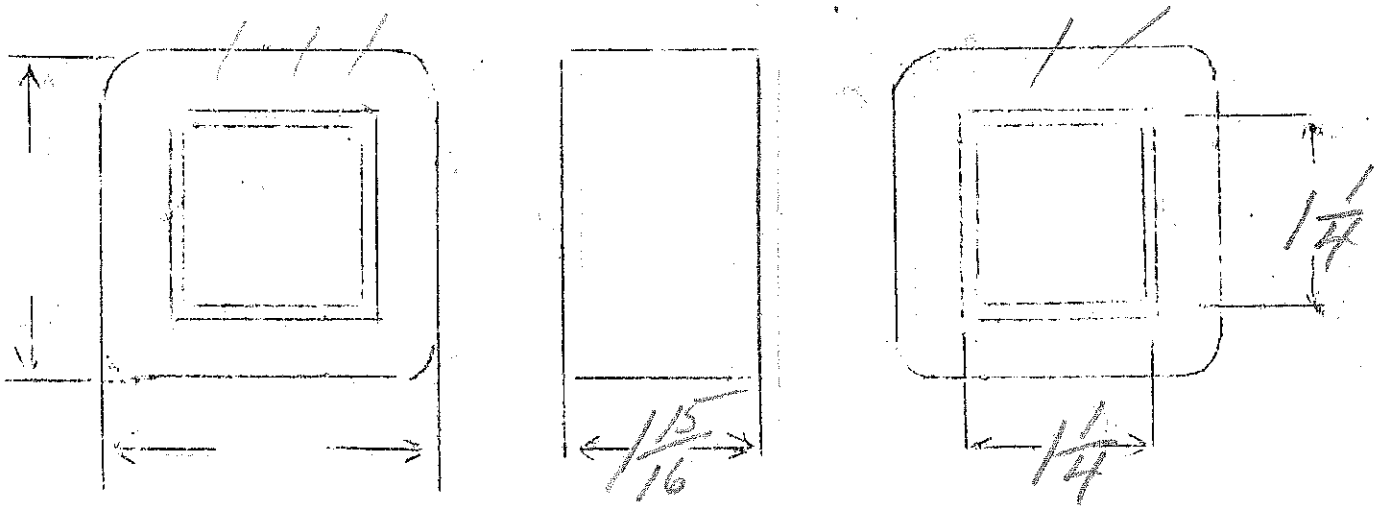
E – 3.62

SPEC. NO. 805

Winding	PRI	F1	F2				
Turns	418	40	10				
Taps	—	20	—				
Wind. Lgth.	1.75	—	—				
Wire Size	#21	2 layers	1 layer				
T.P.L.	53-8	#13	Double #16				
Kind Term.	WIRE	wire	wire				
Term. Lgth.	3"	3"	3"				
Layer Insul.	50#	—	—				
Wrapper	2L0070A	2L0076A	2L0070A				

TUBE 2L007 | IMPREGNATION VARNISH

CURE 1½ x 1½



E_P [illegible]

E_S = 2000 V – tap at 1750 – 1500 – 1250 – 250 ma

500 watts

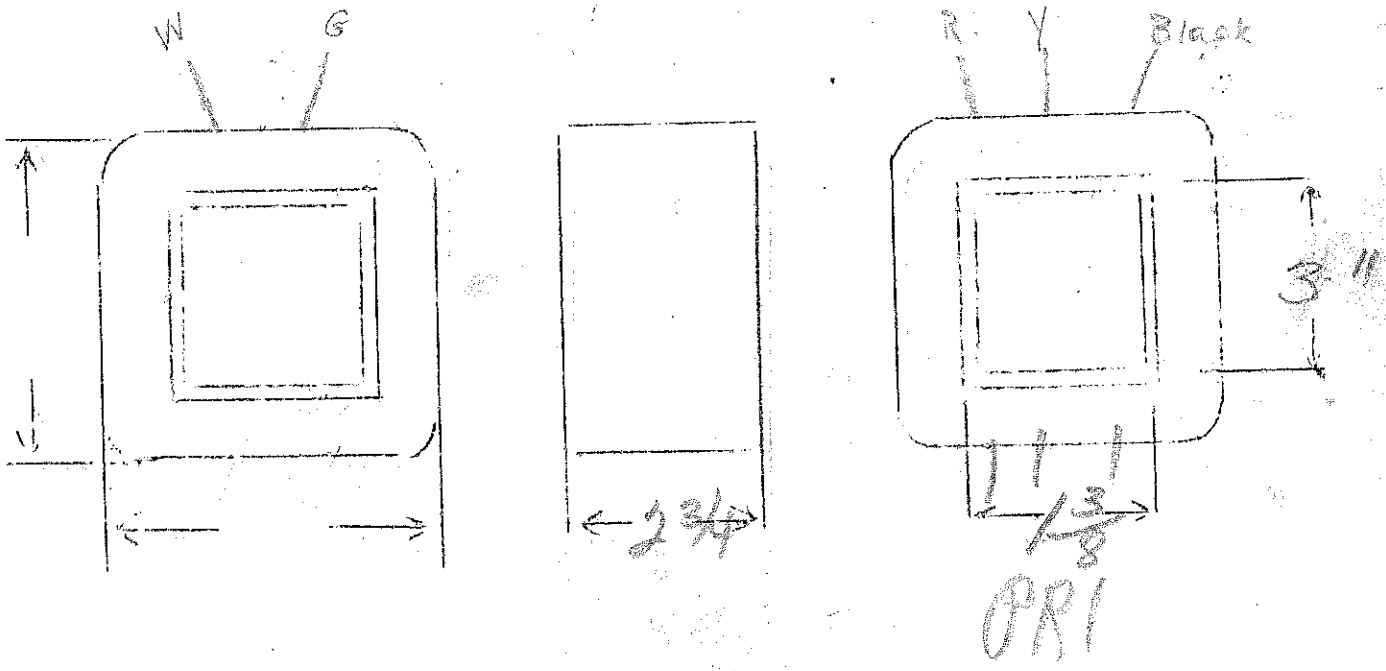
$\frac{N}{E} = 1.43$

SPEC. NO. 806

Winding	SEC	PRI					
Turns	3140 red 2740 grn. 2350 yellow 1960 white & blue	164					
Taps	—	—					
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#28	#15					
T.P.L.	160	345					
Kind Term.	#28 Wire	Wire					
Term. Lgth.	10"	10"					
Layer Insul.	50#						
Wrapper	2L007C 2L007GA	2L007GA					

TUBE | 1L007 + 1L007C | IMPREGNATION | VARNISH

CURE | 1 hr @ 135°



E_p = 115V
E_s = 2000V.C.T. 200ma
VA = 200 watts

RADIO TELEVISION

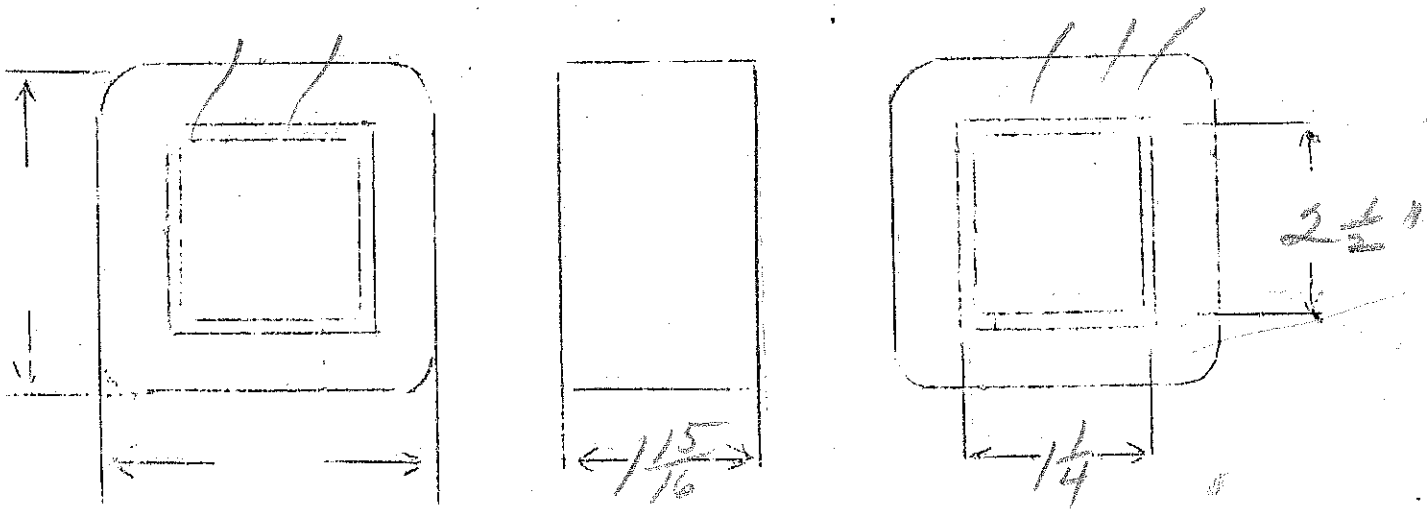
$\frac{N}{E}$ = 1.91

SPEC. NO. 807

Winding	SEC	PRI					
Turns	4140	220					
Taps	2070	—					
Wind. Lgth.	1 5/8						
Wire Size	#30	#19					
T.P.L.	149.28	38					
Kind Term.	#30 PBC	wire					
Term. Lgth.	9"	9"					
Layer Insul.	3#	.005"					
Wrapper	ALVAR ALUMGA	ALUMGA					

TUBE | 7L07 + 12.007VC | IMPREGNATION | VARNISH

CURE | 1½ X 2½



E_p = 115 V.

E_s = 10 V. - 10 amps VA = 100 $\frac{N}{E}$ = 4.63

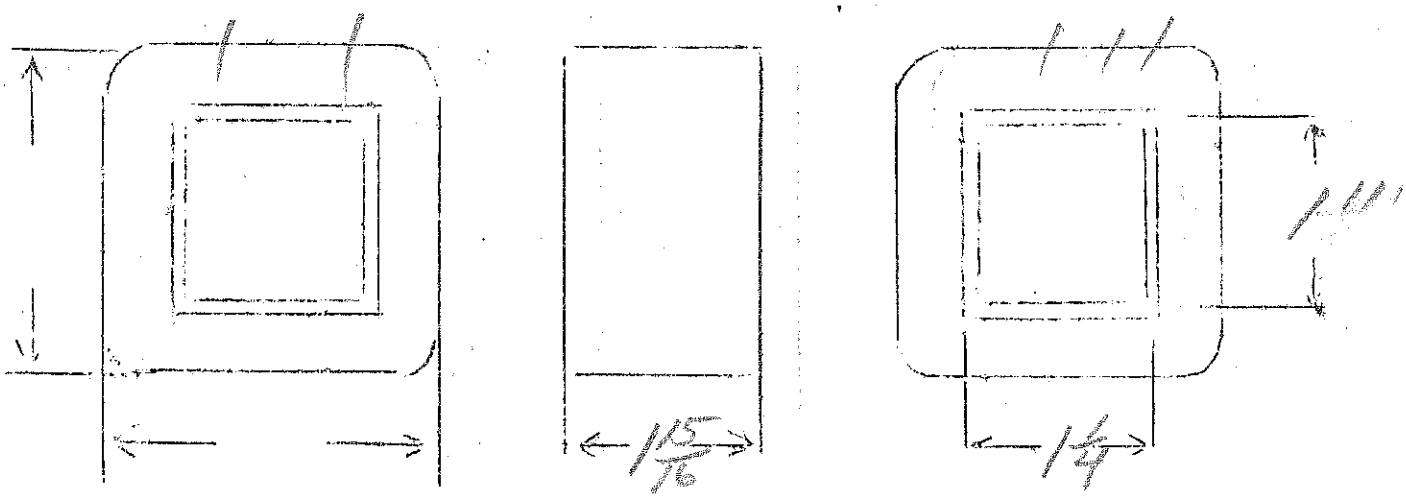
RADIO TELEVISION

SPEC. NO. 808

Winding	PRI	FIL					
Turns	535	51					
Taps	—	25					
Wind. Lgth.	1.75	1.75					
Wire Size	#22	#16					
T.P.L.	55-10	2 layers					
Kind Term.	wire	wire					
Term. Lgth.	3"	3"					
Layer Insul.	50#	2L007GA					
Wrapper	2L007GA	2L007GA					

TUBE | 7L007 | IMPREGNATION | VARNISH

CURE | 1½ x 1 NW



E_p = 114-117V

E_s = 1000 V C.T. - 150 Ma

E_{F_1} = 2.5 V - C.T. - 4 amps

E_{F_2} = 2.5 V - C.T. - 12 amps

E_{F_3} = 5 V - 3 amps

VA = 130

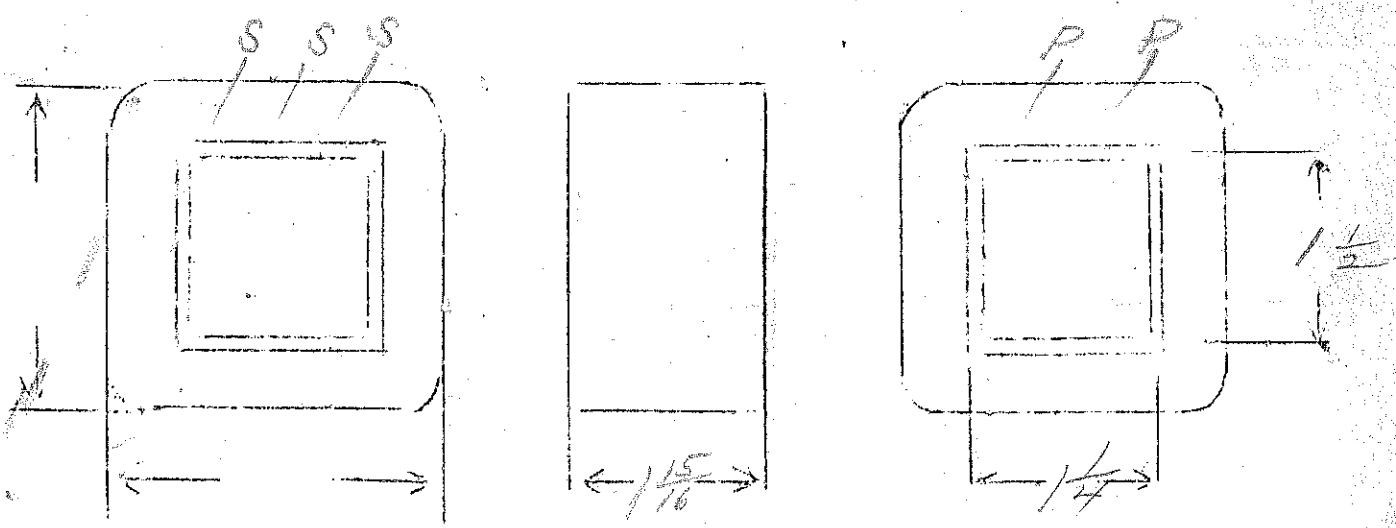
$\frac{1}{E}$ = 2.93

SPEC. NO. 809

Winding	SEC	SHIELD	PRI	F_1	F_2	F_3	
Turns	3250	165	540	16	8	8	
Taps	1625	—	502	—	4	4	
Wind. Lgth.	1.75	1.75	1.75	—	—	—	
Wire Size	#31	#31	#21	#18	Parallel #15	#12	
T.P.L.	165-32	165	574	—	Same layer		
Kind Term.	Silk mic	Silk Mic	Mic	Mic	Twist	Twist	
Term. Lgth.	3"	—			—		
Layer Insul.	3 #50	—	50 #	—	—	—	
Wrapper	2 Lao YC	2 Lao YC	2 Lao YSA	2 Lao YSA	2 Lao YSA		

TUBE | YL007 | IMPREGNATION | VARNISH

CURE | 1 hr X 1 1/2

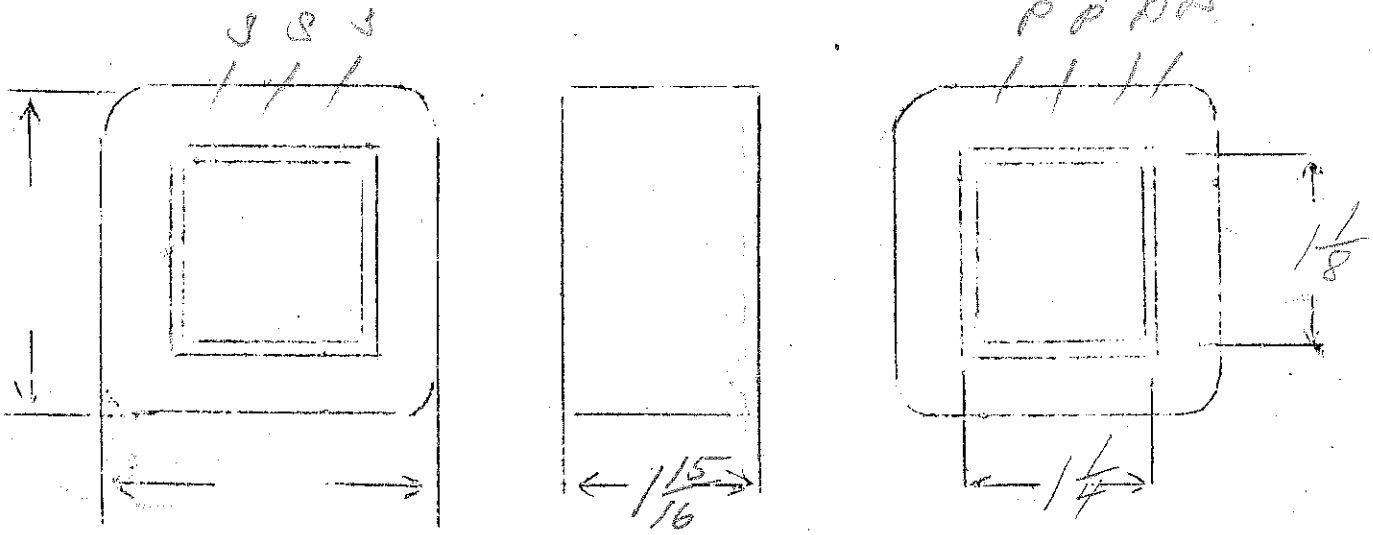


SPEC. NO. 810

Winding	SEC	Shield	Pri 1	Pri 2	F1	F2	
Turns	3160	1	490	490	23	29	
Taps	1580	—	—	—	—	—	
Wind. Lgth.	1 1/16	1 1/16	1 1/16	1 1/16	—	—	
Wire Size	#32	Brass	#25	#25	#17	#17	
T.P.L.	178-18	1	83-6	83-6	—	—	
Kind Term.	#22 Par		Par-Tubit	Par-Tubit	Cuivre	—	
Term. Lgth.	9"	3"	9"	9"	9"	9"	
Layer Insul.	30#		30#	30#	—	—	
Wrapper	2L007C 3L54	2L007C	2L007C	2L007C	2L007BA	2L007C	

TUBE | 2L007 | IMPREGNATION | Varnish

CURE | 1 hr x 125°



Interstage — New stock

10,000 ohms single plate @ 8 ma.
to
P-P grids 90,000 ohms

SPEC. NO. A 810
Use D 544

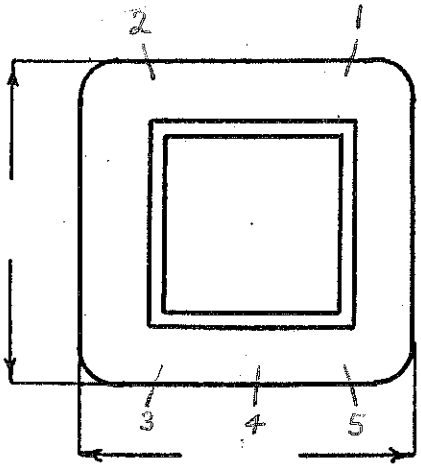
	1-2	3-4-5					
Winding	Pri	Sec					
Turns	3000	9000	Continuous Winding				
Taps	—	4500					
Wind. Lgth.	7/8	7/8					
Wire Size	#39	#39					
T. P. L.	214-14L	205-44L					
Finish Pitch	90%	90%					
Type Lead	#22 P.B.	#22 P.B.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	14#	14#					
Test Volt.	1500	1000					
Wrapper	1L003 C.A. 1L14# ~~1L005VG~~	2L005GA					

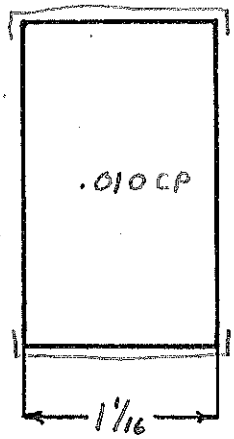
TUBE 5L007GK + 1L003 C.A. ~~1L005VG~~ IMPREGNATION Varnish

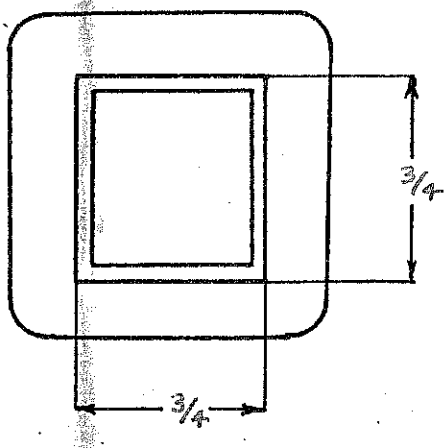
CORE 3/4 x 3/4 GA. 29 GRADE B STACK Butt no Lap

MOUNTING D - Leads

nm = 85%







RE-DESIGNED BY F. FRAZEE DATE 5-5-47

DESIGN AND TEST DATA

Rating:

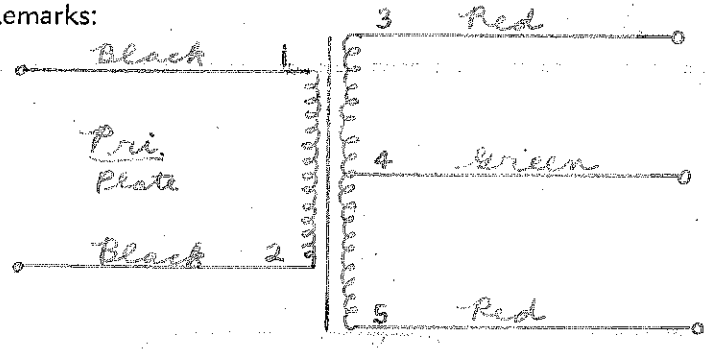
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles

Exciting Current 3 ma. amperes @ 9.5 volts 60 cycles on 3 - 4

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

Remarks:



$R_L = 10,000\ \Omega$ @ 8 ma.

$L = \frac{2.18 \times 10^{-8} \times 562 \times 3000^2}{.004 \times \frac{4.5}{1010}} = 19.0\ H$

.00845

for 2 db dn $X_p = .77 \times 10{,}000 = 7700$

freq for 2 db dn $= \frac{7700}{2\pi \times 19} = 64.5\ \sim$

$B_{DC} = \frac{34.9 \times 10^{-8} \times 565}{80 \times .495 \times 3000} = 1660$

$B_{DC} = \frac{.495 \times 3000 \times .008}{.004} = 2970$ $\Phi = .5$

$\Phi_0 = 1010$ Half of audio A

E_p = 110 - 120

E_F = 6.3 CT @ 8 amp

Not Xmfr

W/K - 4.06 SPEC. NO. A 811

Winding	Pri	Fil					
Turns	488	28					
Taps	446	14					
Wind. Lgth.	1.25	1.25					
Wire Size	#25	#14					
T. P. L.	58 - 9	16 - 2					
Finish							
Type Lead	H.O.	H.O.					
Lead Lgth.	3"	3"					
Layer Insul.	Ho ±	Mylar					
Test Volt.	1250	1250					
Wrapper	Hoosk	Hoosk					

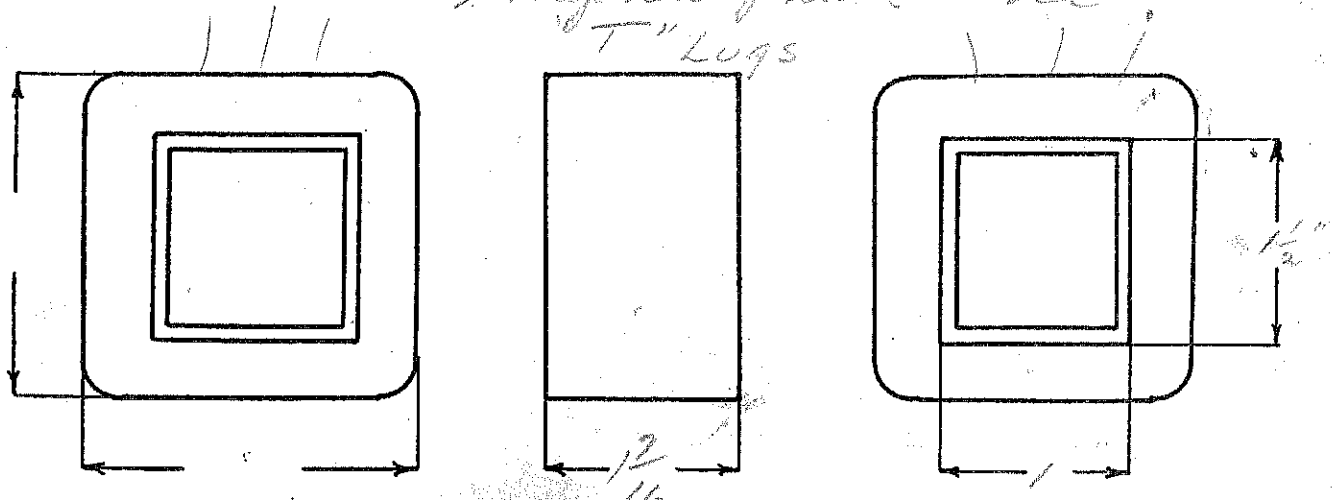
TUBE Hoo7K IMPREGNATION Varnish

CORE 1 x 1½ GA. 24 GRADE D STACK 2 x 2

MOUNTING "B"

Fil Wrap in panel Pri

"T" Lugs



DESIGNED BY J.C.A DATE 9/40

Interstage

New stock

Single Plate 10,000 ohms @ 8 ma.
to
P-P Grids 62,500 ohms
overall ratio 1:2.5

SPEC. NO. A 812
Sec. S-547-A

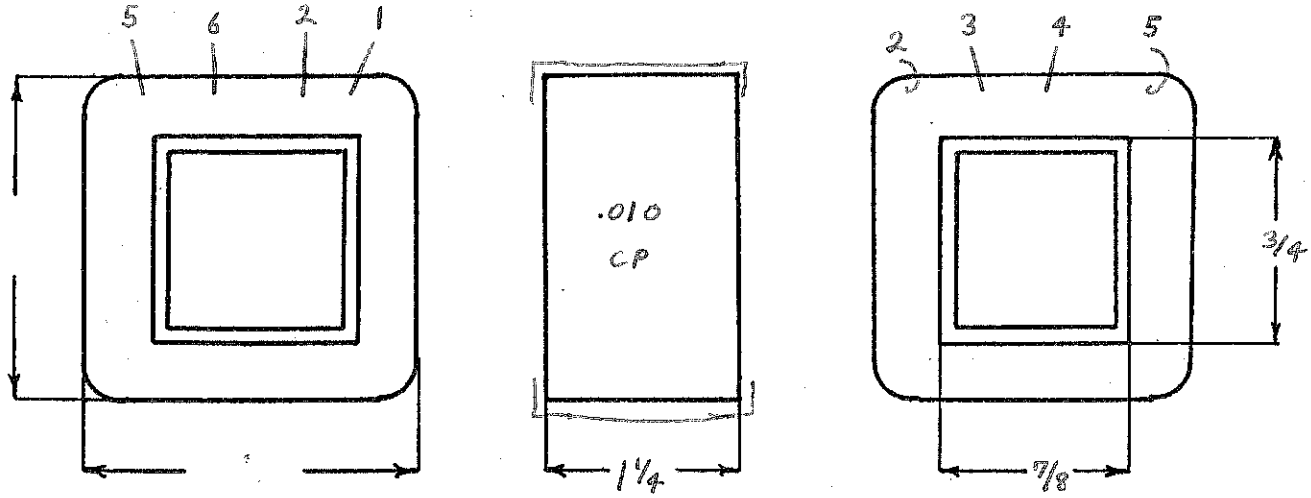
	1 – 2	3 – 4	5 – 6				
Winding	Sec #1	Pri	Sec #2				
Turns	6250	5000	6250				
Taps	—	—	—				
Wind. Lgth.	1 1/16	1 1/16	1 1/16				
Wire Size	#39	#39	#39				
T. P. L.	250-25L	250-20L	250-25L				
Finish	89%	89%	89%				
Type Lead	#22 P.B.	#22 P.B.	#22 P.B.				
Lead Lgth.	cut 13 1/2	cut 13 1/2	cut 13 1/2				
Layer Insul.	12 #	12 #	12 #				
Test Volt.	1000	1500	1000				
Wrapper	1L003CA 1L20# ~~1L005VC~~	1L003CA 1L20# ~~1L005VC~~	2L005GK ~~2L005VC~~ K				

TUBE	6L007GK+ ~~1L003VC~~ 1L002CA	IMPREGNATION	Varnish

CORE 7/8 X 3/4 GA. 29 GRADE B STACK Butt-no lap
Armite Lacquers

MOUNTING A

um = 90%



DESIGNED BY G.W.

DATE 3-18-38

DESIGN AND TEST DATA

Rating:

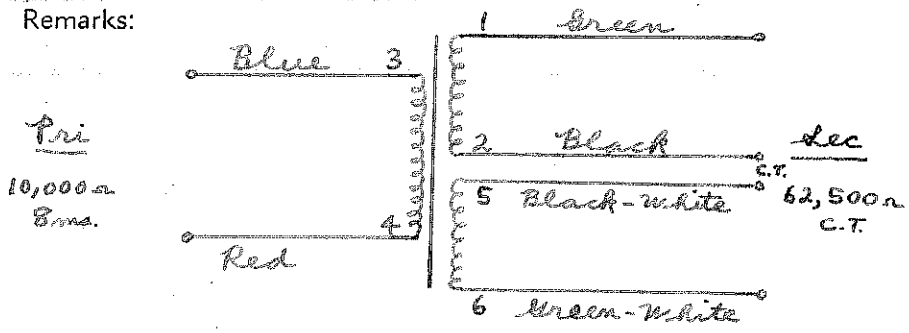
Winding	Sec #1	Pri	Sec #2				
Mean Turn	4.00	4.80	5.60				
Resistance 25° c	1768	1695	2475				
Pounds Copper	.081	.077	.113				
Copper Density							
Ratio Volts	137.5	110	137.5				
Test to Ground	1000	1500	1000				

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = 62,500 - 10,000$

$Z_R = 6.25 - 1$

$T_R = 2.5 - 1$

$T = 12,500 - 5,000$

INTERSTAGE

Single Plate 10,000 ohms @ 8 Ma. New STOCK
to
P-P Grids 62500 ohms
overall ratio 1:2.5

SPEC. NO. A 812

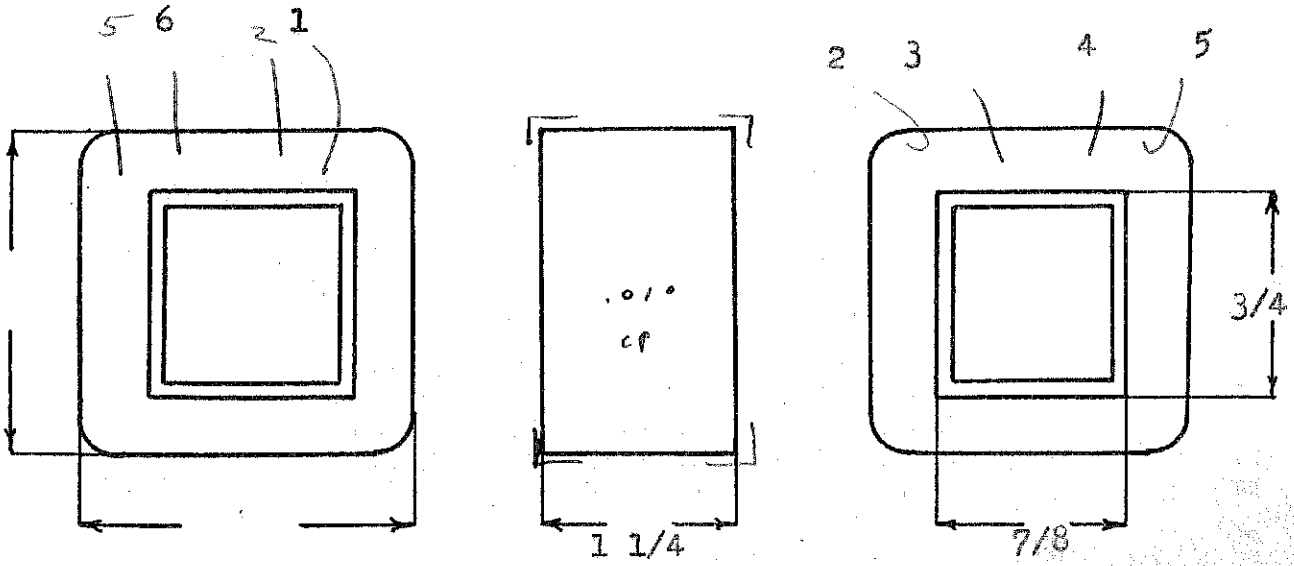
Winding	1-2 Sec #1		3-4 Pri		5-6 Sec #2		
Turns	6250		5000		6250		
Taps							
Wind. Lgth.	1 1/16		1 1/16		1 1/16		
Wire Size	#39		#39		#39		
T. P. L.	250-25L		250-20L		250-25L		
Finish	89%		89%		89%		
Type Lead	#22 Pr. Br.		#22 Pri.Br.		#22 Pr. Br.		
Lead Lgth.	9" Cut 13½		9" Cut 13½		9" Cut 13½		
Layer Insul.	~~1 #~~ 12 ½		~~1 #~~ 12 ½		~~1 #~~ 12 ½		
Test Volt.	1000		1500		1000		
Wrapper	1L005VC		1L005VC		2L005GA		

TUBE	6L007GK plus 1L003VB	IMPREGNATION	Varnish

CORE 7/8 x 3/4 GA. 29 GRADE B STACK Butt no gap
Armite keepers

MOUNTING A

T. P. V. —
window - .395/.4375 = 90.3%



DESIGNED BY DATE

DESIGN AND TEST DATA

Rating:

Winding	1-2 Sec. #1		3-4 Pri.		5-6 Sec #2		
Mean Turn	4.00		4.80		5.60		
Resistance 25° c	1768		1695		2475		
Pounds Copper	.081		.077		.113		
Copper Density							
Ratio Volts	137.5		110		137.5		
Test to Ground	1000		1500		1000		

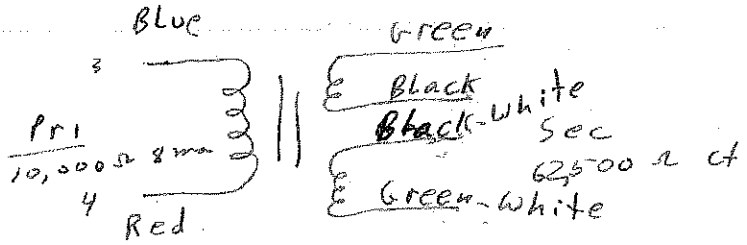
Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

Z = 62,500 - 10,000
Zr = 6.25 - 1
Tr = 2.5 - 1
T = 12,500 - 5,000



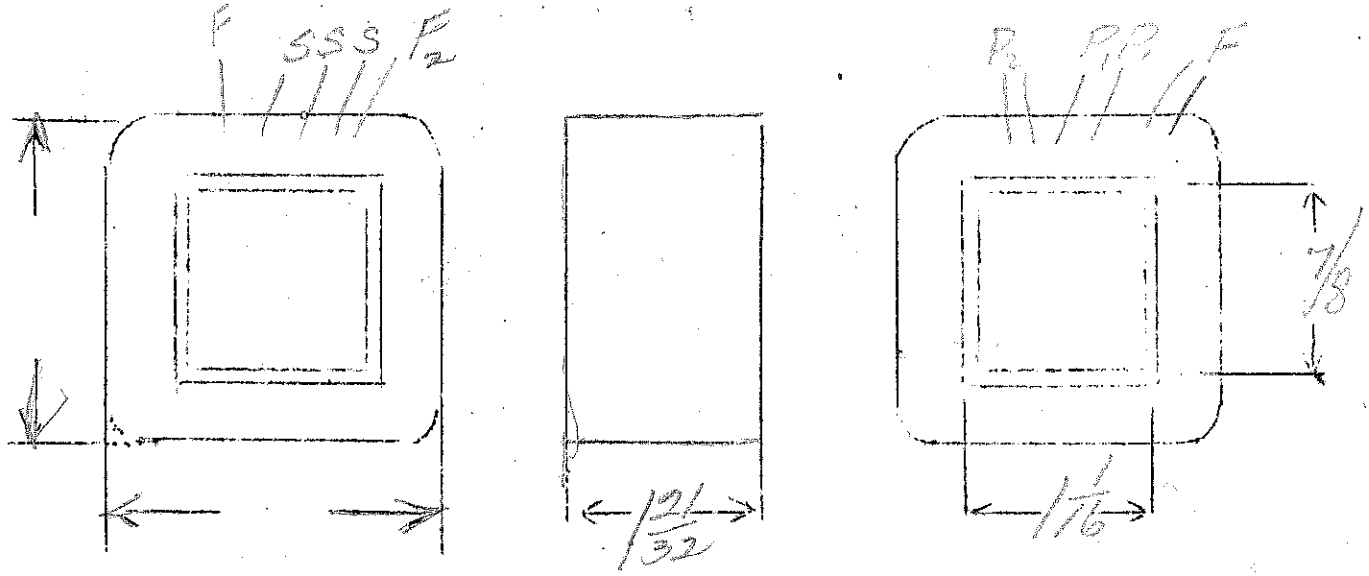
Ep – 115 V A.C. or 6V D.C. from Vibrator

SPEC. NO. 812

Winding	PRI	SHIELD	SEC	SHIELD	PRI	FIL	
Turns	760	86	4750	1	50	47	
Taps			2375		25	23	
Wind. Lgth.	15/32	15/32	15/32	—	—	—	
Wire Size	#27	#27	#36	SHIM STOCK	#17	#19	
T.P.L.	86-9.	86-1.	240-20	—	2L.	2L.	
Kind Term.	#30 P.Braid	WIRE ONLY	#30 P.Braid	3/L. BRAID	WIRE ONLY		
Term. Lgth.	9"	3"	9"	3"	9"	9"	
Layer Insul.	40#	—	Cambric 16#	1	—	—	
Wrapper	2L007VC	2L007VC	2L007VC	2L005GA	2L005GA	2L005GA	

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1/16 X 3/8



E_P = 120V
E_S = 350 Vopen - 50 ma
E_F = 6.3V — 2 amps

GENERAL ELECTRIC

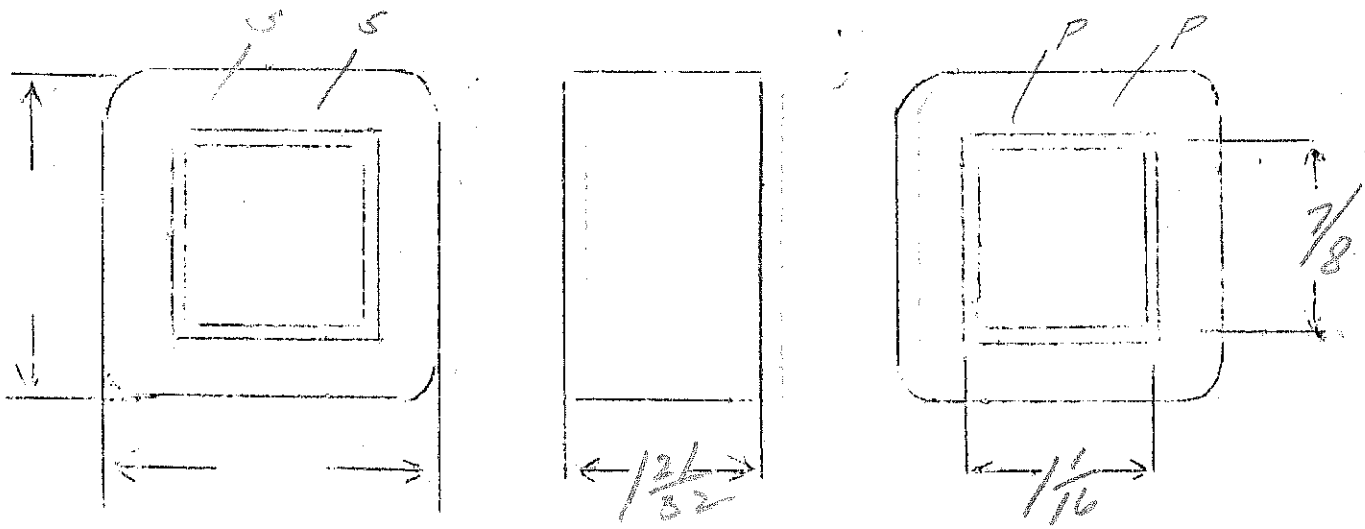
$\frac{N}{E}$ = 12

TIGHT

SPEC. NO. 813-25N

Winding	PRI	SHIELD	SEC	F_1			
Turns	1440	81	4450	84			
Taps	—	—	—	—			
Wind. Lgth.	1 5/32	1 5/32	1 5/32	1 5/32			
Wire Size	#26	#26	#35	#20			
T.P.L.	81-18	81-1	2224-20	2 layers			
Kind Term.	#20 Braid wire		#20 Braid	wire			
Term. Lgth.	9"	5"	9"	9"			
Layer Insul.	30 ± Mylar		20 ± M	—			
Wrapper	Kraft	Kraft	Kraft	Kraft			

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1 5/16 x 7/8		

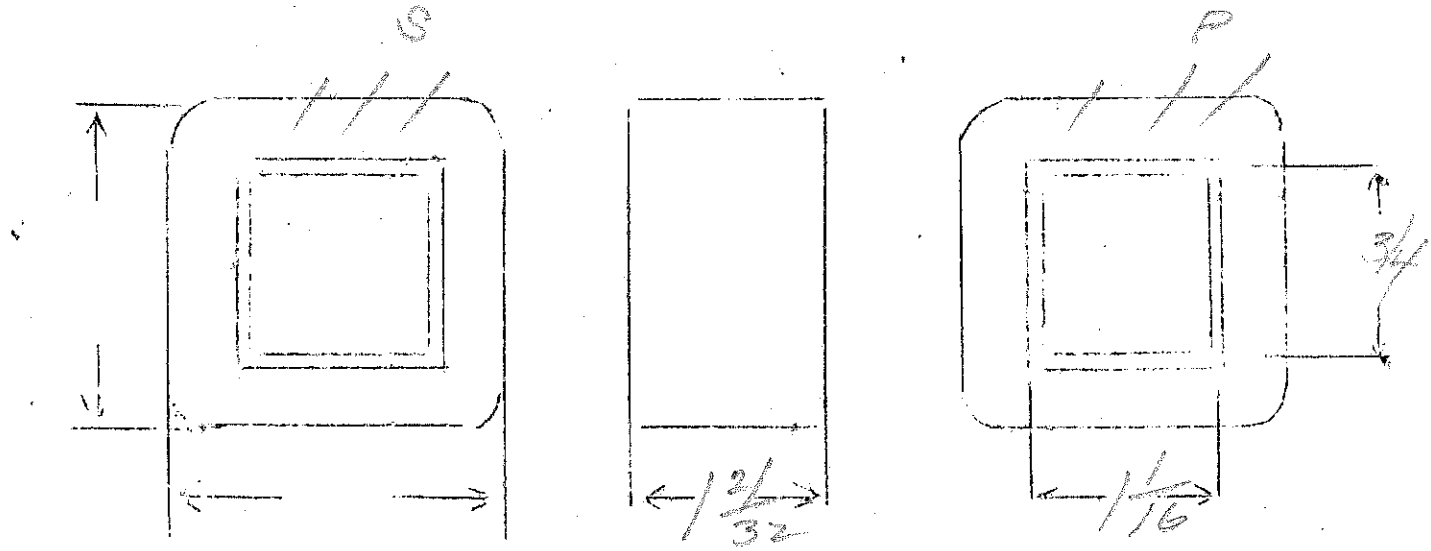


Note: Auto Flow - Oak Electric

SPEC. NO. 813

Winding	SEC	SHIELD	PRI				
Turns	4450	1	70				
Taps	2225		35				
Wind. Lgth.	1 15/32	Brass	1 15/32				
Wire Size	#32	6 in.	#18				
T.P.L.	160-28	1					
Kind Term.	Sol Bus	Sol Bus	wire				
Term. Lgth.	3"	3"	3"				
Layer Insul.	20#						
Wrapper	Kraft	Kraft	Kraft				

TUBE	2407	IMPREGNATION	VARNISH
CURE	1 1/16 x 3/4		



Interstage

Push Pull plates 10,000 ohms
to
Push Pull grids
1 : 1.5 ratio

New stock

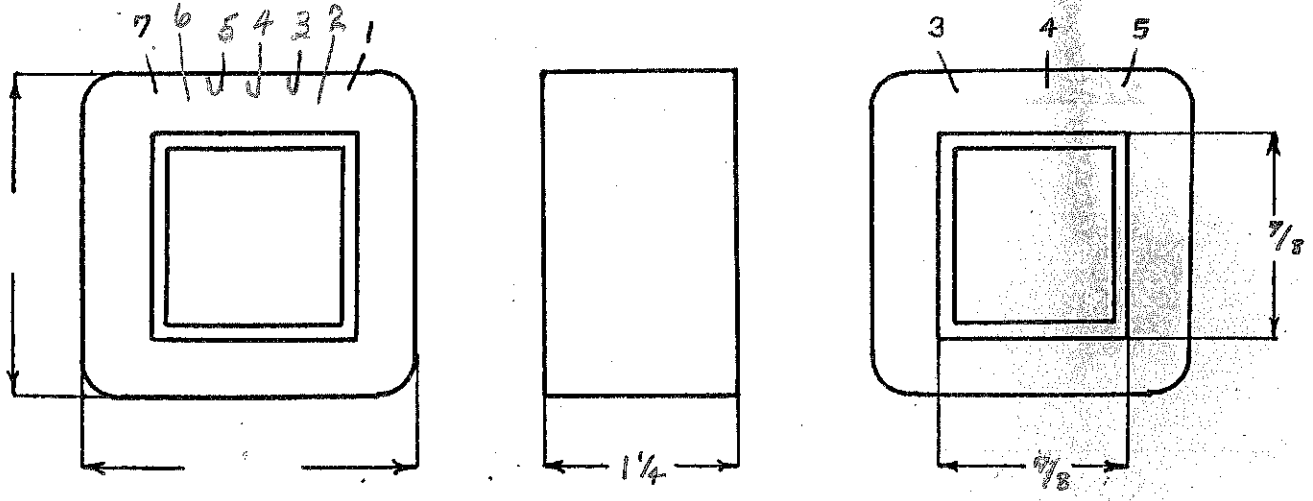
SPEC. NO. A 814
Lea 5548

Winding	1-2 Sec	3-4-5 Pri	6-7 Sec	CONTINUOUS	WINDING		
Turns	4500	6000	4500				
Taps	—	3000	—				
Wind. Lgth.	1 1/16	1 1/16	1 1/16				
Wire Size	#39	#39	#39				
T. P. L.	250 — 18L	250 — 24L	250 — 18L				
Finish Pitch	92%	92%	92%				
Type Lead	#22 P.B.	#22 P.B.	#22 P.B.				
Lead Lgth.	cut 14"	cut 14"	cut 14"				
Layer Insul.	16 #	16 #	16 #				
Test Volt.	1000	1500	1000				
Wrapper	2L0012GA ~~1L 11/16~~	2L0012GA ~~1L 11/16~~	2L005GA				

TUBE 5L010GK — IMPREGNATION Varnish

CORE 7/8 x 7/8 — GA. 29 — GRADE B — STACK Butt no Lap

MOUNTING A



DESIGNED BY G. W.

DATE 4-13-37

DESIGN AND TEST DATA

Rating:

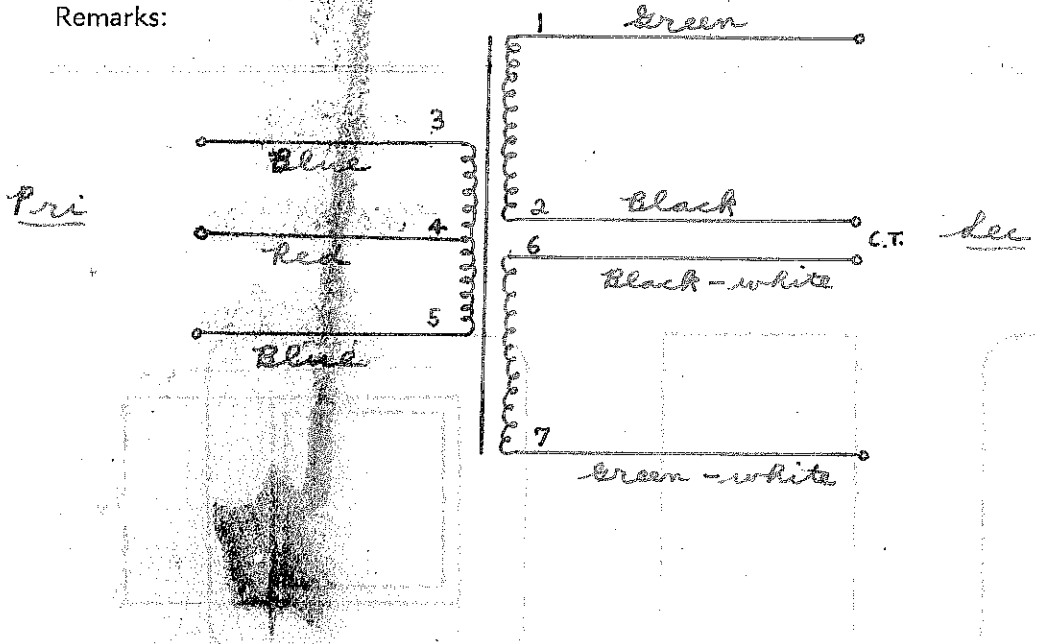
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction @ Cycles

Exciting Current amperes @ volts 60 cycles on

Induced Test: Apply Volts at Cycles on with grounded

Remarks:



Interstage

New Stock

Push Pull plates 10,000 ohms to
Push Pull grids
1:1.5 ratio

SPEC. NO. A 814

Sec 5 Tube

Winding	1-2 Sec	3-4-5 Pri	6-7 Sec				
Turns	4500	6000	4500				
Taps	—	3000	—				
Wind. Lgth.	1 1/16	1 1/16	1 1/16				
Wire Size	# 39	# 39	# 39				
T. P. L.	250-181	250-241	250-181				
Finish	92%	92%	92%				
Type Lead	# 22 P.B	# 22 P.B	# 22 P.B				
Lead Lgth.	cut 14"	Cut 14"	Cut 14"				
Layer Insul.	16 #	16 #	16 #				
Test Volt.	1000	1500	1000				
Wrapper	1 Loo SVC	1 Loo SVC	2 Loo SVC				

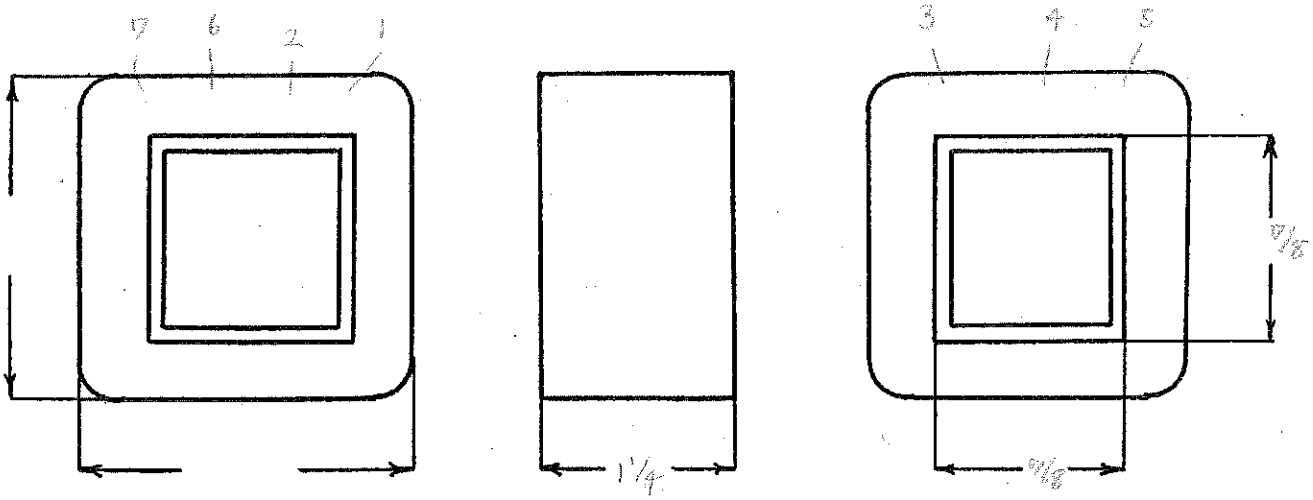
TUBE 5-Lo Lo GK

IMPREGNATION Varnish

CORE 7/8 X 7/8 GA. 29 GRADE B STACK Butt No Gap

MOUNTING A - Leads

wt = 8 1/2 oz



DESIGNED BY G.W.

DATE 4-18-39

DESIGN AND TEST DATA

Rating:

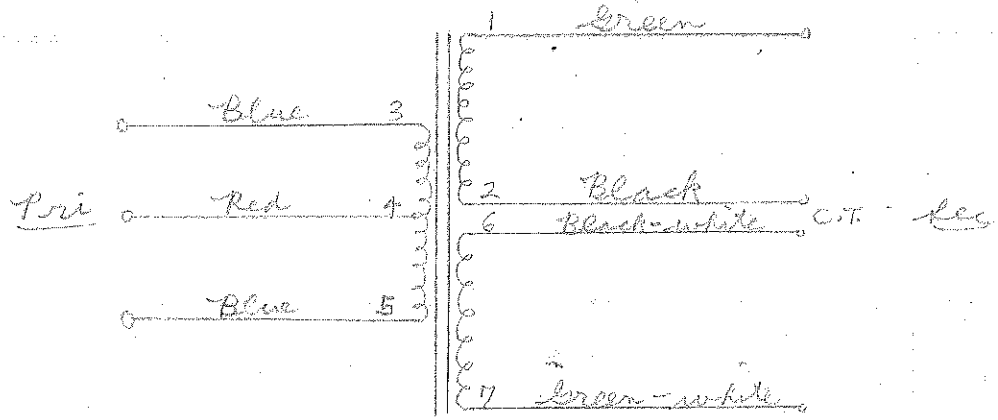
Winding	1-2 Sec	3-4-5 Pri	6-7 Sec				
Mean Turn	4.19	4.96	5.72				
Resistance 25° c	1340	2110	1825				
Pounds Copper	.0608	.0960	.0830				
Copper Density	—		—				
Ratio Volts	45	60	45				
Test to Ground	1000	1500	1000				

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



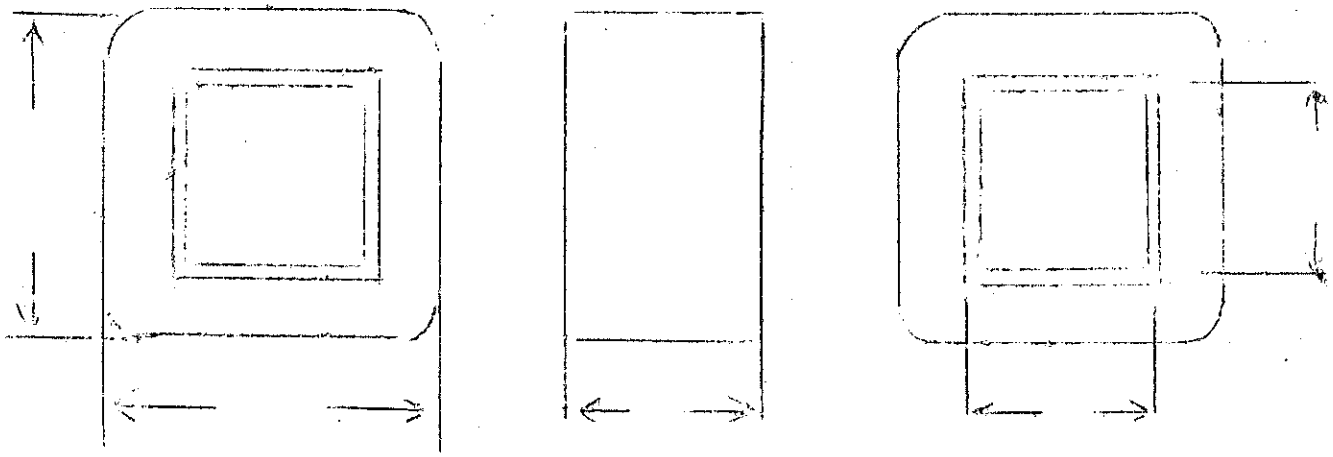
Cowlcade – as #204 except no Fabric
1 pc coil.

SPEC. NO. 815

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

TUBE | IMPREGNATION

CURE



2360 - 1700 - 0 - 1700 - 2360

$E_p = 115$ V. $\frac{N}{2} = 197$

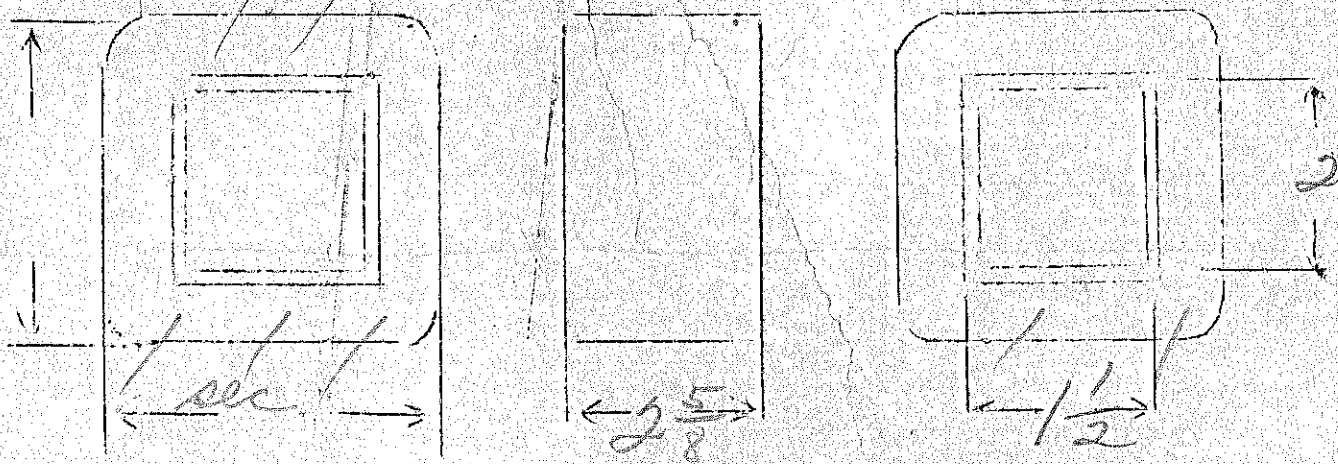
SPEC. NO. 816

Winding	SEC	PRI					
Turns	5000 4300 2500 700 0	228					
Taps		—					
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#28	#17					
T.P.L.	160-34	46-5					
Kind Term.	#26 Bar	Wire					
Term. Lgth.	9"	9"					
Layer Insul.	50 #W.	GA					
Wrapper	2L007WC 2L007GA	2L007GA		/			

TUBE | 2L007+L000RC | IMPREGNATION | VARNISH

CURE | 1½ x 2"

when furnishing sec leads - insulate each 2L007WC + L000GA, 2L007WC under #26 lead



Calltech

$\frac{1}{E} = .523$

$E_p = 115V$

$E_{F_1} = 5V - 6 amps$

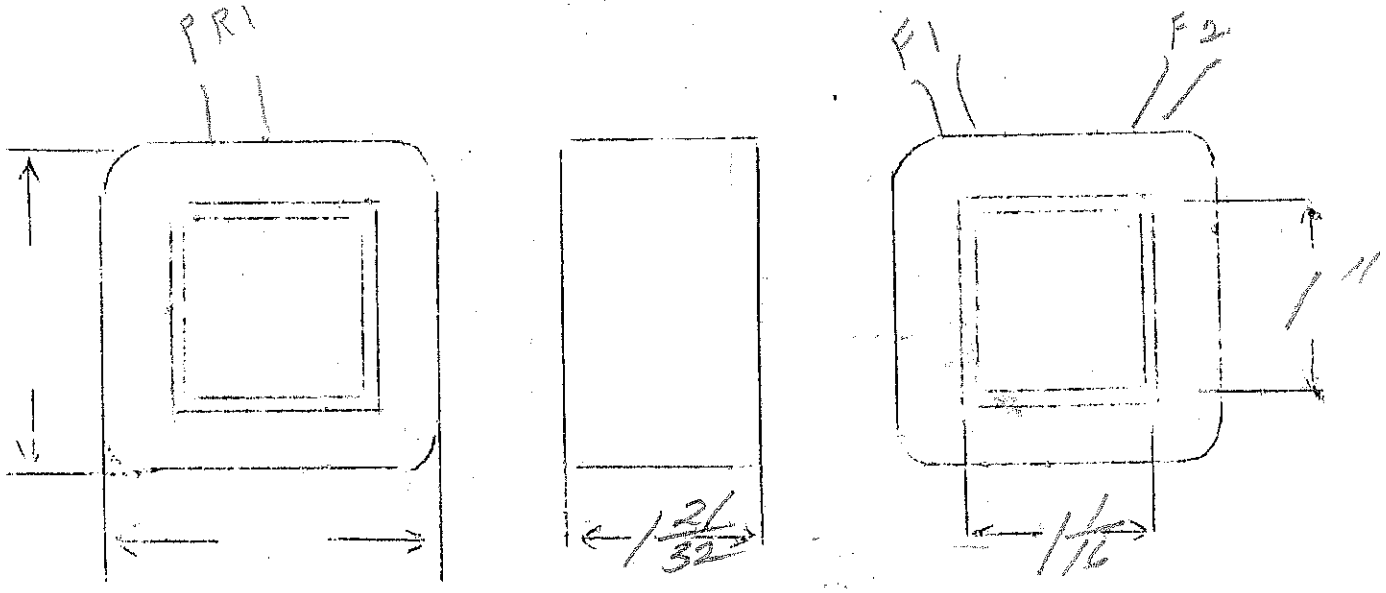
$E_{F_2} = 5V - 6 amps$

SPEC. NO. 812

Winding	PR. 1	F1	F2				
Turns	600	29	29				
Taps	—	—	—				
Wind. Lgth.	15/32						
Wire Size	#24	#15	#15				
T.P.L.	60-10	2d.	2d				
Kind Term.	wire	wire	wire				
Term. Lgth.	3"	3"	3"				
Layer Insul.	30#	.005	.005 GA				
Wrapper	1 LOOP WC 2 LAYERS GA	1 LOOP WC 2 LOOPS GA	3 LOOPS GA				

TUBE | 4L009 | IMPREGNATION | KARNISH

CURE | 1/16 X 1"



Cattach

E_p = 115

E_s = 115 VCT

35 watts

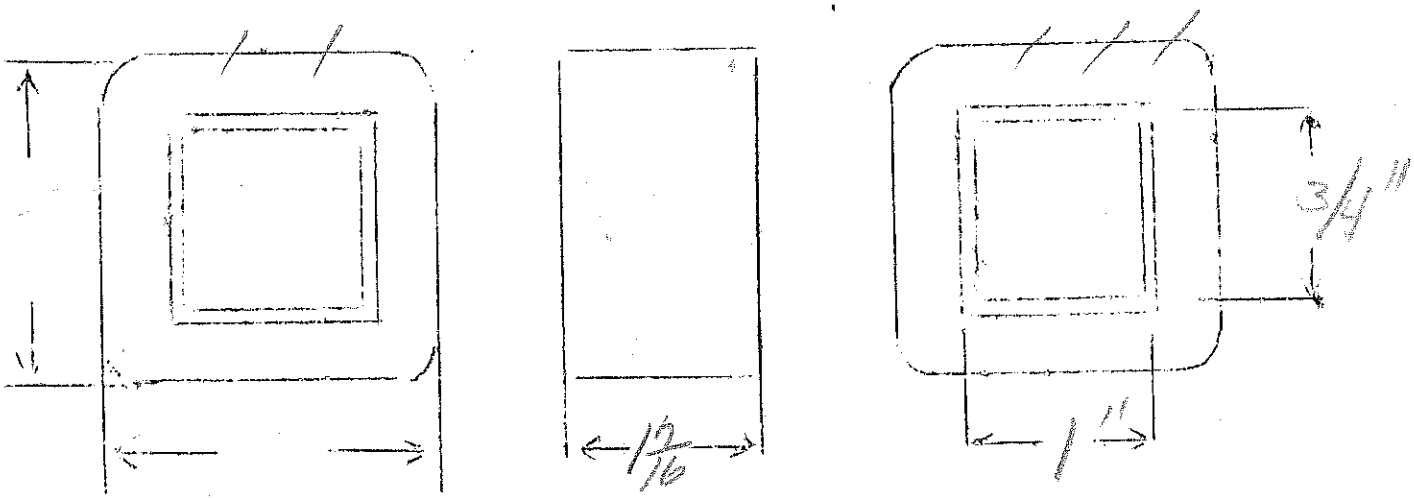
$\frac{1}{2}$ = 24

SPEC. NO. 818B

Winding	PRI	SEC					
Turns	850	220					
Taps	—	460					
Wind. Lgth.	1.25	1.25					
Wire Size	#27	#27					
T.P.L.	78-11	78-12					
Kind Term.	twist	twist					
Term. Lgth.	3"	3"					
Layer Insul.	3 ply	3 ply					
Wrapper	Manila	Manila					

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 hr 3/4 hr



E_{P-P} = 110-120

E_5 = 750V C.T. - 125 MA

E_1 = 5V - C.T. - 3.5 amps

E_2 = 6.3V - 6 amps C.T.

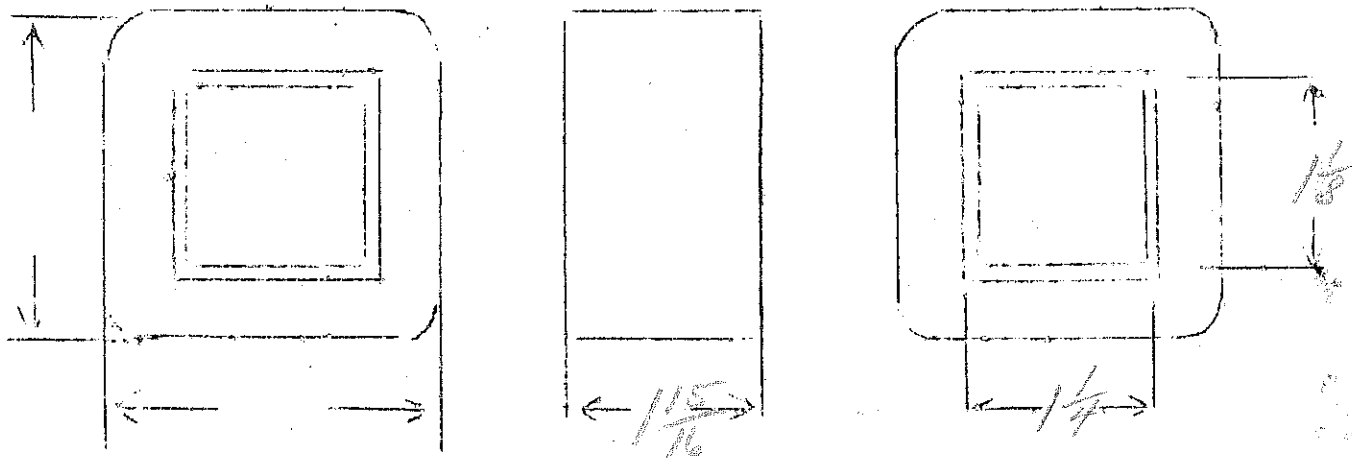
Same as T except for filaments

SPEC. NO. 819

Winding	Pri	Shield	Sec	E_1	E_2		
Turns	480	180	3180	22	28		
Taps	440	—	1590	11	14		
Wind. Lgth.	1.25	1.75	1.75	1.75	1.75		
Wire Size	#22	#32	#32	#18	#15		
T.P.L.	57-9	180	180-19	—	—		
Kind Term.	#20 PBr	Sil Br	#20 PBr	wire	wire		
Term. Lgth.	9"	3"	9"	9"	9"		
Layer Insul.	50#		30#	—			
Wrapper	2L001C	2L001C	2L001C 2L001SA	2L001GA	2L001GA		

TUBE	2L001	IMPREGNATION	VARNISH
CURE	1 1/4 x 1 1/8		

mounted "A" case - leads not over thru grommet



Class B Driver — New stock

Single Plate 6C5 or 6N7 (par) 7 watts to 6N7 Class B

Pri./½ Sec = 2.5 or 3.3

Max. Peak D.C. - 25 ma.

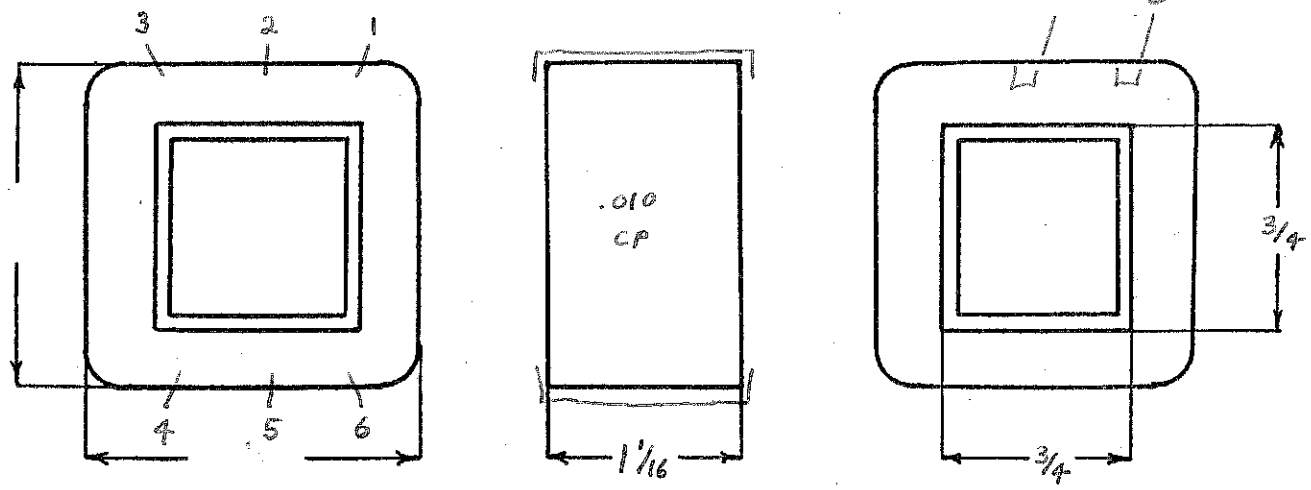
SPEC. NO. A 820

Use D-507

Winding	1-2-3 Pri	4-5-6 Sec					
Turns	3600	2180					
Taps	775	1090					
Wind. Lgth.	7/8	7/8					
Wire Size	#38	#34					
T. P. L.	182-20L	109-20L					
Finish Black	91½%	89%					
Type Lead	#22 P.B.	#22 P.B.					
Lead Lgth.	cut 9"	cut 9"					
Layer Insul.	20#	20#					
Test Volt.	1250	1250					
Wrapper	1L003CA ~~1L007VC~~	2L005GK ~~2L005GA~~					

TUBE	5L007GK + ~~1L003VG~~ 1L0012CA		IMPREGNATION	Varnish	
CORE 3/4 x 3/4	GA. 29	GRADE B	STACK Butt no Gap		
MOUNTING D - Leads					

Iron = 89%



DESIGNED BY F. F.

DATE

DESIGN AND TEST DATA

Rating:

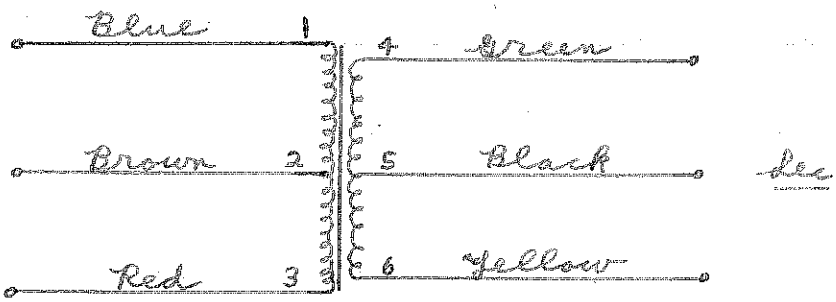
Winding	Pri	Sec					
Mean Turn	3.68	4.72					
Resistance 25° c	743	228					
Pounds Copper	.0537	.105					
Copper Density	630						
Ratio Volts	110 43.4	66.6 33.4					
Test to Ground	1250	1250					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Pri

6C5 use 1 + 3 to plates

6N7 (par) use 2+3 to plates

Sec

6N7 use 4 + 6 to grids

C.T. 5

CLASS B DRIVER

new STOCK

Single Plate 6C5 or 6N7 (par) 7 watts
to
6N7 Class B
Pri./⅓ Sec equals 2.5 or 3.3

ATTACH TEST DATA HERE

A 820

SPEC. NO. D-507

max Pri D.C. = 25 ma

Winding	1-2-3 Pri.		4-5-6 Sec.				
Turns	3600		2180				
Taps	~~1420~~ 775		1090				
Wind. Lgth.	7/8		7/8				
Wire Size	#38		#34				
T. P. L.	182-20L		109-20L				
Finish	91½%		89%				
Type Lead	~~Silver Braid~~ #22 DyLAC		~~Silver Braid~~ #22 DyLAC				
Lead Lgth.	3" 9" from Coil		3" 9"				
Layer Insul.	20#		20#				
Test Volt.	1250		1250				
Wrapper	1L007VC		2L005GA				

TUBE 5L007GK plus 1L003VC

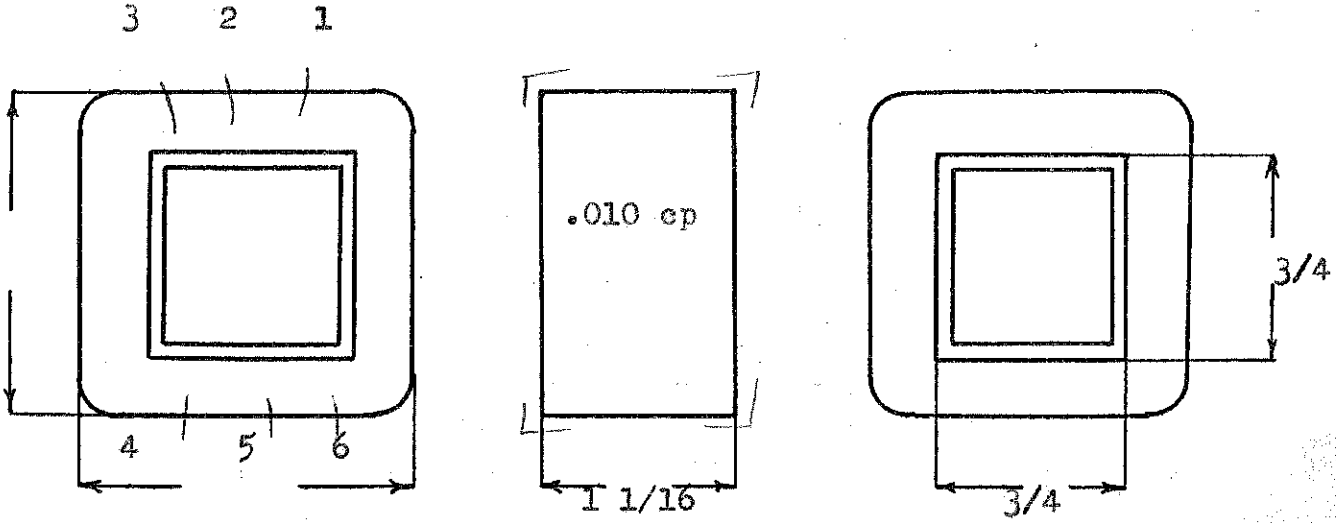
IMPREGNATION

CORE 3/4 x 3/4 GA. 29 GRADE B STACK Butt no gap

MOUNTING D - ~~lugs~~ Leads

T. P. U.

Window — .335/.375 = 89.3%



DESIGNED BY F.F.

DATE

DESIGN AND TEST DATA

Rating:

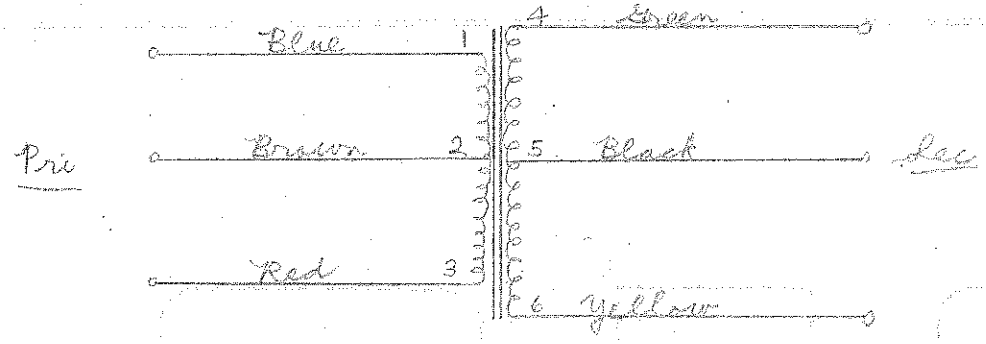
Winding		Pri.		Sec.			
Mean Turn		3.681		4.72			
Resistance 25° c		743.0		228.0			
Pounds Copper		.0537		.105			
Copper Density		630					
Ratio Volts		110 43.4		66.6 33.4			
Test to Ground		1250		1250			

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Pri
6C5 use 143 to plate
6N7 (pair) use 243 to plate

Sec
6N7 use 446 to grids
C.T. 5

E_p = 115V

E_S = 110V - tap at 5/30V - 90 ma

E_F = 1.5 - 2.0 - 2.5 - 3.3 - 5.0 - 6.3 - 7.5 - 12 - 15 - 25 - 30

Radio Doc

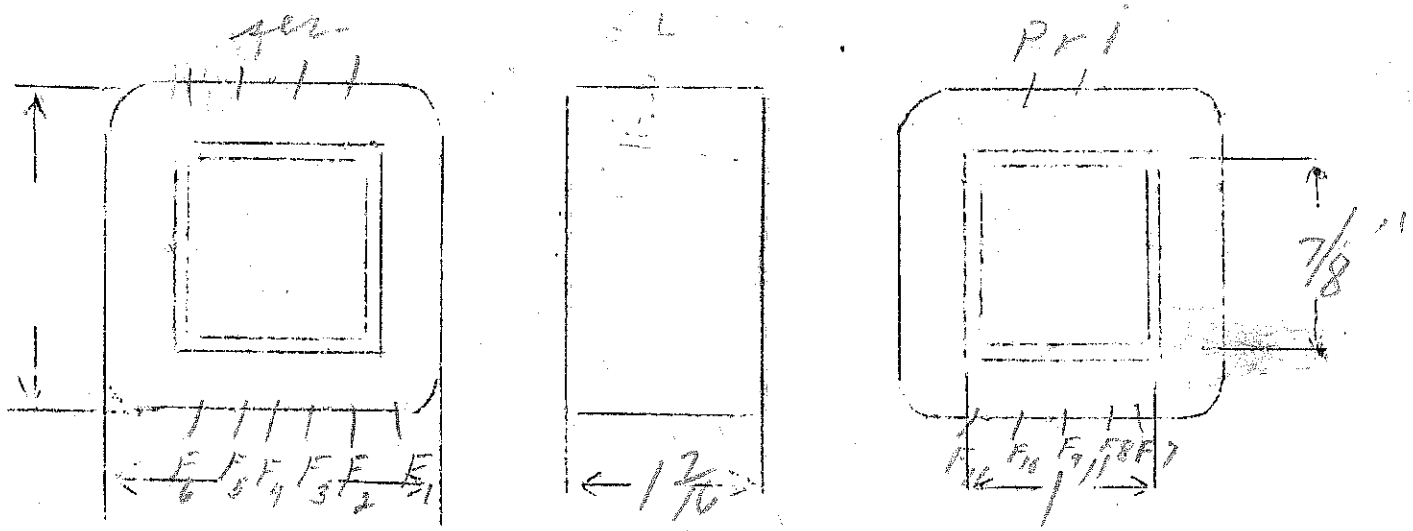
$\frac{N}{E}$ = 6.33

SPEC. NO. 820

Winding	PRI	SEC	FIL	Continuous			
Turns	730	760	17	27	61	105	
Taps	—	33, 260	14-10	18-6	40-8	90	
Wind. Lgth.	1.25	1.25	—	—	—	—	
Wire Size	#27	#37	#18	#20	#22	#24	
T.P.L.	94-10	2.30					
Kind Term.	wire	solder	wire	→	→	→	
Term. Lgth.	3"	→	→	3"	→	→	
Layer Insul.	30#	20#					
Wrapper	2L005G	2L005G			2L005G		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 X 7/8 NW



Universal Class "B" Audio Output

New stock

P/½ S = 2.0 - 2.4 - 2.9 - 3.5 - 4.2 - 4.6 - 5.0 - 6.5

15 watts

Max pri D.C. = 100 ma

SPEC. NO. A822

See D-54-1-A

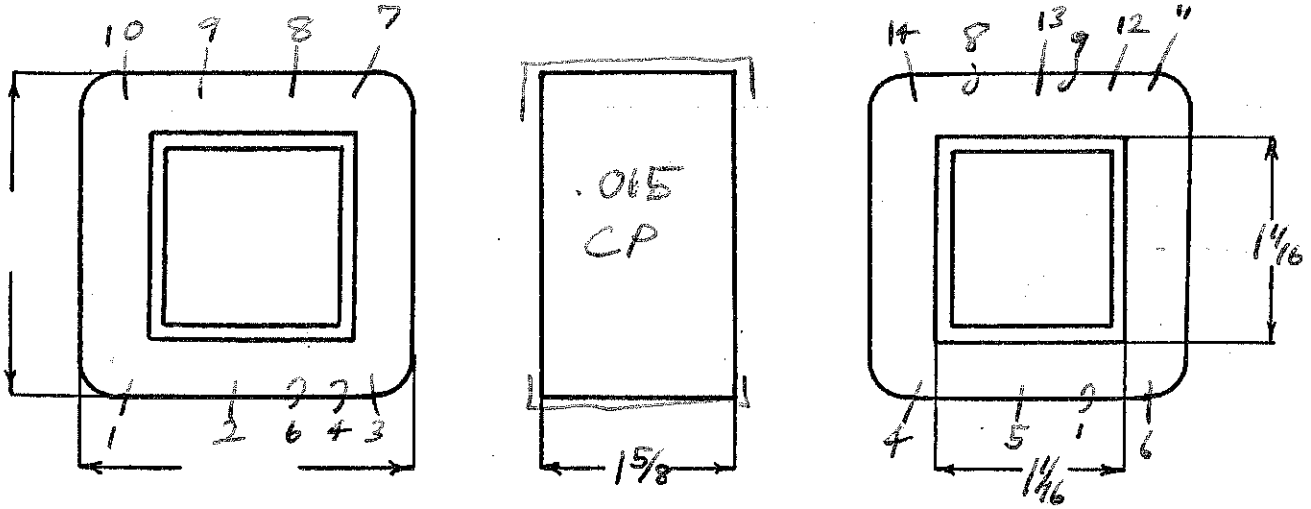
Winding	7-8-9-10 Sec #1	1-2-3 Pri #1	4-5-6 Pri #2	11-12-13-14 Sec #2			
Turns	1000	1200	1200	1000			
Taps	310-521	1000	200	479-690			
Wind. Lgth.	1 7/16	1 7/16	1 7/16	1 7/16			
Wire Size	#29	#32	#32	#29			
T. P. L.	106-10L	147-9L	147-9L	106-10L			
Finish Pitch	90%	90%	90%	90%			
Type Lead	#22 Dulac	#22 Dulac	#22 Dulac	#22 Dulac			
Lead Lgth.	cut 14"	cut 14"	cut 14"	cut 14"			
Layer Insul.	30#	30#	30#	30#			
Test Volt.	2500	2500	2500	2500			
Wrapper	2L005VC	1L005VC	2L005VC	2L007GA			

TUBE 7L007GK + 1L003VP IMPREGNATION Varnish

CORE 1 1/16 X 1 1/16 GA. 26 GRADE C STACK Butt no gap

MOUNTING AA

wt = 85 oz



DESIGNED BY F. FRAZEE DATE

DESIGN AND TEST DATA

Rating:

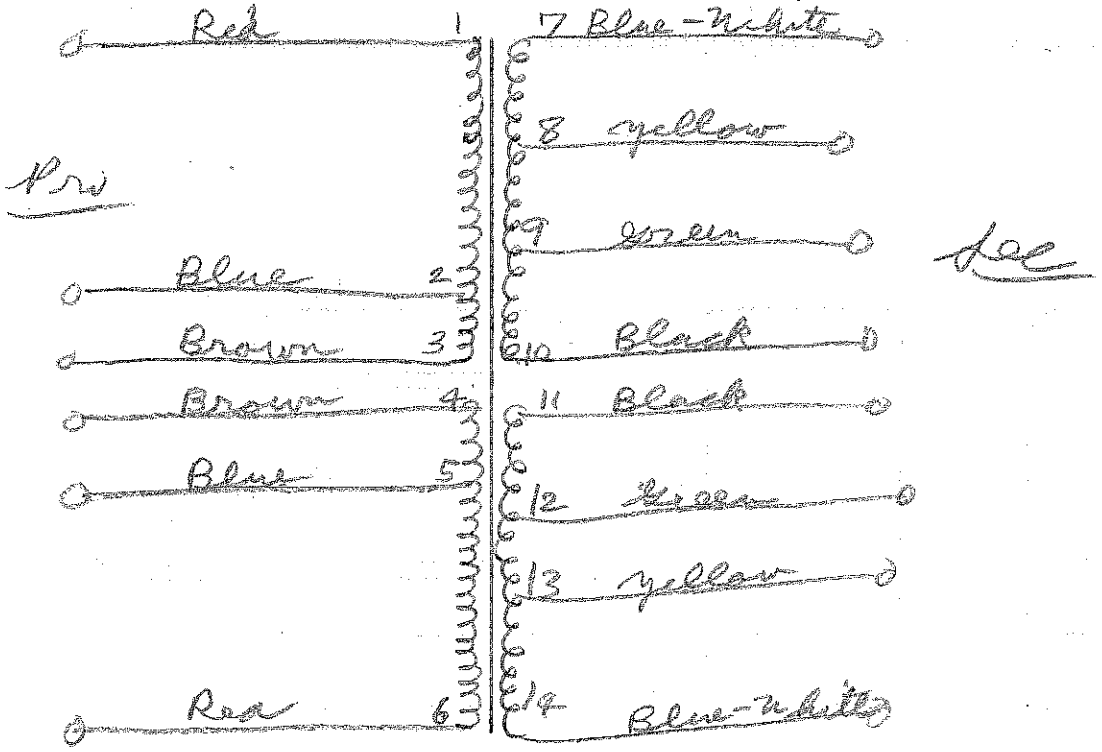
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



UNIVERSAL CLASS AB OR B DRIVERS

New STOCK

15 watts

P/½S = 2.0-2.4-2.9-3.5-4.2-4.6-5.0-6.5

SPEC. NO. ~~S-541-P~~ A822

Max Pri D.C. = 100 ma.

Winding	7-8-9-10 Sec		1-2-3 Pri	4-5-6 Pri		11-12-13-14 Sec	
Turns	1000		1200	1200		1000	
Taps	310-521		1000	200		479-690	
Wind. Lgth.	1 7/16						
Wire Size	#29		#32	#32		#29	
T. P. L.	106-10L		147-9	147-9L		106-10L	
Finish	#22 DULAC						
Type Lead	~~Sil. Br.~~ Vinyl Sl.		~~Sil. Br.~~	~~Sil. Br.~~		~~Sil. Br.~~	
Lead Lgth.	~~6~~ cut 14"		~~6~~ cut 14"	~~6~~ cut 14"		~~6~~ cut 14"	
Layer Insul.	30#		30#	30#		30#	
Test Volt.	2500		2500			2500	
Wrapper	2L005VC		1L005VC	2L005VC		2L007Ga	

TUBE ~~7L007GK~~ 5L010GT ≠ 1L003VP

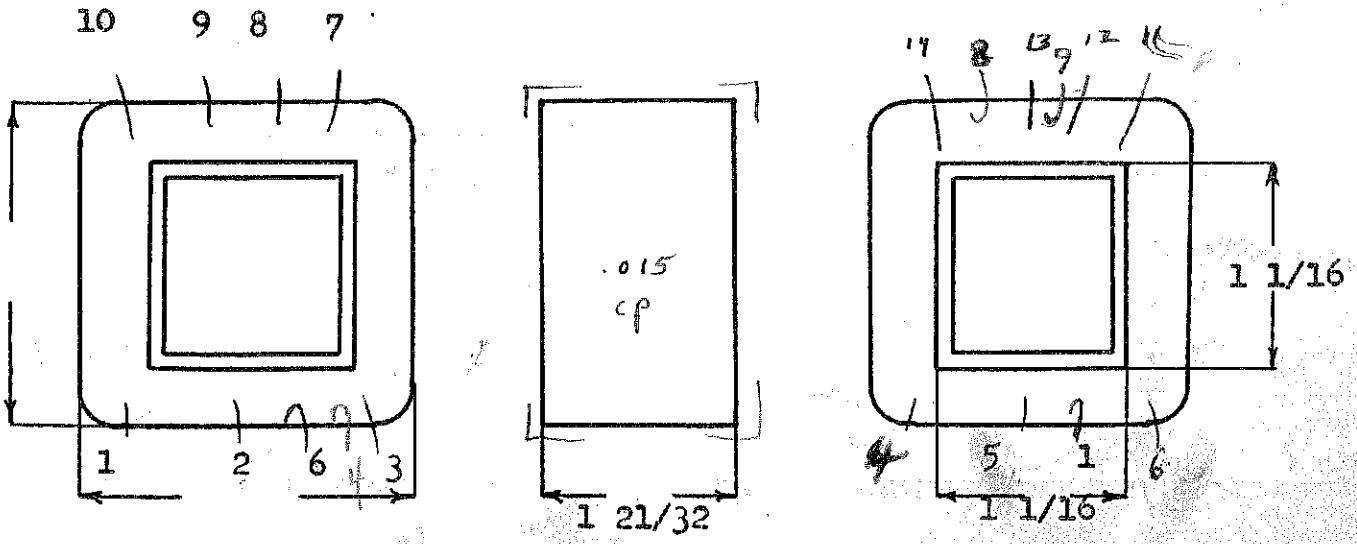
IMPREGNATION Varnish.

CORE 1 1/16 x 1 1/16 GA. ~~29~~ 26 GRADE B C STACK Butt no gap

MOUNTING ~~FF~~ AA

$\eta_n = 85\%$

$E_p = \sqrt{15 \times 3000} = 212\ V$



DESIGNED BY F. Frazee

DATE

DESIGN AND TEST DATA

Rating:

Winding							
Mean Turn	5.14		6.06	6.79		7.68	
Resistance 25° c	35.8		101.5	114		53.3	
Pounds Copper	.1675		.118	.132		.25	
Copper Density			632	632			
Ratio Volts	30 – 60 – 90		110	110		30 – 60 – 90	
Test to Ground	2500		2500			2500	

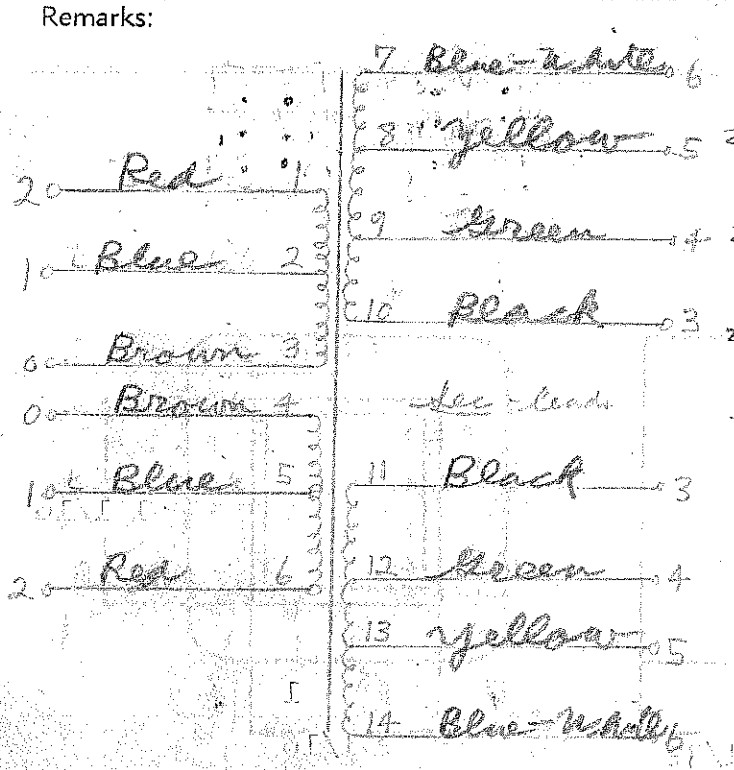
Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

P / 1/2 S 2 – 2.4 – 2.9 – 3.5 – 4.2 – 4.6 – 5.1 – 6.5



2:1 Join 0 ct use 1's
Join 6 ct use 3's

2.4:1 Join 0 ct use 2's
Join 6 ct use 3's

2.9:1 Join 0 ct use 1's
Join 6 ct use 4's

3.5:1 Join 0 ct use 2's
Join 6 ct use 4's

4.2:1 Join 0 ct use 1's
Join 6 ct use 5's

4.6:1 Join 0 ct use 2's
Join 3 ct use 5's

5.1:1 Join 0 ct use 2's
Join 6 ct use 5's

6.5:1 Join 0 ct use 1's
Join 3 ct use 4's

Universal Class AB or B Drivers

New Stock

P/½S = 2.0 – 2.4 – 2.9 – 3.5 – 4.2 – 4.6 – 5.0 – 6.5

15 watts

Max. pri D.C. = 100 ma.

OBSOLETE

COLOR CODE

SPEC. NO. A822

due 55#

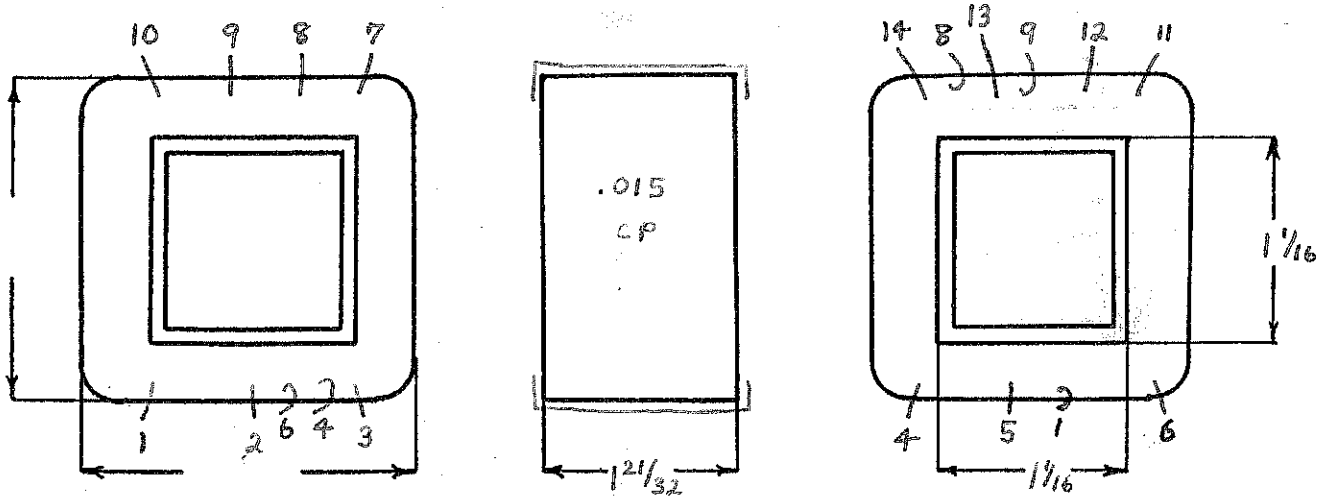
	7-8-9-10	1-2-3	4-5-6	11-12-13-14			
Winding	sec	pri	pri	sec			
Turns	1000	1200	1200	1000			
Taps	310-521	1000	200	479-690			
Wind. Lgth.	1 7/16	1 7/16	1 7/16	1 7/16			
Wire Size	#29	#32	#32	#29			
T. P. L.	106-10L	147-9L	147-9L	106-10L			
Finish Pitch	90%	90%	90%	90%			
Type Lead	#22 Dulac	#22 Dulac	#22 Dulac	#22 Dulac			
Lead Lgth.	cut 14"	cut 14"	cut 14"	cut 14"			
Layer Insul.	30#	30#	30#	30#			
Test Volt.	2500	2500	2500	2500			
Wrapper	2L005VC	1L005VC	2L005VC	2L007GA			

TUBE 7L007GK + 1L003VP

IMPREGNATION Varnish

CORE 1 1/16 x 1 1/16 GA. 26 GRADE C STACK Butt no Gap

MOUNTING AA



DESIGNED BY F. FRAZEE

DATE

DESIGN A[illegible] TEST DATA

HADLEY

A822

- Universal Driver Transformer -

- Push-Pull Plates to Push-Pull Grids - 15 Watts Audio

Maximum Primary D.C. 100 Ma.

CONNECTIONS

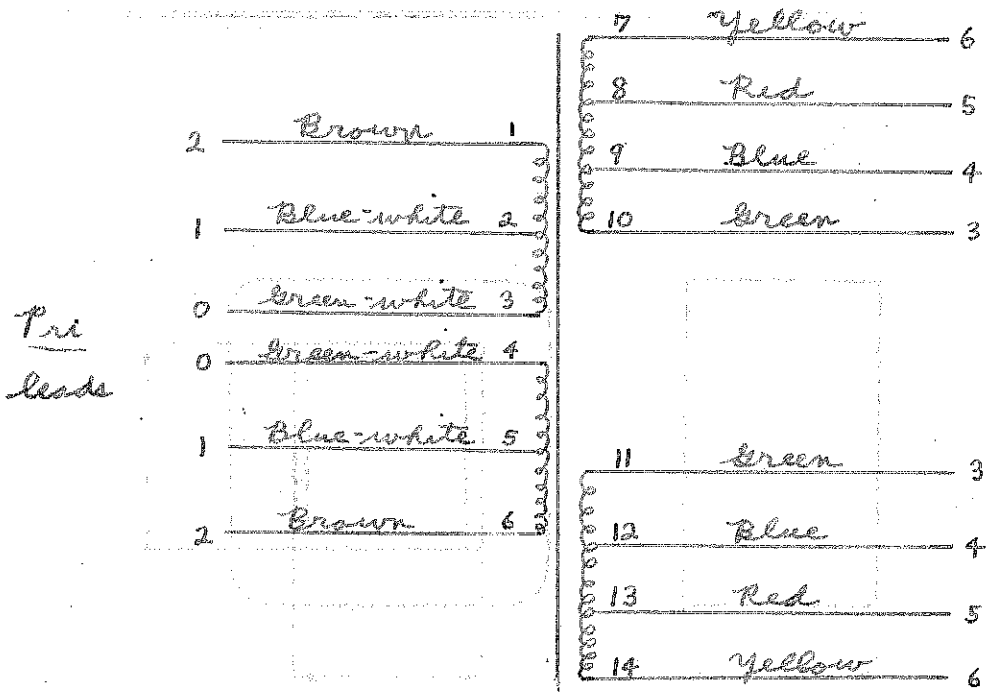
Ratio of Primary to 1/2 Secondary	Primary		Secondary	
	C.T.	Plates	C.T.	Grids
2.0 : 1	~~Green~~ Blue-Whites	~~Blue~~ Browns-Whites	Yellows	Greens
2.4 : 1	Green-Whites	Browns	Yellows	Greens
2.9 : 1	~~Green~~ Blue-Whites	~~Blue~~ Brown-Whites	~~Yellows~~ Reds	~~Blues~~ Greens
3.5 : 1	Green-Whites	Browns	~~Yellows~~ Reds	~~Blues~~ Greens
4.2 : 1	~~Green~~ Blue-Whites	~~Blue~~ Browns-Whites	~~Yellows~~ Blues	~~Reds~~ Greens
4.6 : 1	Green-Whites	Browns	~~Greens~~ Yellows	~~Reds~~ Blues
5.0 : 1	Green-Whites	Browns	~~Yellows~~ Blues	~~Reds~~ Greens
5.5 : 1	~~Green~~ Blue-Whites	~~Blue~~ Browns-Whites	~~Greens~~ Yellows	~~Blues~~ Reds

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



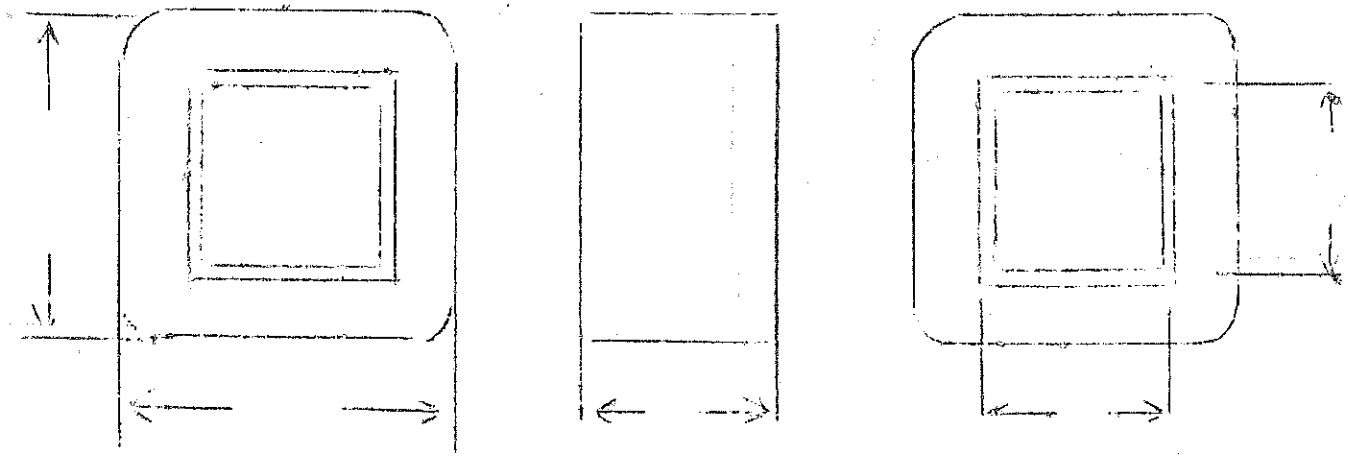
Same as 7282 except for wound mft to Core

SPEC. NO. 822

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

TUBE | IMPREGNATION

CURE



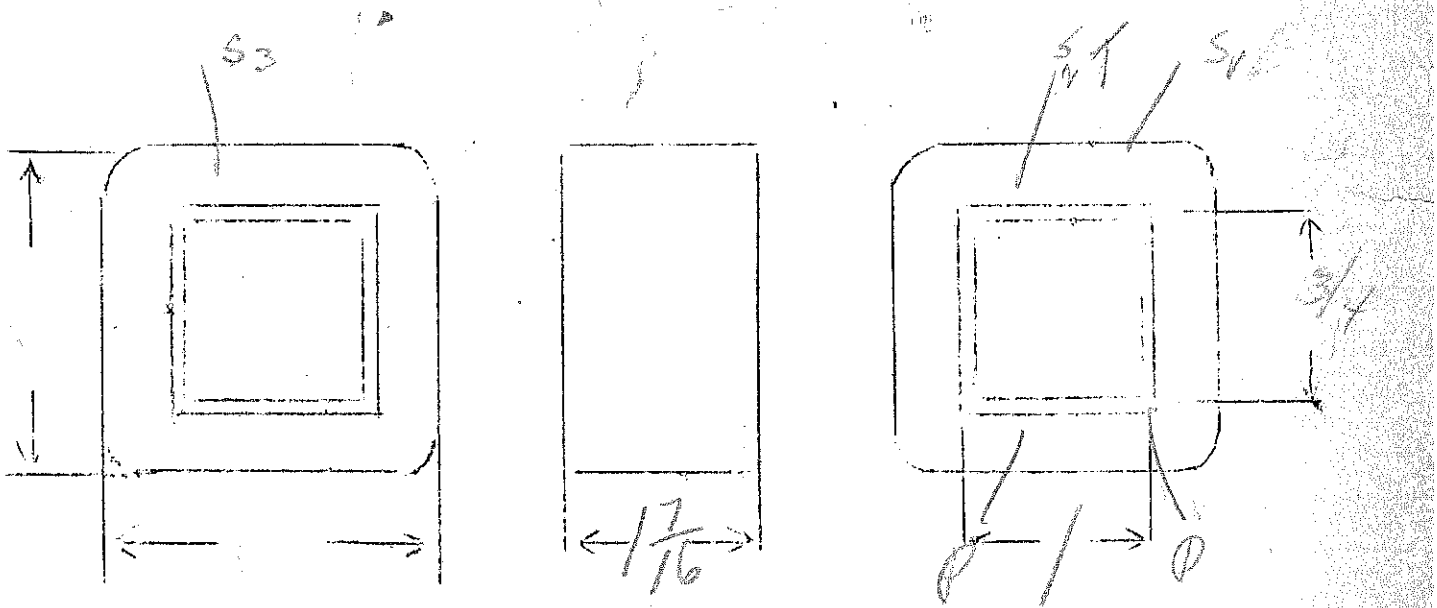
Ep - 220 volt
Es 0-52 volt — 1 amp

25 - V. A.

SPEC. NO. 823F

Winding	P	S					
Turns	1700	197					
Taps	—	65					
Wind. Lgth.	1.25	1.25					
Wire Size	#31	#23					
T.P.L.	114-15	50-4					
Kind Term.	#14 Braid						
Term. Lgth.	8"	8"					
Layer Insul.	30#	50#					
Wrapper	1L007VC	2L005SA					

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1x3/4		



Eb - 240V

Es - 24, 8V - 25 watt

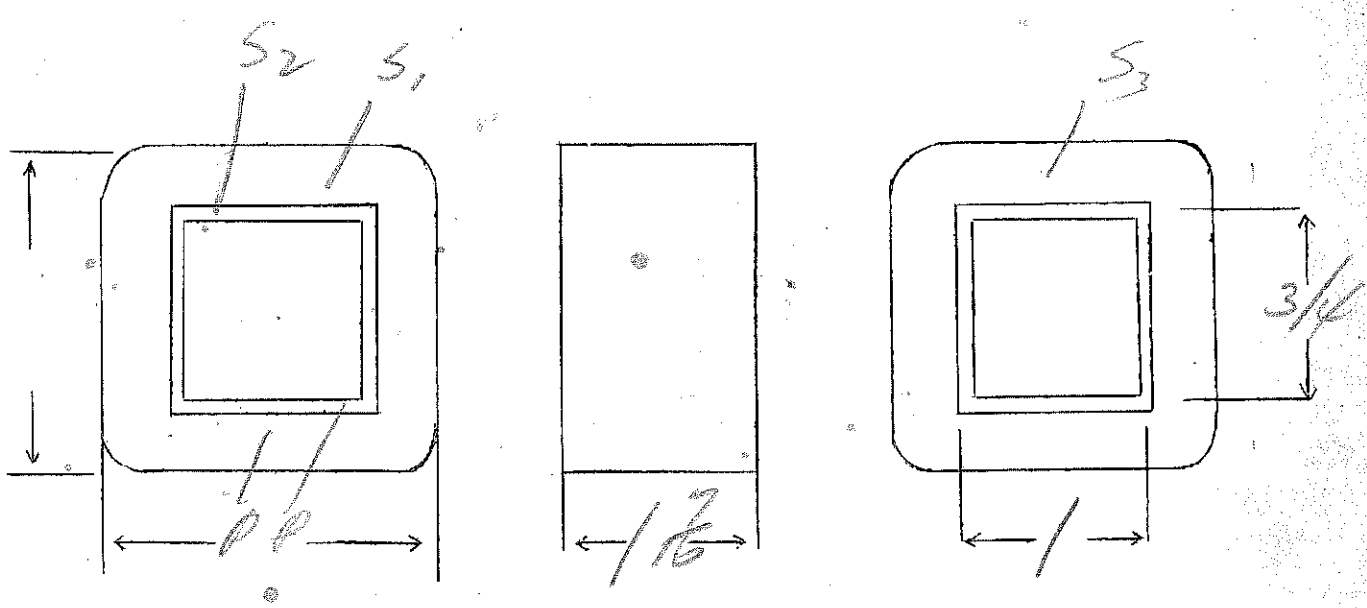
SPEC. NO. 823-240V

Winding	P	S					
Turns	1780	197					
Taps	—	65					
Wind. Lgth.	1.25"	1.25"					
Wire Size	#31	#23					
T.P.L.	115-18	50					
Kind Term.	#14 Braid						
Term. Lgth.	3"	3"					
Layer Insul.	40#	50#					
Test Volt.							
Wrapper	Kraft	Kraft					

TUBE Fiber | IMPREGNATION Dipped Varnish

CORE 1 X 3/4 | PRIMARY V.A.

MOUNTING S - Channel Cover 8-16-24 drawing A



DESIGNED BY GW DATE 3/31/32

Eo-110V-50c 24V-25 Watts Filament Trans
Es-24V-8V
VA=25 W/E=7.4

SPEC. NO. 523

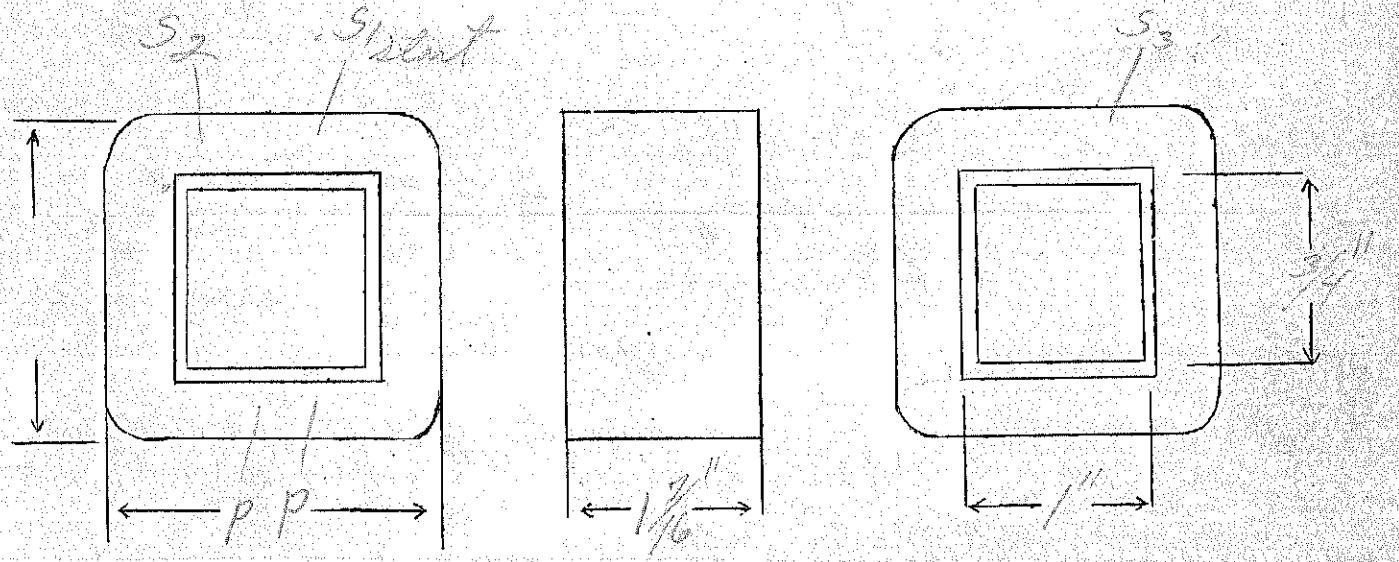
Winding	Pri	Sec.		Sec M (?)			
Turns	850	197		197-S1			
Taps	—	65		132-S2			
Wind. Lgth.	1.25	1.25		0-S3			
Wire Size	#28	#23					
T.P.L.	73-12	50-4		44-5			
Kind Term.	#14-Braid						
Term. Lgth.	3"	3" (2 Lug)					
Layer Insul.	30#	50#					
Test Volt.	2550	2500					
Wrapper	2L007C	2L005SA					

TUBE 2L007 | IMPREGNATION Varnish

CORE 1 x 3/4 N.W. | PRIMARY V.A.

MOUNTING Wrap Panel ears

Underwriter case with grommets



DESIGNED BY DATE 2/11/42

UNIVERSAL CLASS AB & B DRIVER

New STOCK

P-P Par. 2A3's or 6L6's with feed back
30 watts
Ratio P/½S equals 1.5 - 2.0-2.5

A824

SPEC. NO. ~~D-596-F~~

Max Pri D.C. = 200 ma

Winding		1-2-3-4 Sec #1		5-6-7 Pri.		8-9-10-11 Sec. #2	
Turns		707		1060		707	
Taps		177-282		530		425-530	
Wind. Lgth.		1 7/16		1 7/16		1 7/16	
Wire Size		#29		#29		#29	
T. P. L.		106-7L		106-10L		106-7L	
Finish		90%		90%		90%	
Type Lead		~~Silver Braid #22~~ Vinyl Sl. Pulac		~~Silver Braid #22~~ Vinyl Sl. Pulac		~~Silver Braid #22~~ Vinyl Sl. Pulac	
Lead Lgth.		6" cut 14"		6" cut 14"		6" cut 14"	
Layer Insul.		30#		30#		30#	
Test Volt.		2500		2500		2500	
Wrapper	2L005VC			2L005VC		2L007GA	

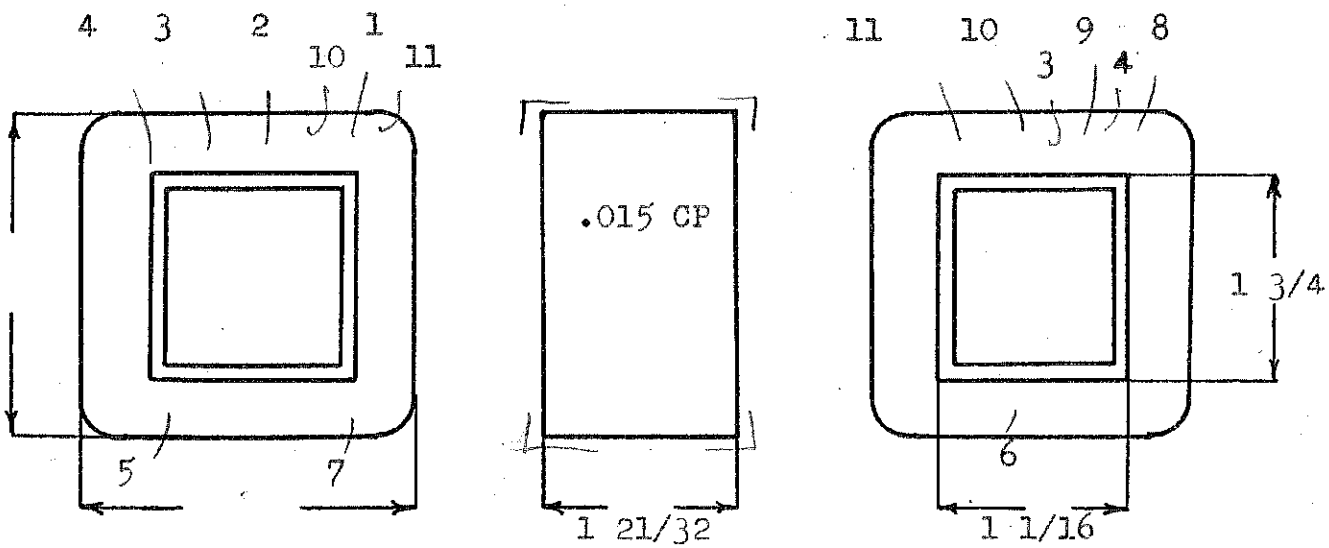
TUBE 7L007GK plus 1L003VP | IMPREGNATION Varnish

CORE 1 1/16 x 1 3/4 GA. ~~29~~ 26 | GRADE B | STACK Butt no gap

MOUNTING ~~FF~~ AA Armite Keepers

T. P. U. —
Window - .430/.656/ = 65.5%

$E_p = \sqrt{30 \times 1500} = 212$ V



DESIGNED BY F. Frazee

DATE

DESIGN AND TEST DATA

Rating:

Winding	1-2-3-4 Sec #1		5-6-7 Pri.		8-9-10-11 Sec. #2	
Mean Turn	6.49		7.74		8.97	
Resistance 25° c	31.9		57.0		44.6	
Pounds Copper	.149		.367		.206	
Copper Density			6.34			
Ratio Volts	88.2-110-147		110-110		88.2-110-147	
Test to Ground	2500		2500		2500	

Iron Induction 8.0 kg @ 50 Cycles with 212 volts on 5-7

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 4 - 2A3's PP-par 1500Ω

$$L = \frac{3.18\times10^{-8}\times(1060)^2\times1.86}{.004\times\frac{7.74}{120000}} = 668\ Hy$$

$$B_{ac} = \frac{34.9\times10^5\times212}{40.5\times1.75\times1060} = 8600$$

for 2db $X_p = \frac{1500}{.77} = 1950$

freq 2db $= \frac{1950}{2\pi\times668} = 46.5$

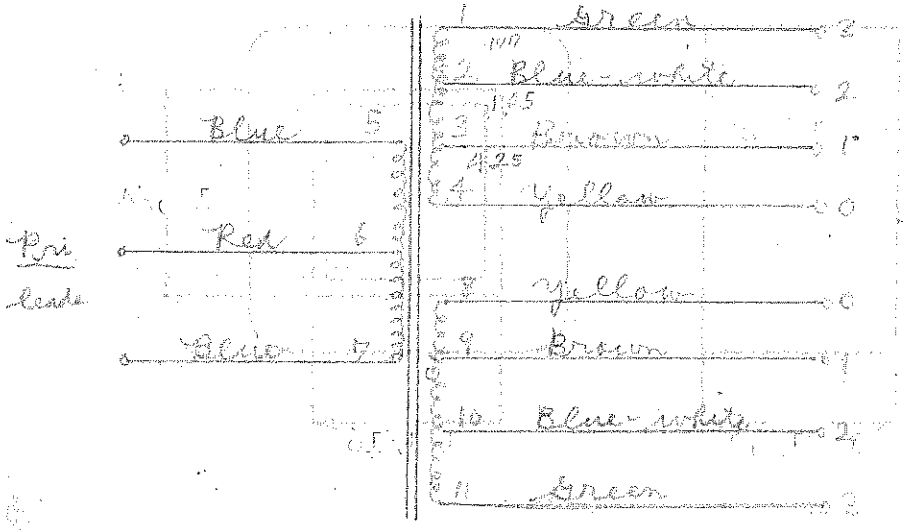
High end

$$L_{sc} = \frac{.72\times7.74\times(1060)^2}{1.438}$$

$= .00732$

2db $X_s = .77\times1500 = 1155$

Freq 2db $= \frac{1155}{2\pi\times.00732} = 23,580$



Universal Class AB+B driver

New stock

P-P Par. 2A3's or 6L6's with feed back – 30 watts

Ratio P/½ S = 1.5-2.0-2.5

Max. Pri. D.C. – 200 ma.

SPEC. NO. A 824

Use D 596

Winding	1-2-3-4 Sec #1	5-6-7 Pri	8-9-10-11 Sec #2				
Turns	707	1060	707				
Taps	177-282	530	425-530				
Wind. Lgth.	1 7/16	1 7/16	1 7/16				
Wire Size	#29	#29	#29				
T. P. L.	106-7L	106-10L	106-7L				
Finish Pitch	90%	90%	90%				
Type Lead	#22 Dulac	#22 Dulac	#22 Dulac				
Lead Lgth.	cut 14"	cut 14"	cut 14"				
Layer Insul.	30#	30#	30#				
Test Volt.	2500	2500	2500				
Wrapper	2L005VC	2L005VC	2L007GA				

TUBE 7L007GK + 1L003VF

IMPREGNATION Varnish

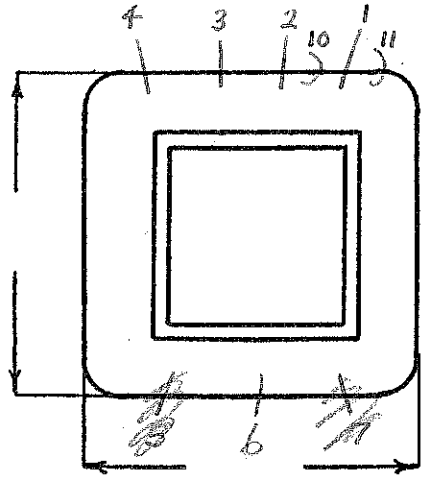
CORE 1 1/16 x 1 3/4 GA. 26

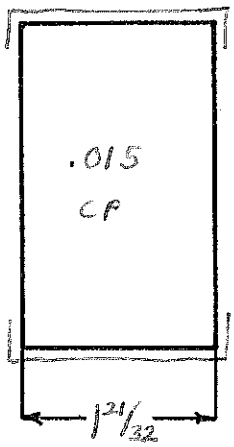
GRADE C

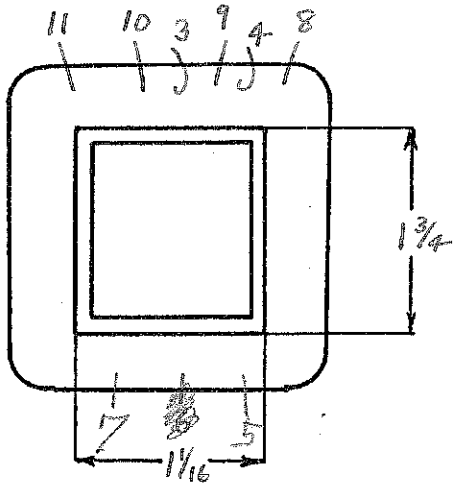
STACK Butt – No gap Armite Kearns

MOUNTING AA

Eff = 66%







DESIGNED BY F. FRAZEE

DATE

DESIGN AND TEST DATA

Rating:

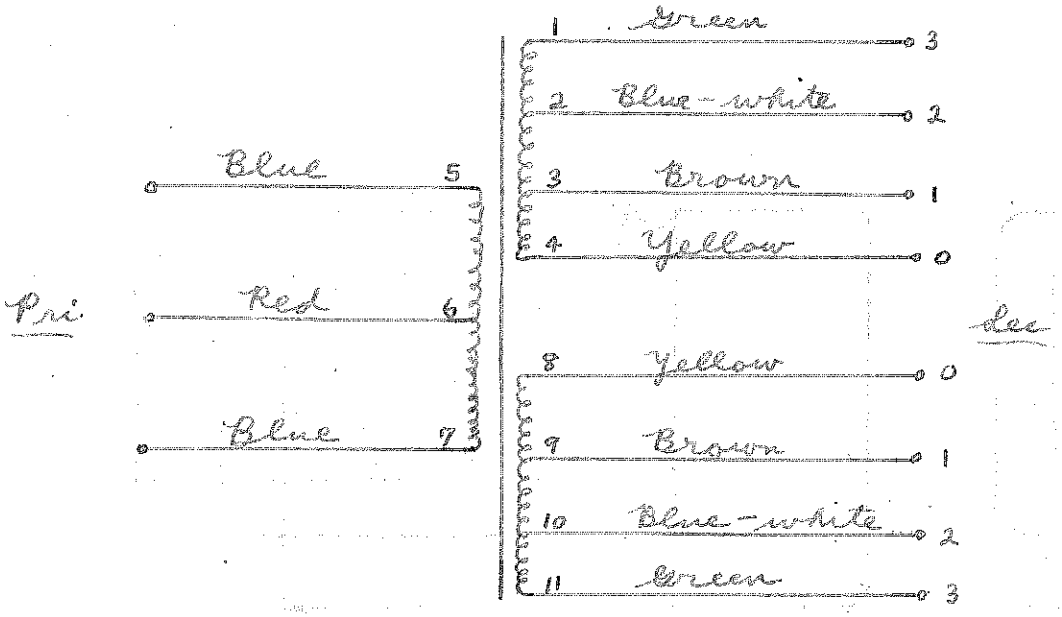
Winding	1-2-3-4 Sec #1	5-6-7 Pri	8-9-10-11 Sec #2				
Mean Turn	6.49	7.74	8.97				
Resistance 25° c	31.9	57.0	44.6				
Pounds Copper	.149	.367	.206				
Copper Density	88.2-110-147	634 cm dia 110-110	88.2-110-147				
Ratio Volts							
Test to Ground	2500	2500	2500				

Iron Induction 8.0 Kg @ 50 Cycles with 212 Volts on 5-7

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Chime Transformer - 50 VA

Angelus Chime

24V - 50 watt

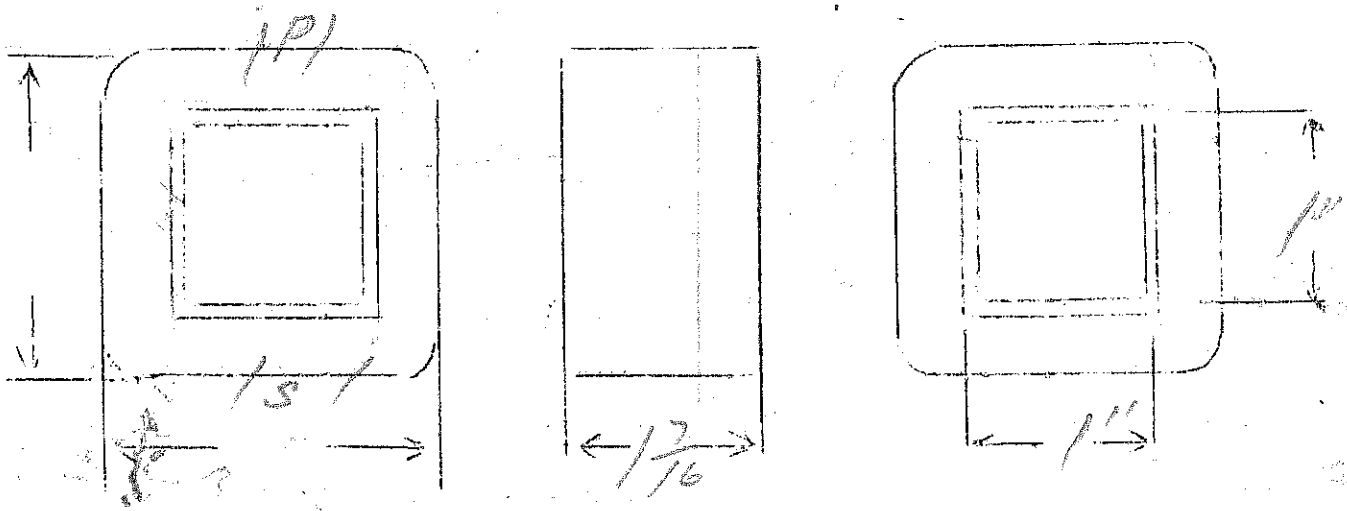
same as #219
except for mounting

SPEC. NO. 824

Winding	PRI	SEC					
Turns	630	150					
Taps	—	—					
Wind. Lgth.	1.25	1.25					
Wire Size	#26	#21					
T.P.L.							
Kind Term.	#14 braid						
Term. Lgth.	8"	8"					
Layer Insul.	30#	Kraft					
Wrapper	2L005GA	→					

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1 x 1 NW		

mounting - two half shells - two vertical brackets
leads and grommets - #14 braid



E_p = 110, 120 Pattern 7 tube B_+ = 13,000

E_s = 370 V each side CT @ 185 ma actual DC Drain E_{c_2} = 475

E_{f_1} = 6 V — 3 ½ amps

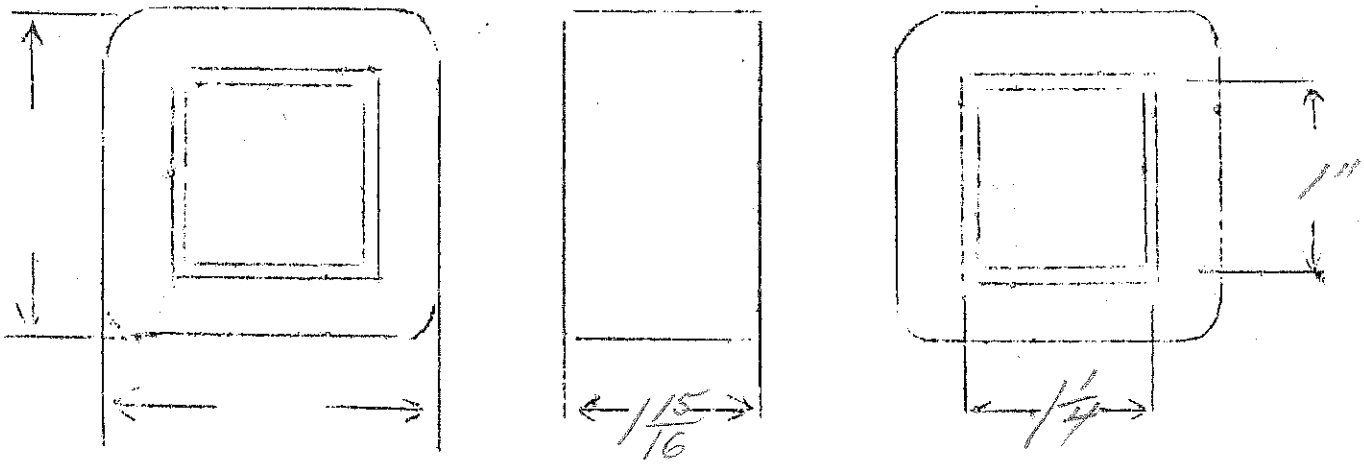
E_{f_2} = 5 V — 2 amps

SPEC. NO. 825

Winding	SEC.	SHIELD	PRI	F_1	F_2		
Turns	3800		570	26	32		
Taps	1900		523	—	—		
Wind. Lgth.	1.75	Bus	1.75				
Wire Size	#33	#	#23	#20	#19		
T.P.L.	212-15		66-9				
Kind Term.	#20 P.B.	Sil Br	#20 P.B.	wire	wire		
Term. Lgth.	9"		9"	9"	9"		
Layer Insul.	30#		40#				
Wrapper	LL007C	LL005GA	LL005GA	→	→		

TUBE | LL007 | IMPREGNATION | VARNISH

CURE | 1½ x 1"



E_p = 110 – 120

E_s = 720 – Avg – 85 ma

F_1 = 6 vr – 3.4 amps

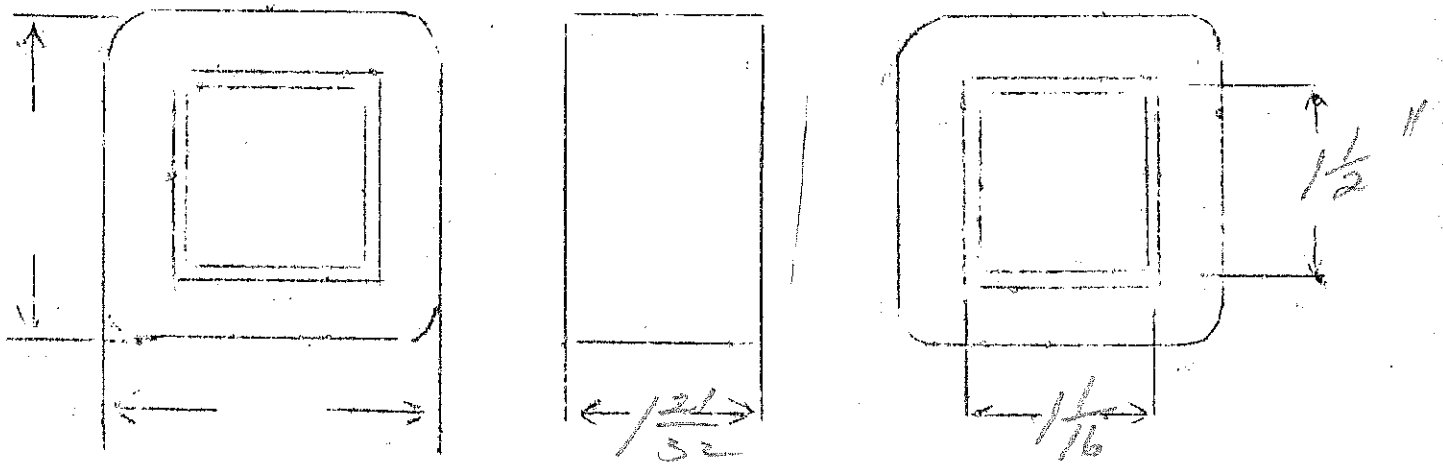
F_2 = 5 vr – 2 amps

$\frac{N}{E}$ = 3.25

SPEC. NO. 826

Winding	SEC.	SHIELD	PRI	F_1	F_2		
Turns	3000	168	450	21	26		
Taps	1500	—	413	—	—		
Wind. Lgth.	1 5/32	1 5/32	1 5/32	—	—		
Wire Size	33	33	23	20	17		
T.P.L.	#8 – 150	168	53 – 9	—	—		
Kind Term.	#29 Plain	silver	#28 Plain	Wire			
Term. Lgth.	9"	3"	9"	9"	9"		
Layer Insul.	20#		40#	—	—		
Wrapper	2L0056A	2L0056A	2L0056A	2L0056A	2L0056A		

TUBE	2L007	IMPREGNATION	VARNISH
CURE	1/2 X 1 1/2"		



E_b = 440 - 120 ma E_4 = 42

E_5 = 700 V - 85 ma

E_{F_1} = 2.5 V CT - 5 amps E_{F_3} = 5V - 2 amps

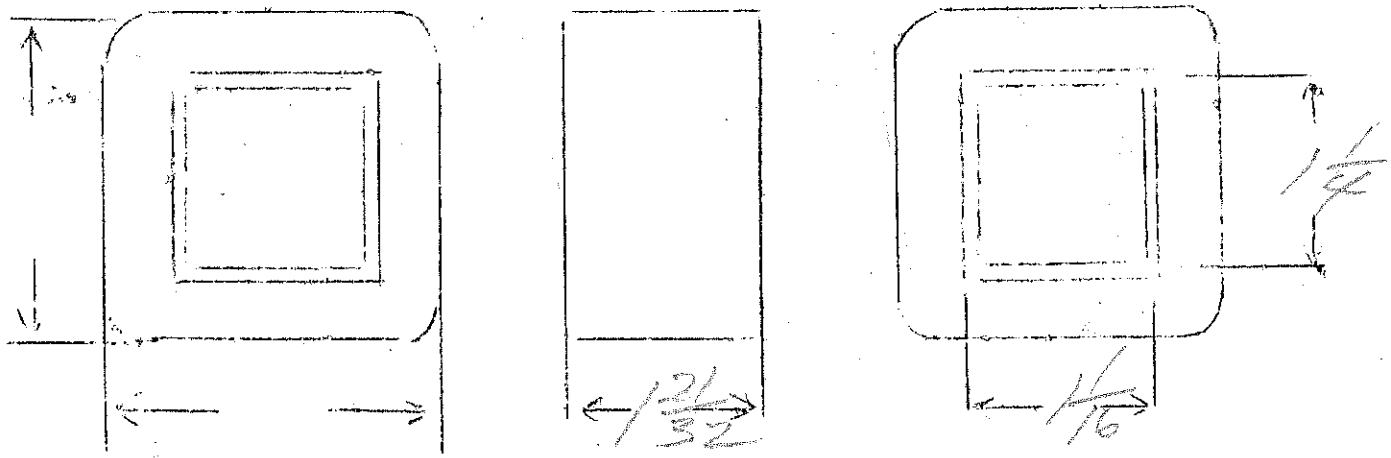
E_{F_2} = 2.5 V - 6 amps

SPEC. NO. 828

Winding	PRI	SHIELD	SEC	F_1	F_2	F_3	
Turns	523	185	3240	12	12	24	
Taps	462	—	1620	6	—	—	
Wind. Lgth.	1 15/32	1 15/32	1 15/32	—	—	—	
Wire Size	#24E	#34E	#34E	#16	#15	#20	
T.P.L.	54-9	185-1	185-18				
Kind Term.	#20 Stranded	Solid	#30 Formex	Lead	Lead		
Term. Lgth.	9"	3"	9"	9"	9"	9"	
Layer Insul.	40#	—	20#	—	—	—	
Wrapper	1 Layer KK	1 Layer KK	2 Layers K	2 Layers K	—	2 Layers K	

TUBE | 2.687 | IMPREGNATION | VARNISH

CURE | 1 hr x 1 hr



Similar to #108 - California A.

B = 17500

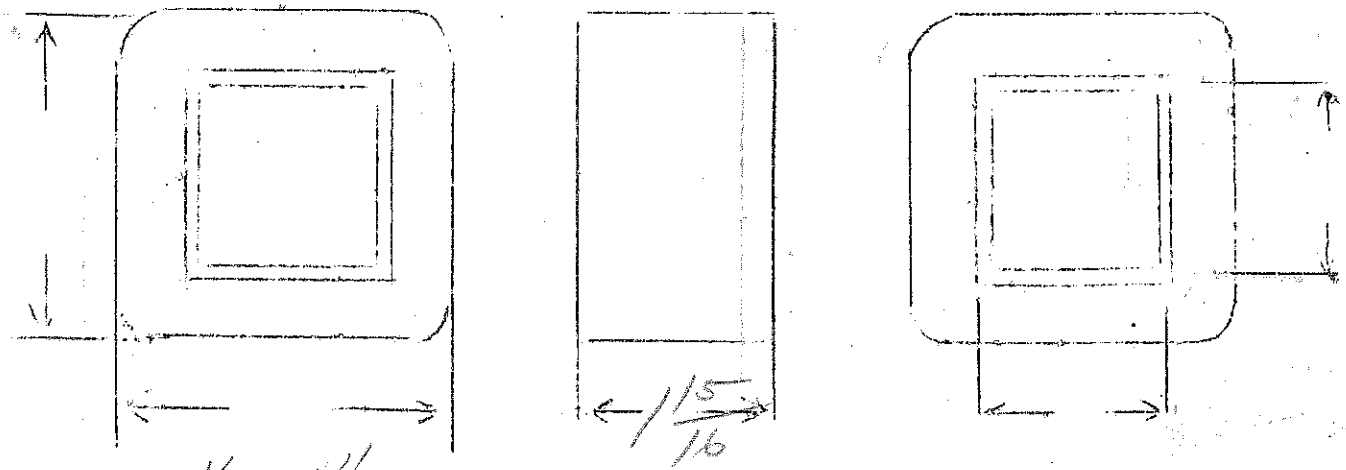
$\frac{W}{E}$ = 1.6

SPEC. NO. 829

Winding	SEC	FIL	½ PRI				
Turns	1760	9	176				
Taps	880	—	—				
Wind. Lgth.	1.75	double					
Wire Size	#29	#21	#22				
T.P.L.	135-14		60-3				
Kind Term.	#30 PEW						
Term. Lgth.	9"						
Layer Insul.	40#						
Wrapper	1400716 2L005GA	2L005GA	2L005GA				

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1¼ x 3"



Sec on 1¼ x 3" core

Pri - Two coils on outside leg of laminations - 5/8 x 3"

Output
4000-5000 ohms to 3.2-4 ohms
1 watt max
Prima = 10

New stock

SPEC. NO. A830

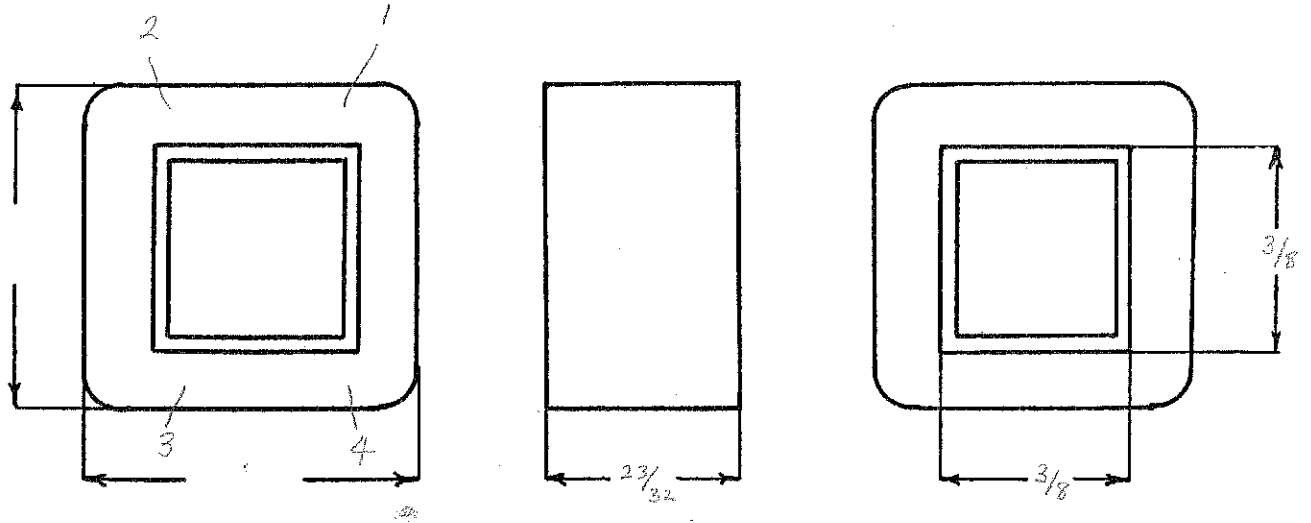
Winding	1-2 Pri	3-4 Sec					
Turns	3970	112					
Taps	—	—					
Wind. Lgth.	17/32	17/32					
Wire Size	#40	#26					
T. P. L.	134-30L	28-4L					
Finish Pitch	72%	90%					
Type Lead	#22 Plastic	n.e.					
Lead Lgth.	6"	3"					
Layer Insul.	12½#	40#					
Test Volt.	1250	1000					
Wrapper	1L005VC	2L0050A					

TUBE 4L010GK IMPREGNATION Varnish

CORE 3/8 x 3/8 GA. 26 GRADE D STACK Butt no gap

MOUNTING D-leads

wn = 82%



DESIGNED BY S. BABCOCK DATE 6-15-49

DESIGN AND TEST DATA

Rating:

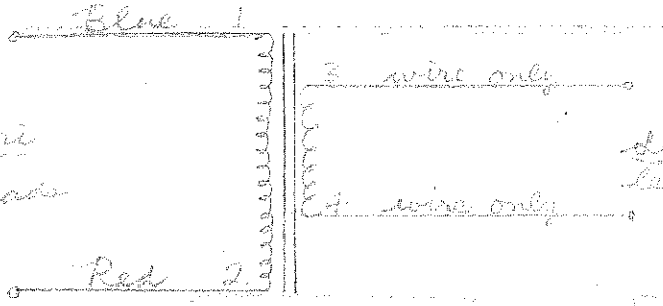
Winding	1-2 Pri	3-4 Sec					
Mean Turn	2.26	3.04					
Resistance 25° c	800	1.180					
Pounds Copper	.0229	.0222					
Copper Density	—	—					
Ratio Volts	39.7	1.12					
Test to Ground	1250	1.000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = \frac{4000}{5000} = \frac{3.2}{4}$

$Z_R = \frac{1250}{1} = \frac{1}{1}$

$T_R = \frac{35.4}{1} = \frac{1}{1}$

$I_{P\,max} = \sqrt{\frac{1}{4000}} = \frac{1}{63.2} = 15.8\,ma.$

$I_{S\,max} = \sqrt{\frac{1}{3.2}} = \frac{1}{1.79} = 560\,ma.$

$E_{max} = \sqrt{1 \times 5000} = \sqrt{5000} = 70.5\,v.$

Output

4000 – 5000 ohms to 3.2 – 4 ohms

1 watt max

Pri ma. 10

New stock

SPEC. NO. A 830

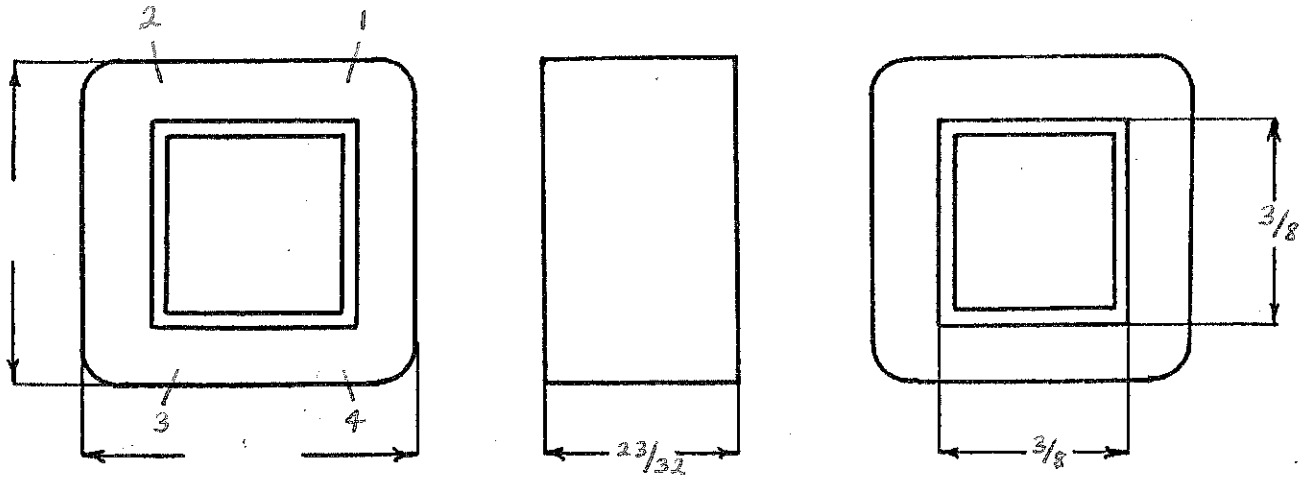
Winding	1–2 Pri	3–4 Sec					
Turns	3970	112					
Taps	—	—					
Wind. Lgth.	17/32	17/32					
Wire Size	#40	#26					
T. P. L.	134 – 30L	28 – 4L					
Finish Pitch	72%	90%					
Type Lead	#22 Plastic	no. 0.					
Lead Lgth.	6"	3"					
Layer Insul.	12 #	40#					
Test Volt.	1250	1000					
Wrapper	1L005VC	2L005GA					

TUBE 4L010GK IMPREGNATION Varnish

CORE 3/8 X 3/8 GA. 26 GRADE D STACK Butt no gap

MOUNTING D – Leads

Lam. = 78%



DESIGNED BY S. BABCOCK

DATE 6-15-49

DESIGN AND TEST DATA

Rating:

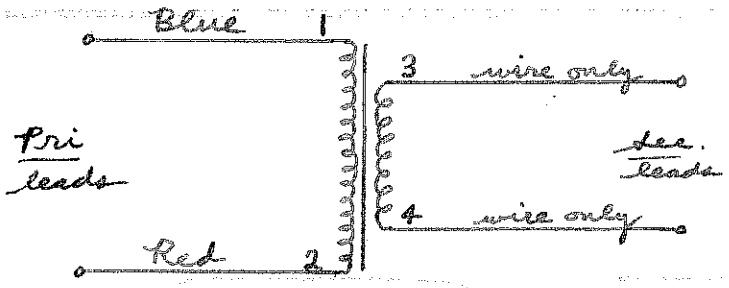
Winding	1-2 Pri	3-4 Sec					
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts	117	3.30					
Test to Ground							

Iron Induction 20- @ Cycles

Exciting Current 20-30 milli amperes @ 115 volts 60 cycles on 1-2

Induced Test: Apply Volts at Cycles on with grounded

Remarks:



$$Z = \frac{4000}{5000} = \frac{3.2}{4}$$

$Z_R = 1250 - 1$

$T_R = 35.4 - 1$

$I_{P\,max} = \sqrt{\frac{1}{4000}} = \frac{1}{63.2} = 15.8\,ma$

$I_{S\,max} = \sqrt{\frac{1}{3.2}} = \frac{1}{1.79} = 560\,ma$

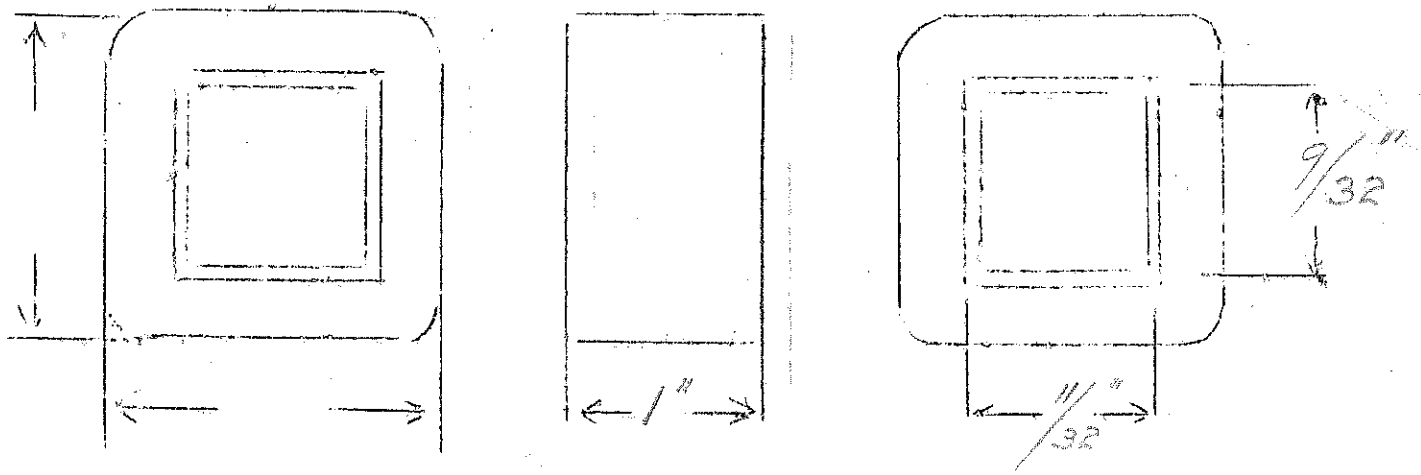
$E_{max} = \sqrt{1 \times 5000} = \sqrt{5000} = 70.5\,v$

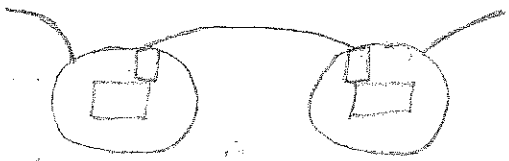
SPEC. NO. 830

	(110V)		(24V)				
Winding							
Turns	4220		922				
Taps	—						
Wind. Lgth.	7/8"						
Wire Size	35E		29E				
T.P.L.							
Kind Term.	Parmalee Braid #20						
Term. Lgth.	1½" + 2¾" Inside – 2½" x 3¾"						
Layer Insul.	20#G1.						
Wrapper							

TUBE | IMPREGNATION

CURE





Two coils- Insides connect together under wrapper.

Radio Receiver

E_p = 175 V

E_s = 2400 V C.T. — 325 Ma

V.A. = 590

B = 12000

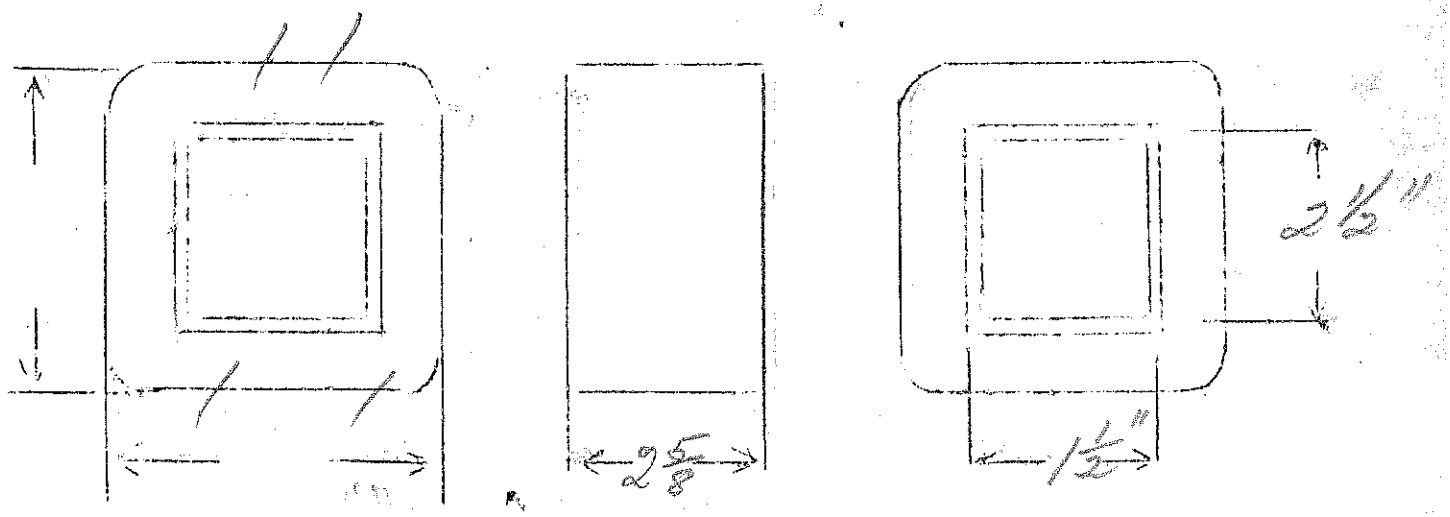
$\frac{\#}{E}$ = 1,55

SPEC. NO. 831

Winding	SEC	PRI					
Turns	4100	180					
Taps	2050	—					
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#27	#16					
T.P.L.	147-28	5 layers					
Kind Term.	wire	wire					
Term. Lgth.	6"	6"					
Layer Insul.	50#	kraft					
Wrapper	2400SVC 3L005GA	2400SGA					

TUBE | 2007-2407VC | IMPREGNATION | VARNISH

CURE | 1½ × 2½



Output

7 - 8,000 ohms to 3.2 - 3.66 ohms

New stock

1 watt max.

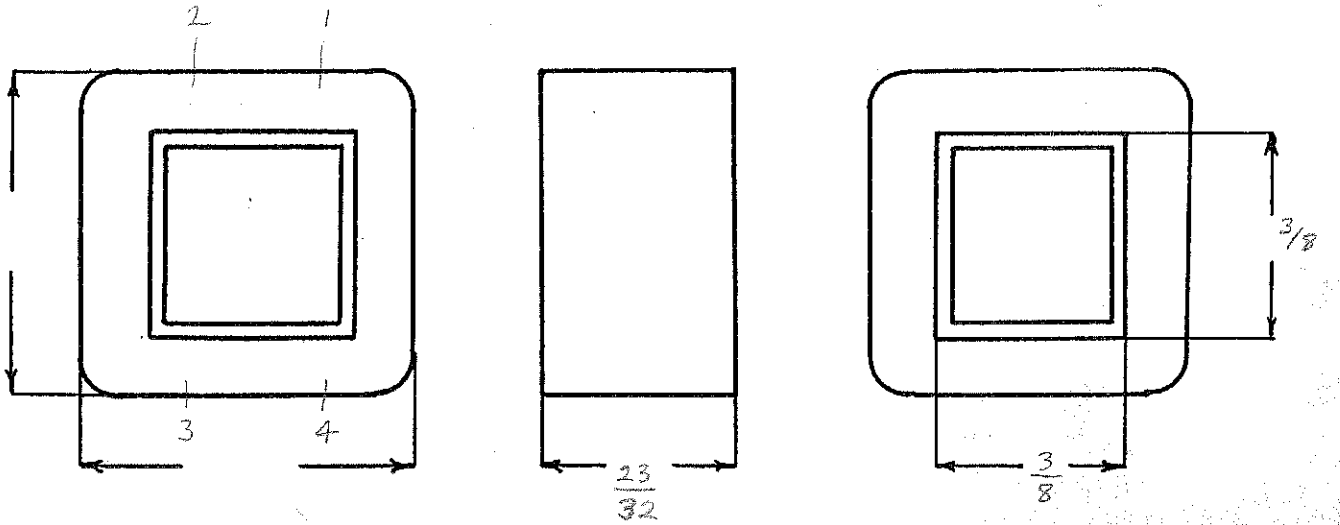
Pri mv = 10

SPEC. NO. A832

Winding	1 - 2 Pri	3 - 4 Sec					
Turns	4595	98					
Taps	—	—					
Wind. Lgth.	17/32	17/32					
Wire Size	#40	#26					
T. P. L.	135 - 34L	25 - 4L					
~~Finish~~ Patch	89%	80%					
Type Lead	#22 Plastic	mv. o.					
Lead Lgth.	6"	3"					
Layer Insul.	12½#	40#					
Test Volt.	1250	1000					
Wrapper	1L005VC	2L005GA					

TUBE	4L010GK		IMPREGNATION	Varnish	
CORE 3/8 x 3/8	GA. 26	GRADE D	STACK Butt no gap		
MOUNTING D - Leads					

mv = 87%



DESIGNED BY a Hadley

DATE 6-15-49

DESIGN AND TEST DATA

Rating:

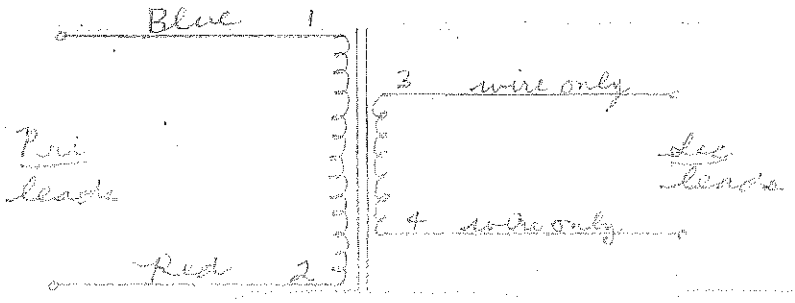
Winding	1-2 Pri	3-4 Sec					
Mean Turn	2.32	3.16					
Resistance 25° c	948	1.072					
Pounds Copper	.0272	.0202					
Copper Density	—	—					
Ratio Volts	45.95	.98					
Test to Ground	1250	1000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = \frac{7000}{8000} - \frac{3.2}{3.66}$

$Z_R = 2190 - 1$

$T_R = 46.8 - 1$

$I_{pmax} = \sqrt{\frac{1}{7000}} = \frac{1}{83.6} = 11.98\ ma$

$I_{smax} = \sqrt{\frac{1}{3.2}} = 560\ ma$

$E_{max} = \sqrt{1 \times 8000} = 89.4\ v.$

RK = 211 A 3.32

$R_{pri} = 348$ 830

$R_{sec} = 370$ .97 #26

Lpri 4.7 hy 5.9 hy

Output

7-8,000 ohms to 3.2-3.66 ohms

1 watt max

Pri max = 10

New stock

ATAC TEST ONLY MARCH

SPEC. NO. A 832

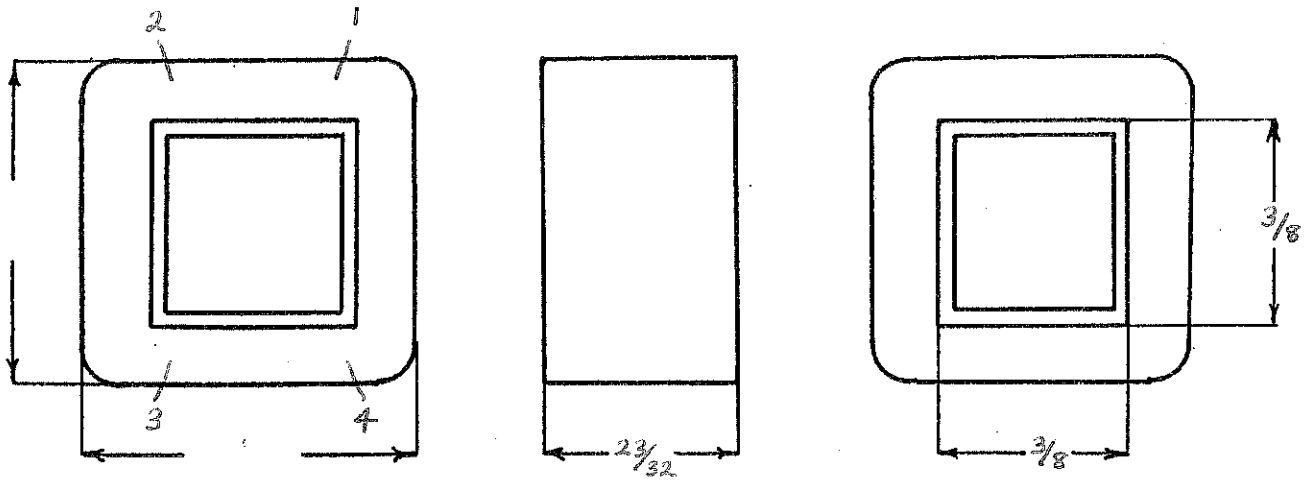
Winding	1-2 Pri	3-4 Sec					
Turns	4595	98					
Taps	—	—					
Wind. Lgth.	17/32	17/32					
Wire Size	#40	#26					
T. P. L.	135-34L	25-4L					
Finish Pitch	89%	80%					
Type Lead	#22 Plastic	no.					
Lead Lgth.	6"	3"					
Layer Insul.	12 #	40#					
Test Volt.	1250	1000					
Wrapper	1L005VC	2L005GA					

TUBE	4L010GK	IMPREGNATION	Varnish

CORE 3/8 X 3/8 GA. 26 GRADE D STACK Butt no Gap

MOUNTING D - Leads

wn = 84%



DESIGNED BY A. HADLEY

DATE 6-15-49

DESIGN AND TEST DATA

Rating:

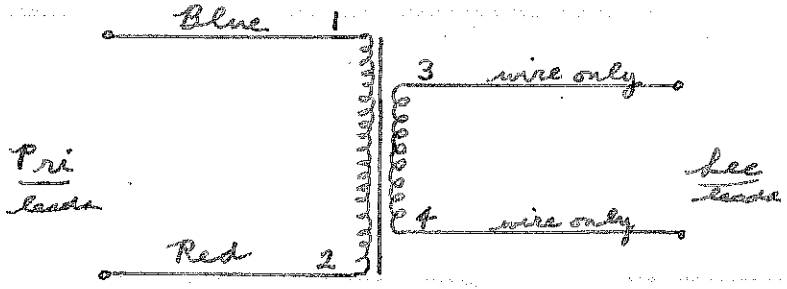
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$$\frac{7000}{Z = 8000} \div 3.2 = 3.66$$

$Z_R = 2190 - 1$

$T_R = 46.8 - 1$

$I_{P\,max} = \sqrt{\frac{1}{7000}} = \frac{1}{83.6} = 11.98$ ma.

$I_{S\,max} = \sqrt{\frac{1}{3.2}} = 560$ ma

$E_{max} = \sqrt{1 \times 8000} = 89.4$ v.

PRI - 220 - 240

E_{F_1} - 10V - 8 AMPS. CT.

E_{F_2} - 2.5V - 12 AMPS.

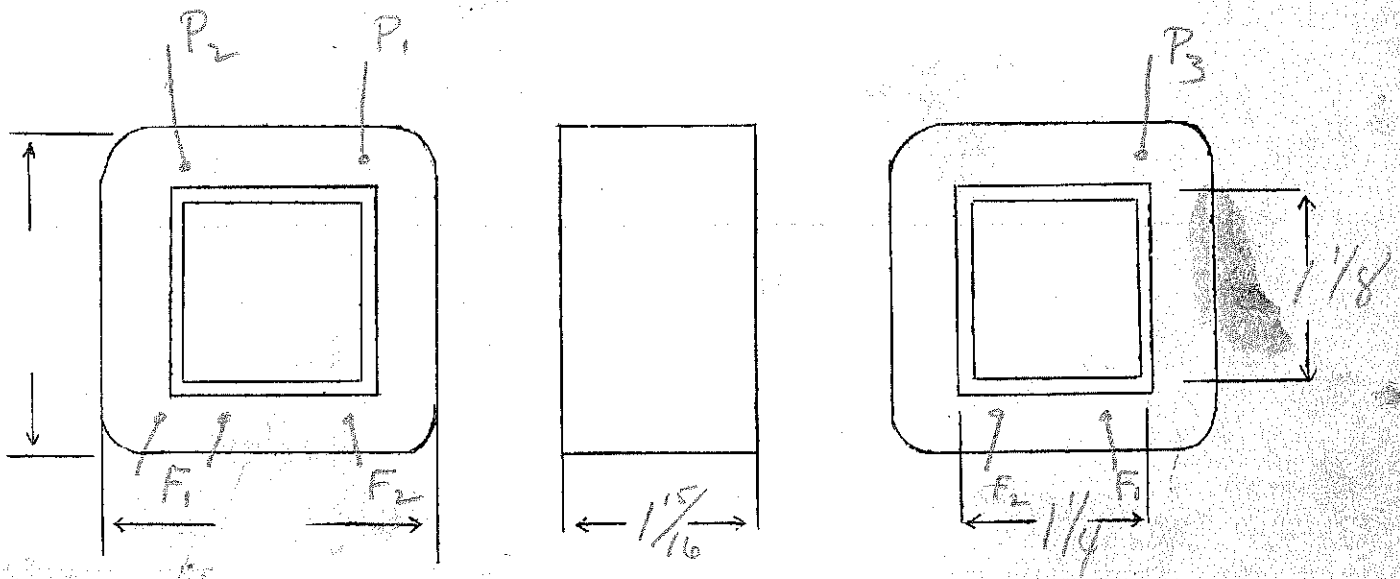
SPEC. NO. F 832 - 230 V

Winding	PRI	F_1	F_2				
Turns	960	45	12				
Taps	886	22	—				
Wind. Lgth.	1.75	—	—				
Wire Size	#24	#14	#12				
T.P.L.	74-13	—	—				
Kind Term.	WO	WO	WO				
Term. Lgth.	6"	6"	6"	Pull	2 Times around		
Layer Insul.	50#	—	—				
Test Volt.	—	—	5000V				
Wrapper	2L007GA	2L007VE 2L007GA	2L007VE 2L007GA				

TUBE 2L007 | IMPREGNATION DOUBLE VARNISH

CORE 1 1/4 x 1 1/8 | PRIMARY V.A. 143

MOUNTING F



DESIGNED BY

DATE 5/24/38

Ep - 110 V. - 120 V.
Ef - 2.5 V. - 10 A. - 5000 V. Ins.
Ef - 10 V.C.T. - 7 A. - 5000 V. Ins.

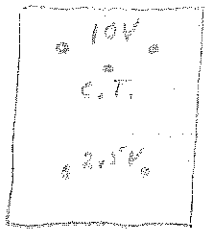
SPEC. NO. F832
(REVISED TO #8316)

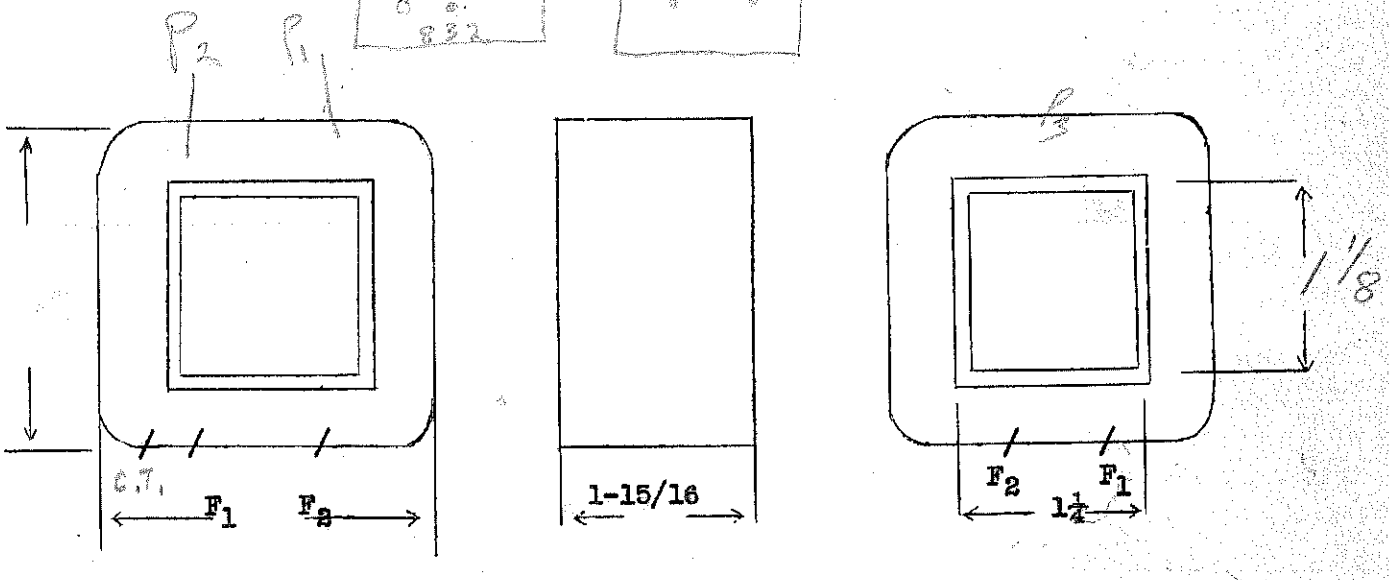
Winding	PRI.	F_1	F_2				
Turns	480	45	12				
Taps	440	22					
Wind. Lgth.	1.75	~~---~~ 1 9/16" center winding go	---				
Wire Size	#21	#14	#12				
T.P.L.	53 - 10 (90%)	22 - 22 (92½%)	12 - 12 (79½%)				
Kind Term.	W. O.	W.O.	W.O.				
Term. Lgth.	6"	6"	6"				
Layer Insul.	50#	1-L .010"Cp	—				
Test Volt.	1,250	~ 5000	—				
Wrapper	2L007GA	2L007VC 2L007GA	2L007VC 2L007GA				

TUBE	7L007	IMPREGNATION	VARNISH
CORE	1¼ x 1-1/8	PRIMARY V.A.	
MOUNTING	F		

Cu=730-586-653
Fe=75.8@60N
TPI=4.0
WH=.509(547)

SEC. VA=95
PRI. VA=127
PRI. I=1.11A.





ok

DESIGNED BY G. W. DATE

P = 110 - 115 - 120

S = 11800

E = 214

E_S = 2500V - 300 Ma

E_S = 2500V - 300 Ma

E_F = 5V - 2.5 amps

SPEC. NO. 833

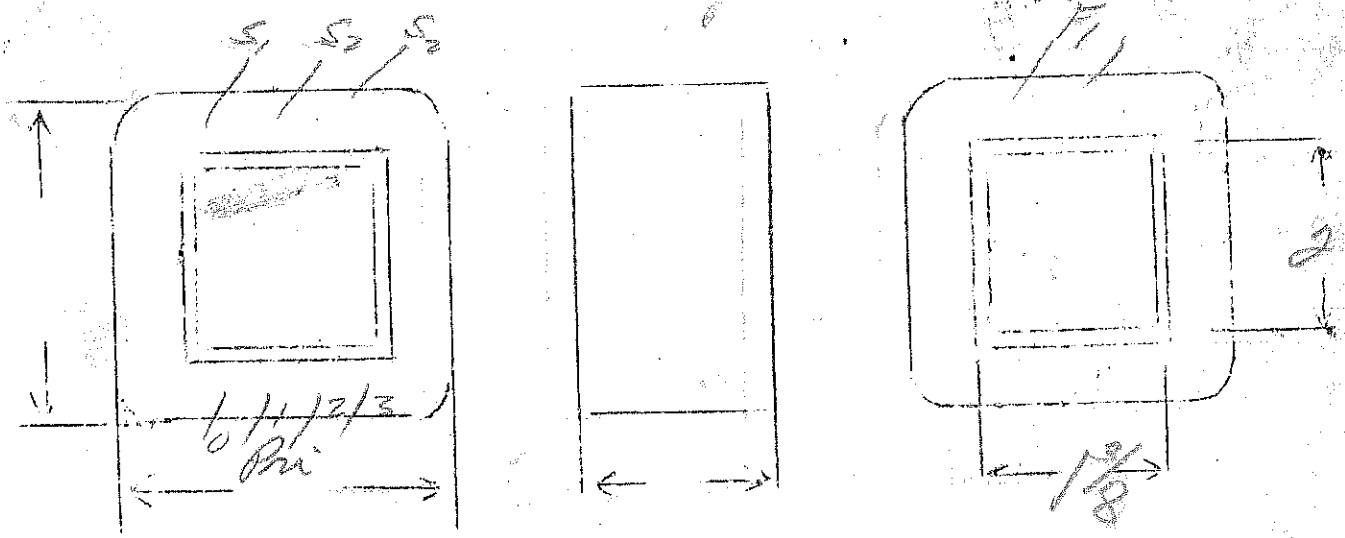
Winding	SEC,	SEC$_2$	SHIELD	PRI	SHIELD	FIL.	
Turns	580	6100	1	257 246 235	1	12	
Taps	—	—				—	
Wind. Lgth.	2 3/4	2 3/4		6"		—	
Wire Size	#27 Enl	#27 Enl	Brass	#13	Brass	Stranded #13	
T.P.L.	170	170		25-42			
Kind, Term.	#30 Par Black	#30 Par Red	Silver	Wire	Silver	Wire	
Term. Lgth.	9"	9"	4"	9"	4"	14"	
Layer Insul.	60#	60#					
Wrapper	2L007VC	2L007VC 2L005GA	2L005GA	2L005GA	2L005GA	2L005GA	

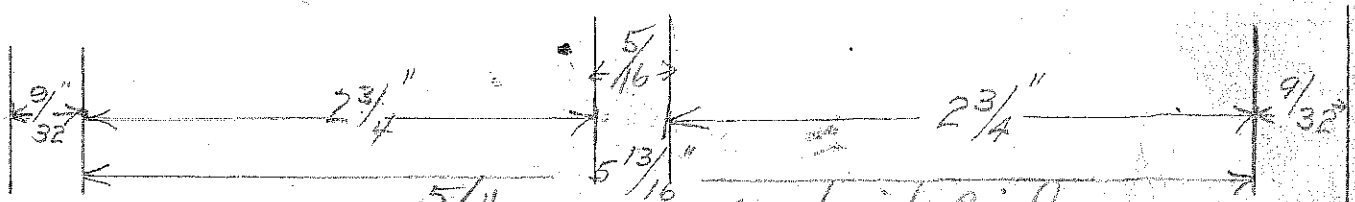
TUBE | 2L007+2L007VC | IMPREGNATION | VARNISH

CURE | 1 3/8 x 2"

60/1mm

6 3/8" overall coil





Output

2.000 ohms to 3.2 ohms

5 watts max

Pri ma. = 55

New stock

SPEC. NO. A 834

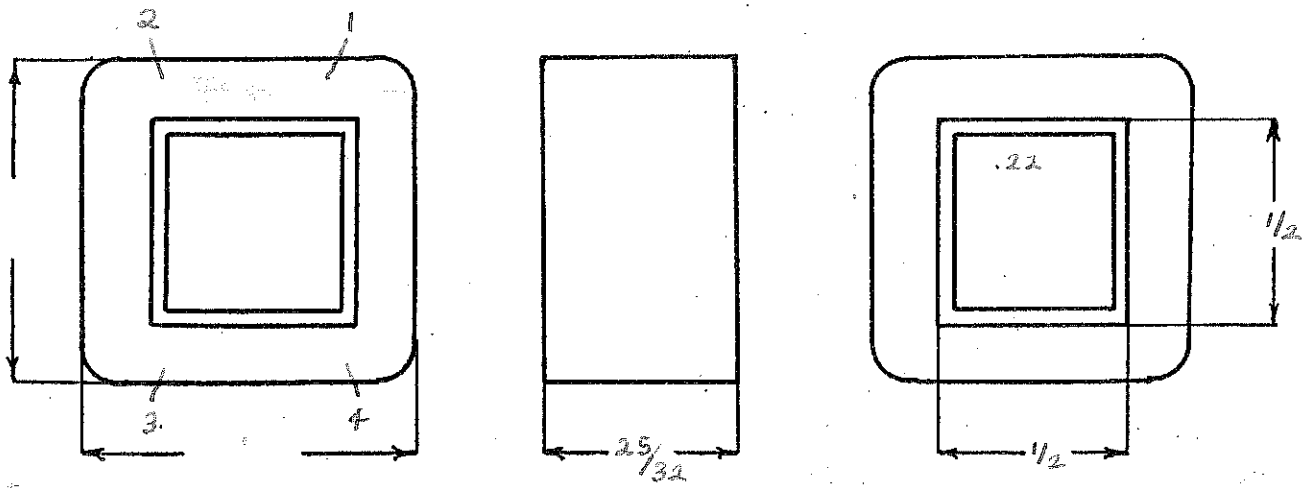
Winding	1-2 Pri	3-4 Sec					
Turns	1500	60					
Taps	–	–					
Wind. Lgth.	19/32	19/32					
Wire Size	#35	#22					
T. P. L.	84 - 18L	20 - 3L					
Finish Pitch	88%	90%					
Type Lead	#22 Plastic	n. o.					
Lead Lgth.	6"	3"					
Layer Insul.	20 #	50 #					
Test Volt.	1250	1000					
Wrapper	1L005VC	2L005GA					

TUBE	5L010GK	IMPREGNATION	Varnish

CORE 1/2 x 1/2 GA. 26 GRADE D STACK Butt no gap

MOUNTING D - leads

nom = 89%



DESIGNED BY A. HADLEY

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

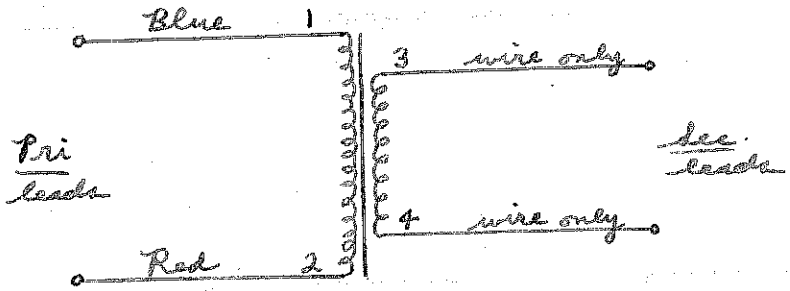
Winding	1-2 Pri	3-4 Sec					
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts open circuit	750	2.5					
Test to Ground	1250	1000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on 1-2

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

Remarks:



$Z = 2000 - 3.2$

$Z_R = 625 = 1$

$T_R = 25 - 1$

$I_{P\,max} = \sqrt{\frac{5}{2000}} = \frac{2.23}{49.9} = 50\,ma.$

$I_{S\,max} = \sqrt{\frac{5}{3.2}} = \frac{2.23}{1.79} = 1.25a$

$E_{max} = \sqrt{5 \times 2000} = 100\,v.$

Gaffelin Chassis
24V – 15 watt

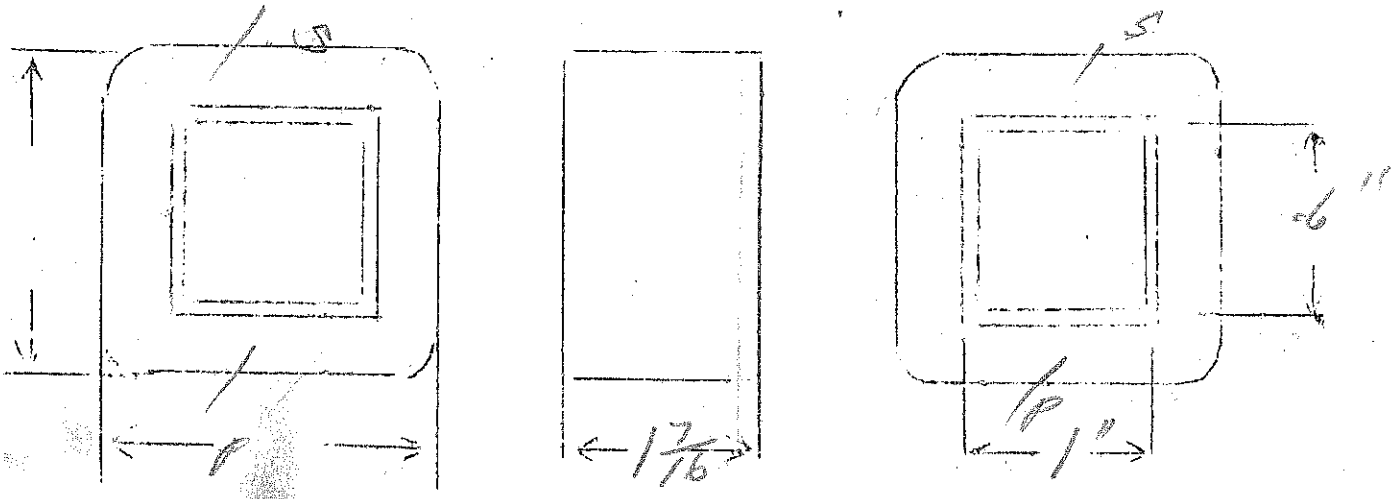
B = 12000
$\frac{K}{E}$ = 9.7

SPEC. NO. 834

Winding	PRI	SEC					
Turns	1115	260					
Taps	—	—					
Wind. Lgth.	1.25	1.25					
Wire Size	#30	#24					
T.P.L.	105-1	53-5					
Kind Term.	#14 Braid						
Term. Lgth.	8"	8"					
Layer Insul.	30#	50#					
Wrapper	4L007	4L0564					

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1K.6 NW		

underwriter Case - leads out grommet



2000 ohms to 3.2 ohms

5 watts max

Pri ma = 55

new stock

SPEC. NO. A 834

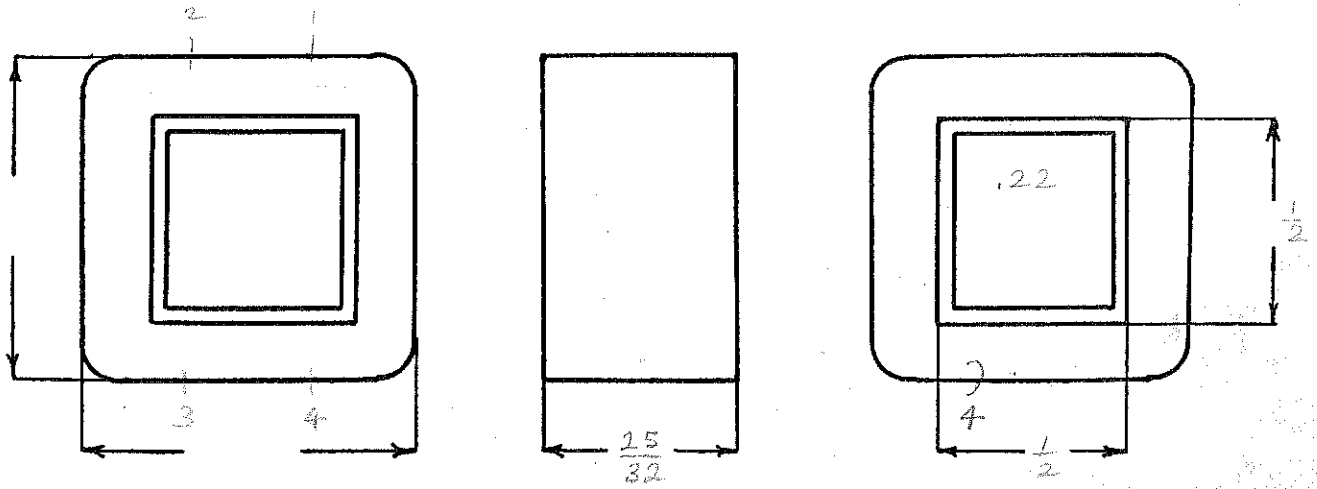
	1–2	3–4					
Winding	Pri	Sec					
Turns	1500	60					
Taps	—	—					
Wind. Lgth.	19/32	19/32					
Wire Size	#35	#22					
T. P. L.	84 — 1BL	20 — 3L					
Finish Patch	88%	90%					
Type Lead	#22 Plastic	wr o.					
Lead Lgth.	6"	3"					
Layer Insul.	20#	50#					
Test Volt.	1250	1000					
Wrapper	1L 005VC	2L 0056A					

TUBE 5L 010 6A — IMPREGNATION Varnish

CORE $\frac{1}{2} \times \frac{1}{2}$ — GA. 26 — GRADE D — STACK Butt No Gap

MOUNTING D—Leads

wr = 90%



DESIGNED BY a Hadley

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

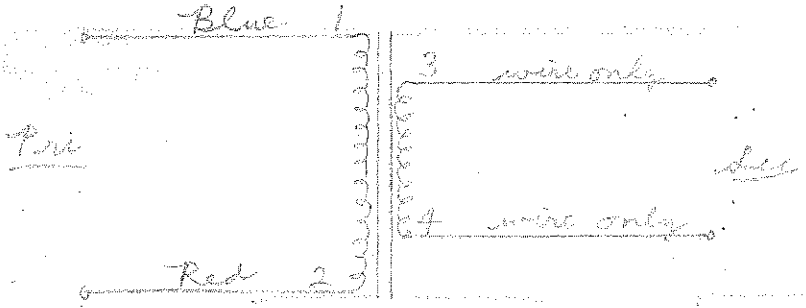
Winding	1–2 Pri	3–4 Sec					
Mean Turn	2.85	3.70					
Resistance 25° c	119.5	.305					
Pounds Copper	.0348	.0366					
Copper Density	—	—					
Ratio Volts	15.0	0.60					
Test to Ground	1250	1000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = 2000\ \Omega$ to $3.2\ \Omega$

$Z_R = 625\ \Omega$ to $1\ \Omega$

$T_R = 25 - 1$

$I_{p\,max} = \sqrt{\frac{5}{2000}} = \frac{2.23}{44.7} = 50\ ma$

$I_{s\,max} = \sqrt{\frac{5}{3.2}} = \frac{2.23}{1.79} = 1.25\ a$

$E_{max} = \sqrt{5 \times 2000} = 100\ V$

	RH-118	A834
R_{pri}	237	107
R_{sec}	.611	.298
L_p	2.5	1.5

Limited

Pri - 115

Sec - 750V - 100Ma

F_1 - 2.5V - 2.5 amps

F_2 - 7.5V - 1.25 amps

F_3 - 2.5V - 1.75 amps

F_4 - 1.5V - 4.5 amps

F_5 - 1.5V - 1. amp

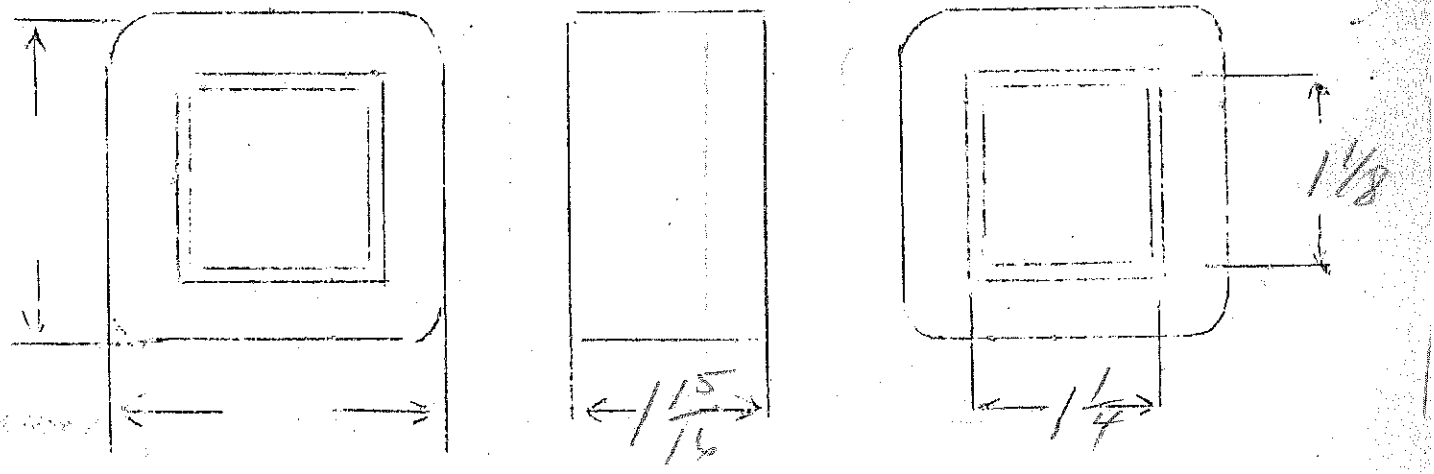
$\frac{N}{E} = 4$

SPEC. NO. 835

Winding	Pri	Shield	Sec	Green F_1	blue F_2	Black F_3	wh. & red F_4	F_5
Turns	460	180	3180	33	33	11	7	7
Taps	—	—	1590	16	16	6	—	—
Wind. Lgth.	1.75	1.75	1.75					
Wire Size	#22	#32	#32	#19	#22	#21	#16	#22
T.P.L.	588	180	180-18					
Kind Term.	#20 Plain	Silver	#20 Plain		wire			
Term. Lgth.	9"	3"	9"		9"			
Layer Insul.	50#	—	30#					
Wrapper	1L005KC	2L005KC	1L005KC					

TUBE	7L007	IMPREGNATION	

CURE



E_p = 115 V

E_B = 950 V. — 200 Ma.

E_{F_1} = 5 V — 3 amps CT.

E_{F_2} = 2.5 V — 8 amps

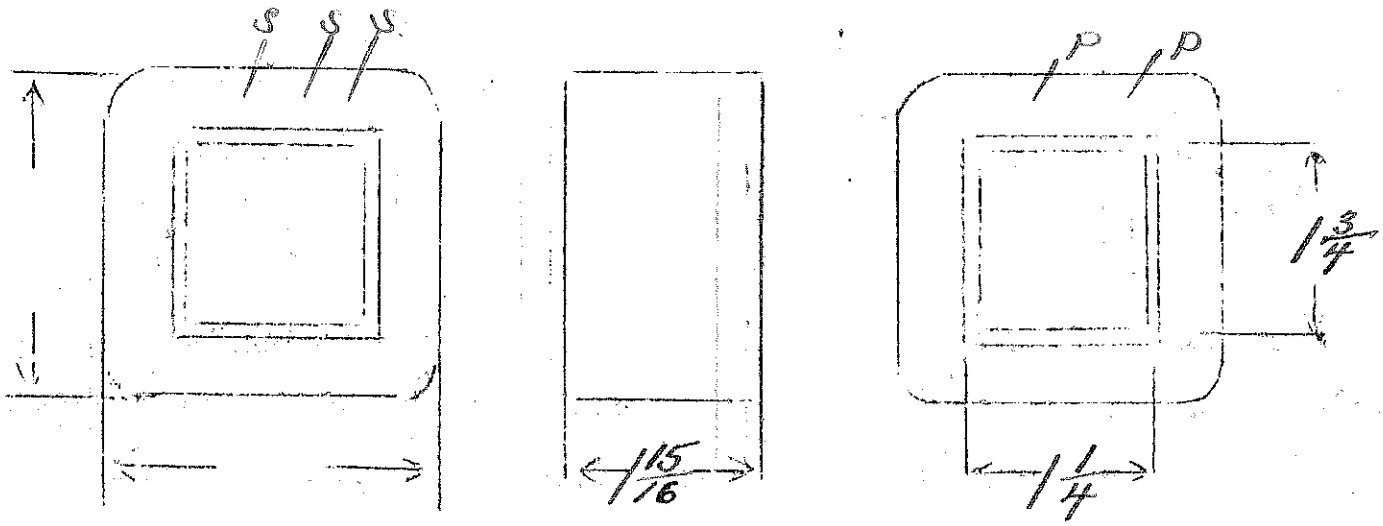
$\frac{N}{E} = 2.65$

SPEC. NO. 86B

Winding	SEC	SHIELD	PRI	F_1	F_2		
Turns	2840	143	304	15	7		
Taps	~~1420~~	—	—	7			
Wind. Lgth.	1.75	1.75	1.75	—	—		
Wire Size	#30	#30	#20	#18	#12		
T.P.L.	143-20	1	47-87	1 layer			
Kind Term.	~~#20~~ PBr.	wire	~~#20~~ PBr.	wire	wire		
Term. Lgth.	9"	3"	9"	9"	9"		
Layer Insul.	~~.30 #~~	—	50 #	—	—		
Wrapper	L-007VC	L-005GA	L-007VC L-007GA	L-007GA			

TUBE | L-007 / L-007VC | IMPREGNATION | V.

CURE | 1/4 X 1 3/4



Universal Output

New stock

P-P or single plate
to
variable voice coil
Max pri D.C. = 40ma

SPEC. NO. A 864

Winding	1-2-3 Pri	4-5-6-7-8 Sec					
Turns	3220	107					
Taps	1610	39-54-83					
Wind. Lgth.	13/16	13/16					
Wire Size	#37	#23					
T. P. L.	147-22L	27-4L					
Finish Pitch	90%	79%					
Type Lead	#22 PB	mw. o. to lugs					
Lead Lgth.	9"	3"					
Layer Insul.	20#	1L005GA					
Test Volt.	1250	1000					
Wrapper	1L005GA ~~+1L005VC~~ ~~2L-50#~~	2L005GA					

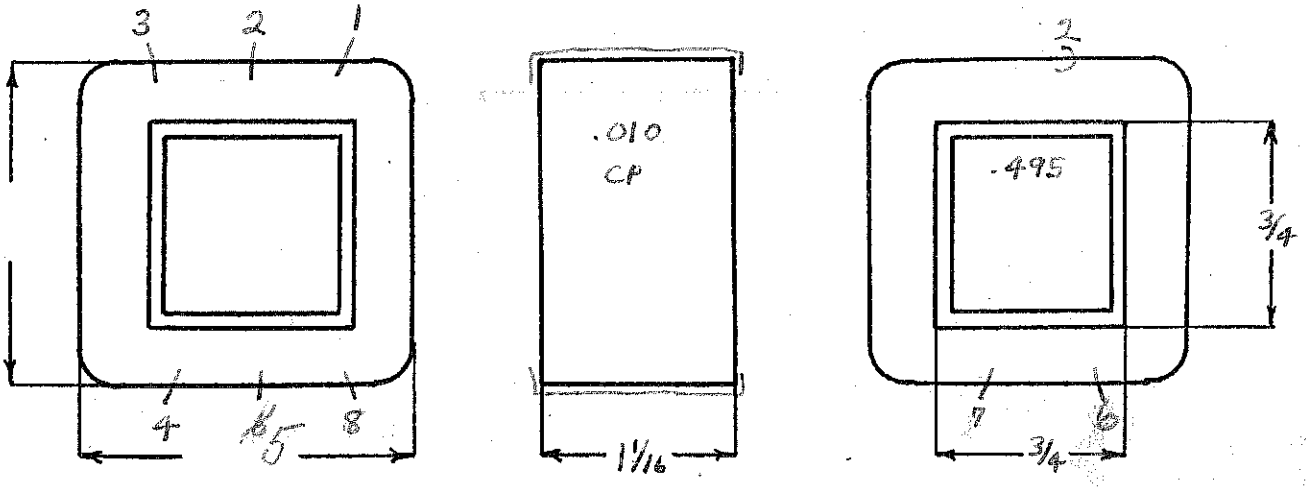
TUBE 5L007GH + ~~1L005GA~~ 1L005CA

IMPREGNATION Varnish

CORE 3/4 X 3/4 GA. 29 GRADE B STACK Butt No lap

MOUNTING D

mw. = 80%



RE-DESIGNED BY A. HADLEY
from D-556

DATE 7-19-49

DESIGN AND TEST DATA

Rating:

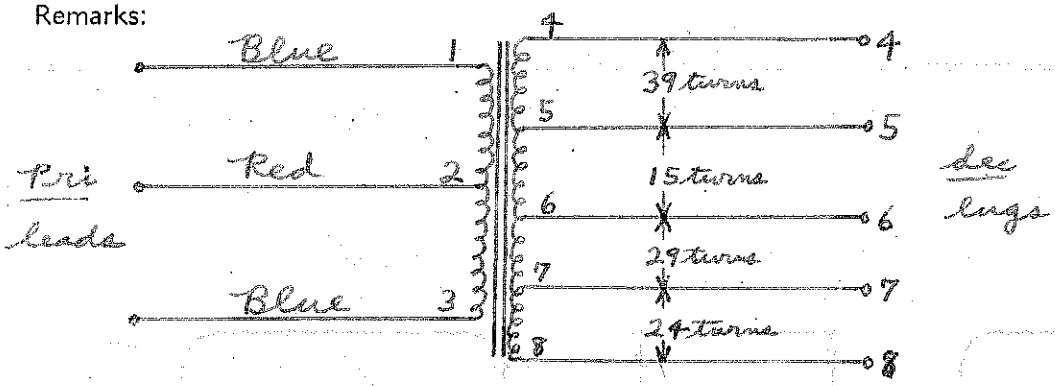
				1-3	4-8	4-7	5-8	4-6	5-7	4-5	6-7	7-8
Winding	1-2-3 Pri	4-5-6-7-8 Sec	Z	2000	2.21	1.33	.90	.563	.373	.282	.152	.111
			Z	4000	4.42	2.66	1.80	1.13	.746	.587	.304	.222
Mean Turn	3.78	4.77	Z	5000	5.52	3.32	2.24	1.41	.933	.734	.380	.278
			Z	7000	7.73	4.65	3.14	1.97	1.30	1.03	.530	.388
Resistance 25° c	541	.883	Z	8000	8.85	5.32	3.59	2.25	1.49	1.17	.608	.444
			Z	10,000	11.1	6.65	4.50	2.81	1.86	1.47	.760	.555
Pounds Copper	.0625	.0665	Z	14,000	15.5	9.30	6.29	3.94	2.61	2.05	1.06	.777
			Z	18,000	19.9	11.98	8.08	5.07	3.36	2.64	1.37	1.00
Copper Density	496	—	Z_R	18,000	19.9	11.98	8.08	5.07	3.36	2.64	1.368	1.00
			T_R	134	4.46	3.46	2.84	2.25	1.83	1.625	1.168	1.00
Ratio Volts (open circuit)	1-2 117 2-3 117 1-3 234	4-5 2.84 4-6 3.92 4-7 6.05 4-8 7.77	T	3220	107	83	68	54	44	39	28	24
Test to Ground	1250	1000										

Iron Induction 10.25 kg @ 50 Cycles with 117 volts on 1-2

Exciting Current 40 ma amperes @ 117 volts 60 cycles on

Induced Test: Apply Volts at Cycles on with grounded

Remarks:



Universal Output

New Stock

P-P or single plate
to
variable voice coil
max pri D.C. = 40 ma.

SPEC. NO. A 864

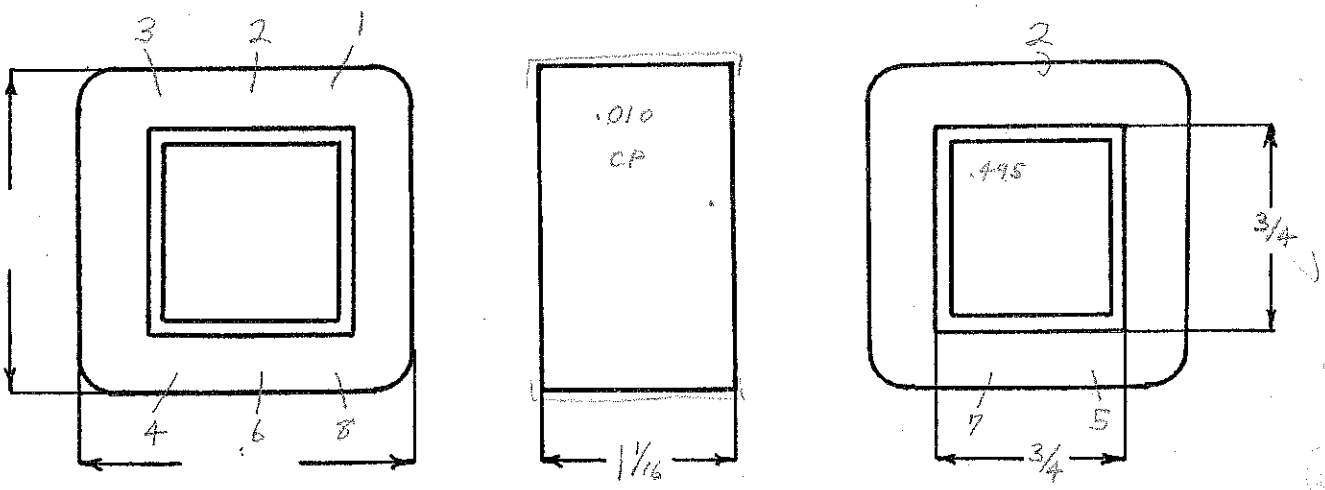
Winding	1-2-3 Pri	4-5-6-7-8 Sec					
Turns	3220	107					
Taps	1610	39-54-83					
Wind. Lgth.	13/16	13/16					
Wire Size	#37	#23					
T. P. L.	147 -22L	27 -4L					
Finish Paper	90%	79%					
Type Lead	#22 P.B.	#30 to lugs					
Lead Lgth.	9"	3"					
Layer Insul.	20#	1L005GA					
Test Volt.	1250	1000					
Wrapper	1L005VC 2L-50#	2L005GA					

TUBE 5L007GA + 1L005GA IMPREGNATION Varnish

CORE 3/4 x 3/4 GA. 29 GRADE B STACK Butt Interlap

MOUNTING D

mm = 80%



RE-DESIGNED BY A. Hadley
from D-556

DATE 7-19-49

DESIGN AND TEST DATA

Rating:

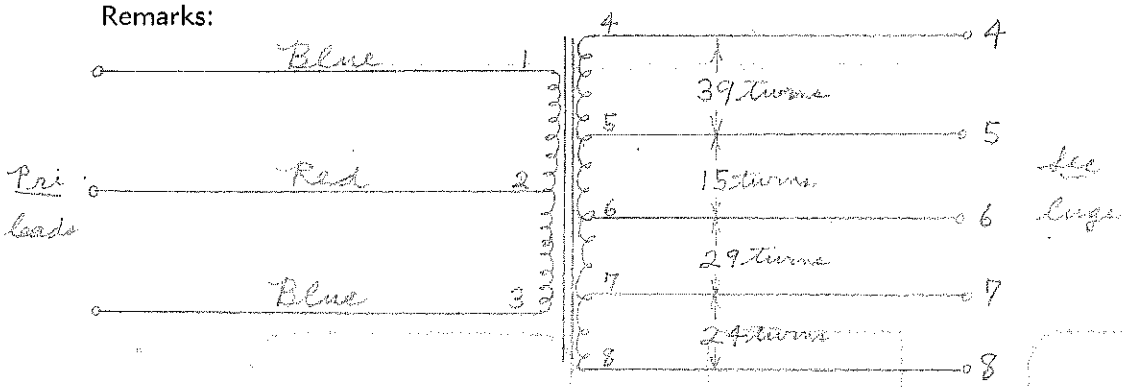
				1-3	4-8	4-7	5-8	4-6	5-7	4-5	6-7	7-8
Winding	1-2-3 Pri	4-5-6-7-8 Sec	Z	2000	2.21	1.33	.90	.563	.373	.282	.152	.111
			Z	4000	4.42	2.66	1.80	1.13	.746	.587	.304	.222
Mean Turn	3.78	4.77	Z	5000	5.52	3.32	2.24	1.41	.933	.734	.380	.278
			Z	7000	7.73	4.65	3.14	1.97	1.30	1.03	.530	.388
Resistance 25° c	541	.883	Z	8000	8.85	5.32	3.59	2.25	1.49	1.17	.608	.444
			Z	10,000	11.1	6.65	4.50	2.81	1.86	1.47	.76	.555
Pounds Copper	.0625	.0665	Z	14,000	15.5	9.30	6.29	3.94	2.61	2.05	1.06	.777
			Z	18,000	19.9	11.98	8.08	5.07	3.36	2.64	1.37	1.00
Copper Density	.496	—	Z_R	18,000	19.9	11.98	8.08	5.07	3.36	2.64	1.368	1.00
			T_R	134	4.46	3.46	2.84	2.25	1.83	1.625	1.168	1.00
Ratio Volts open circuit	1-2 117 2-3 117 1-3 234	4-5 2.84 4-6 3.92 4-7 6.05 4-8 9.77	T	3220	107	83	68	54	44	39	28	24
Test to Ground	1250	1000										

Iron Induction 10.25 Kg @ 50 Cycles with 117 volts on 1-2

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



15 H — at 100 Ma
110 Ω D.C. Res

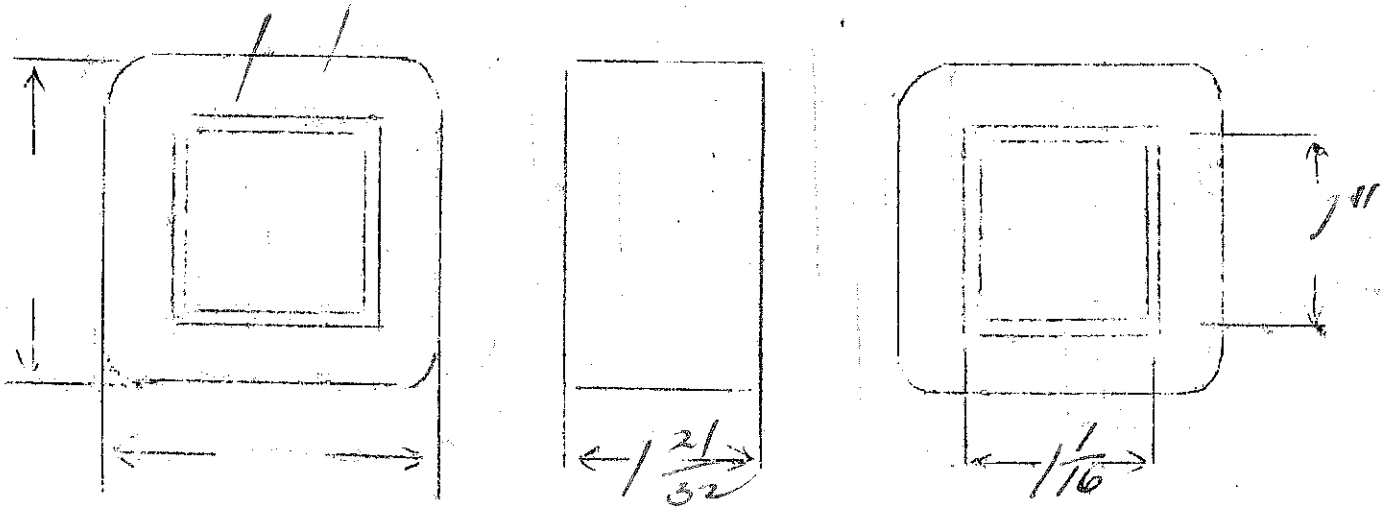
SPEC. NO. 862.4

Winding	PRI						
Turns	3000						
Taps	—						
Wind. Lgth.	1 15/21						
Wire Size	#28						
T.P.L.	95-32						
Kind Term.	#20 P Braid						
Term. Lgth.	9"						
Layer Insul.	30#						
Wrapper	2L005 GA						

TUBE | 2L007 | IMPREGNATION | V.

CURE | 1 1/16 x 1"

15 Ω 30#



E_b = 115 V

E_s = 460 V CT - 150 MA

E_{F_1} = 5 V - 2 amps

E_{F_2} = 6 V - ½ amp

VA = 43

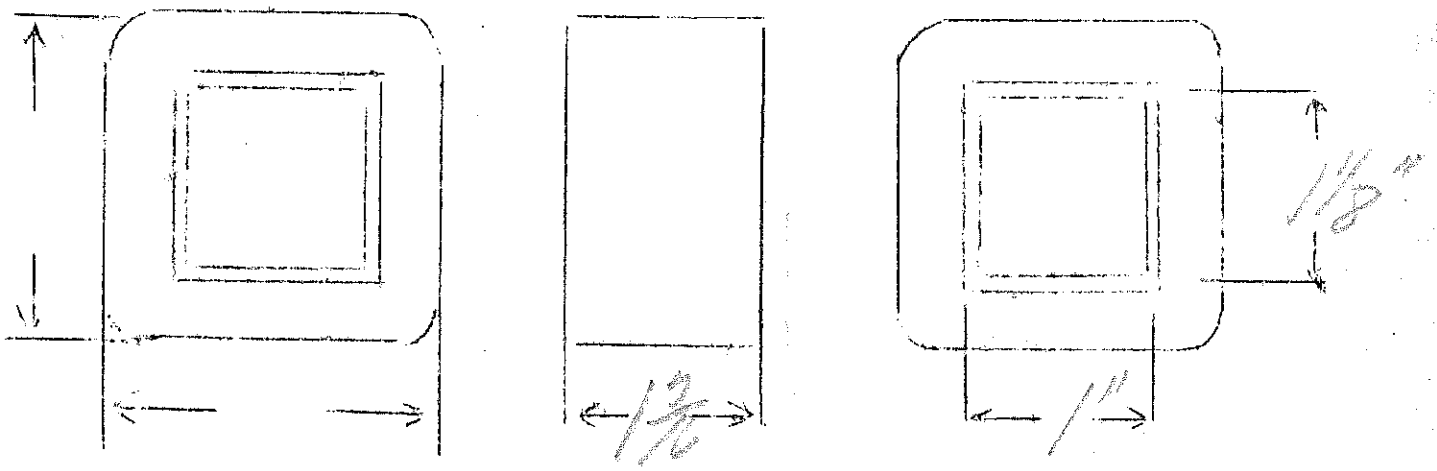
$\frac{V}{E}$ = 4.95

SPEC. NO. 865

Winding	P	S	F_1	F_2			
Turns	568	2160	28	33			
Taps	—	1080	—	—			
Wind. Lgth.	1.25"	1.25"	—	—			
Wire Size	#26	#32	#20	#26			
T.P.L.	65-9	125-18	1 layer	1 layer			
Kind Term.	Lead wire	Solder	Lead wire	Lead wire			
Term. Lgth.	3"	3"	3"	3"			
Layer Insul.	3 mil	2 mil	—	—			
Wrapper	Leatheroid Glass Cloth						

TUBE | 4007 | IMPREGNATION | VARNISH

CURE 1 x 1 1/8 NW



Universal Output

New stock

20 watts – Max pri DC = 60 ma.

AIRAC TYPE RMA PROJECT

SPEC. NO. A866

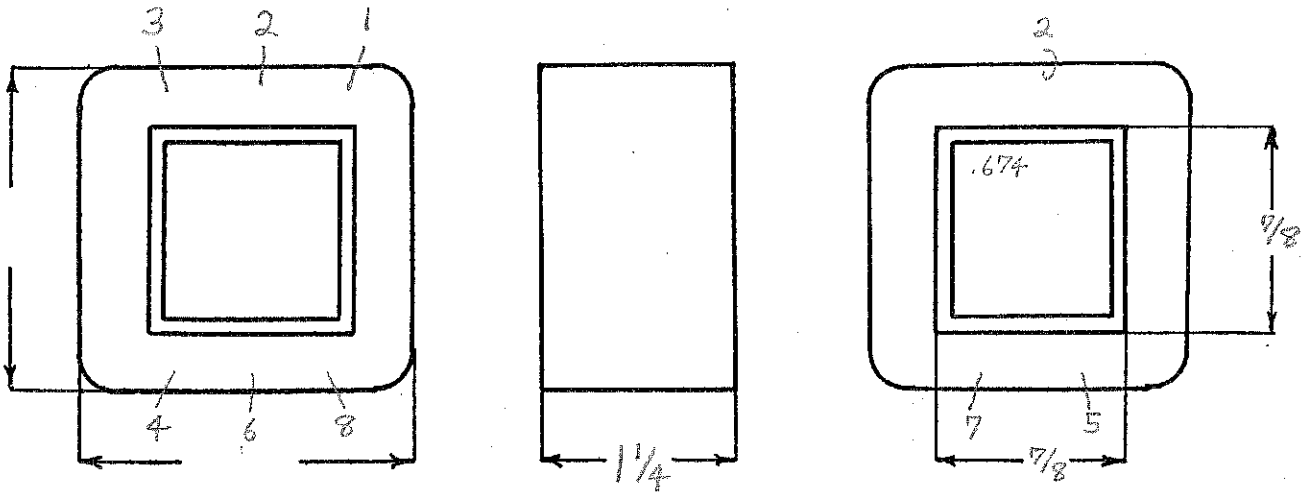
Winding	1-2-3 Pri.	4-5-6-7-8 Sec.					
Turns	3920	130					
Taps	1960	47-66-100					
Wind. Lgth.	1 1/32	1 1/32					
Wire Size	#35	#22					
T. P. L.	151 -26L	33 -4L					
Finish Pitch	91%	86%					
Type Lead	#22 P.B	wire to large					
Lead Lgth.	9"	3"					
Layer Insul.	20#	1L005GA					
Test Volt.	1500	1000					
Wrapper	1L005VC	2L005GA					

TUBE 4L010GK IMPREGNATION Varnish

CORE 7/8 X 7/8 GA. 29 GRADE B STACK Butt no Gap

MOUNTING D

rm = 85 %



RE-DESIGNED BY A. Hadley from D-557

DATE 7-19-49

DESIGN AND TEST DATA

Rating:

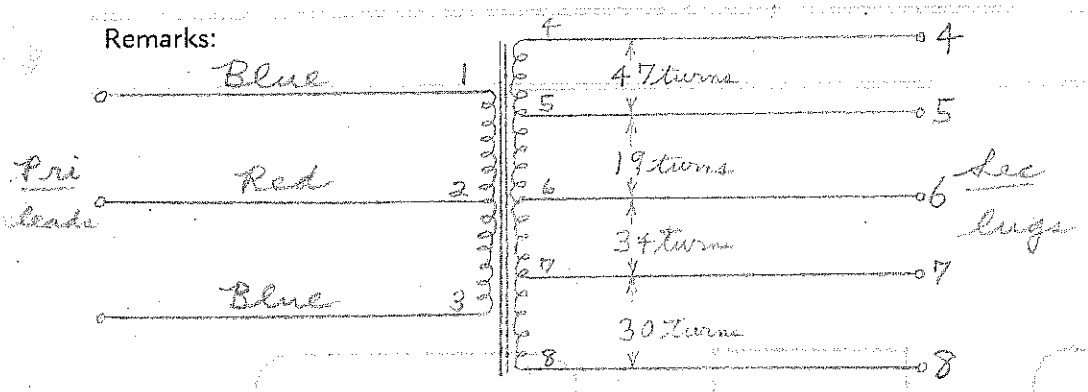
	1-2-3	4-5-6-7-8		Pri 1-3	4-8	4-7	5-8	4-6	5-7	4-5	6-7	7-8
Winding	Pri	Sec	Z	2000	2.22	1.31	.910	.573	.37	.290	.152	.118
			Z	4000	4.43	2.62	1.82	1.14	.74	.580	.304	.237
Mean Turn	4.49	5.70	Z	5000	5.53	3.28	2.28	1.43	.925	.725	.38	.296
			Z	6920	7.65	4.52	3.14	1.98	1.28	1.0	.525	.41
Resistance 25° c	493	1.016	Z	7900	8.70	5.15	3.58	2.25	1.45	1.14	.600	.465
			Z	10,000	11.0	6.55	4.55	2.86	1.85	1.448	.76	.59
Pounds Copper	.1432	.122	Z	14,000	15.5	9.16	6.36	4.0	2.59	2.03	1.06	.83
			Z	18,250	20.1	11.9	8.25	5.2	3.36	2.63	1.38	1.0775
Copper Density	535	—	Z_R	17,600	18.9	11.1	7.77	4.85	3.12	2.45	1.28	1.000
			T_R	135	4.48	3.45	2.89	2.28	1.83	1.62	1.172	1.036
Ratio Volts open circuit	1-2 117 2-3 117 1-3 234	4-5 2.8 4-6 3.94 4-7 5.96 4-8 7.176	T	3920	130	100	83	66	53	47	34	30
Test to Ground	1500	1000										

Iron Induction 62 kg @ 50 Cycles with 117 volts on 1-2

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



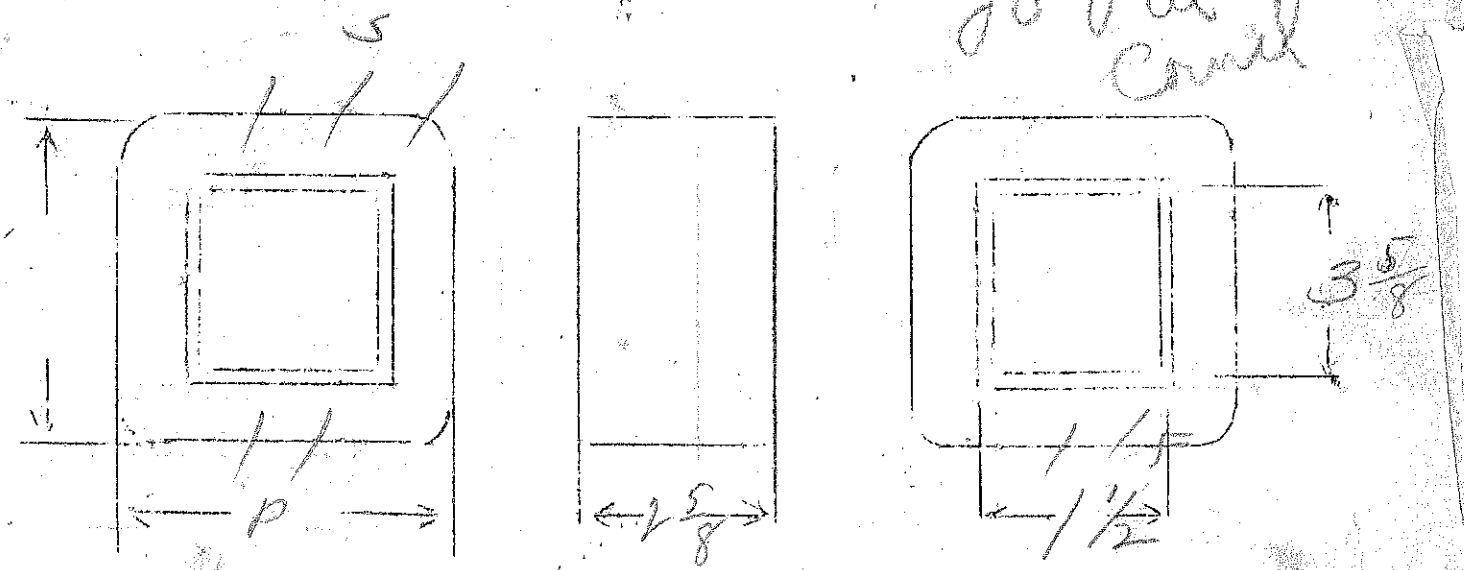
E P.T. 115 V
E S = 2400 V C T — 500 Watts (450 Ma at occasional duty)
Electro-therapy
E F = 10 V C.T. — 6.5 amps
N/E = 115

SPEC. NO. 866 Power

Winding	SEC	PRI	F1				
Turns	3220	132	13				
Taps	1610	—	—				
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#26	double #18	double #18				
T.P.L.	130-26	53-5	1 layer				
Kind Term.	#20 Bar	wire	wire				
Term. Lgth.	6"	6"	6"				
Layer Insul.	50# AP	0056A					
Wrapper	2L007WC	2L007WC	2L0056A				
	2L0056A	2L0056A	1L010BP				

TUBE | 2L007 + 2L007WC | IMPREGNATION | VARNISH

CURE | 1 1/2 x 3 1/2



Jo fat Coil

STACK 3½"

Universal Output

20 watts

max pri D.C. = 60ma.

New stock

SPEC. NO. A866

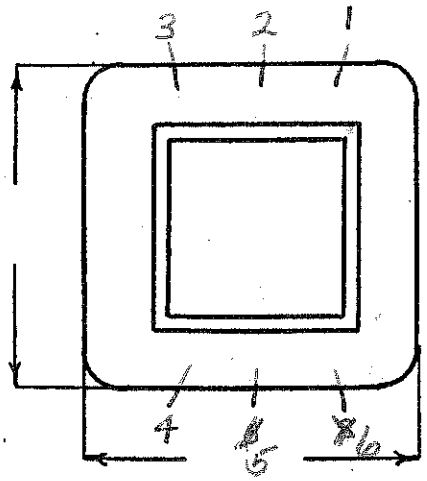
Winding	1-2-3 Pri	4-5-6-7-8 Sec					
Turns	3920	130					
Taps	1960	47-66-100					
Wind. Lgth.	1 1/32	1 1/32					
Wire Size	~~#35~~	#22					
T. P. L.	151-26L	33-4L					
Finish Pitch	91%	86%					
Type Lead	~~#22~~ P.B.	w.o. to lugs					
Lead Lgth.	9"	3"					
Layer Insul.	20#	1L005GA					
Test Volt.	1500	~~1000~~ 500					
Wrapper	1L007GA ~~1L005GA~~	2L005GA	GK				

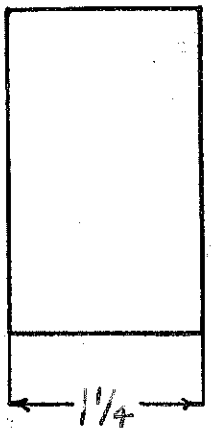
TUBE 4L010GK + 1L0012CA IMPREGNATION Varnish

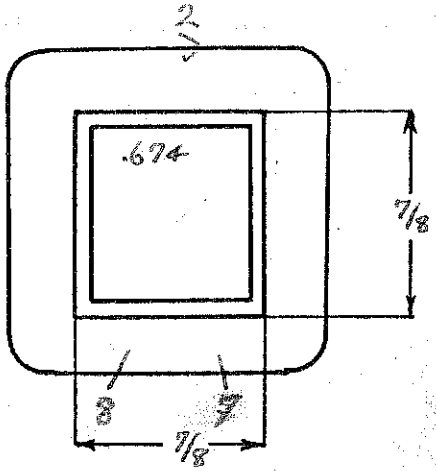
CORE 7/8 x 7/8 GA. 29 GRADE B STACK Butt No lap

MOUNTING D

Wm = 85%







RE-DESIGNED BY A. HADLEY

from D-557

DATE 7-19-49

DESIGN AND TEST DATA

Rating:

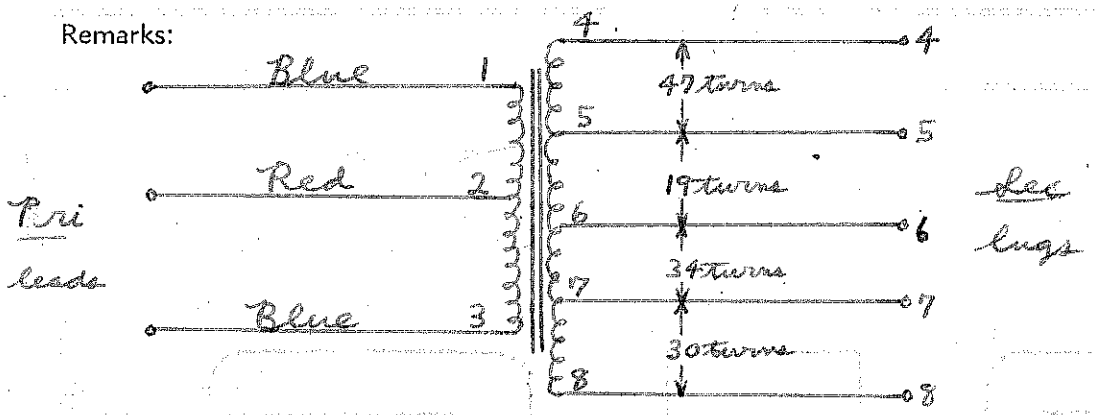
				Pri 1-3	4-8	4-7	5-8	4-6	5-7	4-5	6-7	7-8
Winding	1-2-3	4-5-6-7-8	Z	2000	2.22	1.31	.910	.573	.37	.290	.152	.118
	Pri	Sec	Z	4000	4.43	2.62	1.82	1.14	.74	.580	.304	.237
Mean Turn	4.49	5.70	Z	5000	5.53	3.28	2.28	1.43	.925	.725	.380	.296
			Z	6920	7.65	4.52	3.14	1.98	1.28	1.00	.525	.410
Resistance 25° c	493	1.016	Z	7900	8.70	5.15	3.58	2.25	1.45	1.14	.600	.465
			Z	10,000	11.0	6.55	4.55	2.86	1.85	1.448	.760	.590
Pounds Copper	.1432	.122	Z	14,000	15.5	9.16	6.36	4.00	2.59	2.03	1.06	.830
			Z	18,200	20.1	11.9	8.25	5.20	3.36	2.63	1.38	1.075
Copper Density	535	—	Z_R	17,000	18.7	11.1	7.70	4.85	3.12	2.45	1.28	1.000
			T_R	135	4.48	3.45	2.87	2.28	1.83	1.62	1.172	1.036
Ratio Volts (open circuit)	1-2 117 2-3 117 1-3 234	4-5 2.8 4-6 3.94 4-7 5.96 4-8 7.76	T	3920	130	100	83	66	53	47	34	30
Test to Ground	1500	1000										

Iron Induction 6.2 Kg @ 50 Cycles with 117 volts on 1-2

Exciting Current 2.5 ma amperes @ 117 volts 60 cycles on 1-2 or 2-3

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

Remarks:



110 V pri

E_S – 320 V – 40 MA – ½ watt

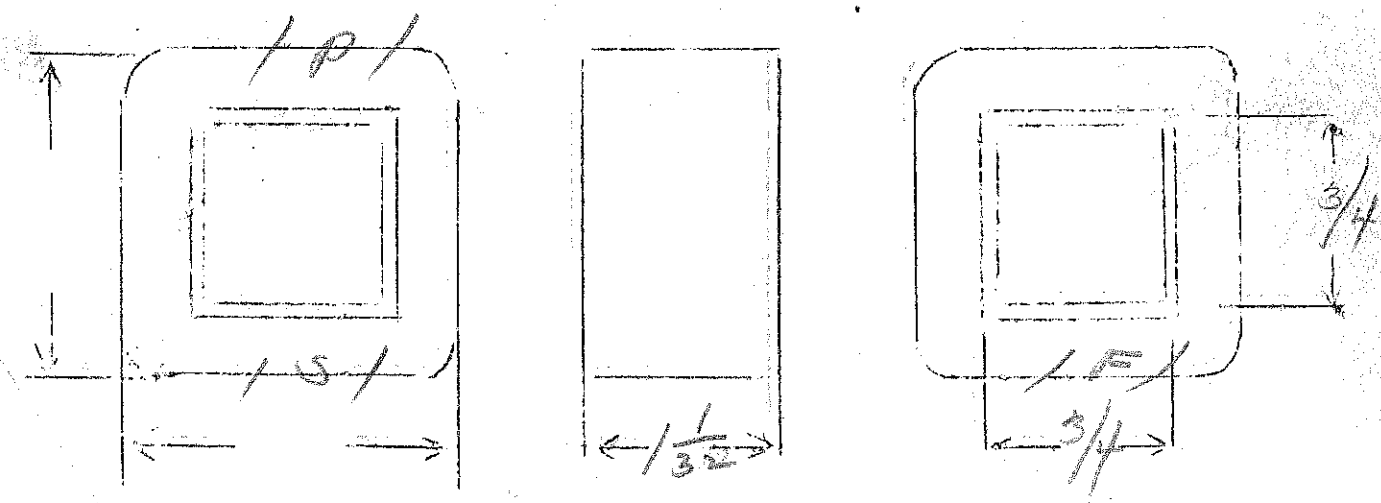
E_{F_1} – ¼ amp – 5 V "D"

SPEC. NO. 867

Winding	P	S	F				
Turns	1100	3500	54				
Taps	—	—	—				
Wind. Lgth.	7/8	7/8	7/8				
Wire Size	34	38	27				
T.P.L.	112-10	195-18	54-1				
Kind Term.	Sil Bar	Sil Bar	wire				
Term. Lgth.	3	3	3				
Layer Insul.	20 #	16 #	—				
Wrapper	1L007VC	1L007VC	2L005OX				

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 3/4 x 3/4 2 x 2 · 260



Banebury

$E_P = 110V$

$E_S = 320V - 1$ watt

$E_{F_1} = 6.3V - 3$ amps } joined

$E_{F_2} = 6.5V - 3$ amps }

$VA = 35$

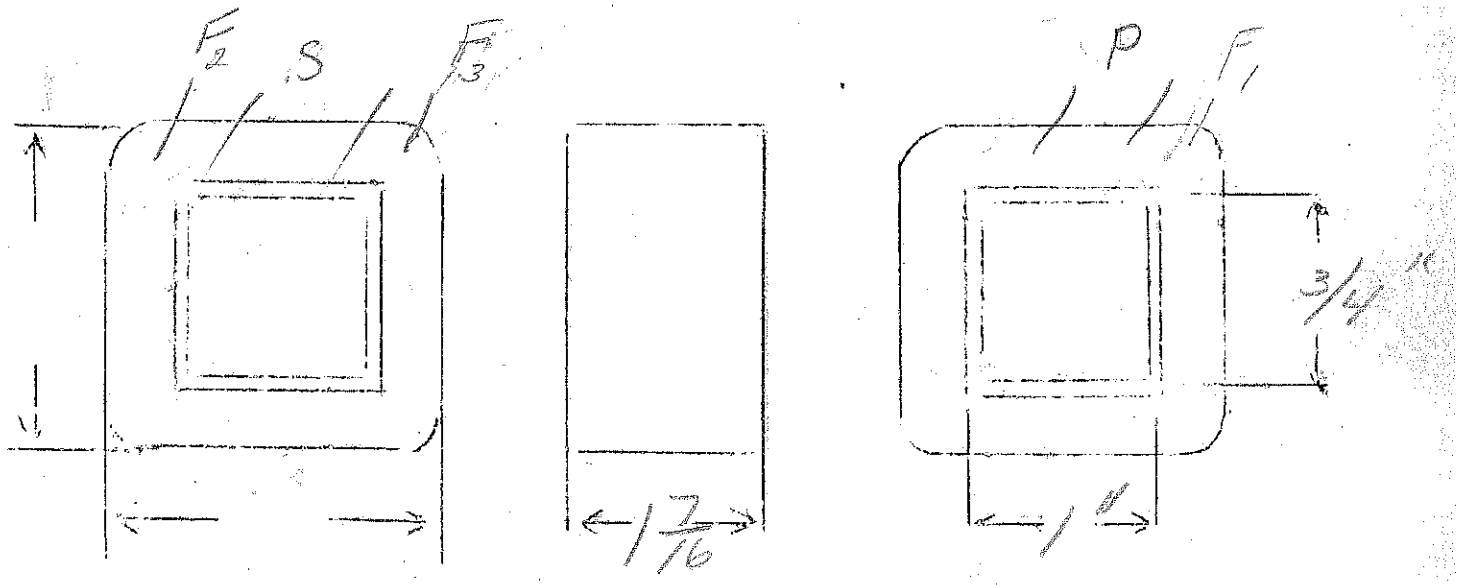
$\frac{N}{E} = 7.5$

Leads

SPEC. NO. 868

Winding	PRI	SEC	F1 Blue	F2 Green
Turns	850	2600	52	42
Taps	—	—	—	—
Wind. Lgth.	1.25	1.25	—	—
Wire Size	#27	#38	#18	#18
T.P.L.	72-12	262-10	26-2	22
Kind Term.	wire			
Term. Lgth.	3"			
Layer Insul.	2 ply	1 ply	kraft	
Wrapper	2L0056A	2L0056A	2L0056A	2L0056A

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1 x 3/4 NW	26G 2x2	



C mounting - only diagonal holes when impregnating, finish 2 — 2 1/4" holes and 1/2" nuts (bare)

E_p = 110V
E_s = 1200V – 250MA. Cent.
E_F = 20V C.T. – 3.5 amps

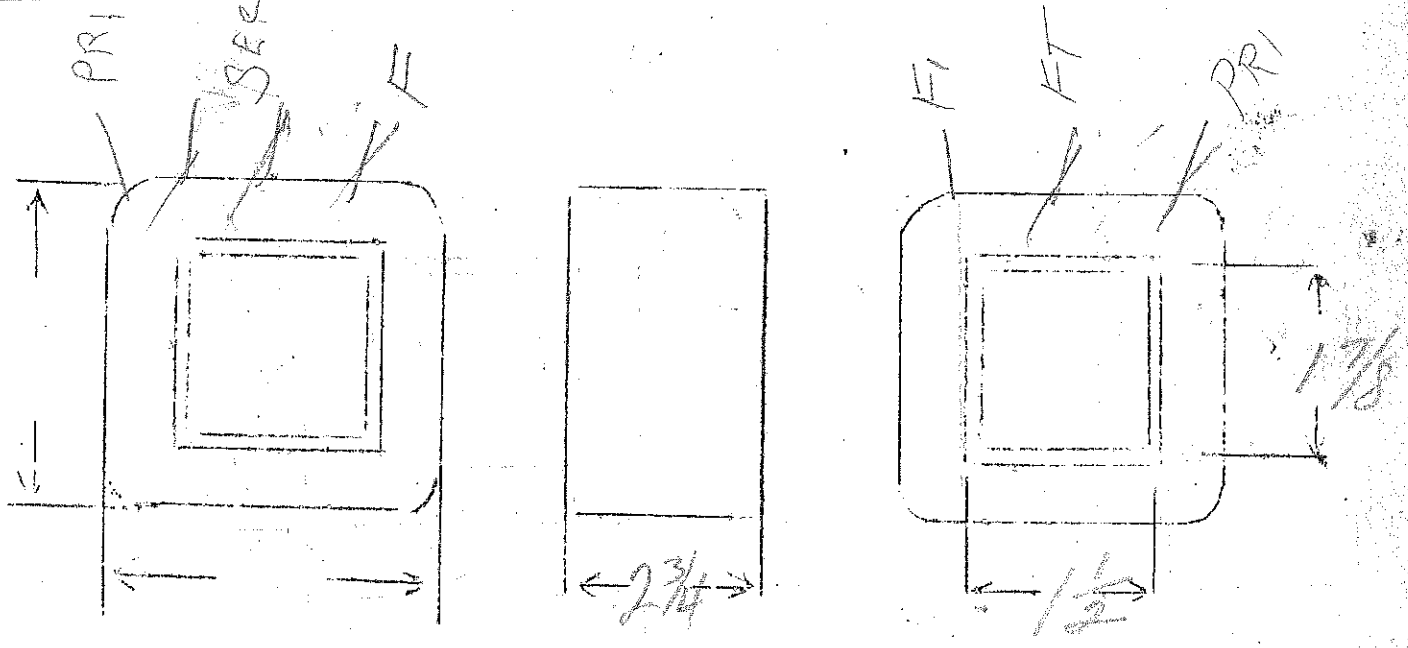
VA = 370 Total
$\frac{N}{E}$ = 2.1

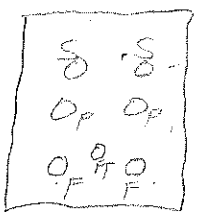
SPEC. NO. 869

Winding	SEC	BLACK PRI	WHITE FIL.				
Turns	2820	232	46				
Taps	—	—	23				
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#27	16E	17E				
T.P.L.	158-18	39-62	1 layer				
Kind Term.	#28 Fiber	wire	wire to				
Term. Lgth.	10"	10"					
Layer Insul.	50#	.005					
Wrapper	2L007VC 2L007	3L005GA	1L010 Red Rope				

TUBE | 2L007 + 2L007VC | IMPREGNATION | VARNISH

CURE |





Line matching — new stock

Variable line to Voice Coil
500 – 1000 – 1500 – 2000 ohms
to
3.2 – 8 ohms
10 watts

SPEC. NO. A 870

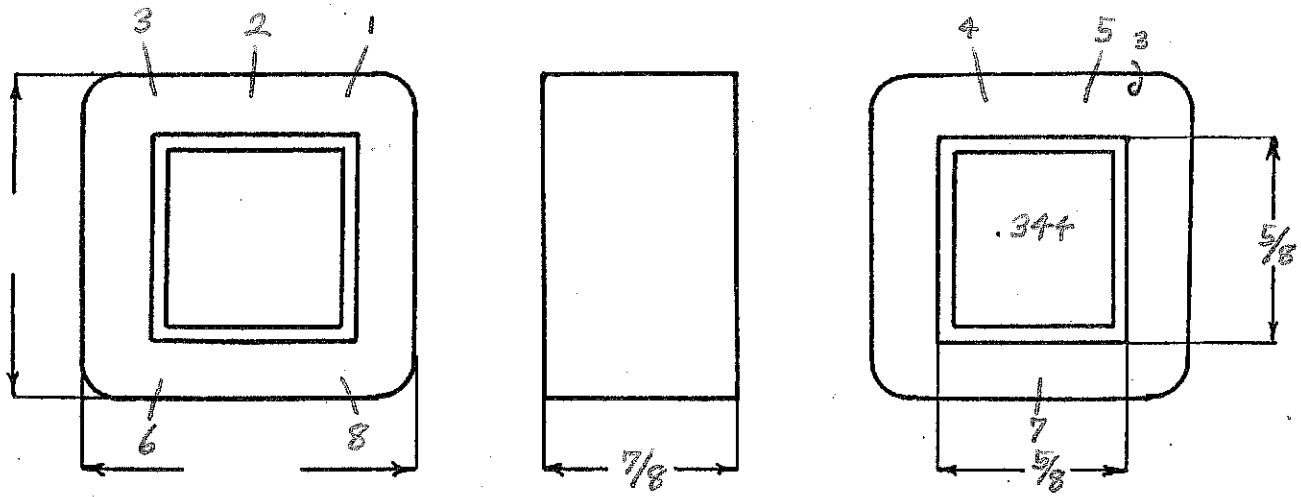
Winding		1-2-3-4-5 Pri		6-7-8 Sec			
Turns		600		38			
Taps	(300 – 425 –	522)		24			
Wind. Lgth.		5/8		5/8			
Wire Size		# 31		# 21			
T. P. L.		50 – 13L		19 – 2L			
~~Finish~~ Paint		78%		91%			
Type Lead		# 22 P.B.		W. O. sleeve			
Lead Lgth.		cut 7"		3" from coil			
Layer Insul.		30#		1L005GH			
Test Volt.		1250		500			
Wrapper		2L005GA		2L005GH			

TUBE 4L010GH + 1L0012CA | IMPREGNATION Varnish

CORE 5/8 x 5/8 | GA. 29 | GRADE D | STACK Butt no gap

MOUNTING D – leads

mm = 89%



RE-DESIGNED BY A. Hadley

DATE 2-23-51

DESIGN AND TEST DATA

Rating:							
	Z	2,000	1500	1000	500	8	3.2
	Z_R	625	470	313	156.2	2.5	1
	T_R	25.0	21.7	17.68	12.5	1.58	1
	T	600	522	425	300	38	24

Winding		1-2-3-4-5 Pri		6-7-8 Sec			
Mean Turn		3.35		4.22			
Resistance 25° c		22.2		.175			
Pounds Copper		.0412		.0333			
Copper Density		565		458			
Ratio Volts	1-2 1-3 1-4 1-5	30.0 42.5 52.2 60.0	6-7 6-8	2.4 3.8			
Test to Ground		1250		500			

Iron Induction 12.0 kg @ 200 Cycles with 141 V on 1-5

Exciting Current .100 amperes @ 40 volts 60 cycles on 1-5

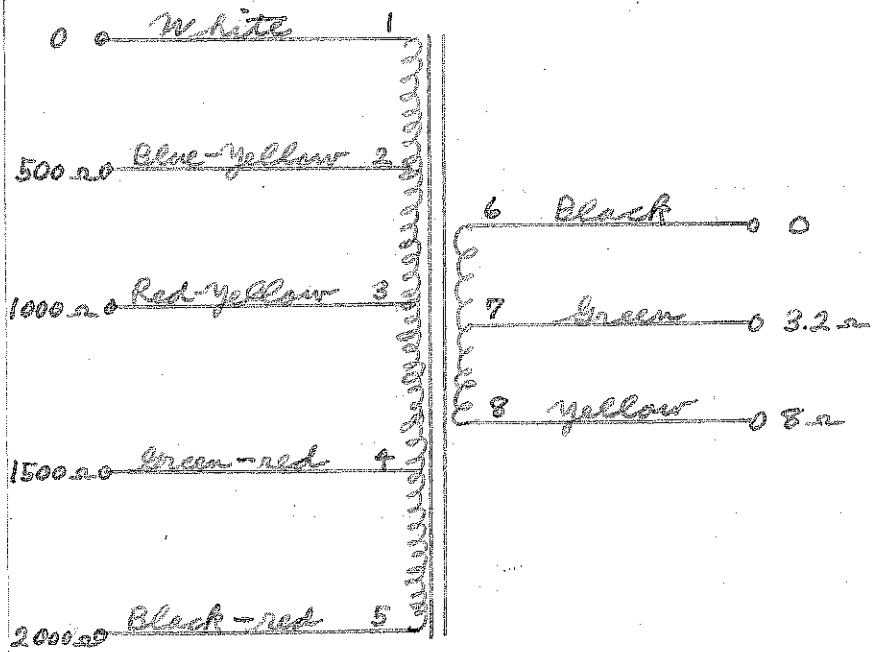
Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:

$I_{P_{max}} = \sqrt{\frac{10}{500}} = 0.141\,a$

$I_{S_{max}} = \sqrt{\frac{10}{3.2}} = 1.77\,a$

$E_{P_{max}} = \sqrt{10 \times 2{,}000} = 141.1\,V$



E_S = 11.12 V.C.T. – 8 amps

E_P = 90 – 100 – 110 v

$B = 9,800$

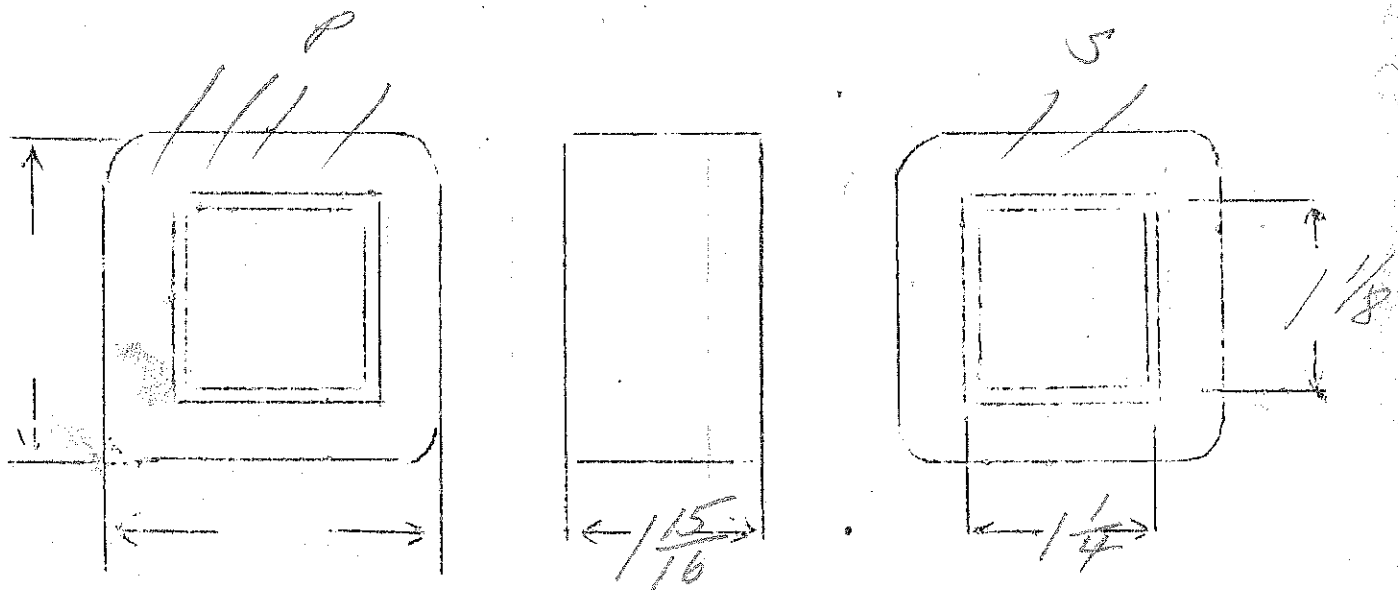
$\frac{V}{T} = 5.05$

SPEC. NO. 870B

Winding	PRI	SEC					
Turns	555 505	68					
Taps	455	32					
Wind. Lgth.	1.75	—					
Wire Size	#21	#14					
T.P.L.	52-11	24-3					
Kind Term.	wire						
Term. Lgth.	8"	3"					
Layer Insul.	50#						
Wrapper	2L005GA	2L005G4					

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1/4 X 1/8 NW



Line matching
Variable line to voice coil
500 – 1000 – 1500 – 2000 ohms
to
3.2, 8 ohms
10 watts

New Coil

SPEC. NO. A870

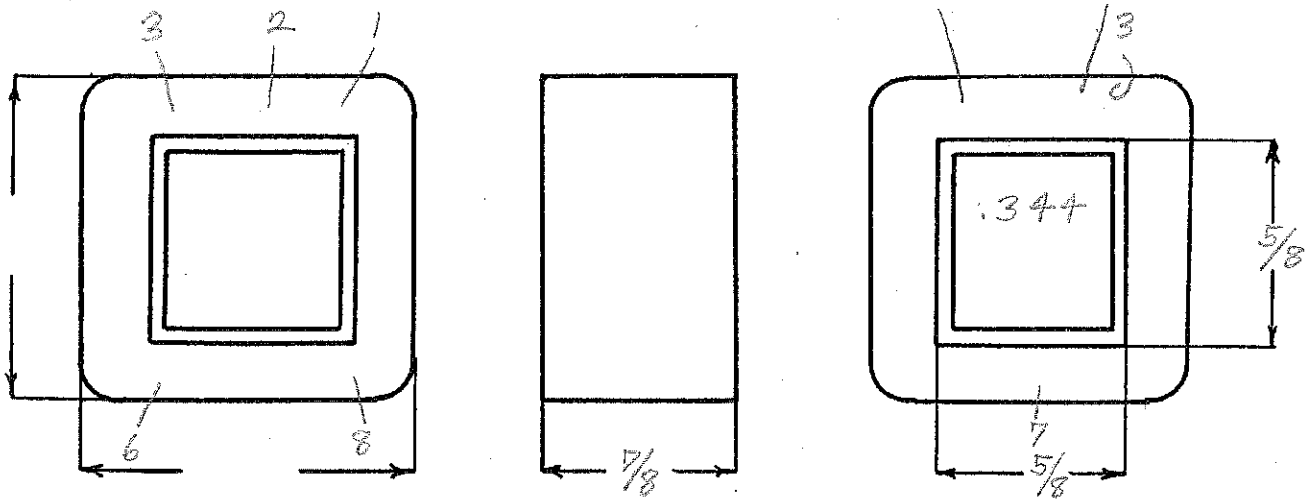
		1-2-3-4-5		6-7-8			
Winding		Pri		Sec			
Turns		600		38			
Taps	(300	425	522)	24			
Wind. Lgth.		5/8		5/8			
Wire Size		#31		#21			
T. P. L.		50–13L		19–2L			
Finish		78%		91%			
Type Lead		#22 P.B.		W. O. Sleeve			
Lead Lgth.		cut 7"		3" from coil			
Layer Insul.		30#		1L005GK			
Test Volt.		1250		500			
Wrapper		2L005GA		2L005GK			

TUBE 4L010GK + 1L0012CA | IMPREGNATION Varnish

CORE 5/8 X 5/8 | GA. 29 | GRADE D | STACK Butt no Lap

MOUNTING D-Leads

wn = 89%



RE-DESIGNED BY A Hadley

DATE 2-23-51

DESIGN AND TEST DATA

Rating:							
	Z	2,000	1,500	1,000	500	8	3.2
	Z_R	625	470	313	156.2	2.5	1
	T_R	25.0	21.7	17.68	12.5	1.58	1
	T	600	522	425	300	38	24

Winding		1-2-3-4-5 Pri		6-7-8 Sec			
Mean Turn		3.35		4.22			
Resistance 25° c		22.2		.175			
Pounds Copper		.0412		.0333			
Copper Density		565		458			
Ratio Volts	1-2 1-3 1-4 1-5	30.0 42.5 52.2 60.0	6-7 7-8	2.4 3.8			
Test to Ground		1250		500			

Iron Induction 12.0kg @ 200 Cycles with 141 V on 1-5

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

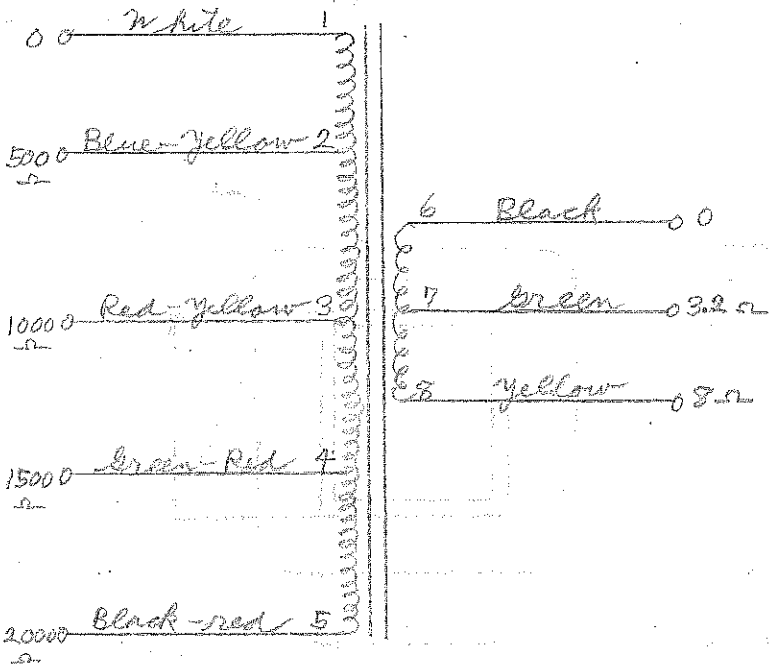
Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:

$I_{p_{max}} = \sqrt{\frac{10}{500}} = \sqrt{.020} = .141a$

$I_{s_{max}} = \sqrt{\frac{10}{3.2}} = \sqrt{3.13} = 1.77a$

$E_{Primary} = \sqrt{10 \times 2,000} = \sqrt{20,000} = 141V$



Line Matching

Variable line to voice 500 - 1000 - 1500 - 2000 CBS Q.L. & Elite

10 watts

New Stock (2-23-51)

SPEC. NO. A 870

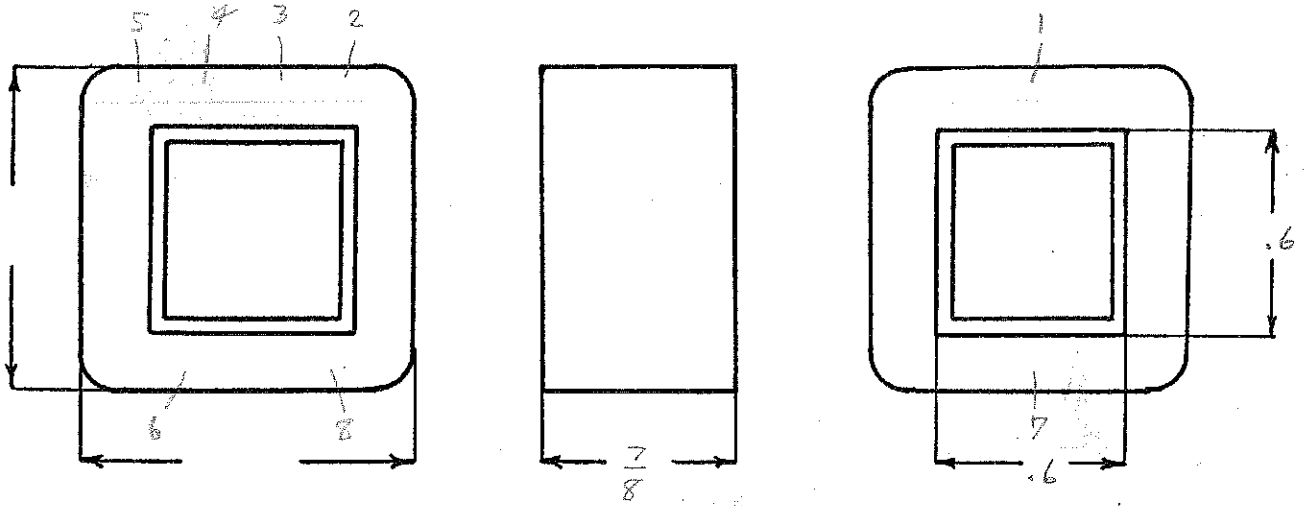
Winding	1-2-3-4-5 Pri	6-7-8 Sec					
Turns	633	40					
Taps	316-446-576	25					
Wind. Lgth.	3/4	3/4					
Wire Size	#31	#20					
T. P. L.	65 1L	20 2L					
Finish	84%	89%					
Type Lead	#22 P.B.	w.o. sleeve					
Lead Lgth.	9"	3"					
Layer Insul.	30 #	LL605GA					
Test Volt.	1500	1000					
Wrapper	2L0056A	2L0052A					

TUBE 5L.010.GH IMPREGNATION Varnish

CORE 6/10 x 6/10 GA. 29 GRADE B STACK Butt No lap

MOUNTING D

wn = 90%



DESIGNED BY A. Hadley

DATE 6-18-49

DESIGN AND TEST DATA

Rating:

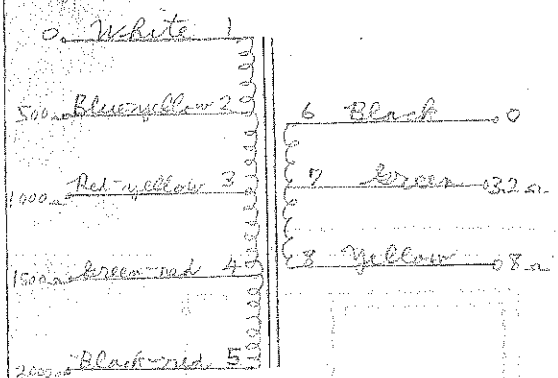
Winding	1-2-3-4-5 Pri	6-7-8 Sec					
Mean Turn	3.23	4.02					
Resistance 25° c	22.8	.1388					
Pounds Copper	.0422	.0420					
Copper Density	565	578					
Ratio Volts	63.3	4.0					
Test to Ground	1500	1000					

Iron Induction _____ @ _____ Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = 2000 - 1500 - 1000 - 500 - 0 \quad R = 3.2$

$Z_R = 625 \quad -469 \quad -312.5 \quad -156.1 \quad -2.5 - 1$

$T_R = 25 \quad -21.6 \quad -17.67 \quad -12.48 \quad -1.58 - 1$

$T = 633 \quad -546 \quad -446 \quad -316 \quad -40 \quad -25$

$I_P = \sqrt{\frac{10}{500}} = \sqrt{.02} = .141\,a$ max

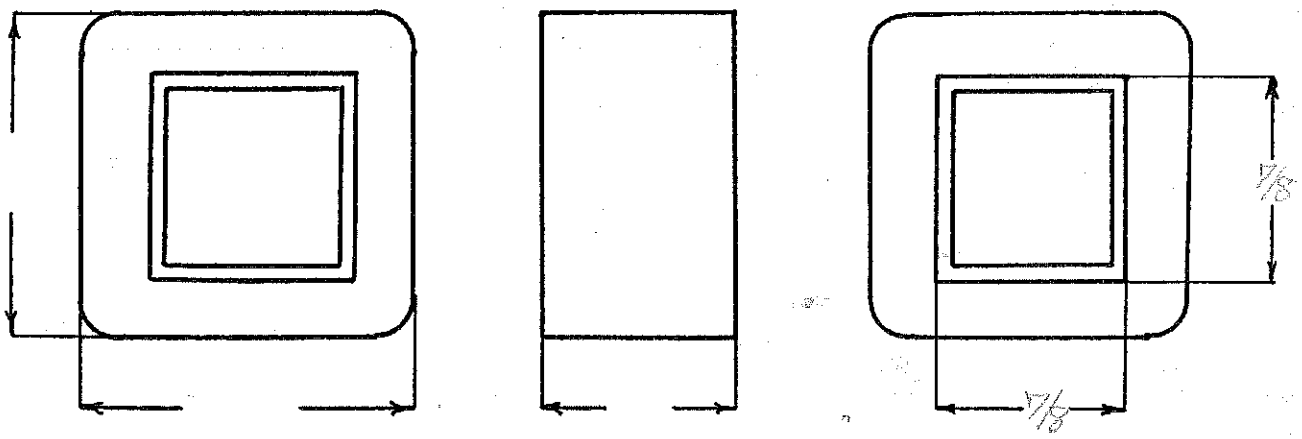
$I_S = \sqrt{\frac{10}{3.2}} = \sqrt{3.13} = 1.77\,a$ max

$E = \sqrt{10 \times 2000} = \sqrt{20000} = 141.4$

SPEC. NO. A872 (R.K)

Winding					0-2-4-8-15		
Turns					98-62-47-26-0		
Taps							
Wind. Lgth.							
Wire Size				#32		#20	
T. P. L.						4L	
Finish							
Type Lead							
Lead Lgth.							
Layer Insul.						Gt	
Test Volt.							
Wrapper				IL005VC IL010Gt		2L005Gt	

TUBE	.032" Gt	IMPREGNATION	Wax
CORE 7/8 x 7/8	GA. 26	GRADE	STACK 4 X 4
MOUNTING			



DESIGNED BY

DATE

DESIGN AND TEST DATA

Rating:

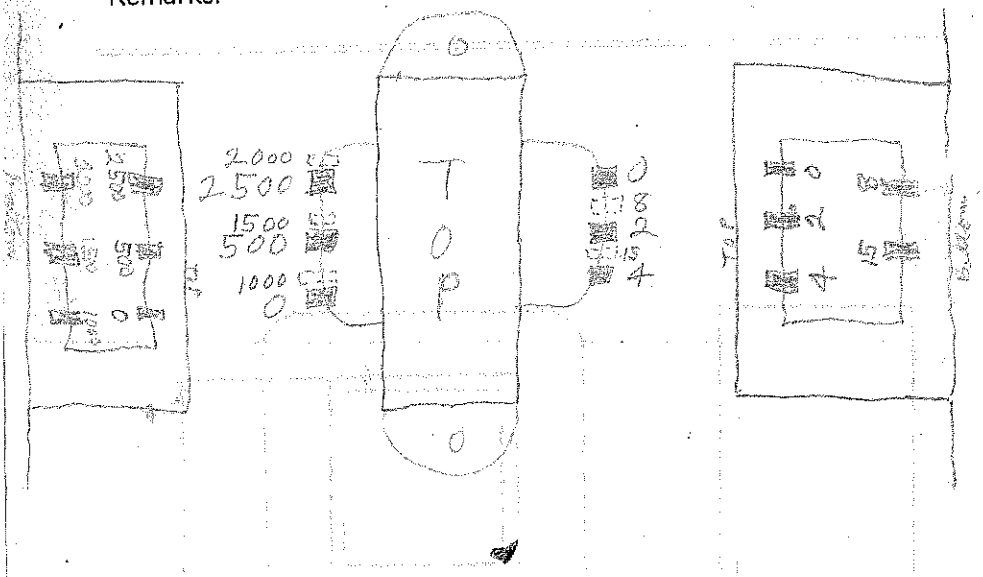
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Heat 8 Ma. 8 Ma.
250 V @ ~ ma

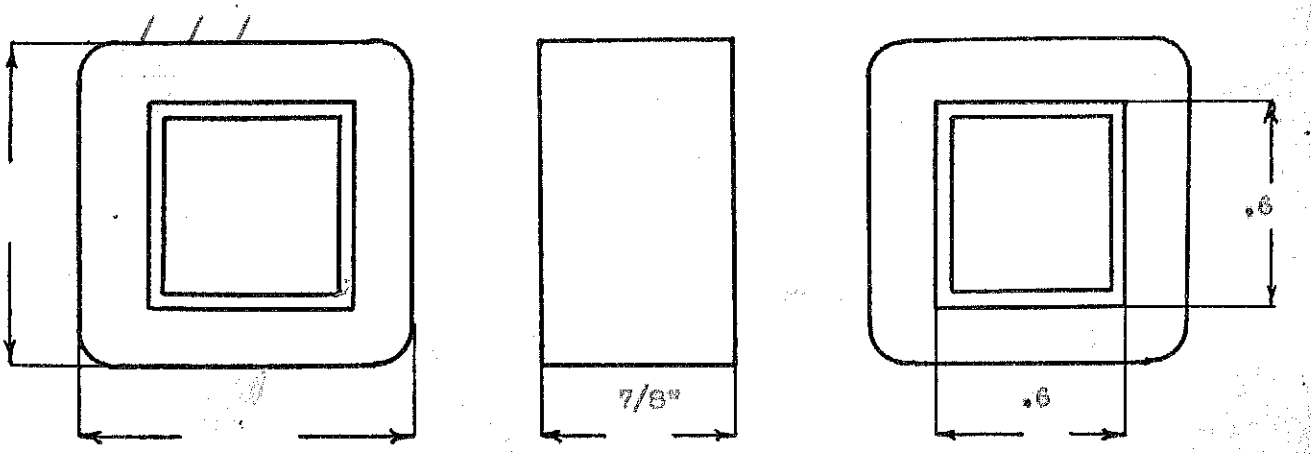
SPEC. NO. D 872

Winding	PRI						
Turns	10,000						
Taps	-						
Wind. Lgth.	.75						
Wire Size	40 E						
T. P. L.	216-50						
Finish							
Type Lead	311 Br						
Lead Lgth.	3"						
Layer Insul.	16# GI						
Test Volt.							
Wrapper	2L.005K						

TUBE 7L.0070K IMPREGNATION ~~Wax~~ Varnish

CORE .6 x .6 GA. 29 GRADE B STACK 2 x 2

MOUNTING



DESIGNED BY DATE

Variable Line to Voice Coil. New Stock

500, 1000, 1500, 2000, 2500 ohms to
2, 4, 8, 15 ohms
20 Watts

SPEC. NO. A 872
see D 534

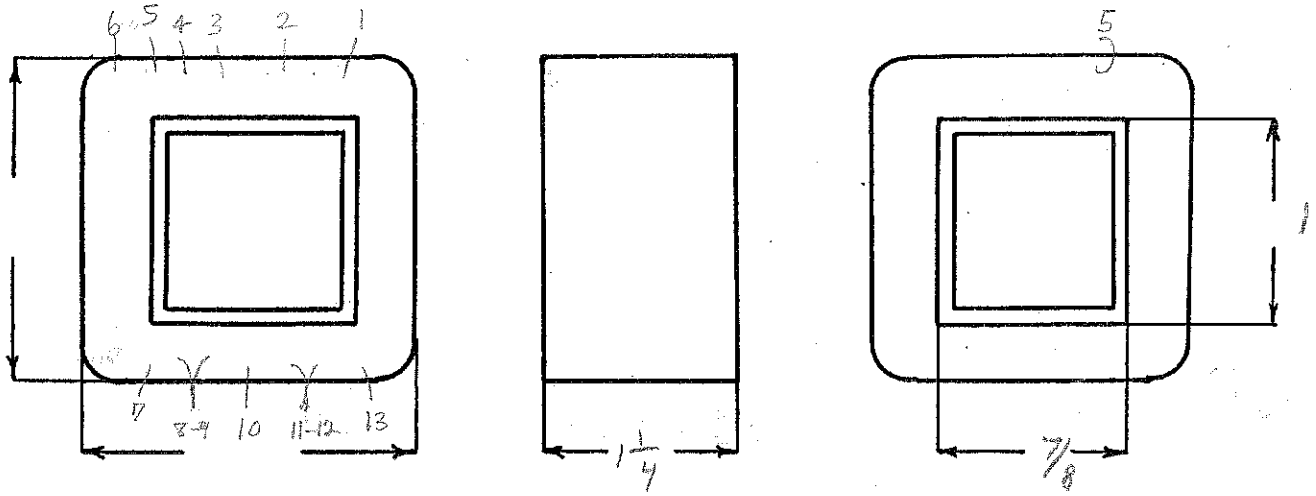
	1-2-3-4-5-6	7-8	9-10-11	12-13			
Winding	Pri	Sec	Sec	Sec			
Turns	1550 900	43	42	31			
Taps 200-400-600			17				
Wind. Lgth.	1 1/16	→	→	→			
Wire Size	# 31	# 20	# 22	# 24			
T. P. L.	100-162	2-1 1/16	36-1 1/2	31-16			
Finish	90 %	90 %	90 %	90 %			
Type Lead	# 23 P.B	W.O. sleeve	W.O. sleeve	W.O. sleeve			
Lead Lgth.	9"	3"	3"	3"			
Layer Insul.	30 #	1L0056	1L0056A	—			
Test Volt.	2000		1250				
Wrapper	2L0056A	—	1L0056A	2L0056A			

TUBE 4L0106K + 1L0034A IMPREGNATION Varnish

CORE 7/8 X 1 GA. 29 GRADE B STACK 2 X 2

MOUNTING D

mm = 86%



Re DESIGNED BY H. W. S. DATE 7-20-41

DESIGN AND TEST DATA

Rating:

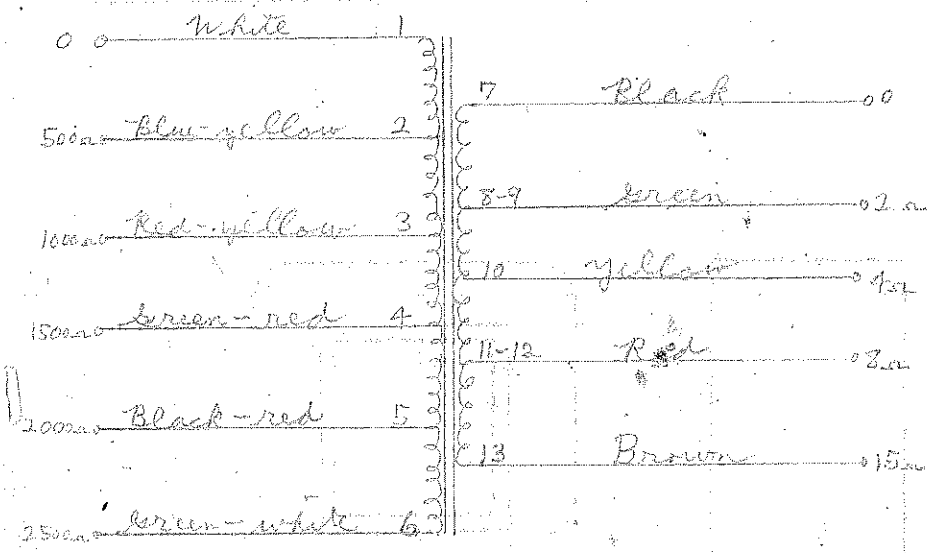
Winding	1-2-3-4-5-6 Pri	7-8 Sec	9-10-11 Sec	12-13 Sec		7-13 total sec winding	
Mean Turn	4.74	5.74	6.13	6.36		—	
Resistance 25° c	81.2	.213	.349	.430		.992	
Pounds Copper	.1505	.0645	.0425	.0205		—	
Copper Density						—	
Ratio Volts	15.5	.43	.42	.31		1.16	
Test to Ground	2000	→	1250	→		1250	

Iron Induction _____ @ _____ Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



8 15

0 2 4

TOP

2.5 500 0

M

2M 1.5M 1M

Variable line to voice coil

500, 1000, 1500, 2000, 2500 ohms
to
2, 4, 8, 15 ohms
20 watts

New stock

SPEC. NO. A 872
See D 534

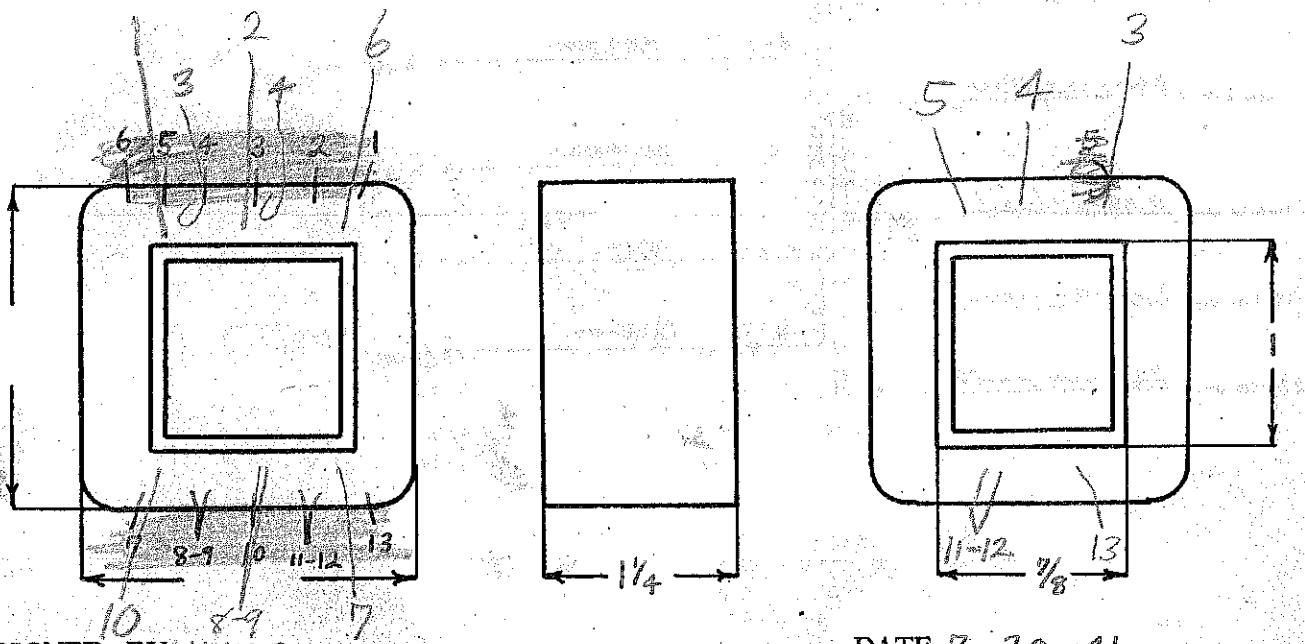
	1-2-3-4-5-6	7-8	9-10-11	12-13			
Winding	Pri	Sec	Sec	Sec			
Turns	1550	43	42	31	NOTE: Mark		
Taps	200-400 600-900		17		gummed kraft		
Wind. Lgth.	1 1/16	1 1/16	1 1/16	1 1/16	coil wrapper		
Wire Size	#31	#20	#22	#24	before varnish.		
T. P. L.	100-16 L.	29-1 1/2 L.	36-1 1/2 L.	31-1 L.	Mark as per		
Finish Pitch	90%	90%	90%	90%	A-872 sample		
Type Lead	#26 T.C.	w. o. Dwg	w. o. Dwg	w. o. Dwg	furnished.		
Lead Lgth.	9"	3"	3"	3"			
Layer Insul.	30#	1L005GA	1L005GA	—			
Test Volt.	2000		1250				
Wrapper	2L0012CA	—	1L005GA	3L0012CA 1L005GA			

TUBE 4-L 010 GR + 1L 002 CA VP

IMPREGNATION Varnish

CORE 7/8 x 1 GA. 29 GRADE D STACK Butt no lap

MOUNTING D - leads Clips



RE DESIGNED BY H. W. S.

DATE 7-20-41

DESIGN AND TEST DATA

Rating:

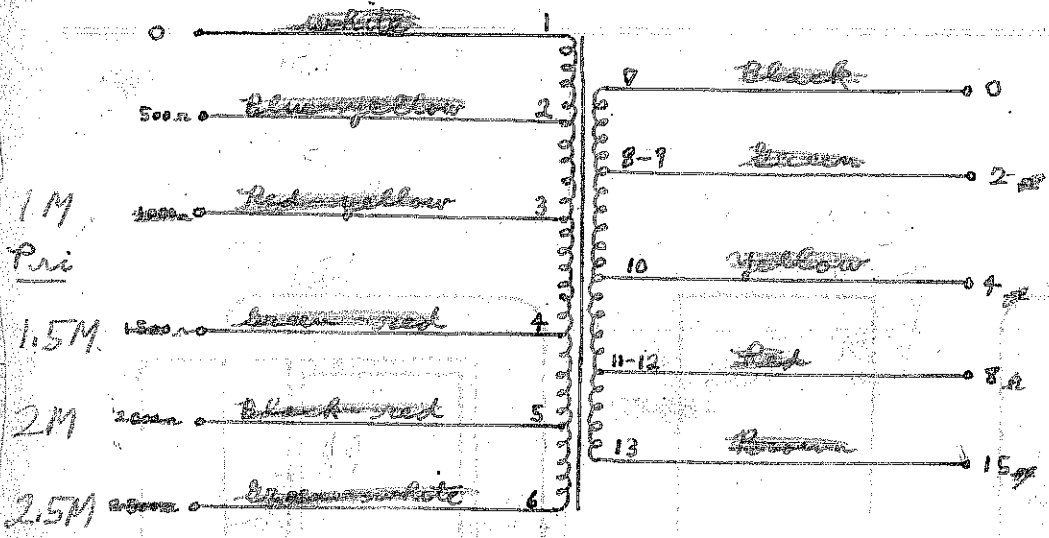
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts	1-6 117V 1-5 68V 1-4 4.53V	1-3 30.2V 1-2 15.1V	7-13 8.85V 7-12 6.44V 7-10 4.53V	7-8 3.24			
Test to Ground							

Iron Induction _____ @ _____ Cycles

Exciting Current .013 amperes @ 120 volts 60 cycles on 1-6

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

Remarks:



40-120

E5 - 1/-1.5-2.0-2.5-3.0-5.0-6.3

2.5-10-12.5-15-25-30 7.0

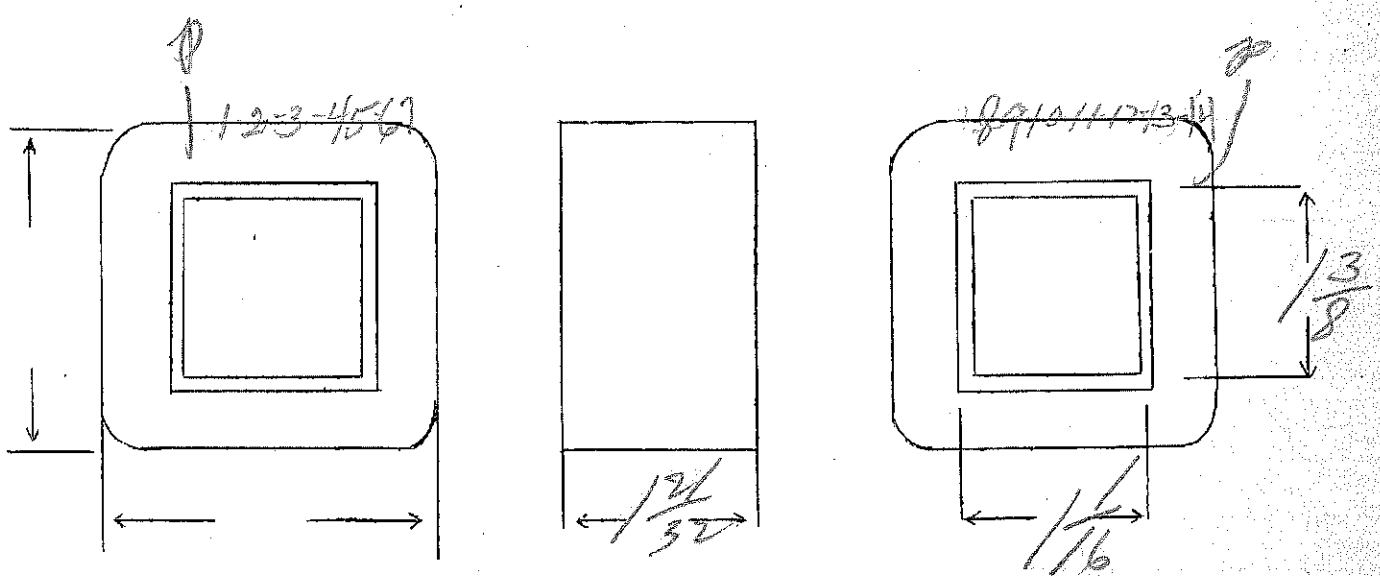
SPEC. NO. 874-25N

Winding	PRI	SEC Continuous					
Turns	835	40-24	80-60	120			
Taps		30-16-12 9	40-20 10	80			
Wind. Lgth.	1 15/32						
Wire Size	#26	#18	#20	#22			
T.P.L.	77-11						
Kind Term.	WIRE OVER						
Term. Lgth.	3"	3"	3"	3"			
Layer Insul.	40#						
Test Volt.							
Wrapper	2 Mil 5GA			2 Mil 5GA			

TUBE 7407 | IMPREGNATION VARNISH

CORE 1 7/16 X 1 3/8 | PRIMARY V.A.

MOUNTING B



DESIGNED BY [signature] DATE 6/25/37

E_p - 115 Ines J 30 W/E - 7.25

E_f - 1.1 - 1.5 - 2.0 - 2.5 - 3.0 - 5.0
6.3 - 7.5 - 10.0 - 12.5 - 15 - 25 - 30 V

SPEC. NO. ~~870~~ 874

Tube Tester

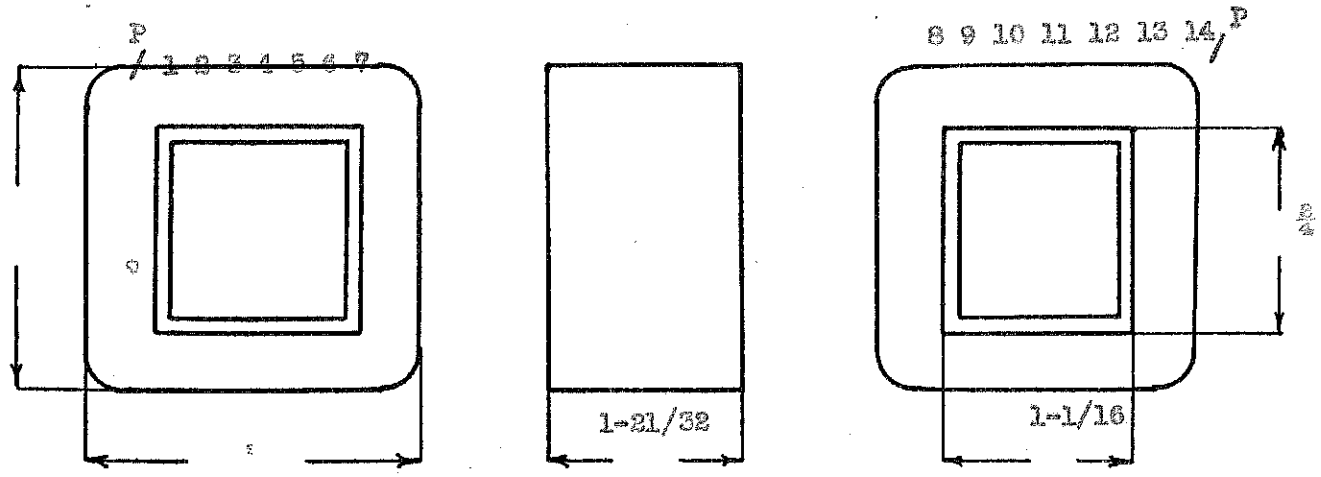
Winding	Pri	F	Continuous				
Turns	840	40 24	80 60 40	120			
Taps	-	20 16-12-9	20 10	80			
Wind. Lgth.	1-15/32				= 1.468		
Wire Size	#26	18	20	22			
T. P. L.	77-11		2L				
Finish							
Type Lead	WIRE	WIRE	WIRE	WIRE			
Lead Lgth.	5"	3"	5"	3"			
Layer Insul.	30#	GA					
Test Volt.							
Wrapper	2L.005GA		2L.005GA				

TUBE	7L.007	IMPREGNATION	VARNISH

CORE 1-1/16 x $\frac{3}{4}$ NW GA. GRADE STACK

MOUNTING

Wire Mat - 0.520"



DESIGNED BY DATE

E_P = 120 v.

E_S = 650 v CT. 50 MA.

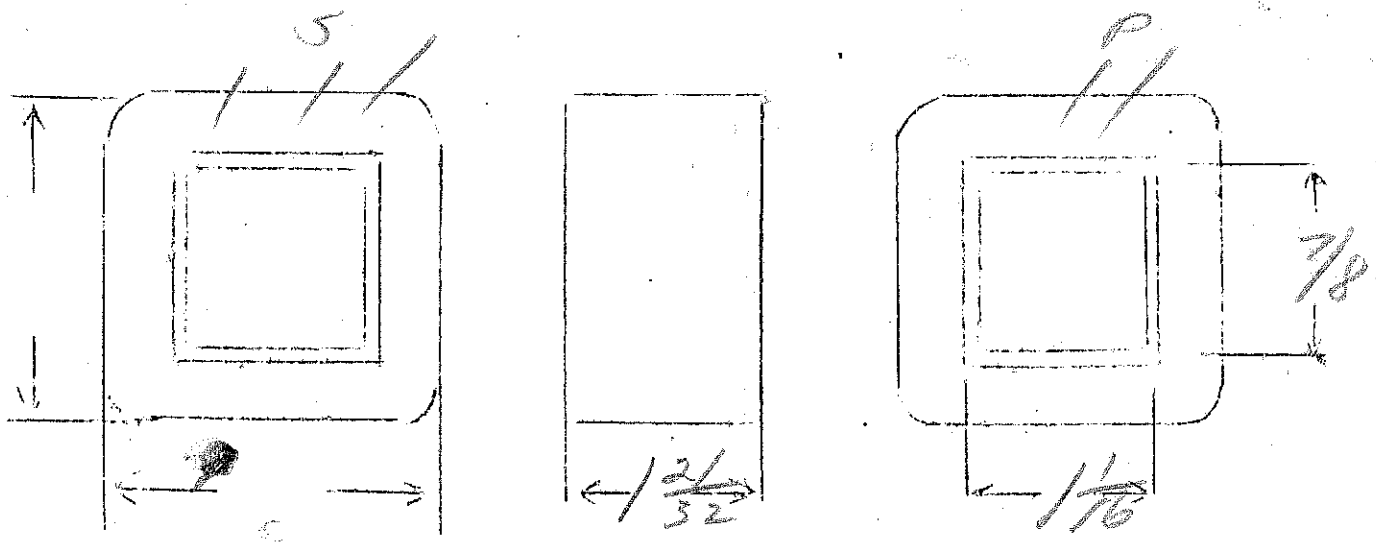
E_{F_1} = 5 v – 2 amps

E_{F_2} = 25 v – 6 amps

SPEC. NO. 875

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	685	69	4000	32	16		
Taps	—	—	2000	—	—		
Wind. Lgth.	1 15/32	1 15/32	1 15/32	—	—		
Wire Size	#25	#25	#35	#20	#16		
T.P.L.	69-10	69	2				
Kind Term.	#22 PBr	wire	#20 PBr	wire			
Term. Lgth.	9"	3"	9"	9"	9"		
Layer Insul.	30#	—	30#	—			
Wrapper	Kraft/Kraft		Kraft				

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1 1/16 x 7/8		



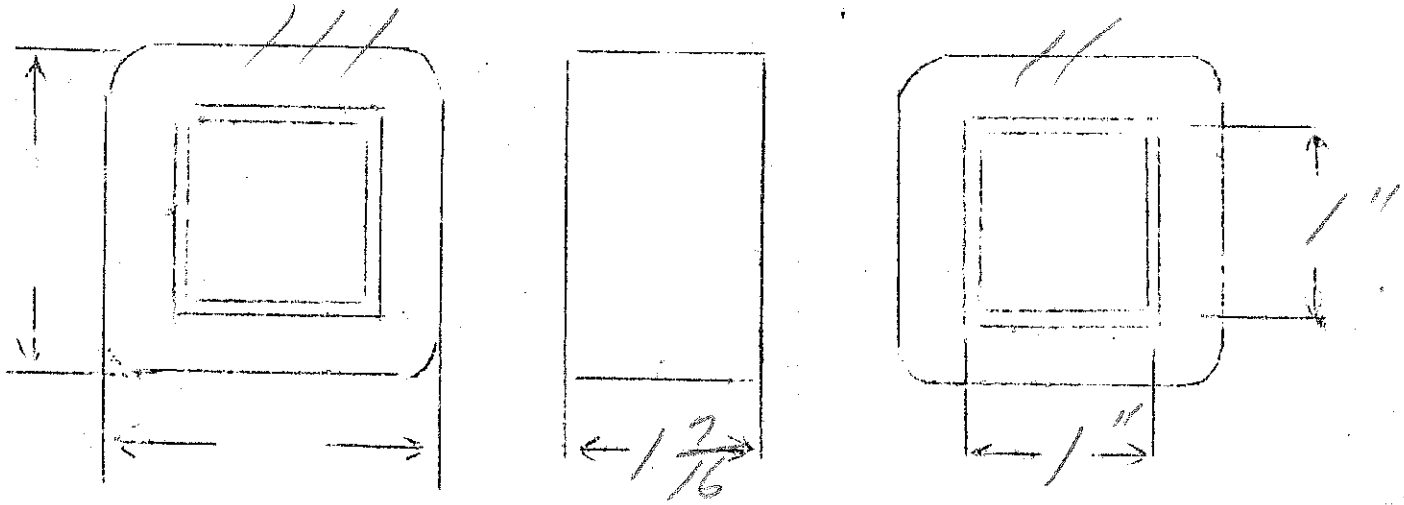
E_p = 1150 V.
E_s = 250 V - 100 ma. C.T.
E_f = 5 V. 4 amps

V_A = 42 watts
$\frac{V}{E}$ = 5.7

SPEC. NO. 828

Winding	PRI	SEC	F	SHIELD			
Turns	650	1600	31	65			
Taps	—	800	15	—			
Wind. Lgth.	1.25	1.25	—	1.25			
Wire Size	26	33	#17	26			
T.P.L.	65-10	135-12	—	65			
Kind Term.	~~#20 Per~~	~~#20 Per~~	wire	wire			
Term. Lgth.	9"	9"	9"	3"			
Layer Insul.	30#	30#	—				
Wrapper	KLOOTVC	2L005GA	2L005GA	KLOOTVC			

TUBE	4007	IMPREGNATION	VARNISH
CURE	1X1NW		



Modulation

New stock

P.P. 6N7 or 6A6 (10,000 ohms C.T.)
to
3000 – 5000 – 8000 ohms
10 watts

SPEC. NO. A 880
Lac 5-588-D

Winding	1-2-3 Pri	4-5-6-7 Sec					
Turns	2040	1830					
Taps	1020	1120 – 1445					
Wind. Lgth.	7/8	7/8					
Wire Size	#35	#33					
T. P. L.	128 – 16L	102 – 19L					
Finish Pitch	89%	91%					
Type Lead	#22 P.B.	#22 PB					
Lead Lgth.	9"	9"					
Layer Insul.	20#	20#					
Test Volt.	2000	2000					
Wrapper	3L0012GA 1L 20# 1L0057VC	2L0056A					

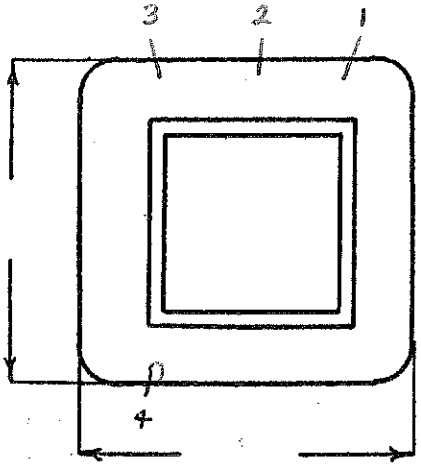
TUBE 4L0076K + 1L-0032A + 1L-0032VG

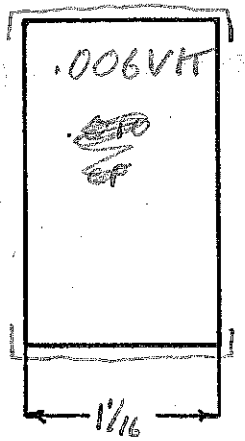
IMPREGNATION Varnish

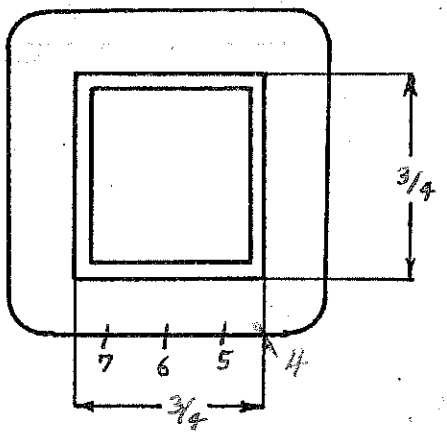
CORE 3/4 X 3/4 GA. 29 GRADE D STACK Butt .002 Insp Armate Brewers

MOUNTING D - leads stack as laminations + shapers fit in D bracket

nn = 90.4%







DESIGNED BY Rewritten F.F.

DATE

DESIGN AND TEST DATA

Rating:

$Z = 10,000 - 8,000 - 5,000 - 3,000$

$Z_R = 3.333 - 2.667 - 1.667 - 1.000$

$T_R = 1.825 - 1.633 - 1.291 - 1.000$

$T = 2040 - 1830 - 1445 - 1120$

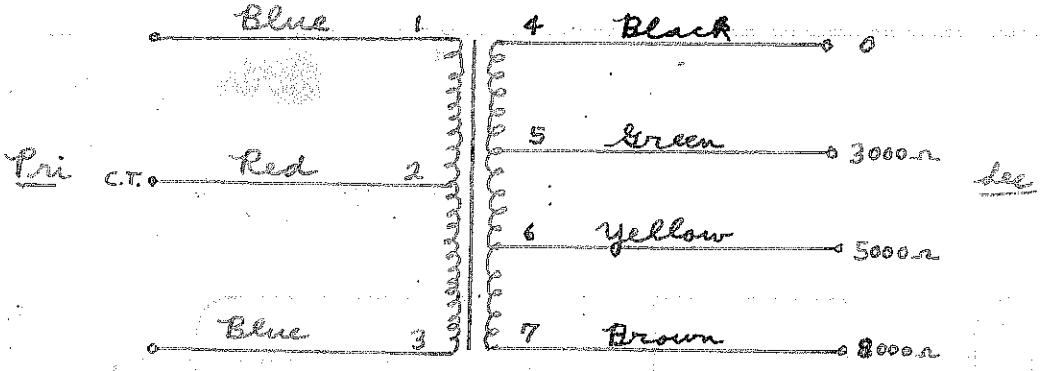
Winding	Pri	Sec					
Mean Turn	3.66	4.71					
Resistance 25° c	209	152					
Pounds Copper	.061	.112					
Copper Density							
Ratio Volts	173–73	90.8 117.2 148.3					
Test to Ground	2000	2000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



MODULATION

New STOCK

P-P 6N7 or 6A6 (10,000 ohms CT)
to
3000 - 5000 - 8000 ohms
10 watts

SPEC. NO. P 850 ~~S-588-D~~

Winding		1-2-3 Pri.		4-5-6-7 Sec.			
Turns		2040		1830			
Taps		1020		1120-1445			
Wind. Lgth.		7/8		7/8			
Wire Size		#35		#33			
T. P. L.		128-16L		102-19L			
Finish		89%		91%			
Type Lead		~~Silver Braid~~ #22 P.B		~~Silver Braid~~ #22 P.B			
Lead Lgth.		3" - 9"		3" - 9"			
Layer Insul.		20#		20#			
Test Volt.		2000		2000			
Wrapper		.114 1L007VC		.167 2L005GA			

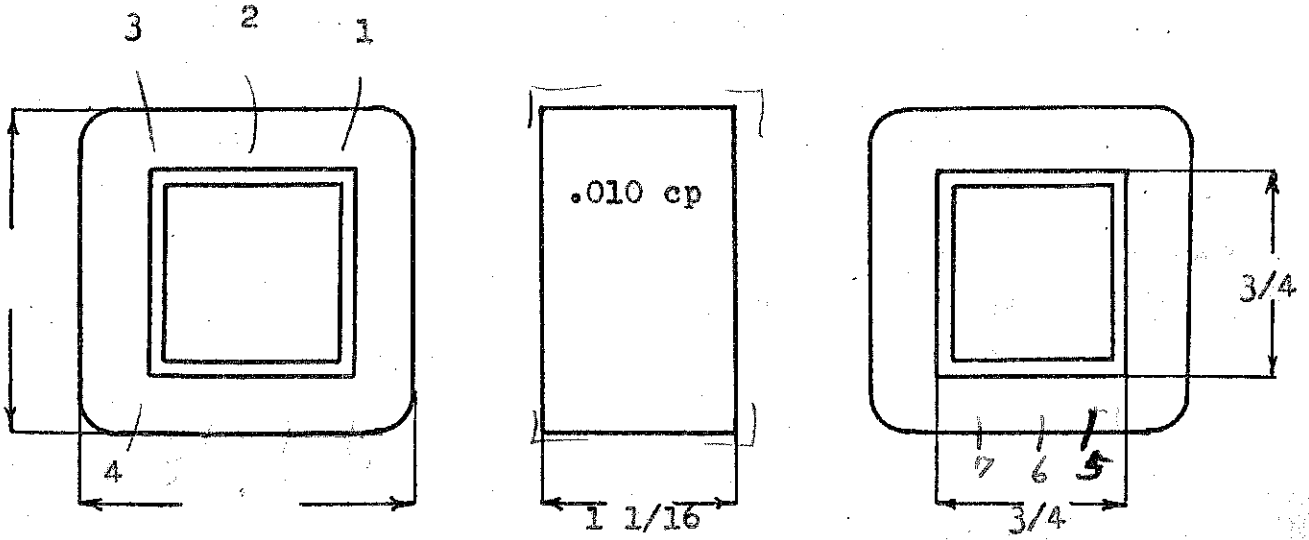
TUBE	4L007GK plus 1L003VB	IMPREGNATION	Varnish

CORE 3/4 x 3/4 GA. 29 GRADE B STACK Butt .002 Gap

MOUNTING D - ~~Lugs~~ Leads Armite Keepers

Stack so laminations & keepers fit in D bracket

T. P. V —
window - .339/.375 = 90.4%



DESIGNED BY Rewritten F. F.

DATE

DESIGN AND TEST DATA

Rating:

Z = 10,000 - 8,000 - 5,000 - 3,000
Zr = 3.333 - 2.667 - 1.667 - 1.000
Tr = 1.825 - 1.633 - 1.291 - 1.000
T = 2040 - 1830 - 1445 - 1120

Winding		Pri.		Sec.			
Mean Turn		3.66		4.71			
Resistance 25° c		209		152			
Pounds Copper		.061		.112			
Copper Density							
Ratio Volts		73-73		90.8-117.2-148.3			
Test to Ground		2000		2000			

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

for 50 ma @ 5000 ~ 4% si steel

$\frac{\pi L}{\ell} = \frac{1445 \times .050}{11.42} = 6.34$

$\frac{a}{c} = .0009$ $a = .0009 \times 17.5 = .0014$ mil Butt No Gap

$\frac{LI^2}{V} = 2.50 \times 10^{-4}$

$L = \frac{2.50 \times 10^{-4} \times 41.5}{25 \times 10^{-4}} = 4.15$ Hy sec.

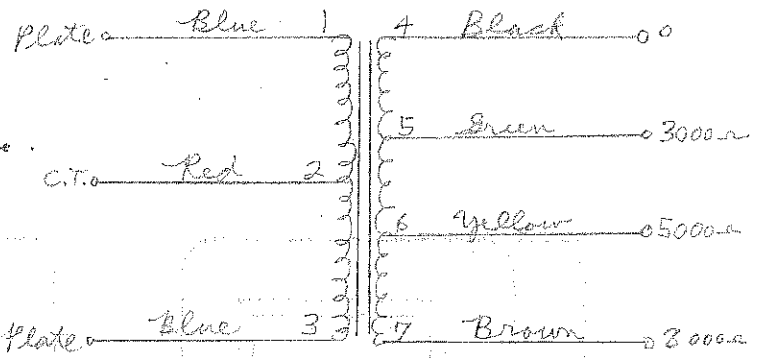
pri $2.53 \times \frac{2040}{1445} = 8.30$ Hy

6N7 – $R_p = 11,000$ $R_L = 10,000$

$R_{par} = \frac{11,000 \times 10000}{11000 + 1000} = 5250$

$2\pi f L \cdot \frac{R_{par}}{X_{oc}} = .77$ $X_{oc} = \frac{5250}{.77} = 7420$

freq $X_c = \frac{7420}{2\pi\ 8.30} = 142 \sim$



Output
5000 cps to 3.2 cps
5 watts max
Pri ma = 40

New Stock

SPEC. NO. A 836

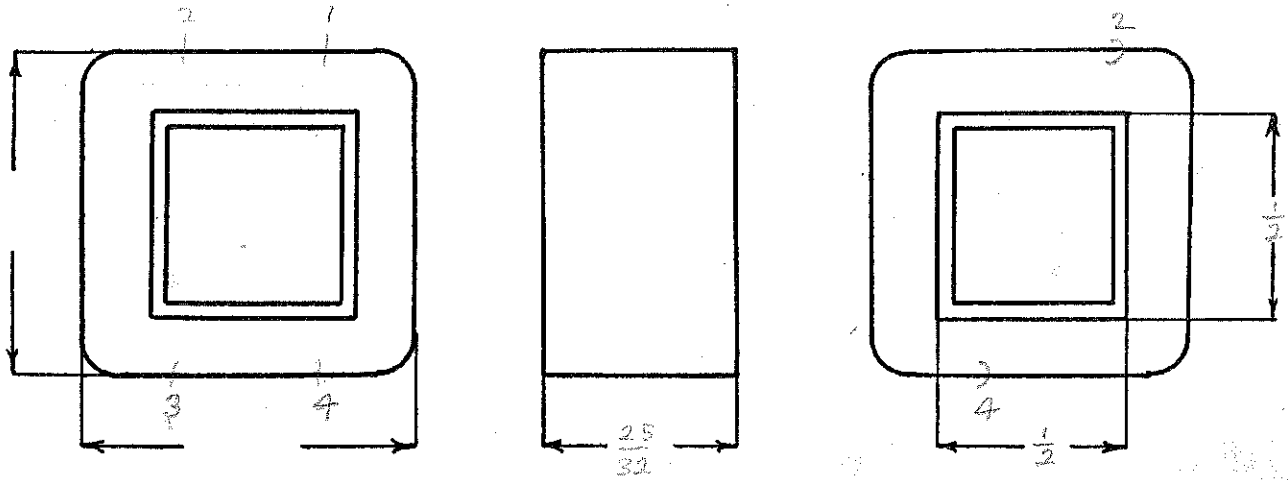
Winding	1–2 Pri	3–4 Sec					
Turns	2460	62					
Taps	—	—					
Wind. Lgth.	19/32	19/32					
Wire Size	#37	#23					
T. P. L.	107 – 23L	21 – 3L					
Finish Patch	90%	89%					
Type Lead	#22 Plastic	—					
Lead Lgth.	6"	3"					
Layer Insul.	16#	50#					
Test Volt.	1500	1000					
Wrapper	1L005VC	2L005GA					

TUBE 5L 010 GH IMPREGNATION Varnish

CORE $\frac{1}{2} \times \frac{1}{2}$ GA. 26 GRADE D STACK Butt No Gap

MOUNTING D – Leads

mw = 89%



DESIGNED BY A. Hadley DATE 6-16-49

DESIGN AND TEST DATA

Rating:

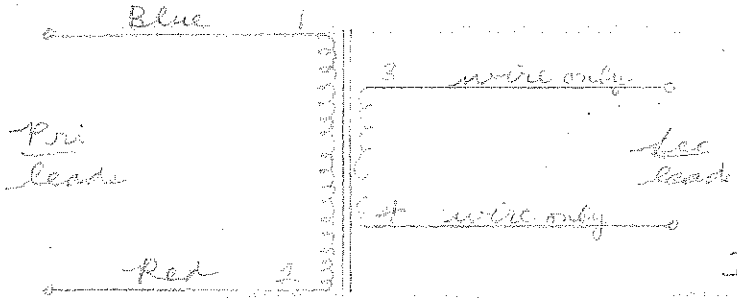
Winding	1–2 Pri	3–4 Sec					
Mean Turn	2.87	3.69					
Resistance 25° c	314	.396					
Pounds Copper	.0362	.0299					
Copper Density	—	—					
Ratio Volts	24.6	0.62					
Test to Ground	1500	1000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = 5000 - 3.2$

$Z_R = 1563 - 1$

$T_R = 39.5 - 1$

$I_{p\,max} = \sqrt{\frac{5.000}{5000}} = \sqrt{1.001} = 31.6\,ma$

$I_{s\,max} = \sqrt{\frac{5}{3.2}} = 1.25\,a$

$E_{max} = \sqrt{5 \times 5000} = \sqrt{25000} = 158\,v$

Output

5000 ohms to 3.2 ohms

5 watts max

Pri ma. = 40

New stock

SPEC. NO. A 836

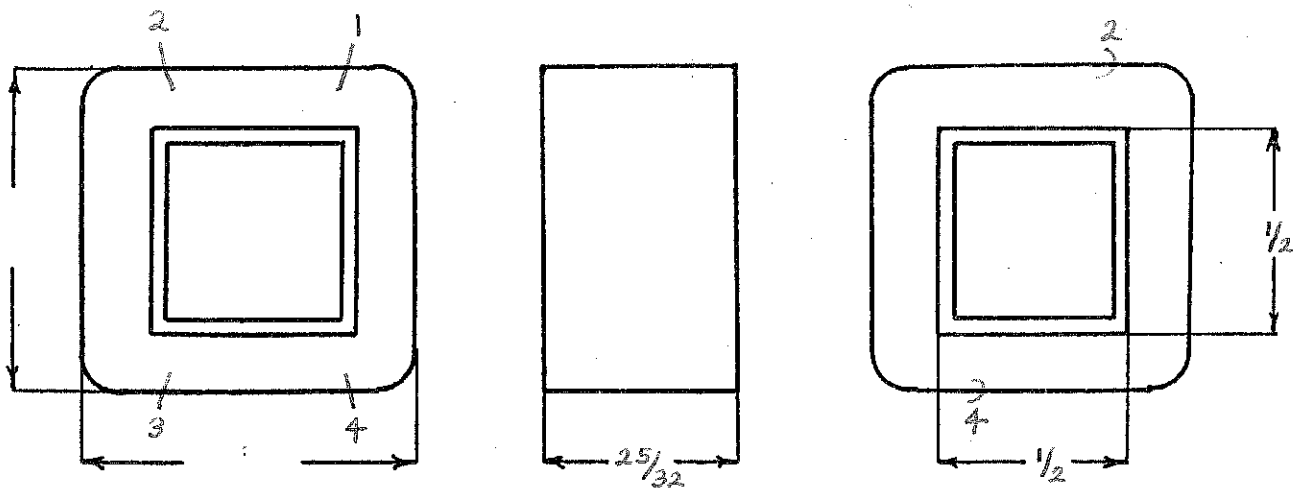
Winding	1-2 Pri	3-4 Sec					
Turns	2460	62					
Taps	—	—					
Wind. Lgth.	19/32	19/32					
Wire Size	#37	#23					
T. P. L.	107-23L	21-3L					
Finish Pitch	90%	84%					
Type Lead	#22 Plastic	n.o.					
Lead Lgth.	6"	3"					
Layer Insul.	16#	50#					
Test Volt.	1500	1000					
Wrapper	1L005VC	2L005GA					

TUBE 5L010GK IMPREGNATION Varnish

CORE 1/2 X 1/2 GA. 26 GRADE D STACK Butt no Gap

MOUNTING D - leads

nm = 83%



DESIGNED BY A. HADLEY

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

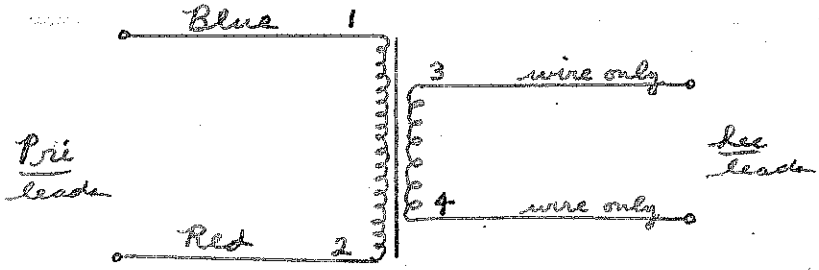
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current 1030 amperes @ 115 volts 60 cycles on 1 - 2

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

Remarks:



$Z = 5000 - 3.2$

$Z_R = 1563 - 1$

$T_R = 39.5 - 1$

$I_{p\,max} = \sqrt{\frac{5}{5000}} = 31.6\,ma$

$I_{s\,max} = \sqrt{\frac{5}{3.2}} = 1.25a$

$E_{max} = \sqrt{5 \times 5000} = 158\,V.$

E_p = 115V
E_s = 2800 V.C.T. - 300 Ma
E_{F_1} = 10 V C.T. - 7 amps
E_{F_2} = 2.5 V - 10 amps

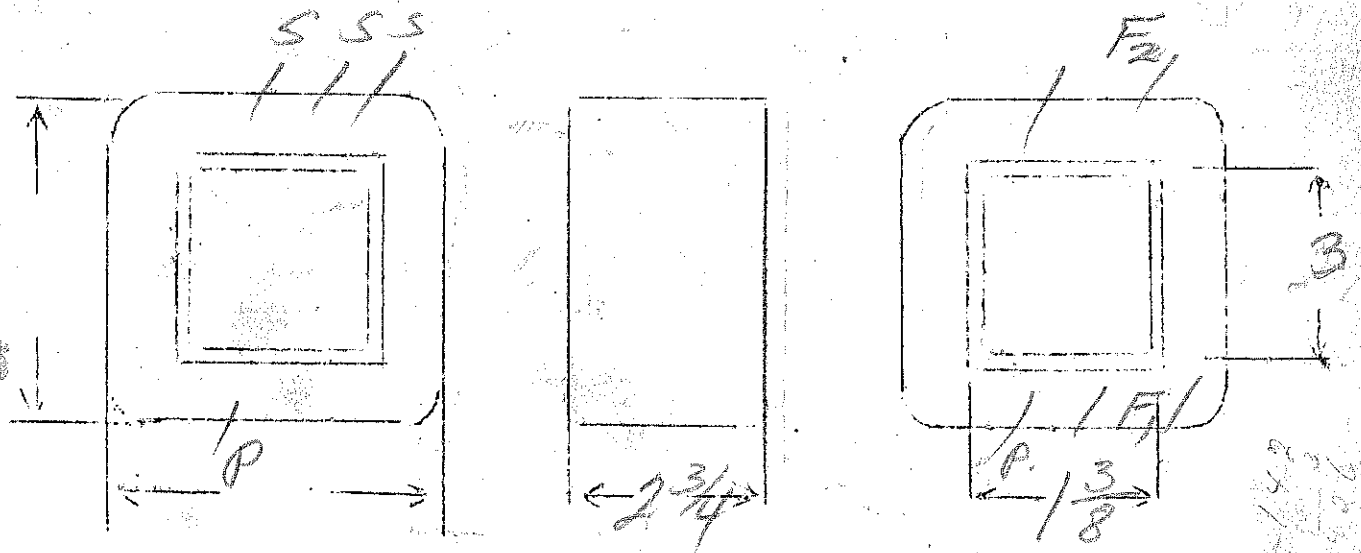
$\frac{N}{E}$ = 1.45

SPEC. NO. 836

Winding	S	P Blank	F White	F Blank			
Turns	4500	166	16	4			
Taps	2250	—	8	2			
Wind. Lgth.	2 3/8	2 3/8	—	—			
Wire Size	#27	#15	#14	13			
T.P.L.	142-32	36-5	1 Layer				
Kind Term.	#28 Brnd	wire	→	→			
Term. Lgth.	9"	9"	9"	9"			
Layer Insul.	50 ~~#~~						
Wrapper	2L007PC 2L005GA	2L007PC 2L005GA		1L007PC 2L005GA			

TUBE | 7L007 + 1L007PC | IMPREGNATION | V.

CURE | 1 3/8 x 2 15/16



886

886

Ross Heilman

E_p = 110V 400 watt $\frac{N}{E}$ = 1.55

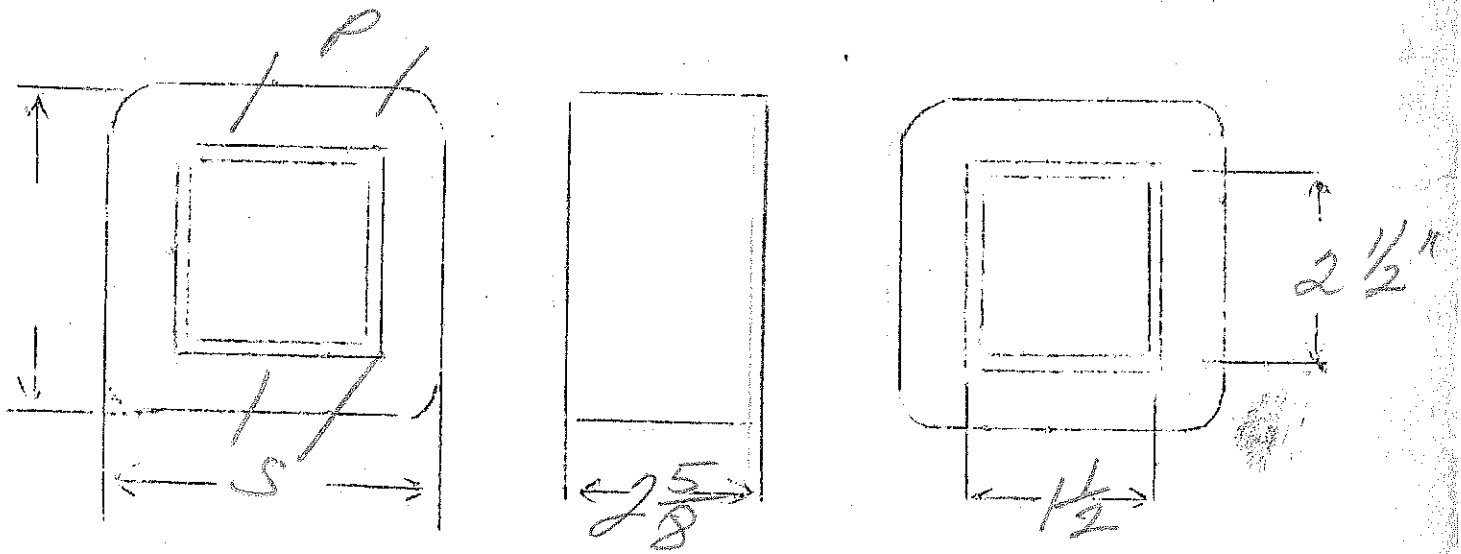
E_s = 7V - 57 amps

SPEC. NO. 837

Winding	PRI	SEC					
Turns	172	12					
Taps	—	—					
Wind. Lgth.	2 3/8	6 strands wound sec in three layers					
Wire Size	#15	#12	each 12 T double 12				
T.P.L.	5 layers	3 layers	Parallel three windings				
Kind Term.	wire	wire	to give equivalent of 6 strands				
Term. Lgth.	6"	6"					
Layer Insul.	.005 GA	.005 GA					
Wrapper	4 L .005 GA	4 L .005 GA					

TUBE | 10C007 | IMPREGNATION

CURE | 1 1/2 x 2 1/2



Output
7-10,000 ohms to 3.0 – 4.25 ohms
5 watts max
Pri ma = 30

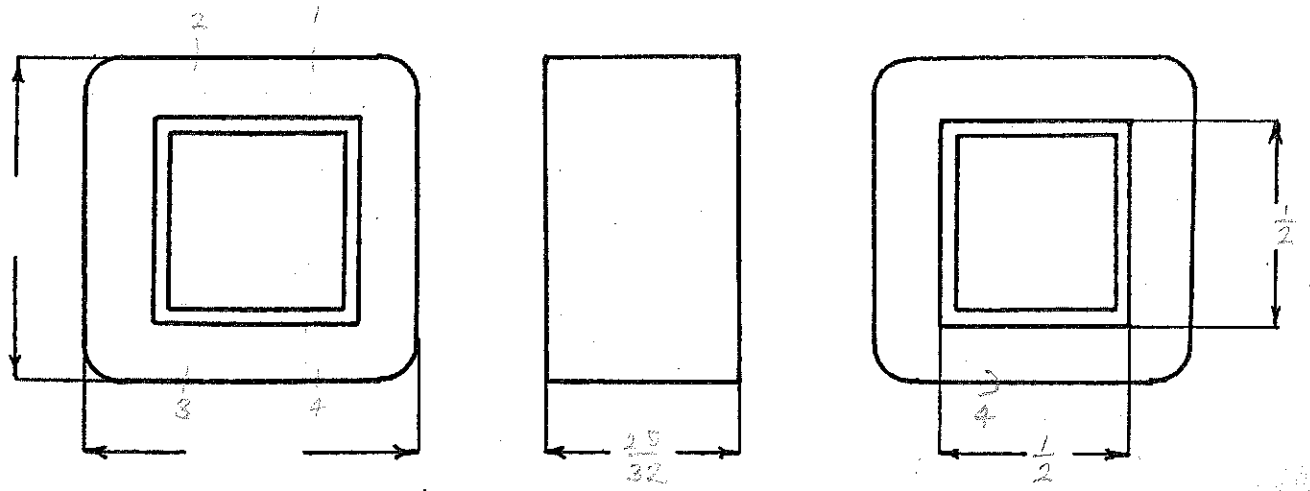
New stock

SPEC. NO. A838

	1 – 2	3 – 4					
Winding	Pri	Sec					
Turns	3080	86					
Taps	—	—					
Wind. Lgth.	17/32	19/32					
Wire Size	#38	#23					
T. P. L.	119 – 261	22 – 31					
Finish Patch	90%	90%					
Type Lead	#22 Plastic	n. o.					
Lead Lgth.	6"	3"					
Layer Insul.	16#	50#					
Test Volt.	1500	1000					
Wrapper	1L005VC	2L005GA					

TUBE	5L010GK		IMPREGNATION	Varnish	
CORE	½ X ½	GA. 26	GRADE D	STACK	Butt No Gap
MOUNTING	D-Leads				

nm = 90%



DESIGNED BY a. Hadley

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

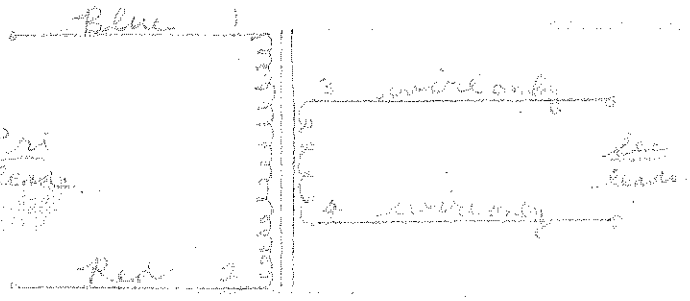
Winding	1–2 Pri	3–4 Sec					
Mean Turn	2.88	3.72					
Resistance 25° c	4.98	.425					
Pounds Copper	.0361	.0321					
Copper Density		498					
Ratio Volts	30.8	0.66					
Test to Ground	1500	1000					

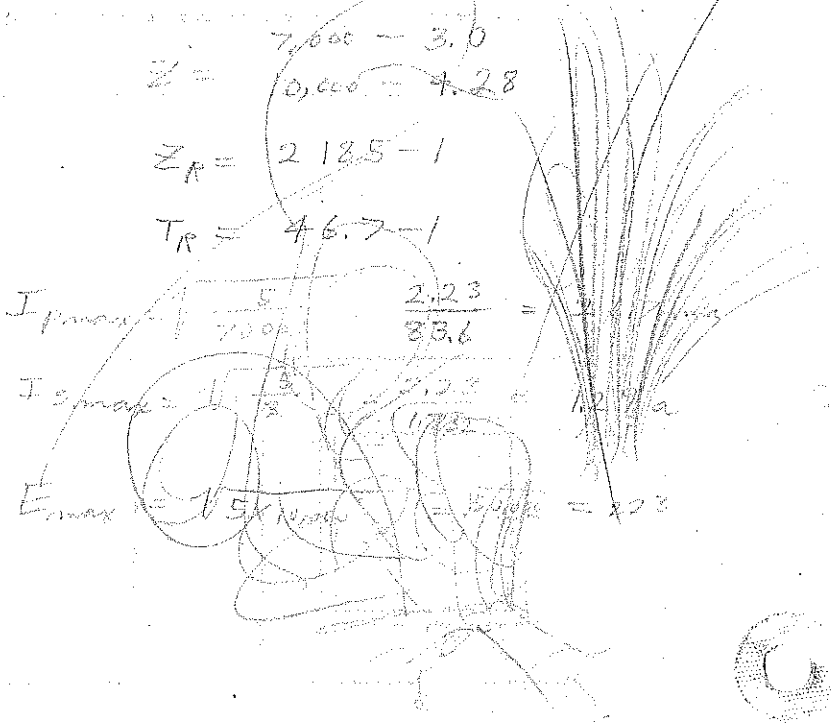
Iron Induction _____ @ _____ Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:





	RK 55	AB 38
Rpri	692	416
Rsec	.540	.42
Lp	8 Hy	9 Hy

Output

7-10,000 ohms to 3.0 - 4.28 ohms

5 watts max

Pri ma. = 30

New stock

SPEC. NO. A 838

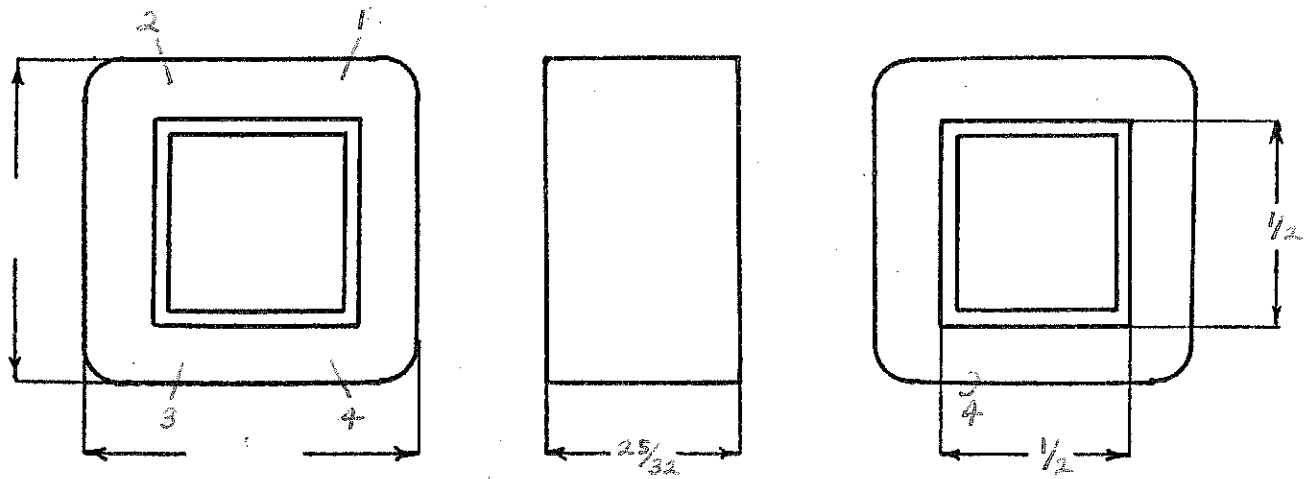
Winding	1-2 Pri	3-4 Sec.					
Turns	3080	66					
Taps	—	—					
Wind. Lgth.	19/32	19/32					
Wire Size	#38	#23					
T. P. L.	119-26L	22-3L					
Finish Pitch	90%	90%					
Type Lead	#22 Plastic	no. o.					
Lead Lgth.	6"	3"					
Layer Insul.	16 #	50 #					
Test Volt.	1250	500					
Wrapper	1L005VC	2L005GA					

TUBE	5L010GH	IMPREGNATION	Varnish

CORE 1/2 x 1/2 GA. 26 GRADE D STACK Butt no lap

MOUNTING D-leads

mm = 87%



DESIGNED BY A. HADLEY

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

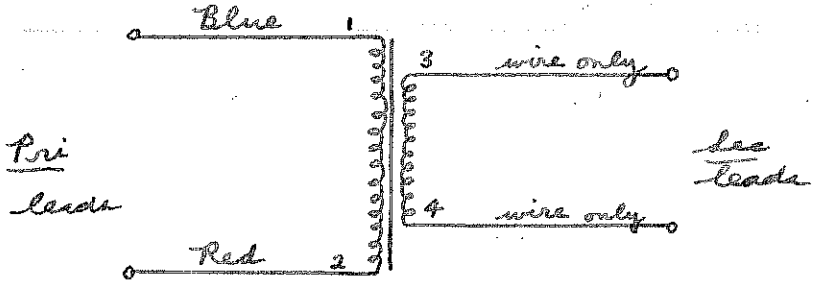
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current 15 ma amperes @ 120 volts 60 cycles on _____

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

Remarks:



$Z = \frac{7,000}{10,000} = \frac{3.0}{4.28}$

$Z_R = 2185 - 1$

$T_R = 46.7 - 1$

$I_{p\,max} = \sqrt{\frac{5}{7000}} = 26.7\,ma$

$I_{s\,max} = \sqrt{\frac{5}{3.0}} = 1.29a$

$E_{max} = \sqrt{5 \times 10,000} = 223$

$E_p = 3^{11}/_{10}$

$E_s = 5V.$ 20 amp

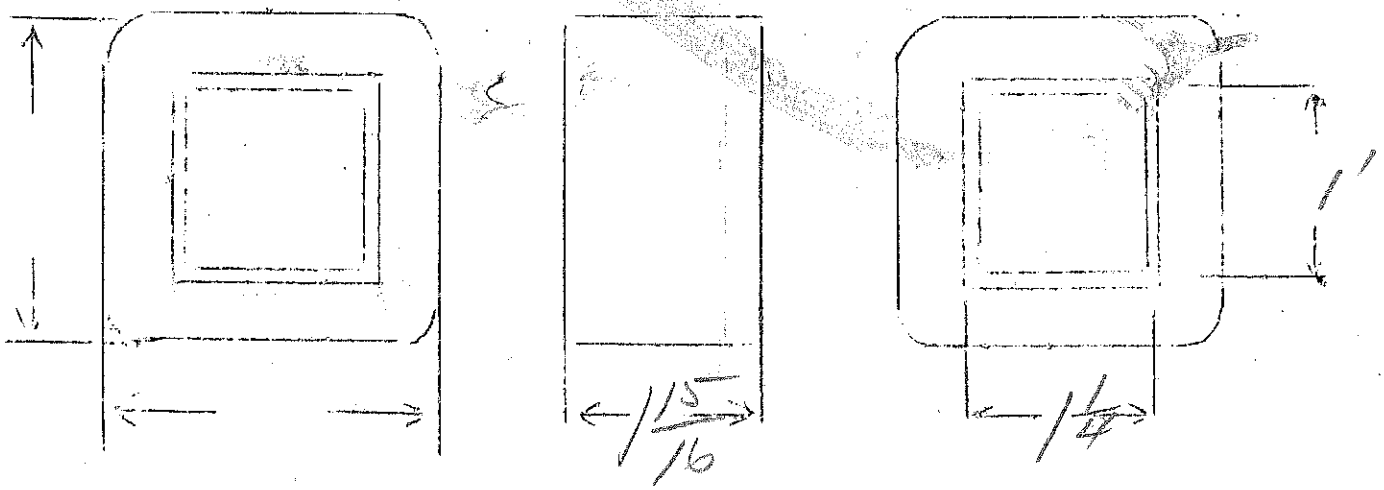
$\frac{N}{E} = 4.5$

SPEC. NO. 838

Winding	P	S					
Turns	500	25					
Taps	—	—					
Wind. Lgth.	1.75	—					
Wire Size	#22	Started #13					
T.P.L.	56-9	3 layers					
Kind Term.	#20 par	wire					
Term. Lgth.	9"	9"					
Layer Insul.	50 #	—					
Wrapper	3L00754	3L00704					

TUBE | 2L007 | IMPREGNATION | Varnish

CURE | 1 1/2 X 1 1/4



E_p = 110 v

E_s = 5 v - 12 amps

Ayrcast Instrument Co. - Pasadena

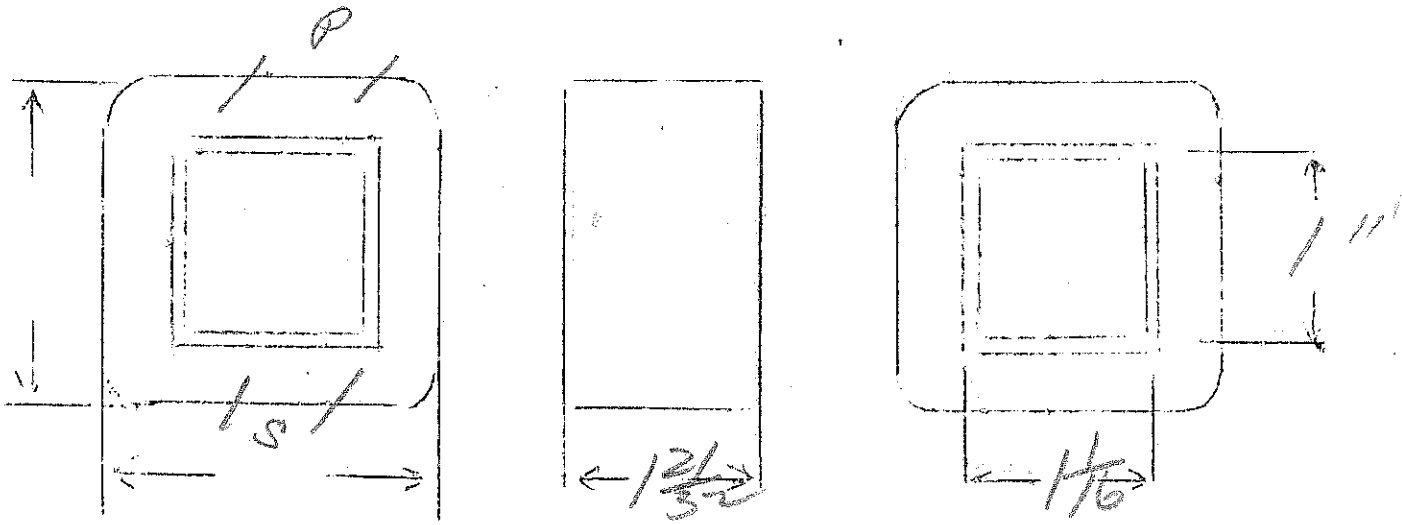
$\frac{\Delta}{\epsilon} = 5.3$

SPEC. NO. 839

Winding	Pri	Sec					
Turns	590	30					
Taps	—	—					
Wind. Lgth.	115/32	115/32					
Wire Size	#34	#12					
T.P.L.	59-10	2 layers					
Kind Term.	#30 P Braid	Wire					
Term. Lgth.	9"	9"					
Layer Insul.	50#	—					
Wrapper	3L0076A	3L0076A					

TUBE | 3L007 | IMPREGNATION | VARNISH

CURE | 1½ x 1



Output
15-25,000 ohms to 2.7-4.5 ohms
5 watts max
Pri ma = 10

New stock

SPEC. NO. A840

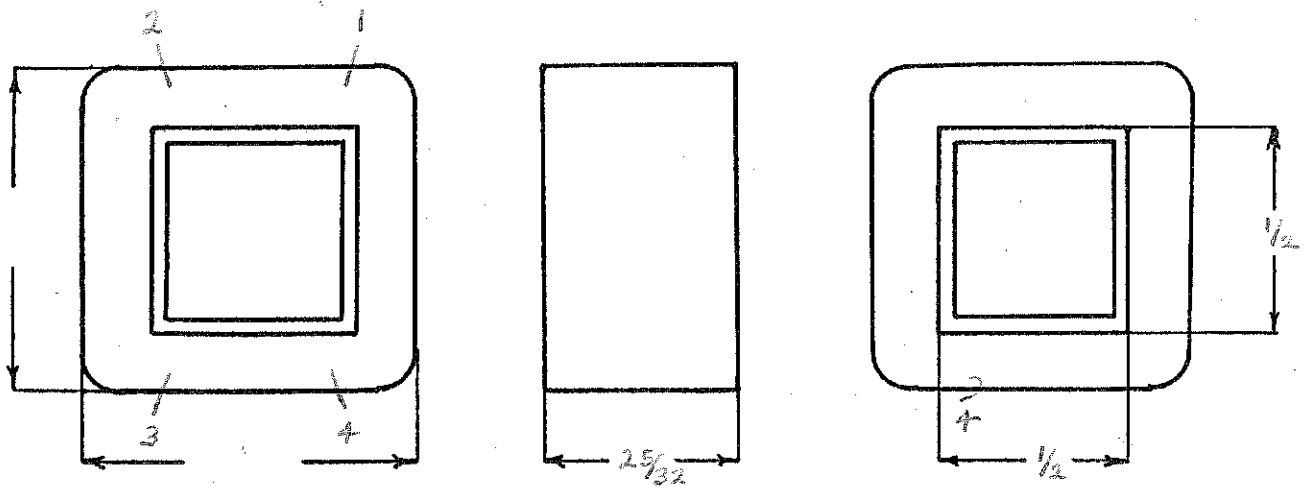
Winding	1-2 Pri	3-4 Sec					
Turns	4260	57					
Taps	—	—					
Wind. Lgth.	19/32	19/32					
Wire Size	#40	#22					
T. P. L.	152-28L	19-3L					
Finish Pitch	90%	86%					
Type Lead	#22 Plastic	w.o.					
Lead Lgth.	6"	3"					
Layer Insul.	12#	50#					
Test Volt.	1750	1000					
Wrapper	1L010VC	2L005GA					

TUBE 5L010GM | IMPREGNATION Varnish

CORE 1/2 x 1/2 | GA. 26 | GRADE D | STACK Butt no cap

MOUNTING D - leads

mm = 842



DESIGNED BY A. HADLEY

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

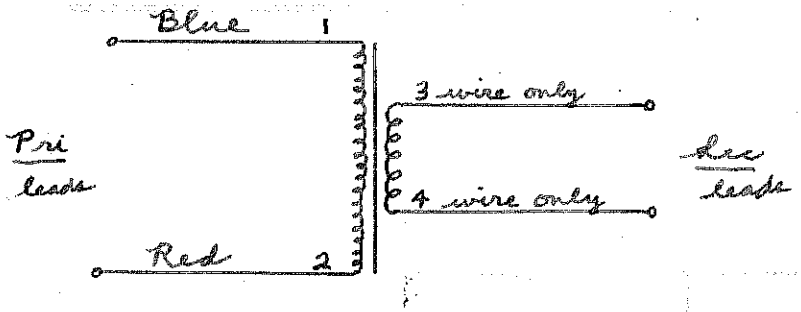
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$15,000 - 2.7$

$Z = 25,000 - 4.5$

$Z_R = 5560 - 1$

$T_R = 74.5 - 1$

$I_{p\,max} = \sqrt{\frac{5}{15,000}} = 18.3\,ma.$

$I_{s\,max} = \sqrt{\frac{5}{2.7}} = 1.36a$

$E_{max} = \sqrt{5 \times 25,000} = 353v.$

Output

15-25,000 ohms to 2.7-4.5 ohms

5 watts max

Pri max = 10

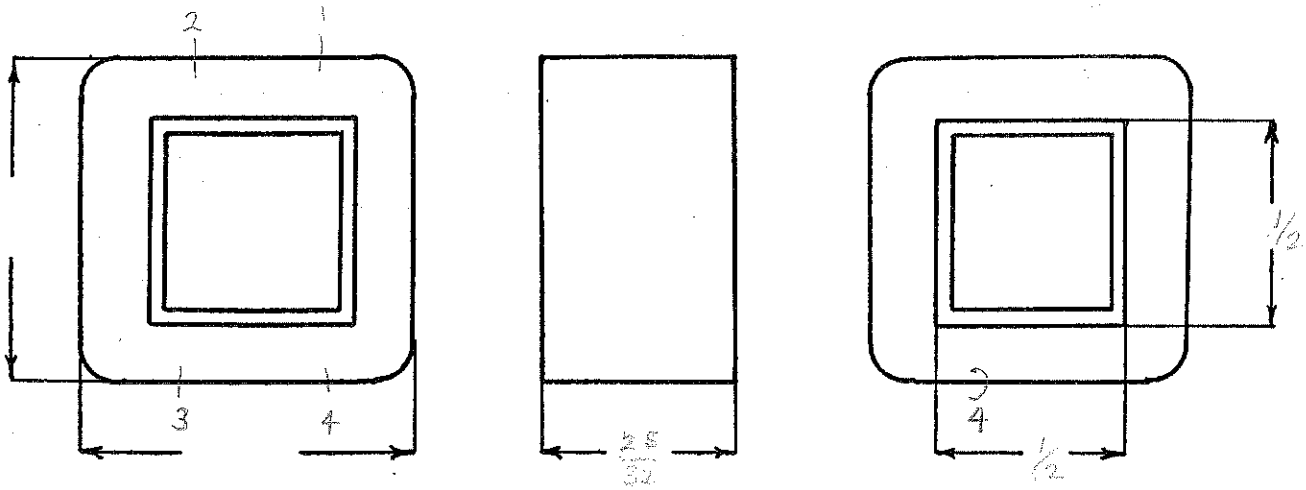
New stock

SPEC. NO. A 840

Winding	1-2 Pri	3-4 Sec					
Turns	4260	57					
Taps	—	—					
Wind. Lgth.	19/32	19/32					
Wire Size	#40	#22					
T. P. L.	152 — 28L	19 — 3L					
Finish Patch	90%	86%					
Type Lead	#22 Plastic	same as					
Lead Lgth.	6"	3"					
Layer Insul.	12#	50#					
Test Volt.	1750	1000					
Wrapper	1L 010 VC	2L 005 GA					

TUBE	5L 010 GH		IMPREGNATION	Varnish	
CORE $\frac{1}{2} \times \frac{1}{2}$	GA. 26	GRADE D	STACK	Butt no gap	
MOUNTING	D-Leads				

sum = 88%



DESIGNED BY A. Hadley

DATE 6-16-49

DESIGN AND TEST DATA

Rating:

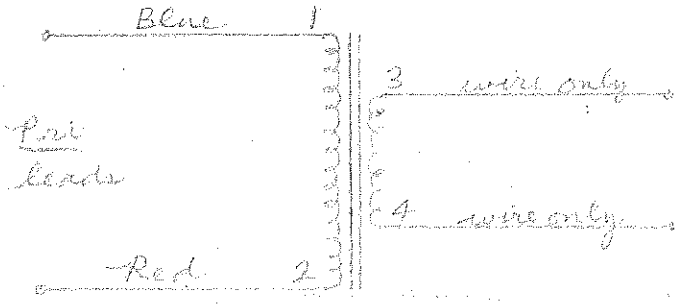
Winding	1–2 Pri	3–4 Sec					
Mean Turn	2.80	3.63					
Resistance 25° c	1063	.284					
Pounds Copper	.0305	.0341					
Copper Density	—	—					
Ratio Volts	42.6	0.57					
Test to Ground	1750	1000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = \frac{15,000}{25,000} = \frac{2.7}{4.5}$

$E_R = 5560 - 1$

$T_R = 74.5 - 1$

	RK56	A640
R_{pri}	810	1019
R_{sec}	.386	.266
L_p	15.0	14.4

$I_{p\,max} = \sqrt{\frac{5}{15,000}} = \frac{2.23}{122} = 18.3\,ma$

$I_{s\,max} = \sqrt{\frac{5}{2.7}} = \frac{2.23}{1.64} = 1.36\,a$

$E_{max} = \sqrt{8 \times 25,000} = \sqrt{125\,sq} = 353\,rms$

E_p = 115V. Sargent

E_s = 700V CT. - 50 MA

E_{F_1} = 6.3V - 1.4 amps

E_{F_2} = 5V - 2 amps

$\frac{N}{E}$ = 5.7

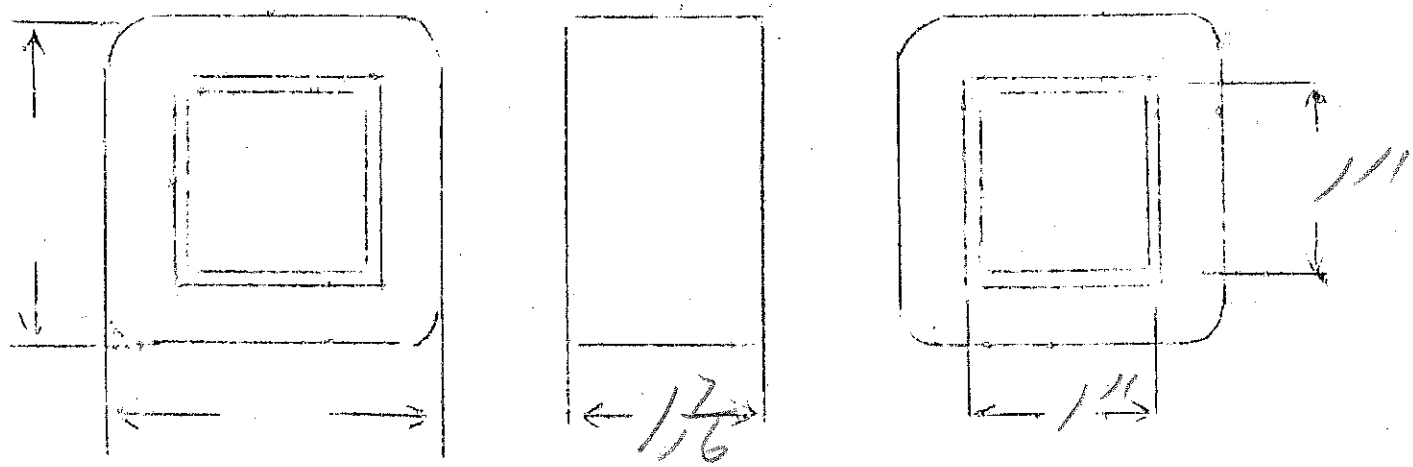
Dec

SPEC. NO. 840

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	670	75	4350	32	40		
Taps	—	—	2175	—	20		
Wind. Lgth.	1.25	—	1.25	—	—		
Wire Size	#27	#27	#36	#20	#21		
T.P.L.	25-9L	25-1	206.22				
Kind Term.	wire	wire	silver	wire	wire		
Term. Lgth.	3"	3"	—				
Layer Insul.	30#		20#				
Wrapper	KRAFT	KRAFT	2 LOOSE	→			

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 X 1 HR



Sigmaser Aluminum

single sec

pri line 115 tapped 230 sec — 750 — 1250 — 2000 V

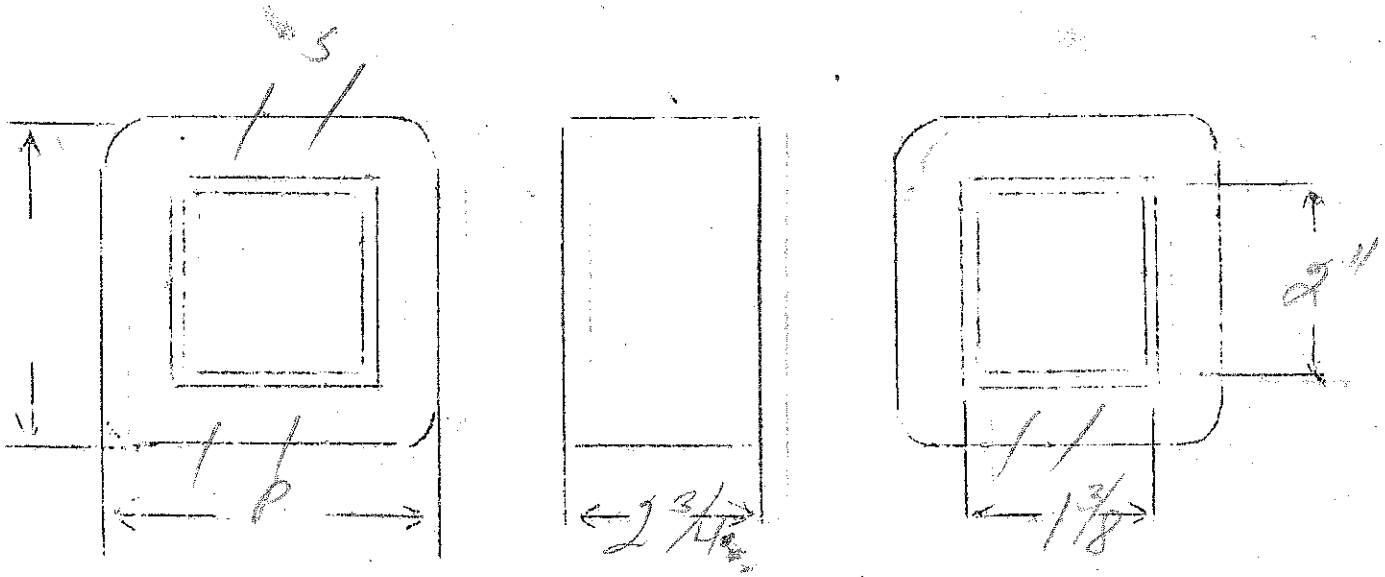
400
350
125

SPEC. NO. 84

Winding	SEC	PRI	Continuous A	B	2		
Turns	4800	240	144	258			
Taps	—	Black - Red	Blue	Black			
		1944	1253	749			
Wind. Lgth.	2 1/4	2 1/2	2 1/2	2 1/2			
Wire Size	#29	#16	#18	#21			
T.P.L.	123-28	43-6	53-3	4 layers			
Kind Term.	#30 Formex	wire					
Term. Lgth.	10"	10"	10"	10"			
Layer Insul.	60#		2 mils GA				
Wrapper	2 mils GA		3 mils GA				

TUBE | 2 mil + 2 mil | IMPREGNATION | V.

CURE | 1 3/8 x 2"



Segment Winding

$\frac{4}{2} = 1.43$

vinyl dec — 200ma

Pri Input 80 dec — 300V — 2000 — 1000 at 115 Volts

SPEC. NO. 945

		yellow white	blue	black			
Winding	SEC	PRI	Continuous a	b	c		
Turns	4750	164	82	246			
Taps	—	—		—			
Wind. Lgth.	2 1/4	2 1/2	2 1/2	2 1/2			
Wire Size	#29E	#14E	#14E	#30E			
T.P.L.	123-28	36-4 1/2	57-3 1/2 l	70-3 l			
Kind Term.	wire only		wire				
Term. Lgth.	10"		10"				
Layer Insul.	50#		2L0050A				
Wrapper	2L0050A		2L0050A				

TUBE	2L0074 2L0076	IMPREGNATION	KARNAS
CURE			

Finishing — Sec. wire 90°

Outline to Eng. Approval

C/O 6A Rubber Arb. Wires

12 45 Thins Ea

MCROY - RADIO ROOMS

$E_{P_1} = 115V$

$E_S = 800V - 150\,MA$

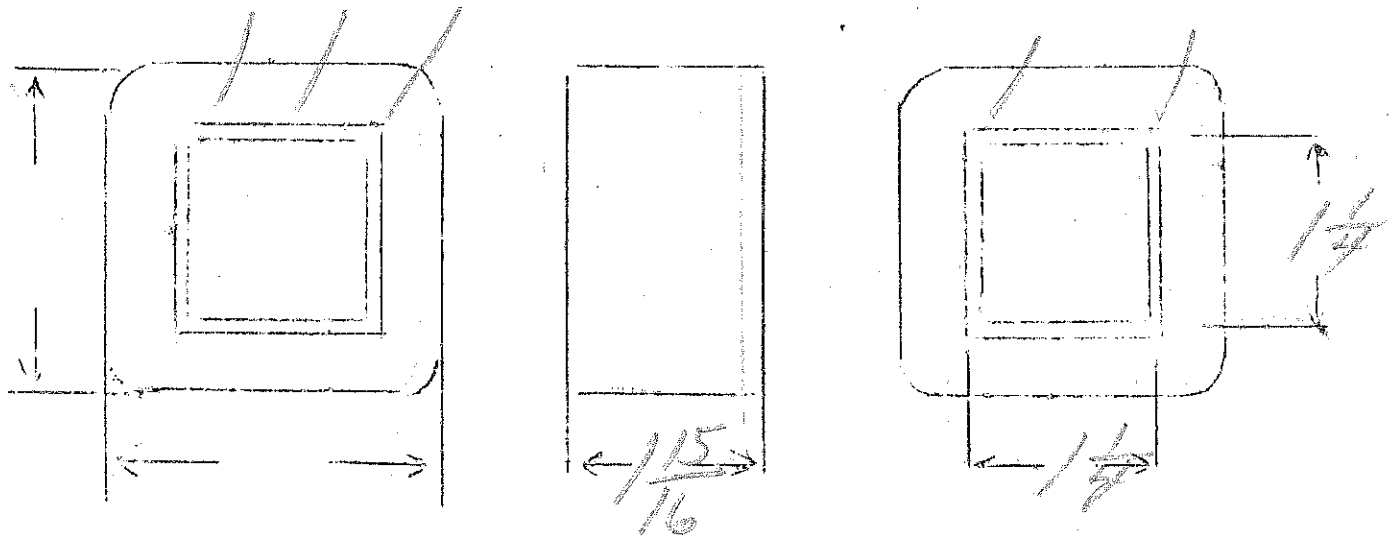
$E_{F_1} = 5V - 3.5\,Amps$

$E_{F_2} = E_{F_3} = 2.5V - 4\,Amps$

$\frac{N}{E} = 3.6$

SPEC. NO. F-43

Winding	PRI	SHIELD	SEC	F1	F2	F3	
Turns	415	170	5300	20	10	10	
Taps	—	—	1650	—	—	5	
Wind. Lgth.	1.05	1.25	1.25	—	—	—	
Wire Size	#21	#31	#31	#18	#16	#16	
T.P.L.	53-8	170	170-20				
Kind Term.	#22 Brass	2 Brass	#30 Brass	Twist			
Term. Lgth.	9"	3"	9"	—	—	—	
Layer Insul.	50#		20#				
Wrapper	Mylar	Mylar	Mylar	Mylar	2 Mylar		
TUBE	2207		IMPREGNATION	VARNISH			
CURE	12hr/115°						



E_p = 115V

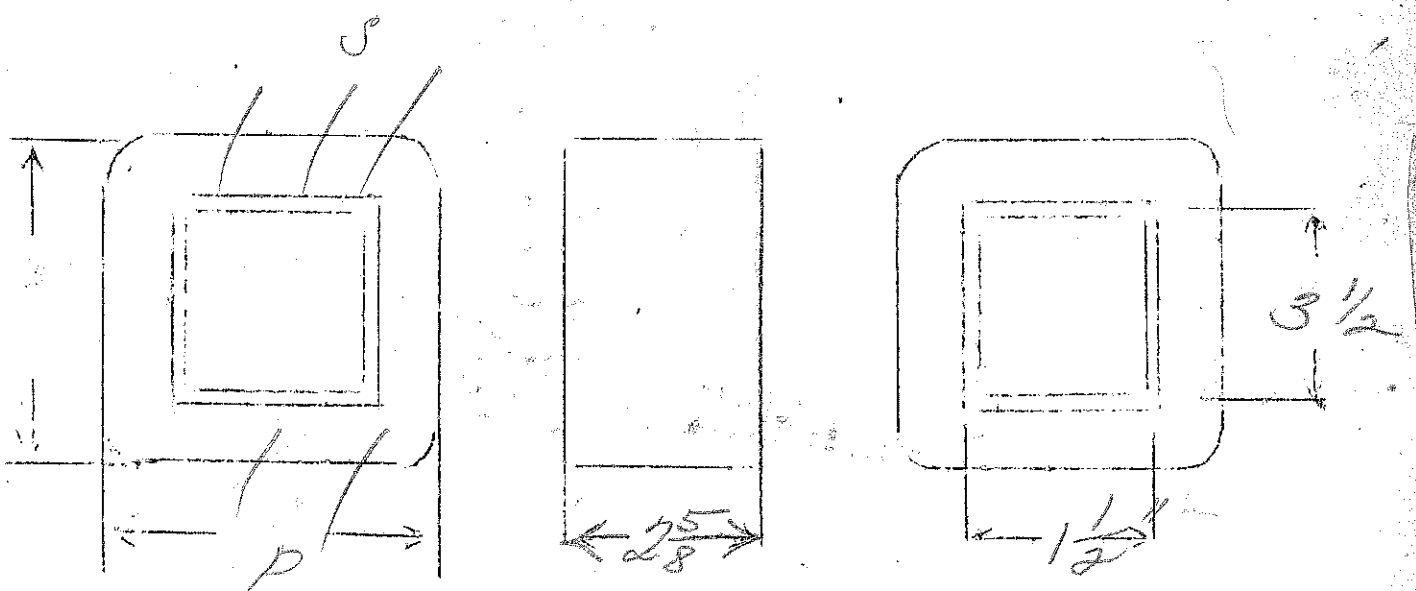
E_s = 2800V CT - 400 Ma.

B = 11500

$\frac{A}{E}$ = 1.15

SPEC. NO. 844.

Winding	SEC	PRI					
Turns	3850	134					
Taps	1925	—					
Wind. Lgth.	$2\frac{3}{8}$	$2\frac{3}{8}$					
Wire Size	#26	#18					
T.P.L.	130-30	27-5					
Kind Term.	wire	wire					
Term. Lgth.	6"	6"					
Layer Insul.	50#	GA					
Wrapper	2400756A	2400756A					
TUBE	2400 7 + 2400 7KC		IMPREGNATION	VARNISH			
CURE	1½						



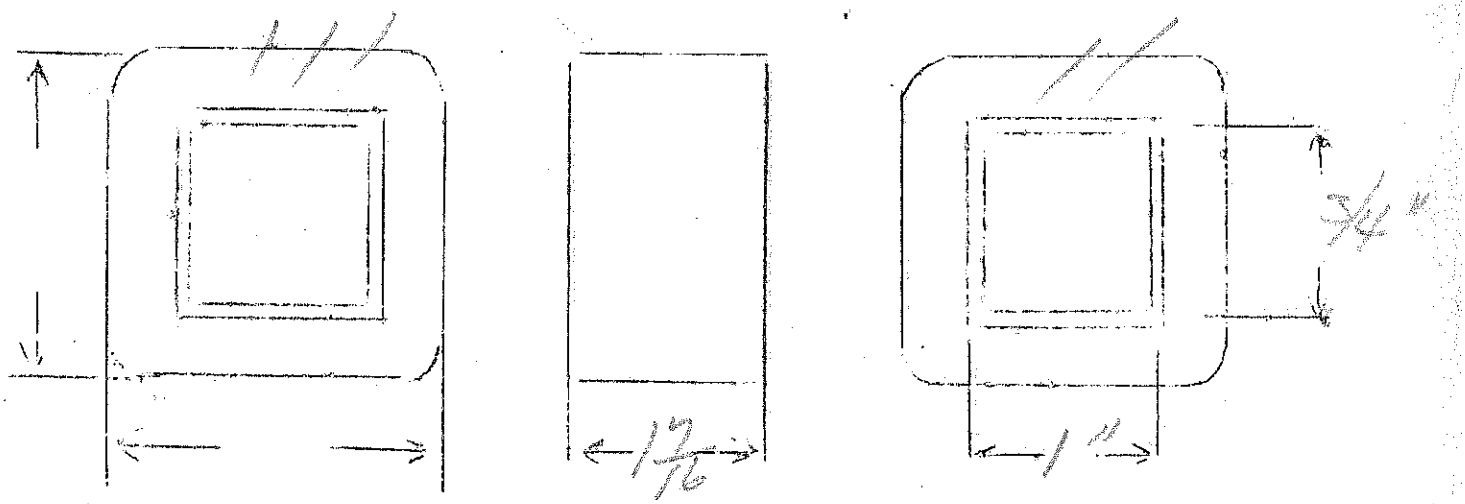
Same as 7402 except
Ep = 1352

SPEC. NO. 845

Winding	PRI	SHIELD	SEC	F	F2		
Turns	870	~~20~~	4200	36	18		
Taps	—	—	2100	—	9		
Wind. Lgth.	1.25	1.25	1.25	—	—		
Wire Size	#28	#28	37	#31	#18		
T.P.L.	87-10?	~~5~~	~~2~~				
Kind Term.	Twist	Std Pr.		Twist only			
Term. Lgth.	3"		3"	3"	3"		
Layer Insul.	30#		30#				
Wrapper	KAPTON	KAPTON	2 mils	SCARVITE			

TUBE	#2007	IMPREGNATION	VARNISH

CURE | 1 X 3/4 HR



Same as #210 except

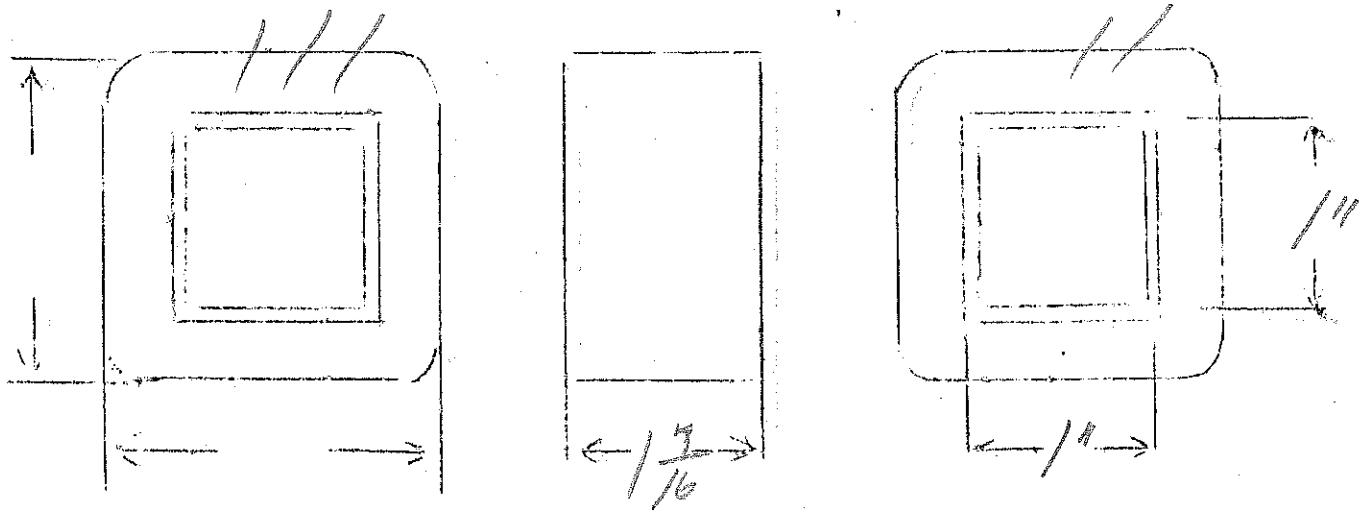
E_p = 135 V

SPEC. NO. 846

Winding	PRI	SHIELD	SEC	F1	F2		
Turns	940	215	3700	30	15		
Taps	—	—	1850	—	7		
Wind. Lgth.	1.25	1.25	1.25	—	—		
Wire Size	27E	36E	36E	21E	17E		
T.P.L.	94-10		215				
Kind Term.	Lead	Lead		Lead			
Term. Lgth.	3"	3"	3"	3"			
Layer Insul.	30#		30#				
Wrapper	Kraft	Kraft	Kraft	→			

TUBE | 4400 | IMPREGNATION | VARNISH

CURE | 1X 1HR



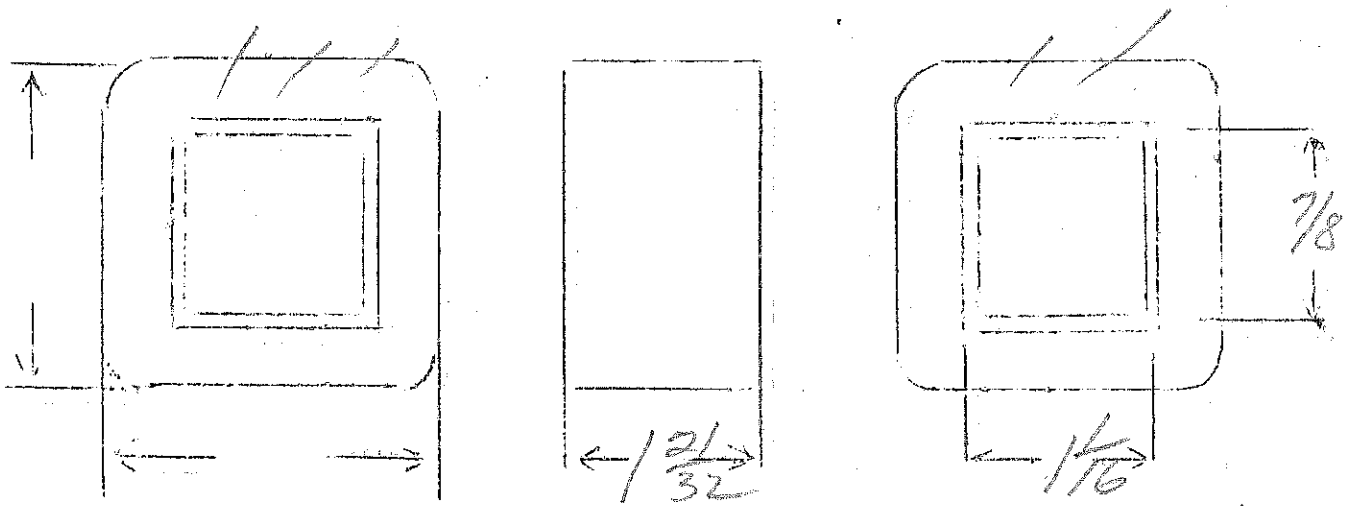
Same as #275, except
E_p = 135V.

SPEC. NO. 849

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	775	202	4400	32	16		
Taps	—	—	2000	—	8		
Wind. Lgth.	115/32	115/32	115/32	—	—		
Wire Size	25	25	35	20	16		
T.P.L.	71-11	202	202	—	—		
Kind Term.	wire	SILVER	SILVER	wire	→		
Term. Lgth.	3"	3"	→	→	→		
Layer Insul.	30	—	20#	→	→		
Wrapper	ILO07K/C	ILO07K/C	2 OF 5054	→	→		

TUBE | 7L009 | IMPREGNATION | VARNISH

CURE | 1 1/16 X 7/8



Same as #230 except: $\frac{N}{E} = 5.5$

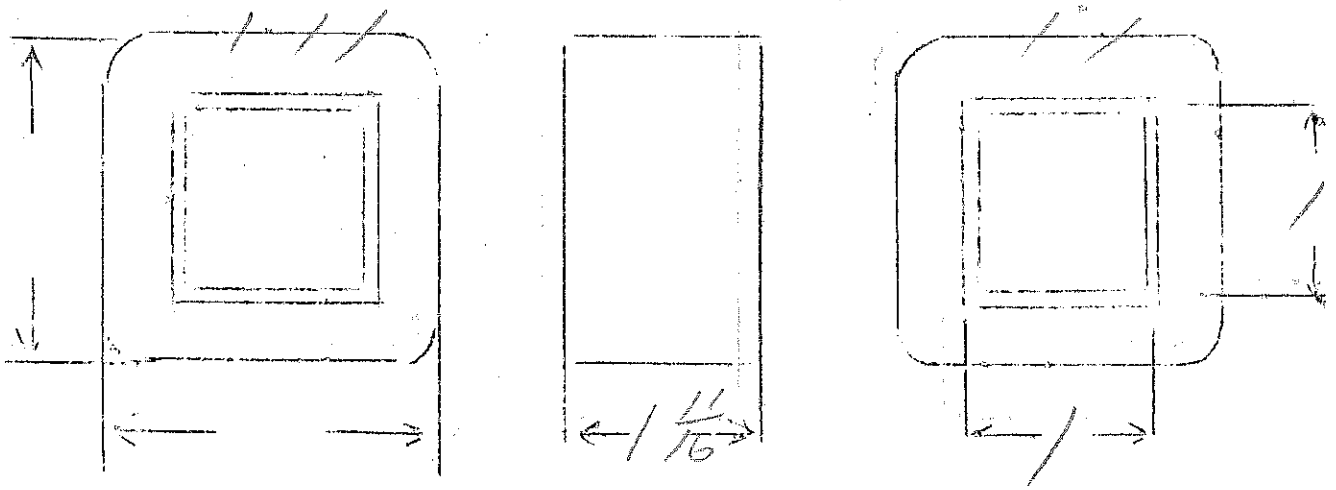
$E_P = 135$ V.

SPEC. NO. 848

Winding	PRI	SHIELD	SEC	F_1	F_2	F_3	
Turns	745	192	4200	31	15	15	
Taps	—	-	2100			9	
Wind. Lgth.	1 ½	1½	1½	—	—	—	
Wire Size	#24		34	18	14	18	
T.P.L.	63-12	192	192-22	—	—	—	
Kind Term.	wire	Lead	Lead	wire			
Term. Lgth.	3"	3"					
Layer Insul.	40 #		20 #				
Wrapper	KAPTON	KAPTON	2 Layers GA	2 Layers GA			

TUBE | 2 Layer | IMPREGNATION | VARNISH

CURE | 1 X 1 M



Same as #53 — except

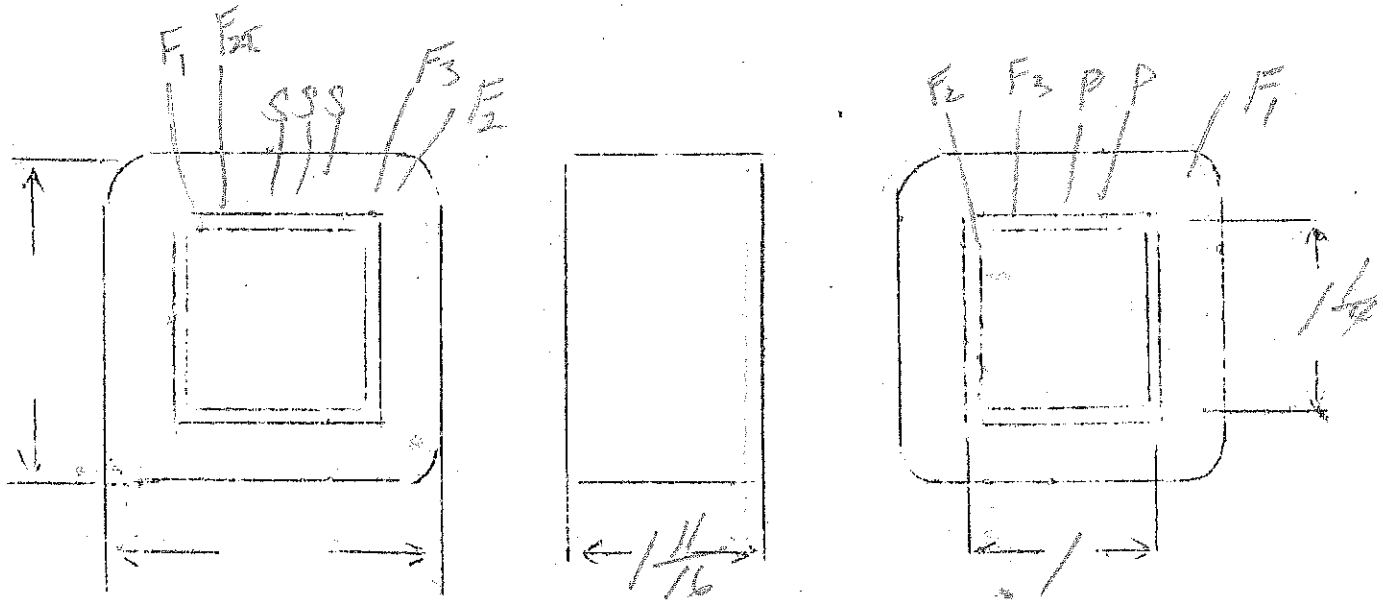
E_p = 135V

SPEC. NO. 849

Winding	PRI	SHIELD	SEC	F_1	F_2	F_3	
Turns	584	175	3840	26	13	13	
Taps	—	—	1920		—	6	
Wind. Lgth.	1.5	1.5	1.5	—	—	—	
Wire Size	22	33	33	18	14	16	
T.P.L.		175	175	—	—	—	
Kind Term.	Lines	silver	silver		Wire		
Term. Lgth.	3"	3"	3"				
Layer Insul.	50#	—	20#	—	—	—	
Wrapper	Kraft/Kraft		Kraft				

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1 X 1½



Audio Output

New Stock

P. P. 6V6 10,000 Ω 8000 ohms ct

Line to Voice coil 2, 4, 8, 16, 500 ohms.

15 watts audio max per P.C. = 50 ma.

SPEC. NO. A 850

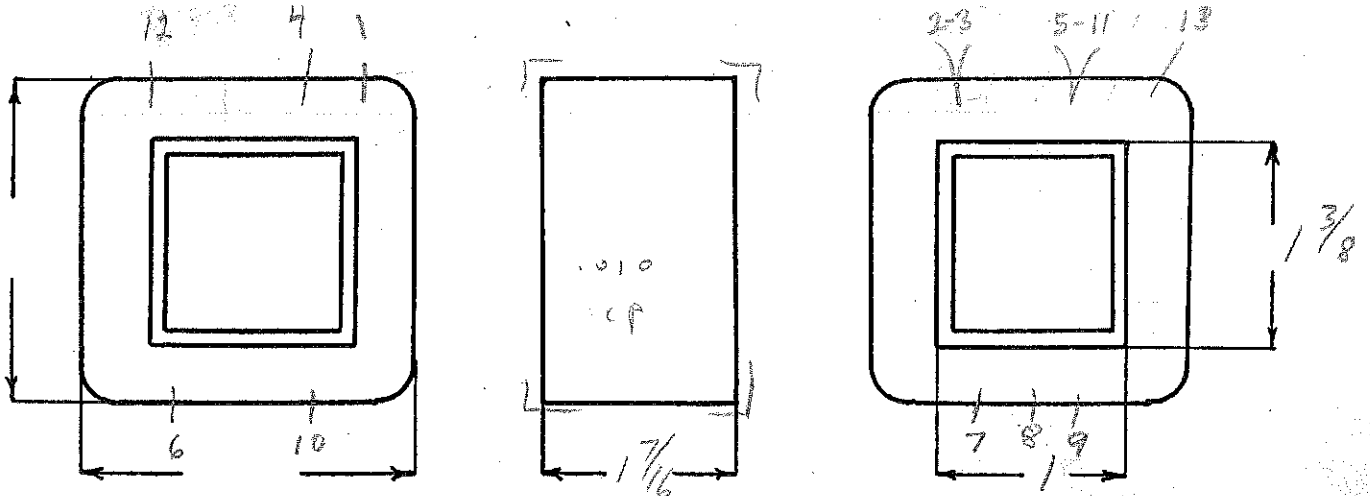
Winding	1-2 Sec	3-4-5 Sec	6-7-8-9-10 Pri	11-12-13 Sec			
Turns	480	53	2620 2480	52			
Taps	—	31	140-1310	15			
Wind. Lgth.	1 1/4	1 1/4	1 1/4	1 1/4	Single wind in		
Wire Size	# 30	# 22	# 33	# 19	Same direction		
T. P. L.	96 -5L	31 -2L	146-18L	27-2L	as	Sec #1 Sec #2	
Finish	84%	68%	91%	81%			
Type Lead	# 22 P.B	# 20 P B	# 32 P B	W.O. Sleeve			
Lead Lgth.	cut 14"			→			
Layer Insul.	30 #	Double 30 #	30 #	1L005GA			
Test Volt.	1250		1500	1250			
Wrapper	4L 30 #	1L007VC	2L005GA	2L005GA			

TUBE	5L or 6K	IMPREGNATION	Varnish

CORE 1 X 1 3/8 GA. 26 GRADE C STACK Butt No Gap.

MOUNTING AA

μm = 90%



DESIGNED BY S. Babcock

DATE 5-18-49

DESIGN AND TEST DATA

Rating:

Winding	1-2 Sec	3-4-5 Sec	6-7-8-9-10 Pri	11-12-13 Sec			
Mean Turn	5.35	5.83	6.71	7.70			
Resistance 25° c	22.5	.424	309	.275			
Pounds Copper	.0664	.0509	.226	.132			
Copper Density							
Ratio Volts	4.80	0.53	26.2	0.52			
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:

$Z = 10{,}000 - 8000 - 500 - 16 - 8 - 4 - 2$

$Z_R = 5000 - 4000 - 250 \quad 8 - 4 - 2 - 1$

$T_R = 70.6 - 63.2 - 15.8 - 2.83 - 2 - 1.41$

$T = 2620 - 2340 - 585 - 105 - 74 - 52.35$

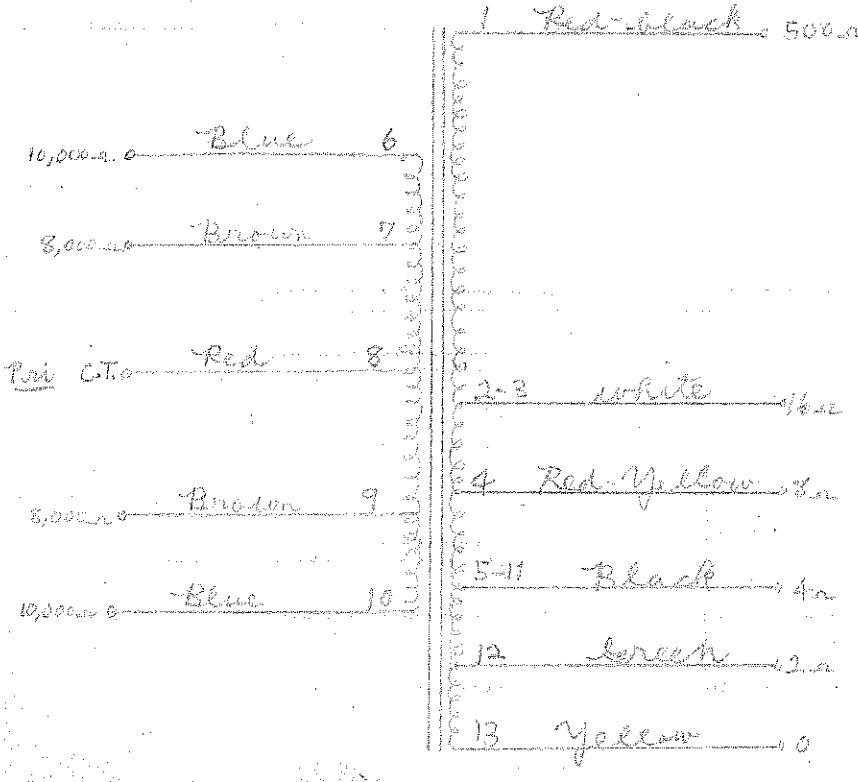
$I_s\ (2\ \text{ohm}) = \sqrt{\frac{15}{2}} = \sqrt{7.5} = 2.74\ \text{a}$

$I_s\ (4\ \text{ohm}) = \sqrt{\frac{15}{4}} = \sqrt{3.75} = 1.93\ \text{a}.$

$I_s\ (8\ \text{ohm}) = \sqrt{\frac{15}{8}} = \sqrt{1.75} = 1.32\ \text{a}.$

$I_s\ (16\ \text{ohm}) = \sqrt{\frac{15}{16}} = \frac{1}{\sqrt{1.07}} = \frac{1}{1.03} = 973\ \text{ma}.$

$I_s\ (500\ \text{ohm}) = \sqrt{\frac{15}{500}} = \frac{1}{\sqrt{33.3}} = \frac{1}{5.75} = 174\ \text{ma}$



Audio Output — New Stock

P.P. 6V6 10,000 or 8,000 ohms C.T.
to
Line and voice coil 2, 4, 8, 16, 500 ohms

15 watts audio: max pri D.C. = 50 ma.

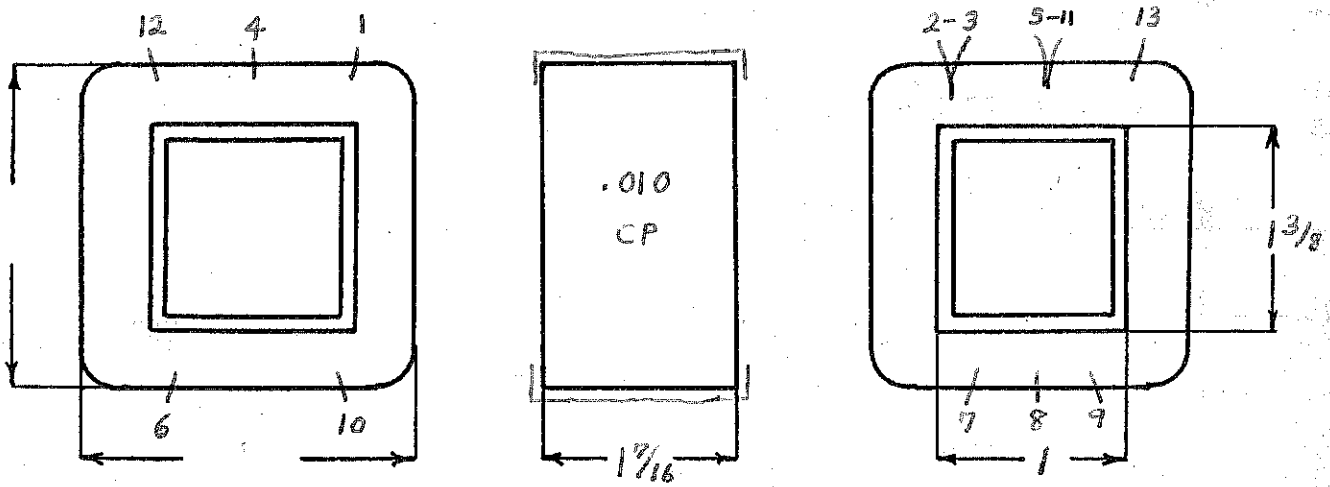
SPEC. NO. A850

	1-2	3-4-5	6-7-8-9-10	11-12-13			
Winding	Sec	Sec	Pri	Sec			
Turns	480	53	2620	52			
Taps	—	31	2480 140-1310	15			
Wind. Lgth.	1¼	1¼	1¼	1¼			
Wire Size	#30	#22	#33	#19	← single wind in same direction as sec #1, sec #1		
T. P. L.	96-5L	31-2L	146-18L	27-2L			
Finish Pitch	84%	68%	91%	81%			
Type Lead	#22 P.B.	#20 P.B.	#22 P.B.	w.o. sleeve			
Lead Lgth.	cut 14"	cut 14"	cut 14"	cut 14"			
Layer Insul.	30#	Double 30#	30#	1L005GA			
Test Volt.	1250	1250	1500	1250			
Wrapper	4L 30#	~~1L003CA~~ ~~1L007HC~~ 1L 50#	2L005GA	1L002CA 2L005GK ~~2L005GA~~			

TUBE 5L010GK+1L002CA — IMPREGNATION Varnish

CORE 1 x 1 3/8 — GA. 26 — GRADE C — STACK Butt no Gap

MOUNTING AA



DESIGNED BY S. BABCOCK

DATE 5-18-49

DESIGN AND TEST DATA

Rating:

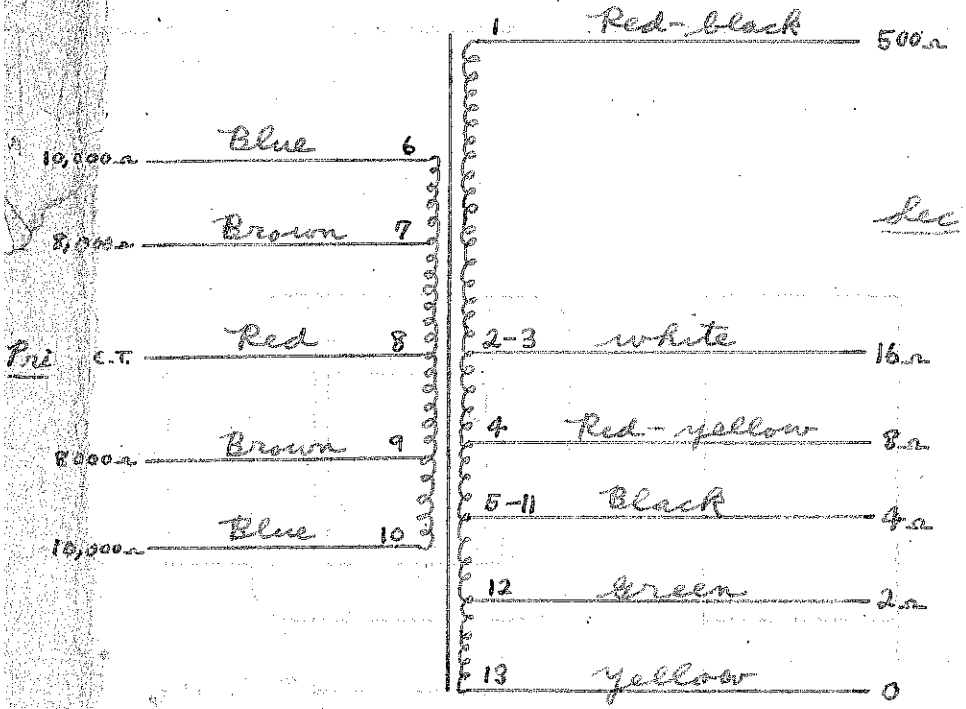
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles

Exciting Current 3 ma amperes @ 9.6 volts 60 cycles on 6-8

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

Remarks:



$E_p = 110$

$E_s = 10\,V - 2$ amps

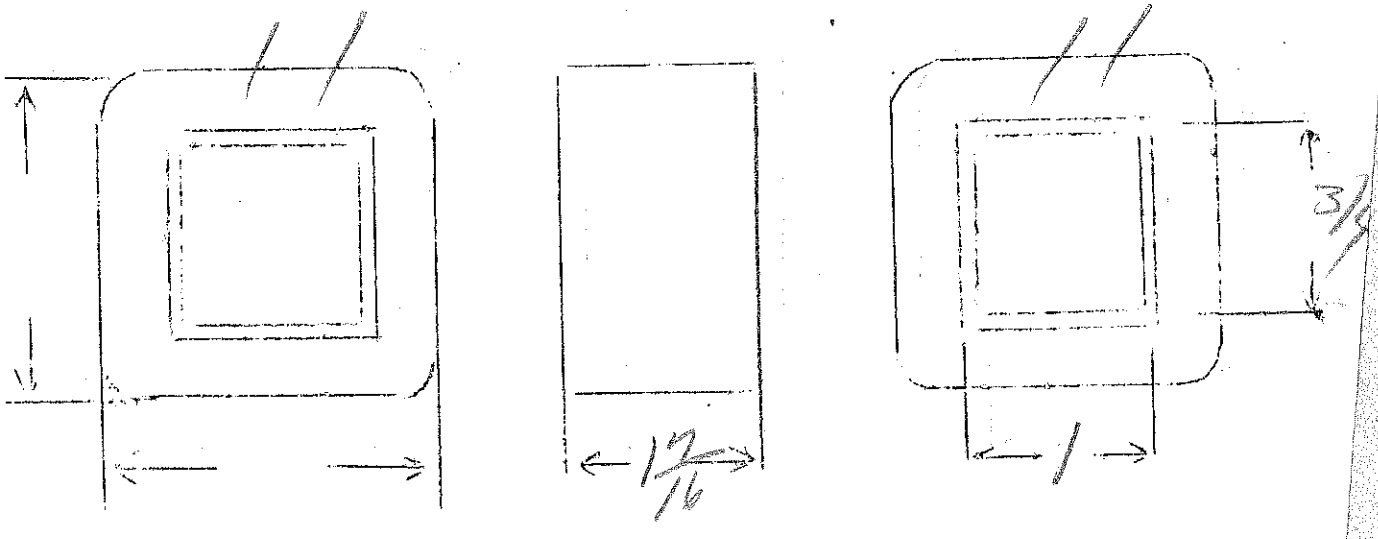
$\frac{N}{E} = 6.9$

SPEC. NO. 850

Winding	P	S					
Turns	760	76					
Taps	—						
Wind. Lgth.	1 2 5	1 2 5					
Wire Size	#28	#19					
T.P.L.	76-10						
Kind Term.	Wire	Wire					
Term. Lgth.	3"	3"					
Layer Insul.	30#						
Wrapper	2L005GA	2L005GA					

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 hr 3/4



Audio Output

P.P. 2A3's 5000 or 3000 ohms ct to

2, 4, 8, 16, 500 ohms

15 watts audio max pri DC = 75 ma

New Stock

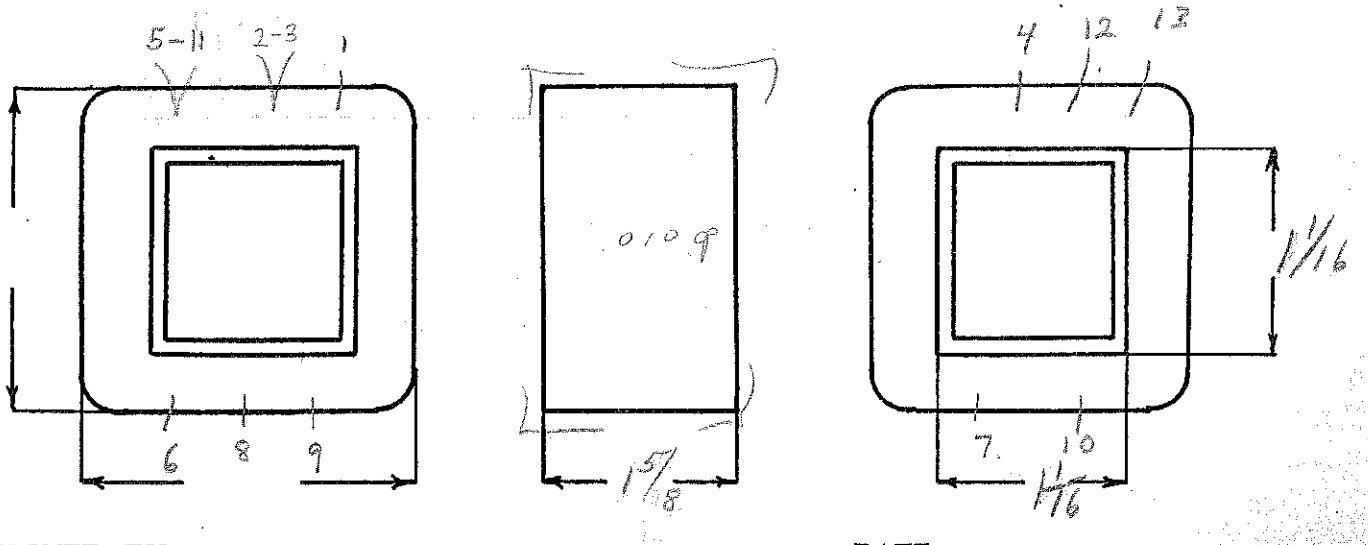
SPEC. NO. A 852 Sec 5 2915

Winding	1-2 Sec	3-4-5 Sec	6-7-8-9-10. Pri	11-12-13 Sec			
Turns	648	71	2500	71			
Taps	—	42	-1250- 285- 2215	21			
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 3/8			
Wire Size	# 30	# 22	# 31	# 19			
T. P. L.	108-6L	42-2L	121-22L	25-3L			
Finish	86%	82%	96%	68%			
Type Lead	# 22 P.B	# 20 P.B	# 22 P.B	W.O. sleeve			
Lead Lgth.	cut 14"			→			
Layer Insul.	30#	Double 30#	30#	1L 0056/			
Test Volt.	1250		1500	1250			
Wrapper	4L 30#	1L 007 NC	2L 005 GA	2L 005 GA			

Single wind in same direction as Sec #1, Sec #2

TUBE	5L010 GK		IMPREGNATION	Varnish	
CORE	1 1/16 x 1 1/16	GA. 26	GRADE 2	STACK 2X2	
MOUNTING	AA				

Wm = 95%



DESIGNED BY S. Babcock

DATE 5-19-49

DESIGN AND TEST DATA

Rating:

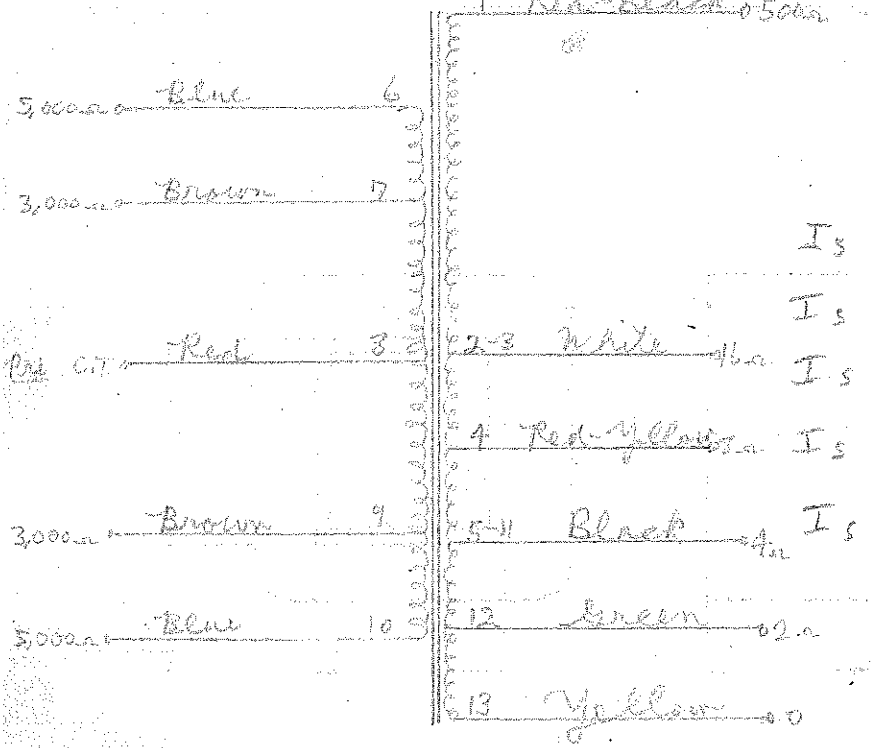
Winding	1–2 Sec	3–4–5 Sec	6–7–8–9–10 Pri	11–12–13 Sec			
Mean Turn	4.89	5.41	6.58	7.97			
Resistance 25° c	2.78	.527	1.82	.387			
Pounds Copper	.082	.0632	.337	.186			
Copper Density							
Ratio Volts	6.48	0.71	25.0	0.71			
Test to Ground	1250	1250	1500	1250			

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



$Z = 5000 - 3000 - 500 - 16 - 8 - 4 - 2$

$Z_R = 2500 - 1500 - 250 - 8 - 4 - 2 - 1$

$T_R = 50 - 38.6 - 15.8 - 2.83 - 2 - 1.41 - 1$

$T = 2500 - 1930 - 790 - 142 - 100 - 71 - 5$

I_s 2 ohm $= \sqrt{\frac{15}{2}} = \sqrt{7.5} = 2.74$ A

I_s 4 ohm $= \sqrt{\frac{15}{4}} = \sqrt{3.75} = 1.93$ A

I_s 8 ohm $= \sqrt{\frac{15}{8}} = \sqrt{1.75} = 1.32$ A

I_s 16 ohm $= \sqrt{\frac{15}{16}} = \frac{1}{\sqrt{17.07}} = \frac{1}{1.03} = 972$ mA

I_s 500 ohm $= \sqrt{\frac{15}{500}} = \frac{1}{\sqrt{33.3}} = \frac{1}{5.75} = 174$ mA

Audio Output

New stock

P.P. 2A3's 5000 or 3000 ohms C.T. to 2, 4, 8, 16, 500 ohms

15 watts audio

Max Pri. D.C. = 75 ma.

SPEC. NO. A852

Lee S 2965

Winding	1-2 Sec	3-4-5 Sec	6-7-8-9-10 Pri	11-12-13 Sec			
Turns	648	71	2500	71			
Taps	—	4-2	-1250-285-2215	21			
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 3/8			
Wire Size	#30	#22	#31	#19	← Single wind in same direction as Sec #1, Sec #2		
T. P. L.	108 - 6L	42 - 2L	121 - 22L	25 - 3L			
Finish Pitch	86%	82%	86%	68%			
Type Lead	#22 P.B.	#20 P.B.	#22 P.B.	w. o. sleeve			
Lead Lgth.	cut 14"	cut 14"	cut 14"	cut 14"			
Layer Insul.	30#	Double 30#	30#	1L005GA			
Test Volt.	1250	1250	1500	1250			
Wrapper	4-L 30#	1L003CA 1L 30# ~~1L002VC~~	2L005GA	2L005GA			

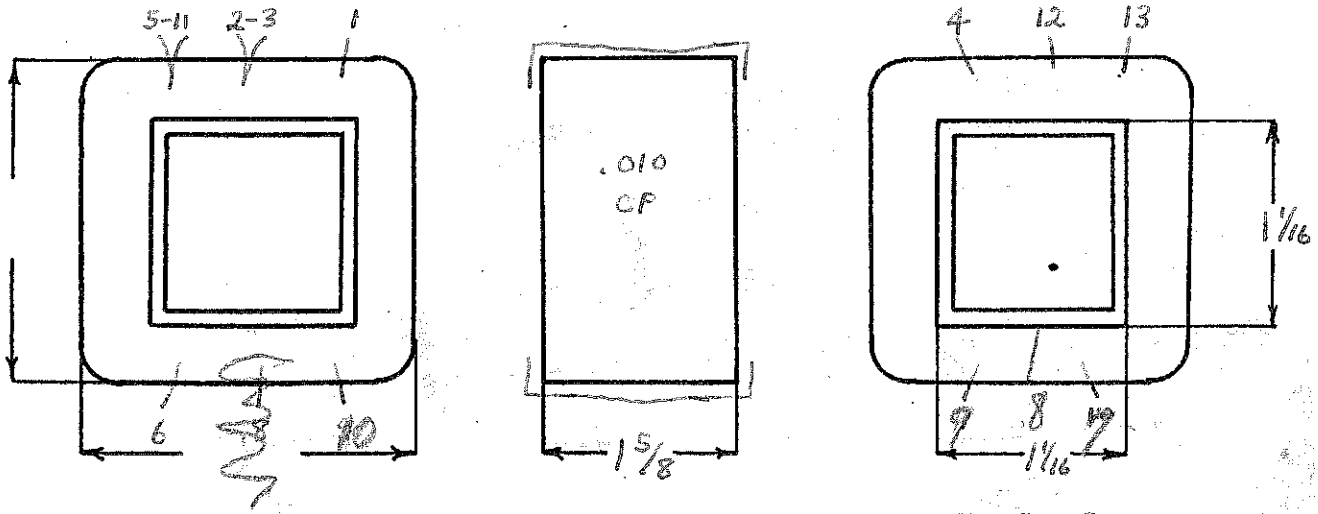
TUBE 5L010 GH + 1L003CA

IMPREGNATION Varnish

CORE 1 1/16 x 1 1/16 GA. 26 GRADE C STACK 2 X 2

MOUNTING AA

Eff = 75%



DESIGNED BY S. BABCOCK

DATE 5-19-49

DESIGN AND TEST DATA

Rating:

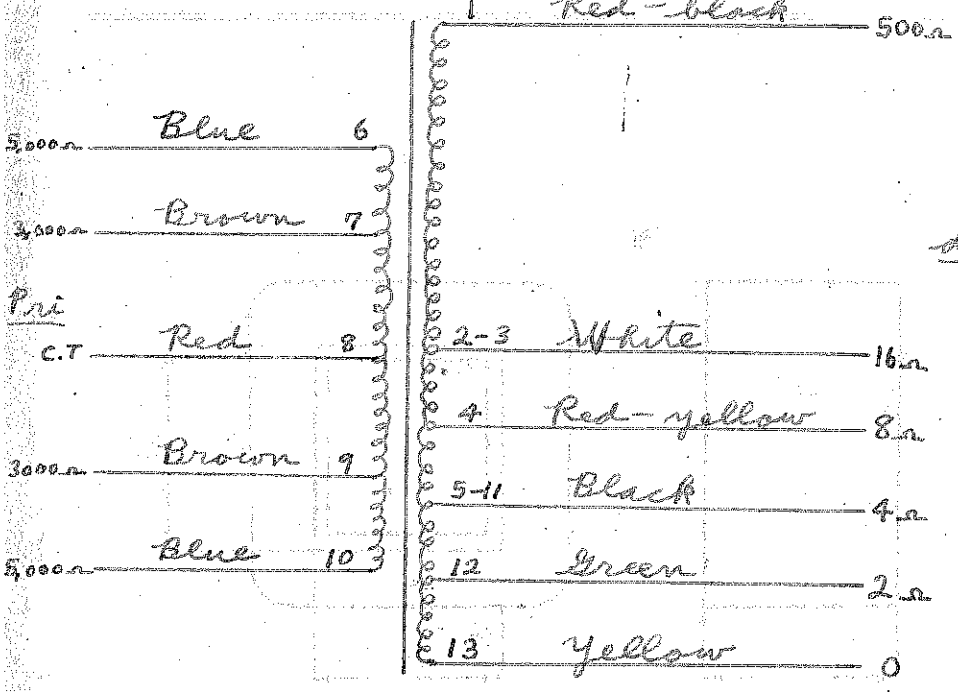
Winding	Sec	Sec	Pri	Sec			
Mean Turn	4.89	5.41	6.58	7.97			
Resistance 25° c	27.8	.527	182	.387			
Pounds Copper	.082	.0632	.337	.186			
Copper Density							
Ratio Volts							
Test to Ground	1250	1250	1500	1250			

Iron Induction _____ @ _____ Cycles

Exciting Current .036 amperes @ 120 volts 60 cycles on 1-13

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

Remarks:



Mission Coil

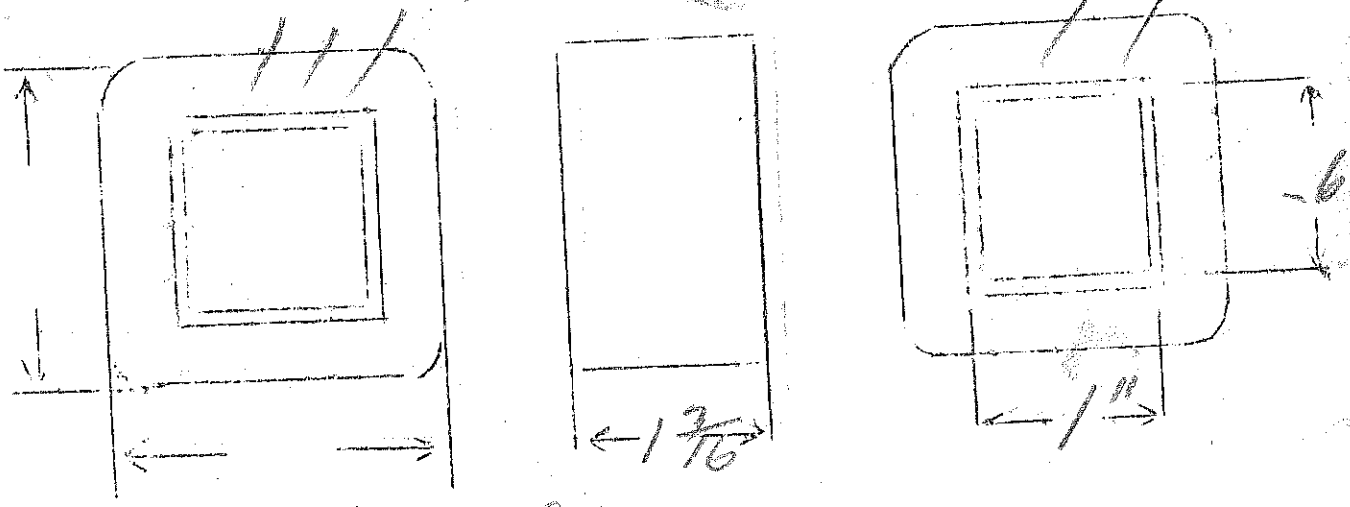
[redacted] Auto B

SPEC. NO. 852

Winding	SEC	SHIELD	PRI				
Turns	5000	1	92				
Taps	2500		46				
Wind. Lgth.	1.25	Copper	1.25				
Wire Size	#37	Brass	#30				
T.P.L.	220	Stock	25-4 layers				
Kind Term.	Braid		wire				
Term. Lgth.	8"		3"				
Layer Insul.	2 mil		50 #				
Wrapper	1 Wrap	1 Wrap	3 Wraps				

TUBE | 71807 | IMPREGNATION | VARNISH

CURE | 1 x 6 hrs



Primary and Secondary Leads

Audio Output

New stock

PP 6L6 6600 ohms ct to

Line & Voice Coils 2, 4, 8, 16, 500 ohms

25 watts audio Ivory Core B.C. = 70%

SPEC. NO. A 854

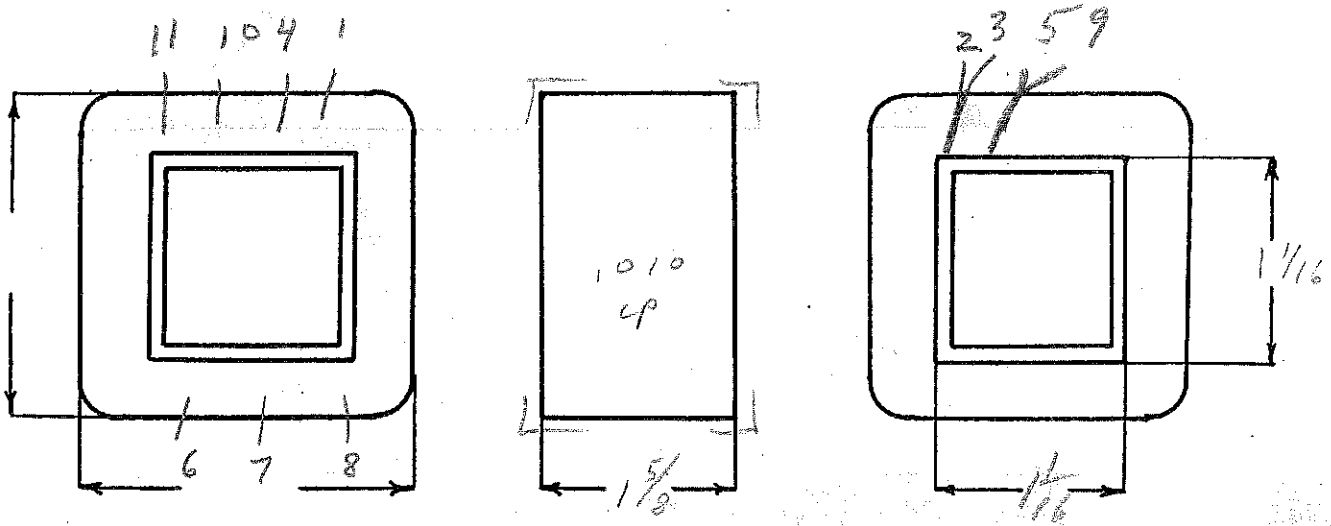
Winding	1-2 Sec #1	3-4-5 Sec #2	6-7-8 Pri	9-10-11 Sec #3			
Turns	464	57	2050	51			
Taps	—	30	1025	15			
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 3/8			
Wire Size	# 29	# 20	# 31	# 17	←	Single wind in same direction as Sec #1 Sec #2	
T. P. L.	93 - 5L	30 - 2L	129 - 16L	18 - 3L			
Finish	93%	73%	91%	62%			
Type Lead	# 22 P. B	# 18 P B	# 32 Pulac	# 22 Sleeve			
Lead Lgth.	cut 14"	cut 14"	cut 14"	cut 14"			
Layer Insul.	30 #	Double 30 #	30 #	1L00 7CA			
Test Volt.	1250	1250	2000	1250			
Wrapper	4L 30 #	2L005VC	2L0 7CA	2L0 5CA			

TUBE 5L010GK IMPREGNATION Varnish

CORE 1 1/16 x 1 1/16 GA. 26 GRADE D STACK 2 x 2

MOUNTING AA

Wm: 86%



DESIGNED BY S. Babcock DATE 6-21-49

DESIGN AND TEST DATA

Rating:

Winding	1–2 Sec	3–4–5 Sec	6–7–8 Pri	9–10–11 Sec			
Mean Turn	4.88	5.43	6.43	7.77			
Resistance 25° c	15.80	.239	146.0	.170			
Pounds Copper	.0738	.0724	.270	.208			
Copper Density	—	—	—	—			
Ratio Volts	4.64	0.51	20.5	0.51			
Test to Ground	1250	1250	2000	1250			

Iron Induction _____ @ _____ Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

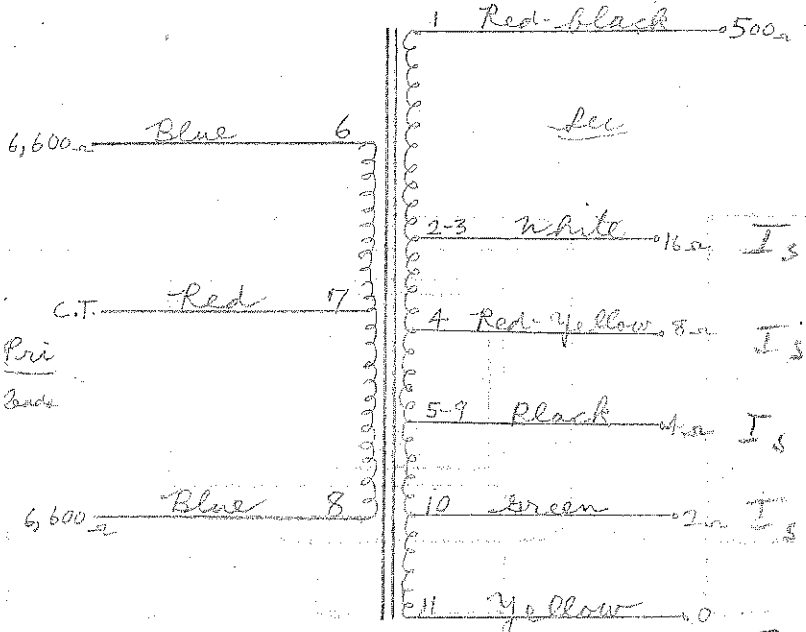
Remarks:

$Z = 6600 - 500 - 16 - 8 - 4 - 2$

$Z_R = 3300 - 250 - 8 - 4 - 2 - 1$

$T_R = 57.3 - 15.8 - 2.83 - 2 - 1.41 - 1$

$T = 2050 - 566 - 102 - 72 - 37 - 36$



$I_s\ (2\ ohm) = \sqrt{\frac{25}{2}} = 3.53\ a.$

$I_s\ (4\ ohm) = \sqrt{\frac{25}{4}} = 2.5\ a$

$I_s\ (8\ ohm) = \sqrt{\frac{25}{8}} = 1.76\ a$

$I_s\ (16\ ohm) = \sqrt{\frac{25}{16}} = 1.25\ a$

$I_s\ (500\ ohm) = \sqrt{\frac{25}{500}} = 224\ ma.$

Audio Output

New Stock

PP 6L6 6600 ohms C.T. to
Line and Voice Coil
2, 4, 8, 16, 500 ohms
25 watts audio max Pri D.C. = 70 ma.

SPEC. NO. A854

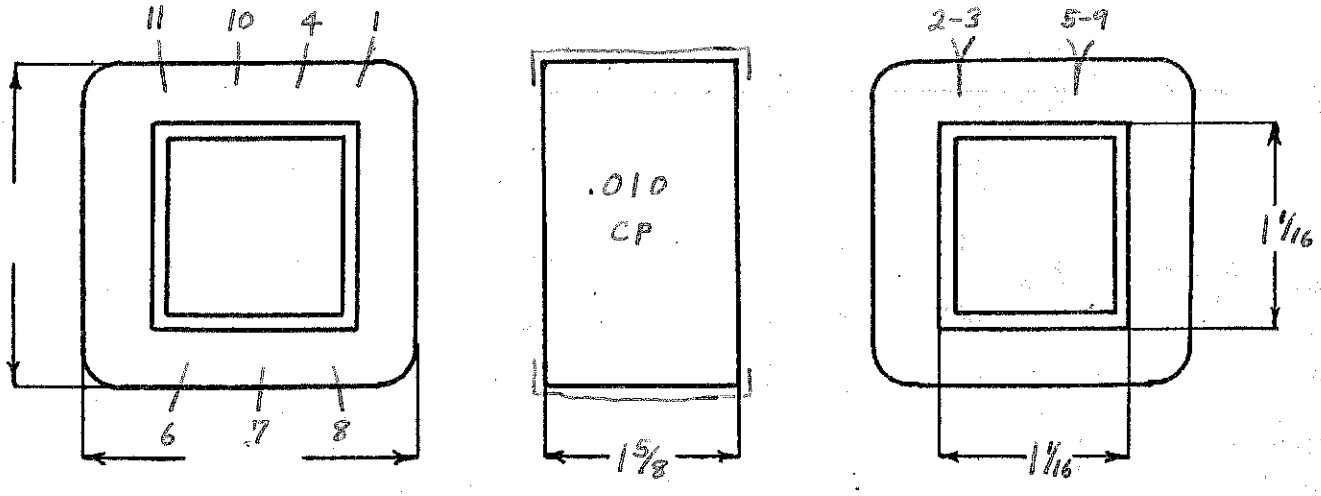
	1-2	3-4-5	6-7-8	9-10-11			
Winding	Sec #1	Sec #2	Pri	Sec #3			
Turns	464	51	2050	51			
Taps	—	30	1025	15			
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 3/8			
Wire Size	#29	#20	#31	#17 ←	Single direction as sec	wind in	same #1, sec #2
T. P. L.	93 - 5L	30 - 2L	129 - 16L	18 - 3L			
Finish	Black 93%	73%	91%	62%			
Type Lead	#22 P.B.	~~#18~~ P.B.	#22 Dulac	w. o. sleeve			
Lead Lgth.	cut 14"	cut 14"	cut 14"	cut 14"			
Layer Insul.	30#	Double 30#	30#	1L007GA			
Test Volt.	1250	1250	2000	1250			
Wrapper	4L 30#	1L003CA 1L50# ~~2L005VL~~	2L007GA	2L005GA			

TUBE 5L010 GK+1L002CA IMPREGNATION Varnish

CORE 1 1/16 x 1 1/16 GA. 26 GRADE D STACK 2 x 2

MOUNTING AA

wt = 867o



DESIGNED BY S. BABCOCK

DATE 6-21-49

DESIGN AND TEST DATA

Rating:

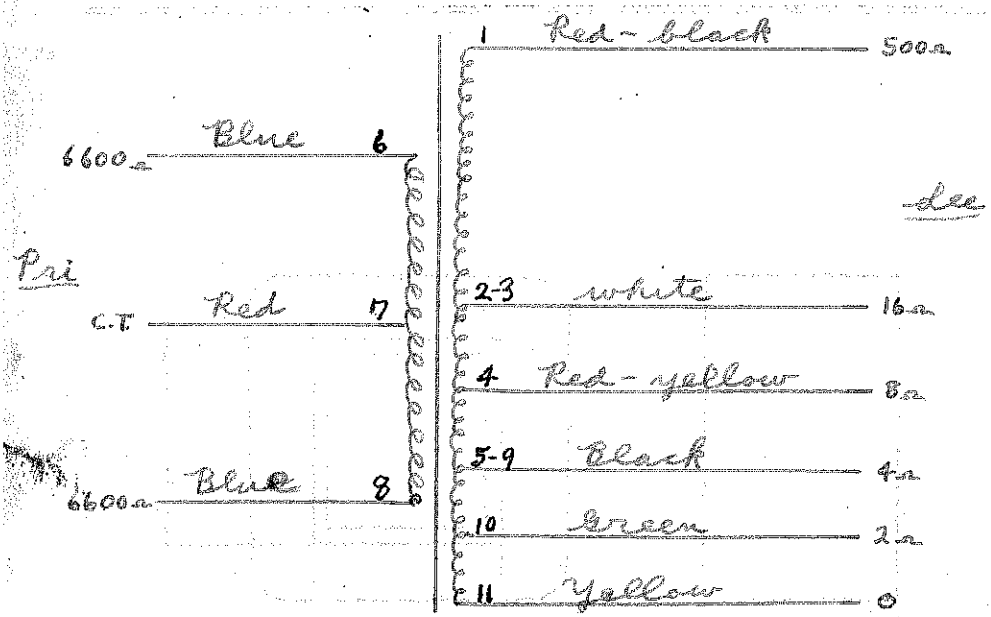
Winding							
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density							
Ratio Volts							
Test to Ground							

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



E_P = 120V - 60 ~

E_S = 340V

$I_{S_{NL}}$ = .050 amps

E_F = 25 V tap at 6.3 - 4 amps

S.E = 42

340
18.9
6.3

B = 12,200

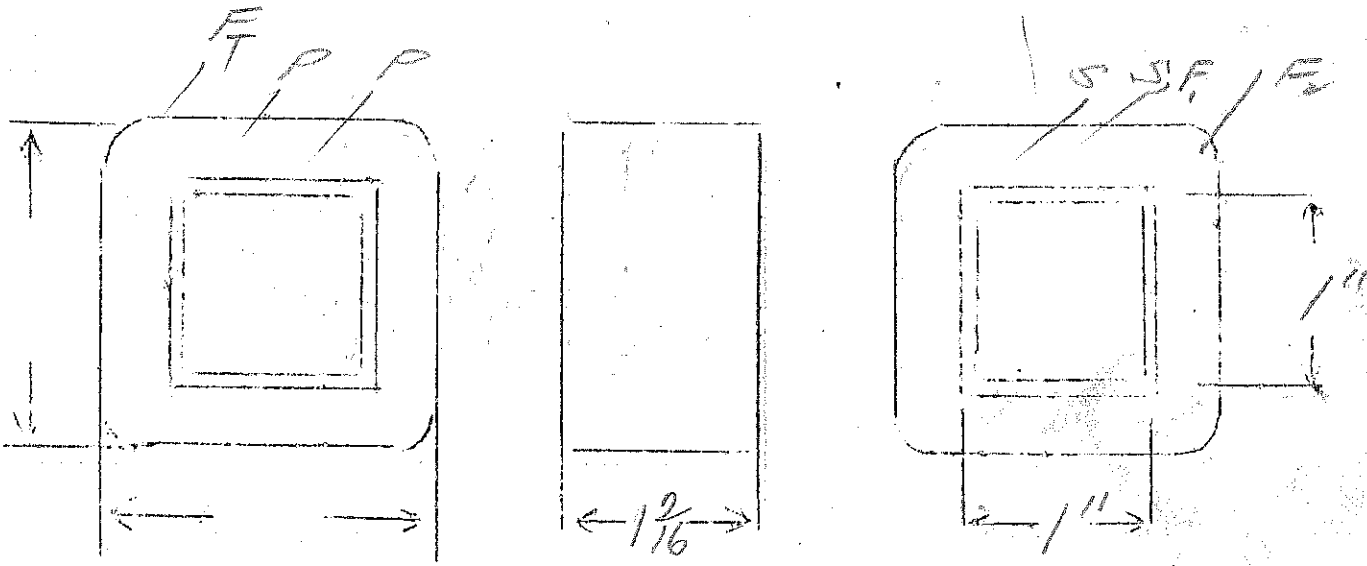
$\frac{N}{E}$ = 5.7

SPEC. NO. 854

Winding	PRI	SHIELD	SEC	F			
Turns	1300	160	2100	52			
Taps	—	—	—	38			
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	#29	#34	#34	#24			
T.P.L.	94-1/4	160	160 1/4	39-2			
Kind Term.	#29 Brd	1/2 Ld Brd	Pbr. Join end of sec. to start of Fil.				
Term. Lgth.	9"	3"	9"	9"			
Layer Insul.	30#	—	30#				
Wrapper	4L007C	4L007C	2L0956A				

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1X1NW



Over

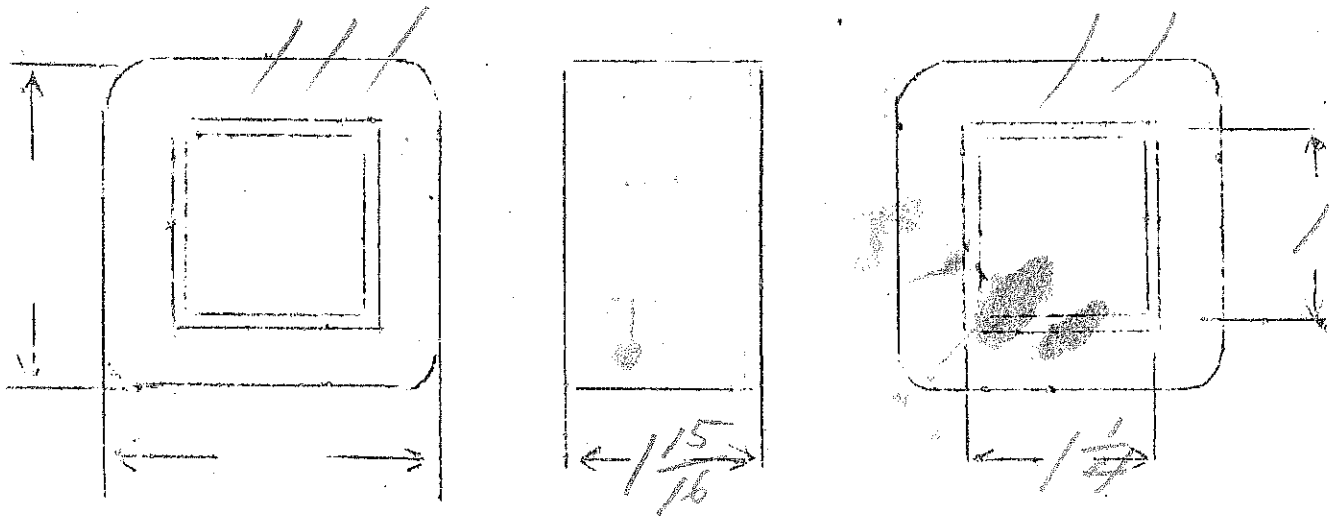
Same as T-225-5 = 220

SPEC. NO. 855

Winding	PRI	SHIELD	SEC	F1	F2		
Turns	1000	101	3300	24	12		
Taps	—	—	1650	—	6		
Wind. Lgth.	1.75	1.75	1.25				
Wire Size	#27	#27	#35	#30	#14		
T.P.L.	101-10	2 Layer	2 Layer				
Kind Term.	wire	wire	silver				
Term. Lgth.	3"		3"		3"		
Layer Insul.	30#	—	30#	—	—		
Wrapper	1 Layer Varnished Cambric	1 Layer Varnished Cambric	2 Layers Varnished Cambric	2 Layers Varnished Cambric	2 Layers Varnished Cambric		

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1/4 x 1

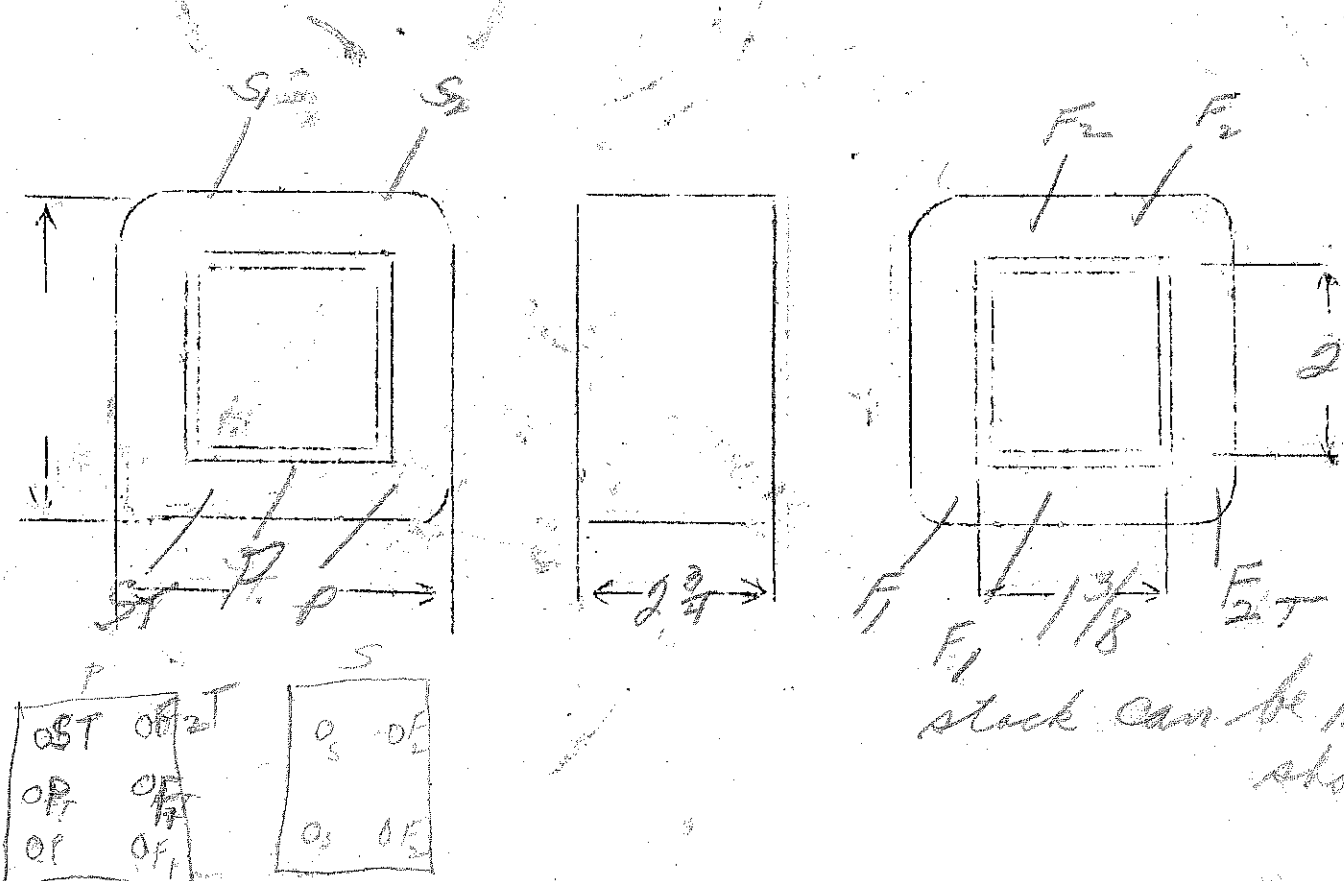


P = 115V
S = 2500V C.T. — 440 Ma Max. 250v Continuous
F_1 = 2.5V — 10 Amps C.T.
F_2 = 10V — 8 amps

N/E = 1:8
VA =
B = 11800

SPEC. NO. 856

Winding	SEC	PRI	F_1	F_2			
Turns	5050	207	28	5			
Taps	2525	—	—	2½			
Wind. Lgth.	2¼	2½					
Wire Size	#37	#15	#14	#13			
T.P.L.	141-36	42-5	—	—	←	3L007VC Tantalum	
Kind Term.	#20 Braid	Wire	wire			filaments.	
Term. Lgth.	28"	25"	28"	28"			
Layer Insul.	60#						
Wrapper	3L007VC 2L005GA	3L007VC 2L005GA	3L007VC 2L005GA				
TUBE	3L007 + 3L007VC		IMPREGNATION	VARNISH			
CURE							



E_p = 115 V E_s = 2500 V CT - 250 Mo $\frac{V}{E}$ = 195

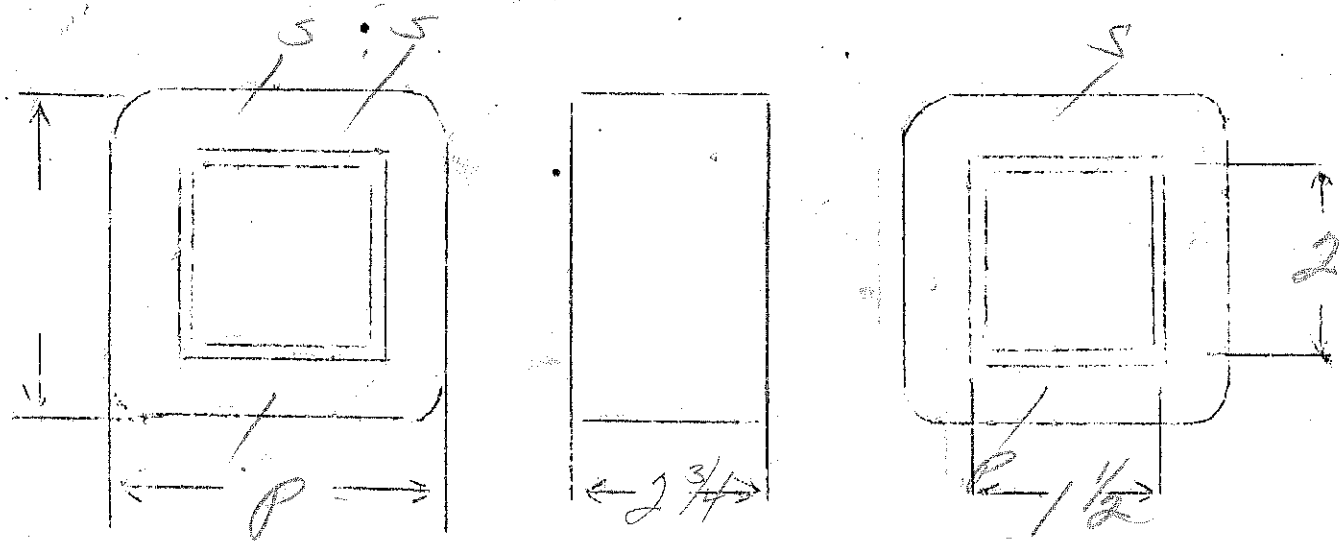
VA = 320 watts

SPEC. NO. 857

Winding	SEC.	PRI					
Turns	5450	224					
Taps	2725	—					
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#28	#17					
T.P.L.	161-34	45-5					
Kind Term.	#20 Per	Wire					
Term. Lgth.	6"	6"					
Layer Insul.	50 #	Bristol					
Wrapper	2L005GA	2L005GA					

TUBE | 2L007 + 2L007VC | IMPREGNATION | VARNISH

CURE | 1/2 x 2"



$E_P = 115V$

$E_{F_1} = 10V$ – 8 amps

$E_{F_2} = 2.5V$ – 10 amps

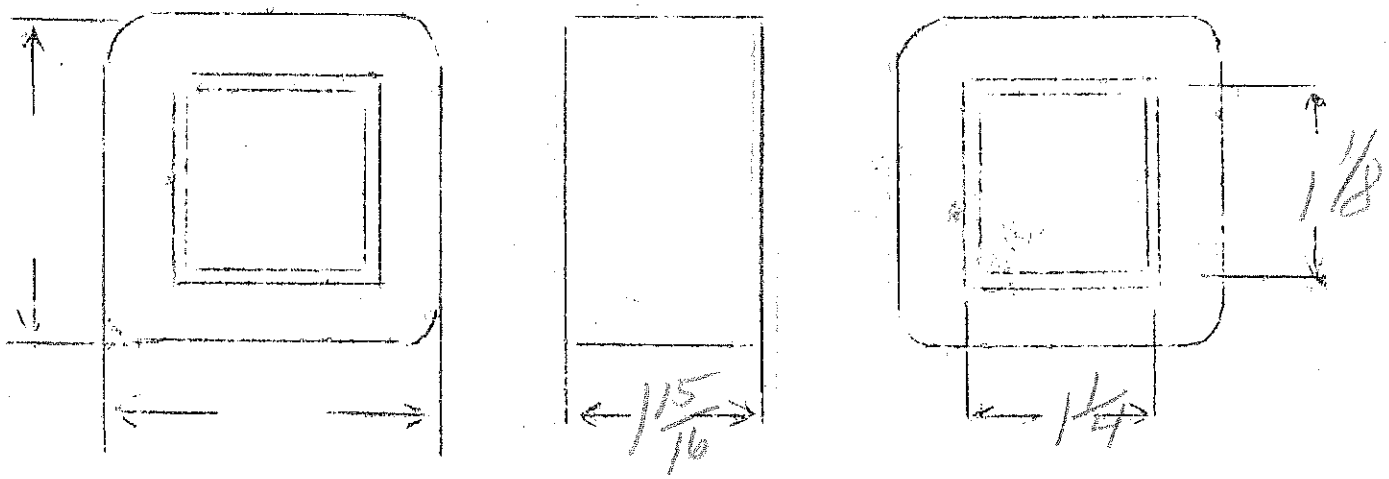
same as #332
with 115V tap only

SPEC. NO. 859

Winding	PRI	F_1	F_2				
Turns							
Taps							
Wind. Lgth.							
Wire Size	24E	14E	13E				
T.P.L.							
Kind Term.							
Term. Lgth.							
Layer Insul.							
Wrapper							

TUBE | 2007 | IMPREGNATION | VARNISH

CURE | 1¼ X 1⅛



E_p = 115V.

E_s = 1250V - 250Ma.

E_f = 10V - 3½ amps.

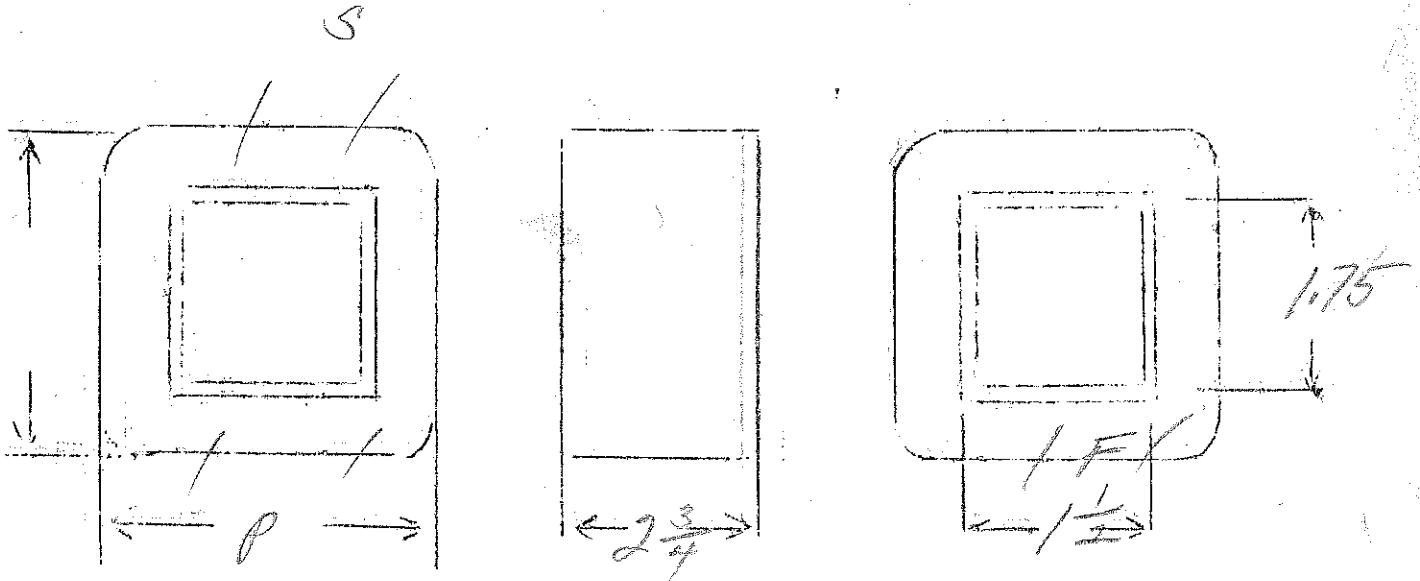
$\frac{1}{E}$ = 224

SPEC. NO. 859

Winding	SEC	PRI	F
Turns	3200	252	25
Taps	—		
Wind. Lgth.	2 3/8	2 3/8	
Wire Size	#28	#17	#13
T.P.L.	150-2.2	6 layers	1 layer
Kind Term.	#20 Tinned	Wire	wire
Term. Lgth.	6"	6"	6"
Layer Insul.	60# .005		
Wrapper	2 L005 VC 2 L005 GX	3 L005 GX · 1 C010 RX	

TUBE 2 W07 + 2 L 005 VC | IMPREGNATION VARNISH

CURE 1 1/2 X 1 3/4



Universal Output

4 watts

Pri D.C. = 38 ma

New Stock

ATAS TEST RKA NOTES

SPEC. NO. A860

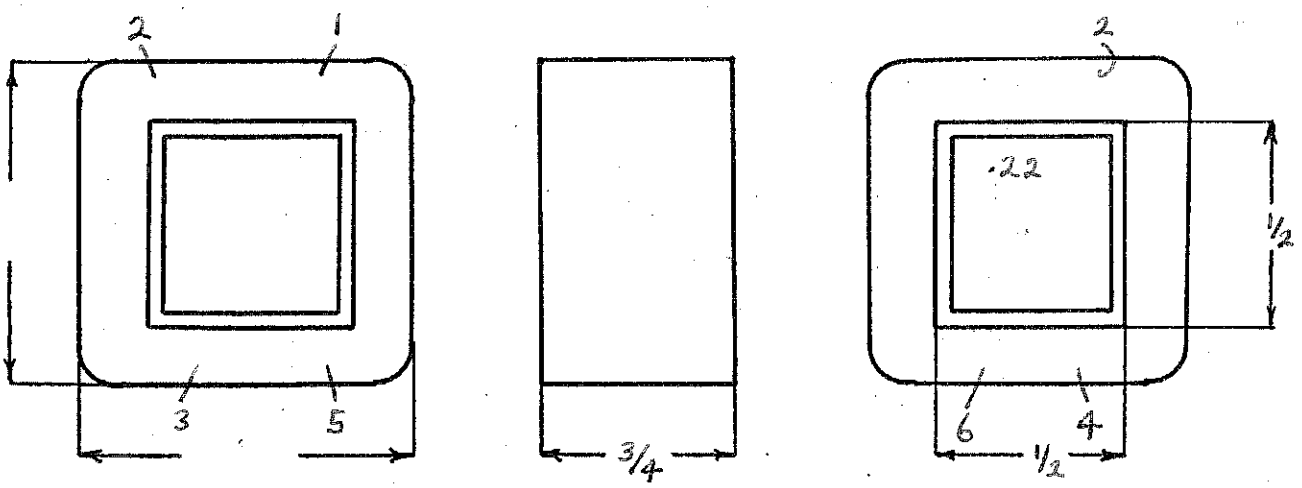
Winding	1-2 Pri	3-4-5-6 Sec					
Turns	2400	59					
Taps	—	20-41					
Wind. Lgth.	9/16	9/16					
Wire Size	#38	#23					
T. P. L.	115-21L	20-3L					
~~Finish~~ Pitch	92%	85%					
Type Lead	#22 PB	w. o. to lugs					
Lead Lgth.	9"	3"					
Layer Insul.	20#	50#					
Test Volt.	1500	1000					
Wrapper	1L005VC	2L005GK	GK				

TUBE	4L010GK	IMPREGNATION	Varnish

CORE 1/2 x 1/2 GA. 26 GRADE D STACK Butt No Gap

MOUNTING D

wn = 80%



RE-DESIGNED BY A. Hadley from D 553

DATE 7-19-49

DESIGN AND TEST DATA

Rating:

Winding	1-2 Pri	3-4-5-6 Sec
Mean Turn	2.10	2.85
Resistance 25° c	283	.291
Pounds Copper	.0205	.0220
Copper Density	415	—
Ratio Volts open circuit	117	1-2 .975 1-3 2.00 1-4 2.88
Test to Ground	1500	1000

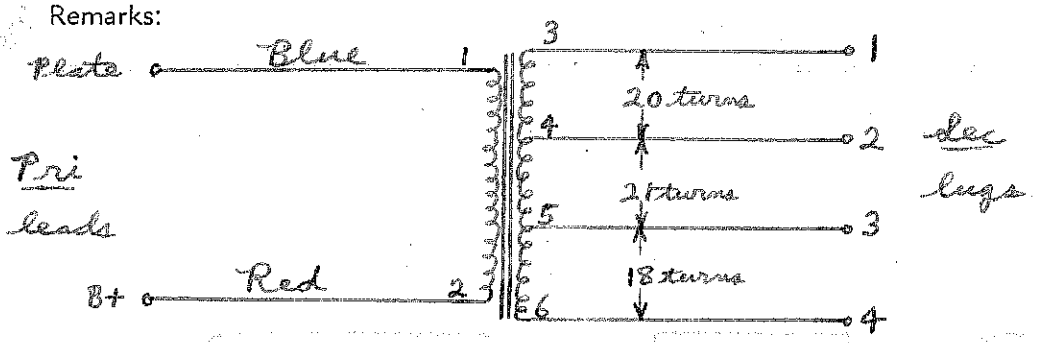
	Pri	1-4	1-3	2-4	2-3	1-2	3-4
Z	2000	1.20	.578	.525	.152	.137	.111
Z	4000	2.40	1.15	1.05	.304	.274	.222
Z	5000	2.98	1.44	1.31	.380	.342	.277
Z	7000	4.19	2.02	1.83	.531	.480	.388
Z	8000	4.77	2.30	2.09	.607	.547	.443
Z	10,000	6.00	2.89	2.62	.760	.685	.555
Z_R	18,000	10.78	5.20	4.71	1.37	1.235	1.00
T_R	133.2	3.28	2.28	2.17	1.17	1.11	1.00
T	2400	59	41	39	21	20	18

Iron Induction 15.5Kg @ 50 Cycles with 117 volts on 1-2

Exciting Current 2.5 ma. amperes @ 10.8 volts 60 cycles on Pri.

Induced Test: Apply____ Volts at____ Cycles____ on____ with____ grounded

Remarks:



Universal Output

4 watts

Pri. D.C. = 38 ma

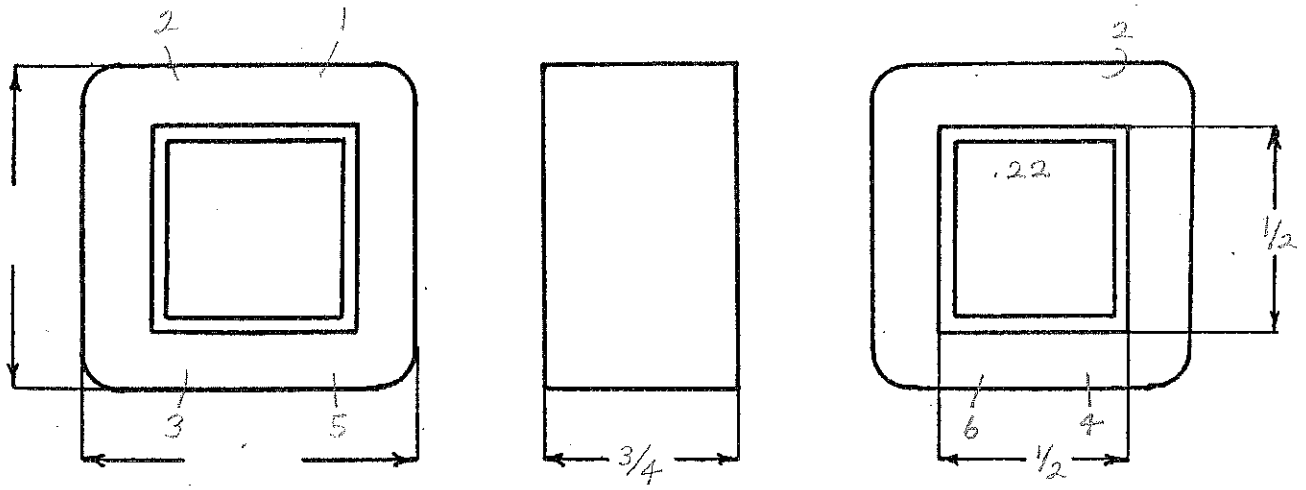
New Stock

SPEC. NO. A860

Winding	1–2 Pri.	3–4–5–6 Sec.					
Turns	2400	59					
Taps	—	20–41					
Wind. Lgth.	9/16	9/16					
Wire Size	#38	#23					
T. P. L.	115 – 2L	20 – 3L					
~~Finish~~ Pitch	92%	85%					
Type Lead	#22 P.B.	w. o. to Lugs					
Lead Lgth.	9"	3"					
Layer Insul.	20#	50#					
Test Volt.	1500	1000					
Wrapper	1L005VC	2L005GA					

TUBE	4L010GK	IMPREGNATION	Varnish
CORE 1/2 X 1/2	GA. 26	GRADE D	STACK Butt No Gap
MOUNTING D			

wn = 80%



RE-DESIGNED BY A. Hadley from D 553

DATE 7-19-49

DESIGN AND TEST DATA

Rating:

Winding	1 – 2 Pri	3-4-5-6 Sec	
Mean Turn	2.10	2.85	
Resistance 25° c	253	.291	
Pounds Copper	.0205	.0220	
Copper Density	415	—	
Ratio Volts open circuit	117	1-2 .975 1-3 2.00 1-4 2.88	
Test to Ground	1500	1000	

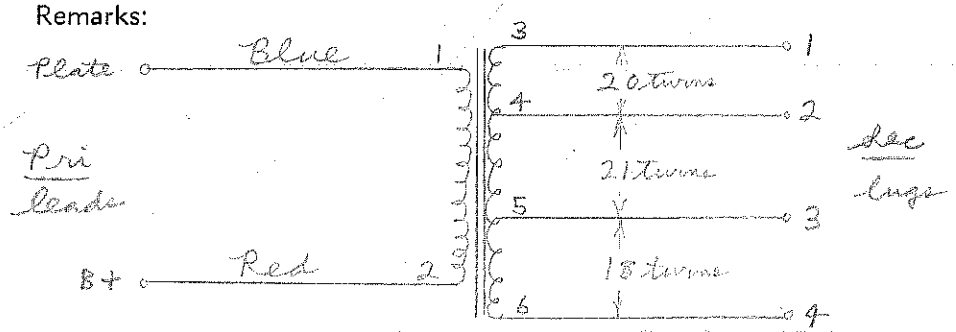
	Pri	1-4	1-3	2-4	2-3	1-2	3-4
Z	2000	1.20	.578	.525	.152	.139	.111
Z	4000	2.40	1.15	1.05	.304	.274	.222
Z	5000	2.98	1.44	1.31	.380	.342	.277
Z	7000	4.19	2.02	1.83	.531	.480	.388
Z	8000	4.77	2.30	2.09	.607	.547	.443
Z	10,000	6.00	2.89	2.62	.760	.685	.555
Z_R	18,000	10.78	5.20	4.71	1.37	1.235	1.00
T_R	133.2	3.28	2.28	2.17	1.17	1.11	1.00
T	2400	59	41	39	21	20	18

Iron Induction 15.5 Kg @ 50 Cycles with 117 volts on 1-2

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



DESIGN AND TEST DATA

Rating:

Z	7000	-7.6	-4.5	-1.97	-0.984
Z_R	6880	-7.74	-4.58	-2.00	-1
T_R	83	-2.78	-2.14	-1.414	-1
T	2640	-89	-69	-45	-32

Winding	1-2-3 Pri	4-5-6-7-8 Sec
Mean Turn	3.05	3.87
Resistance 25° c	453	.597
Pounds Copper	.0328	.0450
Copper Density	415	—
Ratio Volts open circuit	1-2 117 2-3 117 1-3 234	4-5 2.84 4-6 4.00 4-7 6.12 4-8 7.90
Test to Ground	1250	1000

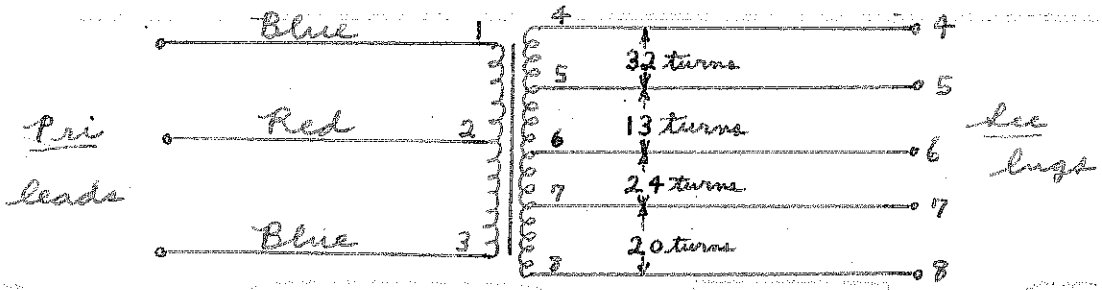
	1-3	4-8	4-7	5-8	4-6	5-7	4-5	6-7	7-8
Z	2,000	2.26	1.36	.930	.578	.392	.292	.164	.114
Z	4000	4.50	2.71	1.86	1.16	.781	.584	.328	.228
Z	5000	5.65	3.40	2.32	1.45	.98	.731	.411	.285
Z	7000	7.94	4.86	3.26	2.03	1.37	1.03	.576	.40
Z	8000	9.05	5.42	3.72	2.31	1.57	1.17	.657	.456
Z	10,000	11.3	6.78	4.65	2.89	1.95	1.46	.821	.57
Z	14,000	15.8	9.52	6.52	4.05	2.74	2.05	1.15	.80
Z	17,500	19.8	11.9	8.13	5.07	3.43	2.56	1.44	1.00
Z_R	17,500	19.8	11.9	8.13	5.07	3.43	2.56	1.44	1.00
T_R	132	4.45	3.45	2.85	2.25	1.85	1.60	1.20	1.00
T	2640	89	69	57	45	37	32	24	20

Iron Induction 19.5Kg. @ 50 Cycles with 117 volts on 1-2

Exciting Current 5 ma amperes @ 10 volts 60 cycles on Blue-Red

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

Remarks:



Lee Universal Output Chart #2

Pri. Load Impedance	2000	4000	5000	7000	8000	10000	14000	18000
SEC. TAP	Voice Coil Impedance in Ohms							
7-8	.11	.22	.275	.38	.433	.55	.77	1.
6-7	.155	.31	.387	.55	.625	.79	1.1	1.41
4-5	.285	.575	.720	1.	1.14	1.44	2.	2.6
5-7	.375	.75	.94	1.31	1.50	1.89	2.62	3.38
4-6	.57	1.14	1.42	2.	2.28	2.88	4.	5.15
5-8	.9	1.8	2.2	3.13	3.57	4.5	6.25	8.1
4-7	1.	2.64	3.3	4.6	5.25	6.65	9.2	11.9
4-8	2.2	4.4	5.5	7.7	8.88	11.1	15.4	20.

*PENTODE **TRIODE

For single tube match, use primary 1-3. For push pull tube match, use primary 1-2-3. To determine secondary tap, choose the vertical column corresponding to the correct primary load impedance, and select the secondary taps that give the nearest voice coil impedance to that desired. For magnetic speaker with P.P. 71A use 1-2 connection.

Universal Output

B watts

Mag. pri D.C. = 38 ma

New Stock

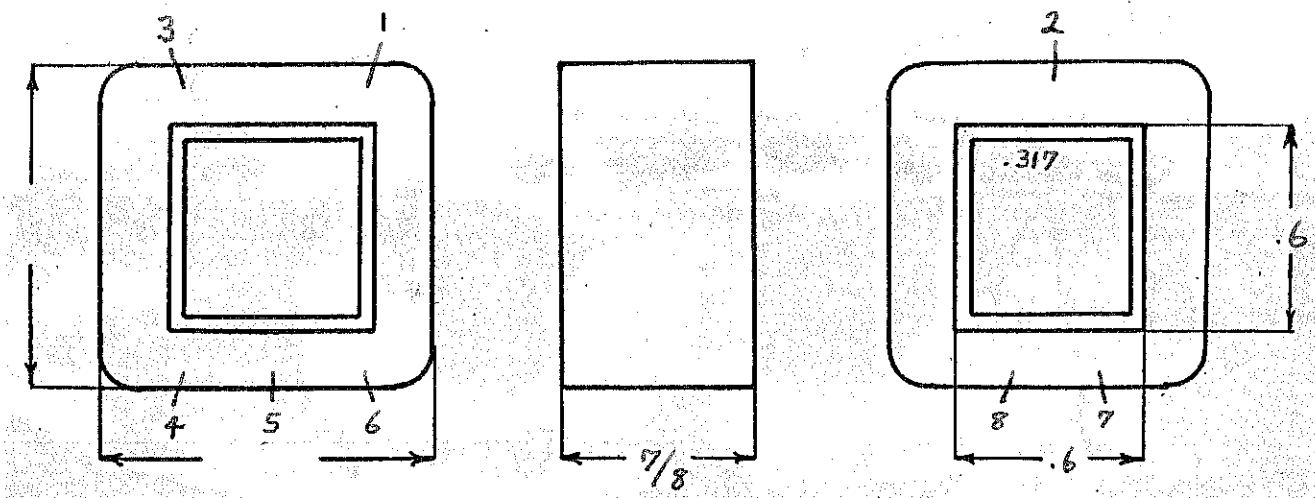
SPEC. NO. A 862

Lee D 554

Winding	1-2-3 Pri.	4-5-6-7-8 Sec					
Turns	2640	89					
Taps	1320	32-45-69					
Wind. Lgth.	23/32	23/32					
Wire Size	#38	#23					
T. P. L.	147-18L	23-4L					
~~Finish~~ Pitch	90%	76%					
Type Lead	#22 P.B.	w. o. to lugs					
Lead Lgth.	9"	3"					
Layer Insul.	16 #	1L005GA					
Test Volt.	1250	1000					
Wrapper	1L007GA ~~1L007FC~~	2L005GK ~~2L005GA~~					

TUBE	4L010GK + 1L023CA		IMPREGNATION	Varnish	
CORE	6/10 x 6/10	GA. 29	GRADE B	STACK	Butt No Lap
MOUNTING	D				

wn = 88%



RE DESIGNED BY H.W.S.

DATE 12-23-41

600 cores
5.9 Pyco

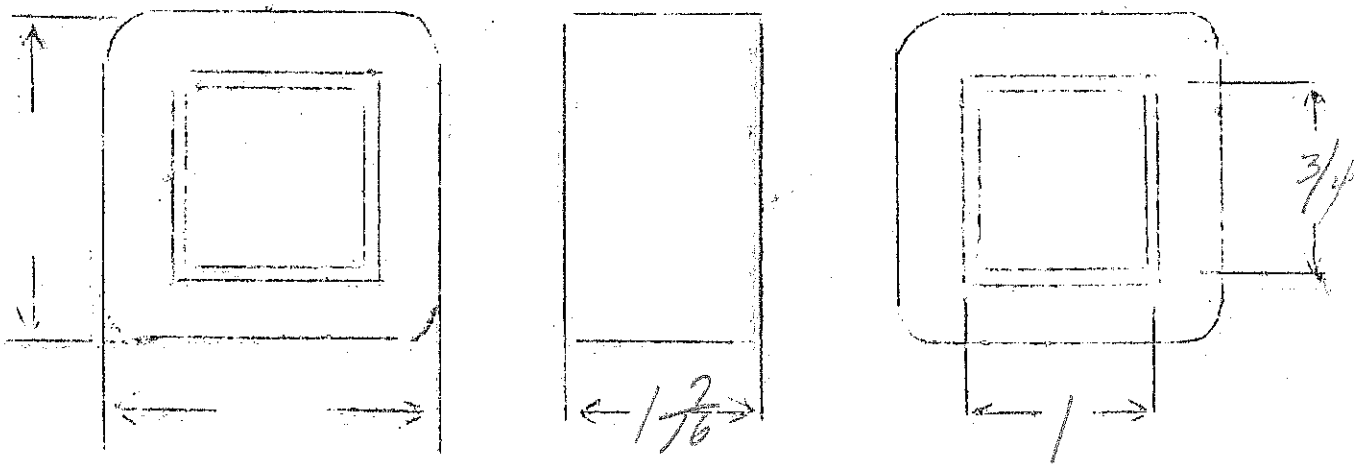
$\frac{4}{5} = .705$

SPEC. NO. 860

Winding	PRI	SHIELD	SEC	F.			
Turns	810	1	4850	48			
Taps	—	—	2425	—			
Wind. Lgth.	1.25	1.25	1.25	—			
Wire Size	#28	Copper	#37	#21			
T.P.I.	8/10	—	222-22				
Kind Term.	#30 enamel	sil fan	#37 enamel	wire			
Term. Lgth.	9"	—	—	→			
Layer Insul.	30#		20#				
Wrapper	4007C	4007C	2C0056A	2C0056A			

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1 x 3/4	260 2x2	

8 - 15 — 30 ea
6 - 15 — 35 ea
5 - 15 — 25 ea



Radio Service Labs

Pri - 104-107-110-113-116-119-122-125 N = 75

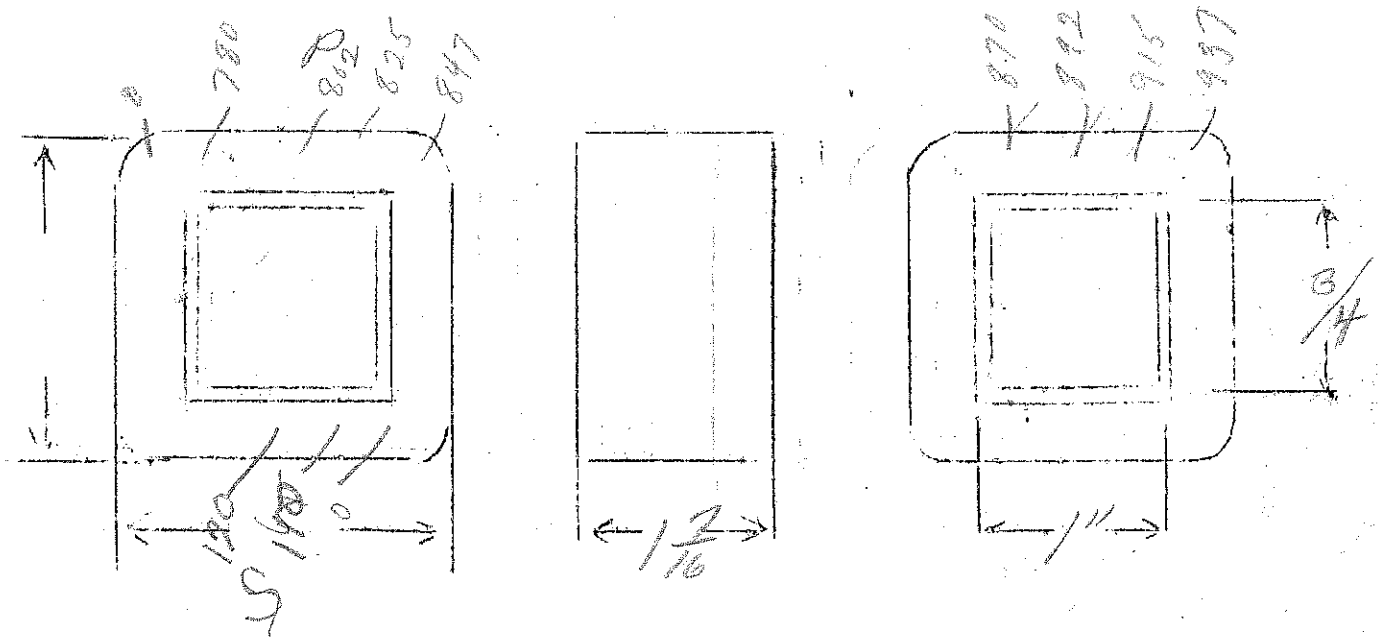
Sec - 110-120

SPEC. NO. 861

Winding	PRI		SEC				
Turns	937-915		930				
Taps	892-870		852				
Wind. Lgth.	847-825		1.25				
Wire Size	802-780		#28				
T.P.L.	#28		96				
Kind Term.	96		wire				
Term. Lgth.	wire		3"				
Layer Insul.	3"		30#				
Wrapper	30#		2 Mils GA				
	2 Mils GA						

TUBE | 4L007 | IMPREGNATION | ✓

CURE | 1 x 3/4 NW



Universal output

5 watts

New Stock

SPEC. NO. A 862
Sec D 539

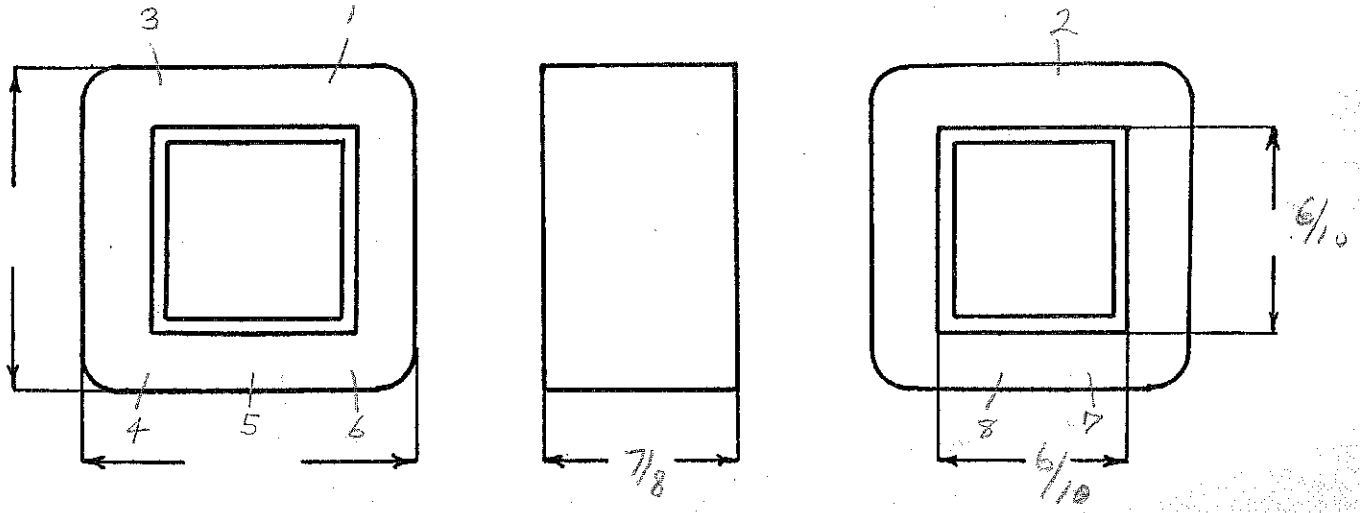
Winding	Pri	Sec					
Turns	2640	89					
Taps	1320	32 - 45 - 69					
Wind. Lgth.	23/32	23/32					
Wire Size	# 38	# 23					
T. P. L.	147-184	23 - 46					
Finish	90%	76%					
Type Lead	# 22 D.S.B.	W.O.					
Lead Lgth.	9"	3"					
Layer Insul.	16 #	1 Coat 5GA					
Test Volt.	1250	1000					
Wrapper	1 Coat 5VC	2 Coat 56A					

TUBE 4L 0.10 GK IMPREGNATION Varnish

CORE 6/10 x 6/10 GA. 29 GRADE B STACK Butt No Gap

MOUNTING D

wn = 88%



Re DESIGNED BY H.W.S DATE 12-23-41

DESIGN AND TEST DATA

Rating:

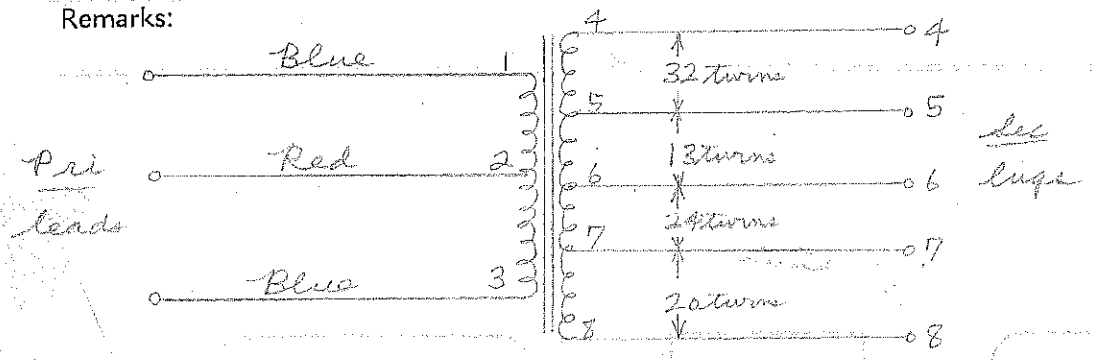
				Pri 1-3	4-8	4-7	5-8	4-6	5-7	4-5	6-7	7-8
Winding	1-2-3 Pri	4-5-6-7-8 Sec	Z	2.000	2.24	1.36	.930	.578	.392	.292	.164	.114
			Z	4000	4.50	2.71	1.86	1.16	.781	.584	.328	.228
Mean Turn	3.05	3.87	Z	5000	5.65	3.40	2.32	1.45	.980	.731	.411	.285
			Z	7000	7.94	4.86	3.26	2.03	1.37	1.03	.576	.400
Resistance 25° c	453	.597	Z	8000	9.05	5.42	3.72	2.31	1.57	1.17	.657	.456
			Z	10,000	11.3	6.78	4.65	2.89	1.95	1.44	.821	.57
Pounds Copper	.0328	.0450	Z	14,000	15.8	9.52	6.52	4.05	2.74	2.05	1.15	.80
			Z	17,500	19.8	11.9	8.12	5.07	3.43	2.56	1.44	1.00
Copper Density	415	—	Z_R	17,500	19.8	11.9	8.13	5.07	3.43	2.56	1.44	1.00
			T_R	132	445	245	2.85	2.25	1.85	1.60	1.20	1.00
Ratio Volts open circuit	1-2 117 2-3 117 1-3 234	4-5 2.84 4-6 4.00 4-7 6.12 4-8 7.90	T	2640	89	69	57	45	37	32	24	20
Test to Ground	1250	1000										

Iron Induction 19.5 Kg @ 50 Cycles with 117 volts on 1-2

Exciting Current 3 watts amperes @ 13.2 volts 60 cycles on 1-2

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

Remarks:



DESIGN AND TEST DATA

Rating:

Z - 6600 - 7500 - 5000 - 2500
Zr - 2.69 - 3 - 2 - 1
Tr - 1.655 - 1.732 - 1.414 - 1
T -

Winding		Pri.		Sec.			
Mean Turn		6.64		8.62			
Resistance 25° c		123		204			
Pounds Copper		.361		.955			
Copper Density		---		---			
Ratio Volts		67-67		86-122-199			
Test to Ground		2500		5000			

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 29 ga. B use 4% cut off.
5000 Ω @ 150 ma

$\frac{NI}{\ell} = \frac{1910 \times .150}{21.0} = 13.65$

$\frac{LI^2}{V} = 7.75 \times 10^{-4}$

$\frac{a}{\ell} = .00125$

$a = .0145$

$L = \frac{7.75 \times 10^{-4} \times 25^6}{2.25 \times 10^{-4}} = 8.8$ Hy unc

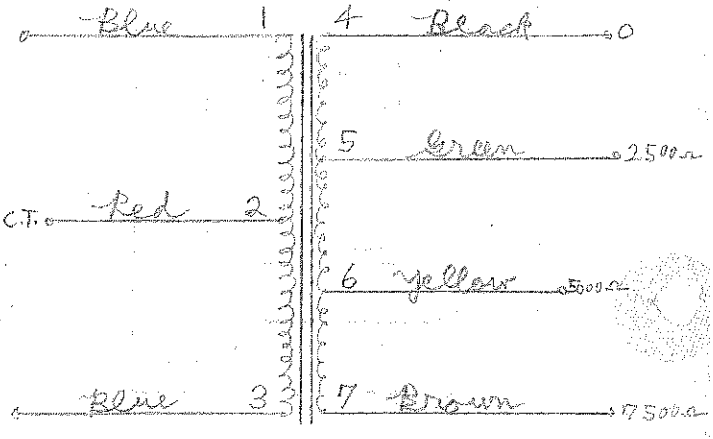
$L = 8.8 \times \left(\frac{2100}{1910}\right)^2 = 10.65$ Hy pri

$R_{par} = \frac{6600 \times 33000}{6600 + 33000} = 5540$

@ 2db dn $X_p = \frac{5540}{.77} = 7200\ \Omega$

freq 2db dn $= \frac{7200}{2\pi \times 10.65} = 108$ ~

Z = 6600 - 7500 - 5000 - 2500
Z_R = 2.64 - 3 - 2 - 1
T_R = 1.655 - 1.732 - 1.414 - 1
T = [illegible]



MODULATION

New STOCK

P-P 6L6's 6600 ohms CT
to 2500V @ 200 Ma. D.C. or
5000V @ 150 Ma. D.C., or 7500V @ 100 Ma. D.C.
30 watts

A 882

SPEC. NO. ~~S524-F~~

Winding		1-2-3 Pri.		4-5-6-7 Sec.			
Turns		2100		2340			
Taps		1050		1350-1910			
Wind. Lgth.		1 5/8		1 1/2			
Wire Size		#30		#29			
T. P. L.		132-16L		113-21L			
Finish		88%		92%			
Type Lead		~~Silver Braid #22 Rubber~~		~~#22 Rubber~~ Silver Braid ~~Vinyl Sl.~~			
Lead Lgth.		~~6"~~ cut 12"		~~6"~~ cut 12"			
Layer Insul.		30#		30#			
Test Volt.		2500		5000			
Wrapper		.197 2L007VG ~~3L30#~~	Interleaved	.288 2L007VG 2L007GA			

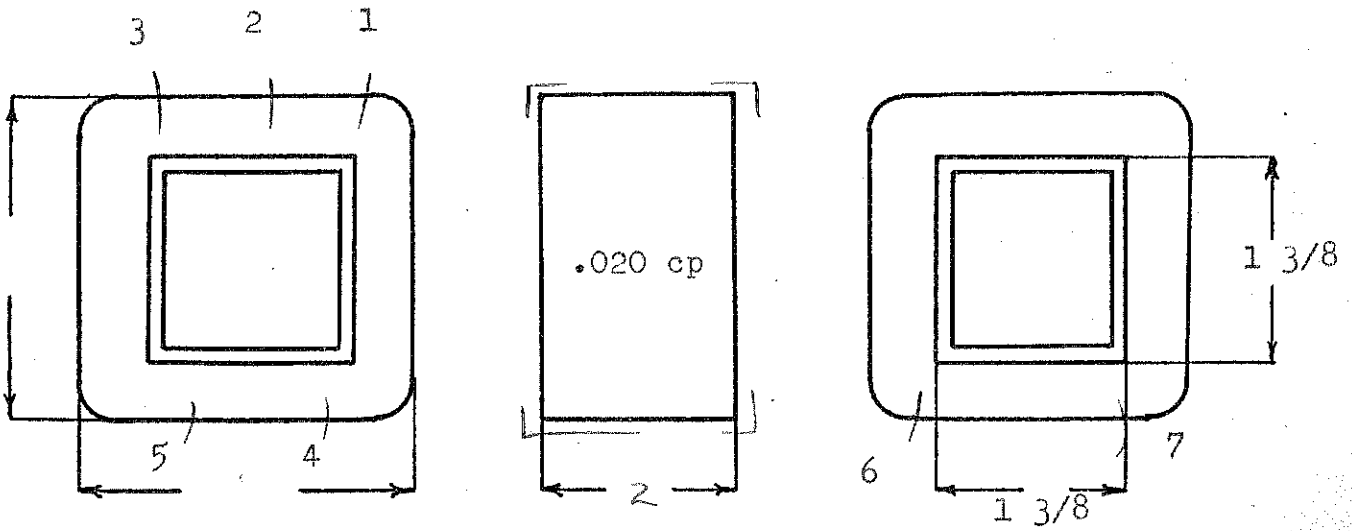
TUBE	7L007GK plus 2L003VG	IMPREGNATION	Varnish

CORE 1 3/8 x 1 3/8 GA. ~~27~~ 24 GRADE B STACK Butt .005 gap

MOUNTING ~~EF~~ AA

T. P. V. —
Window — .1602/.1688 = 87.5%

$E = \sqrt{3} \times 6600 = 9450$ V



DESIGNED BY Rewritten F.F.

DATE

DESIGN AND TEST DATA

Rating:

Z 6600 – 7500 – 5000 – 2500

Z_R 2.64 – 3 – 2 – 1

T_R 1.655 – 1.732 – 1.414 – 1

T 2100 – 2340 – 1910 – 1350

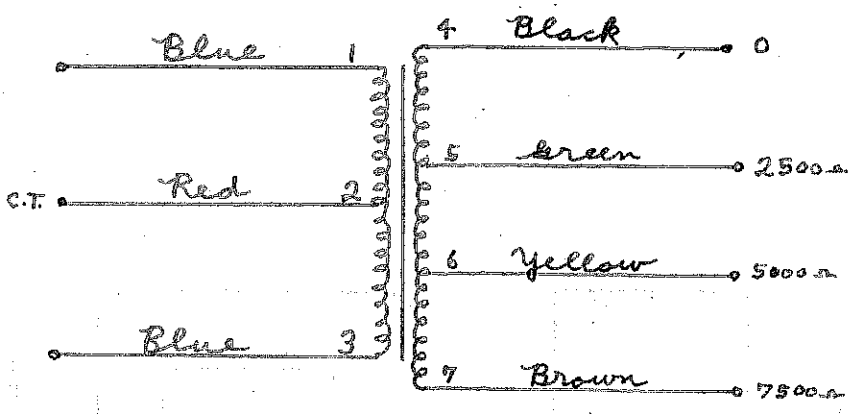
Winding	Pri	Sec					
Mean Turn	6.64	8.62					
Resistance 25° c	123	204					
Pounds Copper	.361	.955					
Copper Density							
Ratio Volts	67–67	86–122–199					
Test to Ground	2500	5000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

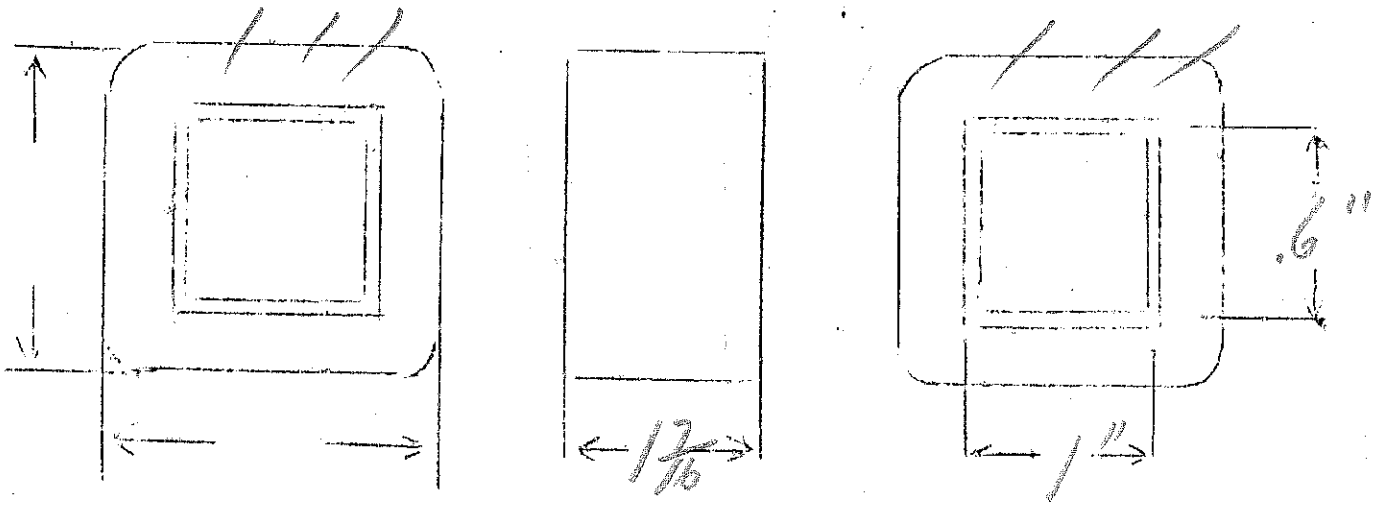
Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:



SPEC. NO. 882 AUTO. B.

Winding	SEC	SHIELD	PRI				
Turns	4800	1	92				
Taps	2400		46				
Wind. Lgth.	1.25	Same	1.25				
Wire Size	#36	Same	#19				
T.P.L.	202-24						
Kind Term.	#32 PBr	Sil Br	wire	finishing to be Specified			
Term. Lgth.	8"	31"	8"				
Layer Insul.	30#		Kraft				
Wrapper	KRAFT	2 wrs	Kraft				
TUBE	JL007			IMPREGNATION	VARNISH		
CURE	1 X. 6 NW						



Pri to be Multiple Wound

$E_p = 115V$

$E_s = 2.5V - 10$ amps

$\frac{N}{E} = 7.15$

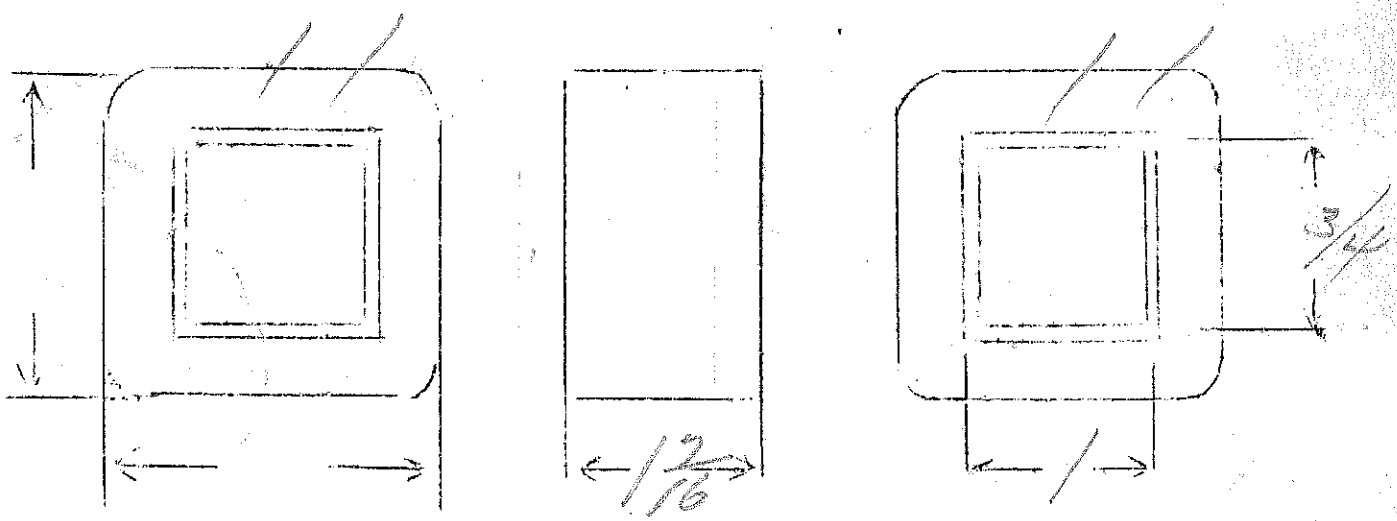
5000 volt breakdown!

SPEC. NO. 883

Winding	P	S					
Turns	820	20					
Taps	—	—					
Wind. Lgth.	1.25	1.25					
Wire Size	#28	#12					
T.P.L.	83-10	2 layers					
Kind Term.	wire	wire					
Term. Lgth.	3"	3"					
Layer Insul.	2 #						
Wrapper	2 turns Kraft	2 turns Kraft					

TUBE 4007 | IMPREGNATION 1

CURE 1 X 3/4 NW



MODULATION

New STOCK

PP Class AB 6L6's 3800 ohms CT
to 3500 ohms @ 225 Ma. D.C.
or 5000 ohms @ 200 Ma. D.C. 60 watts
or 8000 ohms @ 150 Ma. D.C.

A 887
SPEC. NO. S-1995-FF

Winding		1-2-3 Pri.		4-5 Sec #1		6-7-8 Sec #2	
Turns		1400		1290		660	
Taps		700		—		250	
Wind. Lgth.		1 3/4		1 1/2		1 1/2	
Wire Size		#28		#28		#30	
T. P. L.		117-12L		100-13L		125-6L	
Finish		91%		91%		90%	
Type Lead		~~Silver Braid #22 Vinyl Sl. Solac~~		~~Silver Braid #22 Vinyl Sl. Solac~~		~~Silver Braid #22 Vinyl Sl. Solac~~	
Lead Lgth.		~~6"~~ cut 12"		~~6"~~ cut 12"		~~6"~~ cut 12"	
Layer Insul.		40#		30#		30#	
Test Volt.		2500		5000		5000	
Wrapper		.187 ~~2~~ 2L007VG ~~3~~ 1L40# interleaved		.197 1L30#		.074 2L007VC 2L007GA	

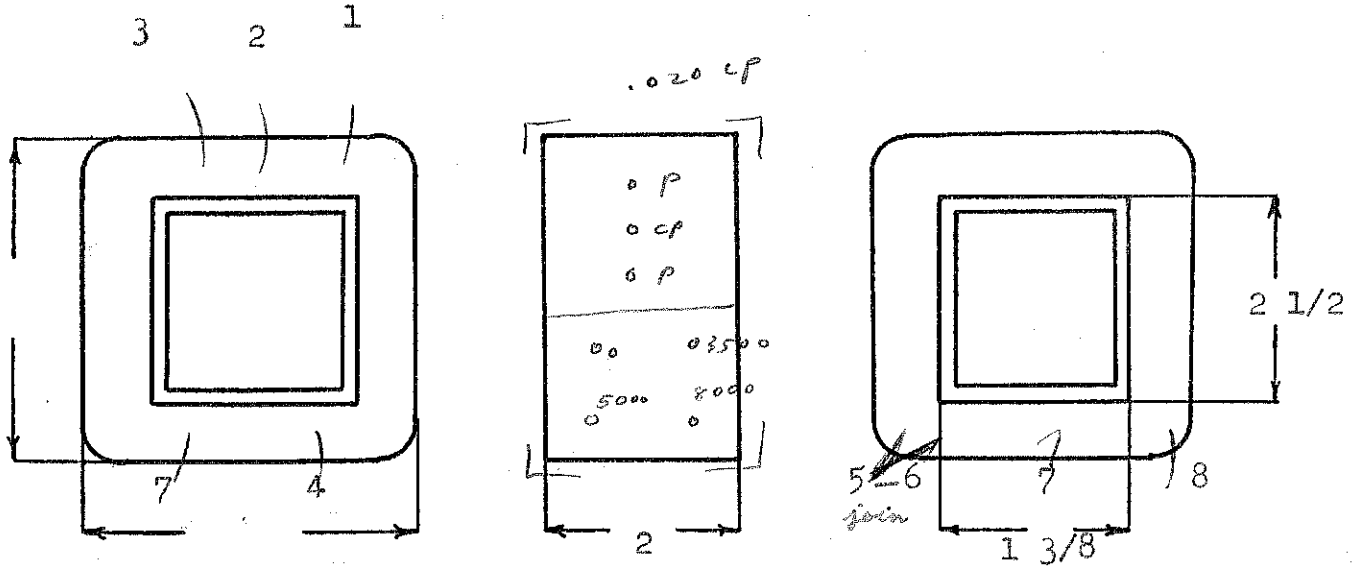
TUBE 10L007GK plus 2L003VG — IMPREGNATION Varnish

CORE 1 3/8 x 2 1/2 GA. ~~29~~ 24 GRADE B STACK Butt .007 Gap

MOUNTING A A

$E = \sqrt{60 \times 3800} = 477$ V

T. P. V. —
Window — .626/.688 = 90.9%



DESIGNED BY Rewritten F.F.

DATE

DESIGN AND TEST DATA

Rating:

Z = 3800 - 8000 - 5000 - 3500
Zr = 1.086 - 2.29 - 1.428 - 1.00
Tr = 1.042 - 1.513 - 1.195 - 1.00
T = 1400 - 1950 - 1540 - 1290

Winding		Pri.		Sec #1	Sec #2		
Mean Turn		9.0		10.62	11.64		
Resistance 25° c		69.5		75.5	67.2		
Pounds Copper		.515		.561	.198		
Copper Density							
Ratio Volts		110 55		101	52 19.6		
Test to Ground		2500		5000			

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 29 ga B 4% si steel.
5000 Ω @ 200 mm.

$\frac{NI}{\ell} = \frac{1540 \times .200}{21} = 14.7$

$\frac{LI^2}{V} = 8.54 \times 10^{-7}$

$L = \frac{8.54 \times 10^{-4} \times 465}{400 \times 10^{-4}} = 9.83$ Hy

$L_{pri} = 9.83 \times \left(\frac{400}{15-40}\right)^2 = 8.13$ Hy

$R_{pri} = 3800$ Ω

2 db dn $X_p = \frac{3800}{.77} = 4940$

freq 2db dn $= \frac{4940}{2\pi \times 833} = 97$ ~

$\ell/\ell = .00185$
$a = .0153$

Z = 3800 - 8000 - 5000 - 3500
Z_R = 1.086 - 2.29 - 1.428 - 1.00
T_R = 1.042 - 1.513 - 1.195 - 1.00
T = 1400 - 1950 - 1540 - 1290

$L_p = \frac{2.9 \times 10^{-22} \times 1400^2}{1.625}\left(.027 + \frac{187+271}{2}\right)$

$L_p = .0915$ Hy

@ 2db dn $X_s = .77 \times 3800 = 2930$

freq 2db dn $= \frac{2930}{2\pi \times .0915} = 5150$ ~

1-3	Blue
2	Red
4	Black
one lead → 5-6	Green
7	Yellow
8	Brown

DESIGN AND TEST DATA

Rating:

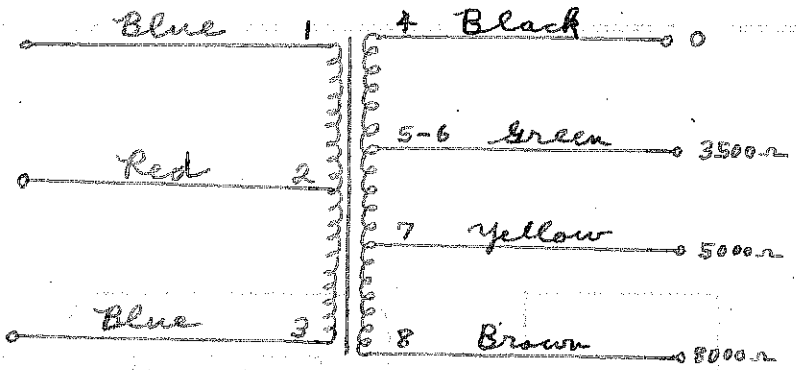
Winding	Pri	Sec #1	Sec #2				
Mean Turn	9.0	10.62	11.64				
Resistance 25° c	69.5	75.5	67.2				
Pounds Copper	.515	.561	.198				
Copper Density							
Ratio Volts	110 55	101	52 19.6				
Test to Ground	2500	5000	5000				

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



Modulation

New stock

P.P. for Class AB 6L6's 3800 ohms C.T.
to
3500 ohms @ 225 ma. D.C.
or 5000 ohms @ 200 ma. D.C.
or 8000 ohms @ 150 ma. D.C.
60 watts

SPEC. NO. A884
Rev 5-1995

Winding	1-2-3 Pri	4-5 Sec #1	6-7-8 Sec #2				
Turns	1400	1290	660				
Taps	700	—	250				
Wind. Lgth.	1 3/4	1 1/2	1 1/2				
Wire Size	#28	#28	#30				
T. P. L.	117-12L	100-13L	125-6L				
Finish Pitch	91%	91%	90%				
Type Lead	#22 Dulac	#22 Dulac	#22 Dulac				
Lead Lgth.	cut 12"	cut 12"	cut 12"				
Layer Insul.	40#	30#	30#				
Test Volt.	2500	5000	5000				
Wrapper	2L007VG	1L 30#	2L007VC 2L007GA				

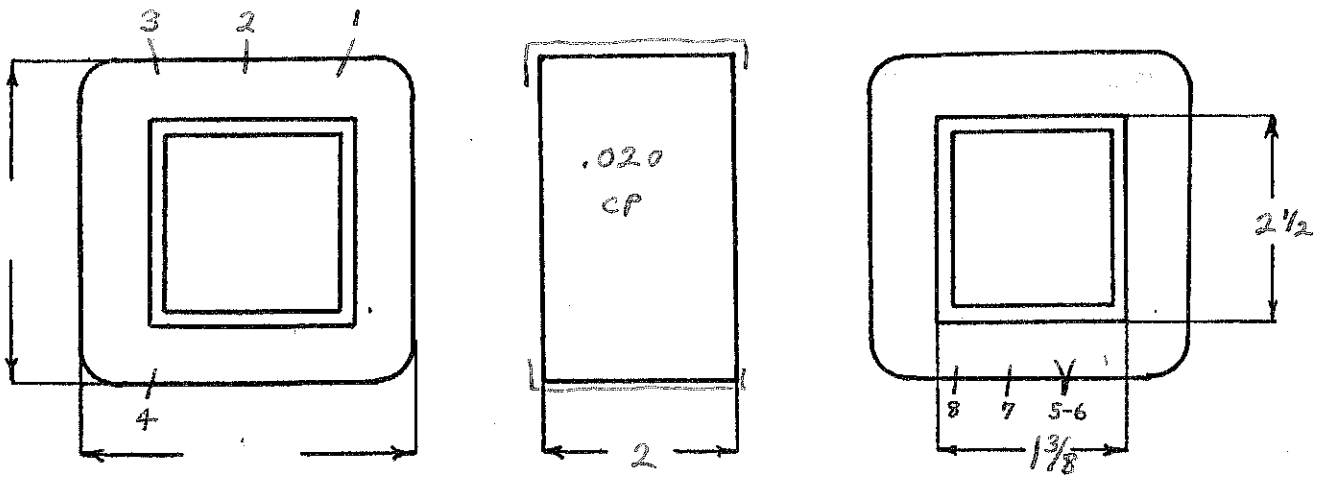
TUBE 10L007GT + 2L003VG

IMPREGNATION Varnish

CORE 1 3/8 X 2 1/2 GA. 24 GRADE STACK Butt .007 Lap

MOUNTING AA

η_W = 91%



DESIGNED BY Rewritten F.F.

DATE

E_p = 115 V

E_s = 10 V – 6.5 amps

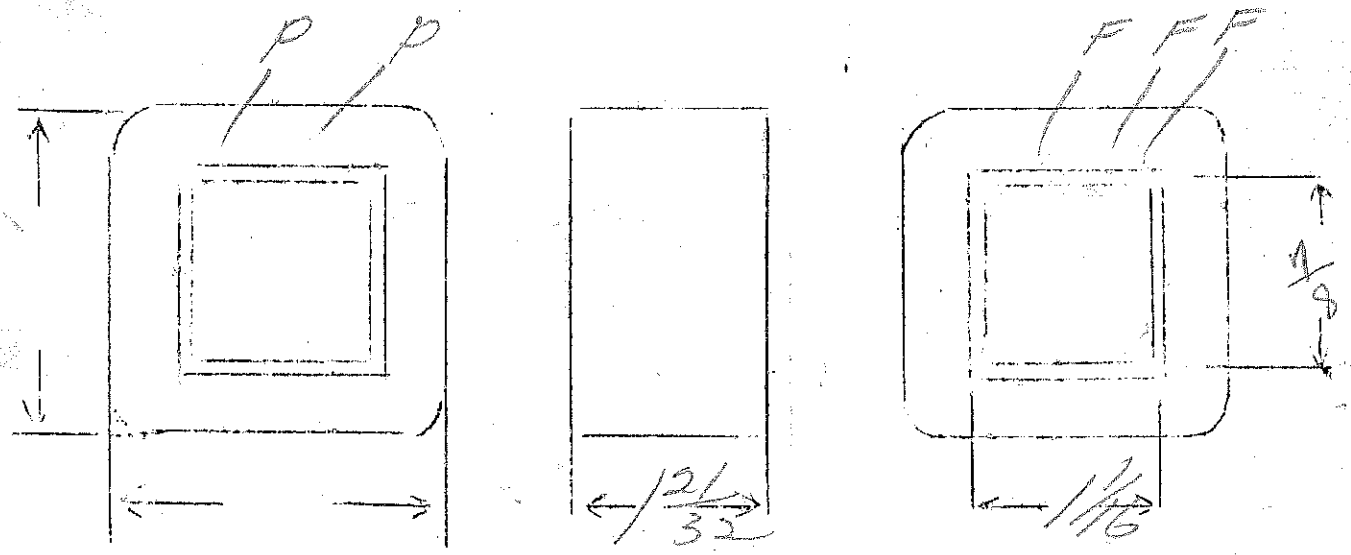
$\frac{N}{E} = 6.15$

SPEC. NO. 884

Winding	P	S					
Turns	700	68					
Taps	—	34					
Wind. Lgth.	1 45/32	1 15/32					
Wire Size	#25	#15					
T.P.L.	63-12	4 layers					
Kind Term.	wire	wire					
Term. Lgth.	3"	3"					
Layer Insul.	30#	.005					
Wrapper	3 LAYERS GA	3 LAYERS GA					

TUBE | 4 coil | IMPREGNATION | VARNISH

CURE | 1 1/16 x 7/8



In assembly do not cut off wires

E_P = 115V
E_S = 2400 V - 500 units

$\frac{N}{E}$ = 1.31

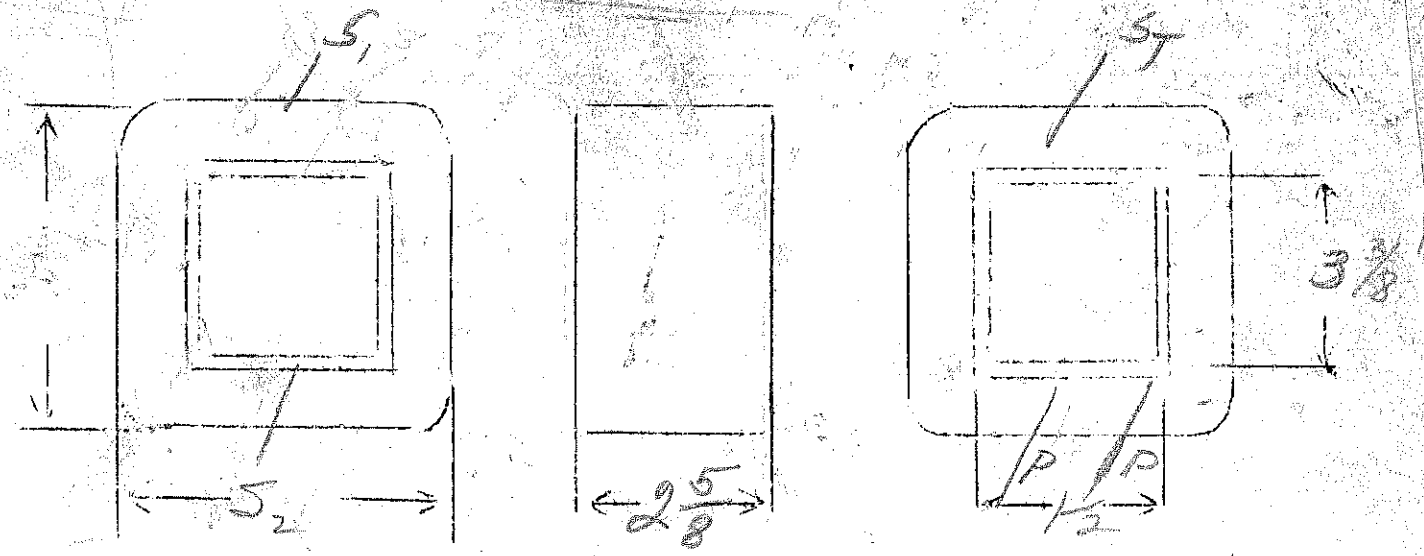
(450 x 3) SPEC. NO. 885

Winding	SEC	PRI					
Turns	3400	141					
Taps	1700	—					
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#26	15					
T.P.L.	131-26	4 layer					
Kind Term.	wire	—					
Term. Lgth.	6"	6"					
Layer Insul.	50#	GA					
Wrapper	2L045GA 2L005MC	2L005GA 1L010RP					

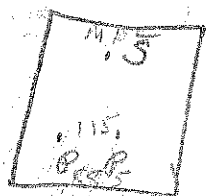
TUBE | 2L007+2L005MC | IMPREGNATION | VARNISH

CURE | 1 1/2 x 3 1/4

Note Lead Position



Stack 3 1/4



E_p - 110-120 V
E_s - 800 V - 200 Ma. C.T.
E_{f_1} - 5 V - 3 Amp
E_{f_2} - 5 V - 3 Amp
E_{f_3} - 2.5 V. C.T. - 10 Amp
E_{f_4} - 6.3 V. 2 Amp

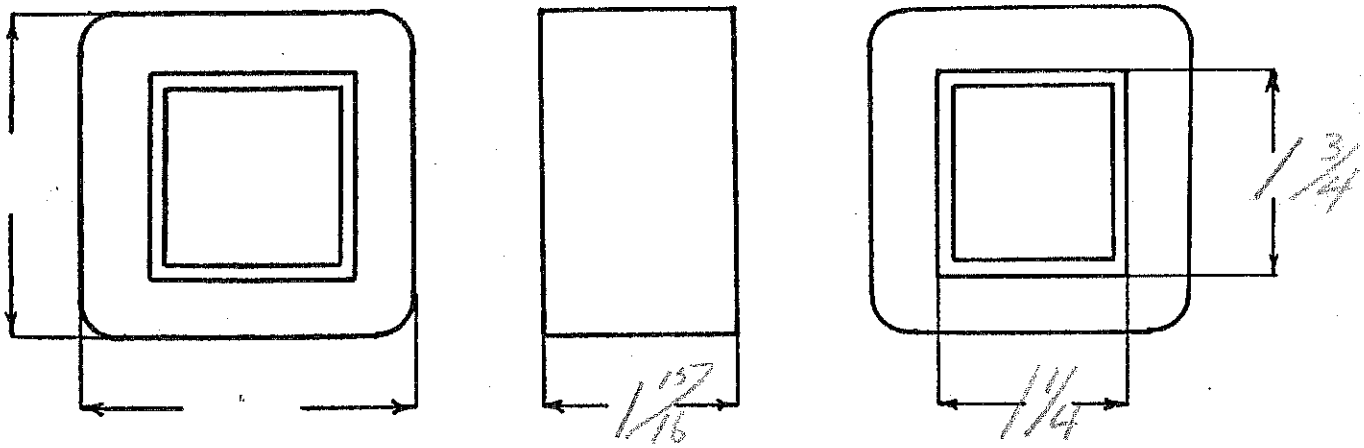
SPEC. NO. 891

Winding	Sec	Shield	Pri	Green F_1	White 2.6 F_2	Black F_3	Blue F_4
Turns	2200	140	312	14	14	7	18
Taps	1100	—	286			4	
Wind. Lgth.	1 3/4	1 3/4	1 3/4	—	—	—	—
Wire Size	#30	#30	#20	#20	#18	double #16	#20
T. P. L.	140-16		48-7				
Finish	—						
Type Lead	PnBn	Wire Only	PnBn	Fabric Only			
Lead Lgth.	9"	3"	9"	9"	9"	9"	9"
Layer Insul.	double .20 #		.50 #				
Test Volt.		Standard					
Wrapper	2L007VC	2L007VC	2L007GA		2L007GA		2L007GA

TUBE 7L007GK IMPREGNATION Varnish

CORE 1 1/4 X 1 3/4 GA. 24 GRADE D STACK 2 X 2

MOUNTING A



DESIGNED BY JCG DATE 5-8-39

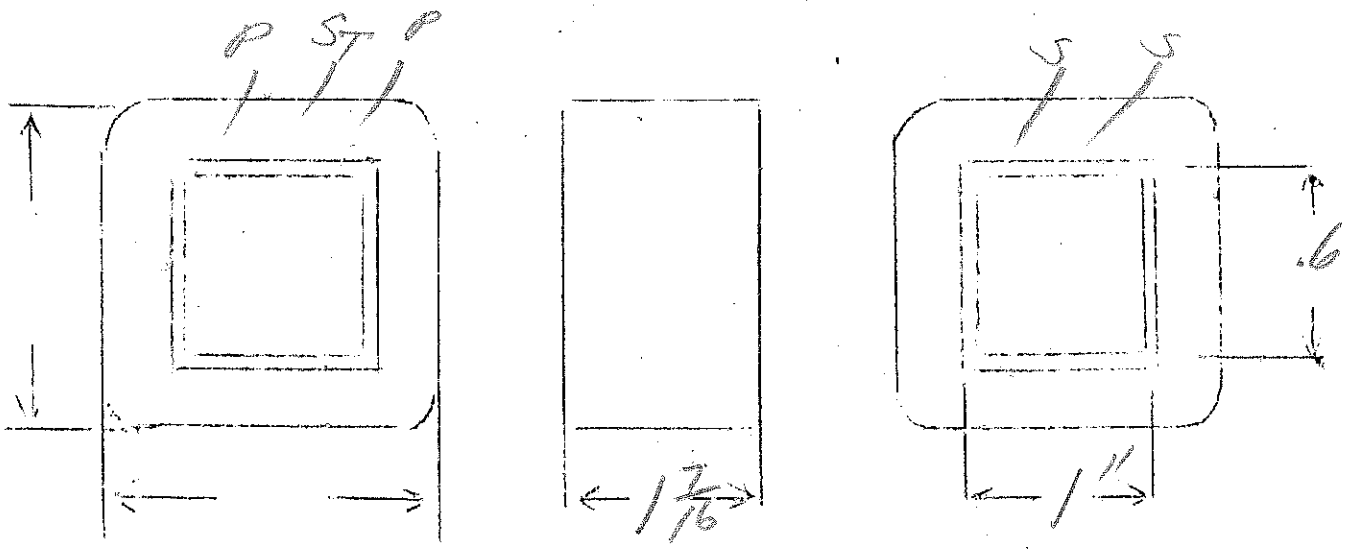
Packard Bell Sample

SPEC. NO. 892

Winding	SEC	SHIELD	PRI				
Turns	3820	1	74				
Taps	1910		37				
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	#35	Brass	#18				
T.P.L.	180-22	1	Spiral	Edges			
Kind Term.	#20 Plaid	Silver	wire				
Term. Lgth.	9"	3"	9"				
Layer Insul.	30#	—	Tape				
Wrapper	2L007C	2L007C	2L050A				

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1 X 6 NW



E_p = 115 V
E_s = 6 over CT - 20 ma
E_f = 5 V - 2 amps

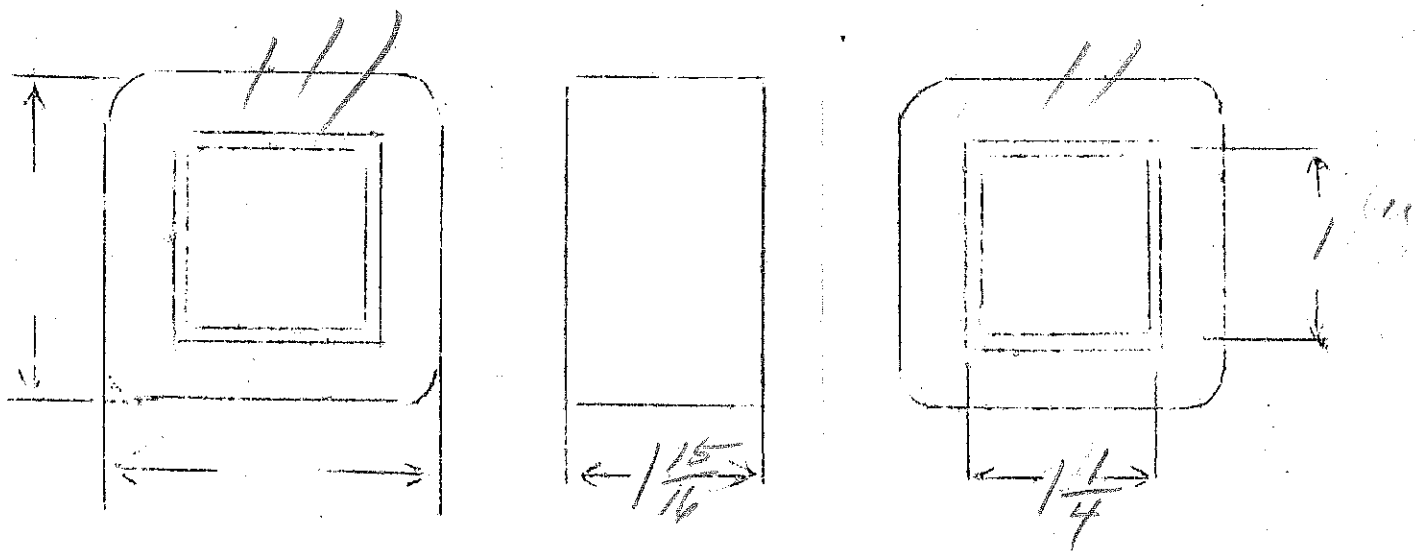
VA = 70 watts
$\frac{N}{E}$ = 4.6

SPEC. NO. 893

Winding	PRI	SEC	SEC	SEC			
Turns	530	140	3000	25			
Taps	—	—	1500	—			
Wind. Lgth.	1.25	1.25	1.25	—			
Wire Size	#22	#30	#30	#20			
T.P.L.	56-10	140-1	140-22	—			
Kind Term.	#20 Plain	Silver	#20 Silver	wire			
Term. Lgth.	9	3	9	9			
Layer Insul.	50#	—	30#				
Wrapper	Kraft	Kraft	Kraft				

TUBE | Kraft | IMPREGNATION | VARNISH

CURE | 125° 1"



115 V Pri
2500 V CT @ 300 ma

Fisher

SPEC. NO. 894

Winding	Sec.		Pri.				
Turns (20%)	4220		174				
Taps	2110		—				
Wind. Lgth.	2 3/8"		2 3/8"	= 2.375"			
Wire Size	#27		2-#19		Notes: Wind tightly		
T. P. L.	141-30K		29-6K		Mica Saddle - heavy		
Finish	90%		90%		finishing -		
Type Lead	#22 Bldc		W.O.				
Lead Lgth.	24"		6"				
Layer Insul.	24 30#G		12 .007GK		Stackers - Use mica. Two for end coil insulation		
Test Volt.	6000 V						
	24-.007GC		24				
Wrapper	24-.005GA		.005GA				

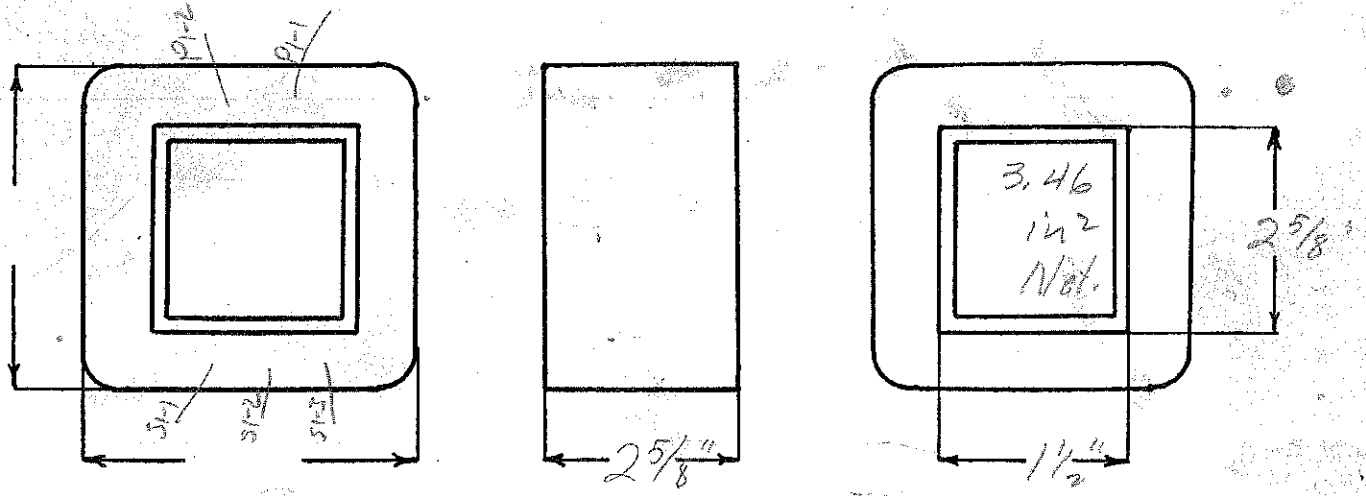
TUBE 24-.007GK + 24-.007GC IMPREGNATION Double Varnish

CORE 1 1/2" x 2 5/8" E & I GA. 24 GRADE D STACK 2 x 2

MOUNTING Half G -

Cu = 1120 - 592
Fe = 72 @ 60 ~
TPV = 1.51
Wire Allot = 0.782 (0.802")

See VA = 375 Δ = 83
Pri VA = 500 Rise = 40
Pri I = 4.35 Amp

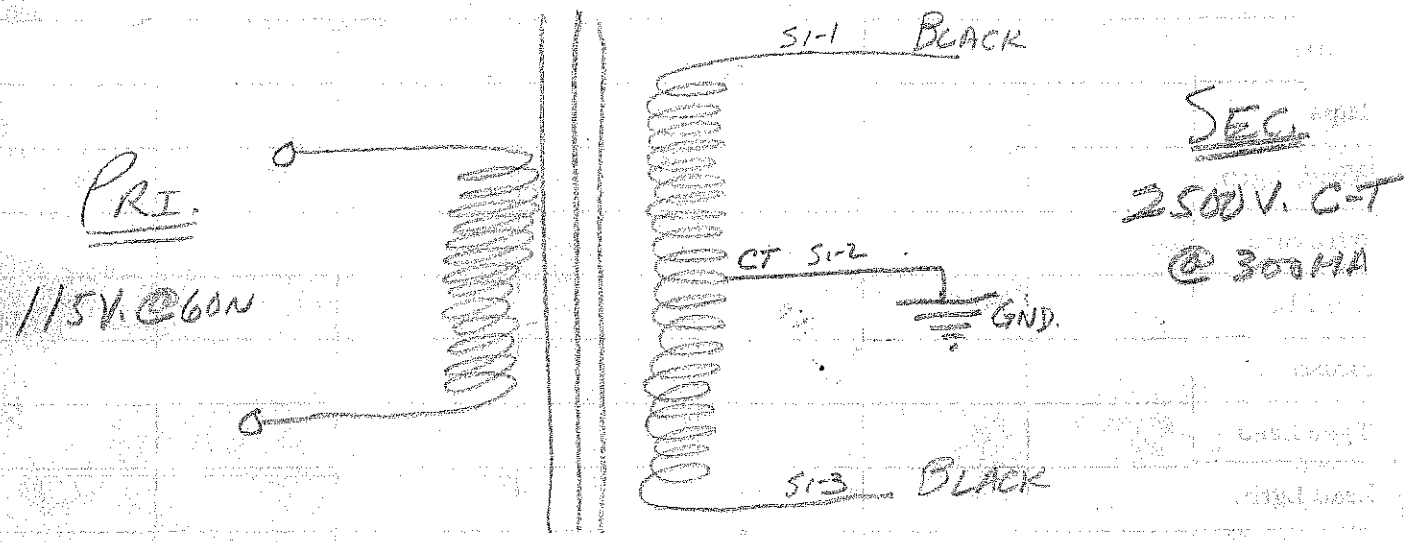


DESIGNED BY MHR

DATE 3-11-42

OVER

894



Universal Modulation — New Stock

Variable Primary to Variable Sec.
80 watts Audio [illegible]
Sec DC = 150 ma Series
300 ma Parallel

SPEC. NO. A 894
Sec 2 2446

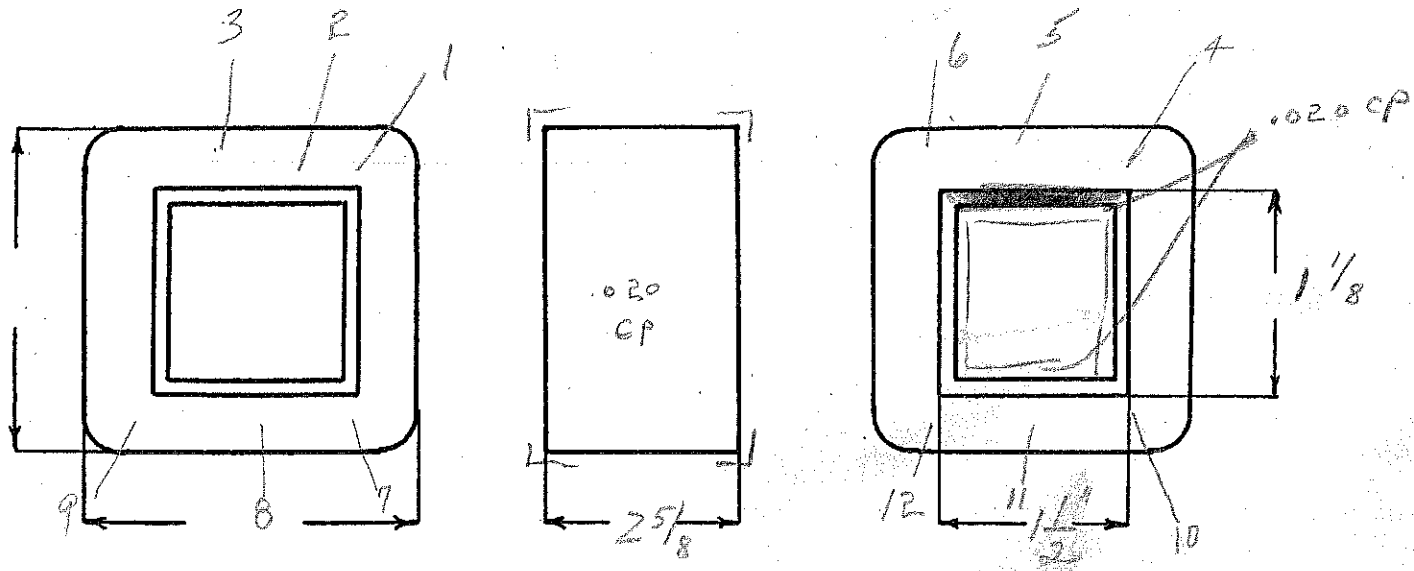
Winding	1-2-4 #1	7-8-10 #2	9-11-12 #3	3-5-6 #4			
Turns	2110	2490	2490	2110			
Taps	960	575	767	1150			
Wind. Lgth.	2 1/8	2 1/8	2 1/8	2 1/8			
Wire Size	#30	#30	#30	#30			
T. P. L.	165-132	175-152	173-152	165-132			
Finish	85%	90%	89%	85%			
Type Lead	#22 Duplex	#22 Duplex	#22 Duplex	#22 Duplex			
Lead Lgth.	cut 10"	cut 10"	cut 10"	cut 10"			
Layer Insul.	40#	40#	40#	40#			
Test Volt.	5000	5000	5000	5000			
Wrapper	2L010VG	2L010VG	2L010VG	2L010VG 2L00706			

TUBE 7L010LK7 2L010VG — IMPREGNATION Varnish

CORE 1 1/2 x 1 — GA. 26 — GRADE D — STACK Butt .010 Gap

MOUNTING M

was 91%



DESIGNED BY S. Babcock

DATE 4-27-49

DESIGN AND TEST DATA

Rating:

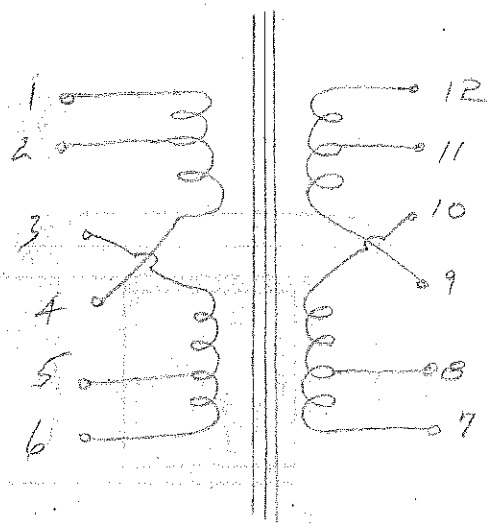
Winding	12-4 #1	7-8-10 #2	9-11-12 #3	3-5-6 #4			
Mean Turn	6.67	8.16	9.74	11.23			
Resistance 25° c	123.4	178.3	223	208			
Pounds Copper	.364	.526	.628	.614			
Copper Density							
Ratio Volts	21.1	24.9	24.9	21.1			
Test to Ground	5000	5000	5000	5000			

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:



E_P = 115 V - 25 ~

E_S = 2500 VCT - 300 MA Grd ct of Sec.

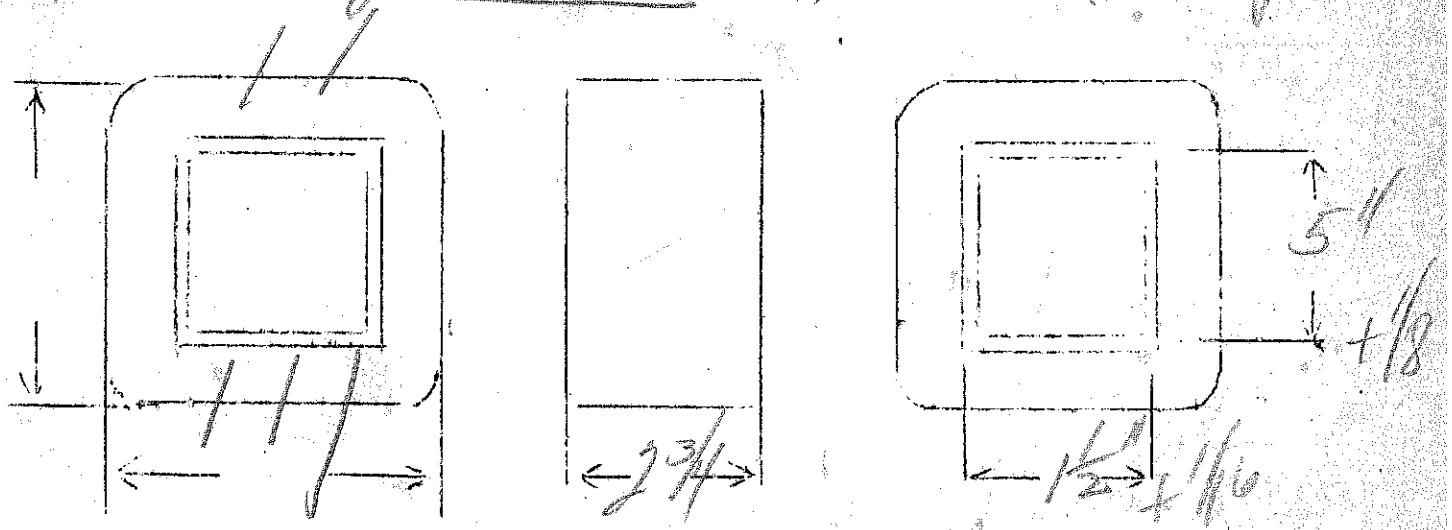
$\frac{N}{E}$ = 1.43

SPEC. NO. 894-25 ~

Winding	SEC	PRI					
Turns	4150	164					
Taps	2075						
Wind. Lgth.	2 3/8	2 3/8					
Wire Size	#27	#18					
T.P.L.	149-28	55-6	← very close				
Kind Term.		wire only		pull 6" leads with			
Term. Lgth.	6"	3"		finishing + varnish			
Layer Insul.	50#	Kraft		varnish in both ends			
Wrapper	2 Lay 7VC 1 Lay 5VC	2 Lay 5VC No Insul					
TUBE	KBED 7 + 2 Lay 7VC		IMPREGNATION	VARNISH			
CURE	1 1/2 x 5"						

Use typical mtg on 894

1 lead 24" lg #14
1 lead 14" lg #14



sheet metal keyshelf - one side only.

EM Larger

E_p = 1180 V

E_s = 700 C.T. - 50 ma

E_{F_2} = 6.3 V - 1.4 amps

E_{F_1} = 5.0 V - 2 amps

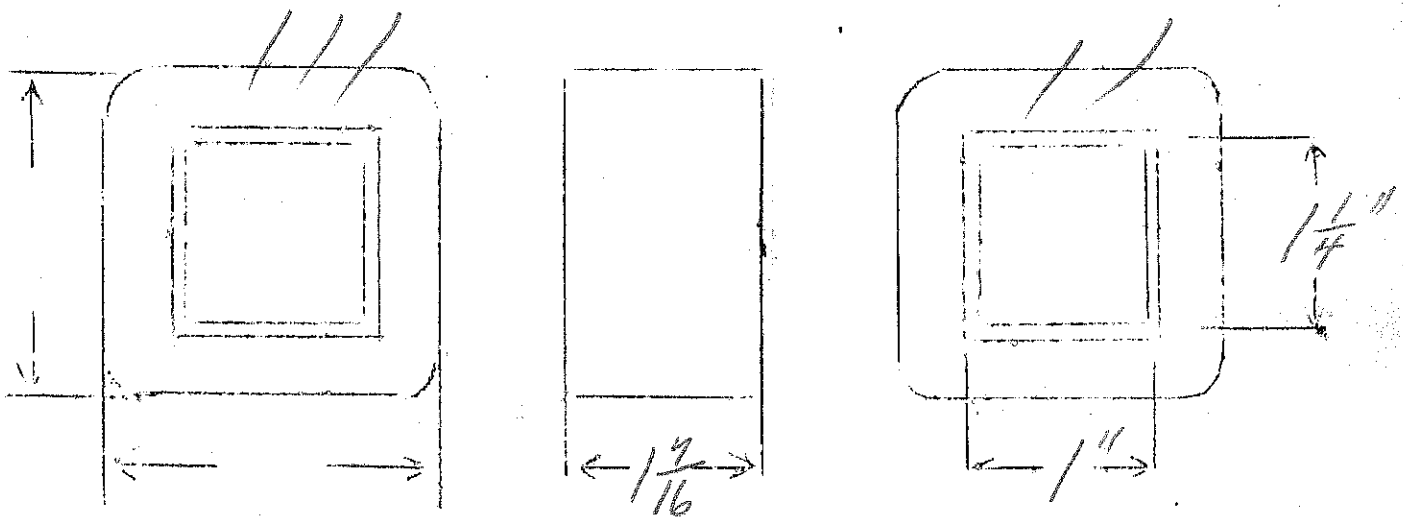
B = 12,500

$\frac{N}{E}$ = 4.44

SPEC. NO. 895

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	525	180	3200	25	31		
Taps	—	—	1600	—	15		
Wind. Lgth.	1.25	1.25	1.25	—	—		
Wire Size	#26	#35	#35	#20	#21		
T.P.L.	67-84	180	180-18				
Kind Term.	wire		silv Brs	wire			
Term. Lgth.	3	3	3	3	3		
Layer Insul.	30	—	20	—	—		
Wrapper	2L405M	2L405M	2L405M	2L405M			

TUBE	4002	IMPREGNATION	VARNISH
CURE	1 x 1½ NW		



LINQUIST

E_p = 117V

E_s = 1750V — 350MA

E_F = 10V — 8 amps

Wt - 24#

$\frac{N}{E}$ = 1.46

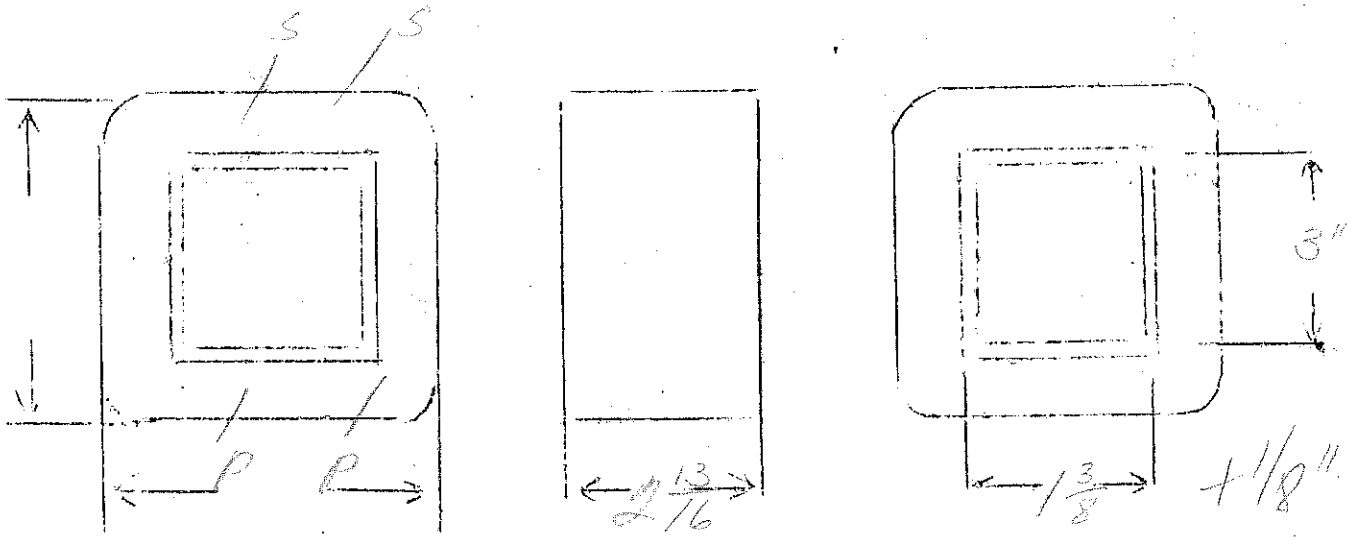
SPEC. NO. 896

Winding	PRI	SEC	FIL				
Turns	170	2800	16				
Taps	—						
Wind. Lgth.	2 1/2	2 1/4					
Wire Size	#17	#26	#12				
T.P.L.	5 layers	24#-120					
Kind Term.	wire	wire	wire				
Term. Lgth.	20"	5"	16"				
Layer Insul.	.005 GP	50#					
Wrapper	2L007K 2L005GA	2L005GA	2L007K 2L005GA				

In addition to layer insul. and wrapper, one thickness of fullerboard

TUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1 3/8 X 3"



UNIVERSAL MODULATION

New STOCK

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

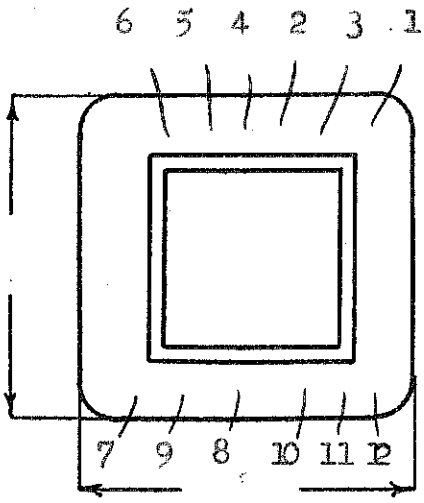
SPEC. NO. A896

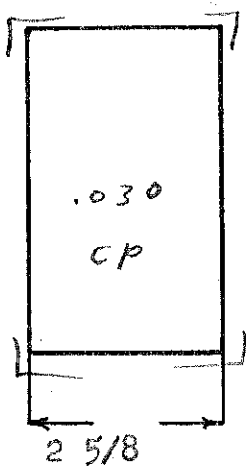
Winding	1-2-4 #1		7-8-10 #2		9-11-12 #3		3-5-6 #4
Turns	1265		1495		1495		1265
Taps	575		1035		460		690
Wind. Lgth.	2 1/16		2 1/16		2 1/16		2 1/16
Wire Size	#28		#28		#28		#28
T. P. L.	138-10L		138-12L		138-12L		138-10L
Finish	90%						
Type Lead	M.O. vinyl sleeve	~~Silver Braid~~		# 22 Dulac			
Lead Lgth.	6"						
Layer Insul.	Double 20#						
Test Volt.	6000						
Wrapper	3L007VC 3L40# interleaved		2L007VC		3L007VC 3L40# interleaved		2L007VC 3L007GA
TUBE	10L007GK / 2L007VC			IMPREGNATION		Varnish	

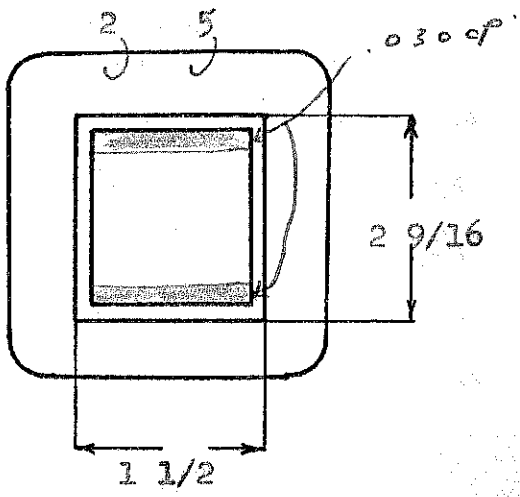
CORE 1 1/2 x 2 1/2 GA. 24 GRADE D STACK Butt .015 gap

MOUNTING M

Am = 88%







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: for 2 - 809's 145 watts R_L = 11600 ohms ? $\frac{9-10}{12}$ 350 ma d.c in $\frac{3.4}{6}$

24 Ga. D steel

$\frac{NI}{C} = \frac{2530 \times 150}{26.7} = 14.2$

$\frac{LI^2}{V} = 5.80 \times 10^{-4}$

in sec $L = \frac{5.80 \times 10^{-4} \times 648}{225 \times 10^{-4}} = 16.6$ Hy

in pri $L = 16.6 \times \left(\frac{2990}{2530}\right)^2 = 23.2$ Hy

for 2 db dn. $X_p = \frac{11600}{.77} = 15070$

freq for 2 db dn = $\frac{15070}{2\pi \times 2.32}$ 103.5 ~

$\frac{NI}{C} = \frac{2990 \times 200}{26.7} = 22.4$

$\frac{a}{C} = .00204$

$a = .00204 \times 10.5 = .0215$

use 2(.015)

High End

$L_p = \frac{.72 \times 11.5 \times 2990^2}{2.063} \left[.027 + .027 + .156 + \frac{.388}{3}\right] \times 10$

$L_p = .103$ Hy

@ 2 db dn $X_s = .77 \times 11600 = 8930$

freq 2 db dn = $\frac{8930}{2\pi \times .103} = 13800$ ~

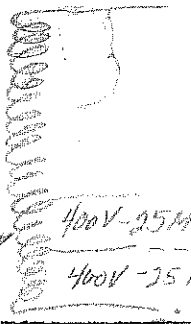
For 2000 ~ freq = 2380 ~

E_p = 110V

E_{S_1} = 2.5V-3amps

$E_{S_2} = E_{S_3}$ = 2.5V-3amps

E_{S_4} =



Total V.A. = 57.5

$\frac{W}{E}$ = 4.95

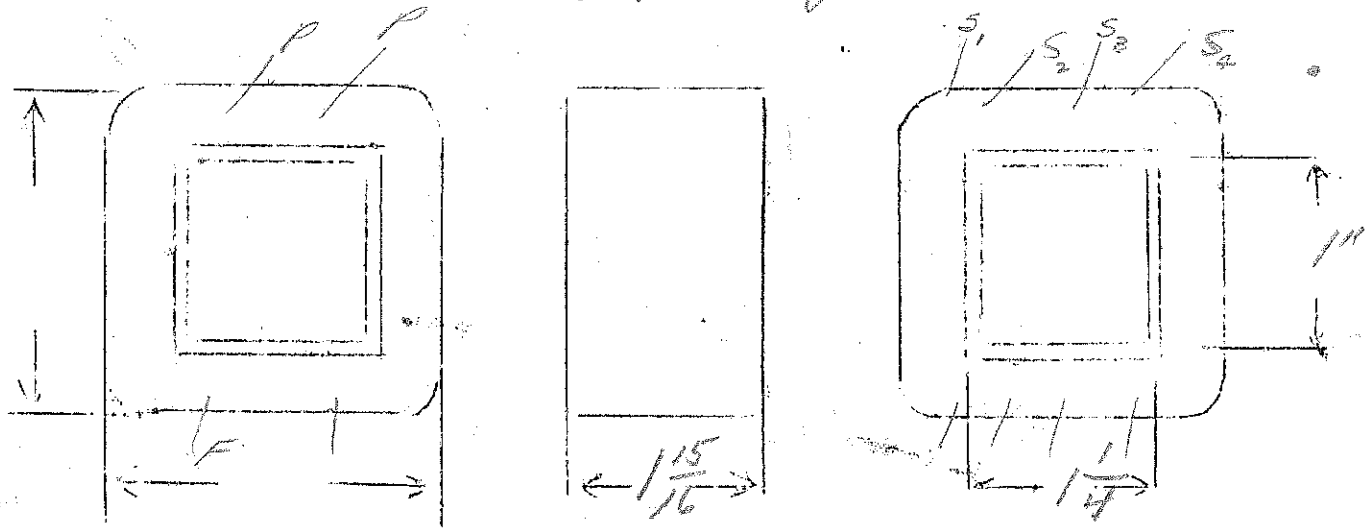
SPEC. NO. 891

		continuous					
Winding	PRI			F_1	F_2	F_3	
Turns	523	4150	8300	13	13	13	
Taps		2075		—	—	—	
Wind. Lgth.	1.75	1.75					
Wire Size	#24	#36	#38	#18	#20	#20	
T.P.L.	20-8	260-16	350-24	one layer			
Kind Term.	WIRE ONLY	sil Braid		wire			
Term. Lgth.	6"	6"	6"	6"	6"	6"	
Layer Insul.	50#	50#	50#	between windings 2 mil MC			
Wrapper	3L007VC		2L005A	1L007VC		2L005A	

TUBE | 7L009 | IMPREGNATION | VARNISH

CURE | 1 1/4 x 1

Use ultra heavy finishing



UNIVERSAL MODULATION

New STOCK

300 watts
250 Ma. DC series
500 Ma. DC parallel

A898

SPEC. NO. ~~S-1507-M~~

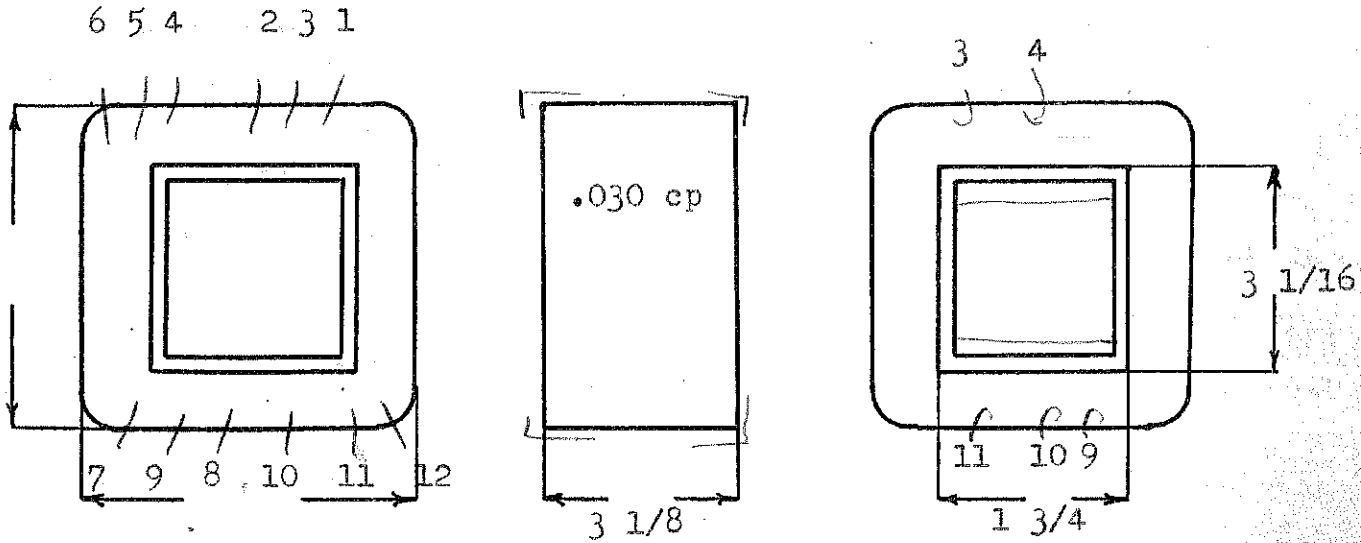
Winding	1-2-4 #1		7-8-10 #2		9-11-12 #3		3-5-6 #4
Turns	1100		1300		1300		1100
Taps	500		900		400		600
Wind. Lgth.	2 3/8		2 3/8		2 3/8		2 3/8
Wire Size	#26		#26		#26		#26
T. P. L.	125-9L		125-12L		125-12L		125-9L
Finish	89.5%		89.5%		89.5%		89.5%
Type Lead	~~W. O. #22~~ Vinyl Sl.	Dulac	~~W. O.~~ #22 Vinyl Sl.	Dulac	~~W. O.~~ #22 Vinyl Sl.	Dulac	~~W. O. #22~~ Vinyl Sl. Dulac
Lead Lgth.	8" cut		cut 8"		cut 8"		cut 8"
Layer Insul.	Double 30#		Double 30#		Double 30#		Double 30#
Test Volt.	7500		7500		7500		7500
Wrapper	.160 ~~3L007VG 4L30#~~ interleaved		.180 3L007VG		.180 ~~3L007VG 4L30#~~	interleaved	.160 3L007VG + ~~3L007GA~~

TUBE	12L007GK plus ~~3L007VG~~	IMPREGNATION	Varnish

CORE 1 3/4 x 3 GA. 24 GRADE D STACK Butt .015 Gap

MOUNTING M

T. P. V. —
Window - .899/1.25 = 72%



DESIGNED BY Remitten F. F.

DATE

DESIGN AND TEST DATA

Rating:

Winding	1	2	3	4
Mean Turn	11.067	12.855	14.575	16.225
Resistance 25° c	42.2	58.2	65.7	62.0
Pounds Copper	.795	1.092	1.235	1.165
Copper Density				
Ratio Volts	110 50	130 90	130 40	110 60
Test to Ground	7500	7500	7500	7500

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: for 2 805's 300 volts R_L = 6700

on 7 9-10 12 250 ma DC in 1-4 6

$\frac{NI}{e} = \frac{2600 \times 250}{31.75} = 20.5$

$\frac{a}{e} = .00181$

$a = .00181 \times 12.5 = .0226$

use 2(.015)

24 ga D steel

$\frac{NI}{e} = \frac{2200 \times .200}{31.75} = 13.9$

$\frac{LI^2}{V} = 5.6 \times 10^{-4}$

High End.

in sec $L = \frac{5.6 \times 10^{-4} \times 10^5}{400 \times 10^{-4}} = 15.0$ Hy

$L_p = \frac{.72 \times 13.12}{2.375} \times 2600^2 \left[\frac{.034 + .034 + \frac{.160 + .381 + .100}{3}}{3}\right]$

in pri $L = 15 \times \left(\frac{2600}{2200}\right)^2 = 21.0$ Hy

$L_p = .0818$ Hy

2 db dn $X_p = \frac{6700}{.77} = 8700$

@ 2 db dn $X_s = .77 \times 6700 = 5160$

freq 2 db dn $= \frac{8700}{2\pi \times 21} = 66$ ~

freq 2 db dn $= \frac{5160}{2\pi \times .0818} = 10,040$ ~

for 16,000 Ω = 158 Ω

@ 2000 Ω = 3200 ~

130 60
130 50
110 40
90 30
80
70

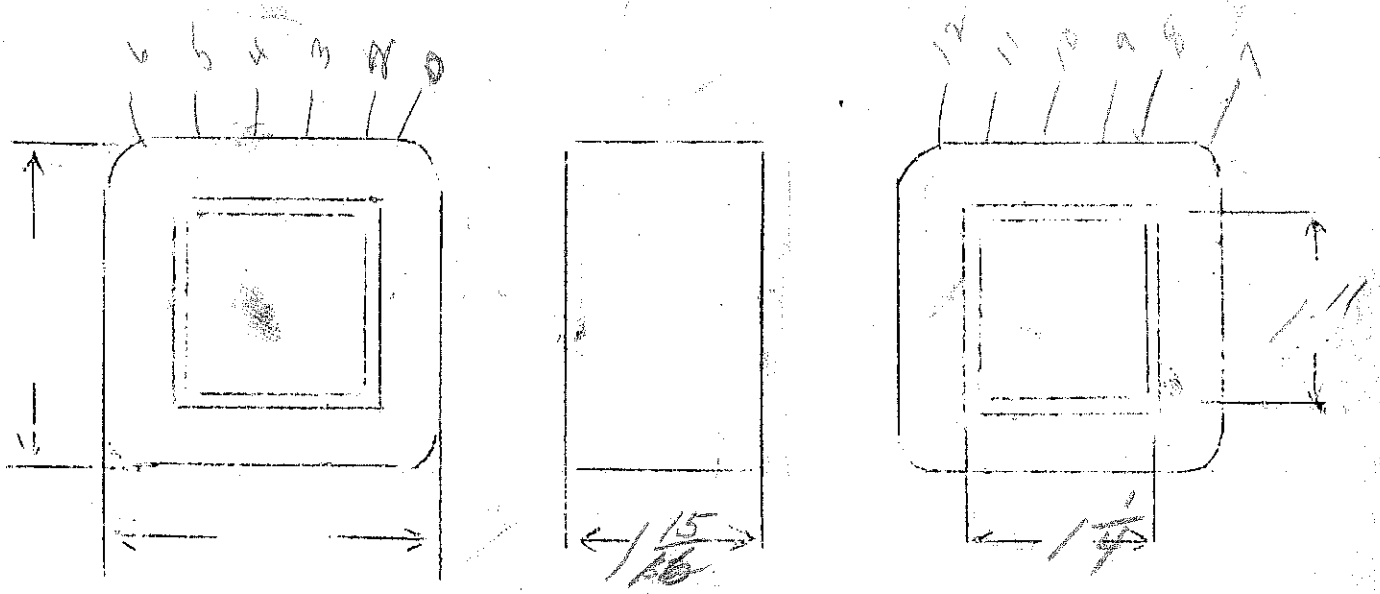
TECH

4 - 48

SPEC. NO. 828

Winding	Continuous						
Turns	392 342 291 243	238 193 121					
Taps	194 146	100 57					
Wind. Lgth.	1.75	1.25					
Wire Size	#21	#18					
T.P.L.	11 layer	30-9					
Kind Term.	wire						
Term. Lgth.	3"	3"					
Layer Insul.	405						
Wrapper	2L0056A						

TUBE	2L007	IMPREGNATION	V
CURE	1/4 + 1		



Same as 867 except Pri 2300 turns

SPEC. NO. 899

Winding	P	S	F				
Turns	2300	2500	54				
Taps	—	—	—				
Wind. Lgth.	7/8	7/8	7/8				
Wire Size	37	38	27				
T.P.L.	165-14	195-18	54-1				
Kind Term.	Sol Br		wire				
Term. Lgth.	3	3	3				
Layer Insul.	20#	16#	—				
Wrapper	4L007C	4L007C	2Lm524				

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 3/4 x 3/4 | 2 x 2 | 2 6 6