

# CHOKE

15 Hvy @ 40 ma.

700 ohms

2500 V. ins.

SPEC. NO. C 400

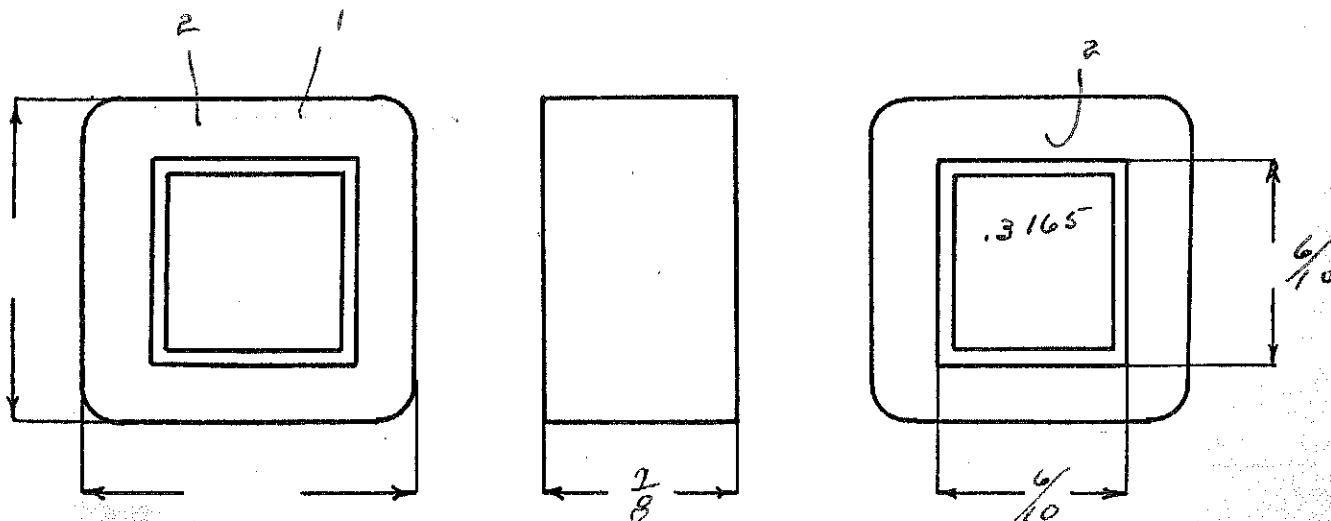
Winding	1-2 CHOKE	choke		
Turns	4710	2-248	26-3224	
Taps	-	4-444	28-3472	
Wind. Lgth.	$\frac{11}{16}$	6-744	30-3720	
T.P.L. Wire-Size	127-38L	8-992	32-3968	
T.P.L. Wire-Size	#37	10-1240	34-4216	
Finish	90%	12-1488	36-4464	
Type Lead	* R2DULAC	14-1736	38-4910	
Lead Lgth.	9" from coil	16-1984		
Layer Insul.	16 #	18-2232		
Test Volt.	2500	20-2480		
Wrapper	Rh005GA	22-2728		
		24-2976		

TUBE	3L010GK + 14002CA	IMPREGNATION	Varnish
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CORE	$\frac{6}{10} \times \frac{6}{10}$ GA. 26	GRADE D	STACK Butt .003 gap.
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MOUNTING	D leads HSA
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wr - 89%



re-DESIGNED BY L.H.F.

DATE 8-14-50

# DESIGN AND TEST DATA

Rating:

Winding		1-2 CHOKE					
Mean Turn		3.53					
Resistance 25° c		737					
Pounds Copper		.085					
Copper Density		497					
Ratio Volts		-					
Test to Ground		2500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

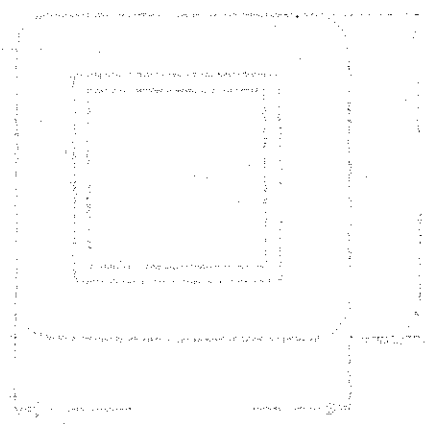
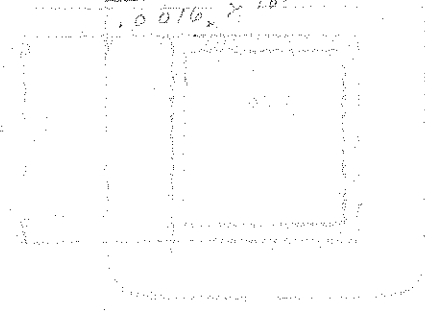
Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{l} = \frac{4710 \times .04}{5.48} = 22.2$$

$$11.75 = \frac{22.2 \times 10^4}{V}$$

$$L = \frac{11.75 \times 22.2 \times 10^4}{.0016 \times 10^7} = 17.7$$



Choke

Now stock

15 H, @ 40 ma  
700 ohms  
2500V in

SPEC. NO. C 400

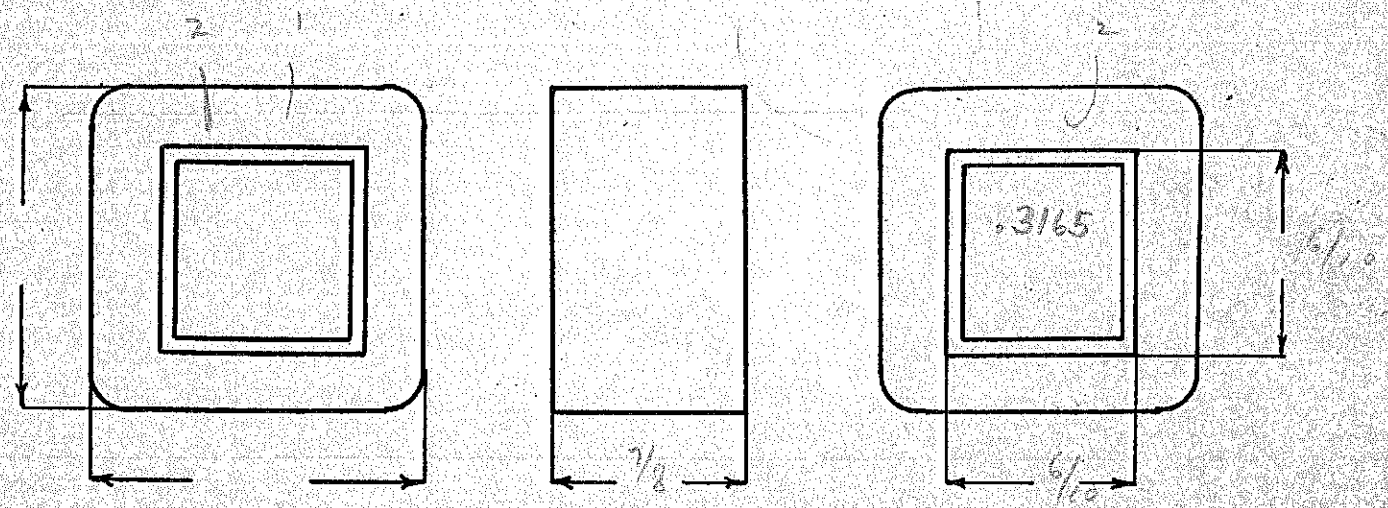
Winding		1-2 Choke					
Turns		4710					
Taps		—					
Wind. Lgth.		1/16					
Wire Size		# 37					
T. P. L.		124-506					
Finish		90%					
Type Lead		# 22 DUTC					
Lead Lgth.		9" / 1mm coil					
Layer Insul.		14#					
Test Volt.		2500					
Wrapper		2L0056A					

TUBE	3L0106K + 1L002CA	IMPREGNATION	Varnish
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CORE	6/10 x 6/10	GA.	26	GRADE	D	STACK	Butt 003 Gap
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MOUNTING	D - Leads	H54
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mm = 89%



DESIGNED BY S.W.B.

DATE 2-11-49

choke

Now stock

15 H<sub>1</sub> @ 40 ma

700 ohms - AT&T TEST CO. BUREAU

2500V line

SPEC. NO. C 400

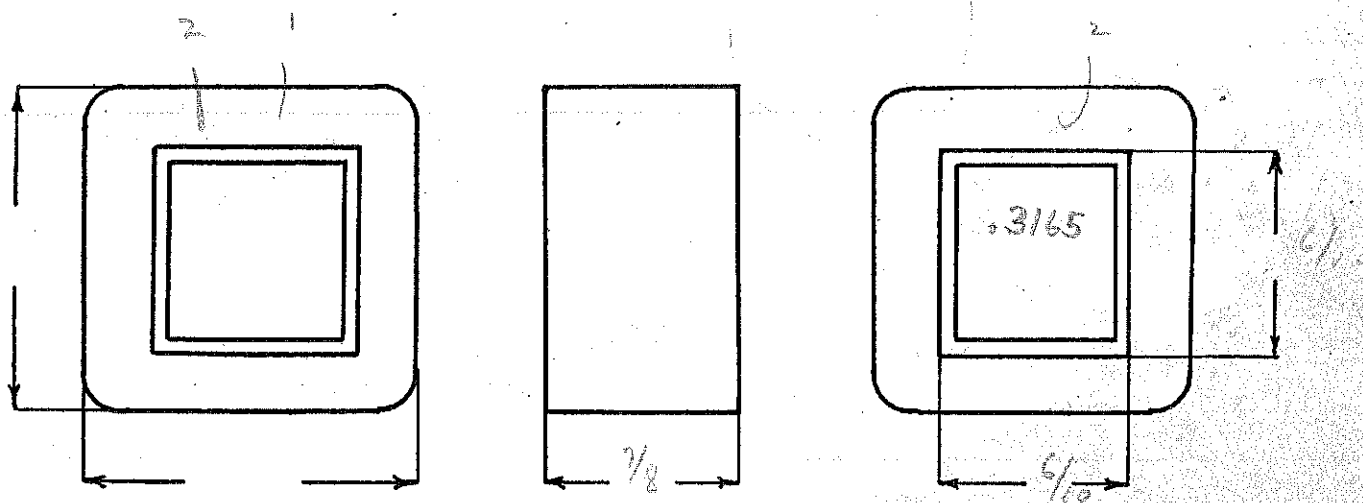
Winding		1-2 choke					
Turns		4710					
Taps		—					
Wind. Lgth.		11 16					
Wire Size		#37					
T. P. L.		124-586					
Finish		90%					
Type Lead		#22 DUALC					
Lead Lgth.		9" from coil					
Layer Insul.		14#					
Test Volt.		2500					
Wrapper		2L0056A					

TUBE	3L0106K + 1L0020A	IMPREGNATION	Varnish
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CORE	6/10 x 6/10	GA.	26	GRADE	D	STACK	butt 003 gap
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MOUNTING	D - Leads	HS 4
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mn = 89%



DESIGNED BY S.W.B.

DATE 2-11-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding		1-2 choke					
Mean Turn		3.53					
Resistance 25° c		737					
Pounds Copper		.0850					
Copper Density		497					
Ratio Volts							
Test to Ground		2500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{15 \times (.640)^2}{22.73} = 10.58$$

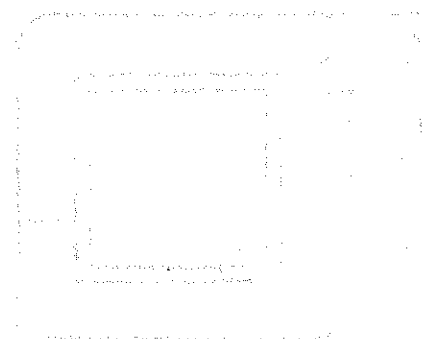
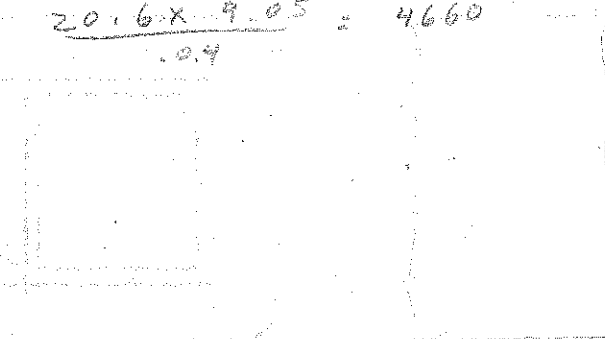
$$\frac{a}{e} = .00185$$

$$\frac{NI}{e} = 20.6$$

$$a = .00185 \times 3.602 = .00665$$

$$\frac{a}{2} = .0033 \text{ and } .003$$

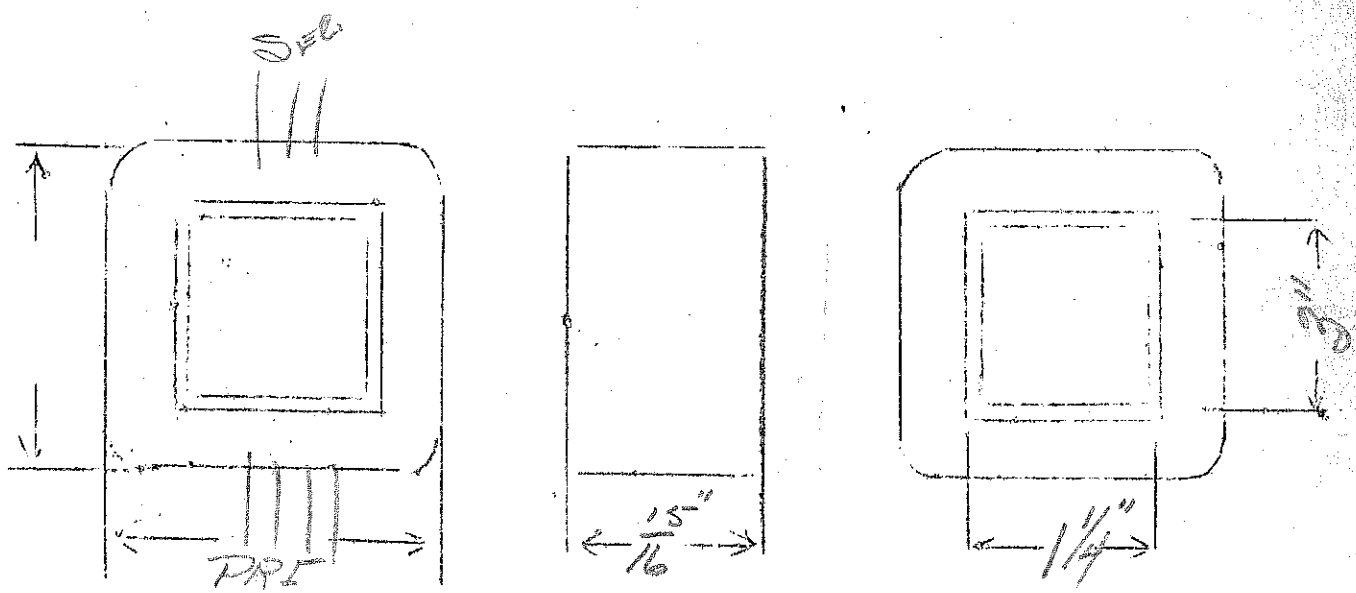
$$N = \frac{20.6 \times 9.05}{.04} = 4660$$



$F_p = 110-115-120$   
 $F_s = 1000-750$   $I_s = 400$

SPEC. NO. 401

Winding	SEC	SHIELD	PRE				
Turns	760	1	174				
Taps	570	NONE	159-167				
Wind. Lgth.		1 7/8	1 7/8				
Wire Size	265	003 COPPER	165				
T.P.L.	44	1	29				
Kind Term.	No 20 P.B.	3 1/2 3 1/2	WIRE ONLY				
Term. Lgth.	10"	3"	70"				
Layer Insul.	50607		00561				
Wrapper	2L005VC	2L005 GA	2L005 GA				
TUBE	7L007			IMPREGNATION		VARNISH	
CURE	1 1/4 x 3" (7/8 x 1 1/16 WINDOW)						



SECONDARY  
 2 COILS EACH 760 T No 20  
 REVERSED DIRECTION ASSEMBLY  
 ALL LEADS OUT

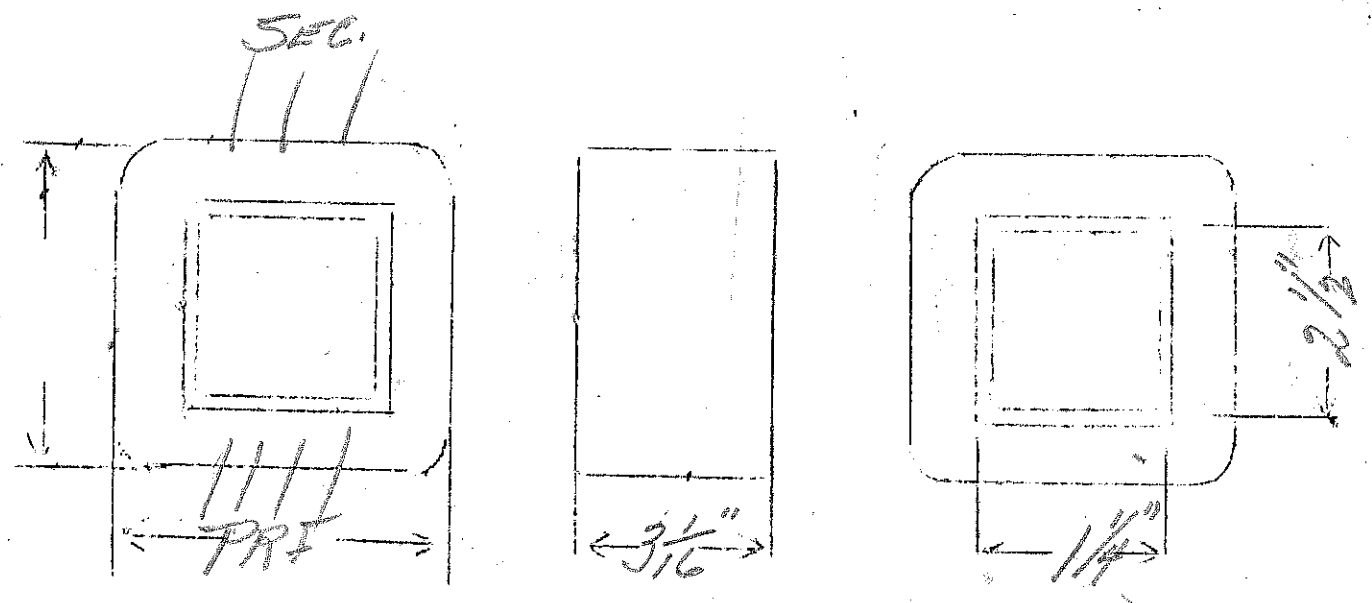
$E_p = 110 - 115 - 120$   
 $E_s = 2000 - 1500$   $I_s = 400$

3000V set Insulation

1000 - 750 - 0 - 750 - 1000

SPEC. NO. 402

Winding	SEC.	SHIELD	PRF			
Turns	1893	1	216			
Taps	1420	NONE	197-207			
Wind. Lgth.	1/4	3 1/16	2 3/4			
Wire Size	26F	003 COPPER	13F			
T.P.L.	66	1	36			
Kind Term.	NO 20 PBR	5/16 BR.	WIRE ONLY			
Term. Lgth.	12"	6"	12"			
Layer Insul.	50/61		0056A			
Wrapper	2L0057C 1L0056A	2L0057C 1L0056A	2L005 6A			
TUBE	7L007	IMPREGNATION		VARNISH		
CORE	1/4 x 2 1/2 x (1/4 x 3/8 MINIMUM)					



2 sec coils

Choke

New stock

15 Hz @ 50 ma.

590 ohms ATAN TEST QVA M01830

2500 V ins.

SPEC. NO. C402

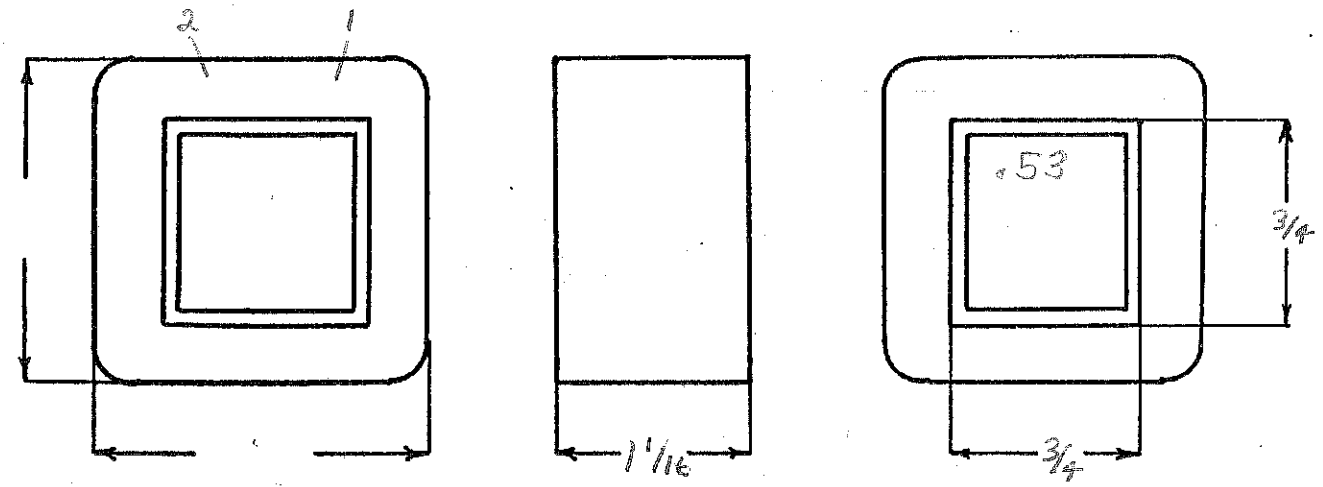
Winding	1-2	choke	choke		
Turns	4250		2-284	26-3692	
Taps	—		4-568	28-3976	
Wind. Lgth.	7/8		6-852	30-4250	
Wire Size	#36		8-1126		
T. P. L.	142-30L		10-1420		
Finish P.T.A.	90%		12-1704		
Type Lead	#22 Dulac		14-1988		
Lead Lgth.	cut 9"		16-2272		
Layer Insul.	20#		18-2556		
Test Volt.	2500		20-2840		
Wrapper	1L003CA 2L005GT 3L005CA		22-3124 24-3408		

TUBE 5L0106K+1L003VP IMPREGNATION Varnish

CORE 3/4 X 3/4 GA. 26 GRADE D STACK Butt .005 gap

MOUNTING D-Leads, H58-Leads

wn = 80%



DESIGNED BY S. BABCOCK

DATE 2-16-49



# 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: \_\_\_\_\_

$$\frac{LI^2}{V} = \frac{15 \times (.050)^2}{41.5} = 9.04$$

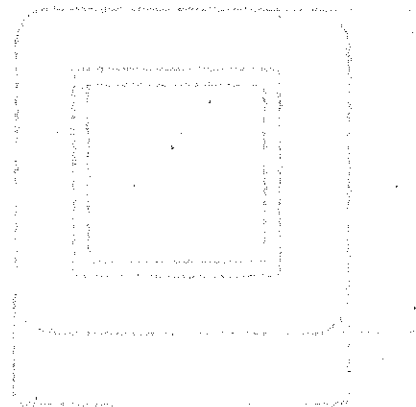
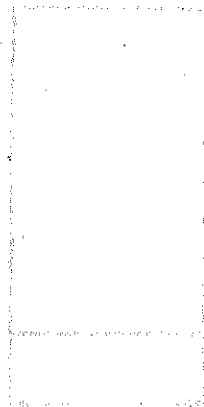
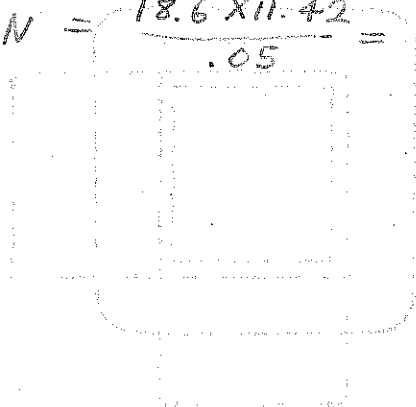
$$\frac{a}{l} = .0016$$

$$\frac{NI}{l} = 18.6$$

$$a = .0016 \times 4.5 = .0072$$

$$\frac{a}{2} = .0036 \text{ use } .005$$

$$N = \frac{18.6 \times 11.42}{.05} = 4250$$



Choke

New Stock

15 H<sub>y</sub> @ 50 ma

590 ohms

2500 V ins.

SPEC. NO. C 402

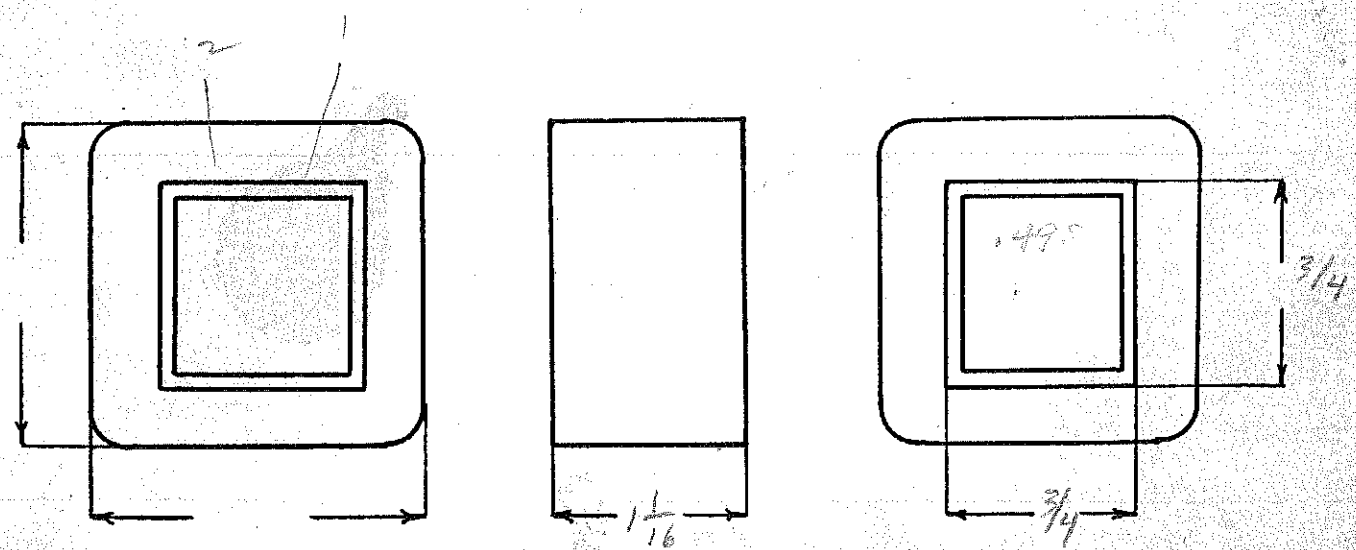
Winding	1-2	Choke.				
Turns	4250					
Taps	—					
Wind. Lgth.	7/8					
Wire Size	# 36					
T. P. L.	1-42 - 30					
Finish	90%					
Type Lead	#22 DuW.C.					
Lead Lgth.	9" from Cif					
Layer Insul.	20#					
Test Volt.	2500					
Wrapper	3L0056A					

TUBE	5L010GK + 1L003VP	IMPREGNATION	Varnish
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CORE	3/4 x 3/4	GA.	24	GRADE	D	STACK	Butt .005 Gap
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MOUNTING	D - Leads	HS 8
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mn = 72%



DESIGNED BY S. Babcock

DATE 2-16-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding	1-2 Choke						
Mean Turn	4.13						
Resistance 25° c	618						
Pounds Copper	.113						
Copper Density	500						
Ratio Volts	—						
Test to Ground	2500						

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{15 \times 10^3 \times 0.5^2}{4115} = 9.04$$

$$\frac{a}{e} = .0016$$

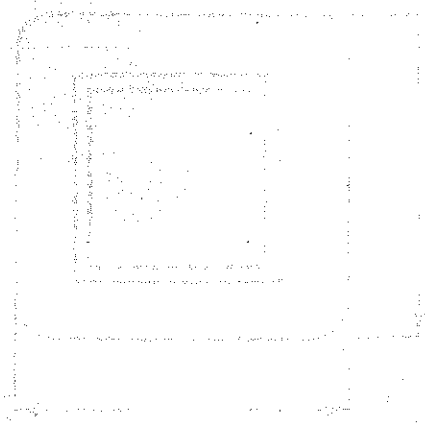
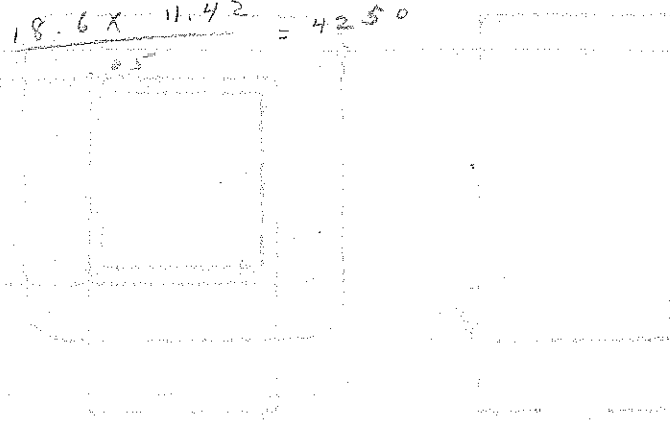
$$a = .0016 \times 4.5 = .0072$$

$$\frac{NI}{l} = 18.6$$

$$a/2 = .0036$$

use .005

$$N = \frac{18.6 \times 11.42}{.5} = 4250$$



$E_p$  - 110-115-120

Material uncovered 2.9

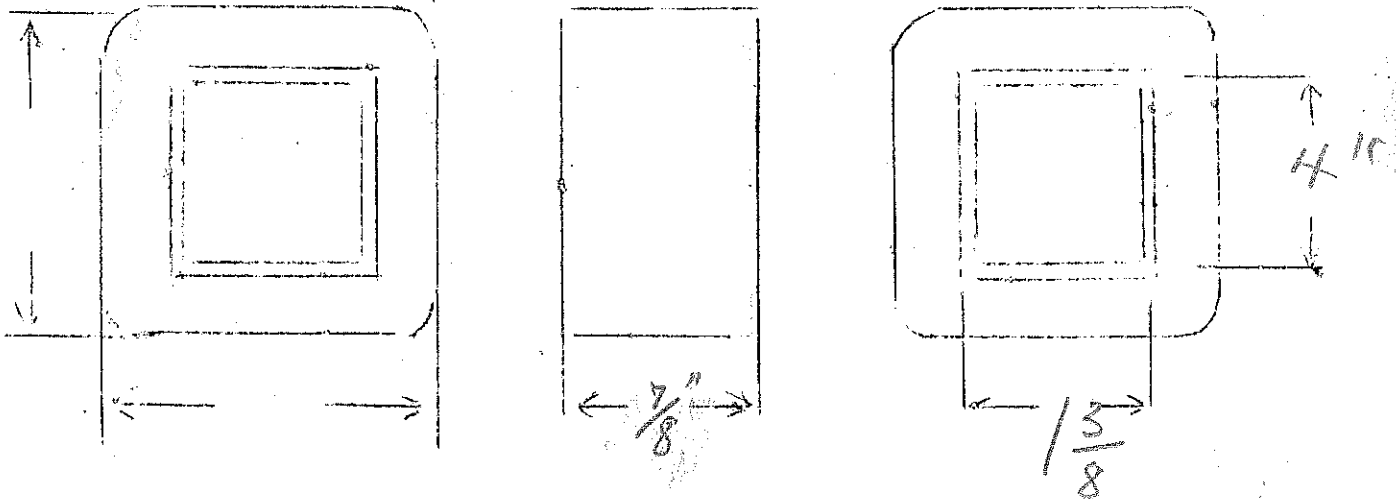
$E_s$  - 1500-1250-0-1250-1500

$I = .400$

SPEC. NO.

403

Winding	PRI	SEC				
Turns	132	1800				
Taps	126-127	1500				
Wind. Lgth.	5/8	5/8				
Wire Size	#14	#26				
T.P.L.	9-15	34-53				
Kind Term.	WIRE ONLY	#20 PBR				
Term. Lgth.	10"	10" - SLEEVING OVER P.B.R.				
Layer Insul.	1-GA.	50# GL				
Wrapper	1-003VP 2-005GA	1-010VP 2-005GA	BRASS SHIELDS WRAPPED - 2L005GA.			
TUBE	92007	-COVER -010V.C.	IMPREGNATION	VARNISH		
CURE	1 3/8 x 4"					



SEC 2 COILS - REVERSE ASSEMBLY  
 PRI 1 COIL

Choke

New stock

12 Hy @ 70 ma.

400 ohms

2500 V ins.

SPEC. NO. C 404

Winding		1-2				
		Choke				
Turns		3400				
Taps		—				
Wind. Lgth.		7/8				
Wire Size		# 34				
T. P. L.		110-31L				
Finish		88%				
Type Lead		# 22 1/4 PL				
Lead Lgth.		9" from coil	cut 10"			
Layer Insul.		20#				
Test Volt.		2500				
Wrapper		3L005GA				

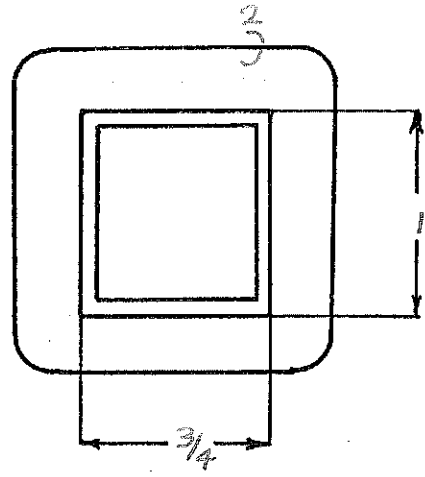
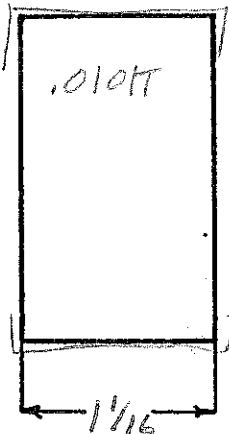
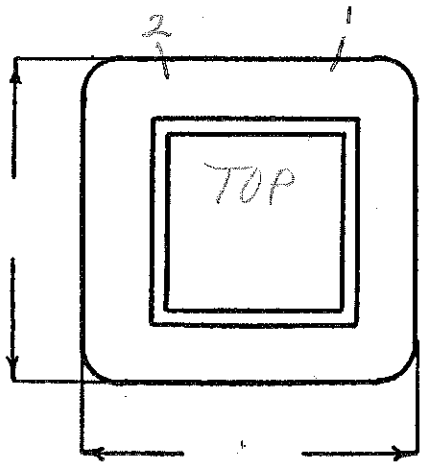
TUBE	5L010GK + L002M	IMPREGNATION	Varnish
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CORE	3/4 X 1	GA.	24	GRADE	D	STACK	Butt .005 gap
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MOUNTING D-Leads, HS 8-Leads

wn = 8470

Hadley deal on top of case



DESIGNED BY S. BABCOCK

DATE 2-16-49

# 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:

$$\frac{LI^2}{V} = \frac{12 \times (.070)^2}{55.3} = 10.6$$

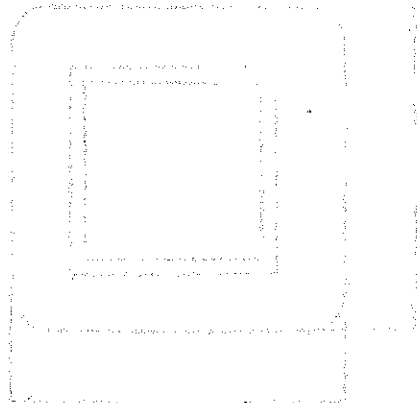
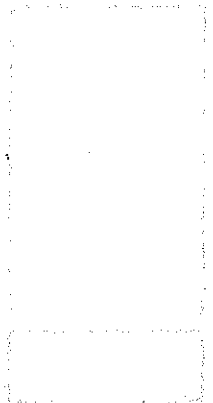
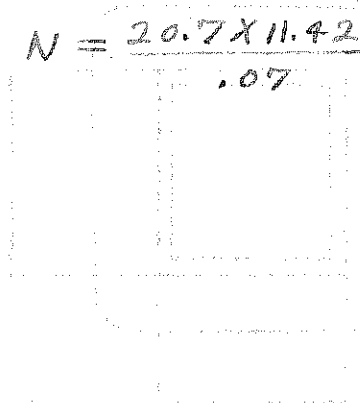
$$\frac{a}{l} = .00185$$

$$a = .00185 \times 4.5 = .0083$$

$$\frac{NI}{l} = 20.7$$

$$\frac{a}{2} = .0041 \text{ use } .005$$

$$N = \frac{20.7 \times 11.42}{.07} = 3400$$



choke

new stock

12 H<sub>y</sub> @ 70 ma  
400 ohms.  
2500V ins.

SPEC. NO. C404

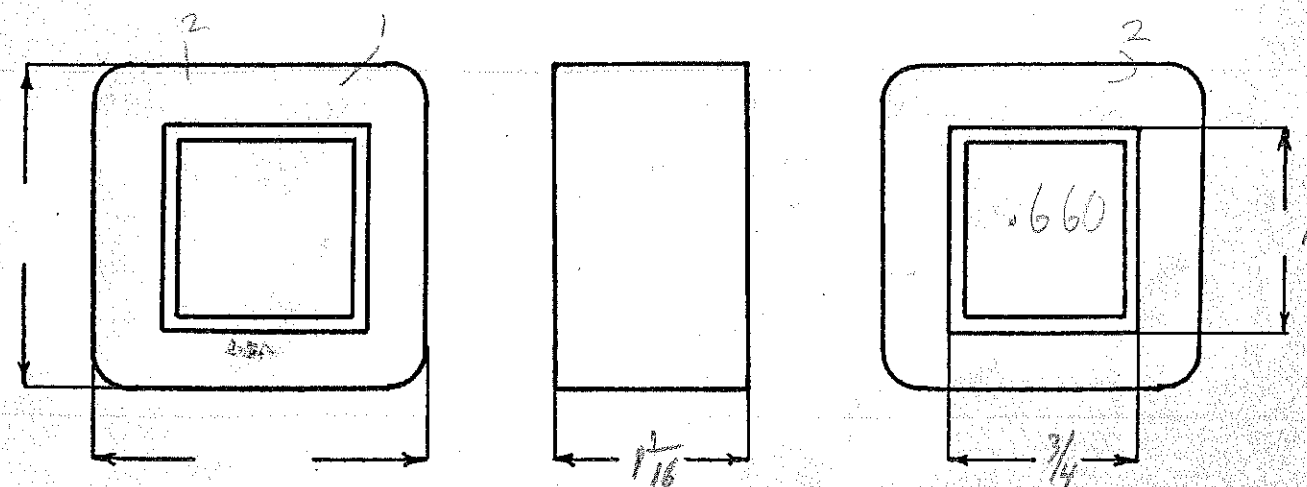
Winding	1-2	choke.					
Turns		3400					
Taps		—					
Wind. Lgth.		7/8					
Wire Size		#34					
T. P. L.		110-314					
Finish		88%					
Type Lead		#22 DULAC					
Lead Lgth.		9" from coil					
Layer Insul.		20 #					
Test Volt.		2500					
Wrapper		32005 GA					

TUBE	5L0106K + 1L003VP	IMPREGNATION	Varnish
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CORE	3/4 x 1	GA.	24	GRADE	A	STACK	butt .005 Gap
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MOUNTING D - Leads *As in*

wn = 85%



DESIGNED BY S. Rabcock

DATE 2-16-47

# DESIGN AND TEST DATA

Rating:

Winding	1-2 Choke					
Mean Turn	4.81					
Resistance 25° c	363					
Pounds Copper	.1670					
Copper Density	536					
Ratio Volts						
Test to Ground	2500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{12 \times (1.070)^2}{55.3} = 10.6$$

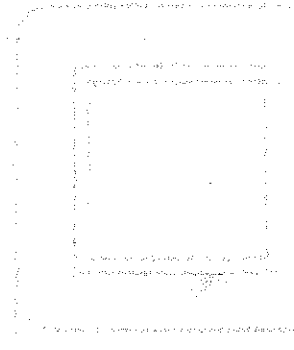
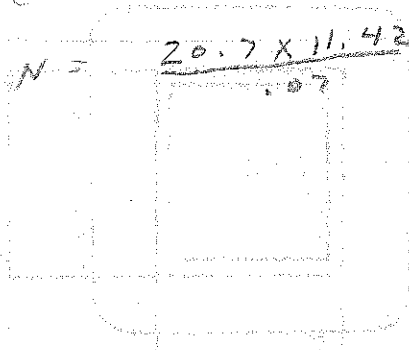
$$\frac{NI}{l} = 20.7$$

$$N = \frac{20.7 \times 11.42}{1.07} = 3400$$

$$\frac{a}{l} = .00185$$

$$a = .00185 \times 4.5 = .0083$$

$$\frac{a}{2} = .0041 \text{ use } .005$$



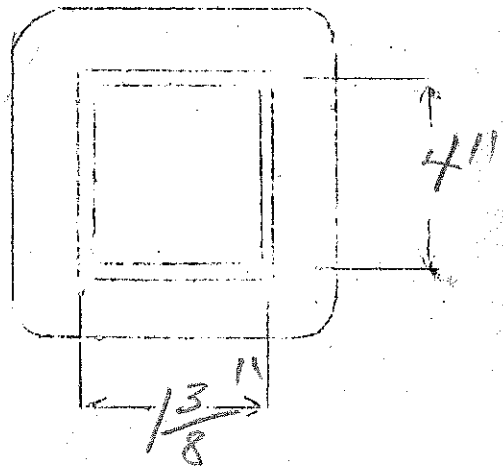
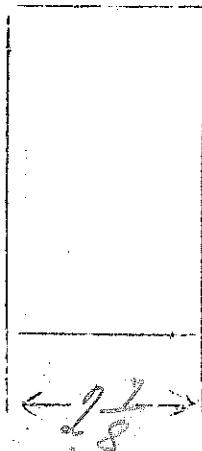
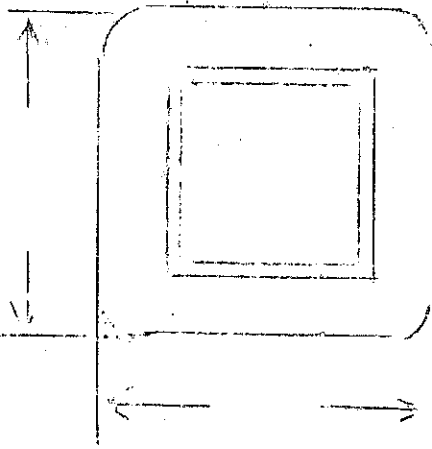


$E_p = 115V$

$E_s = 3000V - 250Ma$

SPEC. NO. 405

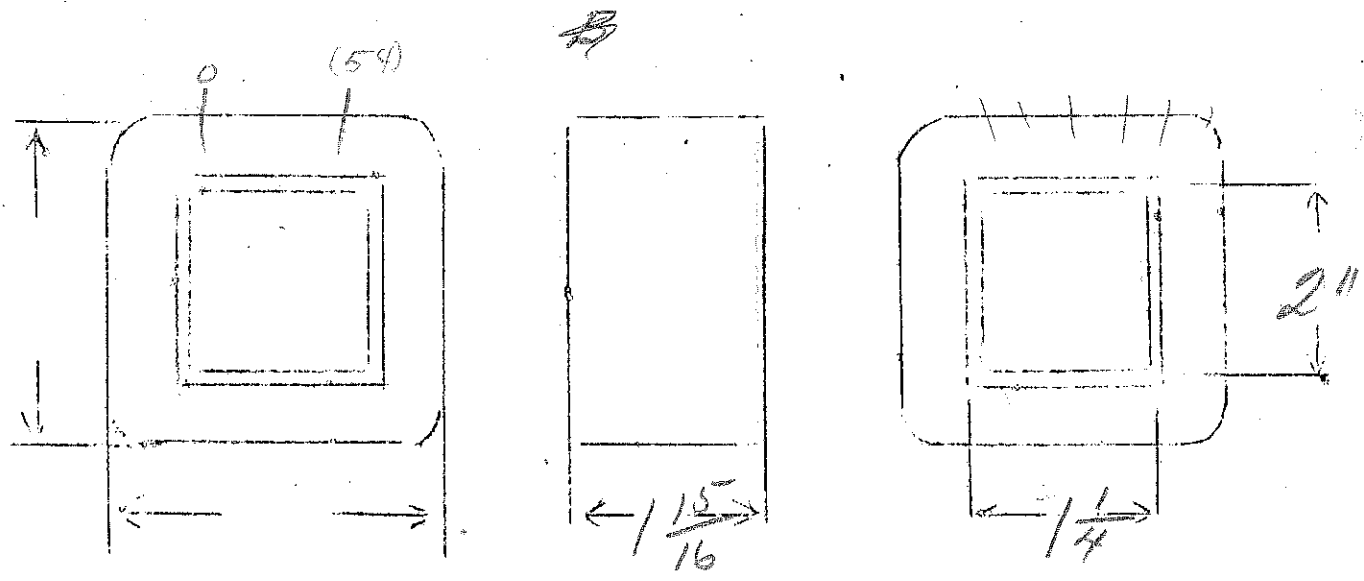
Winding	PRI	SEC					
Turns	135	3900					
Taps	NONE	NONE					
Wind. Lgth.	2 1/2"	2 1/2"					
Wire Size	#14	#26					
T.P.L.	34	130					
Kind Term.	WIRE ONLY						
Term. Lgth.	9"	9"					
Layer Insul.							
Wrapper	2L005GA 2L01VC 2L005GA						
TUBE	9L007-005VC		IMPREGNATION				
CURE							



# Special for Packard Bell

SPEC. NO. 406

Winding	PRI A	PRI B				
Turns	240	94				
Taps	NONE	80 - 67 - 54 - 40 - 27 - 13 - 0				
Wind. Lgth.	1 3/4	1 3/4				
Wire Size	#2/E	#14/E				
T.P.L.	44	20				
Kind Term.	WIPE	ONLY				
Term. Lgth.	5"	5"				
Layer Insul.	2L005GA					
Wrapper	2L005GA	2L005GA				
TUBE	7L007		IMPREGNATION		VADNISH	
CURE	1/4 x 2"		(NO WASTE)			



NO. 13892

94

80

67

(54)

40

27

13

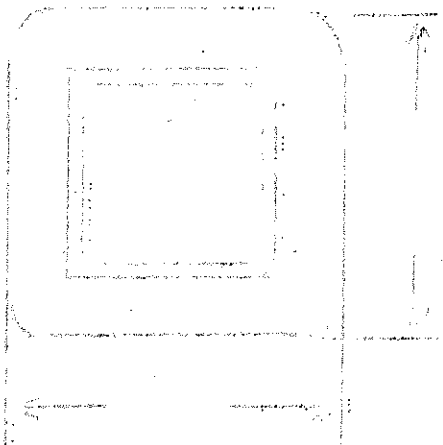
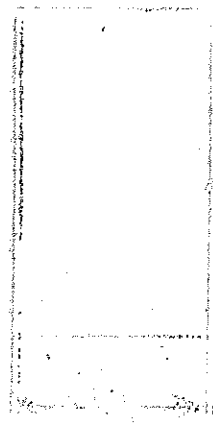
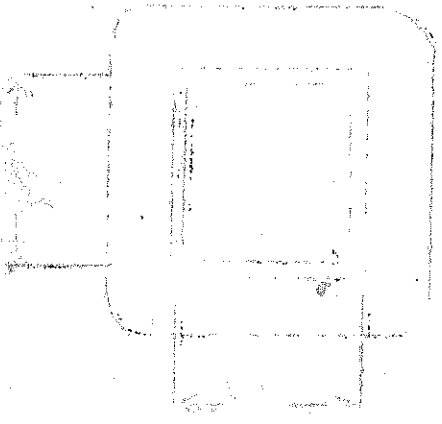
0

240

0

IMPRESSION

1000  
 900  
 800  
 700  
 600  
 500  
 400  
 300  
 200  
 100  
 0



Choke

New stock

10 Hy @ 90 ma.

280 ohms ATAD TEST WMA MOISED

2500 V ins.

SPEC. NO. C 706

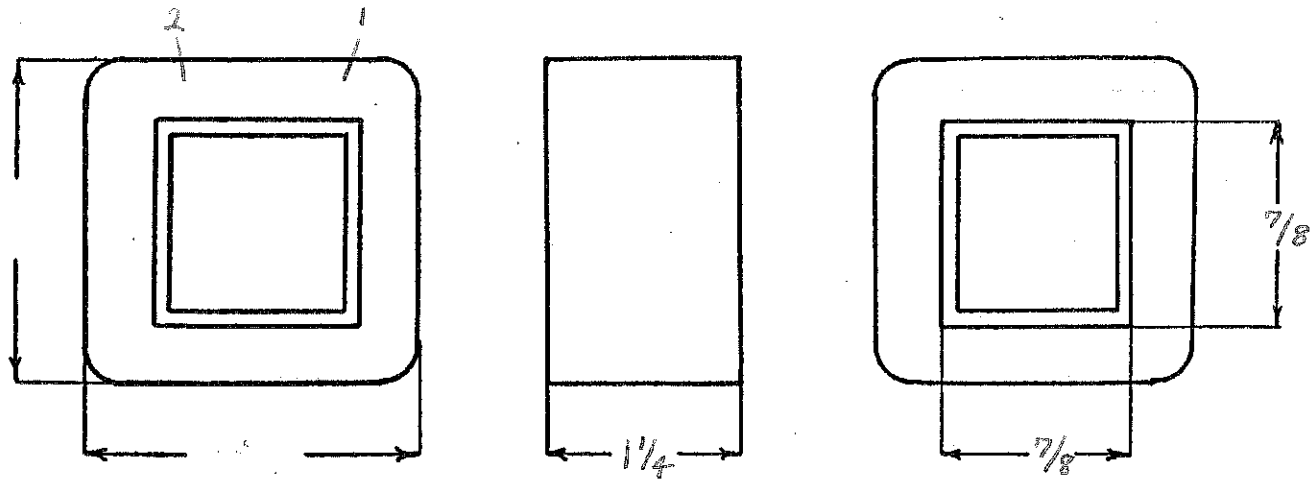
Winding		1-2 Choke				
Turns		3400				
Taps		—				
Wind. Lgth.		1"				
Wire Size		#33				
T. P. L.		122-28L				
Finish Pitch		95%				
Type Lead		#22 Dulac				
Lead Lgth.		9" from coil				
Layer Insul.		20#				
Test Volt.		2500				
Wrapper		1L003CA 2L005GK <del>3L005SA</del>				

TUBE 5L010GK + ~~1L003CA~~ IMPREGNATION Varnish

CORE 7/8 x 7/8 GA. 24 GRADE D STACK Butt .005 gap

MOUNTING D-Leads, HS 7-Leads

wn = 72%



DESIGNED BY S. BABCOCK

DATE 2-16-49

# 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:

$$\frac{L I^2}{V} = \frac{10 \times (.090)^2}{65.6} = 12.35$$

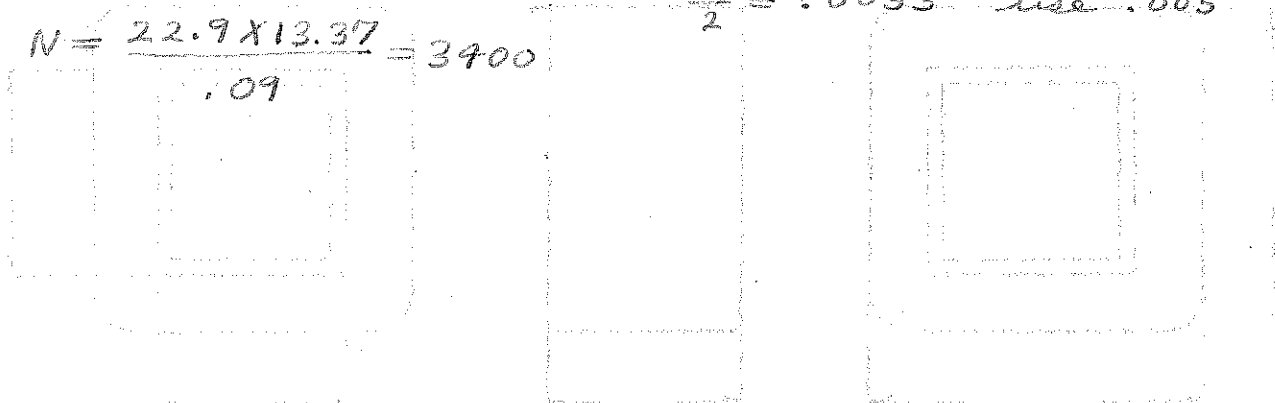
$$\frac{a}{l} = .0021$$

$$\frac{N I}{l} = 22.9$$

$$a = .0021 \times 5.25 = .011$$

$$N = \frac{22.9 \times 13.37}{.09} = 3400$$

$$\frac{a}{2} = .0055 \text{ use } .005$$



choke

New Stock

10 Hy @ 90 ma

280 ohms

2500 V ins.

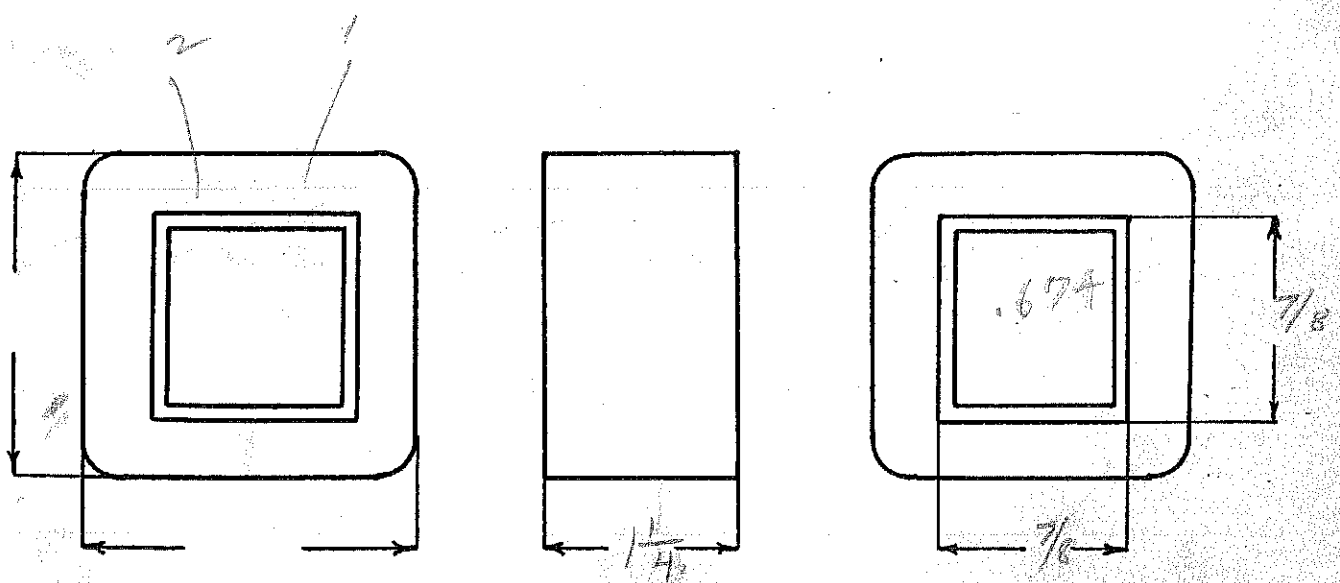
SPEC. NO. C406

Winding	1-2					
Turns	choke					
Taps	3400					
Wind. Lgth.	—					
Wire Size	1"					
T. P. L.	#33					
Finish	122-28L					
Type Lead	95%					
Lead Lgth.	#22 DULFC					
Layer Insul.	9" Jim Cut					
Test Volt.	20#					
Wrapper	2500					
	3L005GA					

TUBE	5L0106K + 1L003VP	IMPREGNATION	Varnish
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CORE	7/8 x 7/8	GA.	24	GRADE	D	STACK	Butt .005 gap
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MOUNTING	D - Leads	H57
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DESIGNED BY  
S. Babcock

DATE  
2-16-49

# DESIGN AND TEST DATA

Rating:

Winding	1-2 <i>Cloke</i>						
Mean Turn	4.81						
Resistance 25° c	288						
Pounds Copper	.211						
Copper Density	558						
Ratio Volts	—						
Test to Ground	2500						

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{10 \times (1.09 \times 10^2)}{65.6} = 12.35$$

$$\frac{a}{e} = .0021$$

$$\frac{NI}{e} = 22.9$$

$$a = .0021 \times 5.25 = .011$$

$$N = \frac{22.9 \times 13.37}{.09} = 3400$$

$$\frac{a}{2} = .0055$$

and .005

AUTO

230 volts @ 50/60 cycles  
to  
115 volts @ 300 watts

STOCK

SPEC. NO. P-407-T

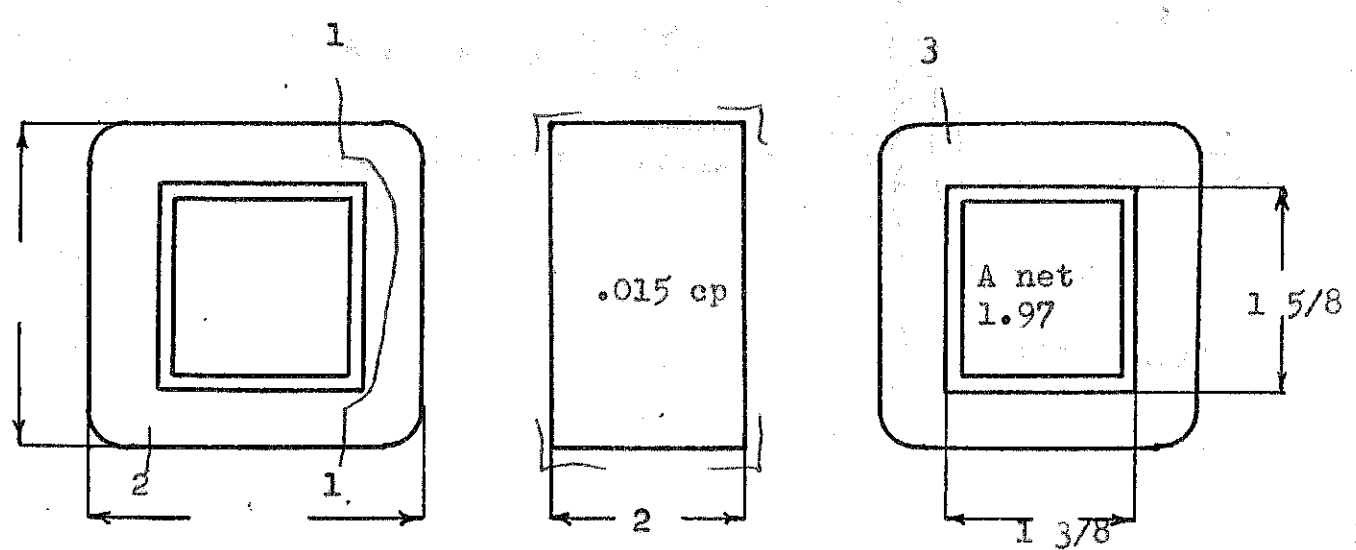
Winding	1-2-3 Pri.					
Turns	700					
Taps	364½					
Wind. Lgth.	1 ¾					
Wire Size	#20					
T. P. L.	48-15L					
Finish	91%					
Type Lead	W.O. to Lugs					
Lead Lgth.	3"					
Layer Insul.	50#					
Test Volt.	1500					
Wrapper	2L007GA					

TUBE	7L007GK	IMPREGNATION	Varnish
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CORE 1 3/8 x 1 5/8 GA. 24	GRADE D	STACK 2 x 2
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MOUNTING T cords & plugs

T. P. V. - 3.05  
window - .618 / .678 = 90.2%



DESIGNED BY F. Frazer

DATE 11-12-46



# DESIGN AND TEST DATA

Rating:

Sec VA = 300  
 Pri VA = 335  
 Ip = 1.45

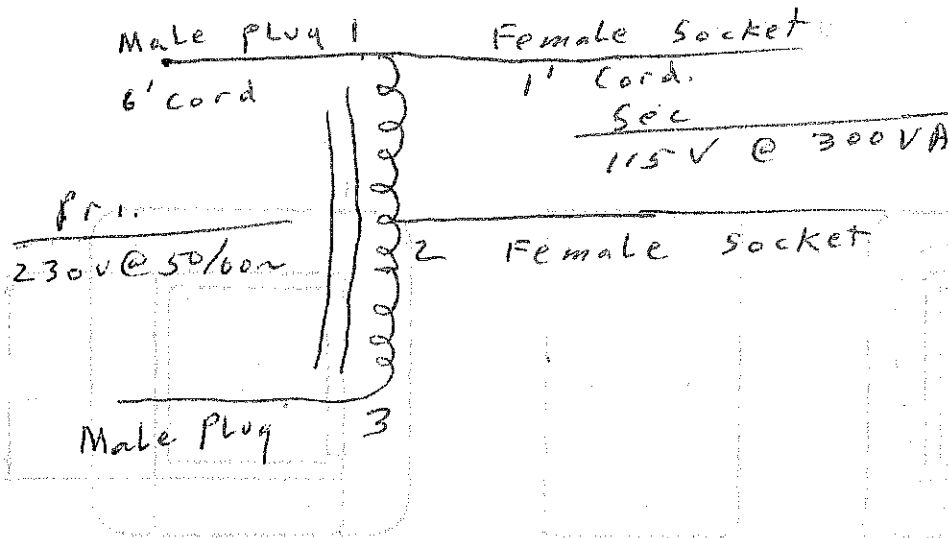
Winding		1-2-3 Pri.				
Mean Turn		8.36				
Resistance 25° c		5.05				
Pounds Copper		1.523				
Copper Density		705				
Ratio Volts		230 119.5				
Test to Ground		1500				

Iron Induction 11.7 kg @ 50 Cycles

Exciting Current 90 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



Auto Transformer  
230V/115V  
300 Watt

#8521

SPEC. NO. P-407

Winding		Pri & Sec				
Turns		705				
Taps		7% - 376 - 8 Layers				
Wind. Lgth.		1-3/4" = 1.75"				
Wire Size		#20				
T. P. L.		47 - 15L				
Finish Pitch		90%				
Type Lead		W.O.				
Lead Lgth.		4"				
Layer Insul.		1L .005" A				
Test Volt.		1500				
Wrapper		2L .005" GA				

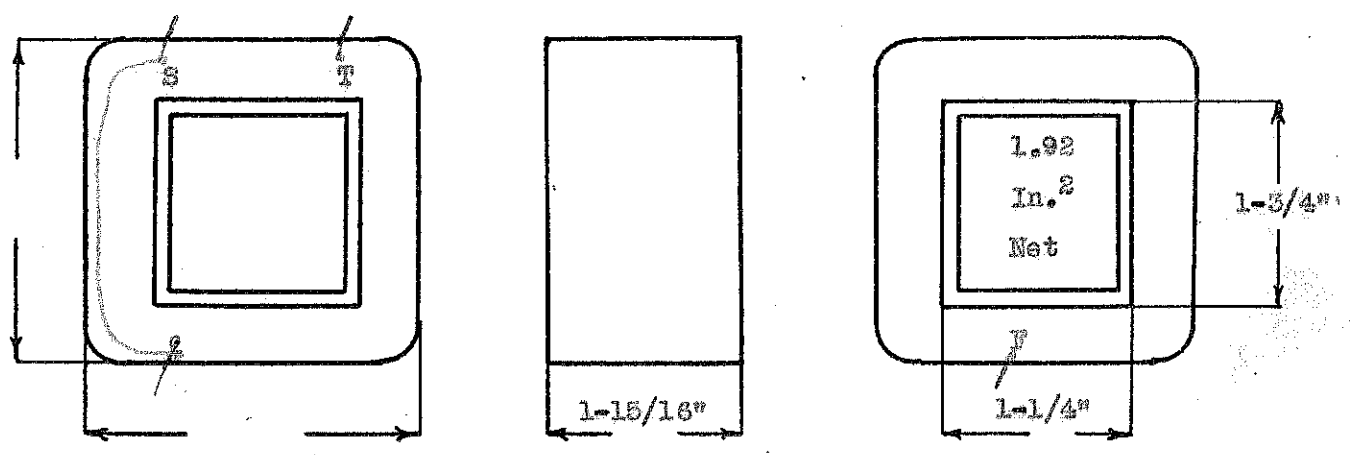
TUBE	7L - .007" GK	IMPREGNATION	VARNISH
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CORE	1-1/4 x 1-3/4	GA.	24	GRADE	D	STACK	2 x 2
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MOUNTING "T" - Cords out each side.

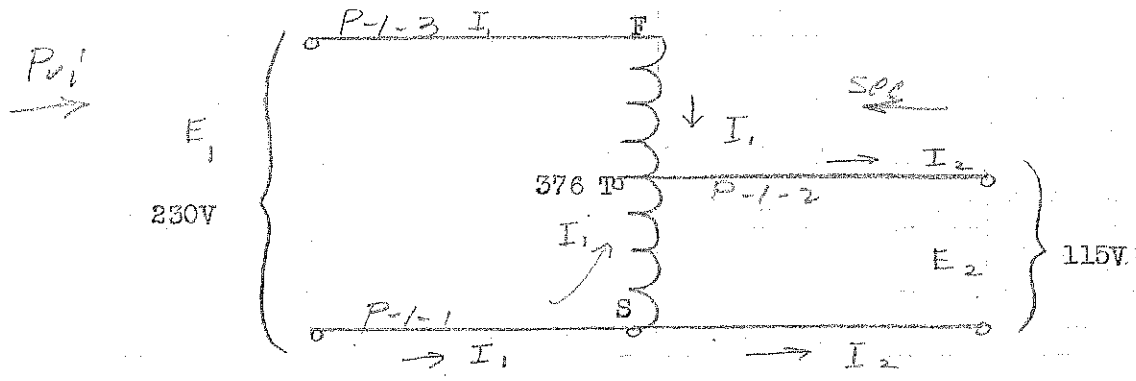
Cu = 705  
Fe = 64 @ 60 Cycle  
TPV = 3.06  
Wire Net = 0.585" (0.576")

Sec. VA = 300  
Total I = 1.45 Amp.  
Efficiency = 95%  
COS θ = 95%



Re-DESIGNED BY H. W. S.

DATE 7 - 25 - 41

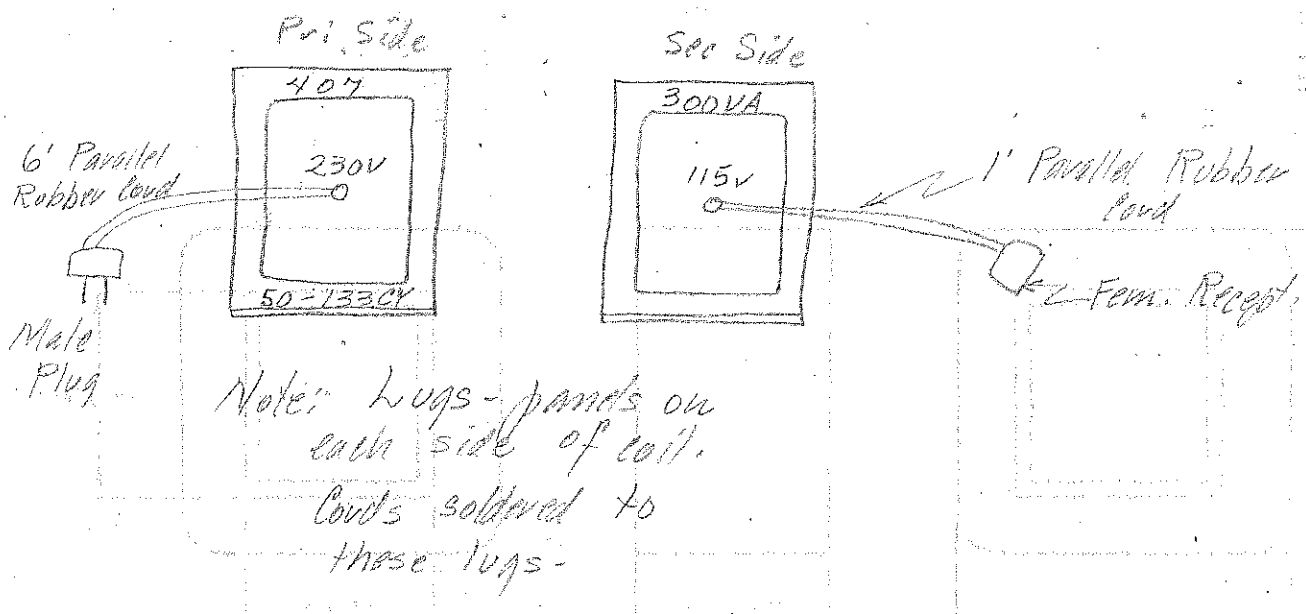


$$\frac{E_1 - E_2}{E_1} = \frac{230 - 115}{230} = 0.5$$

$$\frac{300}{115} = 2.61 \text{ Amp } (I_2)$$

$$2.61 \times 0.5 = 1.305 \text{ Amp } (I_1)$$

$$\frac{1.305}{.95 \times .95} = 1.45 \text{ Amp}$$



AUTO

STOCK

230 volts @ 50/60 cycles  
to  
115 volts @ 300 watts

SPEC. NO. P-407-T

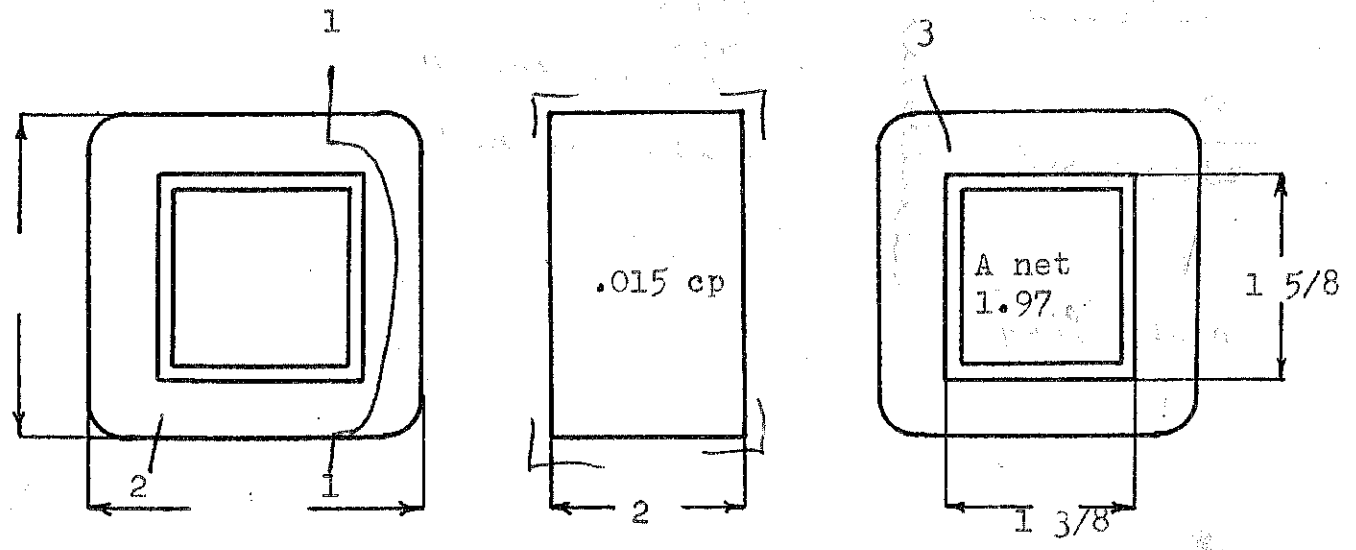
Winding	1-2-3 Pri.					
Turns	700					
Taps	364½					
Wind. Lgth.	1 3/4					
Wire Size	#20					
T. P. L.	48-15L					
Finish	91%					
Type Lead	W.O. to Lugs					
Lead Lgth.	3"					
Layer Insul.	50#					
Test Volt.	1500					
Wrapper	2L007GA					

TUBE	7L007GK	IMPREGNATION	Varnish
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CORE 1 3/8 x 1 5/8 GA. 24      GRADE D      STACK 2 x 2

MOUNTING T cords & plugs

T. P. V. - 3.05  
Window -  $.618 / .688 = 90.2\%$



DESIGNED BY F. Frazer

DATE 11-12-44

# DESIGN AND TEST DATA

Rating:

$I_s = 2.61 \text{ amps}$

Sec VA = 300  
 Pri VA = 335  
 Ip = 1.45

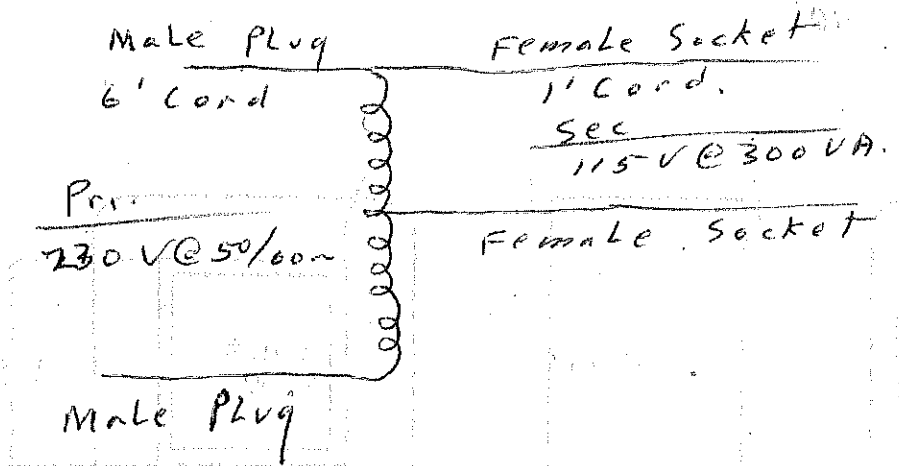
Winding		1-2-3 Pri.				
Mean Turn		8.36				
Resistance 25° c		5.05				
Pounds Copper		1.523				
Copper Density		705				
Ratio Volts		<del>230</del> 119.5				
Test to Ground		1500				

Iron Induction 11.7 kg @ 50 Cycles

Exciting Current 90 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



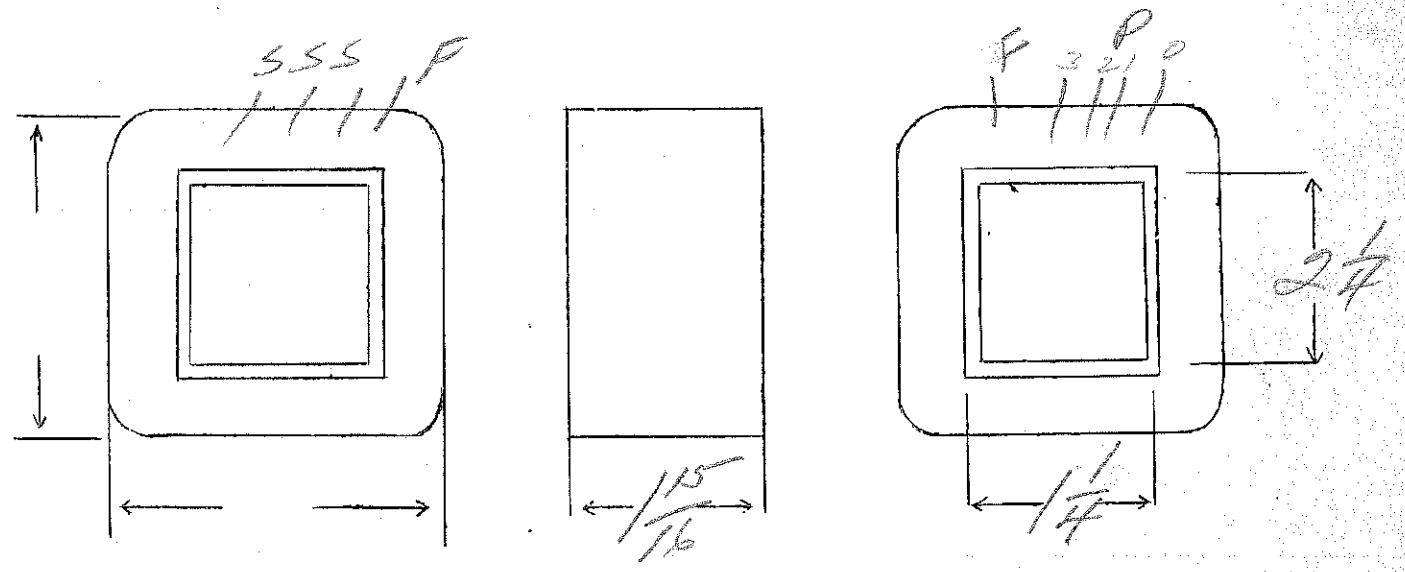
Ep - 210 - 230 - 250Vllc  
 Block yellow brown  
 ES - 1000V, C.T. - 250ma

start white

Ep - 5V - 3amp

SPEC. NO. P408-TJ230

Winding	SEC	SHIELD	PRI	FIL			
Turns	2440	130	548	12			
Taps	1220		506 465				
Wind. Lgth.	1.75	1.75					
Wire Size	#29	#29	#23	double #21			
T.P.L.	130-20		67-9				
Kind Term.	#20 Pur Br		#20 Pur Br				
Term. Lgth.	9"	3"	9"	9"			
Layer Insul.	double 20#		50#				
Test Volt.							
Wrapper	24007VC	14007VC	360076A	360076A			
TUBE	74007+16007VC		IMPREGNATION		(DOUBLE VARNISH)		
CORE	1/4 x 2 1/4		PRIMARY V.A.				
MOUNTING	order -						



DESIGNED BY GN

DATE 7/22/37

Primary - 120V  
 Secondary - 1000V CT @ 250 Ma.  
 Fil. - 5V @ 3A

SPEC. NO. P-408

Winding	Sec.	Shield	Pri.	Fil.			
Turns	12.5% 2600	1	277	13 - 10%			
Taps	1300	-	-	-			
Wind. Lgth.	1 1/2"	1 1/2"	1 1/2"	1 1/2"			
Wire Size	#20	.001 Shim 3000	#20	#18			
T. P. L.	130 - 20L	1	47 - 6L	13 - 1L			
Finish	#20 Dulac	Sil. Br.	#20 Dulac	W. O.	V.C. sleeving over	Sec. Leads.	
Type Lead	90%	-	89 1/2%	31%	<del>Analysis of Distortion.</del>		
Lead Lgth.	9"	3"	9"	9"			
Layer Insul.	D - 16%		50%				
Test Volt.	3000		1250	3000			
Wrapper	2L .007" VC	1L .005" VC	1L .007 VC 2L .005 GA	1L .007 VC 2L .005 GA			

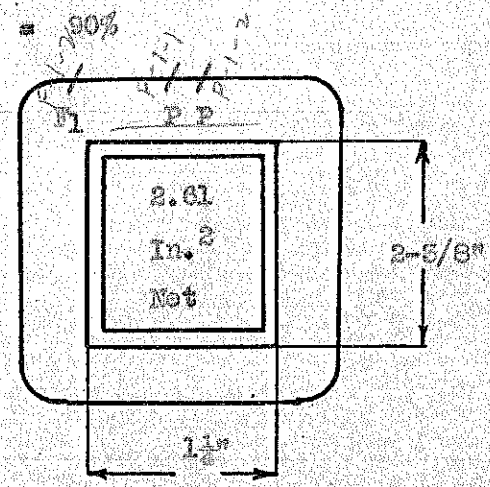
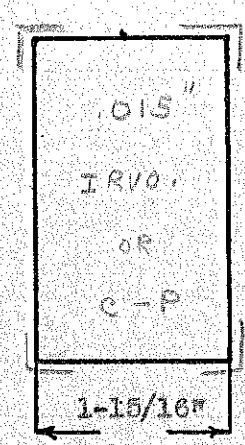
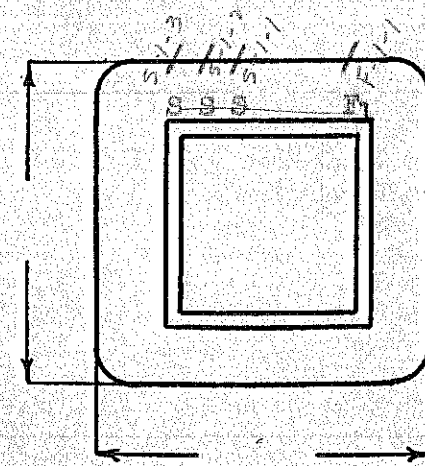
TUBE	7L - .007" GK / 1L - .007" VC	IMPREGNATION	DOUBLE VARNISH
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CORE	1 1/2 x 2-5/8 E & I GA.	24	GRADE D	STACK 2 x 2
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MOUNTING "A" or "B" - Use Fiber Grommet for Lead Hole.

Cu = 845 - 654 - 540  
 Fe = 62.2 @ 60 Cycle  
 TPV = 2.31  
 Wire Net = (.545) .5339

Sec. VA = 140  
 Pri. VA = 107.5  
 Pri. I = 1.56  
 Efficiency = 83%  
 COSφ = 90%



REDESIGNED BY H. B. S., Jr.

DATE 7 - 23 - 41

Primary - 120V  
 Secondary - 1000V CT @ 250 Ma.  
 Fil. - 5V @ 3A

SPEC. NO. P-408

Winding	Sec.	Shield	Pri.	Fil.			
Turns	12.5% 2600	1	277	15 - 10%			
Taps	1300	-	-	-			
Wind. Lgth.	1 1/2"	1 1/2"	1 1/2"	1 1/2"			
Wire Size	#20	.001 Shim Spool	#20	#18			
T. P. L.	130 - 20L	1	47 - 6L	15 - 1L			
Finish	#20 Dulac	Sil. Er.	#20 Dulac	W. O.	Y.C. Sleeving over	Sec. Leads.	
Type Lead	90°	-	89 1/2°	31°	<del>Analysis of Moisture.</del>		
Lead Lgth.	9"	3"	9"	9"			
Layer Insul.	D - 16#		50#				
Test Volt.	3000		1250	3000			
Wrapper	2L .007" VC	1L .005" VC	1L .007 VC 2L .005 GA	1L .007 VC 2L .005 GA			

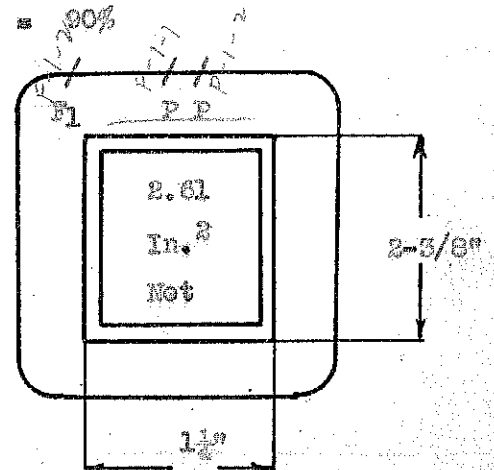
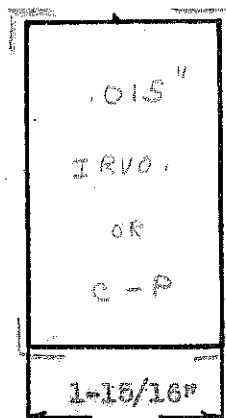
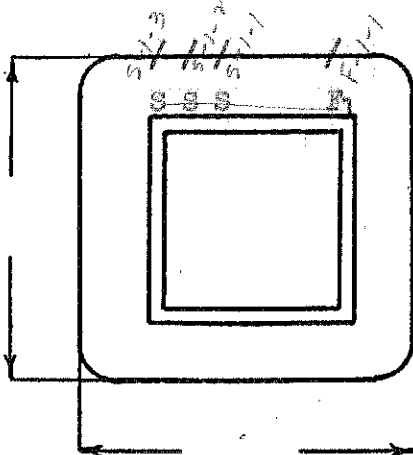
TUBE	7L - .007" GK / 1L - .007" VC	IMPREGNATION	DOUBLE VARNISH
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CORE	1 1/4 x 2-3/8 E & I GA.	24	GRADE D	STACK 2 x 2
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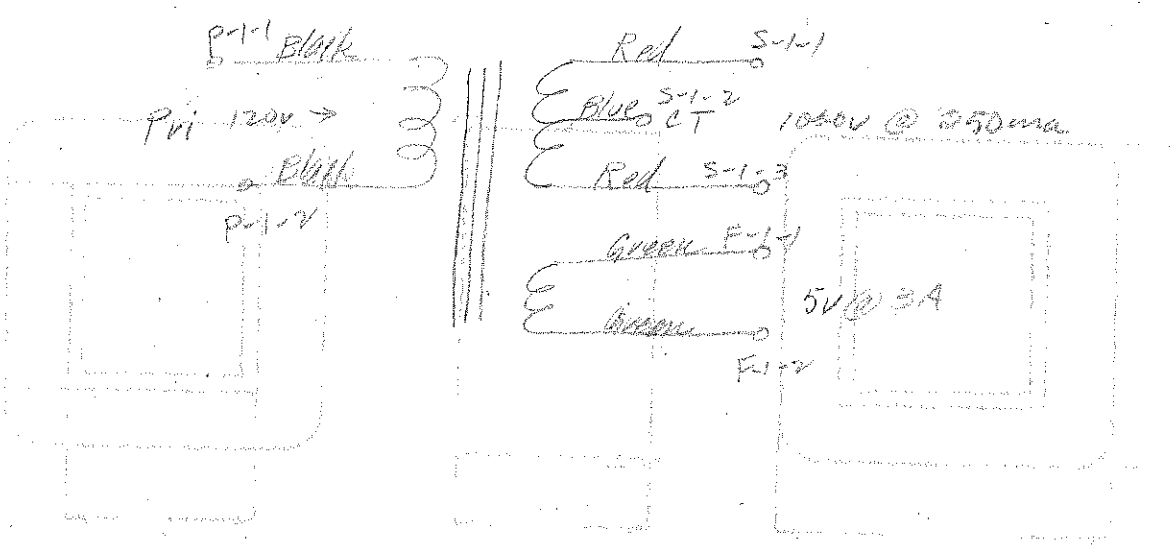
MOUNTING "A" or "B" - Use Fiber Grommet for Lead Hole.

Cu = 845 - 654 - 540  
 Fe = 62.2 @ 60 Cycle  
 TPV = 2.51  
 Wire Net = (.545) .5339

Sec. VA = 140  
 Pri. VA = 187.5  
 Pri. I = 1.56  
 Efficiency = 85%  
 COSφ = 90%







10/1/72

10/1/72

10/1/72

choke

NEW STOCK

10 H<sub>y</sub> @ 120 ma

265 ohms

2500 V ins.

SPEC. NO. C 408

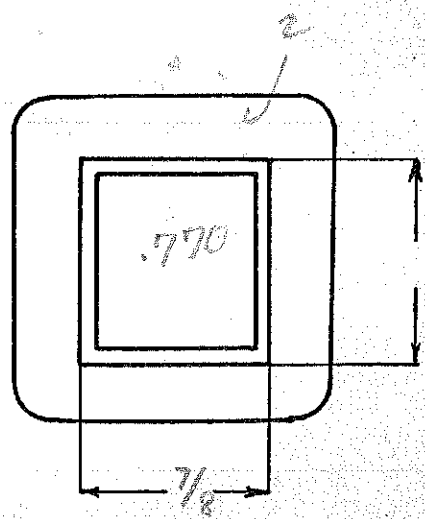
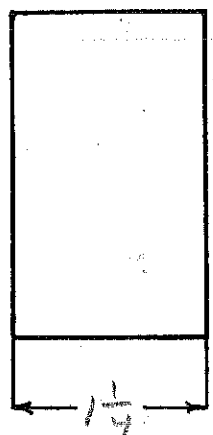
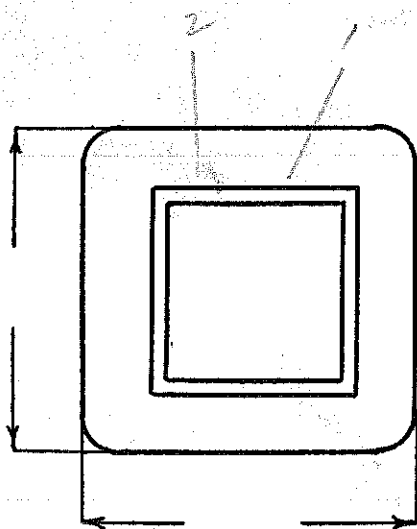
Winding	1-2	choke				
Turns		3530				
Taps		—				
Wind. Lgth.		1"				
Wire Size		#32				
T. P. L.		107-33				
Finish		9570				
Type Lead		22 DUCT				
Lead Lgth.		10"				
Layer Insul.		20 #				
Test Volt.		2500				
Wrapper		310056A				

TUBE	5L0100K + 16003VP	IMPREGNATION	Varnish
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CORE	7/8 x 1"	GA.	24	GRADE	D	STACK	Butt 0.005 gap
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MOUNTING	D - Leads	HS 7
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W=909.



DESIGNED BY S. Babcock

DATE 2-16-47

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding	1-2 <i>Choke</i>					
Mean Turn	5.34					
Resistance 25° c	263					
Pounds Copper	.307					
Copper Density	527					
Ratio Volts	—					
Test to Ground	2500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{10 \times (1.12)^2}{75} = 19.2 \quad \frac{a}{l} = .003$$

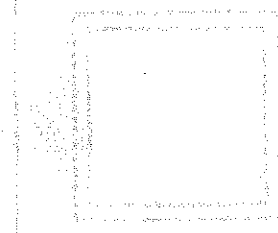
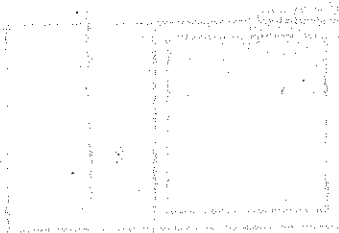
$$\frac{NI}{R} = 31.6$$

$$a = .003 \times 5.25 = .0158$$

$$N = \frac{31.6 \times 13.37}{.12} = 3520$$

$$\frac{a}{l} = .0079$$

ml 010



Choke

New Stock

10 Hz @ 120 ma.

265 ohms

2500 v ins.

SPEC. NO. C 408

same as 8168 + 8169

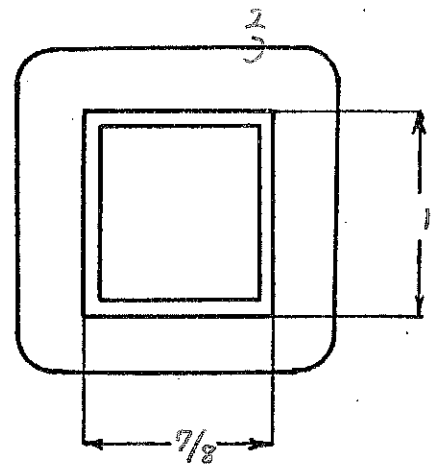
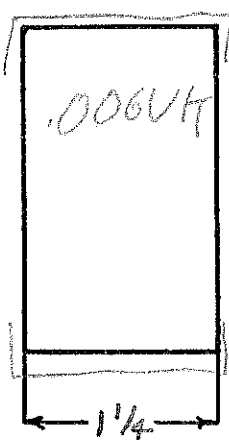
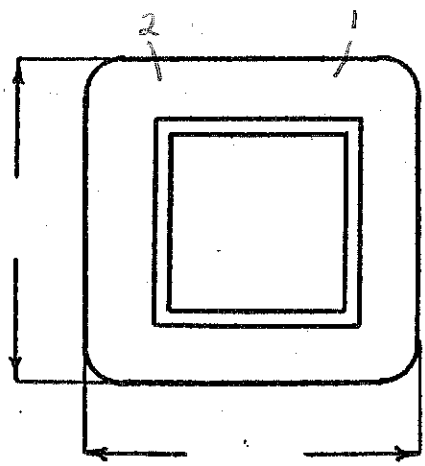
Winding	1-2				
	Choke				
Turns	3530			WIND	TIGHT
Taps	—				
Wind. Lgth.	1 1/16"				
Wire Size	# 32				
T. P. L.	107-33L				
Finish	95%				
Type Lead	# 22 Dulac				
Lead Lgth.	cut 14"				
Layer Insul.	20 #				
Test Volt.	2500				
Wrapper	3L005GA				

TUBE <sup>1L003CA</sup> 4L010GH+1L003VP IMPREGNATION Varnish

CORE 7/8 x 1 GA. 24 GRADE D STACK Butt .010 gap

MOUNTING D-Leads, HS 7-Leads

wn = 92%



DESIGNED BY S. BABCOCK

DATE 2-16-49

# 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:

$$\frac{LI^2}{V} = \frac{10 \times (.12)^2}{75} = 19.2$$

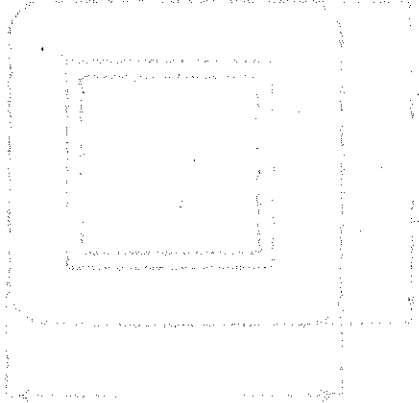
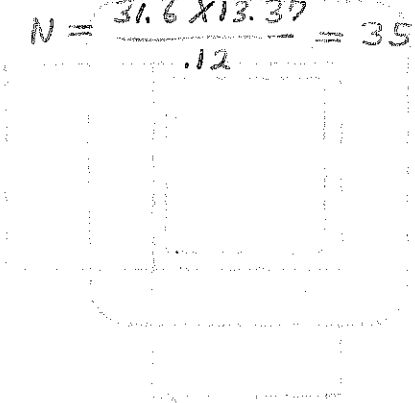
$$\frac{a}{l} = .003$$

$$\frac{NI}{l} = 31.6$$

$$a = .003 \times 5.25 = .0158$$

$$\frac{a}{l} = .0079 \text{ use } .010$$

$$N = \frac{31.6 \times 13.37}{.12} = 3520$$



$E_p = 115 V$   
 $E_s = 1200 V CT -$   
 $I = 250 mA$

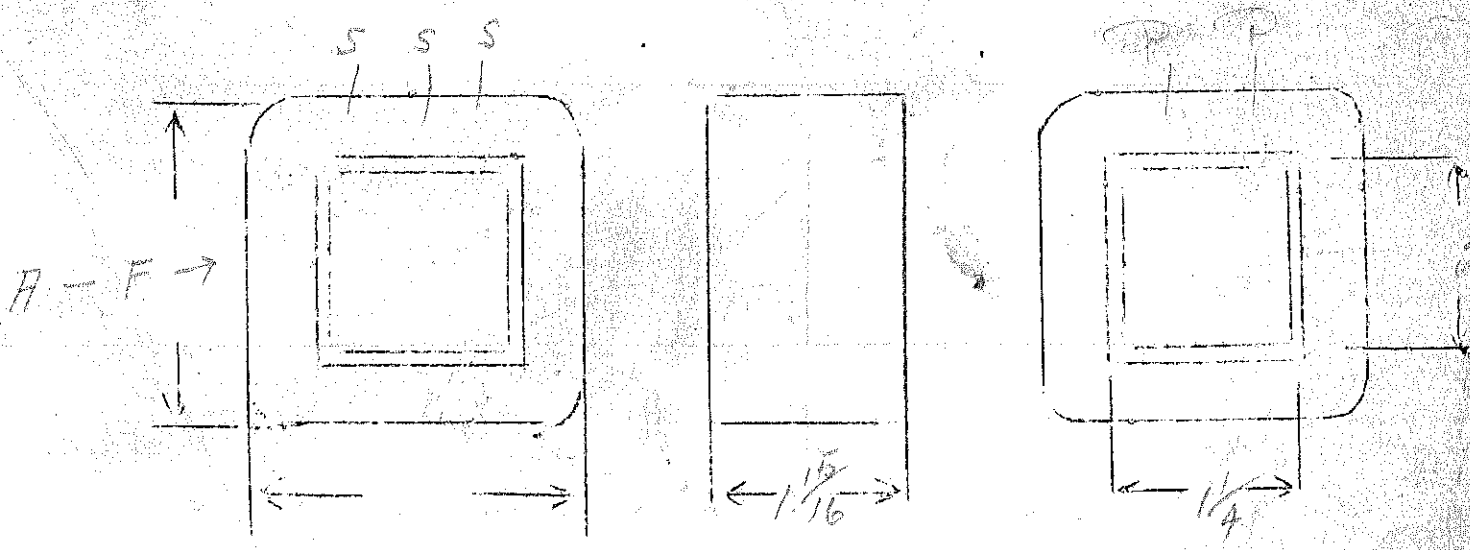
$\frac{N}{E} = 2.33$

SPEC. NO. 409

Winding	Sec		PRI			
Turns	3150		275			
Taps	15.75		—			
Wind. Lgth.	1.75		1.75			
Wire Size	#29		#20			
T.P.L.	133-24		46-6			
Kind Term.	#20 PBR		Wire			
Term. Lgth.	9"		9"			
Layer Insul.	30#		50#			
Wrapper	2L 005VC 2L 005B		2L 005#			

TUBE | 2L 005VC + 4L 005VC | IMPREGNATION | Vapour

CURE | 1 1/2 x 2



Ep-230  
 Es - 2400VCT or 1800VCT - 280ma.  
 (Pri control)

1.63

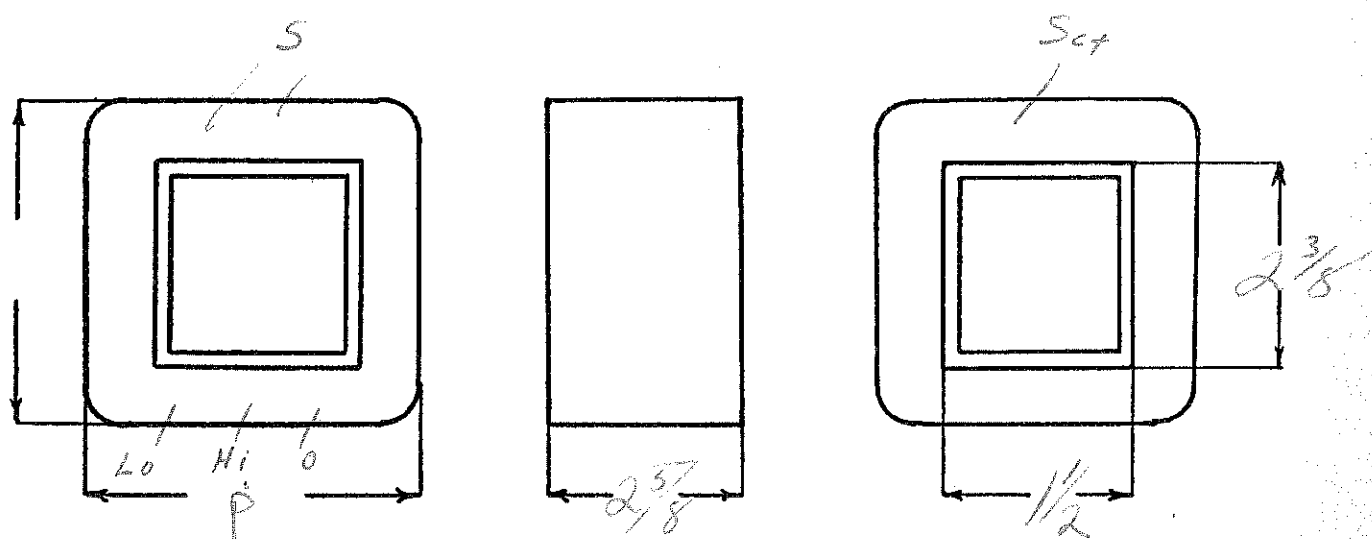
SPEC. NO. P410-230V

Winding	Sec	Cont.	Pri			
Turns	4200	380	120			
Taps	2100					
Wind. Lgth.	2 7/16					
Wire Size	#28	#20	#21			
T. P. L.	150-28	6L	2L			
Finish						
Type Lead	Wire Only					
Lead Lgth.	3"	3"	3"			
Layer Insul.	Double 30#	- 007K -				
Test Volt.	5000					
Wrapper	2L007VC 2L005GA		2L005GA			

TUBE 9L0076K + 1L007VC IMPREGNATION Double Varnish

CORE 1 1/2 X 2 3/8 GA. 24 GRADE D STACK 2X2

MOUNTING G - Stand-off insulators



DESIGNED BY G.W.

DATE 5-25-38

Primary = 120V

Secondary = 2400 or 1800V CT @ 300 Ma.

(Primary Control)

SPEC. NO. P-410

Winding	Sec.	Pri.				
Turns	3800	232				
Taps	1930	174				
Wind. Lgth.	2-3/16"	2-3/16"		V.C. SLEEVING OVER ALL LEADS,		
Wire Size	#28	#17		ANCHOR AT FINISHERS,		
T. P. L.	149 - 26L	42 - 6L		MICA SADDLES,		
Finish Pitch	92%	90%				
Type Lead	#22 Dulac	W.O.				
Lead Lgth.	9"	9"		Start of Secondary in Coil.		
Layer Insul.	D - 30#	.007" GA				
Test Volt.						
Wrapper	2L .007" VC 2L .005" GA	2L .005" GA				

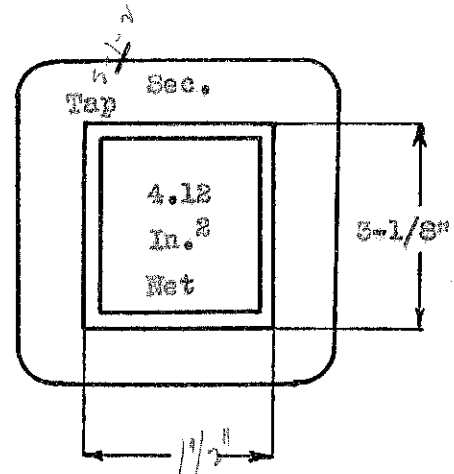
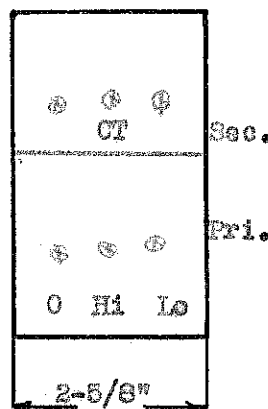
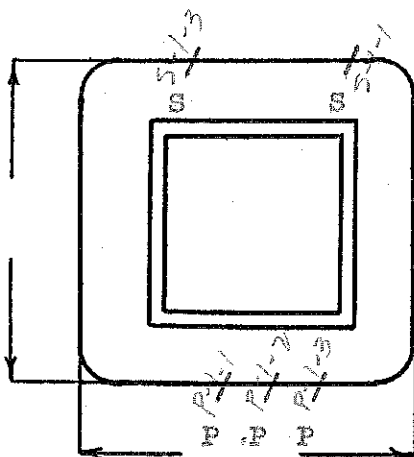
TUBE	9L - .007" GK / 1L .007" VC	IMPREGNATION	DOUBLE VARNISH
------	-----------------------------	--------------	----------------

CORE	1 1/2 x 3-1/8 H & I GA.	24	GRADE	D	STACK	2 x 2
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MOUNTING "G" - Feed through insulators on Secondary, Hollow Studs on Primary.

Cu = 889 - 535 - 765  
 Fe = 62.7 @ 60 Cycle  
 TPV = 1.45  
 Wire Net = (.769") .752"

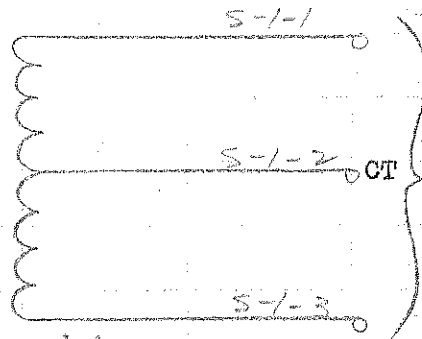
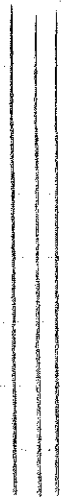
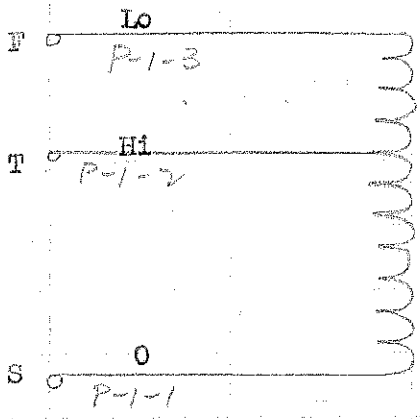
Sec. VA = 360 - 252  
 Pri. VA = 460 - 322  
 Pri. I = 3.83 - 2.68  
 Efficiency = 87%  
 COS θ = 90%



DESIGNED BY H. E. S., Jr.

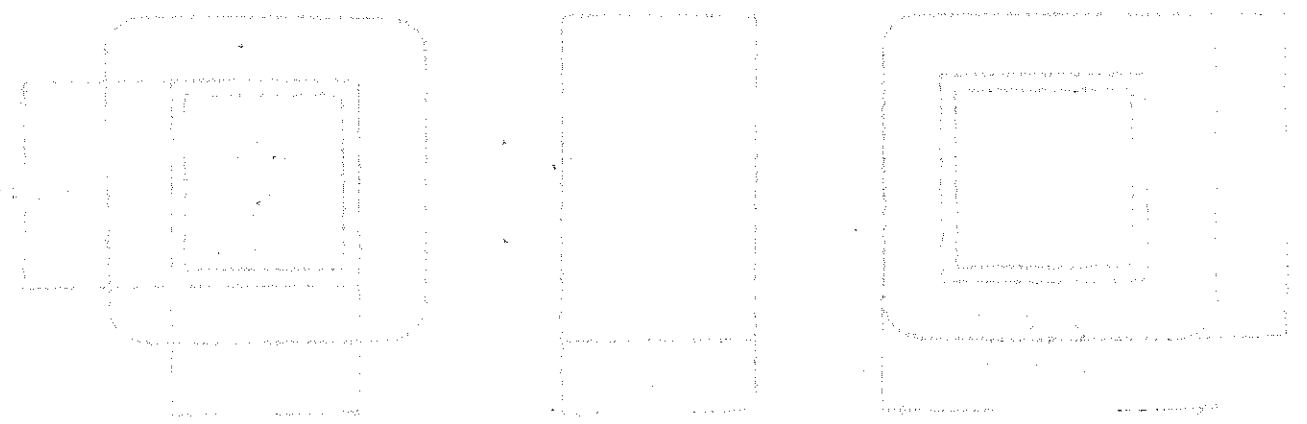
DATE 7 - 30 - 41





2400 or 1800V CT  
@ 300mA  
Secondary

**Note:** To Engineering Department. Finish Secondary Leads, Wire Only, V.C. Sleeving Over. Pinch sleeving insert into coil at start position.



Handwritten marks or numbers in the bottom right corner.

Choke

New stock

10 Hy. @ 150 ma

200 ohms

2500 V. ins

REAR TEST WMA MOIRSO

SPEC. NO. C 410

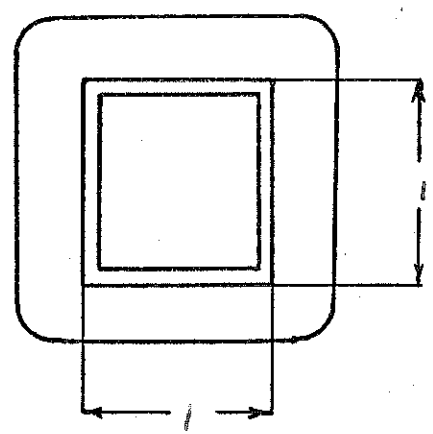
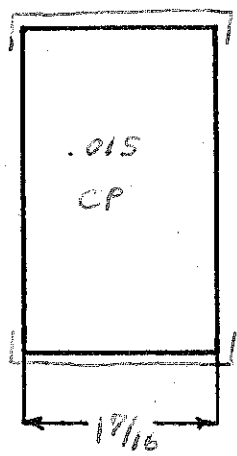
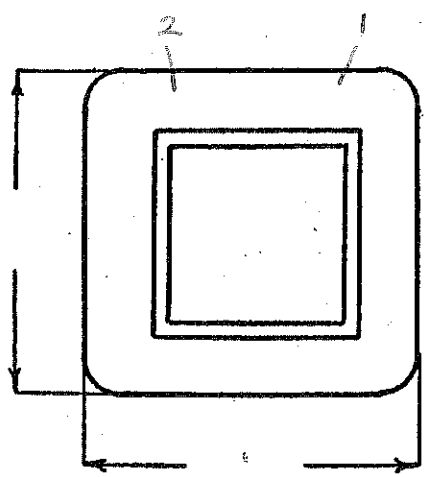
Winding		1-2 choke				
Turns		3680				
Taps		-				
Wind. Lgth.		1 1/4				
Wire Size		#31				
T. P. L.		115-32L				
Finish Pitch		88%				
Type Lead		#22 Dulac				
Lead Lgth.		9"				
Layer Insul.		20#				
Test Volt.		2500				
Wrapper		3L0056K <del>3L0055A</del>				

TUBE 7L0076K + 1L003CA IMPREGNATION Varnish

CORE 1 X 1 GA. 24 GRADE D Stack Butt .015 gap

MOUNTING D-Leads (G-Acc-Pitted H W D mtg. dimen) H S 9-Leads 3 13/16 2 3/4 2 3/8 2 1/8 x 1 3/4

wn = 85%



DESIGNED BY G.W.

DATE

# DESIGN AND TEST DATA

Rating:

Winding		<i>Choke</i>					
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density		<i>530</i>					
Ratio Volts							
Test to Ground							

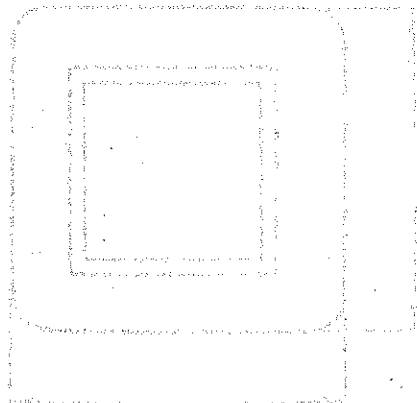
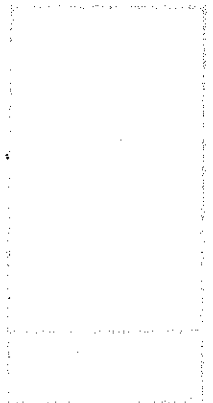
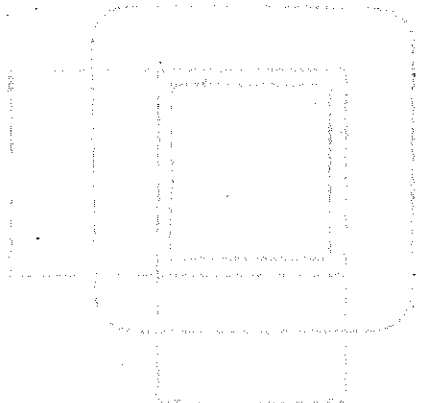
Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current *9 ma* amperes @ *110V* volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

*10.65 henries @ .02" total gap*



*(110)*

*10.65 henries*

CHOKE

New Stock

10 Henries - 10% Tap  
 150 DC Ma. ohm = 200  
 2500 V. Ins.

SPEC. NO. C410

Winding	1-2	Pri.				
Turns	3680					
Taps	460	(4th layer)				
Wind. Lgth.	1 1/4					
Wire Size	31					
T. P. L.	115-32L					
Finish Pitch	88%					
Type Lead	#20 Z	Pr. Pr. or Silver Braid				
Lead Lgth.	9"	9"				
Layer Insul.	20#					
Test Volt.	2500					
Wrapper	3L	.005" GA				

TUBE 7L .007" GK +14003V6 IMPREGNATION Varnish  
 CORE 1 x 1 GA. 24 GRADE D STACK Butt .010" Gap  
 MOUNTING D - Leads HS9

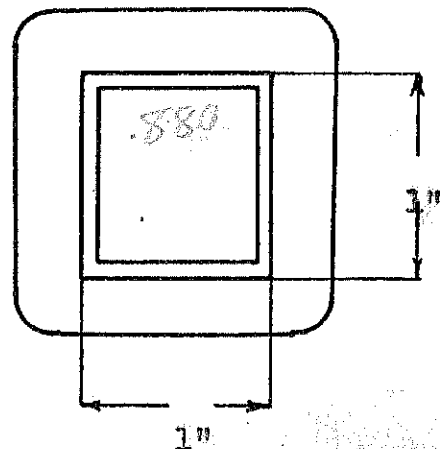
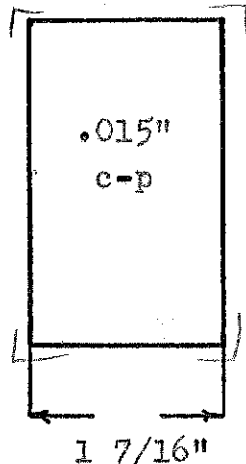
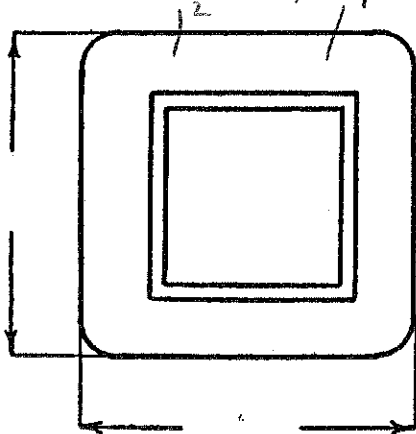
10.65 Henries at 0.02" Total Gap

Cu = 530

Wire Net = 0.375" (0.340")

Window -  $424/500 = 84.8\%$

Saddle St. - White  
 1- 10 VC Fi. - Black  
 1- 10 A T. - Yellow Ti



DESIGNED BY

C.W.

DATE

# DESIGN AND TEST DATA

Rating:

Winding	1-2 <i>Choke</i>					
Mean Turn	5.66					
Resistance 25° c	230					
Pounds Copper	.427					
Copper Density	532					
Ratio Volts	—					
Test to Ground	2500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

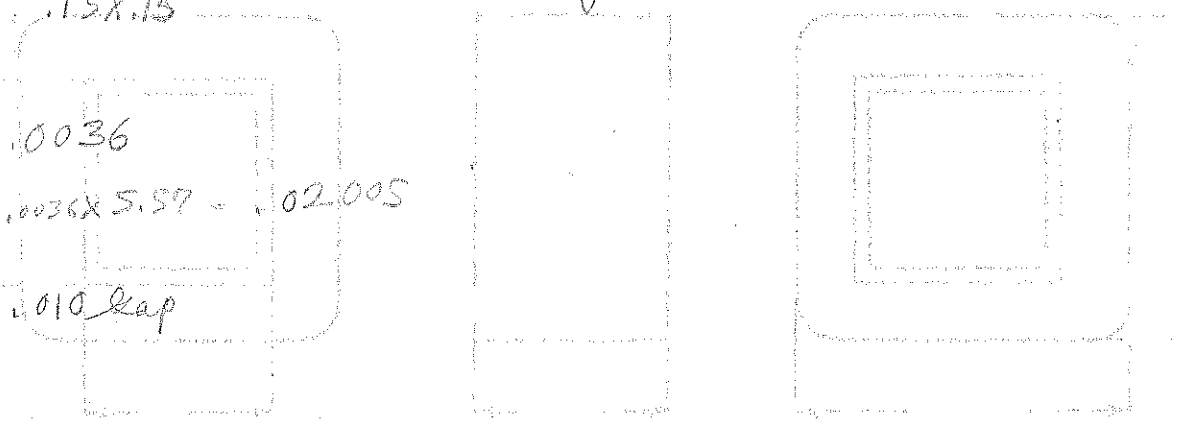
$$\frac{NI}{l} = \frac{3680 \times 150}{14.15} = 39.1$$

$$L = \frac{26.8 \times 10^{-9} \times 866}{.15 \times 15} = 10.33 \mu\text{H}$$

$$\frac{a}{c} = .0036$$

$$a = .0036 \times 5.57 = .02005$$

$$\frac{a}{2} = .010 \text{ lap}$$



Ep-230V  
 Es-3560 or 2600VCT. 300Ma

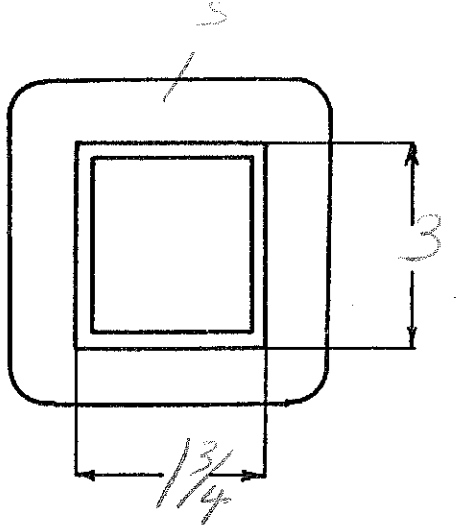
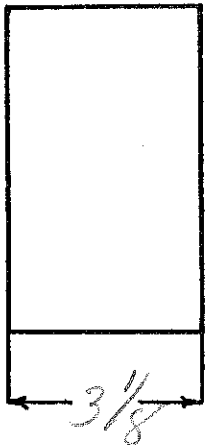
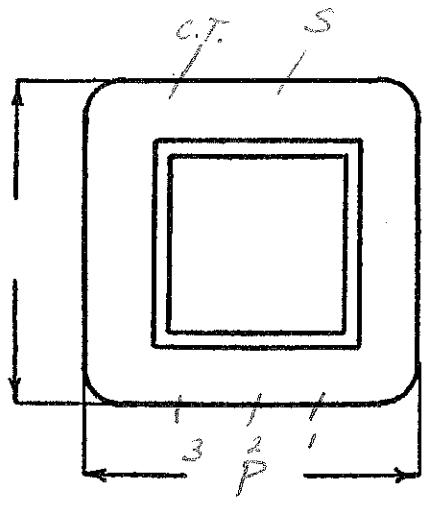
SPEC. NO. P411-230V

Winding	Sec	Continuous Pri				
Turns	4600	280	100			
Taps	2300					
Wind. Lgth.	2 1/2					
Wire Size	#27	#18	#20			
T. P. L.	145-32					
Finish						
Type Lead	44-Dulac C.T.-W.O.	Wind Only				
Lead Lgth.	4"	4"	4"			
Layer Insul.	Double 40#	007K				
Test Volt.	6500					
Wrapper	4L007VC 2L007GA		3L007GA			

TUBE 10L0076K+2L007VC IMPREGNATION Double Varnish

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

MOUNTING G- Stand off insulators



DESIGNED BY JCG

DATE 2-9-39

Primary - 120V

Secondary - 3500 or 2600V CT @ 300 Ma.

(Primary Control)

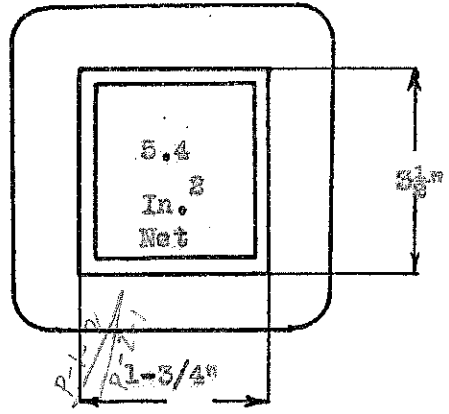
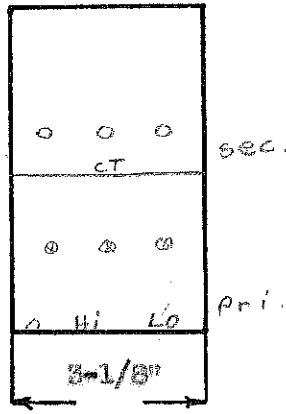
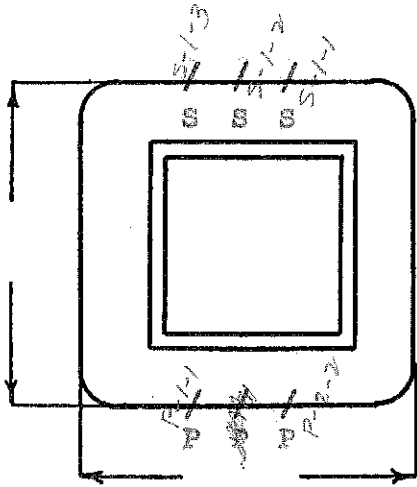
SPEC. NO. P-411

Winding	Sec	Continuous				
		P <sub>1</sub>	PRI. P <sub>2</sub>			
Turns	4500	133	51			
Taps	2250					
Wind. Lgth.	2 1/2	2 1/2	→			
Wire Size	#28	#14	#16			
T. P. L.	165 - 26L	34 - 5L	1L			
Finish Fitch	87%					
Type Lead	W.O.	W.O.	W.O.	←	VC SLEEVING ON ALL LEADS.	
Lead Lgth.	9"	9"	9"		ANCHOR AT FINISHERS. START	
Layer Insul.	D - 40#	.007" K	.007" K		SECONDARY LEAD IN COIL.	
Test Volt.	8000		1250		MICA SADDLES.	
Wrapper	3L - .007" VC 2L - .007" GA		3L - .007" GA			
TUBE	10L - .007" GK	GA	3L - .007" VC		IMPREGNATION	DOUBLE VARNISH
CORE	1 1/2" x 3 1/2" E & I	GA.	24		GRADE	D
					STACK	2 x 2

MOUNTING "G" - Feed through Insulators on Secondary - Hollowstuds on Primary.

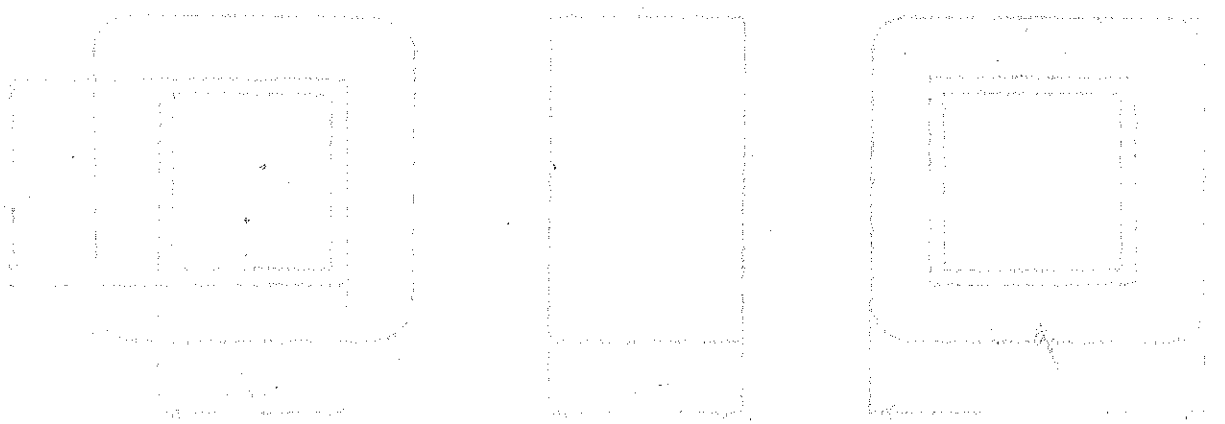
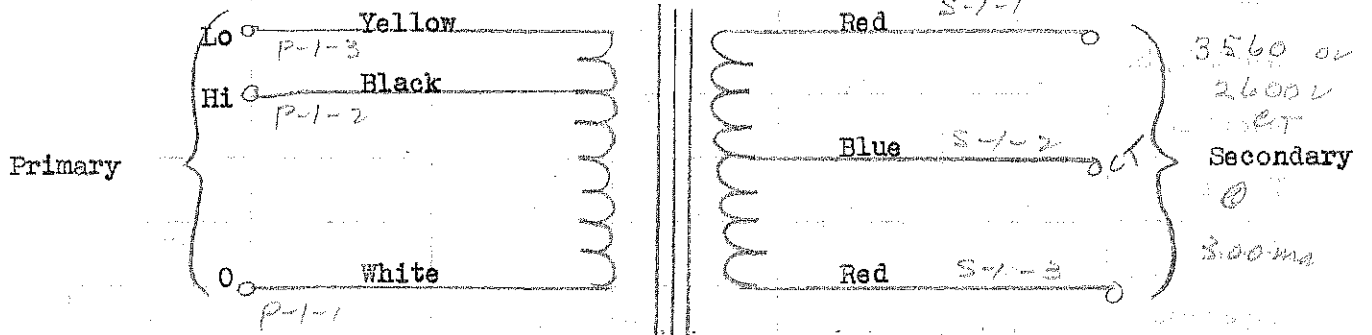
Cu = 889 - 725 - 623  
 Fe = 60.5 @ 60 Cycle  
 TPV = 1.15  
 Wire Net = .915" (.965")

Sec. VA = 534 - 390  
 Pri. Va = 680 - 498  
 Pri. I = 5.67 - 4.15  
 Efficiency = 87%  
 COS θ = 90%



Re-DESIGNED BY H. E. S., Jr.

DATE - 29 - 41





choke

NEW Stock

10 H<sub>y</sub> @ 200 ma

125 ohms

5000 V ins

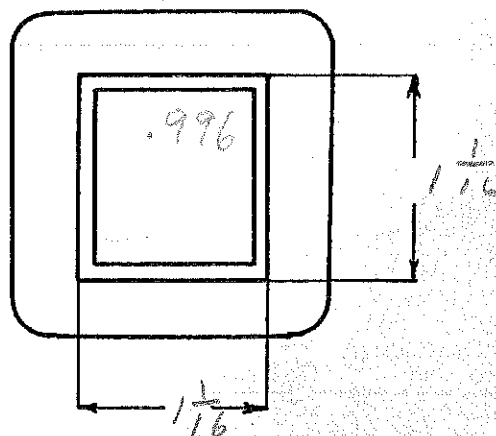
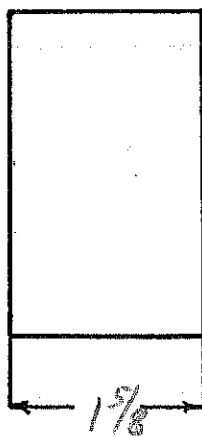
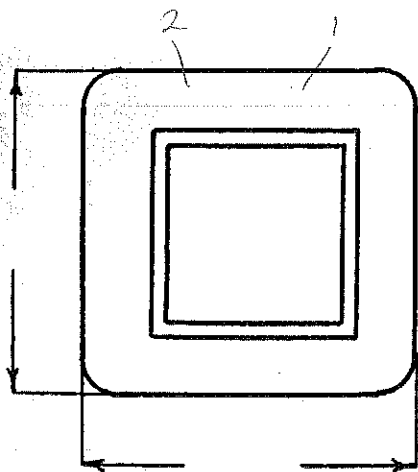
OBSOLETE Td #12  
SPEC. NO.

Winding	1-2	choke.	Designed	changed		
Turns		2950				
Taps		—	2	11-50	by R.H.H.	
Wind. Lgth.		1 1/8			on 1/16 x 1/8 core	
Wire Size		#29				
T. P. L.		82-36L				
Finish		90%				
Type Lead		#22	Vinyl	sleeving		
Lead Lgth.		cut 9'	from	coil.		
Layer Insul.		30#				
Test Volt.		5000				
Wrapper		2L005VC 2L005GA				

TUBE	5L010 GK + 2L005VC	IMPREGNATION	Varnish
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CORE	1/16 x 1/16 GA.	24	GRADE	D	STACK	Butt .010 Gap
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MOUNTING	BB - Leads	HS13
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Wms 88%

DESIGNED BY

S. Babcock

DATE

2-16-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding	1-2 <i>Choke</i>					
Mean Turn	6.53					
Resistance 25° c	134					
Pounds Copper	.629					
Copper Density	633					
Ratio Volts	—					
Test to Ground	5000					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{10 \times (.2)^2}{19.8} = 20.2$$

$$\frac{a}{e} = .003$$

$$a = .003 \times 7.14 = .0214$$

$$\frac{NI}{e} = 32.5$$

$$\frac{a}{l} = .0107$$

$$wa = .010$$

$$N = \frac{32.5 \times 18.1}{2} = 2950$$

$$\frac{NI}{l} = \frac{2950 \times .2}{16.80} = 35.1$$

$$L = \frac{22.8 \times 10^{-4} \times 125}{.2 \times .2} = 7.15 \text{ Henrys}$$

$E_p = 115V$

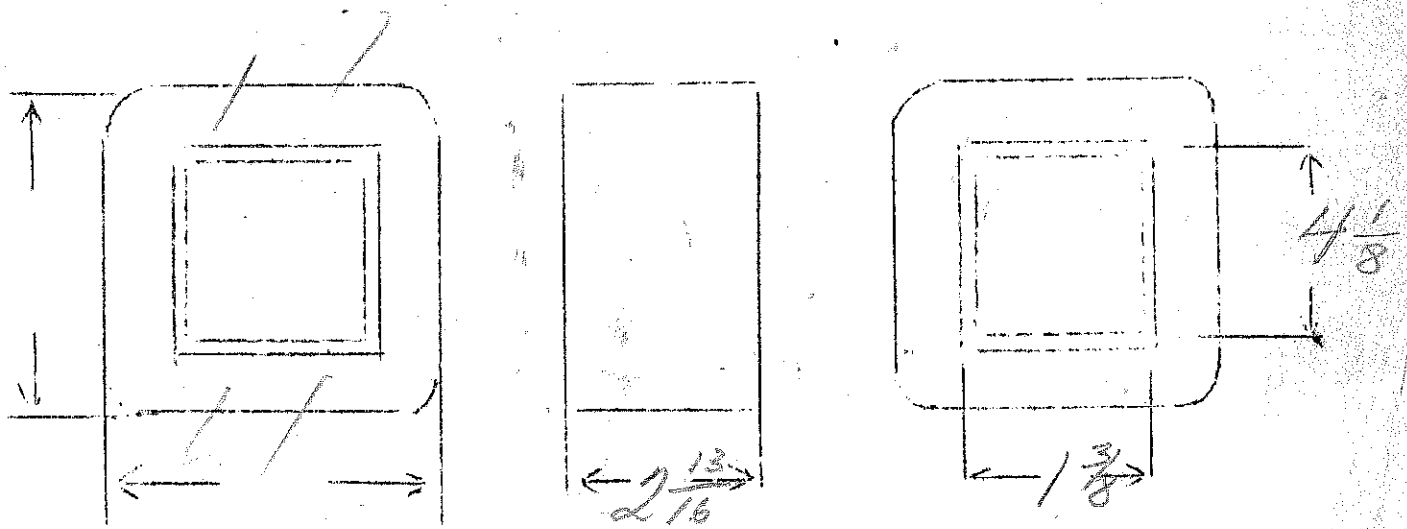
$E_s = 1750 - 1150 - 0 - 1150 - 1750$

$I = 400 Ma$

1935  
Catalog

SPEC. NO. 412

Winding	PRI	SEC					
Turns	124	4200					
Taps	—	3480	-2100-	720-	0		
Wind. Lgth.	2 1/2	2 1/8					
Wire Size	double #17	#26					
T.P.L.	5 layers	121-34					
Kind Term.	wire	wire only					
Term. Lgth.	7"	7"					
Layer Insul.	0056A	60#					
Wrapper	4007VC 240076A	4007VC 240076A					
TUBE	91007		IMPREGNATION		VARNISH		
CURE	1 3/8 x 4"						



Choke

New stock

10 Henries @ 200ma

150 ohms

AT&T TEST GMA 111930

5000V ins

SPEC. NO. C412

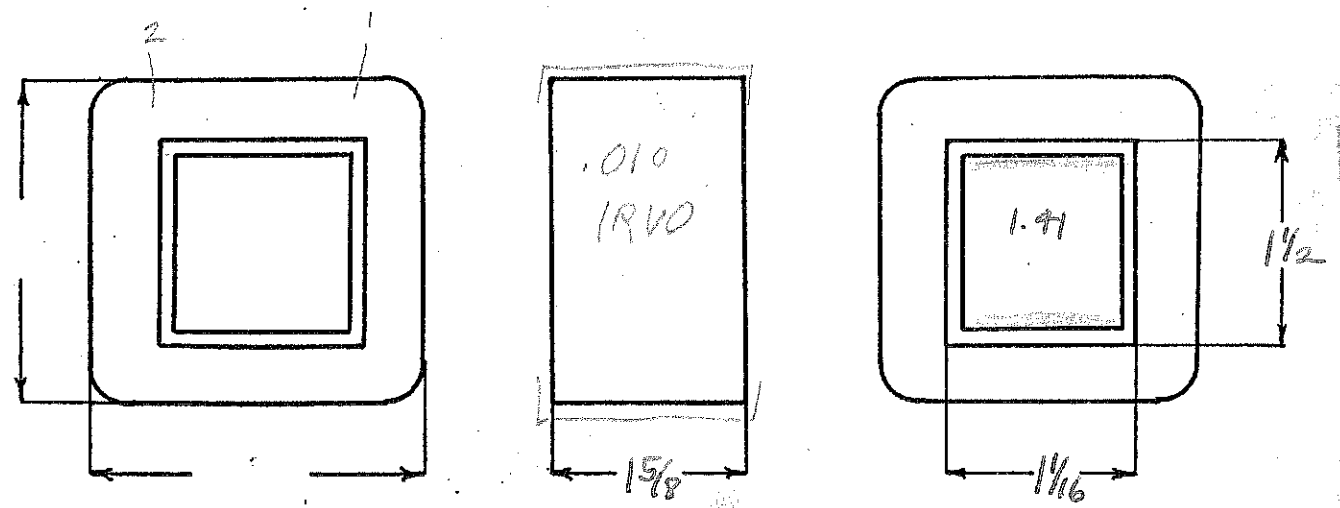
Winding	1-2					
Turns	Choke					
Taps	2980					
Wind. Lgth.	—					
Wire Size	1 1/8					
T. P. L.	#29					
Finish	83-36L					
Pitch	90%					
Type Lead	#22	Vinyl				
Lead Lgth.	Dulse	bleeding				
Layer Insul.	cut 9"	from coil				
Test Volt.	30#					
Wrapper	5000					
	2L003CA					
	2L005VC					
	2L005 GA					

TUBE 5L010GK+2L005VC IMPREGNATION Varnish

CORE 1 1/16 x 1 1/2 GA. 24 GRADE D STACK .015 Gap

MOUNTING BB-leads HS-13

mu = 88%



RE-DESIGNED BY A. Hadley

DATE 2-11-50

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding		1-2 Choke				
Mean Turn		7.40				
Resistance 25° c		154				
Pounds Copper		.720				
Copper Density		634				
Ratio Volts		—				
Test to Ground		5000				

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{l} = \frac{2980 \times 200}{16.80} = 35.5$$

$$L = \frac{23 \times 10^{-4} \times 177}{.2 \times 2} = 10.20 \text{ hy}$$

$$\frac{a}{l} = .0033$$

$$a = .0218"$$

$$\frac{a}{2} = .0109"$$



Choke

New stock

10 Henrys @ 200 ma

150 ohms

ATAQ TEST QWA M01220

5000v ins.

SPEC. NO. C 412

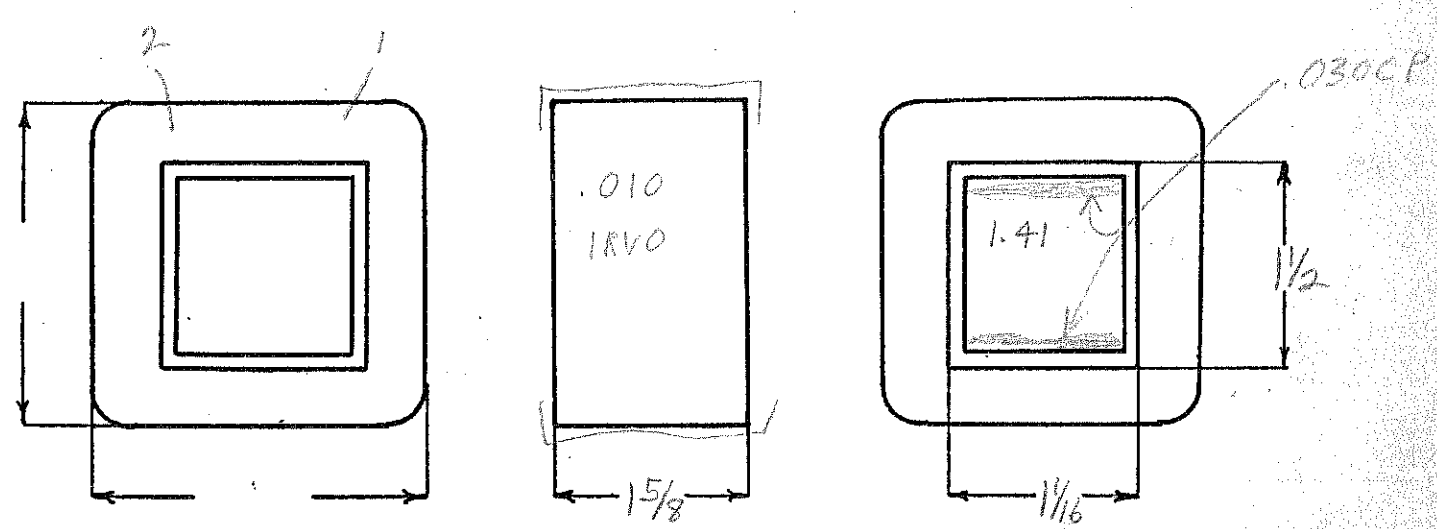
Winding	1-2					
Turns	Choke					
Taps	2980					
Wind. Lgth.	—					
Wire Size	1 1/8					
T. P. L.	#29					
Finish	83-36L					
Pitch	90%					
Type Lead	#22 Dulac	V-myl sleeving				
Lead Lgth.	cut 9"	from coil				
Layer Insul.	30#					
Test Volt.	5000					
Wrapper	2L005VC 2L003GA					

TUBE 5L010GH+2L005VC IMPREGNATION Varnish

CORE 1 1/16 X 1 1/2 GA. 24 GRADE D STACK Butt .015 gap

MOUNTING BB-leads HS-13

mn = 88%



RE-DESIGNED BY A. Hadley

DATE 2-11-50

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding		Choke					
Mean Turn		7.40					
Resistance 25° c		154					
Pounds Copper		.720					
Copper Density		634					
Ratio Volts		—					
Test to Ground		5000					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

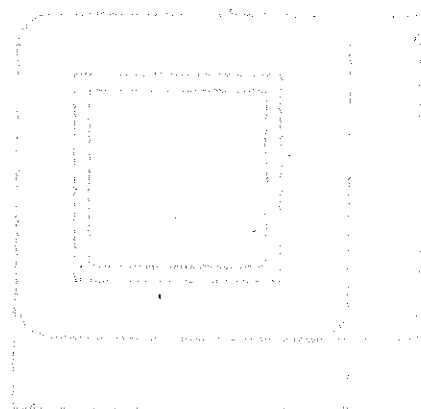
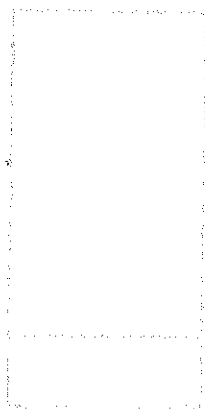
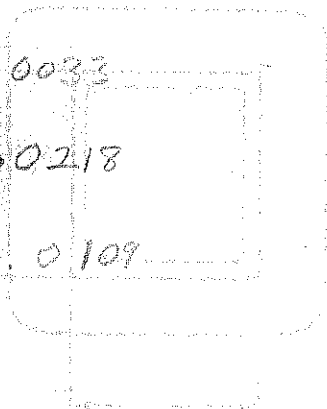
$$L = \frac{NI^2 \times 2980 \times 200}{16.80} = 35.5$$

$$L = \frac{23 \times 10^{-9} \times 177}{2 \times 2} = 10.20 \text{ H}$$

$$\frac{a}{b} = .0033$$

$$a = .0218$$

$$\frac{a}{2} = .0109$$



$E_p$  - 230V - tapped

$E_s$  - 4700VCT or 3600VCT - 350 Ma.

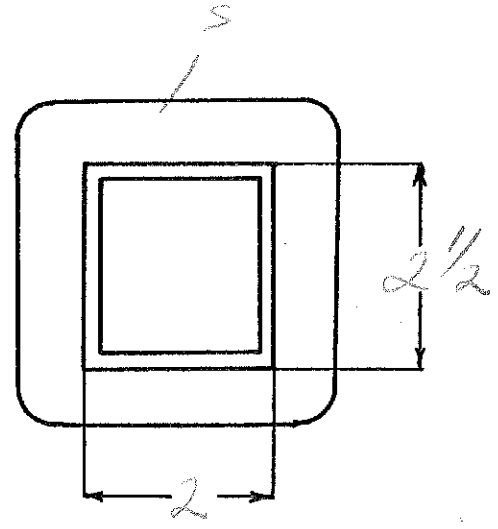
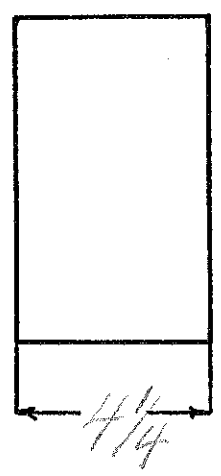
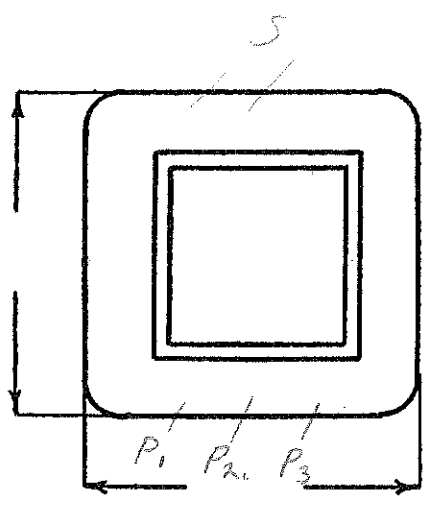
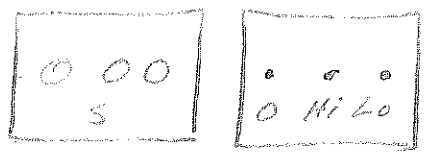
SPEC. NO. *F413-230V*

Winding	Sec	CONTINUOUS Pri				
Turns	6800	312	98'			
Taps	3400					
Wind. Lgth.	3 1/2					
Wire Size	#27	#16	#18			
T. P. L.	202-34					
Finish						
Type Lead	↓	Wire Only		- 4" Double start and finish Start lead in coil		
Lead Lgth.	4"	4"	4"			
Layer Insul.	Double 40%	- 007K				
Test Volt.	7500					
Wrapper	5L007VC 2L007GA		2L007GA			

TUBE 10L007GK+2L007VC IMPREGNATION Double Varnish

CORE 2X2 1/2 GA. 24 GRADE D STACK 2X2

MOUNTING G



DESIGNED BY JCG

DATE 2-7-39



Pri - 115V/220V  
 Sec - 4700V CT  
 or 5600V CT @ 350 ma

OLD STOCK

SPEC. NO. P-413

Winding	See		Pri #1		Pri #2	
Turns	8000 5000		175		175	
Taps	4000 1000		-		-	
Wind. Lgth.	3 1/2"		3 1/2"		3 1/2"	
Wire Size	#27		#16		#16	
T. P. L.	201-40L		59-3L		59-3L	
Finish	87%		88%		88%	
Type Lead	W.O. Double V.P.	Sleeve	W.O. Sleeve	V.C.	W.O. Sleeve, V.C.	
Lead Lgth.	7"		7"		7"	
Layer Insul.	2L 30# 8		1L 005%		1L 005%A	
Test Volt.	11,000V		-		-	
Wrapper	2L-010" Mica Insulot 2L-007VC 2L-0056A		2L 0056A		2L 0056A	

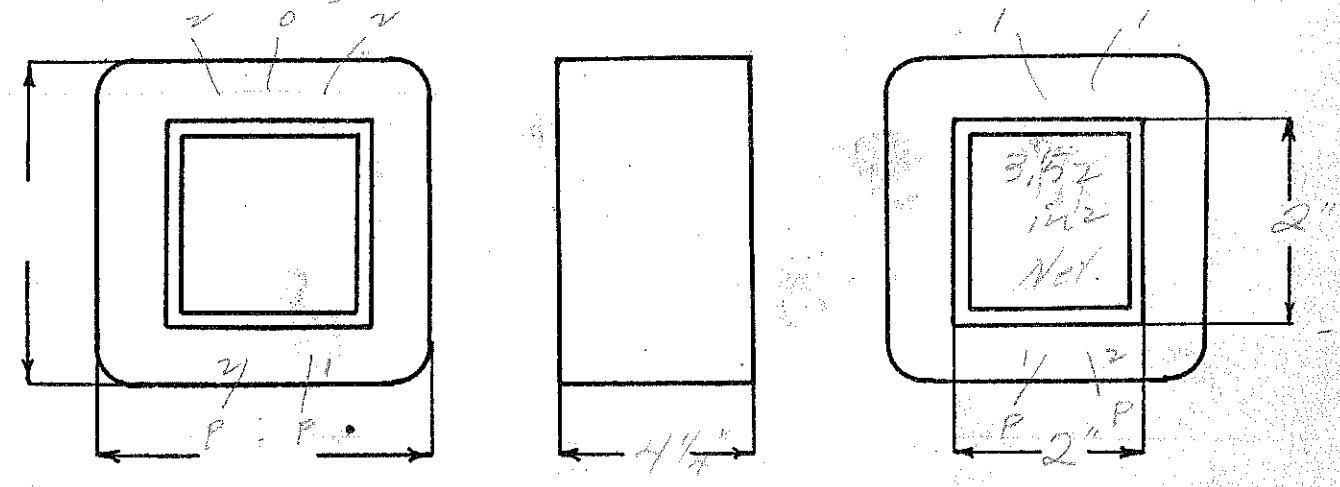
TUBE 10L-007CR + 2L-007VC IMPREGNATION Double Varnish

CORE 2" x 2" EXT GA. 24 GRADE D STACK 2 x 2

MOUNTING "G" - Panels

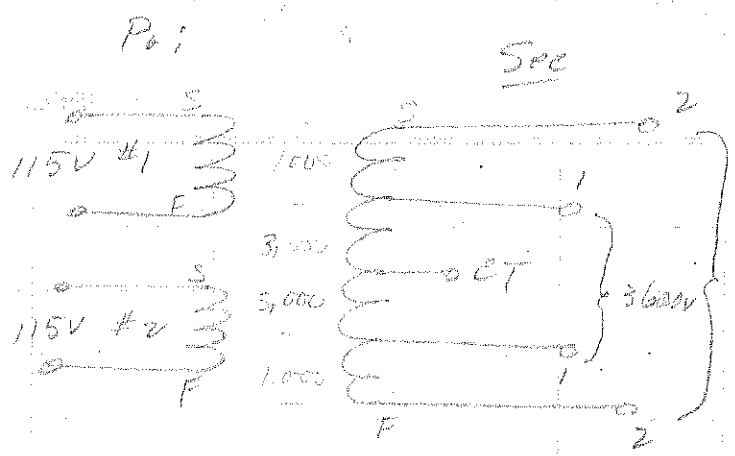
Cv = 958-540-540  
 Ec = 70 @ 60V  
 Tpv = 1.52  
 Wire Net = 106" (106")

See VA = 823  
 Pvi VA = 1100  
 Pvi I = 4.78A.  
 $\eta = 83 \cos \theta = 90$

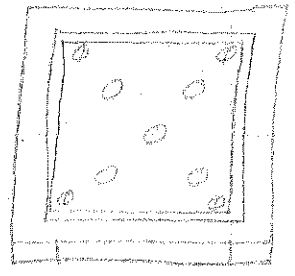
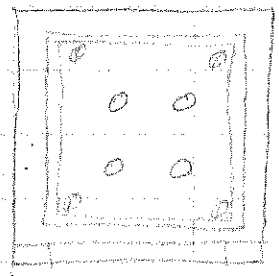


DESIGNED BY HLL

DATE 11-11-41



4700V  
 @ 390mA



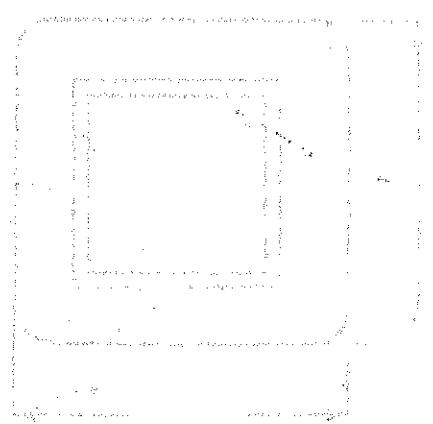
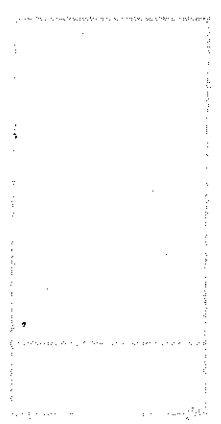
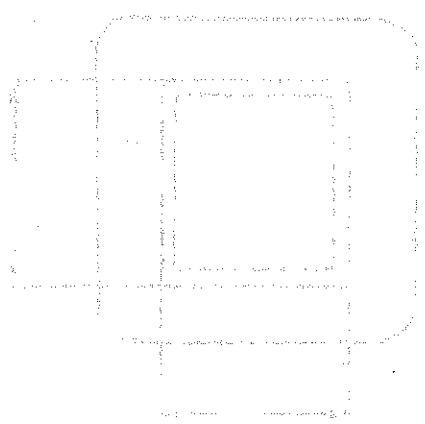
WINDING

WINDING

WINDING

WINDING

WINDING



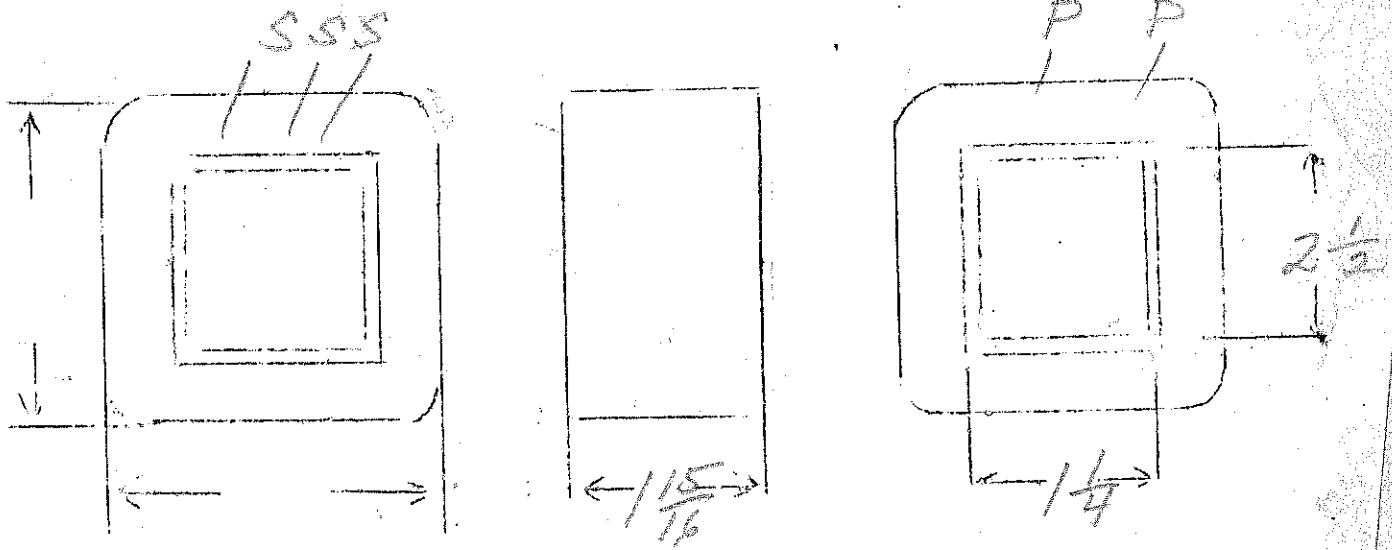
1600 V.C.T. - 250 MA

B = 12000

$\frac{N}{E} = 186$

SPEC. NO. 414

Winding	SEC	PRI				
Turns	3260	214				
Taps	1630	—				
Wind. Lgth.	$1\frac{5}{8}$	—				
Wire Size	29	19				
T.P.L.	117-28	37-6				
Kind Term.	#20 PBA	WIRE				
Term. Lgth.	9"	9"				
Layer Insul.	30#	1L0050A				
Wrapper	2L007VE 2L0050A	2L0050A				
TUBE	7L009 + 1L007VE		IMPREGNATION	VARNISH		
CURE	1 1/4 x 2 1/2					



area = 3.12

CHOKE

New Stock

10 K $\Omega$  @ 300 ma

125 ohms

5000 V ins.

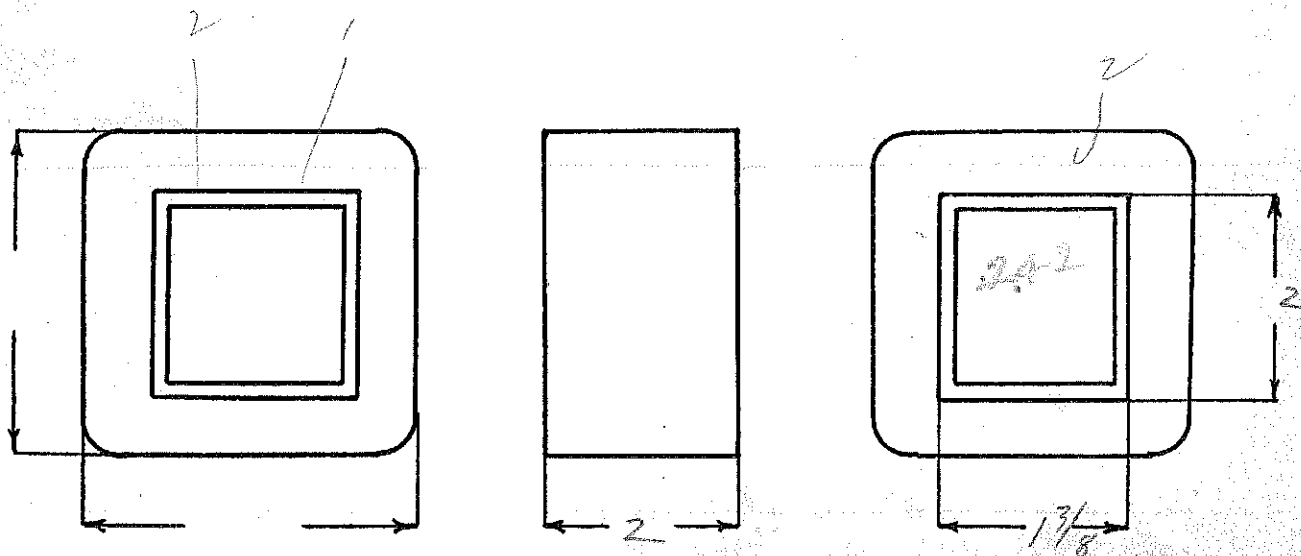
SPEC. NO. C414

Winding		1-2 choke				
Turns		2540				
Taps		—				
Wind. Lgth.		1 1/2				
Wire Size		#27				
T. P. L.		82-3/4				
Finish		90%				
Type Lead		#20 DULAC VYNL. SLEEVE				
Lead Lgth.		9" parallel				
Layer Insul.		40 #				
Test Volt.		5000				
Wrapper		220051C 220050A				

TUBE 5 L0106K + 25005VC IMPREGNATION Varnish

CORE 13/8 x 2 GA. 24 GRADE B STACK Butt .015 Gap

MOUNTING BB-Leads HS 17



DESIGNED BY

S Babcock

DATE

2-16-49

# DESIGN AND TEST DATA

Rating:

Winding	1-2 <i>Choke</i>					
Mean Turn	9.18					
Resistance 25° c	102					
Pounds Copper	1.21					
Copper Density	672					
Ratio Volts	—					
Test to Ground	5000					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{10 \times (.3)^2}{375} = .24$$

$$\frac{NI}{e} = 36.25$$

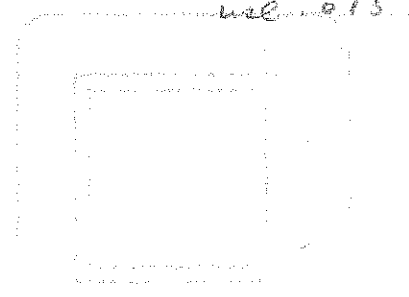
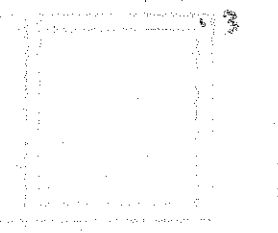
$$N = \frac{36.25 \times 21}{1} = 2540$$

$$\frac{a}{e} = .0033$$

$$a = .0033 \times 8.25 = .0272$$

$$\frac{a}{2} = .0136$$

*we .015*



Choke

New stock

10 Hy. @ 300 ma.

125 ohms

5000 v ins

SPEC. NO. C 414

Winding	1-2					
	Choke					
Turns	2540					
Taps	—					
Wind. Lgth.	1 1/2					
Wire Size	# 27					
T. P. L.	82-31L					
Finish	90%					
Pitch						
Type Lead	# 20	<del>Wing</del>				
	Dulac	<del>blowing</del>				
Lead Lgth.	cut 14"					
Layer Insul.	40#					
Test Volt.	5000					
	2L005VC					
Wrapper	2L005GA					

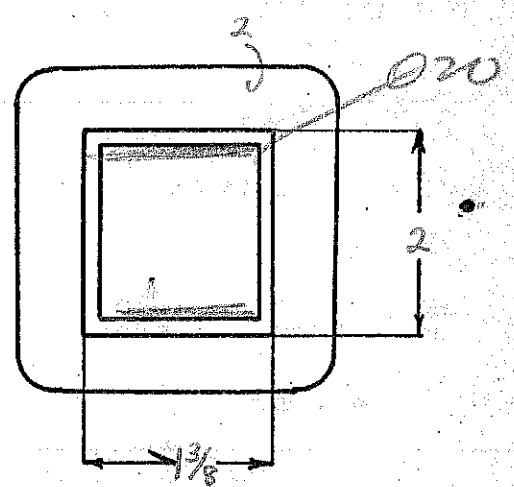
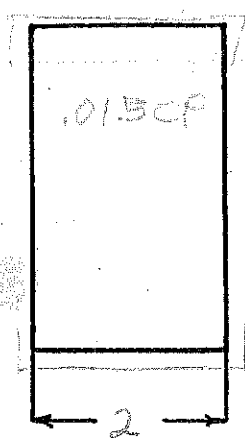
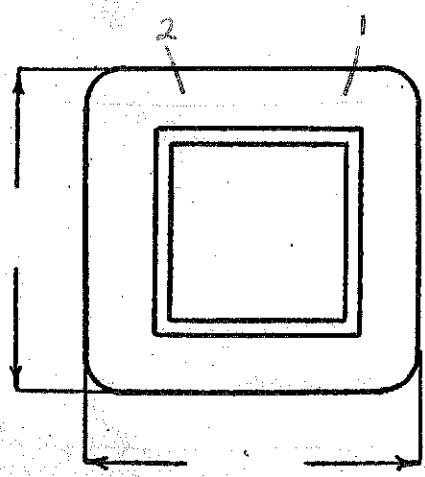
TUBE	5L010GK + 2L005VC	IMPREGNATION	Varnish
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CORE	1 3/8 x 2	GA.	24	GRADE	D	STACK	Butt 0.025 0.05 gap
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MOUNTING BB-Leads, HS 17 LA can - Potted

run = 90%

Potted: Zinc Chromate primer  
gray lacquer



DESIGNED BY S. BARCOCK

DATE 2-16-49

# 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:

$$\frac{LI^2}{V} = \frac{10 \times (.3)^2}{375} = 24$$

$$\frac{NI}{e} = 36.25$$

$$N = \frac{36.25 \times 21}{.3} = 2540$$

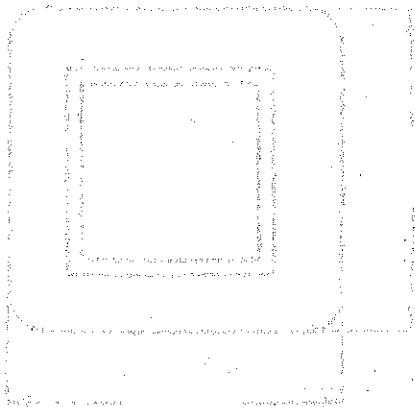
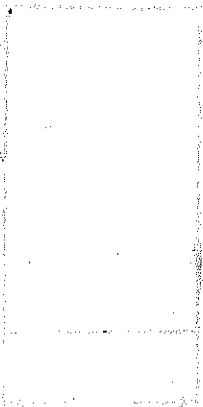
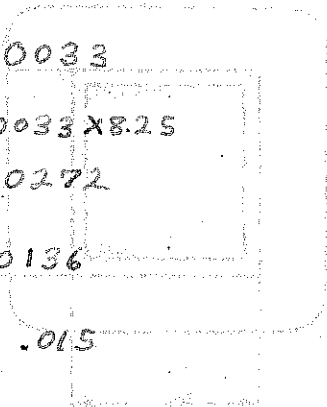
$$\frac{a}{l} = .0033$$

$$a = .0033 \times 8.25$$

$$a = .0272$$

$$\frac{a}{2} = .0136$$

use .015

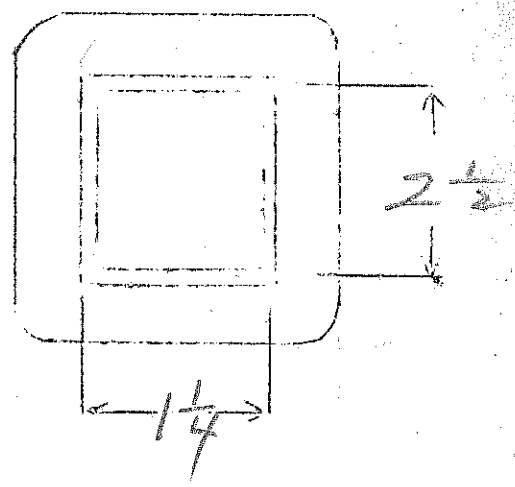
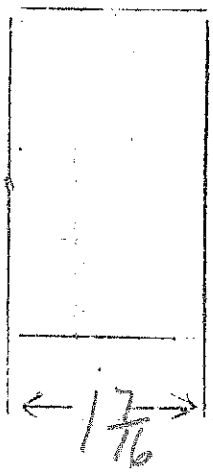
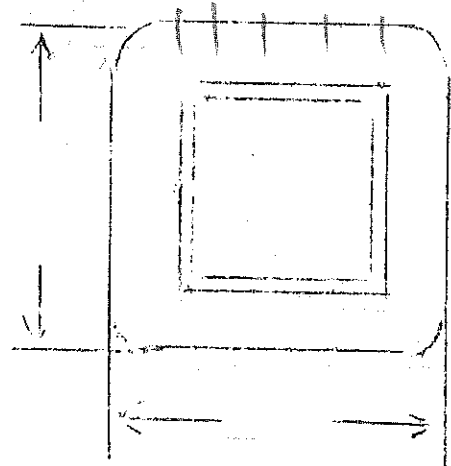


$E_p = 115V - C.T.$

$E_s = 1200 - 750 - 500 - 950 - 1200 I = 250Mg$

SPEC. NO. 415

Winding	SEC	SHIELD		PRI		
Turns	2400	1		210		
Taps	1500-1000	—		—		
Wind. Lgth.	1 $\frac{3}{16}$	1 $\frac{15}{16}$		1 $\frac{15}{16}$		
Wire Size	#29	BRASS		#17E		
T.P.L.	88			—		
Kind Term.	#20 P.BR	SIL-BR		WIRE ONLY		
Term. Lgth.	9"	5"		9"		
Layer Insul.	30*					
Wrapper	2L005GA 2L005VE	2L005GA 1L005VE	2L005GA 1L005VE	2L005GA		
TUBE	7L007			IMPREGNATION	VARNISH	
CURE	1 $\frac{1}{4}$ x 2 $\frac{1}{2}$ (1 $\frac{1}{4}$ x 3 $\frac{1}{8}$ WINDOW)					





$$E_p = 115V$$

$$\frac{N}{E} = 57$$

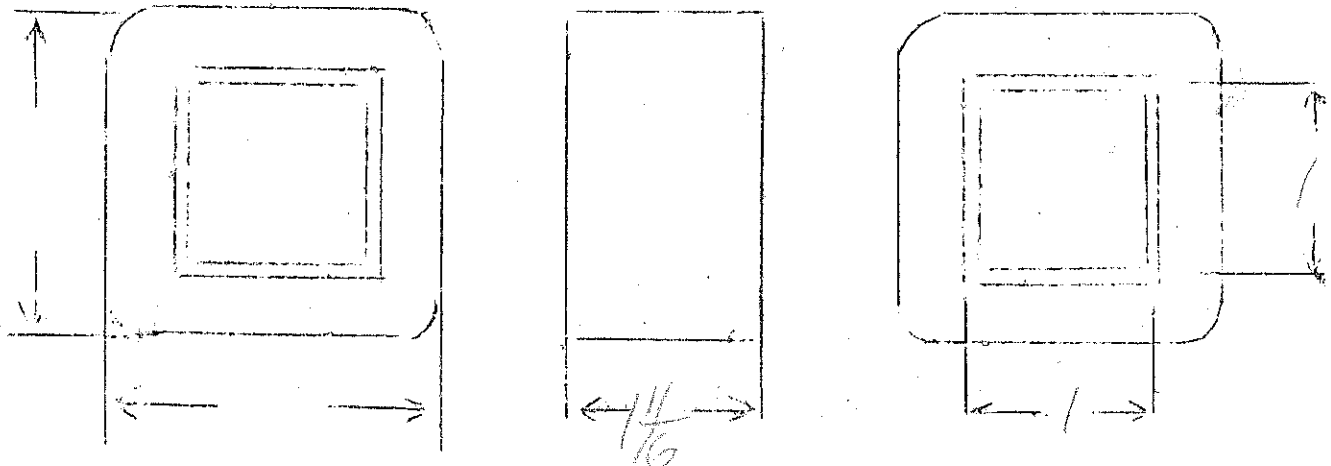
$$E_{F1} = 6.3V - 2.5 \text{ amps CT.}$$

$$E_{F2} = 7.5V - 1.25 \text{ amps CT.}$$

$$E_{F3} = E_{F4} = 7.5V - 2.5 \text{ amps CT.}$$

SPEC. NO. 416

Winding	PR11	F1	F2	F3	F4		
Turns	652	38	46	46	46		
Taps	NONE	19	23	23	23		
Wind. Lgth.	1.5	1.5	1.5	1.5	1.5		
Wire Size	#23	#19	#21	#19	#19		
T.P.L.	53-12						
Kind Term.	#30 P.B.R.	WIRE	—————→				
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	50 #10						
Wrapper	1L005VC	2L 0056A	—————→				
TUBE	7L 007	IMPREGNATION			VARNISH		
CURE	1X1 M.						





Choke

New Stock

10 Hy @ 350 ma

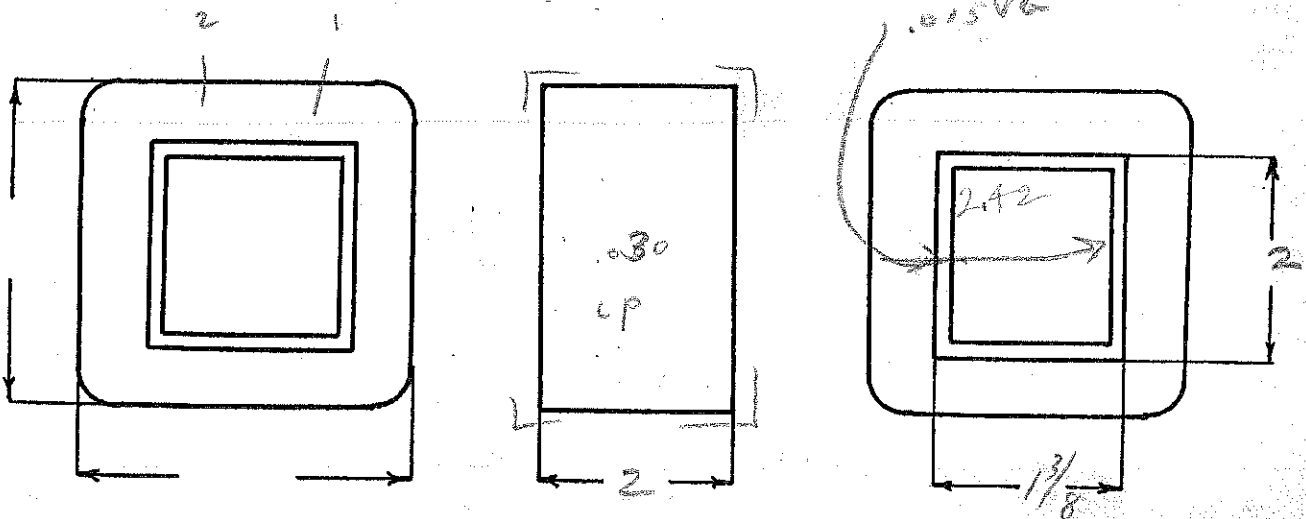
AT&T TEST CO. 10/18/49

7500 V ins.

SPEC. NO. C416

Winding	1-2 Choke						
Turns	2640						
Taps	—						
Wind. Lgth.	1 1/2						
Wire Size	#27						
T. P. L.	88-30L						
Finish	90%						
Type Lead	#22 Dulac						
Lead Lgth.	cut 14"						
Layer Insul.	40 #						
Test Volt.	7500						
Wrapper	3L007VG 2L0056A						
TUBE	5L010 CR + 2L007VG	IMPREGNATION		Varnish			
CORE	1 3/8 x 2	GA.	24	GRADE	D	STACK	Butt .020 cp
MOUNTING	BB. Leads.	HS		17			

un = 90%



DESIGNED BY

S. Babcock

DATE

6-1-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding	1-2 choke.					
Mean Turn	9.15					
Resistance 25° c	105.3					
Pounds Copper	1.250					
Copper Density	575					
Ratio Volts	—					
Test to Ground	7500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{10 \times (.350)^2}{376} = 32.6$$

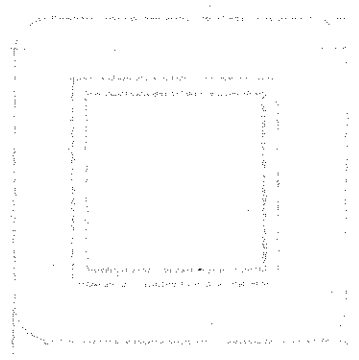
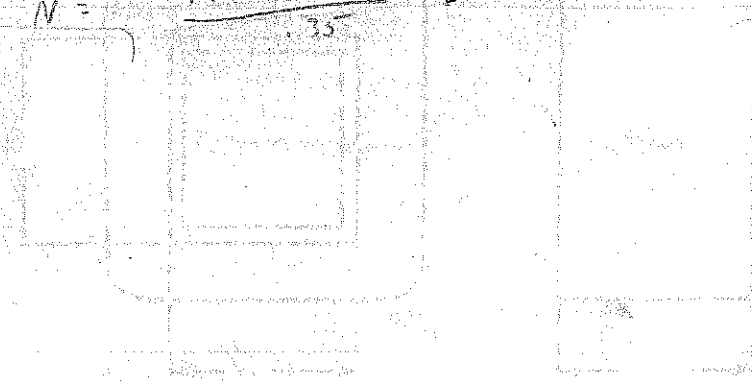
$$\frac{a}{l} = .0042$$

$$k = .0042 \times 8.25 = .035$$

$$\frac{NI}{l} = 44.75$$

$$\frac{a}{2} = .0175 \text{ use } .020 \text{ ap}$$

$$N = \frac{44.75 \times 21}{.35} = 2585$$



Choke

New stock

10 Hy. @ 350 ma.

7500 V ins. TAG TEST IN A MOUSE

SPEC. NO. C 416

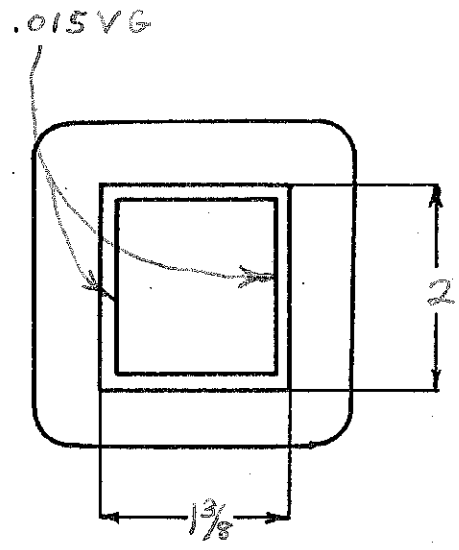
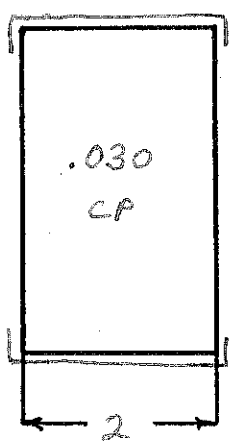
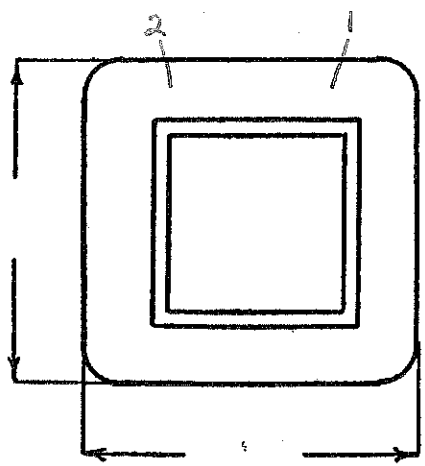
Winding		1-2 Choke				
Turns		2690				
Taps		—				
Wind. Lgth.		1 1/2				
Wire Size		#27				
T. P. L.		88-30L				
Finish Pitch		90%				
Type Lead		#22 Dulac				
Lead Lgth.		cut 14"				
Layer Insul.		40#				
Test Volt.		7500				
Wrapper		2L010VK, 3L007VG 2L005GA				

TUBE	5L010GK + <del>2L007VG</del> 2L005GA	IMPREGNATION	Varnish
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CORE	1 3/8 X 2	GA.	24	GRADE	D	STACK	Built .020 gap E.P.
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MOUNTING BB-Leads, HS 17

mm = 89%



DESIGNED BY S. BABCOCK

DATE 6-1-49

# DESIGN AND TEST DATA

Rating:

Winding		<i>Choke</i>					
Mean Turn							
Resistance 25° c							
Pounds Copper							
Copper Density		575					
Ratio Volts		—					
Test to Ground		7500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{LI^2}{V} = \frac{10 \times (.350)^2}{376} = 32.6$$

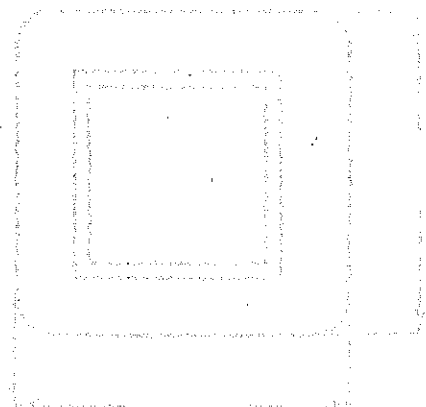
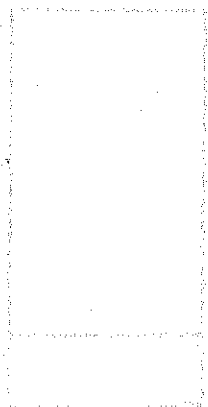
$$\frac{NI}{l} = 44.75$$

$$N = \frac{44.75 \times 21}{.35} = 2585$$

$$\frac{a}{b} = .0042$$

$$a = .0042 \times 8.25 = .035$$

$$\frac{a}{2} = .0175 \text{ use } .020 \text{ CP}$$



$E_p = 115V$

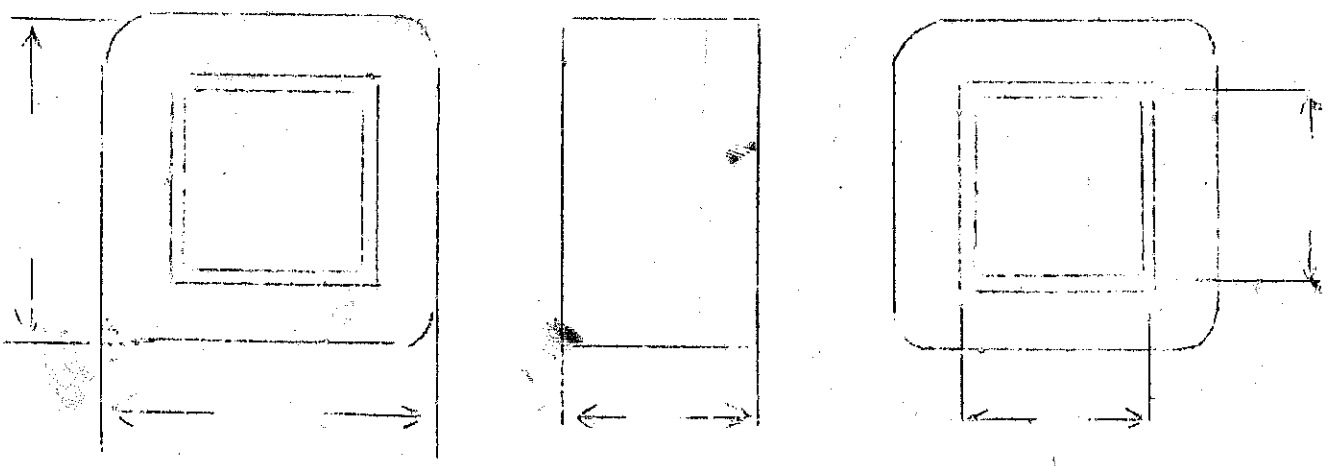
$VA = 40$

$E_{F1} = 5V - 30amps$  C.T.

$E_{F2} = 2.5V - 10amps$  C.T.

SPEC. NO. 417

Winding	PRI	F <sub>1</sub>	F <sub>2</sub>				
Turns	510	24	12				
Taps	—	12	6				
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	#26	#18	#12				
T.P.L.		24	12				
Kind Term.	WIRE ONLY	→					
Term. Lgth.	3"	3"	3"				
Layer Insul.	30#						
Wrapper	1L005VE 2L005GA	2L005VE 2L005GA	2L005VE 2L005GA				
TUBE	4L007			IMPREGNATION	VARNISH		
CURE	1 X 1 1/4 NW						



# Southwest Radio & Electric Co. 1933

1250 volts @ 500 ma

$\frac{N}{E} = 146$

10amps C.T. Blue  
 10amps C.T. Green  
 1amp pilot light white

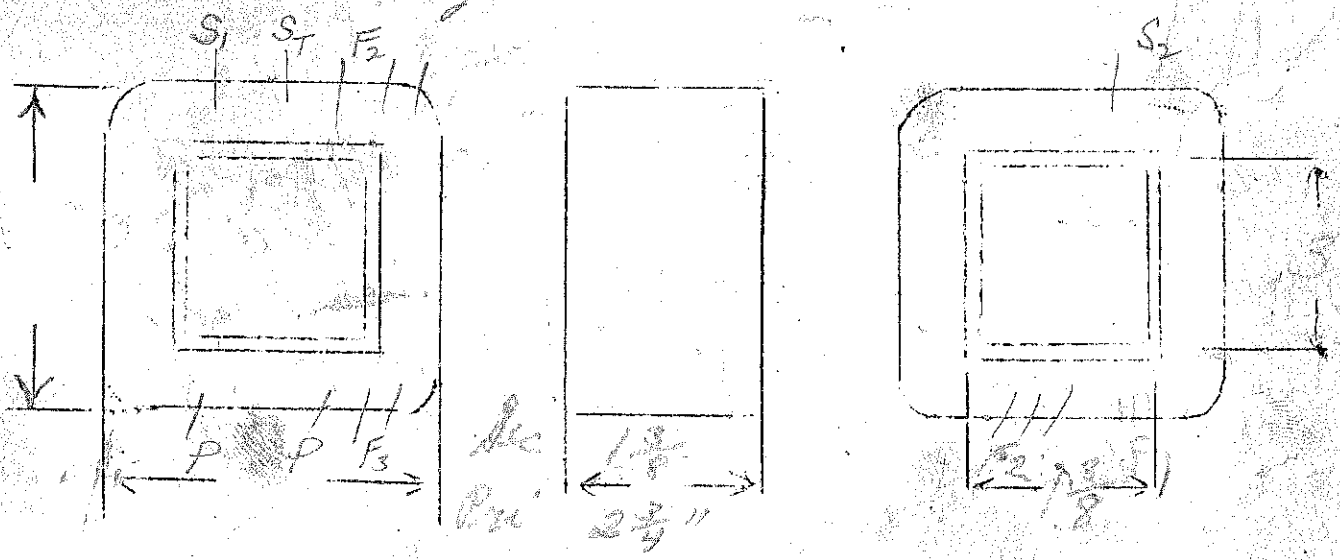
SPEC. NO. 417

Winding	SEC	PRI	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>		
Turns	1960	168	16	4	4		
Taps	—	—	8	2	—		
Wind. Lgth.	1 7/8"	2 1/2"	—	—	—		
Wire Size	#27	#15	#13	#13	#20		
T.P.L.	61-36		—	—	—		
Kind Term.		WIPE	WIPE	—	—		
Term. Lgth.	12"	12"	12"	12"	12"		
Layer Insul.	30#	005GA					
Wrapper	3L007VC 2L005GA	3L007VC 2L005GA		3L007VC 2L005GA			

TUBE | 2L007+3L007VC. | IMPREGNATION | YARNISH

CURE | 1 3/4 x 3"

*F<sub>2</sub> insulated from other filaments by 3L007VC*



*See Reverse Assembly  
 F<sub>3</sub> leads out grammet for mounting*



$E_p = 115V$

$\frac{N}{E} = 5.5$

Part

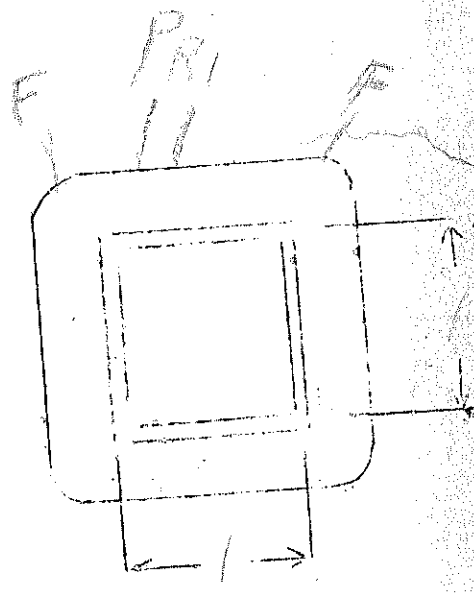
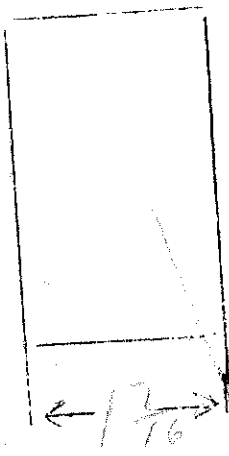
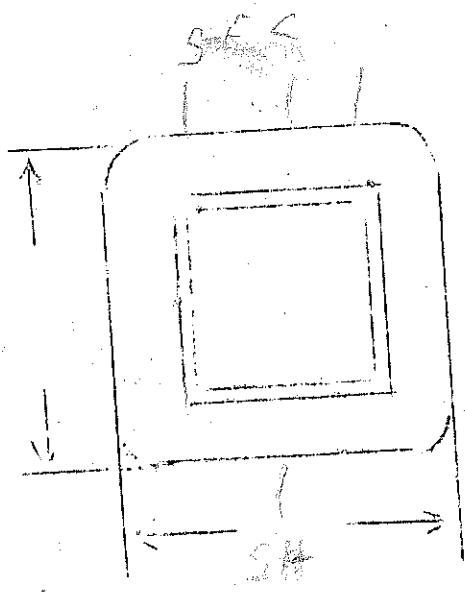
$S = 400V @ 75Ma$

(BREAKER)

$F_1 = 5V - 2amps$

SPEC. NO. 532 418

Winding	PRI	SHIELD	SEC	F1			
Turns	630	152	2400	30			
Taps		-	1200	—			
Wind. Lgth.	1.25	1.25	1.25	—			
Wire Size	#27	#34	#34	#20			
T.P.L.	68-10	152	152-16	—			
Kind Term.	#20 FBR	Sil. BR	#30 FBR	WIRE			
Term. Lgth.	9"	3"	9"	9"			
Layer Insul.	30#		20#	30			
Wrapper	1005VE	1005VE	2005DA	→			
TUBE	46007	IMPREGNATION		VARNISH			
CURE	111 NW						



STEP DOWN - 250 → 115V - 75 watt

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

SPEC. NO. 419

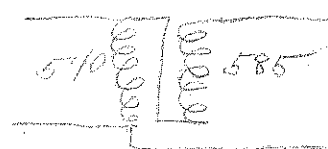
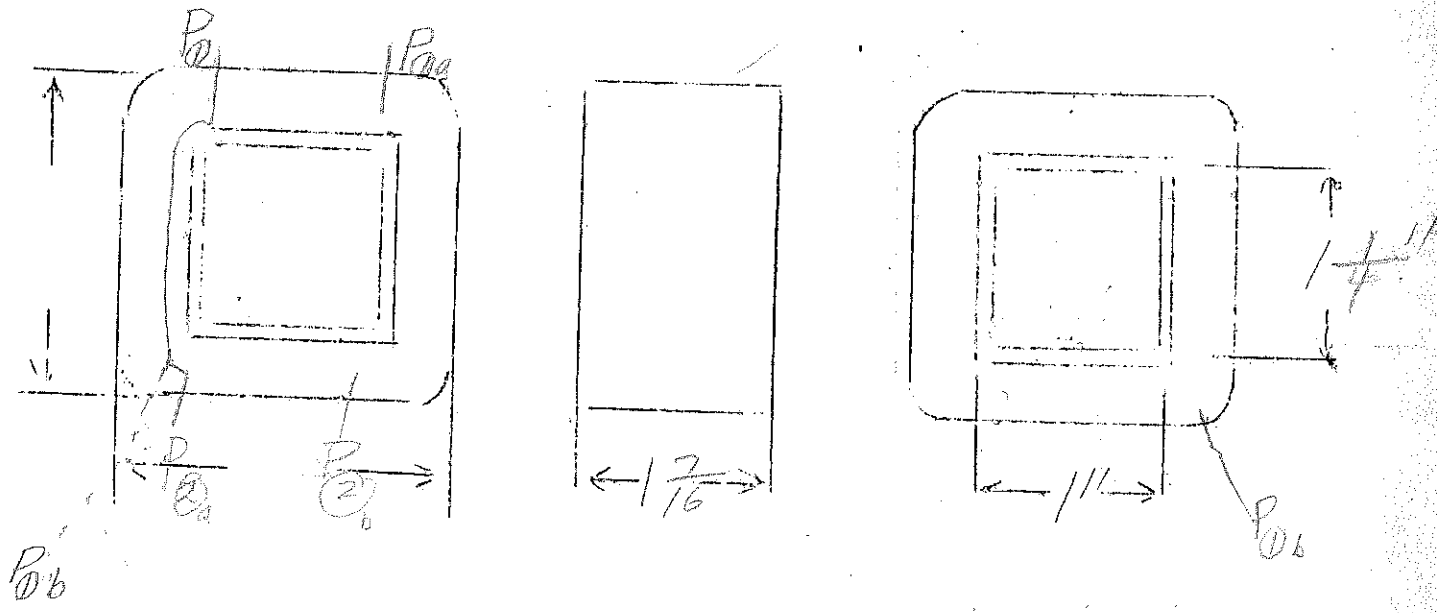
1125  
54  
26

Winding	PR1①	PR1②				
Turns	585	540				
Taps	—	—				
Wind. Lgth.	1.25	1.25				
Wire Size	#26	#24				
T.P.L.	66-9	55-10				
Kind Term.						
Term. Lgth.						
Layer Insul.						
Wrapper	1L005-VG					

TUBE 4L007 IMPREGNATION VARNISH

CURE 1 1/4 MW

finish with 18" cork and grommets.



$E_p = 115V$  (tapped)

$E_s = 3500V - 60mA$

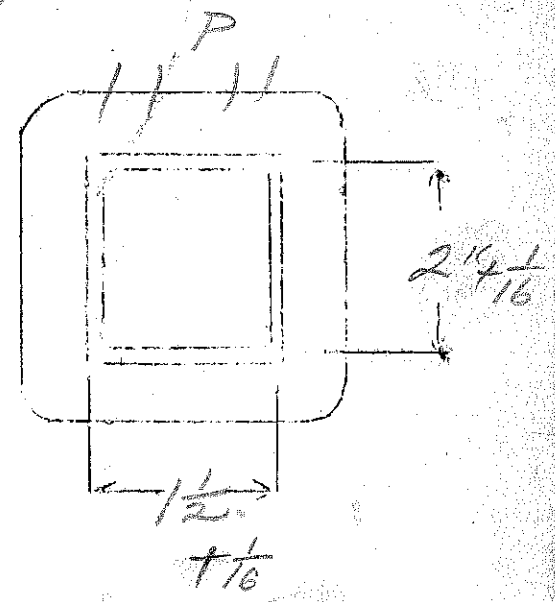
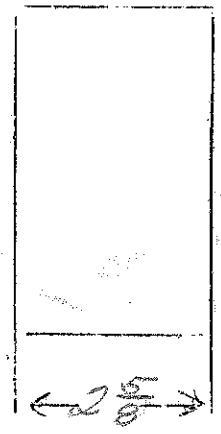
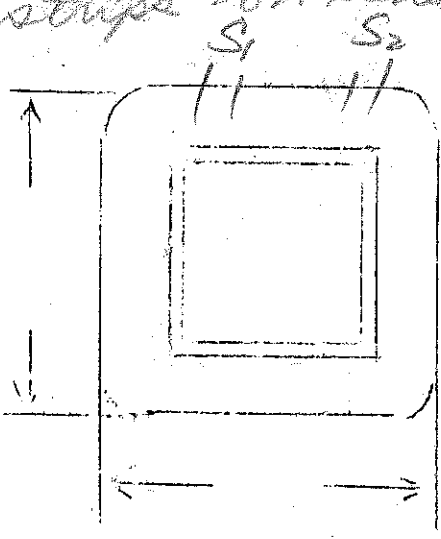
$E_s = 2500V - 18mA$

$\frac{N}{E} = 1.92$

SPEC. NO. 420

Winding	S <sub>1</sub>	S <sub>2</sub>	P continuous			
Turns	7300	5200	222	158		
Taps	—	—	—	///		
Wind. Lgth.	2 7/8	2 7/8				
Wire Size	#34	#37	#19	#21		
T.P.L.	285-26	380-14	5 layers	3 layers		
Kind Term.	511Bz VC. Tubing	511Bz VC. Tubing	WIRE			
Term. Lgth.	3"	3"	3"	3"		
Layer Insul.	#50	50#				
Wrapper	2L007VC	4L007VC	2L0050A			
TUBE	2L007+2L007VC		IMPREGNATION		VARNISH	
CURE	1 1/2" x 2"					

Wrap secondaries before single winding. Use VC strips on sides.



S<sub>1</sub> - Blue  
S<sub>2</sub> - Red

$E_p = 115V$

$S_1 = 3500V - 60Ma$

$S_2 = 2500V - 18 ma$

max. V. on load = 180 with slow time

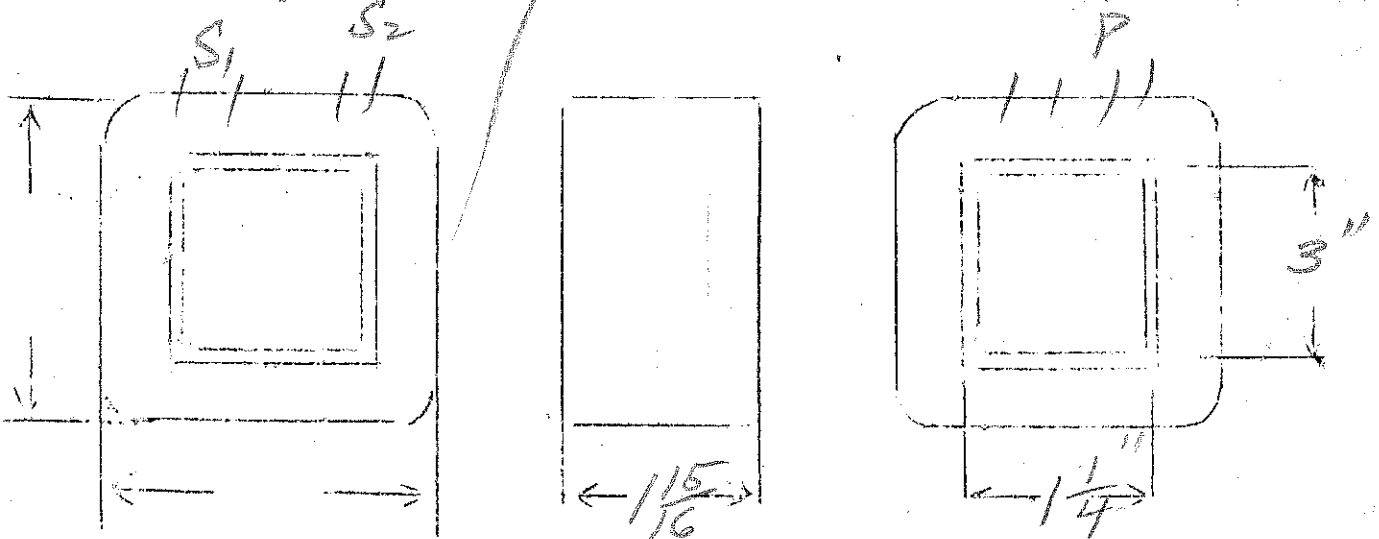
$\frac{N}{E} = 1.52$

SPEC. NO.

420

Winding	$S_1$	$S_2$	P cont.	
Turns	5800	4200	170	125
Taps	—	—	—	88
Wind. Lgth.	125	125	—	—
Wire Size	#35	#37	#19	#21
T.P.L.	240-24	305-14	4 layers	3 layers
Kind Term.	#30 Pbr	#30 Pbr	WIRE	
Term. Lgth.	3"	3"	3"	3"
Layer Insul.	20#	20#		
Wrapper	2L007VC	2L007VC	2L0050-A	
TUBE	7L007+1L007VC		IMPREGNATION	VARNISH
CURE				

B mounting — standard panel — pin on left 4  
the on right 4



Choke

New Stock

2 by e200ma

68 ohms D.C. resistance

SPEC. NO. C420

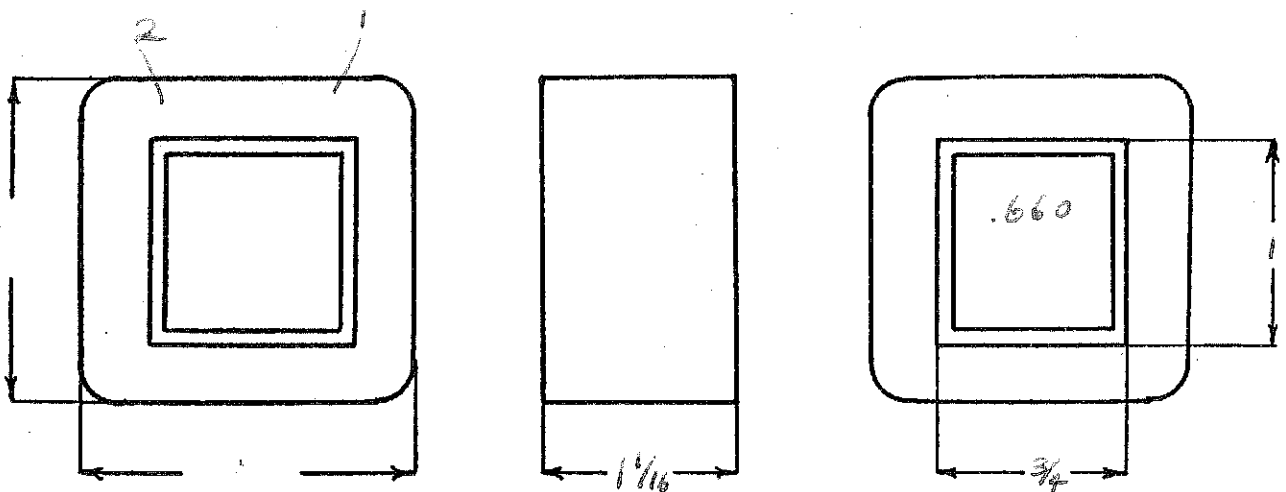
Winding		1-2 Choke				
Turns		1584				
Taps		—				
Wind. Lgth.		7/8				
Wire Size		#30				
T. P. L.		72-22L				
Finish Pitch		90%				
Type Lead		#22 Pulac				
Lead Lgth.		12"				
Layer Insul.		30#				
Test Volt.		1750				
Wrapper		2L0056K				

TUBE	4L-0106K+1L003VP	IMPREGNATION	Varnish
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CORE	3/4 x 1	GAGE	24	GRADE	D	STACK	Butt .005 gap
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MOUNTING

wn = 8790



DESIGNED BY A. Hadley

DATE 4-2-50

# DESIGN AND TEST DATA

Rating:

Winding		1-2 <i>Choke</i>					
Mean Turn		4.83					
Resistance 25° c		67.2					
Pounds Copper		.1980					
Copper Density		503					
Ratio Volts		—					
Test to Ground		1750					

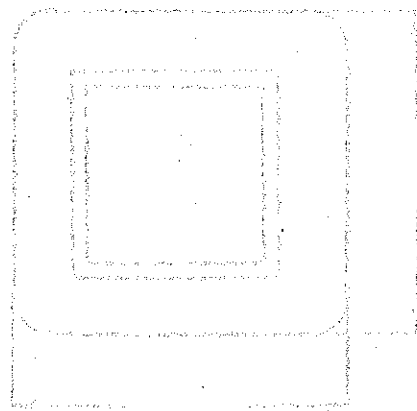
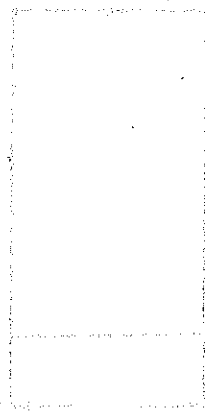
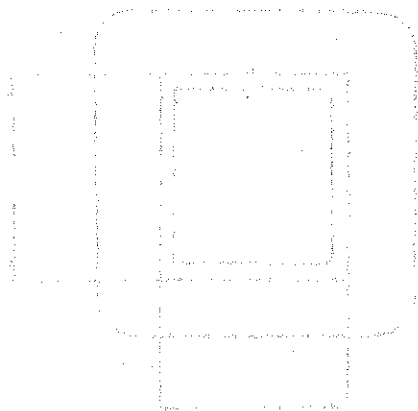
Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles  
 Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_  
 Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{L} = \frac{1584 \times 2}{10.61} = 29.9$$

$$L = \frac{18.7 \times 10^{-9} \times 48.8}{.2 \times .2} = 2.28 \text{ } \mu\text{h}$$

$L = 2.19 \text{ } \mu\text{h}$  measured



Choke

New Stock

2 henrys @ 200ma

68 ohms D.C. resistance

SPEC. NO. C420

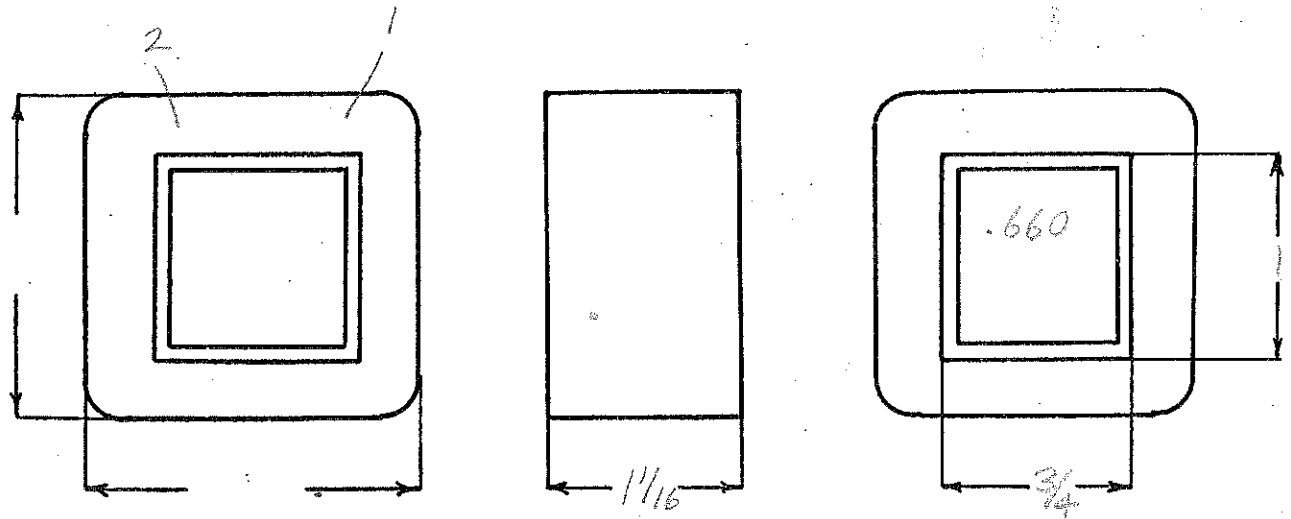
Winding	1-2					
	Choke					
Turns	1584					
Taps	—					
Wind. Lgth.	7/8					
Wire Size	#30					
T. P. L.	72-22L					
Finish	90%					
Type Lead	#22 Dulac					
Lead Lgth.	12"					
Layer Insul.	30#					
Test Volt.	1750					
Wrapper	2L005GK					

TUBE 4L010 GK+14-003VP IMPREGNATION Varnish

CORE 3/4 x 1/4 GA. 24 GRADE D STACK Butt .005 line

MOUNTING D-leads

win = 87%



DESIGNED BY A. Hadley

DATE 4-2-50

# DESIGN AND TEST DATA

Rating:

65.4 @ 72°F

Winding		1-2 Choke					
Mean Turn		4.83					
Resistance 25° c		67.2					
Pounds Copper		.1980					
Copper Density		503					
Ratio Volts		—					
Test to Ground		1750					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

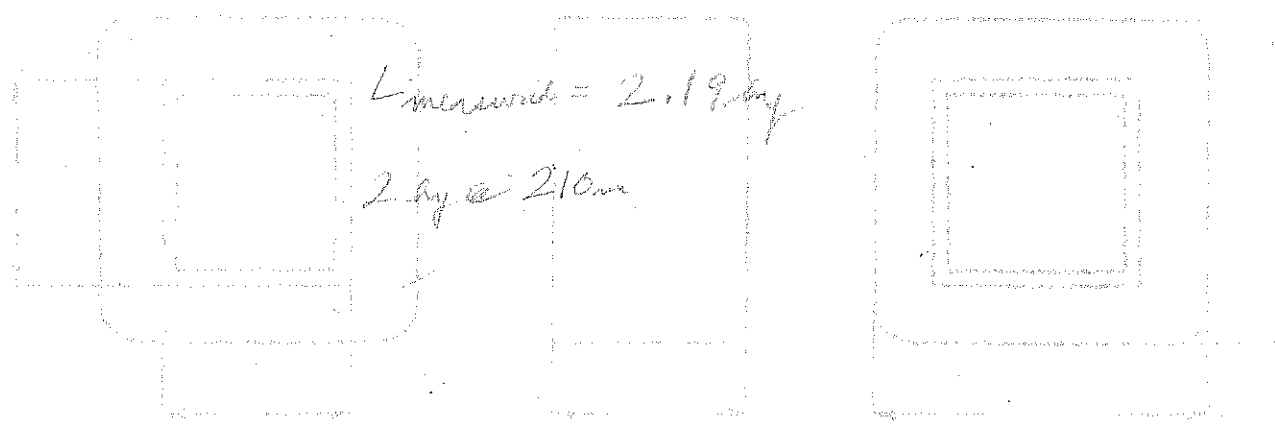
Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{l} = \frac{1584 \times 2}{10.61} = 29.9$$

$$L = \frac{18.7 \times 10^{-9} \times 48.8}{2 \times 2} = 2.28 \text{ henrys}$$





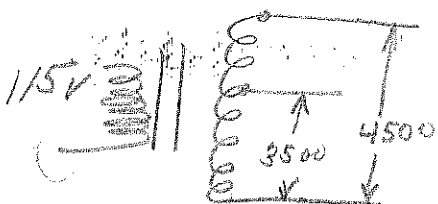
CALTECH

B = 11700

$f = 250 \text{ Ma}$

$\frac{N}{F} = 1.44$

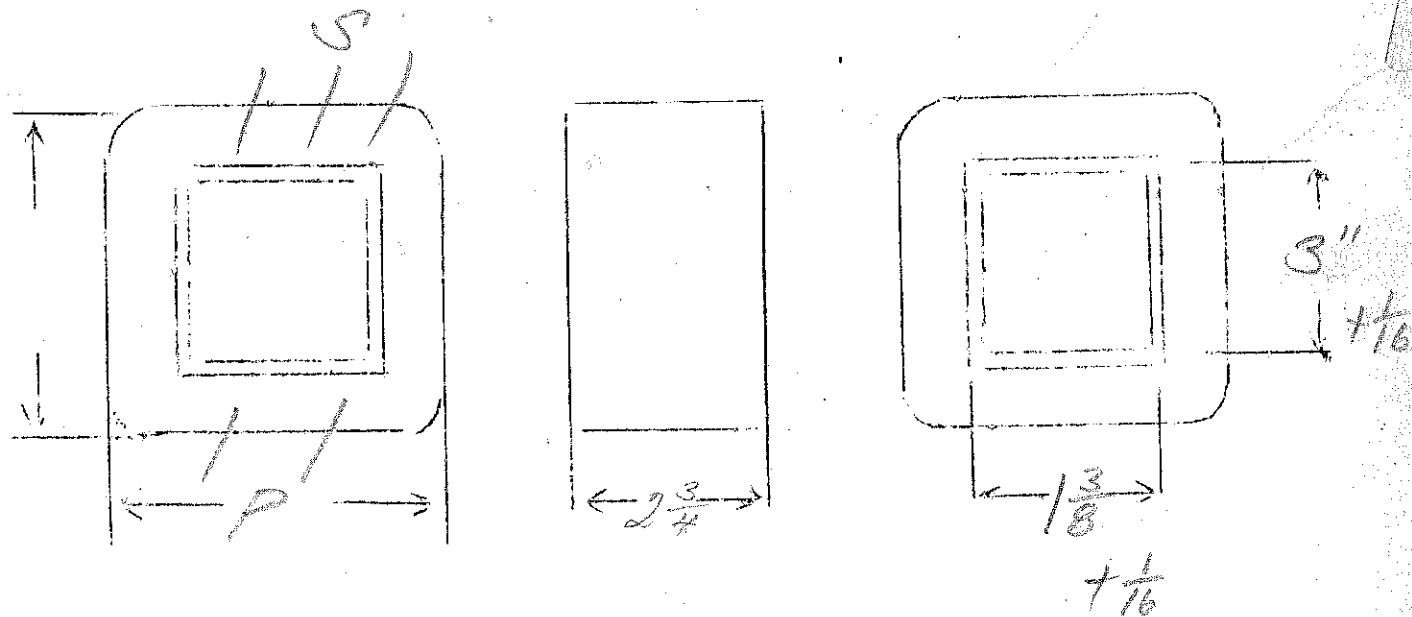
$E_i = 560 \text{ Watts}$



SPEC. NO. 421

Winding	SEC	PRI				
Turns	7100	166				
Taps	5480	—				
Wind. Lgth.	2 1/2	2 1/2				
Wire Size	#28E	#15E				
T.P.L.	172-42	35-5				
Kind Term.	#20 in V.O. PBE Subing	WIRE				
Term. Lgth.	12"	12"				
Layer Insul.	#50					
Wrapper	Re-wrap 020 2L0056A					
TUBE	2L007 + 2L007VC	IMPREGNATION	VARNISH			
CURE	1 3/8 x 3"					

wrap sec. before single winding



Choke

new stock

1.0 ohm @ 300 ma

45 ohms D.C. resistance

SPEC. NO. C 422

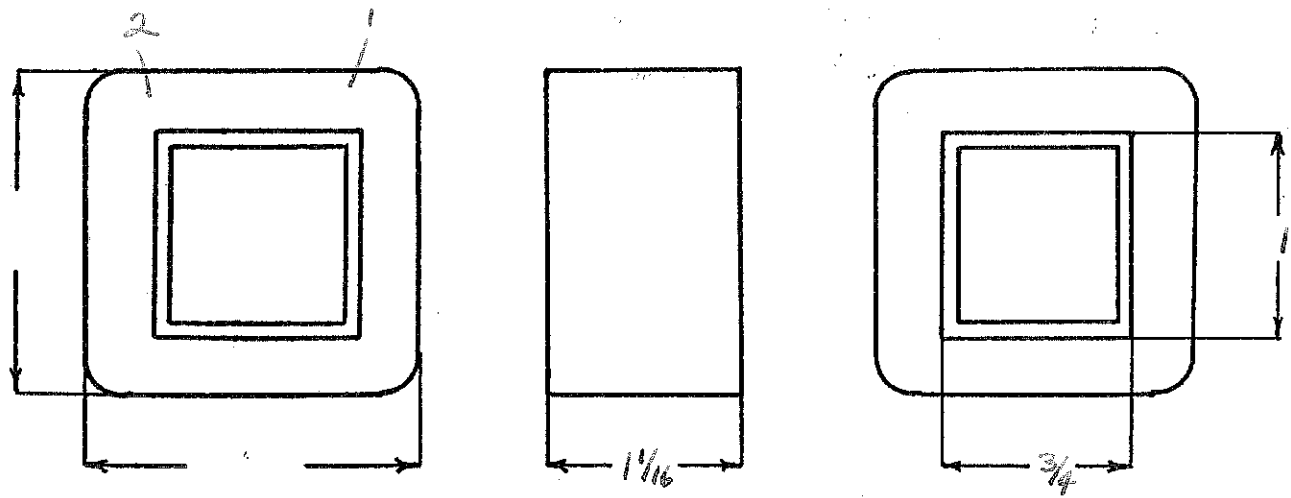
Winding	1-2					
Turns	Choke					
Taps	1280					
Wind. Lgth.	—					
Wire Size	7/8					
T. P. L.	#29					
Finish	64-20L					
Type Lead	90%					
Lead Lgth.	#22 Dulac					
Layer Insul.	12"					
Test Volt.	30#					
Wrapper	1750					
	2L005FH					

TUBE 4L010FH+1L003VP IMPREGNATION Varnish

CORE 3/4 x 1/4 GA. 24 GRADE D STACK Butt .005 lip

MOUNTING D-leads

wn = 88%



DESIGNED BY A. Hadley

DATE 2-14-50

# DESIGN AND TEST DATA

Rating:

Winding		1-2 <i>Choke</i>					
Mean Turn		4.84					
Resistance 25° c		43.2					
Pounds Copper		.202					
Copper Density		422					
Ratio Volts.		—					
Test to Ground		1750					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles \_\_\_\_\_

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

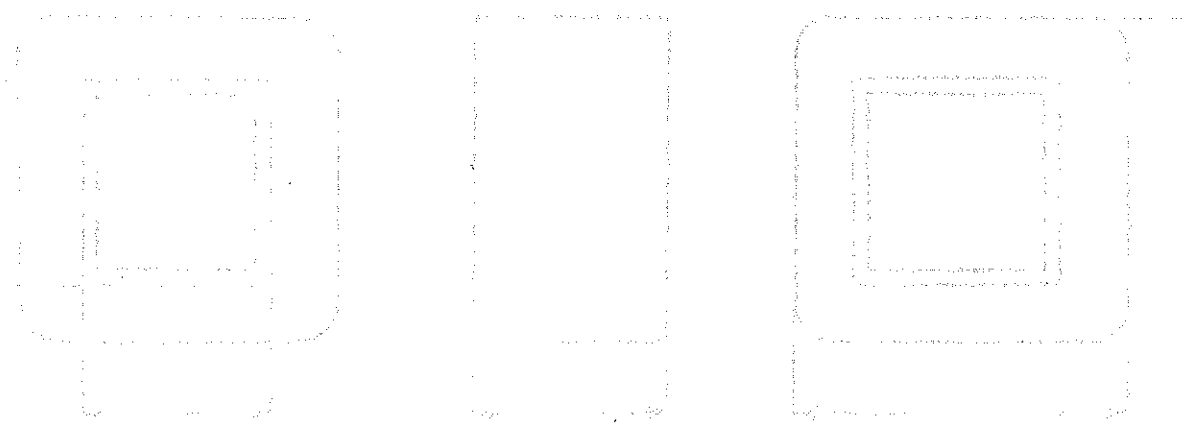
Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{L} = \frac{1280 \times 3}{10.61} = 36.2$$

$$L = \frac{24 \times 48.8 \times 10^{-9}}{.3 \times 3} = 1.30 \text{ hy}$$

*1.03 hy measured*



Choke

new stock

1.0 ohm @ 300 ma

45 ohm o.c. resistance

SPEC. NO. C 422

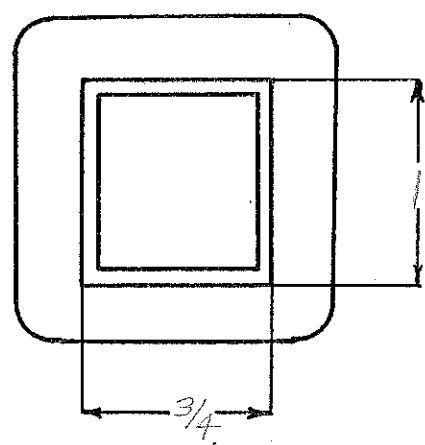
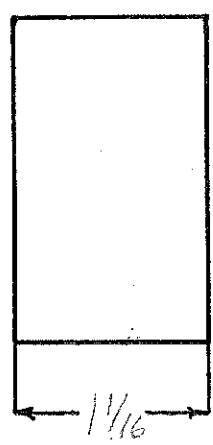
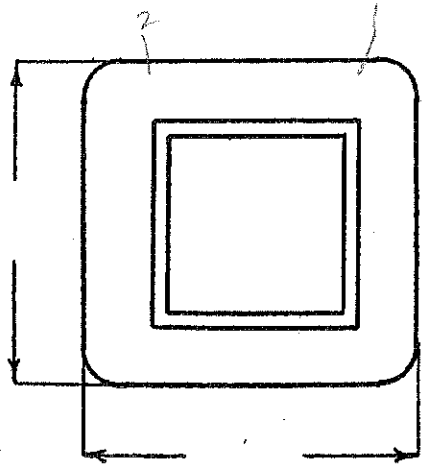
Winding		1-2 Choke					
Turns		1280					
Taps		—					
Wind. Lgth.		7/8					
Wire Size		#29					
T. P. L.		64-20L					
Finish		90%					
Type Lead		#22 Dulac					
Lead Lgth.		12"					
Layer Insul.		30#					
Test Volt.		1750					
Wrapper		2200564					

TUBE 4L010GK+1L003VP IMPREGNATION Varnish

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

MOUNTING D-leads

min = 88%



DESIGNED BY A. Hadley

DATE 2-14-50

# DESIGN AND TEST DATA

Rating:

41.5  $\mu$ e<sup>1/2</sup>°F

Winding		1-2 <i>Choke</i>				
Mean Turn		4.84				
Resistance 25° c .		43.2				
Pounds Copper		2.02				
Copper Density		422				
Ratio Volts		—				
Test to Ground		17.50				

Iron Induction @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

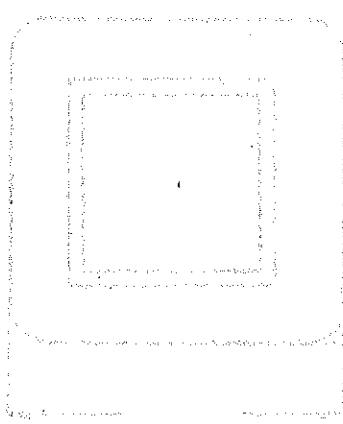
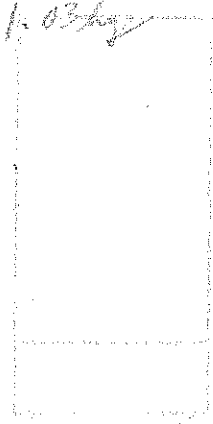
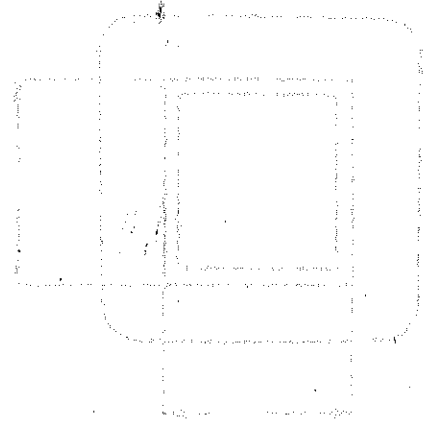
Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{l} = \frac{1280 \times 3}{10.61} = 36.2$$

$$L = \frac{24 \times 48.8 \times 10^{-9}}{3 \times 3} = 1.3 \mu\text{H}$$

*1.03  $\mu$ H*



Variable Auto Transformer  
 80 Volts to 125 Volts  
 @ 150 VA

SPEC. NO. P-424

Winding		Pri. & Sec.				
Turns		500				
Taps	100 - 200	300 - 400	420 - 440	460 - 480		
Wind. Lgth.		1-7/16"	1.4375"			
Wire Size		#20				
T. P. L.		39 - 13L				
Finish Pitch		90%				
Type Lead		W.O.				
Lead Lgth.		6"				
Layer Insul.		1L .005 GK				
Test Volt.		1250V				
Wrapper		.005" GA				

*all Single Wound*

TUBE	7L - .007" GK	IMPREGNATION	VARNISH
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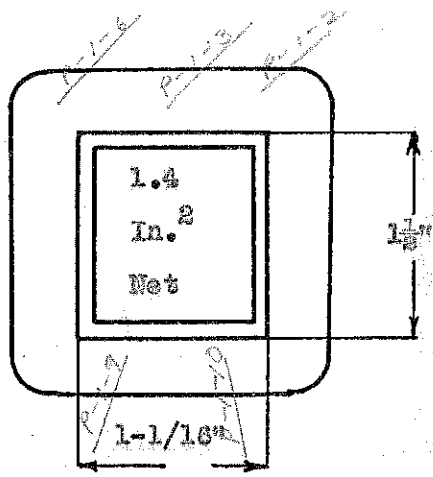
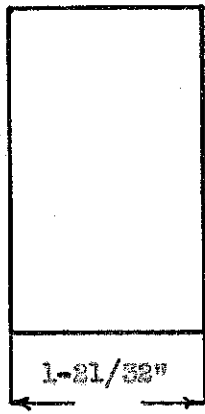
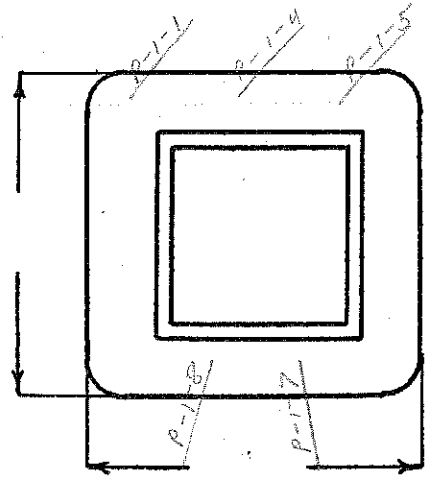
CORE 1-1/16 x 1 1/8 GA. 24 GRADE D STACK 2 x 2

MOUNTING "F"

*all Single Wound*

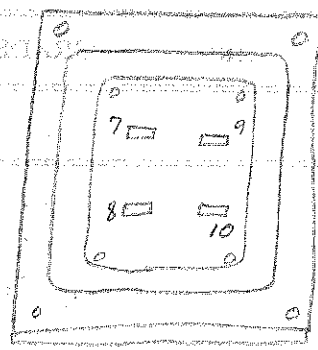
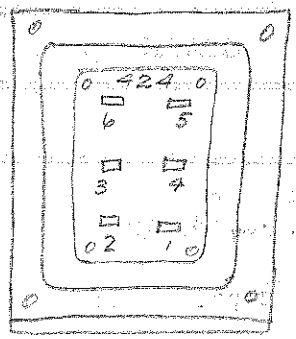
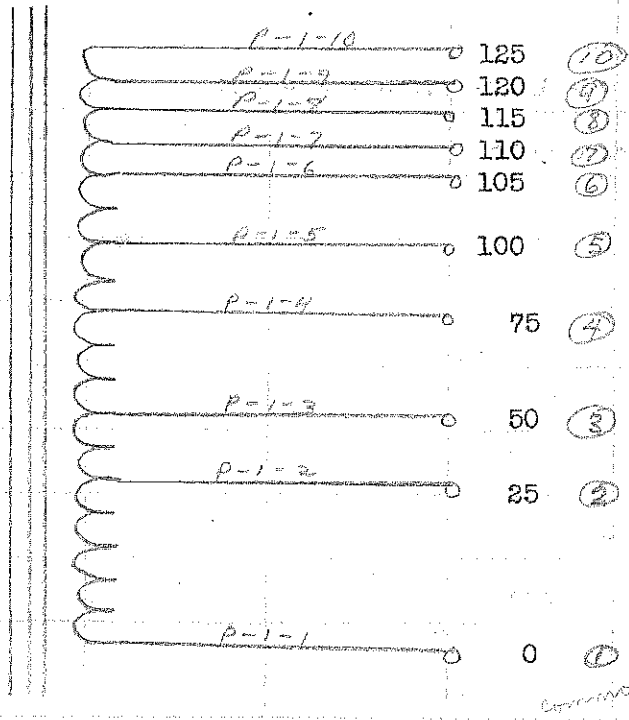
Cu = 543  
 Fe = 67 @ 60 Cycle  
 TPV = 4.0  
 Wire Net = 0.510" (0.487")

Sec. VA = 150  
 Sec. I = 1.68 Amp  
 $\frac{1.68}{.95 \times .95} = 3.09$  Amp

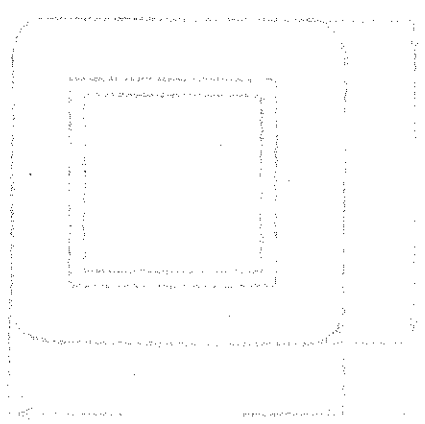
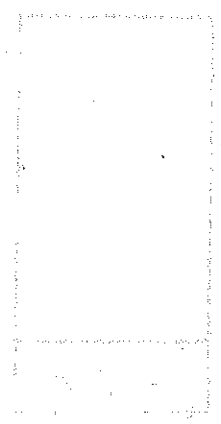
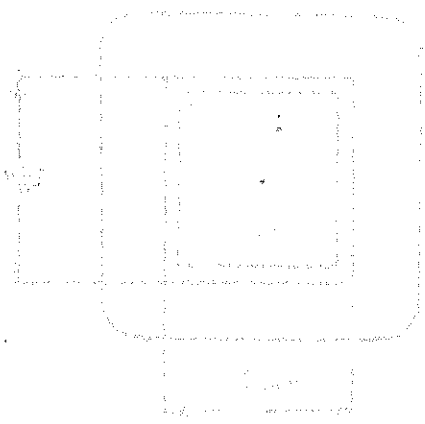


Re-DESIGNED BY H. W. S.

DATE 8 - 14 - 41



"F" case  
 Panels - Both sides.  
 Arrange terminals as shown.  
 Stamp - steel letters, as shown.



Variable Auto Transformer  
 80 Volts to 125 Volts  
 © 300 VA

8321

SPEC. NO. P-425

Winding			Pri. & Sec.			
Turns			325			
Taps	65 - 130 - 195 - 260 - 275 - 286 - 299 - 312					
Wind. Lgth.			1-3/4" = 1.75"			
Wire Size			#17			
T. P. L.			34 - 10L			
Finish Pitch			91%			
Type Lead			W.O.	+ V.C. Sleeve		
Lead Lgth.			6"			
Layer Insul.			1L .007" GK			
Test Volt.			1250			
Wrapper			2L .005" GA			

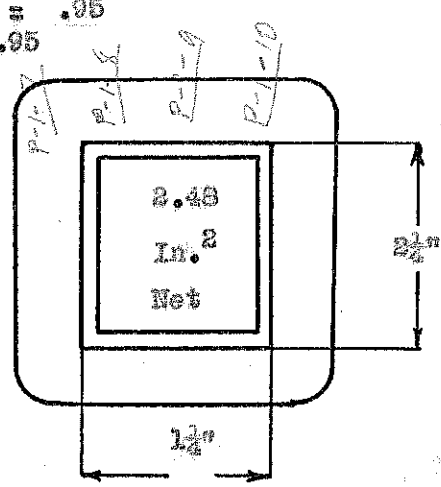
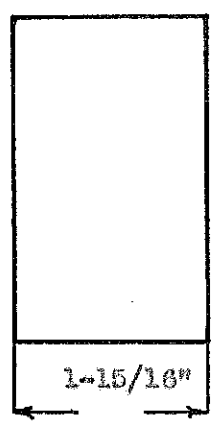
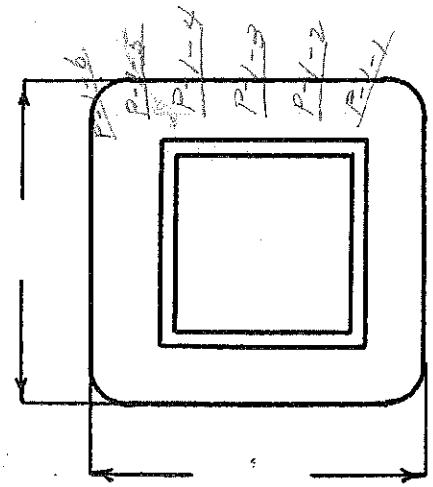
TUBE	7L - .007" GK	IMPREGNATION	VARNISH
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CORE 1 1/4 x 2 1/2 B & I GA. 24 GRADE D STACK 2 x 2

MOUNTING "F" *- All single wood -*

Cu = 493 @ 4.15 Amp.  
 Fe = 58 @ 60 Cycle  
 TPV = 2.6  
 Wire Net = 0.558" (0.549")

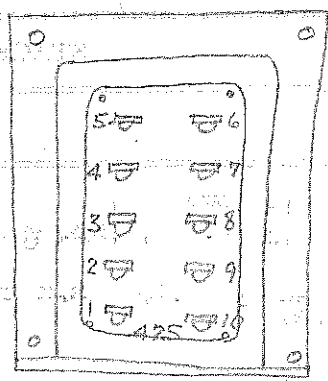
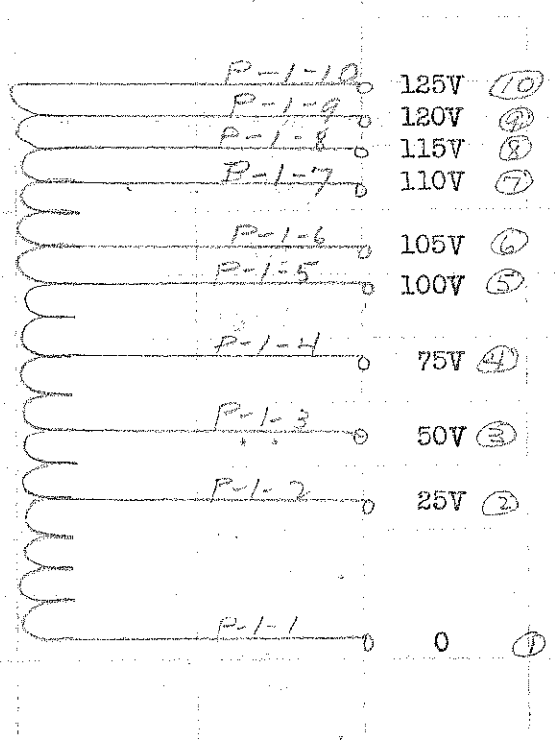
Sec. VA = 300  
 Sec. I = 3.75A, Max. @ 80V  
 $\frac{3.75}{.95 \times .95} = 4.15 \text{ Amp.}$   
 Efficiency = .95  
 COS  $\theta$  = .95



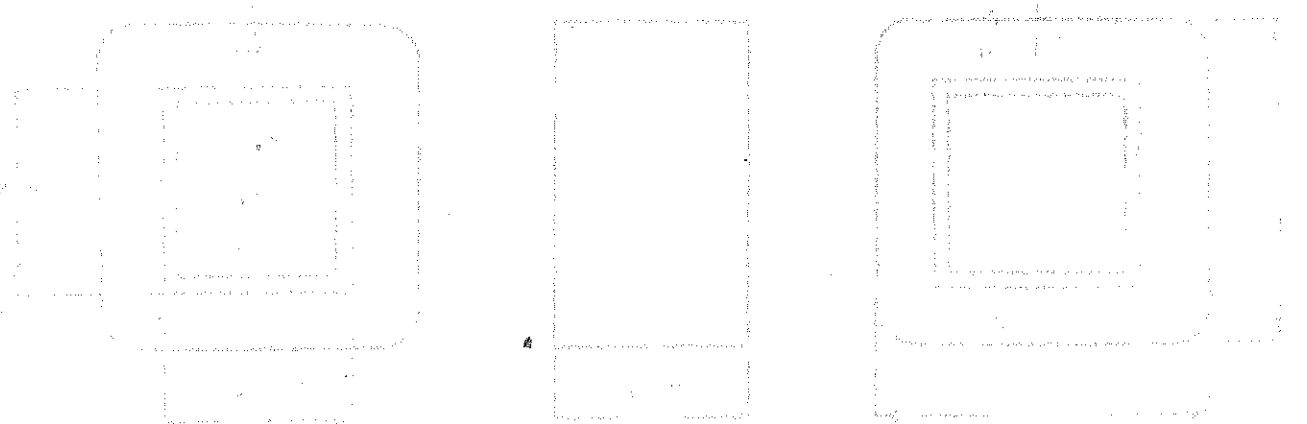
Redesigned BY H. W. S.

DATE 7 - 25 - 41





"F" Case  
 Panel - one side only  
 Arrange terminals as shown  
 Stamp - steel letters, as shown  
 (Extra Large solder lugs)

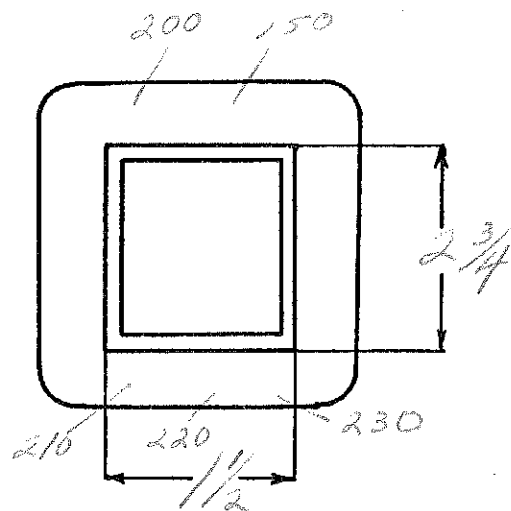
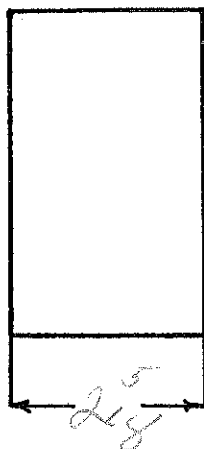
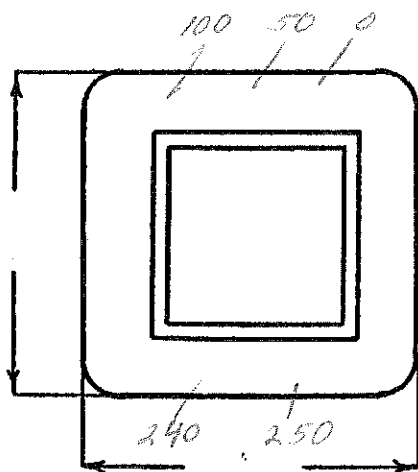


# 600 Watt Auto-transformer

0, 50, 100, 150, 200, 210, 220, 230, 240, 250V

SPEC. NO. P426-230V

Winding	Pr						
Turns	500						
Taps	100-200-300-400-420-440-460-480						
Wind. Lgth.	2 1/4						
Wire Size	#16						
T. P. L.	43 - first layer						
Finish							
Type Lead	W.O.						
Lead Lgth.	5"						
Layer Insul.	007K						
Test Volt.	Standard						
Wrapper	3L007GA						
TUBE	9L007GK	IMPREGNATION			Double Varnish		
CORE	1/2 x 2 3/4	GA.	24	GRADE	P	STACK	2 x 2
MOUNTING	G						



DESIGNED BY JCG

DATE

Variable Auto Transformer

80V to 125V

© 600 VA

SPEC. NO. P-426

Winding			Pri & Sec				
Turns			<del>250</del>				
Taps		<del>50 - 100 - 150 - 200 - 210 - 220 - 230 - 240</del>					
Wind. Lgth.			2-1/4"				
Wire Size			#13				
T. P. L.			29 - 10L				
Finish Pitch			95%				
Type Lead			W.O.				
Lead Lgth.			6"				
Layer Insul.			1L .007" K				
Test Volt.			1250 ✓				
Wrapper			2L .005" GA				

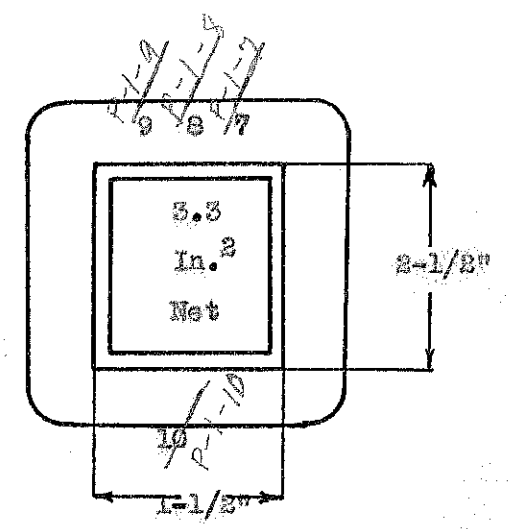
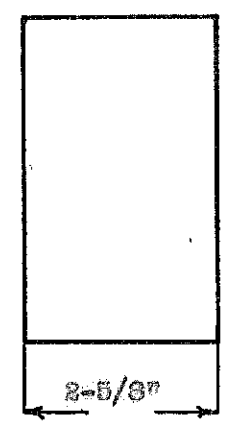
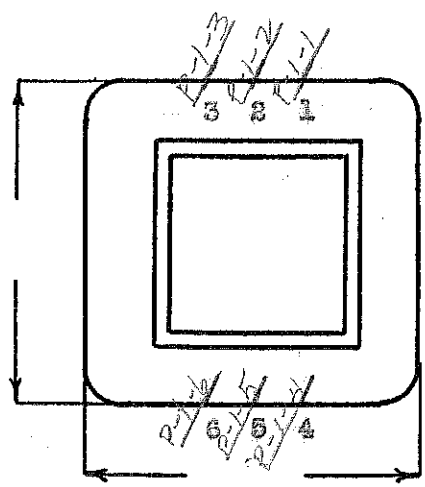
TUBE	10L - .007" GK	IMPREGNATION	VARNISH
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CORE	1-1/2 x 2-1/2 HI GA.	24	GRADE	D	STACK	2 x 2
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MOUNTING "G" - Hollow Studs *- All Single wood -*

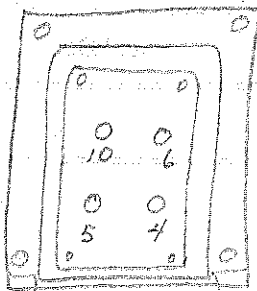
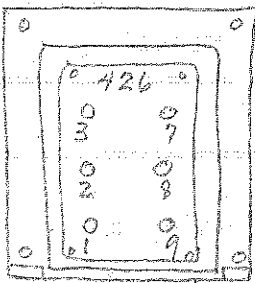
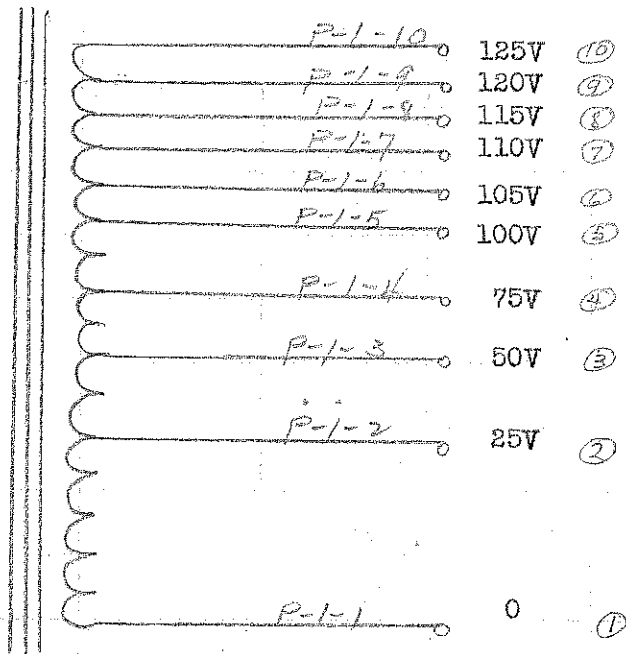
Cu = 625 @ 8.3 Amp  
 Fe = 57 @ 60 Cycle  
 TPV = 2.0  
 Wire Net = 0.790" (0.793")

Sec. VA = 600  
 Sec. I = 600/80 = 7.5 Amp.  
 $\frac{7.5}{.95 \times .95} = 8.3 \text{ Amp.}$

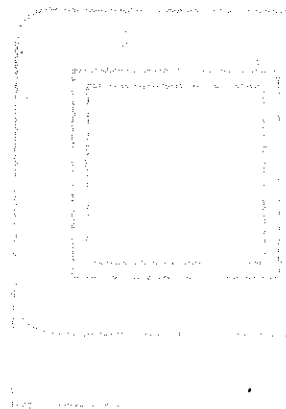
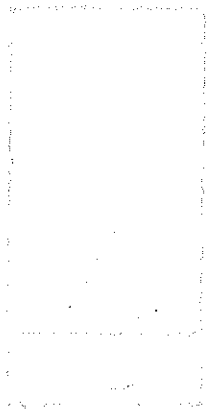


Re-DESIGNED BY H. W. S.

DATE 7 - 25 - 41



6" case  
 Panels - both sides  
 Arrange terminals as shown  
 stamp - steel letters, as shown.



Auto Transformer - 230 to 115 V.  
600 Watts

OLD

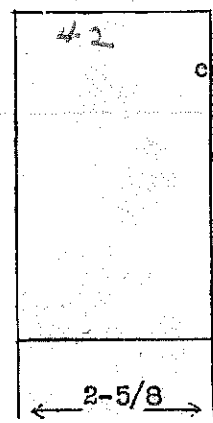
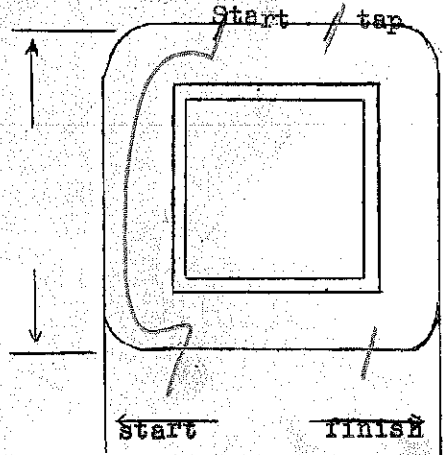
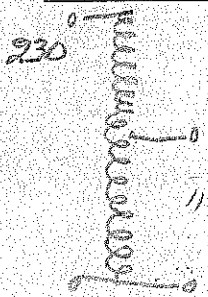
$N/e = 2.1$

SPEC. NO. ~~8423~~ P428

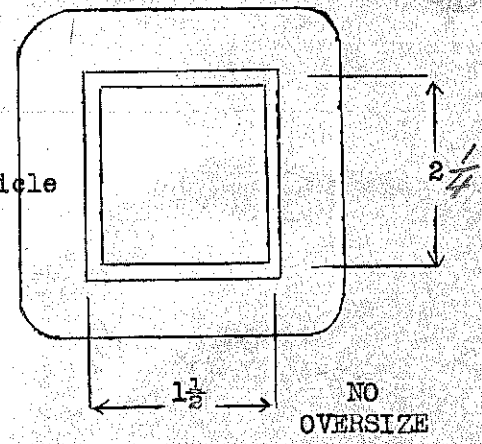
Winding	P					
Turns	483					
Taps	256					
Wind. Lgth.	2-3/8					
Wire Size	#16					
T.P.L.	40					
Kind Term.	W.O.					
Term. Lgth.	3"					
Layer Insul.	007K					
Test Volt.						
Wrapper	3L005GA					

TUBE	9L007	IMPREGNATION	Double Varnish
CORE	$1\frac{1}{2} \times 2\frac{1}{4}$	PRIMARY V.A.	
MOUNTING	T	Wrap in panel	

6' cord and plug  
2" cord and recepticle



cord & plug  
cord & Recepticle



AUTO STEP-DOWN

STOCK

230 Volts @ 50/60 cycles  
to  
115 Volts @ 600 Watts

SPEC. NO. P-428-T

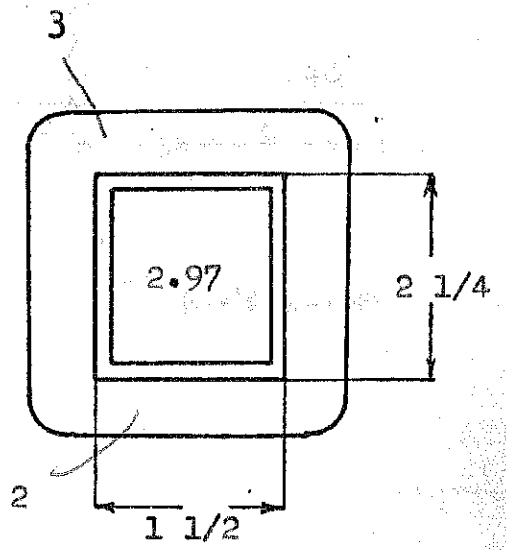
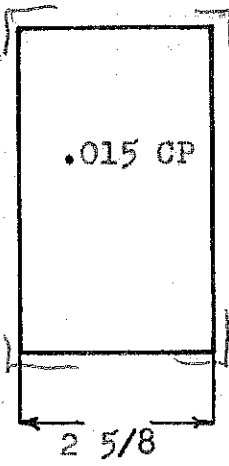
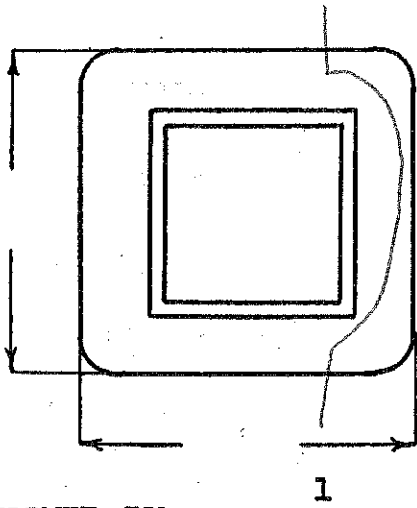
Winding	1-2-3 Pri & Sec					
Turns	550					
Taps	288 1/2					
Wind. Lgth.	2 1/4					
Wire Size	#16					
T. P. L.	40-14L					
Finish	93%					
Type Lead	W.O.					
Lead Lgth.	3"					
Layer Insul.	1L007GA					
Test Volt.	1500					
Wrapper	3L007GA					

TUBE	10L007	IMPREGNATION	Varnish
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CORE	1 1/2 x 2 1/4 GA. 24	GRADE	D	STACK	2 x 2
------	----------------------	-------	---	-------	-------

MOUNTING T

T.P.V. — 2.39  
 Window —  $\frac{.924}{1.00} = 92.4\%$   
 1



DESIGNED BY  
F. Frazer

DATE  
6-47

# DESIGN AND TEST DATA

Rating:

Sec VA = 600  
 Pri VA = 665  
 Ip = 2.90

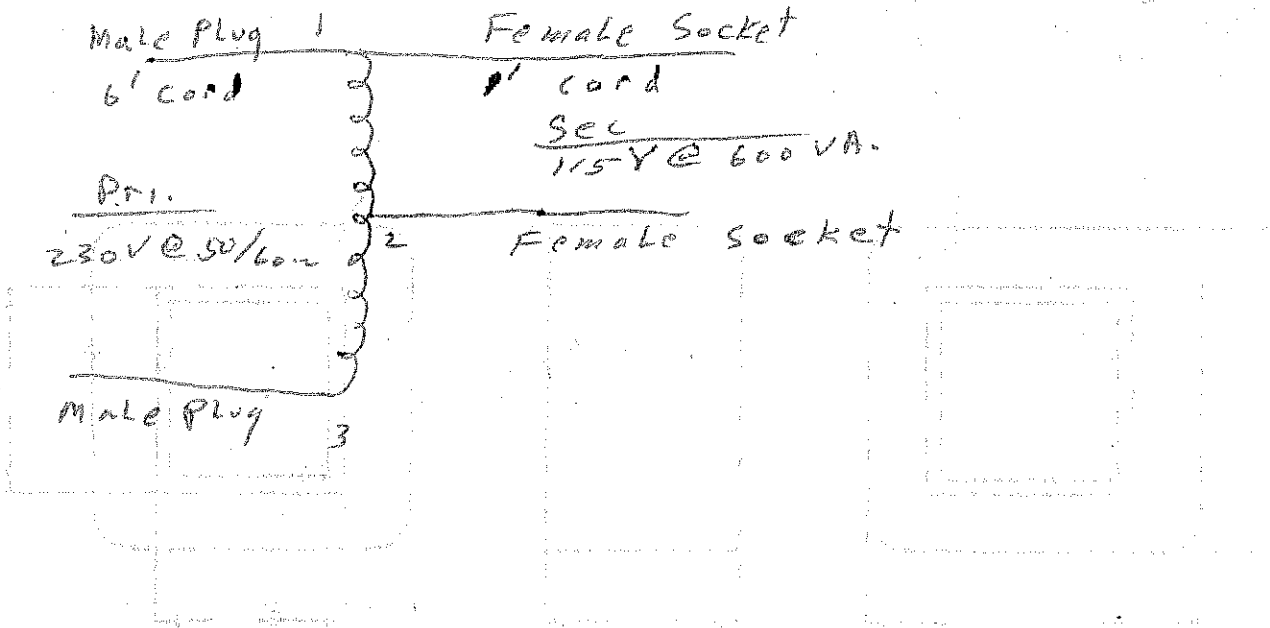
Winding	Pri. & Sec.					
Mean Turn	1107					
Resistance 25° c	2.09					
Pounds Copper	4.04					
Copper Density	891					
Ratio Volts	230 120.4					
Test to Ground	1500					

Iron Induction 9.8 kg @ 50 Cycles

Exciting Current 78 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



AUTO STEP-DOWN

STOCK

230 Volts @ 50/60 cycles

to

115 Volts @ 600 Watts

SPEC. NO. P-428-T

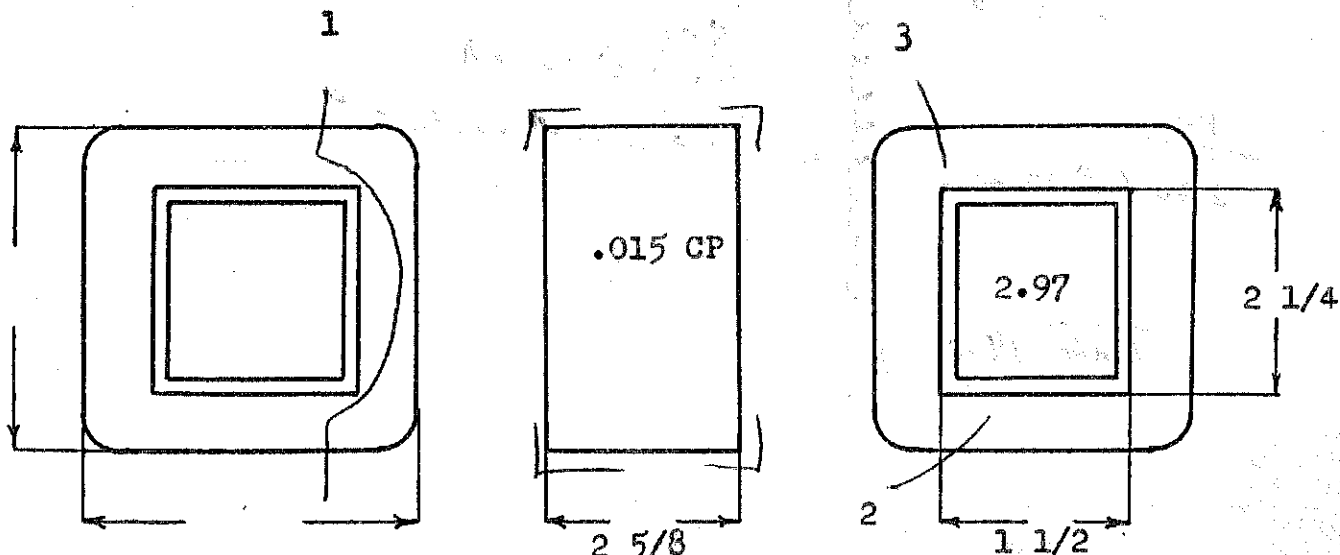
Winding	1-2-3 Pri & Sec				
Turns	550				
Taps	288 1/2				
Wind. Lgth.	2 1/4				
Wire Size	#16				
T. P. L.	40-14L				
Finish	93%				
Type Lead	W.O.				
Lead Lgth.	3"				
Layer Insul.	1L007GA				
Test Volt.	1500				
Wrapper	3L007GA				

TUBE 10L007 IMPREGNATION Varnish

CORE 1 1/2 x 2 1/4 GA. 24 GRADE D STACK 2 x 2

MOUNTING T

T. P. V. — 2.39  
 Window —  $\frac{.924}{1.00} = 92.4\%$



DESIGNED BY

F. Frazee

DATE

6-47



# DESIGN AND TEST DATA

Rating:

Sec VA = 600  
 Pri VA = 665  
 Ip = 2.90

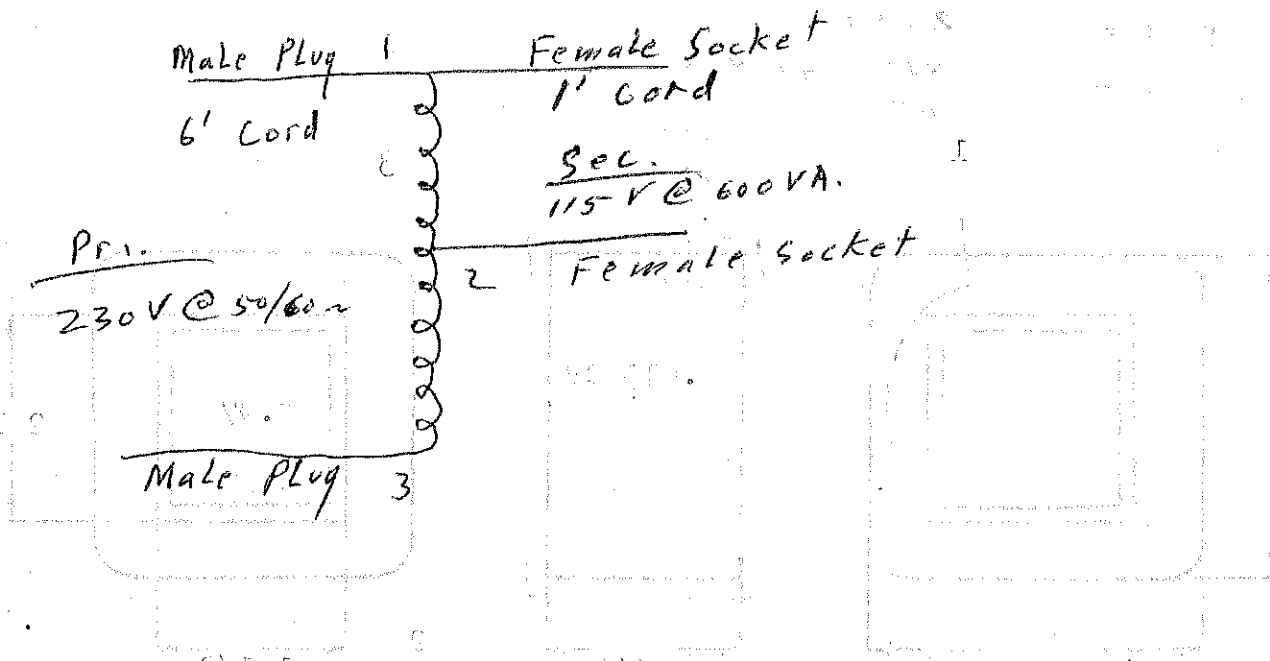
Winding	Fri. & Sec.					
Mean Turn	1107					
Resistance 25° c	2.09					
Pounds Copper	4.04					
Copper Density	891					
Ratio Volts	230 120.4					
Test to Ground	1500					

Iron Induction 9.8 kg @ 50 Cycles

Exciting Current 78 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



Isolation Trans.

115v to 115v - 75 watt

SPEC. NO. P430-T mtg

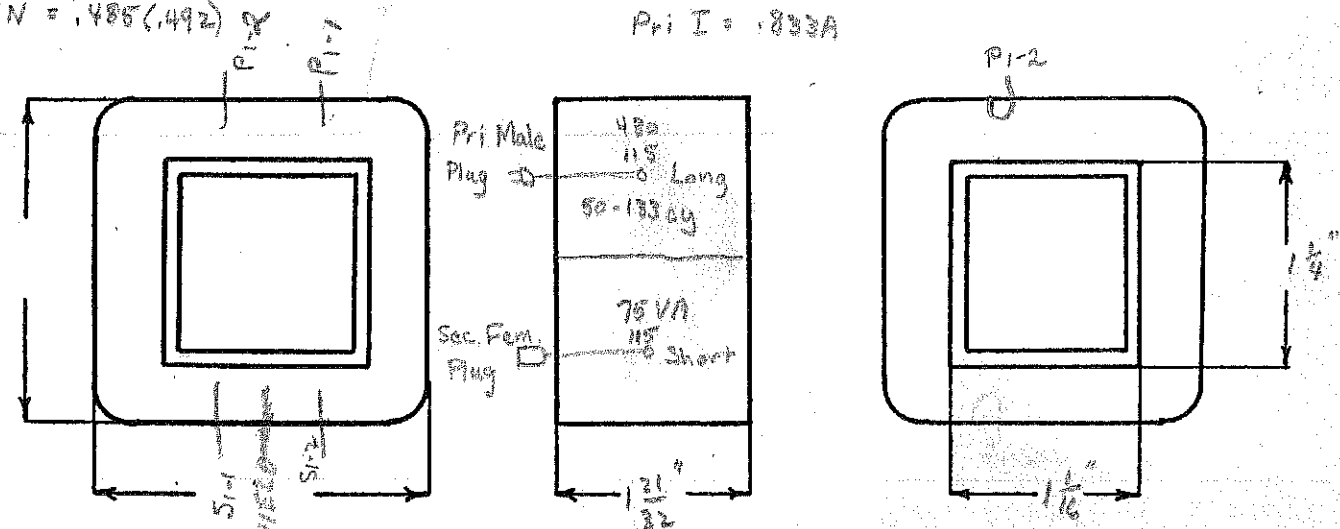
Winding	Primary	Shield	Sec			
Turns	500	1	550			
Taps	-	-	-			
Wind. Lgth.	1 15/32"		1 15/32"			
Wire Size	# 23	.002" cu sheet	# 23			
T. P. L.	56-9L	1	56-10L			
Finish	90.5%	-	90.5%			
Type Lead	W.O.	Sil. Ins.	W O			
Lead Lgth.	4"	4"	4"			
Layer Insul.	# 50	-	# 50			
Test Volt.	1500V	-	1500V			
Wrapper	1L-.007VC	1L-.007VC	2L-.005GA			

TUBE	7L-.007GR + 1L-.005" VC	IMPREGNATION	Varnish
------	-------------------------	--------------	---------

CORE 1/16 x 1/4	GA. 24	GRADE D	STACK 2x2
-----------------	--------	---------	-----------

MOUNTING T

$C_u = 612 - 815$   
 $F_e = 77.1 @ 60v$   
 $TPV = 4.16$   
 $WN = .485 (.492) \times$   
 $Sec VA = 75$   
 $Sec I = .625A$   
 $Pri VA = 100$   
 $Pri I = .833A$



DESIGNED BY G.W.

DATE

Isolation Transf. - 115v to 115v  
150 Watts

Stock

OLD

SPEC. NO. P-431

Winding	Pri	Shield	Sec	
Turns	345	1	360	✓
Taps	-	-	-	
Wind. Lgth.	1 1/16"	1 1/16"	1 1/16"	= 1.6875"
Wire Size	#20	002" Cu Shield	#20	
T. P. L.	45-8 layers	1	45-8 layers	
Finish	89%		89%	
Type Lead	Wire only	Braid	Wire only	
Lead Lgth.	3" ✓		3" ✓	
Layer Insul.	1L 50#9	-	1L 50#9	
Test Volt.	1500V			
Wrapper	1L 007" VC	1L 007" VC	2L 005" GA	

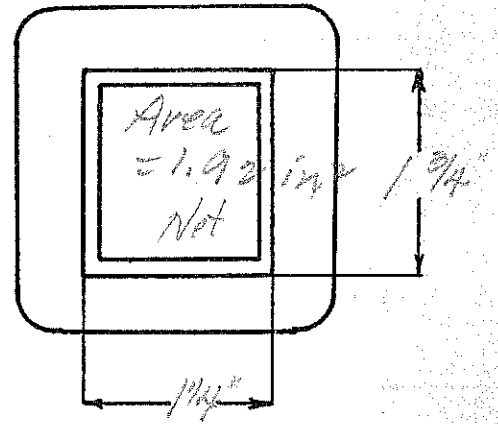
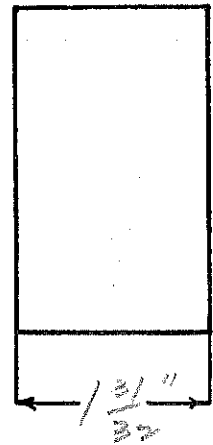
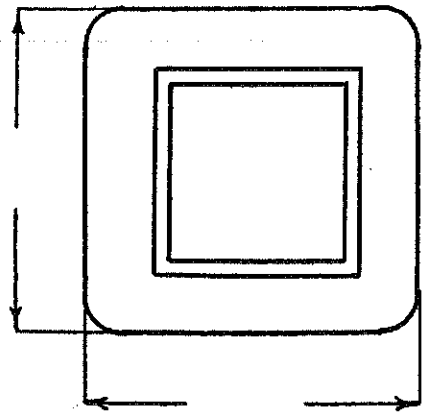
TUBE 7L-007" GA IMPREGNATION

CORE 1/4" x 1 3/4" GA. 24 GRADE STACK 2x2

MOUNTING "T" - Black Case

Cu = 585 - 785  
Fe = 65 max @ 60v  
TPV = 3.0  
η = 83%  
cosφ = 90%

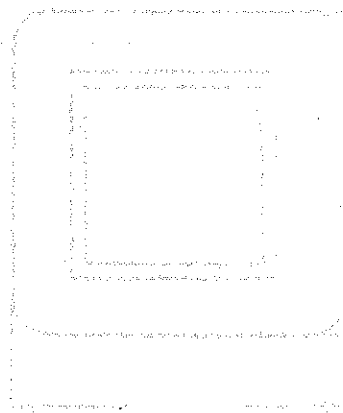
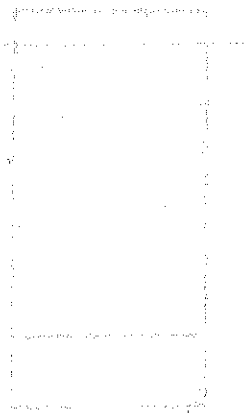
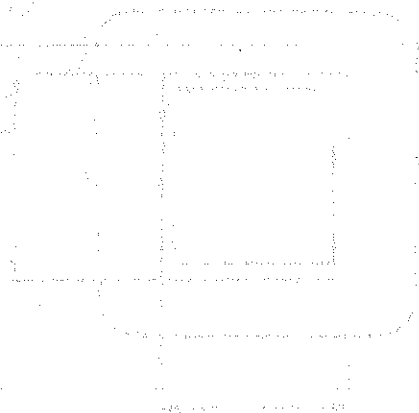
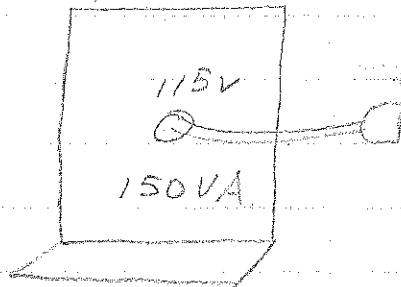
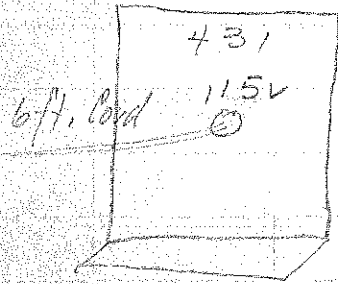
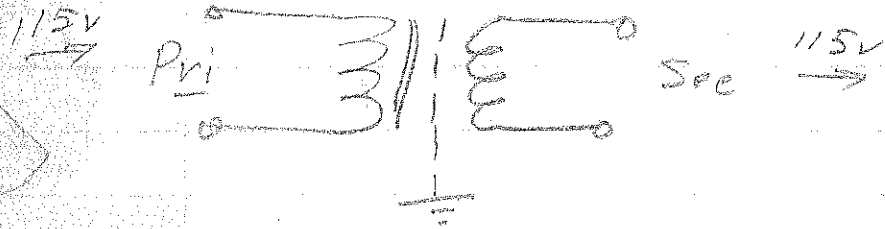
Pri VA = 201  
✓ C<sub>ov</sub> = 1.25



Revised DESIGNED BY HWS

over

DATE 6-3-41



Ep-230V  
 Es-1450VCT or 1200VCT - 250Ma

SPEC. NO. P432-230V

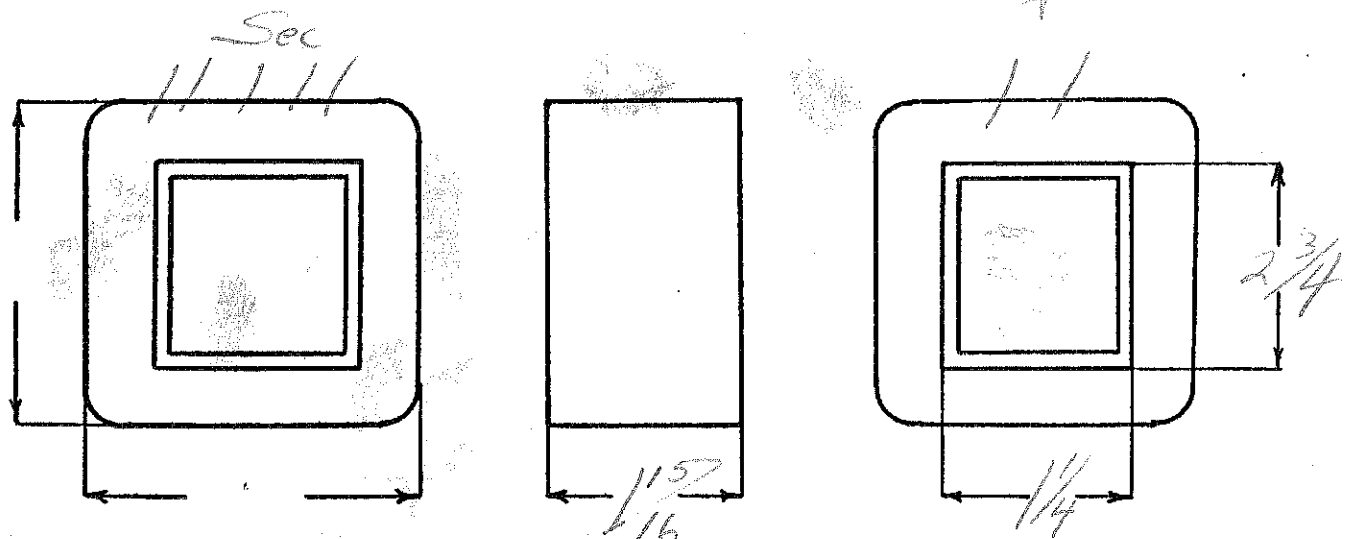
Winding	Sec	Shield	Pri			
Turns	2860 2600	131	420			
Taps	1430 260					
Wind. Lgth.	1 3/4					
Wire Size	#29	#29	#22			
T. P. L.	131-22		60-7			
Finish						
Type Lead	#20 Pa Br	W.O.	#20 Pa Br			
Lead Lgth.	9"	3"	9"			
Layer Insul.	Double 20#		Double 30#			
Test Volt.	2500					
Wrapper	2L007VC	2L007GA	2L007GA			

TUBE 7L007GK+1L007VC IMPREGNATION Double Varnish

CORE 1/4 X 2 3/4 GA. 24 GRADE D STACK 2X2

MOUNTING A

1450 - Red  
 1200 - White  
 ct - Blue



DESIGNED BY G.W.

DATE 10-21-37

115V @ 60v  
 1450V, 1200V CT @ 250ma

OLD STOCK

SPEC. NO. P-432

Winding		Sec	Shield	Pri		
Turns		2860	1	206	Notes: Heavy	
Taps	2600 <sup>30</sup>	1430	260	-	finishing - Misc	
Wind. Lgth.		1 3/4"	1 3/4"	1 3/4"	Saddles	
Wire Size		#29	.001 20 Sheet	#19		
T. P. L.		130-22L	1	42-5L		
Finish		90%	-	90%		
Type Lead		Silk Pr.	#25 Solid	W.O. Sleeve		
Lead Lgth.		3"	3"	3"		
Layer Insul.		2L 20# G	-	1L 005 A		
Test Volt.		4000V	-	-		
Wrapper		1L-007 VC 1L-015" Mica Insulat	1L-007 VC 2L-007 GA	2L 007 GA		

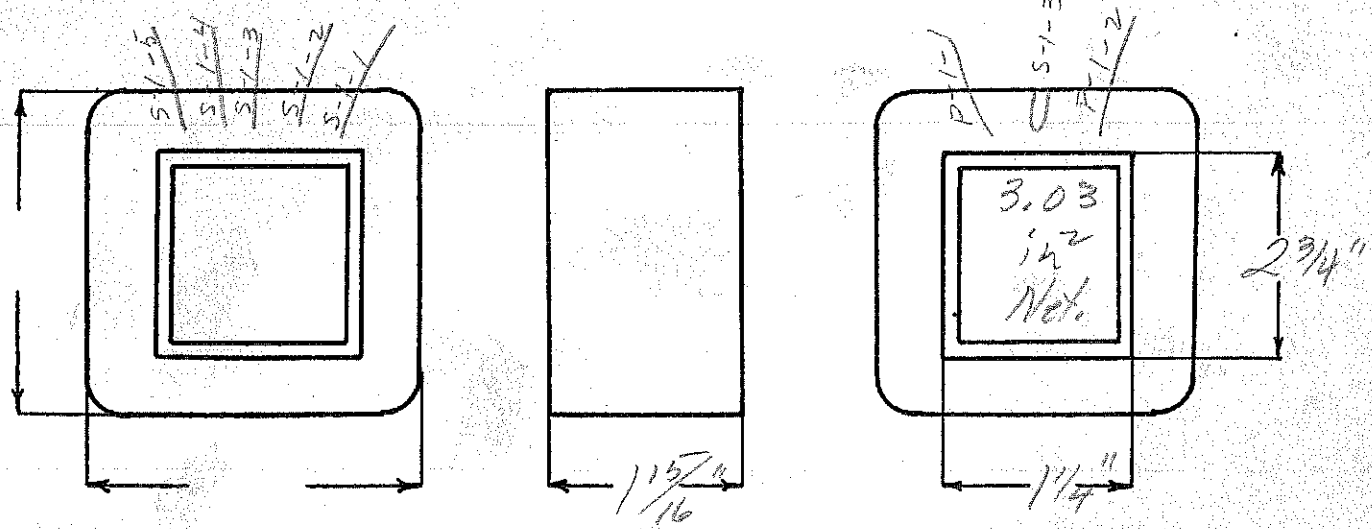
TUBE 7L-007 BK + 2L-007 VC IMPREGNATION Varnish

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

MOUNTING "B" LUGS

CU = 845-613.  
 Fe = 69.2 @ 60v  
 TPU = 1.79  
 Wire Net = 0.555" (0.543")

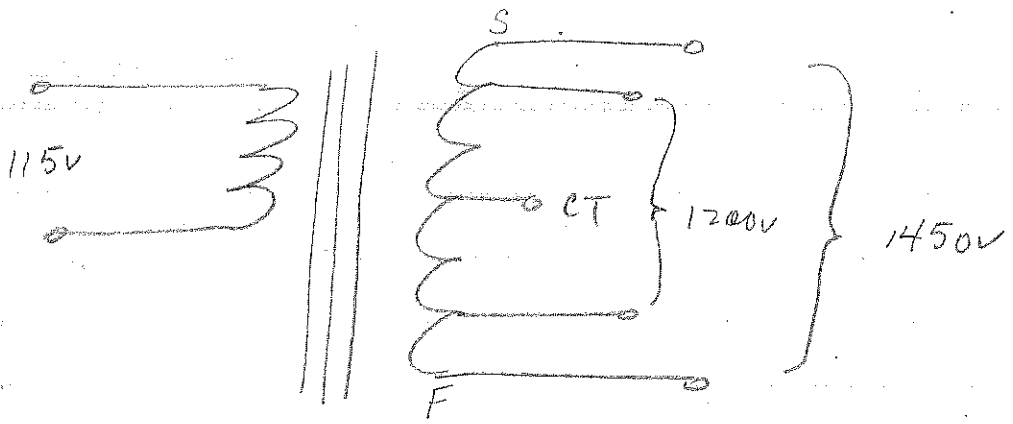
Sec VA = 181      Z = 83  
 Pri VA = 242      cos θ = 90  
 Pri I = 2.1 Amp.



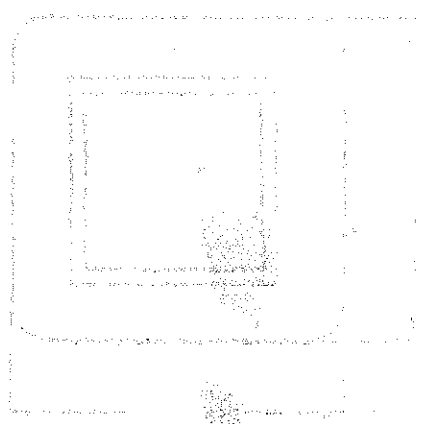
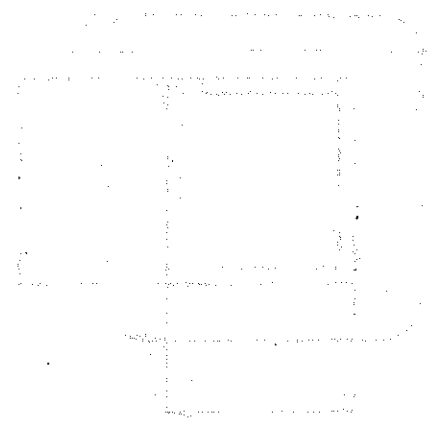
DESIGNED BY HUR

DATE 2-27-42

OVER



Notes: Keep lugs well separated.  
 Insulate HV leads with V.C. Sleeving.  
 Stackers - use .015" Mica Insulat for  
 end insulation between coil and  
 core -  
 Single wind primaries



Ep - 115 V.  
Es - 1650 V.C.T. - 250 Ma.

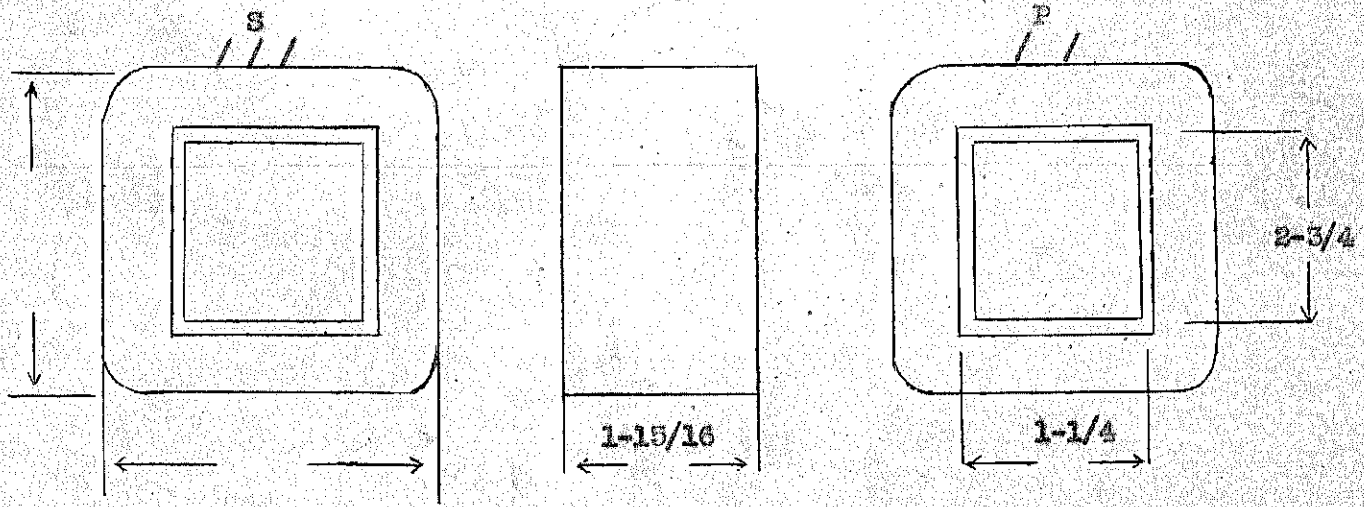
See new spec. 001

SPEC. NO. 7433

Winding	SPEC.	SHIELD	PRI.				
Turns	3060	119	195				
Taps	1530						
Wind. Lgth.	1-5/8	1 7/8	1-5/8				
Wire Size	#29	#29	#19				
T.P.L.	119-26	119	39-5				
Kind Term.	#20 Dulac	W.O.	W.O.				
Term. Lgth.	9"	3"	9"				
Layer Insul.	40#		Double 40# 007 Kraft				
Test Volt.	5000						
Wrapper	2L007VC	1L007VC	2L007GA				

TUBE	7L007 & 1L005VC	IMPREGNATION	VARIABLE
CORE	24 GA. - 2 x 2	PRIMARY V.A.	
MOUNTING	A or B		

15, 6



DESIGNED BY G. W.

DATE 6/29/38



$E_p - 230V$

$E_s - 1650VCT - 250Ma$

SPEC. NO. *P433-230V*

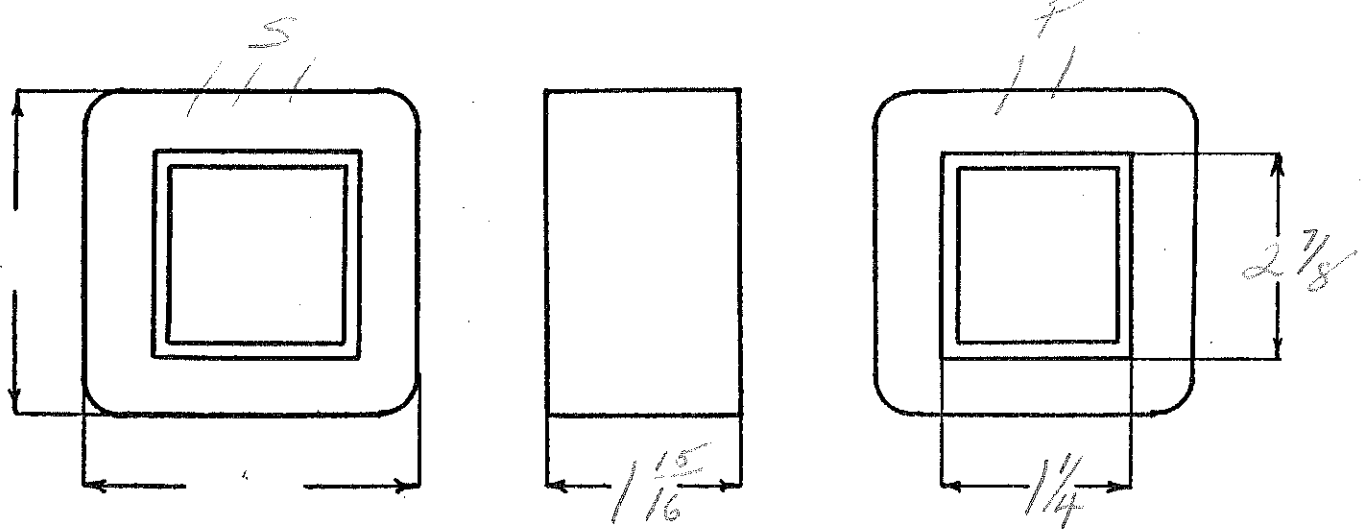
Winding	<i>Sec</i>	<i>Pri</i>					
Turns	<i>3060</i>	<i>390</i>					
Taps	<i>1530</i>						
Wind. Lgth.	<i>1 5/8</i>	<i>1 5/8</i>					
Wire Size	<i>#29</i>	<i>#22</i>					
T. P. L.	<i>119-26</i>	<i>56-7</i>					
Finish							
Type Lead	<i>#20 Par Br</i>	<i>#20 Par Br</i>					
Lead Lgth.	<i>9"</i>	<i>9"</i>					
Layer Insul.	<i>Double 20#</i>	<i>Double 50#</i>					
Test Volt.							
Wrapper	<i>2L007VC 2L007GA</i>	<i>3L007GA</i>					

TUBE *9L007GK+1L007VC* IMPREGNATION *Double Varnish*

CORE *1/4 X 2 7/8* GA. *24* GRADE *D* STACK *2X2*

MOUNTING *A*

*Heavy Finishing*



DESIGNED BY *G.W.*

DATE *10-20-37*

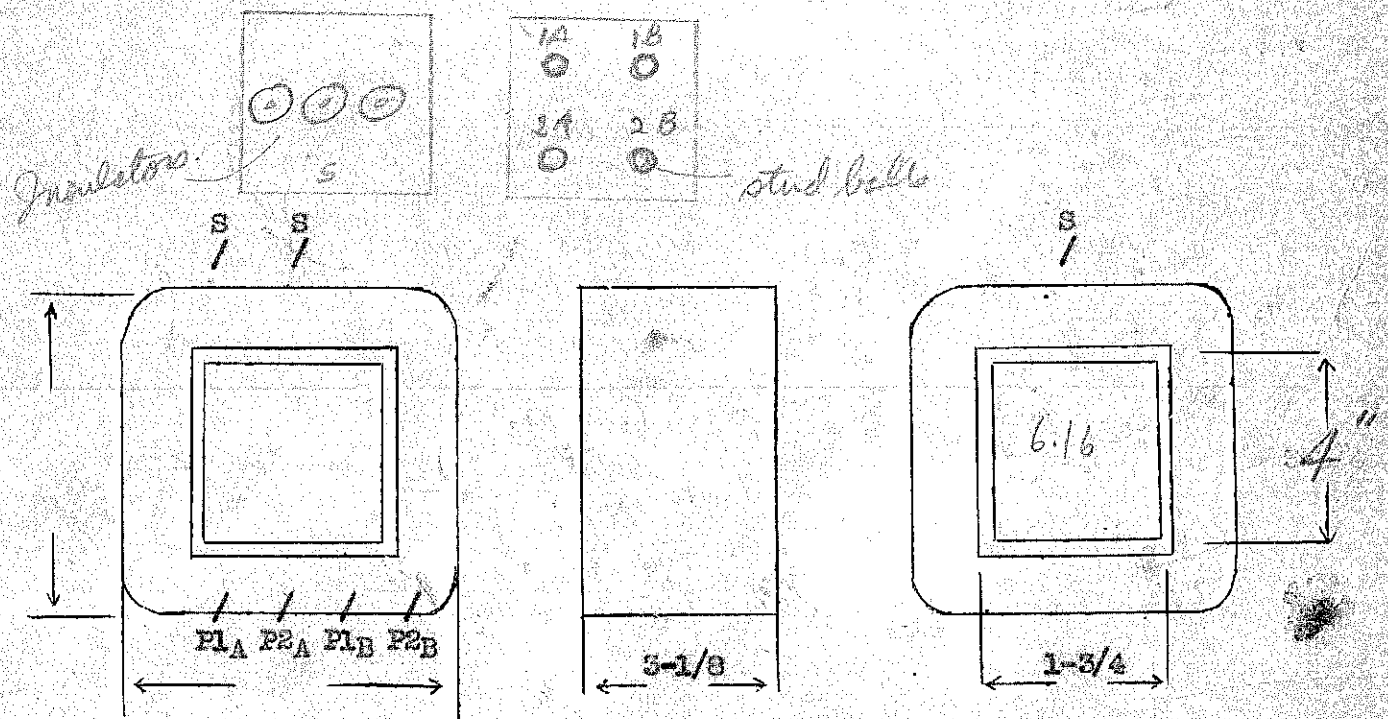
Ep - 115V. / 230V.  
 Ea - 4860V.C.T. - 300 Ma.

611

SPEC. NO. PA34

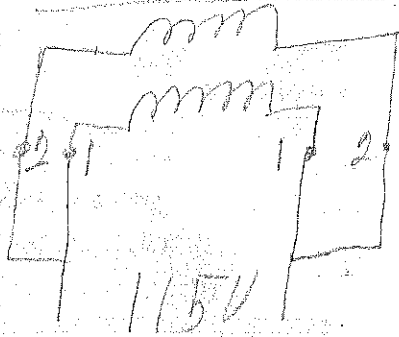
Winding	SEC.	PRI.	PRI.				
Turns	4800	113	113				
Taps	2400						
Wind. Lgth.	2-1/2	← 2 1/2 →					
Wire Size	#27	#16	#16				
T.P.L.	150-32	3L	3L				
Kind Term.	* WIRE ONLY			4" Dulac on Start + Finish Start lead in Coil			
Term. Lgth.	6"	6"	6"				
Layer Insul.	40# 40#						
Test Volt.	10,000						
Wrapper	ZL007VC ZL005CA	ZL005CA	ZL005CA				

TUBE	<del>10100F</del> & <del>ZL007VC</del> ZL005CA	IMPREGNATION	VARNISH
CORE		PRIMARY V.A.	750
MOUNTING	G		



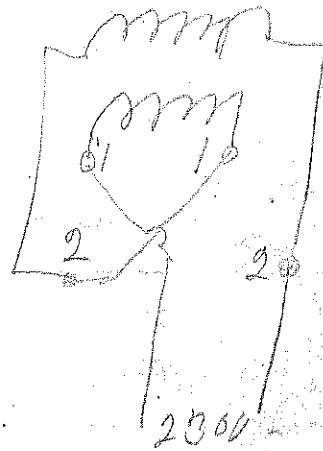
4660VCT

leeeeee



4660VCT

leeeeee



Ep - 230/460V

Es - 4660VCT-300Ma

$$\frac{N}{E} = 0.98$$

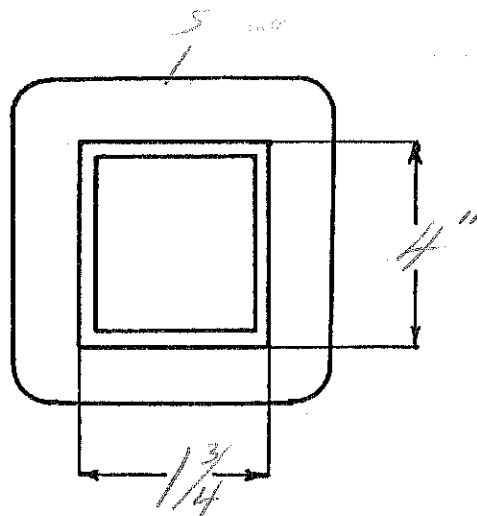
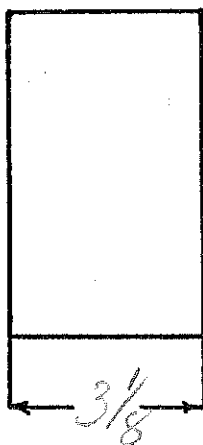
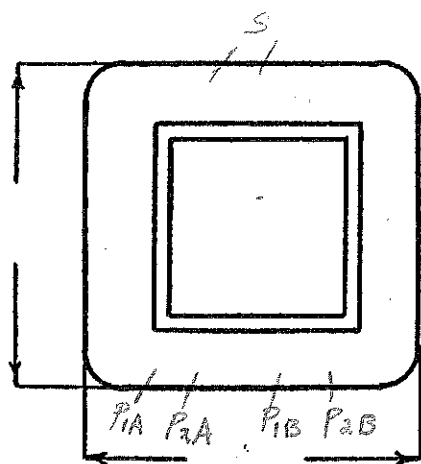
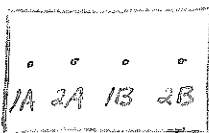
SPEC. NO. P434230V

Winding	Sec	Pri	Pri				
Turns	4800	226	226				
Taps	2400						
Wind. Lgth.	2 1/2"						
Wire Size	#27	#19	#19				
T. P. L.	150-32						
Finish							
Type Lead	✓	Wire Only		4" Dulac on start and finish Start lead in coil.			
Lead Lgth.	6"	6"	6"				
Layer Insul.	Double 30#						
Test Volt.	7500						
Wrapper	3L007VC 2L005GA	2L005GA	2L005GA				

TUBE 10L007GK + 2L007VC IMPREGNATION Double Varnish

CORE 1 3/4" x 4 GA. 24 GRADE D STACK 2x2

MOUNTING G Pri VA 750



DESIGNED BY JCG

DATE 1-7-39

NEW

Plate  
115/230V 60 cycles

to AT&T TEST UNIT NUMBER  
4660VCT@300mm (Choke Output)

SPEC. NO. P 434

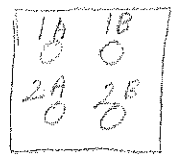
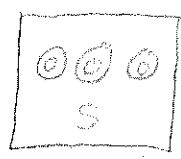
Winding	1-2 Pai #1	3-4 Pai #2	5-6-7 Sec				
Turns	113	113	4800				
Taps	—	—	2400				
Wind. Lgth.	2 3/4	2 3/4	2 1/2				
Wire Size	#16	#16	#27				
T. P. L.	47-2 1/2	47-2 1/2	150-32L				
Finish Pitch	90%	90%	92%				
Type Lead	W.O.	W.O.	W.O.				
Lead Lgth.	8"	8"	8"				
Layer Insul.	1L007GA	1L007GA	2ap 1/2 inch 50#				
Test Volt.	1500	1500	10,000				
Wrapper	2L007GA	7L005CA interleaved with 50#	6L005CA interleaved with 50# 2L005GA				

TUBE 9L0106H + 2L003CA IMPREGNATION Varnish Core & Coil

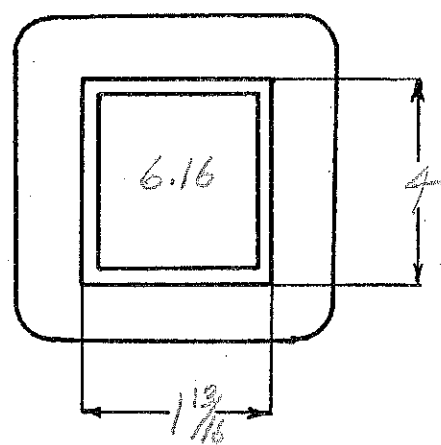
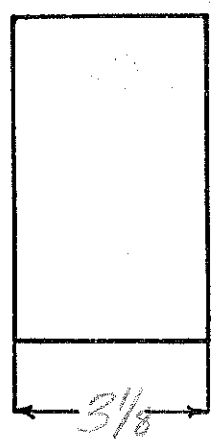
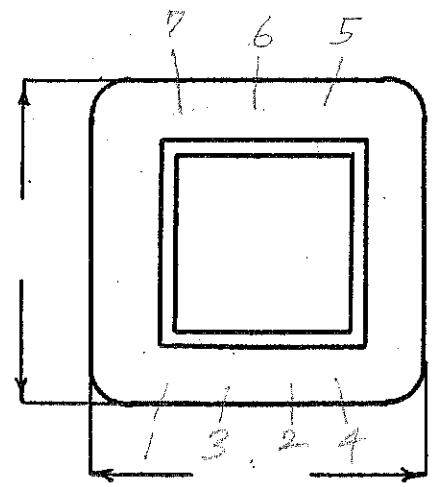
CORE 1 3/4 X 4 GAI GRADE STACK 2X2

MOUNTING G

mn = 90%



Zinc Chromate Primer  
Gray Lacquer



DESIGNED BY A. Hadley

DATE 6-16-53

# DESIGN AND TEST DATA

Rating:  $I_s = 1.707 \times 300 = 212 \text{ ma}$

Sec VA = 700

Pri VA = 850

$I_p = 7.4 \text{ a @ } 115 \text{ V}$   
 $3.7 \text{ a @ } 230 \text{ V}$

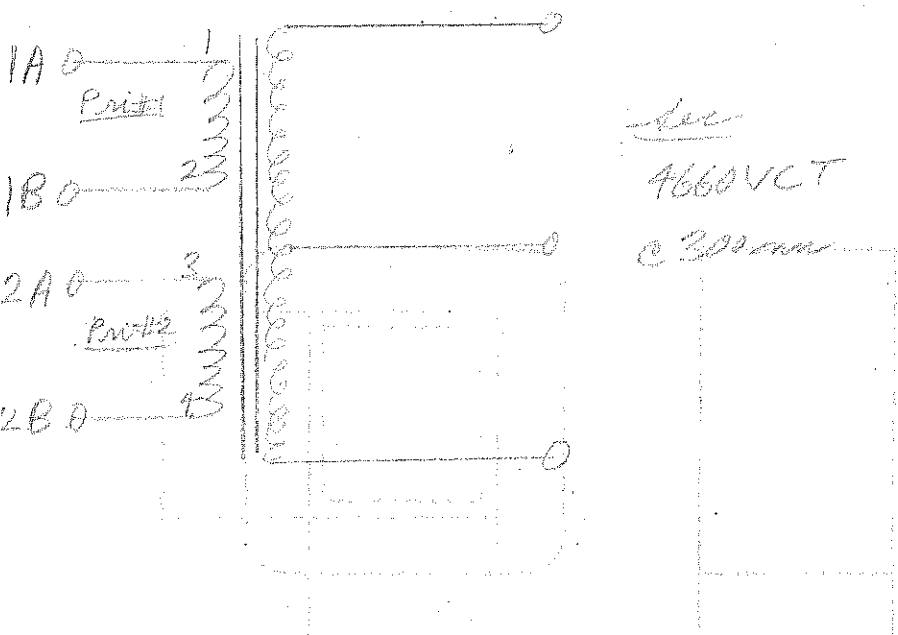
Winding	1-2 Pri #1	3-4 Pri #2	5-6-7 Sec				
Mean Turn		13.48	17.48				
Resistance 25° c		0.260	365				
Pounds Copper		2.02	4.34				
Copper Density		700	950				
Ratio Volts	115	115	4890				
Test to Ground	1500	1500	10,000				

Iron Induction 9.6 Hg @ 60 Cycles with 115V on pri

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



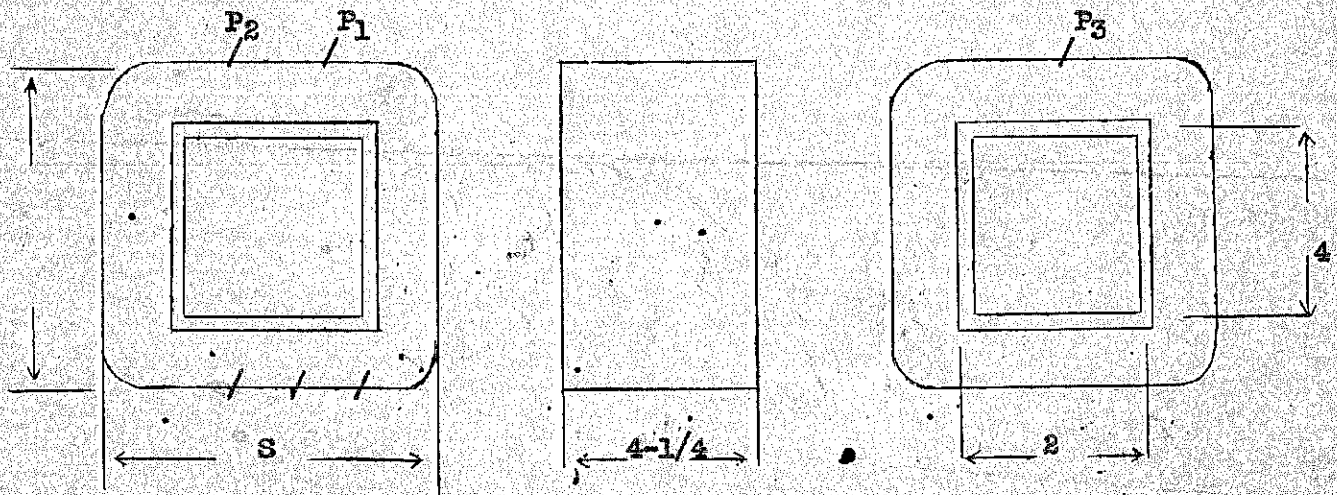
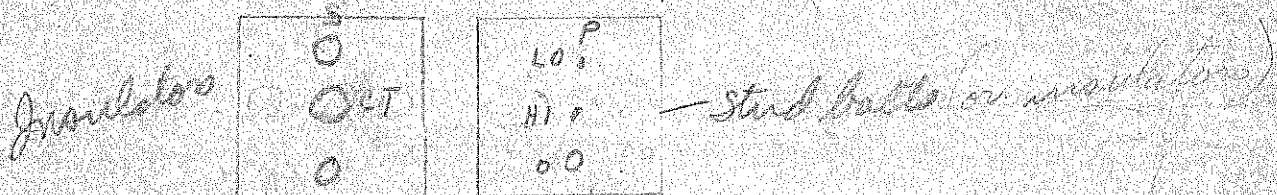
Ep - 115V. (tapped) - 154V.  
 Es - 4300V.C.T. or 3600V.C.T. - 500 Ma.

SPEC. NO. P435

Pri. Control

Winding	SEC.	Continuous				
		PRI.				
Turns	4500	102	34			
Taps	2250					
Wind. Lgth.	3-1/2					
Wire Size	#25	#11	#14			
T.P.L.	162-28	3L	1L			
Kind Term.	* WIRE ONLY	<i>4" Dia on Start and Finish Start lead in coil</i>				
Term. Lgth.	4"	4"	4"			
Layer Insul.	Double 40#	007K				
Test Volt.	7500					
Wrapper	5L007VC 3L005GA		3L005GA			

TUBE	10L007 & 2L007VC	IMPREGNATION	VARNISH
CORE		PRIMARY V.A.	1250
MOUNTING	G - Stand-off insulators		

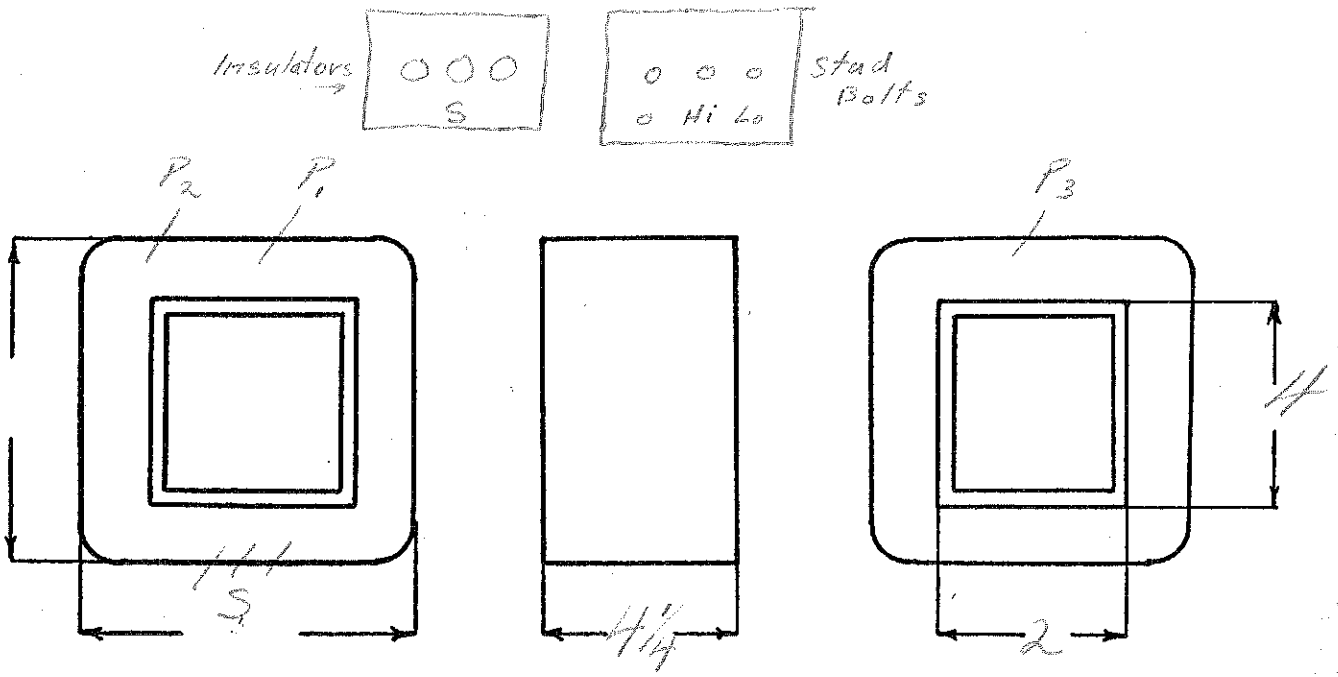


$E_p$  - 230V - tapped

$E_s$  - 4800VCT or 3600VCT - 500Ma.

SPEC. NO. P435-230V

Winding	Sec	CONTINUOUS Pri				
Turns	4500	204	68			
Taps	2250					
Wind. Lgth.	3 1/2					
Wire Size	#25	#14	#17			
T. P. L.	162-28					
Finish		Wire Only				
Type Lead		←		4" Dulac on start & finish		
Lead Lgth.	4"	4"	4"	Start lead in coil		
Layer Insul.	Double 40"	- 007K -				
Test Volt.	7500					
Wrapper	2L007VC 3L005GA		3L005GA			
TUBE	10 L007GK + 2L007VC		IMPREGNATION		Double Varnish	
CORE	2X4	GA.	24	GRADE	D	
MOUNTING	G	Pri VA-1250				



DESIGNED BY JCG

DATE 2-7-39

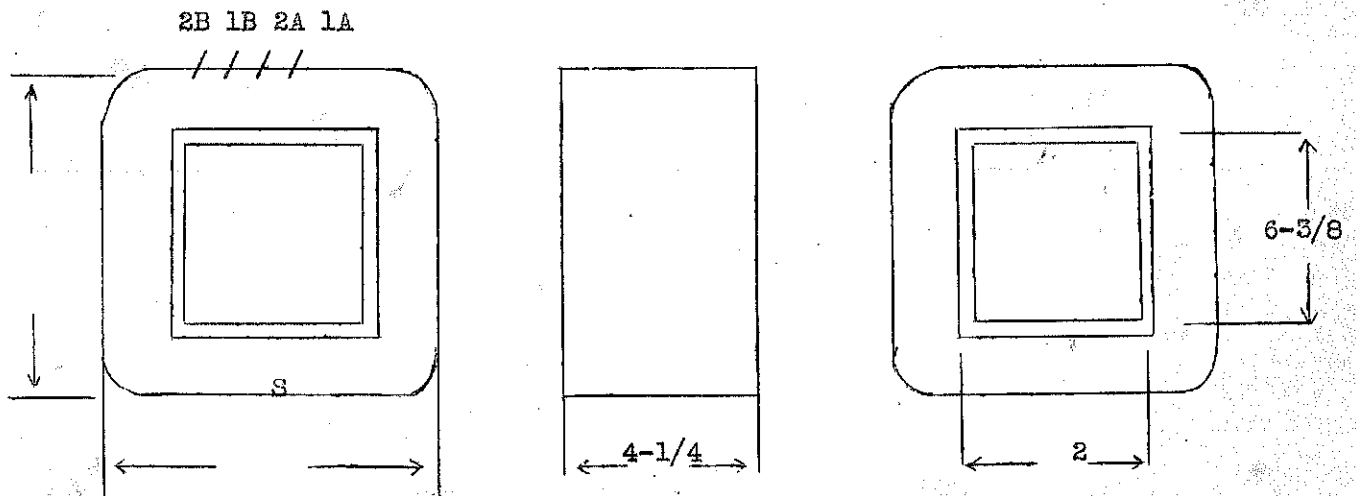


Ep - 115 V. - 230 V.  
 Es - 7000 V.C.T. or 3500 V.C.T. - 400 Ma.

SPEC. NO. P436

Winding	SEC.		PRI. /	PRI. 2		
Turns	4600		74	74		
Taps	2300		—	—		
Wind. Lgth.	3-1/4					
Wire Size	#25		#13	#13		
T.P.L.	155-30					
Kind Term.	6" Duolac St+Fin. WIRE ONLY					
Term. Lgth.	9"		6"	6"		
Layer Insul.	Double 50#		007K			
Test Volt.	10,000					
Wrapper	7L007VC 4L005GA		2L005GA	2L005GA		

TUBE	10L007 - 3L007VC	IMPREGNATION	VARNISH
CORE		PRIMARY V.A.	
MOUNTING	<del>4</del> G - Stand off insulators	V.A. 1500	



Ep - 230/460

Es - 1000 VCT - 400 Ma

(do not use on cutty orders)

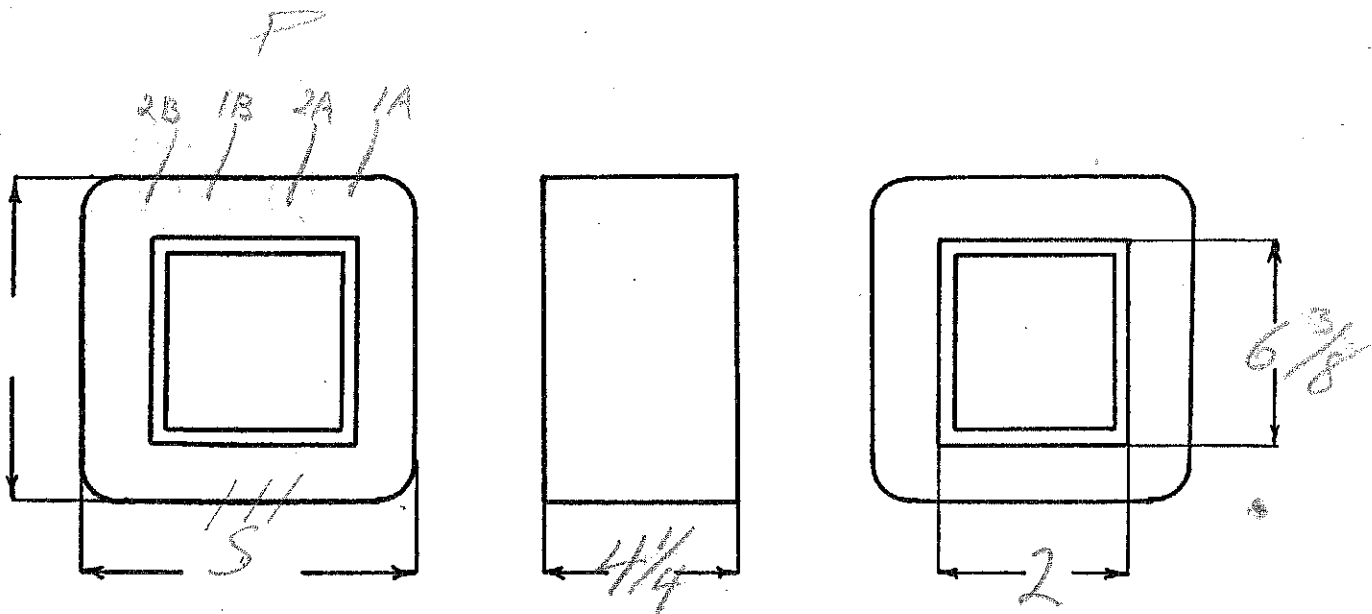
SPEC. NO. 436-230/460

Winding	Sec	Pri	Pri				
Turns	4600	148	148				
Taps	2300						
Wind. Lgth.	3 1/4						
Wire Size	#25	#16	#16				
T. P. L.	155-30						
Finish							
Type Lead	Self-Insul. C.P.W.O.	Wire	Only				
Lead Lgth.	9"	6"	6"				
Layer Insul.	double 50 #	007K					
Test Volt.	10000						
Wrapper	74007VC 416007GA	2L007GA	2L007GA				

TUBE 10 L007 + 3L007VC IMPREGNATION Double Varnish

CORE 2 X 6 3/8 GA. 24 GRADE D STACK 2X2

MOUNTING G VA-1500



DESIGNED BY 903

DATE 2-7-39

Pri. - 120V  
 Sec. - 3000V CT or 2550V CT @ 500 Ma.

(Primary Control)

SPEC. NO. I-457

Winding	Sec.		Pri.			
Turns	3500 - 10%		144			
Taps	1650		120			
Wind. Lgth.	3 1/2"		2 1/8"		V. C. SLEEWING OVER ALL LEADS.	
Wire Size	#26		#13		ANCHOR AT FINISHERS.	
T. P. L.	130 - 26L		31 - 5L		MICA SADDLES	
Finish Pitch	66.5%		92%			
Type Lead	W. O.		W. O.		WIND PRIMARY TIGHT!!!	
Lead Lgth.	9"		9"			
Layer Insul.	D-40#		.007 K			
Test Volt.	7000		1250			
Wrapper	2L .007" VC 2L .007" GA		2L .007" GA			

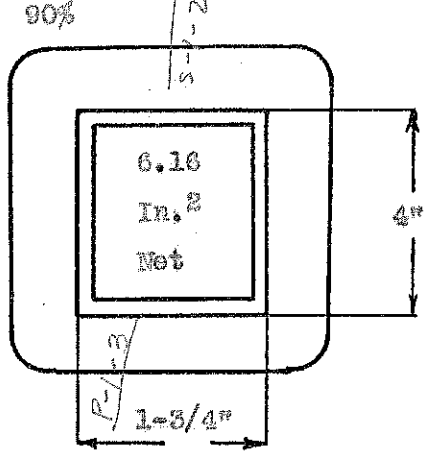
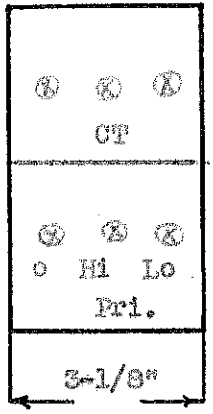
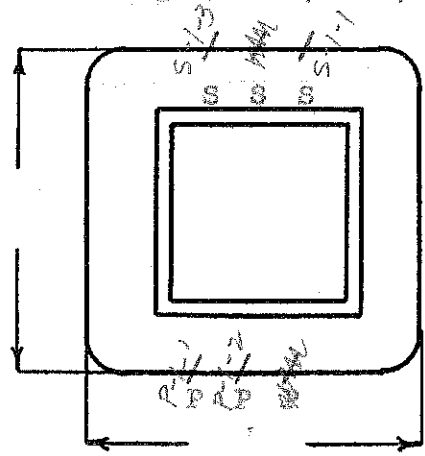
TUBE	10L .007" GK / 2L .007" VC	IMPREGNATION	DOUBLE VARNISH
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CORE	1 1/2" x 4" E & I GA.	24	GRADE	D	STACK	2 x 2
------	-----------------------	----	-------	---	-------	-------

MOUNTING "G" - Feed through insulators on Secondary - Hollow Studs on Primary.

Cu = 848 - 710 - 790  
 Fe = 60.9 @ 60 Cycle  
 TPV = 1.0  
 Wire Net = .952" (.962")

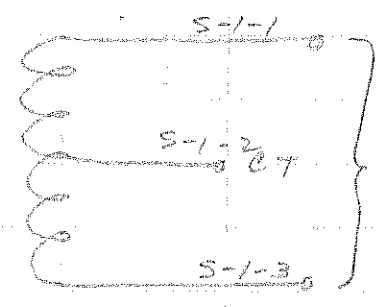
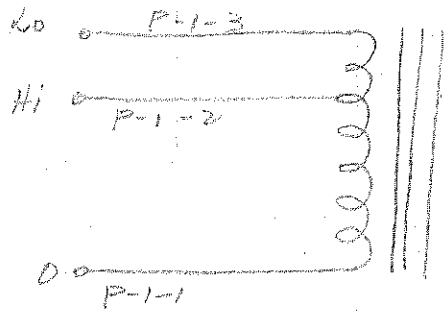
Sec. VA = 750 - 650  
 Pri. VA = 665 - 700  
 Pri. I = 7.2 - 6.56  
 Efficiency = 90%  
 COSφ = 90%



RE-DESIGNED BY H. E. S. Jr.

DATE 7-30-41

70  
 45



3000 or  
2550V CT  
@  
500 mV

OVERSAMPLING

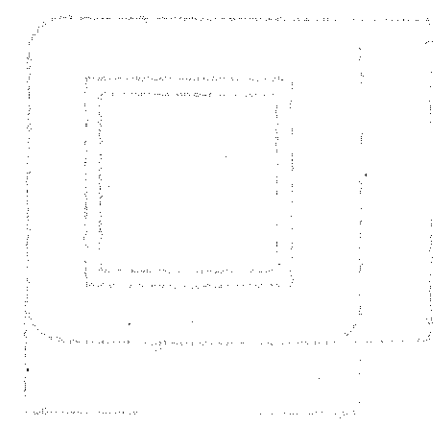
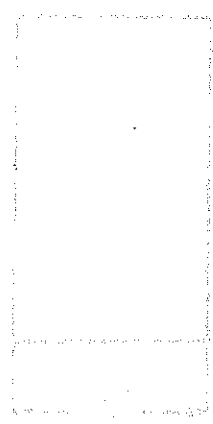
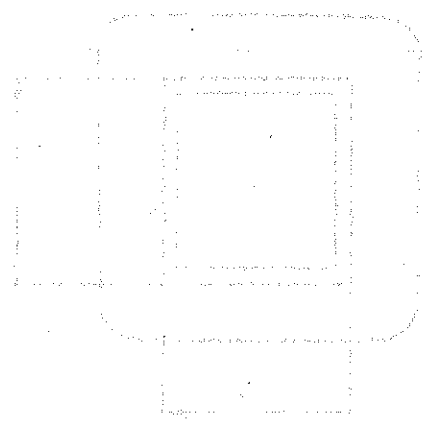
SCALE

TRIGGER

AC

TIME

MODE



PRI - 115V TAPPED

TRANSMITTER PLATE SUPPLY

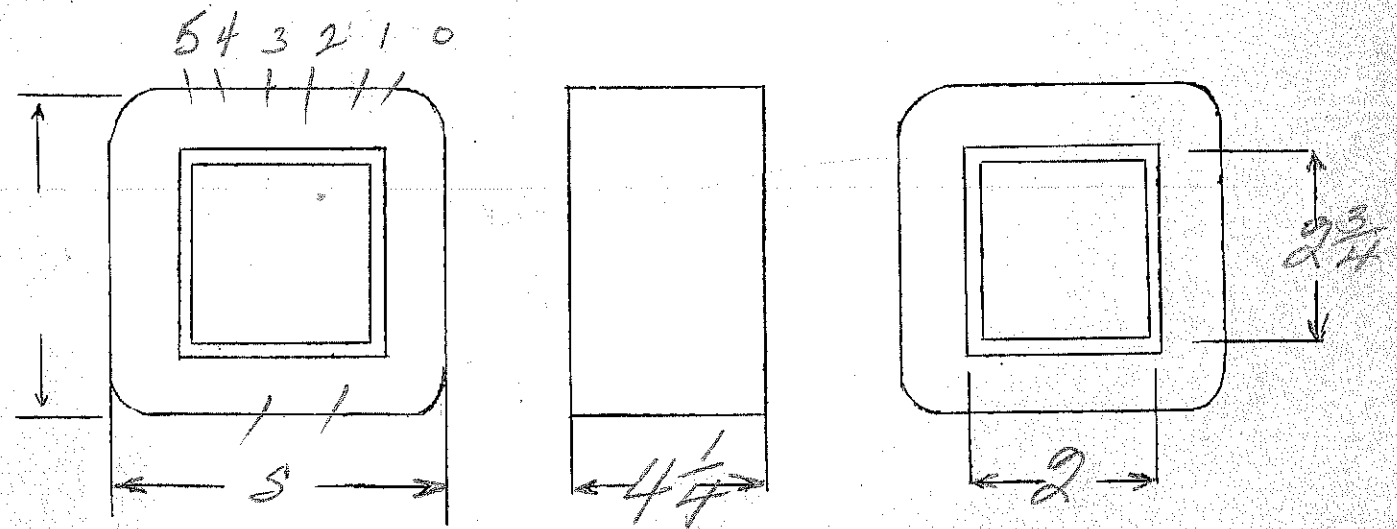
SEC - 3000V AC @ 300 dc ma

File Copy

SPEC. NO. P438

Winding	SEC		Continuous				
Turns	3600		PRI	132	54	71	69
Taps	—				31	32	
Wind. Lgth.	3						
Wire Size	# 25		# 12	# 13	# 15	# 17	
T.P.L.	164.22						
Kind Term.	WIPE		ONLY				
Term. Lgth.	6"		6"				
Layer Insul.	double 50#		'007K				
Test Volt.							
Wrapper	42007VC 24005GA						34005GA
TUBE	104007+24007VC		IMPREGNATION		YARNISH		
CORE					PRIMARY V.A.		
MOUNTING	G OR U						

Start sec lead in coil



DESIGNED BY *SW*

DATE 5/14/38

$1000 + 75 + 15 - 1090$	ac
$1250 + 75 + 15 - 1340$	1210
$1500 + 75 + 15 - 1590$	1490
$1750 + 75 + 15 - 1840$	1760
$2000 + 75 + 15 - 2090$	2040
$2500 + 75 + 15 - 2590$	2320
	2890 (2900)

Pri. taps - 115, 142, 162, 190, 224, 276  
           |   |   |   |   |   |  
           8.7   7   6.2   5.3   4.5   3.65  
           \*      \*          \*      \*  
           =      #13      15      #17

SPEC. NO. P-439

Winding	See	Poi				
Turns		40				
Taps						
Wind. Lgth.	3 7/8"	3 7/8" = 3.875"				
Wire Size		3-#10				
T. P. L.		8-5L				
Finish		93%				
Type Lead						
Lead Lgth.						
Layer Insul.						
Test Volt.						
Wrapper	3L-007"VC 3L-007"GA	3L 007"GA				

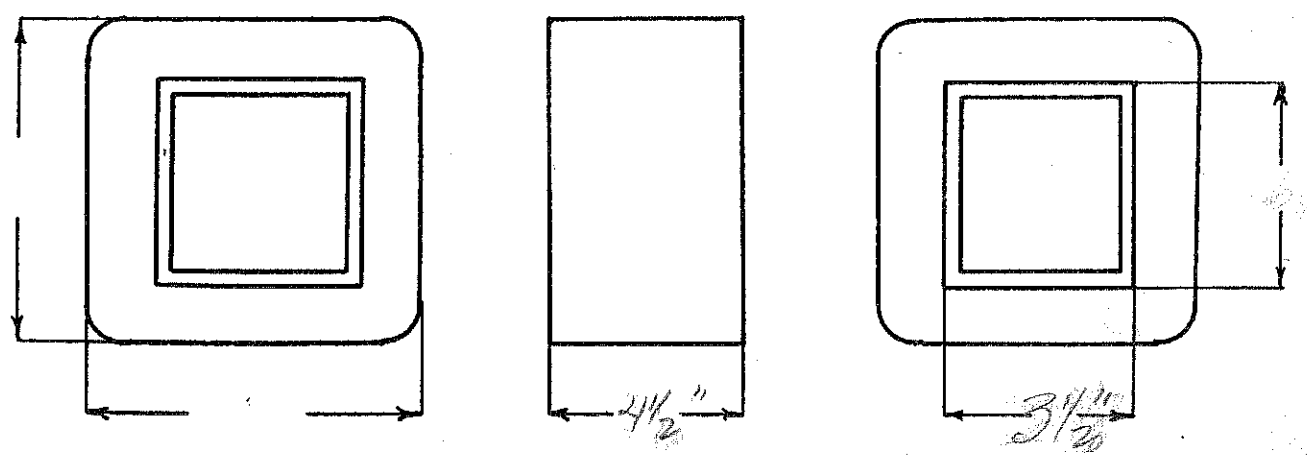
TUBE 12L-007"OK+2L-007"VC IMPREGNATION

CORE 2 5/8" GA. 29 GRADE D STACK 242

MOUNTING

Cu =  
Fe =  
TPV =  
Wire Net = 1.37"

See VA = 3200  
Poi VA = 4280  
Poi I = 37.2 A  
 $\tau = 83\%$ ,  $\cos\phi = 90\%$



DESIGNED BY HWS.

DATE 7-24-41

$E_p$  - 230V - tapped

$E_s$  - 2920VCT or 2500VCT - 375 Ma.

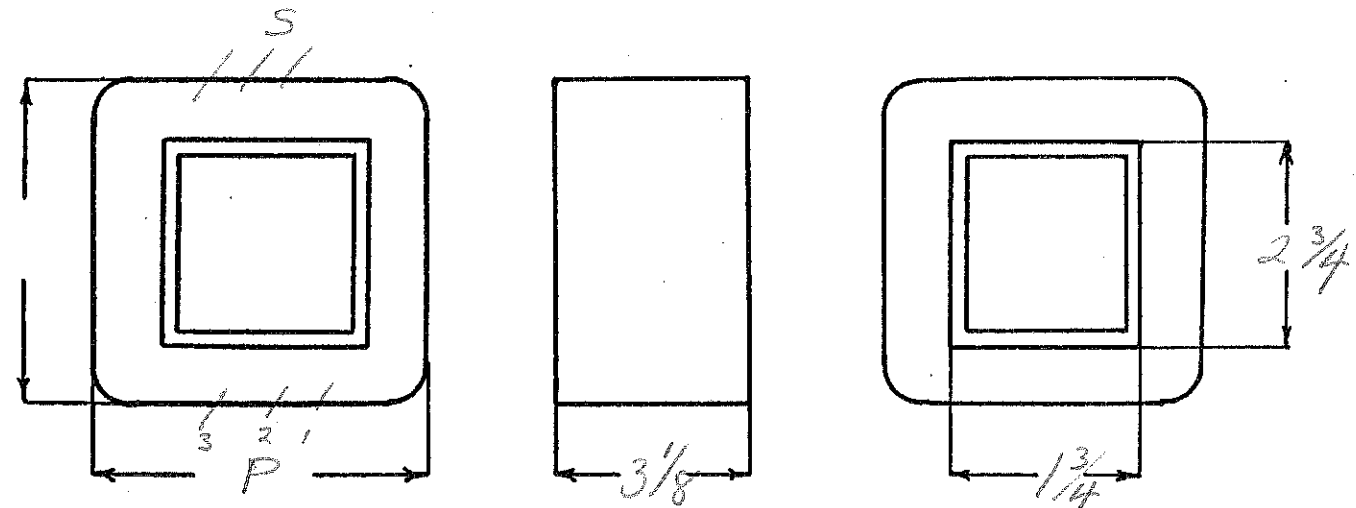
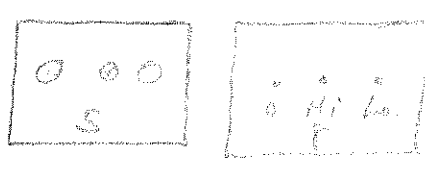
SPEC. NO. P440-230V

Winding	Sec	CONTINUOUS Pri				
Turns	4260	318	56			
Taps	2130					
Wind. Lgth.	2 1/2"					
Wire Size	#26	#18	#19			
T. P. L.	133-32					
Finish				4" Dulac on start and finish.		
Type Lead	√	Wire Only		Start lead in coil.		
Lead Lgth.	6"	6"	6"			
Layer Insul.	Double 30#	- 007K -				
Test Volt.	7500					
Wrapper	3L007VC 2L007GA		3L007GA			

TUBE 9L007GK+2L007VC IMPREGNATION Double Varnish

CORE 1 3/4 X 2 3/4 GA. 24 GRADE D STACK 2X2

MOUNTING G Pri VA-600



DESIGNED BY JCG

DATE 2-7-39



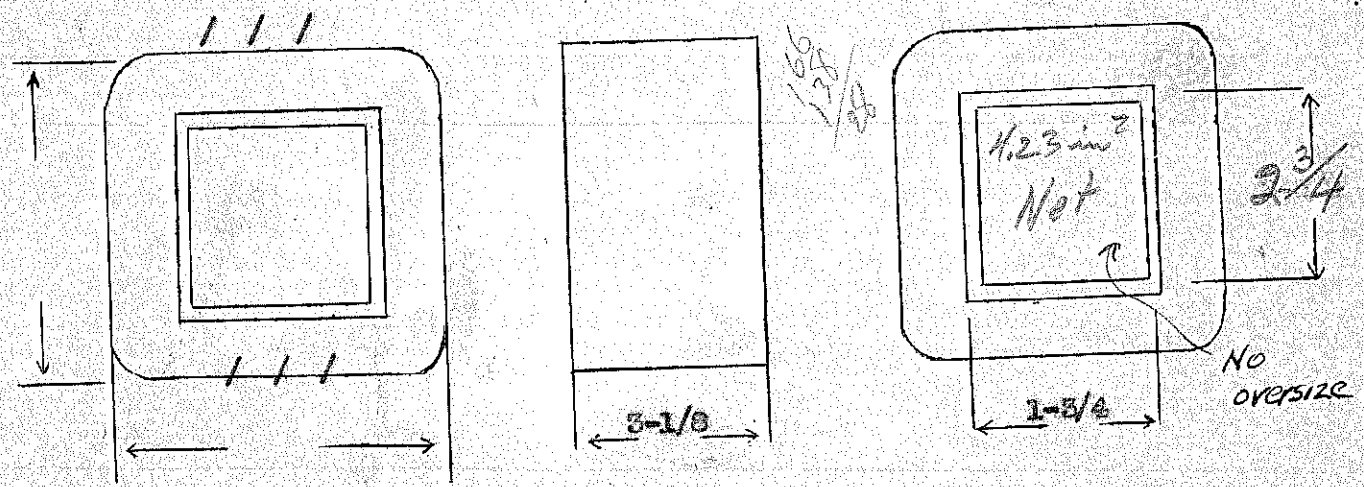
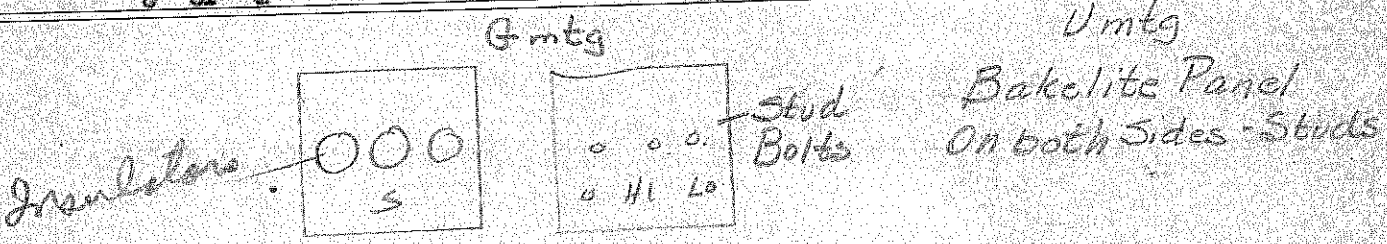
Ep - 115V. (tapped) 135V.  
 Es - 2920V.G.T. or 2500V.G.T. - 375 Ma.

1.38

SPEC. NO.

P440

Winding	SEC.	Continuous				
Turns	4200	PRI. 187 <del>150</del>	<del>187</del>	Changed to agree with original		
Taps	2130	159		12/9/40 HKD.		
Wind. Lgth.	2-1/8					
Wire Size	#28	#15	<del>#28</del>			
T.P.L.	133-32	43-5L				
Kind Term.	X	WIRE ONLY		Dulac on Starland Finish Start near in coil		
Term. Lgth.	3"	3"	X	9" on "G" mtg. 6" on "U"		
Layer Insul.	Double 30%	.007K				
Test Volt.	7500					
Wrapper	3L007VC 2L005GA	3L005GA	<del>2L005GA</del>			
TUBE	9L007 & 2L007VC			IMPREGNATION	VARNISH	
CORE				PRIMARY V.A.	600	
MOUNTING	U or G					



P. 1125-1126

$$Cu = 1130 - 538 - 625$$

$$Fe = 64.3 @ 60 \mu$$

$$TPV = 1.38 - 1.62$$

$$\text{Wire Net. } (.975) .97$$

$$\approx \text{Sec VA } 547 - 6$$

$$\text{Pri VA } 698 - 6$$

$$\text{Pri I } 6.06 - 5.$$

$$\lambda = 87\%$$

$$\cos \theta = 90\%$$

~~1055~~  
(400 mla)

195  
164 - ~~10~~

~~40.5%~~

1125  
160

Reduced capacity line transformer  
 tapped 115-110-105-100-90-80-70-60-600 watt capacity  
 SPEC. NO. P 440

Continuum 2:1

Winding						
Turns	168 147	53 42	2:1			
Taps	126	21	10			
Wind. Lgth.	$2\frac{3}{8}$					
Wire Size	#18	#15	#12			
T.P.L.						
Kind Term.	WIRE ONLY					
Term. Lgth.	6"	6"	6"			
Layer Insul.	00 7/Kraft					
Test Volt.						
Wrapper			20050A			

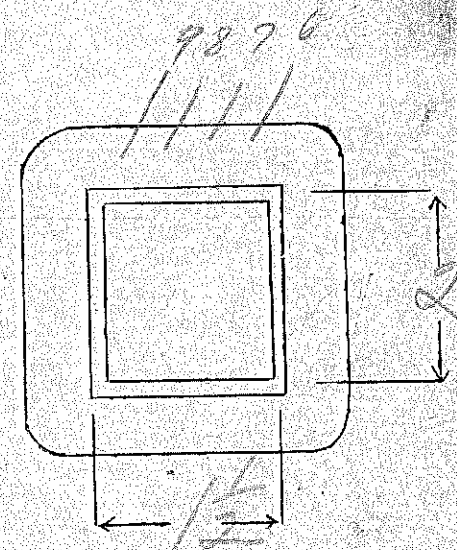
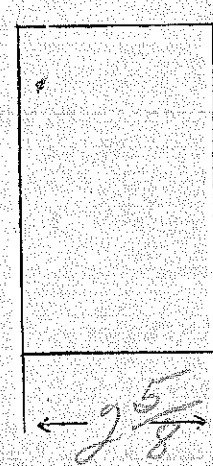
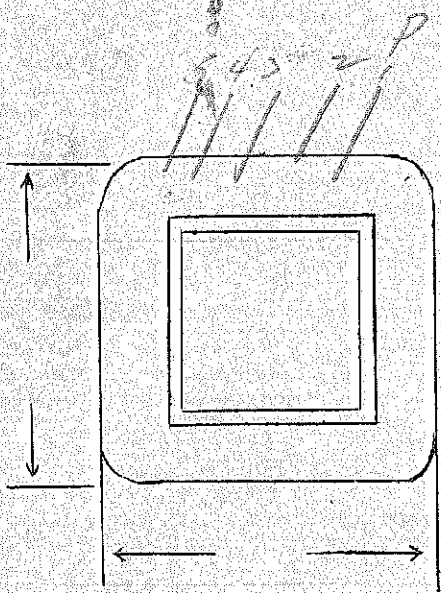
old Calby

168  
53  
21  
242

TUBE	9L007	IMPREGNATION	VARNISH
CORE	1/2 x 2	PRIMARY V.A.	
MOUNTING	C		

090	100
080	105.0
070	110.0
060	115.0
00	440

→ 6tyd Calby



SIGNED BY *[Signature]*

DATE 12/23/36

Auto Transformer

250V/115V

75 Watt

# 8253

SPEC. NO. P-441

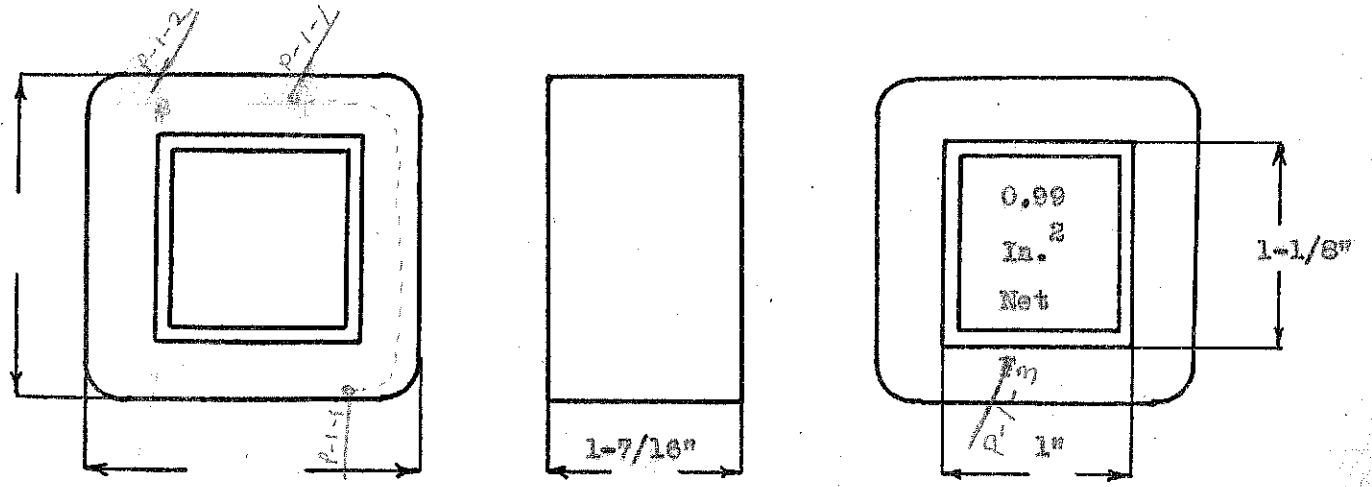
Winding		Tri & Sec				
Turns		1254				
Taps		4% - 660 - 10L				
Wind. Lgth.		1-1/4"				
Wire Size		#26				
T. P. L.		66 - 19L				
Finish Pitch		90%				
Type Lead		W. O. Sleeve				
Lead Lgth.		4"				
Layer Insul.		1L 50#G				
Test Volt.		1500				
Wrapper		3L .005" GA				

TUBE	6L - .007" GK	IMPREGNATION	VARNISH
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CORE	1 x 1-1/8" E & I	GA.	24	GRADE	D	STACK	2 x 2
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MOUNTING "7" - Cords out each side.

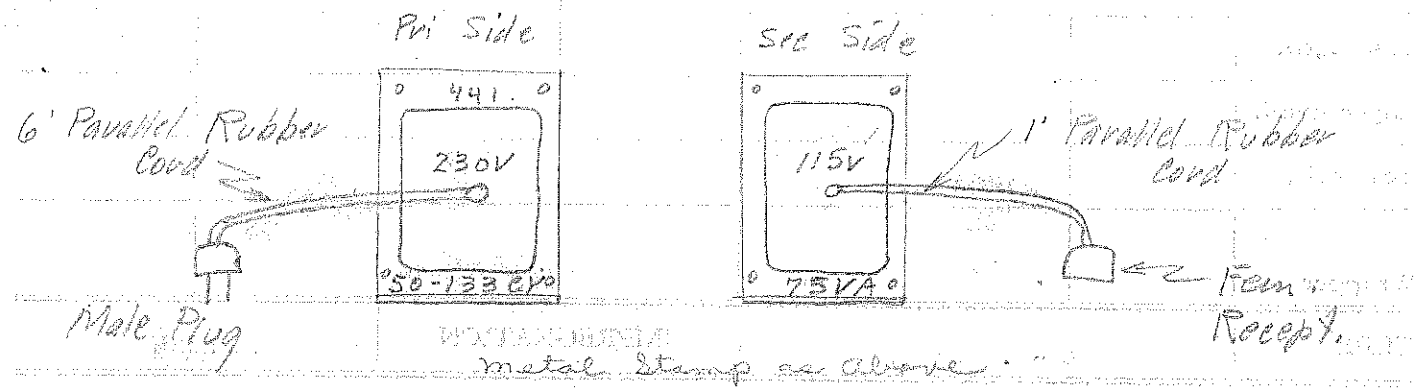
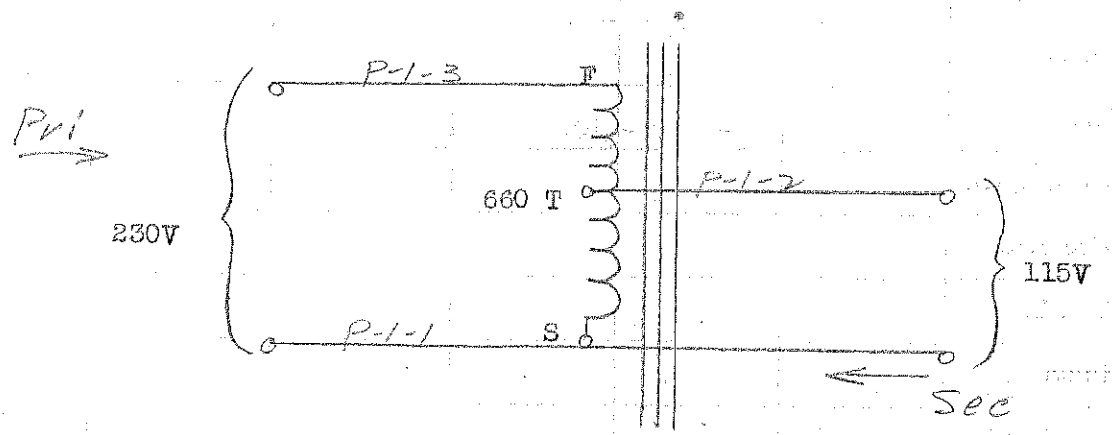
Cu = 732	Sec. VA = 75
Fe = 69.9 @ 60 Cycle	Total I = 360 Ma.
TFV = 5.5	Efficiency = 95%
Wire Net = 0.330" (0.369")	COS θ = 95%



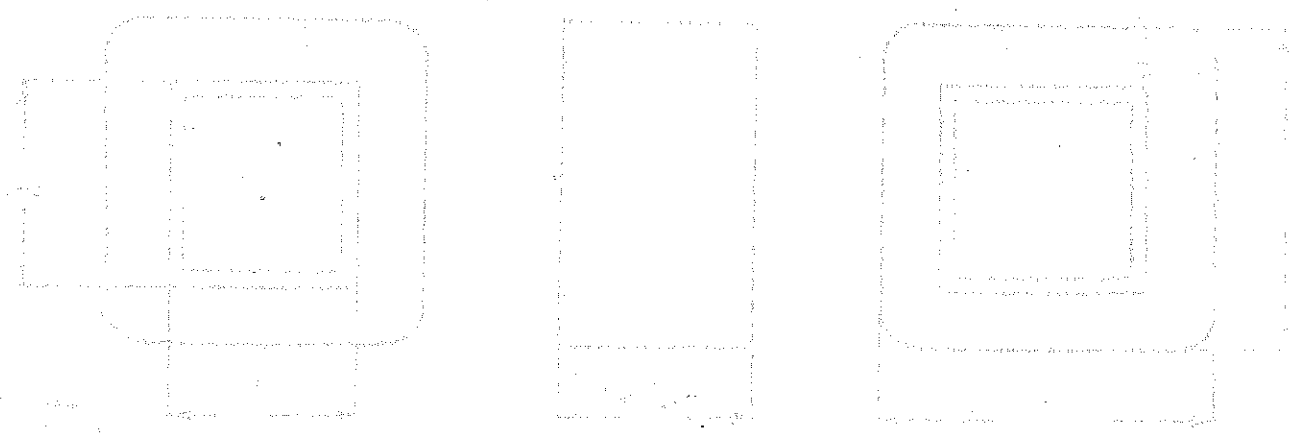
DESIGNED BY H. W. S.

DATE 7 - 25 - 41

$.95 \times .95 \times 230 = 360 \text{ Ma.}$



Note: Lugs - prongs on each coil side.  
Cords soldered to these lugs -



AUTO STEP DOWN

230 volts @ 50/60 cycles  
to  
115 volts @ 75 VA

STOCK

*I<sub>s</sub> = .65 full load*

SPEC. NO. P-441-T

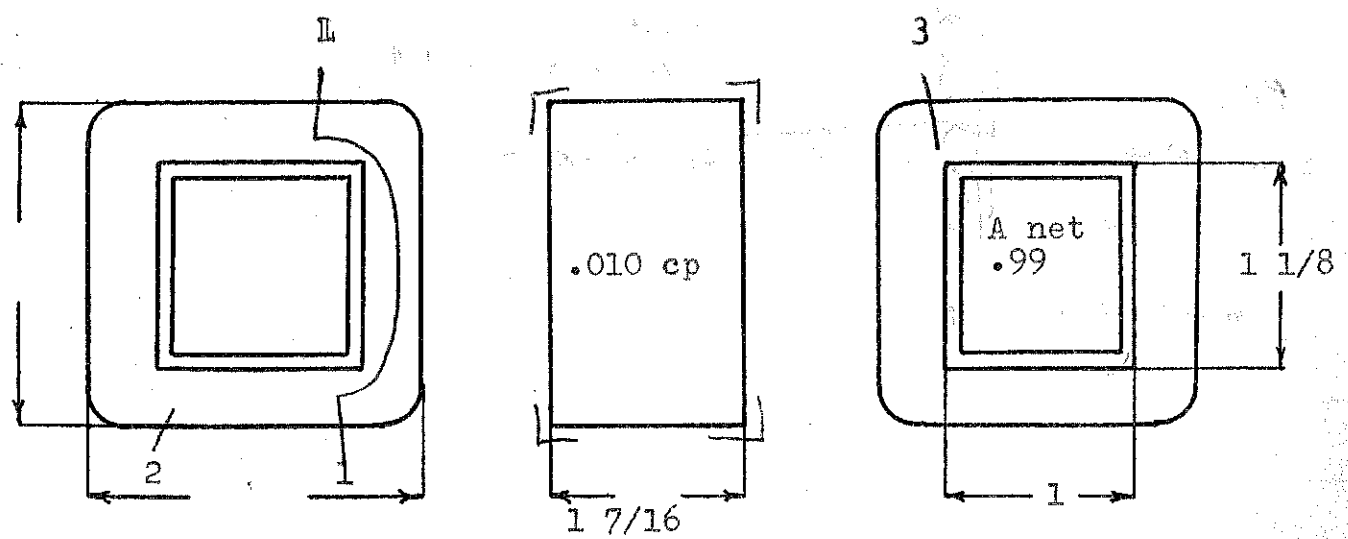
Winding	1-2-3 Pri & Sec.				
Turns	1254				
Taps	660				
Wind. Lgth.	1 1/4				
Wire Size	#26				
T. P. L.	66-19L				
Finish	90%				
Type Lead	W.O. to Lugs				
Lead Lgth.	3"				
Layer Insul.	50#				
Test Volt.	1500				
Wrapper	2L005GA				

TUBE 6L007GK plus 1L003VP IMPREGNATION Varnish

CORE 1 x 1 1/8 GA. 24 GRADE D STACK 2 x 2

MOUNTING T

T. P. U. - 5.45  
Window -  $0.437 / 500 = 87.4\%$



RE-DESIGNED BY F. Frazer

DATE 6-4-47

# DESIGN AND TEST DATA

Rating:

Sec. VA = 75  
 Pri. VA = 87  
 Ip = 378 Ma.

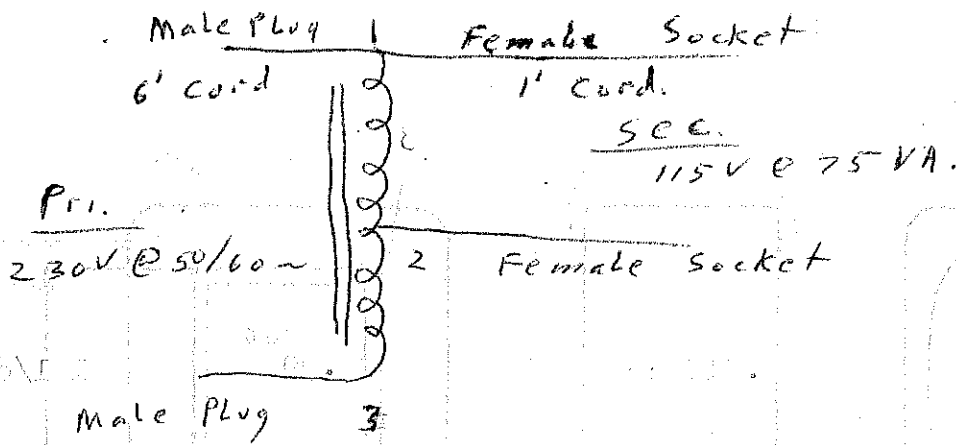
Winding		1-2-3 Pri & Sec					
Mean Turn		5.93					
Resistance 25° c		25.8					
Pounds Copper		.484					
Copper Density		672					
Ratio Volts		230 119.2					
Test to Ground		1500					

Iron Induction 12.95 kg @ 50 Cycles

Exciting Current 51 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



AUTO STEP DOWN

STOCK

230 volts @ 50/60 cycles  
to  
115 volts @ 75 VA

SPEC. NO. P-441-T

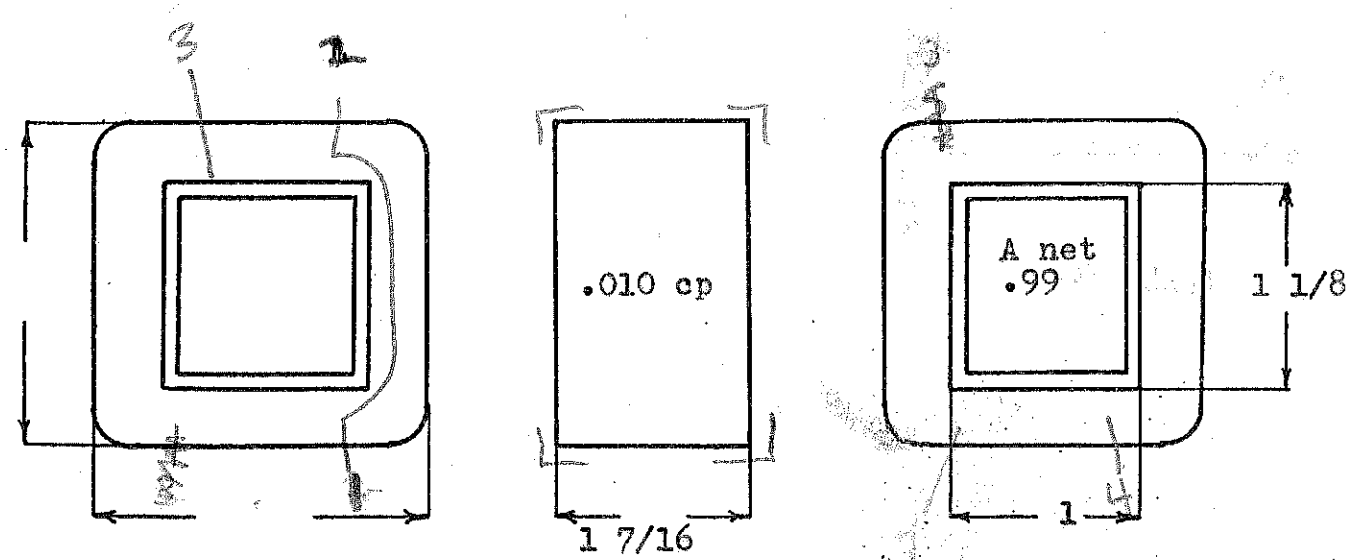
Winding	1-2-3-4 Pri & Sec.				
Turns	1254				
Taps	660				
Wind. Lgth.	1 1/4				
Wire Size	#26				
T. P. L.	66-19L				
Finish	90%				
Type Lead	W.O. to Lugs				
Lead Lgth.	3"				
Layer Insul.	50#				
Test Volt.	1500				
Wrapper	2L005GA				

TUBE	6L007GK plus 1L003VP	IMPREGNATION	Varnish
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CORE	1 x 1 1/8	GA.	24	GRADE	D	STACK	2 x 2
------	-----------	-----	----	-------	---	-------	-------

MOUNTING	T
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T. P. V. — 5.45  
Window —  $0.437 / 0.500 = 87.4\%$



RE-DESIGNED BY F. Frazier

DATE 6-4-47



# DESIGN AND TEST DATA

Rating:

Sec. VA = 75  
 Pri. VA = 87  
 Ip = 378 Ma.

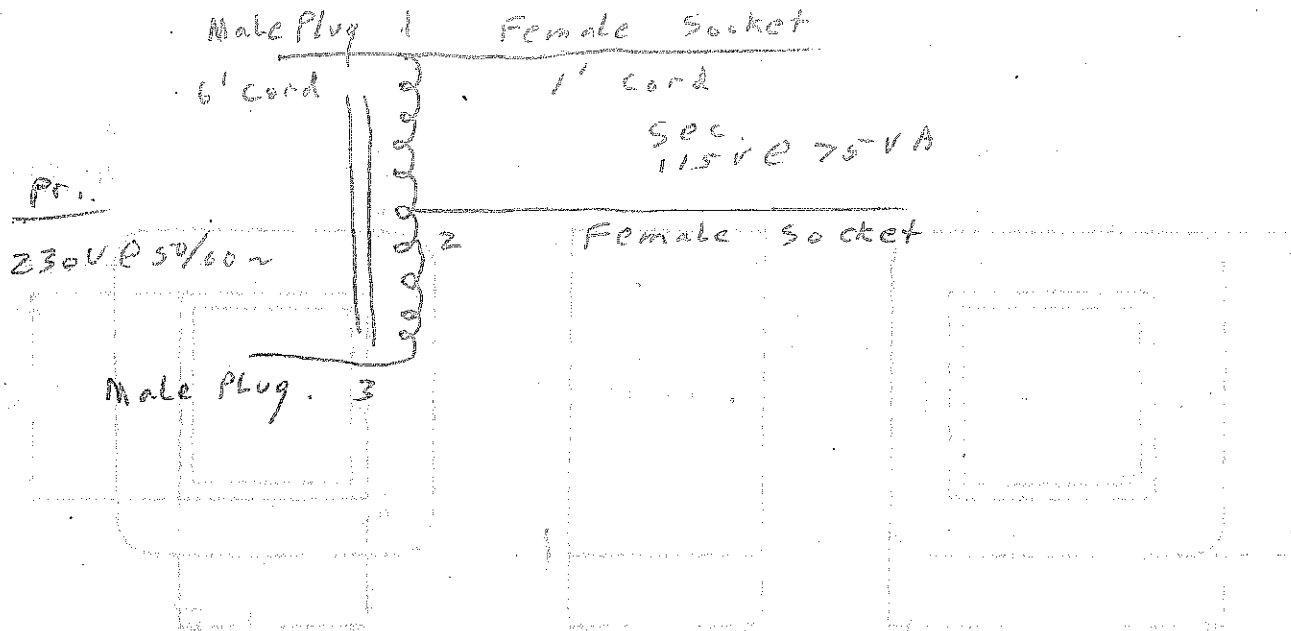
Winding		1-2-3 Pri & Sec				
Mean Turn		5.93				
Resistance 25° c		25.8				
Pounds Copper		.484				
Copper Density		672				
Ratio Volts		230 119.2				
Test to Ground		1500				

Iron Induction 12.95 kg @ 50 Cycles

Exciting Current 51 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



STEP DOWN AUTO

STOCK

230 volts @ 50/60 cycles  
to  
115 volts @ 150 watts

SPEC. NO. P-442-T

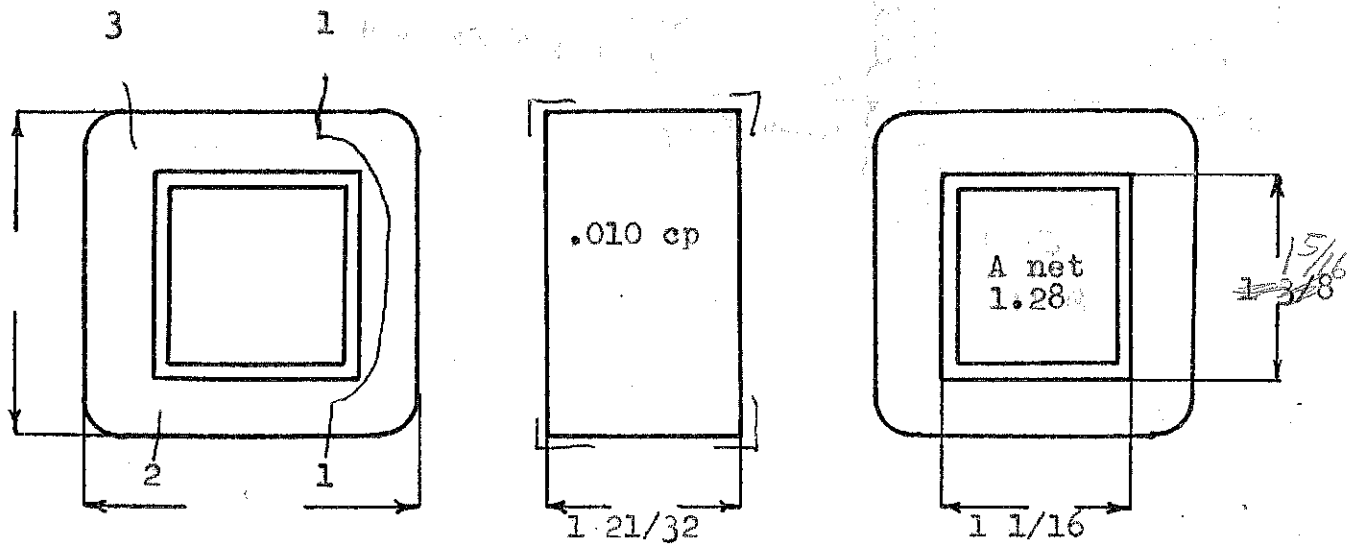
Winding	1-2-3					
	Pri.					
Turns	990					
Taps	550 $\frac{1}{2}$					
Wind. Lgth.	1 $\frac{15}{32}$					
Wire Size	#23					
T. P. L.	55-18L					
Finish	90%					
Type Lead	W.O.					
Lead Lgth.	3"					
Layer Insul.	50#					
Test Volt.	1500					
Wrapper	2L005GA					

TUBE	7L007GK	IMPREGNATION	Varnish
------	---------	--------------	---------

CORE	1 $\frac{1}{16}$ x 1 $\frac{3}{8}$ GA. 24	GRADE	D	STACK	2 x 2
------	---	-------	---	-------	-------

MOUNTING T - cords & plug

T. P. V. - 4.3  
Window -  $542 / 65625 = 82.5\%$



DESIGNED BY F. Frazer

DATE 6-47

# DESIGN AND TEST DATA

Rating:

Sec VA = 150  
Pri VA = 179  
Ip = 781

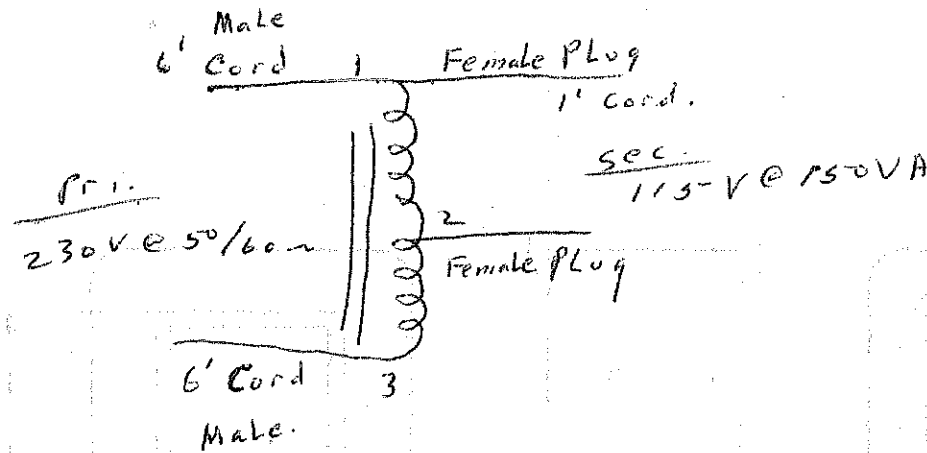
Winding	1-2-3 Pri.					
Mean Turn	6.99					
Resistance 25° c	12.0					
Pounds Copper	.900					
Copper Density	652					
Ratio Volts	230 128					
Test to Ground	1500					

Iron Induction 12.7 kg @ 50 Cycles

Exciting Current: 70 milli amperes @ 230 volts 60 cycles on 1-3

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



230V/115V  
150 Watts

SPEC. NO. P-442-T

Winding		Pri. & Sec.				
Turns		990				
Taps	(490)	550 (10th Layer)				
Wind. Lgth.		1-15/32"				
Wire Size		#23				
T. P. L.		55 - 18L	(SET TENSION FAIRLY TIGHT)			
Brush PITCH		90%				
Type Lead		W.O. Sleeve				
Lead Lgth.		6"				
Layer Insul.		1L 50%G				
Test Volt.		1500V				
Wrapper		2L .005" GA				

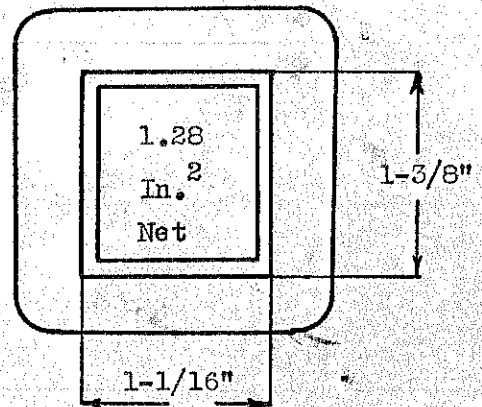
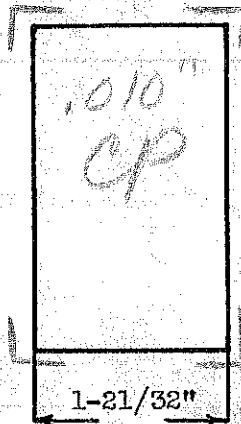
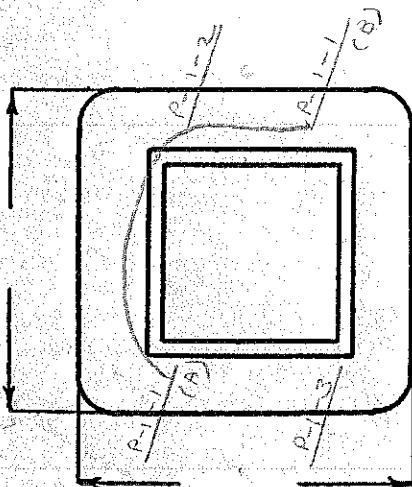
TUBE	7L - .007" GK	IMPREGNATION	DOUBLE VARNISH
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CORE 1-1/16 x 1-3/8 EI GA. 24 GRADE D STACK 2 x 2

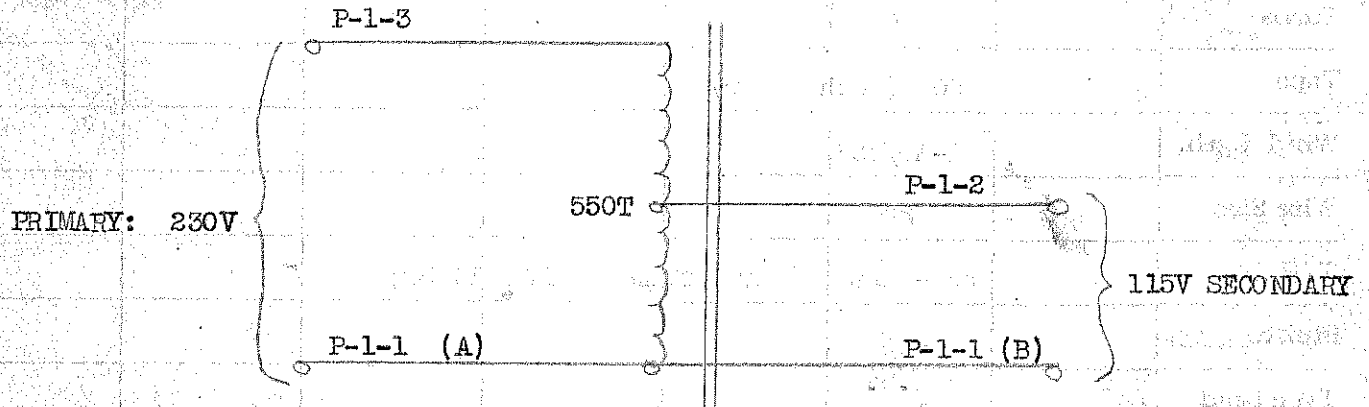
MOUNTING "T" - Cords out each side.

Cu = 703  
Fe = 68 @ 60 Cycle  
TPV = 4.3  
WN = 0.490" (0.476")

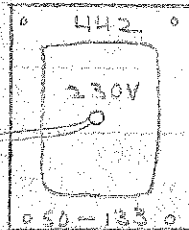
Sec. VA = 150  
Total I = 723 Ma.  
Efficiency = 95%  
COS θ = 95%



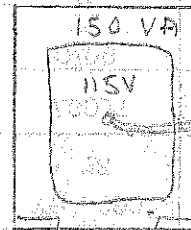
#P-442-T



Male Plug  
6' Cord



Primary Side

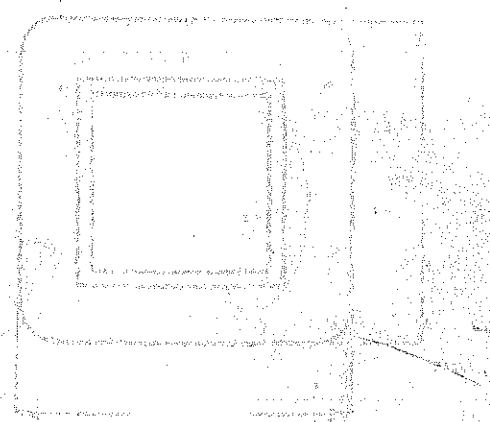
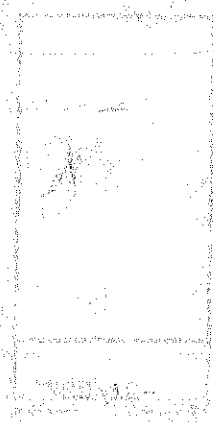
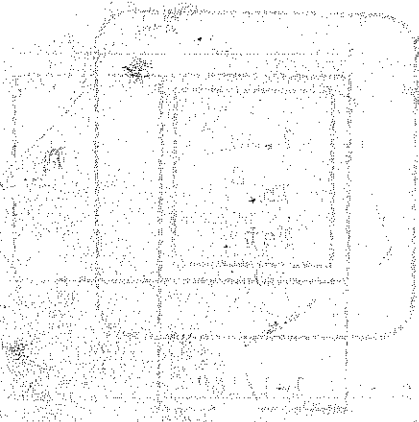


Female Recep.  
1-1/2' Cord

Secondary Side

METAL STAMP AS ABOVE

NOTE: Lugs - Panels on each side of coil.  
Cords soldered to these lugs.



STEP DOWN AUTO

STOCK

230 volts @ 50/60 cycles  
to

115 volts @ 150 watts

SPEC. NO. P-442-T

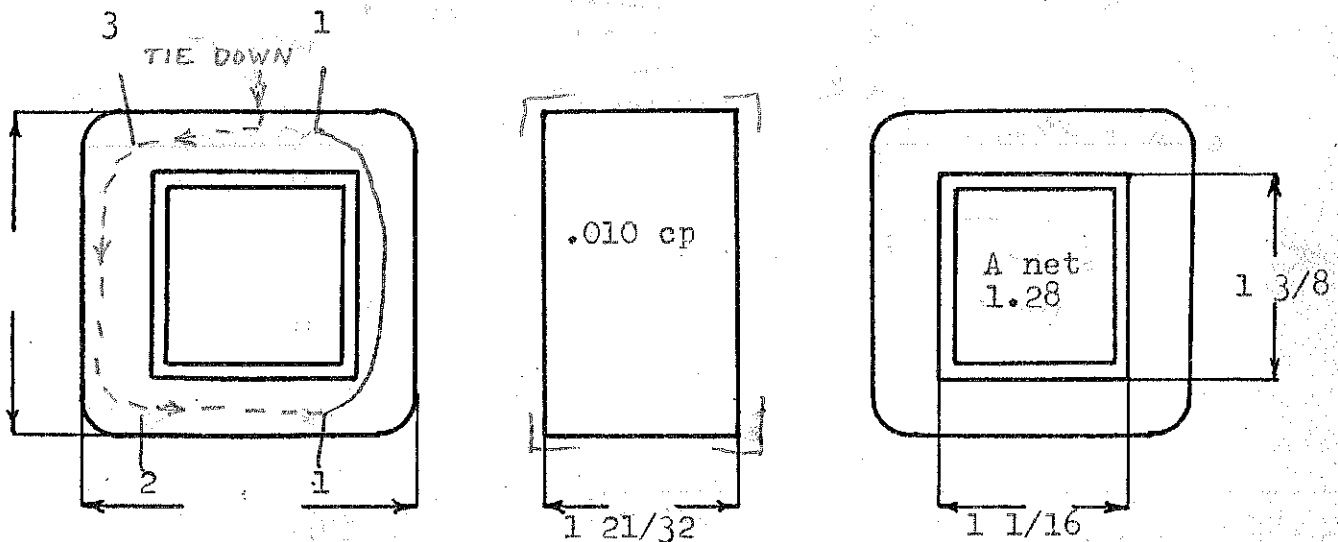
Winding	1-2-3 Pri.					
Turns	990					
Taps	550½					
Wind. Lgth.	1 15/32	WIND AT 1 3/8" W.L. = 95%				
Wire Size	#23					
T. P. L.	55-18L					
Finish	90%					
Type Lead	W.O.					
Lead Lgth.	3"					
Layer Insul.	50#					
Test Volt.	1500					
Wrapper	2L005GA					

TUBE	7L007GK -	IMPREGNATION	Varnish
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CORE	1 1/16 x 1 3/8 GA. 24	GRADE	D	STACK	2 x 2
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MOUNTING T - cords & plug

T. P. V. - 4.3  
Window -  $0.542 / 0.65625 = 82.5\%$



DESIGNED BY F. Frazer

DATE 6-47

# DESIGN AND TEST DATA

Rating:

Sec VA = 150  
 Pri VA = 179  
 Ip = 781

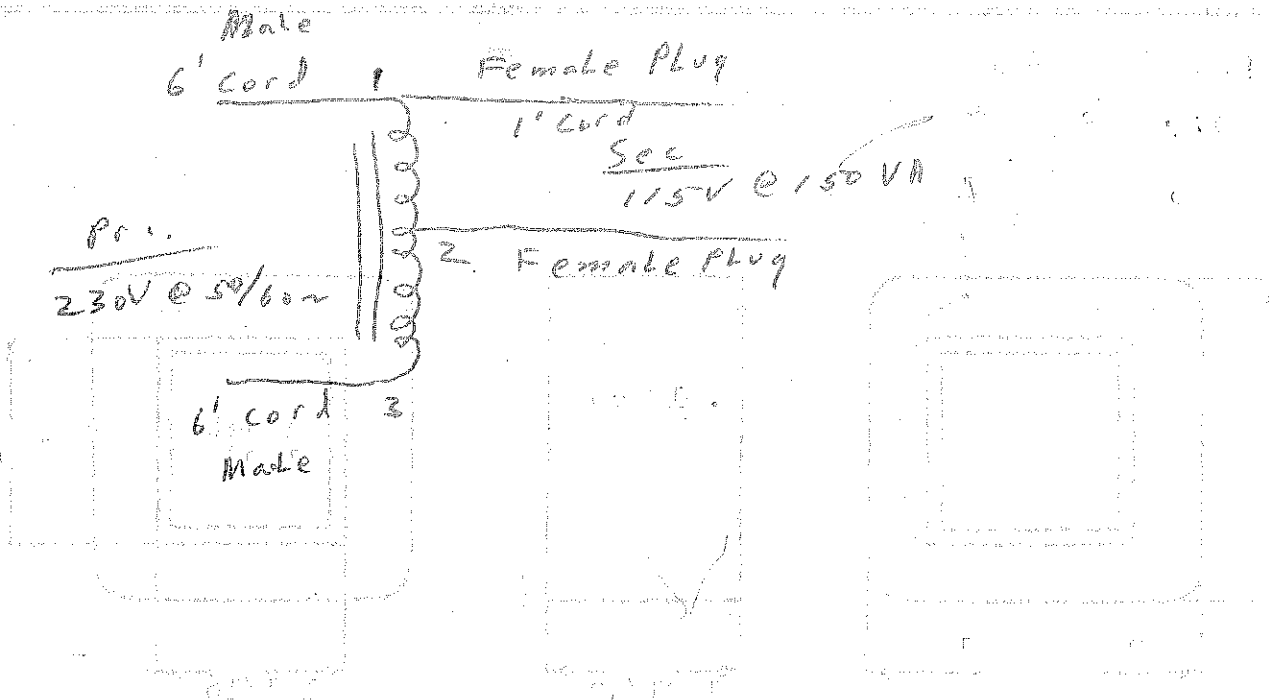
Winding	1-2-3 Pri.						
Mean Turn	6.99						
Resistance 25° c	12.0						
Pounds Copper	.900						
Copper Density	652						
Ratio Volts	230 128						
Test to Ground	1500						

Iron Induction 12.7 kg @ 50 Cycles

Exciting Current 70 milli amperes @ 230 volts 60 cycles on 1-3

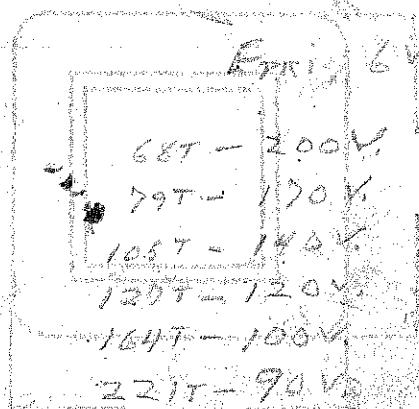
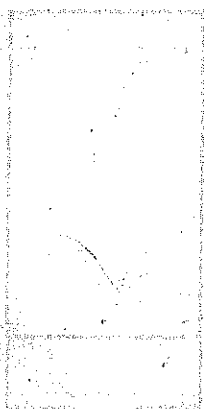
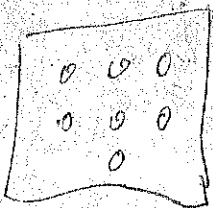
Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:









APR 1964

Pri - 230V tapped  
 Sec 4000V at 5000CMA  
 3450  
 2900  
 2350-2100-1900

.59

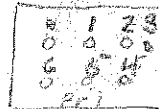
286

Continuous

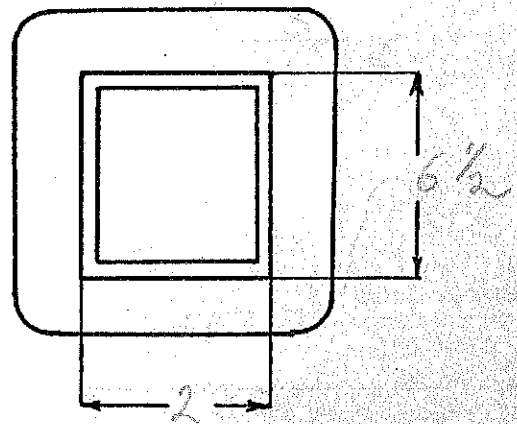
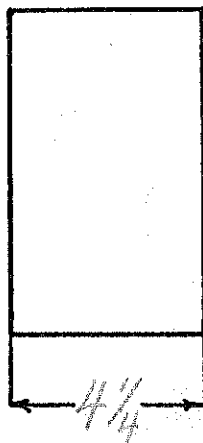
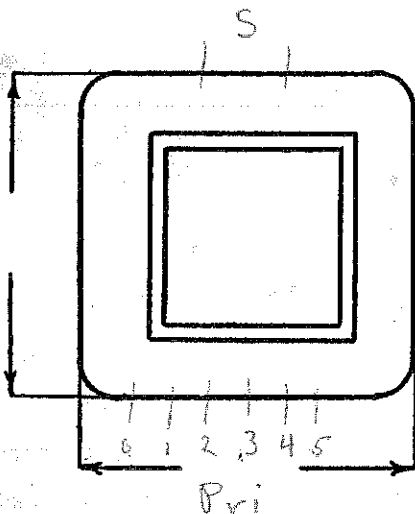
SPEC. NO. P444-230V

Winding	Sec	Pri				
Turns	2430	136	52	70	28	
Taps	-		22	44		
Wind. Lgth.	3 1/4	4"	✓	✓	✓	
Wire Size	#23	#12	#13	#15	#16	
T. P. L.	122-20		6 layers			
Finish						
Type Lead	Dalac	Wire Only				
Lead Lgth.	6"	6"	6"	6"	6"	
Layer Insul.	Double 50		007K			
Test Volt.	10000					
Wrapper	5L007VC 2L007GA				2L007GA	
TUBE	10L007-3L007VC		IMPREGNATION		Double Varnish	
CORE	2x6 1/2	GA. 24	GRADE D		STACK 2x2	
MOUNTING	G - fill ends with compound					VA 2250

Insulators



6 - lowest voltage output  
 1 - highest voltage output



DESIGNED BY

JCG

DATE

4-12-39

DATE

NO. 100  
NO. 101  
NO. 102  
NO. 103  
NO. 104  
NO. 105  
NO. 106  
NO. 107  
NO. 108  
NO. 109  
NO. 110  
NO. 111  
NO. 112  
NO. 113  
NO. 114  
NO. 115  
NO. 116  
NO. 117  
NO. 118  
NO. 119  
NO. 120

REMARKS

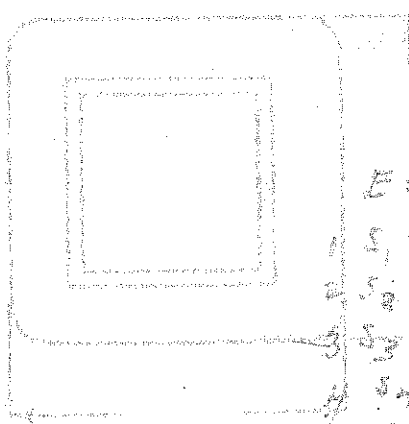
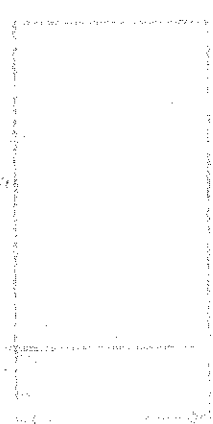
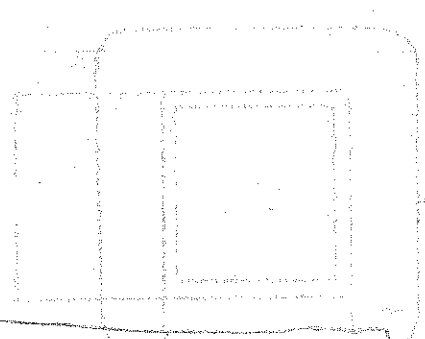
DATE

NO.

NO.

NO.

REMARKS



$E = 122$   
 $P = 136$   
 20 cm long  
 1.0 cm wide  
 total P.W.T.  $T_{EX} = .05$

$E = 27.7$   
 $S_1 = 495$   
 $S_2 = 425$   
 $S_3 = 358$   
 $S_4 = 290$   
 $S_5 = 260$   
 $S_6 = 236$

120V - 60 Cycle  
 600, 560, 520, 480V OT  
 @ 100 Ma.  
 5V @ 2A

SPEC. NO. P-445

Winding		Sec.		Shield	Pri.	Fila.	
Turns	2720 2557	1360 OT 480		1	528	24	
Taps	2394 2231	328 163		-	-	-	
Wind. Lgth.		1-1/4"		1-1/4"	1-1/4"	1-1/4"	
Wire Size		#34	.001" Cu Sheet		#26	#20	
T. P. L.		163 - 161		1	66 - 81	24 - 11	
Finish Pitch		80%		-	90%	64%	
Type Lead		#22 Dulac		#26 Solid	#22 Pr. Br.	W. O. Sleeve	
Lead Lgth.		9"		3"	9"	9"	
Layer Insul.		2L 16/C		-	1L 50/C	-	
Test Volt.		2500V		-	-	-	
Wrapper		1L .007" VC		1L .007" VC	1L .007" VC	2L .005" GA	

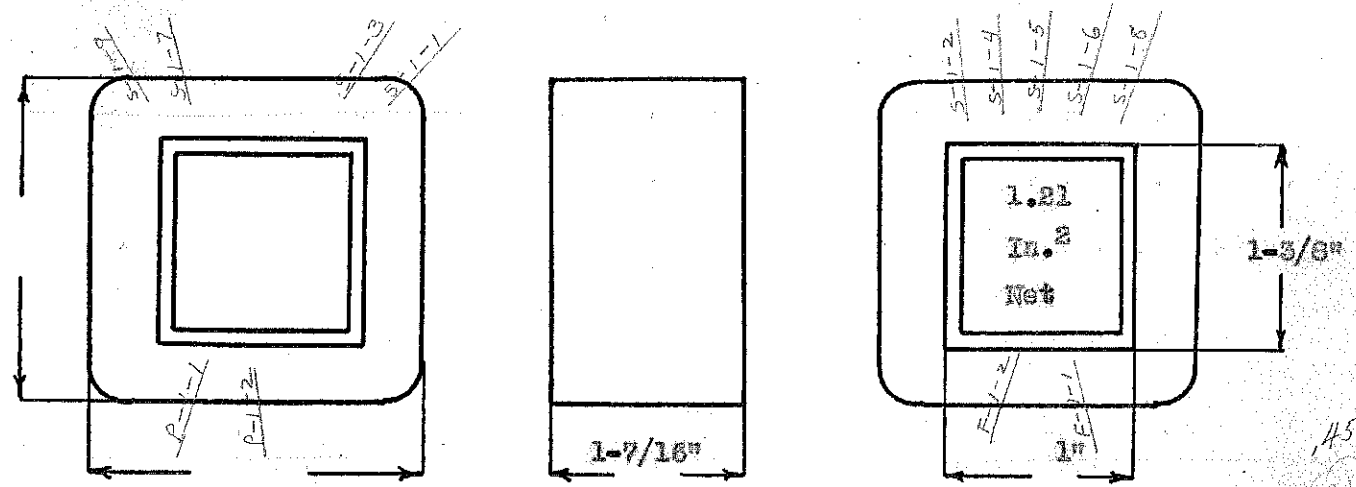
TUBE	6L - .007" OK	IMPREGNATION	VARNISH
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CORE 1" x 1-3/8" E & I GA. 24 GRADE D STACK 2 x 2

MOUNTING "AA" NOTE: ALL MULTI-WOUND.

Cu = 664 - 570 - 510  
 Fe = 70.3 @ 60 Cycle  
 TPV = 4.4  
 Wire Net = 0.358" (0.347")

Sec. VA = 40  
 Pri. VA = 53.5  
 Pri. I = 445 Ma.  
 Efficiency = 83%  
 COS φ = 90%



DESIGNED BY HWS

DATE 4-1-42

Pri.      Black P-1-1  
120V - 60 Cycle  
Black P-1-2

0	Red	S-1-1	300V
163T	Yellow	S-1-2	250V
376T	Brown	S-1-3	200V
489T	Blue-White	S-1-4	150V
	Blue	S-1-5	OT
1360T			
2231T	Blue-White	S-1-6	
2394T	Brown	S-1-7	
2557T	Yellow	S-1-8	
2720T	Red	S-1-9	
	Green	F-1-1	
			5V @ 2A
	Green	F-1-2	

NOTE: In winding Secondary, a number of turns have to be dropped, therefore, spiral out to land taps at proper location.

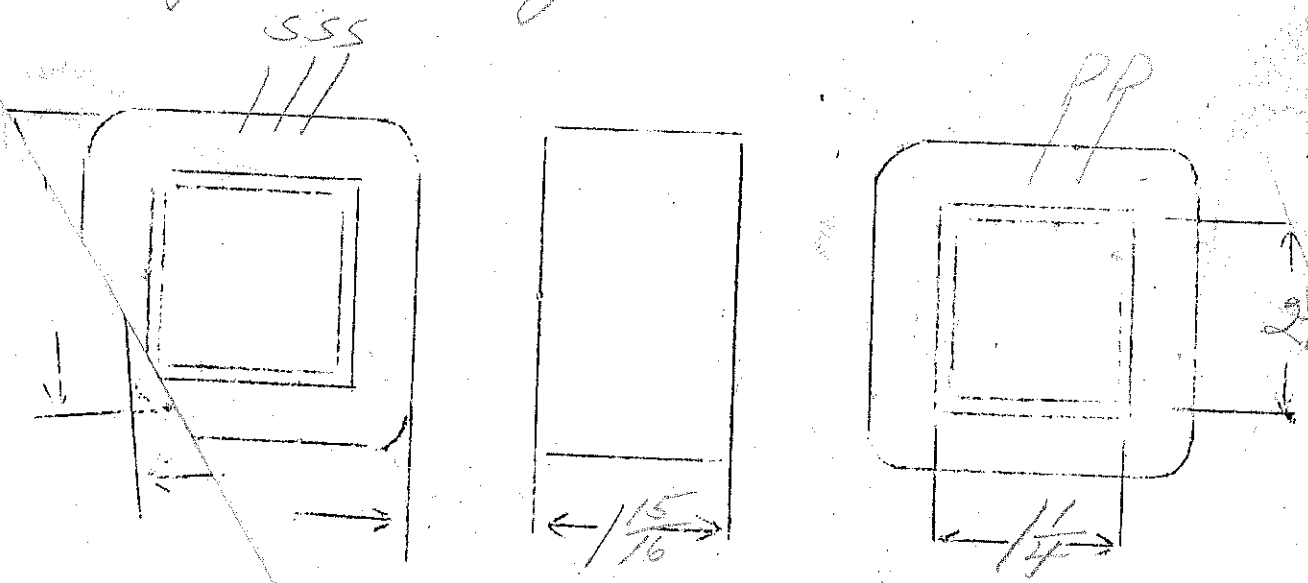
ES - 920V.C.T. - 150Ma  
 EF1 - 5V 3amps  
 EF2 - 2.5V.C.T. - 4amps  
 EF2 - 2.5V.C.T. - 6amps

2.22

SPEC. NO. 446

Winding	SEC	SHIELD	PRI	F1	F2	F3
Turns	2230	140	256	12	6	6
Taps	1115	—	—	—	3	3
Wind. Lgth.	1.75	1.75	1.75	—	—	—
Wire Size	#30	#30	#30	#18	#17	#15
T.P.L.	140-16	140	45-6	—	1 Layer	—
Kind Term.	#20 Braid	sil br	#20 Braid	WIRE ONLY		
Term. Lgth.	9"	3"	9"	9"	9"	9"
Layer Insul.	double 16#	—	50#	—	—	—
Wrapper	2007VC 4400VC	11007VC	2007VC	2007VC	2007VC	2007VC
TUBE	7L007-11007VC			IMPREGNATION		VARNISH
CURE	1 1/4 x 2 1/4					

heavy secondary insulation



K-7A.

T 446

Pri 115V, 50-60 Cycle

Black Braid

Sec - 920 V. C. T. - 150 Ma

Red Braid - Blue C. T.

File #1 - 5V - 3 Amps

Green Sleeving

File #2 - 2.5 V. C. T. - 4 Amps

Yellow Sleeving

File #3 - 2.5 V. C. T. - 6 Amps

Black Sleeving

H - 5

W -  $3\frac{3}{8}$  I.D.

L - 4 Cut out:  $3\frac{1}{2}$

Mount Holes  $3\frac{3}{8} \times 3\frac{1}{2}$

Top  $10\frac{1}{32}$

NOTIFICATION

6741 1141W

6741 1141W

1141W

6741 1141W

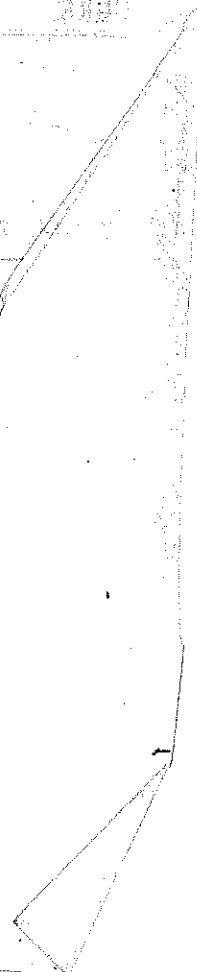
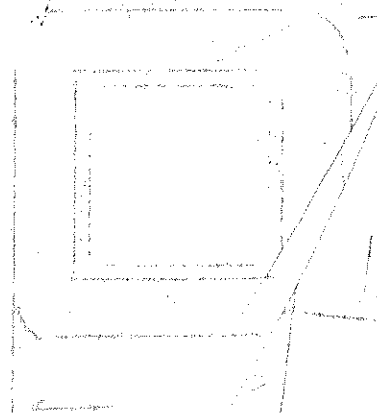
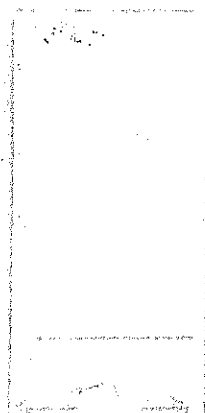
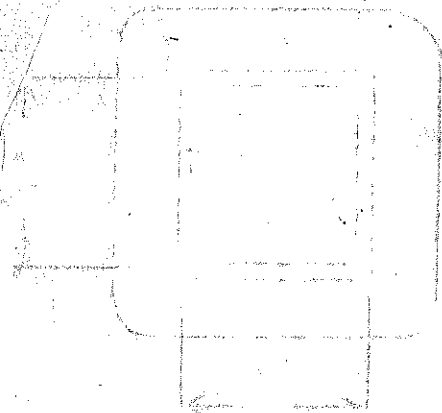
6741 1141W

6741 1141W

6741 1141W

6741 1141W

6741 1141W



Pri - 115 V

BIAS SUPPLY

Sec - 150, 200, 250, OR 300 V DC @ 200 DC mA

NE 216  
11-200

FIL #1 - 5V @ 3a

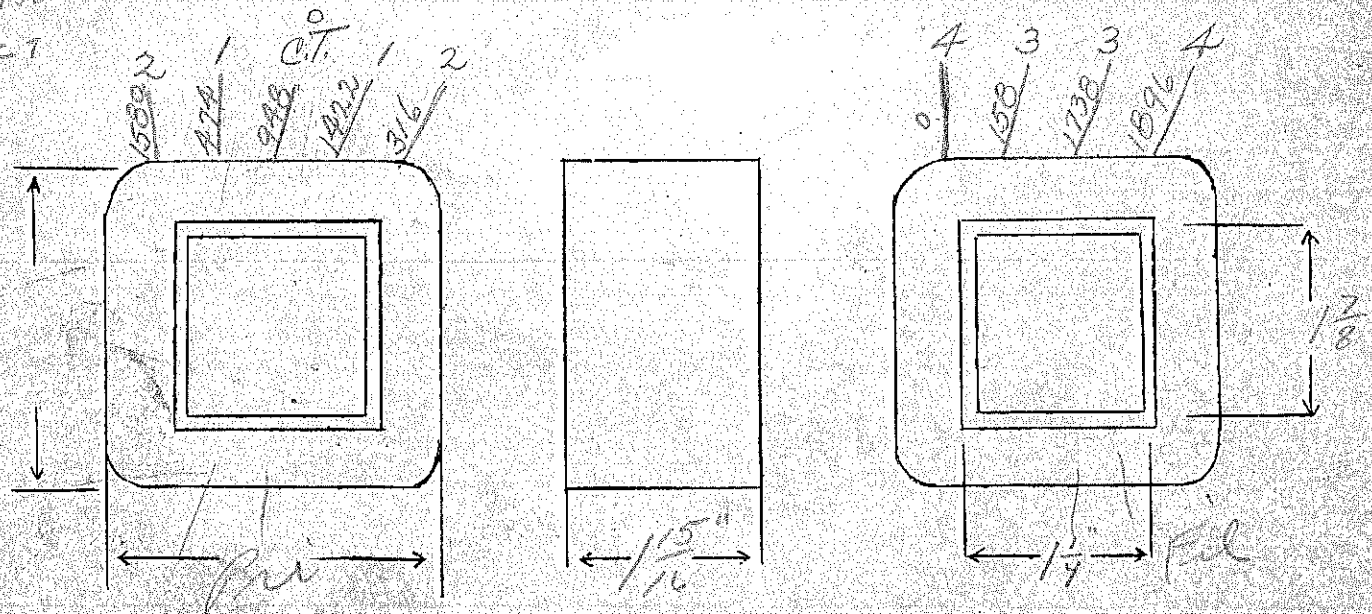
SPEC. NO. P-448

Winding	SEC	SHIELD	PRI	FIL		
Turns	1896-1738-1580-1422	158	300	14		
Taps	158-316-474-643	-	-	-		
Wind. Lgth.	13"	1 3/4"	1 3/4"			
Wire Size	#31	#31	#21	#18		
T.P.L.	158-124	12	52-64	12		
Kind Term.	Wire	Wire	Wire Only	Wire		
Term. Lgth.						
Layer Insul.	1/16 lb (double)		50 #			
Test Volt.						
Wrapper	3 Ct. 1L.007VC	3 Ct. 1L.007VC	2L.0056A	2L.0056A		

TUBE	7L.007" GK	IMPREGNATION	Varnish
CORE	1 1/4" x 1 3/8"	PRIMARY V.A.	
MOUNTING	B OR F	stack	2x2

- Sec 4-4 - 300 V
- Sec 3-3 - 250
- Sec 2-2 - 200
- Sec 1-1 - 150
- Sec 0 - CT

Spiral Sec leads into position



DESIGNED BY [Signature] DATE 8/3/39



Swinging Choke

New stock

5-20 Hz @ 200-20 ma.

125  
175 ohms

5000 V ins

ATAU TEST ONA MOLEHU

SPEC. NO. C 450

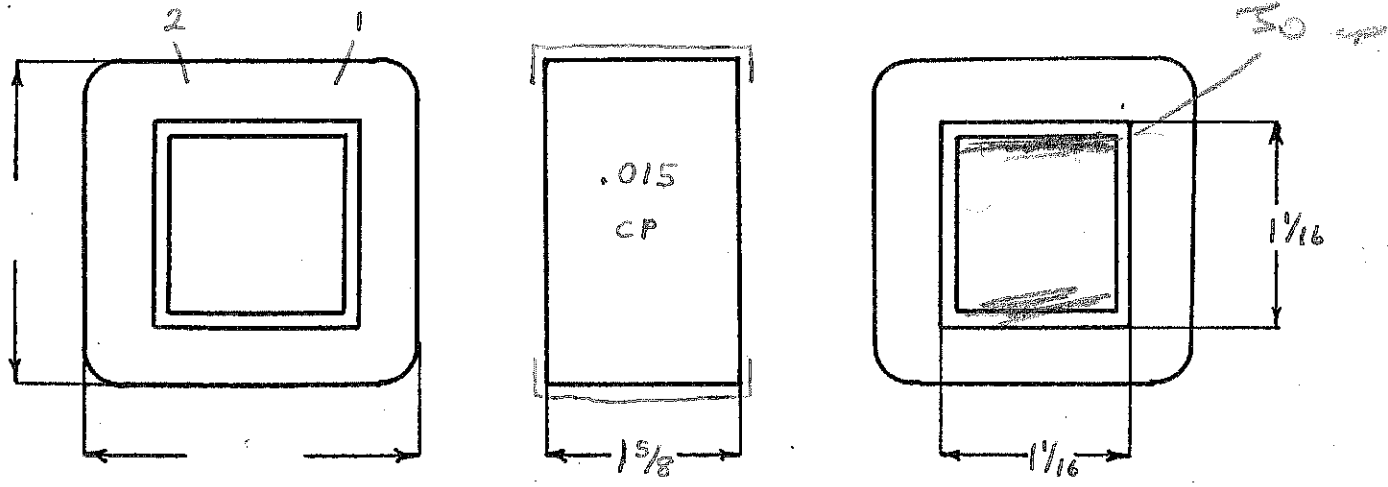
Winding		1-2 Choke					
Turns		2950					
Taps		—					
Wind. Lgth.		1 1/8					
Wire Size		# 29					
T. P. L.		82-36L					
Finish Pitch		90%					
Type Lead		# 22 Dulac					
Lead Lgth.		cut 9" from coil					
Layer Insul.		30 #					
Test Volt.		5000					
Wrapper		<del>2L003CA</del> <del>2L005VE</del> 2L005GA					

TUBE 5L010GK + ~~2L003CA~~ IMPREGNATION Varnish

CORE 1/16 x 1/16 GA. 24 GRADE D STACK Butt .015 gap

MOUNTING BB-Leads, HS 13

wn = 87%



DESIGNED BY S. BABCOCK

DATE 6-2-49

# 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:

$$\frac{NI}{l} = \frac{2950 \times 200}{18.1} = 32.6$$

$$\frac{LI^2}{V} = 44.75$$

$$L = \frac{44.75 \times 198}{(200)^2} = 22.2 \mu$$

$$\frac{NI}{l} = \frac{2950 \times 0.020}{18.1} = 3.26$$

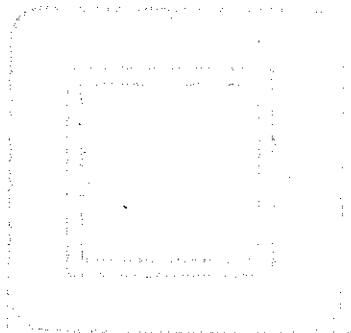
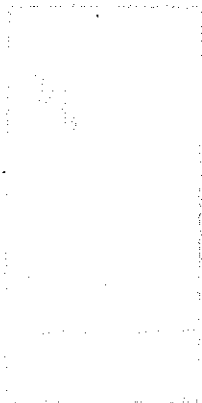
$$\frac{LI^2}{V} = 10$$

$$L = \frac{10 \times 198}{(0.02)^2} = 4.95 \mu$$

$$\frac{a}{b} = .0042$$

$$a = .0042 \times 7.14 = .030$$

$$\frac{a}{\pi} = .015 \text{ use } .015$$



Swinging choke

New Stock

5 - 20 My @ 200 - 20 Wm  
175 ohms 5000 V ins.

SPEC. NO. C 450

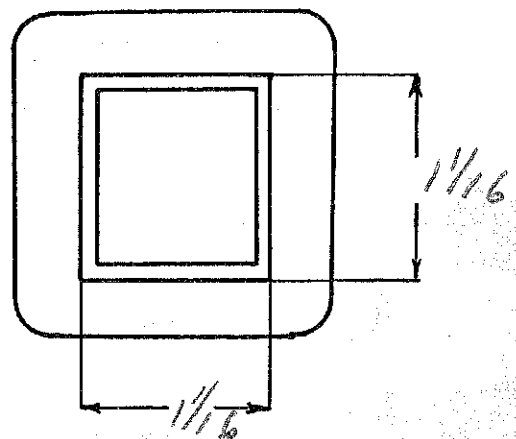
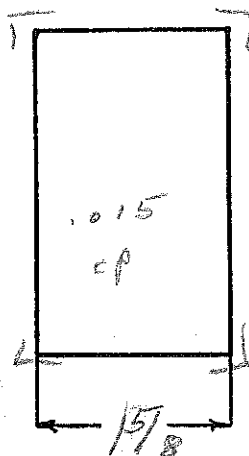
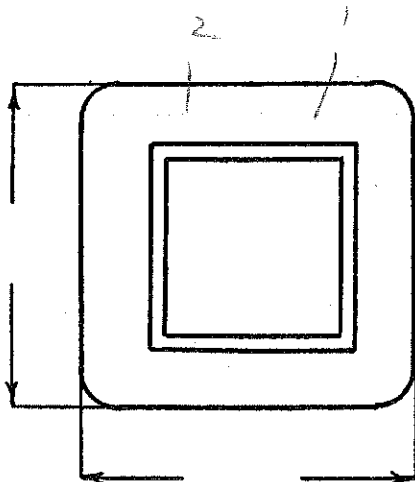
Winding	1-2 choke					
Turns	2950					
Taps	—					
Wind. Lgth.	1/8					
Wire Size	# 29					
T. P. L.	82-364					
Finish	90%					
Type Lead	# 22 Dulac					
Lead Lgth.	cut 9" from coil.					
Layer Insul.	30 #					
Test Volt.	5000					
Wrapper	2L005VC 2L0056A					

TUBE	5L010 GK + 2L005VC	IMPREGNATION	Varnish
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CORE	1/16 x 1/16 GA.	24	GRADE	D	STACK	Butt .015 GP
------	-----------------	----	-------	---	-------	-----------------

MOUNTING	BB - Leads	HS 13
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W = 88%



DESIGNED BY S. Babcock

DATE 5-2-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding	1-2 <i>Choke</i>					
Mean Turn	6.53					
Resistance 25° c	134					
Pounds Copper	.629					
Copper Density	633					
Ratio Volts	—					
Test to Ground	5000					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks: \_\_\_\_\_

$$\frac{NI}{e} = \frac{2950 \times .200}{18.1} = 32.6$$

$$\frac{a}{e} = .0042$$

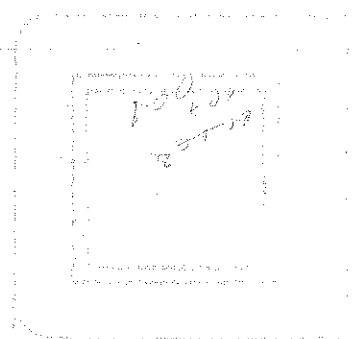
$$\frac{LI^2}{V} = 44.75$$

$$a = .0042 \times 7.17 = .030$$

$$L = \frac{44.75 \times 198}{(.200)^2} = 22.2 \mu\text{H}$$

$$\frac{a}{2} = .0152 \text{ use } .015$$

$$\frac{NI}{e} = \frac{2950 \times .020}{18.1} = 3.26$$



$$\frac{LI^2}{V} = 10.$$

$$L = \frac{10 \times 198}{(.02)^2} = 4695 \mu\text{H}$$

Fri 115 - 300 Watts  
 Output 110, 105, 100, 90, 80, 70, 60, 50

Red. Voltage  
 Line Transformer

SPEC. NO. P451

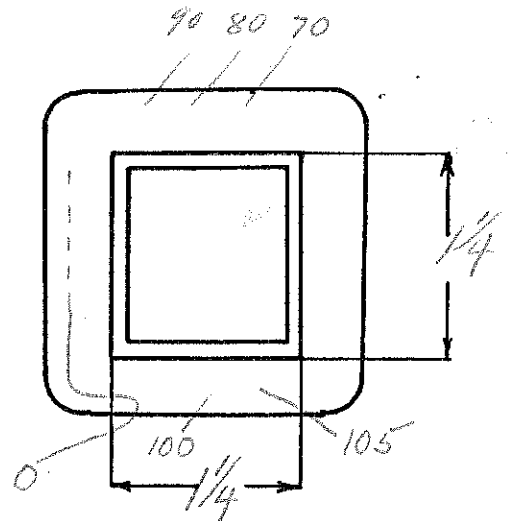
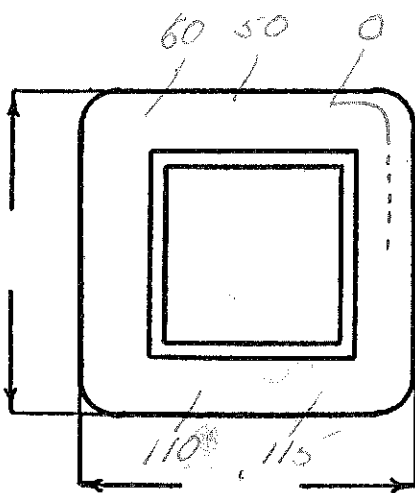
4, 26

Winding	CONTINUOUS						
Turns	234	124	132				
Taps		85 44	40-82-99-115				
Wind. Lgth.	1 3/4						
Wire Size	#22 <del>#20</del>	#19 <del>#20</del>	#17				
T. P. L.	59 <del>77</del>	43 <del>49</del>	34				
Finish							
Type Lead	20 wire Only						
Lead Lgth.	4"	4"	1/4"				
Layer Insul.	007K	007K	007K				
Test Volt.	12.50						
Wrapper			3L007GA				

TUBE 7L007GK IMPREGNATION Varnish

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

MOUNTING F



DESIGNED BY J.C.W.

DATE 1-30-39

Tri 115V 600 Watts

Reduced Voltage  
Line Transformer

Output - 115, 110, 105, 100, 90, 80, 70, 60, 50V

SPEC. NO. P452

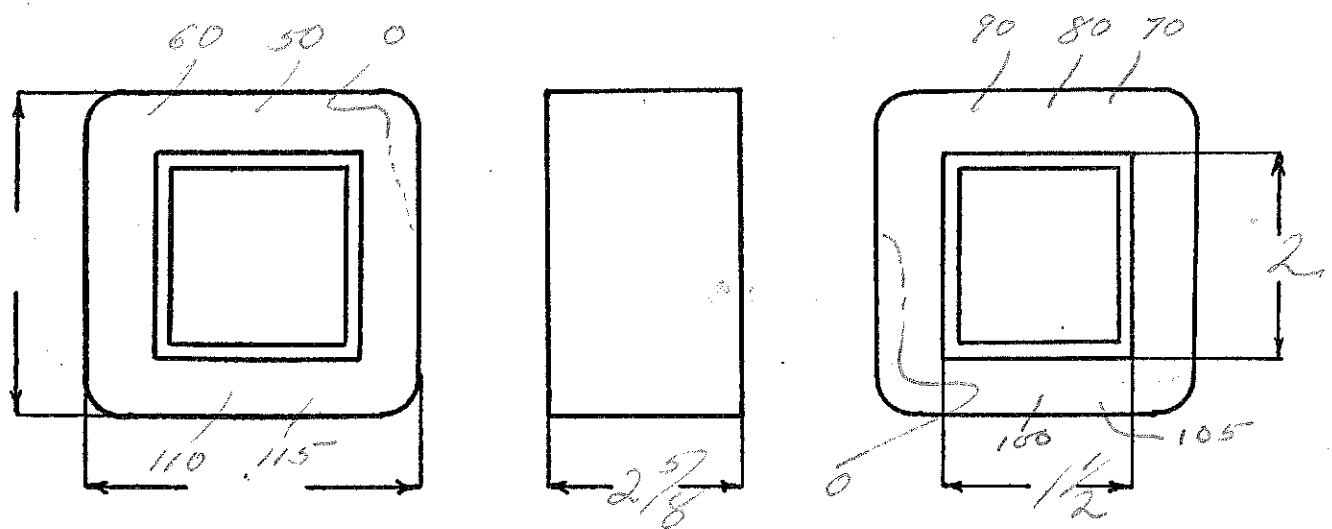
2-34

Winding	Continuous					
Turns	125	70	75			
Taps		24-49	22-44-53-64			
Wind. Lgth.	2 1/4					
Wire Size	#19	#16	#14			
T. P. L.	<del>66</del> -66	43- <del>50</del>	34-			
Finish						
Type Lead	Wire Only					
Lead Lgth.	4"	4"	4"			
Layer Insul.	007K	007K	007K			
Test Volt.	1250					
Wrapper			3L007GA			

TUBE 9L007 GK IMPREGNATION Varnish

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

MOUNTING G



DESIGNED BY JCG

DATE 1-30-39

Swingline Hoke

New stock

5-20 H<sub>1</sub> @ 300-30 ma

125 ohms

5000 V ins.

SPEC. NO. C452

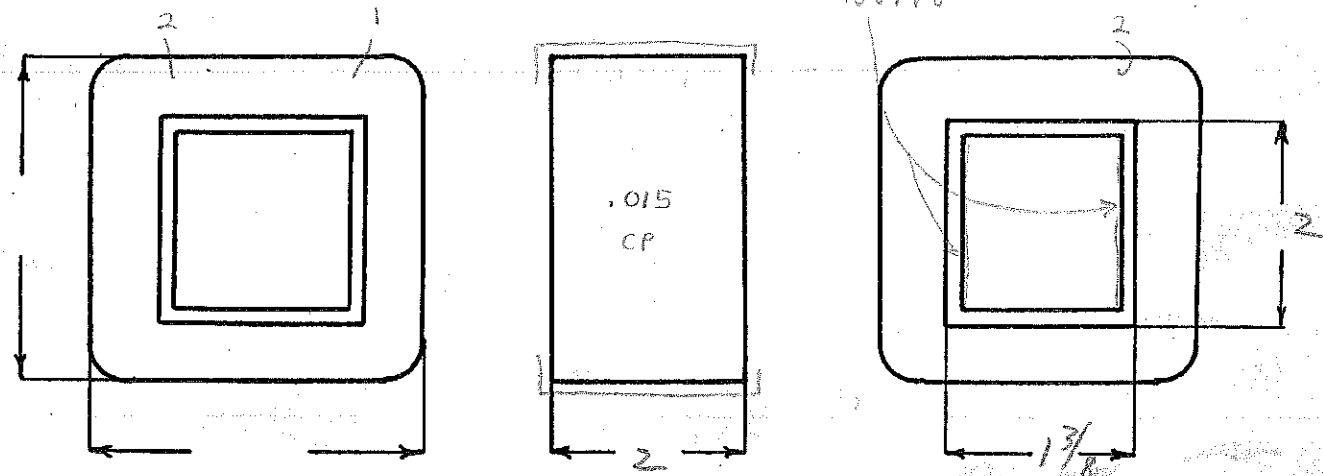
Winding	1-2					
	choke					
Turns	2540					
Taps	—					
Wind. Lgth.	1 1/2					
Wire Size	#27					
T. P. L.	82-3/4					
Finish	90%					
Type Lead	#20 DALLAS VYNL SLEEVE					
Lead Lgth.	cut 9" from coil					
Layer Insul.	40#					
Test Volt.	5000					
Wrapper	2 L005VC 2 L005GA					

TUBE 5 L010 GA, 2 L005VC IMPREGNATION Varnish

CORE 1 3/8 x 2 GA. 24 GRADE D STACK Both .015 Gap

MOUNTING BB - Leads HS 17

win = 90%



DESIGNED BY C. R. Brock

DATE 2-16-49

# DESIGN AND TEST DATA

Rating:

Winding	1-2 <i>Choke</i>					
Mean Turn	9.18					
Resistance 25° c	102					
Pounds Copper	1.21					
Copper Density	672					
Ratio Volts	—					
Test to Ground	5000					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{e} = \frac{2540 \times .030}{21} = 3.63$$

$$\frac{a}{e} = .0034$$

$$\frac{LI^2}{V} = .55 \times 10^{-4}$$

$$a = .0034 \times 8.25 = .028$$

$$\frac{a}{e} = .014$$

$$L = \frac{.55 \times 10^{-4} \times 375}{(.3)^2} = 23$$

use .015

$$\frac{NI}{e} = 36.3$$

$$\frac{LI^2}{V} = 24 \times 10^{-4}$$

$$L = \frac{24 \times 10^{-4} \times 375}{(.3)^2} = 10 \text{ Mh}$$



Swinging Choke

New Stock

5-20 Hz. @ 300-30 ma.

125 ohms

5000 V ins.

AT&T TEST UNIT NUMBER

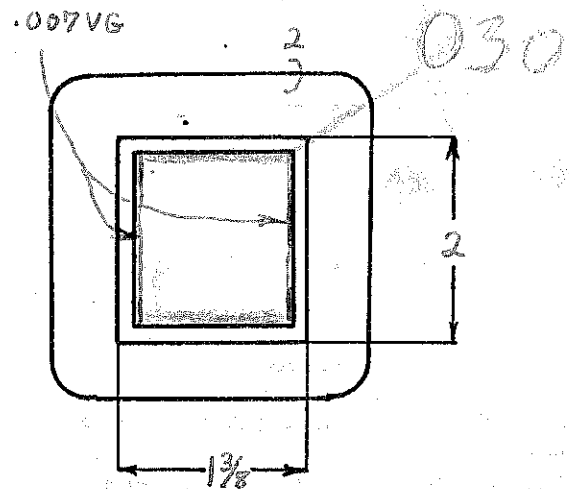
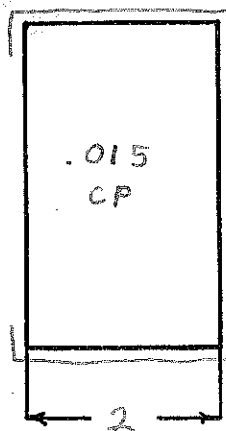
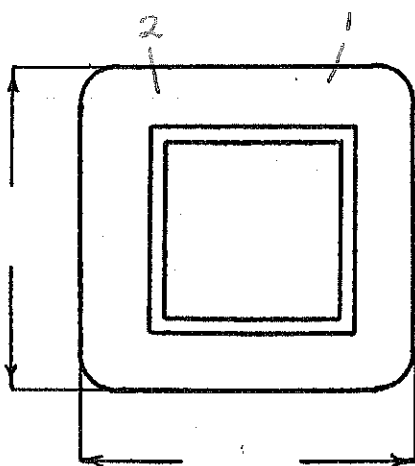
SPEC. NO. C452

Winding		1-2					
		Choke					
Turns		2540					
Taps		—					
Wind. Lgth.		1 1/2					
Wire Size		# 27					
T. P. L.		82-31L					
Finish		90%					
<i>Pitch</i>							
Type Lead		# 20	Vynl.				
		Dulas	sleeve				
Lead Lgth.		cut 9"					
		from coil					
Layer Insul.		40#					
Test Volt.		5000					
Wrapper		2L005VC					
		2L005GA					

TUBE 5L010GK + 2L005VC IMPREGNATION Varnish

CORE 1 3/8 x 2 GA. 24 GRADE D STACK ~~Butt~~

MOUNTING BB-Leads, HS 17 ~~1002-5-40AF~~  
70 Gap.



DESIGNED BY S. BABCOCK

DATE 2-16-49

# 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: \_\_\_\_\_

$$\frac{NI}{l} = \frac{2540 \times 0.030}{21} = 3.63$$

$$\frac{LI^2}{V} = .55 \times 10^{-4}$$

$$L = \frac{.55 \times 10^{-4} \times 375}{(.03)^2} = 23$$

$$\frac{NI}{l} = 36.3$$

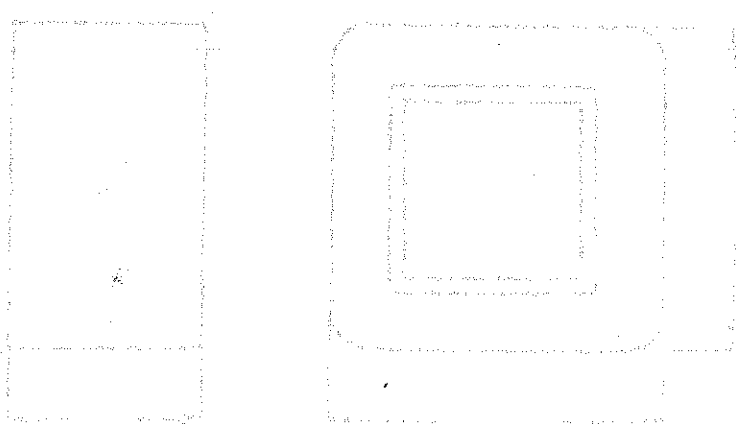
$$\frac{LI^2}{V} = 24 \times 10^{-4}$$

$$L = \frac{24 \times 10^{-4} \times 375}{(.13)^2} = 10 \text{ Hg}$$

$$\frac{a}{l} = .0034$$

$$a = .0034 \times 8.25 = .028$$

$$\frac{a}{2} = .014 \text{ use } .015$$



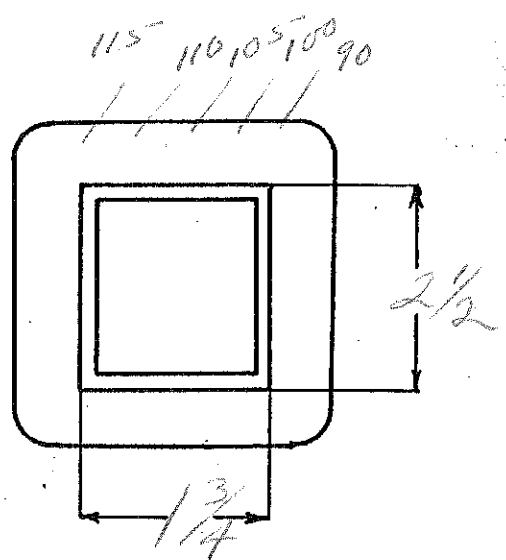
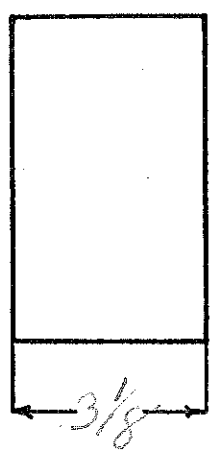
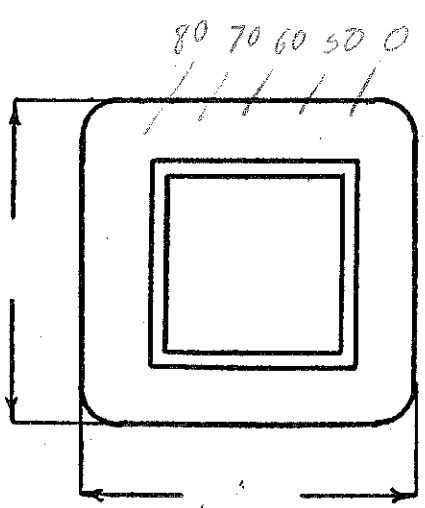
Pri. 115V 1200 Watts  
 Output 115, 100, 105, 100, 90, 80, 70, 60, 50

Reduced Voltage  
 Line Transformer

1.65

SPEC. NO. P-4530L

Winding	Continuous						
Turns	82	33	50	25			
Taps		17	17-33	8-17			
Wind. Lgth.	2 1/2						
Wire Size	#15	#13	#11	#9			
T. P. L.	2.3l	1.06l	2l	1.3l			
Finish							
Type Lead	Wire Only						
Lead Lgth.	6"	6"	6"	6"			
Layer Insul.		0.007K					
Test Volt.	1250						
Wrapper				3L007GA			
TUBE	10L007 GK			IMPREGNATION	Varnish		
CORE	1 3/4 x 2 1/2	GA.	2.4	GRADE	D	STACK	2 x 2
MOUNTING	G						



DESIGNED BY G.K.

DATE 9-10-38

Livinging Choke.

New Stock

5-20 Hz @ 350-35 ma.

7500 V ins AT&T TEST CIMA MDRHO

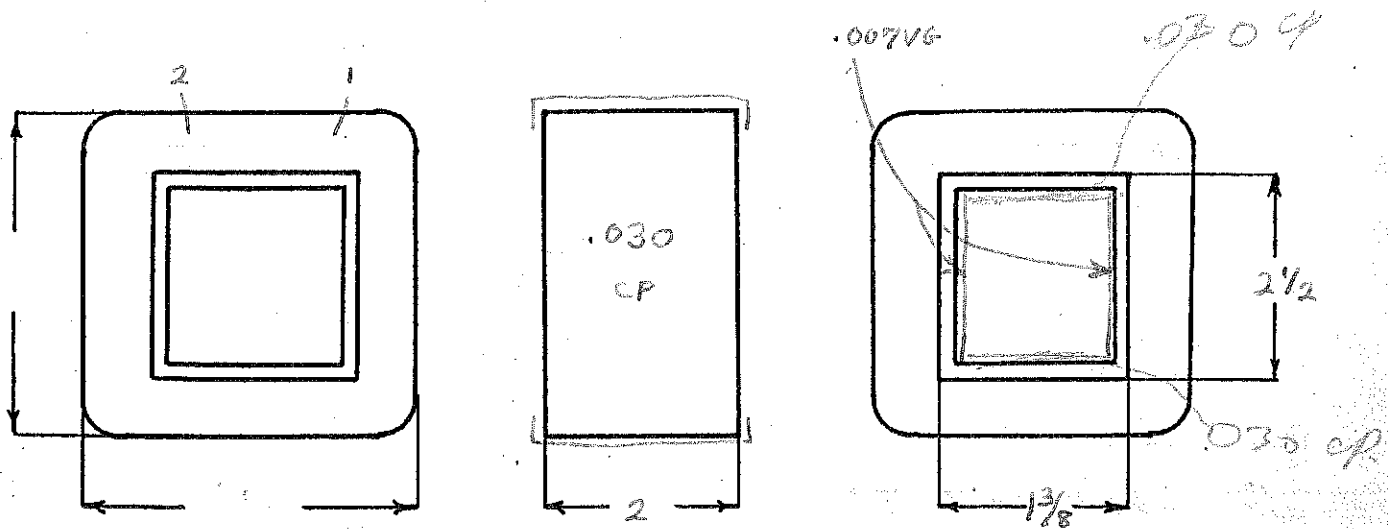
SPEC. NO. C 454

Winding	1-2					
	Choke					
Turns	2640					
Taps	—					
Wind. Lgth.	1 1/2					
Wire Size	# 27					
T. P. L.	88-30L					
Finish	90%					
Pitch						
Type Lead	# 22					
	Dulac					
Lead Lgth.	cut 9"					
	from coil					
Layer Insul.	40#					
Test Volt.	7500					
Wrapper	2L005CA					
	<del>3L007V6</del>					
	2L005GA					

TUBE  $\nabla$ L010GK + 2L005CA + 2L007V6 IMPREGNATION Varnish

CORE 1 3/8 x 2 1/2 GA. 24 GRADE D STACK Butth

MOUNTING BB-Leads, HS 19 No Gap



DESIGNED BY S. BABCOCK

DATE 6-2-49

# 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:

$$\frac{NI}{l} = \frac{2640 \times .350}{21} = 44.0$$

$$\frac{LI^2}{V} = 56.25$$

$$L = \frac{56.25 \times 440}{(.350)^2} = 21.5 \mu H$$

$$\frac{NI}{l} = \frac{2640 \times .035}{21} = 4.40$$

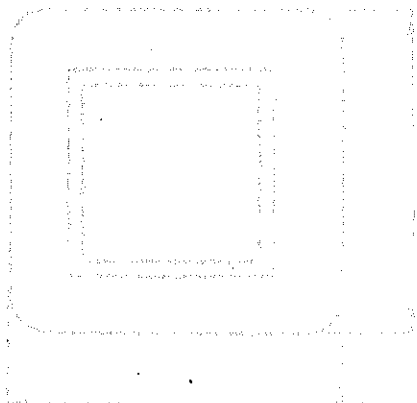
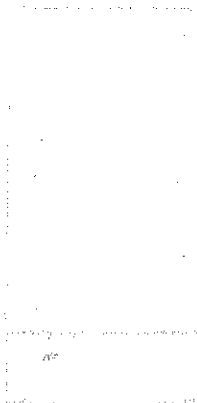
$$\frac{LI^2}{V} = 12$$

$$L = \frac{12 \times 470}{(.035)^2} = 4.6 \mu H$$

$$\frac{a}{l} = .0054$$

$$a = .0054 \times 8.25 = .0445$$

$$\frac{a}{2} = .022 \text{ ave } .025$$



Swinging choke

New Stock

5 - 20 Hy @ 350 - 35 ma

7500 V rms

SPEC. NO. C454

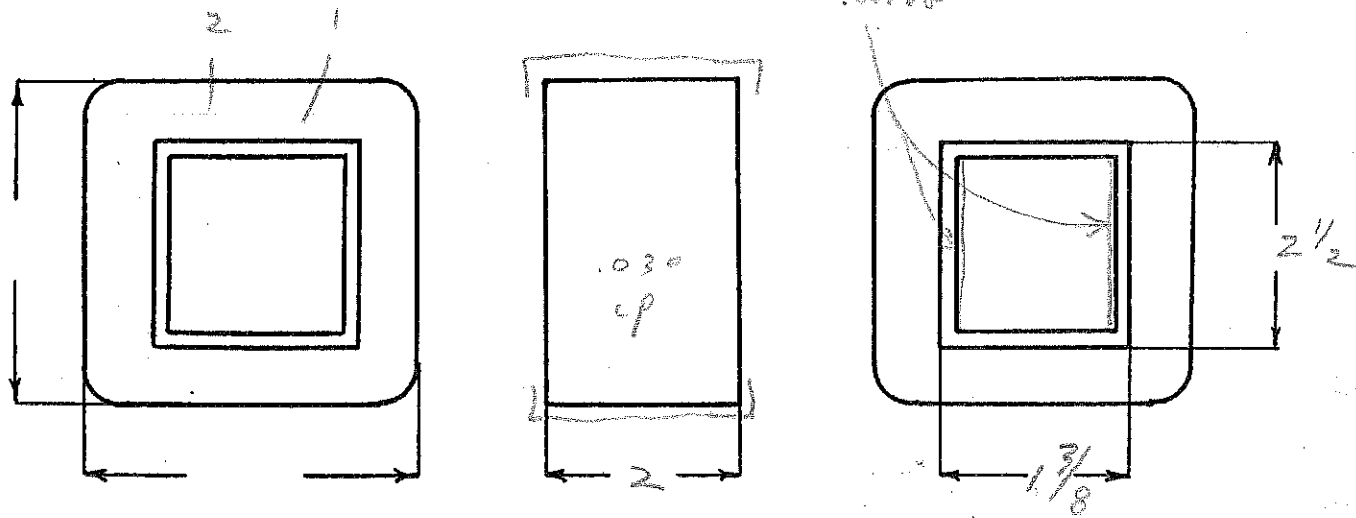
Winding	1-2 choke					
Turns	2640					
Taps	---					
Wind. Lgth.	1 1/2					
Wire Size	# 27					
T. P. L.	88-301					
Finish	90%					
Type Lead	# 22 Dulac					
Lead Lgth.	cut 9" from coil.					
Layer Insul.	40#					
Test Volt.	7500					
Wrapper	2L007VG 2L005GA					

TUBE 5L0106K + 2L007VG IMPREGNATION Varnish

CORE 1 3/8 x 2 1/2 GA. 24 GRADE D STACK Butt .010 Gap

MOUNTING BB-Leads HS 19

mn = 90%



DESIGNED BY S. Babcock

DATE 6-2-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

Winding	1-2 <i>Choke</i>					
Mean Turn	9.15					
Resistance 25° c	105.3					
Pounds Copper	1.250					
Copper Density	575					
Ratio Volts	—					
Test to Ground	7500					

Iron Induction \_\_\_\_\_ @ \_\_\_\_\_ Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on \_\_\_\_\_

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

$$\frac{NI}{l} = \frac{2640 \times .350}{21} = 44.0$$

$$\frac{A}{l} = .0054$$

$$\frac{LI^2}{V} = 56.25$$

$$a = .0054 \times 8.25 = .0445$$

$$L = \frac{56.25 \times 470}{(.350)^2} = 21.5 \text{ Hg}$$

$$\frac{a}{2} = .022 \text{ use } .025$$

$$\frac{NI}{l} = \frac{2640 \times .035}{21} = 4.40$$

$$\frac{LI^2}{V} = 12$$

$$L = \frac{12 \times 470}{(.035)^2} = 4.6 \text{ Hg}$$

220V  
 ES 970VCT 150MA EF5-6.3V 2A  
 Bias at 80V  
 EF1 5V-3A

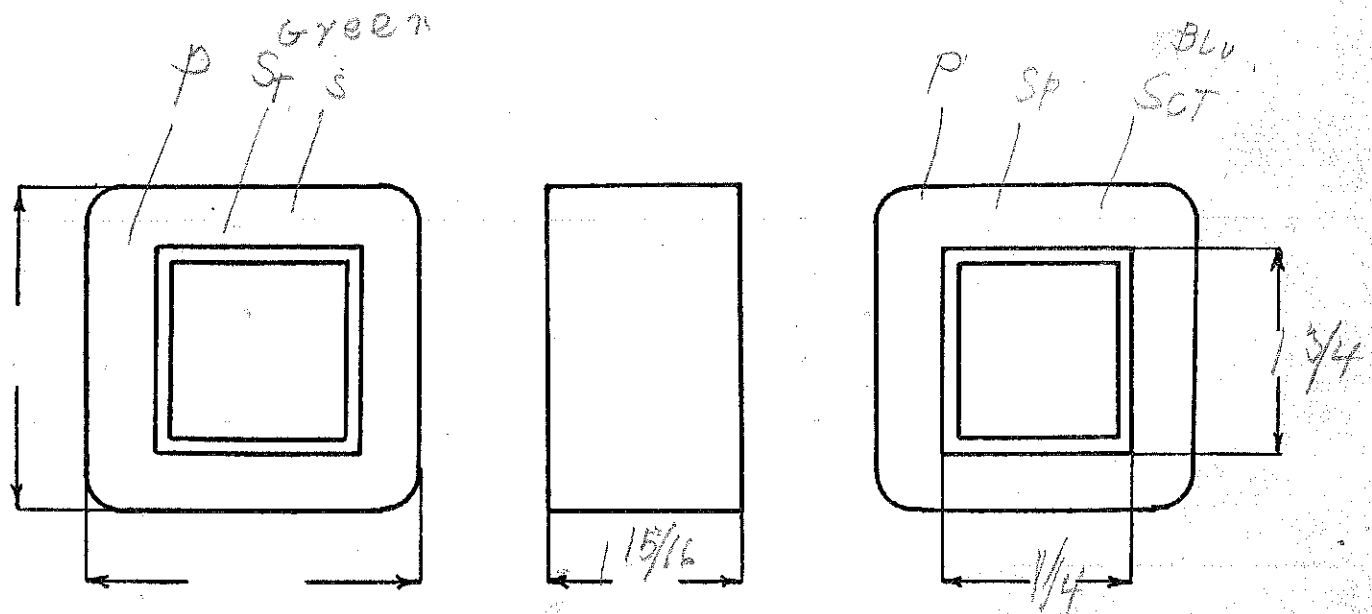
SPEC. NO. P466-220V

Winding	Sec	Shield	Pyl	Gr F1	White F2	Blue F3
Turns	2900	1	640.	16	20	20
Taps	1450 1700		—		10	
Wind. Lgth.	1.75	1.75	1.75	—	—	—
Wire Size	#31	shim	#24	#18	#19	#19
T. P. L.	163-19	8-5/16"	73-9			
Finish						
Type Lead	#20P.Bv	SilBy	20P.Bv	White	OR	1y
Lead Lgth.	9"	3"	9"	9"	9"	9"
Layer Insul.	Double 20#		50#			
Test Volt.						
Wrapper	2L007C	1L007C	2L007GA	2L007GA		2L007GA

TUBE 7L007T / L0070C IMPREGNATION Varnish

CORE 1/4 X 1 3/4 GA. GRADE STACK

MOUNTING A



DESIGNED BY WM From P466

DATE 1/9/44



115V @ 50/60 cycles  
 4660V CT @ 200 Ma (2000V DC) or  
 4100V CT @ 200 Ma (1750V DC) or  
 3560V CT @ 200 Ma (1500V DC)

SPEC. NO. P467

By Taps in Primary

Winding		1-2-3 Sec		4-5-6-7 = Pri		
Turns		6600		199		
Taps		3300		153-172		
Wind. Lgth.		2 1/2		2 5/8		
Wire Size		#29		#15		
T. P. L.		184-36L		40-5L		
Finish		90%		90%		
Type Lead		#20 Dulac-Vinyl Sl.		W.O.		
Lead Lgth.		6"		6"		
Layer Insul.		Double 40#		1L007GA		
Test Volt.		8500		1500		
Wrapper		2L015CP 3L007GA		3L007GA		

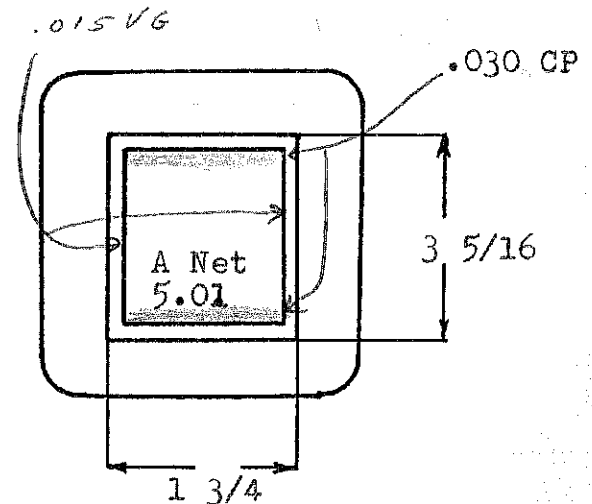
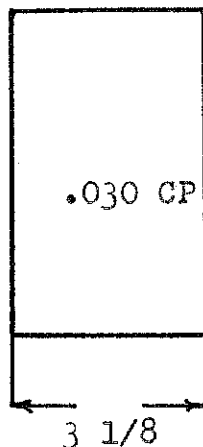
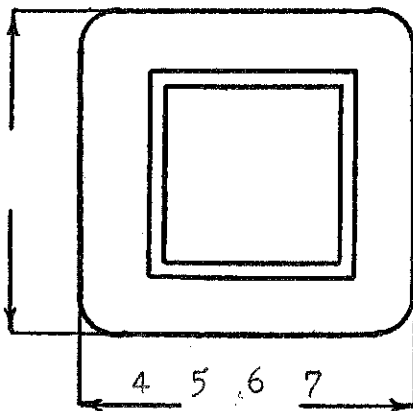
TUBE	12L007GK - 1 1L010VG 2L007VC	IMPREGNATION	Double Varnish
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CORE 1 3/4 x 3 1/4 GA. 24 GRADE D STACK 2 x 2

MOUNTING M

T.P.V. - 1.33, 1.5, 1.73  
 Window -  $1.005 / 1.25 = 80\%$

3 2 1



DESIGNED BY

F. Frazer

DATE

# DESIGN AND TEST DATA

Rating: **I** sec (rms) = .707 x 200 = 141 Ma.

Hi	Med.	Lo
Sec VA = 466	Sec. VA = 410	Sec. VA = 356
Pri VA = 570	Pri. VA = 501	Pri. VA = 435
Ip = 4.95	Ip = 4.35	Ip = 3.78

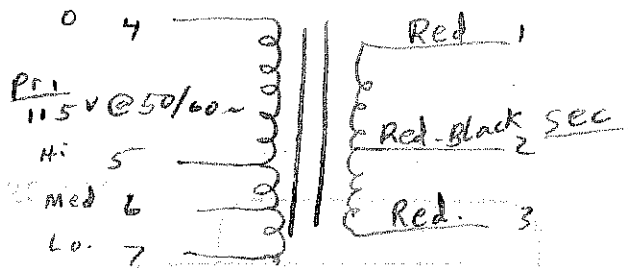
		1-2-3 Sec	4-5-6-7 Pri		
Winding					
Mean Turn		13.02	16.86		
Resistance 25° c		598	.70 - .80 = .94		
Pounds Copper		2.88	2.87		
Copper Density		898	657 max.		
Ratio Volts	Lo 1980-1980	Hi 2480-2480	Med 2200-2200	15	
Test to Ground		8500	1500		

Iron Induction 10.5 kg. @ 50 Cycles

Exciting Current 245 Ma. amperes @ 115 volts 60 cycles on 4-5-6-7

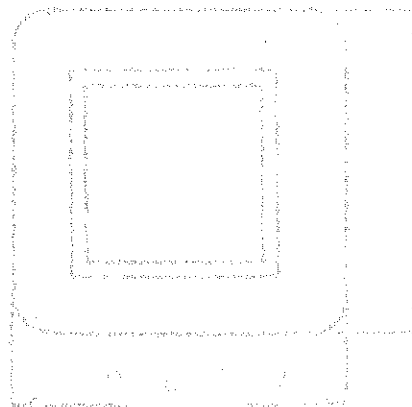
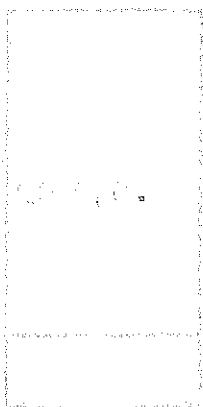
Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



Sec

Hi - 4660 VCT @ 200 Ma.  
 Med. - 4100 VCT @ 200 Ma.  
 Lo. - 2560 VCT @ 200 Ma.



Ep - 120  
 Es - 920 V. C.T. - 150 Ma  
 Bias tap at 80 V.  
 ET<sub>1</sub> - 5 V. - 3 A.

ET<sub>2</sub> - 6.3 V.C.T. - 2 A.  
 ET<sub>3</sub> - 6.3 V. - 2 A.

SPEC. NO. P-466

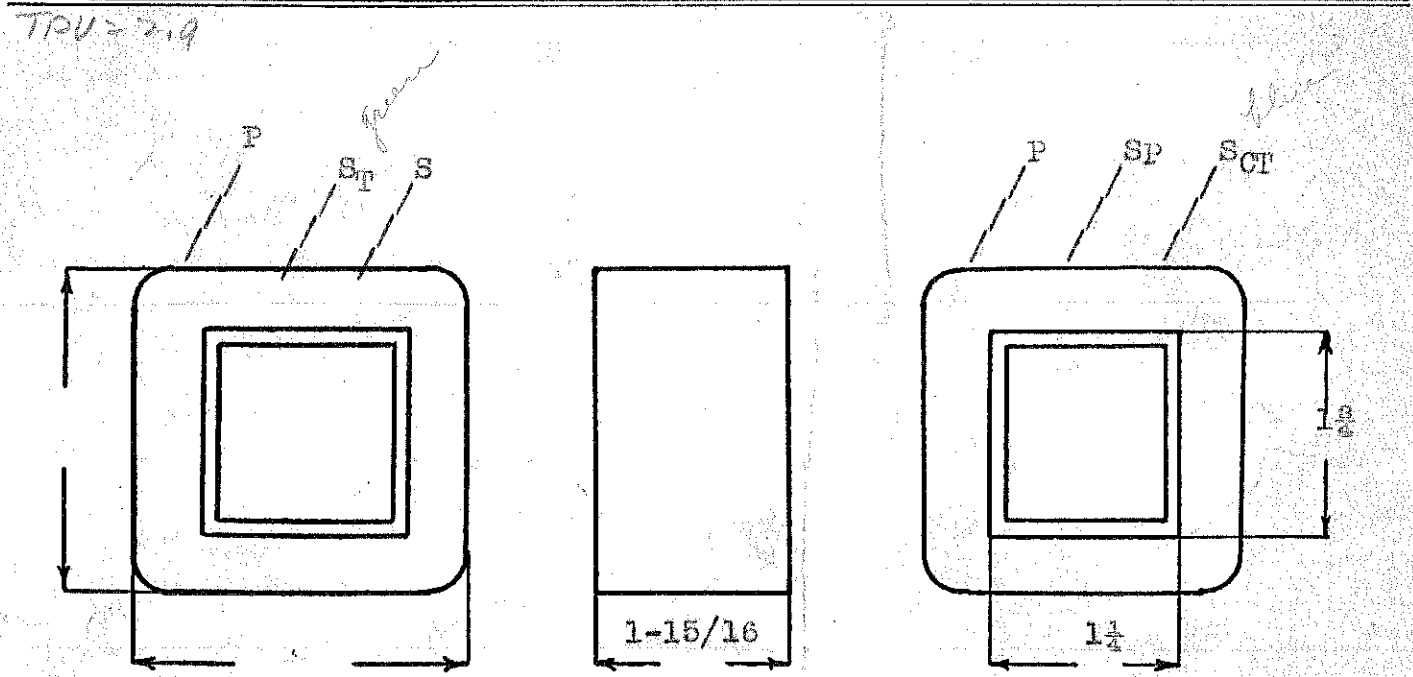
N/E =  
29

Winding	SEC	SHIELD	PRI	green F <sub>1</sub>	white F <sub>2</sub>	blue F <sub>3</sub>
Turns	2900	1	348	16	20	20
Taps	1450 - 1700				10	
Wind. Lgth.	1.75	1.75	1.75	---	---	---
Wire Size	#31	SHIM	#21	#18	#19	#19
T. P. L.	163-19	8-5/16	53-7			
Finish						
Type Lead	#20 Par. Br.	Sil. Br.	#20 Par. Br.	WIRE ONLY		
Lead Lgth.	9"	3"	9"	9"	9"	9"
Layer Insul.	double 20#		50#			
Test Volt.						
Wrapper	2L007VC	1L007VC	2L007GA	2L007GA		2L007GA

TUBE	7L007 + 1L007VC	IMPREGNATION	VARNISH
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CORE	1 1/2 x 1 3/4	GA.	GRADE	STACK
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MOUNTING A

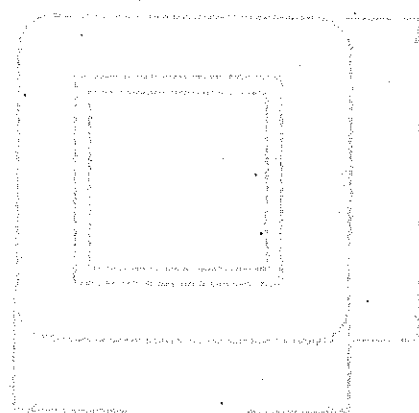
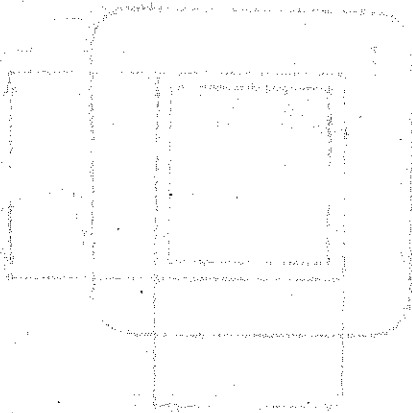


DESIGNED BY GW

DATE 6/25/37

PR1 333 TURNS  
FOR 115 V.

1-6-41  
JOB # 1069



PLATE

STOCK

115 volts @ 50/60 cycle to  
 3550 volts CT @ 200 ma. (1500V DC) or  
 3000 volts CT @ 200 ma. (1250V DC)

SPEC. NO. P468

By taps in primary

Winding	1-2-3 Sec.		4-5-6 Pri.			
Turns	7760		275			
Taps	3880		233			
Wind. Lgth.	2 5/8		2 5/8			
Wire Size	#29		#16			
T. P. L.	194-40L		46-6L			
Finish	90%		92%			
Type Lead	#22 Dulac		W.O. Var.	SL.		
Lead Lgth.	6"		6"			
Layer Insul.	Double 30# Lapped		1L007GA			
Test Volt.	6000		1250			
Wrapper	2L007VG interleafed 2L007GA 2L30#		3L007GA			

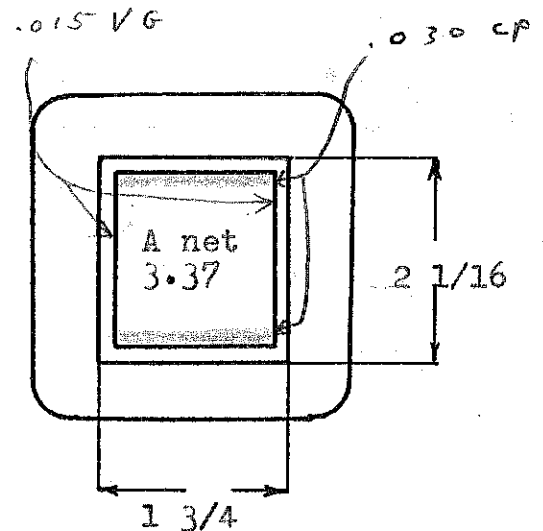
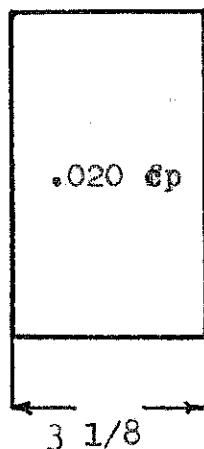
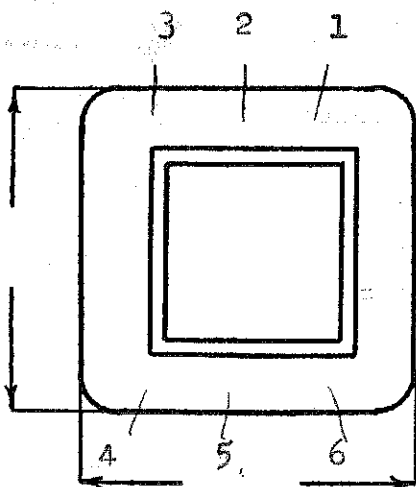
TUBE	12L007GK plus 2L005VC 1L007VG	IMPREGNATION	Double Varnish
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CORE	1 3/4 x 2	GA.	24	GRADE	D	STACK	2 x 2
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MOUNTING	M
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T. P. V. - 2, 2.4

Window -  $1.136 / 1.25 = 90.8\%$



DESIGNED BY F. Frazee

DATE 6-4-47

# DESIGN AND TEST DATA

Rating: **I** sec. (rms) - 141 ma.

	HI	LO
Sec. VA	355	300
Pri. VA	438	370
I Pri.	3.81	3.22

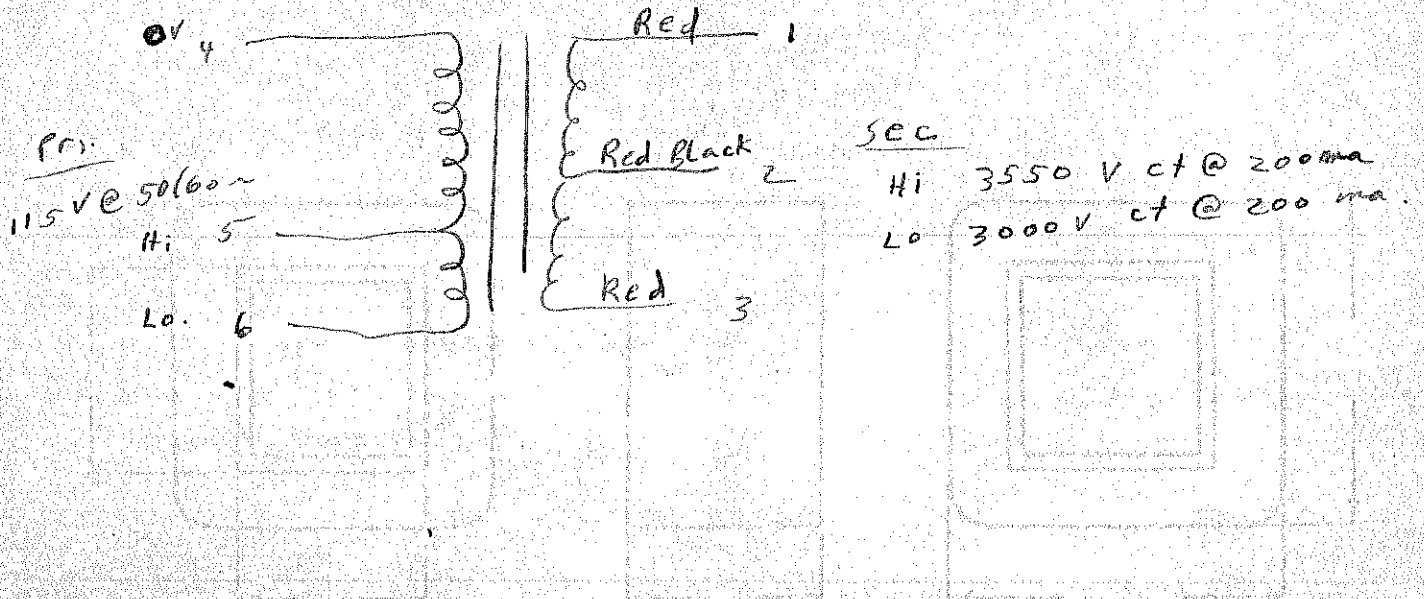
Winding	1-2-3 Sec.	4-5-6 Pri.				
Mean Turn	10.70	14.59				
Resistance 25° c	579	1.15 - 1.41				
Pounds Copper	2.70	2.67				
Copper Density	898	679				
Ratio Volts	HI + 1915-1915	115				
	LO + 1620-1620					
Test to Ground	6000	1250				

Iron Induction 11.2 kg @ 50 Cycles

Exciting Current 274 milliamperes @ 115 volts 60 cycles on 4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



# DESIGN AND TEST DATA

Rating: **I** sec. (rms) - 141 ma.

	HI	LO
Sec. VA	355	300
Pri. VA	438	370
I Pri.	3.81	3.22

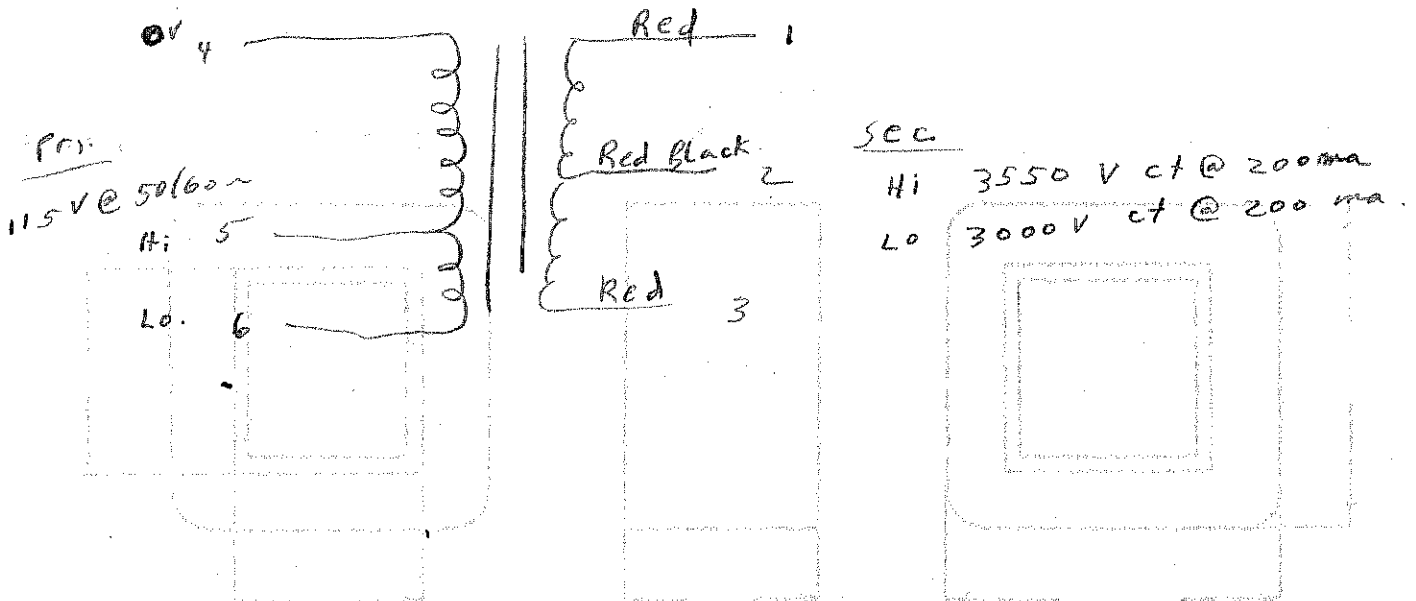
Winding	1-2-3 Sec.	4-5-6 Pri.			
Mean Turn	10.70	14.59			
Resistance 25° c	579	1.15 - 1.41			
Pounds Copper	2.70	2.67			
Copper Density	898	679			
Ratio Volts	HI - 1915-1915	115			
	LO - 1620-1620				
Test to Ground	6000	1250			

Iron Induction 11.2 kg @ 50 Cycles

Exciting Current 274 milliamperes @ 115 volts 60 cycles on 4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



PLATE

See STOCK

117V  
 115V @ 50/60 cycle to  
 1880V CT @ 200 ma. (750V D.C.)  
 1550V CT @ 200 ma. (600V D.C.)

By taps in primary

SPEC. NO.

P470

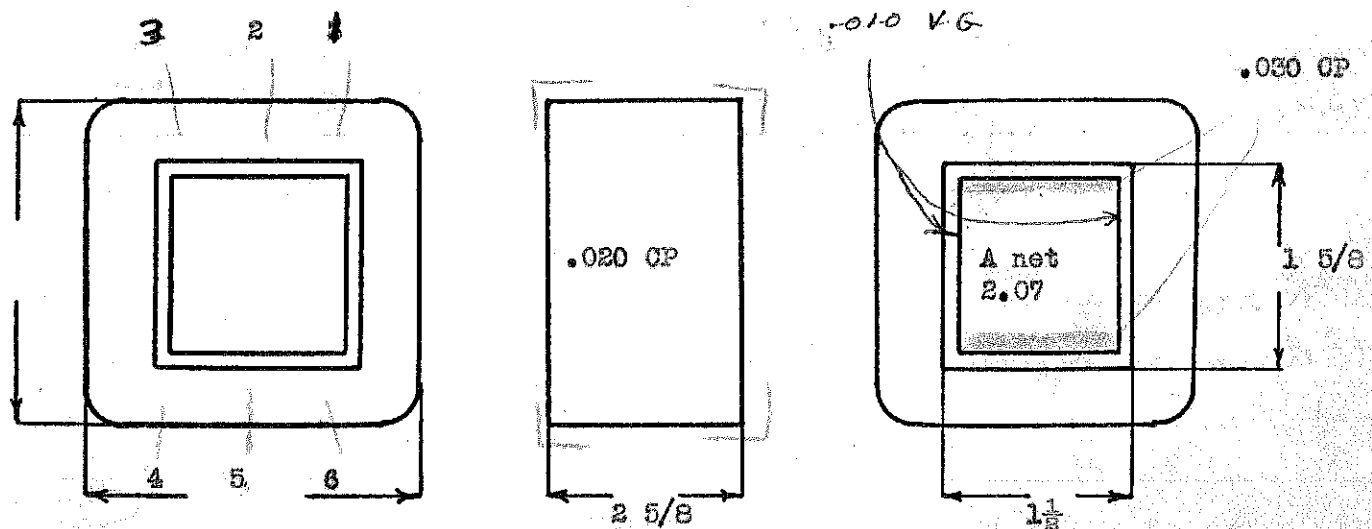
Winding	1-2-3 Sec.	4-5-6 Pri.			
Turns	6000	400			
Taps	3000	334			
Wind. Lgth.	2 1/2	2 1/2			
Wire Size	#30	#19			
T. P. L.	188-32L	56-8L			
Finish	90%	93%			
Type Lead	#20 Dulac	W.O. Var. Sl.			
Lead Lgth.	6"	6"			
Layer Insul.	Double 20	Double 50 or 1L005GA			
Test Volt.	4000	1500			
Wrapper	1L007VC 2L007GA	3L007GA			

TUBE	10L007GK 1L005V0-	IMPREGNATION	Double Varnish
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CORE	1 1/2 x 1 9/16	GA.	24	GRADE	D	STACK	2 1/2
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MOUNTING M - Stand off insulators secondary; Largest lugs primary

TPV. — 2R, 3.5  
 Window —  $0.892/1.000 = 89.2\%$



DESIGNED BY F. Frazee

DATE 6-47



# DESIGN AND TEST DATA

Rating: 1 sec. (rms) - 141 ma.

	HI	LO
Sec. VA	1880	1550
Pri. VA	2380	1950
I Pri.	2.07	1.70

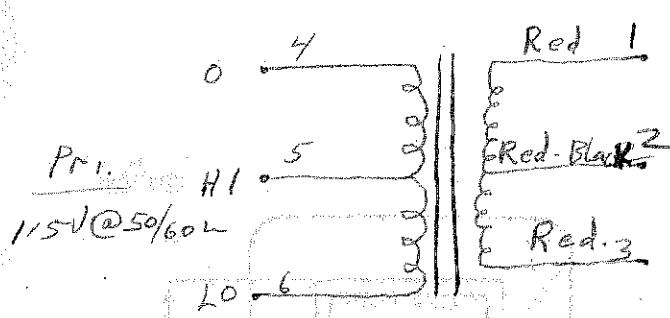
Winding	Sec.	Pri.				
Mean Turn	8.33	11.27				
	8.05	11.11				
Resistance 25° c	454	2.59-3.11				
	424	2.51-3.07				
Pounds Copper	1.25	5.2				
		1.48				
Copper Density	712	683 max. 753 min.				
Ratio Volts	HI, 1030-1030	LO, 862-862	115			
Test to Ground	60	4000	1500			

Iron Induction 11.71 @ 50 Cycles

Exciting Current 184 ma. amperes @ 115 volts 60 cycles on

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks: \_\_\_\_\_



Sec.  
 HI. 1880 V CT @ 200 ma.  
 LO. 1550 V CT @ 200 ma.

$$I^2R_{pri} = 2.07 \times 2.07 \times 2.59 = 11.1 \text{ W}$$

$$I^2R_{sec} = 1.41 \times 1.41 \times 454 = 9.1 \text{ W}$$

$$\text{Core loss} = \frac{14 \text{ W}}{\#} \times \frac{4.36 \text{ W}}{\text{IN}} \times \frac{1.5 \text{ W}}{\#} = 7.78 \text{ W @ 60 Hz}$$

8.47 W @ 50 Hz

Old design = 2.50 watt total loss

PLATE

STOCK

115 volts @ 50/60 cycles to  
5800V CT @ 350 Ma. DC (2500V DC)

SPEC. NO. P475

Winding	1-2-3 Sec.	4-5 Pri.	
Turns	5200	98	
Taps	2600	---	
Wind. Lgth.	3 1/4	3 1/4	
Wire Size	#26	#11	
T. P. L.	174-30L	33-3L	
Finish	91%	94%	
Type Lead	#20 Dulac vinyl sl.	W.O.	
Lead Lgth.	6"	6"	
Layer Insul.	Double 50#	1L015 cp	
Test Volt.	10,000	1250	
Wrapper	6L007VG plus 6L50# GI 1L010 VG + 3L007GA	1L030 CP Interleaved	4L007GA
TUBE	12L007GK plus 4L007VG 2L010VG	IMPREGNATION	Double Varnish

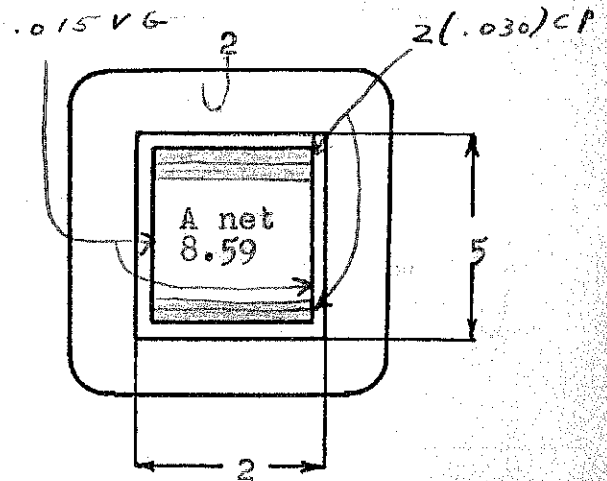
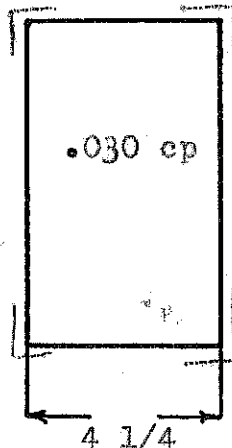
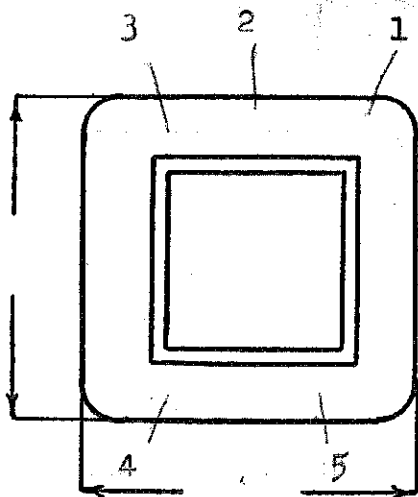
CORE 2 x 4 7/8 GA. 24 GRADE D STACK 2 x 2

MOUNTING M Pour with Tar

T. P. V. - 0.85

Window -  $1.195 / 1.375 = 87\%$

Place large bushings on Bakelite Panel



DESIGNED BY F. Frazee

DATE 6-4-47

# DESIGN AND TEST DATA

Rating:  $I \text{ sec. (rms)} = .707 \times 350 = 248$

Sec VA = 1014

Pri VA = 1213

Pri I = 10.55

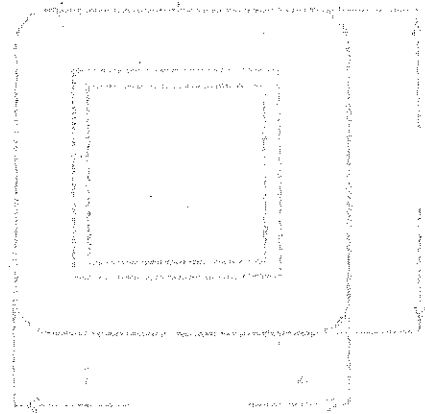
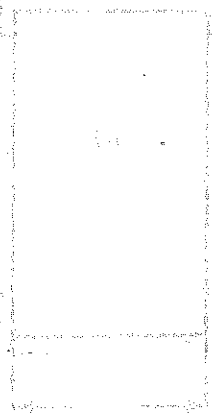
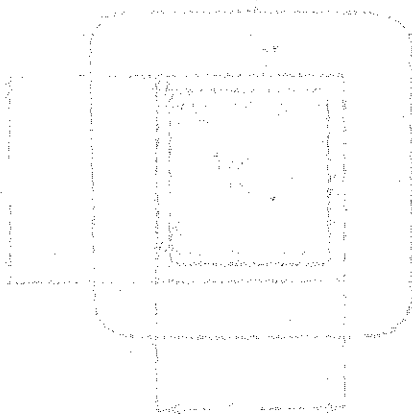
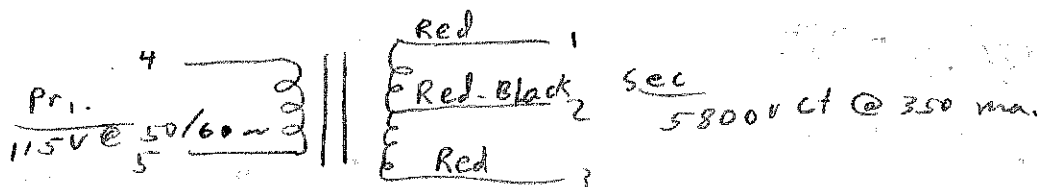
Winding	1-2-3 Sec.	4-5 Pri.
Mean Turn	17.3	21.7
Resistance 25° c	313	.231
Pounds Copper	5.87	4.53
Copper Density	1023	780
Ratio Volts	3050-3050	115
Test to Ground	10,000	1500

Iron Induction 9.5 kg @ 50 Cycles

Exciting Current: 627 milliamperes @ 115 volts 60 cycles on 4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



PLATE

STOCK

115V @ 50/60 cycle to  
 1880V CT @ 200 ma. (750V D.C.)  
 1550V CT @ 200 ma. (600V D.C.)

By taps in primary

SPEC. NO.

P470

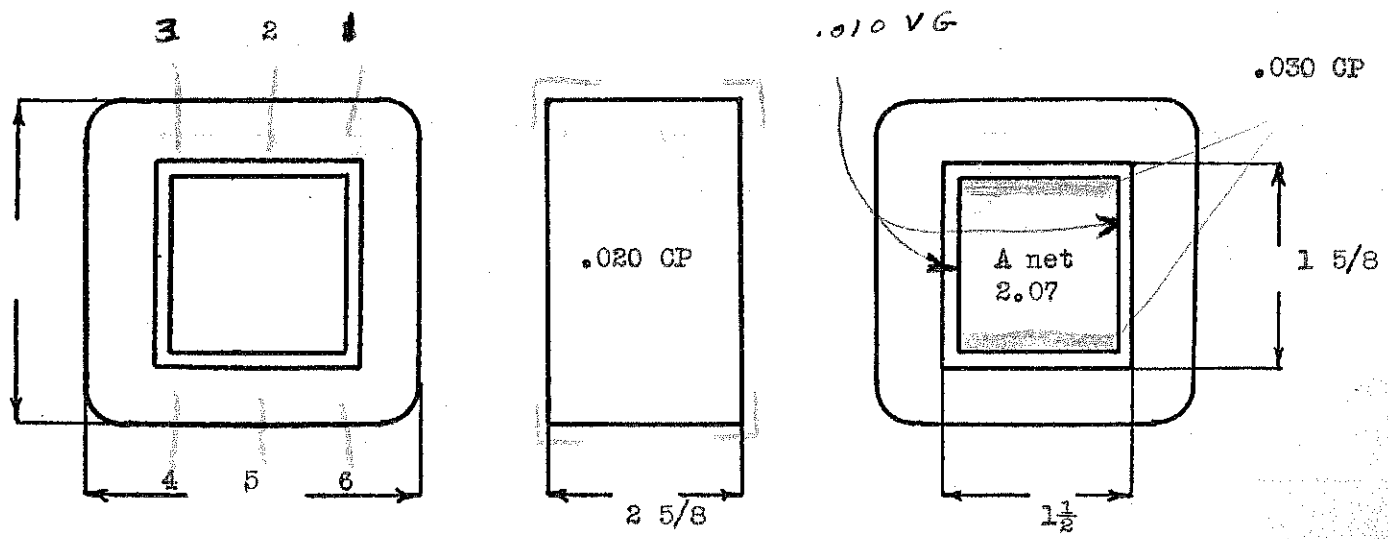
Winding	1-2-3 Sec.		4-5-6 Pri.			
Turns	6000		400			
Taps	3000		334			
Wind. Lgth.	2 1/2		2 1/2			
Wire Size	#30		#19			
T. P. L.	188-32L		56-8L			
Finish	90%		93%			
Type Lead	#20 Dulac		W.O. Var. Sl.			
Lead Lgth.	6"		6"			
Layer Insul.	Double 20# <sup>SINGLE</sup> <del>40#</del>		Double 50# or 1L005GA			
Test Volt.	4000		1500			
Wrapper	1L007VC 2L007GA		3L007GA			

TUBE	10L007GK + 1L005VG-	IMPREGNATION	Double Varnish
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CORE	1 1/2 x 1 9/16	GA.	24	GRADE	D	STACK	222
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MOUNTING M - Stand off insulators secondary; Largest lugs primary

TPV - 2.9, 3.5  
 Window - 0.892/1.000 = 89.2%



DESIGNED BY F. Frazee

DATE 6-47

# DESIGN AND TEST DATA

Rating: 1 sec. (rms) - 141 ma.

	HI	LO
Sec. VA	1880	1550
Pri. VA	283	195
I Pri.	2.07	1.70

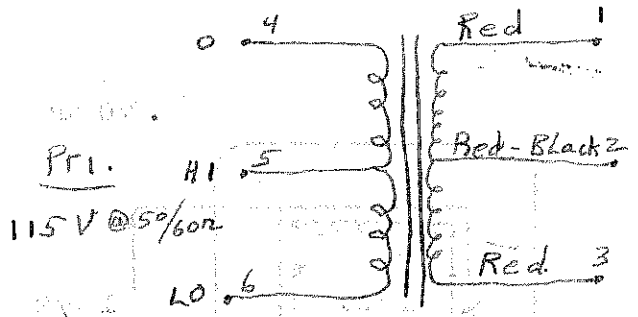
Winding	Sec.	Pri.					
Mean Turn	8.05	11.11					
Resistance 25° c	424	2.51-3.07					
Pounds Copper	1.25	1.48					
Copper Density	712	623 max. 758 min.					
Ratio Volts	HI. 1030-1030 LO. 862-862	115					
Test to Ground	4000	1500					

Iron Induction 11.7 @ 50 Cycles

Exciting Current 184 ma. amperes @ 115 volts 60 cycles on

Induced Test: Apply 115 Volts at 50 Cycles on 115 with 115 grounded

Remarks:



Sec. ...

HI. 1880 V CT @ 200 ma.

LO. 1550 V CT @ 200 ma.

115V @ 50/60 cycle to  
 2460V CT @ 300 ma. (1000V D.C.)  
 1900V CT @ 300 ma. (750V D.C.) By tapsin primary SPEC. NO.

P469

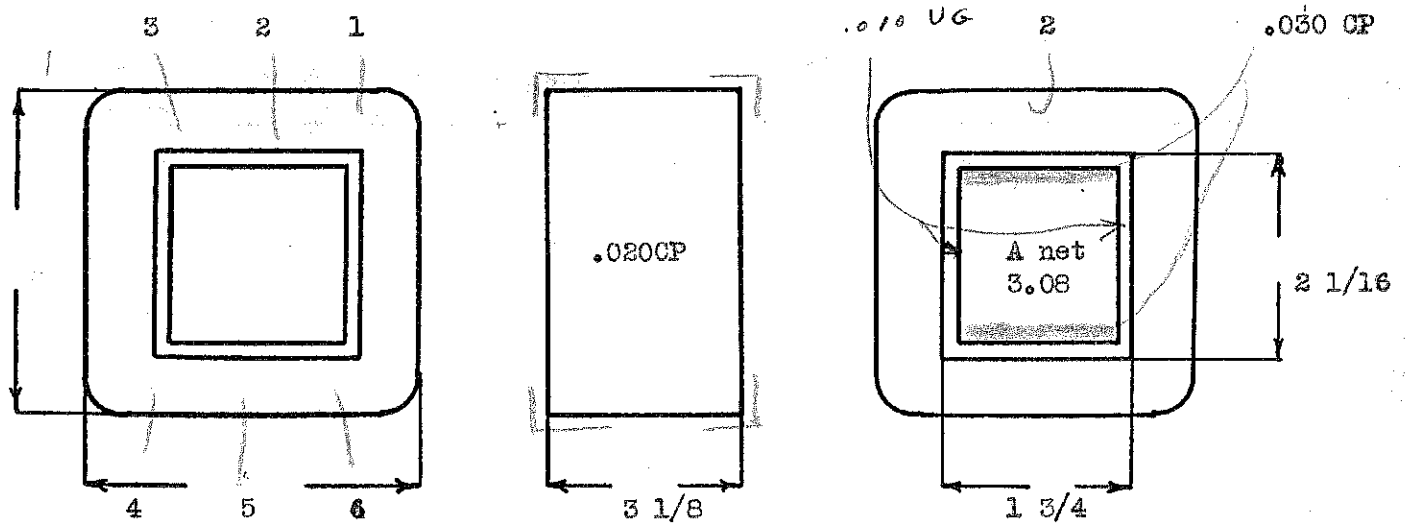
Winding	1-2-3 Sec.	4-5-6 Pri.				
Turns	5700	312				
Taps	2850	244				
Wind. Lgth.	2 5/8	2 5/8				
Wire Size	#28	#16				
T. P. L.	168-34L	45-7L				
Finish	87%	90%				
Type Lead	#20 Dulac Vinyl Sl.	W.O. Var. Sl.				
Lead Lgth.	6"	6"				
Layer Insul.	Double 30#	1L007GA				
Test Volt.	5000	1250				
Wrapper	2L007VC 2L007GA	3L007GA				

TUBE	12L007GK + 1L007VG	IMPREGNATION	Double Varnish
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CORE 1 3/4 x 2 GA. 24 GRADE D STACK 2 x 2

MOUNTING M - Stand off insulators secondary; Largest lugs primary

TPV - 2.1, 2.7  
 Window - 1.145 / 1.250 = 91.7%



DESIGNED BY F. Frazee

DATE 6-47

# DESIGN AND TEST DATA

Rating: I sec. (rms) - 141 ma.

	HI	LO
Sec. VA	369	285
Pri. VA	455	352
I Pri.	3.97	3.07

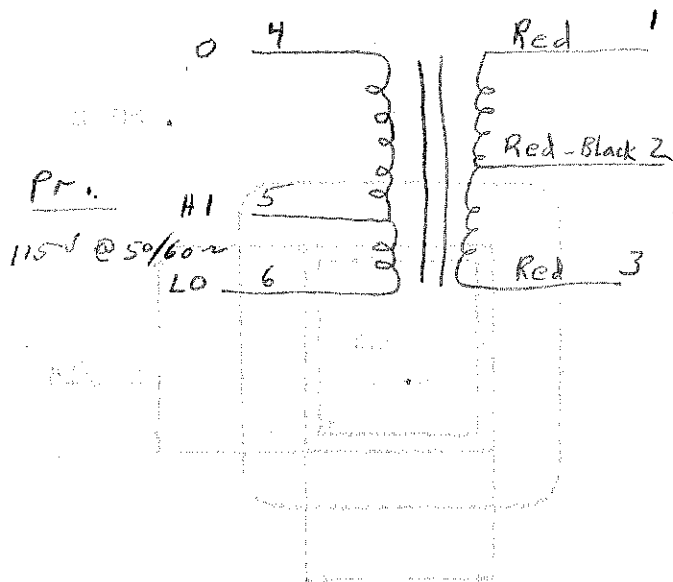
Winding	Sec.	Pri.				
Mean Turn	10.40	14.32				
Resistance 25° c	328	1.17 / 1.53				
Pounds Copper	2.52	2.96				
Copper Density	753	651				
Ratio Volts	HI. 1340-1340 LO. 1050-1050	115				
Test to Ground	5000	1250				

Iron Induction 10.7 @ 50 Cycles

Exciting Current 187 ma. amperes @ 115 volts 60 cycles on

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



Sec.  
 HI 2460V CT @ 300 ma.  
 LO 1900V CT @ 300 ma.

POWER

STOCK

117  
 115 volts @ 50/60 cycles to  
 1200 V CT @ 200 Ma., 6.3 V CT @ 3 A,  
 6.3 V CT @ 4 A, 5 V @ 3 Amps

SPEC. NO. P-471

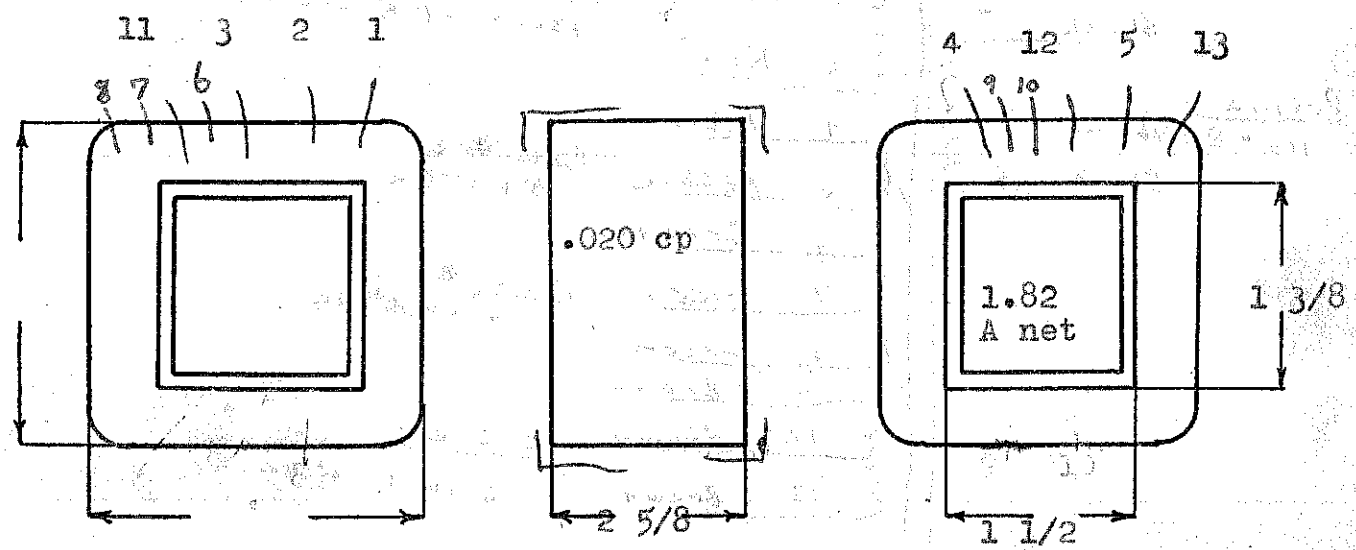
Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7-8 Fil. #1	9-10 Fil. #2	11-12-13 Fil. #3
Turns	4480	1	390	24	19	24
Taps	2240	—	---	12	--	12
Wind. Lgth.	2 1/4	2 1/4	2 1/4	← 2 1/4 →		2 1/4
Wire Size	#30	.002 in.	#19	#18	#18	#17
T. P. L.	187-24L	1	50-8L	----one layer----		24-1L
Finish	90%	—	83%	88%		50%
Type Lead	#20 Dulac	Sil Br.	#18 Pr. Br.	W.O. Blue sl.	W.O. green sl.	W.O. yellow sl.
Lead Lgth.	9"	3"	9"	9"	9"	9"
Layer Insul.	Double 30#	—	Double 50#	—	—	—
Test Volt.	3000	—	1500	1500	2500	1500
Wrapper	<del>1L005VC</del> <del>1L007VA</del> <del>1L005VC</del> 1L30#	1L007VC	2L007GA	2L007GA	2L007GA	2L007GA

TUBE	10L007GK / 1L005VC	IMPREGNATION	Varnish
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CORE 1 1/2 x 1 3/8 GA. 24 , GRADE D, STACK 2 x 2

MOUNTING A, N, HS17

T. P. V. — 3.4  
 Window —  $\frac{.877}{1.00} = 87.4\%$



DESIGNED BY S. Babcock

DATE 5-47



$$I_s = .9 \times 200 = 180$$

# DESIGN AND TEST DATA

Rating:

*capacitor input*  
 Sec VA = 229  
 Pri VA = 257  
 I<sub>p</sub> = 2.20a

*choke input*  
 Sec VA = 179.1  
 Pri VA = 226.3  
 I<sub>p</sub> = 1.98a

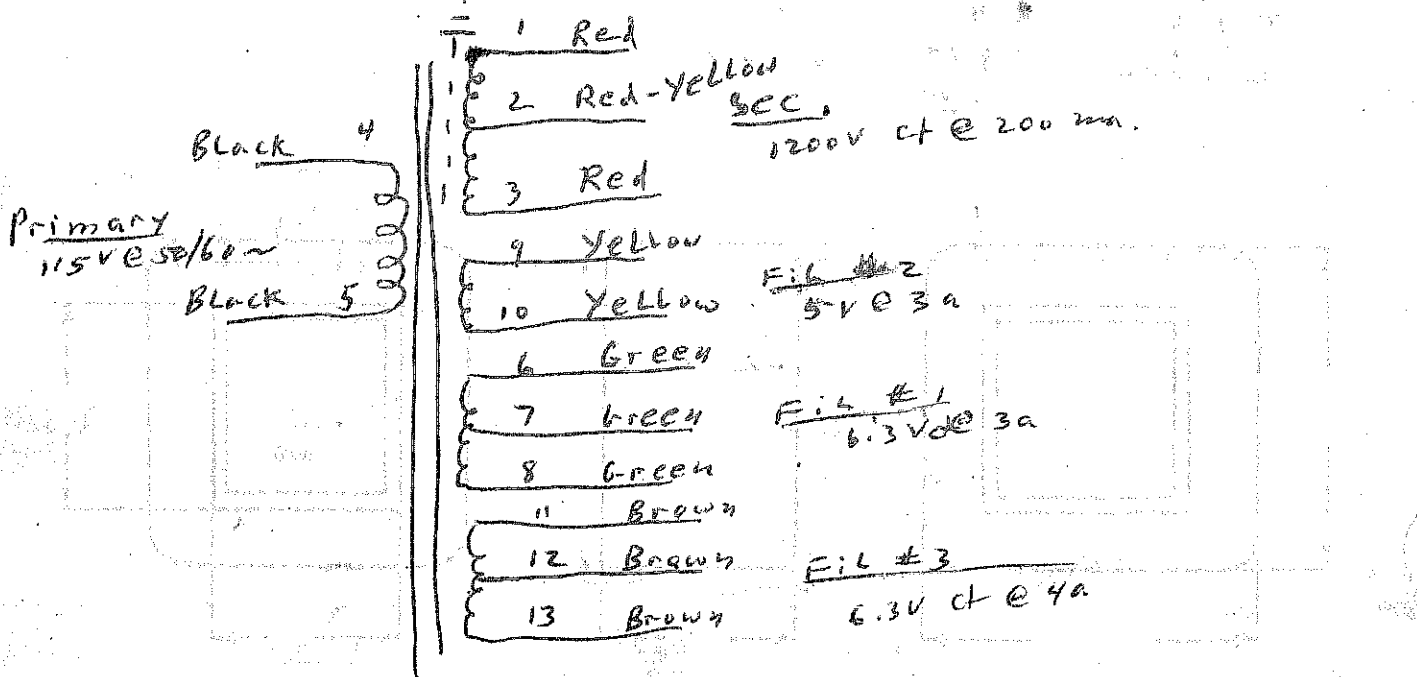
Winding	Sec.		Pri.	Fil. #1	Fil. #2	Fil. #3
Mean Turn	7.48		8.83	9.09	9.09	9.37
Resistance 25° c	294		2.40	.124	.100	.102
Pounds Copper	.866		1.16	.095	.0767	.124
Copper Density	<i>cap. input</i> 560 <i>choke input</i> 710		<i>586</i> 651	542	542	512
Ratio Volts	1298 649		115	6.95 3.47	5.50	6.95 3.47
Test to Ground	3000		1500	1500	2500	1500

Iron Induction *11.5 kg* 11.1 kg @ 50 Cycles *with 117V on pri*

Exciting Current 180 milli amperes @ 115 volts 60 cycles on 4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



POWER

STOCK

115 volts @ 50/60 cycles to  
 1200 V CT @ 200 Ma., 6.3 V CT @ 3 A,  
 6.3 V CT @ 4 A, 5 V @ 3 Amps

SPEC. NO. P-471

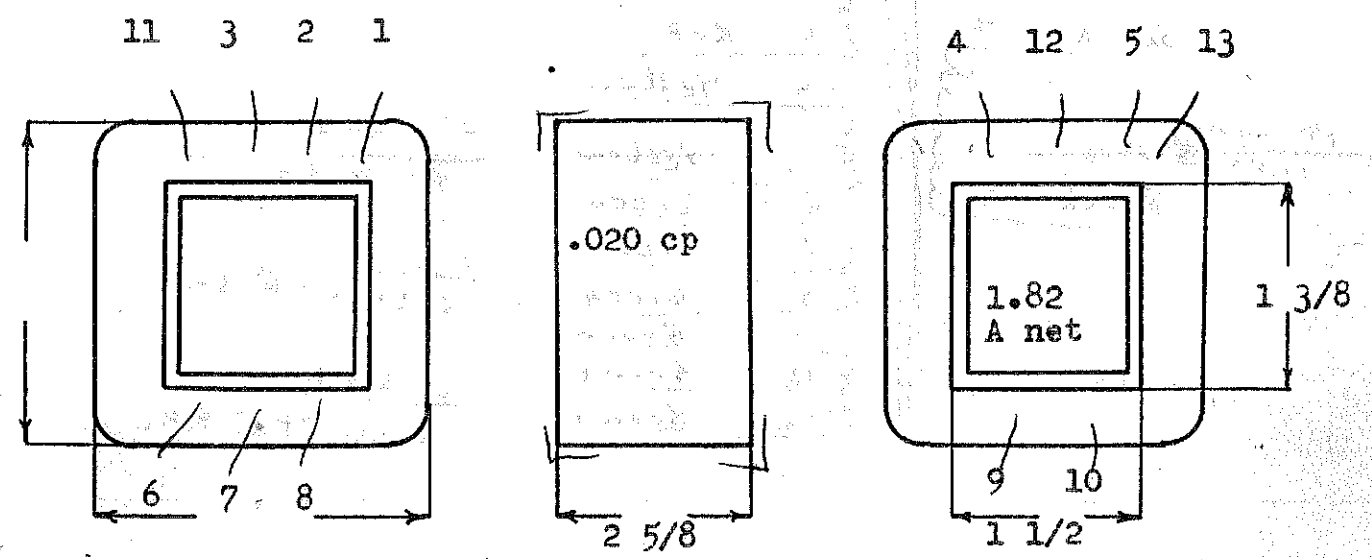
Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7-8 Fil. #1	9-10 Fil. #2	11-12-13 Fil. #3	
Turns	4480	1	390	24	19	24	
Taps	2240	—	—	12	—	12	
Wind. Lgth.	2 1/4	2 1/4	2 1/4	← 2 1/4	→	2 1/4	
Wire Size	#30	.002 cr.	#19	#18	#18	#17	
T. P. L.	187-24L	1	50-8L	----one layer-----		24-1L	
Finish	90%	—	83%	83%	83%	50%	
Type Lead	#20 Dulac	S. L. Br.	#18 Pr. Br.	W.O. Blue sl.	W.O. green sl.	W.O. yellow sl.	
Lead Lgth.	9"	3"	9"	9"	9"	9"	
Layer Insul.	Double 20#	—	Double 50#	—	—	—	
Test Volt.	3000	—	1500	1500	2500	1500	
Wrapper	2L005VA	1L007VA	2L007GA	2L007GA		2L007GA	

TUBE	10L007GK- / 1L005VC	IMPREGNATION	Varnish
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CORE 1 1/2 x 1 3/8 GA. 24 GRADE D STACK 2 x 2

MOUNTING AA

T. P. V. — 3.4  
 window —  $\frac{1.874}{1.00} = 187.4\%$



DESIGNED BY S. Babcock

DATE 5-47

# DESIGN AND TEST DATA

Rating:

Sec VA = 179.1  
 Pri VA = 226.3  
 Ip = 1.98

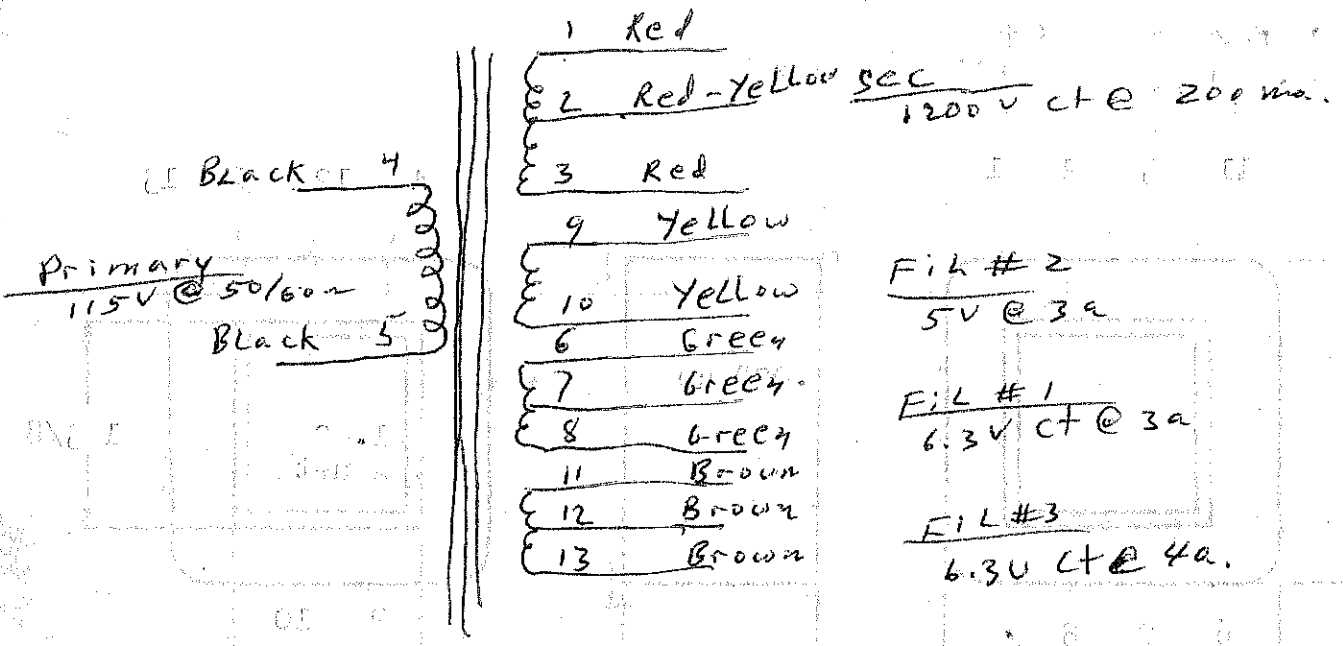
Winding	Sec.		Pri.	Fil. #1	Fil. #2	Fil. #3
Mean Turn	7.48		8.83	9.09	9.09	9.37
Resistance 25° c	294		2.40	.124	.100	.102
Pounds Copper	.866		1.16	.095	.0767	.124
Copper Density	710		651	542	542	512
Ratio Volts	1298 649		115	6.95 3.47	5.50	6.95 3.47
Test to Ground	3000		1500	1500	2500	1500

Iron Induction 11.1 kg @ 50 Cycles

Exciting Current 180 milli amperes @ 115 volts 60 cycles on -4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles \_\_\_\_\_ on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



Audio Output

New Stock

P.P. 666 6600 ohms Et. to

Line & voice coil 2, 4, 8, 16, 500 ohms

25 watts max. audio

max. P.D.C. = 70 max.

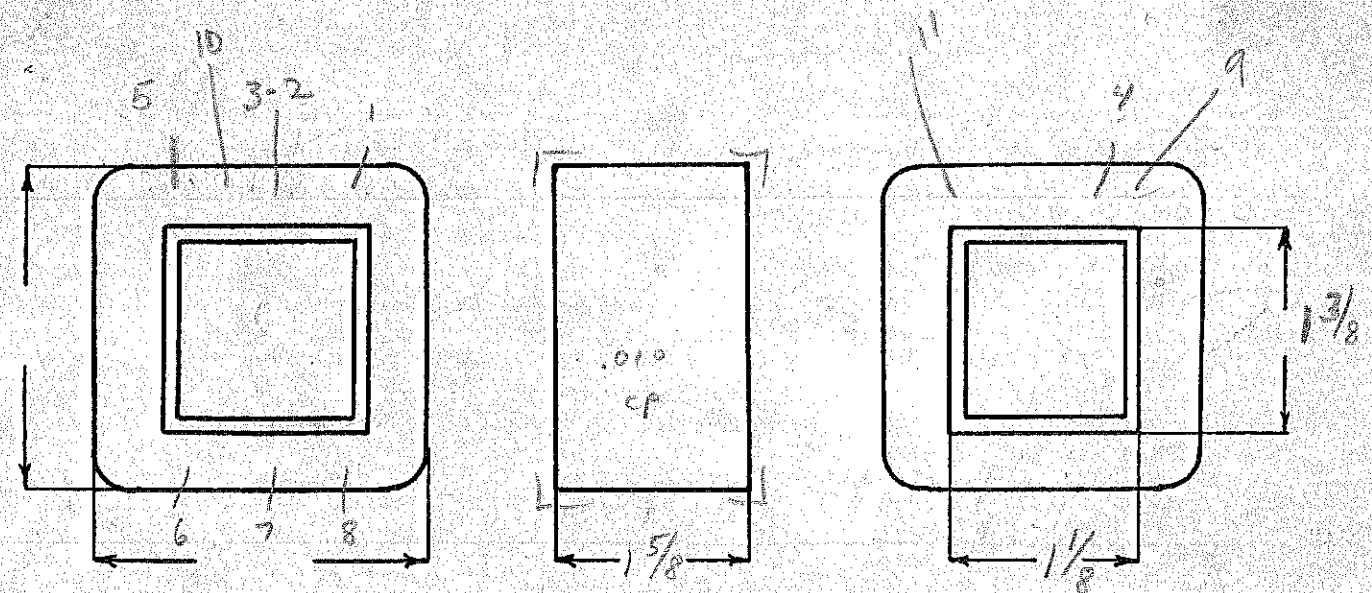
SPEC. NO. 486  
See 52931

Winding	1-2 Sec #1	3-4-5 Sec #2	6-7-8 Pri.	9-10-11 Sec #3		
Turns	339	37	1500	37		
Taps	—	22	750	11		
Wind. Lgth.	1 7/8	1 3/8	1 3/8	1 3/8		
Wire Size	#29	#20	#31	#17		
T. P. L.	85-4L	22-2L	125-12L	26-2L		
Finish	76%	54%	89%	88%		
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#	1L0076A		
Test Volt.	1250	1250	2000	1250		
Wrapper	4L 30#	1L0051G	2L0076A	2L0056A		

TUBE 5L010 6K IMPREGNATION Varnish

CORE 1 1/8 x 1 3/8 GA. 29 GRADE A STACK But No cap

MOUNTING: AA



DESIGNED BY S. Babcock

DATE 4-27-49

# DESIGN AND TEST DATA

Rating: \_\_\_\_\_

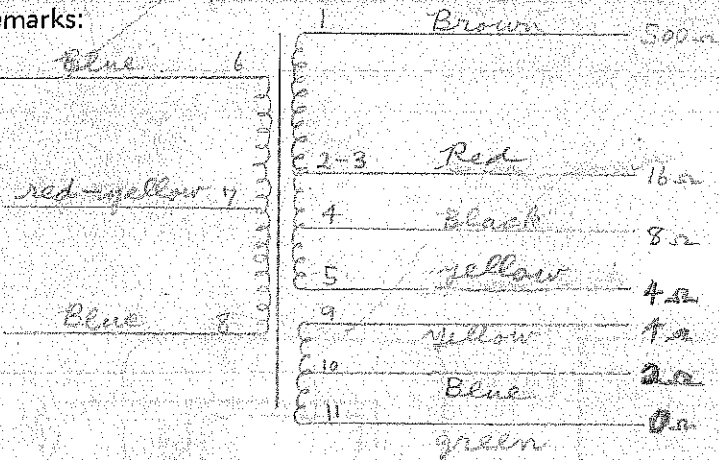
Winding	Sec	Sec	Pri	Sec	
Mean Turn	5.57	6.07	6.89	7.86	
Resistance 25° c	13.1	.194	114.3	.125	
Pounds Copper	.0613	.0586	.1212	.152	
Copper Density					
Ratio Volts					
Test to Ground	1250	1250	2000	1250	

Iron Induction @ \_\_\_\_\_ Cycles

Exciting Current 12.5 ma amperes @ 112 volts 60 cycles on 6-7-8

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



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

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

$$T_R = 57.3 - 1.9 - 2.83 - 2 - 1.117 - 1$$

$$T = 1500 - 413 - 74 - 52 - 37 - 26$$

$$I_s (20 \text{ ohms}) = \sqrt{\frac{25}{2}} = \sqrt{12.5} = 3.53 \text{ a.}$$

$$I_s (4 \text{ ohms}) = \sqrt{\frac{25}{4}} = \sqrt{6.25} = 2.5 \text{ a.}$$

$$I_s (8 \text{ ohms}) = \sqrt{\frac{25}{8}} = \sqrt{3.125} = 1.76 \text{ a.}$$

$$I_s (16 \text{ ohms}) = \sqrt{\frac{25}{16}} = \sqrt{1.5625} = 1.25 \text{ a.}$$

$$I_s (500 \text{ ohms}) = \sqrt{\frac{25}{500}} = \frac{1}{\sqrt{20}} = \frac{1}{4.47} = 224 \text{ ma.}$$

Power

117V @ 50/60 Hz  
 750V @ 250 ma  
 5V @ 2a 5V @ 3a  
 6.3V @ 0.8a 6.3V @ 3a

SPEC. NO. P485

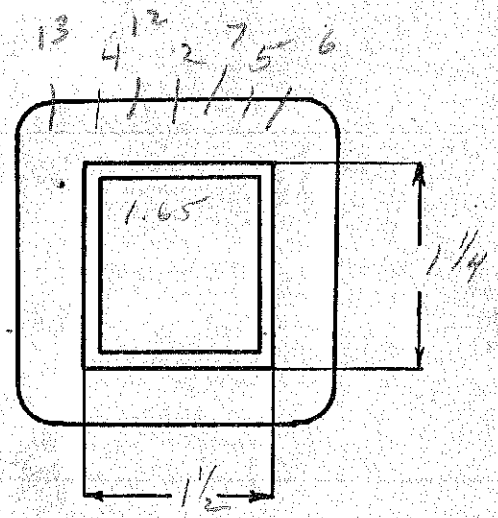
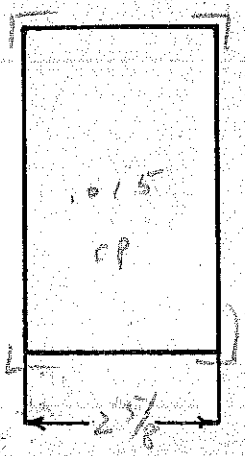
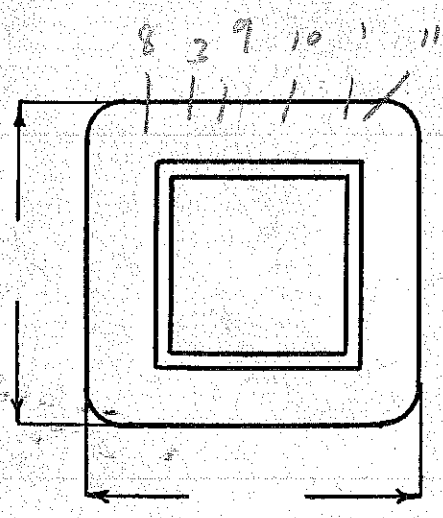
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil	8-9 Fil	10-11 Fil	12-13 Fil
Turns	3000	1	425	21	21	26	26
Taps	1500	—	—	—	—	—	—
Wind. Lgth.	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Wire Size	# 28	0.021 in	# 19	# 20	# 18	# 18	# 24
T. P. L.	137-224	—	54-84	21- 1/2	21- 1/2	26- 1/2	26- 1/2
Finish	83%	—	90%	62%	78%	97%	49%
Type Lead	# 22 DULAC	S. L. B.	# 18 P.B.	WID. SLEEVE YELLOW	RED	BLUE	GREEN
Lead Lgth.	cut 15"	3"	cut 15"	cut 15"	—	—	—
Layer Insul.	40#	—	50#	—	—	—	—
Test Volt.	2500	—	1500	2500	2500	1500	1000
Wrapper	2L005VC	1L005VC	3L007FA	—	3L007FA	—	2L007FA

TUBE 7L010 GK+1L005VC IMPREGNATION Varnish

CORE 1/2 x 1/4 GA. 24 GRADE D STACK 2x2

MOUNTING A

Wm = 89%



DESIGNED BY S. Babcock

DATE 5-16-49

# DESIGN AND TEST DATA

Rating:

$$I_s = .9 \times 250 = 225 \text{ mA}$$

$$\text{Sec VA} = 181.4$$

$$\text{Pri VA} = 228$$

$$I_p = 195 \text{ a.}$$

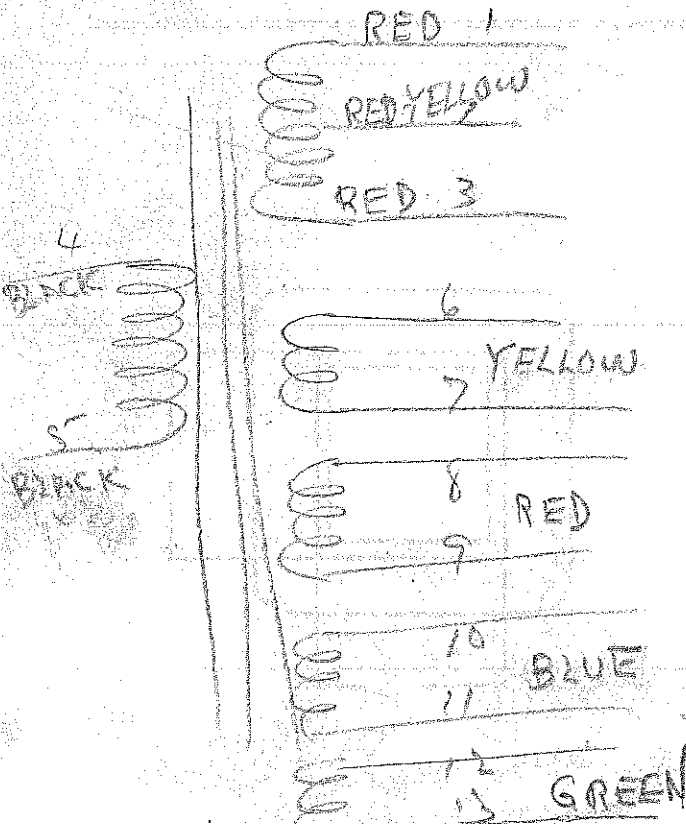
Winding	Sec	SL	PRI	FIL	FIL	FIL	FIL
Mean Turn	7.32		9.88	11.32	11.37	11.82	11.75
Resistance 25° c	121		2.70 5.6V	.205	.129	.165	.665
Pounds Copper	90		1.40	.062	.099	.128	.0317
Copper Density	710		660	511	542	542	505
Ratio Volts	750		117	5.04	5.05	6.24	6.21
Test to Ground	2500		1500	2500	2500	1500	1500

Iron Induction 11.65 Kg @ 50 Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:







# DESIGN AND TEST DATA

Rating:

$$I_s = 1.9 \times 250 = 225 \text{ ma.}$$

$$\text{Sec VA} = 195.3$$

$$\text{Pri VA} = 244$$

$$I_p = 2.08 \text{ a.}$$

Winding	Sec	Sh	Pri	FIL	FIL	FIL	
Mean Turn	7.17		9.72	11.12	11.15	11.75	
Resistance 25° c	1185		286	.201	.127	.332	
Pounds Copper	.87		1.37	.061	.097	.254	
Copper Density	710		618	511	542	542	
Ratio Volts	749		117	5.02	5.04	12.43	
Test to Ground	2500		1500	2500	2500	1500	

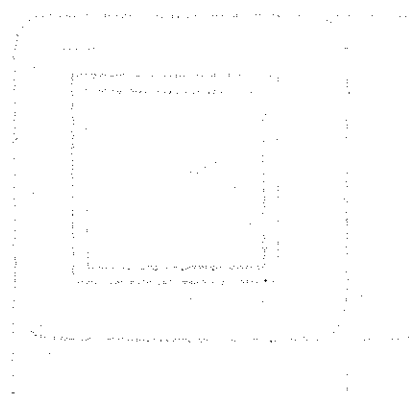
Iron Induction 11.5 k @ 50 Cycles

Exciting Current \_\_\_\_\_ amperes @ \_\_\_\_\_ volts 60 cycles on

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:

- 1-3 Red
- 2 Red-Yellow
- 4-5 Black
- 6-7 Yellow
- 8-9 Brown
- 10-11-12 Green



Power

230V @ 50/60 Hz to  
 825 vct @ 200 ma  
 6.3 vct @ 6 Amps. 5V @ 3 Amps.

Ewing-McDonald Inc.

SPEC. NO. P-476  $\approx$  230V

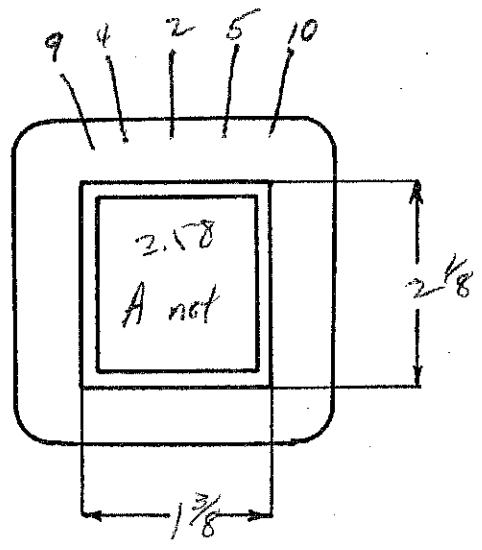
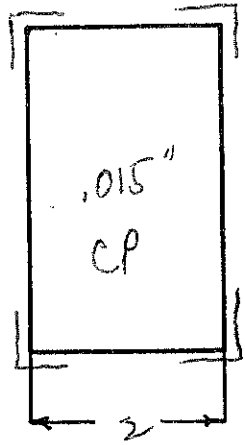
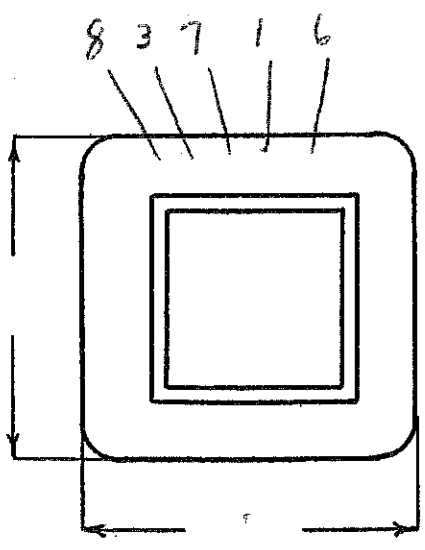
Winding	1-2-3 sec	shield	4-5 Pri	6-7-8 Fil #1	9-10 Fil #2		
Turns	2056	1	530	16	13		
Taps	1028	—	—	8	—		
Wind. Lgth.	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4		
Wire Size	#30	.002 cu sh	#23	#15	#18		
T. P. L.	147-148	1	66-8L	16 in 2/3 L	13 in 1/3 L		
Finish	91%	—	90%	Wind tight with 1L007VC W.O.	in one layer between filaments W.O.		
Type Lead	#20 dulac	sil Br	#22 PB	green sleeve	yellow sleeve		
Lead Lgth.	10" cut 17"	3"	10" cut 17"	10" cut 15"	10" cut 15"		
Layer Insul.	Double #20-lap	—	50#	—	—		
Test Volt.	2500	—	1500	1500	2000		
Wrapper	<del>1L007VG</del> 2L005VC	1L007VG	2L007GA		2L007GA		

TUBE 9L007GK + 1L003VG IMPREGNATION Varnish

CORE 1 7/8 x 2 1/8 GA. 24 GRADE D STACK 2x2

MOUNTING A

TPV - 2.3  
 Window -  $\frac{.557}{.688} = 81\%$



DESIGNED BY *EL*

DATE 6-48

# DESIGN AND TEST DATA

Rating:

Sec VA = 135.4  
Pri VA = 172.4  
I<sub>p</sub> = 0.72A

Winding	1-2-3 580					
Mean Turn	8.15	9.69	11.01	11.01		
Resistance 25° c	147	8.85	.064	.095		
Pounds Copper	.434	.669	.196	.072		
Copper Density	710	710	543	542		
Ratio Volts	447-447	230	3.48- 3.48	5.66		
Test to Ground	2500	1500	1500	2000		

Iron Induction 11.8 KG @ 50 Cycles

Exciting Current 185 m amperes @ 230 V volts 60 cycles on 4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



**POWER**

**STOCK**

120 V @ 50/60 cycles to  
 825 VCT @ 200 Ma.  
 6.3 VCT @ 6 Amps,  
 5 V @ 3 Amps

SPEC. NO. P476-A

Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7-8 Fil. #1	9-10 Fil. #2		
Turns	2056	1	276	16	13		
Taps	1028	-	-	8	-		
Wind. Lgth.	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4		
Wire Size	# 30	.002 cu. sh.	#20	#15	#18		
T. P. L.	147-14L	1	47-6L	16-2/3L	13-1/3L		
Finish	91%	-	90%	Wind tight in one Layer with 1L007VG Between Filaments			
Type Lead	#20 Dulac	Sil. Br.	Pr. Br.	Green Sleeve	Yellow Sleeve		
Lead Lgth.	10" Cut 17"	3"	10" Cut 17"	10" Cut 15"	10" Cut 15"		
Layer Insul.	Double 20#-lap wind	#30	50#	-	-		
Test Volt.	2500	500	1500	1500	2000		
Wrapper	1L007VG	1L007VG	2L007GA	2L007GA			

TUBE 9L007GK / 1L003VE IMPREGNATION Varnish

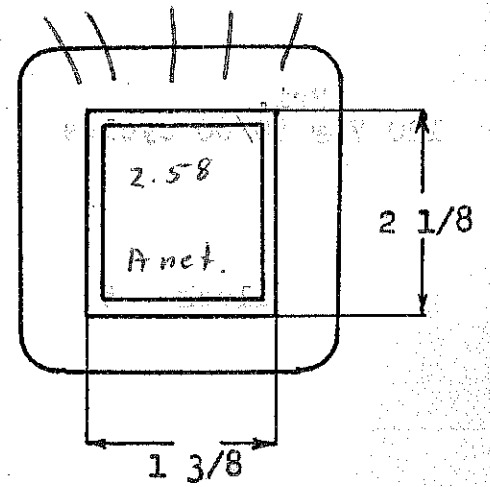
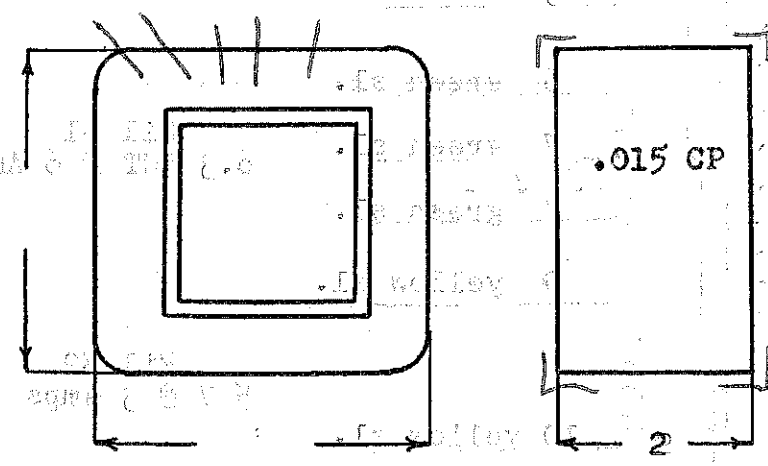
CORE 1 3/8 x 2 1/8 GA. 24 GRADE D STACK 2 x 2

MOUNTING A

P.P.V. - 2.3  
 Window -  $\frac{.552}{.688} = 81\%$

8 3 7 1 6

9 4 2 5 10



DESIGNED BY

F. Frazer

DATE

5-47

# DESIGN AND TEST DATA

Rating:

Sec VA = 135.4  
 Pri VA = 172.4  
 Ip = 1.44A

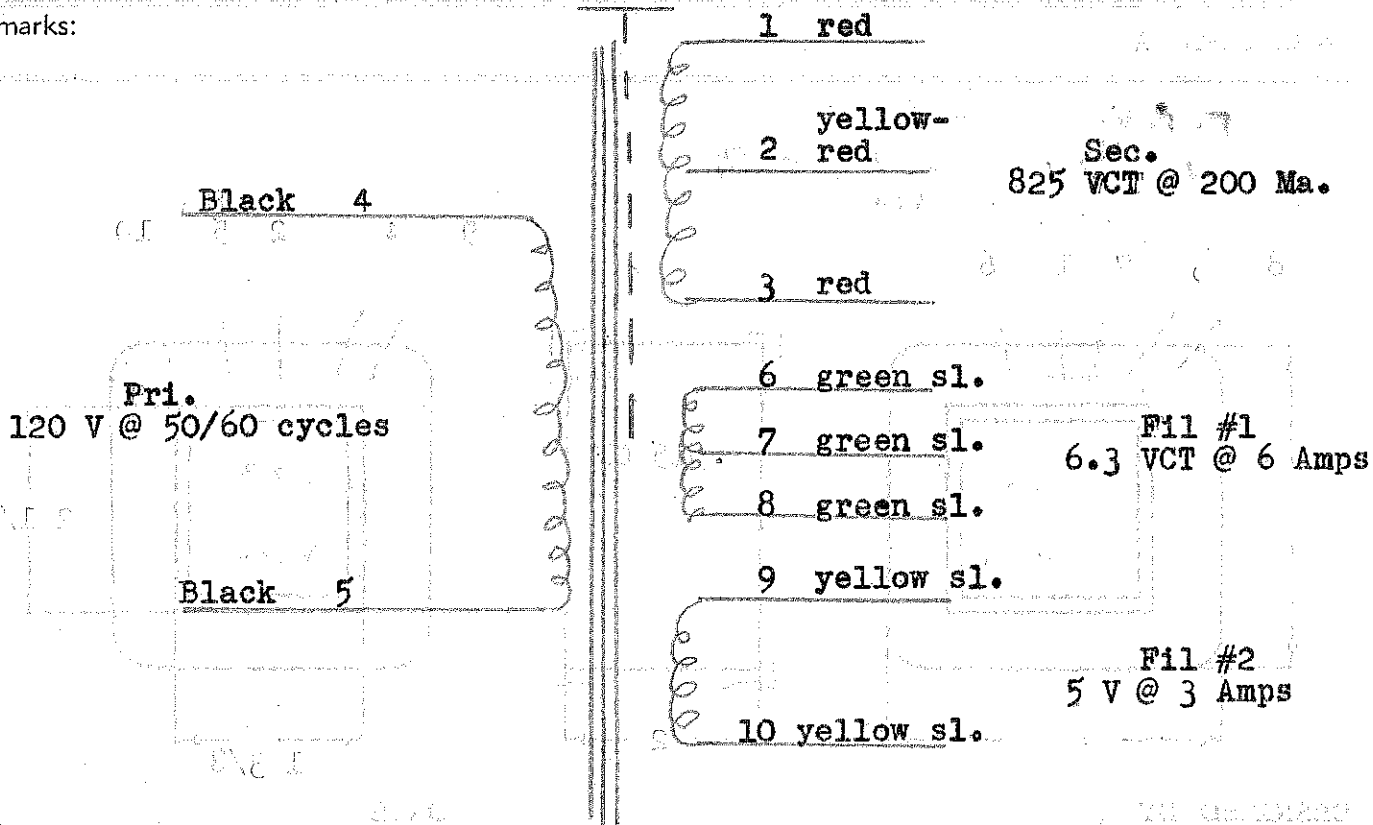
Winding	1-2-3 Sec.	4-5 Pri.	6-7-8 Fil #1	9-10 Fil #2		
Mean Turn	8.15	9.76	11.01	11.01		
Resistance 25° c	147	2.33	.064	.095		
Pounds Copper	.434	.705	.196	.072		
Copper Density	710	710	543	542		
Ratio Volts	447-447	- 120	3.48- 3.48	5.66		
Test to Ground	2500	1500	1500	2000		

Iron Induction **11.8 kg** @ **50** Cycles

Exciting Current **185 milli** amperes @ **120** volts 60 cycles on **4-5**

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



POWER

STOCK

120 V @ 50/60 cycles to  
 825 VCT @ 200 Ma.  
 6.3 VCT @ 6 Amps,  
 5 V @ 3 Amps

SPEC. NO. P476-A

Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7-8 Fil. #1	9-10 Fil. #2		
Turns	2056	1	276	16	13		
Taps	1028	-	-	8	-		
Wind. Lgth.	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4		
Wire Size	# 30	.002 cu. sh.	#20	#15	#18		
T. P. L.	147-14L	1	47-6L	16-2/3L	13-1/3L		
Finish	91%	-	90%	Wind tight in one Layer with 1L007VG Between Filaments			
Type Lead	#20 Dulac	Sil. Br.	#20 Pr. Br.	Green Sleeve	W.O.	W.O.	Yellow Sleeve
Lead Lgth.	10" Cut 17"	3"	10" Cut 17"	10" Cut 15"	10" Cut 15"		
Layer Insul.	Double 20#-lap wind	-	50#	-	-		
Test Volt.	2500	-	1500	1500	2000		
Wrapper	1L007VG-	1L007VG-	2L007GA	2L007GA			

TUBE	9L007GK / 1L003VE	IMPREGNATION	Varnish
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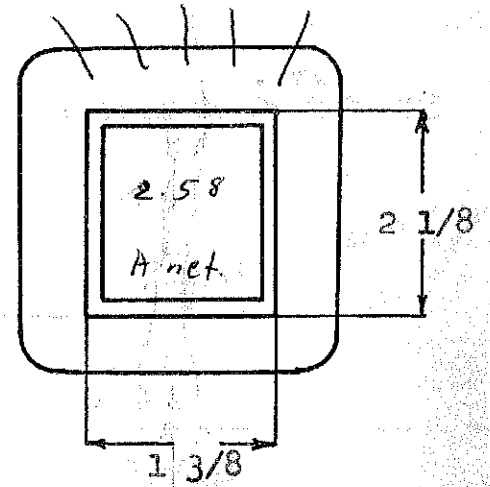
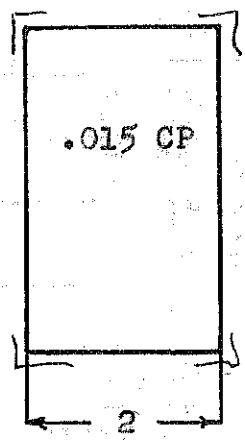
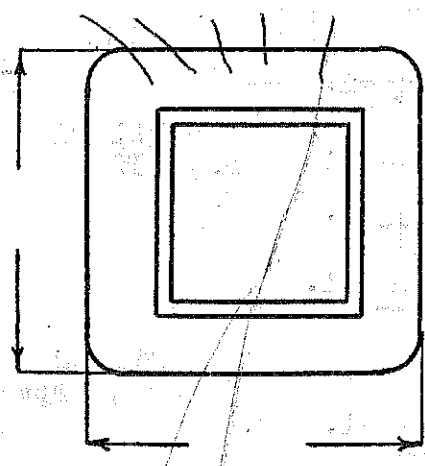
CORE 1 3/8 x 2 1/8 GA. 24 GRADE D STACK 2 x 2

MOUNTING A

T. P. V - 2.3  
 Window -  $\frac{.557}{.688} = 81\%$

8 3 7 1 6

9 4 2 5 10



DESIGNED BY

F. Frazer

DATE

5-47

# DESIGN AND TEST DATA

Rating:

Sec VA = 135.4  
 Pri VA = 172.4  
 Ip = 1.44A

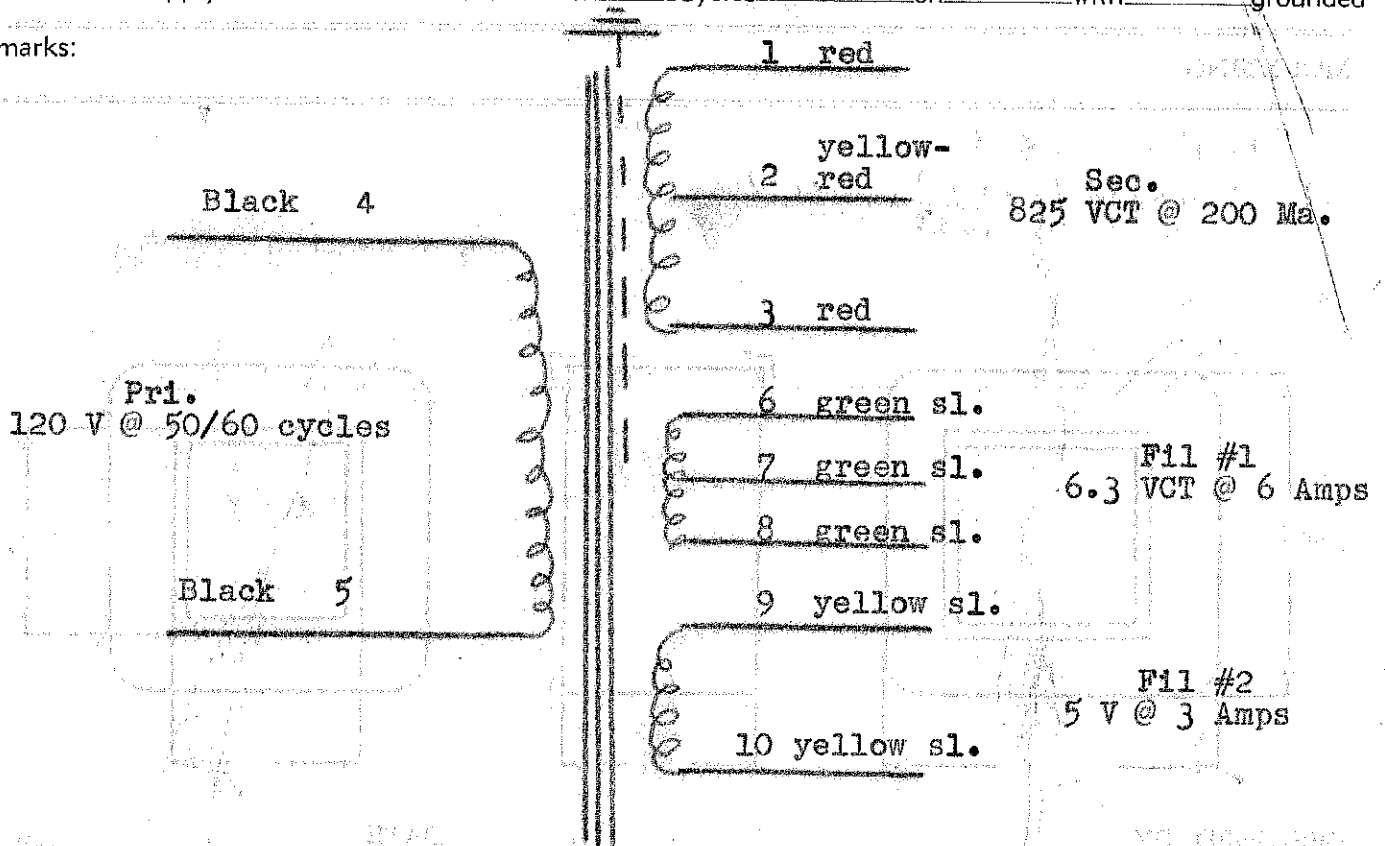
Winding	1-2-3 Sec.	4-5 Pri.	6-7-8 Fil #1	9-10 Fil #2		
Mean Turn	8.15	9.76	11.01	11.01		
Resistance 25° c	1.47	2.33	.064	.095		
Pounds Copper	.434	.705	.196	.072		
Copper Density	710	710	543	542		
Ratio Volts	4.47-4.47	120	3.48- 3.48	5.66		
Test to Ground	2500	1500	1500	2000		

Iron Induction 11.8 kg @ 50 Cycles

Exciting Current 185 milli amperes @ 120 volts 60 cycles on 4-5

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



MIAIC

115/230 V @ 50/60Hz  
TO  
6700 V CT @ 350MA (3000 V DC)

STOCK

SPEC. NO. P-474-M

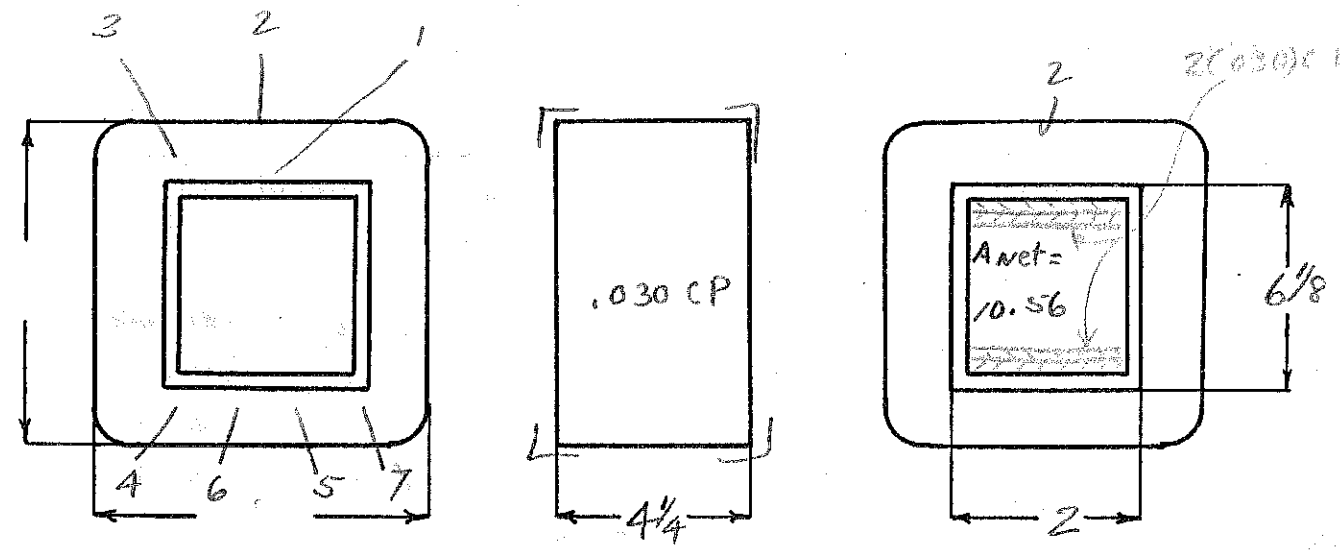
Winding	1-2-3 SEC	4-5 PRI #1	6-7 PRI #2
Turns	5200	83	83
Taps	2600	-	-
Wind. Lgth.	3 1/4	3 1/4	3 1/4
Wire Size	#26	#13	#13
T. P. L.	174-30L	42-2L	42-2L
Finish	91%	95%	95%
Type Lead	#22 Dulac VINYL SL.	W.O.	W.O.
Lead Lgth.	6	6	6
Layer Insul.	Double 50#	12010CP	12010CP
Test Volt.	11,000	1500	1500
Wrapper	6L007VC + 6L50# Gl. interlaved 3L007GA	12010CP	4L007GA

TUBE 12L007GK + 4L007VC IMPREGNATION DOUBLE VARNISH

CORE 2x6 GA. 24 GRADE D STACK 2x2

MOUNTING M

POUR with TAR  
Place Large Bushings on  
Bakelite Panel



DESIGNED BY F. Froyer

DATE 6-4-47



# DESIGN AND TEST DATA

Rating:  $I_s(RMS) = .707 \times 350 = 248.7A$

Sec VA = 1206

PRI VA = 1442

$I_p = 6.27$  series

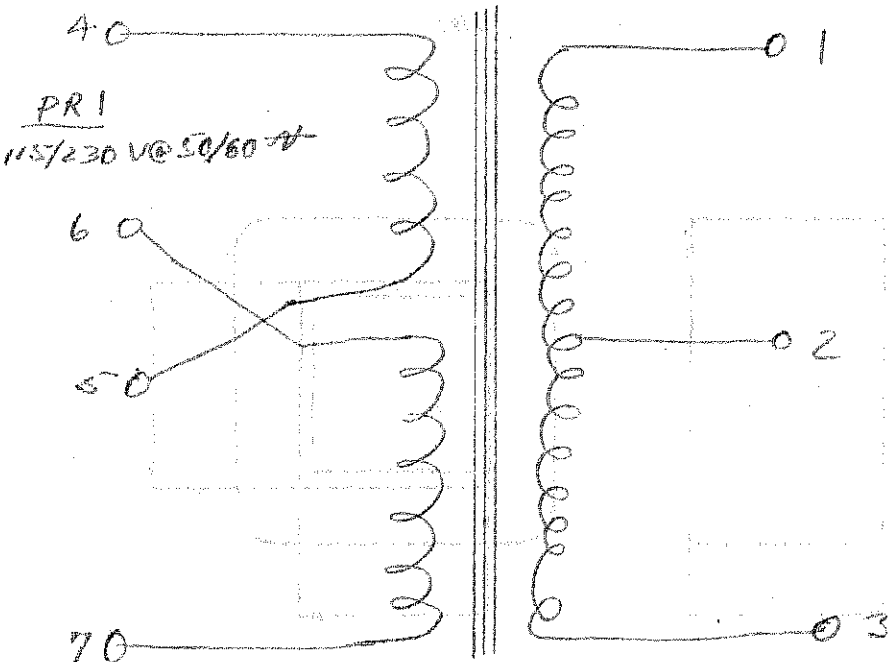
Winding		1-2-3 SEC			4-5 PRI #1	6-7 PRI #2	
Mean Turn		19.4			24.0		
Resistance 25° c		350			.685		
Pounds Copper		6.57			5.29		
Copper Density		1023			825		
Ratio Volts		3610-3610			230		
Test to Ground		11000			1500		

Iron Induction 9.2 Kg @ 50 Cycles

Exciting Current 354 Milliamperes @ 230 volts 60 cycles on 4-5-6-7

Induced Test: Apply \_\_\_\_\_ Volts at \_\_\_\_\_ Cycles on \_\_\_\_\_ with \_\_\_\_\_ grounded

Remarks:



SEC  
6900 V CT @ 350 MA  
(3000 V DC)

PRI volts	PRI Conn.	SEC volts
115	4-6 + 5-7	6900
230	5-6	6900
115	5-6	3450