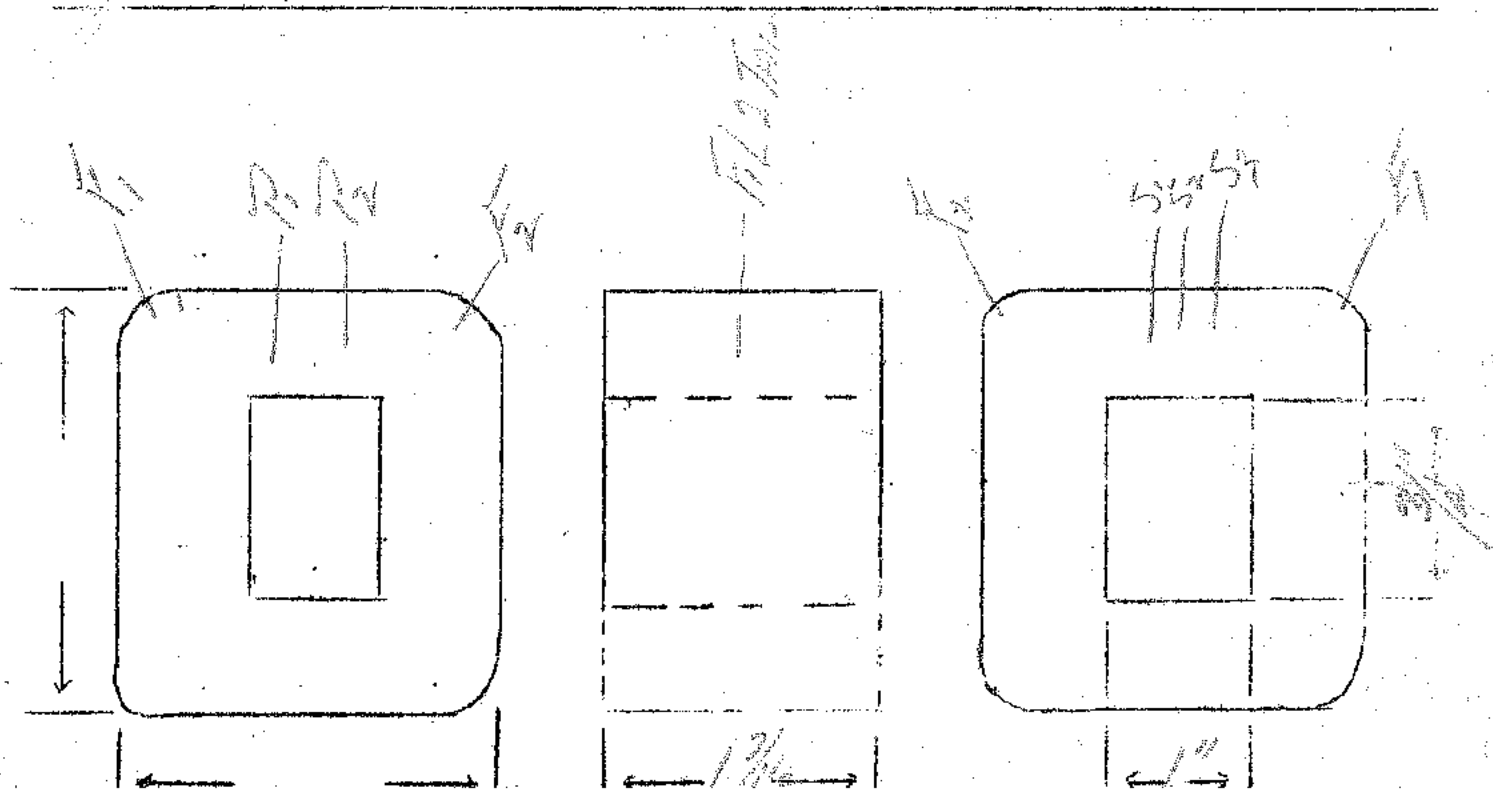
	Voltage	Current
Primary	110	
Secondary	600	.225
Filament No. 1	5	2
Filament No. 2	2.5	6.25
Filament No. 3		

Specification No. 101

Type Transformer

	Pri	Sec.	Sec.	Fil 1	Fil 2
TURNS	825	2250	2250	40	20
TAPS	None	None	2300	None	10
LENGTH OF WINDING	1 3/16	1 3/16	1 3/16	1/2	1/2
SIZE WIRE	#28	#37	#37	#16	#18
TURNS PER LAYER	73-11	225-22	225-22	40	20
KIND OF TERMINAL	Flexible Cord	Sol. Lug	Sol. Lug	Flexible Cord	Flexible Cord
LENGTH OF TERMINAL	9"	3"	3"	3"	3"
TUBE	Empire	Empire Manila	Empire Manila	Empire Manila	Empire Manila
LAYER INSULATION	Empire	Empire	Empire		
WRAPPER	Empire Varnished	Empire Varnished	Empire Varnished	Empire Varnished	Empire Varnished
TREATMENT					
RESISTANCE					



Power

117 V @ 50/60 ~ to
550 V CT @ 40 ma
5V @ 2a
6.3V CT @ 1.6a

New stock

23 / SPEC. NO. P 102

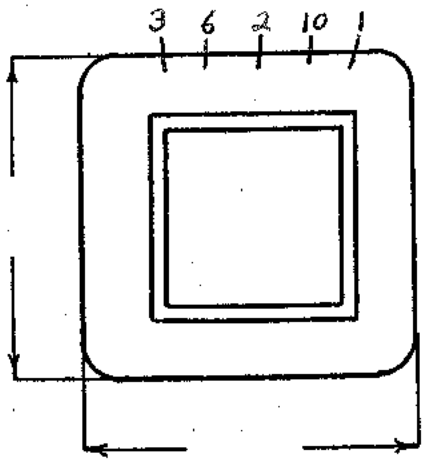
	1-2-3		4-5	6-7	8-9-10		
Winding	Sec	Shield	Pri	Fil	Fil		
Turns	3680	1	690	35	44		
Taps	1840	—	—	—	22		
Wind. Lgth.	1¼	1¼	1¼	1¼	1¼		
Wire Size	#38	.001 cu.	#27	#21	#22		
T. P. L.	230 -16L	—	69 -10L	35 -1L	44 -1L		
Finish / Pitch	83%	—	85%	84%	94%		
Type Lead	#22 Bulac	~~#22 T.C. Sil. Sr.~~	#22 P.E.	wr. o. sleeve	wr. o. sleeve		
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"	cut 14"		
Layer Insul.	1@#	—	40#	—	—		
Test Volt.	2000	—	1500	2000	1500		
Wrapper	1L003CA 1L20# ~~2L005VC~~	1L003CA 1L40# ~~1L005VC~~	~~1L003CA~~ 1L0076A ~~2L005T6A~~	~~1L003CA~~ 1L04VGA ~~2L005T6A~~	3L005G-K ~~2L005GA~~		

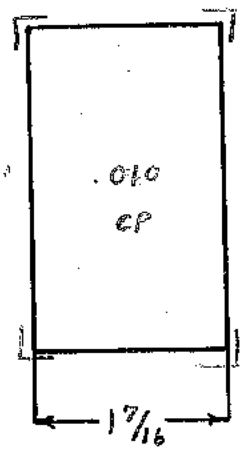
TUBE 5L010 GK + ~~1L003CA~~ 1L0028VP IMPREGNATION Varnish

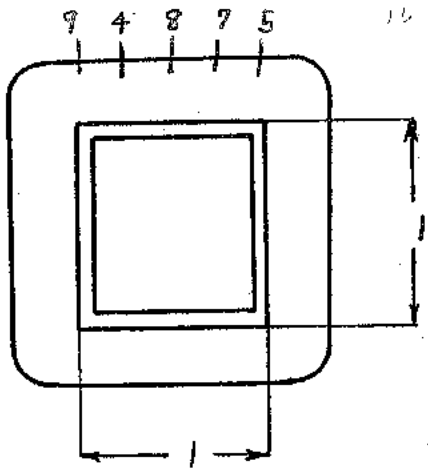
CORE 1X1 GA. 24 GRADE D STACK 2X2

MOUNTING A, N, HS9-Leads

wr = 83%







DESIGNED BY S. BABCOCK

DATE 4-20-49

DESIGN AND TEST DATA

Rating: $I_S = .9 \times 40 = 36$ ma

Sec VA = 35.7
Pri VA = 48
$I_p = 413$ ma

Winding	Sec	Shield	Pri	Fil	Fil		
Mean Turn	4.69		5.74	6.59	6.90		
Resistance 25° c	967		17.3	.251	.417		
Pounds Copper	.07		.204	.0477	.050		
Copper Density	437		488	405	401		
Ratio Volts	552		117	5.08	6.33		
Test to Ground	2000		1500	2000	1500		

Iron Induction 13.5Kg @ 50 Cycles

Exciting Current 7.0 ma amperes @ 117 volts 60 cycles on Pri

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

Remarks:

1 – 3 Red

2 Red – Yellow

4 – 5 Black

6 – 7 Yellow

8 – 9 – 10 Green

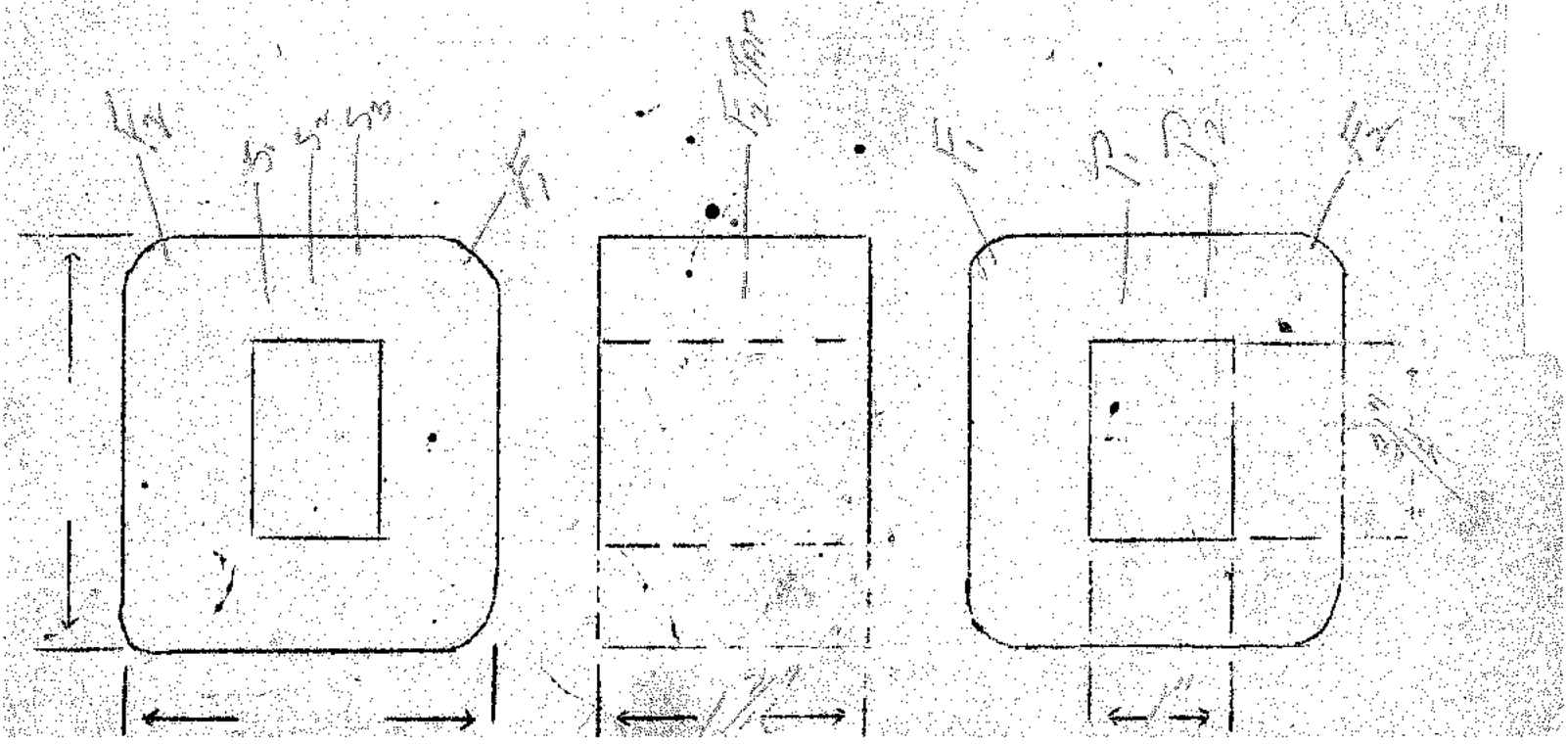
	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. [illegible]

Type Transformer [illegible]

SUPER DYNAMO STEEL

	PRI	SEC.	SEC.	FIL.	FIL.	FIL.
TURNS	768	825	1400	96	18	46
TAPS	None	None	2100	None	9	23
LENGTH OF WINDING	1 3/16"	1 3/16	1 3/16			
SIZE WIRE	28	32	32	21	18	22
TURNS PER LAYER	77-10	210	210-19	32	18	*
KIND OF TERMINAL	Wire Only	S.C. Soldered	S.C. Soldered	Wire Only	Wire Only	
LENGTH OF TERMINAL	3"	3"	3"	3"	3"	
TUBE	Fibre	Fibre Varnished	Fibre Varnished	Fibre Varnished	Fibre Varnished	
LAYER INSULATION	Empire		Empire			
WRAPPER	2 Empire Kraft	2 Empire Kraft	2 Empire Kraft	2 Empire Kraft	2 Empire Kraft	
TREATMENT						
RESISTANCE						
	1 X 3/4 NW					

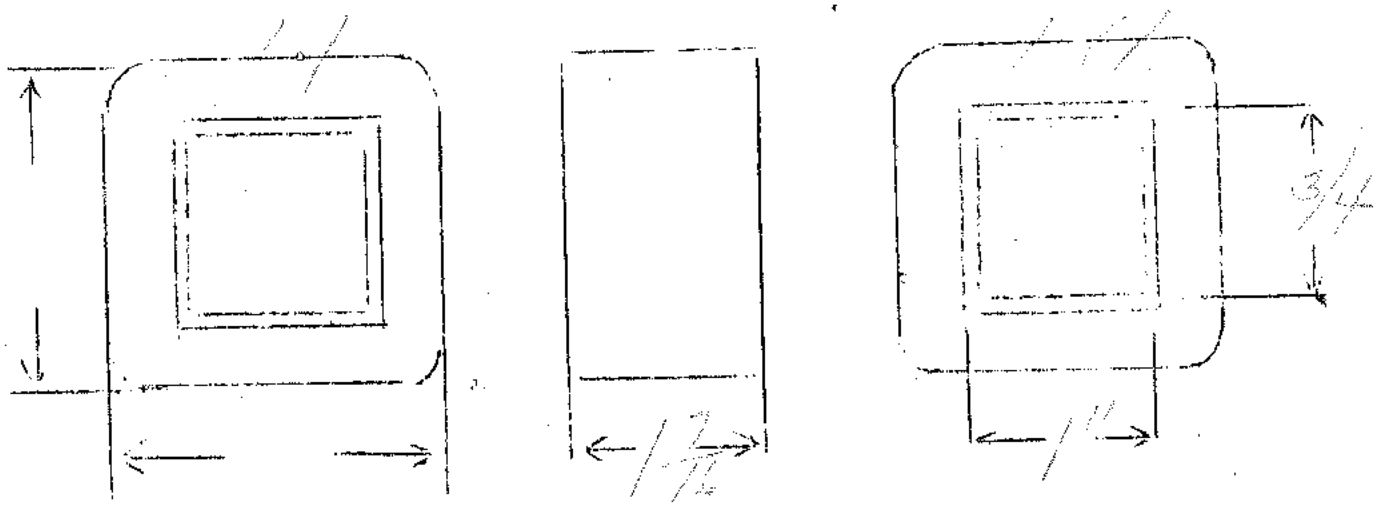


SPEC. NO. 102-233 V6.102

Winding	S	P	SEC	F1	F2		
Turns	1524	119	4200	56	18		
Taps	—	—	—	—	9		
Wind. Lgth.	1.25	1.25	1.25	—	—		
Wire Size	#34	#31	#37	#21	#18		
T.P.L.	119.13	119	210	—	—		
Kind Term.	wire	wire	wire	wire	wire		
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	3 mil		2 mil	—	—		
Wrapper	1 layer	1 layer	2 layers	2 layers	2 layers		

TUBE | 2007 | IMPREGNATION | K

CURE | 1 hr 350 | 2 hrs 250



Power

117 V @ 50/60 ~ 4

350 V ct @ 40 ma

5 V @ 4 a

6.3 V ct @ 2.0 a

New Stock

SPEC. NO. P 102

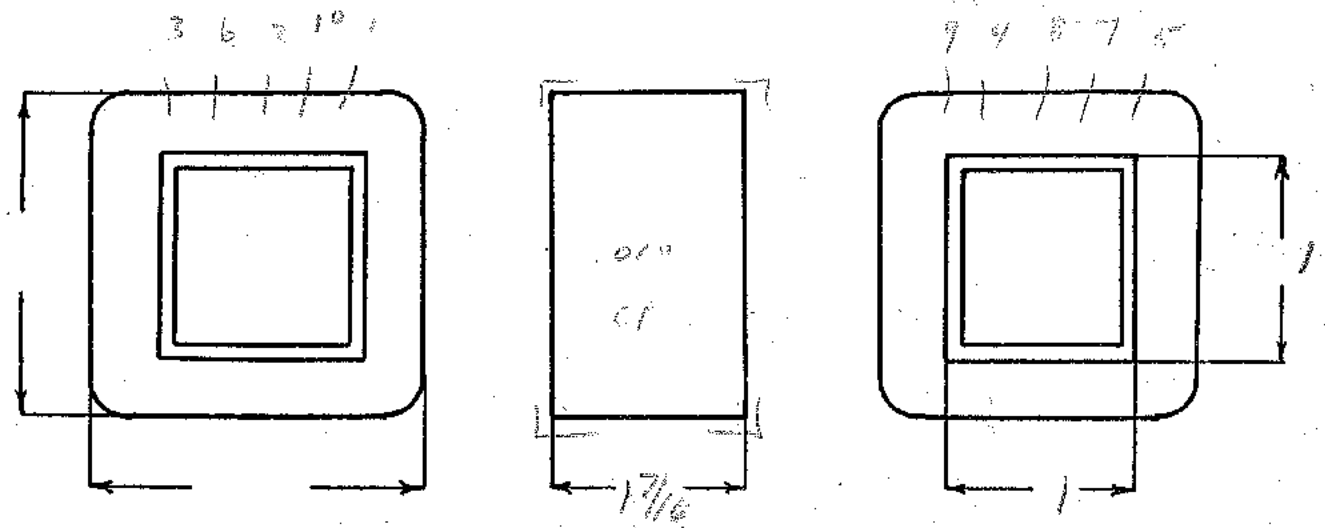
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil.	8-9-10 Fil.		
Turns	3680	1	690	35	44		
Taps	1840	—	—	—	22		
Wind. Lgth.	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4		
Wire Size	#38	.001 Cu.	#27	#21	#22		
T. P. L.	230-16L	—	69-10L	3.5-1L	9.4-1L		
Finish	93%	—	85%	84%	94%		
Type Lead	#22 DULac	S.L.F.F.	#22 P.B.	W.O. Sleeve	W.O. Sleeve		
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"	cut 14"		
Layer Insul.	12 #	—	40 #	—	—		
Test Volt.	2000	—	1500	2000	1500		
Wrapper	2L005VC	1L005VC	2L0076A	2L0076A	2L0056A		

TUBE 5L0106K + 1L0035VP IMPREGNATION Varnish

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

MOUNTING P, N, HS7

Eff = 83%



DESIGNED BY S. Babcock DATE 4-20-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 40 = 36$ ma

Sec VA = 3.5
Pri VA = 5.0
I_p = 41.3 ma

Winding	Sec	Shield	Fil.	Fil.	Fil.		
Mean Turn	4.69		5.79	6.59	6.90		
Resistance 25° c	.967		17.3	.251	.417		
Pounds Copper	.070		.204	.0477	.050		
Copper Density	437		488	405	401		
Ratio Volts	552		117	5.08	6.83		
Test to Ground	2000		1500	2000	1500		

Iron Induction 13.5 kg/ @ 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

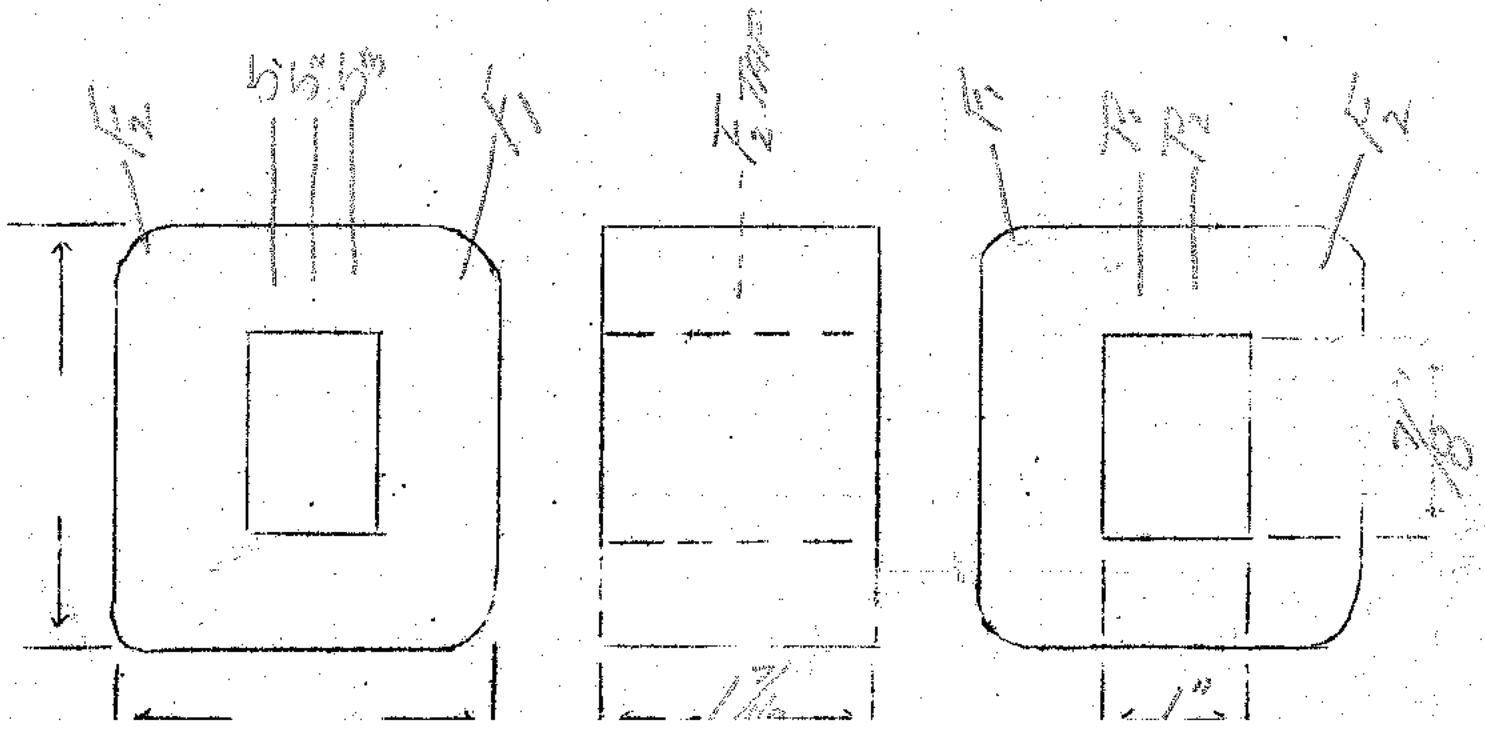
8 — 9 — 10 Green

	Voltage	Current
Primary	115	
secondary	600	200
Filament No. 1	2.5	2.5
Filament No. 2	5	3
Filament No. 3		

Specification No. 103

Type Transformer

	PRI.	White	Blue	FIL 1	FIL 2	
TURNS	709	71	1000	13	16	
TAPS	None	None	None	1	3	
LENGTH OF WINDING	1 1/2"	1 1/2"	1 1/2"			
SIZE WIRE	#27	#22	#32	#20	#18	
TURNS PER LAYER	71	71	225	13	16	
KIND OF TERMINAL	Wire Out	Wire Out	Wire Out	Wire Out	Wire Out	
LENGTH OF TERMINAL	6"	6"	6"	6"	6"	
TUBE	Fiber	Fiber	Fiber	Fiber	Fiber	
LAYER INSULATION	Oil		Oil			
WRAPPER	Empire Cloth	Empire Cloth	Empire Cloth	Empire Cloth	Empire Cloth	
TREATMENT	This is the Standard Treatment					
RESISTANCE	Secondary Pri. 5-11					



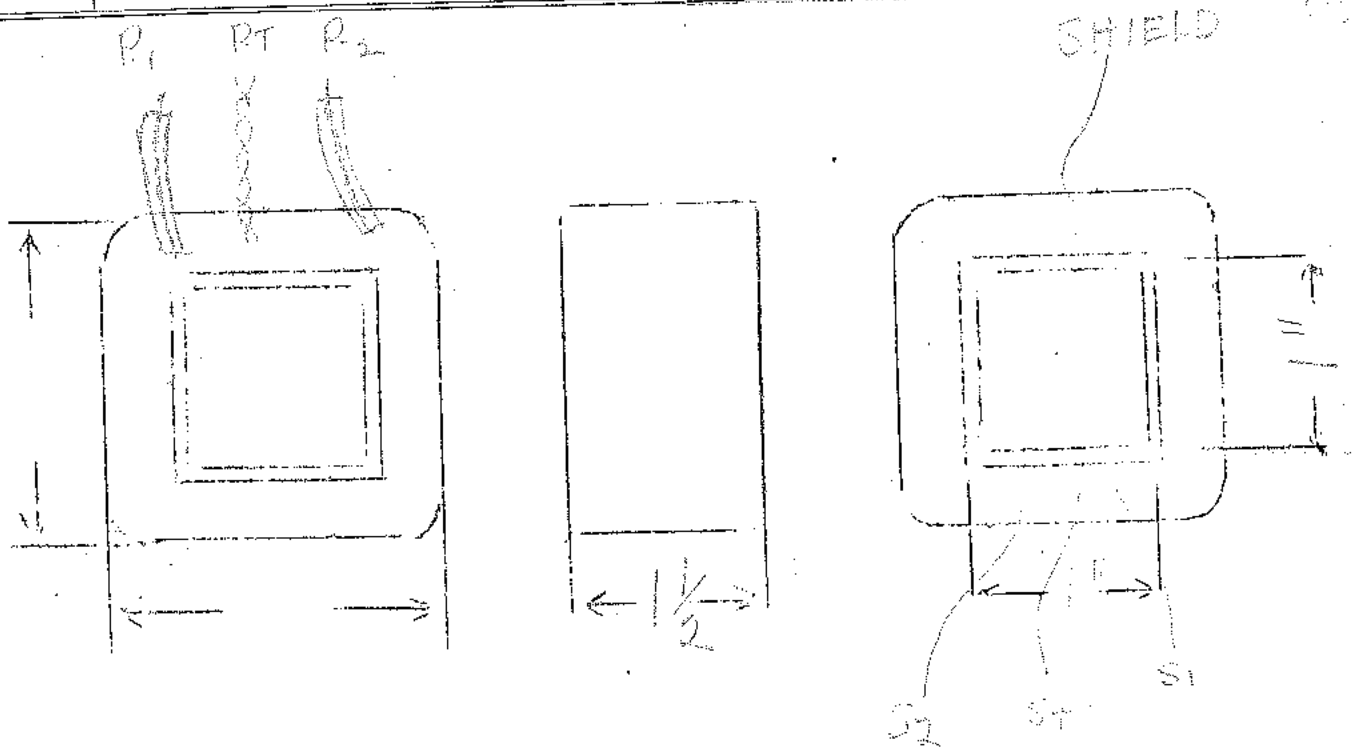
HIRSCH

Specification No. 103-E-2

Type Transformer Auto Set B. ELIM.

SPEC. NO. 103-E-2

Winding	SEC.	SHIELD	PRI.				
Turns	3000	135	60				
Taps	1500	—	30				
Wind. Lgth.	1 5/16"	1 5/16"	1 1/4"				
Wire Size	#32	#32	#20				
T.P.L.	135-2-4	135-1-4	30-2-4				
Kind Term.	UNDETYPE LEADS	WIRE ON	WIRE STR. WITH SLEEVING				
Term. Lgth.	8"	2"	8"				
Layer Insul.	1-4 .30 MG	—	1-4 .005" MYLAR				
Wrapper	1-4 V.C.	1-4 .30 MG	2 .005"				
TUBE	4 .007 G.K.	SEC. WRAP	4 .30 MG.	IMPREGNATION			
CURE							



Power
117 V @ 60 ~ 7.6
600 V CT @ 50 mA.
5 V @ 2 A.
6.3 V @ 2 A.

SPEC. NO. P 104

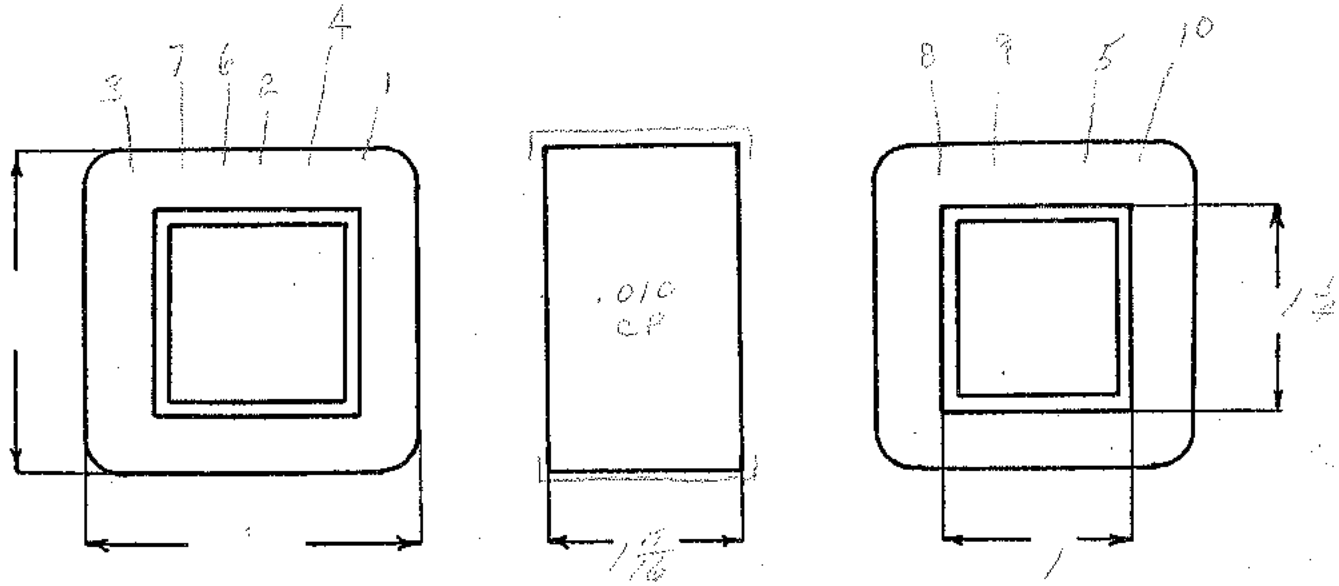
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil	8-9-10 Fil		
Turns	2920	1	493	24	30		
Taps	1360	—	—	—	15		
Wind. Lgth.	1 1/16	1 3/16	1 1/16	1 1/16	1 1/16		
Wire Size	#35	.001	#26	#21	#21		
T. P. L.	110-162	—	56-91	23-11	30-11		
Finish Pri.	57%	—	80%	53%	71%		
Type Lead	#22 Duplex	Sil. Bv.	#22 P.B.	Two Sleeve			
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"	cut 14"		
Layer Insul.	#20	—	#40	—	—		
Test Volt.	2000	—	1500	2000	1000		
Wrapper	2 L 005 VK	1 L 005 VK	1 L 010 CP	1 L 010 CP	2 L 005 GN		

TUBE 2 L 010 GK + 1 L 005 VK P IMPREGNATION Varnish

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

MOUNTING 4 M, H 5 12

Wn = 89%



DESIGNED BY C. Chubb DATE 5-24-50

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 50 = 45$ m.a.

Sec. VA = 41.6
Pri VA = 57.0
I_p = 487 m.a.

Winding	1-2-3 Sec.		4-5 Pri	6-7 F.L.	8-9-10 F.L.		
Mean Turn	5.32	—	6.50	7.30	7.60		
Resistance 25° c	404	—	11.2	.190	.248		
Pounds Copper	.117	—	.210	.036	.047		
Copper Density	700	—	572	405	405		
Ratio Volts open / load	6.46 / 5.48	—	119 / 117	5.24 / 5.08	6.8 / 6.3		
Test to Ground	2000	—	1500	2000	1500		

Iron Induction 12.9 @ 60 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 - 10 Green.

I^2R loss ... = 1.01
I^2R pri ... = 5.16
F.L. $2 \times .125 \times .190$ = .05
F.L. $2 \times 2 \times .248$ = .19
Total ... = .24

$\frac{1.25}{16} \times \frac{1.625}{16} \times 12.5$ = 9.5 sq in
9.5

Power

117 V @ 57/60 ~ 4a
600 V CT @ .50 ma
5 V @ 3 a
6.3 V CT @ 2a

New Stock

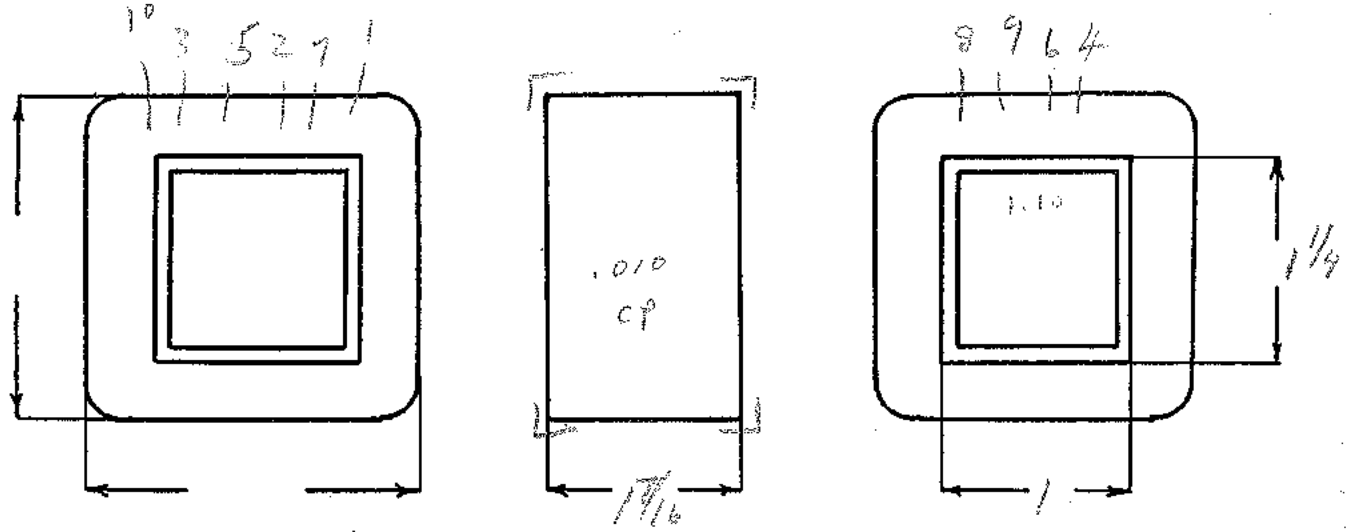
OBSOLETE

SPEC. NO. P104

Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7 Fil.	8-9-10 Fil.		
Turns	3220	1	570	27	34		
Taps	1610	—	—	—	17		
Wind. Lgth.	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4		
Wire Size	#36	.001 Cu.	#26	#20	#20		
T. P. L.	201 - 161	—	69 - 9L	27 - 1L	34 - 1L.		
Finish	90%	—	87%	72.7%	91%		
Type Lead	#22 D.S.C.	5 L Br.	#22 P.B.	Cloth			
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"			
Layer Insul.	20#	—	40#	—	—		
Test Volt.	2000	—	1500	2000	1500		
Wrapper	2L005VC	1L005VC	2L007GA	2L007GA	2L005GA		

TUBE	5L010GK + 1L003VP		IMPREGNATION	Varnish	
CORE	1 X 1 1/4	GA. 24	GRADE D	STACK 2 X 2	
MOUNTING	A, N, H5 (L				

Was 90%



DESIGNED BY S. Babcock

DATE 4-16-49

DESIGN AND TEST DATA

Rating: $I_{sec} = .19 \times 50 = 95$ ma.

Sec VA = 43.8
Pri VA = 58.7
I_p = 502 ma.

Winding	Sec	SC	Pri	Fil	Fil		
Mean Turn	5.03		6.16	7.01	7.36		
Resistance 25° c	572		12.2	.169	.216		
Pounds Copper	.104		.229	.0512	.0654		
Copper Density	556		507	511	511		
Ratio Volts	600		117	5.1	5.19		
Test to Ground	2000		1500	2000	1500		

Iron Induction 13 Kg (lines c.m.) @ 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 - 10 Green

I^2R_{sec} .050 x .050 x 572 = 1.43
I^2R_{pri} .497 x .497 x 12.2 = 2.90
I^2R_{f1} 2 x 2 x .169 = .676
I^2R_{f2} 2.2 x 2.2 x .216 = 1.045 = 0.82 / 5.85
Total copper loss

1.33 x 146.5 x 1.25 = 243.5 / 43.8 = 5.56 w.
Area Watts

Power
117 V @ 60 ~
to
600 V ct @ 50 ma.
5 V @ 2 a.
6.3 V @ 2 a.

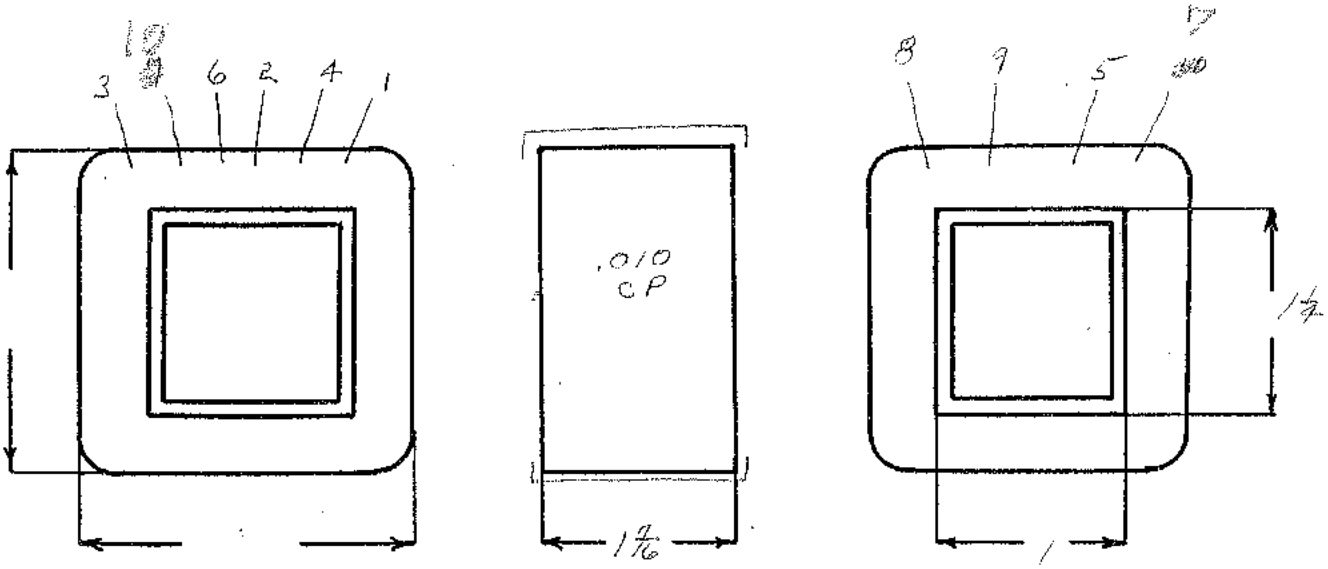
New Design

SPEC. NO. P-104

Winding	1-2-3 Sec.	shield	4-5 Pri.	6-7 Fil.	8-9-10 Fil.		
Turns	2720	1	493	24	30		
Taps	1360	–	–	–	15		
Wind. Lgth.	1 3/16	1 3/16	1 3/16	1 3/16	1 3/16		
Wire Size	#35	.001	#26	#21	#21		
T. P. L.	170-16 L	–	56-9 L	23-1 L	30-1 L		
Finish Pitch	89%	–	80%	58%	77%		
Type Lead	#22 Dulac	Sil. Br.	#22 R.B.	W.O. Sleeve			
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"	cut 14"		
Layer Insul.	~~#~~ 20 #	–	4.0 #	–	–		
Test Volt.	2000	–	1500	2000	1000		
Wrapper	1L003CA 1L-3003 ~~2L003VC~~	1L003CA 1L3004 ~~1L005VC~~	1L010CP	1L010CP	2L005GA ~~1L005GA~~		

TUBE	5L010GK + ~~1L003VP~~ 1L003CA		IMPREGNATION	Varnish	
CORE	1 x 1/4	GA. 24	GRADE D	STACK 2 x 2	
MOUNTING	A, N, H S12				

Wn = 89%



RE-DESIGNED BY L. Thornblad

DATE 5-24-50

DESIGN AND TEST DATA

Rating:

$I_s = .9 \times 50 = 45$ ma.

Sec VA = 41.6
Pri VA = 51.0
I_p = 487 ma.

Winding	1-2-3 Sec.	Shield	4-5 Pri	6-7 F.1	8-9-10 F.1		
Mean Turn	5.32	–	6.50	7.30	7.60		
Resistance 25° c	404	–	11.2	.190	.248		
Pounds Copper	.117	–	.210	.036	.047		
Copper Density	700	–	523	405	405		
Ratio Volts open	646	–	117	5.44	6.8		
Ratio Volts load	598		117	5.08	6.3		
Test to Ground	2000	–	1500	2000	1500		

Iron Induction 12.4 @ 60 Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

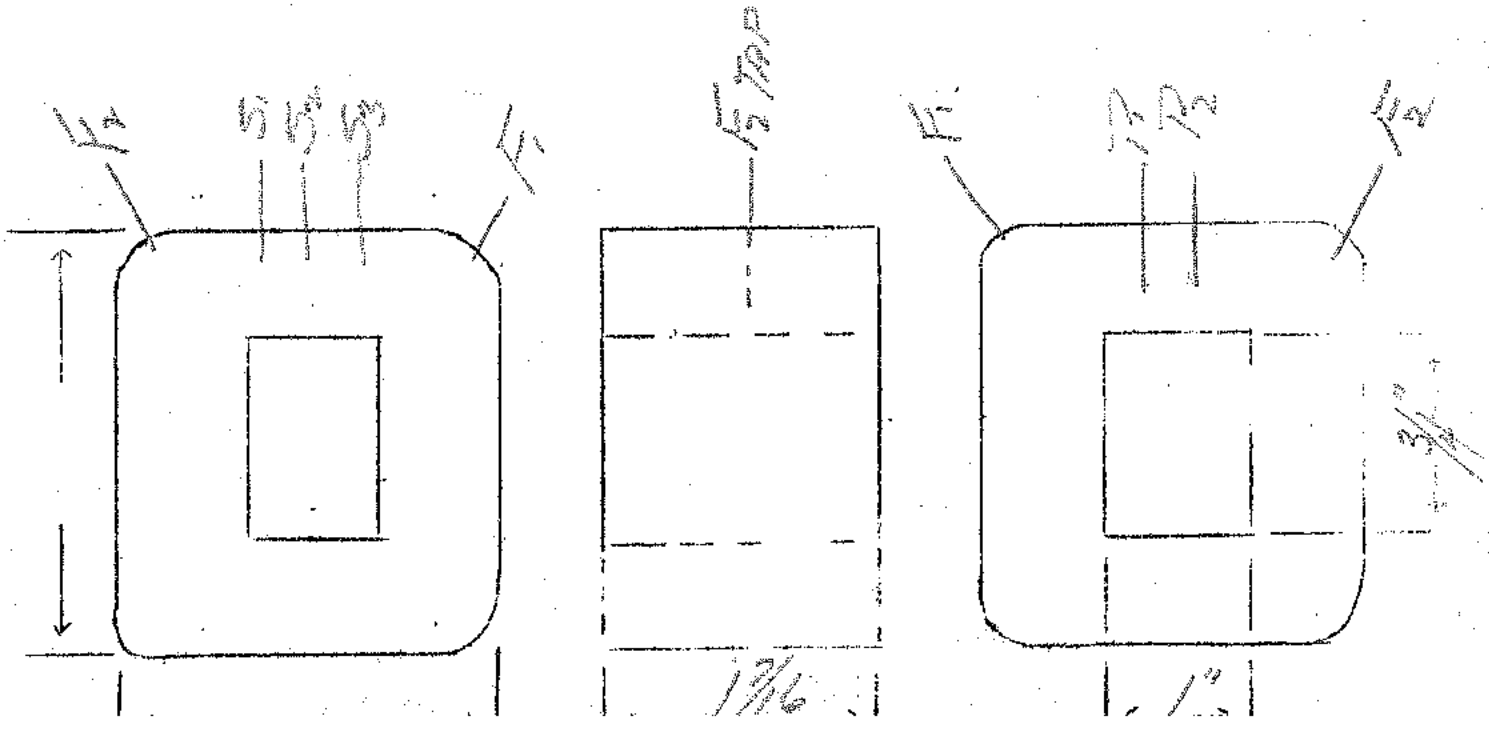
1-3 Red
2 Red-yellow
4-5 Black
6-7 Yellow
8-9-10 Green.

	Voltage	Current
Primary	115	
Secondary	450	.040
Filament No. 1	5	2
Filament No. 2	2.5	3.25
Filament No. 3		

Specification No. 1041

Type Transformer Power

	PRI.	Shunt	SEC	F.2 (1)	F.2 (2)
TURNS	762	225	4550	36	18
TAPS	None	None	2275	None	9
LENGTH OF WINDING	1 3/4	1 3/16	1 3/4		
SIZE WIRE	28	32 E	32 E	21 E	18 E
TURNS PER LAYER	77-10	225-1	225-21	36	18
KIND OF TERMINAL	Wire Ends	S.L. Sp.	S.L. Sp.	Wire Ends	Wire Ends
LENGTH OF TERMINAL	3"	3"	3"	3"	3"
TUBE	4 oz	Fib. Wrapped	Fib. Wrapped	Fib. Wrapped	Fib. Wrapped
LAYER INSULATION	3 Mil		3 Mil		
WRAPPER	2 Layers Var	2 Layers Var	2 Layers 6 Var	2 Layers 6 Var	2 Layers 6 Var
TREATMENT					
RESISTANCE					



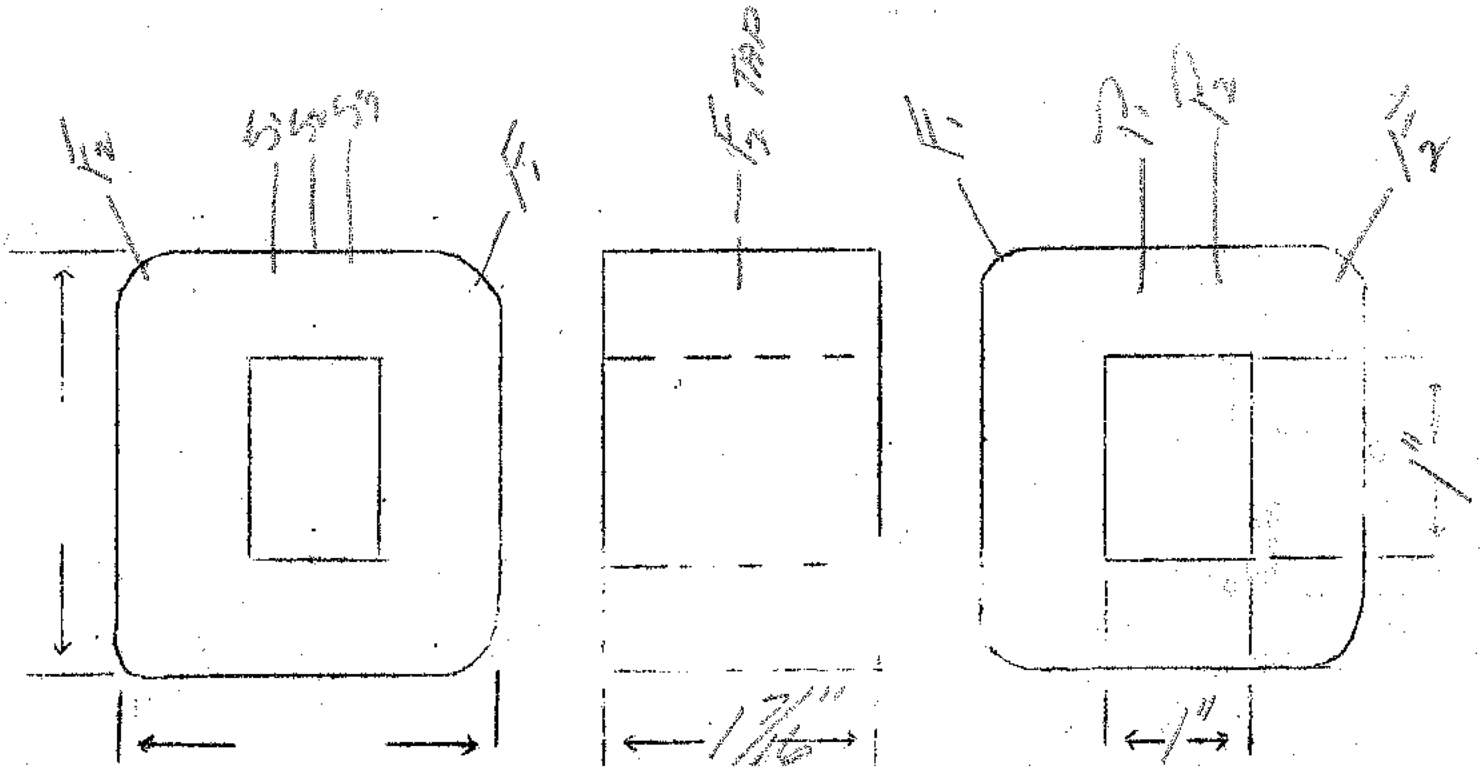
	Voltage	Current
Primary	115	
Secondary	720	.152
Filament No. 1	2.5	2
Filament No. 2	2.5	3.25
Filament No. 3		

115 Volts 60 Cycles

Specification No. 105

Type Transformer Power

	Pri.	Shld	Sec.	F1 (1)	F1 (2)
TURNS	660	202	4020	31	16
TAPS	None	None	2010	None	8
LENGTH OF WINDING	1 1/4"	1 1/4"	1 1/4"		
SIZE WIRE	26 E	36 E	36 E	20 E	12 E
TURNS PER LAYER	66-10	202-1	402-20		
KIND OF TERMINAL	Wire Out	S.T. & B	S.T. & B	Wire Out	Wire Out
LENGTH OF TERMINAL	3"	3"	3"	3"	3"
TUBE	4 Layer	Spec. Varnished	Spec. Varnished	Spec. Varnished	Spec. Varnished
LAYER INSULATION	5 Mil		2 Mil		
WRAPPER	2 Lgr. 3 Vm	1 Lgr 5 Vm 1 Lgr 3 Vm	1 Lgr 5 Vm 1 Lgr 5 Vm	2 Lgr 5 Vm	2 Lgr 5 Vm
TREATMENT					
RESISTANCE					



POWER TRANS.
117 V. @ 60 ~
&
650 V. C-T @ 70 MA.
5 V. @ 2 A.
6.3 V. C-T @ 2.5 A.

NEW STOCK

SPEC. NO. P-106

Winding	1-2-3 SEC.	SHIELD	4-5 PRI.	6-7 FIL. #1	8-9-10 FIL. #2		
Turns	3180	1	540	25	32		
Taps	1590	–	–	–	16		
Wind. Lgth.	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{5}{16}$	$1\frac{5}{16}$		
Wire Size	#33	.001" Cu	#24	#20	#19		
T. P. L.	159 - 201	1	60 - 9L	25 - 1L	32 - 1L		
Finish	90%	–	93%	64%	91%		
Type Lead	#22 DULAC	#26 T.C.	#22 P.B.	W. O. SLEEVE	W. O. SLEEVE		
Lead Lgth.	CUT 14"	3"	CUT 14"	CUT 14"	CUT 14"		
Layer Insul.	30#	–	~~60#~~ 50#	–	–		
Test Volt.	2500 V.	–	1500 V.	2000 V	1500 V		
Wrapper	2L 1 LOOSE CA .005 VC	1L 1 LOOSE CA .005 VC ~~1L .5 MIL~~	1L .010" CP	1L .010" CP	2L .005" GA.		

TUBE 5L .010" GK + ~~1L .005" VR~~ 1 LOOSE CA

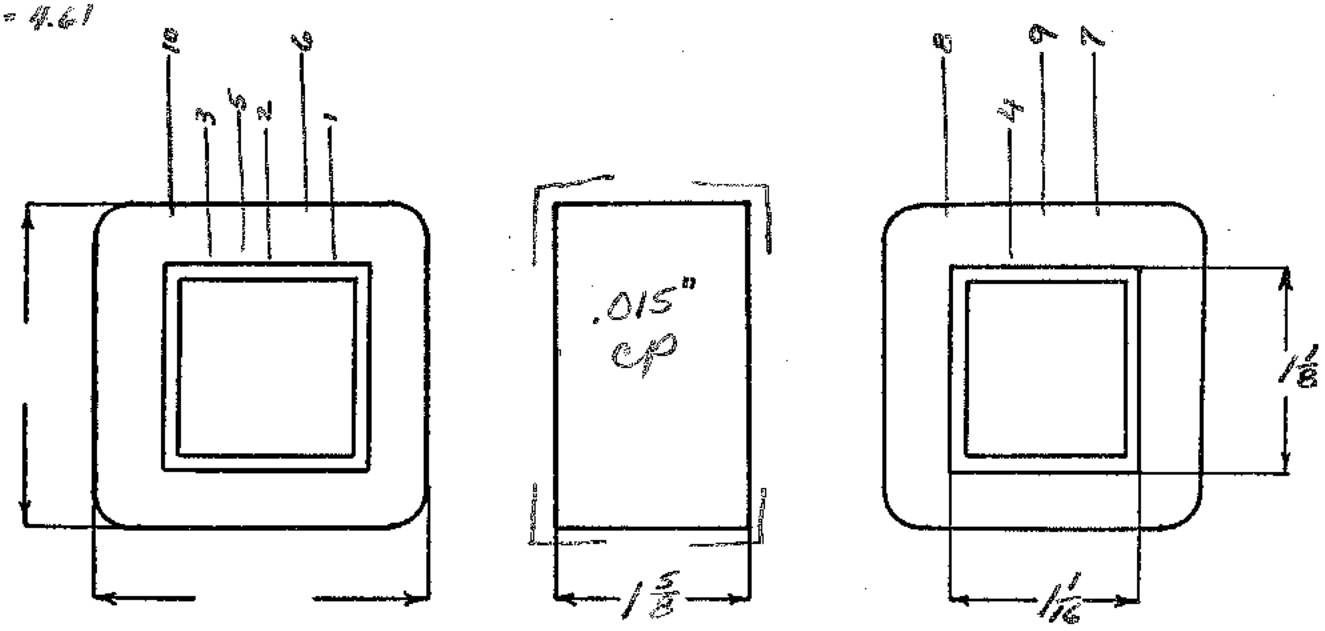
IMPREGNATION VARNISH

CORE $1\frac{1}{16} \times 1\frac{1}{8}$ GA. 24 GRADE D STACK 2 × 2

MOUNTING A - N - MS-14

WN = .470 (.472) ← 90%

T/W = 4.61



RE-DESIGNED BY HHH.

DATE 5-22-50

DESIGN AND TEST DATA

Rating: 117V. @ 60A & 650V. C-T @ 70MA. 5V. @ 2A 6.3V. C-T @ 2.5A.

$I_s = .94 \times .070 = .063$ AMP RMS

Σ Sec. VA = 51
PRI. VA = 68.3
PRI. I = 0.584 A

Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Mean Turn	5.36"		6.78"	7.88"	8.18"		
Resistance 25° c	500Ω	—	8.1Ω	0.20Ω	0.21Ω		
Pounds Copper	0.22#	—	0.38#	0.06#	0.10#		
Copper Density	796	—	692	511	515		
Ratio Volts No-Load	690V.	—	117V.	5.42V	6.94V		
Test to Ground	2500V	—	1500V	2000V	1500V		

Iron Induction 12 KG @ 60 Cycles 117V. on Pri.

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 - 10 GREEN

POWER TRANS.
117V. @ 6AN
&
650V. C-T @ 70Ma.
5V. @ 2A.
6.3V. C-T @ 2.5A.

NEW STOCK

SPEC. NO. P-106

	1-2-3		4-5	6-7	8-9-10		
Winding	SEC.	SHIELD	PRI.	FIL #1	FIL #2		
Turns	3180	—	540	25	32		
Taps	1590	—	—	—	16		
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 5/16	1 5/16		
Wire Size	#39	.001" Cu.	#24	#20	#19		
T. P. L.	159-201	1	60-91	25 1L	32 1L		
Finish	90%	—	93%	64%	91%		
Type Lead	#22 Bulge	#26 T.C.	#22 P.B.	W.O. Sleeve	W.O. Sleeve		
Lead Lgth.	Cut 14"	3"	Cut 14"	Cut 14"	Cut 14"		
Layer Insul.	30#	—	50#	—	—		
Test Volt.	2500V	—	1500V	2000V	1500V		
Wrapper	2L .005"VC	1L .005"VC	1L .010"CP	1L .010"CP	2L .005"GP		

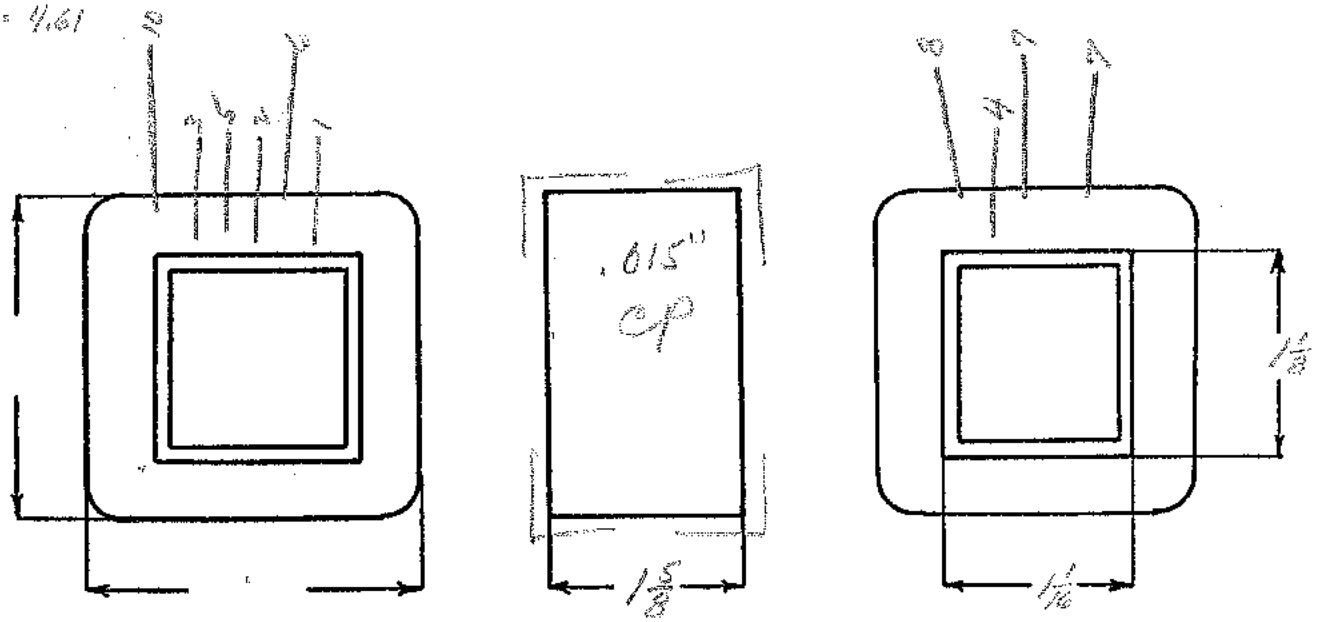
TUBE 5L .010"GK + 1L .003" VF — IMPREGNATION VARNISH

CORE 1/16 x 1/8 — GA. 24 — GRADE D — STACK 2 x 2

MOUNTING A - N1 - HS-14

WDG. EFF. (APPROX.) 90%

T/V = 4.61



RE-DESIGNED BY [signature]

DATE 5-20-50

DESIGN AND TEST DATA

Rating: 117V. @ 60~ to 650 V. CT @ 70 Ma. 5V. @ 2A. 6.3CT @ 2.5A.

$I_s = .7 \times 70 = 63$ Ma.

Σ Sec. VA = 51
Pri. VA = 63.3
Pri. I = 0.594

Winding	Sec.	Shield	Pri.	Fil #1	Fil #2		
Mean Turn	5.36"		6.78"	7.88"	8.18"		
Resistance 25° c	300 Ω	—	8.1 Ω	0.20 Ω	0.21 Ω		
Pounds Copper	0.22#	—	0.38#	0.06#	0.10#		
Copper Density	796	—	692	511	515		
Ratio Volts Open Load	690 V 660	—	117 V. 117	5.1/2 V. 5.30	6.9 V 6.12		
Test to Ground	2500 V	—	1500 V	2000 V	1500 V		

Iron Induction 12 KG @ 60 Cycles 117 V. on Primary.

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 - 10 Green

Power
117 V @ 50/60 ~ to
650 V CT @ 70 mA
5 V @ 2 A
6.3 V CT @ 2.5 A

New Stock

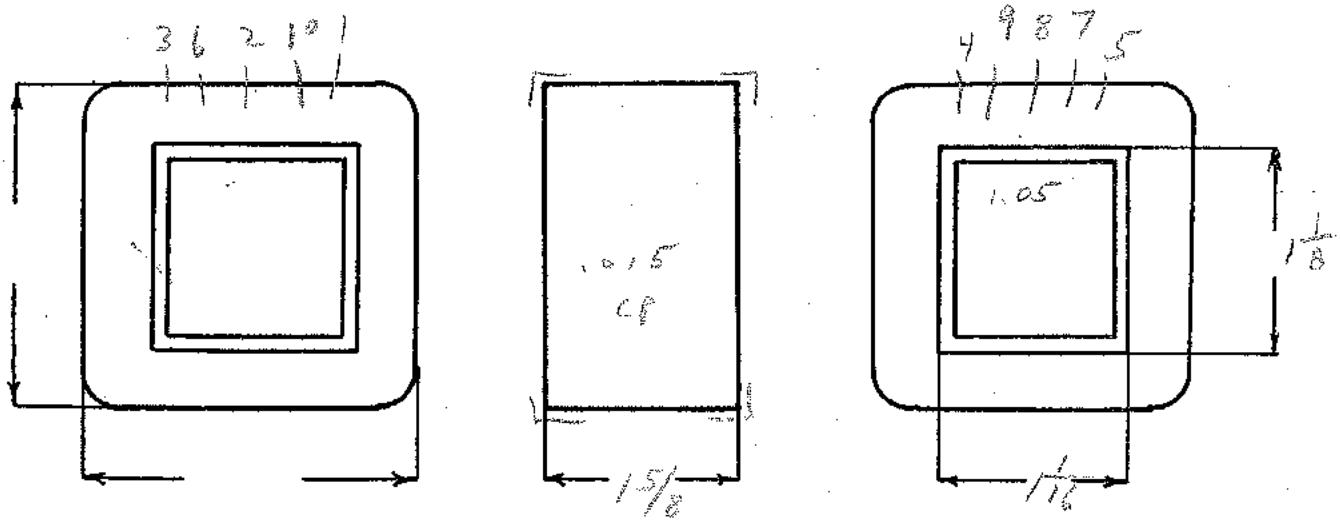
OBSOLETE

SPEC. NO. P-106

Winding	1-2-3 Sec	Shield	4-5 Pr.	6-7 Fil.	8-9-10 Fil.		
Turns	3650	1	600	29	36		
Taps	1825	—	—	—	18		
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8		
Wire Size	#34	001 cm.	#24	#20	#19		
T. P. L.	183-2nd	—	60-1st	29-1L	36-1L		
Finish	93%	—	93%	71%	98%		
Type Lead	#22 Bare	5" Var.	#22 P.E.	W.O. Sleeve			
Lead Lgth.	cut 14"	3"	cut 14"	cut	14"		
Layer Insul.	20#	—	50#	—	—		
Test Volt.	2500	—	1500	2000	1500		
Wrapper	2 Lo 5VC	1 Lo 5VC	2 Lo 76A	2 Lo 76A	2 Lo 5 BA		

TUBE	5 Lo 106K + 1 Lo 3VP	IMPREGNATION	Varnish		
CORE	1 1/16 × 1 1/8	GA.	24	GRADE	D
STACK	2 K 2				
MOUNTING	A, N, HS 14				

98%



DESIGNED BY S. Babcock

DATE 4-16-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 70 = 63$ ma.

Sec VA = 55
Pri VA = 76.3
I_p = 652 ma.

Winding	Sec.	Shield	Pri.	Fil.	Fil.		
Mean Turn	5.36		6.94	8.04	8.42		
Resistance 25° c	434.		91	.201	.207		
Pounds Copper	.2		.432	.061	.100		
Copper Density	630		618	511	515		
Ratio Volts	4.53	—	117	5	6.15		
Test to Ground	2500	—	1500	2000	1500		

Iron Induction 13K @ 50 Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

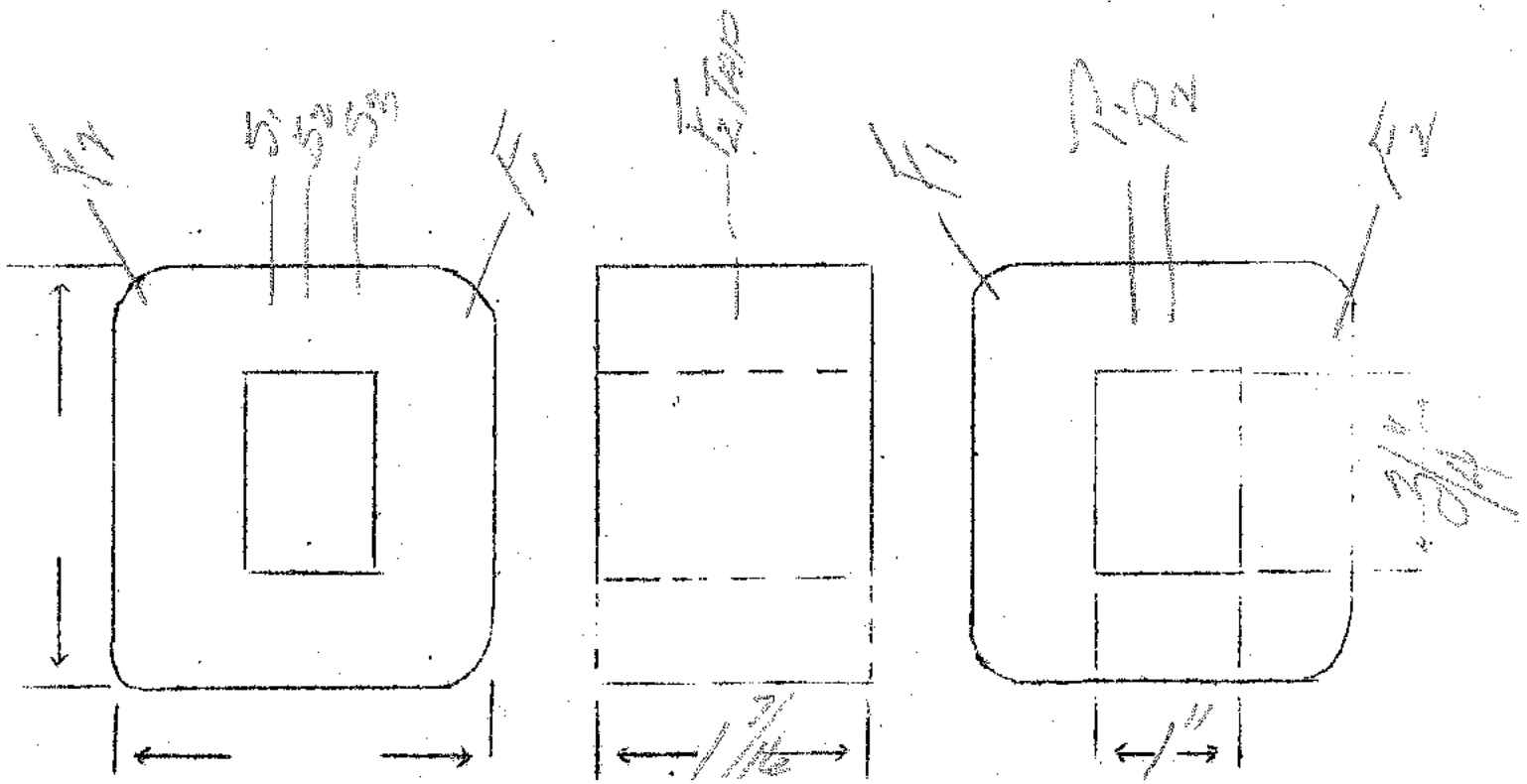
1 - 3 Red
2 Red - Yellow
4 - 5 Black
6 - 7 Yellow
8 - 9 - 10 Green

	Voltage	Current
Primary	115	
Secondary	550	.250
Filament No. 1	5	2
Filament No. 2	6.3	2.5
Filament No. 3		

Specification No. 126

Type Transformer Power

	Pri	Filament	Sec	Fil (1)	Fil (2)	
TURNS	762	None	3300	31	42	
TAPS	None	None	2100	None	22	
LENGTH OF WINDING	1 3/16	1 3/16	1 3/16			
SIZE WIRE	#30	#25	#36	#16	#25	
TURNS PER LAYER	77-10	210-1	210-14	1	1	
KIND OF TERMINAL	Flex Lead	Sol. Tap	Sol. Tap	Flex Lead	Flex Lead	
LENGTH OF TERMINAL	3"	3"	3"	3"	3"	
TUBE	Kraft	Kraft Fiber	Kraft Fiber	Kraft Fiber	Kraft Fiber	
LAYER INSULATION	3 Mil		2 Mil			
WRAPPER	2 Layers Kraft	1 Layer Kraft	2 Layers Kraft	2 Layers Kraft (Bk)	2 Layers Kraft	
TREATMENT	This is the Same as #6 except					
RESISTANCE	Fil (2) = 6.3Ω					

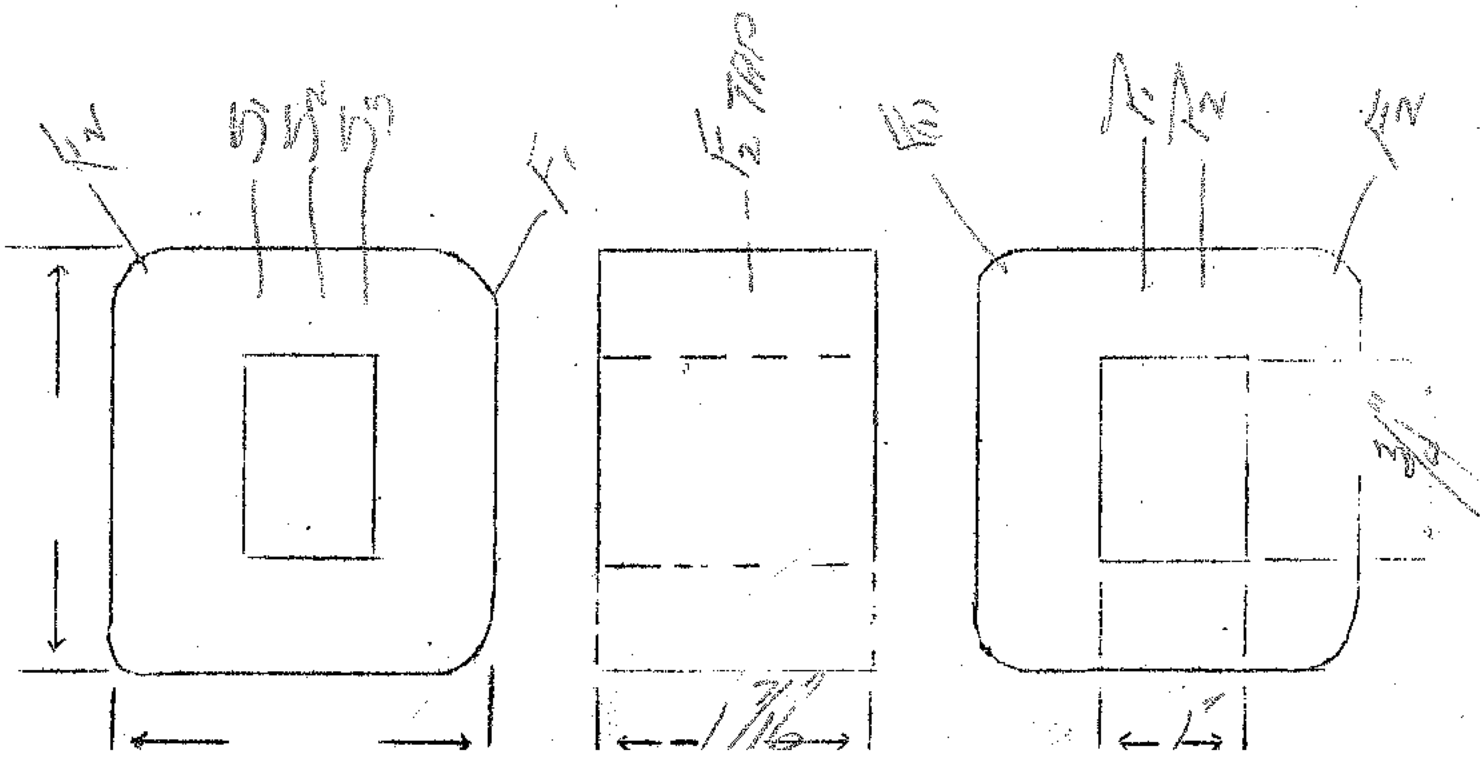


	Voltage	Current
Primary	115	
Secondary	1250	.850
Filament No. 1	5	3
Filament No. 2	25	3.25
Filament No. 3		

Specification No. 107

Type Transformer Power

	PRI	SEC	SEC	FIL (1)	FIL (2)	
TURNS	762	225	1600	36	18	
TAPS	NONE	None	2300	None	9	
LENGTH OF WINDING	1 3/16	1 3/16	1 3/16			
SIZE WIRE	28 E	32 E	32 E	21 E	18 E	
TURNS PER LAYER	77-10	210	210-23	36		
KIND OF TERMINAL	WIRE OUT	SAME	SAME	WIRE OUT	WIRE OUT	
LENGTH OF TERMINAL	9"	9"	3"	5"	3"	
TUBE	1.001					
LAYER INSULATION	340		340			
WRAPPER	2L003 VP	2L003 VP	2L003 GP	2L003 GP	2L003 GP	
TREATMENT	This is Pole Source as Above Except					
RESISTANCE	Sec = 660 ohms					



POWER TRANS.

117V. @ 60~

to

700V. C-T @ 90Ma.

5V. @ 3A

6.3V. C-T @ 3A

NEW STOCK

SPEC. NO. P-108

	1 - 2 - 3		4 - 5	6 - 7	8 - 9 - 10		
Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Turns	2350	1	370	17	22	Wind 8-9-10 first with 6-7 on it.	
Taps	1175	—	—	—	11		
Wind. Lgth.	1 3/8"	1 3/8"	1 3/8"	1 1/8"	1 1/8"		
Wire Size	#32	.001" Cu	#23	#18	#18	outside.	
T. P. L.	131 - 18L	1	53 - 7L	17 - 1L	22 - 1L		
Finish	84%	—	91 1/2%	63%	82%		
Type Lead	#22 Pulac	#26 T. C.	#22 P. B.	W. O. Sleeve	W. O. Sleeve		
Lead Lgth.	Cut 14"	3"	Cut 14"	Cut 14"	Cut 14"		
Layer Insul.	30#	—	50#	—	—		
Test Volt.	2500V.	—	1500V.	2000 V.	1500V.		
Wrapper	2L ILO Sch .005"K	1L ILO Sch .005"K	2L ILO Sch .010"Gp	1L ILO Sch .010"Gp	2L ILO Sch .010"GP		

TUBE 5L .010"GK + 1L .003"VP

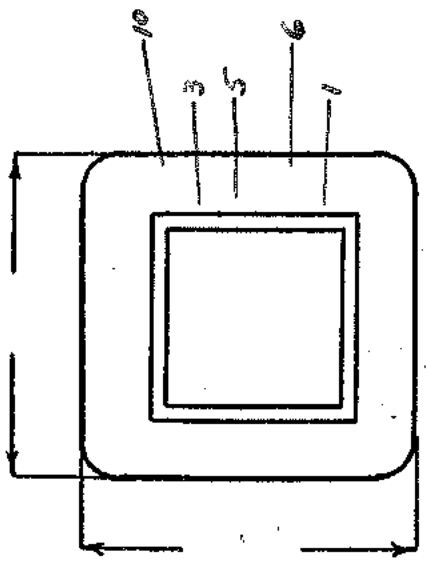
IMPREGNATION VARNISH

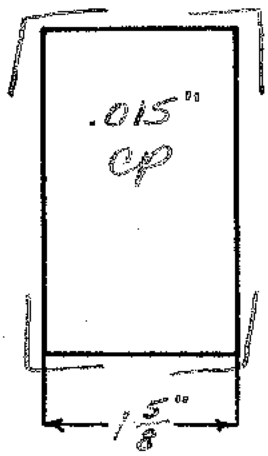
CORE 1 1/16 x 1 5/8 GA. 24 GRADE D STACK 2 x 2

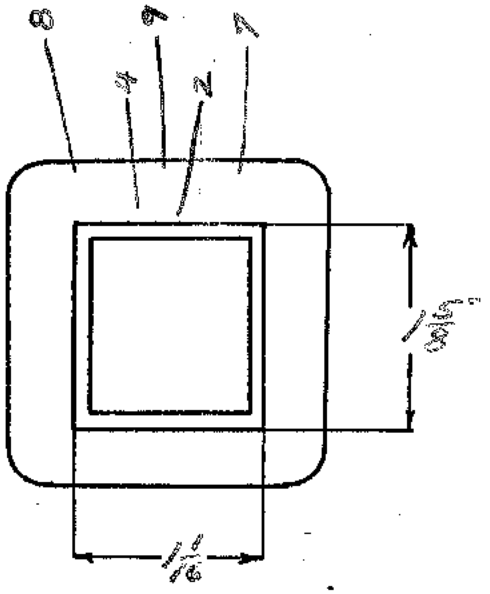
MOUNTING 4 - N - HS-16

Wt. = .465 (.455) ← 88%

T/V = 3.16







RE-DESIGNED BY WHH DATE 5-20-50

DESIGN AND TEST DATA

Rating: 117V. @ 60~
to
700V. C-T @ 90MA
5V. @ 3A.
6.3V. C-T @ 3A.

Sec. VA = 69
Pri. VA = 92.3
Pri. I = 0.79 Amp.

Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Mean Turn	6.36"	7.125"	7.68"	8.71"	9.05"		
Resistance 25° c	210Ω	—	0.38Ω	0.10Ω	0.14Ω		
Pounds Copper	0.25#	—	0.38#	0.08#	0.11#		
Copper Density	781	—	685	541	541		
Ratio Volts No-Load	743V CT	—	117V.	5.38V.	6.96V. C-T		
Test to Ground	2500V.	—	1500V	2000V	1500V		

Iron Induction 12.1 KG @ 60 Cycles 117V. on Primary.

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
8-9-10 Green

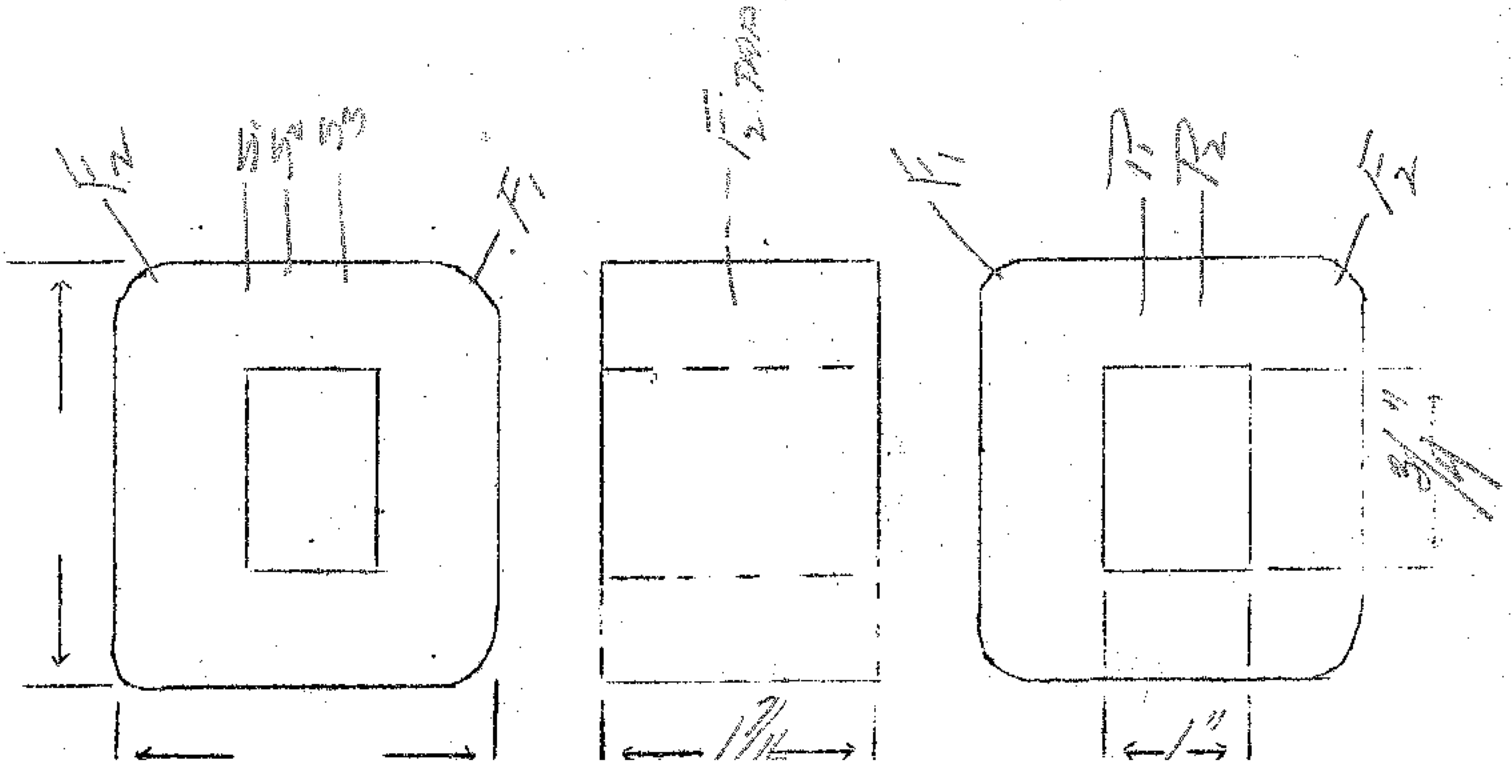
	Voltage	Current
Primary	115	
secondary	2500	.040
Filament No. 1	5	2
Filament No. 2	2.5	3.25
Filament No. 3		

No Load

Specification No. 105

Type Transformer

	PRI	W/FIL	SEC	F.1 W	F.1 B	
TURNS	762	225	4750	37	30	
TAPS	None	None	2375	None	10	
LENGTH OF WINDING	1 1/2	1 1/2	1 1/2			
SIZE WIRE	28 E	32 E	37 E	21 E	15 E	
TURNS PER LAYER	77-10	210-1	210-23	37	15	
KIND OF TERMINAL	Wire Out	S.T. Sp	S.T. Sp	Wire Out	Wire Out	
LENGTH OF TERMINAL	9"	9"	9"	9"	9"	
TUBE	2 x 2 F					
LAYER INSULATION	3 Mil		2 Mil			
WRAPPER	2L 003 YP	2L 003 YP	2L 005 GP	2L 005 GP	2L 005 GP	
TREATMENT						
RESISTANCE						



Power
117 V @ 50/60 ~ to
700 V ct @ 90 ma
5 V @ 3 a
6.3 V ct @ 3 a

OBSOLETE

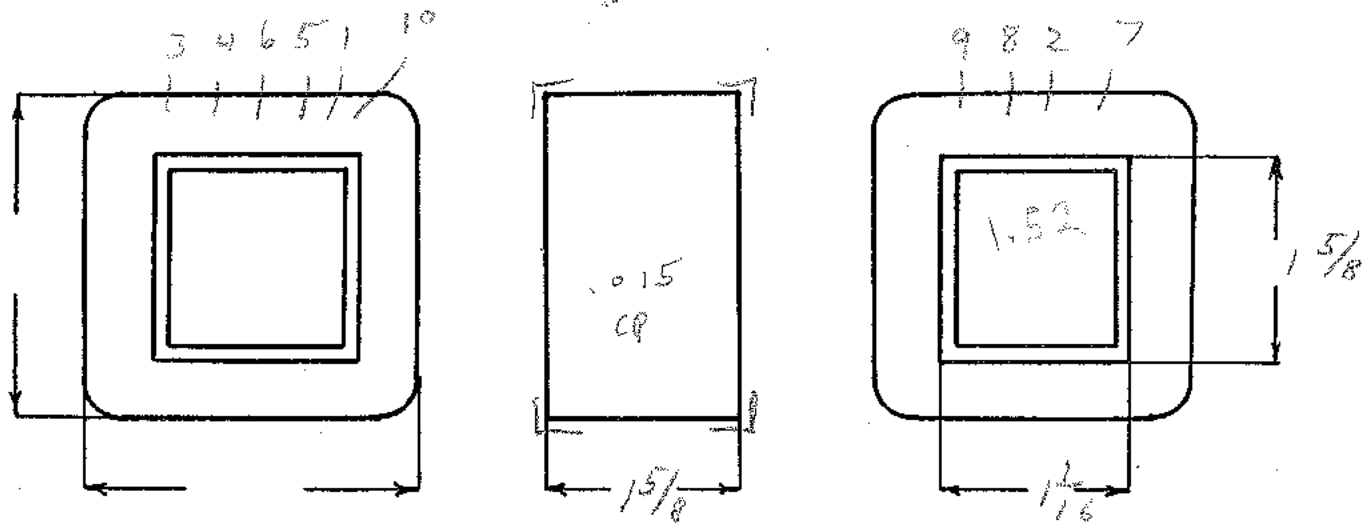
New Stock

SPEC. NO. P 105

Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil	8-9-10 Fil		
Turns	2800	1	434	21	26		
Taps	1400	—	—	—	13		
Wind. Lgth.	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8		
Wire Size	# 33	0.1 Cu	# 23	# 18	# 18		
T. P. L.	156-18L	—	54-9L	21-1L	26-1L		
Finish	89%	—	94%	64%	80%		
Type Lead	# 22 Bulac.	9 Blk.	# 22 P. B	W.O. sleeve			
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"			
Layer Insul.	Lap wind 20 #	—	50 #	—	—		
Test Volt.	2500	—	1500	2500	1500		
Wrapper	2L005VC	1L005VC	2L007A	2L007A	2L005A		

TUBE	5L010 CK + 1L003VC		IMPREGNATION	Varnish	
CORE	1 1/16 x 1 5/8	GA. 24	GRADE D	STACK 2 x 2	
MOUNTING	D, N, H, I, L				

Wt = 86 %



DESIGNED BY S. Babcock

DATE 4-15-49

DESIGN AND TEST DATA

Rating: $I_{50} .9 \times 90 = 81$ ma.

Sec VA = 78.4
Pri VA = 102.
I_p = 872 ma

Winding	Sec	Sh	Pri	Fil	Fil		
Mean Turn	6.39		7.71	8.94	9.36		
Resistance 25° c	3150		583	.101	.131		
Pounds Copper	.23		.44	.0795	.101		
Copper Density	618		583	542	542		
Ratio Volts	709	—	117	5.17	6.37		
Test to Ground	2500	—	1500	2500	1500		

Iron Induction 12.5K @ 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 - 10 Green

POWER
117V. @ 60~
to
700 V. C-T @ 90 MA
5V. @ 3A.
6.3V. CT @ 3A.

NEW STOCK

SPEC. NO. P-108

Winding	1-2-3 SEC.	SHIELD	4-5 PRI.	6-7 FIL. #1	8-9-10 FIL. #2		
Turns	2350	1	370	17 SPF	22 CT		
Taps	1175	—	—	—	11		
Wind. Lgth.	1 3/8"	1 3/8"	1 3/8"	1 1/8"	1 1/8"		
Wire Size	#32	.001" Cu	#23	#18	#18		
T. P. L.	131 - 18L	1	55 - 7L	17 1L	22 - 1L		
Finish	84%	—	91 1/2%	63%	82%		
Type Lead	#22 ZOLAC	#26 T.C.	#22 P.B.	W. O. SLEEVE	W. O. SLEEVE		
Lead Lgth.	CUT 14"	3"	CUT 14"	CUT 14"	CUT 14"		
Layer Insul.	30#	—	50#	—	—		
Test Volt.	2500V	—	1500V	2000V	1500V		
Wrapper	2L .005"VC	1L .005"VC	1L .010"CP	1L .010"CP	2L .007"GA		

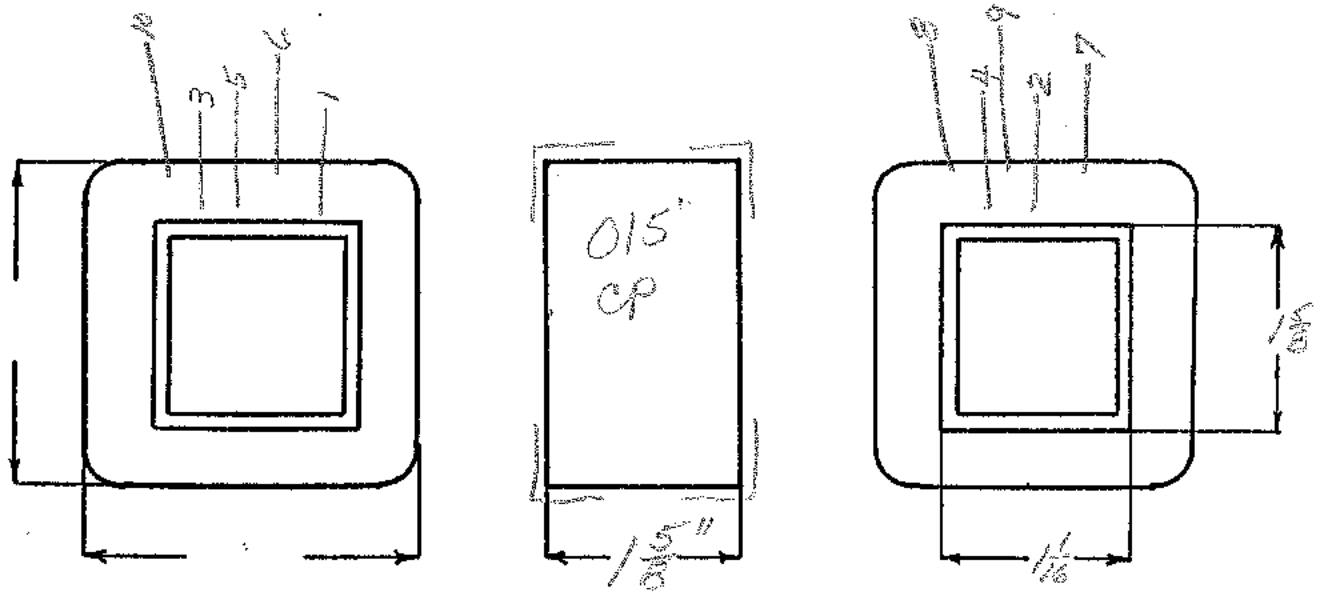
TUBE 5L .010"GK + 1L .005"VP | IMPREGNATION VARNISH

CORE 1/2 x 1 5/8 | GA. 24 | GRADE D | STACK 2x2 .500

MOUNTING A, N, HS-16

WN = .965" (.465)

TN = 3.16



RE-DESIGNED BY [illegible]

DATE 5-20-50

DESIGN AND TEST DATA

Rating: 117V. @ 60~
to
760V. C.T. @ 90 Ma.
5V. @ 3A.
6.3V. C.T. @ 3A.

Sec. I = 0.9 × 90 = 81 Ma. rms.

Σ Sec. VA = 69
Pri. VA = 92.3
Pri. I = 0.79 Amp.

Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Mean Turn	6.36"		7.68"	8.71"	9.05"		
Resistance 25° c	210Ω		491	.10Ω	.14Ω		
Pounds Copper	0.25#		.38#	.08#	.11#		
Copper Density	781	—	645	541	541		
Ratio Volts Primary Secondary	743 760	—	117V. 117	5.38V. 4.90	6.96V. 6.31		
Test to Ground	2500V	—	1500V	2000V.	1500V		

Iron Induction 12.1 KG @ 60 Cycles 117 V. on Primary

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

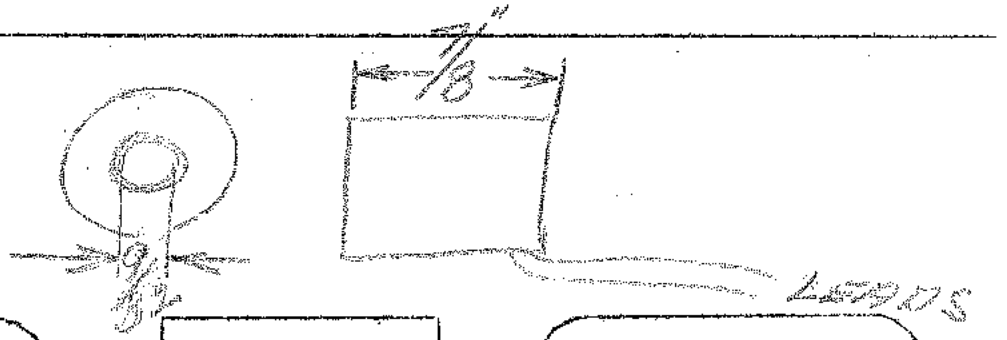
8-9-10 Green

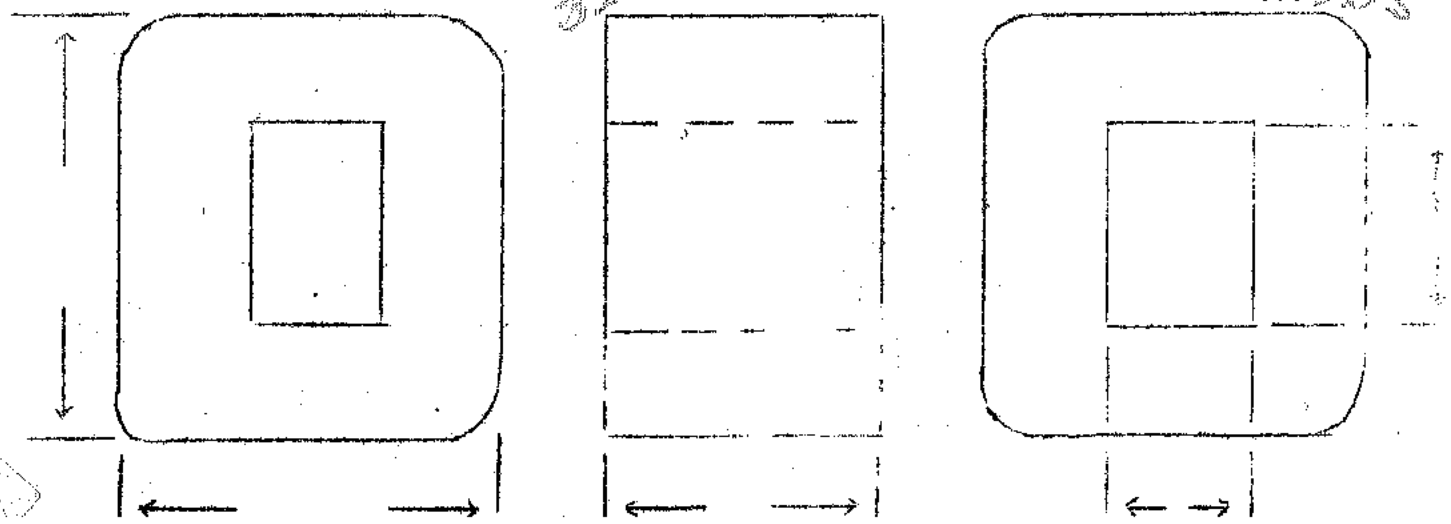
	Voltage	Current
Primary		
secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 109

Type Transformer Choke

TURNS	20000					
TAPS	None					
LENGTH OF WINDING	695					
SIZE WIRE	#42					
TURNS PER LAYER	190					
KIND OF TERMINAL	6"					
LENGTH OF TERMINAL	5½" Each Wire		Inside - Red Outside - Black			
TUBE	#207					
LAYER INSULATION	H.C.					
WRAPPER	H.C. #5					
TREATMENT	V.P.I.					
RESISTANCE						





POWER TRANS.
117V. @ 60~
to
700V.C.T @ 120Ma
5V. @ 3A.
6.3V. C.T @ 4.8A.

NEW STOCK

SPEC. NO. P-110

Winding	1-2-3 SEC.	SHIELD	4-5 PRI.	6-7 FIL.#1	8-9-10 FIL.#2		
Turns	2340	1	370	17	22		
Taps	1170	—	—	—	11		
Wind. Lgth.	1¾	1¾	1¾	1⅜	1⅜		
Wire Size	#31	.001" Cu	#21	#19	#17		
T. P. L.	147-16L	1	53-7L	17-1L	22-1L		
Finish	81½%	—	90½%	46½%	75%		
Type Lead	#22 DULAC	—	#20 P.B.	W.O. SLEEVE	W.O. SLEEVE		
Lead Lgth.	CUT 15"	3"	CUT 15"	CUT 14"	CUT 14"		
Layer Insul.	30#	—	50#	—	—		
Test Volt.	2500V	—	1500V	2000V	1500V		
Wrapper	2L .005"VC	1L .005"VC	1L .010"CP	1L .010"CP	2L .007"GA		

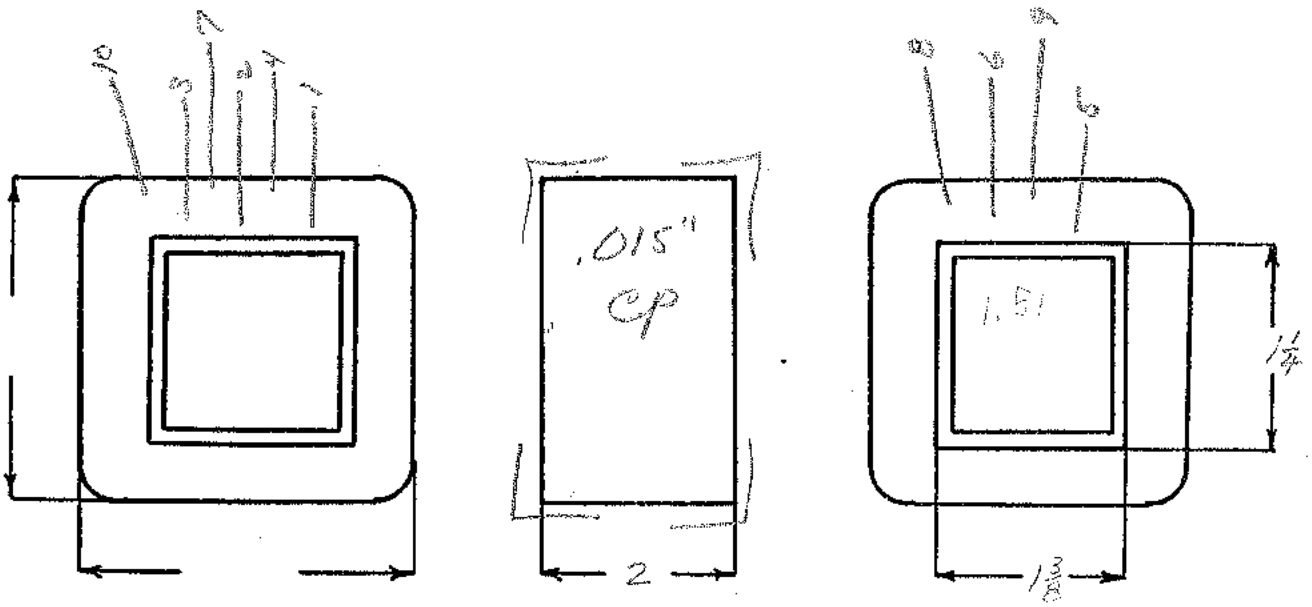
TUBE 6L .016"GK + 1L .003"VP | IMPREGNATION VARNISH

CORE 1¾ × 1¾ GA. 24 GRADE D STACK 2 × 2

MOUNTING A, N, HS-18

WIN = .494 (.492) — 90%

T/N = 3.16



RE-DESIGNED BY HHH

DATE 5-19-50

DESIGN AND TEST DATA

Rating: Power
117V. @ 66W
700V. CT @ 120MA
5V. @ 3A
6.3V. CT @ 4.3A

$I_s = 0.9 \times 120 = 108$ MA.

Eff. ≅ .85
P.F. ≅ .90

Σ Sec. VA = 91.9
Pri. VA = 120
Pri. I = 1.12 Amp.

Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Mean Turn	6.22"		7.65"	8.81"	9.14"		
Resistance 25° c	163Ω	—	3.12Ω	0.12Ω	0.106Ω		
Pounds Copper	0.30#	—	0.60#	.06#	.13#		
Copper Density	738	—	723	429	427		
Ratio Volts No Load / Loaded	740V. / 700	—	117V. / 117	5.39V. / 4.86	6.96V. / 6.29		
Test to Ground	2500V	—	1540V	2,050V	1500V		

Iron Induction 12.15 KG @ 60 Cycles 117V. on Pri.

Exciting Current 300 mils amperes @ 117 volts 60 cycles on Pri

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

Remarks:

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

POWER TRANS.
117 V. @ 60~
to
700 V. C-T @ 120MA
5V. @ 3A.
6.3V. C-T @ 4.8A.

NEW STOCK

SPEC. NO. P 110

Winding	1 - 2 - 3 Sec.	Shield	4 - 5 Pri.	6 - 7 Fil. #1	8 - 9 - 10 Fil. #2		
Turns	2340	1	370	17	22		
Taps	1170	—	—	—	11		
Wind. Lgth.	$1\frac{3}{4}$"	$1\frac{3}{4}$"	$1\frac{1}{4}$"	$1\frac{3}{8}$"	$1\frac{3}{8}$"		
Wire Size	#31	.001" Cu	#21	#19	#17		
T. P. L.	147 - 16L	1	53 - 7L	17 - 1L	22 - 1L		
Finish	$81\frac{1}{2}$%	—	$90\frac{1}{2}$%	$46\frac{1}{2}$%	75%		
Type Lead	#22 Pulac	#26 T.C.	#20 P.B.	W. O. Sleeve	W. O. Sleeve		
Lead Lgth.	Cut 15"	3"	Cut 15"	Cut 14"	Cut 14"		
Layer Insul.	30#	—	30#	—	—		
Test Volt.	2500 V.	—	1500 V.	2,000 V	1500 V		
Wrapper	~~#~~ 2L .003 CA .005 VC 1L 60#	~~#~~ 1L .003 CA .005 VC 1L 60#	1L .001 CA .010" CP 1L .001 GA.	2L .001 CA. 1L .010" CP	2L .001" GA		

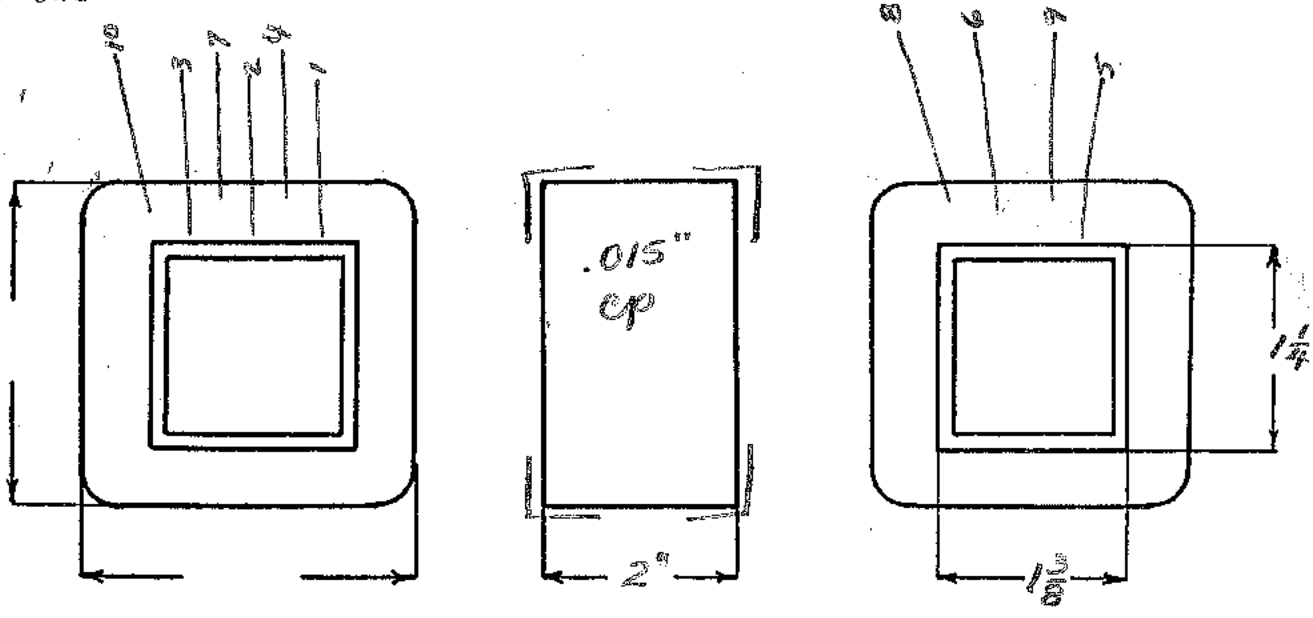
TUBE	5L .010" GK + ~~1L .003" VP~~ 1L .003 CA	IMPREGNATION	VARNISH

CORE $1\frac{3}{8}$ x $1\frac{1}{4}$ GA. 24 GRADE D STACK 2 x 2

MOUNTING A, N, HS-18

WN = .494 (.492) ← 70%

T/V = 3.16



RE-DESIGNED BY H.P.H.

DATE 5-19-50

DESIGN AND TEST DATA

Rating: Power
117 V. @ 60 ~
&
700 V. C-T @ 120 Ma.
5 V. @ 3 A.
6.3 V. C-T @ 4.8 A.

Pri. I = 1.12 Amp.

Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Mean Turn	6.22"		7.65"	8.81"	9.14"		
Resistance 25° c	163 Ω	—	3.12 Ω	0.12 Ω	0.106 Ω		
Pounds Copper	0.30 #	—	0.60 #	0.06 #	0.13 #		
Copper Density	738	—	723	429	427		
Ratio Volts No-Load	740 V.	—	117 V.	5.37 V.	6.76 V.		
Test to Ground	2500 V.	—	1500 V.	2,000 V.	1500 V.		

Iron Induction 12.15 KG @ 60 Cycles 117 V. on Pri.

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 - 10 Green

Type Transformer CHOKE

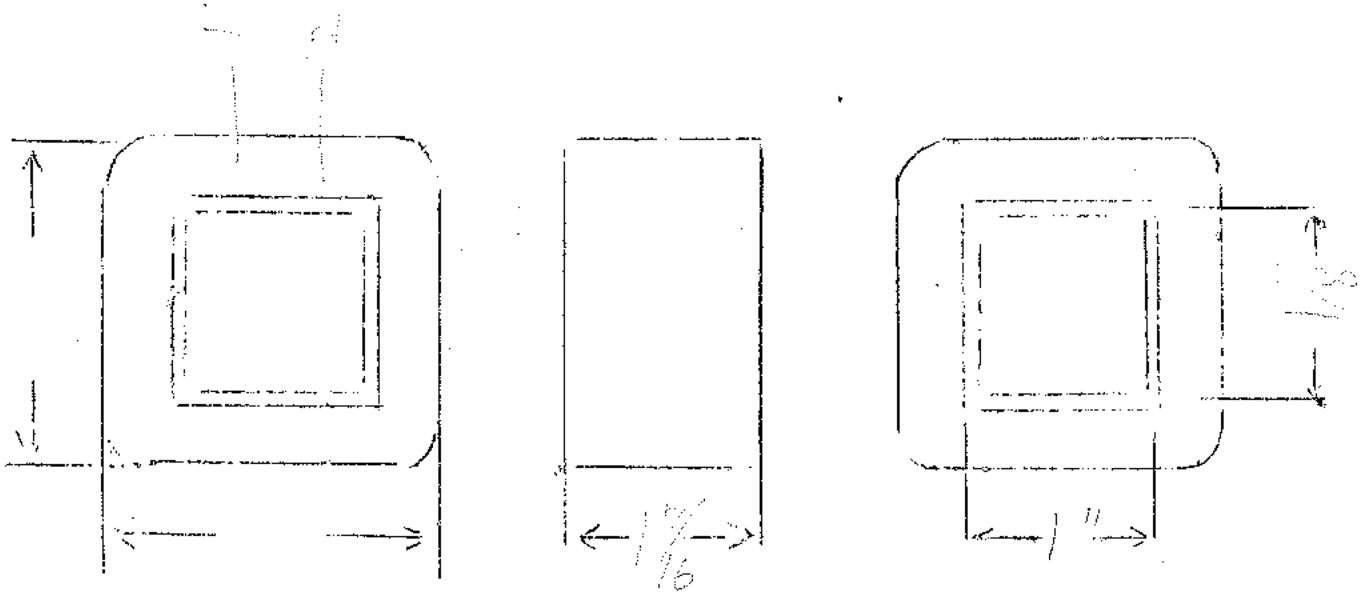
Specification No. 110

SPEC. NO. 110

Winding							
Turns	2325						
Taps	NONE						
Wind. Lgth.	1/4						
Wire Size	29E						
T.P.L.	90						
Kind Term.	WIRE ENAM						
Term. Lgth.	3"						
Layer Insul.	20lb.GL.						
Wrapper	2 LAYERS GA						

TUBE | 4L05 | IMPREGNATION |

CURE |



Power

117 V @ 50/60 ~ Hz

700 V ct @ 120 ma

5 V @ 3 a

6.3 V ct @ 4.8 a.

OBSOLETE New Stock

SPEC. NO. P 110

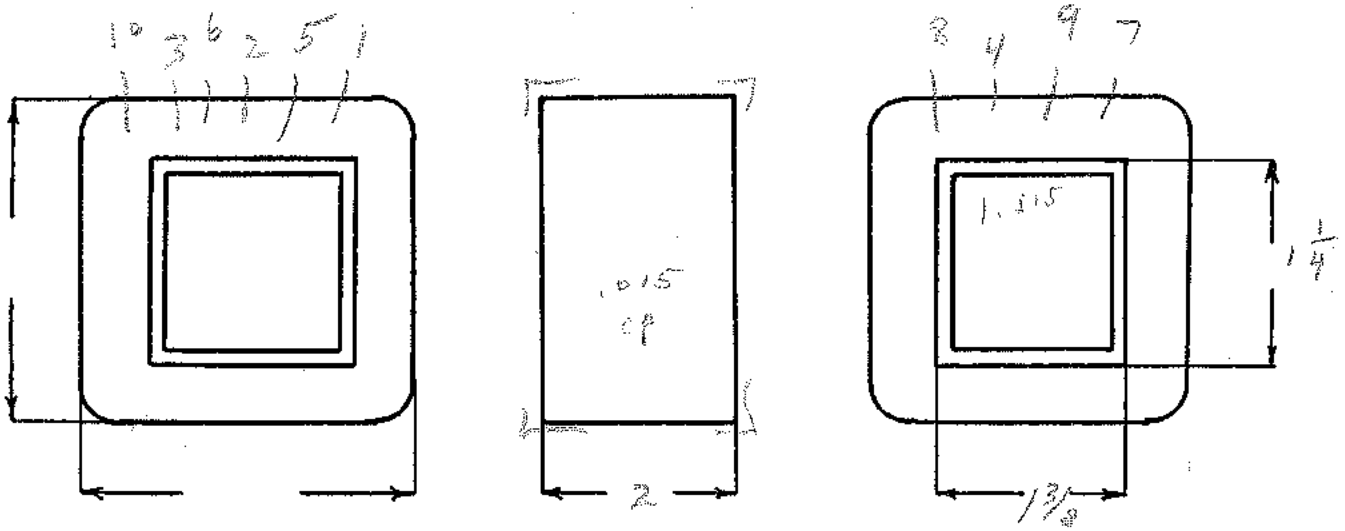
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 F.L.	8-9-10 F.L.		
Turns	2760	1	425	20	26		
Taps	1380	—	—	—	13		
Wind. Lgth.	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4		
Wire Size	#32	coil ln.	#22	#18	#16		
T. P. L.	173-1L	—	61-7L	20-11	26-1L		
Finish	87%	—	93%	98%	78%		
Type Lead	#22 Dulac	5:1 Br.	#20 P.B	W.O. sleeve	W.O. sleeve		
Lead Lgth.	cut 12"	3"	cut 15"	cut 14"	cut 14"		
Layer Insul.	30 #	—	5 0 #	—	—		
Test Volt.	2500	—	1500	2500	1500		
Wrapper	2 Laps VC	1 Lap VC	2 Laps TH	2 Laps TH	2 Laps Gum.		

TUBE 5 Laps BK + 1 Lap VC IMPREGNATION Varnish

CORE 1 3/8 x 1 1/4 GA. 24 GRADE D STACK 2 x 2

MOUNTING A.N. HS 12

W = 3 3/4



DESIGNED BY S. Babcock DATE 4-21-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 120 = 108$ ma.

Sec VA = 104.6
Pri VA = 134
$I_p = 1.15$ a.

Winding	Sec.	Shield	Pri.	Fil.	Fil.		
Mean Turn	6.26		7.77	8.71	9.17		
Resistance 25° c	2.40		4.52	.095	.098		
Pounds Copper	.281		.542	.0725	.115		
Copper Density	586		558	542	538		
Ratio Volts	700		117	4.97	6.35		
Test to Ground	2500		1500	2500	2500		

Iron Induction 12.7 kg @ 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 Brown

6 - 7 Yellow

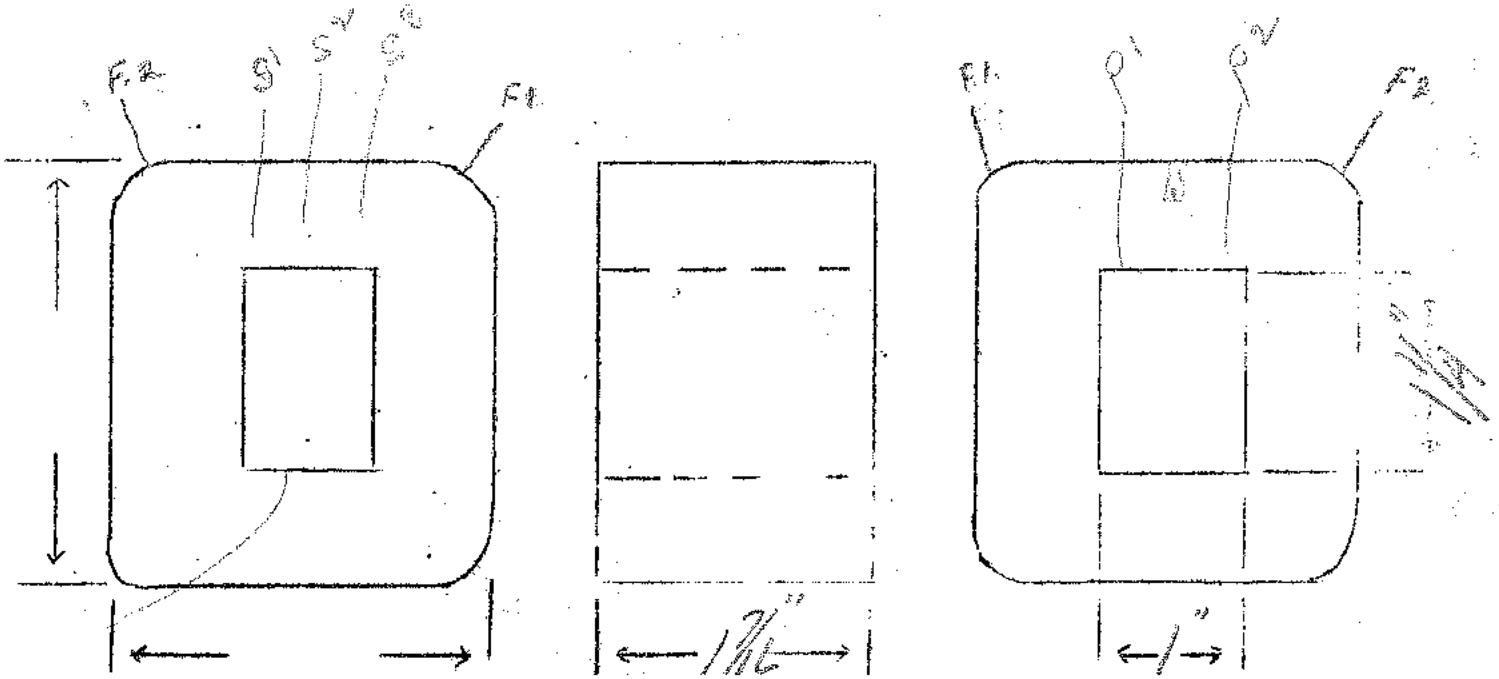
5 - 8 - 10 -

	Voltage	Current
Primary	220	
secondary	220	
Filament No. 1	6.	
Filament No. 2	5.	
Filament No. 3		

Specification No. 121

Type Transformer

	PRI	Shunt	Sec	FIL (1)	FIL (2)	
TURNS	993	180	3250	32	26	
TAPS	None	None	1625	No	None	
LENGTH OF WINDING	1"	1"	1"			
SIZE WIRE	28 E	35 E	35 E	21 E	21 E	
TURNS PER LAYER	83-12	180-1	180-19			
KIND OF TERMINAL	No 20 Tin	Cu	No 20 Tin			
LENGTH OF TERMINAL	10"	3"	10"			
TUBE	Hard					
LAYER INSULATION	Wax C		Wax C			
WRAPPER	21003 KS	21003 KS	21005 6K	21005 6K	21005 6K	
TREATMENT						
RESISTANCE						



POWER TRANS.
117V. @ 60~
&
750V. CT @ 150 MA.
5V. @ 3A.
6.3V. CT @ 5.5 A.

NEW STOCK

SPEC. NO. P 112

	1-2-3		4-5	6-7	8-9-10		
Winding	SEC.	SHIELD	PRI.	FIL. #1	FIL. #2		
Turns	2060	1	303	14	18		
Taps	1030	—	—	—	9		
Wind. Lgth.	$1\frac{11}{16}$"	$1\frac{11}{16}$"	$1\frac{11}{16}$"	$1\frac{1}{4}$"	$1\frac{1}{4}$"		
Wire Size	#30	.001" Cu.	#21	#19	#16		
T. P. L.	129 - 16L	1	51 - 6L	14 - 1L	18 - 1L		
Finish	$83\frac{1}{2}$%	—	$90\frac{1}{2}$%	42%	76%		
Type Lead	#22 DULAC	#26 T.C.	#20 P.B.	W. O. SLEEVE	W. O. SLEEVE		
Lead Lgth.	CUT 14"	3"	CUT 14"	CUT 14"	CUT 14"		
Layer Insul.	30#	—	60#	—	—		
Test Volt.	2500V	—	1500 V	2000 V	1500 V		
Wrapper	2L .003 CA 2L .005 GK 1L 60#	1L .003 CA 1L .005 GK 1L 60#	1L .010" CP	1L .010" CP	2L .007" GR		

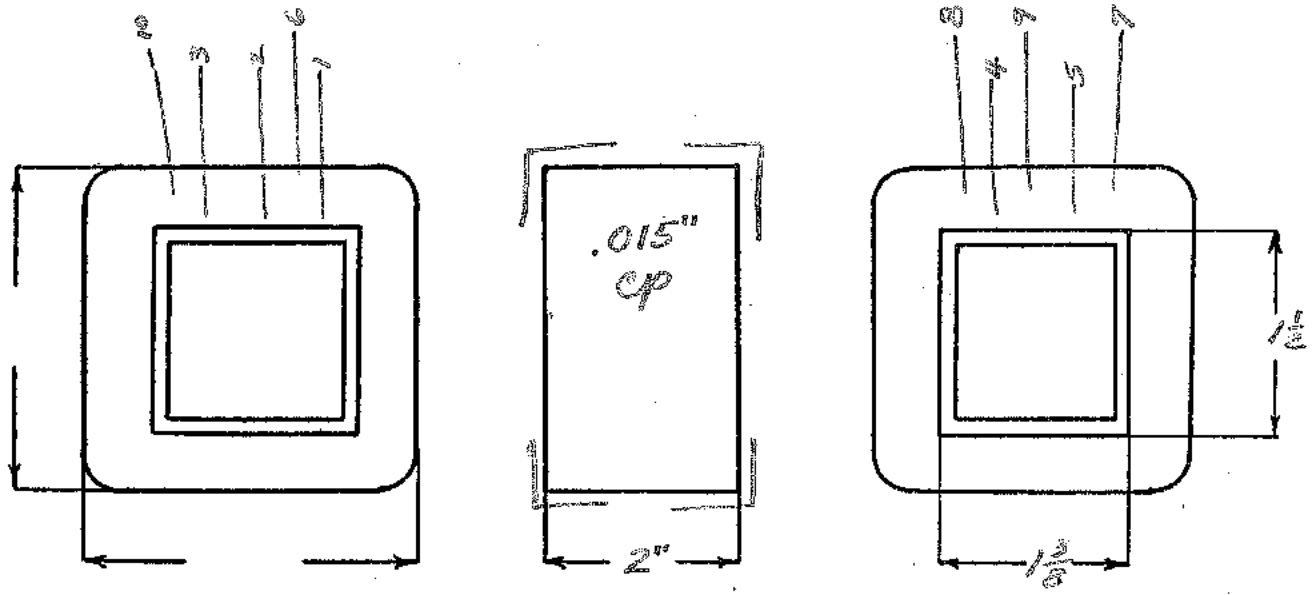
TUBE	5L .010" GK + 1L .003" VP 1L .003 CA	IMPREGNATION	VARNISH

CORE $1\frac{3}{8} \times 1\frac{1}{2}$ GA. 24 GRADE D STACK 2 × 2

MOUNTING A, N, HS-18

WN = .494 (.495) ~~90%~~ 87%

T/V = 2.59



RE-DESIGNED BY H.H.H. DATE 5-19-50

DESIGN AND TEST DATA

Rating: 115V. @ 60~
&
750V. c-t @ 150Ma.
5V. @ 3A.
6.3V. c-t @ 5.5A.

Σ Sec. VA = 112.
Pri. VA = 146
Pri. I = 1.27A.

Winding	Sec.	Shield	Pri.	Fil. #1	Fil. #2		
Mean Turn	6.77"		8.17"	9.70"	10.70"		
Resistance 25° c	123Ω	—	2.93Ω	0.113Ω	0.084Ω		
Pounds Copper	0.36#	—	0.50#	0.054#	0.163#		
Copper Density	744	—	638	429	470		
Ratio Volts No-load	795V. c-t	—	117V.	5.4 V.	6.85V. c-t		
Test to Ground	2500 V.	—	1500 V.	2,000V.	1500V.		

Iron Induction 12.2 KG @ 60 Cycles 117 V. on Pri.

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 - 10 Green

Power
117V. @ 60~
to
750 V. CT @ 150 Ma
5V @ 3A.
6.3V CT @ 5.5A.

New Stock

SPEC. NO. P112

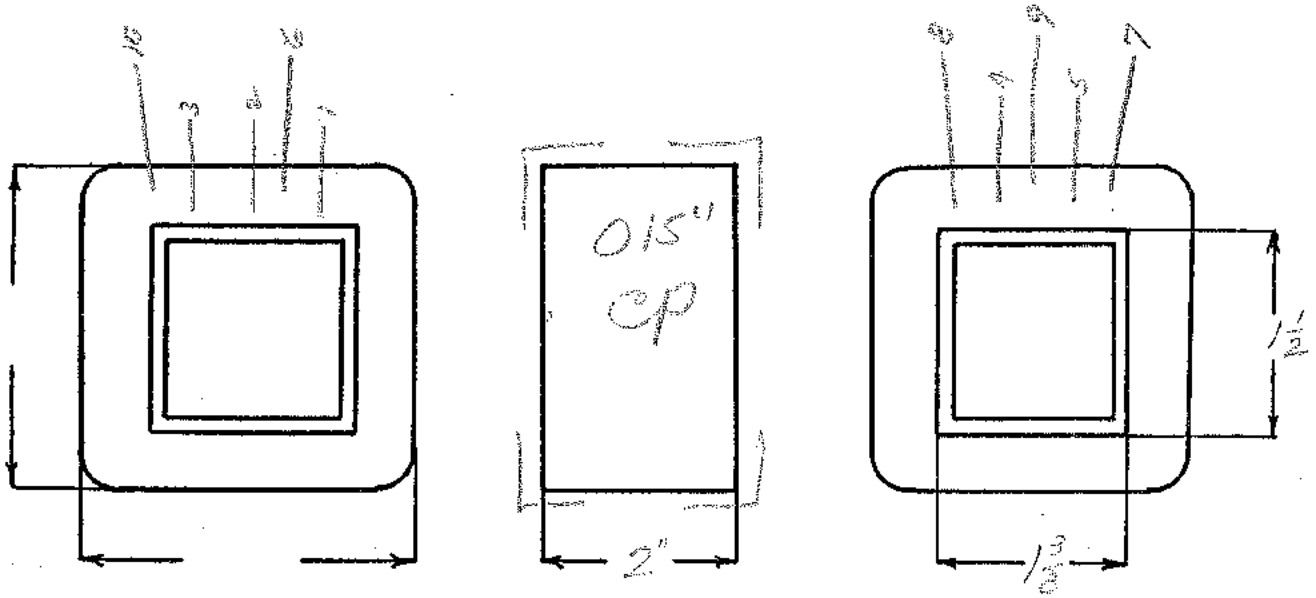
Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7 Fil. #1	8-9-10 Fil. #2		
Turns	2060	1	303	14	18		
Taps	1030	—	—	—	9		
Wind. Lgth.	1 11/16"	1 11/16"	1 11/16"	1 1/4"	1 1/4"		
Wire Size	#30	.001" Cl.	#21	#19	#16		
T. P. L.	129 - 161	1	51 - 64	14 - 17	18 - 22		
Finish	83 1/2%	—	90 1/2%	42%	76%		
Type Lead	#23 Solid	Str. Bk.	#20 P.B.	W. O. Sleeve	W. O. Sleeve		
Lead Lgth.	Cut 14"	3"	Cut 14"	Cut 14"	Cut 14"		
Layer Insul.	30#	—	50#	—	—		
Test Volt.	2500V	—	1500V	2000V	1500V		
Wrapper	2 L .005"VC	1 L .005"VC	1 L .010"CP	1 L .010"CP	2 L .007"GH		

TUBE	5 L .010"GK + 1 L .003"VP	IMPREGNATION	VARNISH

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

MOUNTING A, N, HS-18

WW = .494 (.495) ← 90%
T/N = 2.59



RE-DESIGNED BY [illegible] DATE 5-19-50

DESIGN AND TEST DATA

Rating: 115V @ 60 cy
to
750 V. CT @ 150 MA
5V @ 3A
6.3V CT @ 5A

Sec. I = 0.9 × .150 = .130 AMP RMS

Σ Sec. VA = 112
Pri. VA = 146
Pri. I = 1.27 AMP

Winding	Sec.	Shield	Pri.	Fil #1	Fil #2		
Mean Turn	6.77"		8.17"	9.21"	9.57"		
Resistance 25° c	123Ω		2.73Ω	.102Ω	.075Ω		
Pounds Copper	0.36#		0.50#	.051#	.116#		
Copper Density	744	—	638	429	470		
Ratio Volts No-load / Load	795 V. 750	—	117 V. 110	5.40 V 4.94	6.95 V 6.33		
Test to Ground	2500 V.	—	1500 V	2000 V	1500 V		

Iron Induction 12.2 KG @ 60 Cycles 117 V. on Pri.

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 – 10 GREEN

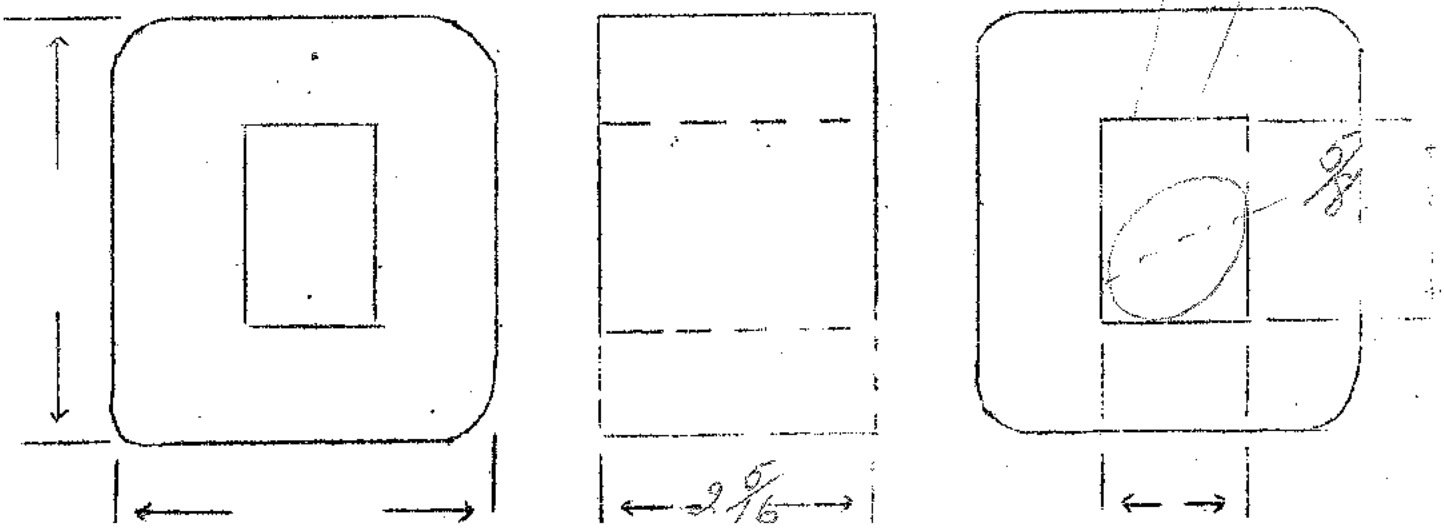
	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 112

Type Transformer SILENOID

Vacuum — 2 2 ~

TURNS	6500					
TAPS	NONE					
LENGTH OF WINDING	2 1/2					
SIZE WIRE	30 E					
TURNS PER LAYER	182					
KIND OF TERMINAL	P.B.					
LENGTH OF TERMINAL	8 IN.					
TUBE	FIBRE					
LAYER INSULATION	30 L.B.					
WRAPPER						
TREATMENT						
RESISTANCE						



Power

117 V @ 50/60 cy. to
750 V ct @ 150 ma
5 V @ 3 a.
6.3 V Ct @ 5.5 a.

New Stock

OBSOLETE

SPEC. NO. P112

Winding	1-2-3 Sec.	Shield	4-5 Pri.	6-7 Fil.	8-9-10 Fil.		
Turns	2600	1	370	17	22		
Taps	1300	—	—	—	11		
Wind. Lgth.	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4		
Wire Size	#31	.001 Cu.	#21	#18	#15		
T. P. L.	163-162	—	53-74	17-11	22-11		
Finish	90%	—	90%	45%	70%		
Type Lead	#22 DWLag	Sil. Br.	#20 E	W.O. Sleeve	W.O. Sleeve		
Lead Lgth.	cut 14"	3"	cut 14"	cut 14"	cut 14"		
Layer Insul.	30#	—	50#	—	—		
Test Volt.	2500	—	1500	2000	1500		
Wrapper	1L007VG 1L005VC	1L005VC	2L007VA	2L007VA	2L007VA		

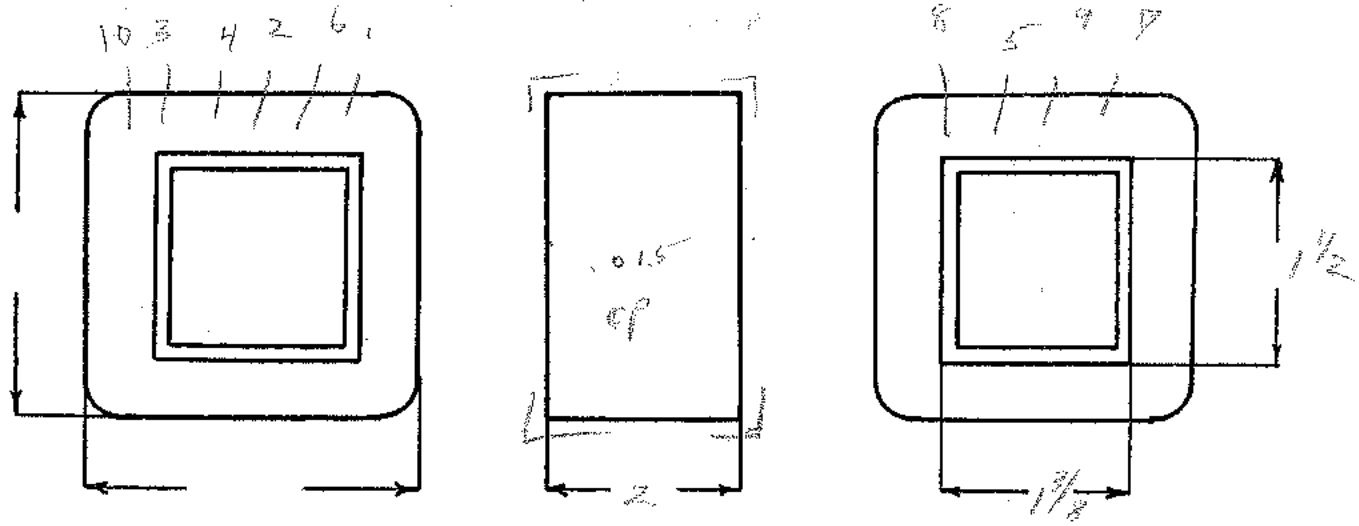
TUBE 5L010CK + 1L003VP

IMPREGNATION Varnish

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

MOUNTING A, N, HS 15

90%



DESIGNED BY S. Babcock

DATE 2-16-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times .50 = .135$ amps

Sec VA = 129

Prim VA = 167

$I_p = 1.43$ a.

Winding	Sec		Pri.	Fil	Fil		
Mean Turn	6.80		5.92	7.53	7.97		
Resistance 25° c	195		3.39	.098	.0595		
Pounds Copper	.362		.641	.0813	.182		
Copper Density	590		566	572	591		
Ratio Volts	750		117	5.08	6.23		
Test to Ground	2500		1500	3000	1500		

Iron Induction 12 Kg. @ 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 – 10 Green

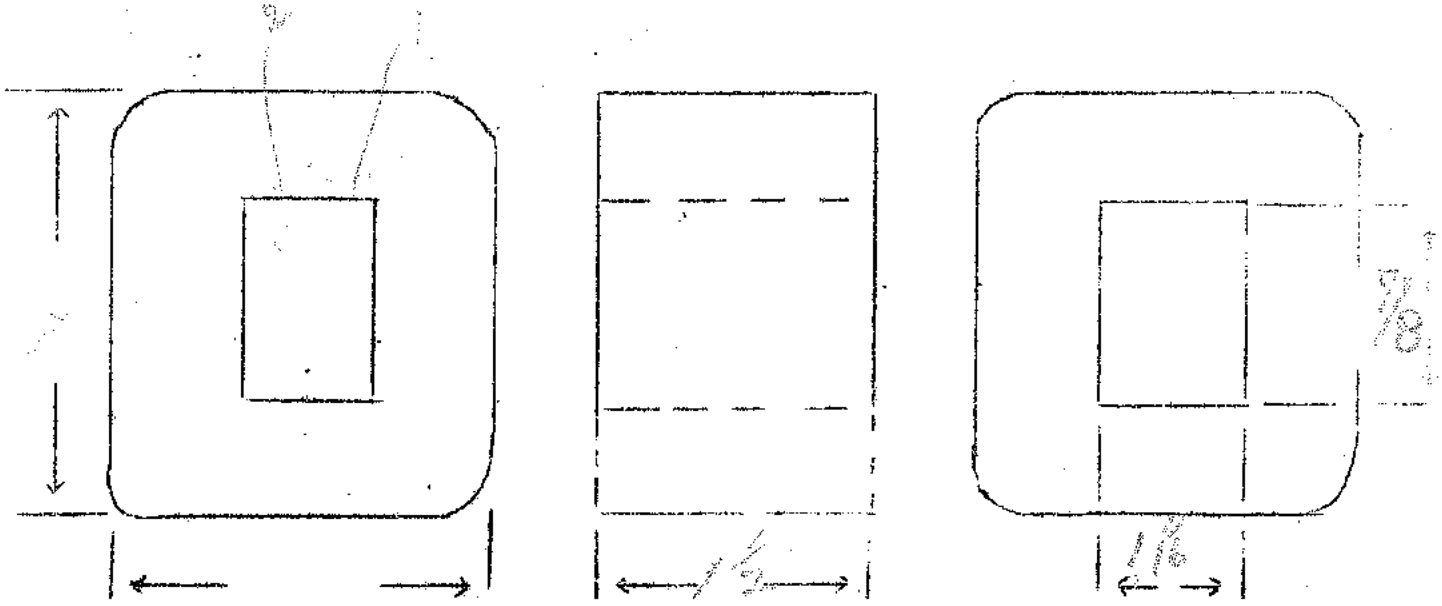
	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 113

Type Transformer

Watts 80 @ 25 cy

TURNS	1450					
TAPS	—					
LENGTH OF WINDING	1¼					
SIZE WIRE	28 E					
TURNS PER LAYER	84					
KIND OF TERMINAL	PAR. E.					
LENGTH OF TERMINAL	6 in.					
TUBE	½ LAYER					
LAYER INSULATION	3040					
WRAPPER	2 LAYERS 200 G.L.					
TREATMENT	PRE HEAT & VARNISH					
RESISTANCE						



Power
117 V @ 50/60 ~ to
800 V ct @ 200 ma
5 V @ 2 a
6.3 V ct @ 6 a

New Stock

OBSOLETE

SPEC. NO. P-114

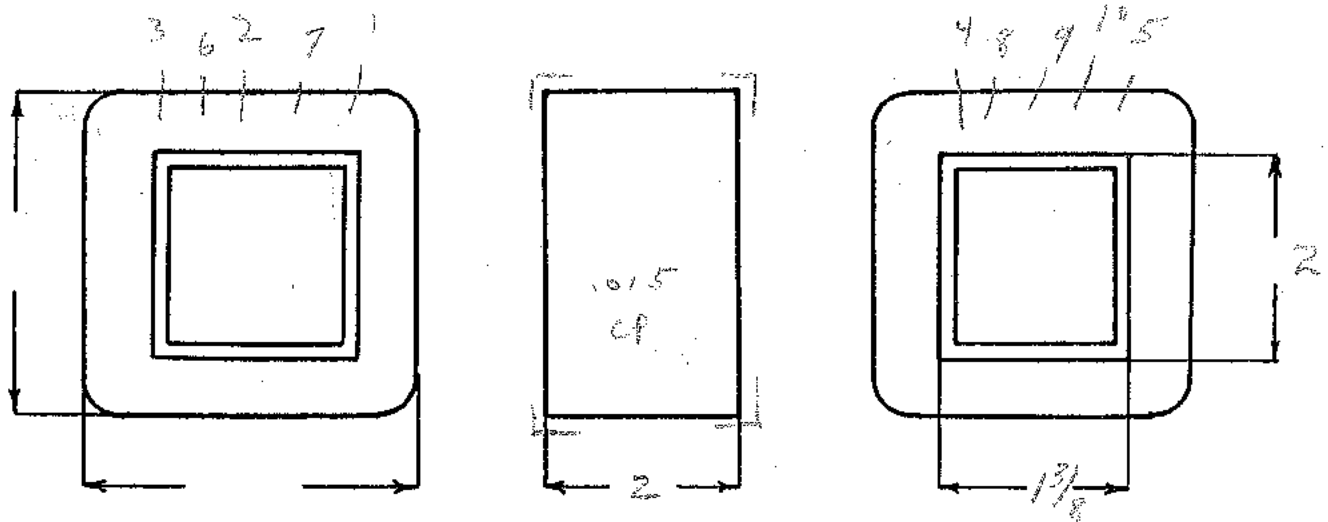
Winding	1-2-3 Sec	Shield	4-5 Pri.	6-7 F.L #1	8-9-10 F.L. #2		
Turns	2160	1	294	14	18		
Taps	1080	—	—	—	9		
Wind. Lgth.	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4		
Wire Size	#30	.001 Cu.	#20	#18	#15		
T. P. L.	135 - MIL	—	49 - 6L	14 - 1/2L	18 - 2/3L		
Finish	89%	—	94%	100%	91%		
Type Lead	#22 Stranded	S.L. Blk	#18 P.E.	S.E. Sleeve			
Lead Lgth.	cut 15"	2"	cut 15"	cut	14"		
Layer Insul.	1 of Wax 20#	—	50#	—	—		
Test Volt.	2500	—	1500 ~	2500	1500 ~		
Wrapper	2L005VC	1L005VC	2L007VA	2L007VA	—		

TUBE 5L010 GK + 1L003VP IMPREGNATION Varnish 56

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

MOUNTING A, N, HSM

Eff = 94%



DESIGNED BY S. Babcock

DATE 4-16-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 200 = 180$ ma

Sec VA = 1
Pri VA = 2
$I_p = 1.79$ a

Winding	Sec	SL.	Pri	Fil.	Fil.		
Mean Turn	7.86		9.49	10.53	10.60		
Resistance 25° c	149		2.41	.08	.0517		
Pounds Copper	.458		.93	.061	.158		
Copper Density	538		572	542	543		
Ratio Volts	801		117	5.12	6.57		
Test to Ground	2500	—	1500	2500	1500		

Iron Induction 12 Kg @ 60 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

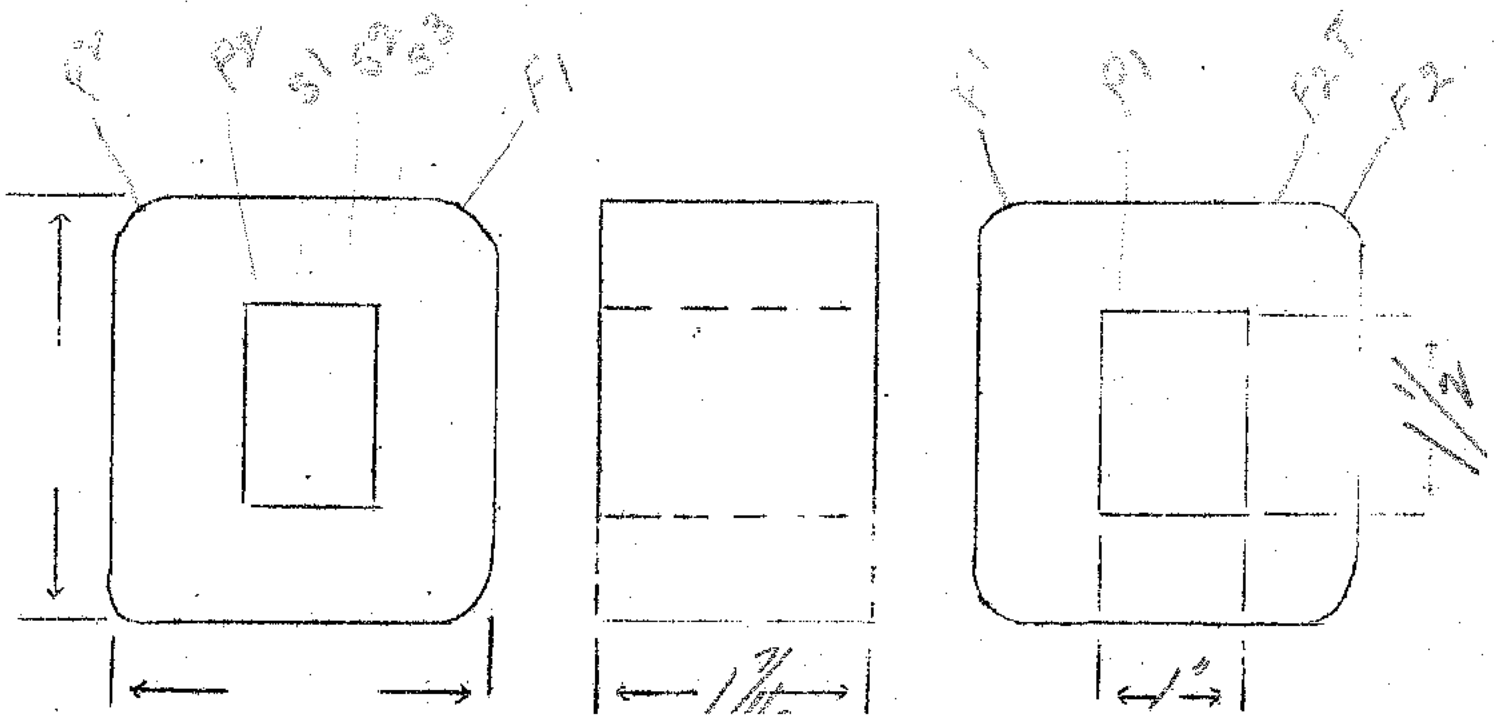
8 - 9 - 10 Green

	Voltage	Current
Primary	230	
Secondary	600	960 6.5
Filament No. 1	5	2
Filament No. 2	2.5	5
Filament No. 3		

Specification No. 114

Type Transformer

	Pri	Sec	Sec	F/W	F/W	
TURNS	840	160	2380	20	10	
TAPS	None	None	1175	None	5	
LENGTH OF WINDING	1¼"	1¼"	1¼"			
SIZE WIRE	22E	24E	34E	20E	16E	
TURNS PER LAYER	24-11	160-1	160-15			
KIND OF TERMINAL	No 20 Tin	3/16 Tin	No 20 Tin			
LENGTH OF TERMINAL	9"	3"	9"	9"	9"	
TUBE	2007					
LAYER INSULATION	3861		2861			
WRAPPER	2 2005 1/2	2 2005 1/2	2 2005 6/2	2 2005 6/2	2 2005 6/2	
TREATMENT						
RESISTANCE						



230 v

600 v 65 ma

5 v — 2 amps

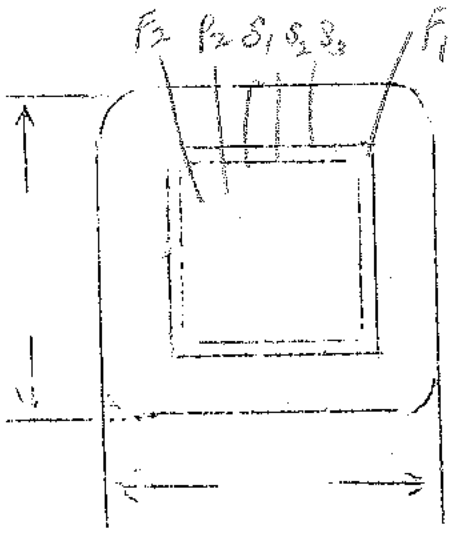
F₂ — 2.5 v, 5 amps CT

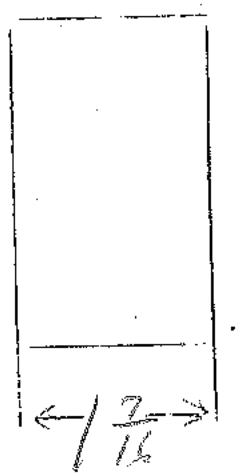
SPEC. NO. 114-230 v

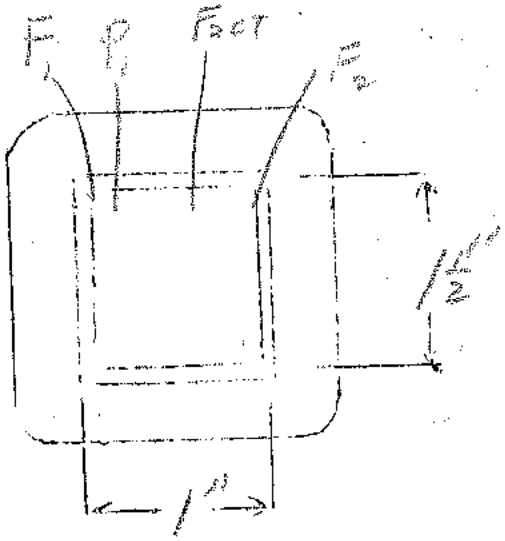
Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	825	155	2325	20	10		
Taps	NONE	NONE	1150	—	5		
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	27E	34E	34E	20E	18E		
T.P.L.	75-11	155	155-15	—	—		
Kind Term.	#20 PAR	5/16 BR	#20 PAR	WIRE AMP	WIRE OMLP		
Term. Lgth.	3	3	3	3	3		
Layer Insul.	30 #		20 #				
Wrapper	2L003 VP	2L003 VP	2L005GA	2L005GA	2L005GA		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1½ hr @ 110° NW







Power
117V @ 60 cycles
to
800VCT @ 200ma
5V @ 3amps
6.3VCT @ 6amps

New stock

SPEC. NO. P 114

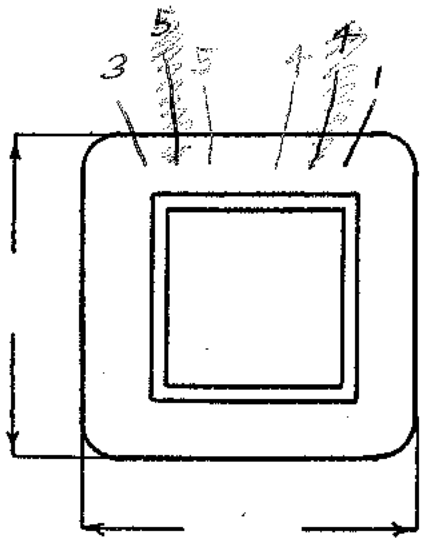
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil #1	8-9-10 Fil #2		
Turns	1730	1	240	11	14		
Taps	865	—	—	—	7		
Wind. Lgth.	1"/16	1"/16	1"/16	← 1"/16 →			
Wire Size	#29	.001 cu	#19	#18	#15		
T. P. L.	124-14L	—	40-6L	11-1/3L	14-2/3L		
~~Finish~~ Pitch	90%	—	90%	85%	80%		
Type Lead	#22 Dulac	#26 T.C.	#18 P.B.	w. o. sleeve	w. o. sleeve		
Lead Lgth.	cut 15"	—	cut 15"	14" from coil	14" from coil		
Layer Insul.	40#	—	60#	—	—		
Test Volt.	2500	—	1500	2500	1000		
Wrapper	2 IL003CA IL20#	IL003CA IL60#	IL003CA IL010CP	← IL003CA IL007GA →			

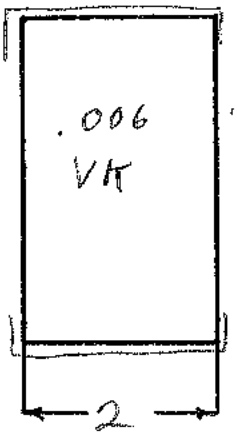
TUBE	6L010GH+IL003CA	IMPREGNATION	Varnish

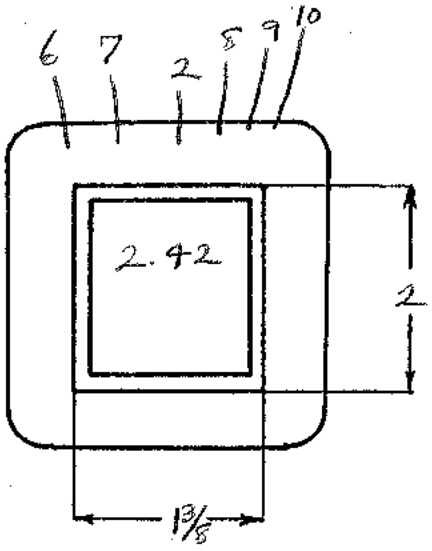
CORE 1 3/8 x 2 GA. 24 GRADE D STACK 2 x 2

MOUNTING A, N, HS-17

wn = 88%







RE-DESIGNED BY A. Hadley

DATE 6-1-50

DESIGN AND TEST DATA

Rating: $I_s \cong 200$ma

Sec VA = 166
Pri VA = 210
I_p = 1.80a

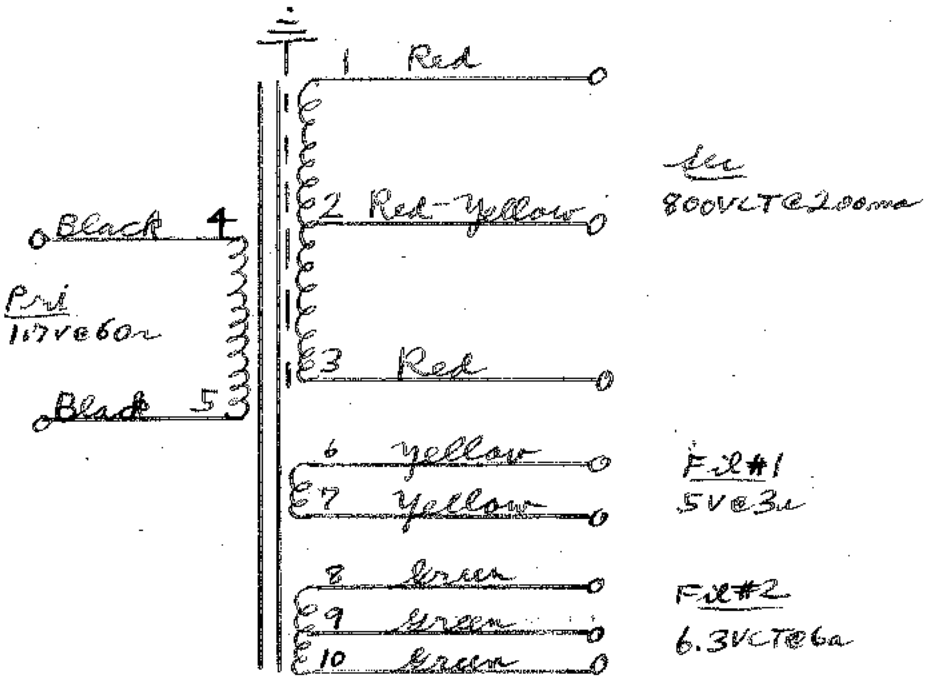
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil #1	8-9-10 Fil #2		
Mean Turn	7.95	—	9.70	10.82	10.87		
Resistance 25° c	96.0	—	1.60	.0647	.0412		
Pounds Copper	.449	—	.768	.0495	.126		
Copper Density	633	—	715	542	542		
Ratio Volts open circuit	844	—	117	5.36	6.83		
Ratio Volts load	803	—	117	5.03	6.41		
Test to Ground	2500	—	1500	2500	1000		

Iron Induction 11.7 Kg @ 60 Cycles with 117V on 4-5

Exciting Current 320 milliamperes @ 117 volts 60 cycles on 4-5

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

Remarks:



1 Primary
117 V @ 60 cycles
26
800 VCT @ 200 ma
5V @ 3a
6.3 VCT @ 6a

New - Style R

SPEC. NO. P114

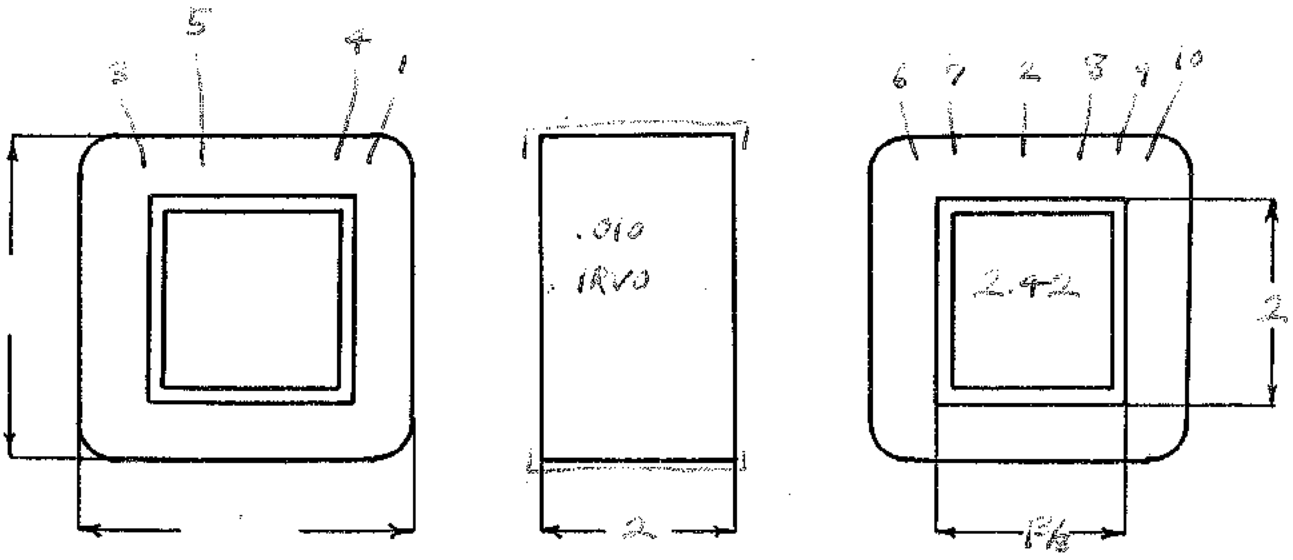
	1-2-3		4-5	6-7	8-9-10		
Winding	Prim.	Shield	Prim.	Fil #1	Fil #2		
Turns	1720	1	240	11	14		
Taps	865	—	—	—	7		
Wind. Lgth.	1 1/16	1 1/16	1 1/16	← 1 1/16 →			
Wire Size	#24	.001 mm	#19	#18	#15		
T. P. L.	12 - 14L	—	40 - 6L	11 - 1 1/3L	14 - 2 1/3L		
Finish	90%	—	90%	85%	80%		
Type Lead	#22 Solid	Std. Br.	#18 S. E.	#18 S. E. Sleeve	#18 S. E. Sleeve		
Lead Lgth.	ext 15"	3"	ext 15"	ext 14"	ext 14"		
Layer Insul.	40#	—	50#	—	—		
Test Volt.	2500	—	1500	2500	1000		
Wrapper	2L005VC	1L005VC	1L010CP	2L010GA			

TUBE	6L010G-K + 1L003VP	IMPREGNATION	Varnish

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

MOUNTING A, N, AS 17

mm = 38%



RE-DESIGNED BY A. Hadley

DATE 6-1-50

DESIGN AND TEST DATA

Rating: E_s = 200ma

Sec VA = 166
Pri VA = 210
I_p = 1.80

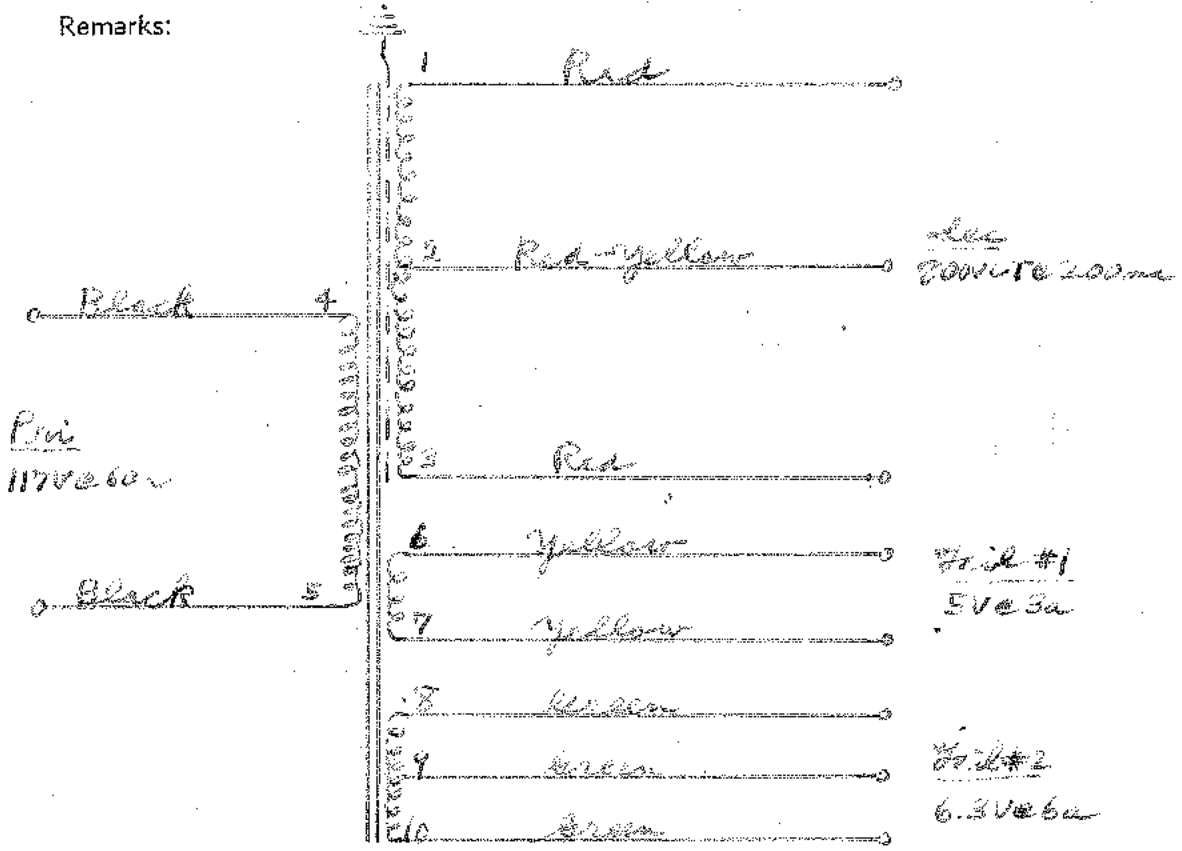
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil #1	8-9-10 Fil #2		
Mean Turn	7.95	—	9.70	10.82	10.87		
Resistance 25° c	96.0	—	1.60	.0647	.0412		
Pounds Copper	.441	—	.768	.0495	.126		
Copper Density	633	—	715	542	542		
Ratio Volts Open circuit	844	—	117	5.36	6.83		
Load	803	—	117	5.03	6.41		
Test to Ground	2500	—	1500	2500	1000		

Iron Induction 11.2 Kg @ 60 Cycles with 117V on 4-5

Exciting Current 320 ma amperes @ 117 volts 60 cycles on 4-5

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

Remarks:



Power
117V @ 60 cycles
To
800VCT @ 200 ma
5V @ 3a
6.3VCT @ 6a

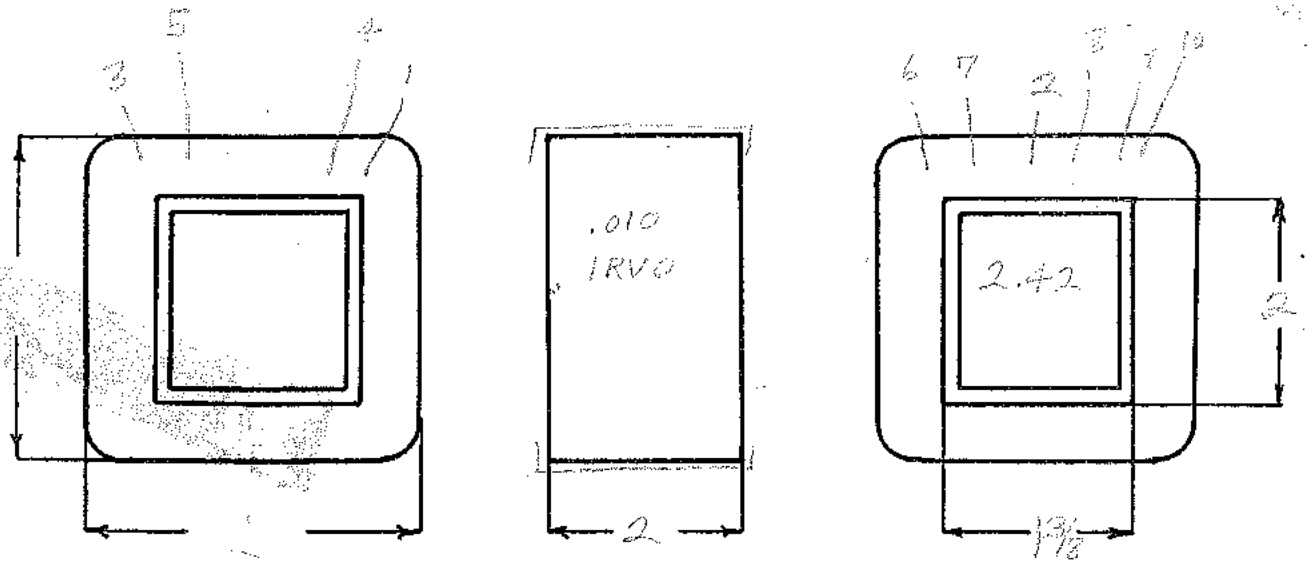
SPEC. NO. P114

	1-2-3		4-5	6-7	8-9-10		
Winding	Pri.	Shield	Fil.	Fil. CT	Fil. 2		
Turns	1730	1	240	11	14		
Taps	865	—	—	—	7		
Wind. Lgth.	1 11/16	1 11/16	1 11/16	← 1 11/16 →			
Wire Size	#29	.001 cu	#19	#18	#15		
T. P. L.	12.4 - 1/4L	—	40 - 6L	11 - 1/3L	14 - 3/4L		
Finish	90%	—	90%	85%	80%		
Type Lead	#22 Enam.	Stl. Thn.	#18 P.E.	#18 P.E. Stranded	#18 P.E. Stranded		
Lead Lgth.	cut 15"	3"	cut 15"	cut 14"	cut 14"		
Layer Insul.	1 Oil	—	5 Oil	—	—		
Test Volt.	2500	—	1500	2500	1000		
Wrapper	2 Lo 85 VC	1 Lo 85 VC	1 Lo 10 CP	2 Lo 77 CH			

TUBE 6 Lo 10 CH + 1 Lo 85 VC IMPREGNATION Varnish

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

MOUNTING A, N, #S 17



RE-DESIGNED BY A. Nadler DATE 6-1-50

DESIGN AND TEST DATA

Rating: I.T. 200 ma

Sec VA = 166
Pri VA = 210
Ip = 1.80

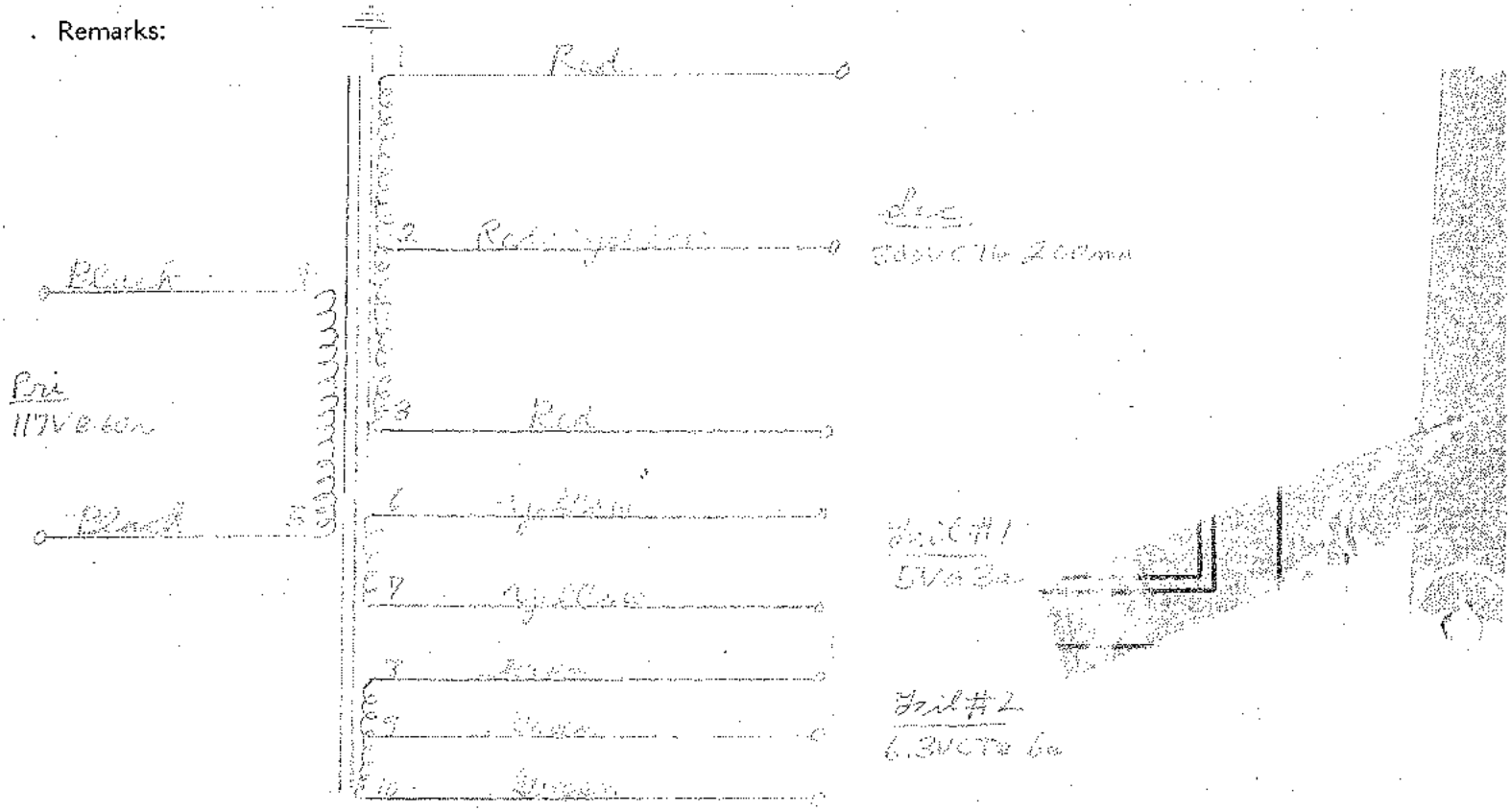
Winding	1-2-3 Sec.	Shield	4-5 Pri	6-7 Fil #1	8-9-10 Fil #2		
Mean Turn	7.95		9.70	10.22	10.37		
Resistance 25° c	96.0		1.60	.065	.042		
Pounds Copper	.449		.768	.0945	.126		
Copper Density	633	—	715	542	542		
Ratio Volts 1-2 / 2-3	844 / 803	—	117 / 117	5.36 / 5.03	6.89 / 6.47		
Test to Ground	2500	—	1500	2500	1000		

Iron Induction 11.7 Kg @ 60 Cycles with 117V on 4-5

Exciting Current 320 milli amperes @ 117 volts 60 cycles on 4-5

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

Remarks:



	Voltage	Current
Primary	230	
Secondary	600	.040
Filament No. 1	5	2
Filament No. 2	2.5	3.25
Filament No. 3		

SPECIFICATION NO. 115

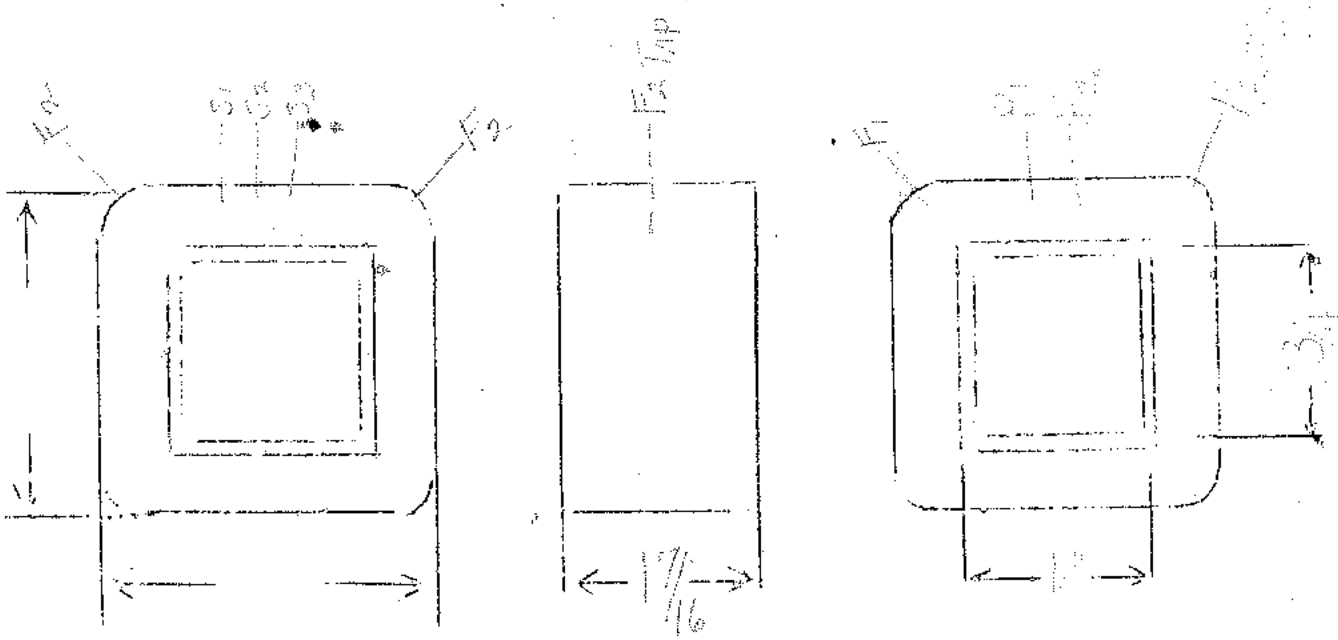
Type Transformer

SPEC. NO. 115

Winding	PRI	SHIELD	SEC.	F1(1)	F1(2)		
Turns	1500	110	4200	36	18		
Taps	NONE	NONE	2100	NONE	9		
Wind. Lgth.	1¼	1¼	1¼				
Wire Size	37E	37E	37E	21E	16E		
T.P.L.	110-14	110-7	210-20	36 WIRE ONLY	18 WIRE ONLY		
Kind Term.	Brass	Brass	Brass				
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	30lb.						
Wrapper	2L003VP	2L003VP	2L005GA	2L005GA	2L005GA		

TUBE | 4L007 | IMPREGNATION |

CURE |



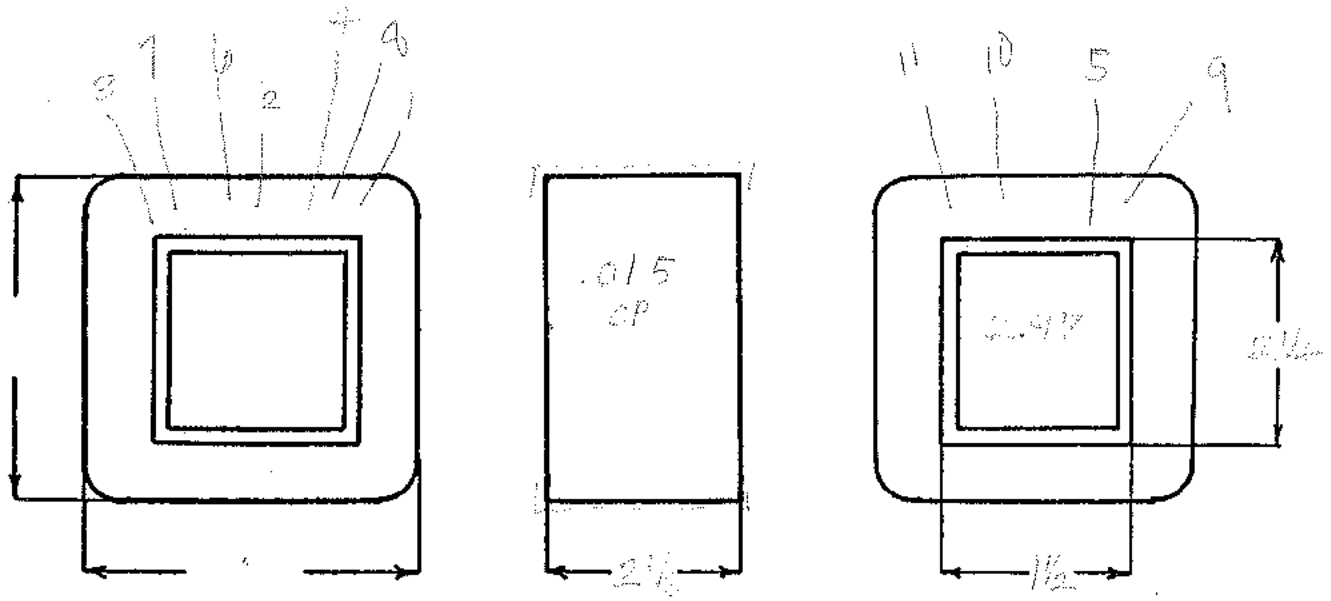
SPEC. NO. P116

	1-2-3		4-5	6-7	8-9	10-11	
Winding							
Turns	1820	1	175	10	8	16	
Taps	940	—	—	—	—	—	
Wind. Lgth.	1 3/4	1 3/4	1 3/4	〃	1 3/4	〃	
Wire Size	#29		#18	#18	#12	#17	
T. P. L.		—					
Finish		—					
Type Lead			#16 P.E.				
Lead Lgth.							
Layer Insul.		—		—	—		
Test Volt.	3000	—	1250	1500	2500	1500	
Wrapper							

TUBE [illegible] IMPREGNATION [illegible]

CORE 1 1/2 x 2 1/4 GA. 26 GRADE [illegible] STACK [illegible]

MOUNTING [illegible]



DESIGNED BY A. Hadley DATE 3-23-50

DESIGN AND TEST DATA

Rating: Ts (Copper wire) 30 .200 amps. (Copper wire) A = 2.29
Ts Al A = 2.51
Type 2.0 v.a.

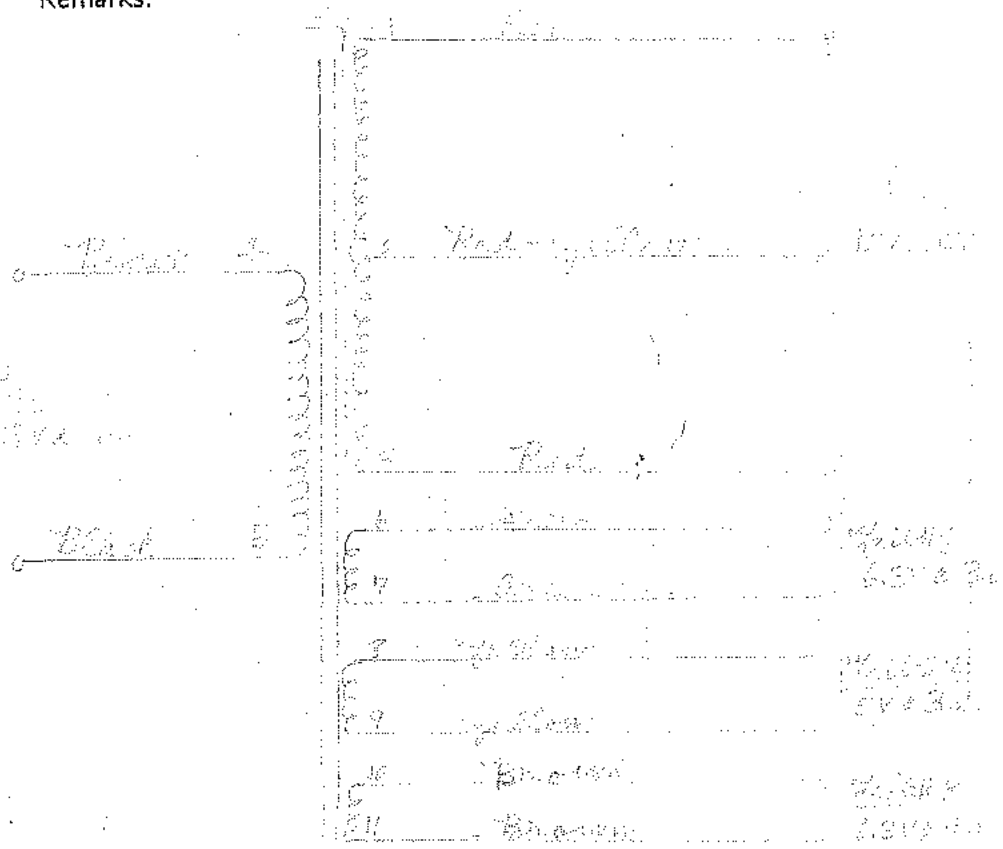
Winding	1-2 Pri	Shield	4-5 Pri	6-7 Sec 1	8-9 Sec 2	10-11 Sec 3	
Mean Turn	3.93	—	10.30	11.90	11.40	11.92	
Resistance 25° c	117.0	—	1.035	.0645	.0516	.0513	
Pounds Copper	.546	—	.787	.0495	.0416	.0485	
Copper Density	532.	—	543	542.	540.	542.	
Ratio Volts Shield to wdg.	120.7		117 / 18	6.35	5.07	6.34	
Test to Ground	3000		1257	1500	2500	1500	

Iron Induction 13.1 kg @ 60 cycles? 15.7 kg @ 50 Cycles Exciting 117 V on 4-5

Exciting Current 500 mA amperes @ 117 volts 60 cycles on 4-5

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

Remarks: Calculated Core Loss = 16.3 watts @ 60 cy.
= 9.8 watts @ 50 cy.
= 11.5 w
Ty 6 T = 5.5 mm
D T = 6.3 mm

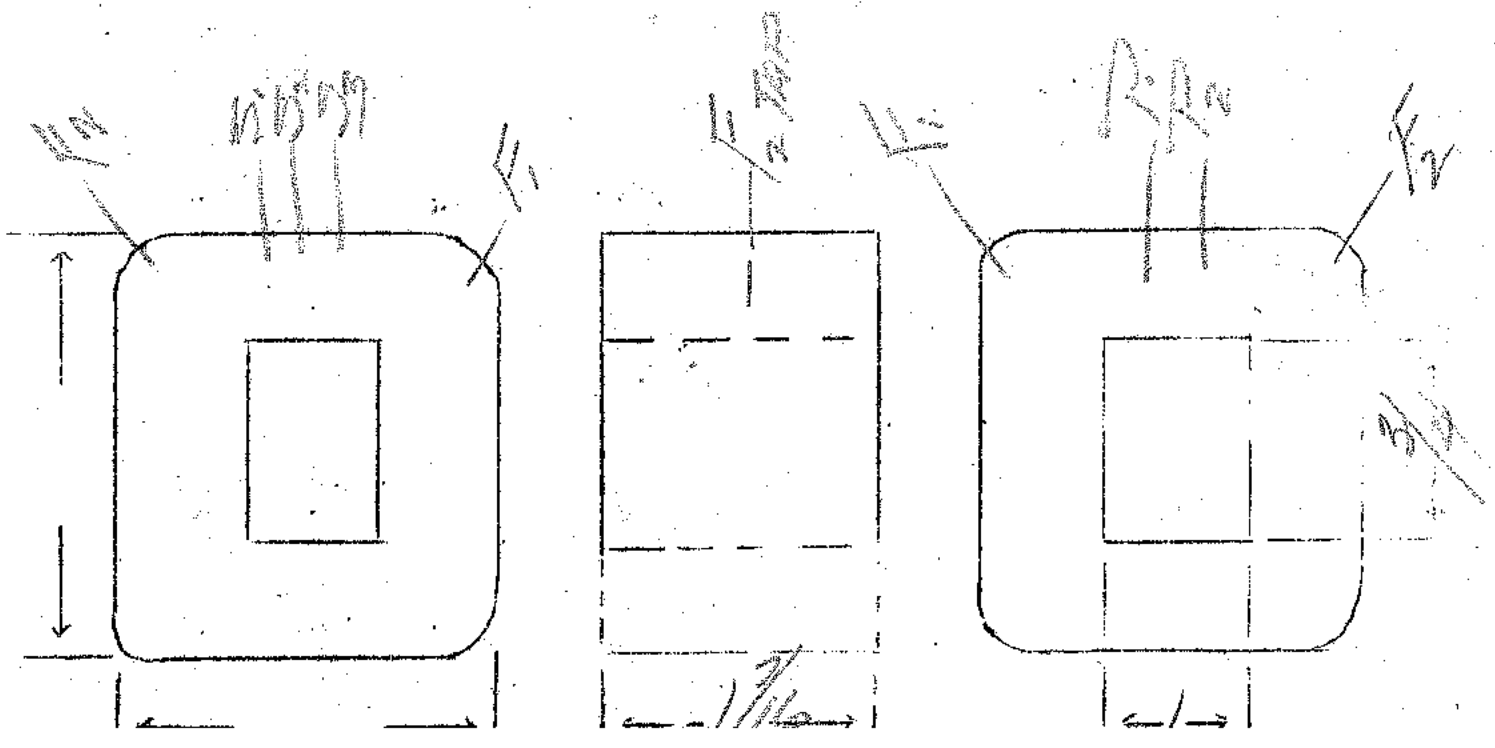


	Voltage	Current
Primary	110	
secondary	1000	.060
Filament No. 1	5	3
Filament No. 2	2.5	3.25
Filament No. 3		

Specification No. 116

Type Transformer

	Pri	Plate	Sec	F/D	F/D	
TURNS	710	225	1500	32	18	2
TAPS	None	None	2 on	None	3 - 2	
LENGTH OF WINDING	1"	1"	1"			
SIZE WIRE	28E	32E	32E	21E	18E	
TURNS PER LAYER	77-10	20-1	20-4			
KIND OF TERMINAL	Wire Out	Sol Bar	Sol Bar	Wire Out	Wire Out	
LENGTH OF TERMINAL	6"	6"	6"	6"	6"	
TUBE	2.002					
LAYER INSULATION	2 Leo		2 Leo			
WRAPPER	2 Leo 3 VP	2 Leo 3 VP	2 Leo 3 GP	2 Leo 3 GP	2 Leo 3 GP	
TREATMENT	When wound Cap Resistor 5 Ω					
RESISTANCE	Cut 4½" Bare 2" 5 Tap 1½" Bare 2"					



Power

117 V @ 50/60 cycles to
1200 V CT @ 200 ma.
6.3 V CT @ 3a
6.3 V CT @ 4a
5 V @ 3a

New stock

OBSOLETE

SPEC. NO. P 116

	1-2-3		4-5	6-7-8	9-10	11-12-13	
Winding	Pri.	Shield	Pri.	Fil #1	Fil #2	Fil #3	
Turns	4480	1	310	24	17	24	
Taps	2240	—	—	12	—	12	
Wind. Lgth.	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	
Wire Size	#30	.002 cu	#19	#18	#18	#17	
T. P. L.	187-14L	1	50-8L	← One Layer →		24-1L	
Finish Pitch	90%	—	83%	88%		50%	
Type Lead	#20 Sulac	Lil. Br.	#18 P.B.	w.o. sleeve	w.o. sleeve	w.o. sleeve	
Lead Lgth.	cut 15"	3"	cut 15"	cut 15"	cut 15"	cut 15"	
Layer Insul.	Scuba 30#	—	50#	—	—	—	
Test Volt.	3000	—	1500	1500	2500	1500	
Wrapper	IL 015 VC IL 30#	1L005VC	2L0076A	2L0076A		2L0076A	

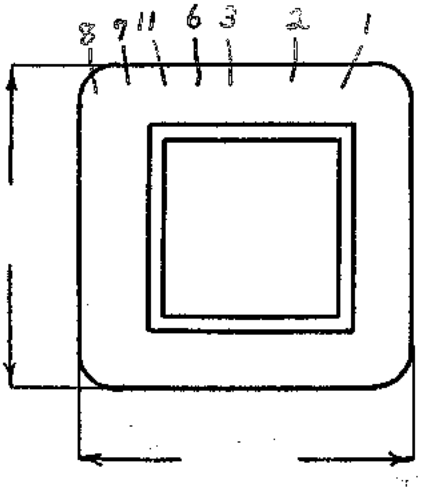
TUBE 10L0076K + 1L005VC

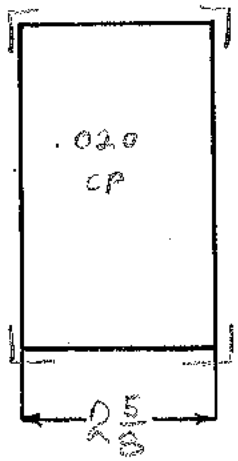
IMPREGNATION Varnish

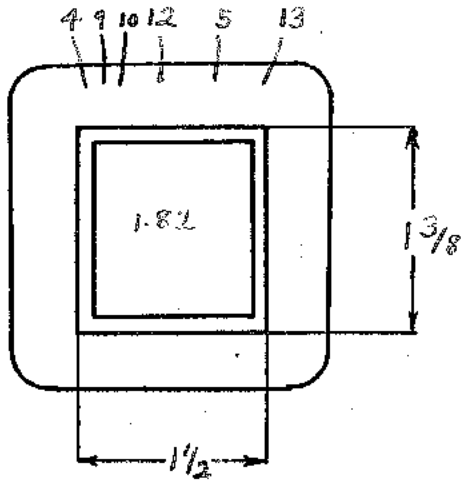
CORE 1 1/2 x 1 3/8 GA. 24 GRADE D STACK 2x2

MOUNTING A, N, HS17 - Leads

wm = 87%







DESIGNED BY S. BABCOCK

DATE 5-47

DESIGN AND TEST DATA

Rating:

Sec VA = 179.1
Pri VA = 226.3
I_p = 1.98

Winding	Sec	Shield	Pri	Fil #1	Fil #2	Fil #3	
Mean Turn	7.48		8.83	9.01	9.09	9.37	
Resistance 25° c	294		2.40	.124	.100	.102	
Pounds Copper	.866		1.16	.045	.0767	.124	
Copper Density	710		651	542	542	512	
Ratio Volts	1200 600		117	6.3 3.15	5	6.3 3.15	
Test to Ground							

Iron Induction 11.1 Kg @ 50 Cycles

Exciting Current 0.18 amperes @ 115 volts 60 cycles on 4-5

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

Remarks:

1 – 3 Red
2 Red Yellow
4 – 5 Black
6-7-8 Green
9-10 Yellow
11-12-13 Brown

Power

117V @ 60 cycles

to

1200VCT @ 200ma

6.3V @ 3a 5V @ 3a 6.3V @ 4a

New stock

SPEC. NO. P116

Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 #2 #1	8-9 #2 #2	10-11 #2 #3
Turns	1880	1	175	10	8	10
Taps	940	—	—	—	—	—
Wind. Lgth.	1 3/4	1 3/4	1 3/4	←	1 3/4	→
Wire Size	#29	.001 ca	#18	#18	#18	#17
T. P. L.	118-16L	—	35-5L	10-1 1/3L	8-1 1/3L	10-1 1/3L
Finish Petah	83%	—	84%	72%	58%	81%
Type Lead 1/8	#22 PLASTIC	#26 TC Leader	#18 P. E.	var. o. Sleeve	var. o. Sleeve	var. o. Sleeve
Lead Lgth.	9"	3"	9"	9"	9"	9"
Layer Insul.	Lap wind 30#	—	~~Space~~ 30# Lap		.003 Mylar	
Test Volt.	3000	—	1250	1500	2500	1500
Wrapper	2L003M ~~2L007VC~~ IL 20#	IL003M ~~IL007VC~~ IL 60#	~~IL015CK~~ IL020K	←	2L007GA	→

TUBE 7L010GK + ~~L003M L007VC~~

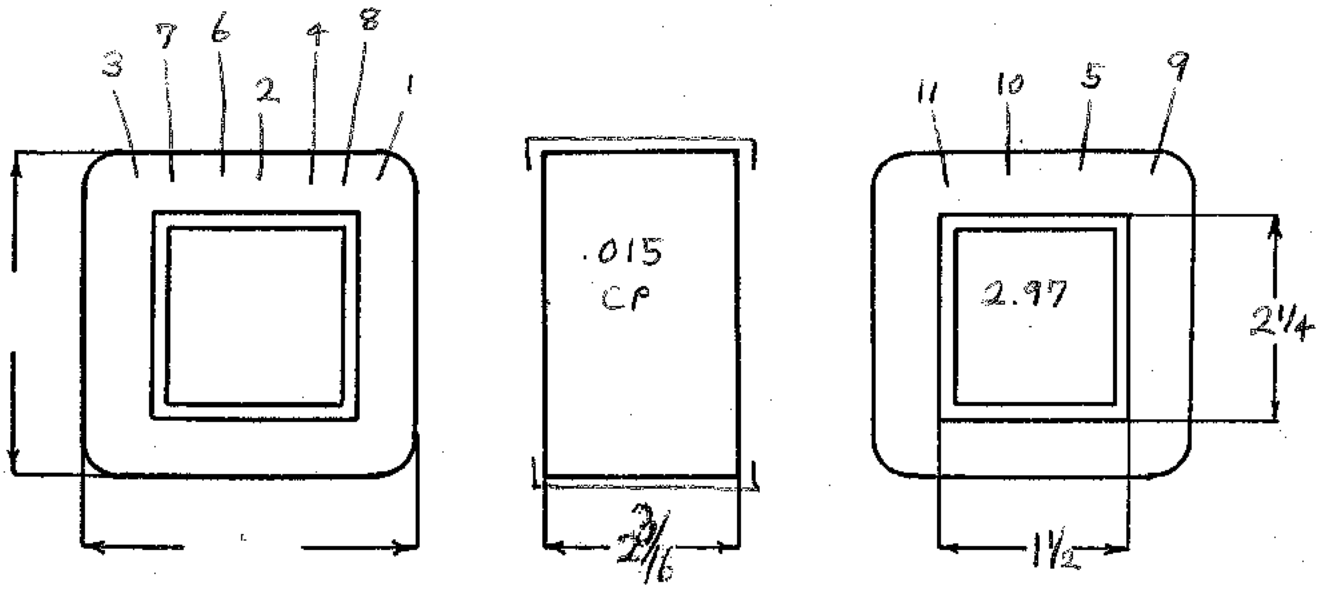
IMPREGNATION Varnish

CORE 1 1/2 STK x 2 1/4 GA. 26 GRADE C STACK 3X3

MOUNTING A ; ~~Same~~

arm = 85%

Use Chromate Primer
Black Lacquer



DESIGNED BY A. HADLEY

DATE 3-23-50

DESIGN AND TEST DATA

Rating: I_p = .200 amp

Sec VA = 229
Pri VA = 257
I_p = 2.20 a

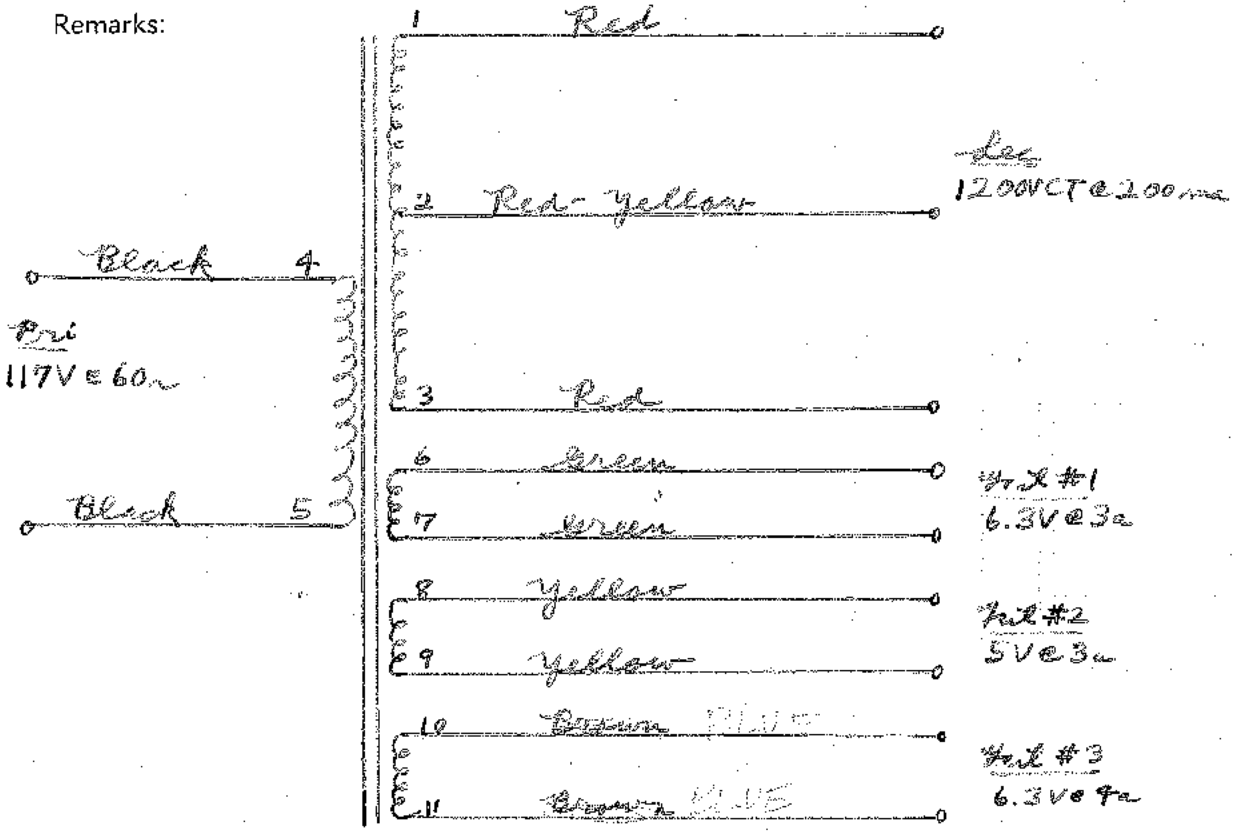
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil #1	8-9 Fil #2	10-11 Fil #3	
Mean Turn	8.93	—	10.80	11.90	11.90	11.92	
Resistance 25° c	117.0	—	1.025	.0645	.0516	.0513	
Pounds Copper	.546	—	.787	.0495	.0396	.0625	
Copper Density	632	—	740	542	542	512	
Ratio Volts	12.60	—	117	6.69	5.35	6.69	
	12.07	—	117	6.35	5.07	6.34	
Test to Ground	3000	—	1250	1500	2500	1500	

Iron Induction 13.1 kg @ 60 Cycles with 117V on 4-5

Exciting Current .650 milli amperes @ 117 volts 60 cycles on 4-5

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

Remarks:

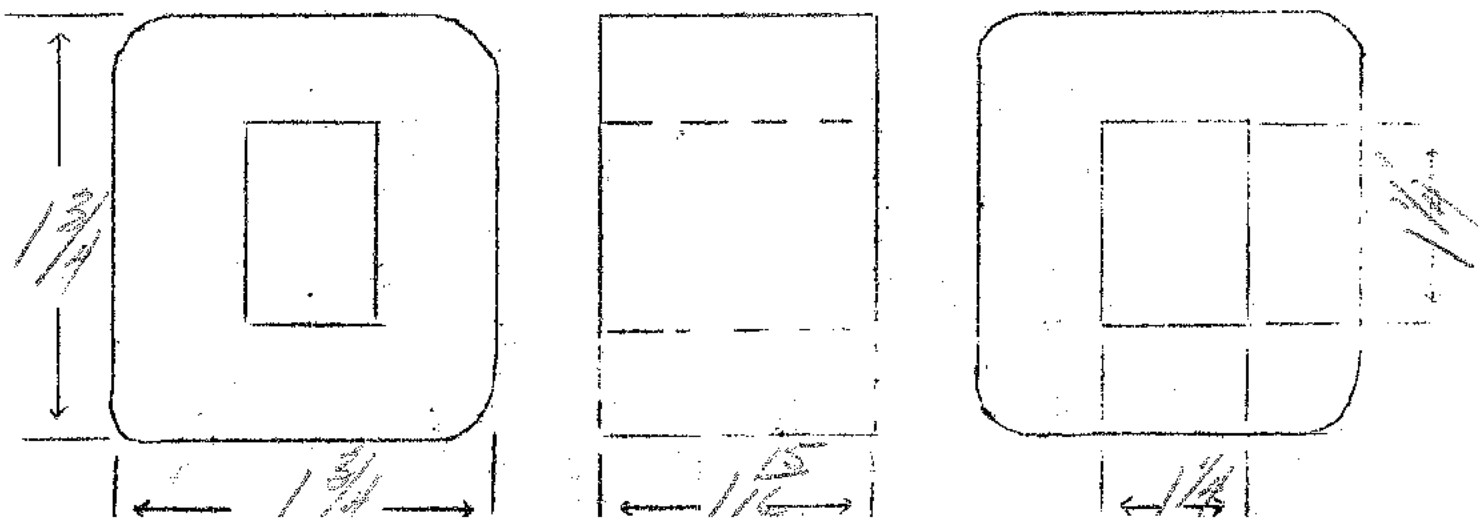


	Voltage	Current
Primary		
secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 117

Type Transformer Core Core

TURNS	1450					
TAPS	None					
LENGTH OF WINDING	1.75"					
SIZE WIRE	38					
TURNS PER LAYER	340					
KIND OF TERMINAL	S/E					
LENGTH OF TERMINAL	3"					
TUBE	Kraft					
LAYER INSULATION	Wax					
WRAPPER	2 ply 60					
TREATMENT						
RESISTANCE						

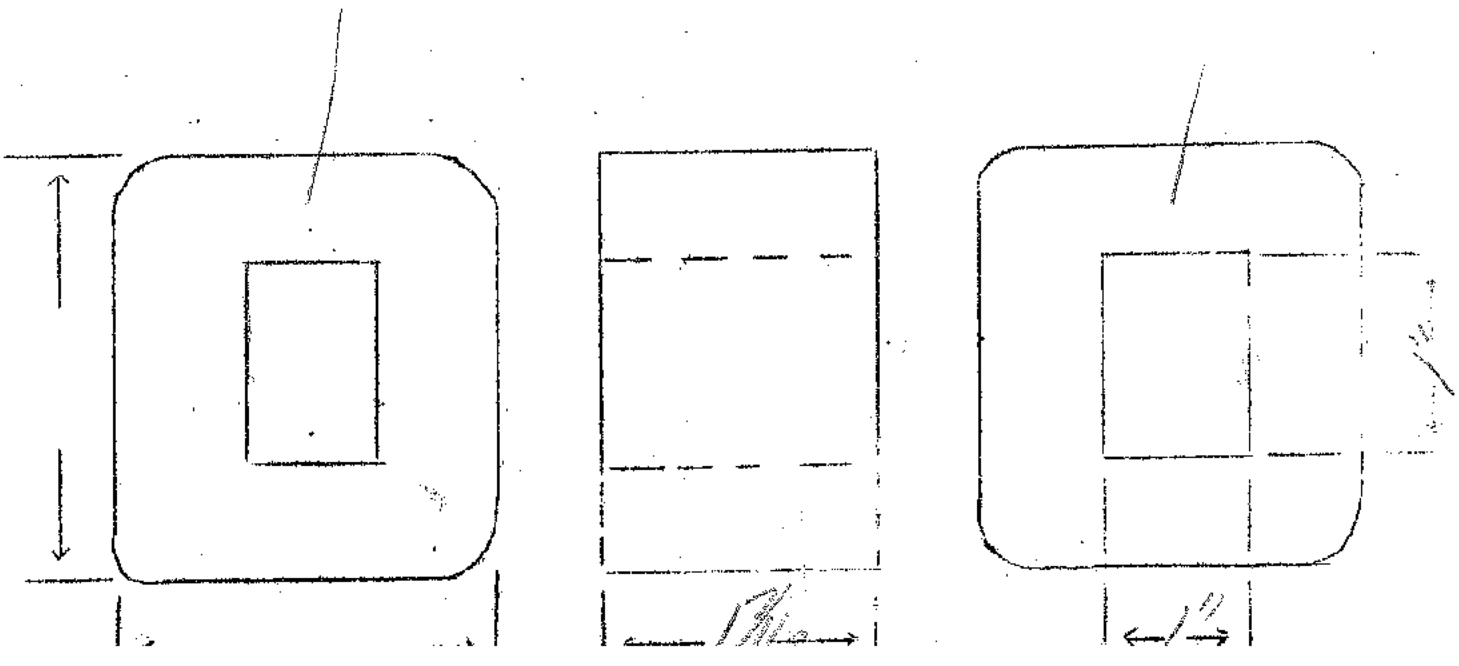


	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 118

Type Transformer Power

TURNS	2250					
TAPS	None					
LENGTH OF WINDING	1¼"					
SIZE WIRE	#27					
TURNS PER LAYER	75					
KIND OF TERMINAL	Nickel Bar					
LENGTH OF TERMINAL	3"					
TUBE	Kraft					
LAYER INSULATION	Paper					
WRAPPER	Kraft Empire					
TREATMENT						
RESISTANCE						



	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2	"	
Filament No. 3		

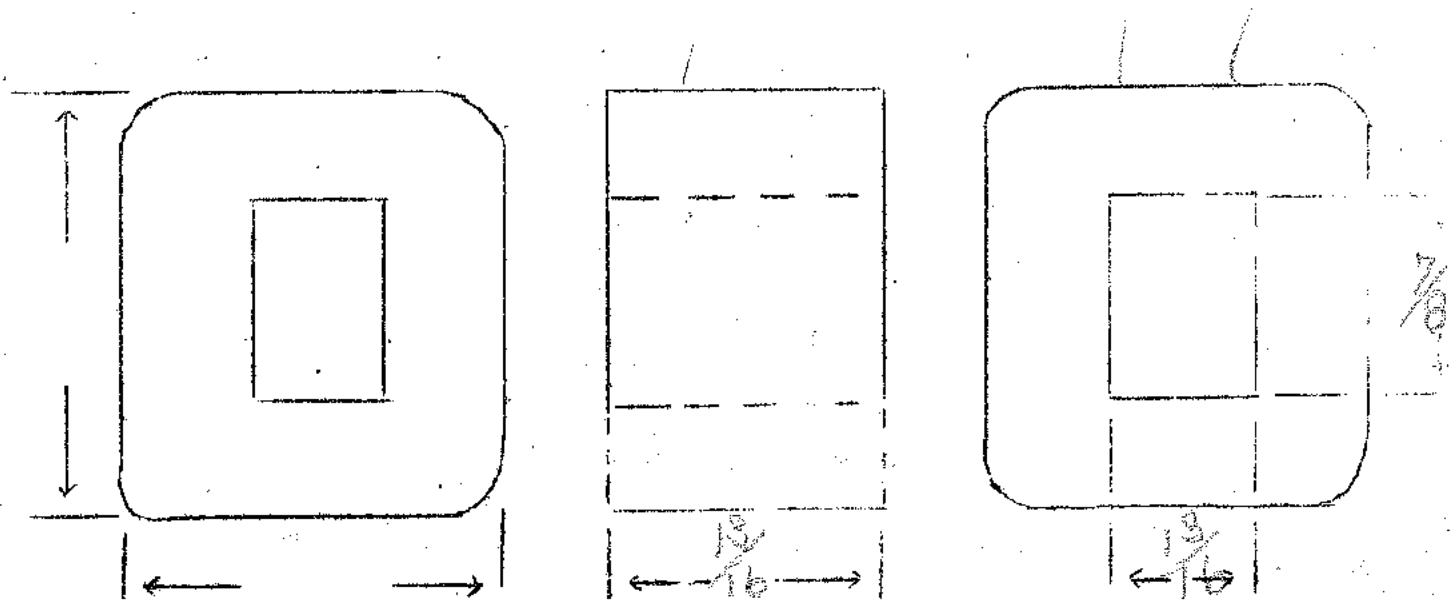
Specification No. 120

Type Transformer _____

"Welcome" - 2205

TURNS	1850					
TAPS	None					
LENGTH OF WINDING	2					
SIZE WIRE	#26					
TURNS PER LAYER	137					
KIND OF TERMINAL	OUTSIDE — 2" Pig on screw Post INSIDE — 1½" Pig					
LENGTH OF TERMINAL						
TUBE	#2 Red					
LAYER INSULATION	20#61					
WRAPPER	2 #20 3 #20					
TREATMENT						
RESISTANCE						

1500 Volt Test

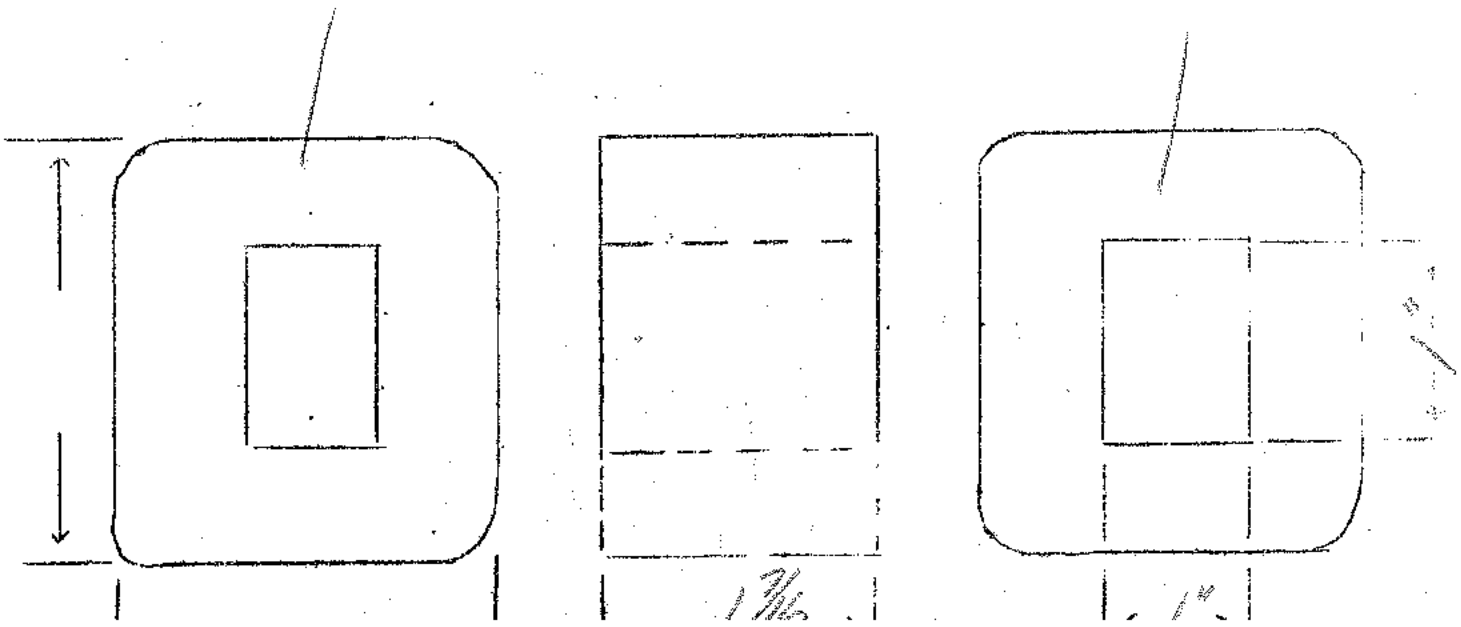


	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 119

Type Transformer Choke

TURNS	2 [illegible]					
TAPS	None					
LENGTH OF WINDING	1¼					
SIZE WIRE	20E					
TURNS PER LAYER	2-					
KIND OF TERMINAL	No 20 Tinned					
LENGTH OF TERMINAL	8"					
TUBE	Fiber					
LAYER INSULATION	Paper					
WRAPPER	Empire Cloth					
TREATMENT						
RESISTANCE						

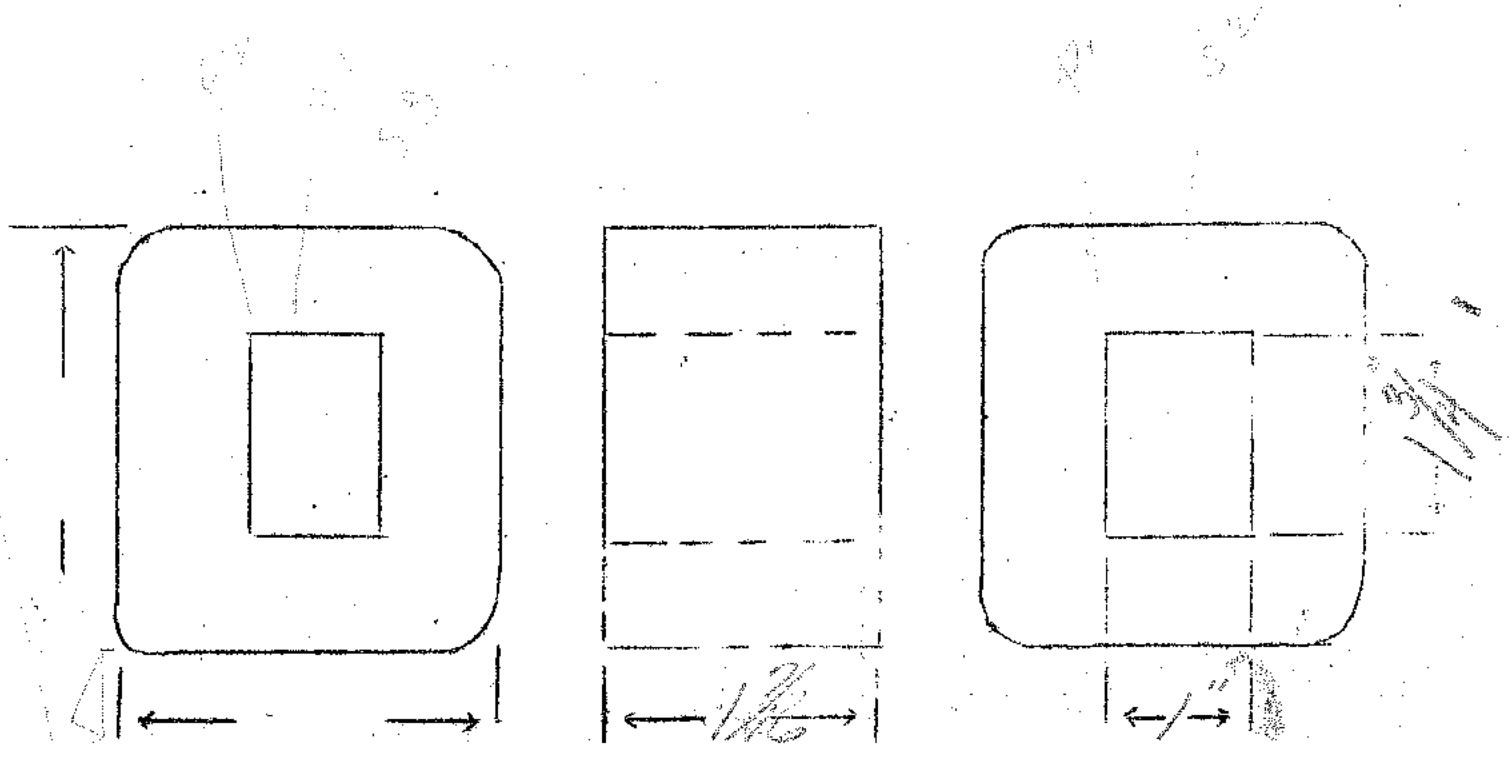


	Voltage	Current
Primary	115	
secondary	2.5	2.5
Filament No. 1	5	2
Filament No. 2	2.5	2
Filament No. 3		

Specification No. 121

Type Transformer Power

	PRI	2½ VOLT	5 VOLT	5 V (1)	5 V (2)	
TURNS	380	46	240	15	9	
TAPS	None	None	1235	9	None	
LENGTH OF WINDING	1½	1½	1½			
SIZE WIRE	24 E	22 E	22 E	24 E	18 E	
TURNS PER LAYER	54-7	46-7	46-7			
KIND OF TERMINAL	No 20 Pig Tail	Same	No 20 Pig Tail			
LENGTH OF TERMINAL	10"	3"	10"			
TUBE	Hard					
LAYER INSULATION	Soft (2)		2 Mil (2)			
WRAPPER	2 Mil 3 VP	2 Mil 3 VP	2 Mil 3 VP	2 Mil 3 VP		
TREATMENT				Dip & Bake		
RESISTANCE						



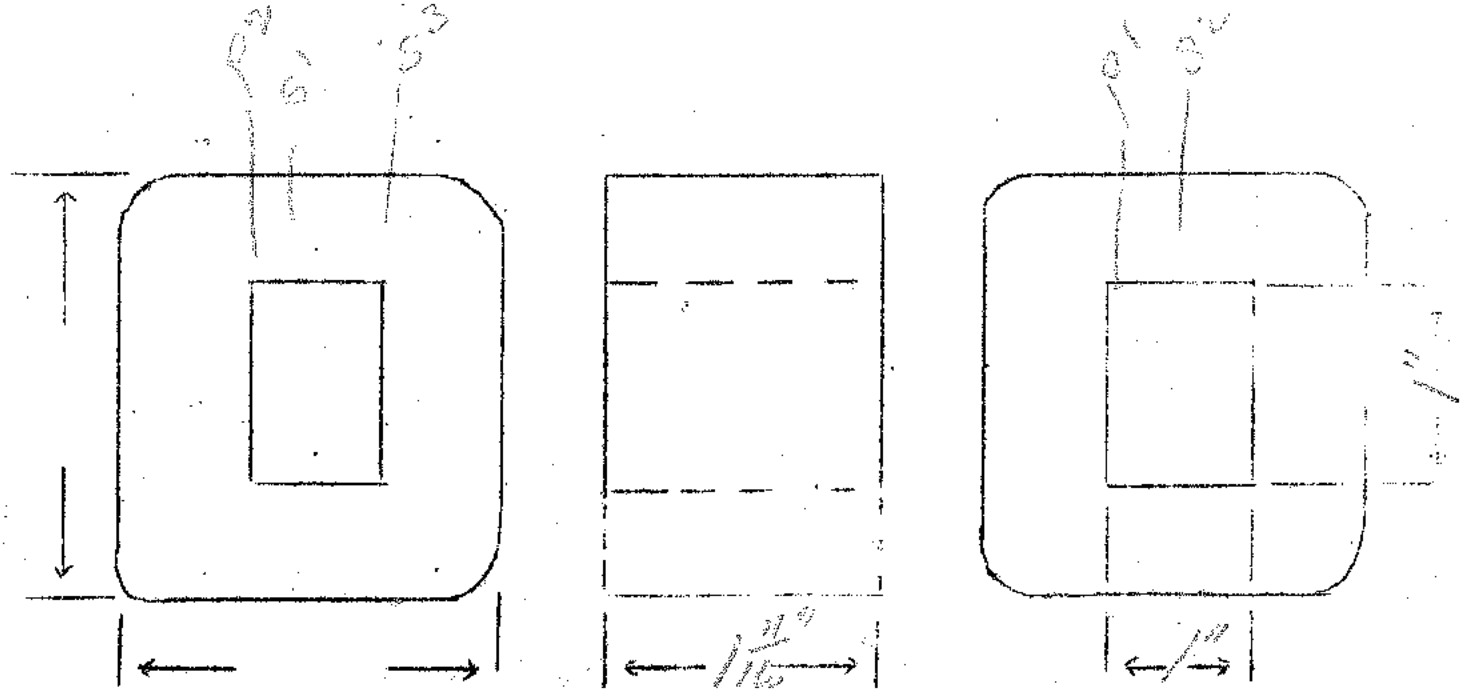
(4) Specific

	Voltage	Current
Primary	115	.7A
Secondary	700	.175
Filament No. 1	2.5	3.5
Filament No. 2	2.5	2
Filament No. 3	5	3

Specification No. 123

Type Transformer

	PRI	Shld	Sec.	F1(1)	F1(2)	F2(3)
TURNS	635	190	4120	15	15	30
TAPS	None	None	3060	7½	None	None
LENGTH OF WINDING	1½	1½	1½			
SIZE WIRE	23E	34E	34E	17E	16E	20E
TURNS PER LAYER	55-11	2on-1	130-31			
KIND OF TERMINAL	No.20 Tfe	Sh. Bare	No.20 Tfe	WIRE ONLY	WIRE ONLY	WIRE ONLY
LENGTH OF TERMINAL	9"	9"	9"	9"	9"	9"
TUBE	2 mil					
LAYER INSULATION	Tab'd		Tab'd			
WRAPPER	2 mil 4P	2 mil 4P	2 mil 6P			2 mil 6P
TREATMENT	Tape to Core 3 Mils Dip 207 to 115					
RESISTANCE						



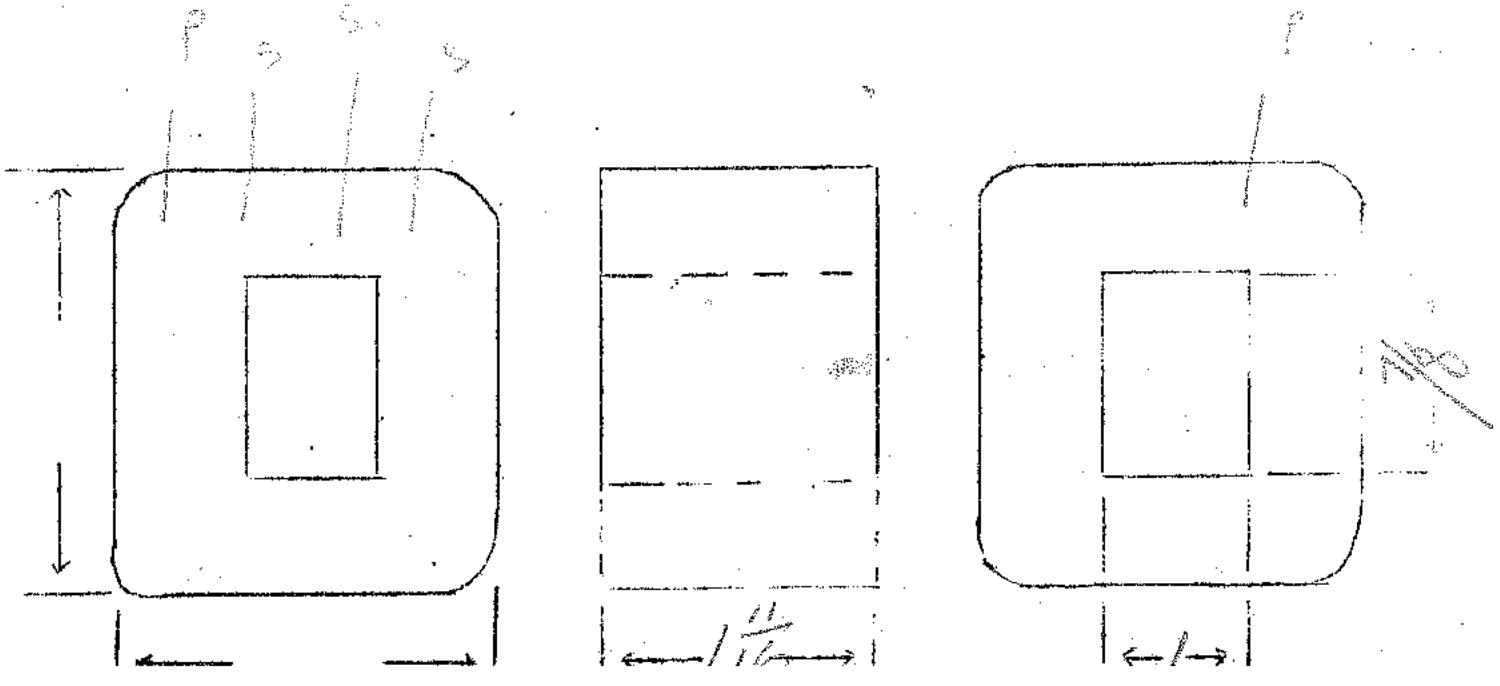
(5) Leads

	Voltage	Current
Primary	115	
secondary	650	265
Filament No. 1	5	2
Filament No. 2	2.5	6.5
Filament No. 3		

Specification No. 124

Type Transformer

	PRI	5 VOLT	6.3 C.	2.5	7	
TURNS	715	23	41 60	None	52	
TAPS	None	None	2230			
LENGTH OF WINDING	1/2	1/2	1/2			
SIZE WIRE	24 E	3 4 E	3 4 E	20 E	1 5 E	
TURNS PER LAYER	65-11	10-1	19-2			
KIND OF TERMINAL	NO 20 Pap	S. E.	NO 20 Pap	WIRE ONLY	WIRE ONLY	
LENGTH OF TERMINAL	9"	3"	9"	5"	9"	
TUBE	2 1/2 FIBRE					
LAYER INSULATION	DUCO		DUCO			
WRAPPER	2 LAYERS YP	2 LAYERS YP	2 LAYERS GP		2 LAYERS GP	
TREATMENT	FILL WITH PURE PARAFFINE AS NO WAX EXCESS					
RESISTANCE	R = 115					



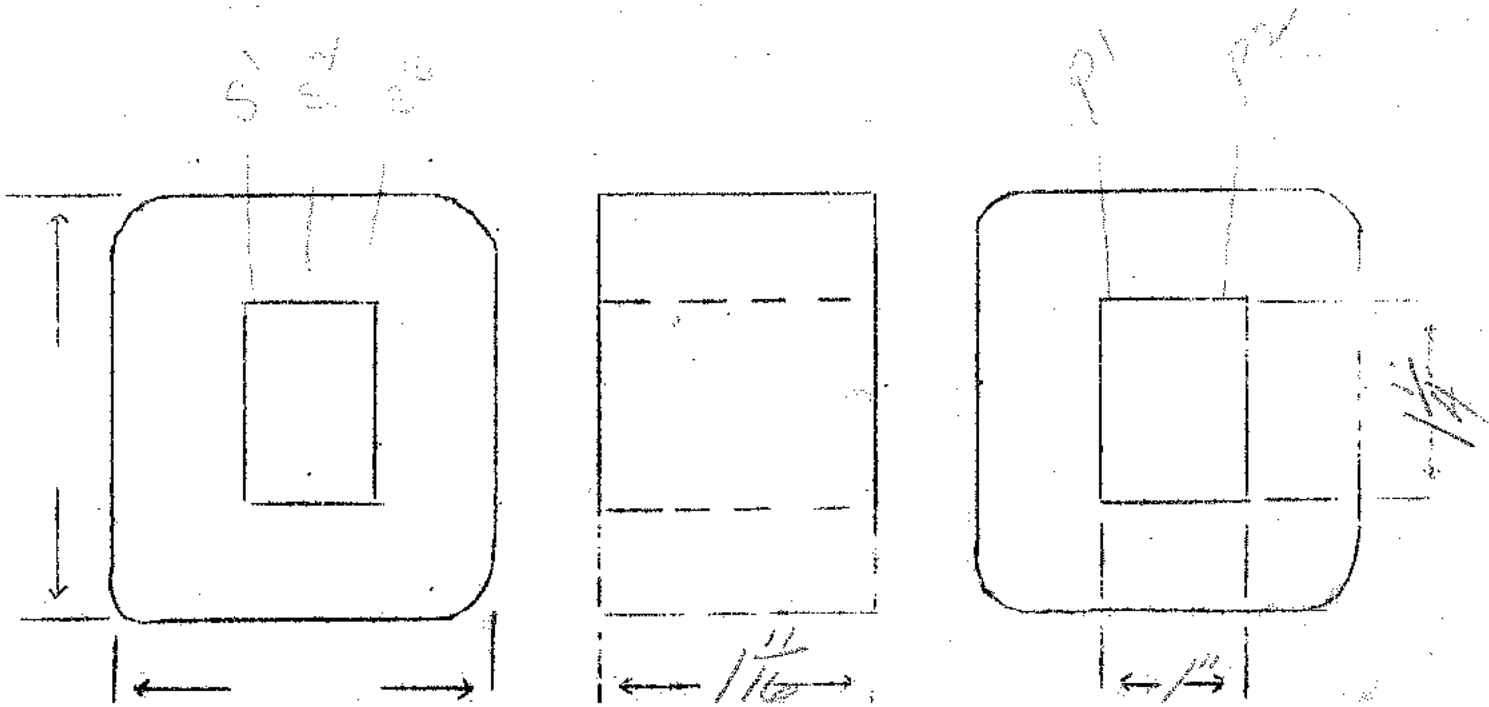
	Voltage	Current
Primary	110	1.4
secondary	700	.065
Filament No. 1	5	2
Filament No. 2	2.5	2.5
Filament No. 3	2.5	6

Specification No. 125

Type Transformer _____

	Pri	Sec	Sec	F No 1	F No 2	F No 3
TURNS	550	175	3250	24	12	12
TAPS	None	None	1630	None	6	None
LENGTH OF WINDING	1/2	1/2	1/2			
SIZE WIRE	22 E	38 E	38 E	20 E	17 E	15 E
TURNS PER LAYER	92	175-1	175-20			
KIND OF TERMINAL	Spade Lug	Spade Lug	Spade Lug			
LENGTH OF TERMINAL	9"	3"	3"	9"	9	9
TUBE	Yes					
LAYER INSULATION	Yes		Yes			
WRAPPER	2 Layers Kp	2 Layers Kp	2 Layers Kp			2 Layers Kp
TREATMENT						
RESISTANCE						

This CT has the ends taped outside case

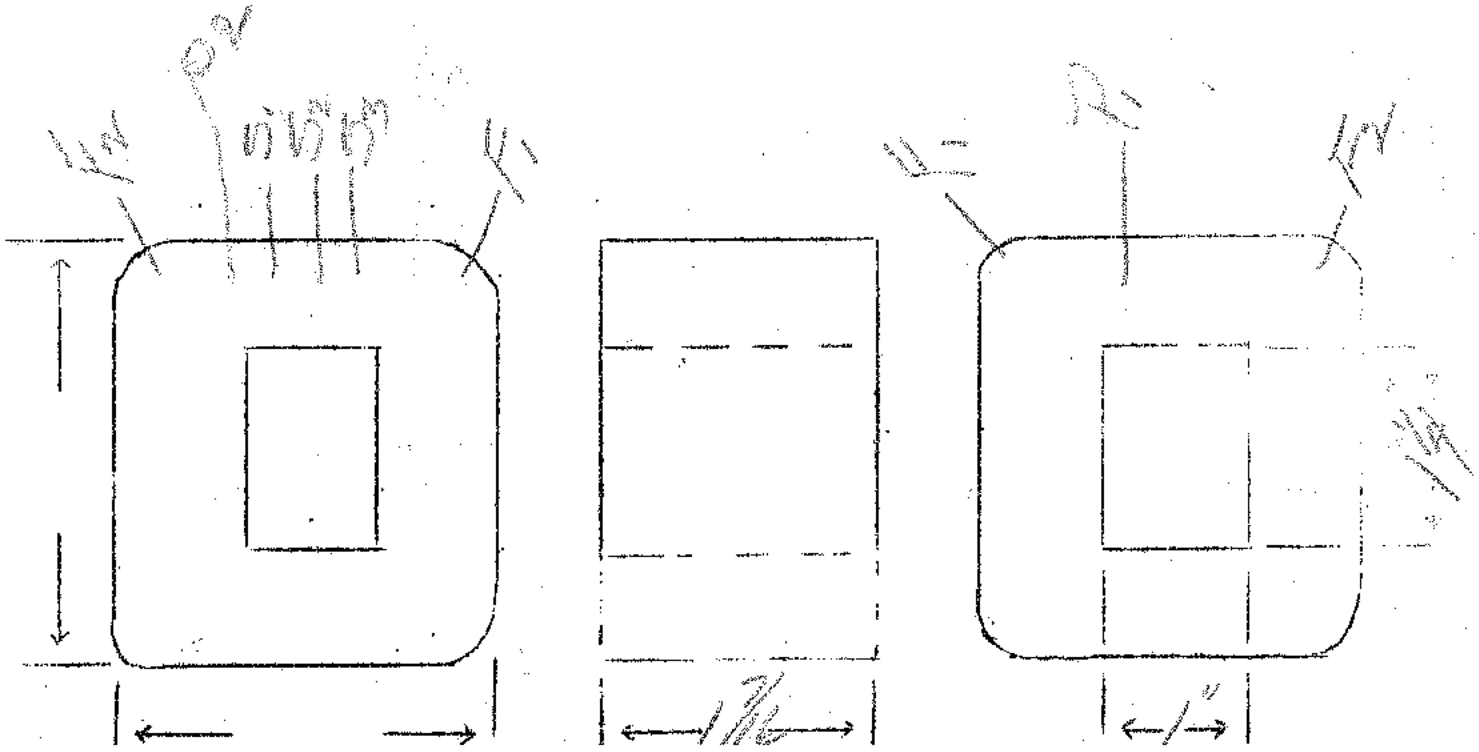


	Voltage	Current
Primary	230	
Secondary	710	.250
Filament No. 1	7.5	2.5
Filament No. 2	5	2
Filament No. 3		

Specification No. 126

Type Transformer Universal

	PRI	Shunt	SEC	F/1	F/2	
TURNS	1050	150	3250	32	26	
TAPS	None	None	1625	16	None	
LENGTH OF WINDING	1"	1"	1"			
SIZE WIRE	28E	35E	35E	21E	21E	
TURNS PER LAYER	83-13	150-1	130-13			
KIND OF TERMINAL	20-20 P.B.	20-1 B.	16-20 P.B.	Wire Out	Wire Out	
LENGTH OF TERMINAL	10"	3"	10			
TUBE	1x007					
LAYER INSULATION	3MC		3MC			
PAPER	2 oz 3 KD	2 oz 3 KD	2 oz 3 KD	2 oz 3 KD	2 oz 3 KD	
TREATMENT	This is Type 326 VC III					
RESISTANCE	EXCEPT F1 = 2Ω					



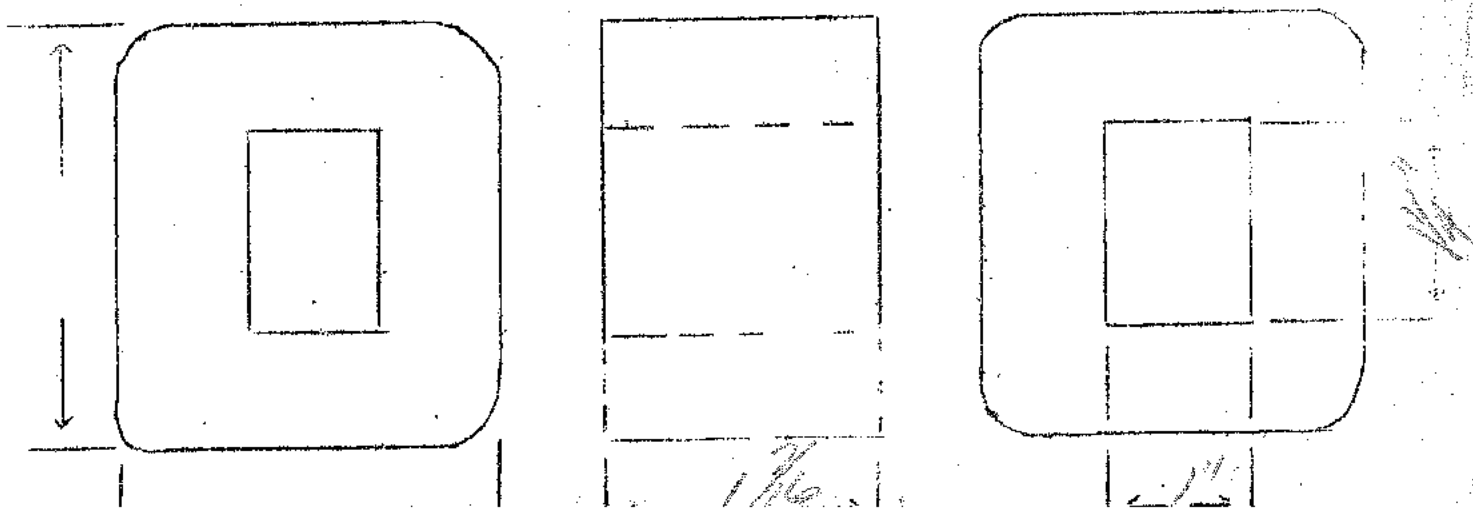
(3)

	Voltage	Current
Primary	230	
secondary	700	450
Filament No. 1	5	3
Filament No. 2	2½	2
Filament No. 3		

Specification No. 127

Type Transformer

	Pri	Sec	Sec	Fil (1)	Fil (2)	
TURNS	993	88	320	13	26	
TAPS	None	None	160	6½	None	
LENGTH OF WINDING	1¼	1¼	1¼			
SIZE WIRE	28 E	35 E	35 E	16 E	21 E	
TURNS PER LAYER	83-12	80-1	180-19			
KIND OF TERMINAL	No 20 Pig	Same	No 20 Pig			
LENGTH OF TERMINAL	10"	3"	10"	10"	10"	
TUBE	Fiber					
LAYER INSULATION	Empire Cloth		Empire Cloth			
PAPER	Leatheroid .005	Leatheroid .005	Leatheroid .005	Leatheroid .005	Leatheroid .005	
TREATMENT	This is the same Pri & Sec as No 111					
RESISTANCE						

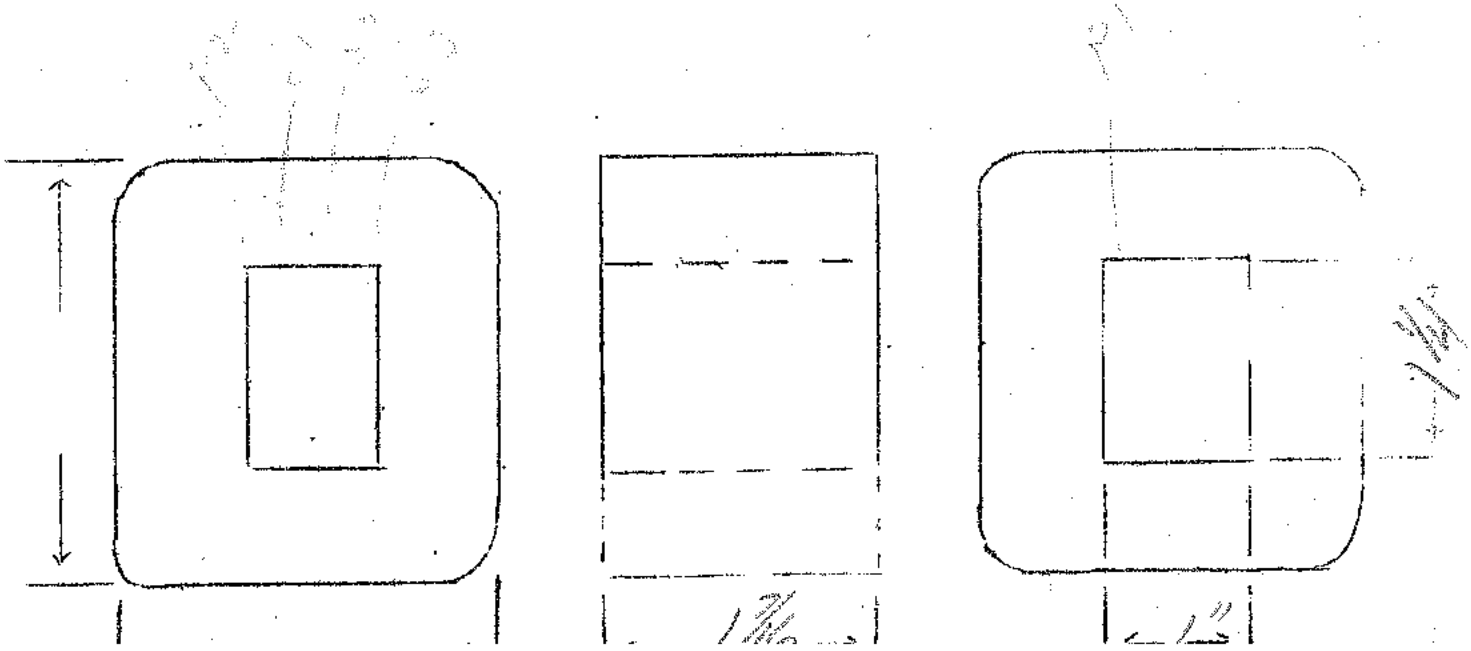


	Voltage	Current
Primary	110/220	
Secondary	220	0.5A
Filament No. 1	2.5	3
Filament No. 2	5	3
Filament No. 3		

Specification No. 1284

Type Transformer

	PRI	Pri	Sec	F/10	F.W.(2)	
TURNS	1010	110	3280	13	26	
TAPS	None	None	1640	6½	None	
LENGTH OF WINDING	1¾	1¾	1¾			
SIZE WIRE	28E	Enam	35E	16E	21E	
TURNS PER LAYER	53-72	180-1	180-19			
KIND OF TERMINAL	Wire Pig	Tab	Wire Pig	Wire Pig		
LENGTH OF TERMINAL	10"	10"	10	10	10	
TUBE	Fiber					
LAYER INSULATION	Paper		Paper			
WRAPPER	2 Layers IP	2 Layers IP	2 Layers Empire Cloth		2 Layers Empire Cloth	
TREATMENT	This is the same as Spec No 120					
RESISTANCE	Except E3 = 2Ω					

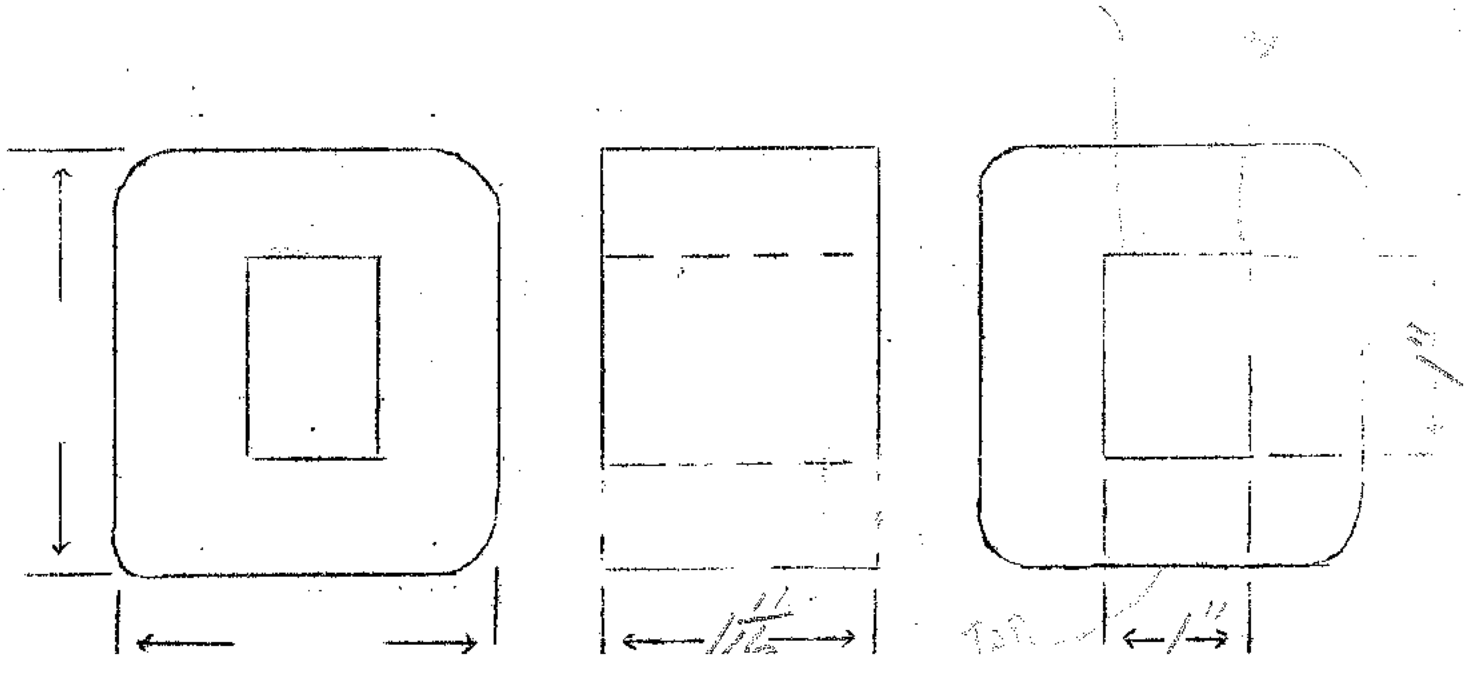


	Voltage	Current
Primary	230	
Secondary	440	
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 129

Type Transformer

TURNS	834					
TAPS	622					
LENGTH OF WINDING	1½					
SIZE WIRE	22 E					
TURNS PER LAYER	50					
KIND OF TERMINAL	Wire end					
LENGTH OF TERMINAL	4"					
TUBE	Hard					
LAYER INSULATION	Soft C					
WRAPPER	2 coats Bee					
TREATMENT						
RESISTANCE						



1 Ounce

117V @ 60 cycles
to
125 V @ 30 ma. (H.W. rect., condenser input)
6.3V @ 0.80 amps

Plate Winding

SPEC. NO. P 130

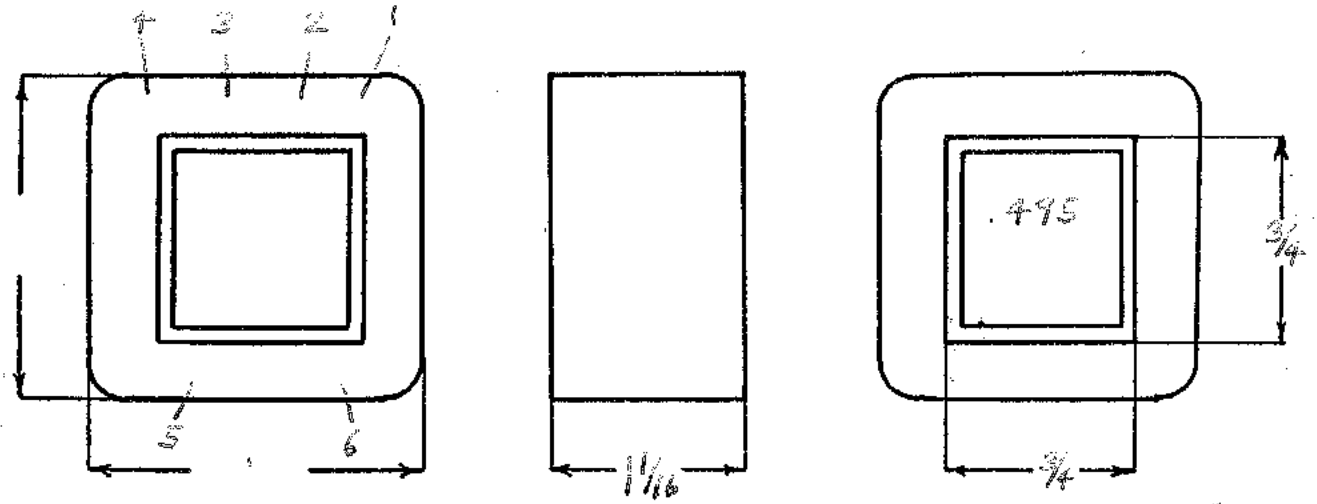
	1-2	3-4	5-6				
Winding	Plate	Pri	Sec				
Turns	1320	1050	70				
Taps	----	----	----				
Wind. Lgth.	13/16	13/16	13/16				
Wire Size	#36	#31	#25				
T. P. L.	132-10L	75-14L	35-2L				
Finish	91%	90%	83%				
Type Lead	#26 Audio	#26 Audio	#22 P.E.				
Lead Lgth.	10"	10"	10"				
Layer Insul.	20#	30#	50#				
Test Volt.	1250	1250	1000				
Wrapper	1L005VC	1L005VC	2L005GK				

TUBE	4L010G-K	IMPREGNATION	Varnish

CORE 3/4 x 3/4 GA. 24 GRADE D STACK Butt not Lap

MOUNTING D - Cleats

Wire - 87%



DESIGNED BY A. Hadley

DATE 4-2-50

DESIGN AND TEST DATA

Rating: I_s 3 45ma

Sec VA = 10.35
Pri VA = 19.90
I_p = .170a

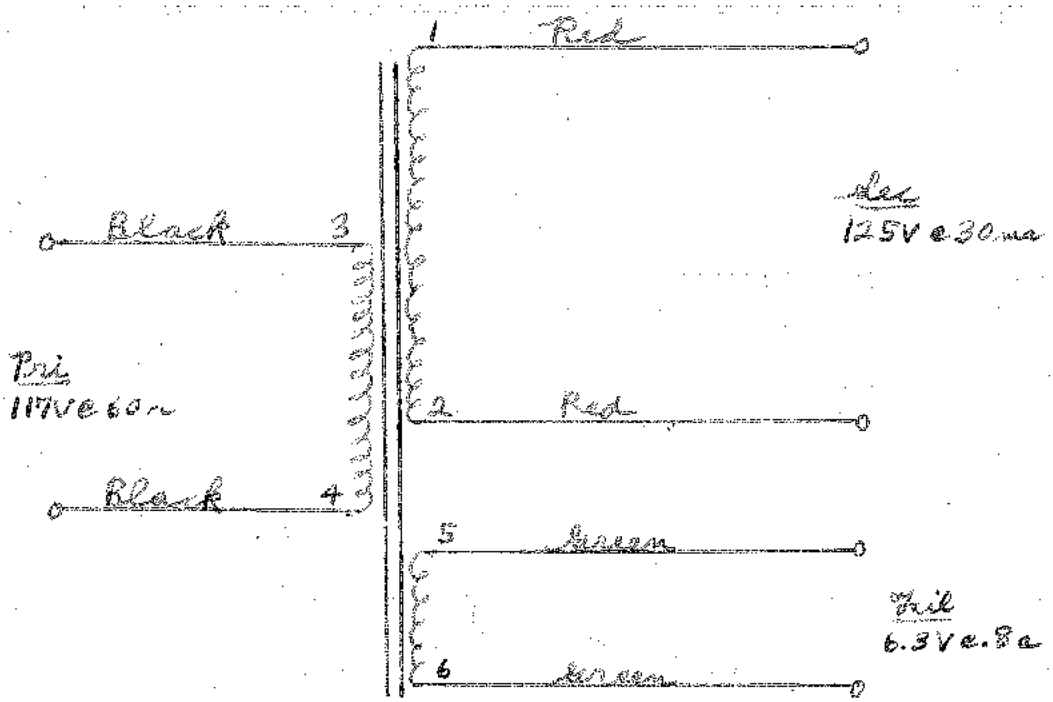
Winding	1-2 Sec	3-4 Pri	5-6 Fil				
Mean Turn	3.54	4.40	5.17				
Resistance 25° c	165	51.1	.996				
Pounds Copper	.0302	.0945	.0298				
Copper Density	556	468	400				
Ratio Volts open circuit	147.0	117	7.80				
	128.8	117	6.42				
Test to Ground	1250	1250	1000				

Iron Induction 13.1 Kg @ 60 Cycles with 117V on 3-4

Exciting Current 120 milli amperes @ 112 volts 60 cycles on 3-4

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

Remarks:



DESIGN AND TEST DATA

Rating: I_s @ 45ma

Sec VA = 10.35
Pri VA = 19.90
I_p = .170a

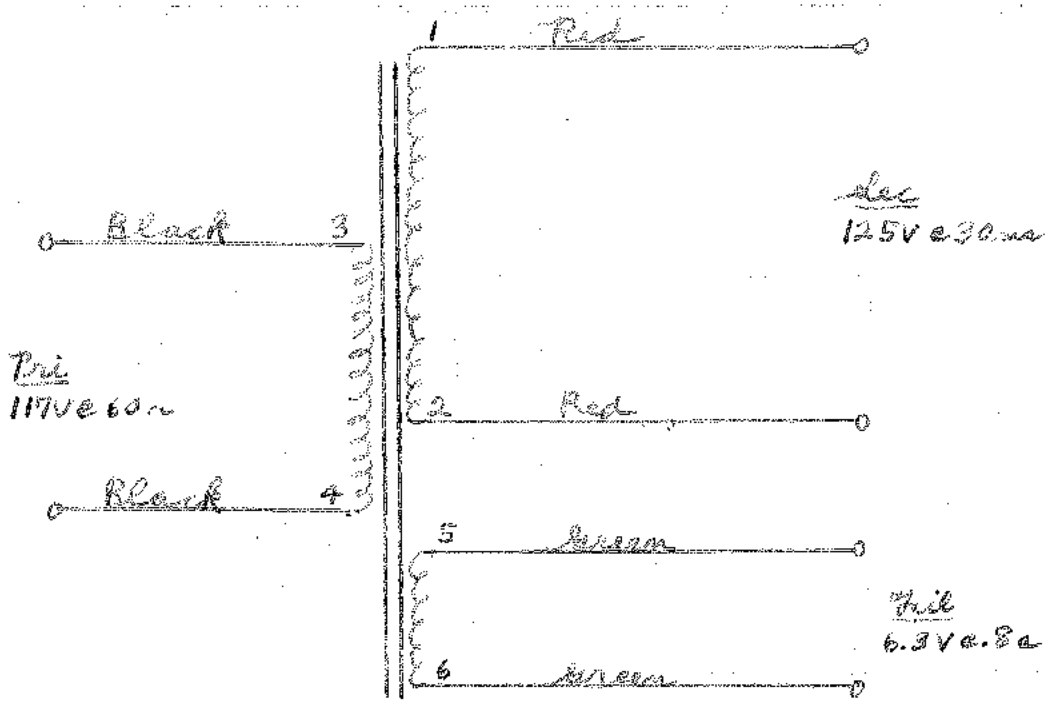
Winding	1-2 Sec	3-4 Pri	5-6 Fil				
Mean Turn	3.54	4.40	5.17				
Resistance 25° c	165	51.1	.996				
Pounds Copper	.0302	.0945	.0298				
Copper Density	556	468	400				
Ratio Volts (open circuit)	147.0	117	7.80				
	128.8	117	6.42				
Test to Ground	1250	1250	1000				

Iron Induction 13.1kg @ 60 Cycles with 117V on 3-4

Exciting Current 120 milliamperes @ 117 volts 60 cycles on 3-4

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

Remarks:

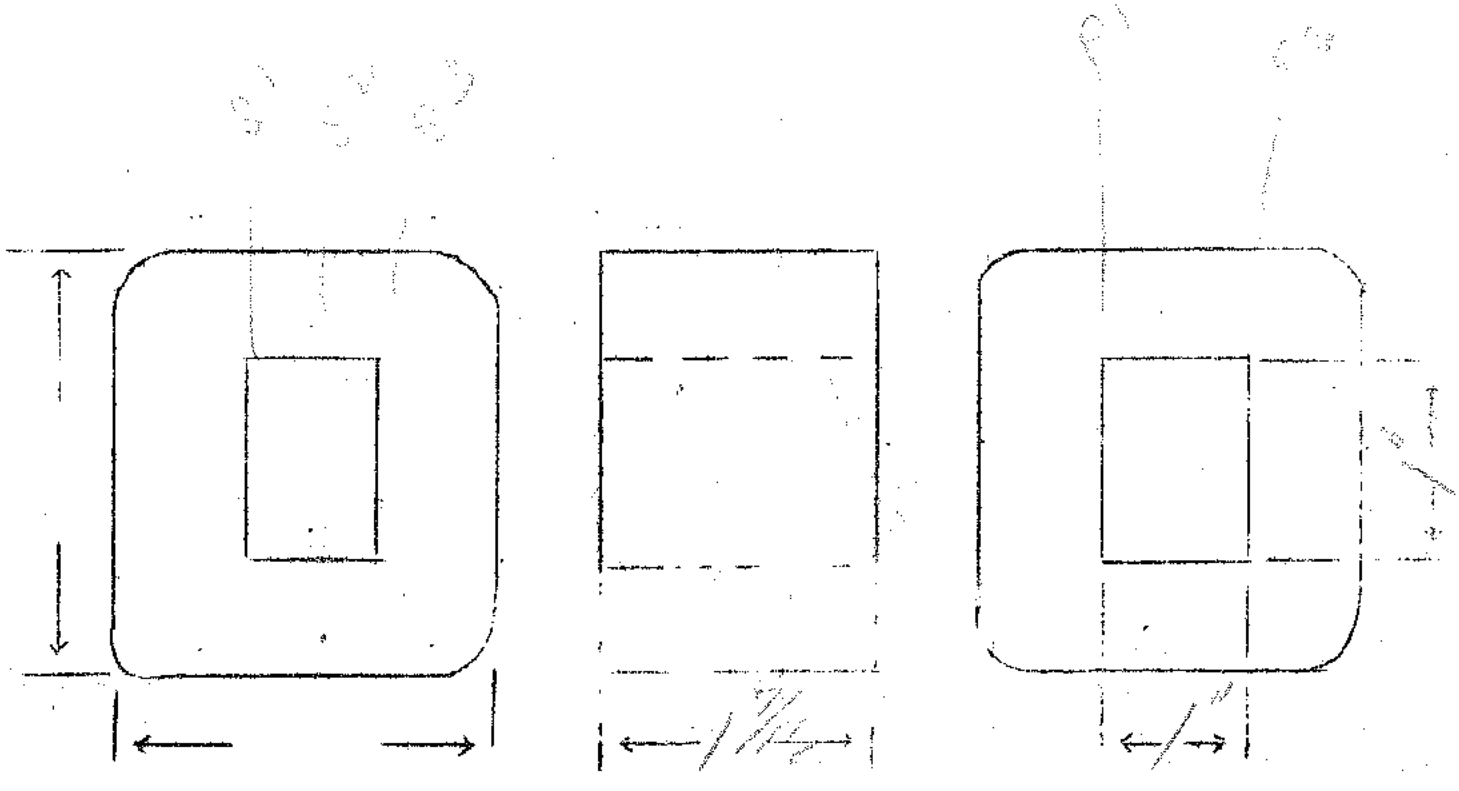


	Voltage	Wire Size
Primary	230	#24
secondary	2x6	#28
Filament No. 1	5	2
Filament No. 2	2.5	"
Filament No. 3		

Specification No. 1030

Type Transformer Power

	PRI	Shield	Sec.	F/O	F/O	
TURNS	1258	2 lap	1032	32	16	
TAPS	None	None	2025	None	3	
LENGTH OF WINDING	1"	1"	1"			
SIZE WIRE	#24	#28	#24	#14	#12	
TURNS PER LAYER	91-14	2 lap	210-20			
KIND OF TERMINAL	No 20 Tag	Strip	No 20 Tag			
LENGTH OF TERMINAL	9"	9"	9"			
TUBE	Hard					
LAYER INSULATION	Empire		Empire			
WRAPPER	2 lap 3 Empire	2 lap 3 Empire	2 lap 3 Empire		2 lap 3 Empire	
TREATMENT						
RESISTANCE						



Power

117V @ 60 cycles

125V @ 30 ma (H.V. rect, condenser input)

6.3V @ 0.80 amps

New design

SPEC. NO. P130

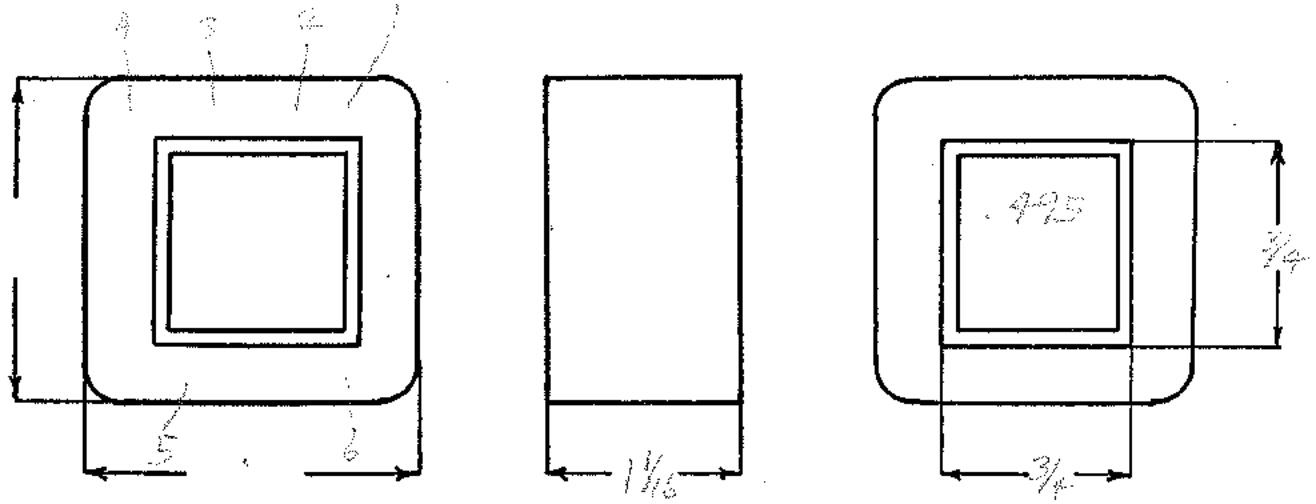
	1-2	3-4	5-6				
Winding	Sec	Pri	Pri				
Turns	1320	1050	70				
Taps	—	—	—				
Wind. Lgth.	13/16	13/16	13/16				
Wire Size	#36	#31	#25				
T. P. L.	132 - 10L	75 - 14L	35 - 2L				
Finish	91%	90%	33%				
Type Lead	10"	10"	10"				
Lead Lgth.	#26 Radio	#26 Radio	#22 P.E.				
Layer Insul.	20#	30#	50#				
Test Volt.	1250	1250	1000				
Wrapper	1L005VC	1L005VC	2L005GH				

TUBE 4L010GK IMPREGNATION Varnish

CORE 3/4 x 3/4 GA. 24 GRADE D STACK Butt not Bund

MOUNTING D — Leads

um = 37%



DESIGNED BY A. Hadley DATE 4-2-50

DESIGN AND TEST DATA

Rating: $T_p = .95$ mm

Bore Dia = 10.95
Outside Dia = 19.90
$T_p = .170$"

Winding	1-2 Pri	3-4 Pri	5-6 Sec				
Mean Turn	2.54	4.10	5.17				
Resistance 25° c	165	51.1	.956				
Pounds Copper	.0332	.0145	.0243				
Copper Density	1556	966	900				
Ratio Volts Sec Pri	1470 1283	117 117	7.80 6.72				
Test to Ground	1250	1250	1000				

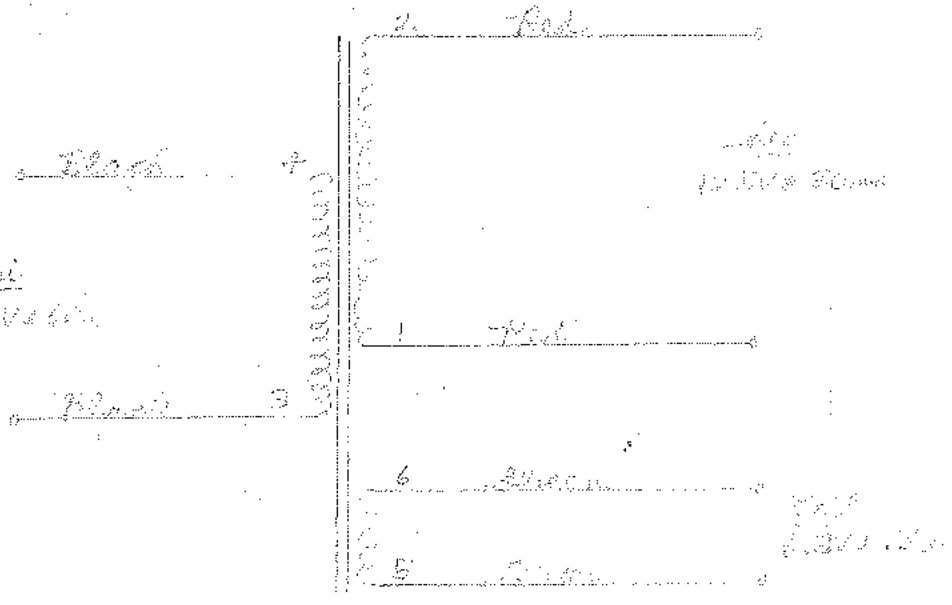
Iron Induction 13.1 Kg @ 60 Cycles with 117 on 3-4

Exciting Current 120 milli amperes @ 117 volts 60 cycles on 3-4

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

Remarks:

with 117 on 3-4 copper loss = 2.46 watts
core loss = 1.24 watts
total loss = 3.70 watts

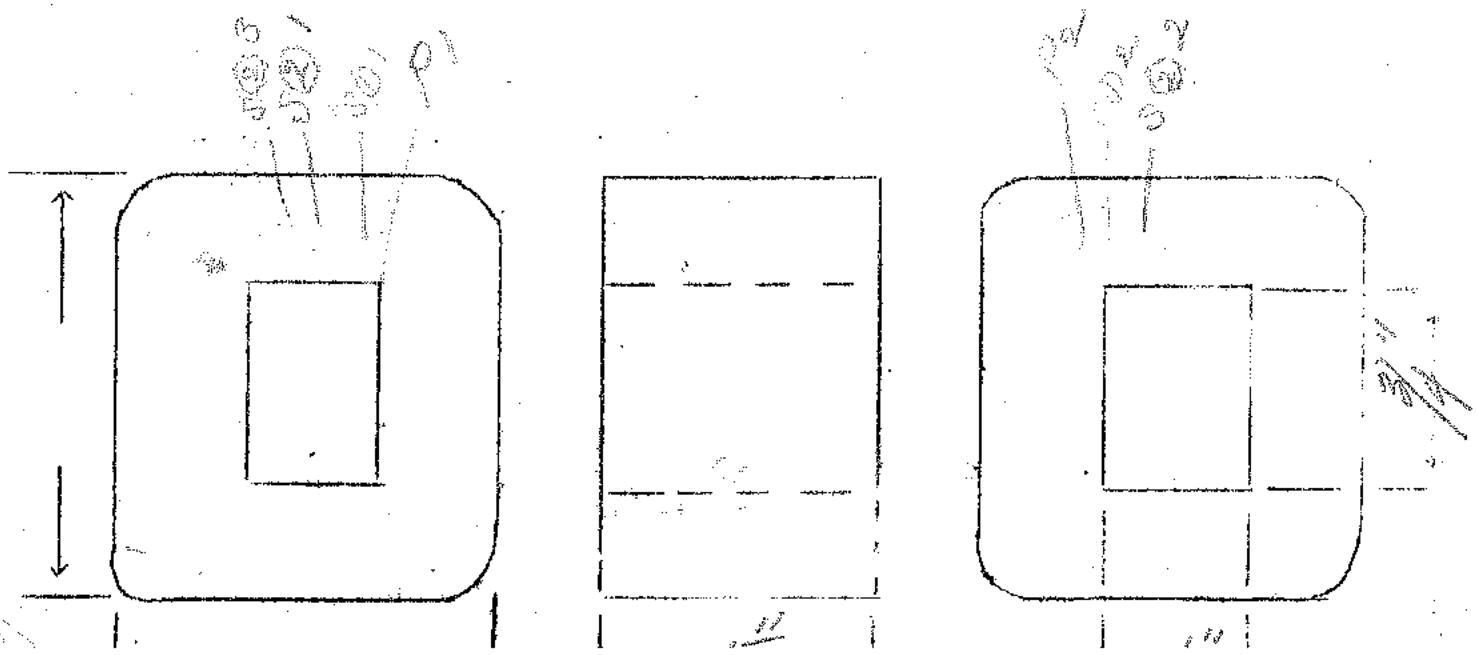


	Voltage	Current
Primary		
secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 131

Type Transformer

	Fil	Sec (1)	Sec (2)	Sec (3)		
TURNS	Two	1130	Start-0		Two	540
TAPS	None	None	110-220-300-340-360-380			
LENGTH OF WINDING	1/2	1/2	1/2	1/2	380-347-388	
SIZE WIRE	24 E	34 E	24 E	24 E		
TURNS PER LAYER	64-13		64-4			
KIND OF TERMINAL	Wire Lead	Solder Lug	Wire Lead	Wire Lead		
LENGTH OF TERMINAL	3"	3"	3"	3"		
TUBE	Fiber					
LAYER INSULATION	Bond	Bond	Bond			
WRAPPER	2 wds YP	2 wds YP	2 wds BP	2 wds BP		
TREATMENT						
RESISTANCE						

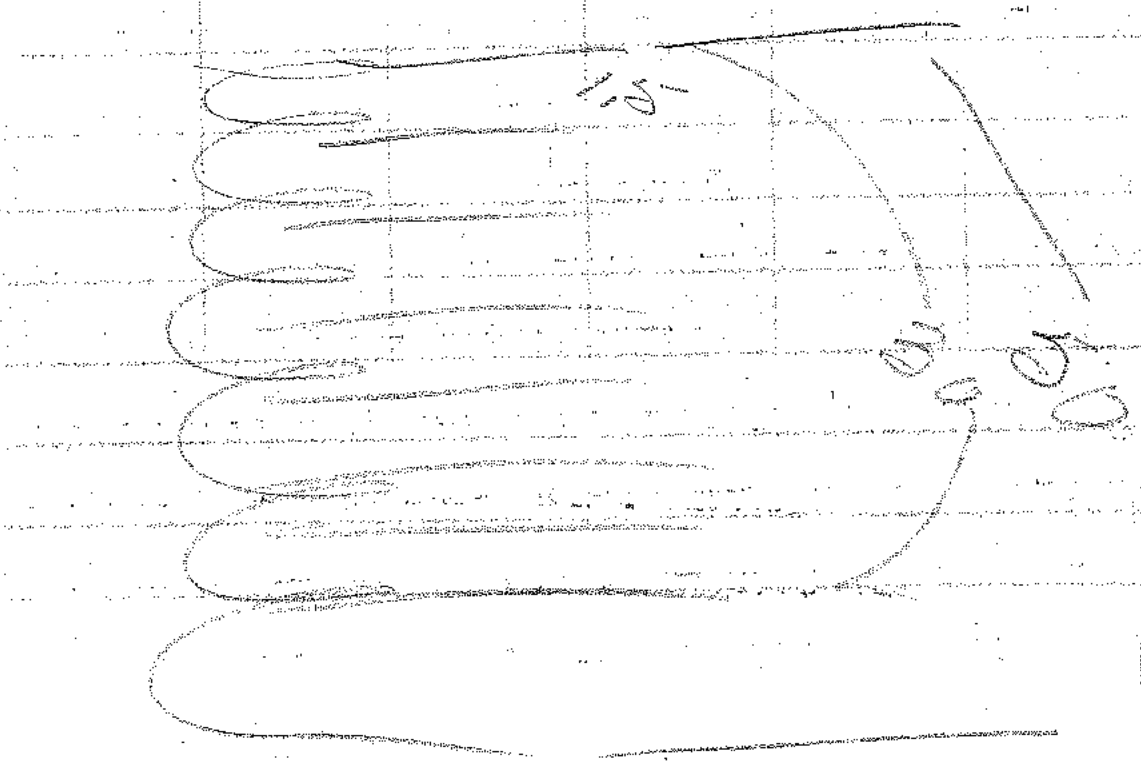


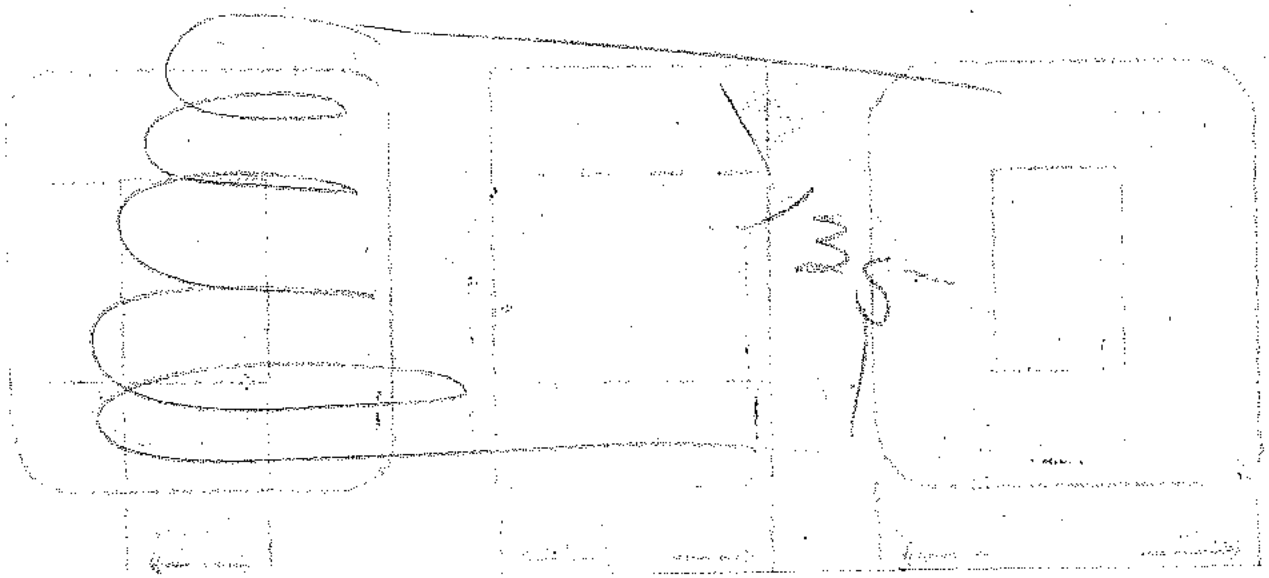
$I_{fs} = 1mA$

$R_{s_1} = 135 \Omega$ — 40 ma

$R_{s_2} = 1.5 - 2 - 2.5 - 3.3 - 5 - 6.3 - 7.5 - 12 - 14 - 15$ ohms

$R_{s_3} = 25 - 30 - 50$ — 1 amp



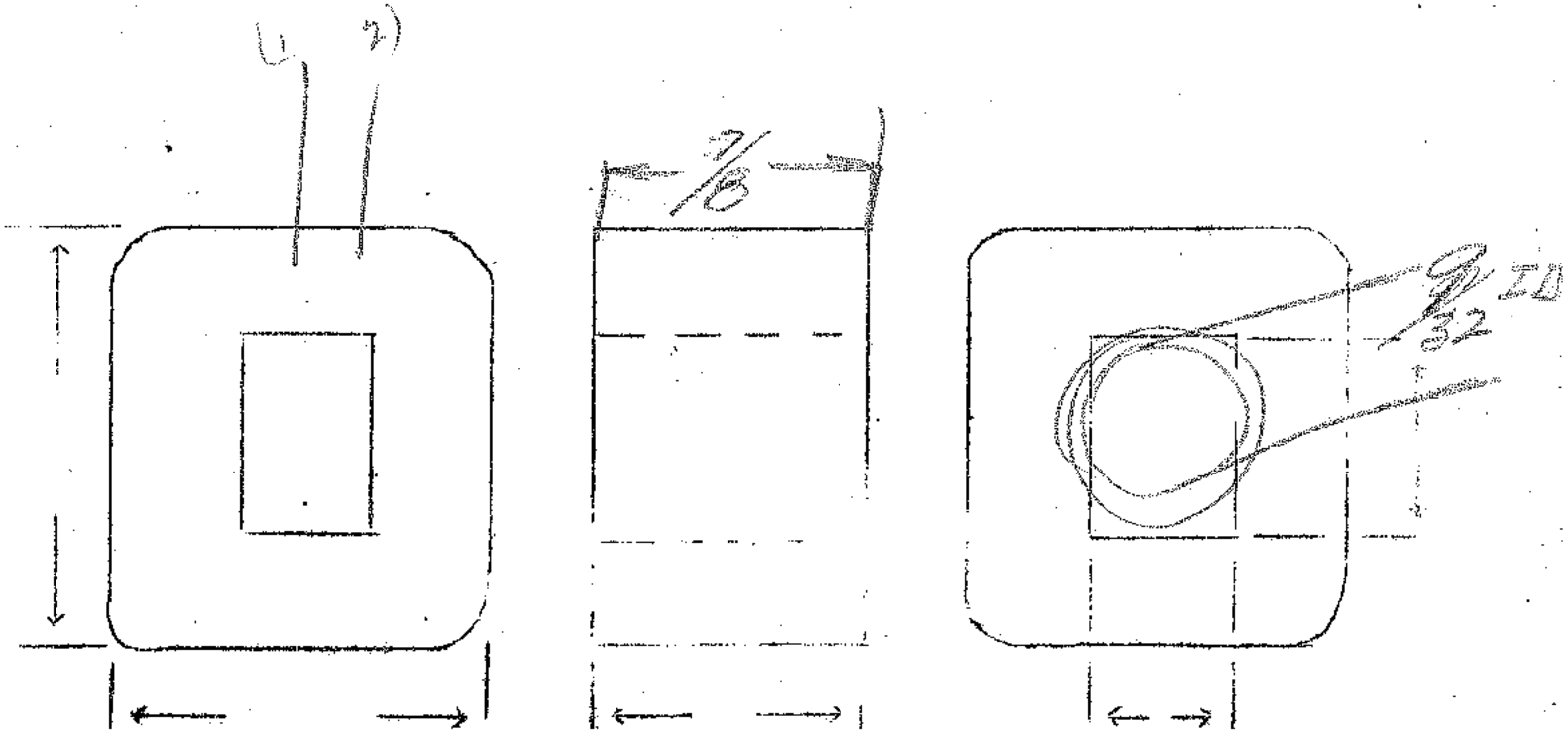


	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 133

Type Transformer Coil only

TURNS	3000					
TAPS	None					
LENGTH OF WINDING	.7					
SIZE WIRE	#40					
TURNS PER LAYER	192-157					
KIND OF TERMINAL	Wire					
LENGTH OF TERMINAL	6"					
TUBE	#1007					
LAYER INSULATION	16860					
WRAPPER	1200569					
TREATMENT						
RESISTANCE						



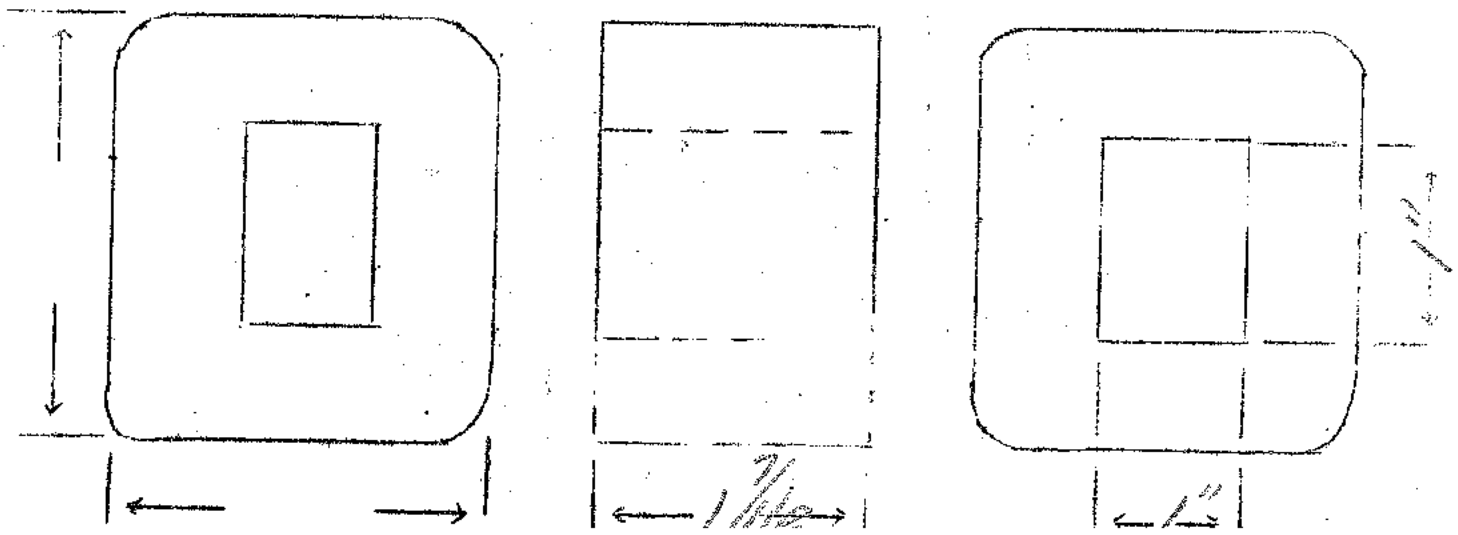
	Voltage	Current
Primary		
secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 133

Type Transformer C

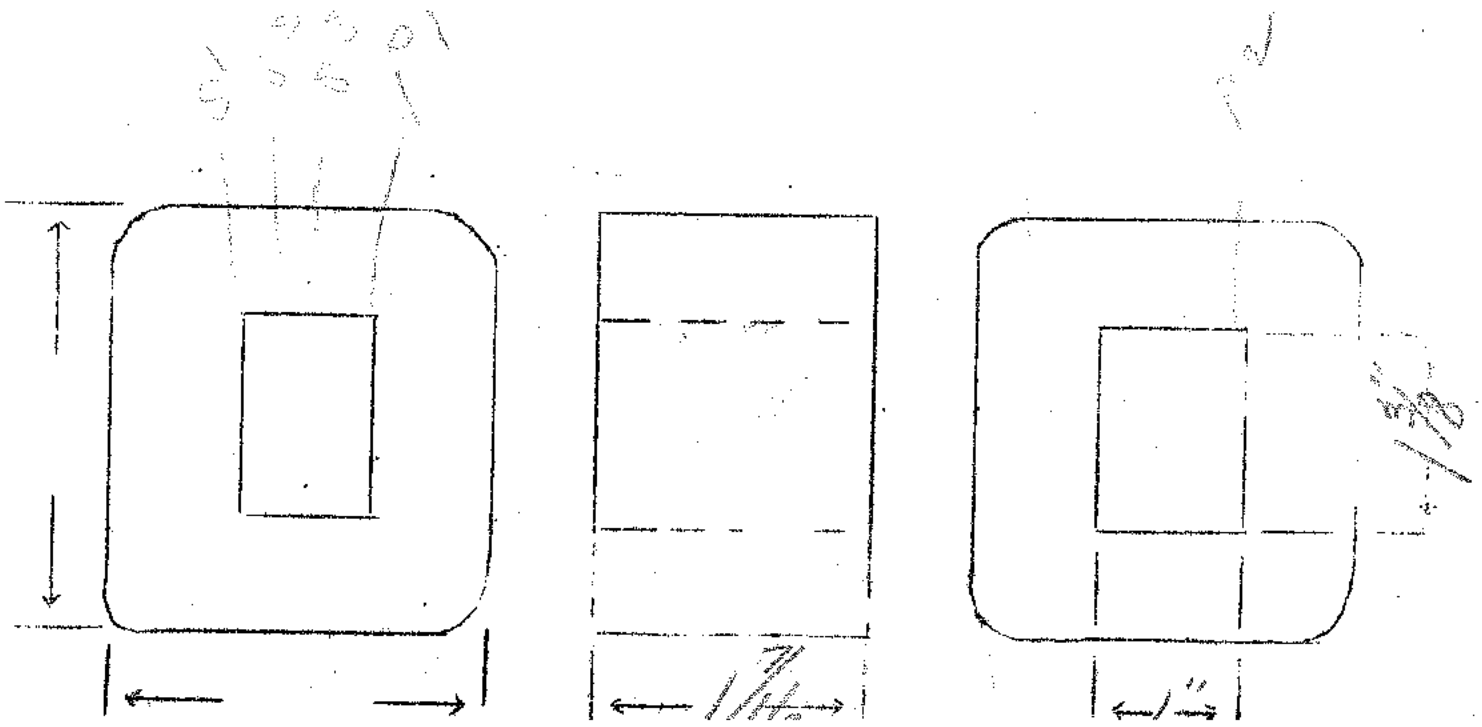
10-1 C.T. audio - 5 ma

	PRI	SEC				
TURNS	2100	2100				
TAPS	1050	1050				
LENGTH OF WINDING	1"	1"				
SIZE WIRE	#40	#40				
TURNS PER LAYER	342	342				
KIND OF TERMINAL	S. B.	S. B.				
LENGTH OF TERMINAL	3"	3"				
TUBE	#2007					
LAYER INSULATION	Hi-E	Hi-E				
WRAPPER	2 layers #10	2 layers Cap.				
TREATMENT						
RESISTANCE						



	Voltage	Current	
Primary	230	Volume	Specification No. 134
secondary	2400	1.55	
Filament No. 1	5	2	Type Transformer
Filament No. 2	2.5	2	
Filament No. 3			

	PRI	1st Sec	2nd Sec	F1 (2)	F2 (2)
TURNS	916	180	2220	2	12
TAPS	None	None	1760	None	6
LENGTH OF WINDING	1¼"	1¼"	1¼"		
SIZE WIRE	27 E	35 E	35 E	21 E	16 E
TURNS PER LAYER	71-13	180-1	183-16		
KIND OF TERMINAL	Rem Tab	Sol Lug	Rem Tab	Sol Lug	Sol Lug
LENGTH OF TERMINAL	9"	3"	9"	9"	9"
TUBE	Fiber				
LAYER INSULATION	Paper		Paper		
WRAPPER	24053 VP	24053 VP	24053 VP	24053D	24053D
TREATMENT				18"	11"
RESISTANCE					



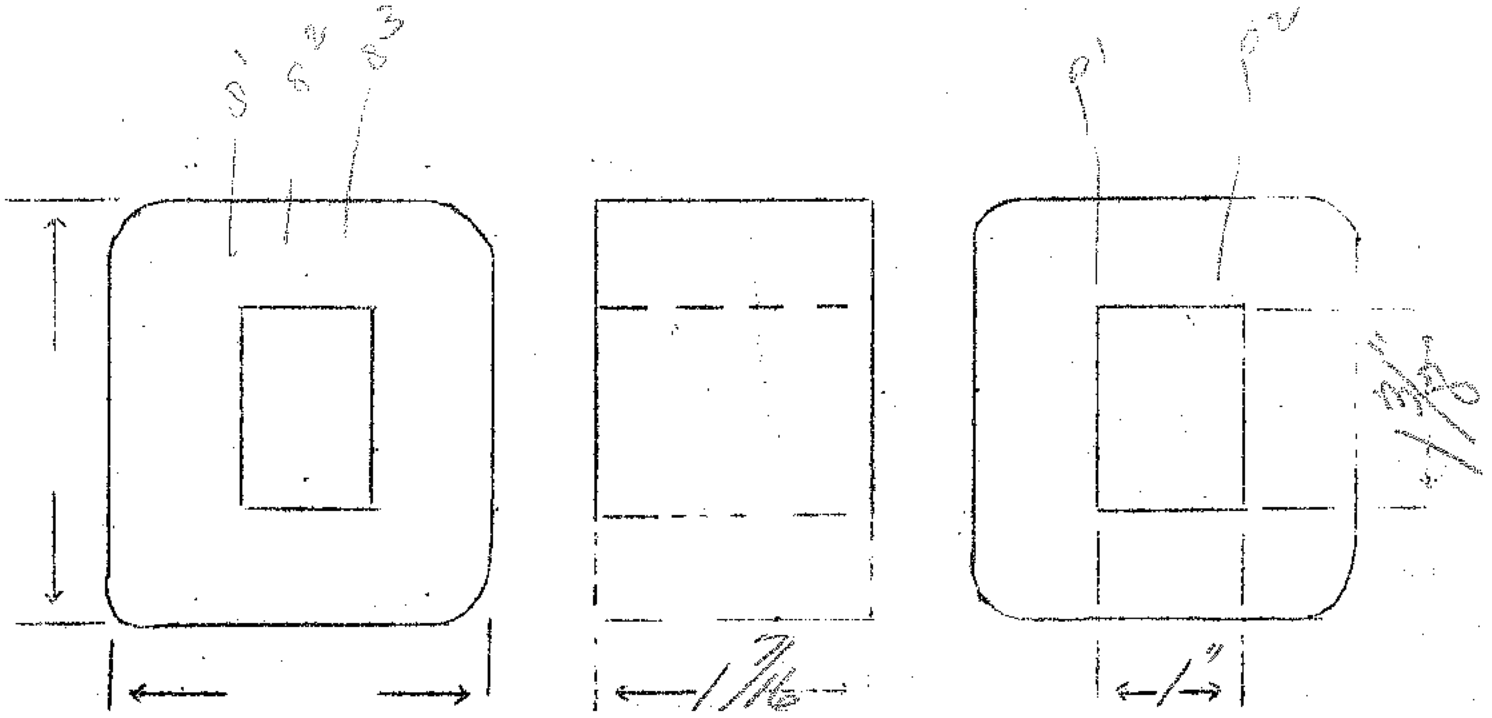
Voltage Current

Primary 2½ 1.25
Secondary 2½ 1.25
Filament No. 1 5 3
Filament No. 2 2.5 2
Filament No. 3

Specification No. 135

Type Transformer

	P.P.	1/2 Shield	1/2 Sec.	F.W.	F.L.
TURNS	1200	183	3220	24	12
TAPS	None	None	1460	None	6
LENGTH OF WINDING	1¼"	1/2"	1¼"		
SIZE WIRE	#28	#35	#35	#21	#16
TURNS PER LAYER	34-12	183-1	183-16		
KIND OF TERMINAL	Wire Pig	Strip	Wire Pig	Wire Cut	Wire Cut
LENGTH OF TERMINAL	9"	3"	9"	9"	3"
TUBE	Fish				
LAYER INSULATION	Var. Co.		Var. Co.		
WRAPPER	24003 Kp	24003 Kp	24005 Co	24005 Co	24005 Co
TREATMENT				16'	9½'
RESISTANCE					

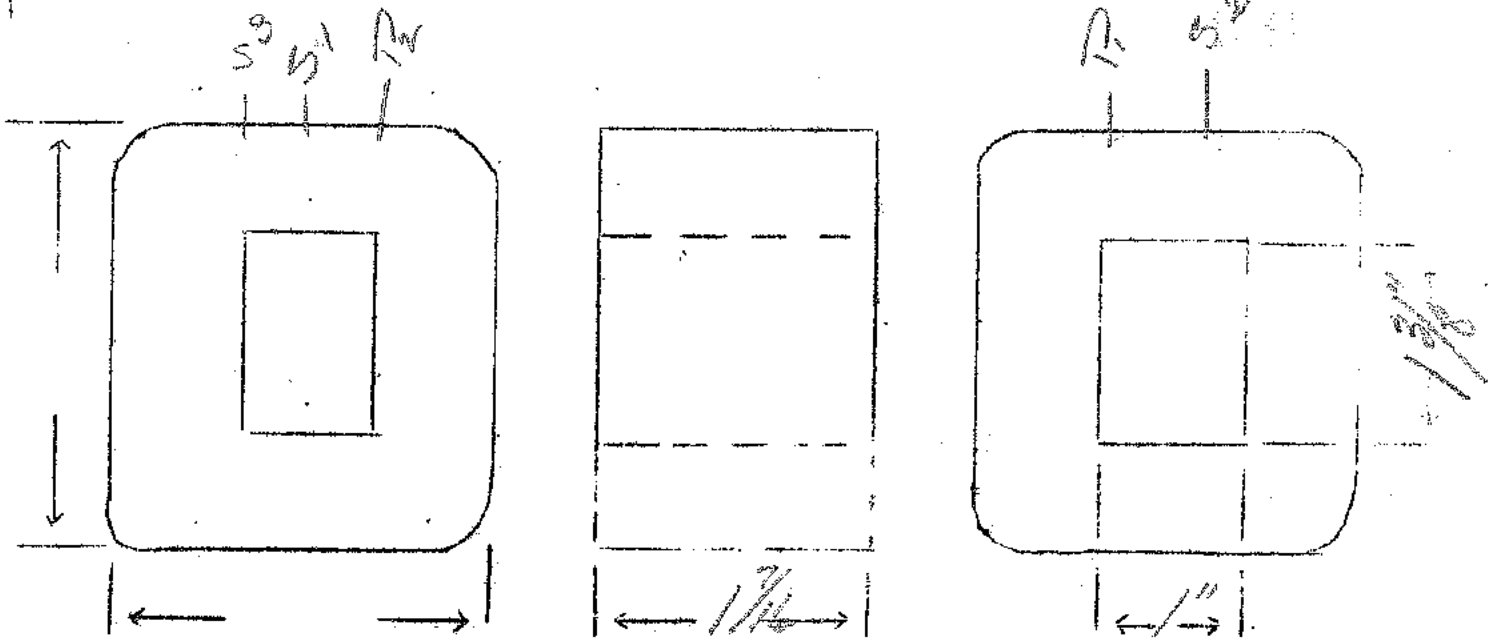


	Voltage	Current
Primary	115	
Secondary	700	.052
Filament No. 1	5	2
Filament No. 2	25	3.25
Filament No. 3		

Specification No. 137

Type Transformer

	Pri	Sec	Sec	F.H.	F.H. (2)	
TURNS	465	1855	2345	22	11	
TAPS	None	None	1710	None	None	
LENGTH OF WINDING	1¼	1¼	1¼			
SIZE WIRE	24E	35E	35E	21E	15E	
TURNS PER LAYER	52-9	184-1	184-11			
KIND OF TERMINAL	Wire Out	S. L. Sec	S. L. Sec	Wire Out	Wire Out	
LENGTH OF TERMINAL	3"	3"	3"	3"	3"	
TUBE	½ x 1					
LAYER INSULATION	Thin		2 Thin			
WRAPPER	2 Layers Y.P.	2 Layers Y.P.	2 Layers C.P.	2 Layers C.P.	2 Layers C.P.	
TREATMENT						
RESISTANCE						



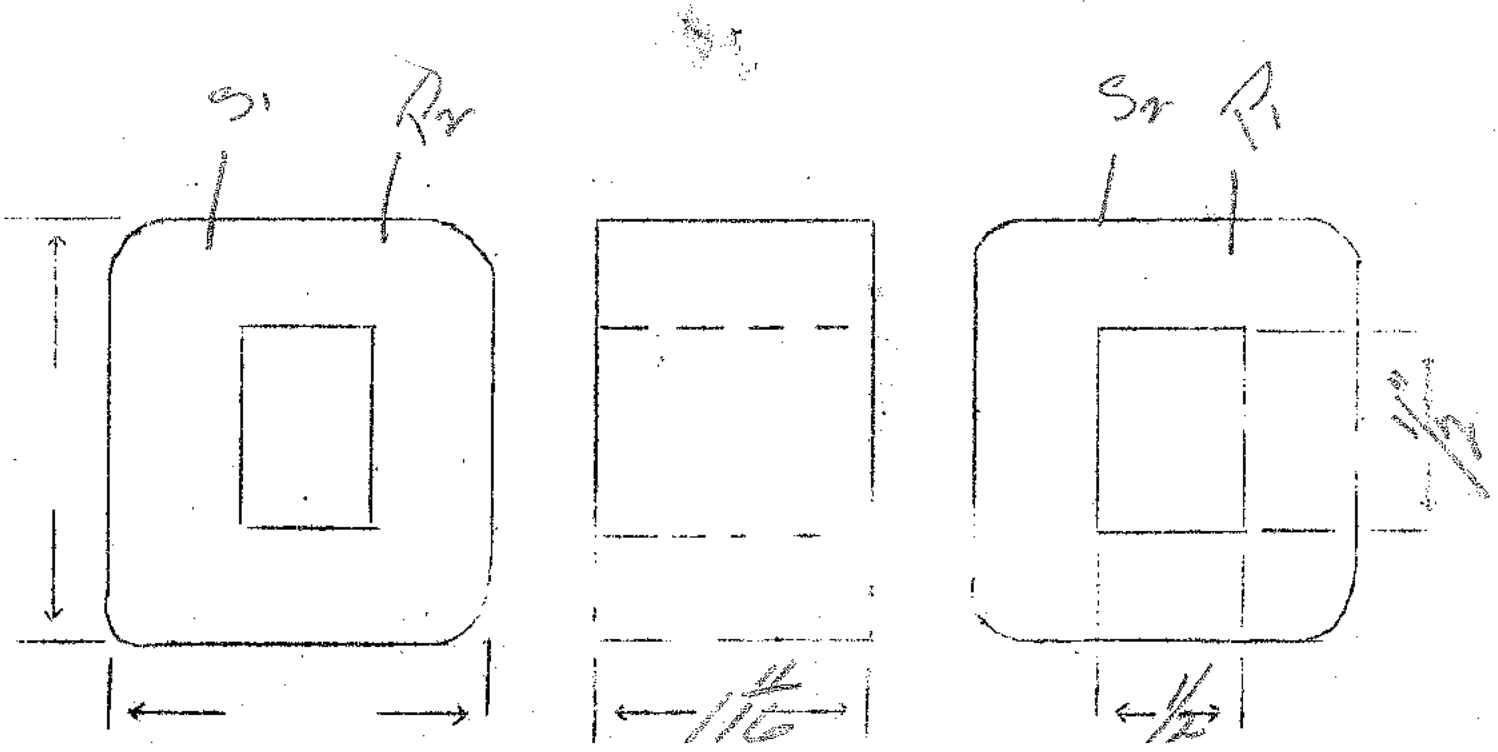
3

	Voltage	Current
Primary		
secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 138

Type Transformer

	Pri	Sec				
TURNS	465	1200 Plus 10 Turns				
TAPS	None					
LENGTH OF WINDING	1 1/2	1 1/2				
SIZE WIRE	28 E	37 E				
TURNS PER LAYER	93	220				
KIND OF TERMINAL	Lugs Enl	S. E				
LENGTH OF TERMINAL	6"	6"				
TUBE	Fiber					
LAYER INSULATION	Saba	Saba				
WRAPPER	2 Layers	2 Layers				
TREATMENT	Wax					
RESISTANCE						



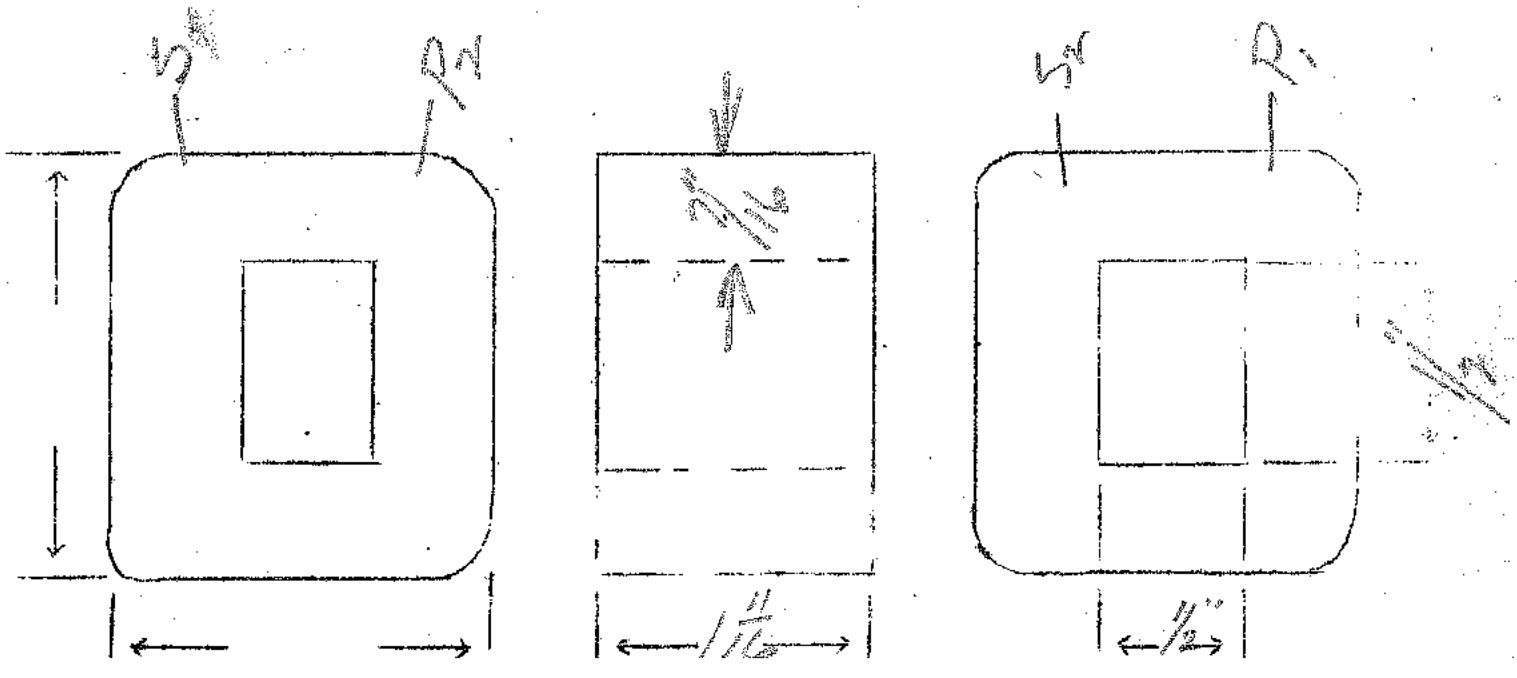
3

	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 139

Type Transformer

	PRI	SEC.				
TURNS	500	11200				
TAPS	None	None				
LENGTH OF WINDING	1 1/2	1 1/2				
SIZE WIRE	24 E	36 E				
TURNS PER LAYER	62	240				
KIND OF TERMINAL	WIRE ENDS	SOLDER LUGS				
LENGTH OF TERMINAL	6"	6"				
TUBE	FIBRE					
LAYER INSULATION	OILED	LEATHER				
WRAPPER	2 LAYERS PAPER	4 LAYERS CAMBRIC				
TREATMENT	WAX					
RESISTANCE						

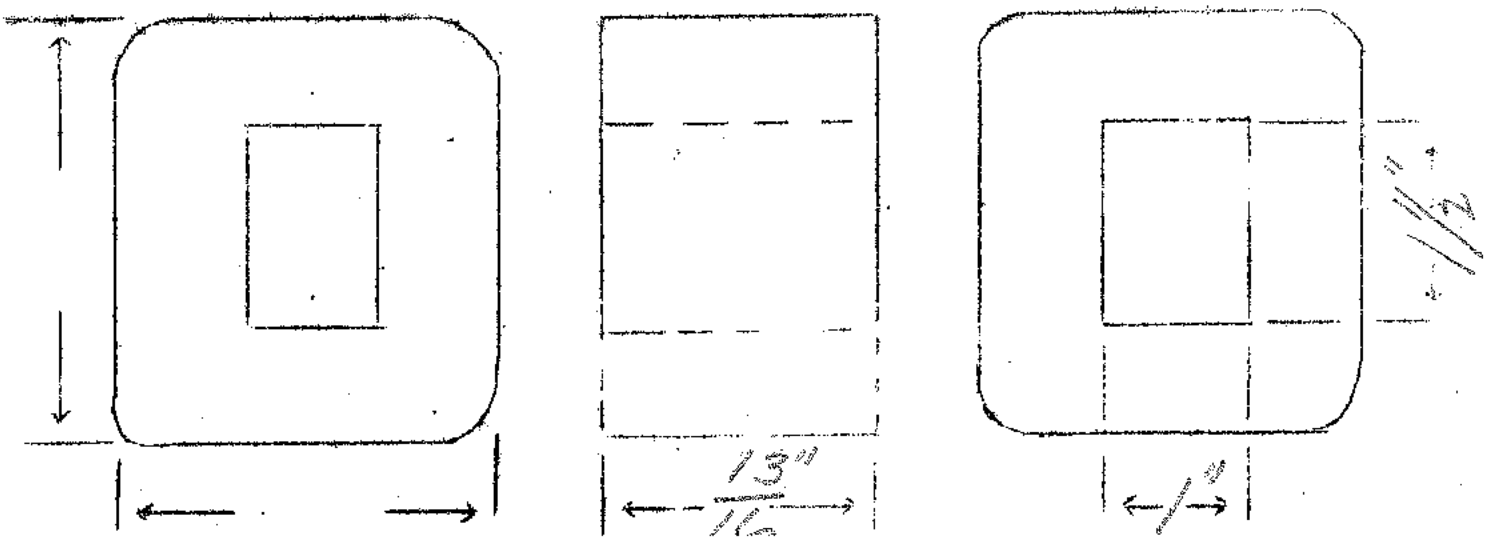


	Voltage	Current
Primary		
Secondary		
Filament No. 1		
Filament No. 2		
Filament No. 3		

Specification No. 1410

Type Transformer

	Pri	Sec				
TURNS	3680	190				
TAPS	None	None				
LENGTH OF WINDING	3¼"	3¼				
SIZE WIRE	#33 E	#20 E				
TURNS PER LAYER	88-½	20				
KIND OF TERMINAL	Pig	Pig				
LENGTH OF TERMINAL	9"	9"				
TUBE	Fiber					
LAYER INSULATION	Paper	Paper				
WRAPPER	2 layers HP	2 layers GP				
TREATMENT						
RESISTANCE						



Spec 191

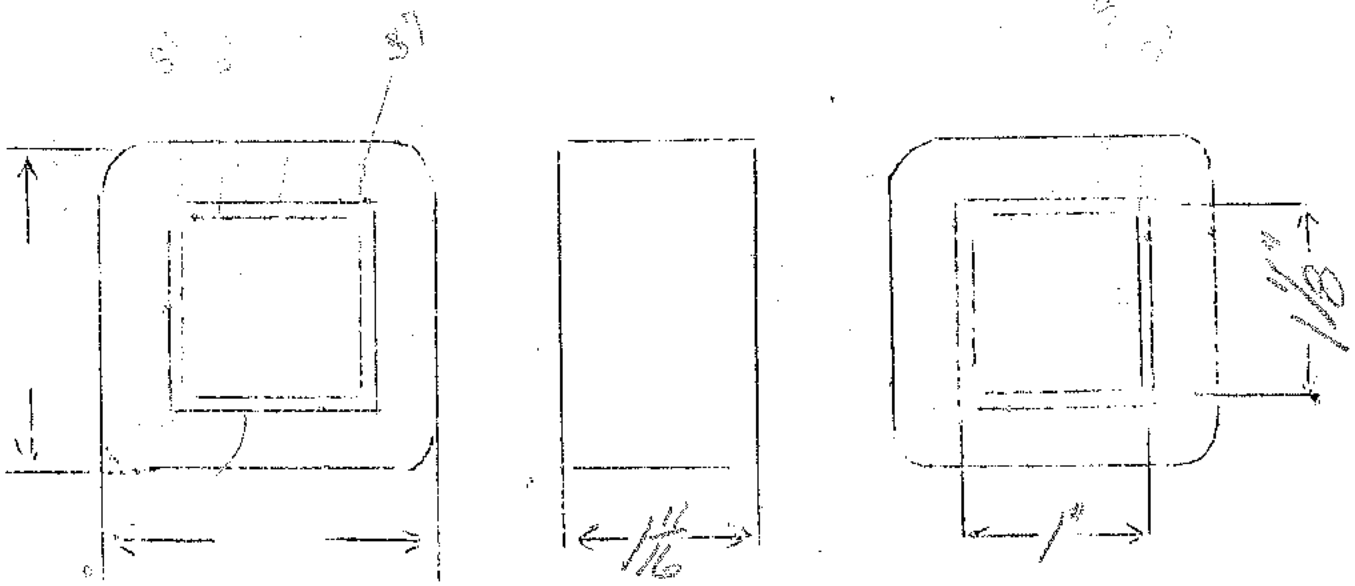
SPEC. NO. 191

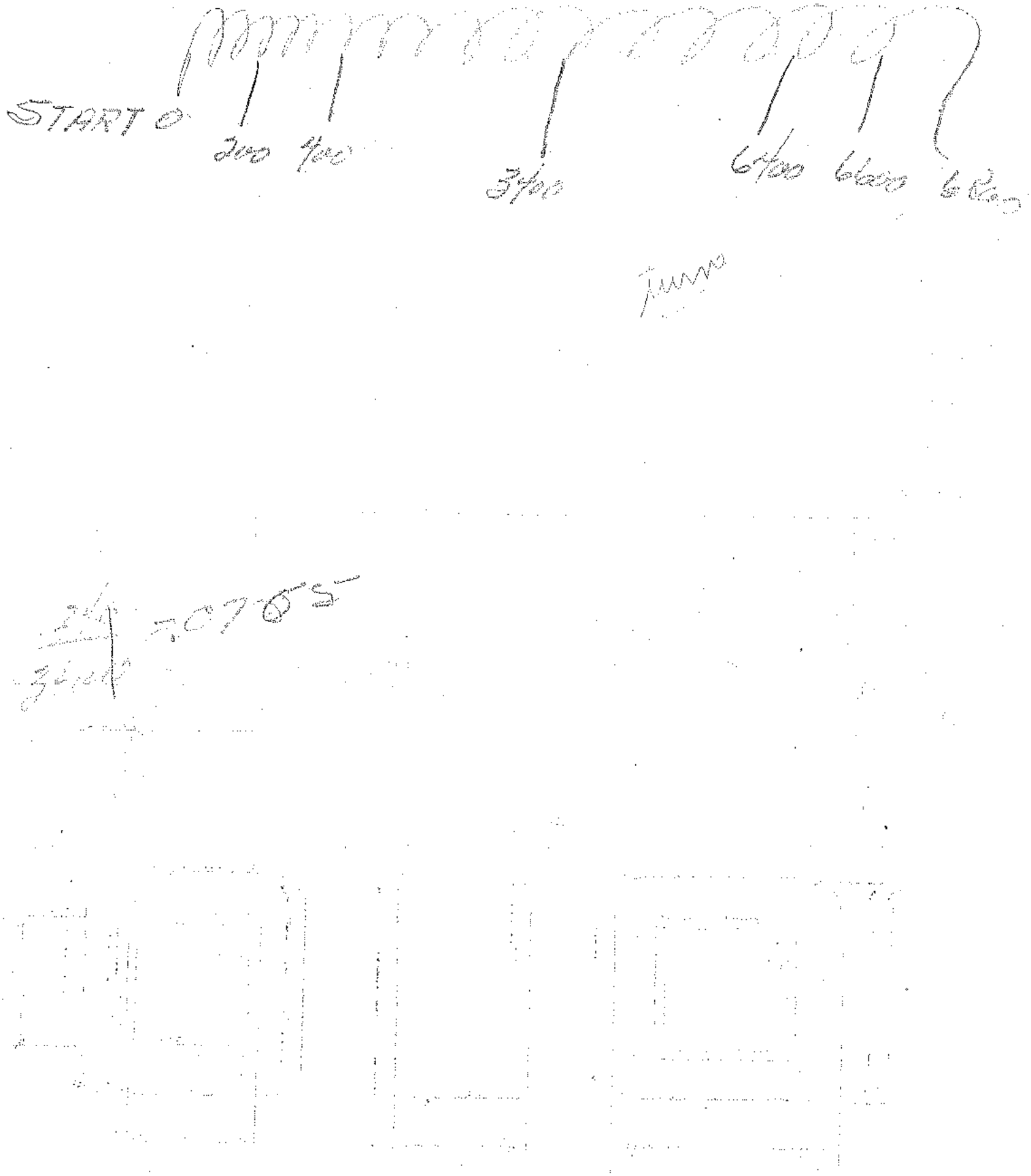
Winding	Sec	Pri 220	Pri				
Turns	6800 6600	196	110				
Taps 200 400	6502 6402	None	5-10-15-35-95-120-105				
Wind. Lgth.	1 1/2	1 1/2	1 1/2				
Wire Size	34 E	34 E	18 E				
T.P.L.	18"	18"	36"				
Kind Term.	No 20 Solid	Cloth Lead	Rubber Covered				
Term. Lgth.	9"	3"	9"				
Layer Insul.	2 Mil Gr						
Wrapper	1 Layer 5 Mil Empire Cloth	Standard	2 Layers Empire Cloth				

TUBE Fiber

IMPREGNATION Varnish

CORE 1 Piece




START
JUMP

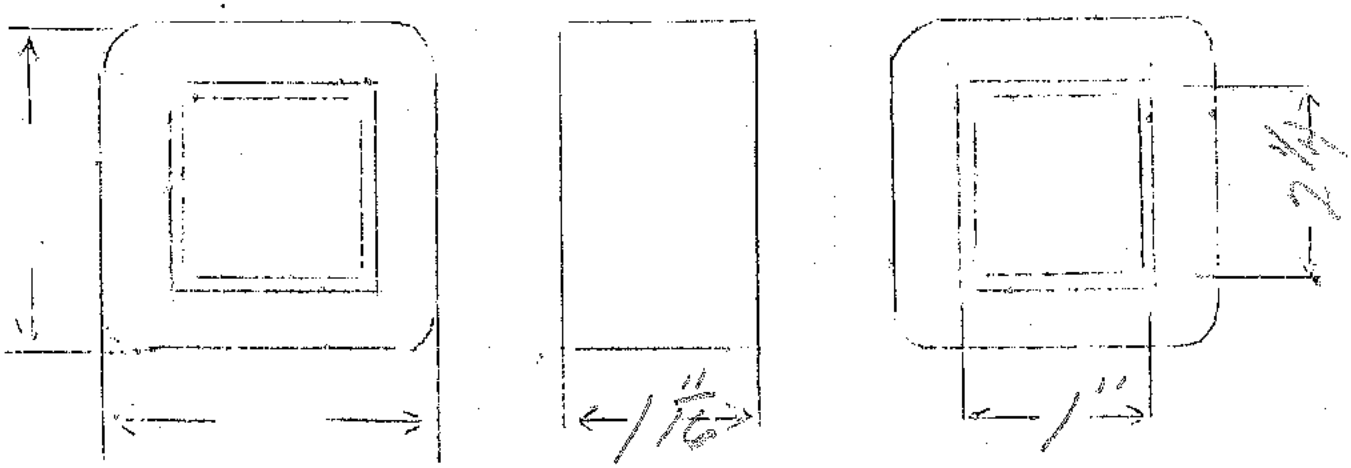
SPEC. NO. 14-2

Winding	Pri	Shield	Sec	Tap	Sec	Sec	
Turns	324	125	3120	3	20	20	
Taps	285	None	1045	5½	10½	10½	
Wind. Lgth.	1/2	1/2	1/2				
Wire Size	#26	#36	#36	#32	#32	#32	
T.P.L.		1/2	1/2				
Kind Term.	Wire Lead	Wire Lead	Wire Lead	Wire Lead			
Term. Lgth.	9"	9"	9"	9"			
Layer Insul.	Paper		Paper				
Wrapper	2 thick	2 thick	2 thick		2 thick		

TUBE 2 thick IMPREGNATION Varnish

CURE 24 hrs

Note: Wind Pri, Sec, Shield as No 2



$E_p = 230$

$E_s = 706 - I = .090$

$E_{f_1} = 2.5 - I = 10.00$

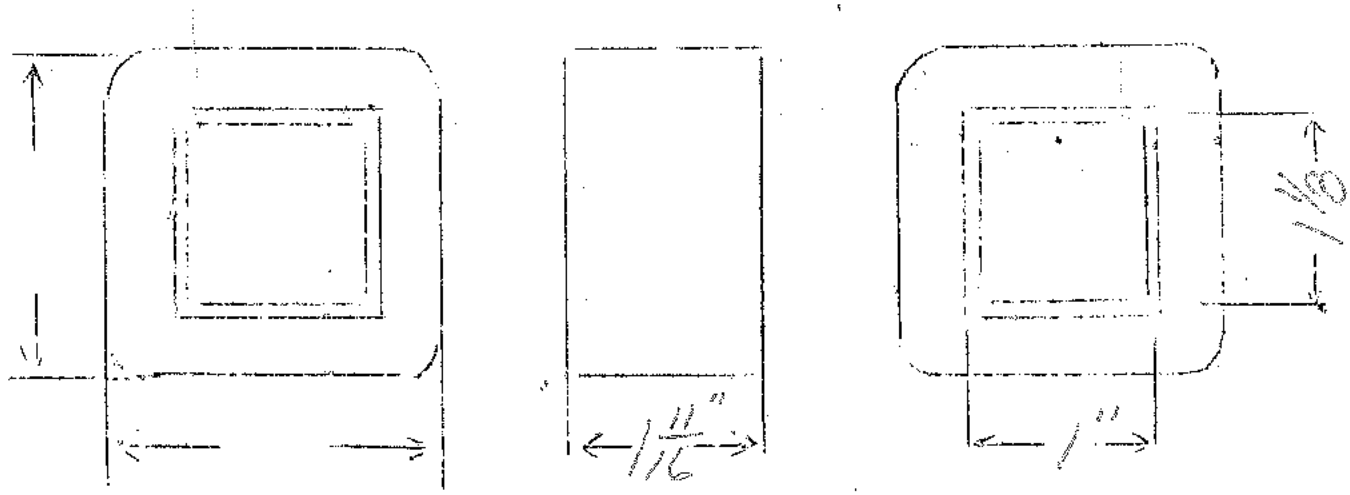
$E_{f_2} = 5. - I = 2.$

SPEC. NO. 143

Winding	PRI	SHIELD	SEC.	FIL(1)	FIL(2)		
Turns	1105	125	3640	15	26		
Taps	NONE	NONE	1820	6½	NONE		
Wind. Lgth.	1½	1½	1½				
Wire Size	26E	33E	33E	18E	20E		
T.P.L.	80-14	125-1	125-21				
Kind Term.	No 30 P.B.W.	5" No 30	No 30 P.B.W.				
Term. Lgth.	9"	5"	9"				
Layer Insul	3 mil		2 mil				
Wrapper	2 mil	2 mil	2 mil	2 mil			

TUBE | 2.007 | IMPREGNATION | VARNISH

CURE | 1 hr 1/2" 77°

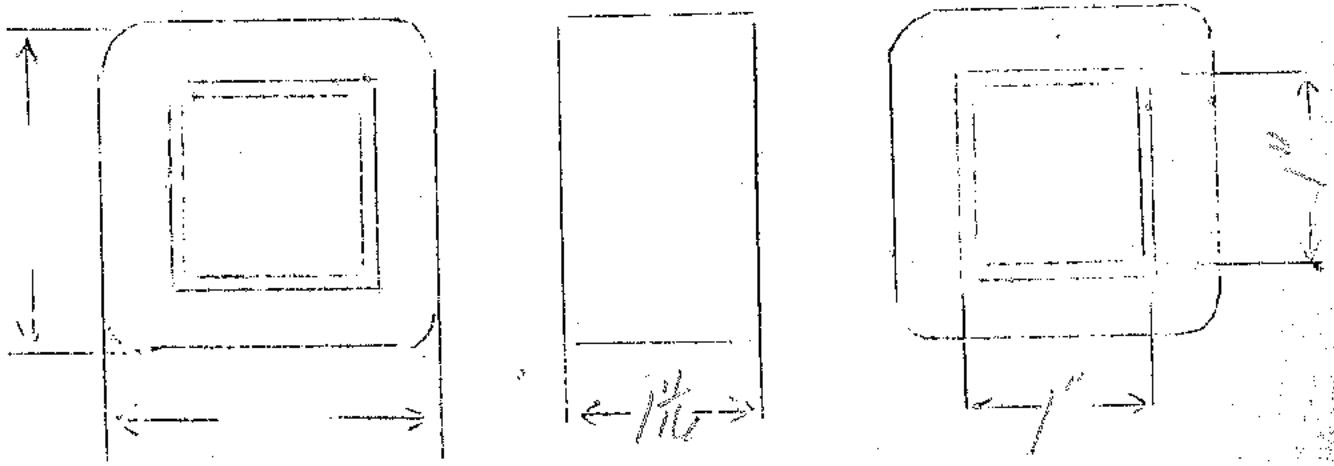


SPEC. NO. 1454

Winding	PRI	Yellow	Blue				
Turns	1244	1	37				
Taps	622	NONE	NONE				
Wind. Lgth.	1½	1½					
Wire Size	22 E	22 E	No 18				
T.P.L.	5						
Kind Term.	WIRE ENAM.	SAME					
Term. Lgth.	3"	3"					
Layer Insul.	Sold 1						
Wrapper	2 LAYERS (1)	2 LAYERS (2)	2 LAYERS (3)				

TUBE | IMPREGNATION

CURE



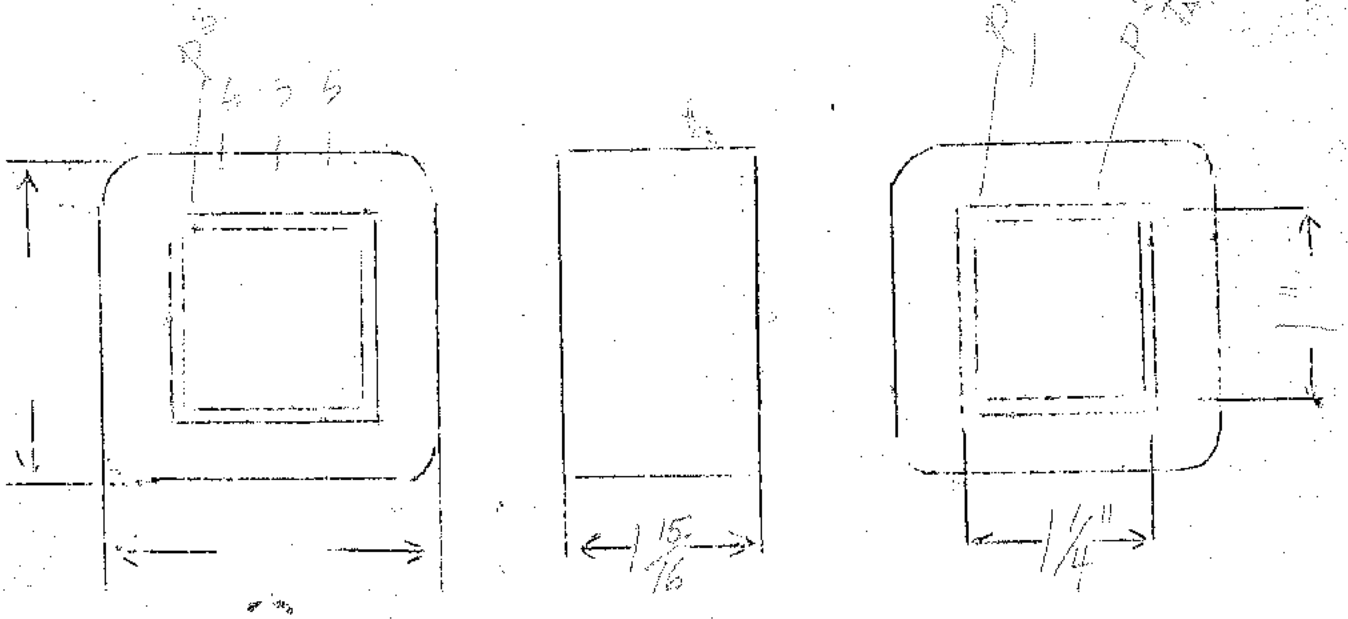
Ep = 110-120
ES = 700 - I = 100
EH = 2.5 - I = 5
EL = 2.5 - I = 3.5
EF = 5 - I = 2

SPEC. NO. 145

Winding	PRI	SHIELD	SEC.	FIL (1)	FIL (2)	FIL (3)	
Turns	532	205	3640	24	12	12	
Taps	188	NONE	1820	NONE	NONE	6	
Wind. Lgth.	1 3/4	1 3/4	1 3/4				
Wire Size	22 E	33 E	33 E	18 E	14 E	16 E	
T.P.L.	60-9	205-1	205-18	24	12	12	
Kind Term.	WIRE ONLY	SIL. BR.	SIL. BR.	WIRE ONLY	WIRE ONLY	WIRE ONLY	
Term. Lgth.	3"	3"	3"	3"	3"	3"	
Layer Insul.	50 LG1		20 LG1				
Wrapper	2L003VP	2L003VP	2L005A		2L00	5 GA	

TUBE | 2L002 | IMPREGNATION | VARNISH

CURE | 1 1/4" X 1" X (2 X 3/4) WINDOW



Watch lead positions

$L_p = 115$

$L_5 = 500 - L = 0.26$ $\frac{L_5}{3} = 2.5 - L = 0.$

$L_{F_3} = 5 - L = 1.5$

$L_{F_2} = 5 - L = 3.25$

$L_{F_1} = 15 - L = 5.$

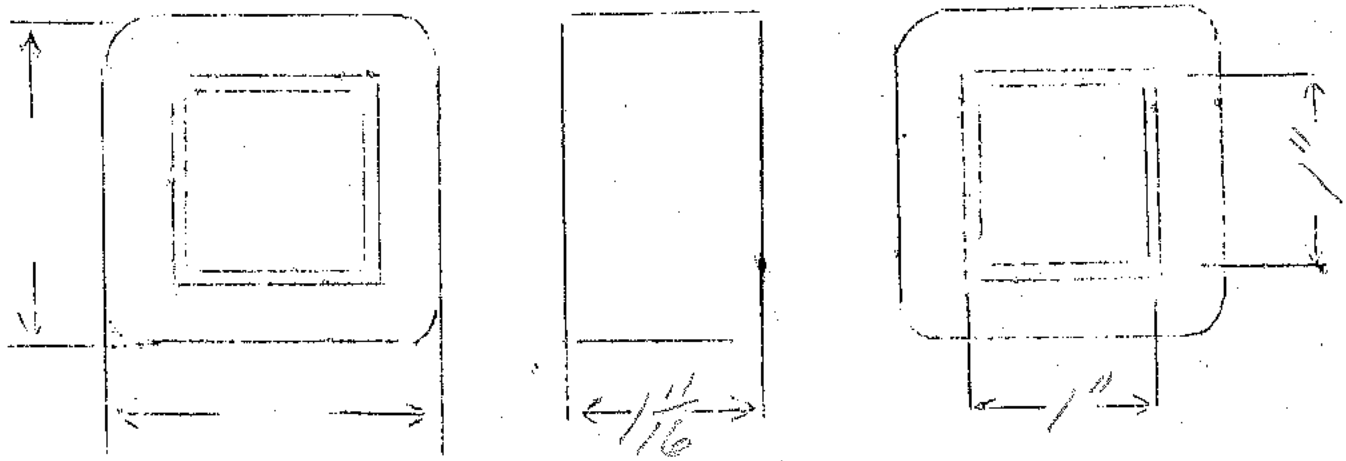
$L_{F_4} = 1.5 - L = 2.$

SPEC. NO. 146

Winding	Prim.	Hi Sec.	Lo Sec.	F1 (6)	F2 (3)	F3 (4)	F4 (1)	F5 (5)
Turns	662	300	29 52	32	32	10	10	16
Taps	None	None	14 16	16	None	5	5	5
Wind. Lgth.	1½	1½	1½					
Wire Size	23	#26	#22	22E	18E	15E	20E	13E
T.P.L.	53-12	200	200-15					
Kind Term.	Yellow Red	Blue	Yellow Blue					
Term. Lgth.	10"	3"	10"					
Layer Insul.	2 Mil (2)		2 Mil (2)					
Wrapper	1 Mil		1 Mil (2)					

TUBE | IMPREGNATION

CURE



$L_1 = 1.5$

$L_2 = 3.0 - L_1 = 1.50$

$L_3 = 2.5 - L_2 = 1.25$

$L_4 = 3 - L_3 = .5$

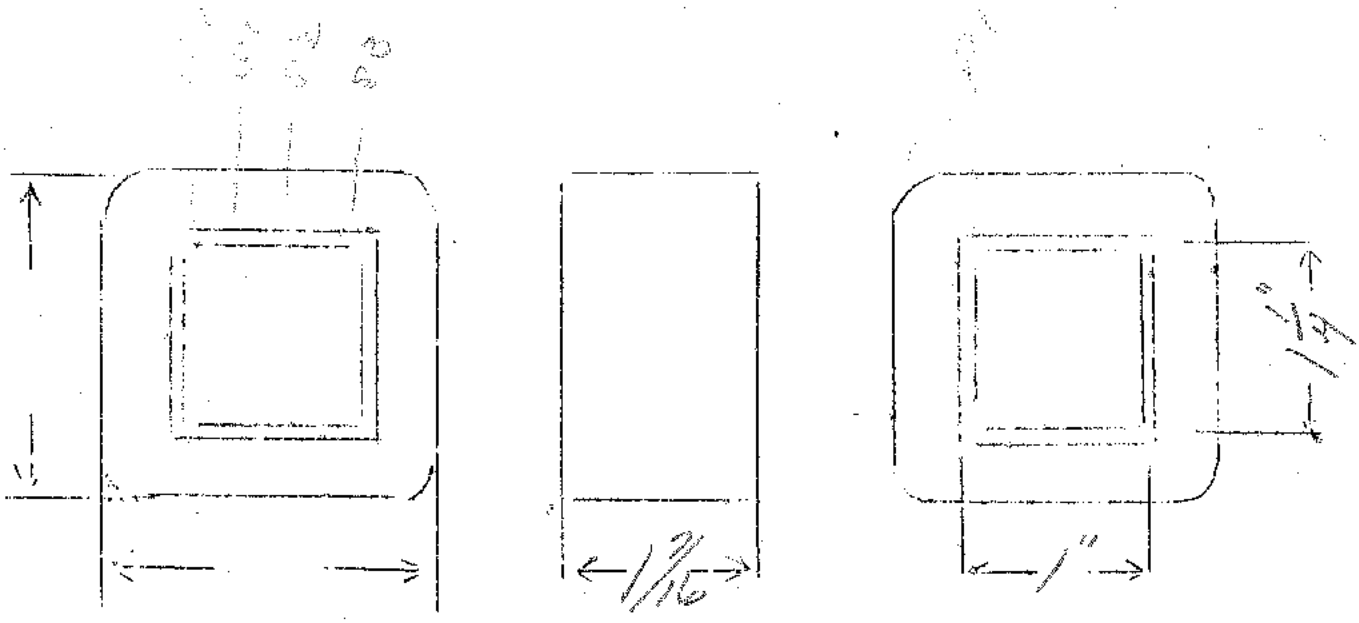
SPEC. NO. 147

Winding	Pri	Shunt	Sec	5-10	15-10		
Turns	532	182	3380	12	24		
Taps	None	None	1690	None	None		
Wind. Lgth.	1"	1"	1"				
Wire Size	#25	#28	#33	#15	#20		
T.P.L.	60-9	15-1	18-19				
Kind Term.	#1030 Tube	Str. Ter.	#1030 Tube	Push On	Push On		
Term. Lgth.	9"	3"	9"				
Layer Insul.	5 Mil		2 Mil				
Wrapper	2 Mil	2 Mil	2 Mil	2 Mil			

TUBE 5/8 x 2

IMPREGNATION

CORE 1" x 1 1/2" W/S 16 Ga



$E_c = .118$

$E_5 = 2.55 - E_c = .955$

$E_{f_1} = 2.5 - E_{f_2} = .375$

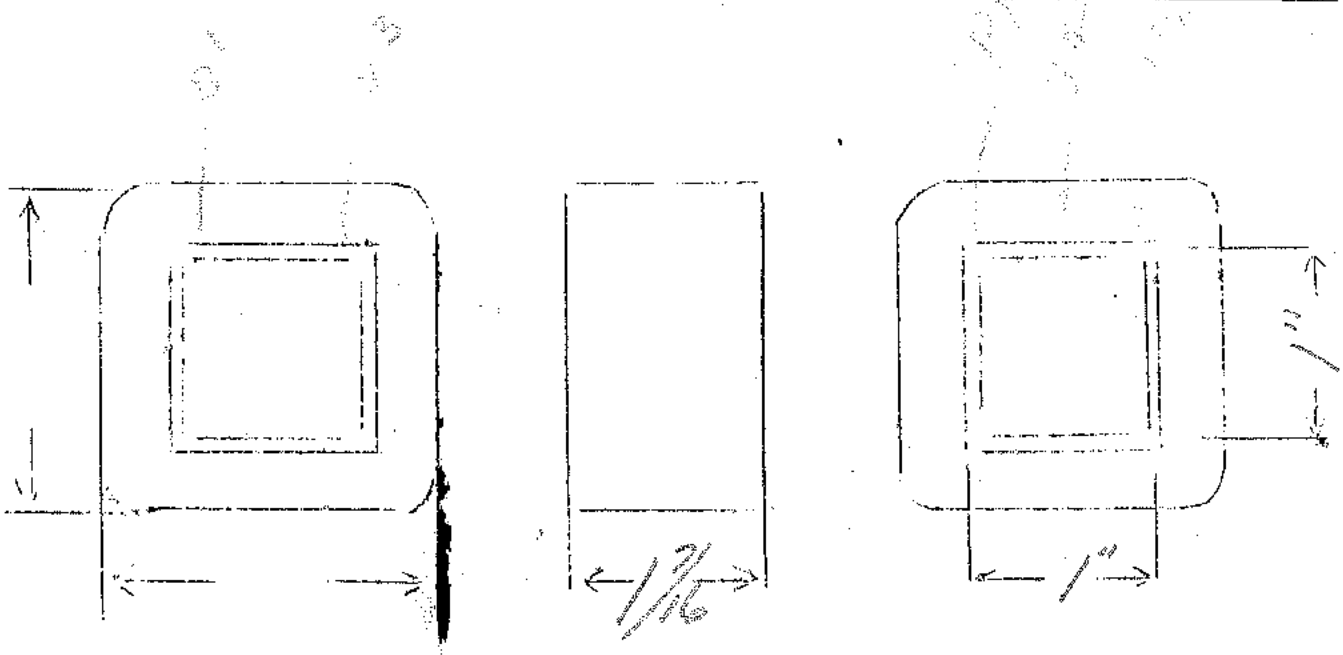
$E_{f_2} = 5 - 2 = 2$

SPEC. NO. 1459

Winding	Pri.	Sec.	Sec.	F.W.	F.W.(2)		
Turns	655	205	420	30	15		
Taps	None	None	215	None	None		
Wind. Lgth.	1¾"	1¾"	1¾"				
Wire Size	#26	#22	#26	#20	#16		
T.P.L.	67-10	205-1	205-21				
Kind Term.	No 20 Flex	Bare	No 20 Flex	Bare	Bare		
Term. Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	Soft Gl		Soft Gl				
Wrapper	2 Lgr 3/4	2 Lgr 3/4	2 Lgr 3/4		2 Lgr 3/4		

TUBE | #2 Fib | IMPREGNATION | Varnish

CORE | 1" x 1" N.W. | 1½" | 1½"



$E_P = 115$

$E_S = 230$ $I = 1.20$

$E_F = 2.5$ $I = 10.$

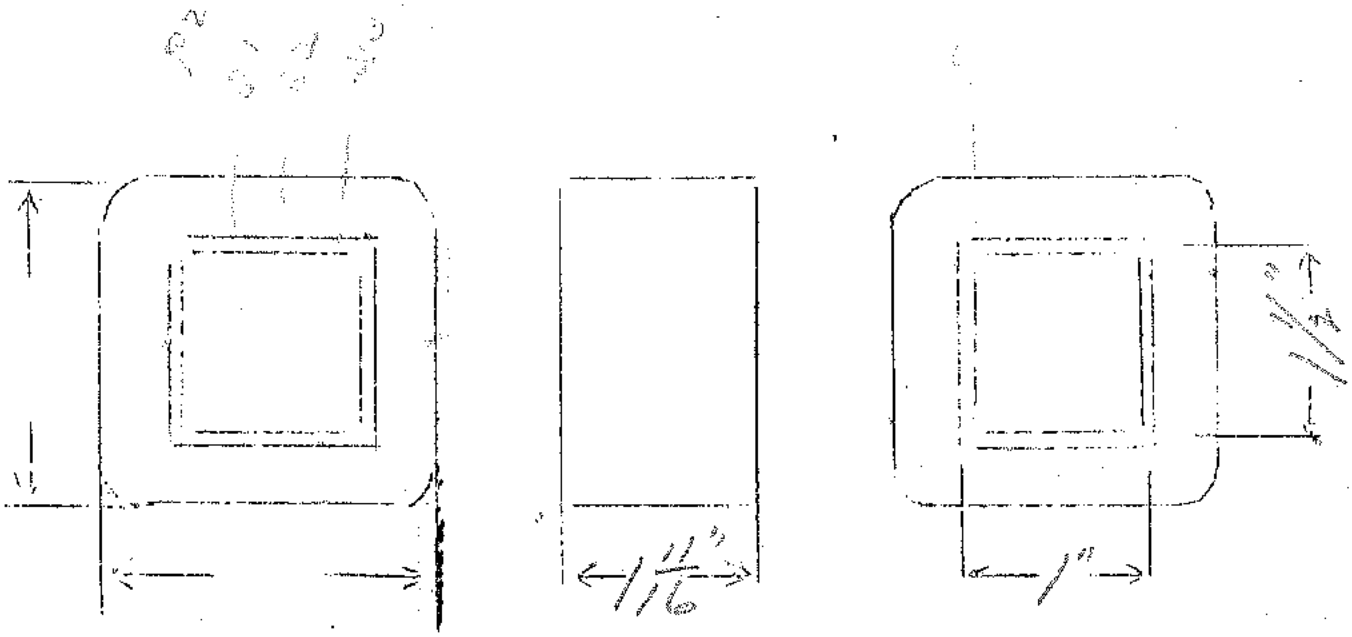
$E_B = 5$ $I = 3.$

SPEC. NO. 145

Winding	PRI	Bias	Sec.	F.L.O.	F.L.O.		
Turns	463	140	2380	20	10		
Taps	None	None	1390	None	5		
Wind. Lgth.	1½	1½	1½				
Wire Size	#24	#24	#26	#18	#22		
T.P.L.	#1-3	#4-5	#6-10				
Kind Term.	Pigtail Lead	Solder Lug	Pigtail Lead				
Term. Lgth.	9"	3"	9"				
Layer Insul.	5 Mil		3 Mil				
Wrapper	2 Layers	2 Layers	2 Layers		2 Layers		

TUBE | #2 Red | IMPREGNATION |

CORE | 1¼ x 1½ Hy |



$E_p = 115$

$E_s = 700 - I = 100$

$E_p = 2.5 - I = 85$

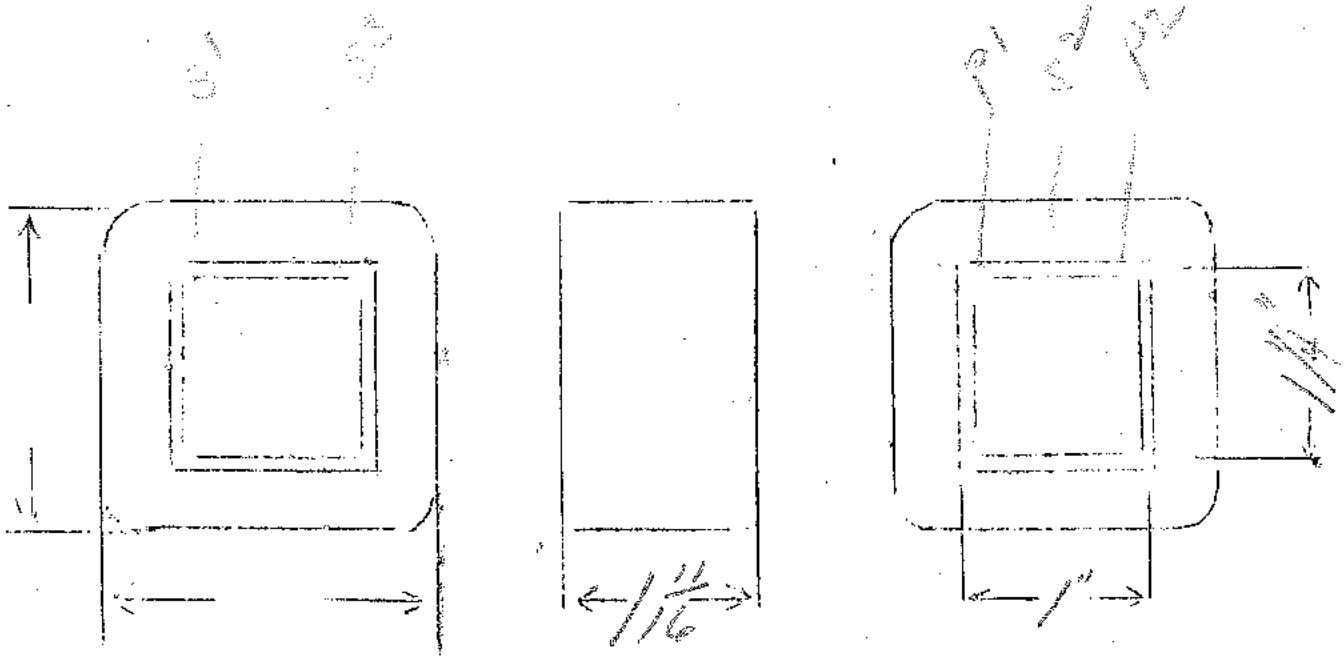
$E_p = 5 - I = 3$

SPEC. NO. 130

Winding	Pri	Shunt Sec	Sec	Fil (1)	Fil (2)		
Turns	909	157	3400	24	12		
Taps	None	None	1200	None	6		
Wind. Lgth.	1/2	1/2	1/2				
Wire Size	22 E	32 E	32 E	20 E	13 E		
T.P.L.	57-10	157-1	157-2				
Kind Term.	Eyelet	Eyelet	Eyelet	Wire Out	Wire Out		
Term. Lgth.	3"	3"	3"	9"	9"		
Layer Insul	Soft (1)		Soft (1)				
Wrapper	2 Lyrs Kraft	2 Lyrs Kraft	2 Lyrs Kraft		2 Lyrs Kraft		

TUBE | IMPREGNATION

CURE



Power

117V @ 50/60~ to

750V c.t @ 250 MA

5VC 2a 5VC 3a 6.3VC 0.6a 6.3VC 6a. SPEC. NO. P150

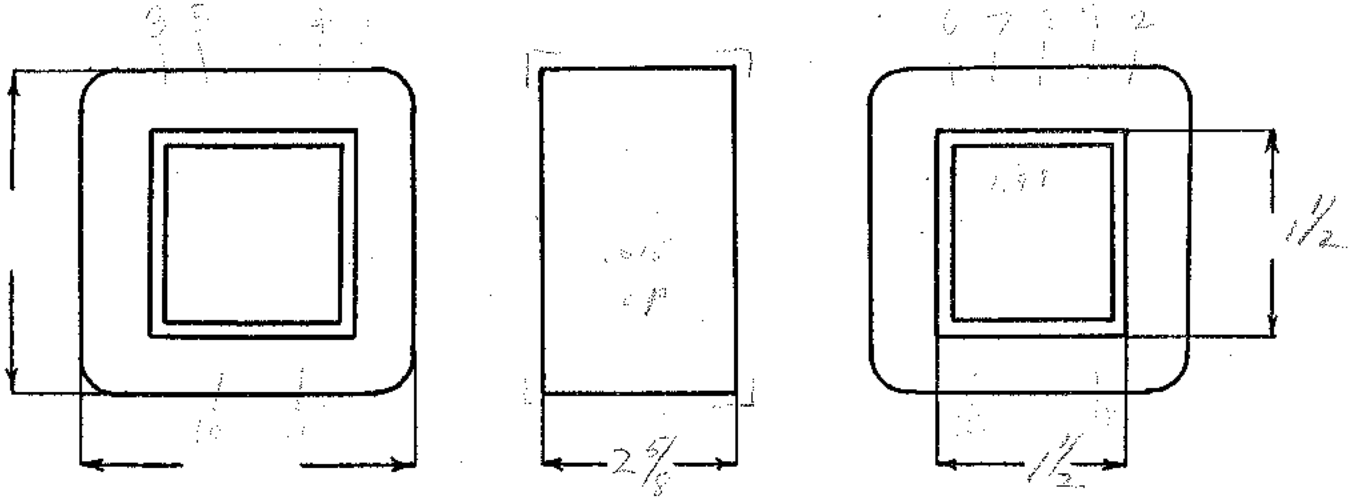
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 F.L.	8-9 F.L.	10-11 F.L.	12-13 F.L.
Turns	2480	1	360	17	17	22	22
Taps	1240	—	—	—	—		
Wind. Lgth.	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Wire Size	# 28	.001 cu.	# 18	# 20	# 18	# 15	# 24
T. P. L.	138-18L	—	45-8L	17-1/2L	17-1/2	22-1/2L	22-1/2L
Finish	84%	—	84%	51%	63%	115%	42%
Type Lead	# 22 Nitrex	Sil. Br.	Sleeve	Sleeve	Sleeve	Sleeve	Sleeve
Lead Lgth.	cut 15"	3"	cut 14"				
Layer Insul.	40#	—	Double 20#	—	—		
Test Volt.	2500	—	1500	2500	2500	1500	1500
Wrapper	2 Lo 5VC	1 Lo 5VC	2 Lo 78#	—	3 Lo 78#	—	2 Lo 78# LA.

TUBE 7L010 GK + 1 Lo 5VC IMPREGNATION Varnish

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

MOUNTING A

Eff = 90%



DESIGNED BY S. Babcock DATE 5-16-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 250 = 225$ ma

Sec VA = 8
Pri VA =
$I_p = 2.15$

Winding	Sec	Sh	Pri	F1	F2	F3	F4
Mean Turn	7.59		10.10	11.75	11.98	12.32	12.78
Resistance 25° c	104.235		2.14 4/6	.172	.109	.0752	.583
Pounds Copper	.79		1.64	.052	.083	.225	.0278
Copper Density	710		755	511	542	543	505
Ratio Volts	757		1:7	4.98	4.99	6.44	6.91
Test to Ground	2500		1500	1500	2500	2500	1500

Iron Induction 11.4 kg @ 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 - 12 Yellow
8 - 9 Red
10 - 11 Brown
12 - 13 Brown

Power

117 V @ 50/60 ~ to
750 V C.T. @ 250 ma.
5 V @ 2a. 5 V @ 3a.
6.3 V @ 0.8a. 6.3 V @ 6a.

SPEC. NO. P 150

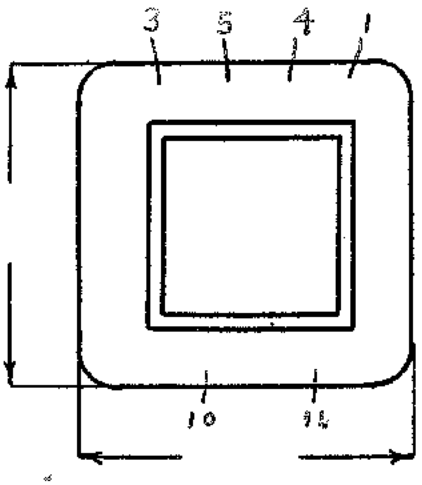
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 Fil #1	8-9 Fil #2	10-11 Fil #3	12-13 Fil #4
Turns	2480	1	360	17	17	22	22
Taps	1240	—	—	—	—	—	—
Wind. Lgth.	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Wire Size	#28	.001 cu	#18	#20	#18	#15	#24
T. P. L.	138 - 18L	—	45 - 8L	17 - 1/2L	17 - 1/2L	22 - 1/2L	22 - 1/2L
Finish Pitch	84%	—	84%	51%	63%	115%	42%
Type Lead	#22 Duluc	Lt. Br.	mr. o. sleeve	mr. o. sleeve	mr. o. sleeve	mr. o. sleeve	mr. o. sleeve
Lead Lgth.	cut 15"	3"	cut 14"	cut 14"	cut 14"	cut 14"	cut 14"
Layer Insul.	40#	—	Double 50#	—	—	—	—
Test Volt.	2500	—	1500	2500	2500	1500	1500
Wrapper	2L005VC	1L005VC	3L007GA	———	3L007GA	———	2L007GA

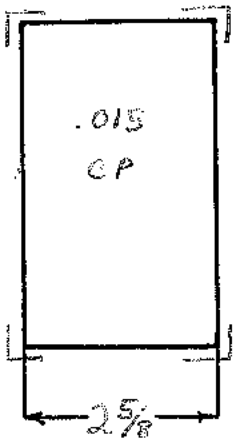
TUBE	7L010GK + 1L005VC	IMPREGNATION	Varnish

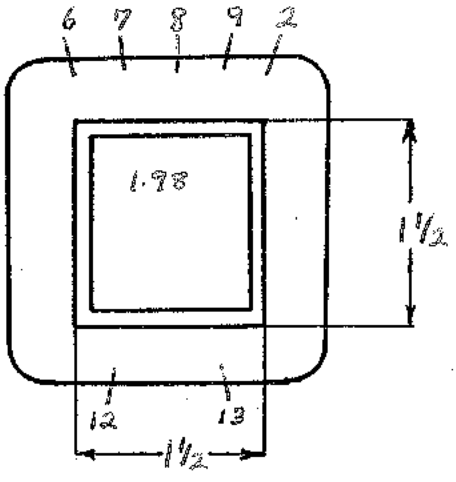
CORE 1 1/2 X 1 1/2 GA. 24 GRADE D STACK 2 X 2

MOUNTING AA

mm = 90%







DESIGNED BY S. BABCOCK

DATE 5-16-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 250 = 225$ ma.

Sec V.A = 20
Pri V.A = 25
$I_p = 2.15$

Winding	Sec	Shield	Pri	Sec #1	Sec #2	Sec #3	Sec #4
Mean Turn	7.59		10.10	11.75	11.78	12.32	12.18
Resistance 25° c	104		2.14	.172	.109	.0732	.583
Pounds Copper	.77		1.64	.052	.083	.225	.0278
Copper Density	710		755	511	542	543	505
Ratio Volts	751		117	4.98	4.99	6.44	6.41
Test to Ground	2500	—	1500	1500	2500	2500	2500

Iron Induction 11.4kg @ 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 Red
10 – 11 Green
12 – 13 Brown

$A_p = 5.115$

$A_c = 6.75 - .040$

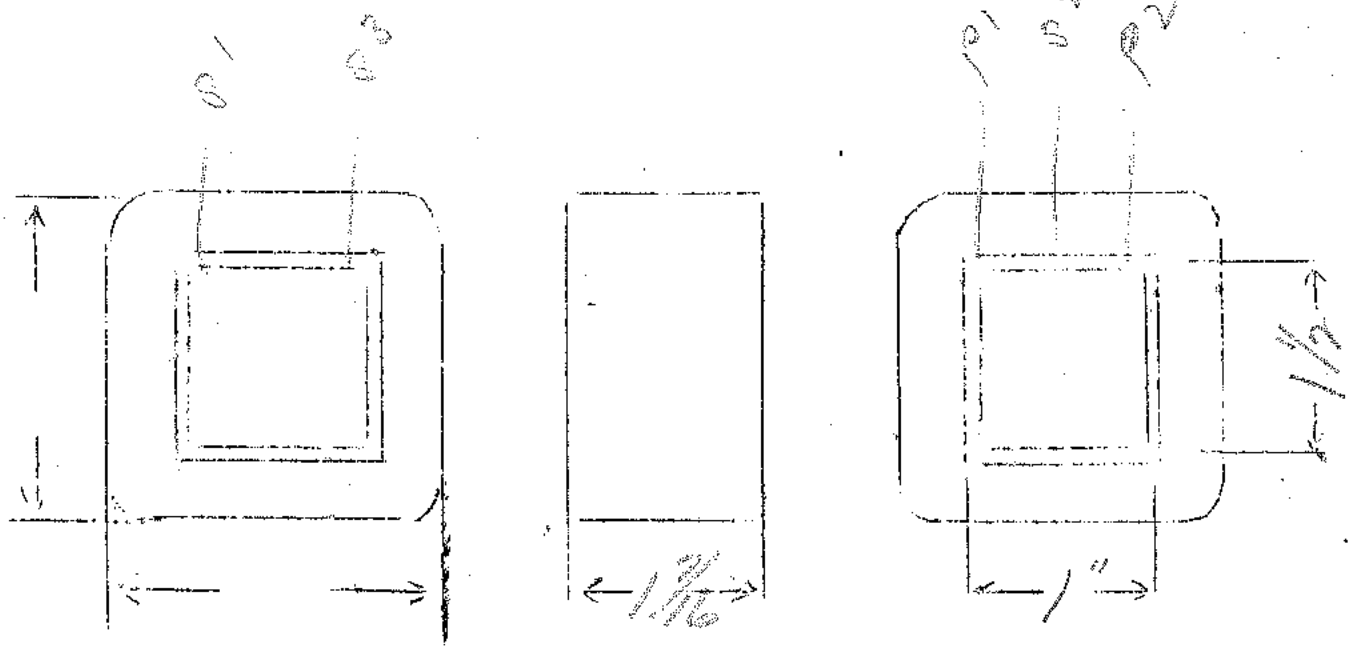
$A_w = 2.5 - .04 = 6.75$

$A_{w2} = 5 - .4 = 2.$

SPEC. NO. 15

Winding	P.T.	Shield	Sec.	5V	5V(2)		
Turns	424	163	2620	20	40		
Taps	None	None	1575	None	5		
Wind. Lgth.	1"	1"	1"				
Wire Size	24	34	38	32	27		
T.P.L.	155-5	157-1	157-12				
Kind Term.	No 20 Bare	Cu Bar	No 20 Bare	22 AWG Cu	22 AWG Cu		
Term. Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	Mylar		Mylar				
Wrapper	Kraft	Kraft	Kraft		Kraft		

TUBE	Fiber	IMPREGNATION	Varnish
CORE	1" x 1.5 inch		



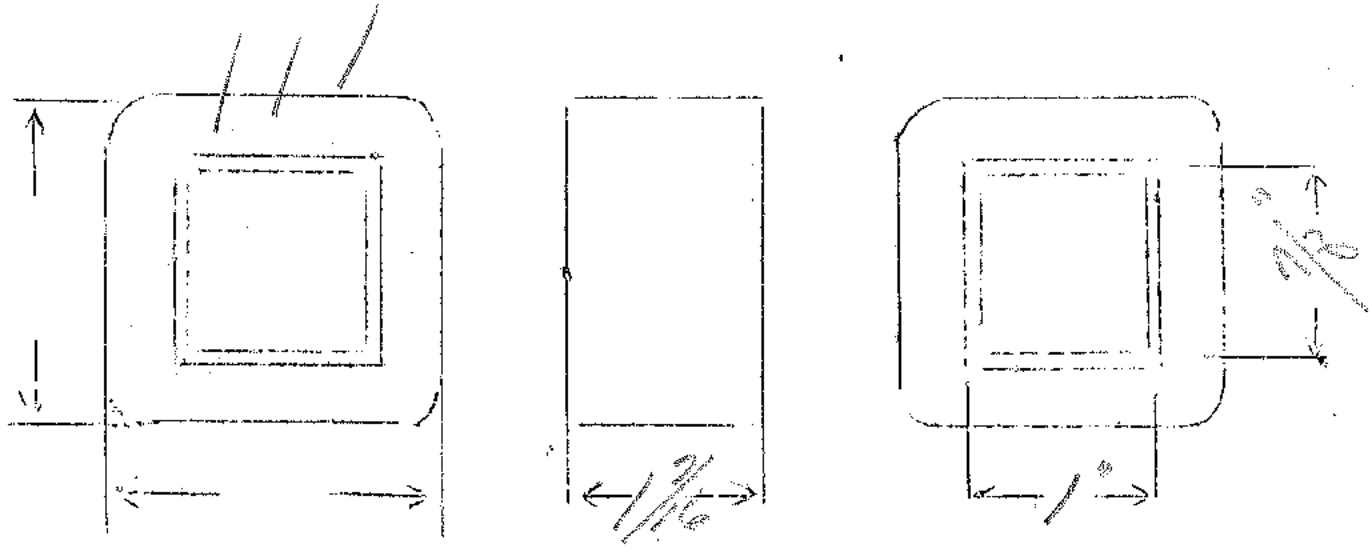
7 = 1/4 = Ohms

SPEC. NO. 152

Winding							
Turns	3500						
Taps	175						
Wind. Lgth.	1 1/4"						
Wire Size	38 S						
T.P.L.	105						
Kind Term.	S. Ter.						
Term. Lgth.	3"						
Layer Insul.	Red Cap						
Wrapper	4 oz 560						

TUBE | Fiber | IMPREGNATION | Varnish

CURE | 1 x 25 Watts



Power
117 V @ 50/60 ~ to
750 V ct @ 300 ma.
5V @ 2 a. 5V @ 6 a.
12.6 V ct @ 5 a.

SPEC. NO. P 152

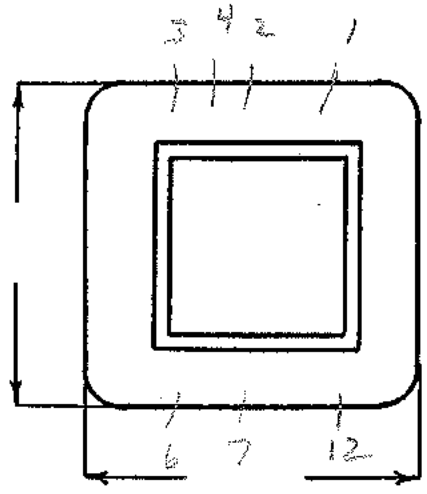
Winding	1-2-3 Sec	Shield	4-5 Pri	6-7 F.L.	8-9 F.L.	10-11-12 F.L.	
Turns	2120	1	310	15	15	38	
Taps	1060	—	—	—	—	19	
Wind. Lgth.	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	
Wire Size	#27	.002 Cu.	#17	#20	#15	#16	
T. P. L.	133 - 1L	—	45 - 1L	15 - 1/2 L	15 - 1/2 L	38 - 1L	
Finish	90%	—	90%	45%	79%	89%	
Type Lead	#22 Duplex	S.C.Br.	W.O. Sleeve	—	—	—	
Lead Lgth.	cut 15"	3"	cut 14"	—	—	—	
Layer Insul.	Double 20#	—	1L .005 (A)	—	—	—	
Test Volt.	2500	—	1500	2500	2500	2500	
Wrapper	2L .005 VC	2L .005 (A)	2L .007 (A)	2L .007 (A)	—	2L .005 (A)	

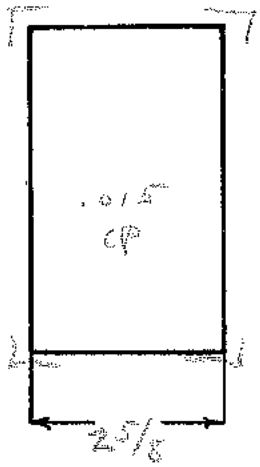
TUBE 5L.010 GK + 1L.005 VC | IMPREGNATION Varnish

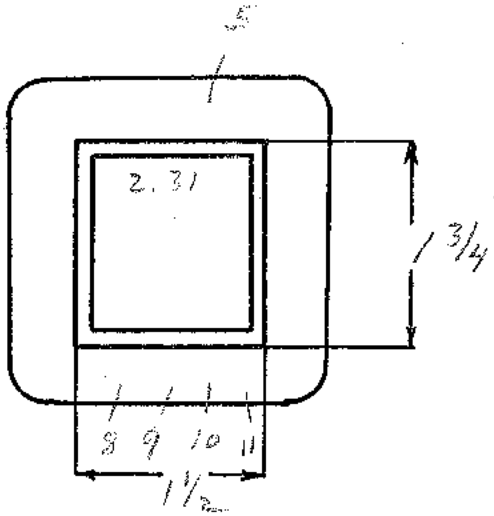
CORE 1 1/2 x 1 3/4 GA. 24 | GRADE D | STACK 2 x 2

MOUNTING BA

Was: 90%







DESIGNED BY S. Babcock | DATE 4-20-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 300 = 270$ ma.

Sec VA = 262
Pri VA = 324
$I_p = 2.76$ a.

Winding	Sec	CL	F.1	F.2	F.3	F.4	
Mean Turn	8.05		10.68	12.23	12.83	13.84	
Resistance 25° c	74.5		1.42	.158	.05	.167	
Pounds Copper	.825		1.73	.048	.154	.322	
Copper Density	747		744	511	542	517	
Ratio Volts	7.33		11.7	5.15	5.17	13.0	
Test to Ground	2500		1500	2500	2500	1500	

Iron Induction 11.4 kg @ 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 Red
10 - 11 - 12 Green

Power

117 V @ 50/60 ~ to
750 V C.T. @ 300 ma.
5V @ 2a. 5V @ 6a
12.6 V C.T. @ 5a.

SPEC. NO. P 152

Winding	1-2-3 Pri	Shield	4-5 Pri	6-7 Fil #1	8-9 Fil #2	10-11-12 Fil #3	
Turns	2120	1	310	15	15	38	
Taps	1060	—	—	—	—	19	
Wind. Lgth.	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	
Wire Size	#27	.002 cu.	#17	#20	#15	#16	
T. P. L.	133-16L	—	45-7L	15-1/2L	15-1/2L	38-1L	
Finish Pitch	90%	—	94%	45%	79%	89%	
Type Lead	#22 Duba	Lit. Br.	var. & sleeve	var. & sleeve	var. & sleeve	var. & sleeve	
Lead Lgth.	cut 15"	3"	cut 14"	cut 14"	cut 14"	cut 14"	
Layer Insul.	9 turns 20#	—	1L005GA	—	—	—	
Test Volt.	2500	—	1500	2500	2500	1500	
Wrapper	2L005VC	2L005GA	2L007GA	2L007GA	———	2L005GA	

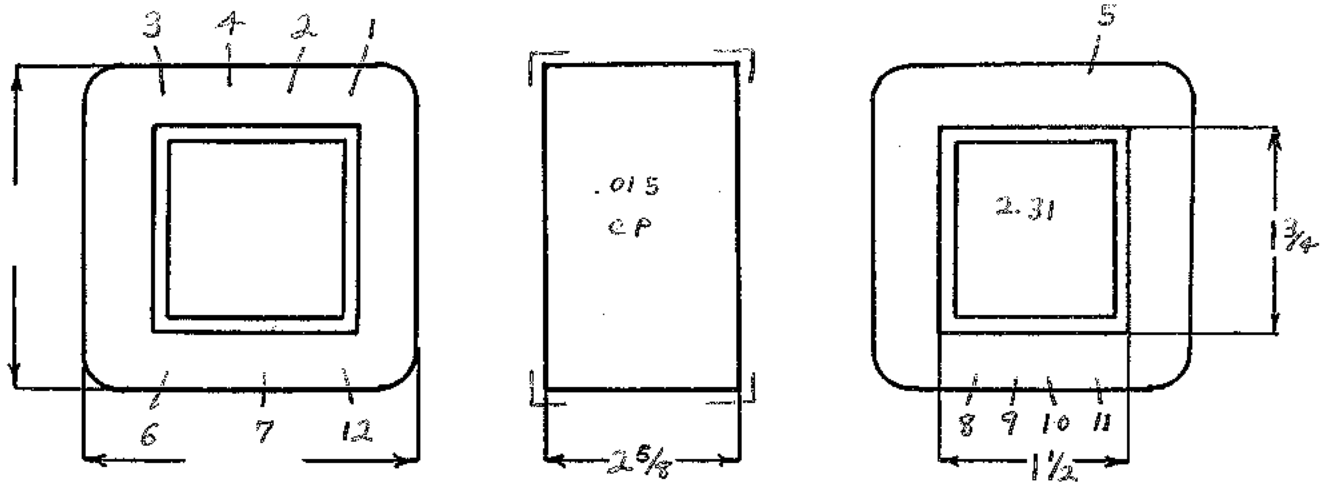
TUBE 5L010GK + 1L005VC

IMPREGNATION Varnish

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

MOUNTING AA

var = 90%



DESIGNED BY S. BABCOCK

DATE 4-20-49

DESIGN AND TEST DATA

Rating: $I_s = .9 \times 300 = 270$ ma.

Sec VA = 262
Pri VA = 324
$I_p = 2.76$ a.

Winding	Sec.	Shield	Pri	Fil #1	Fil #2	Fil #3	
Mean Turn	8.05		10.68	12.23	12.33	12.84	
Resistance 25° c	74.5		1.42	.158	.05	.167	
Pounds Copper	.885		1.73	.048	.154	.322	
Copper Density	747		744	511	542	517	
Ratio Volts	753		117	5.15	5.17	13.0	
Test to Ground	2500		1500	2500	2500	1500	

Iron Induction 11.4 kg @ 50 Cycles

Exciting Current 120 milli amperes @ 117 volts 60 cycles on 4-5

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

Remarks:

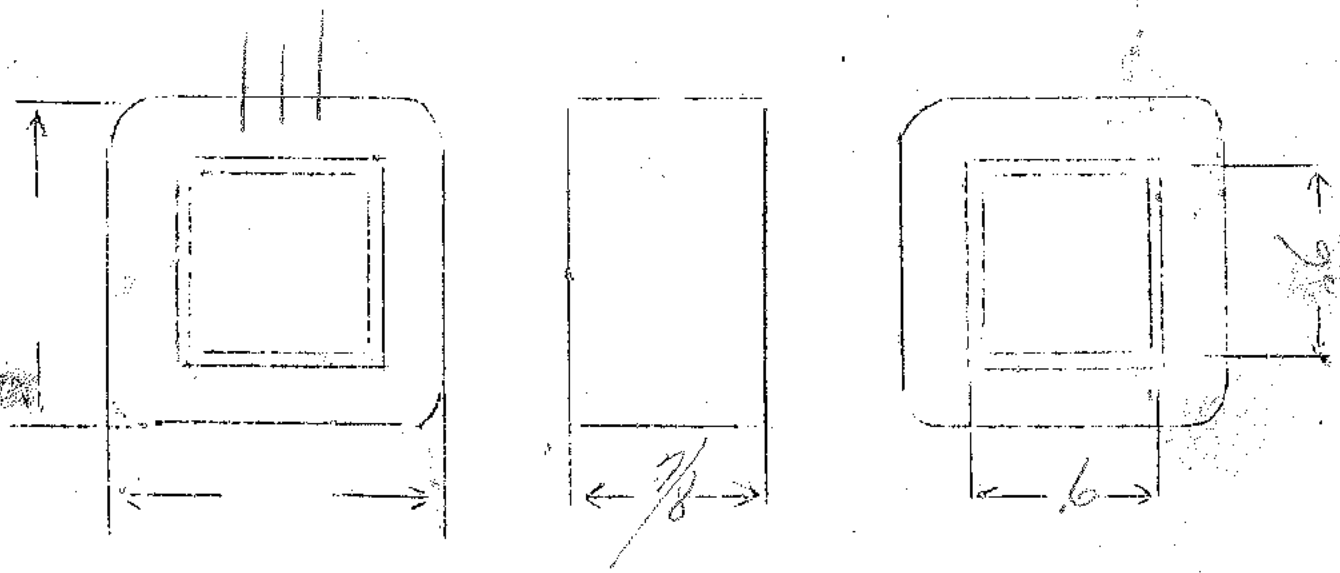
1 – 3 Red
2 Red-Yellow
4 – 5 Black
6 – 7 Yellow
8 – 9 Red
10-11-12 Green

SPEC. NO. 153

Winding	Pri						
Turns	5700						
Taps	2950						
Wind. Lgth.	3"						
Wire Size	#24						
T.P.L.	135-50						
Kind Term.	Nil Ex						
Term. Lgth.	2"						
Layer Insul	1 Mil						
Wrapper	2 ass Mil						

TUBE | 4 Lac [illegible] | IMPREGNATION | Wax

CURE | 62.6 Mil | Butt Joint .005 Mil 24 Ga



$E_P = 118$
$E_S = 706$
$E_{F_1} = 2.5$
$E_{F_2} = 5$

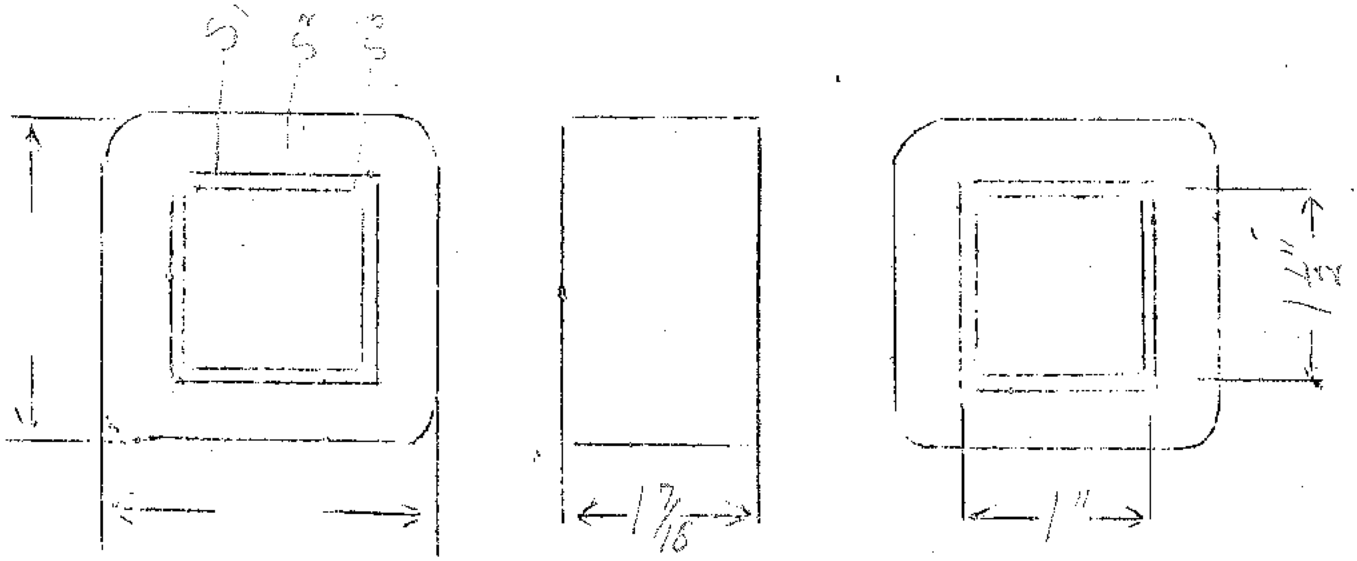
$I = .050$
$I = 5.75$
$I = 2$

SPEC. NO. 154

Winding	PRI	SHIELD	SEC.	FIL (1)	FIL (2)		
Turns	432	163-1	2770	10	20		
Taps	None	None	1385	None	None		
Wind. Lgth.	1 1/4	1 1/4	1 1/4				
Wire Size	24 E	35 E	35 E	15 E	20 E		
T.P.L.	54-5	174-1	174-16				
Kind Term.	No. 20 P Brn	SH Brn	No. 20 P Brn	Wire Only	Wire Only		
Term. Lgth.	5"	3"	7"	7"	7"		
Layer Insul.	50 lb. GI		20 lb. GI				
Wrapper	2L003VP	2L003VP	2L00VGA		2L005GA		

TUBE | 4L007 | IMPREGNATION | Varnish

CURE | 1 X 1½ NW



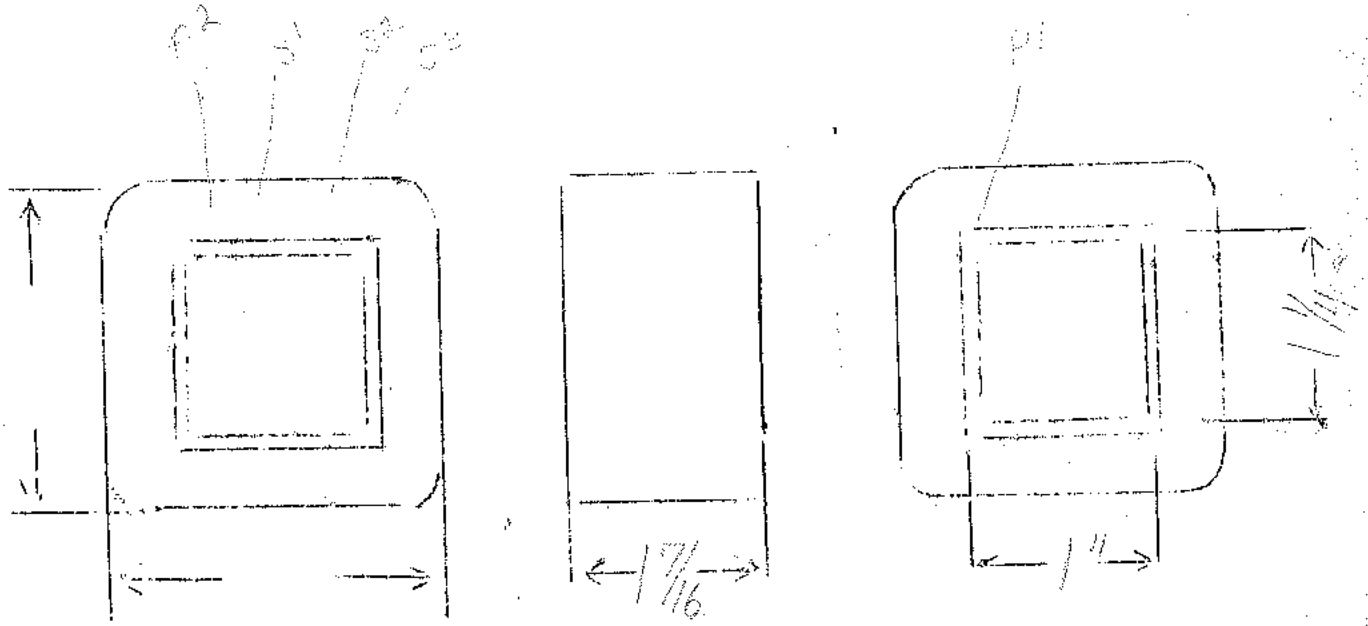
$E_p = 118$
$E_{S1} = 700$ $I_S = .035$
$E_{F1} = 2.5$ $I = 4.75 - 6$
$E_{F2} = 5$ $I = 2.$

SPEC. NO. 155

Winding	PRI	Shield	Sec.	Fil (1)	Fil (2)		
Turns	522	184	3380	12	24		
Taps	None	None	1690	None	None		
Wind. Lgth.	1 1/4	1 1/4	1 1/4				
Wire Size	25 E	35 E	35 E	15 E	20 E		
T.P.L.	60-9	184-1	184-19				
Kind Term.	No. 20 P Br.	Stl. Br.	No. 20 P Br.	WIRE ONLY	WIRE ONLY		
Term. Lgth.	6"	3"	6"	6"	6"		
Layer Insul.	50 M.G.		20 M.G.				
Wrapper	2L06BVP	2L003VP	2L005GA		2L005GA		

TUBE | IMPREGNATION |

CURE |



FILTER CHOKE

STOCK

15 Hy @ 30 Ma. DC

750 ohms 500 volts working

SPEC. NO. C156-D

Winding		1-2 Choke					
Turns		5100					
Taps		---					
Wind. Lgth.		3/4					
Wire Size		#37					
T. P. L.		135-38L					
Finish		88%					
Type Lead		Silver Braid to lug					
Lead Lgth.		3"					
Layer Insul.		16#					
Test Volt.		2000					
Wrapper		2L005GA					

TUBE	5L007GK + 1L003VG	IMPREGNATION	Varnish

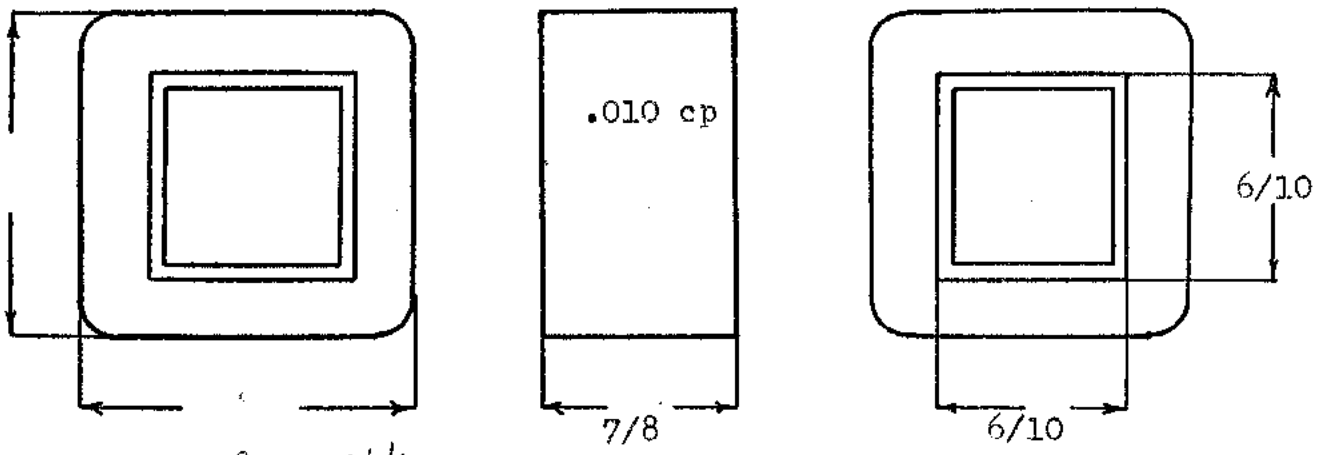
CORE 6/10 x 6/10 GA. 24 GRADE D STACK Butt .003 Gap

MOUNTING D - Lugs

T. P. V. -

window - .278/.297 = 93.6%

2 1



DESIGNED BY Re-written F. Frazee

DATE 4-9-47

DESIGN AND TEST DATA

Rating:

Winding		1-2 choke			---		
Mean Turn		3.47					
Resistance 25° c		787					
Pounds Copper		.091					
Copper Density		662					
Ratio Volts							
Test to Ground		2000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

$\frac{NI}{C} = \frac{5100 \times .030}{9.05} = 16.9$

$\frac{LI^2}{V} = 7.8 \times 10^{-4}$

$L = \frac{7.8 \times 10^{-4} \times 21.9}{9 \times 10^{-4}} = 18.9$ Hy

$R = .0014 \times 5.602 = .0078$

was $2(.083)$

FILTER CHOKE

STOCK

15 Hy @ 30 Ma. DC

750 ohms 500 volts working

SPEC. NO. C156-D

Winding		1-2 Choke					
Turns		5100					
Taps		---					
Wind. Lgth.		3/4					
Wire Size		#37					
T. P. L.		135-38L					
Finish		88%					
Type Lead		Silver Braid to lug					
Lead Lgth.		3"					
Layer Insul.		16#					
Test Volt.		2000					
Wrapper		2L005GA					

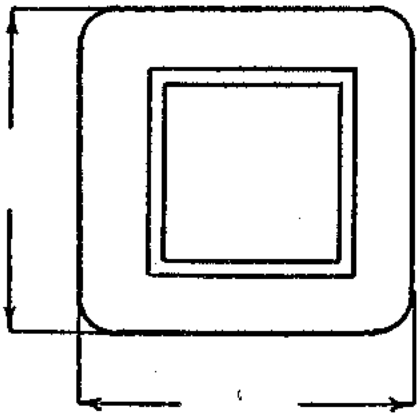
TUBE	5L007GK + 1 L003VG	IMPREGNATION	Varnish

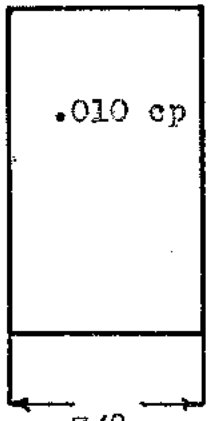
CORE 6/10 x 6/10 GA. 24 GRADE D STACK Butt .003 Gap

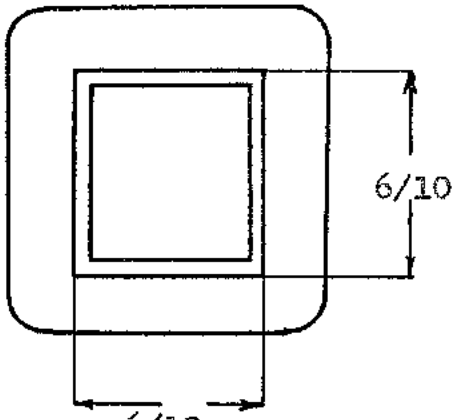
MOUNTING D - Lugs

T. P. V.
Window - .278/.297 = 93.6%

2 1







DESIGNED BY Re-written F. Frabec

DATE 4-9-47

DESIGN AND TEST DATA

Rating:

Winding		1-2 ~~choke~~					
Mean Turn		3.47					
Resistance 25° c		787					
Pounds Copper		.091					
Copper Density		662					
Ratio Volts							
Test to Ground		2000					

Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks:

$\frac{NI}{\ell} = \frac{5100 \times .030}{9.05} = 16.9$

$\frac{LI^2}{V} = 7.8 \times 10^{-4}$

$L = \frac{7.8 \times 10^{-4} \times 21.8}{9 \times 10^{-4}} = 18.9$ H

$\frac{a}{\ell} = .00191$

$a = .00147 \times 3.602 = .0053$

use 2(.003)

$E_p = 122.5$

$E_s = 600 \quad I = .045$

$E_{s_1} = 2.5 \quad I = 5.25$

$E_{s_2} = 5 \quad I = 2$

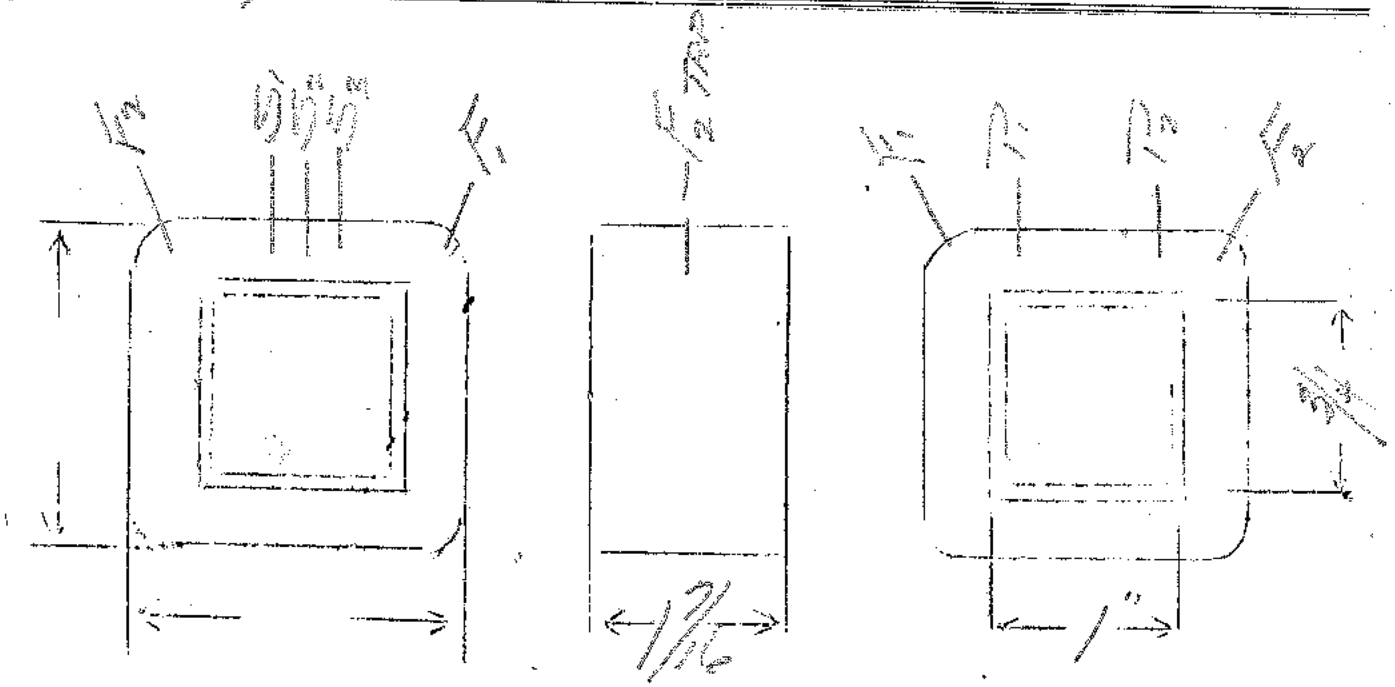
SPEC. NO. 157

Winding	Pri	Shield	Sec.	E_{s_1}	E_{s_2}		
Turns	790	2	4200	36	18		
Taps	None	None	2100	None	2		
Wind. Lgth.	1"	1"	1"				
Wire Size	#28	#26	#37	#24	#15		
T.P.L.	19-10	2-1	20-19				
Kind Term.	Nico Teflon	Single Glass	Nico Teflon				
Term. Lgth.	5"	5"	5"	5"	5"		
Layer Insul.	Kapton		Kapton				
Wrapper	2 mils	2 mils	2 mils		2 mils		

TUBE | Yes

IMPREGNATION | Varnish

CURE | 1 hr 125°C



$E_p = 240$

$E_s = 700 - 3.085$

$E_{s_1} = 2.5 - 2 = 3.5$

$E_{s_2} = 2.5 - 2 = 5$

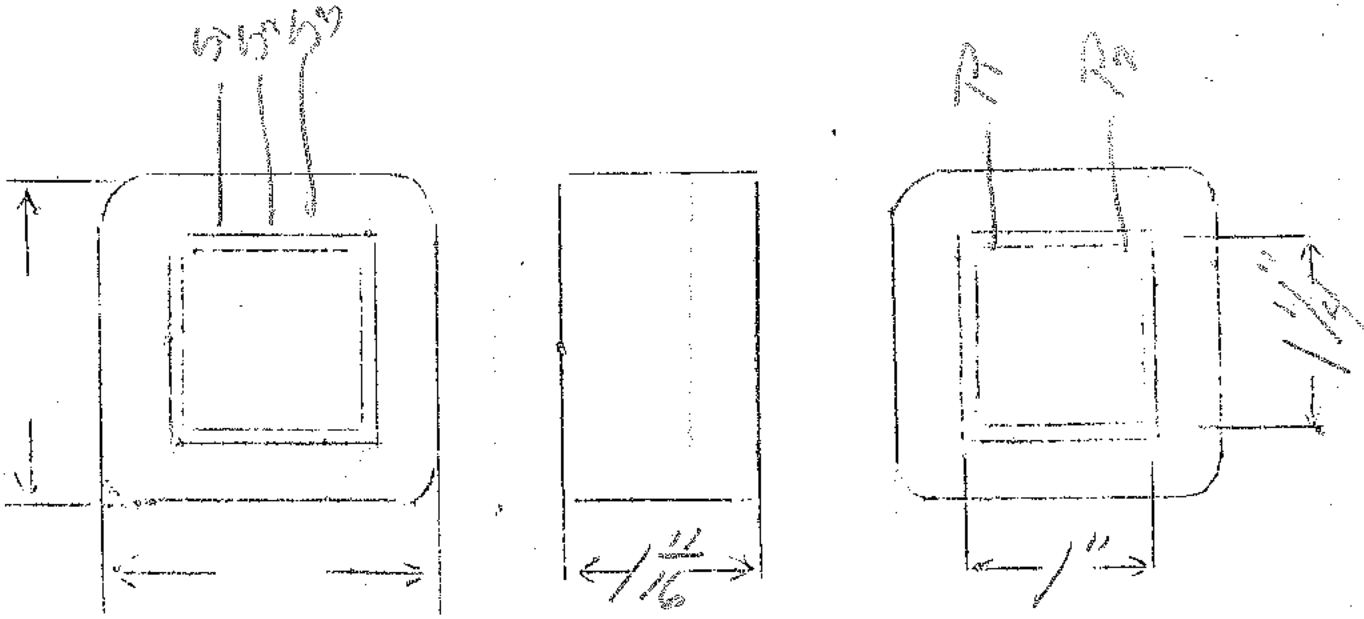
$E_{s_3} = 5 - 2 = 2$

SPEC. NO. 138

Winding	Pri	Pri/Sec	Sec.	Sec(1)	Sec(2)	Sec(3)	
Turns	1065	175	3580	2	12	12	
Taps	None	None	1590	None	6	None	
Wind. Lgth.	1/2	1/2	1/2				
Wire Size	#25	#33	#33	#20	#27	#25	
T.P.L.	7-15	175-1	175-2				
Kind Term.	No 30 Tef	S. Lead	No 30 Tef				
Term. Lgth.	9"	9"	9"	9"	9"	9"	
Layer Insul.	3 Mil		2 Mil				
Wrapper	2 Mil Mylar	2 Mil Mylar	2 Mil Mylar			2 Mil Mylar	

TUBE | Fiber | IMPREGNATION | Varnish

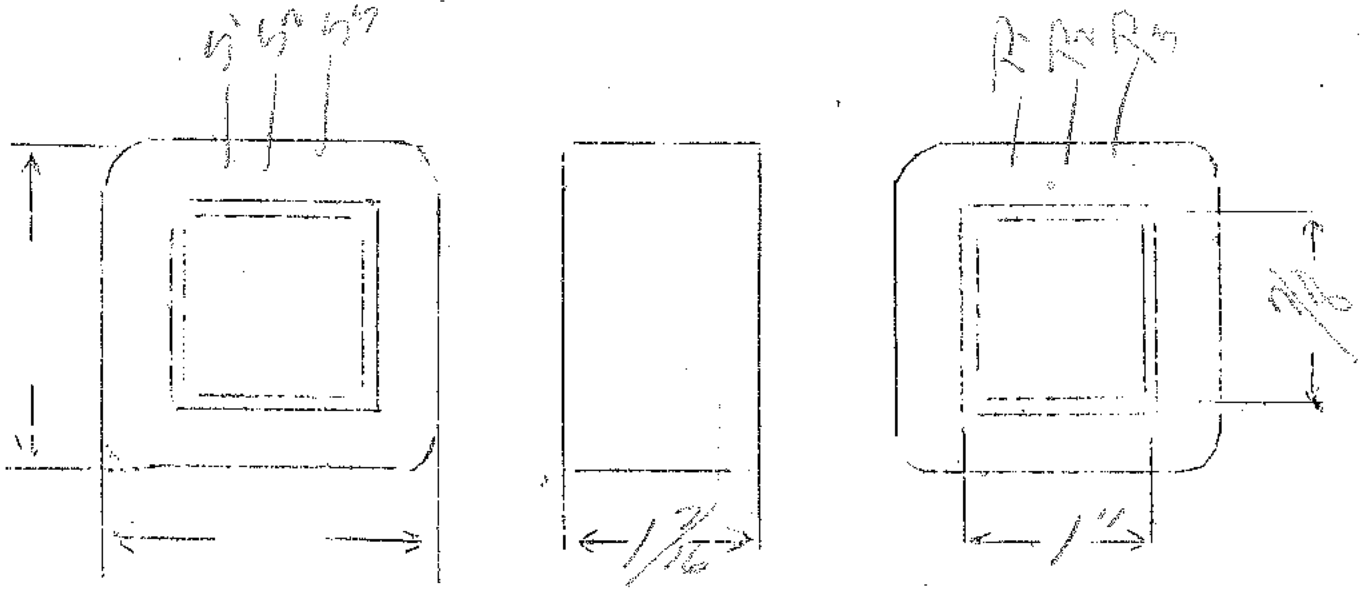
CURE | 1 x 125°C



SPEC. NO. 15-19

Winding	SEC.	HEATER	PRI				
Turns	4200	#3	90				
Taps	2100	None	60				
Wind. Lgth.	1 1/4"	1 1/4"	1 1/4"				
Wire Size	33 E	33 E	19 E				
T.P.L.	#3 - 3		5				
Kind Term.	Std. Bar	Std. Bar	Std. Bar				
Term. Lgth.	3"	3"	3"				
Layer Insul.	2 Mil Kraft		2 Mil Kraft				
Wrapper	2 Layers Kraft	2 Layers Kraft	2 Layers Kraft				

TUBE	Use Bobbin	IMPREGNATION	Varnish
CURE	1 hr. 275° F.		



E_p 1.18

E_s 500 V 40 ma

F_1 = 5 V, 2 amps

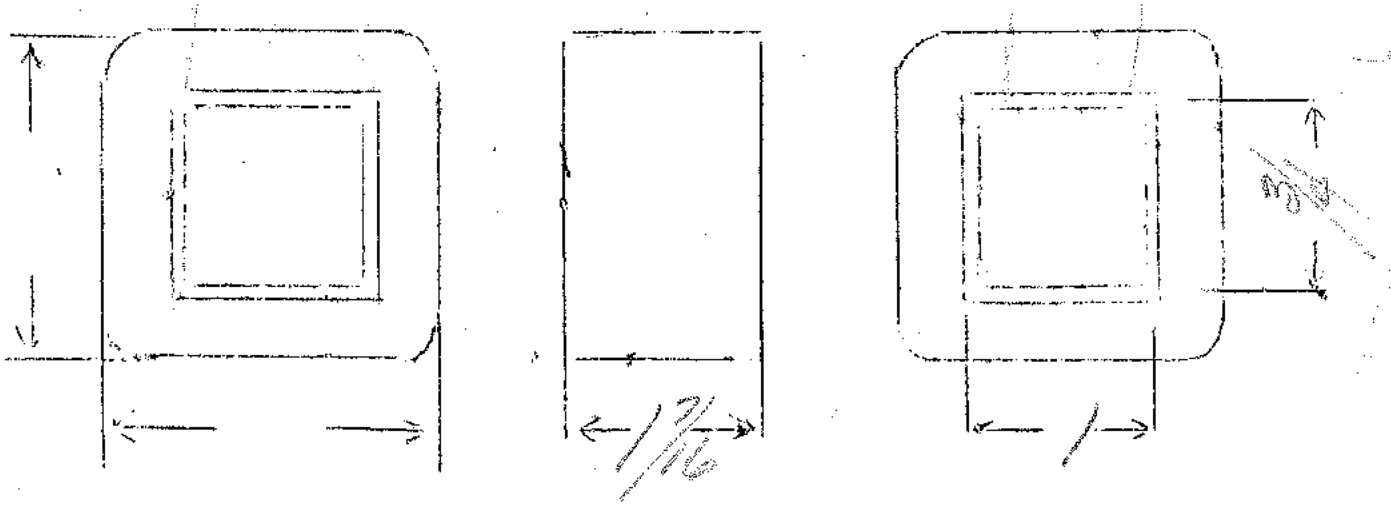
E_2 = 2.5 V, 3.25 amps

SPEC. NO. [illegible]

Winding	Fil	Plate	Sec.	5 V	P.L.		
Turns	762		3550	36	18		
Taps	None	None	1750	None	9		
Wind. Lgth.	1½	1½	1½				
Wire Size	#24	#25	#32	#14	#25		
T.P.L.	9	9	9				
Kind Term.	No 30 Solder	No 30 Solder	No 30 Solder	Wire Out	Wire Out		
Term. Lgth.	6"	3"	5"	5"	5"		
Layer Insul.	Sulfite		Acetate				
Wrapper	2 wraps Bond		Bond	2 wraps Bond	2 wraps Bond		

TUBE | 2 1/2 D | IMPREGNATION | Varnished

CURE | 1 hr 350 F



Choke
10 Henries @ 45 Ma. DC
3600 Ohm - 2500V Insulation

see 8473

SPEC. NO. C-161 D

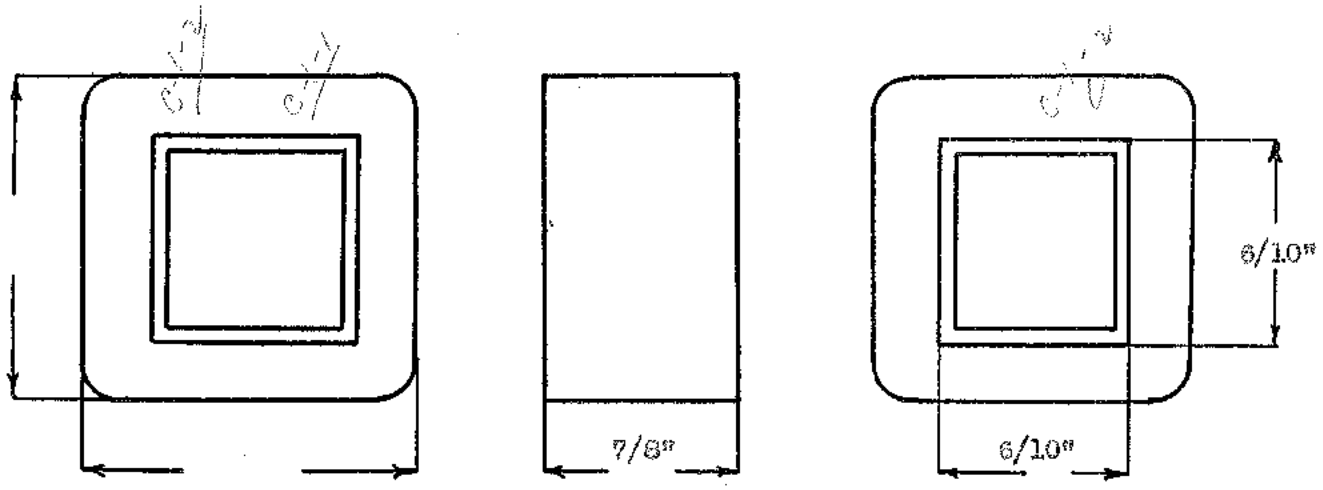
Winding		Choke					
Turns		3600					
Taps		-					
Wind. Lgth.		3/4" = 0.75"					
Wire Size		#36					
T. P. L.		110 - 33L					
~~Finish~~ Pitch		81%					
Type Lead		Sil. Br.					
Lead Lgth.		3"					
Layer Insul.		1L 1.5/8					
Test Volt.		2500					
Wrapper		2L .005" GA					

TUBE	4L - .007" GK	IMPREGNATION	VARNISH

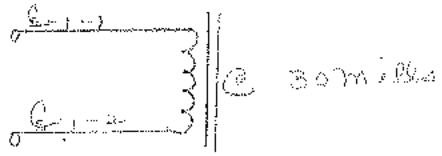
CORE 6/10 x 6/10 GA. 29 GRADE Orange STACK Butt .003" Gap

MOUNTING "D-2" - Lugs

Cu = 556
Wire Net = 0.217" (0.208")



Re-DESIGNED BY H. W. S. DATE 10 - 4 - 41



CHOKE

STOCK

10 Hy @ 45 Ma DC
380 ohms
750 volts working

SPEC. NO. C161-D

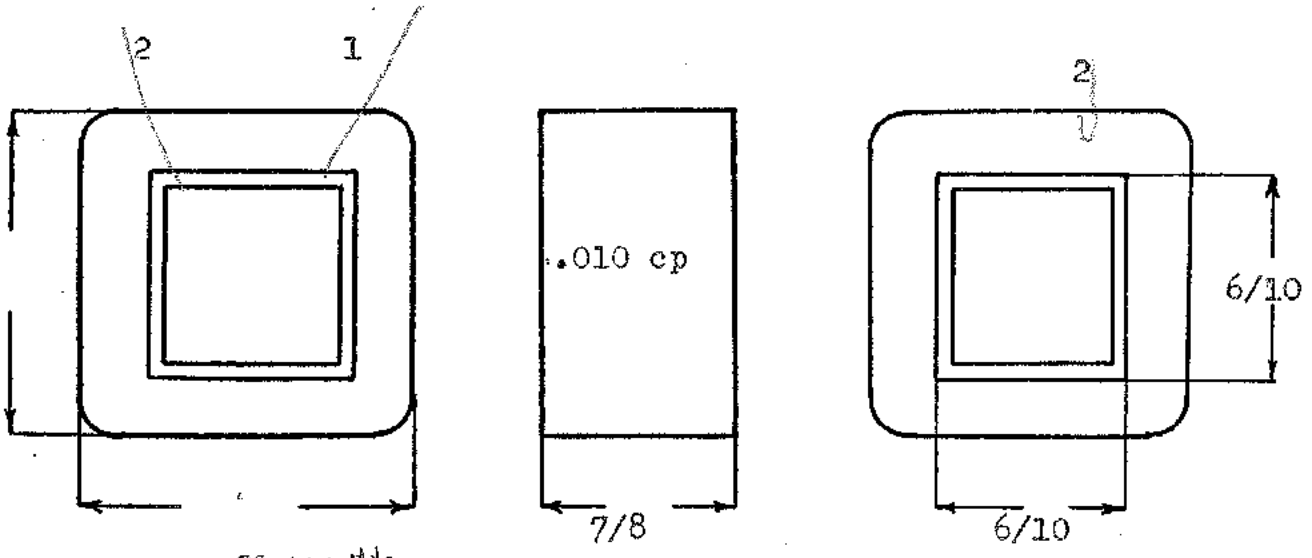
Winding		1-2 choke					
Turns		3600					
Taps		----					
Wind. Lgth.		11/16					
Wire Size		#36					
T. P. L.		110-33L					
Finish		88%					
Type Lead		Silver Braid to lugs					
Lead Lgth.		3"					
Layer Insul.		16#			--		
Test Volt.		2500					
Wrapper		2L005GA					

TUBE	5L007GK + 1L003VG	IMPREGNATION	Varnish

CORE 6/10 x 6/10 GA. 24 GRADE D STACK Butt .003 Gap

MOUNTING D - Lugs

T. P. V. —
Window - .269/.297 = 90.6%



DESIGNED BY re-written F. Frabee

DATE 4-9-47

DESIGN AND TEST DATA

Rating:

Winding		1-2 choke			----		
Mean Turn		3.38					
Resistance 25° c		432					
Pounds Copper		.079					
Copper Density		555					
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:

CHOKE

STOCK

10 Hy @ 45 Ma DC
380 ohms
750 volts working

SPEC. NO. C161-D

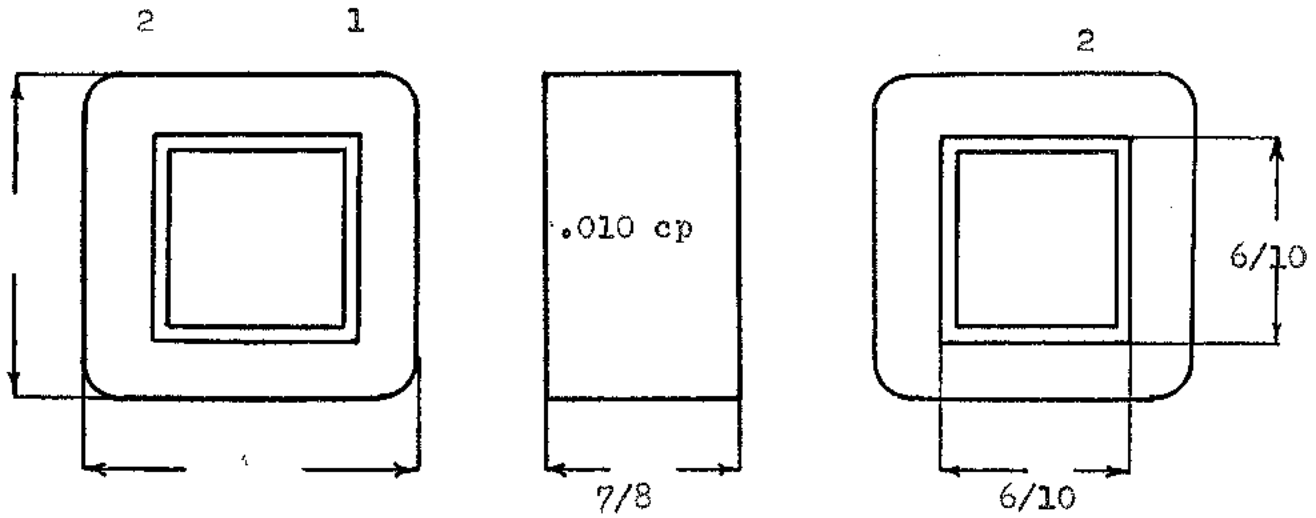
Winding		1-2 choke					
Turns		3600					
Taps		----					
Wind. Lgth.		11/16					
Wire Size		#36					
T. P. L.		110-33L					
Finish		88%					
Type Lead		Silver Braid to lugs					
Lead Lgth.		3"					
Layer Insul.		16#					
Test Volt.		2500					
Wrapper		2L005GA					

TUBE	5L007GK + 1L003V6	IMPREGNATION	Varnish

CORE 6/10 x 6/10 GA. 24 GRADE D STACK Butt .003 Gap

MOUNTING D - Lugs

T. P. V.
window - .269/.297 = 90.6%



DESIGNED BY rewritten F. Frazee

DATE 4-9-47

DESIGN AND TEST DATA

Rating:

Winding		1-2 choke					
Mean Turn		3.38					
Resistance 25° c		432					
Pounds Copper		.079					
Copper Density		555					
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:

$\frac{NI}{e} = \frac{3600 \times .045}{9.05} = 17.9$

$\frac{LI^2}{V} = 8.5 \times 10^{-4}$

$L = \frac{8.5 \times 10^{-4} \times 21.8}{(4.5)^2 \times 10^{-4}} = 9.2 \text{ Hy}$

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

$a = .0016 \times 3.602 = .0058$

use 2 (.003)

SINGLE Phase - Core Type 60 KVA

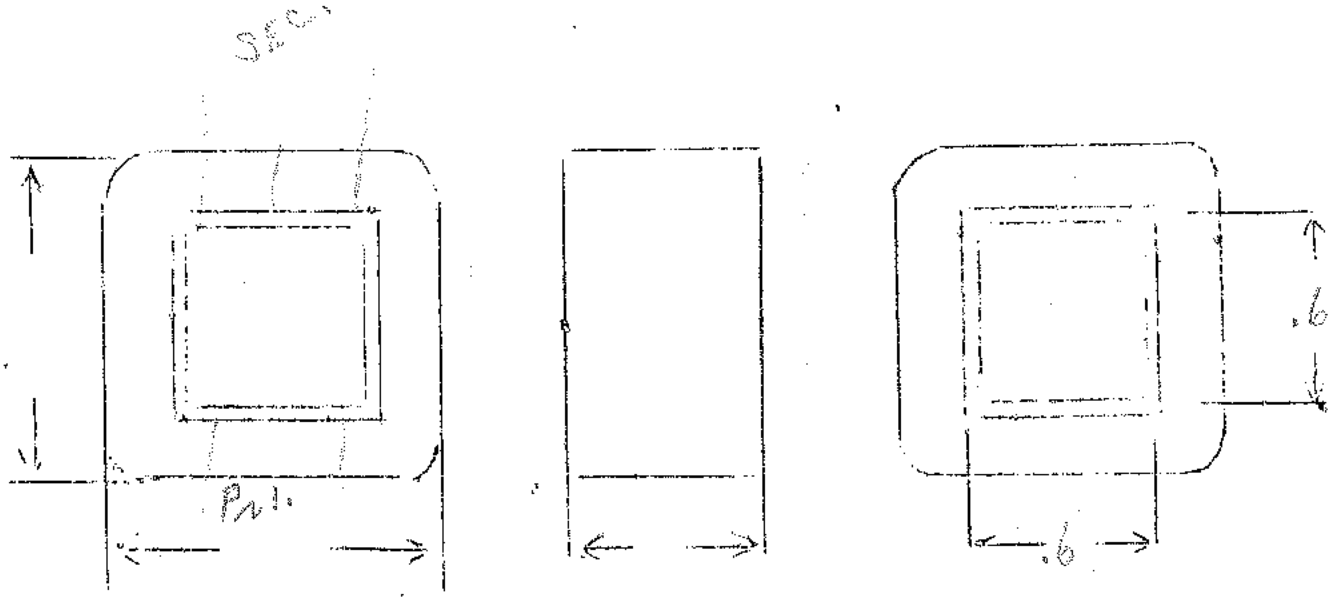
1 - 1

INCH G.21

SPEC. NO. 1 & 2

Winding	PRI.	SEC.					
Turns	3000	6000					
Taps	—	3000					
Wind. Lgth.	3/4	3/4					
Wire Size	#12 E	#12 E					
T.P.L.	120	120					
Kind Term.	S/L Soc.	S/L Soc.					
Term. Lgth.	3"	3"					
Layer Insul.	1 mil C/	1 mil C/					
Wrapper	2 Lap 3/4						

TUBE	4 L. 007 G.C.	IMPREGNATION	W.I.X
CURE	.6 X .6		



$A_p = 930$

$A_s = 2200$

E_p = 220 @ 115

E_s = 725 No Load I_s = .050

E_{f_1} = 2.5 I_{f_1} = 4.75

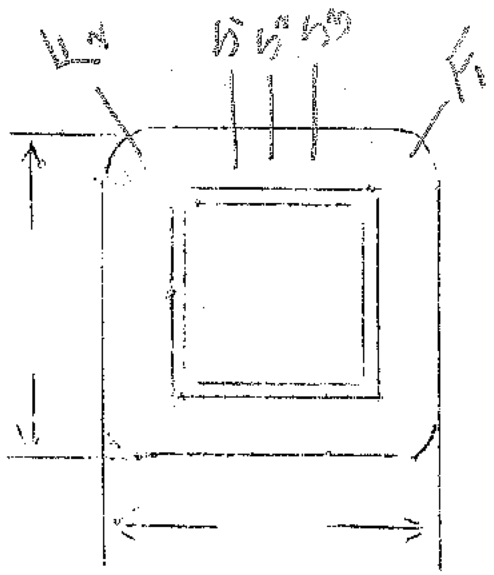
E_{f_2} = 5, I_{f_2} = 2,

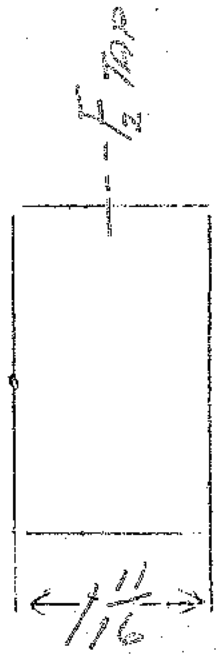
SPEC. NO. 43

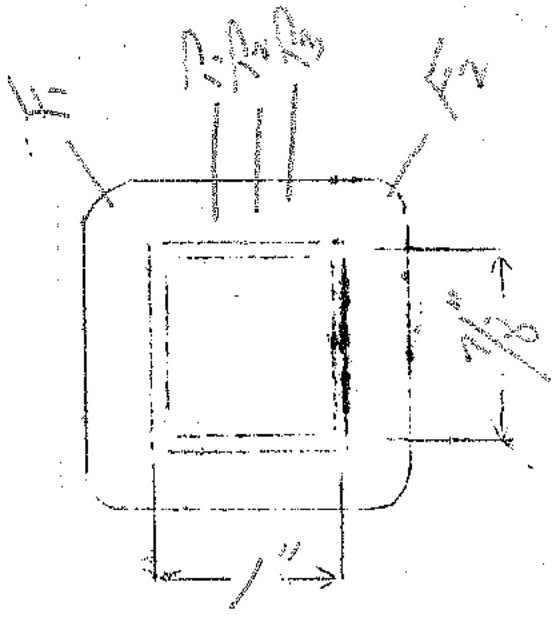
Winding	Pri	White	Sec	F/W	F/W		
Turns	1450	72	4750	36	18		
Taps	750	None	2375	None	9		
Wind. Lgth.	1/2	1/2	1/2				
Wire Size	#25	#25	#32	#14	#16		
T.P.L.	72-20	72-1	19-24				
Kind Term.	Wire Out	Wire Out	Std				
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	Mylar		Mylar				
Wrapper	2 Layers	2 Layers	2 Layers		2 Layers		

TUBE | 1 1/4 Fib | IMPREGNATION | Varnish

CURE | 1 x 212°F







T_p = Total = 216

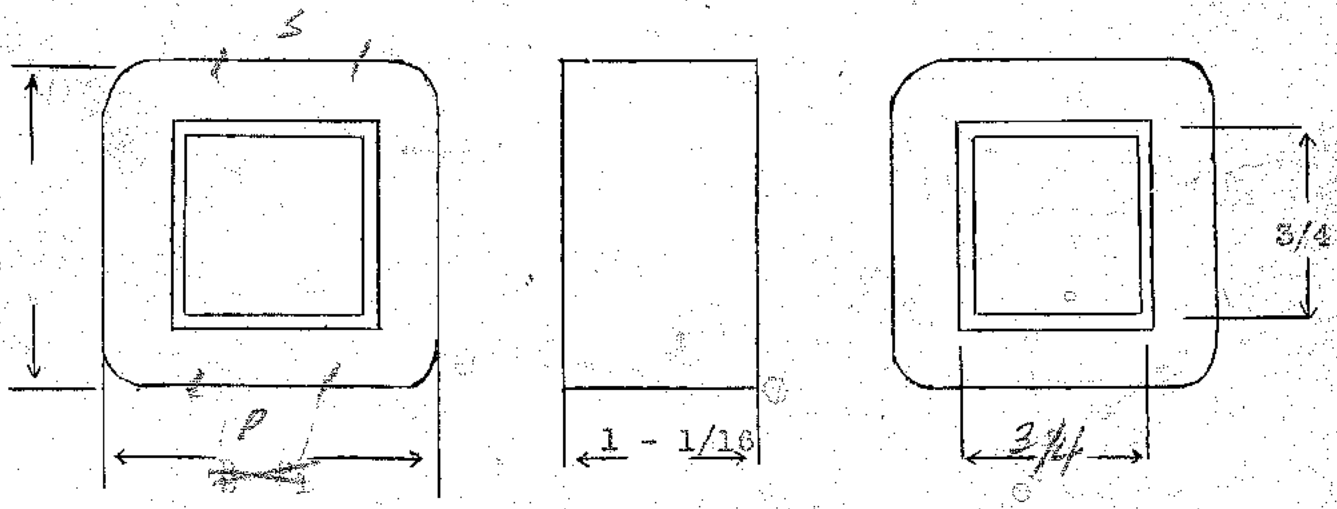
T_s Total = 840.

200 ohm line or single button mike to grid

SPEC. NO. D164

Winding	SEC	PRI					
Turns	8400	375					
Taps	NONE	NONE					
Wind. Lgth.	15/16	15/16					
Wire Size	40	29					
T.P.L.	348-34	66-6					
Kind Term.	S11 Br	~~WIRE~~ ONL					
Term. Lgth.	3"	3"					
Layer Insul.	16Lb.61	30lb.61					
Test Volt.							
Wrapper	2L005VP	2L005					

TUBE	71007	IMPREGNATION	WAX
CORE	2 x 2 NW	2 x 2	PRIMARY V.A.
MOUNTING	D	29 Ga.	



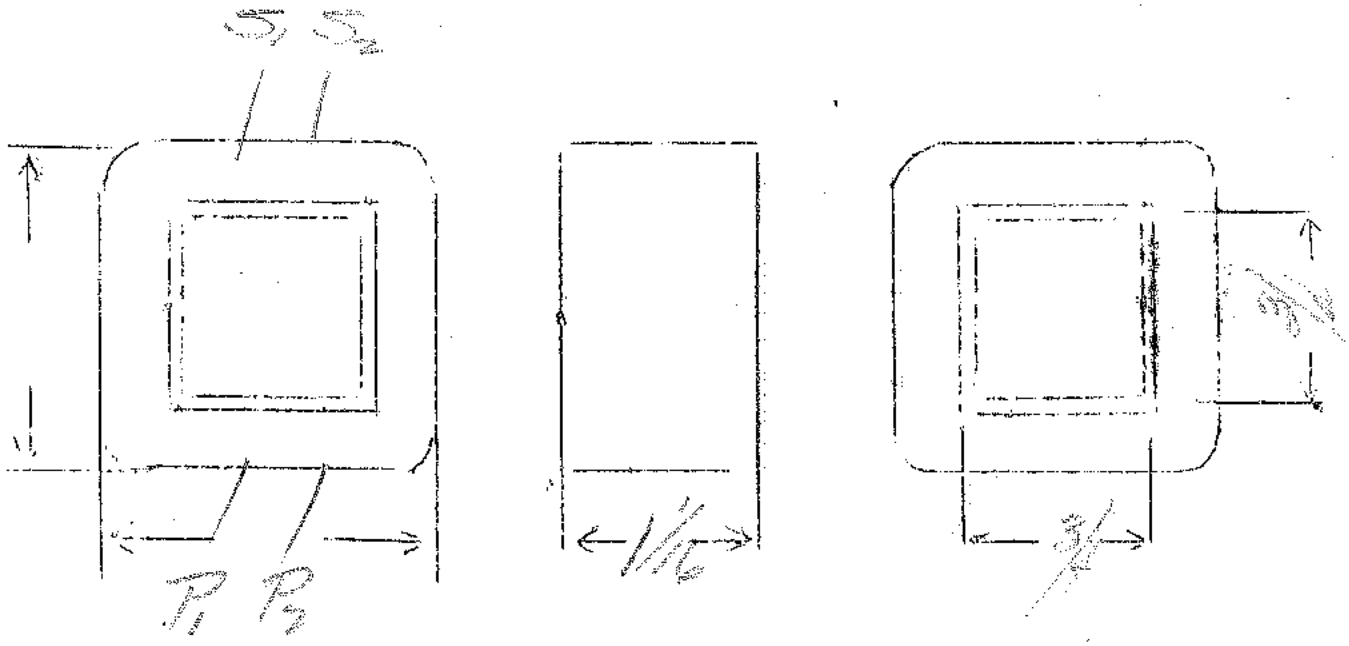
DESIGNED BY G.W. DATE

SPEC. NO. 165

Winding	Sec	Pri					
Turns	1400	44					
Taps	None	#22					
Wind. Lgth.	1⅝ / 1⅝	1⅝					
Wire Size	#26	#22					
T.P.L.	236-3½						
Kind Term.	Std	Formex Coil					
Term. Lgth.	3"	3"					
Layer Insul.	Kraft						
Wrapper	2 Lap 3M	2 Lap 3M					

TUBE | 2L 007 | IMPREGNATION | Var

CURE | 3hr 3hr 105°C

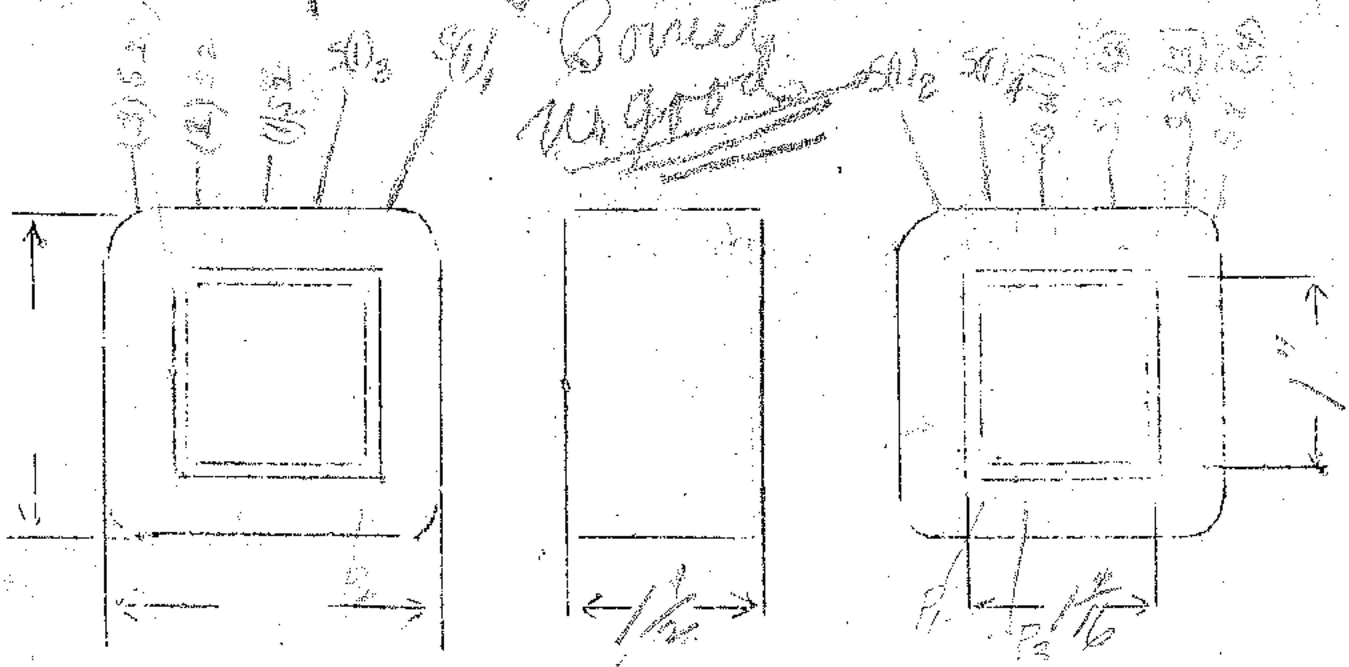


E_p = 110 — 130
E_{S_1} = 100 - 40 - 20
E_{S_2} = 15 - 5
E_{S_3} = 2 — 1 — 1

SPEC. NO. 161

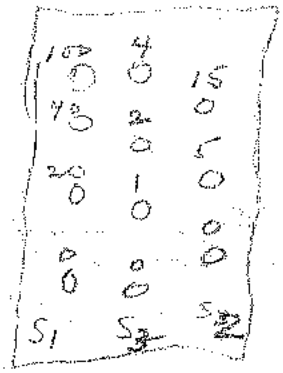
Winding	PRI	SEC (1)	SEC (2)	SEC (3)			
Turns	1000	855	132	36			
Taps	916	346 / 125	45	18 / 9			
Wind. Lgth.	1 1/4	1 1/4	1 1/4	1 1/4		CHECK	
Wire Size	28E	27E	27E	27		WINDOW	
T.P.L.	84	75	75	75		SPACE	
Kind Term.	WIRE	ONLY					
Term. Lgth.	4	4"	4	4"			
Layer Insul.	20B(2)	20B(2)					
Wrapper	2L005YP	2L005YP	1L005GH	2L005GP			

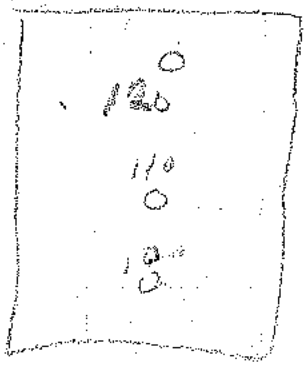
TUBE	4L007	IMPREGNATION	VARNISH
CURE	[illegible]		



Bonnet
Wagner

Underwriter mounting — [illegible] [illegible] [illegible] [illegible] [illegible] panel — [illegible]





Yellow 3 Sec

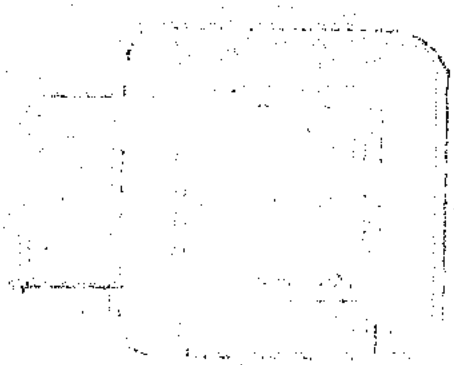
Red 2 Sec

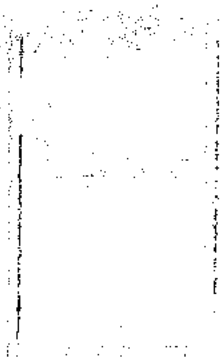
Blue 1 Sec

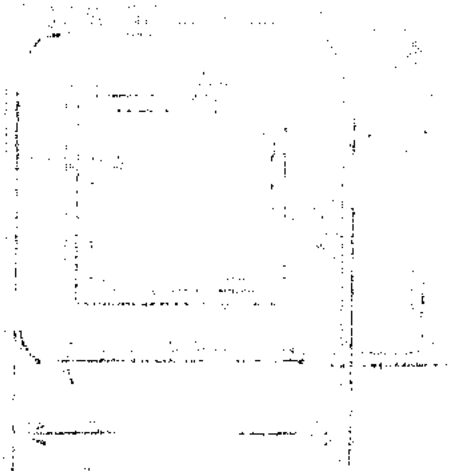
Black Pr

White Start

Pause







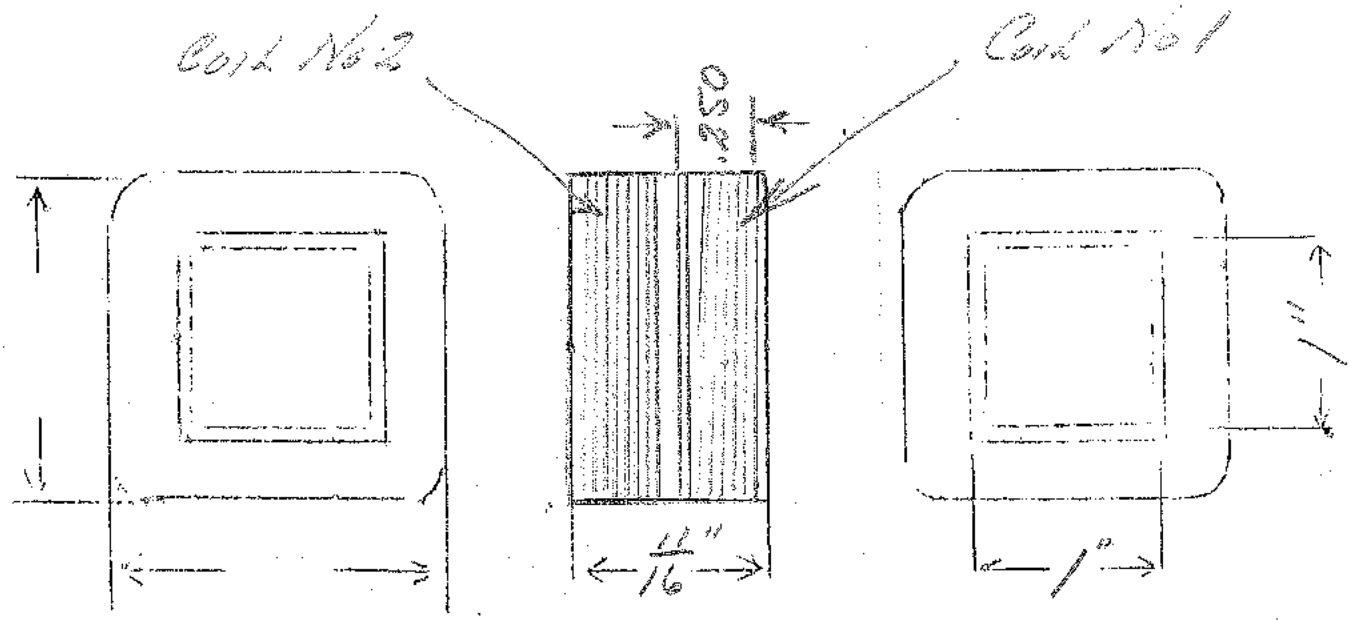
Solar Aircraft

SPEC. NO. 167

Winding	Coil No 1	Coil No 2					
Turns	3400	3430					
Taps	None	None					
Wind. Lgth.	.250	.250					
Wire Size	32	32					
T.P.L.	34-100	34-100					
Kind Term.	No 20 Tinned	No 20 Tinned					
Term. Lgth.	5"	5"					
Layer Insul.	1661	1661					
Wrapper	2 layers 568						

TUBE | 4K 903 | IMPREGNATION | Bakelite

CURE |



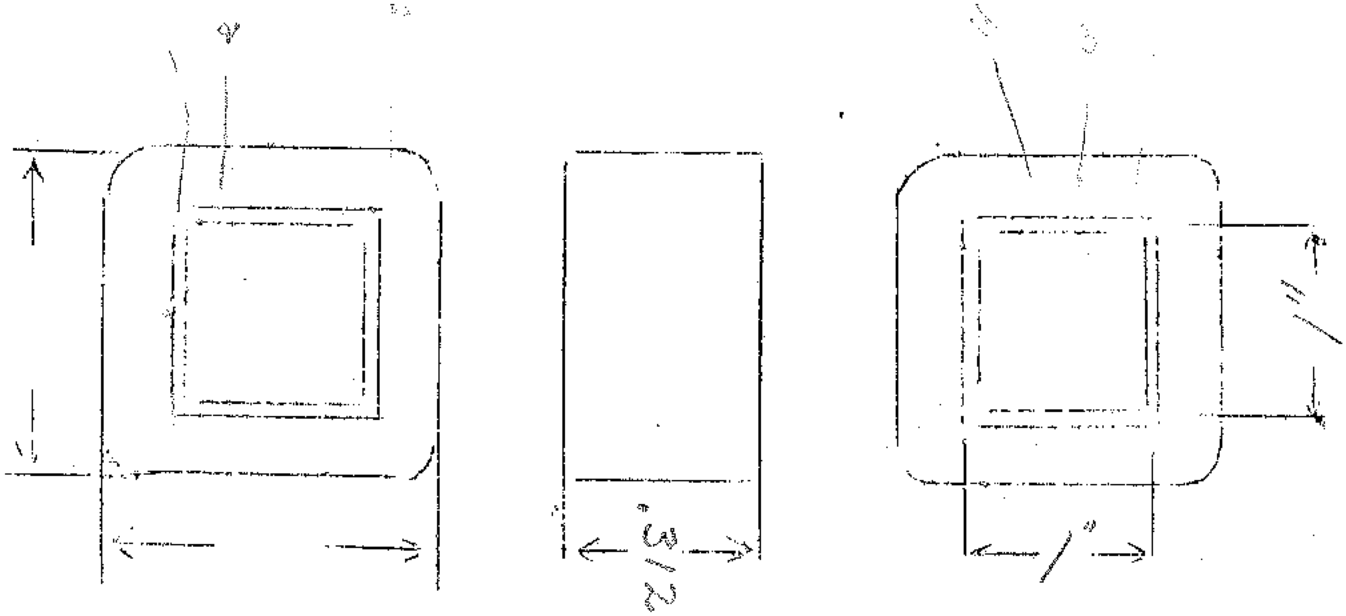
Solar Aircraft

SPEC. NO. 168

Winding							
Turns	1600						
Taps	800 1000 1200						
Wind. Lgth.	.171						
Wire Size	33						
T.P.L.	20-50						
Kind Term.	NO 20 Pig						
Term. Lgth.	8"						
Layer Insul.	20 Mic						
Wrapper	Mylar						

TUBE | Fiber | IMPREGNATION | Varnish

CURE | 1" x 1"



$E_{s1} = 115$

$E_{s2} = 115 - E_{s1} = .450$

$E_{s3} = 2.5 - E_{s2} = 3.$

$E_{s4} = 2.5 - E_{s3} = 3.5$

$E_{s5} = 2.5 - E_{s4} = 4.$

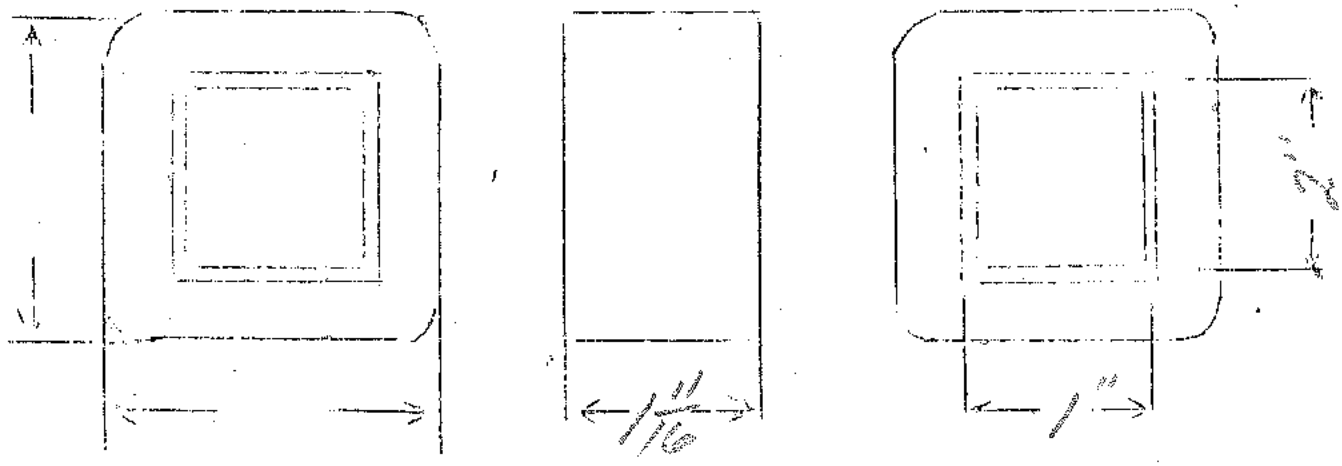
$E_{s6} = 5. - E_{s5} = 3.$

SPEC. NO. 169

Winding	PRI	WHOLE	SEC.	FIL	FIL (2)	FIL (3)	FIL (4)
Turns	328	164	2800	16	8	8	8
Taps	None	None	1130	None	4	4	4
Wind. Lgth.	1/2	1/2	1/2				
Wire Size	#30	#30	#32	17	17	17	17
T.P.L.	1-8	125-1	125-18				
Kind Term.	Heat Proof	Solder	No 20 Tube	Wire Lead			
Term. Lgth.	3"	3"	3"	3"			
Layer Insul.	Varnish		Varnish				
Wrapper	2 Layers	2 Layers	2 Layers				2 Layers

TUBE | Kraft | IMPREGNATION | Varnish

CURE | 150° F



120V - 60 Cycle
370V CT @ 250 Ma.
5V @ 3A

SPEC. NO. P-170

Winding	Sec.	Shield	Pri.	5V			
Turns	5% - 1860	1	546	10% - 25			
Taps CT=	930	---	---	---			
Wind. Lgth.	1-15/32"	1-15/32"	1-15/32"	1-15/32" =	1.46875"		
Wire Size	#30	.001 Cu. Sheet	#34	#18			
T. P. L.	117 - 16L	1	61 - 9L	25 - 1L			
Finish Pitch	89%	---	88.6%	71%			
Type Lead	#22 Pr. Br.	Sil. Br.	#22 Pr. Br.	O.D. Sleeve			
Lead Lgth.	9"	9"	9"	9"			
Layer Insul.	2L 20#G	---	1L 50#G	---			
Test Volt.	2000 ✓	---	---	---			
Wrapper	1L .005" VC	1L .005" VC	2L .005" GA	2L .005" GA			

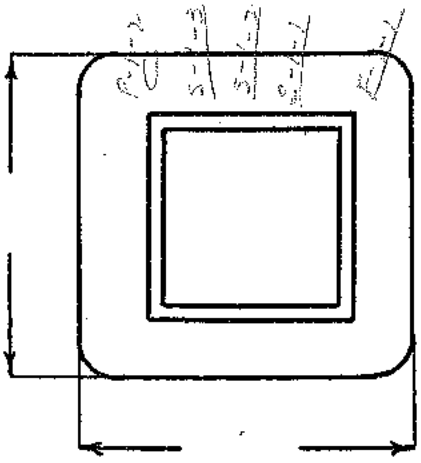
TUBE	7L - .007" GK	IMPREGNATION	VARNISH

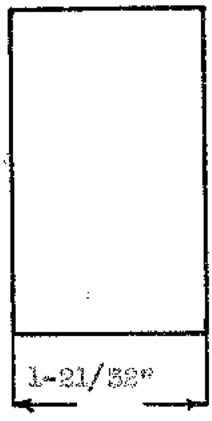
CORE 1-1/16 x 1½ E & I GA. 24 GRADE D STACK 2 x 2

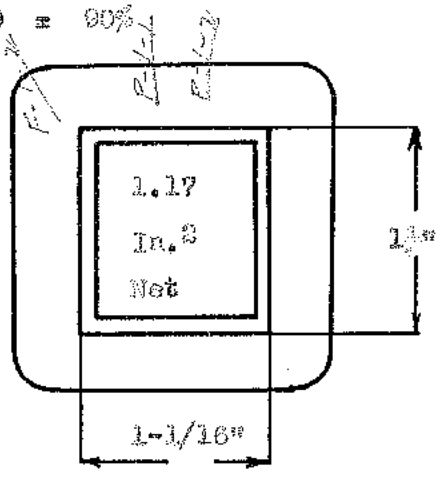
MOUNTING "A" Only

Cu = 667 - 590 - 541
Fe = 70.3 @ 60 Cycle
EPV = 4.55
Wire Net = 0.490" (0.437")

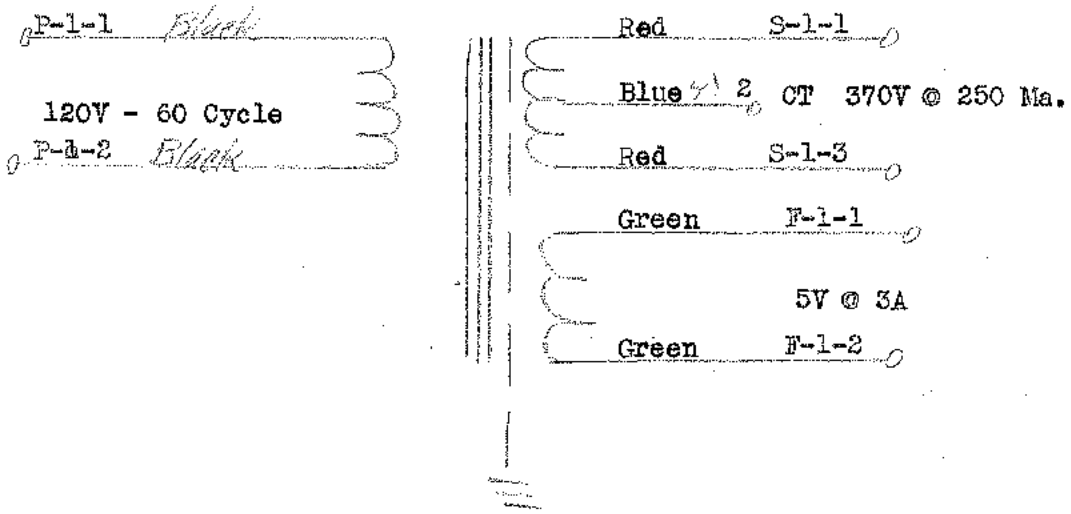
Sec. VA = 61.3
Pri. VA = 82.2
Pri. I = 685 Ma.
Efficiency = 83%
Core = 90%







DESIGNED BY E. W. S. DATE 7-24-41

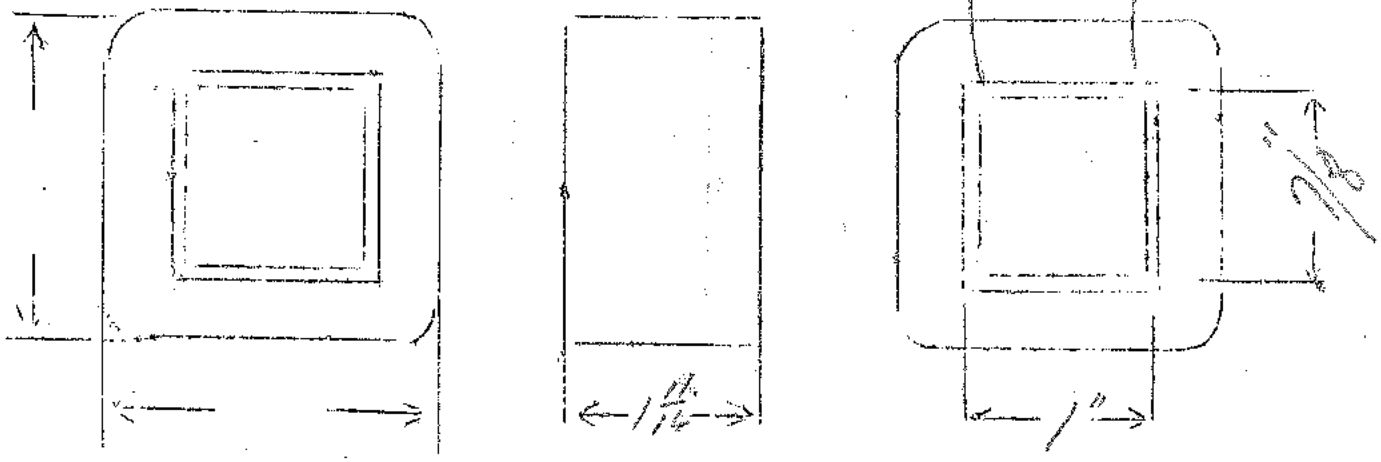

P-1-1 Black
120V - 60 Cycle
P-1-2 Black
Red S-1-1
Blue S-1-2 CT 370V @ 250 Ma.
Red S-1-3
Green F-1-1
5V @ 3A
Green F-1-2

SPEC. NO. 170

Winding	Prim	Sec					
Turns	785	17					
Taps	None	None					
Wind. Lgth.	1/2						
Wire Size	#35	#16					
T.P.L.	37-1/4						
Kind Term.	Pigtail	Wire Out					
Term. Lgth.	3"	12"					
Layer Insul.	Mylar						
Wrapper	2 Layers	2 Layers					

TUBE | Kel-F | IMPREGNATION | Varnish

CURE | 1 hr 250°F



$E_P = 115$

$E_{S_1} = 750 - I = .120$ max

$E_{S_2} = 100 - I = .030$

$F_1 = 5, I = 3$

$F_2 = 2.5, I = 2$

$F_3 = 25, I = 5$

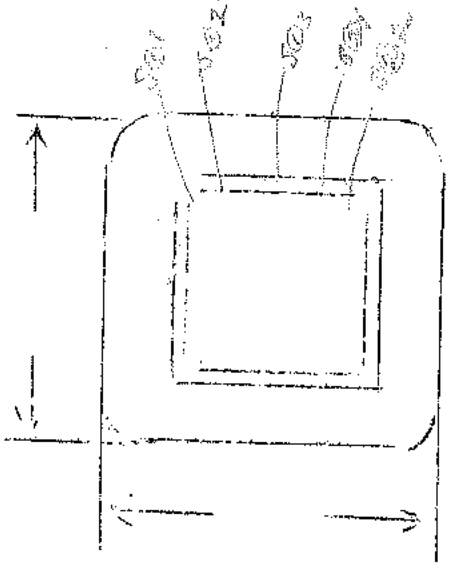
$F_4 = 2.5, I = 5$

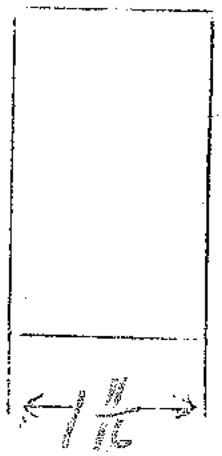
SPEC. NO. 171

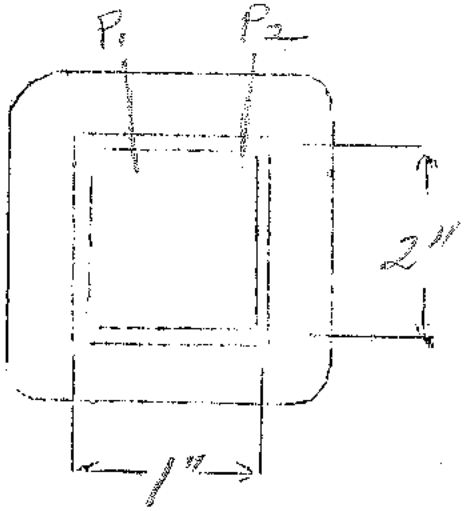
Winding	PRI	SHIELD	SEC_1	SEC_2	F_1	F_2	F_3	F_4
Turns	328	135	2295	326	16	8	8	8
Taps	NONE	NONE	1150	163	NONE	NONE	4	4
Wind. Lgth.	1 1/2	1 1/2	1 1/2	1 1/2	—	—	—	—
Wire Size	20E	31E	31E	#31E	#18E	#18E	#16E	#16E
T.P.L.	41 - 8		135-17	175	—	—	—	—
Kind Term.	No 20 PBR	5/11 BR	#20 PBR	#20 PBR	WIRE ONLY			
Term. Lgth.	9"	9"	9"	9"	9"	9"	9"	9"
Layer Insul.	5 mil		2 mil	2 mil				
Wrapper	2L003VP	2L003VP	2L003VP	2L005GA				

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 X 2 M







Eb. 118
Es - 600VCT - 200 ma
Ef 5 v - 3 amp

Delivers 300 VDC @ 200 ma DC
83 fd. Cond. input - #5U4G
83 V Rectifier

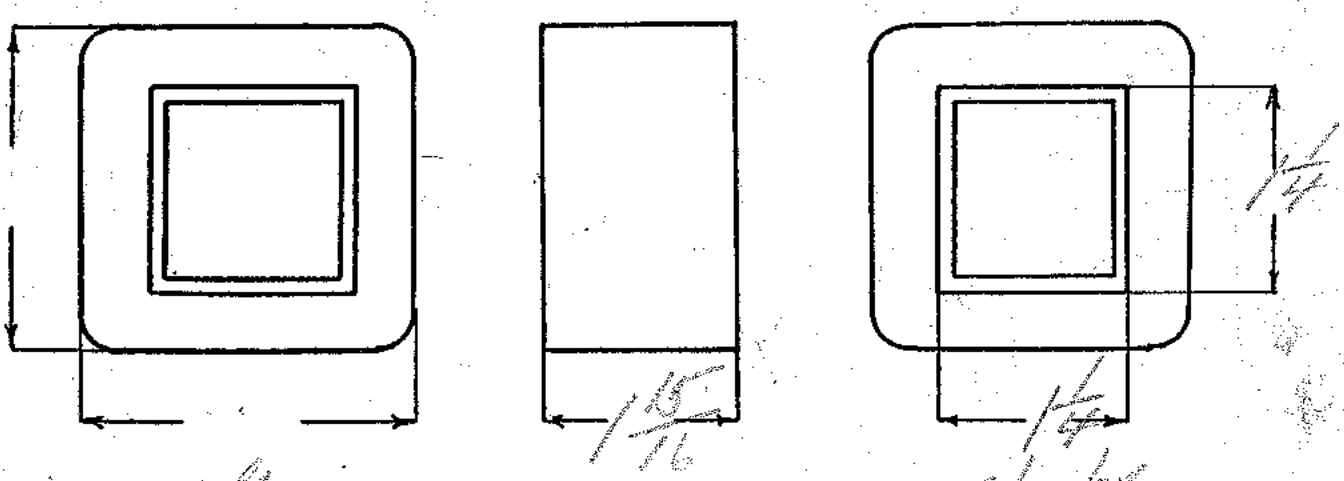
SPEC. NO. P171

Winding	SEC	SHIELD	PRI	FIL			
Turns	2460	125	940	21			
Taps	1230						
Wind. Lgth.	1.75						
Wire Size	#29	#29	#23	#18			
T. P. L.	125-30		66-7				
Finish							
Type Lead	#30 Enam.		#30 Enam.	Var.			
Lead Lgth.	9" double	3"	9"	9"			
Layer Insul.	10#		50#				
Test Volt.							
Wrapper	6007K	6007K	2N0716A	2N0764			

TUBE	7207	IMPREGNATION	Varnish

CORE	GA.	GRADE	STACK

MOUNTING A



DESIGNED BY Chas

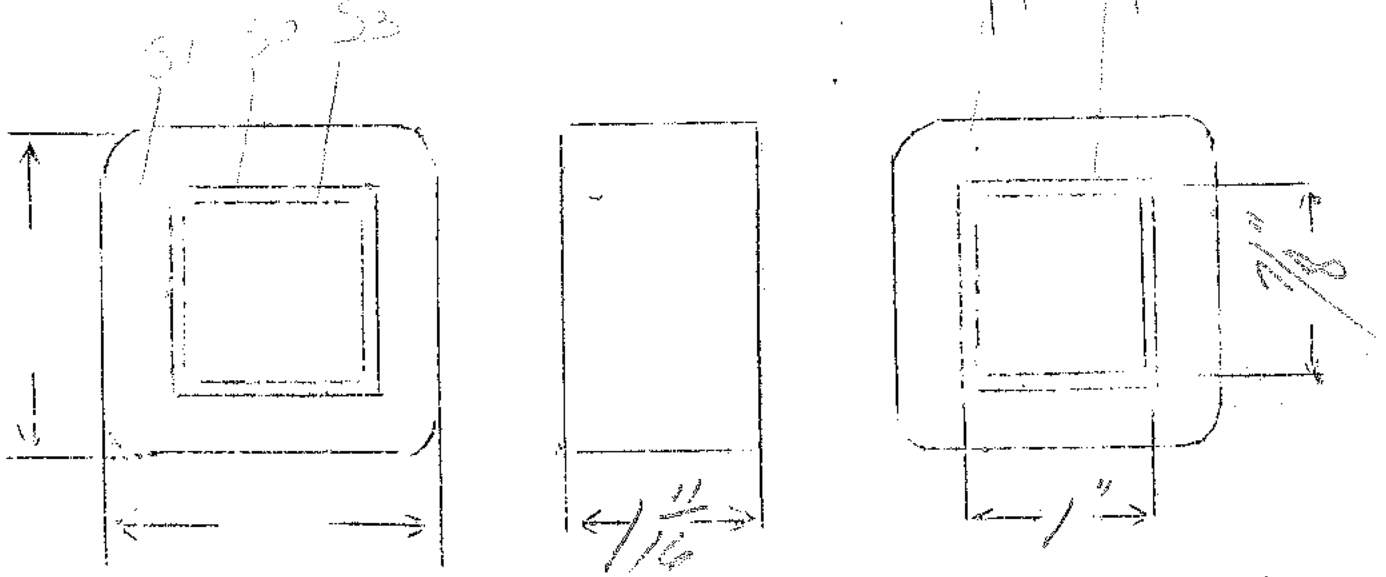
DATE 8/12/35

SPEC. NO. 122

Winding	PRI	Shunt	Bias	FB(1)	FB(2)		
Turns	1560	190	4160	35	17		
Taps	None	None	2080	None	8½		
Wind. Lgth.	1½	1½	1½	1½			
Wire Size	22	32	32	20	13		
T.P.L.	2-18	2-1	2-21				
Kind Term.	Solder Lug	Solder Lug	Solder Lug	Solder Lug	Solder Lug		
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	Mylar		Mylar				
Wrapper	Varnished Cambric	Varnished Cambric	Varnished Cambric		Varnished Cambric		

TUBE | Kraft | IMPREGNATION | Varnish

CURE | 1 hr 250°F

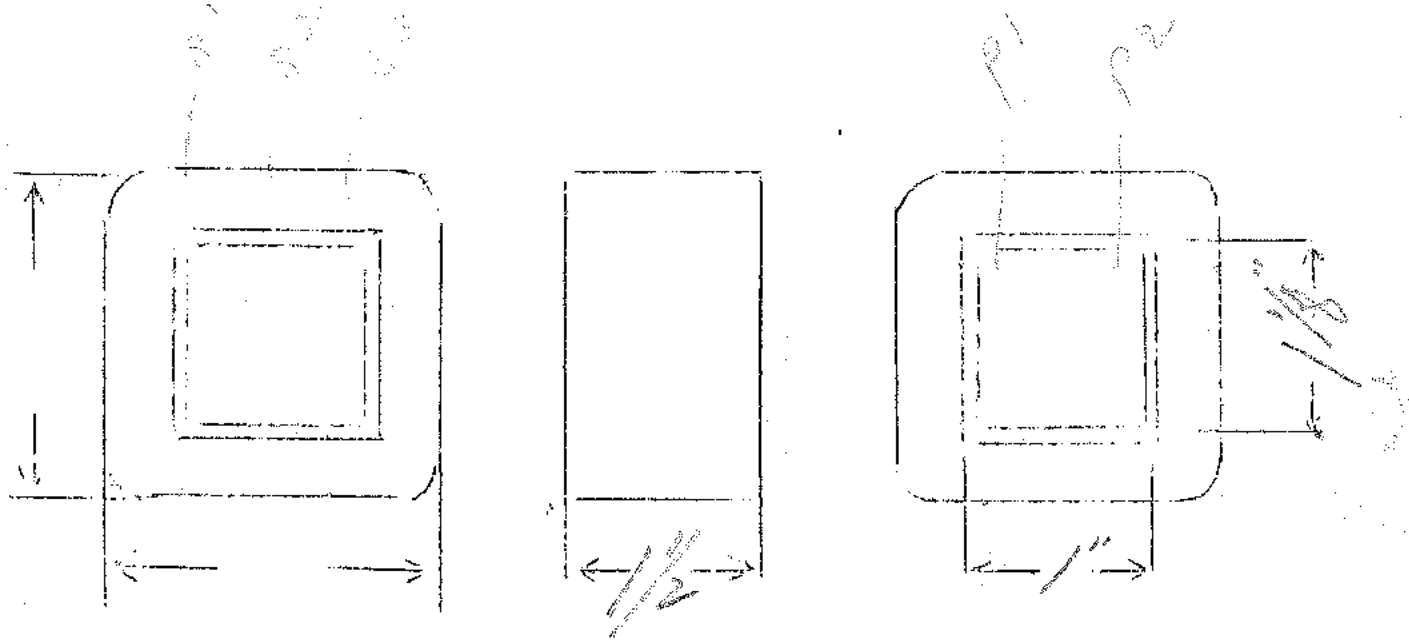


SPEC. NO. 123

Winding	Pri	Sec.	Sec.	Fil	Fil		
Turns	1230	216	3220	26	2		
Taps	None	None	1620	None	2		
Wind. Lgth.	1"	1"	1"				
Wire Size	#22	#26	#36	#20	#22		
T.P.L.	2-1	2-1	2-15				
Kind Term.	Flex Lead	Flex Lead	Flex Lead	Flex Lead	Flex Lead		
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	2 Mil		2 Mil				
Wrapper	2 Mil Mylar	2 Mil Mylar	2 Mil Mylar		2 Mil Mylar		

TUBE | Melamine | IMPREGNATION | Varnish

CURE | 24 hrs @ 150°C



Vibrator

6V/6V D.C. to
(225 V D.C. @ 40 ma)
460 V A.C. @ 40 ma

New Stock

SPEC. NO. P 176
See P 182

Winding	1-2-3 Sec	Shield	4-5-6 Pri				
Turns	4180	1	68				
Taps	2090	—	34				
Wind. Lgth.	1 1/16	1 1/2	1 1/16				
Wire Size	#37	Foil	#18				
T. P. L.	191-224	—	23-31				
Finish	90%	—	90%				
Type Lead	#22 P.B	S.C. Br.	Wire Wound				
Lead Lgth.	Cut 14"	3"	Cut 14"				
Layer Insul.	20#	—	1100-5-6A				
Test Volt.	2000	—	1500				
Wrapper	24-0-25 VC	1160-5VC	24-0-5-6A				

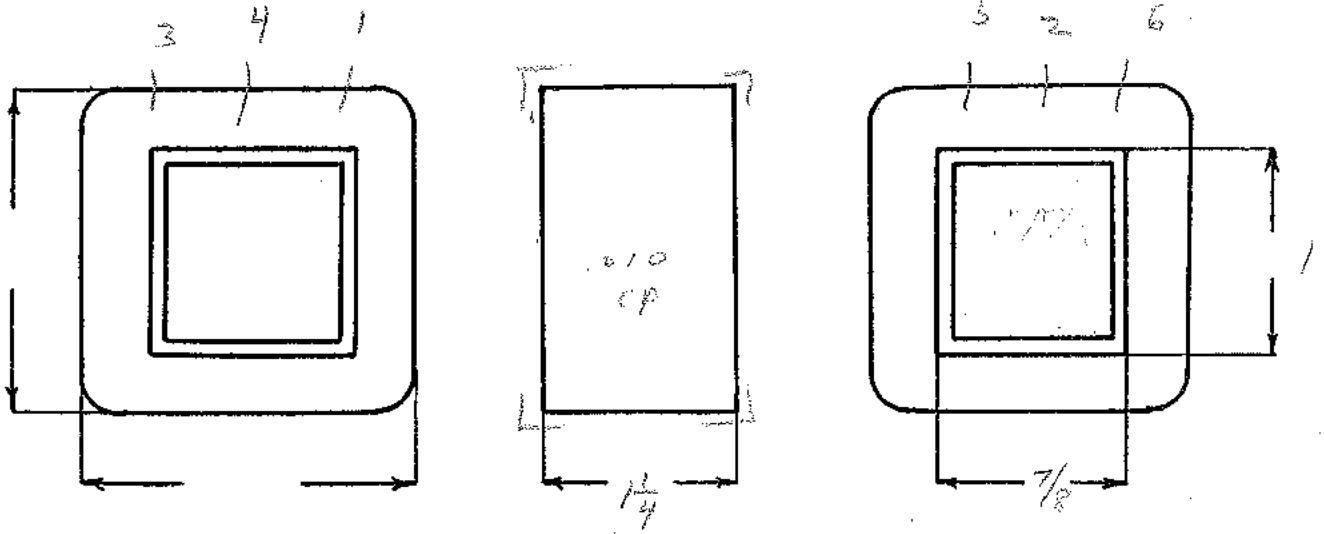
TUBE 52010 6K + 1100-3VP

IMPREGNATION Varnish

CORE 7/8 x 1 GA. 29 GRADE D STACK 2 x 2

MOUNTING HS 10
A - Copper shield over Com. windings

Min = 79%



DESIGNED BY H.W.S.

DATE 7-24-51

DESIGN AND TEST DATA

Rating:

Winding	1-2-3 Sec.	Shield	4-5-6 Pri.				
Mean Turn	4.63	—	5.77				
Resistance 25° c	.862	—	.213				
Pounds Copper	.0992		.1632				
Copper Density	[illegible]	—	[illegible]				
Ratio Volts Test	41.8		0.680				
Test to Ground	2000		1500				

Iron Induction 5.76 kg @ 115 Cycles with 3 amps on pri

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 285 V. D.C. [illegible]

1 — 3 Red

2 [illegible]

4 [illegible]

5 Yellow

Vibrator

6 V/6 V D.C. to
(225 V D.C. @ 40 ma.)
460 V C.T. @ 40 ma.

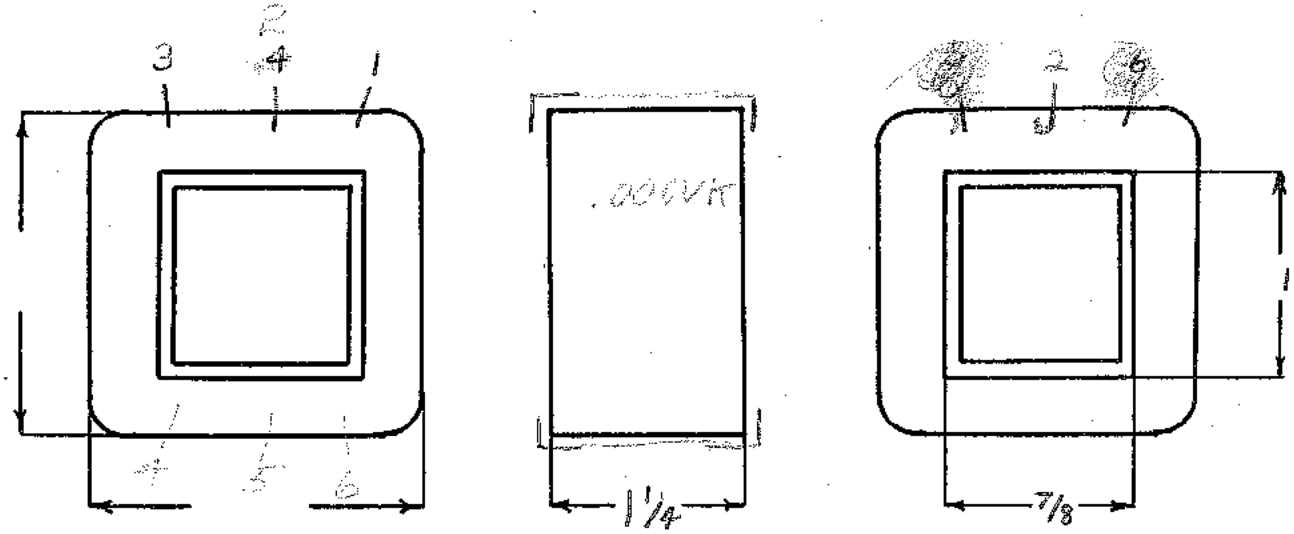
New Stock

SPEC. NO. P 176
See P182

Winding	1-2-3 Sec	Shield	4-5-6 Pri				
Turns	4180	1	68				
Taps	2090	—	34				
Wind. Lgth.	1 1/16	1 1/16	1 1/16				
Wire Size	#37	.001 Cu	#18				
T. P. L.	191-22L	—	23-3L				
Finish Etch	90%	—	90%				
Type Lead	#22 P. B.	Lit. Br.	Sec. o. sleeve				
Lead Lgth.	cut 10"	3"	cut 10"				
Layer Insul.	20#	—	1L005GA				
Test Volt.	2000	—	1500				
Wrapper	1L003GA 1-60# 2L005GC	1L010A 1L005GC	3L005GA 2L005GA				

TUBE	5L010GK + 1L002GP		IMPREGNATION	Varnish	
CORE 7/8 x 1	GA. 24	GRADE D	STACK 2 X 2		

MOUNTING #A - Copper Shield over Laminations, HS 10 - Leads (GB)



RE-DESIGNED BY H. W. S.

DATE 7-24-41

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 .55 amperes @ 117 volts 60 cycles on 1-2

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

Remarks:

1 – 3 Red

2 Red - Yellow

4 – 6 Black

5 Yellow

E_p = 118 volts

E_s = 700 v ⎓ = 50 Ma.

F_1 = 5 Volts, 2 amps

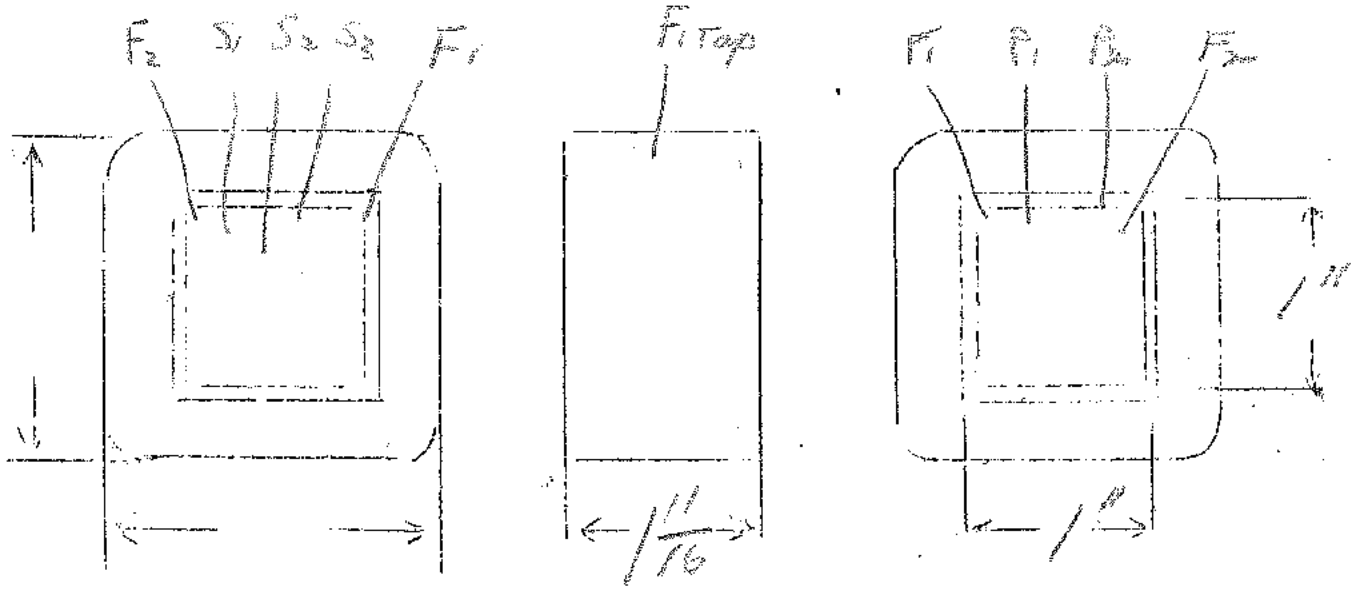
F_2 = 2½ volts 6 amps CT

SPEC. NO. 177

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	652	191	4032	30	16		
Taps	NONE	NONE	2016	NONE	8		
Wind. Lgth.	1½	1½	1½	–			
Wire Size	23E	34E	34E	20E	16E		
T.P.L.	58 (ohms) 12	191-1	192-21				
Kind Term.	WIRE ONLY	SIL. GR.	WIRE ONLY	WIRE ONLY	WIRE ONLY		
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	50 lb	20 lb	20 lb				
Wrapper	2L003 WP	2L003 WP	2L0045 6A		2L0056A		

TUBE | 4L007 | IMPREGNATION |

CURE | 1X1 M



Vibrator

6V/6V D.C. to
240V D.C. @ 60 mA

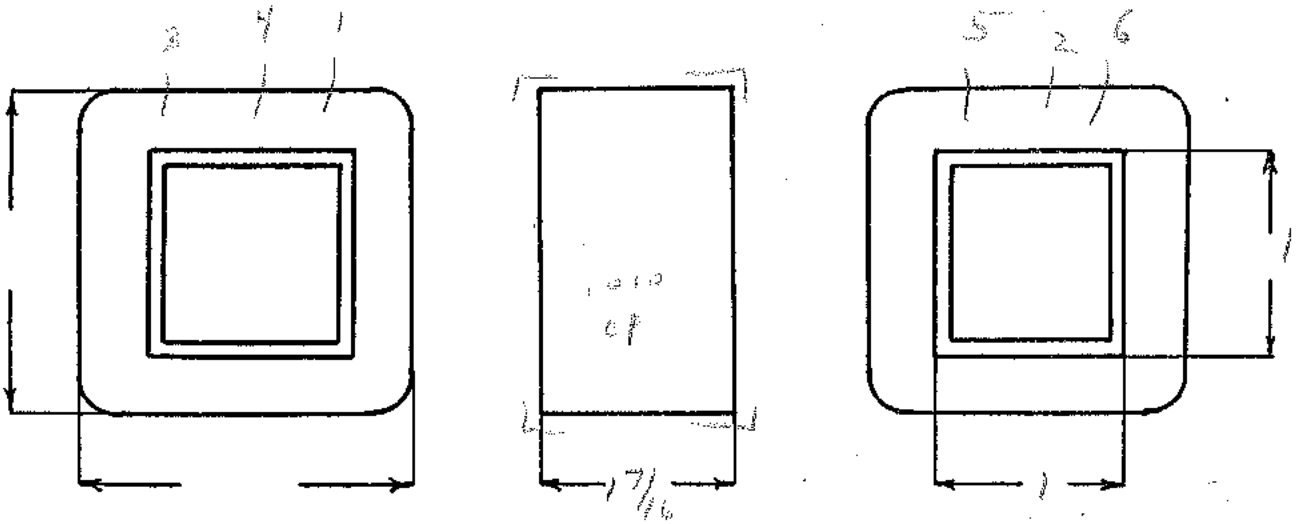
New stock

SPEC. NO. P178

Winding	1-2-3 Sec	Shield	4-5-6 Pri				
Turns	4750	1	772				
Taps	2375	—	36				
Wind. Lgth.	1 1/4	1 1/4	1 1/4				
Wire Size	#35	.001 cu	#17				
T. P. L.	183-366	—	24-36				
Finish	91%	—	90%				
Type Lead	#22 P.B	S.L Cu	#22 Enc				
Lead Lgth.	cut 14"	3"	cut 14"				
Layer Insul.	2 mil	—	.001 76A				
Test Volt.	2000	—	1500				
Wrapper	2 mil SC	1 mil SC	2 mil SC				

TUBE	5 Lo/o Lt + 1 Lo/o VP	IMPREGNATION	Varnish		
CORE 1 X 1	GA. 24	GRADE D	STACK 2 X 2		
MOUNTING A #179 copper shield over Laminations					

Am = 85%



Re DESIGNED BY H.W.S.

DATE 12-3-41

DESIGN AND TEST DATA

Rating:

Winding	1-2-3 Sec.	Shield	4-5-6 Pri.				
Mean Turn	5.09		6.48				
Resistance 25° c	675		.201				
Pounds Copper	.1970		.244				
Copper Density	684		702				
Ratio Volts	47.5		2.750				
Test to Ground	2000		1500				

Iron Induction 4.22 kg @ 115 Cycles 60 Hz 115 V. D.C. on pri

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 285 V, D.C. 1951 MC. Individual wind. 0.8V/turn sec. and 2.42 V/turn on pri. with 60% taps.

1 — 3 Red

2 Red-Yellow

4 - 6 Black

5 Yellow

Vibrator

6V/6V D.C. to
260 V D.C. @ 60ma.

New stock

SPEC. NO. P 178

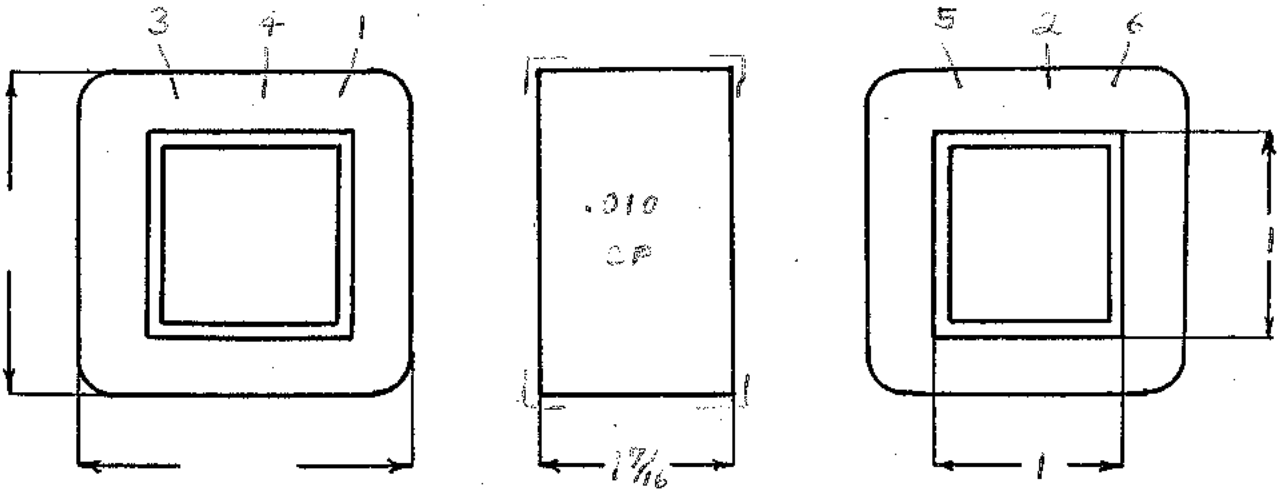
Winding	1-2-3 Pri.	Shield	4-5-6 Sec.				
Turns	4750	1	72				
Taps	2375	—	36				
Wind. Lgth.	1¼	1¼	1¼				
Wire Size	#35	.001 mm	#17				
T. P. L.	183-26L	—	24-3L				
Finish Pitch	91%	—	90%				
Type Lead	#22 P.E.	Lil. Br.	w. o. sleeve				
Lead Lgth.	cut 14"	3"	cut 14"				
Layer Insul.	20#	—	IL 007 G-A				
Test Volt.	2000	—	1500				
Wrapper	IL 002 CA ~~IL 005 VC~~	IL 002 CA IL 005 VC IL 005 G-A	IL 005 G-K ~~IL 005 G-A~~				

TUBE 5L 010 G-K + IL 002 CA IL 005 VP

IMPREGNATION Varnish

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

MOUNTING A- Copper Shield over Laminations, HS 4-Leads



RE-DESIGNED BY H.W.S.

DATE 12-3-41

DESIGN AND TEST DATA

Rating:

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

Iron Induction _____ @ _____ Cycles 4-5 or 5-6

Exciting Current 3.5 m. amperes @ 110 V volts 60 cycles on 1-2

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

Remarks:

1 – 3 Red

2 Red – Yellow

4 – 6 Black

5 Yellow

6V Filament

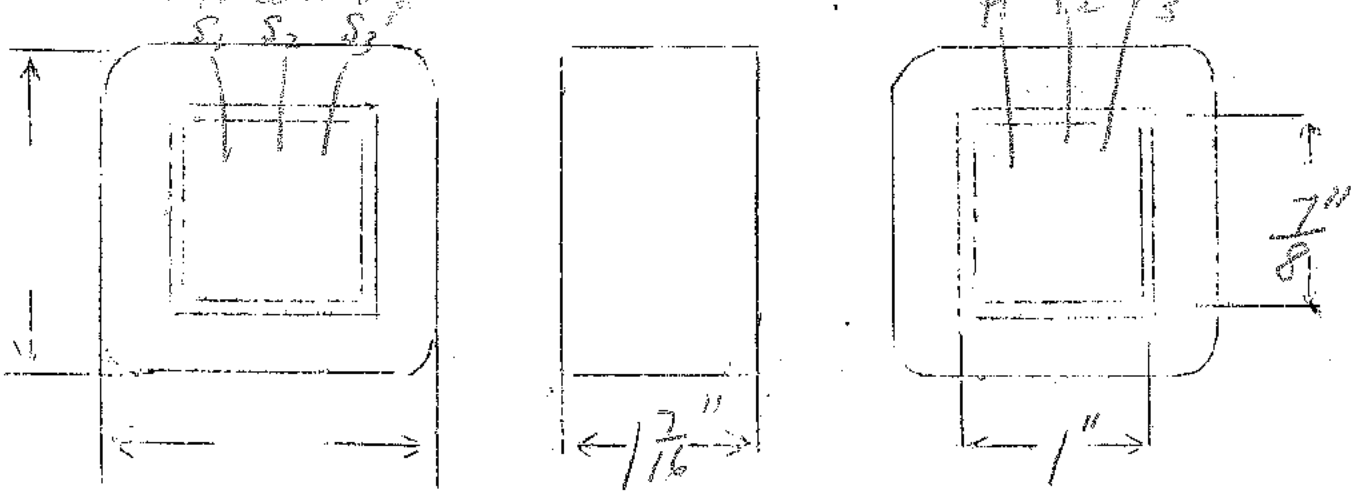
SPEC. NO. 178

Winding	SEC	SHIELD	PRI				
Turns	4900	165	88				
Taps	2450	NONE	44				
Wind. Lgth.	1/4	1/4	1/4				
Wire Size	34E	34E	#19E				
T.P.L.	165	165	30				
Kind Term.	No 20 Per.	Per.	WIRE OUT				
Term. Lgth.	9	3	4				
Layer Insul.	20 M.M.						
Wrapper	IL 005 VC IL 005 BA	IL 005 GA	IL 005 GA				

TUBE | IMPREGNATION

CURE

Drill for transformer mtg. use 2 1/2" 6-32 screws with head on side of trans. with leads



Vibrator

6V/6V D.C. to
(350V D.C. @ 25 ma)
650V ct @ 75 ma

New Stock

SPEC. NO. P-180
See P-184

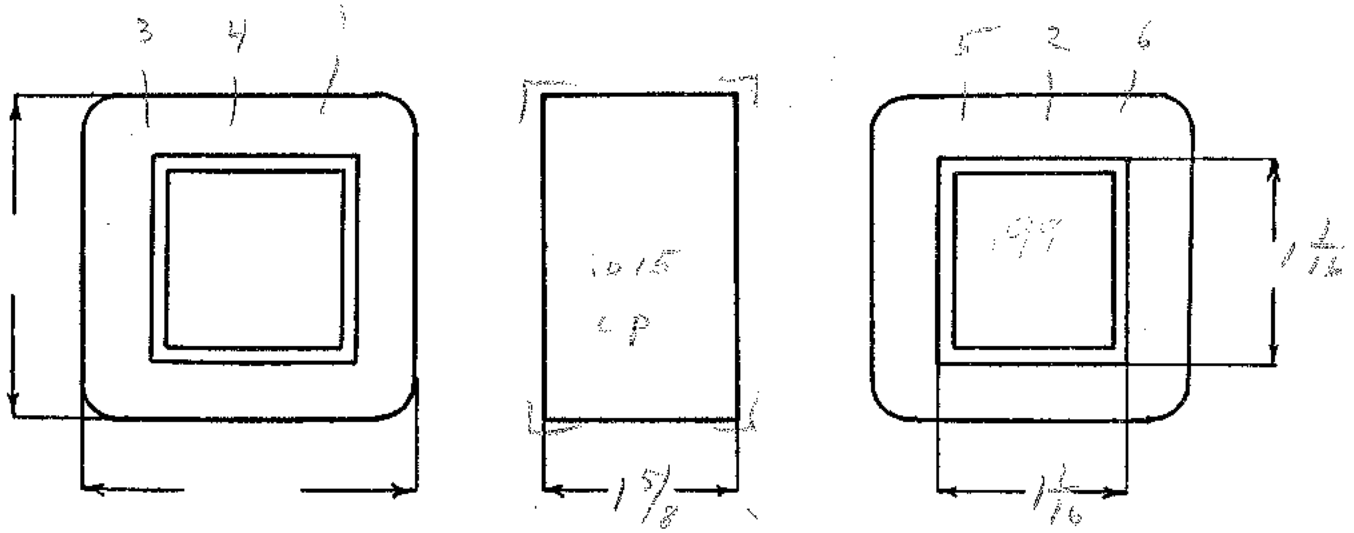
Winding	1-2-3 See	Shield	4-5-6 Pri				
Turns	4120	1	58				
Taps	2060	—	29				
Wind. Lgth.	1 3/8	1 3/8	1 3/8				
Wire Size	# 34	1 mil	# 14				
T. P. L.	188-276	—	20-32				
Finish	95%	—	95%				
Type Lead	# 22 P.E.	5 L Brs.	W.O. Sleeve				
Lead Lgth.	cut 14"	3"	cut 14"				
Layer Insul.	3 Mil	—	1/2 Mil				
Test Volt.	2500	—	1500				
Wrapper	2 Lo Mic	1 Lo Mic	2 Lo Mic				

TUBE 5 Lo Mic + 1 Lo Mic VP | IMPREGNATION Varnish

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

MOUNTING H.M. A. Copper shield over terminal ends

mm = 75%



DESIGNED BY H.W.S. | DATE 7-24-41

DESIGN AND TEST DATA

Rating:

Winding	1-2-3 Sec	Pri	4-5-6 Pri				
Mean Turn	5.34		6.95				
Resistance 25° c	4.88		.0874				
Pounds Copper	.226		.425				
Copper Density	691		3[illegible]				
Ratio Volts	21.50		0.580				
Test to Ground	2500		1500				

Iron Induction 5.014 @ 115 Cycles [illegible]

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 2600 V.D.C. 3144 V.A.C. calculated causing 6.2% normal input and 2.4 drop in 25.4 mA.

1-2 3 Sec

[illegible]

Vibrator

6V/6V D.C. to
(350 V D.C. @ 75 ma.)
650 V C.T. @ 75 ma.

New Stock

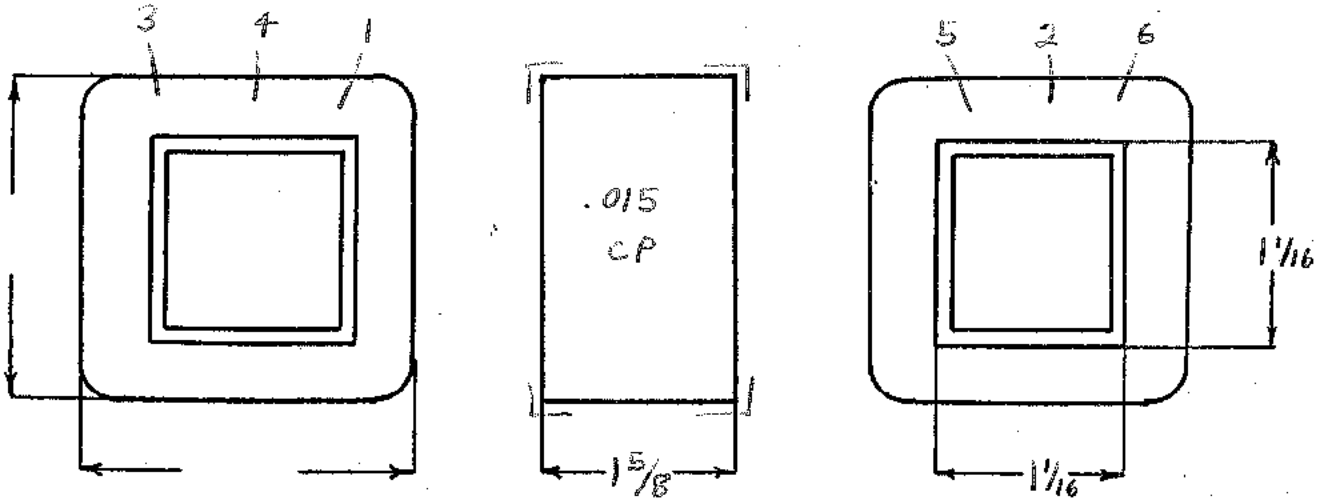
SPEC. NO. P 180
See P184

Winding	1-2-3 Sec	Shield	4-5-6 Pri.	OR →	4-5-6		
Turns	4120	1	58		58		
Taps	2060	—	29		29		
Wind. Lgth.	1 3/8	1 3/8	1 3/8		1 3/8		
Wire Size	#34	.001 cu	#14		DBL #17		
T. P. L.	188-22L	—	20-3L		12-5L		
Finish Both A	95%	—	95%		84%	PULL BOTH WIRES ON (5)	
Type Lead	#22 P.B.	Lil. Br.	w. o. Sleeve		W.D. SLEEVE		
Lead Lgth.	cut 14"	3"	cut 14"				
Layer Insul.	30#	—	1L015 CP		1L-010 CP		
Test Volt.	2500	—	1500		1500		
Wrapper	2L005VC	1L005VC	2L005GA		2L 0056A		

TUBE	5L010GK+1L003VP	IMPREGNATION	Varnish

CORE 1 1/16 x 1 1/16 GA. 24 GRADE D STACK 2X2

MOUNTING A - Copper Shield over Laminations, HS 14 - Leads



RE-DESIGNED BY H. W. S.

DATE 7-24-41

DESIGN AND TEST DATA

ating:

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

Iron Induction _____ @ _____ Cycles _____

Exciting Current 5 ma. amperes @ 117 volts 60 cycles on Sec. (1-2)

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

Remarks:

1 – 3 Red

2 Red – yellow

4 – 6 Black

5 Yellow

E_p = 115V

E_s = 600V, 2 = 50ma

F_1 = 5V, 2 amps

F_2 = 2.5V, 4 Amps

1-80
1-2A5
1-58
1-58 or 2A6
1-57 or 2A7

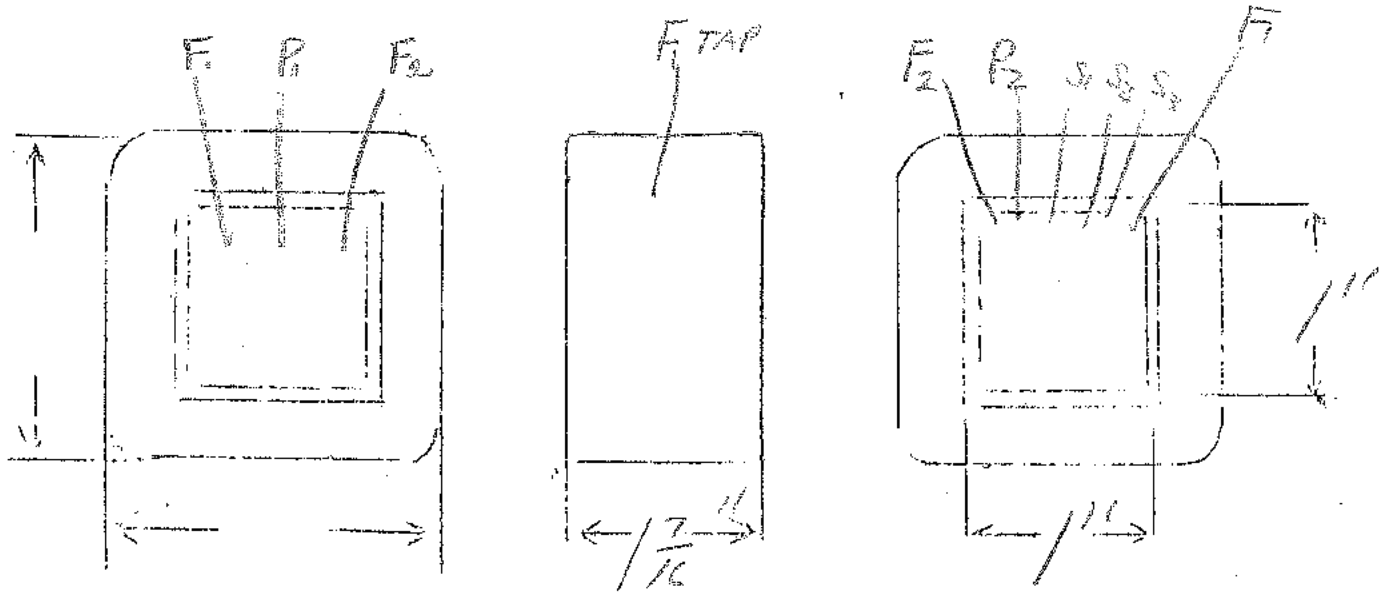
SPEC. NO. 180

VA = 58 NA = 5.13

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	590	216	3350	28	14		
Taps	NONE	—	1675	NONE	7		
Wind. Lgth.	1/4	1/4	1/4	—	—		
Wire Size	27E	36E	36E	20E	17E		
T.P.L.	72	216	216	28	14		
Kind Term.	#20 FBR	SIL SR	#20 FBR	WIRE ONLY	WIRE ONLY		
Term. Lgth.	9	5	9	9	9		
Layer Insul.	30#		50#				
Wrapper	1L005VC	1L005VC	2L005GA	2L005GA	2L005GA		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1X1 NW



P_P = 115V
E_S = 600V, 2 = 50 Ma.
F_1 = 6V, 2 amps
F_2 = 2.5V 4.5 amps

1-58
1-2A5
1-58
1-5802-2A6
1-5701-2A7

RECLAIMED IRON ONLY

Silicon Core
Primary Watts 32

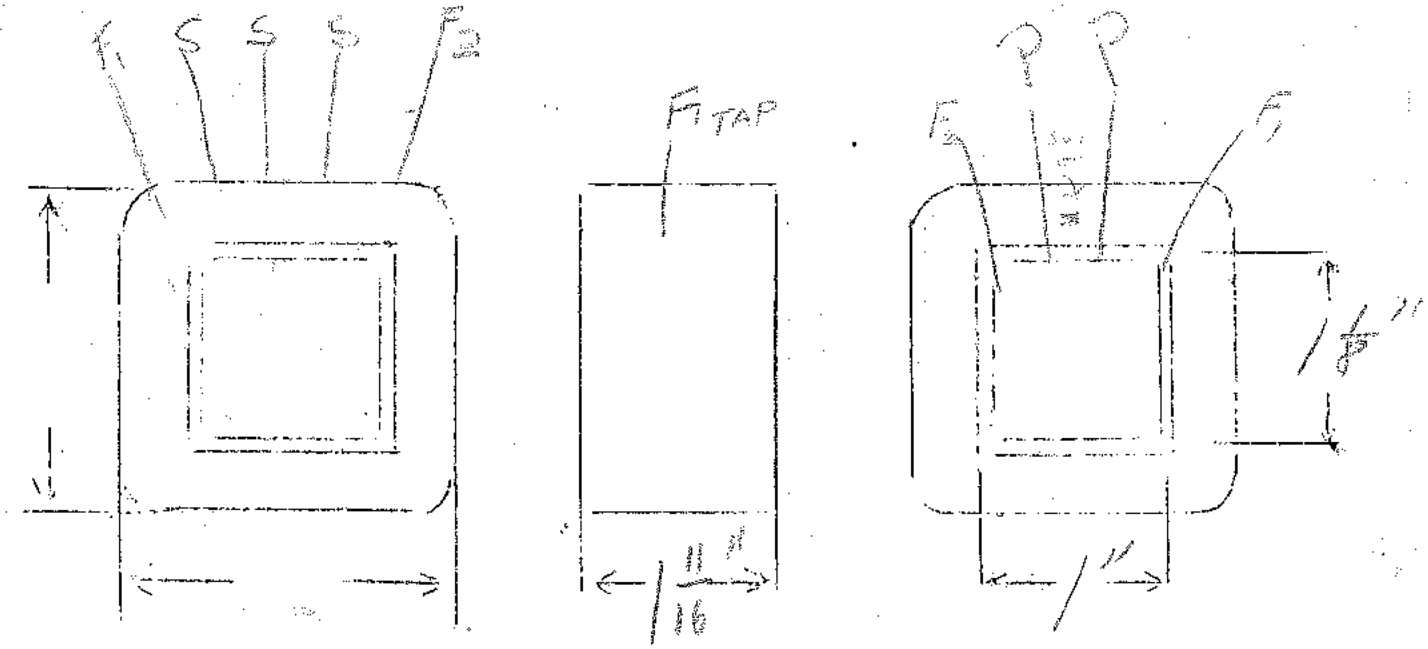
SPEC. NO. 181

P_P = 392 P_W = 513

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	590	78	3350	28	14		
Taps	—	—	1675	—	7		
Wind. Lgth.	1/2	1/2	1/2	—	—		
Wire Size	27E	27E	36E	20E	17E		
T.P.L.	78-8	78	240-14				
Kind Term.	#20 PBW	#31 DSC	#36 E.S.C.	WIRE ONLY	WIRE ONLY		
Term. Lgth.	9 on 3	3"	9 on 3"	9 on 3	9 on 3		
Layer Insul.	30#		20#				
Wrapper	4 mil						

TUBE | 7L007 | IMPREGNATION | VARNISH

CURE | 1X1 1/2 M



P – 12 V miniature

S – To deliver 225 VDC @ 40 Ma. from 85 to 130 V 60 cycle input

SPEC. NO. P-182-12.5

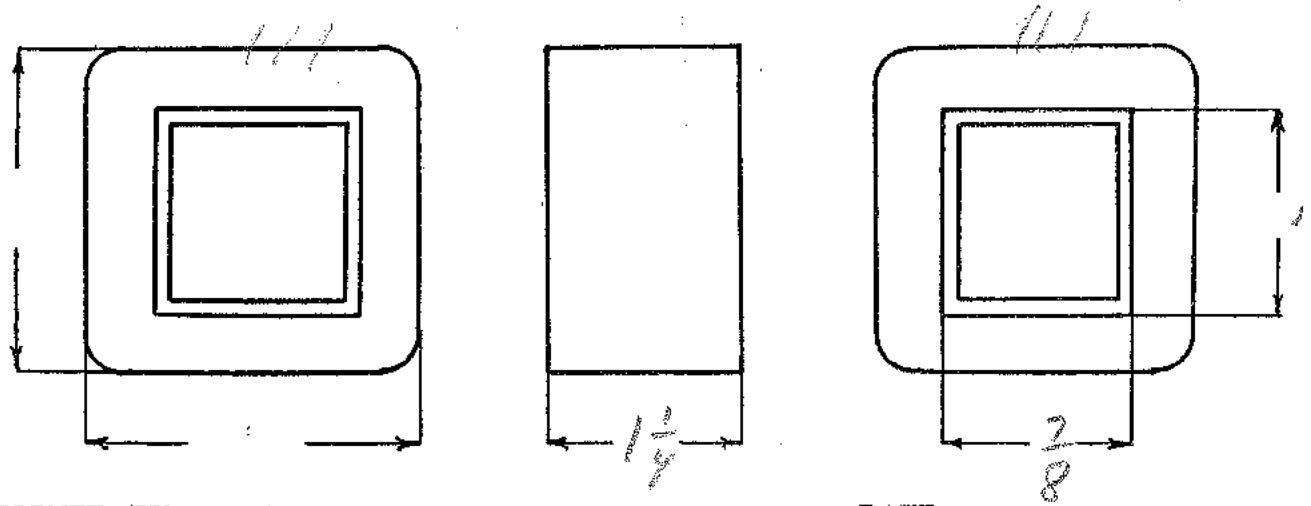
Winding	Sec	Shield	Pri	Black			
Turns	4060	1	138				
Taps	2030		69				
Wind. Lgth.	1 1/16						
Wire Size	#36	ohmic	#21				
T. P. L.	173-24	static	23-6				
Finish							
Type Lead	#30 Beldex		WW				
Lead Lgth.	9"	3"	9"				
Layer Insul.	Dri-fee #2		.005				
Test Volt.							
Wrapper	1L 007 HC	2L 005 GA	2L 007 GA				

TUBE 7L 027 IMPREGNATION VAR

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

MOUNTING A – COPPER SHIELD OVER LAMINATION

Pri leads incorporated in 25% wax and 25% wax



DESIGNED BY DATE

P-182 3/5/62

~~460V Pri.~~
8V-6V to
460V CT @ 40 Ma.
325V DC .04 Rect.

SPEC. NO. P-192

VIBRATOR

Winding	6.3V Sec.		Shield		Pri.		
Turns (36%)	4180		1		68		
Taps CT	2090		---		CT 34		
Wind. Lgth.	1-1/16"		1-1/16"		1-1/16"	= 1.06"	
Wire Size	#37		.001" Cu. Sheet		#18		
T. P. L.	191 - 82L		1		23 - 5L		
Finish Pitch	90%		---		90%		
Type Lead	#22 Pr. Br.		Sil. Br.		W. O. Sleeve		
Lead Lgth.	9"		3"		9"		
Layer Insul.	#20		---		1L .005" GA		
Test Volt.	2000V		---		1500V		
Wrapper	1L .007" VC		2L .005" GA		2L .005" GA		

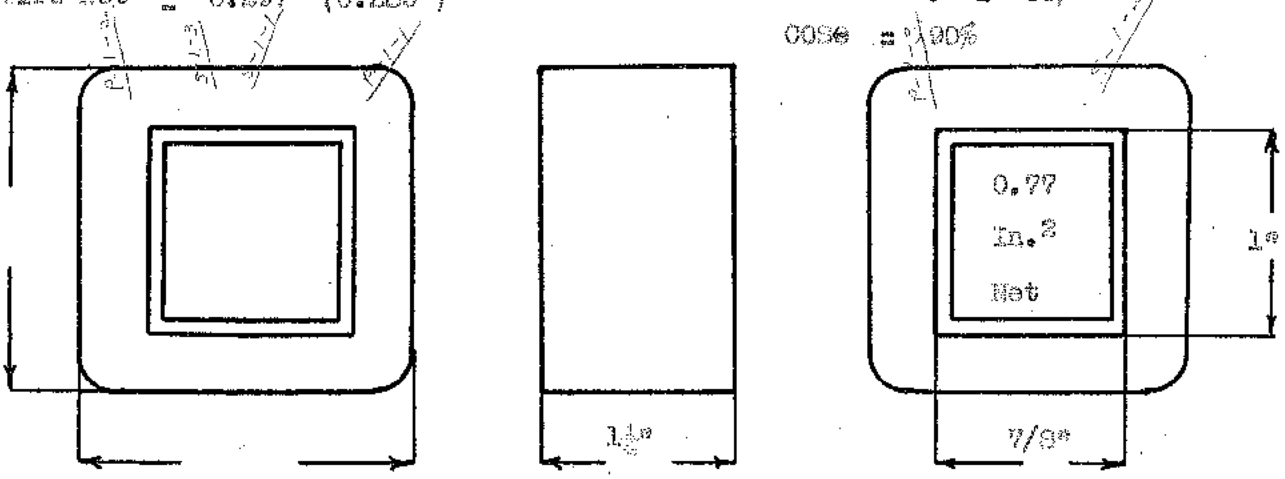
TUBE	7L - .007" GK	IMPREGNATION	VARNISH

CORE 7/8" x 1" E & I GA. 24 GRADE D STACK 2 x 2

MOUNTING "A" - Copper Shield Over Lamination Pour with tar

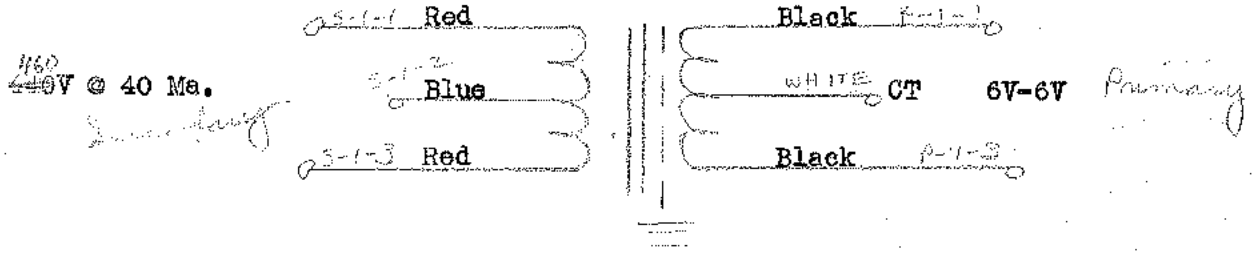
Cu = 625 - 700
Fe = 71.5 @ 60 ~~Cps~~ Cycles
EPV = 6.8
Wire Net = 0.237" (0.235")

Sec. VA = 10.4
Pri. VA = 13.9
Pri. I = 3.38A
Efficiency = 85%
Core = 90%



RE-DESIGNED BY H. W. S. DATE 7-24-41

#P-183-A



NOTES:

(a) Copper band over laminations.

(b) Test transformer before painting and pouring.

(c) After testing, pour tar in lead holes until transformer is filled. Then send to paint room, after removing all excess tar.

(d) Test transformer after painting and pouring.

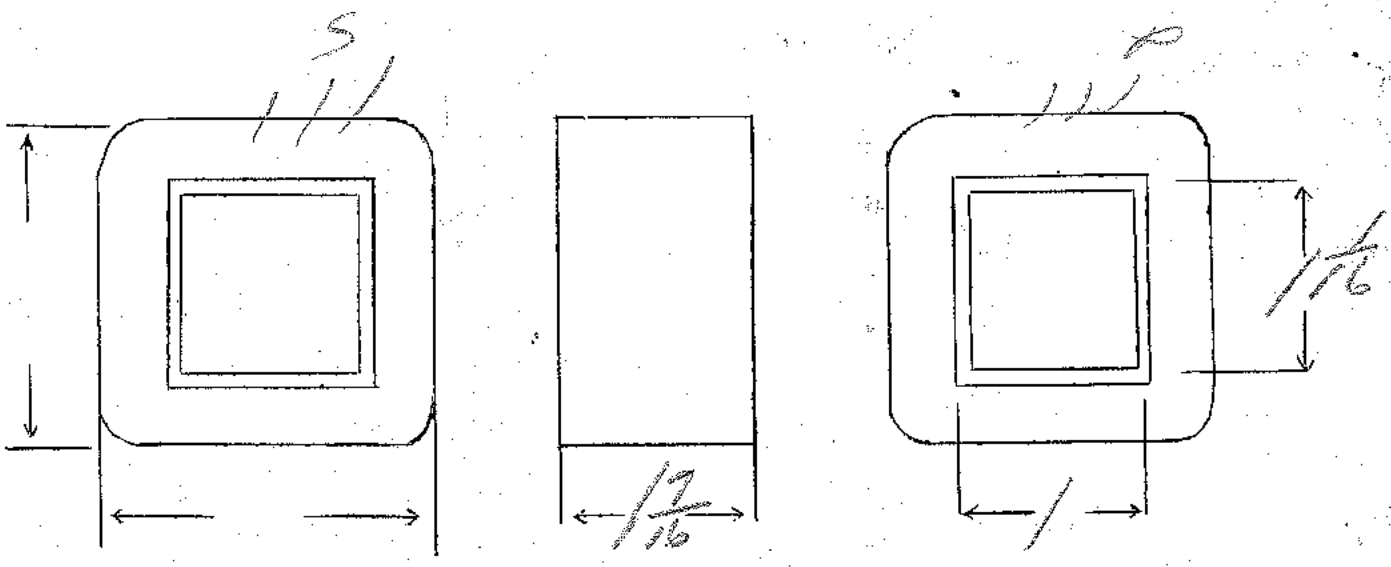
SPEC. NO. P153 - 124

Winding	Sec	SW	PRI				
Turns	4750	1	144				
Taps	2375		72				
Wind. Lgth.	1.25						
Wire Size	#35	Strip Stock	#20				
T.P.L.	183-26		40				
Kind Term.	Lead		Lead				
Term. Lgth.	9"	3"	9"				
Layer Insul.	Double 16#		.007K				
Test Volt.							
Wrapper	4 Lbs 2 Wraps	2 Wraps	2 Wraps				

TUBE 72007 IMPREGNATION Varnish

CORE PRIMARY V.A.

MOUNTING A - Copper Shield with Connection



DESIGNED BY [signature] DATE 7/2/30

Pri - 60~/6v
Sec - 2600CT @ 60 ma (DC)

J. M. Lope

SPEC. NO. P-183 Spanish

	1-2-3		4-5-6				
Winding	Sec	Shield	Pri				
Turns	4750	1	72	= (1)v			
Taps	2375	—	36				
Wind. Lgth.	1¼"	1¼"	1¼"				
Wire Size	#35	00 / Foil Sheet	#17				
T. P. L.	183-26	1	24-34				
Finish							
Type Lead	#20 Pr. Blk.	Sl. Blk.	W.O. Sleeve				
Lead Lgth.	9"	5"	9"				
Layer Insul.	#20	—	.007K				
Test Volt.	2500v	—	—				
Wrapper	4K-1624 1K-002K .005Kd	2K	2K .005Kd				

TUBE 72-007 BK

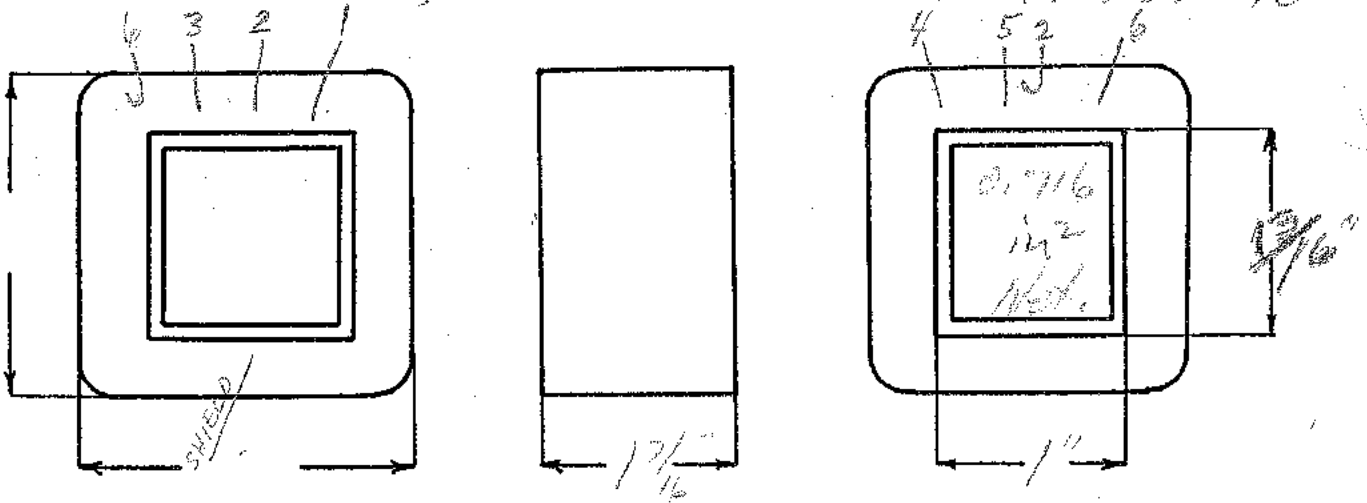
IMPREGNATION Varnish

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

MOUNTING ¼" - Paper bond over Laminations

Eo = 873-513
Fe = 480@60n
TPW = 6.53
Window: 0.350" (0.350")

See W4 = 17
Pri W4 = 336
Pri I = 4.44 Amps.
A = 20 · cos θ = 90

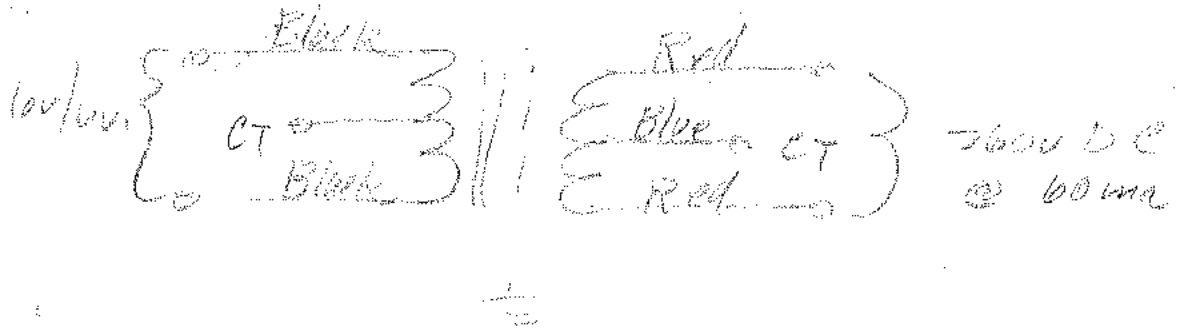


DESIGNED BY Hill

DATE 12-3-41

Re

OVER


lov/low
Black
CT
Black
Red
Blue
CT
Red
To low D C
@ 60 ma

Fair Price $4.50

E-1154

Vertical B mounting with feet

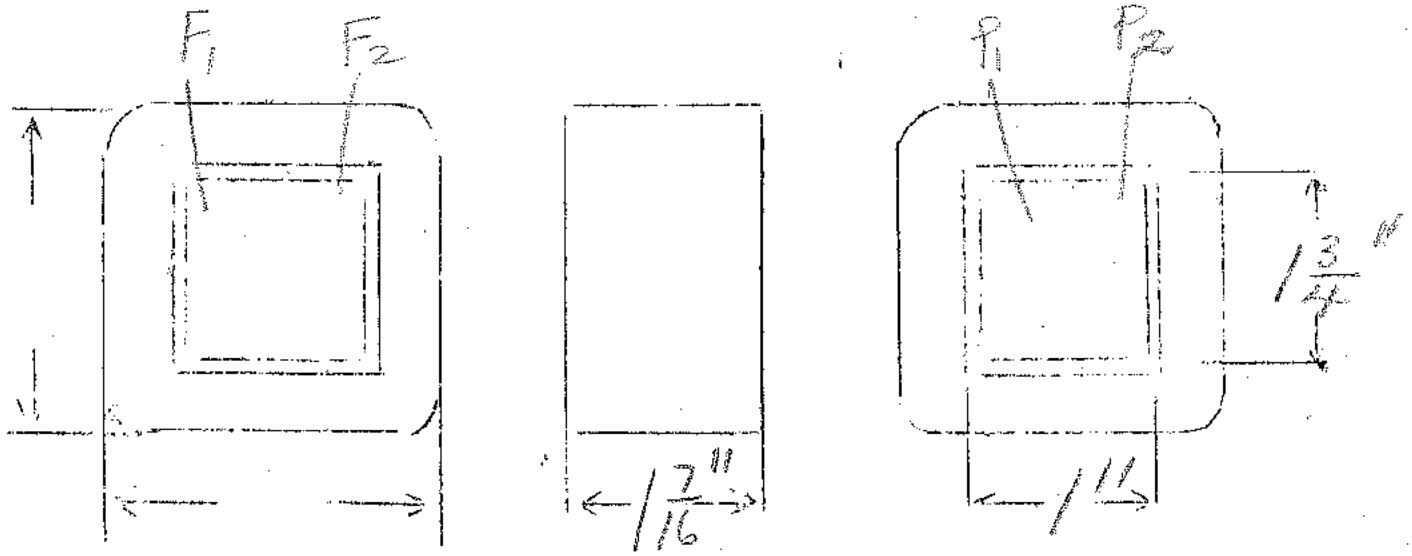
E: 6V, 2 amps

Paramount Parts

SPEC. NO. 184

Winding	PRI	SEC					
Turns	378	21					
Taps	NONE	NONE					
Wind. Lgth.	1 1/4"	←					
Wire Size	21E	DOUBLE 13E					
T.P.L.	37						
Kind Term.	WIRE OUT	WIRE OUT					
Term. Lgth.	9"	9"					
Layer Insul.	50#						
Wrapper	2L005VP	2L005GA					

TUBE	4L007	IMPREGNATION	VARNISH
CURE	1X1 3/4 NW		



1/16 x 1/16
16v / 16v to
650v CT @ 75ma
350v DC

SPEC. NO. P-184 Special

Winding	Sec		Shield		Pri		
Turns	4130		1		180		
Taps	2060		—		90		
Wind. Lgth.	1 15/32"		1 15/32"		1 15/32"	= 1.468"	
Wire Size	#34		.001 Fr Shim		#21		
T. P. L.	188 - 2 2 L		1		45 - 4 L		
Finish	Bare		—		Bare		
Type Lead	#22 Fr. Br.		S.I. Br.		Fr. Br. #20		
Lead Lgth.	10"		3"		10"		
Layer Insul.	2 L .005"K		—		12 L .010"A		
Test Volt.	2500v		—		—		
Wrapper	2 L .003"VC		2 L .005"GK		2 L .005"GK		

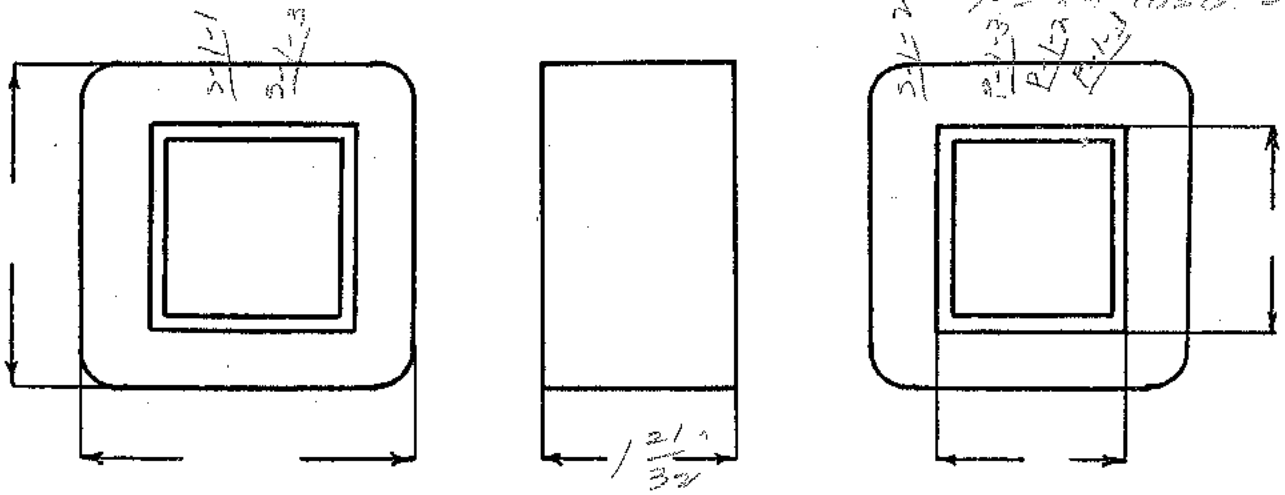
TUBE 72-007 GK | IMPREGNATION Varnish

CORE 1 1/16 x 1 1/16" EI GA. 24 | GRADE D | STACK 2 x 2

MOUNTING "A" - Copper Band over Lamination

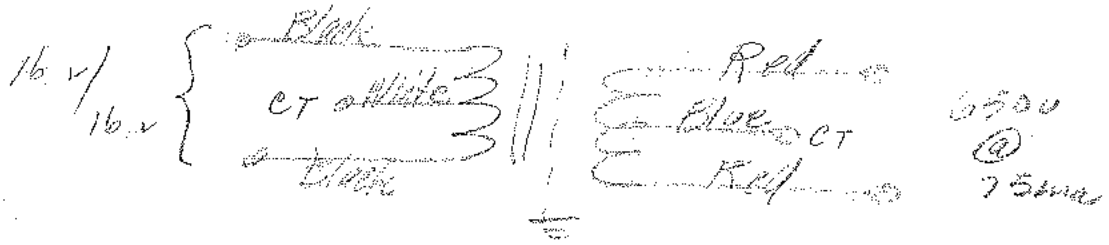
Co = 885 - 793
Fe = 65.3 @ 60~
TPV = 5.8
Wire Mtl = 0.480 (0.335")

Sec Wt = 24.4
Pri Wt = 32.7
Pri I = 1.02 Amps.
n = 8 x max = 90



DESIGNED BY NHH

DATE 11-26-41


16 V
16 V
Black
CT
White
Black
Red
Blue
CT
Red
6500
@
75 ohms

OLB

SPEC. NO. P184-12V

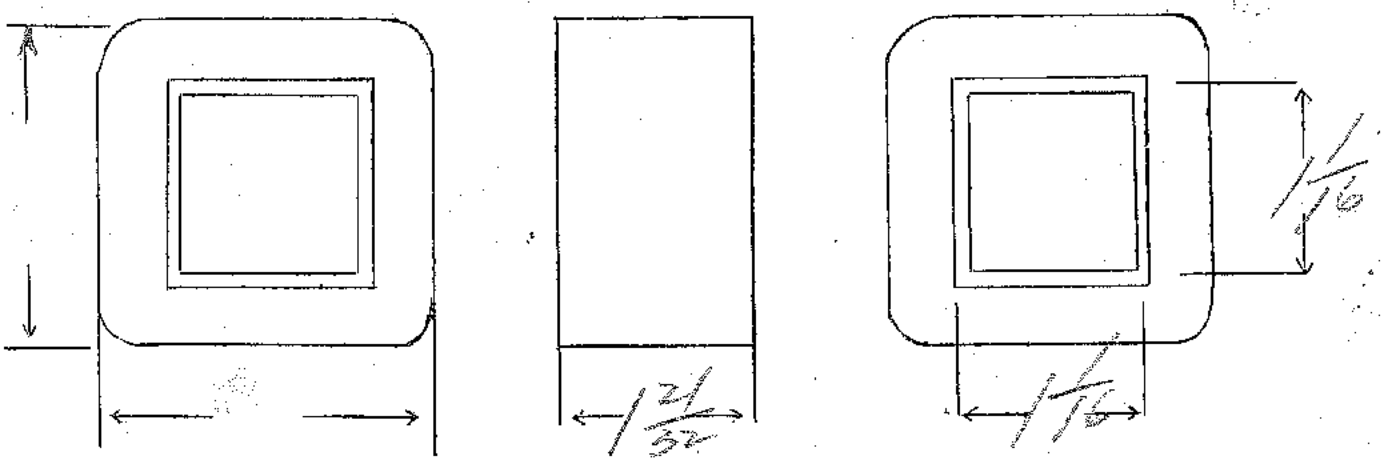
Winding	SEC	SHIELD	PRI				
Turns	3400	1	96				
Taps	1700		48				
Wind. Lgth.	1 15/32						
Wire Size	#33	Shim Stock	#17				
T.P.L.	170						
Kind Term.	#30 Enam.	Solder	W.O				
Term. Lgth.	9"	3"	9"				
Layer Insul.	Double 10#		007K				
Test Volt.							
Wrapper	24007VC	24005GA	24005GA				

TUBE | 24007 | IMPREGNATION | Varnish

CORE | | PRIMARY V.A. |

MOUNTING A. Copper lead wire termination

heavy finishing



DESIGNED BY [illegible] DATE 7/14/30

Vibrator
6V/6V to
650V CT @ 75 Ma.
350V DC

SPEC. NO. R-194

Winding	Sec.		Shield		Pri.		
Turns	4120 (710V)		1		58 - 10V		
Taps	2060		-		CT - 29		
Wind. Lgth.	1-15/32"		1-15/32"		1-15/32"	= 1.46875"	
Wire Size	#34		.001 Cu. Sheet		#14		
T. P. L.	100 - 22%		1		20-3%		
Finish	90%		-		90%		
Type Lead	#32 Sr. Br.		Sh. - Pri.		H.V. Sleeve		
Lead Lgth.	12"		5"		10"		
Layer Insul.	#30		-		3L .007" GK	1L .020" A	
Test Volt.	3500		-		-		
Wrapper	2L .007" VC		3L .005" GA		2L .005" GA		

TUBE 7L - .007" GK | IMPREGNATION VARNISH

CORE 1-1/16 x 1-1/16 EGA. 24 | GRADE D | STACK 2 x 2

MOUNTING "A" - Copper band over Lamination. Coat Pour with TAR

Cu = 696 - 740

Fe = 65.3 @ 60 Cycle

VPT = 5.8

Wire Net = 0.406" (0.473")

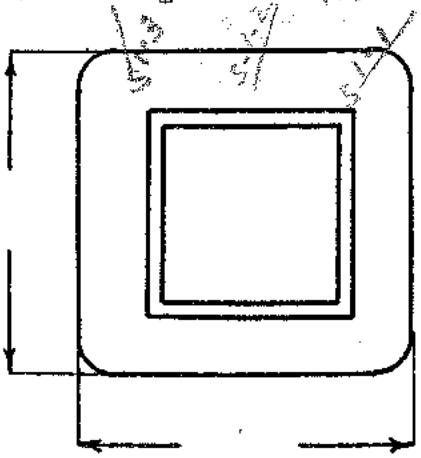
Sec. VA = 24.4

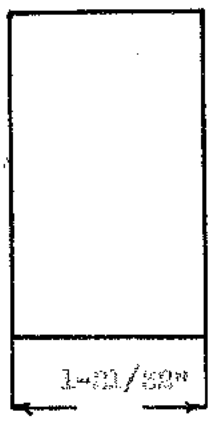
Pri. Va = 32.7

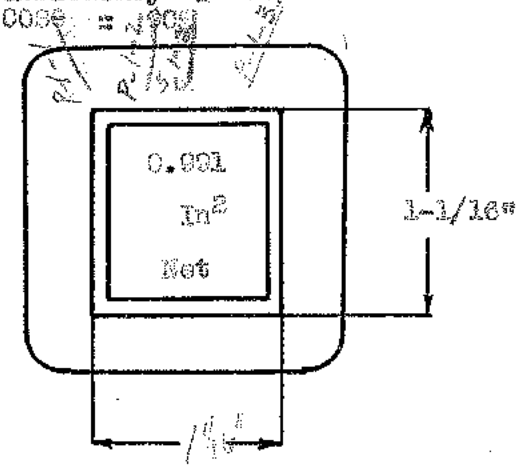
Pri. I = 5.45

Efficiency = 85%

Core = .908



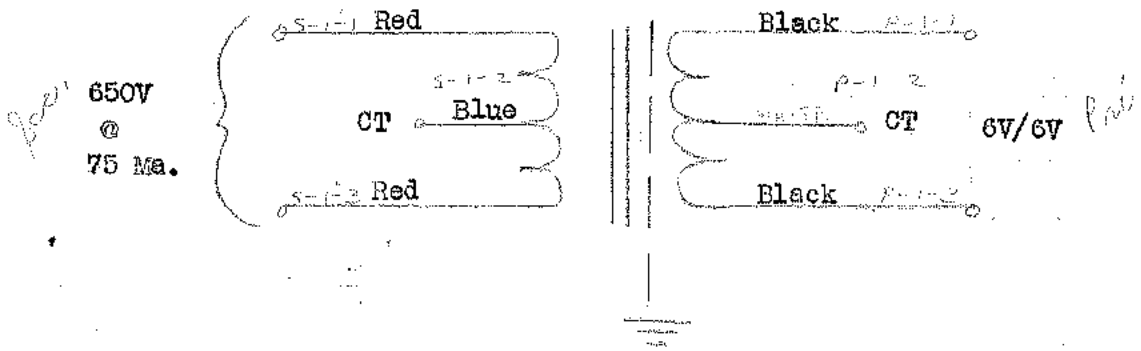




DESIGNED BY H. H. S.

DATE 7-24-41

#P-184-A



NOTES:

(a) Copper band over laminations.

(b) Test transformer before painting and pouring.

(c) After testing, pour tar in lead holes until transformer is filled. Then send to peint room, after removing all excess tar.

(d) Test transformer after painting and pouring.

Vibrator
32V/32V to
650VCT @ 75ma
350 VDC

(3)

SPEC. NO. P-184 Special

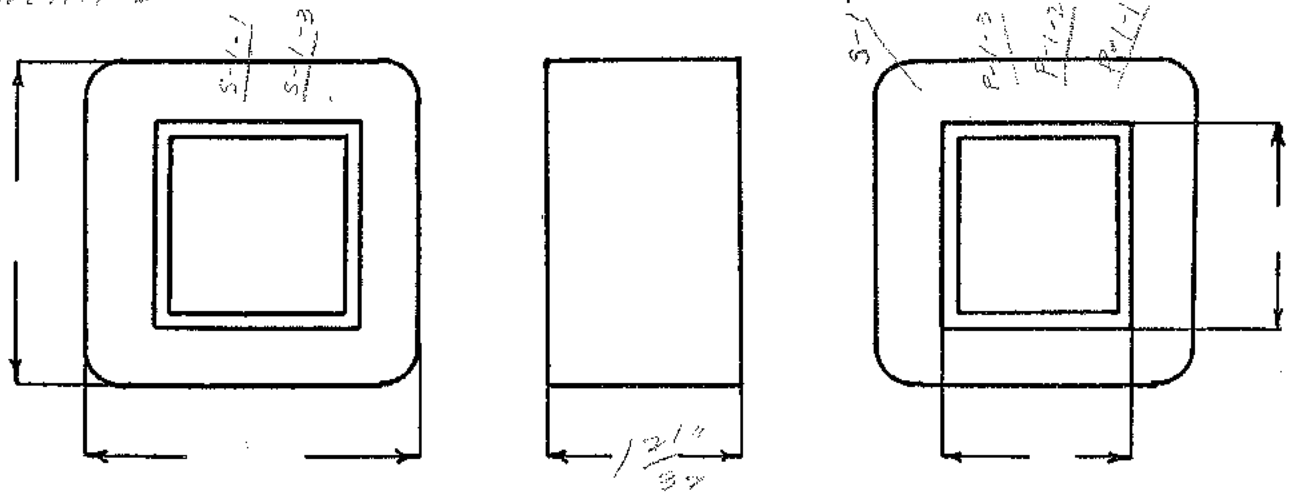
Winding	Sec.		Shield		Pri		
Turns	4120		1		366		
Taps	2060		—		183		
Wind. Lgth.	1 15/32"		1 15/32"		1 15/32"	= 1.468"	
Wire Size	#34		.001 Cu Shield		#22		
T. P. L.	188-22L		1		46-8L		
Finish	Black 88%		—		88%		
Type Lead	#22 Enam.		S.I. Cu.		#20 Enam.		
Lead Lgth.	10"		3"		10"		
Layer Insul.	2L 2 mil		—		1L 2 mil		
Test Volt.	250AC		—		—		
Wrapper	2L .007 VC		3L .005 CA		2L .005 CA		
TUBE	7L-007 VC			IMPREGNATION	Varnish		

CORE 1 1/16" x 1 1/16" EX I GA. 24 GRADE D STACK 2 x 2

MOUNTING "A" - Copper band over Lamination -

Cu = 385 -
Fe = 65.3 @ 60~
TPV = 5.8
Wire Wt = 0.480" (0.446")

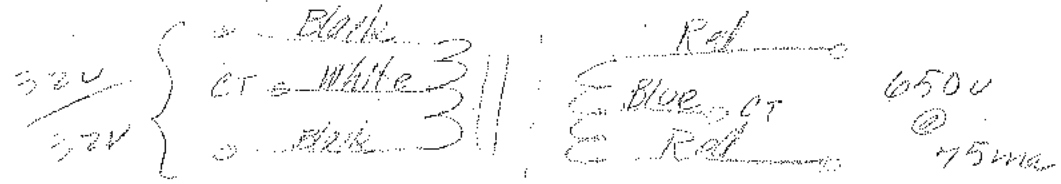
Sec VA = 24.4
Pri VA = 32.7
Pri I = 1.092 Amp
Eff = 93 max = 90



DESIGNED BY Neil

DATE 11-26-41

ouPi


Black
White
Red
Blue
Red
650v
@
75ma

Ep - 6 V. d.c. vibrator

Es - to deliver 375 V. d.c. - 100 Ma.

SPEC. NO. P-185

Winding	SEC	SHIELD	PRI				
Turns	4200	1	42				
Taps	2100		21				
Wind. Lgth.	1.75	1.75	1.75				
Wire Size	#31	SHIM STOCK	#13				
T. P. L.	162-26		2L				
Finish							
Type Lead	#20 P. Br.	Sil. Br.	W.O.				
Lead Lgth.							
Layer Insul.	Double 20#						
Test Volt.							
Wrapper	2L007VC	2L007GA	2L007GA				

TUBE	7L007	IMPREGNATION	VARNISH

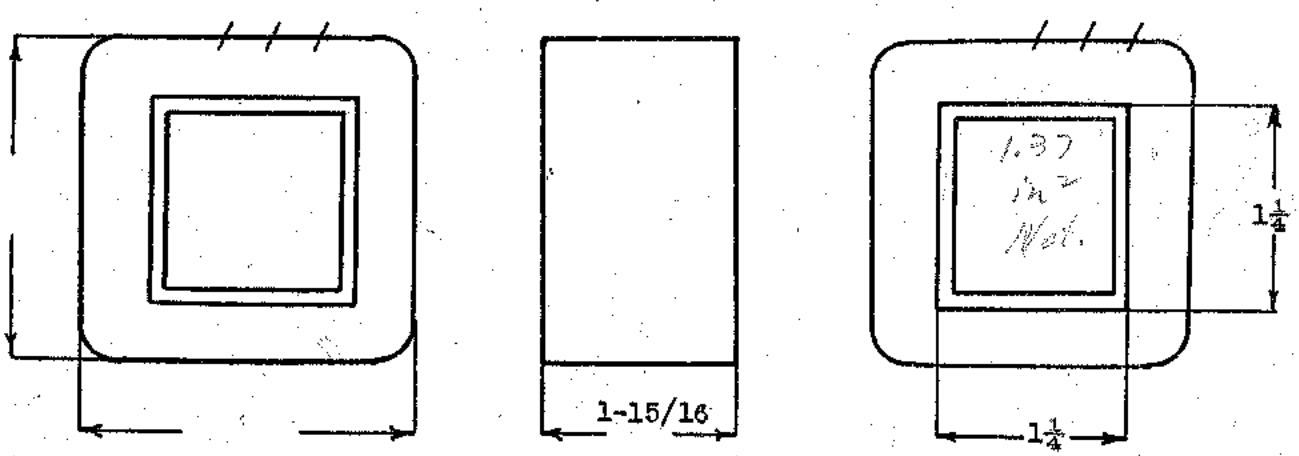
CORE	GA.	GRADE	STACK

MOUNTING A - Copper strip over lamination.

Heavy finishing

Cu =
Fe =
TPV = 3.5
Wire Wt. =

Sec VA =
Pri VA =
Pri I =
η = 83% core =



DESIGNED BY GW

DATE 7/14/38

SPEC. NO. PT25-12

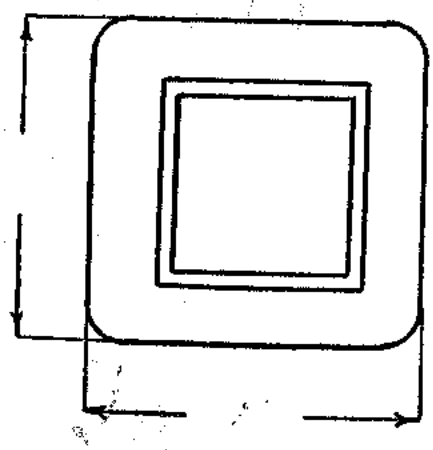
Winding	Sec.	Shield	Prim.				
Turns	4210	1	840				
Taps	2100		420				
Wind. Lgth.	1 3/8	—	1				
Wire Size	#31	Alum.	#26				
T. P. L.	62.26		32				
Finish							
Type Lead	#22 Bn	#22 Bn	W.C.				
Lead Lgth.	9"	3"	9"				
Layer Insul.	.005 Mylar		.007K				
Test Volt.							
Wrapper	2 Lyrs #56	2 Lyrs #56	2 Lyrs #56				

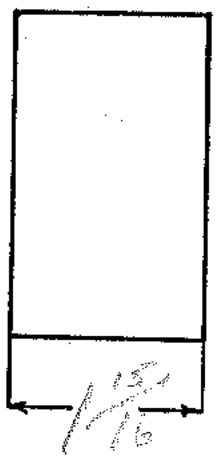
TUBE 7L007 IMPREGNATION Varnish

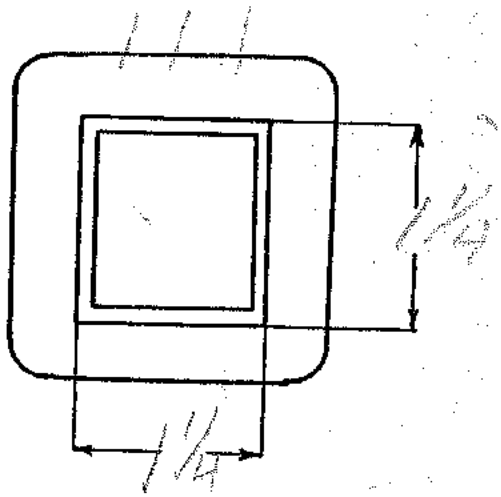
CORE 1¼ x 1¼ GA. 24 GRADE D STACK 2 x 2

MOUNTING A - Complete with 3 sets of ears Aluminum plate

Heavy finishing







DESIGNED BY

DATE 12-22-54

E.F.-324 Ck. Yokohama

Established 6-25-52 Yokohama

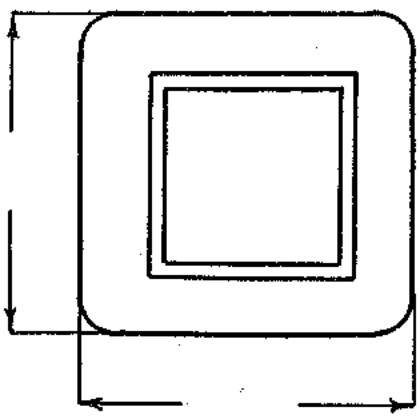
SPEC. NO. P185-324

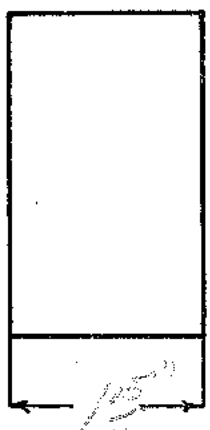
Winding	Sec	SB.	Pri				
Turns	4200	1	220				
Taps	2400	-	110				
Wind. Lgth.	1 3/8"	1 1/8"	1 3/8"				
Wire Size	#31	2 Strands	#20				
T. P. L.	162-26	1	47-5				
Finish							
Type Lead	22	22	22				
Lead Lgth.	7"	3	9"				
Layer Insul.	1 Thick		1 Thick				
Test Volt.							
Wrapper	2 Layers 1/2	2 Layers 1/2 GA	2 Layers 1/2 GA				

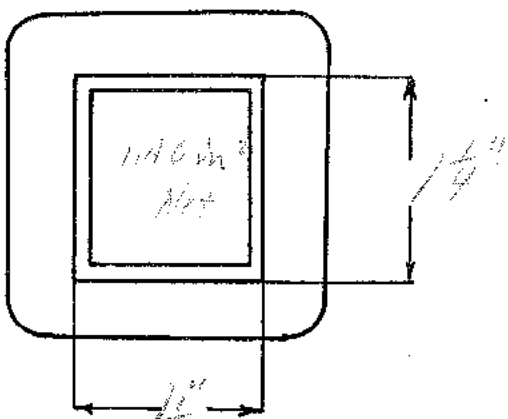
TUBE 2 Layers 1/2 G/F IMPREGNATION

CORE GA. GRADE STACK

MOUNTING







DESIGNED BY D.F.

DATE 11/24/53

E_p = 5730 volts

E_s = 700 volts 60 cps Clark Filter Plate

E_{f_1} = 5V, 2 amps

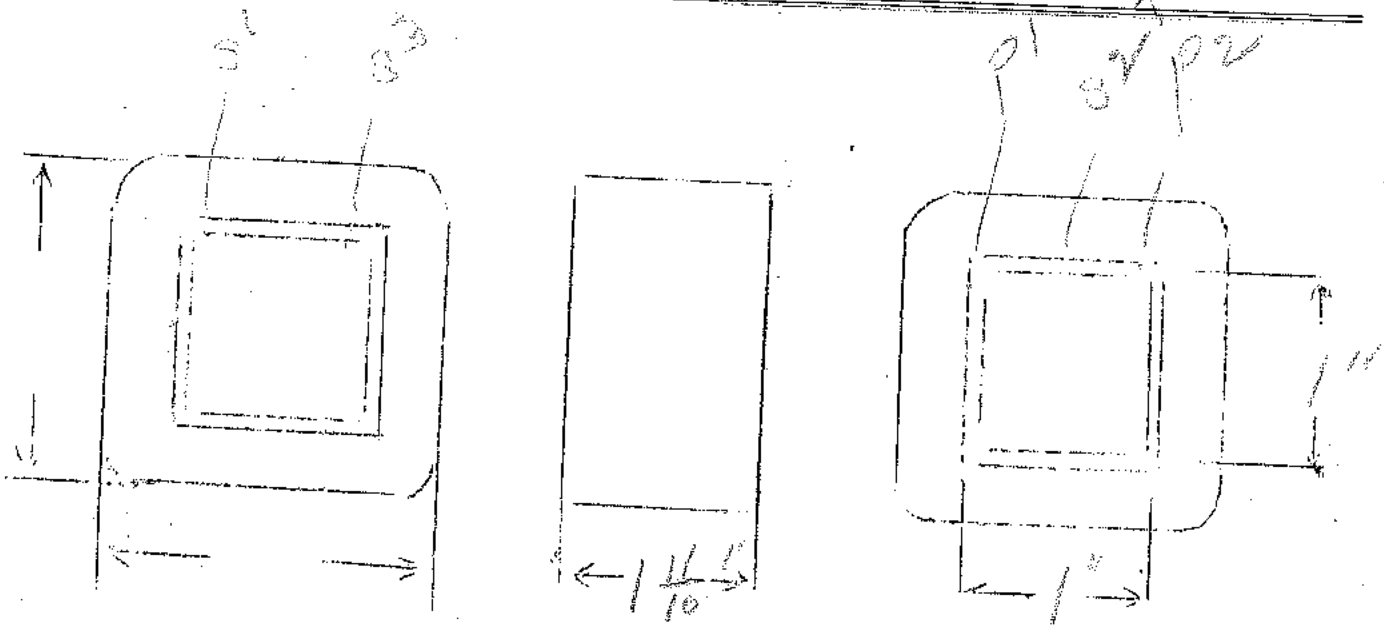
E_{f_2} = 2.5 volts, 3.25 amps

SPEC. NO. 185 "C"

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	690	216	3850	28	14		
Taps	NONE	NONE	1925	NONE	7		
Wind. Lgth.	1 1/2"	1 1/2"	1 1/2"	—	—		
Wire Size	25E	35E	35E	20E	17E		
T.P.L.	70-10	216	216-18	—	—		
Kind Term.	#20 PBR	SIL BR	#22 BR	WIRE ONLY	WIRE ONLY		
Term. Lgth.	3"	3"	3"	3"	3"		
Layer Insul.	50 M		2 M				
Wrapper	2L005VP	2L005VP	2L005GA	2L005GA	2L005GA		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1X1 M



$E_P = 118$

$E_S = 700 \quad I = 50\ MA$

$E_{F_1} = 2.5 \quad I = 5.75$

$E_{F_2} = 5, \quad I = 2$

VA = 42

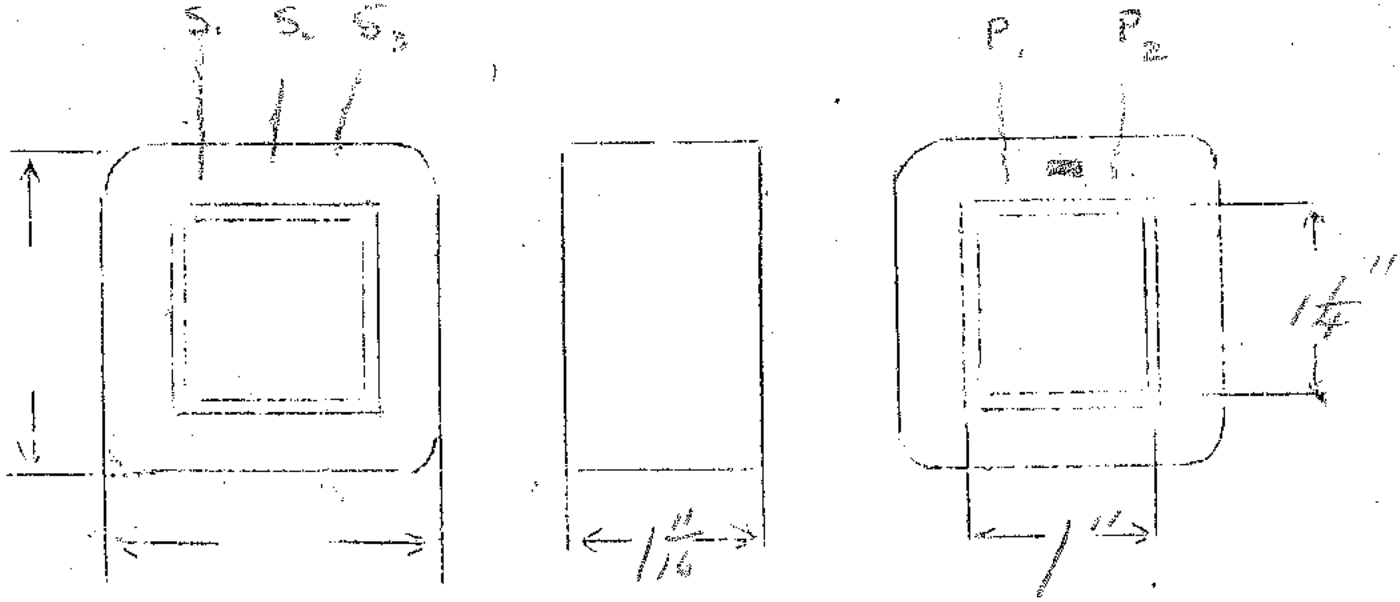
SPEC. NO. 186 (REVISED 1-5-61)

Winding	PRI	SHIELD	SEC	FIL_1	FIL_2		
Turns	550	63	3540	13	26		
Taps	—	—	1770	NONE	NONE		
Wind. Lgth.	1.5	1.5	1.5				
Wire Size	#24E	#24E	#35E	#15E	#20E		
T.P.L.	63	63	280				
Kind Term.	#20 PBR	SL BR	#20 PBR	WIRE ONLY	WIRE ONLY		
Term. Lgth.	5"	3"	7"	7"	7"		
Layer Insul.	50#		20#				
Wrapper	2L005VP	2L003VP	2L005SH		2L005SH		

TUBE | 7400?

IMPREGNATION | VARNISH

CURE | 1 X 1½ M (RECLAIMED)



KADIO PRODUCTS CO

E_{P_1} = 115V.

61

RECLAIMED IRON

E_S = 600V. 40ma

E_F = 6V , 2.6 amps

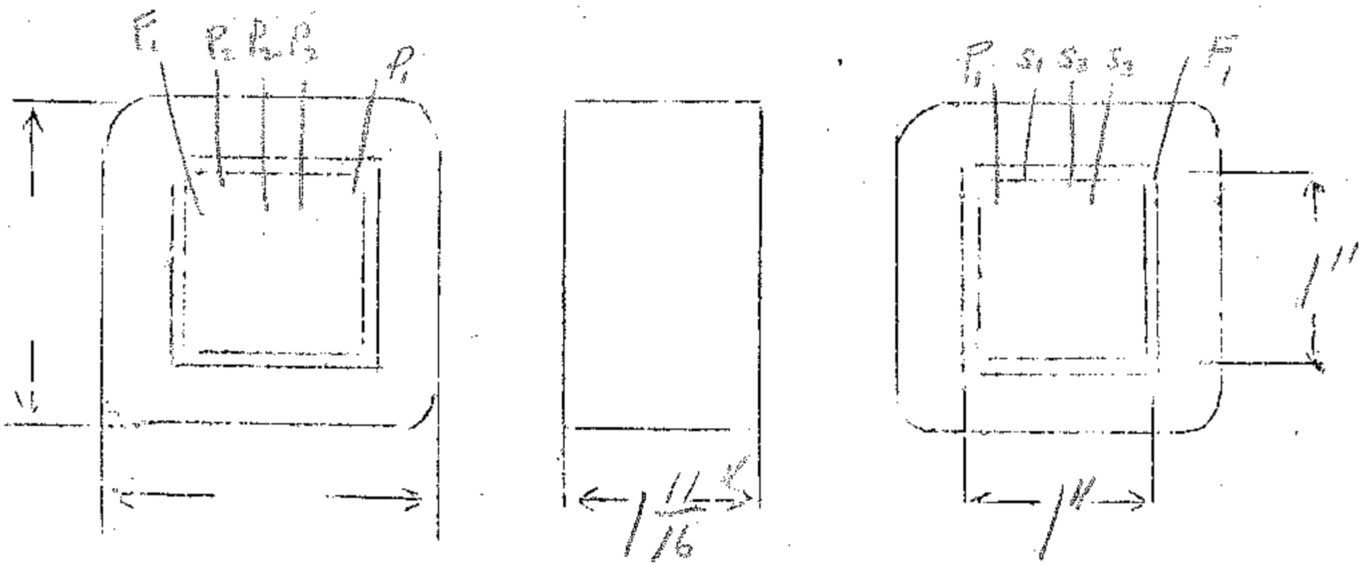
E_{P_2} = 12V. CT, 5 amps

SPEC. NO. 188

Winding	SEC	SHIELD	PRI.	SHIELD	PRI_2	F	
Turns	3880	276	700	276	~~94~~ 54	39	
Taps	1940	NONE	NONE	NONE	~~47~~ 27	NONE	
Wind. Lgth.	1½	1½	1½	1½			
Wire Size	37E	37E	28E	37E	16E	19E	
T.P.L.	276	276	100-7	276	25-3	39 (C[illegible])	
Kind Term.	#20 PBR	511 BR	#20 PBR	511 BR	WIRE ONLY	WIRE ONLY	
Term. Lgth.	9"	3"	9"	3"	9"	9"	
Layer Insul.	20#		30#				
Wrapper	1L005VC 1L005GA	2L005 GA	2L005 GA	2L005 GA	2L005 GA	2L005GA	

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1X1 M



~~Labor 30~~ 29
Material 33

E_B 220 V

E_{F_5} = 700 V, 70 ma

E_{F_1} = 2.5 V - 3.2 amps

E_{F_2} - 2.5 V, 3.2 amps

E_{F_3} - 5 V, 2 amps

SPEC. NO. 189

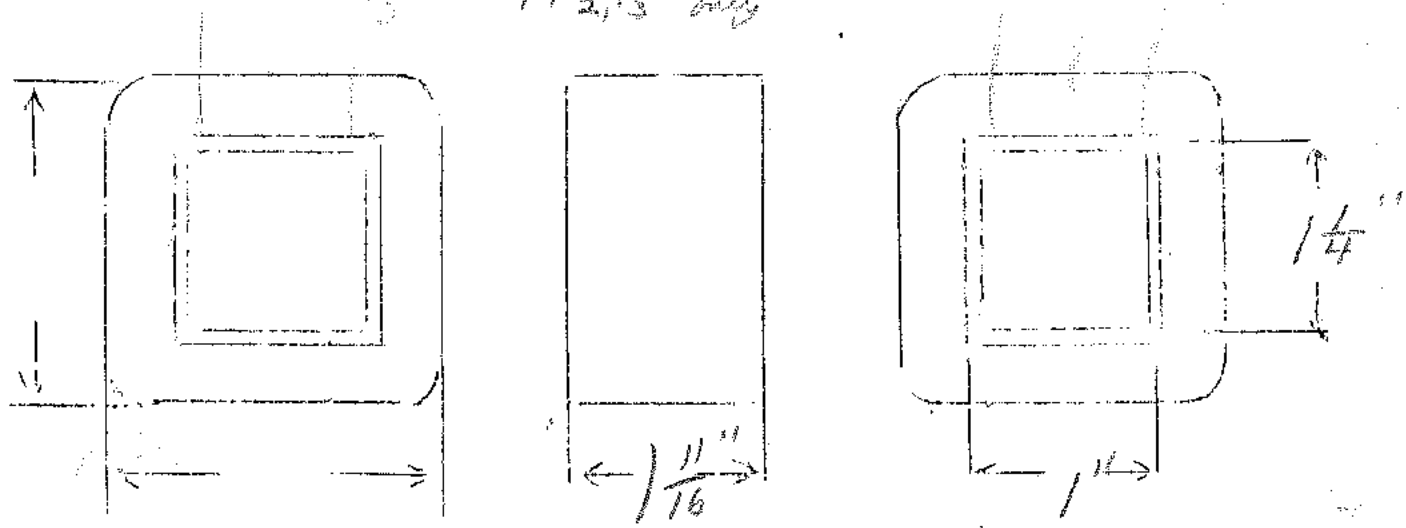
Winding	PRI	SHIELD	SEC	F_1	F_2	F_3	F_4
Turns	980	183	3300	12	12	24	12
Taps	NONE	—	1650	NONE	6	NONE	NONE
Wind. Lgth.	1½"	1½	1⅝"	—	—		
Wire Size	#27E	#34E	#34E	#18E	18E	20E	15E
T.P.L.	66	183	183-18	—	—	—	
Kind Term.	#20 PBR	S.I.B.	P.B.	WIRE OUT			
Term. Lgth.	9	3	9	9	9	9	
Layer Insul.	50#		20#				
Wrapper	2 Lo 3 VP	2 Lo 3 VP	2 Lo 5 GA	2 Lo 5 GA.			

TUBE | 7L007 | IMPREGNATION | VARNISH

CURE | 1 X ½ M

1 — FOR HERB BELL — F_3 + F_4 only

2 — FOR DuBRO — F_1, F_2, F_3 only



Vibrator

6V/6V D.C. @ 115 cycles
to
265 V D.C. @ 55 ma
with Rush filter

New stock

SPEC. NO. P190
Insert 4076

Winding	1-2-3 Sec	4-5-6 Pri					
Turns	3530	60					
Taps	1765	30					
Wind. Lgth.	1 1/16	1					
Wire Size	#35	#18					
T. P. L.	147-24L	20-3L					
Finish Petrol	85%	87%					
Type Lead	#22 Enamel	#22 Enamel	C.T. #22 6"				
Lead Lgth.	12"	12"					
Layer Insul.	20#	1L005GA					
Test Volt.	2500	1500					
Wrapper	2L005GA	2L005GA					

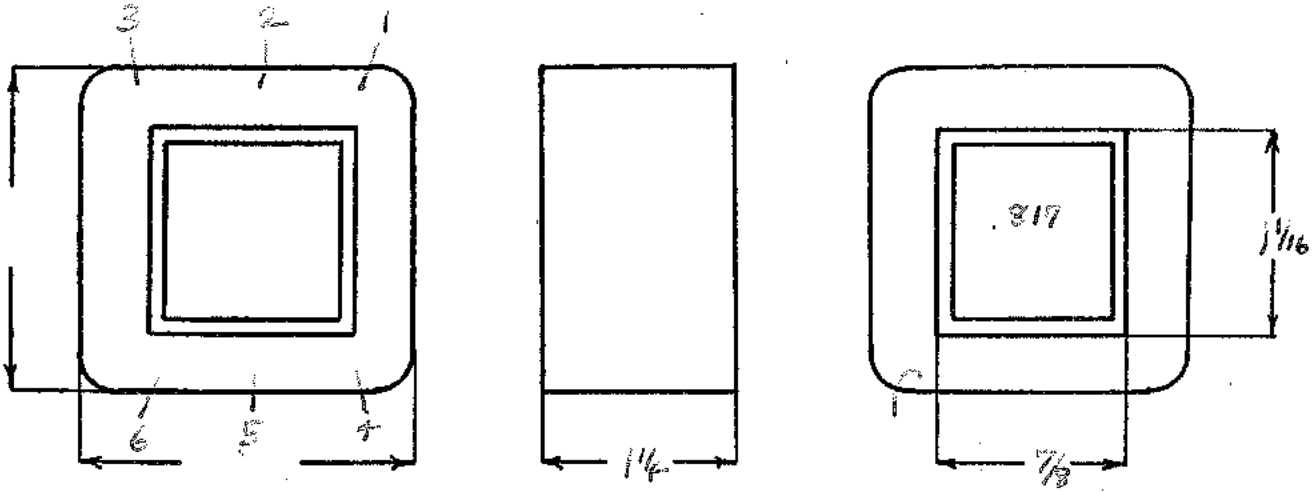
TUBE 4L010GK + 1L003VP | IMPREGNATION Varnish

CORE 7/8 x 1 1/16 | GA. 24 | GRADE D | STACK 2 x 2

MOUNTING P

min = 89%

H. 3 1/4 | W. 2 5/8 | D. 2 5/8



DESIGNED BY R. G. FORNEY

DATE 1-18-50

DESIGN AND TEST DATA

Rating: $E_s = .042 I_s$

Sec VA = 14.6
Pri VA = 24.3
$I_p = 2.96$

Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	4.84	6.06					
Resistance 25° c	475	.157					
Pounds Copper	.1387	.191					
Copper Density	750	550					
Ratio Volts							
Test to Ground	2500	1500					

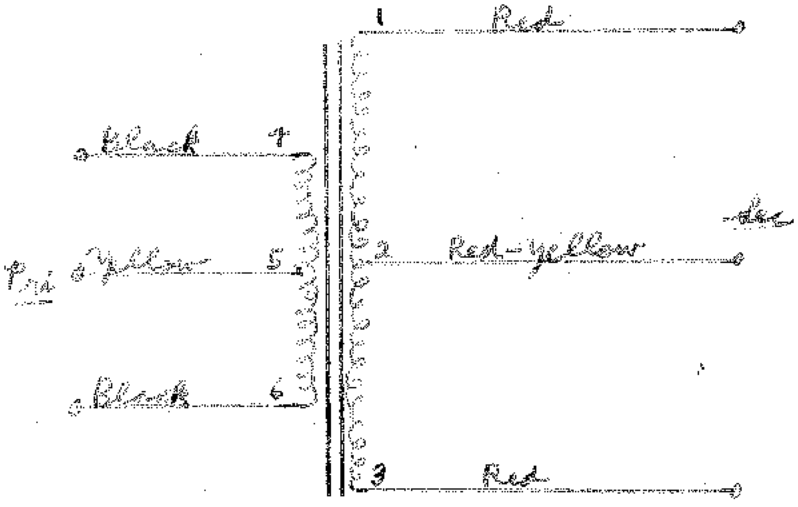
Iron Induction _____ @ _____ Cycles _____

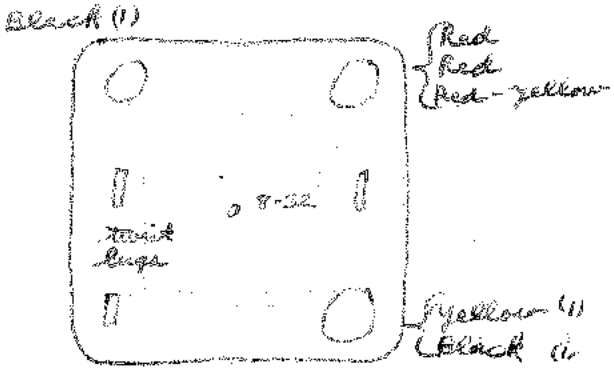
Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 265 V.A.C. measured

Hash Kalter
45 turns
#16
3000
.5 mfd
1000V





Vibrator
Orig. DC 115 v. 35
225 v. AC 115 v. 35
with Hand Switch

New 220 CA

SPEC. NO. P-190
Merit 9076

	1-2-3	4-5-6					
Winding	* Sec	Pri					
Turns	3530	60					
Taps	1 @ 5"	30					
Wind. Lgth.	1 1/16	1					
Wire Size	#35	#18					
T. P. L.	147-242	20-32					
~~Finish~~ Pitch	85%	84%					
Type Lead	#22 Red Brown, Green	W.O Yellow —	CT. W/O 6"				
Lead Lgth.	12"	12"					
Layer Insul.	.20 #	.005 K					
Test Volt.	2500	1500					
Wrapper	2L 005 GA	2L 005 GA					

TUBE	1/4-20 CK x 1/2,005 VC	IMPREGNATION	

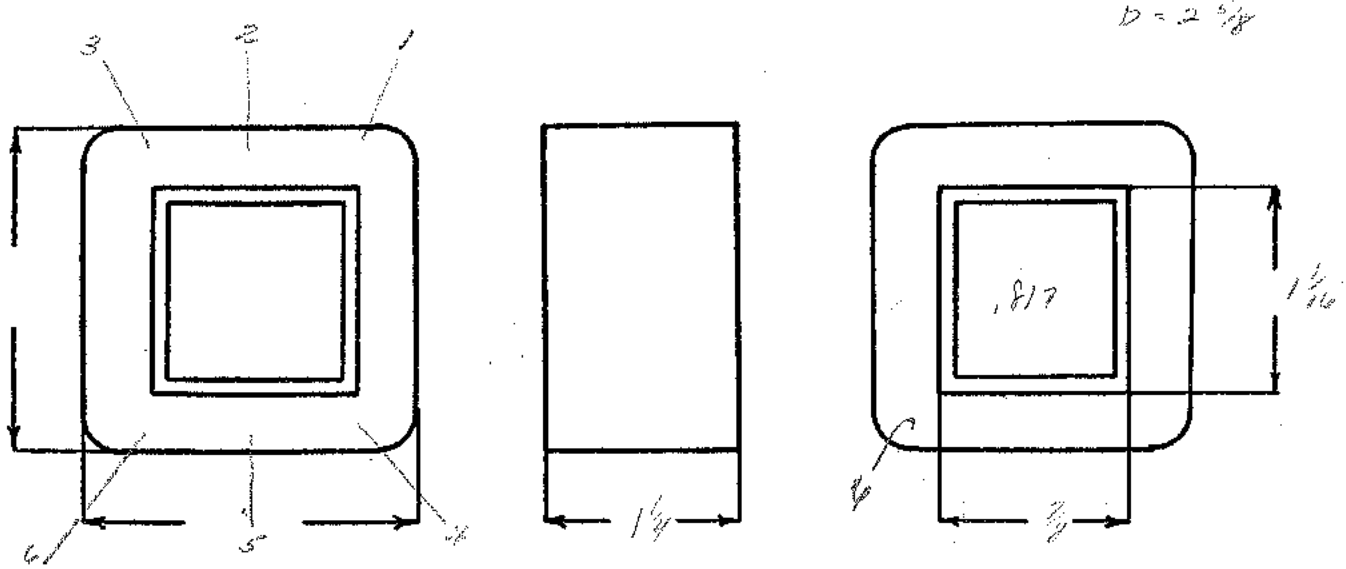
CORE 3/8 x 1 1/16 GA. 24 GRADE D STACK 2x2

MOUNTING P

Wm 88.2%

*Note: Original had Primary wound first

H = 3 1/4
W = 2 1/8
D = 2 5/8



DESIGNED BY R. G. FORNEY

DATE 1-18-50

DESIGN AND TEST DATA

Rating: $I_s = .01421$

Sec VA = 19.6
Pri VA = 24.3
$I_p = 2.36$

Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	4.858	6.08					
Resistance 25° c	475	.157					
Pounds Copper	.1387	.191					
Copper Density	750	560					
Ratio Volts							
Test to Ground	2500	1500					

Iron Induction _____ @ 115 Cycles _____

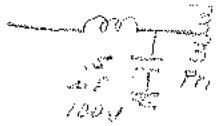
Exciting Current _____ amperes @ _____ volts 60 cycles on _____

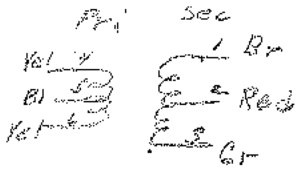
Induced Test: Apply 2650 V.D.C. Volts at _____ Cycles _____ on _____ with _____ grounded

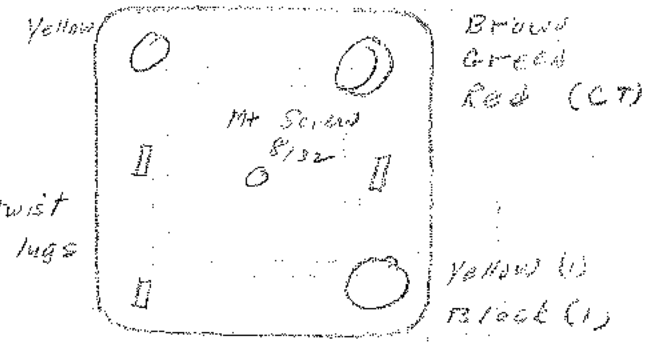
Remarks:

Hash Filter

45 TURNS #16 2 layers 3/4" core







E_p = 460 V

E_s = 24 V 3 amps

4

Material .36
Labor .24
Insulation .05

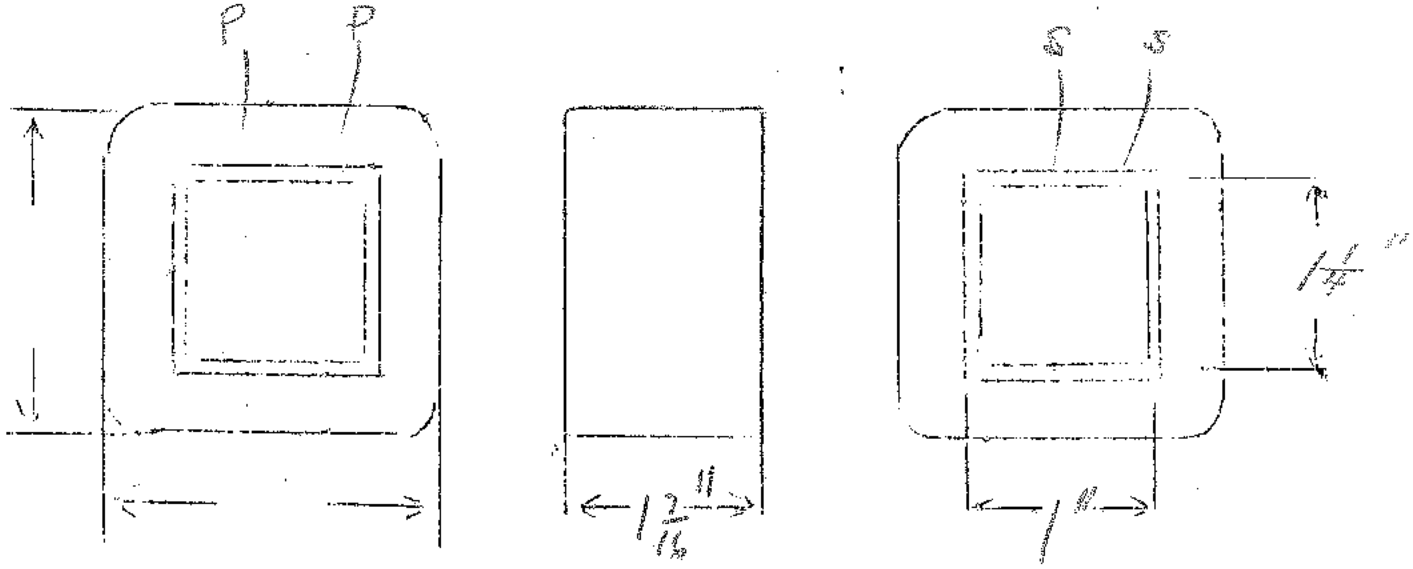
VA=75

SPEC. NO. 190

Winding	PRI	SEC					
Turns	460	107					
Taps	NONE	NONE					
Wind. Lgth.							
Wire Size	23E	18E					
T.P.L.							
Kind Term.							
Term. Lgth.							
Layer Insul.							
Wrapper							

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 x 1 1/2 NW



$E_p = 115$ $\frac{N_p}{N_s} = 7.75$ Connection Range - Auto

$E_s = 600$ v CT - 40 ma

$E_{F_1} = 6.3$ v — 2.5 amps

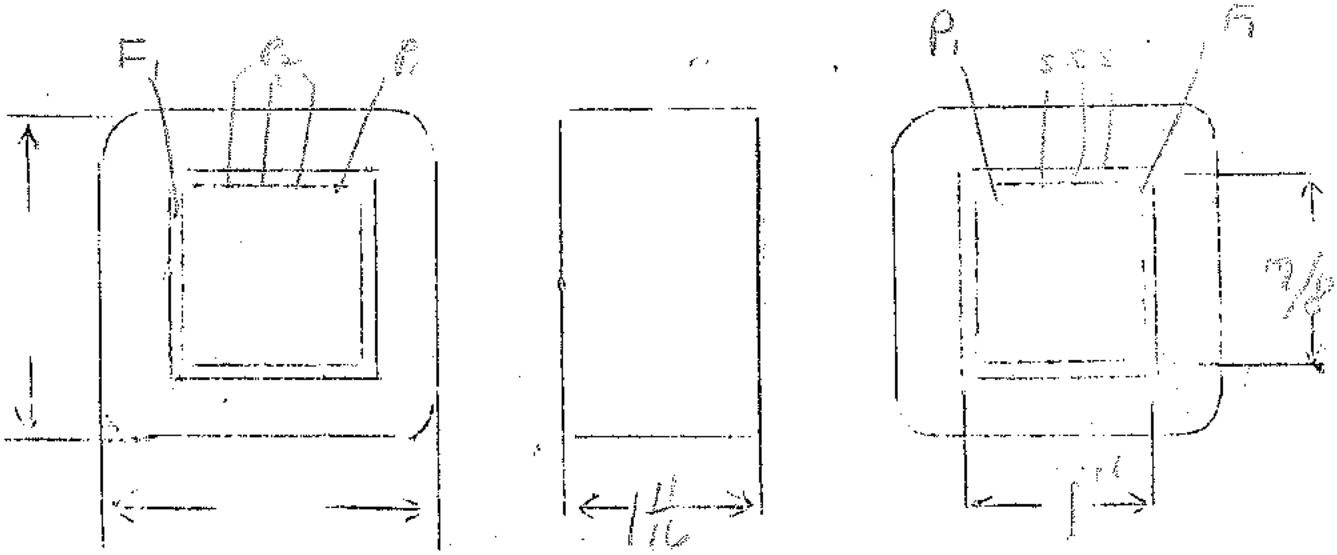
$E_{F_2} =$ 6 v. from battery

SPEC. NO. 190

Winding	Pri	Shield	Sec.	Shield	Pri 2	F	
Turns	892	276	4940	276	76	50	
Taps	—	—	2470	—	38	—	
Wind. Lgth.	1.5	1.5	1.5	1.5	1.5	1.5	
Wire Size	#28	#37	#37	#37	#18	#19	
T.P.L.	100	276	276	276			
Kind Term.	#20 P.BR.	SIL BR	#20 P.BR.	SIL. BR	WIRE ONLY	WIRE ONLY	
Term. Lgth.	5"	5"	5"	5"	5"	5"	
Layer Insul.	30#		20#				
Wrapper	1 LAYER 1 LAYER	2 LAYER	2 LAYER	2 LAYER	2 LAYER	2 LAYER	

TUBE | 44007 | IMPREGNATION | [illegible]

CURE | 1 x 250 °F

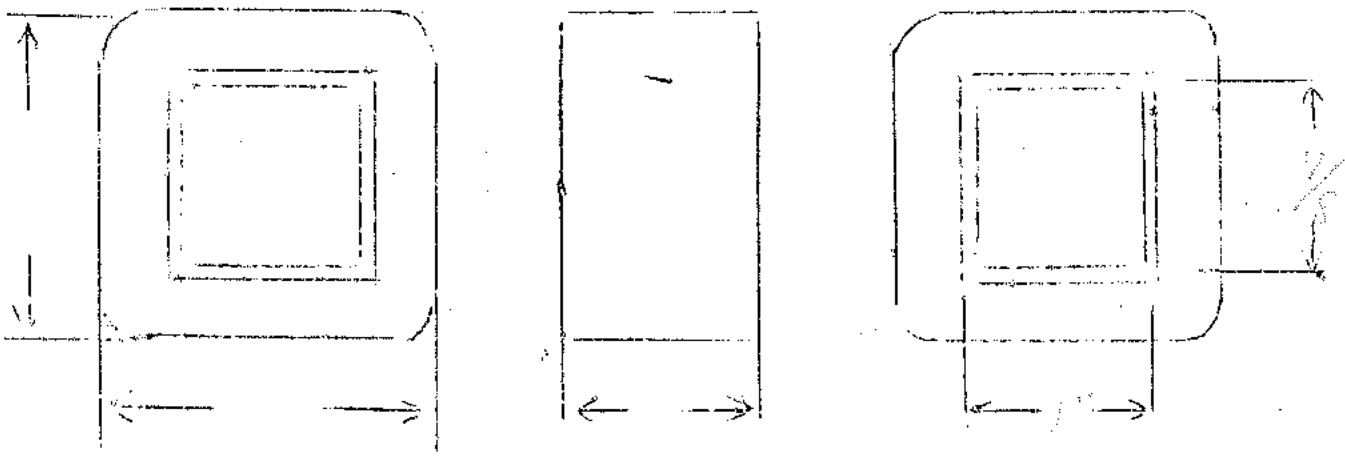


SPEC. NO. 191

Winding	P&S	Sec. 1	Sec. 2	F1	F2		
Turns	1450 1320	210	3880	32	16		
Taps	930 950 870 860	NONE	1940	NONE	8		
Wind. Lgth.	1.25	1.25	1.25				
Wire Size							
T.P.L.	77						
Kind Term.							
Term. Lgth.							
Layer Insul.							
Wrapper							

TUBE | IMPREGNATION | VARNISH

CURE



Vibrator

6 v/60 v DC @ 115 v AC

280 v DC @ 65 ma.

New Design

SPEC. NO. P-192

Winding	1-2-3 Sec	4-5-6 Pri					
Turns	3600	420					
Taps	1800	210					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#35	#17					
T. P. L.	150-244	20-32					
Finish	87%	88.5%					
Type Lead	#22	W. O. Sleeve					
Lead Lgth.	12"	12"					
Layer Insul.	1 mil	.005"					
Test Volt.	2000	1500					
Wrapper	2 LAYERS GA	2 LAYERS GA					

TUBE .42 -.010 + 1/2 .005" VC IMPREGNATION Varnish

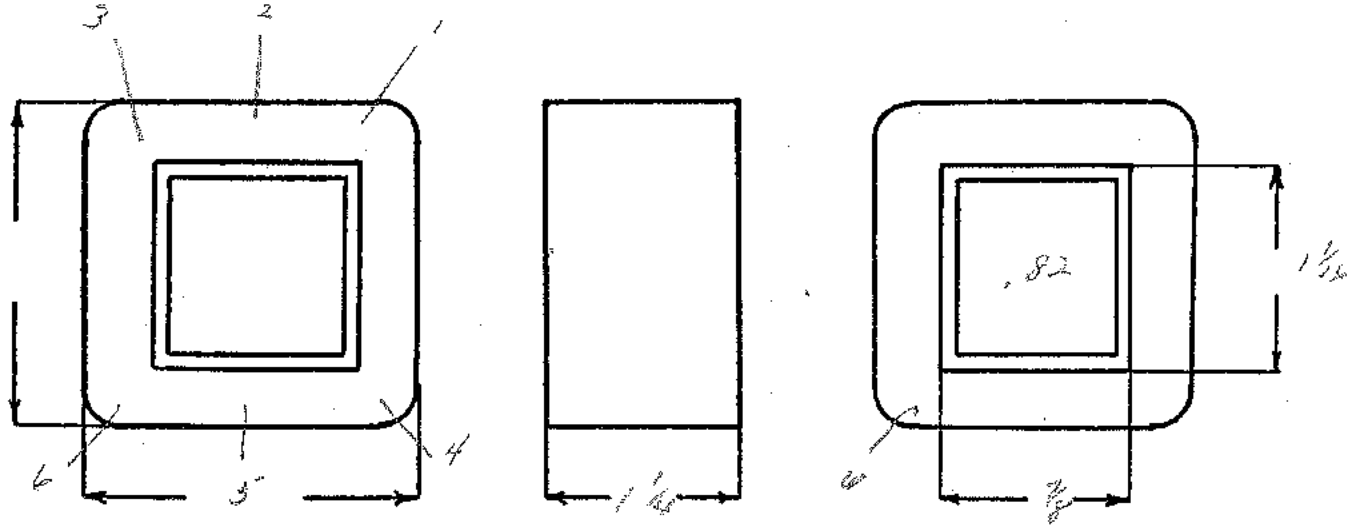
CORE 7/8 x 1 1/16 GA. 24 GRADE D STACK 2 x 2

MOUNTING 17

Wire = 88.5%

SW NO SLEEVE ON TAP!

H = 3 7/16
W = 2 1/4
D = 2 1/4



DESIGNED BY R.C. FORLEY DATE 2-20-57

DESIGN AND TEST DATA

Rating: $I_{sec} = .05$

Sec VA = 18.2
Pri VA = 30.5
$I_{pri} = 5.68$

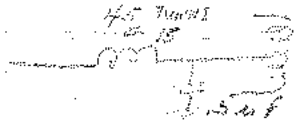
Winding	Sec	Pri					
Mean Turn	4.89	6.83					
Resistance 25° c	615	.107					
Pounds Copper	.189	142					
Copper Density	630	558					
Ratio Volts							
Test to Ground							

Iron Induction _____ @ 115 Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

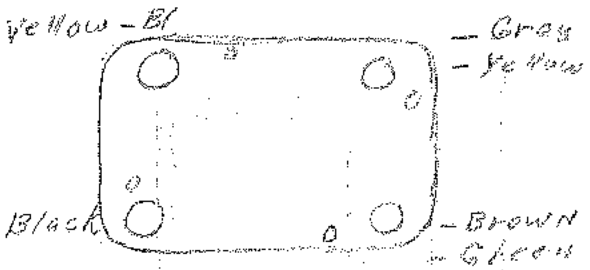
Induced Test: Apply _____ Volts at _____ Cycles _____ on _____ with _____ grounded

Remarks:



(6.18VDC input 624 mA - 2.65VDC out 530 mA 16 mfd cap input)

(6.21VDC input 6XX mA - 2.50V D.C. out 530 mA 16 mfd cap input)



Universal

6V/6V D.C. @ 115 cycles
to
280V. D.C. @ 65 ma
with hash filter

SPEC, NO. P 192
Insert 4077

	1-2-3	4-5-6					
Winding	Sec.	Pri					
Turns	3600	60					
Taps	1800	30					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#35	#17					
T. P. L.	150-24L	20-3L					
Finish Pitch	87%	89%					
Type Lead	#22 Pulse	w.o. sleeve					
Lead Lgth.	12"	12"					
Layer Insul.	12½ #	1L005GA					
Test Volt.	2000	1500					
Wrapper	2L005GA	2L005GA					

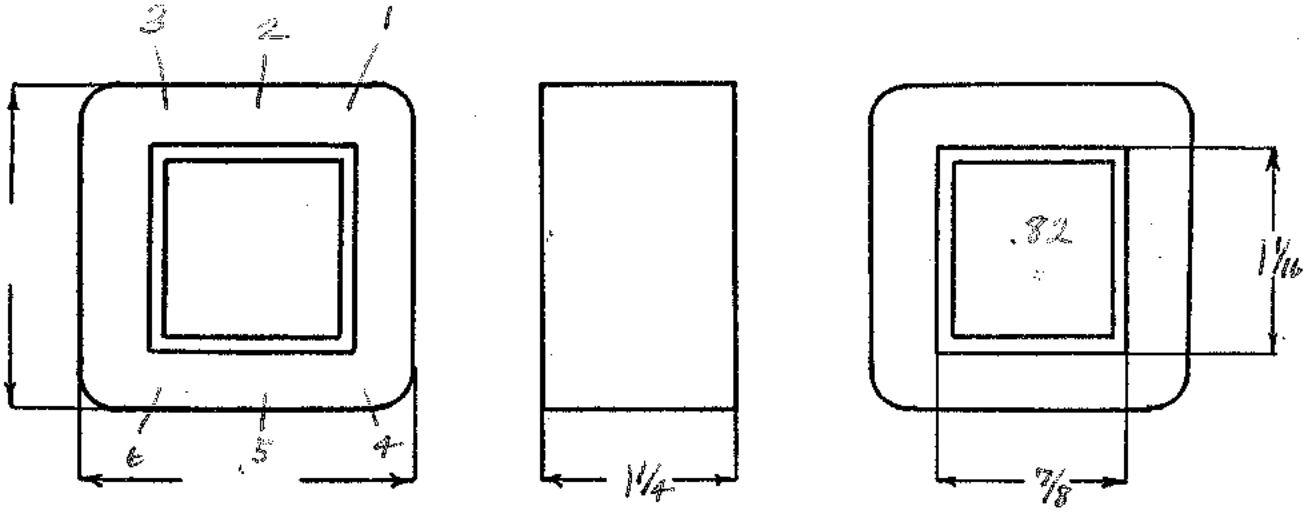
TUBE	4L010GA+1L003UP	IMPREGNATION	Varnish

CORE 7/8 x 1 1/16 GA. 24 GRADE D STACK 2 x 2

MOUNTING P

wire = 89% S. W. No sleeve on TAP

H.	W.	D
3 7/8	2 1/4	2 1/8



DESIGNED BY R. G. FORNEY DATE 2-2-50

DESIGN AND TEST DATA

Rating: $I_{sec} = .050a$

Sec VA = 18.2
Pri VA = 30.4
$I_p = 3.68a$

Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	4.89	6.83					
Resistance 25° c	615	.127					
Pounds Copper	.139	.142					
Copper Density	630	558					
Ratio Volts	180-180	3-3					
Test to Ground	2000	1500					

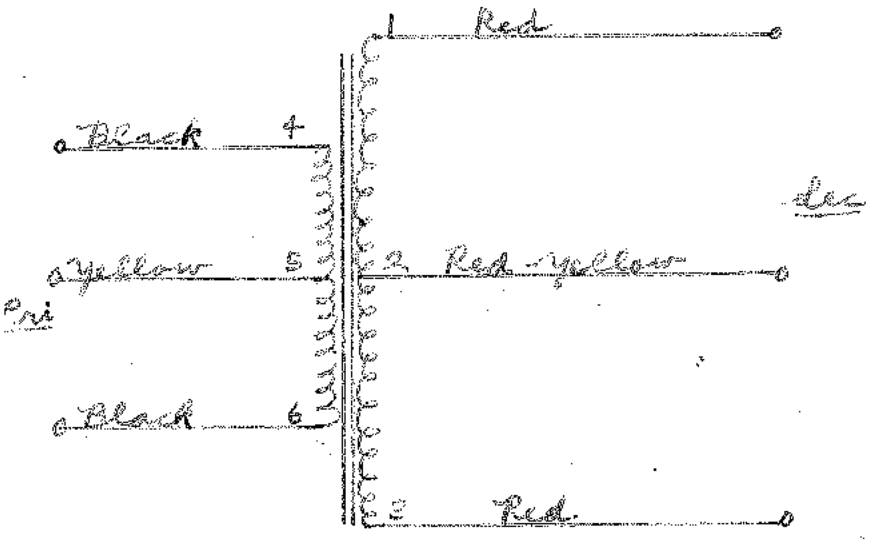
Iron Induction _____ @ _____ Cycles

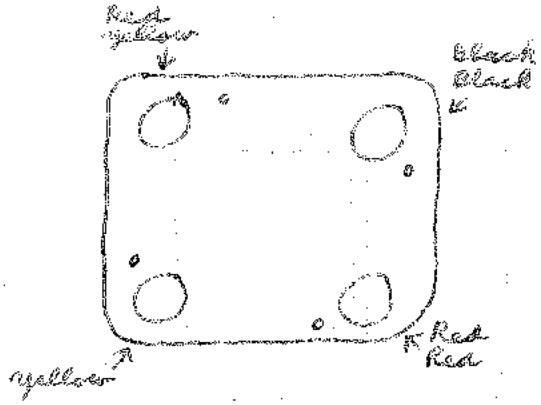
Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 265 V.D.C. measured

Hash Filter
45 turns #15
.5 MFD





E_p = 115 V.

E_s = 600V – 50ma

F_1 = 5V – 2 amps

F_2 = 2.5V, 4.5 amps

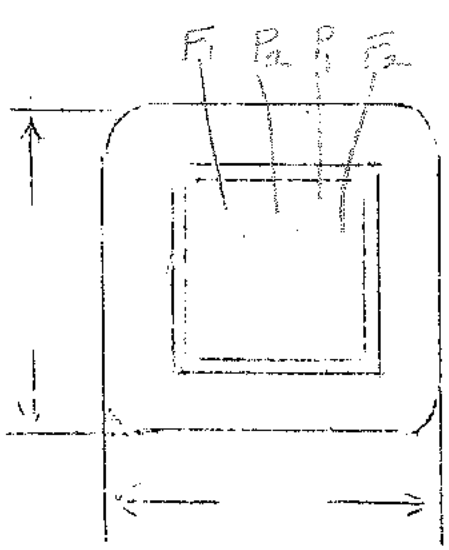
C. 4

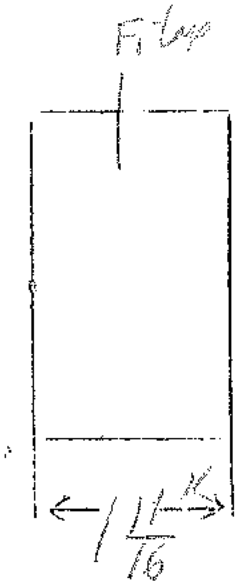
SPEC. NO. 192

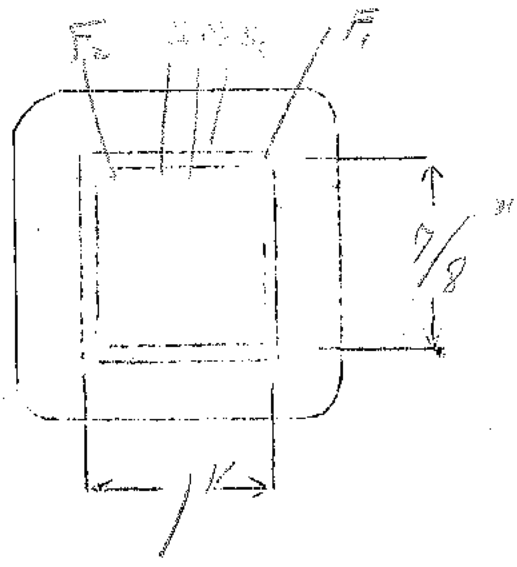
Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	735	260	4040	54	17		
Taps	—	—	2020	NONE	8.5		
Wind. Lgth.	1.5	1.5	1.5	—	—		
Wire Size	27E	36E	36E	20E	17E		
T.P.L.	87	260	260				
Kind Term.	#20 P.S.P.	SILBR	#20 P.S.P.	WIRE ONLY	WIRE ONLY		
Term. Lgth.	9"	9"	9"	9"	9"		
Layer Insul.	30#	20#	20#	—	—		
Wrapper	2 LAYERS MP	2 LAYERS MP	2 LAYERS MP	2 LAYERS GA	2 LAYERS GA		

TUBE | 46.007 | IMPREGNATION | 1 DIP 1 BAKE

CURE | 1 X 2 HR AT RECLAIMED







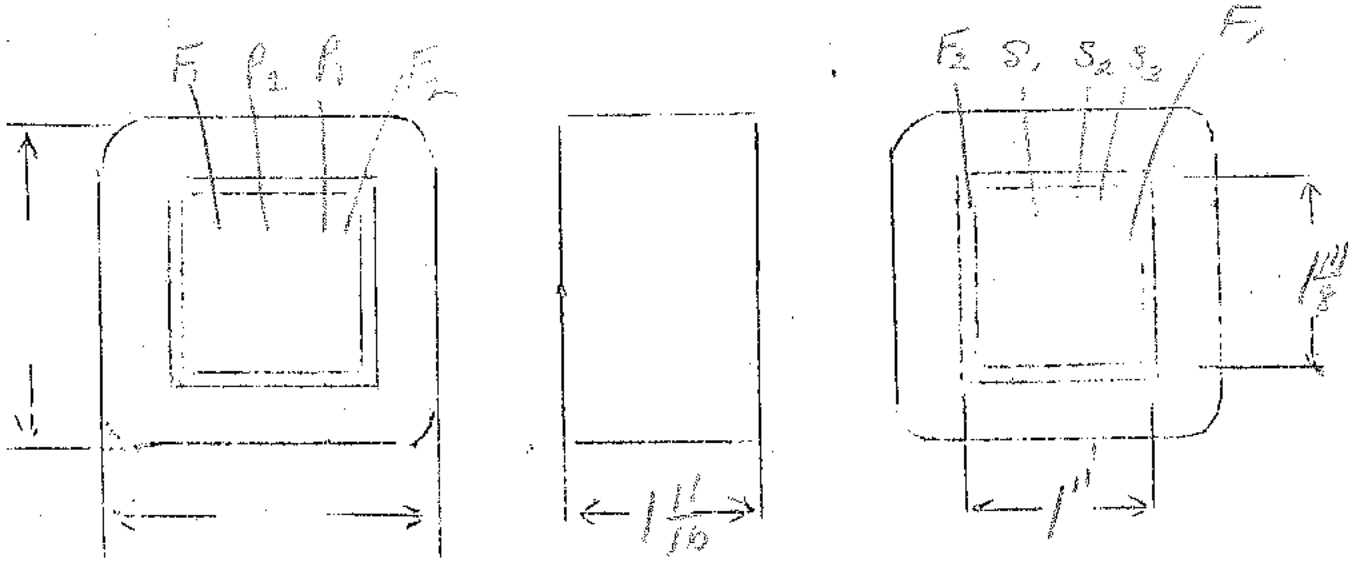
E_p = 115V
E_s = 700V - 45MA
E_1 = 2.5V @ 7.5 amps
E_2 = 5V 2 amps

SPEC. NO. 193

Winding	PRI	SHIELD	SEC.	E_1	E_2		
Turns	565	68	3680	26	14		
Taps	NONE	NONE	1840	NONE	7		
Wind. Lgth.	1/2	1/2	1/2	1/2	1/2		
Wire Size	#26 E.	#26 E	#30 E	#20 E	#16 E		
T.P.L.	68	6F	216	26	14		
Kind Term.	#20 AWG	SIL. BR.	#30 P.E.B.	WIRE ONLY	WIRE ONLY		
Term. Lgth.	8"	3"	3"	3"	3"		
Layer Insul.	.30#	.30#	.20#				
Wrapper	2L003VP	2L003VP	2L005GA	2L005GA			

TUBE	4L007	IMPREGNATION	VARNISH

CURE | 1 x 150M



Vibrator
6V/6V D.C. @ 115 ... 3A
Sec. 270 v DC @ 60 ma

"New" Color

SPEC. NO. P-194
Twin Tube Stack

Winding	1-2-3 Sec	4-5-6 Pri					
Turns	3840	66					
Taps	1920	33					
Wind. Lgth.	1 3/16	1 5/16					
Wire Size	#36	#18					
T. P. L.	160-24L	16 3L					
Finish	84 %	63 %					
Type Lead	#22	W/O Sleeve					
Lead Lgth.	12"	12"					
Layer Insul.	1 Mil	.005"					
Test Volt.	2000	1500					
Wrapper	2L 005" GA	2L 005 GA					

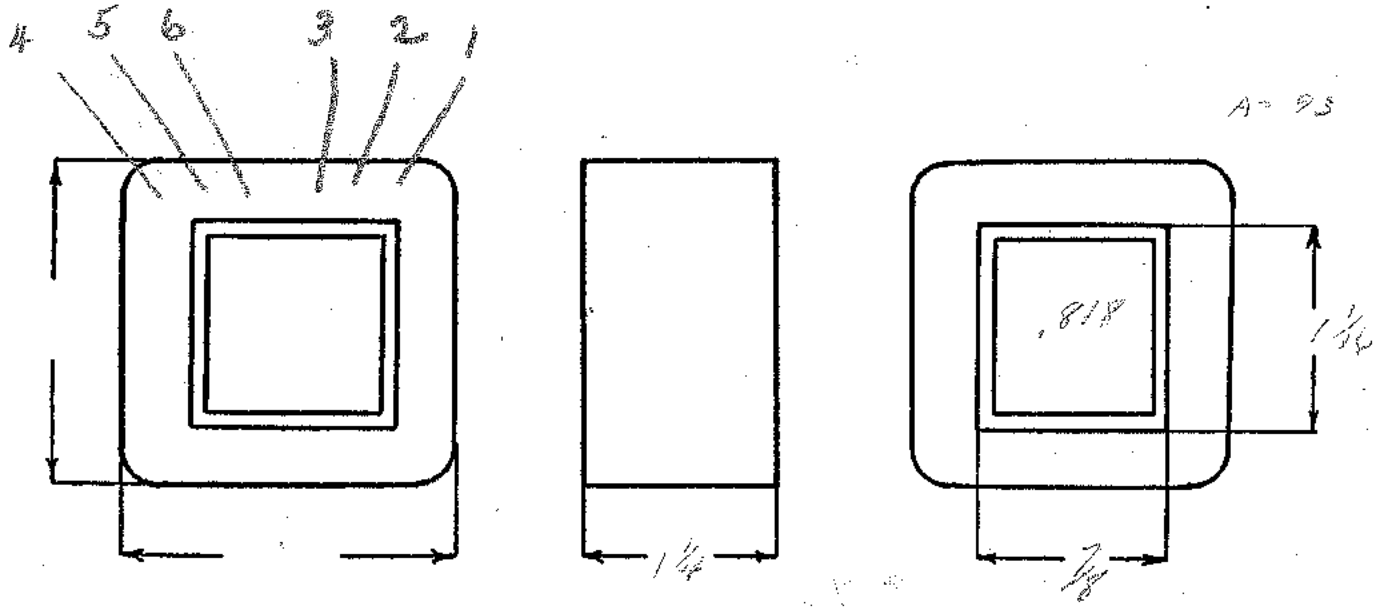
TUBE 1/2L - 010 + 1L 005" VC | IMPREGNATION Varnish

CORE 1/2 x 1 1/16 GA. 24 GRADE D STACK 3x3

MOUNTING P

Wt. = 75.5 %

FINISHERS NOTE!



DESIGNED BY R. S. FORNEY

DATE 2-10-59

DESIGN AND TEST DATA

Rating:

Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	4.77	6.09					
Resistance 25° c	6.45 640 turns	.218 .228 turns					
Pounds Copper	.1181	.166					
Copper Density	685	500					
Ratio Volts							
Test to Ground	2000	1500					

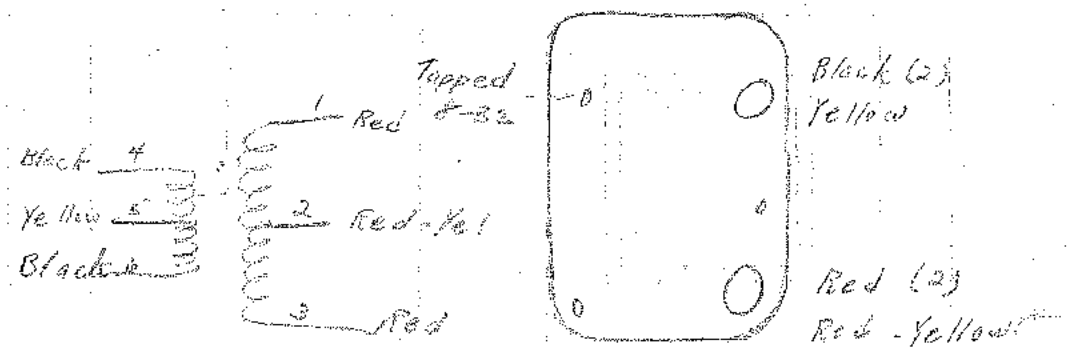
Iron Induction _____ @ 115 Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 250 W.C. No Fillers

Case Size
H = 2 5/8
W = 2 5/8
D = 2 1/8



Vibrator

6V/6V D.C. @ 115 cycles
to
270 V D.C. @ 60 ma.

New stock

SPEC. NO. P 194
Merit 4078

	1-2-3	4-5-6					
Winding	Sec	Pri					
Turns	3840	66					
Taps	1920	33					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#36	#18					
T. P. L.	160-24L	16-3L					
Finish Poth	84%	63%					
Type Lead	#22 Buba	w. o. sleeve					
Lead Lgth.	12"	12"					
Layer Insul.	14#	1L005GA					
Test Volt.	2000	1500					
Wrapper	2L005GA	2L005GA					

TUBE	4L010GA+1L003VP	IMPREGNATION	Varnish

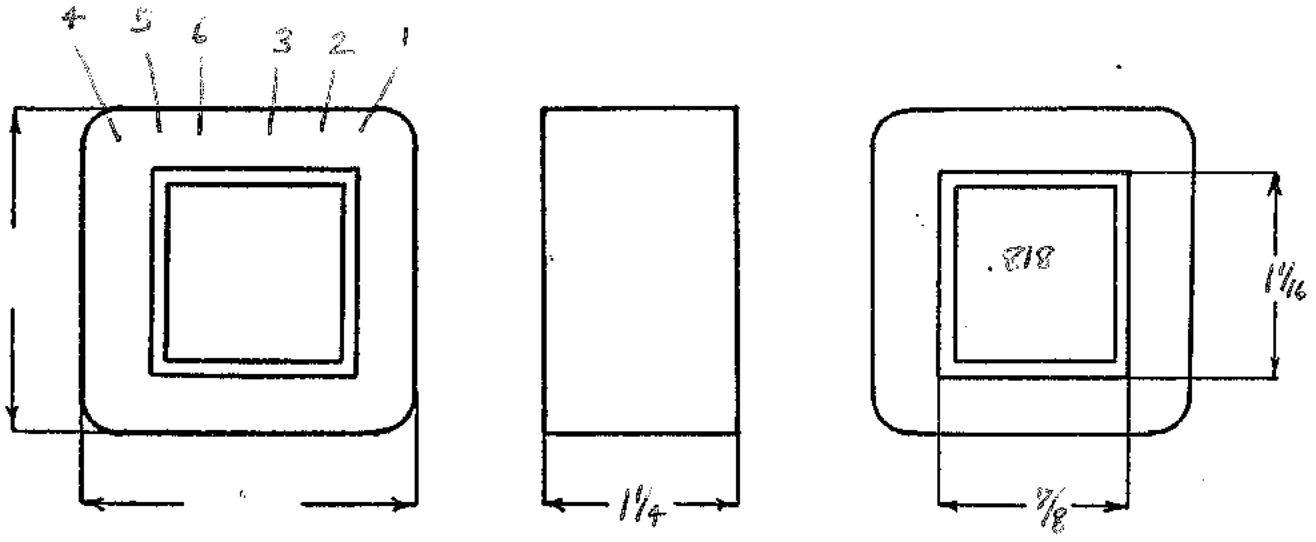
CORE 7/8 x 1 1/16 GA. 24 GRADE D STACK 2 x 2

MOUNTING P

Eff = 76%

FINISHERS NOTE!

H. 2 5/8" W. 2 5/8" D. 2 1/8"



DESIGNED BY R. G. FORNEY

DATE 2-18-50

DESIGN AND TEST DATA

Rating:

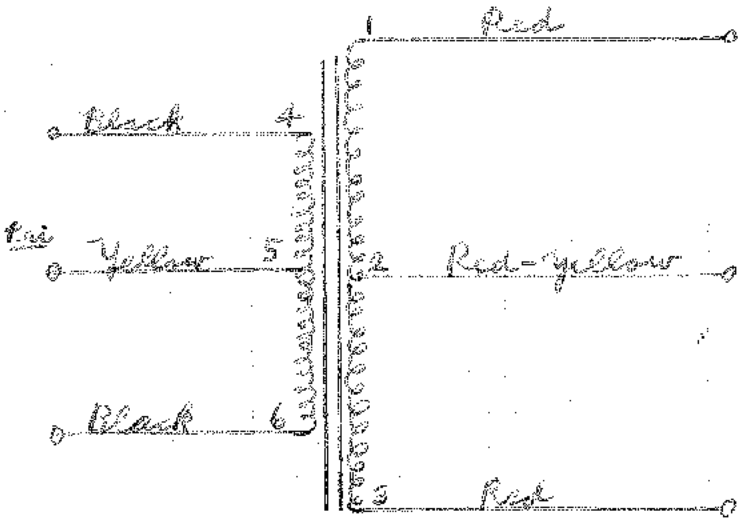
Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	4.77	6.09					
Resistance 25° c	645	.218					
Pounds Copper	.118	.166					
Copper Density	685	500					
Ratio Volts	192-192	3.3-3.3					
Test to Ground	2000	1500					

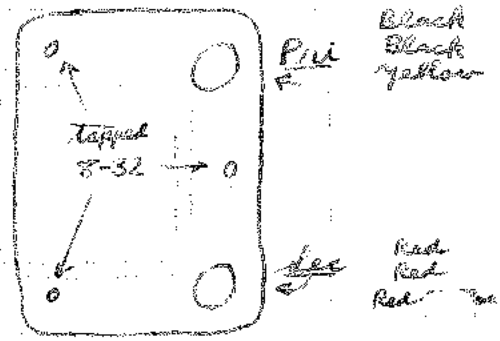
Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 250 V.D.C. measured





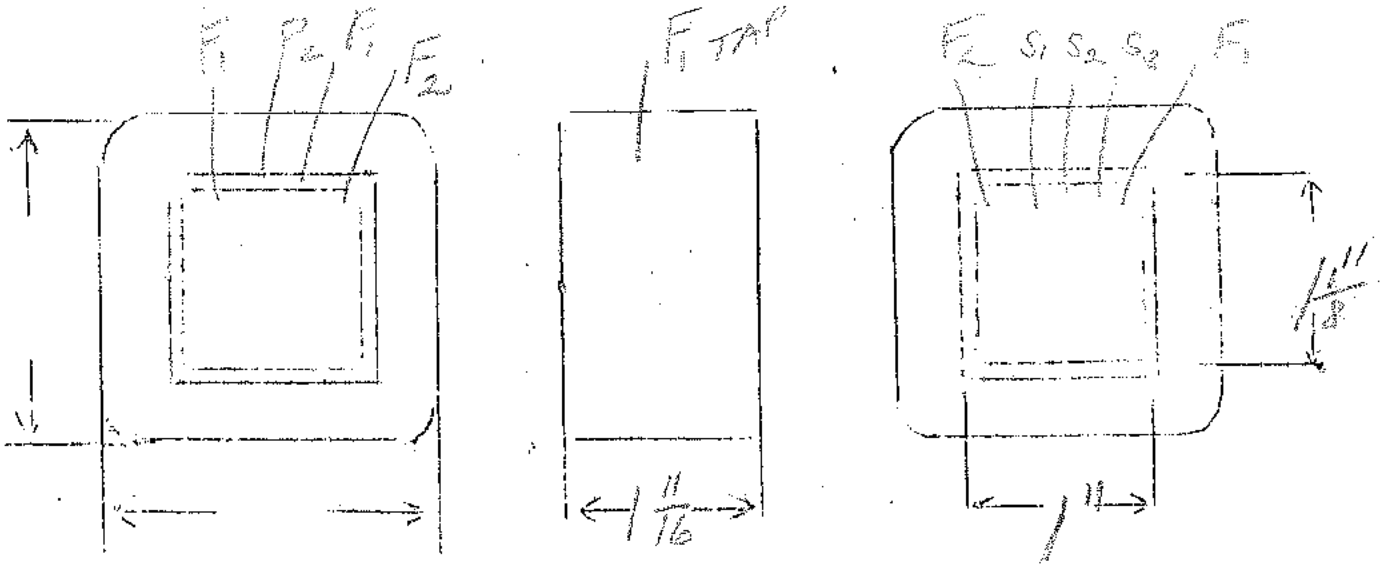
E_p = 115V
E_s = 660V-CT-50ma
F_{1A} = 5V-2amps
F_{1B} = 2.5V-4amps

SPEC. NO. 195

Winding	PRI	SHIELD	SEC	FIL #1	FIL #2		
Turns	590	216	3700	28	14		
Taps	—	—	1850		9		
Wind. Lgth.	1.5	1.5			—		
Wire Size	27E	27E	36E	20E	17E		
T.P.L.	87						
Kind Term.	#20 PIGT.			WIRE ONLY	WIRE ONLY		
Term. Lgth.	9"			9"	9"		
Layer Insul.	30#						
Wrapper	2L003VP	2L003VP	2L005GA	2L005GA	2L005GA		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1½X1½ M RECLAIMED



Vibrator
6v/6V DC @ 1.5a
250 VDC @ 75 ma

SPEC. NO. P-196

Winding	1-2-3 Sec	4-5-6 Pri					
Turns	3080	572					
Taps	1540	26					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#34	#17					
T. P. I.	140 - 22L	17 - 34					
Finish Black	92 %	75 %					
Type Lead	#22	W.O. sleeve					
Lead Lgth.	12"	12"					
Layer Insul.	20#	.001					
Test Volt.	2000	1500					
Wrapper	.001 GA	.002 GA					

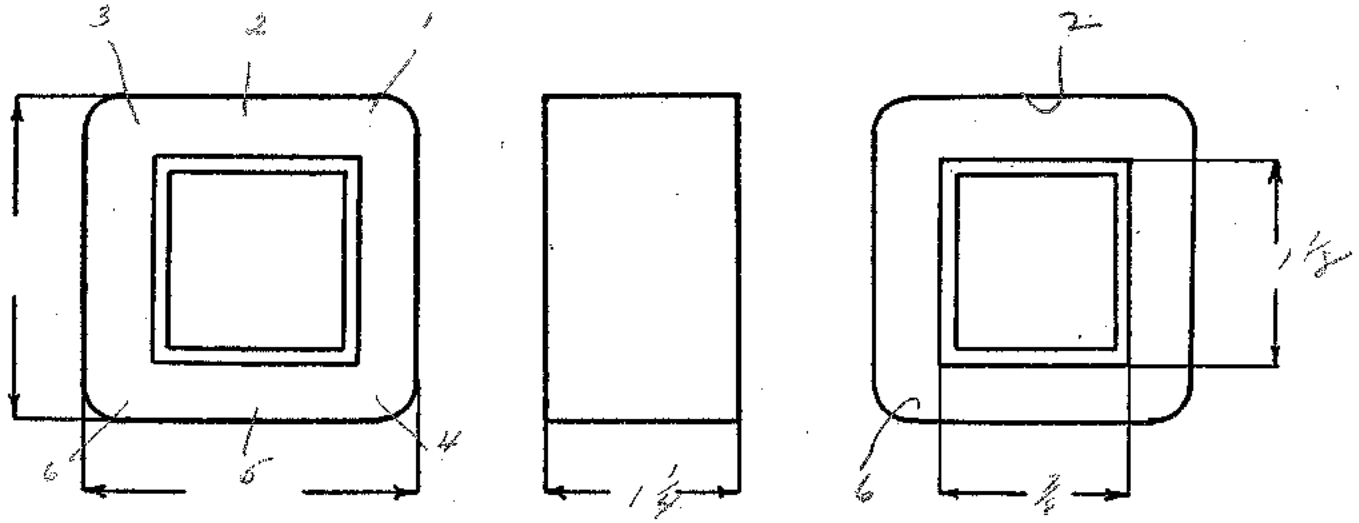
TUBE .4L-010 + .1L.001 VC | IMPREGNATION

CORE 7/8 x 1 1/16 | GA. 24 | GRADE D | STACK 2 x 2

MOUNTING P

Wt. 89.8 %

H = 3"
W = 2 1/2"
D = 2 1/2"



DESIGNED BY R. G. HONNEY

DATE 2-13-50

DESIGN AND TEST DATA

Rating: I_3 - 0375"

Sec VA = 20.6
Pri VA = 34.0
I_p = 9.12

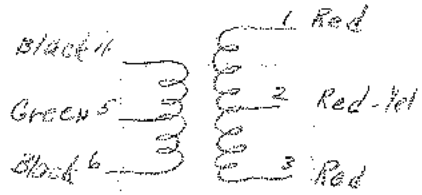
Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	6.18	4.822					
Resistance 25° c	42 ohms 436 ohms	.109 .117 ohms					
Pounds Copper	.193	.133					
Copper Density	650	500					
Ratio Volts							
Test to Ground	2000	1500					

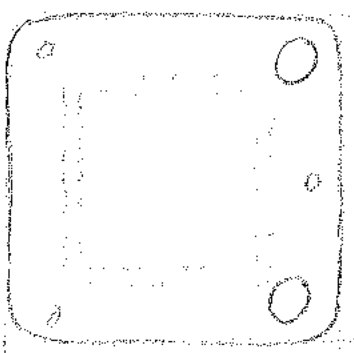
Iron Induction _____ @ _____ Cycles

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 260 V.D.C.





Vibrator

6V/6V D.C. @115 cycles

to

270 V D.C. @ 75 ma

New Block

SPEC. NO. P 196

Must Agree

Winding	1-2-3 Plate	4-5-6 Pri					
Turns	3080	52					
Taps	1540	26					
Wind. Lgth.	1 1/16	1 1/16					
Wire Size	#34	#17					
T. P. L.	140-22L	17-3L					
Finish Enter	92%	75%					
Type Lead	#22 Belden	same as Plate					
Lead Lgth.	12"	12"					
Layer Insul.	20#	1L005GA					
Test Volt.	2000	1500					
Wrapper	2L005GA	2L005GA					

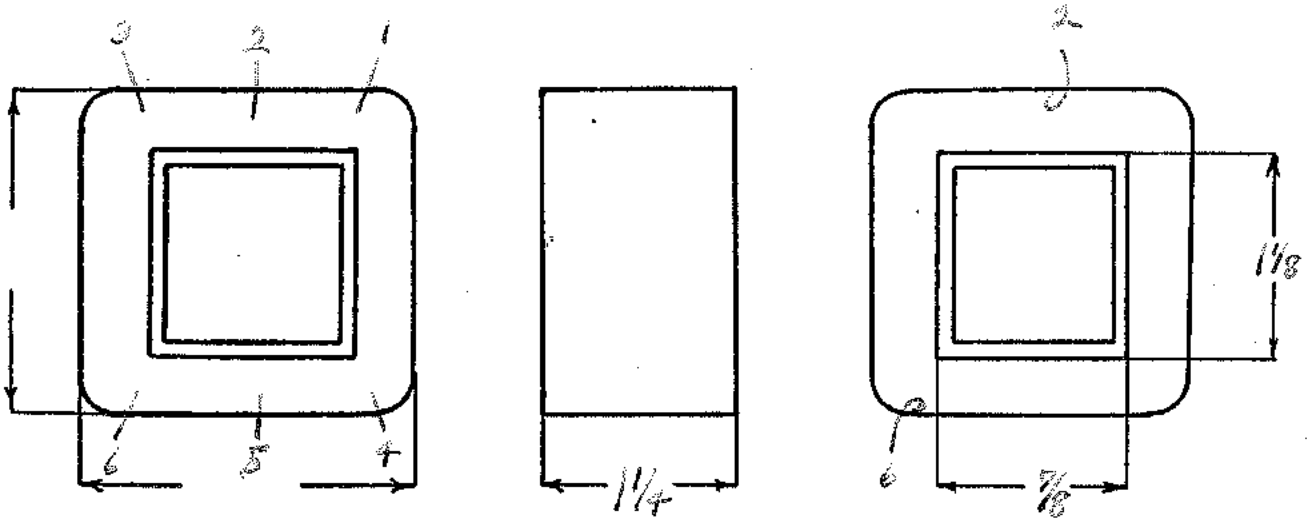
TUBE 4L010GA + 1L003VP IMPREGNATION Varnish

CORE 7/8 x 1 1/4 GA. 24 GRADE D STACK 2 x 2

MOUNTING P

Turns = 70%

H. 3" W. 2 1/4" D. 2 1/4"



DESIGNED BY R. G. FORNEY

DATE 2-18-50

DESIGN AND TEST DATA

Rating: $I_s = .0575a$

Sec VA = 20.6
Pri VA = 34.0
$I_p = 4.12a$

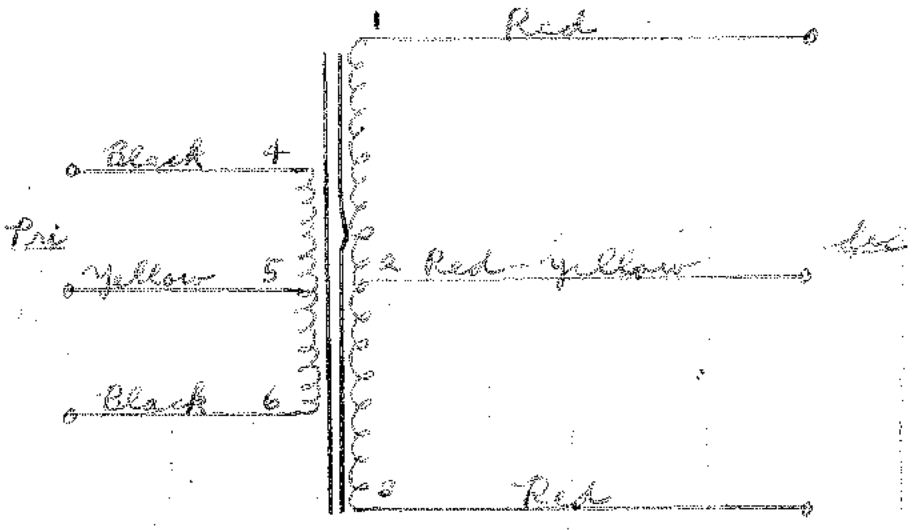
Winding	1-2-3 Sec	4-5-6 Pri					
Mean Turn	6.18	4.89					
Resistance 25° c	4.22	.109					
Pounds Copper	.193	.133					
Copper Density	690	500					
Ratio Volts	154-154	2.6-2.6					
Test to Ground	2000	1500					

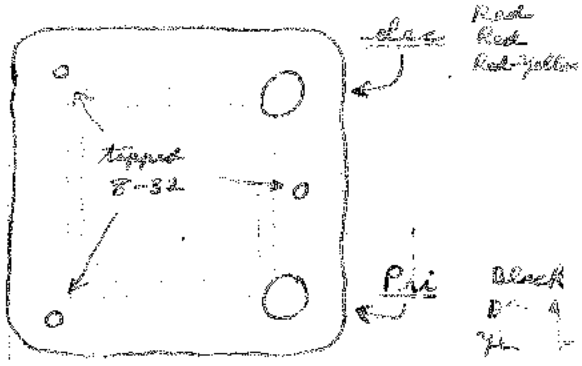
Iron Induction _____ @ _____ Cycles _____

Exciting Current _____ amperes @ _____ volts 60 cycles on _____

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

Remarks: 260 V.D.C. measured





E_p = 130
E_s = 600V – 50ma
E_{f_1} = 2.5V – 4 amps
E_{f_2} = 5V – 2 amps

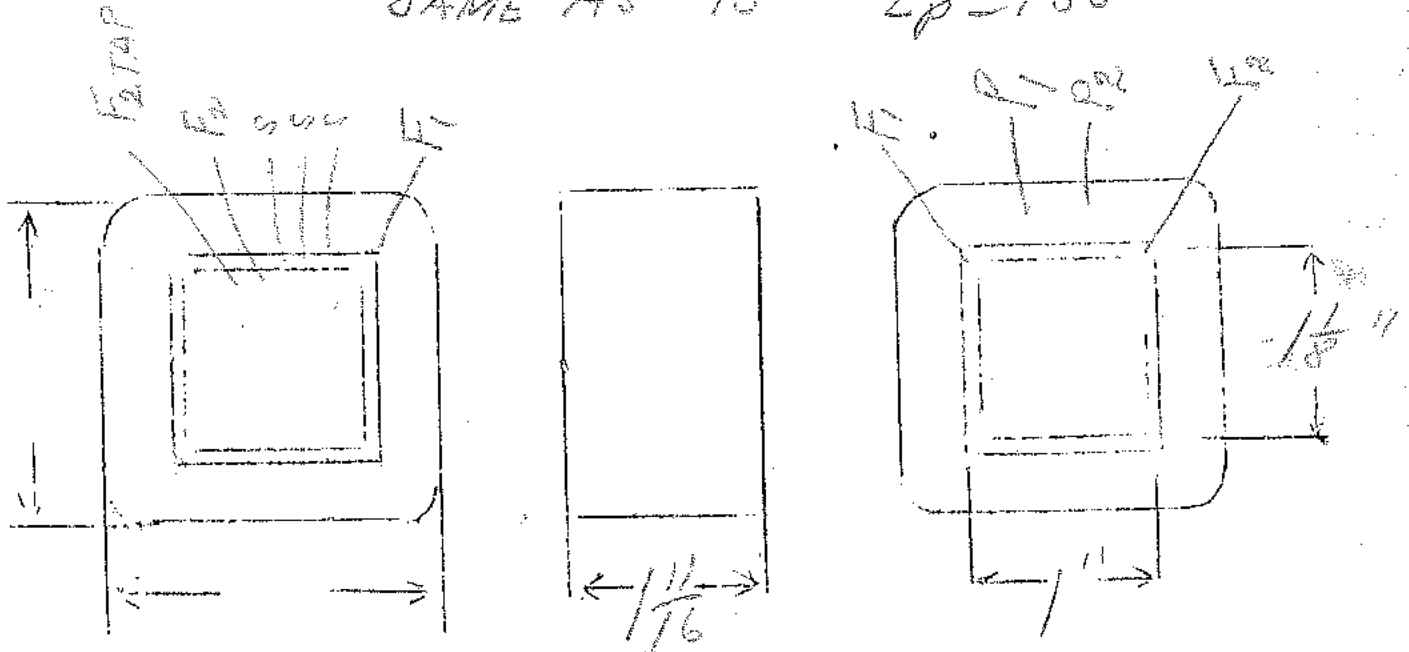
SPEC. NO. 196

Winding	PRI	SHIELD	SEC	F_1	F_2		
Turns	640	68	3220	26	14		
Taps	—	—	1610	—	7		
Wind. Lgth.	1½	1½	1½	—	—		
Wire Size	26E	26E	36E	20E	17E		
T.P.L.	68	68	216	26	14		
Kind Term.	#20 P.B.	SIL BR	#20 P.B.	WIRE ONLY	WIRE ONLY		
Term. Lgth.	8"	3"	8"	8"	8"		
Layer Insul.	30#	30#	40#				
Wrapper	2L 003VP	2L 003VP	2 LAYERS GA	2 LAYERS GA	2 LAYERS GA		

TUBE | 4L007 | IMPREGNATION | VARNISH

CURE | 1 x 140 #

SAME AS #13 – E_p = 130



Audio Transformer

E_p = 115 V
E_s = 18 V - 300 Ma
E_s = 135 V - 40 Ma

75 Watt

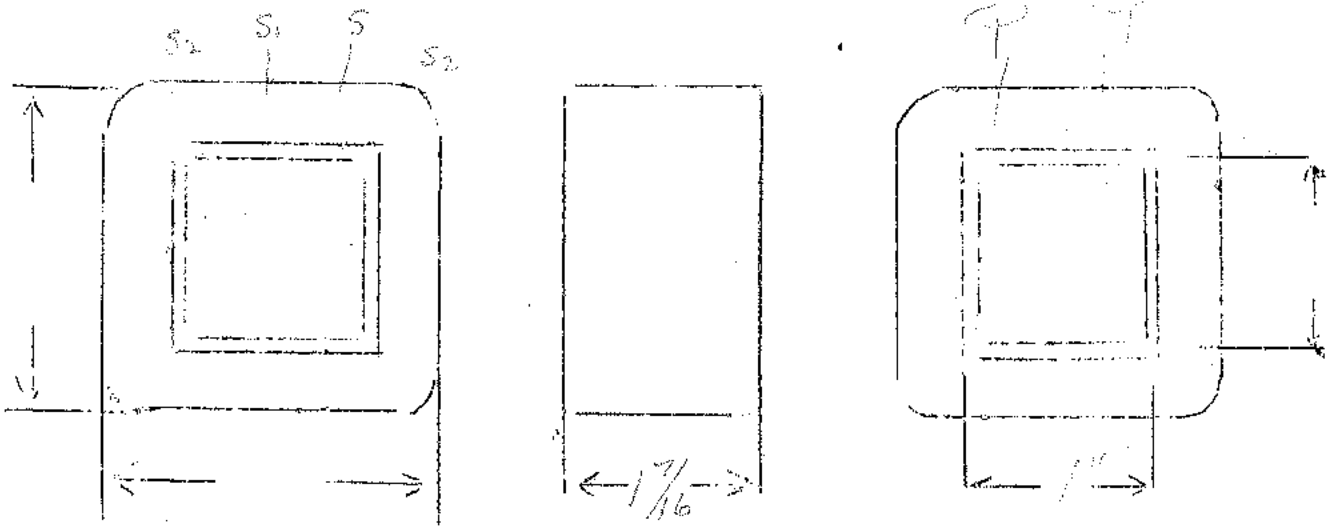
SPEC. NO. 197

Blue Red

Winding	PRI	Shield	Sec.	Sec. 2			
Turns	808	81	1020	197			
Taps	None	—	2 Tap	3 Tap			
Wind. Lgth.	1.25	1.25	1.25				
Wire Size	#28 E	#25 E	#27 E	#25 E			
T.P.L.	81	81	215.5	66			
Kind Term.	#20 C.U.R.	5" Bare	#20 P.Brand.	#20 Aluminum			
Term. Lgth.	9"	3"	9"	9"			
Layer Insul.	30 #32		20 #32	.005 M			
Wrapper	1L005YC	1L005YC	1L005YC	2L005YC			

TUBE	4L607	IMPREGNATION	Varnish
CURE	1X 3/4 NW		

Mount without bracket with shade



E_{P_1} = 115 V

E_{P_2} = 6 VOLT (VIBRATOR)

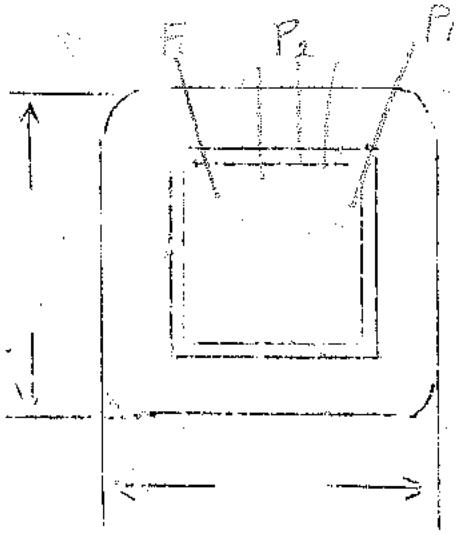
E_S = 6.3

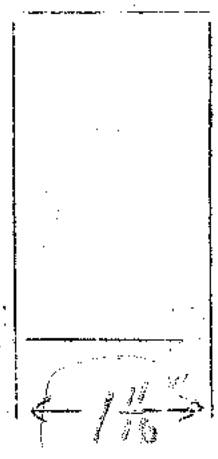
SPEC. NO. 178 -AUTO

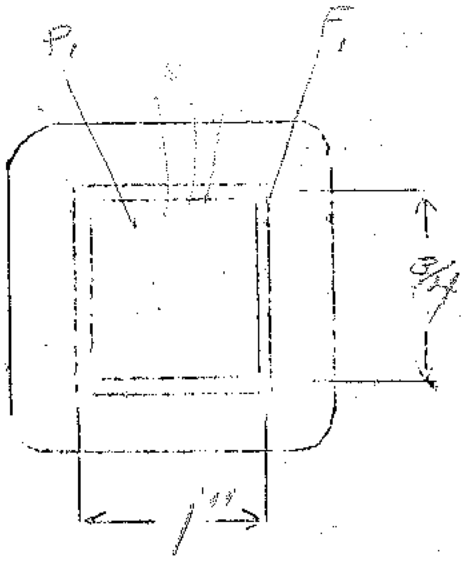
Winding	PRI.	SHIELD	SEC	SHIELD	PRI_2	F_1	
Turns	1050	276	6200	276	84	68	
Taps		—	3100	—	32	—	
Wind. Lgth.	1.5	1.5	1.5	1.5	1.5	1.5	
Wire Size	#28	#37	#37	#37	#18	#19	
T.P.L.	100	276	276	276			
Kind Term.	#20 P.BR.	SI BR	#20 P.BR.	SI BR	WIRE ONLY	WIRE ONLY	
Term. Lgth.	9"	9"	9"	9"	9"	9"	
Layer Insul	30#		20#				
Wrapper	1L005VP 1L005GA	2L005VP	2L005GA 1L005VP	2L005GA	2L005GA	2L005GA	

CUBE | 2L007 | IMPREGNATION | VARNISH

CURE | 1H 3/4 M







$E_{P_1} = 115$ V.

$E_{P_2} = 6$ V. VIBRATOR

$E_S = 675$ CT

SPEC. NO. 199

Winding	PRI	SHIELD	SEC	SHIELD	P_2	BIAS	
Turns	940	276	6300	1	64	65	
Taps	—		5400	—	32	—	
Wind. Lgth.	1.5	1.5	1.5	1½	1.5	—	
Wire Size	28	#34	#37	BRASS	#14	#18	
T.P.L.	95T 10L	276	260-246	1	—	—	
Kind Term.	#22 SOL.	SOLDER	#20 BARR.	SOLDER	WIRE LEAD	WIRE LEAD	
Term. Lgth.	9"	3"	9"	8"	9"	9"	
Layer Insul.	3 #60		20#		.005 GA	.005 GA	
Wrapper	12 on 5 GA	12 on 5 GA	11 on 5 GA	2 on 5 GA	2 on 5 GA	2 on 5 GA	

TUBE | 7 x 07 | IMPREGNATION | VARNISH

CURE | 1 X 24 M