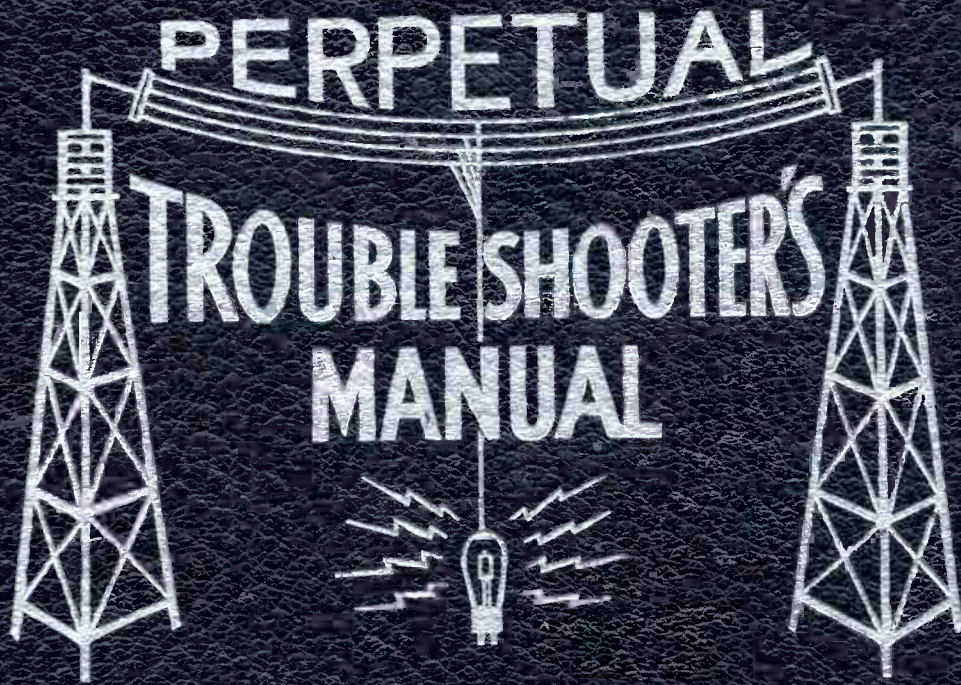


VOLUME I

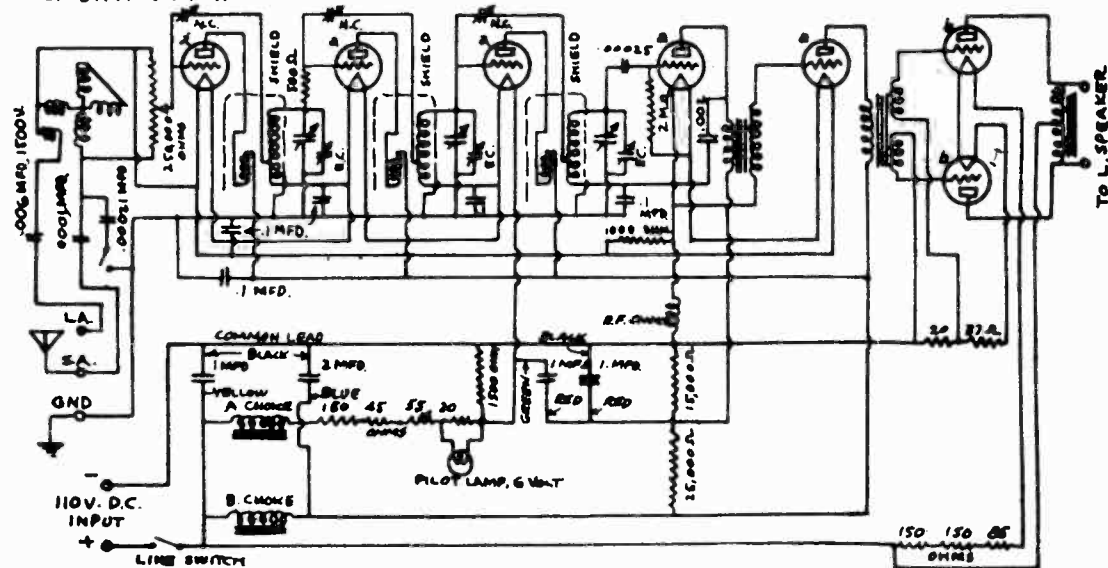


JOHN F. RIDER

EARL RADIO CORP.

MODEL 21 DC, 22 DC
MODEL 121

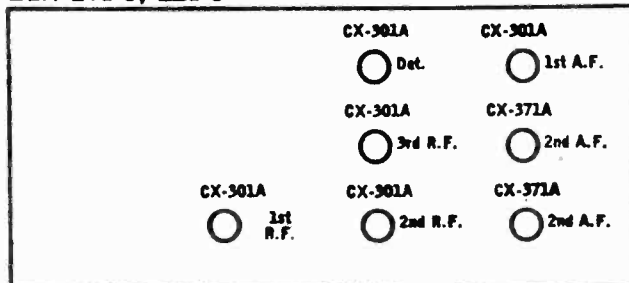
R = CX-301-A OR UX-201-A
b = CX-371-A OR UX-171-A



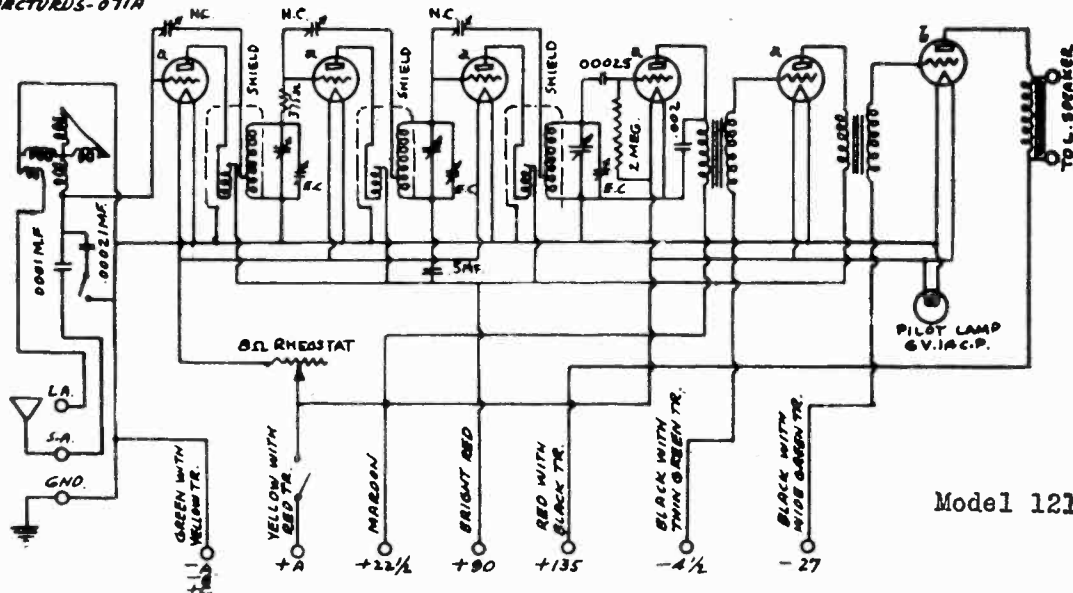
Model 21 DC, 22 DC

Earl 21DC, 22DC

(D.C.)



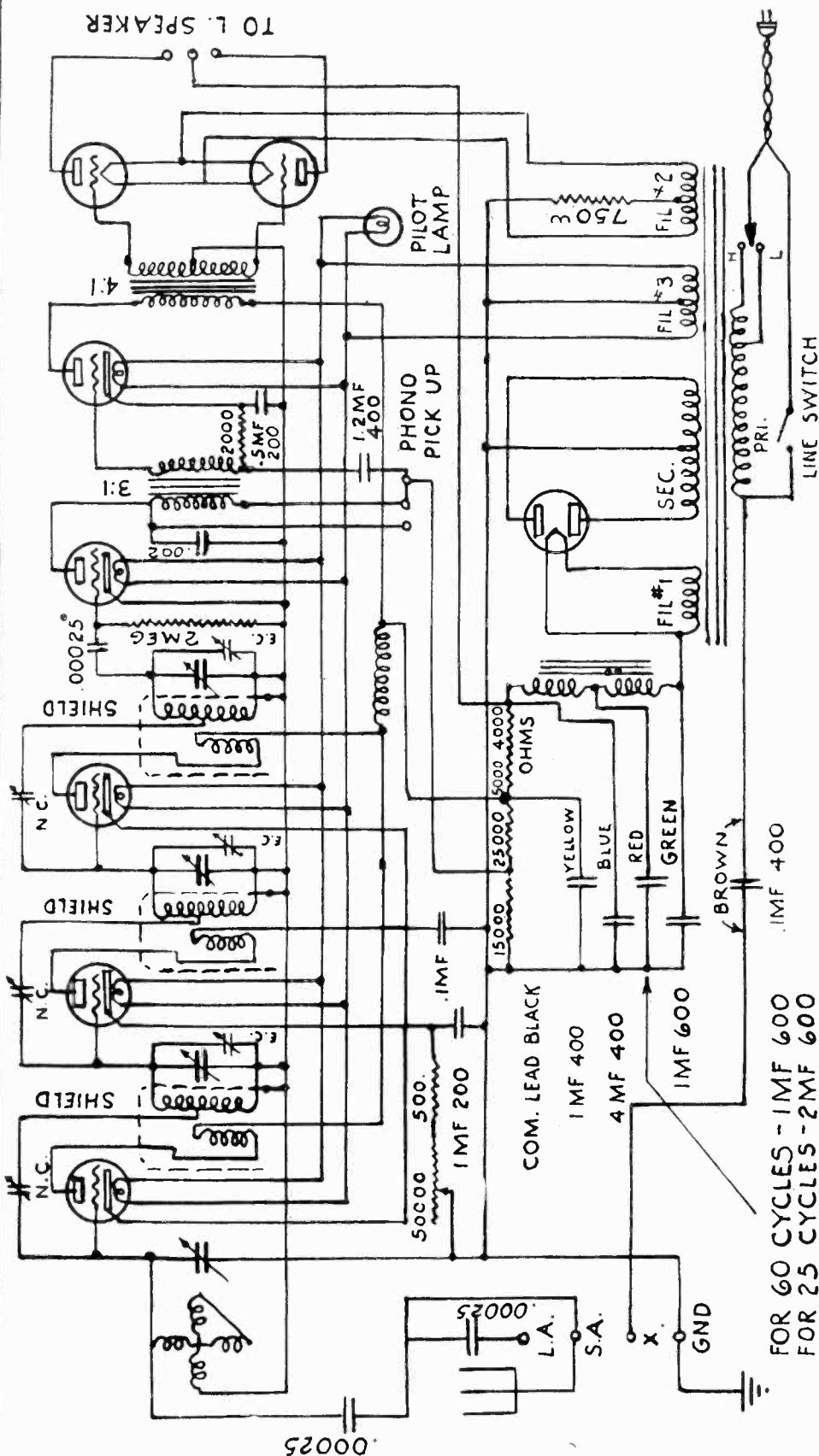
B: ARCTURUS-101A.
b: ARCTURUS-071A



Model 121

MODEL 31, 32 AC
Schematic

EARL RADIO CORP.



FRESHMAN—Earl—Model 31-32
Line Voltage 116—Set on High Volt Tap—Volume
Control Position On

EARL MODELS 31 and 32

FOR 60 CYCLES - 1MF 600
FOR 25 CYCLES - 2MF 600
NC - NEUTRALIZING CONDENSER
EC - EQUALIZING CONDENSER
(A.C.)

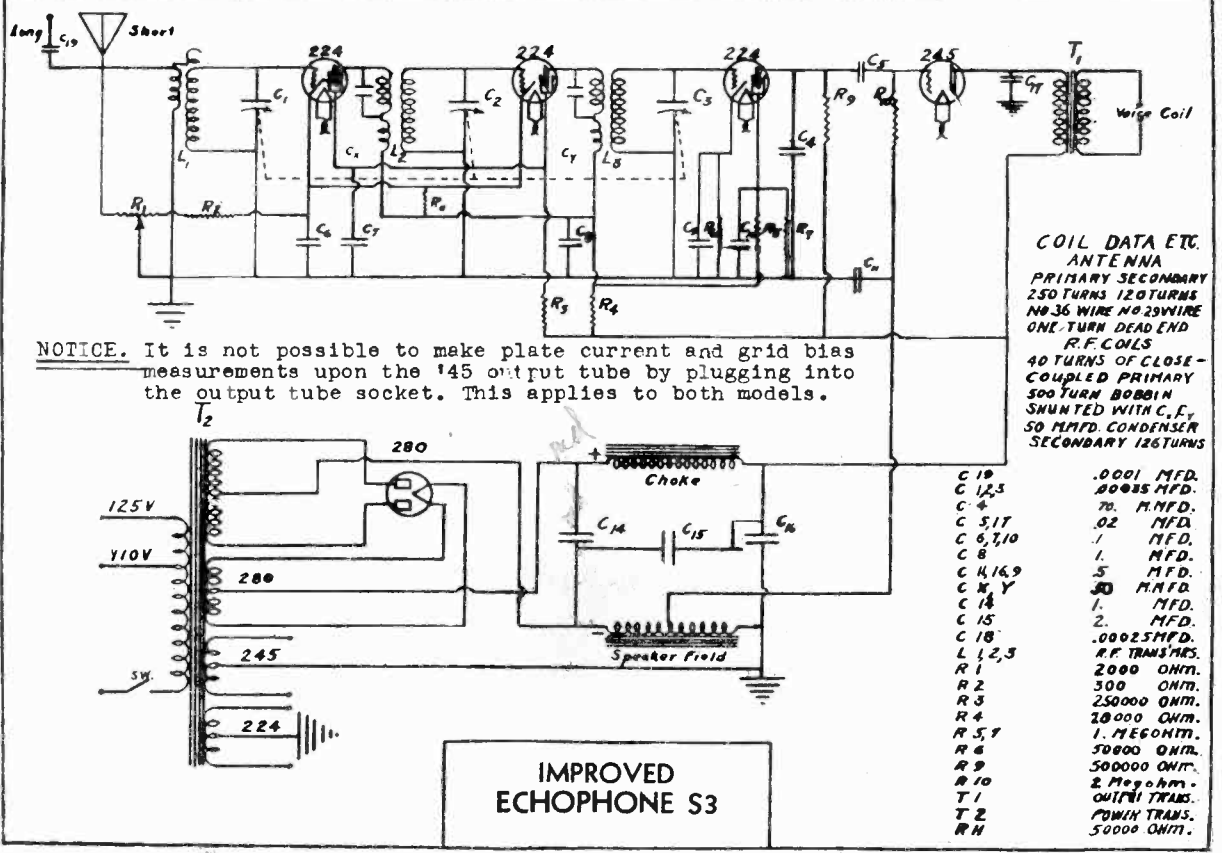
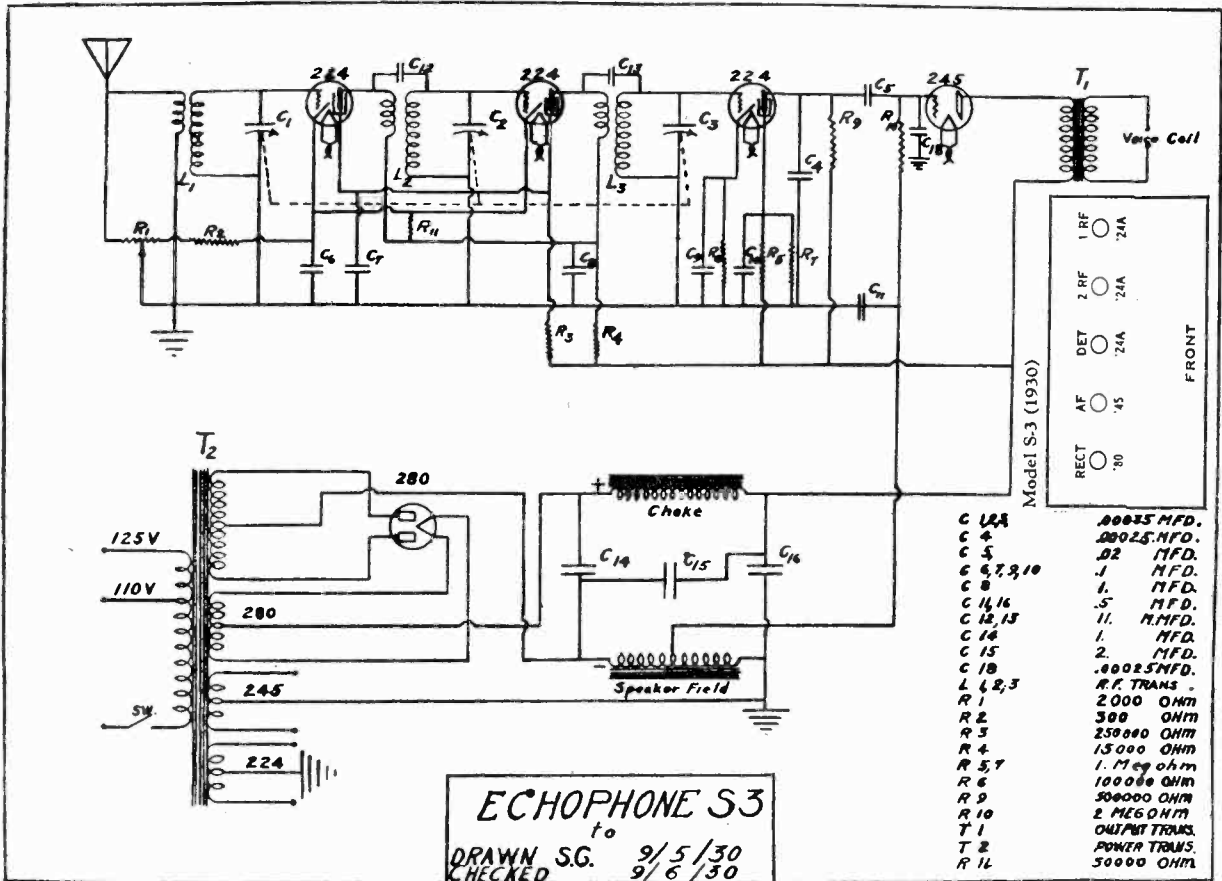
Earl 31, 32

TUBE	TYPE	POWER RATING	TYPICAL VOLTAGE		TYPICAL CURRENT		TYPICAL RESISTANCE		WAVE
			ANODE	GRID	ANODE	GRID	ANODE	GRID	
6X4	Rect.	500	250	250	0.05	0.05	5000	5000	4-6
6X5	Det.	500	250	250	0.05	0.05	5000	5000	4-6
6X6	Aud. Amp.	500	250	250	0.05	0.05	5000	5000	4-6
6X4	Push-Pull	500	250	250	0.05	0.05	5000	5000	4-6

- CX-360 Rect.
- C-327 Det.
- CX-345 2nd A.F.
- C-327 3rd R.F.
- CX-345 2nd A.F.
- C-327 2nd R.F.
- C-327 1st R.F.
- C-327 1st R.F.

ECHOPHONE RADIO MFG. CO.

MODEL S-3
 MODEL S-3 (Rev.)
 Schematic



NOTICE. It is not possible to make plate current and grid bias measurements upon the '45 output tube by plugging into the output tube socket. This applies to both models.

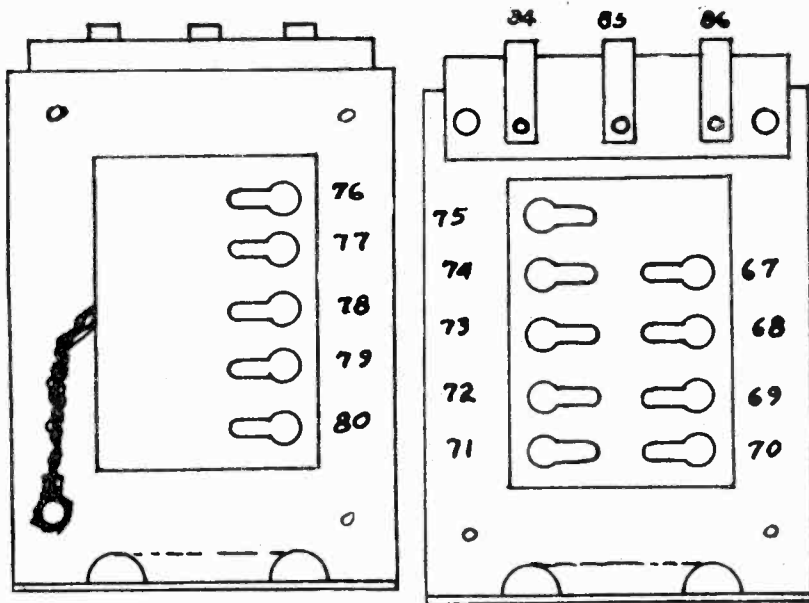
COIL DATA ETC.
 ANTENNA
 PRIMARY SECONDARY
 250 TURNS 120 TURNS
 NO 36 WIRE NO 25 WIRE
 ONE TURN DEAD END
 R.F. COILS
 40 TURNS OF CLOSE-
 COUPLED PRIMARY
 500 TURN BOBBIN
 SHUNTED WITH C, F, Y
 50 M.MFD. CONDENSER
 SECONDARY 126 TURNS

ECHOPHONE RADIO MFG. CO.

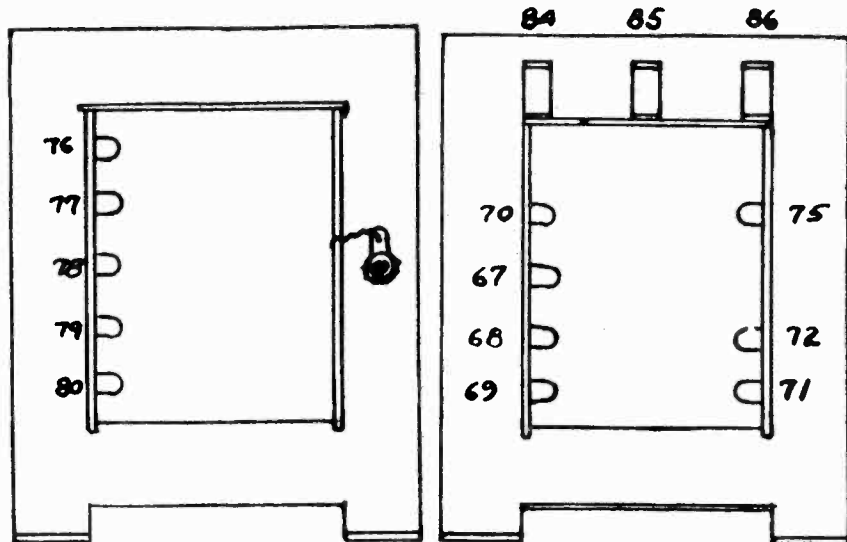
MODEL S-3
Voltage
Notes

Model S-3

1. Plate of 245 Tube
#5 to ground
Normal 250 volts
Low 235 volts
High 275 volts
2. R. F. Plate
#25 to ground
Normal 140 volts
Low 120 volts
High 160 volts
3. R. F. Screen
#14 to ground
Normal 60 volts
Low 50 volts
High 75 volts
4. Detector Plate
#13 to ground
Normal 80 volts
Low 70 volts
High 90 volts
5. Detector Screen
#9 to ground
Normal 25 volts
Low 20 volts
High 30 volts
6. Detector Cathode
#10 to ground
..... 5 to 10 volts
7. R. F. Cathode
#15 to ground
..... 1.5 to 2.5 volts
8. 245 Bias
#48 to ground
Normal 50 volts
Low 40 volts
High 55 volts



TYPE HA



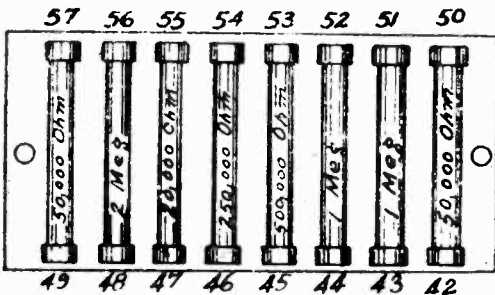
TYPE JE

Drawing showing corresponding terminal positions on two types of power transformers used on S-3.

Power Transformer

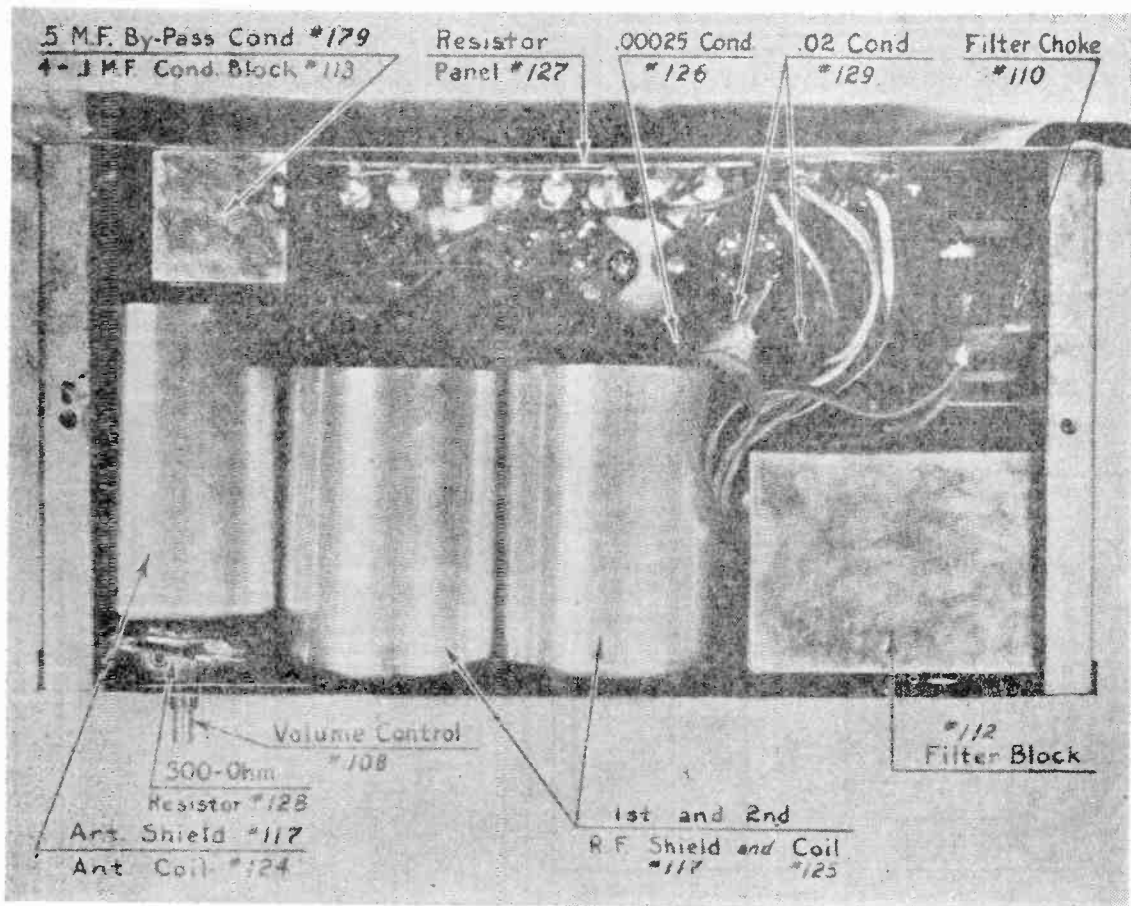
- 75-73 Pri. winding 74 low voltage tap.
- 72-71 Fil. winding 280 tube 70 center tap.
- 69-67 High voltage Sec. 68 center tap.
- 76-80 Fil. winding for 224 tubes.
- 77-79 Fil. winding for 245 tube 78 center tap.

Resistor Panel

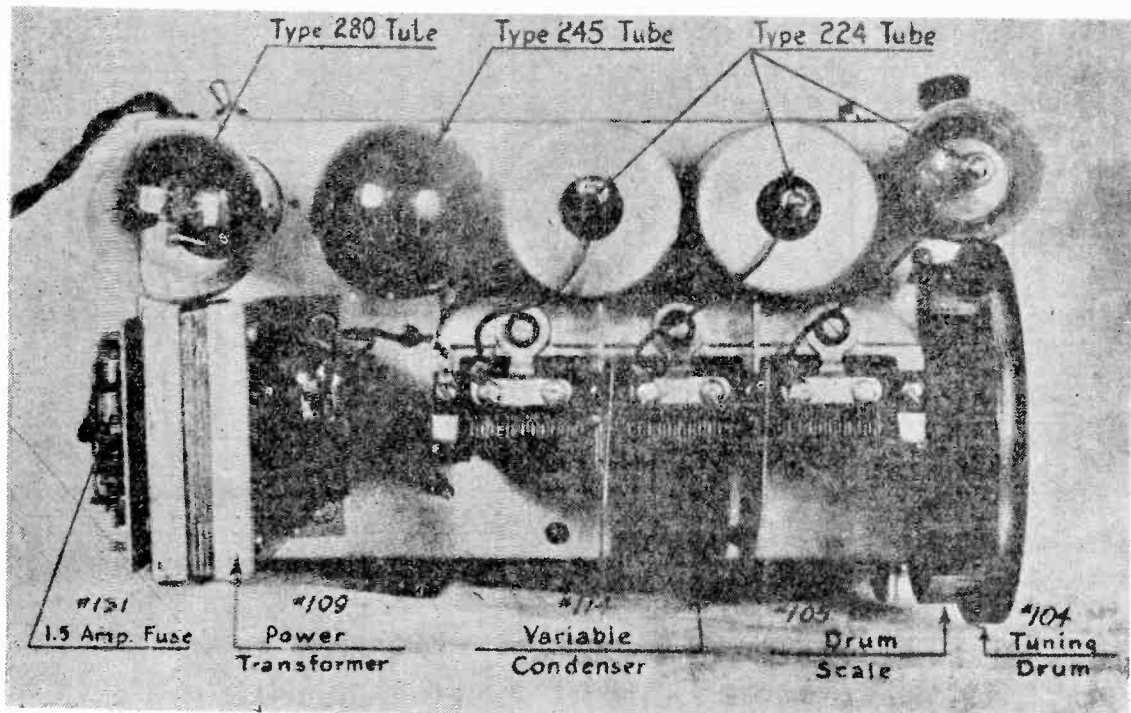


ECHOPHONE RADIO MFG. CO.

MODEL S-3
Chassis



ECHOPHONE—Model S-3



ECHOPHONE—Model S-3

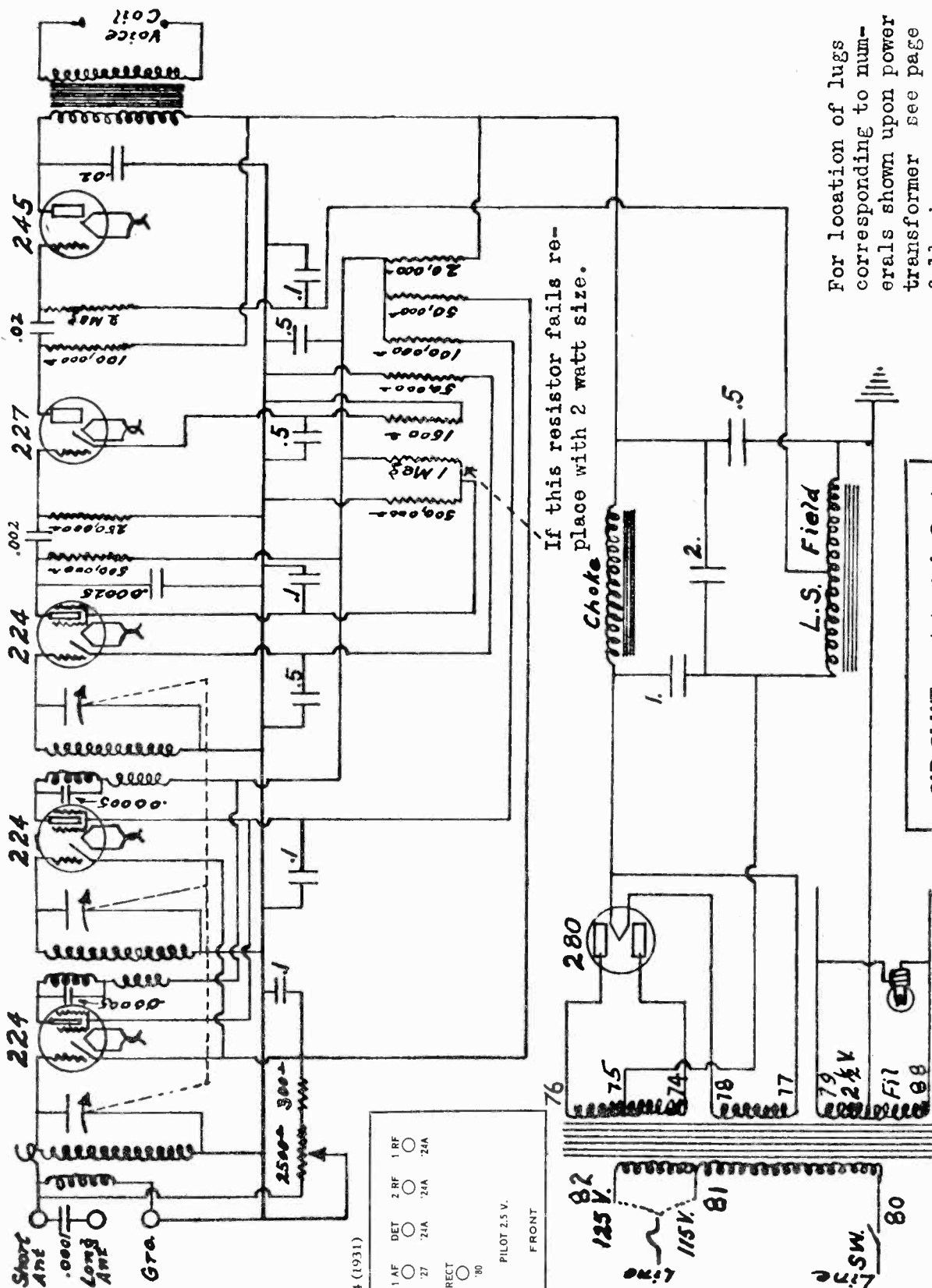
MODEL S-4
Schematic

ECHOPHONE RADIO MFG. CO.

For location of lugs corresponding to numbers shown upon power transformer see page following

CIRCUIT—Model S-4

If this resistor fails re-
place with 2 watt size.



Model S-4 (1931)

2 AF	1 AF	DET	2 RF	1 RF
.45	.27	.24A	.24A	.24A
RECT	.70			

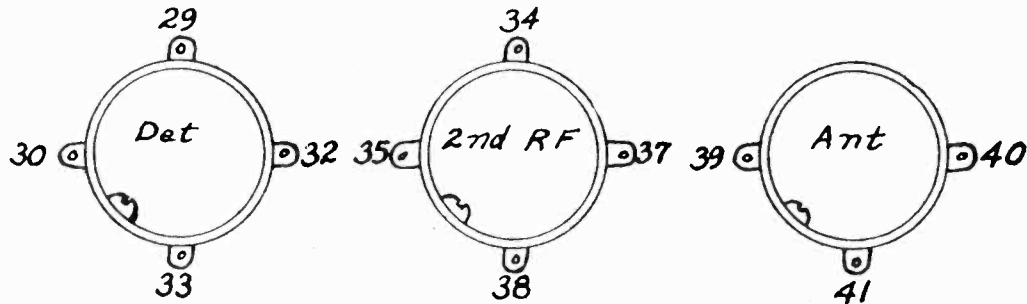
PILOT 2.5 V.
FRONT

ECHOPHONE RADIO MFG. CO.

MODEL S-4
Voltage
Data

The Antenna coil has a bobbin primary and also a single close-coupled incomplete turn around grid end of secondary coil. The R. F. coils have a bobbin primary and also a close-coupled primary. A .00005 condenser is connected across the bobbin primary.

In some of the later S-4 models bank-wound "Litz" wire coils are used. These R. F. coils have a small honey-comb primary coil mounted in the ground end of the secondary coil and a capacitor across the plate and grid terminals of the coil. The "Litz" antenna coil has a tight-coupled primary wound over the ground end of the secondary coil.



Continuity Chart For
Litz Wire Bank Wound Coils
Echophone
Model - S4

1. Plate of 245 Tube.

#5 to ground
Normal—225 volts
Low— 200 volts
High— 250 volts

2. R. F. Plate.

#25 to ground
Normal—110 volts
Low— 100 volts
High— 120 volts

3. R. F. Screen.

#14 to ground
Normal—50 volts
Low— 40 volts
High— 60 volts

4. Detector Plate.

#13 to ground
Normal—30 volts
Low— 25 volts
High— 50 volts

5. Detector Screen.

#9 to ground
Normal—20 volts
Low— 15 volts
High— 30 volts

6. Detector Cathode

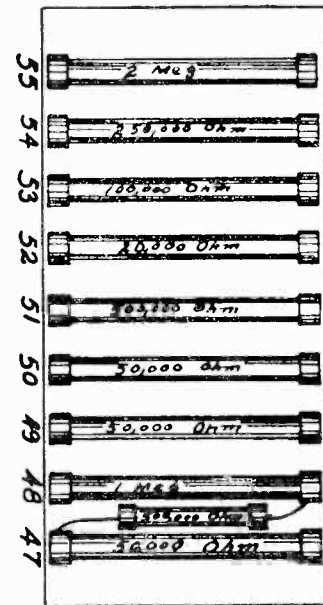
#10 to ground
3 to 6 volts

7. R. F. Cathode.

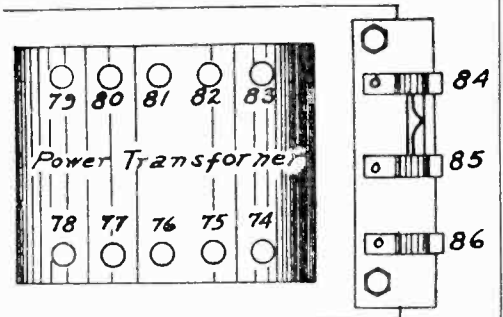
#15 to ground
1.5 to 2.5 volts

8. 245 Bias.

#48 to ground
Normal—50 volts
Low— 40 volts
High— 55 volts

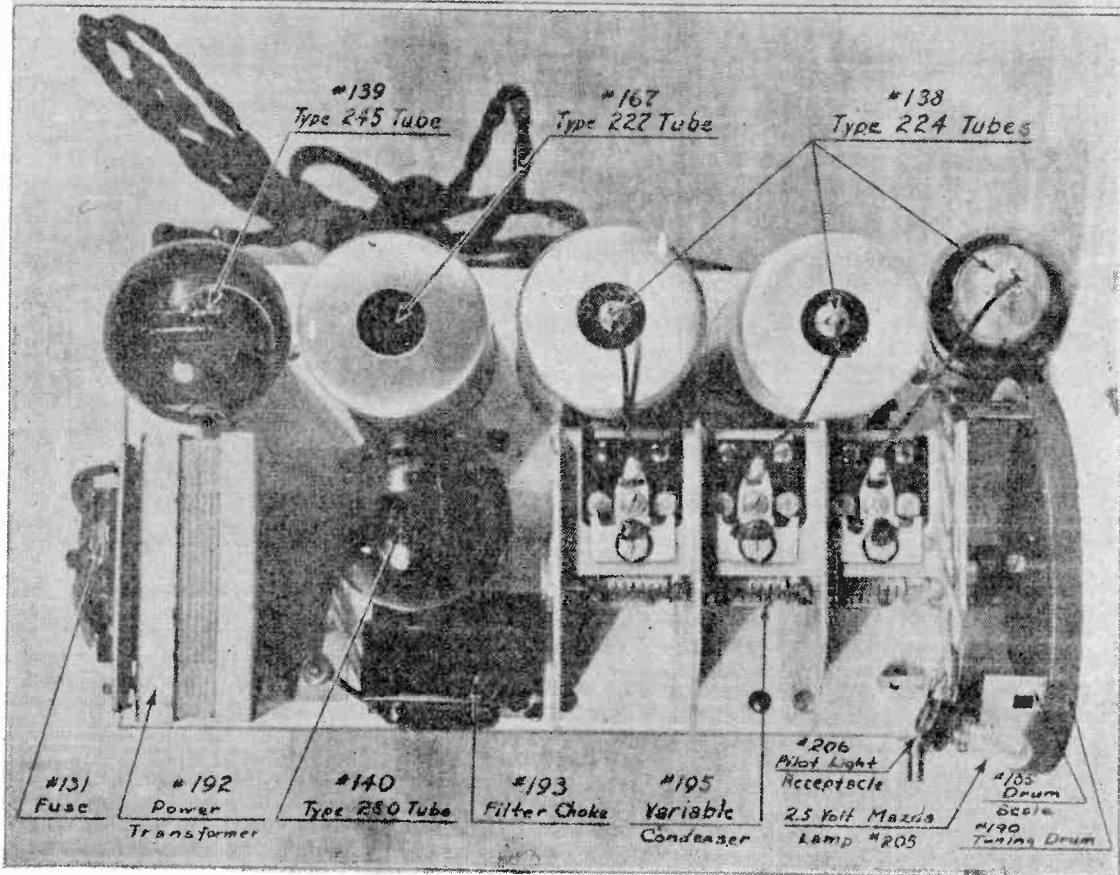
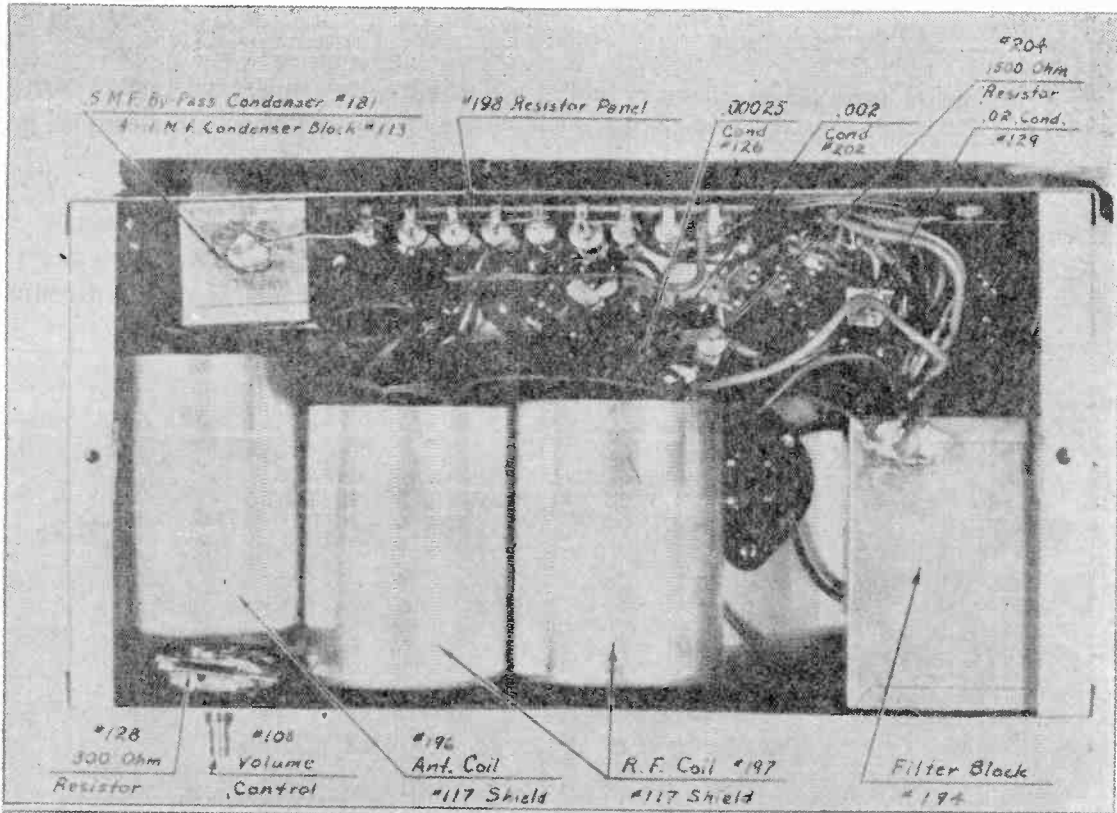


Resistor Panel



MODEL S-4
Chassis

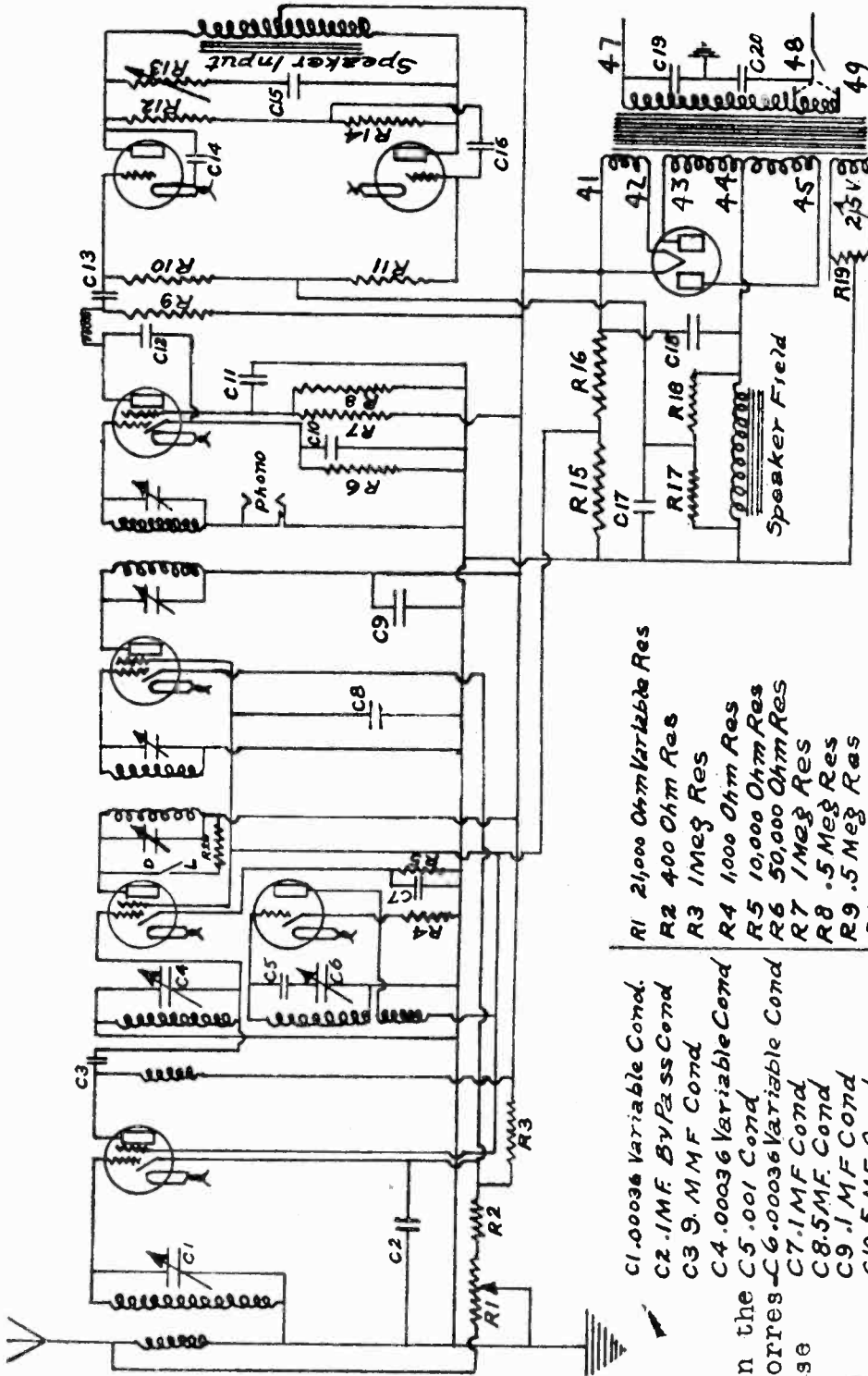
ECHOPHONE RADIO MFG. CO.



ECHOPHONE Model S-4

MODEL S-5 (Rev.)
Schematic

ECHOPHONE RADIO MFG. CO.



Echophone Superheterodyne

Model S-5

CIRCUIT DIAGRAM

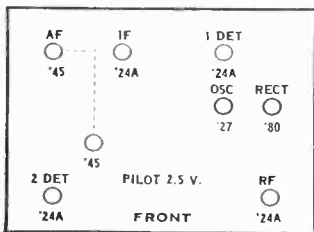
- R1 2,000 Ohm Variable Res
- R2 400 Ohm Res
- R3 1Meg Res
- R4 1,000 Ohm Res
- R5 10,000 Ohm Res
- R6 50,000 Ohm Res
- R7 1Meg Res
- R8 .5Meg Res
- R9 .5Meg Res
- R10 1Meg Res
- R11 1Meg Res
- R12 .25Meg Res
- R13 15,000 Ohm Variable Res
- R14 1Meg Res
- R15 50,000 Ohm Res
- R16 20,000 Ohm Res
- R17 1Meg Res
- R18 1Meg Res
- R19 20 Ohm Center Tapped Res
- R20 5,000 Ohm Res.

- C1 .00036 Variable Cond.
- C2 .1MF Bypass Cond
- C3 9. M.F. Cond
- C4 .00036 Variable Cond
- C5 .001 Cond
- C6 .00036 Variable Cond
- C7 .1MF Cond
- C8 .5MF Cond
- C9 .1MF Cond
- C10 .5 MF Cond
- C11 .1 MF Cond
- C12 .00025 Cond
- C13 .02 MF Cond
- C14 .02 MF Cond
- C15 .1 MF Cond
- C16 .02 MF Cond
- C17 .02 MF Cond
- C18 8. MF Cond
- C19 .05 MF Cond
- C20 .05 MF Cond

The numbers on the Pwr. Trans. correspond with those shown below.

041	460
042	470
043	480
044	490
045	500
Power Transformer	

Model S-5 (1931)

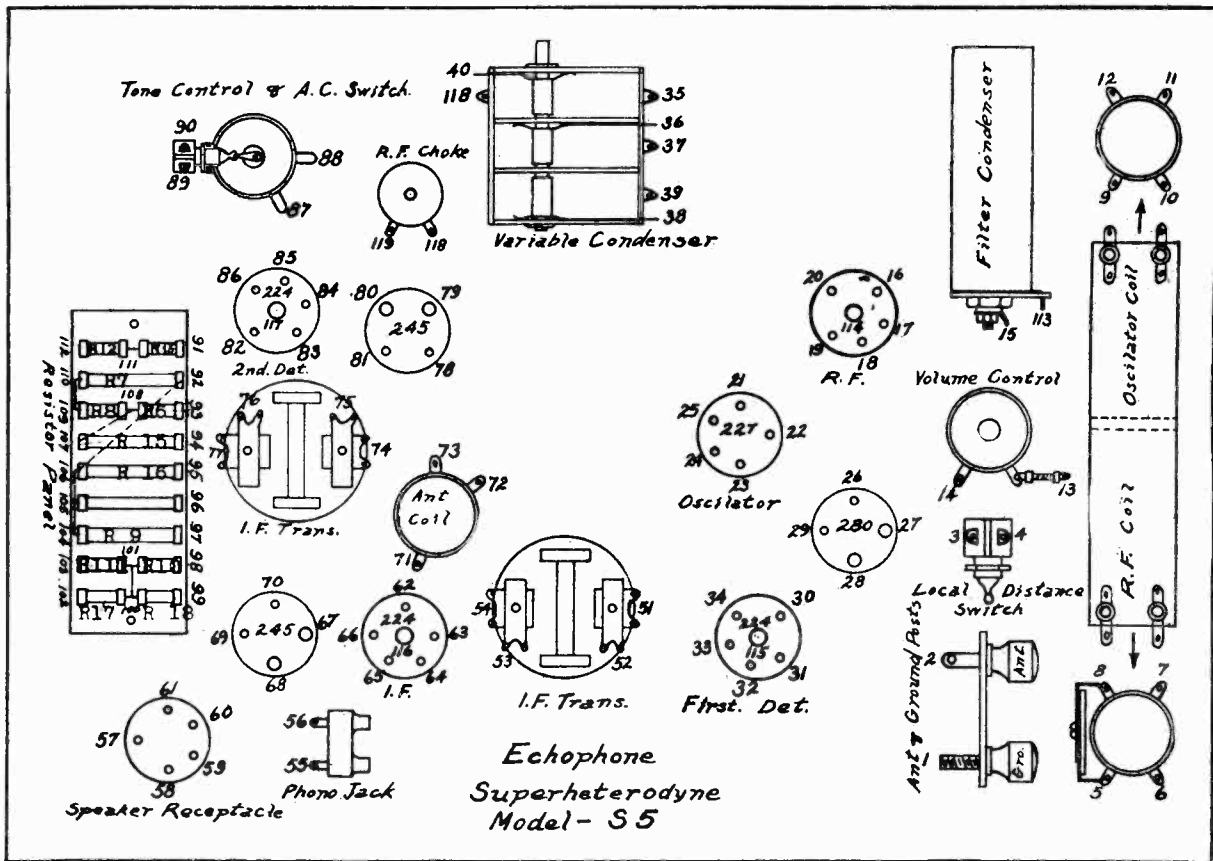


PEAK
FREQUENCY

175 KC

ECHOPHONE RADIO MFG. CO.

MODEL S-5
Voltage
Data



Echophone
Superheterodyne
Model-S5

Model S-5

VOLTAGE TESTS

Voltages given are tested on 250-volt scale of 1000 ohms, per volt meter.

All voltage tests were made with volume control on full and tone control in off position, no signal in receiver, line voltage 115 volts with A. C. line connected to terminals 47-49 on power transformer.

Speaker must be connected to receiver.

R. F. Plate #19 to ground	Low 210 volts Normal 220 volts High 230 volts	First Detector Screen #80 to ground	Low 75 volts Normal 80 volts High 90 volts
R. F. Screen #20 to ground	Low 75 volts Normal 80 volts High 90 volts	First Detector Cathode #81 to ground	5 to 7 volts
R. F. Cathode #16 to ground	1.5 to 3 volts	Second Detector Plate #83 to ground	60 to 80 volts
Oscillator Plate #21 to ground	Low 75 volts Normal 80 volts High 90 volts	Second Detector Screen #82 to ground	Low 25 volts Normal 30 volts High 35 volts
Oscillator Cathode #23 to ground	4 to 6 volts	Second Detector Cathode #86 to ground	5 to 7 volts
I. F. Plate #66 to ground	Low 210 volts Normal 220 volts High 230 volts	245 Plates #61-68 to ground	Low 210 volts Normal 220 volts High 230 volts
I. F. Screen #62 to ground	Low 75 volts Normal 80 volts High 90 volts	245 Bias #101 to ground	Neg. 20 to 40 volts
I. F. Cathode #63 to ground	1.5 to 3 volts	Speaker Field Voltage Drop #60-59	Low 90 volts Normal 100 volts High 110 volts
First Detector Plate #84 to ground	Low 210 volts Normal 220 volts High 230 volts	280 Filament #27-28	4.5 to 5.2 volts
		Filaments for All 2.5 Volt Tubes #67-68	2.2 to 2.5 volts

THOMAS A. EDISON, INC.

MODEL C-1
CHASSIS SC
Schematic

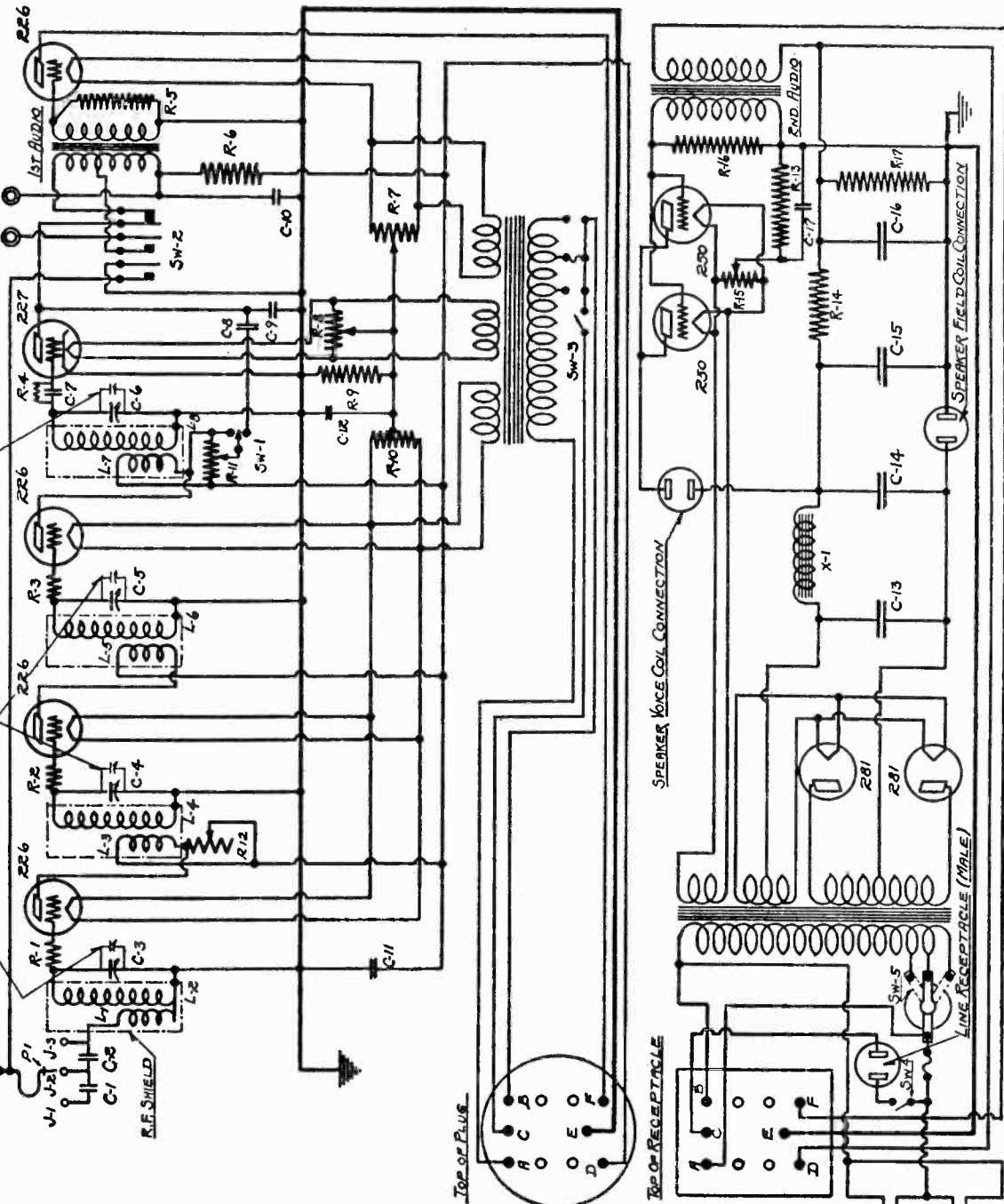
- SW-2 PHONO-RADIO SWITCH
- SW-3 ON-OFF SWITCH
- SW-4 SAFETY SWITCH
- SW-5 LINE VOLTAGE CONTROL
- X1 FILTER CHOKE 250 OHM
- R17 50,000 OHM LOSS CURRENT RES.

- C-13 FILTER CONDENSER 2.5 MFD.
- C-14 FILTER CONDENSER 2.5 MFD.
- C-15 FILTER CONDENSER 2.5 MFD.
- C-16 226 RF BY-PASS CONDENSER 40 MFD.
- C-17 250 BIAS BY-PASS CONDENSER 40 MFD.
- J1-J2-J3 ANTENNA JACKS
- SW-1 REGENERATION SWITCH

- C-3 C-4 C-5 C-6 VARIABLE TUNING CONDENSER 00035
- C-7 GRID CONDENSER .00035
- C-8 REGENERATION CONDENSER .00035
- C-9 DETECTOR PLATE R.F. BY-PASS .00035
- C-10 DETECTOR PLATE R.F. BY-PASS .00035
- C-11 226 PLATE BY-PASS 1.5 MFD. D
- C-12 226 PLATE BY-PASS 1.5 MFD. D

- R12 VOLUME CONTROL 2000 OHM
- R14 226 PLATE RESISTOR 18,500 OHM
- R15 250 BIAS RESISTOR 750 OHM
- R16 250 HUM RESISTOR 50 OHM
- R17 250 HUM RESISTOR 50 OHM
- R18 250 HUM RESISTOR 50 OHM
- R19 250 HUM RESISTOR 50 OHM
- R20 250 HUM RESISTOR 50 OHM
- R21 250 HUM RESISTOR 50 OHM
- R22 250 HUM RESISTOR 50 OHM
- R23 250 HUM RESISTOR 50 OHM
- R24 250 HUM RESISTOR 50 OHM
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- R28 250 HUM RESISTOR 50 OHM
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- R31 250 HUM RESISTOR 50 OHM
- R32 250 HUM RESISTOR 50 OHM
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- R80 250 HUM RESISTOR 50 OHM
- R81 250 HUM RESISTOR 50 OHM
- R82 250 HUM RESISTOR 50 OHM
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- R96 250 HUM RESISTOR 50 OHM
- R97 250 HUM RESISTOR 50 OHM
- R98 250 HUM RESISTOR 50 OHM
- R99 250 HUM RESISTOR 50 OHM
- R100 250 HUM RESISTOR 50 OHM

- R12 VOLUME CONTROL 2000 OHM
- R14 226 PLATE RESISTOR 18,500 OHM
- R15 250 BIAS RESISTOR 750 OHM
- R16 250 HUM RESISTOR 50 OHM
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- R94 250 HUM RESISTOR 50 OHM
- R95 250 HUM RESISTOR 50 OHM
- R96 250 HUM RESISTOR 50 OHM
- R97 250 HUM RESISTOR 50 OHM
- R98 250 HUM RESISTOR 50 OHM
- R99 250 HUM RESISTOR 50 OHM
- R100 250 HUM RESISTOR 50 OHM



EDISON, Inc.—Phonograph Combination C-1
Line Voltage 102—Set on 102.5 Volt Tap
Volume Control Position Max

TYPE	TUBE	FIRST A.F.	TYPICAL		TYPICAL		TYPICAL		TYPICAL		TYPICAL	
			VOLTS	WATTS	VOLTS	WATTS	VOLTS	WATTS	VOLTS	WATTS	VOLTS	WATTS
1	226	1 R.F.	1.45	180	9.5	3.5	10	6.5				
2	226	2 R.F.	1.45	180	9.5	3.5	10	6.5				
3	226	3 R.F.	1.45	180	9.5	3.5	10	6.5				
4	226	1 A.F.	1.4	110	9	3	10	7				
5	250	2 A.F.	7.25	405	70	95	130	33				
6	250	1 Rect.	7.2	405	70	95	130	33				
7	250	1 Rect.	7.2	405	70	95	130	33				

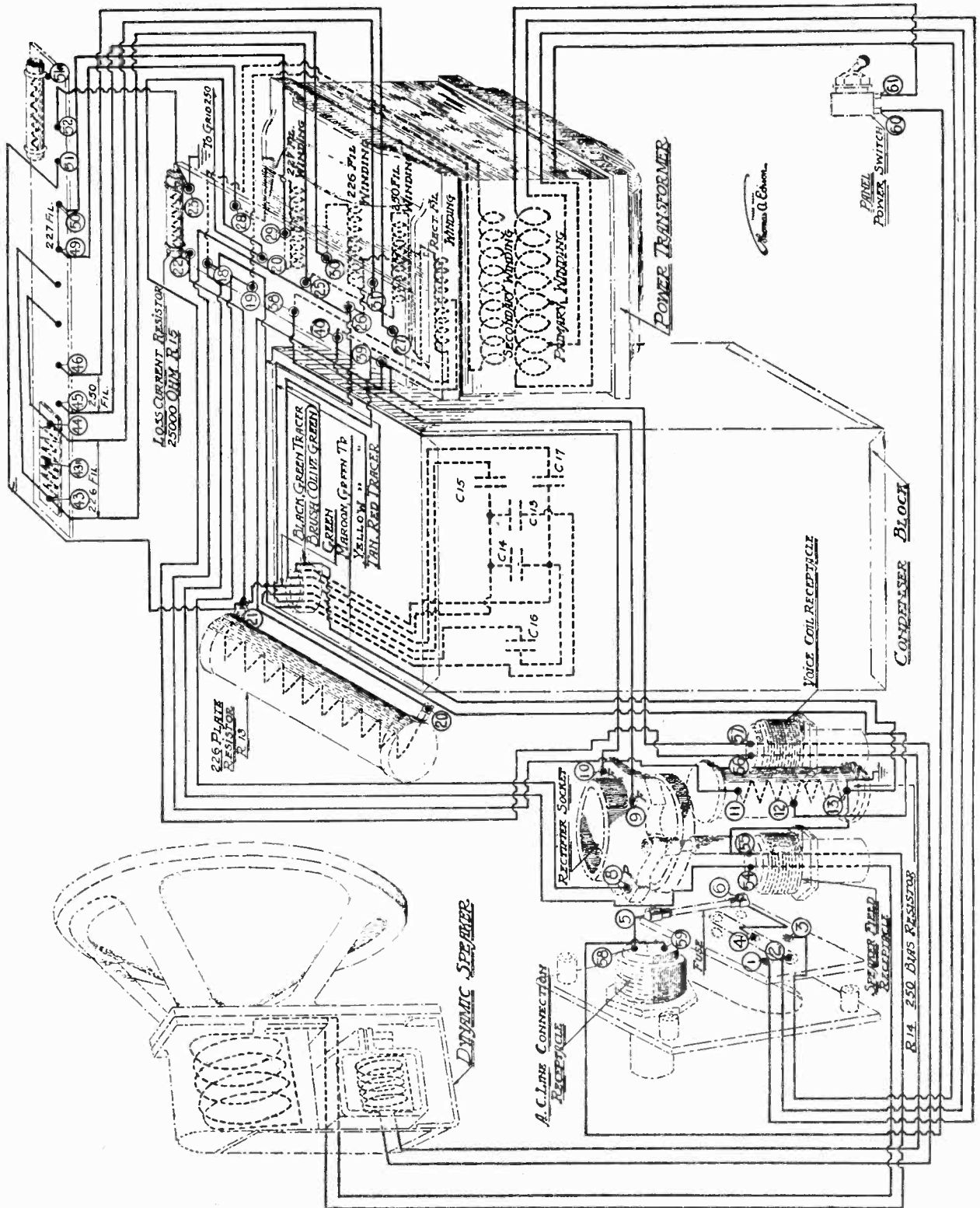
EDISON RADIO MODEL C-1
CHASSIS SC.

Also
C-1 Model Splitdorf M-6 (A.C.)

CX-326 1st A.F.	CX-326 2nd R.F.	CX-350 2nd A.F.
C-127 Det.	CX-326 3rd R.F.	CX-381 Rect.
		CX-381 Rect.

THOMAS A. EDISON, INC.

MODELS R1, R2, C2
CHASSIS Jr and Jc
Power Unit Assembly

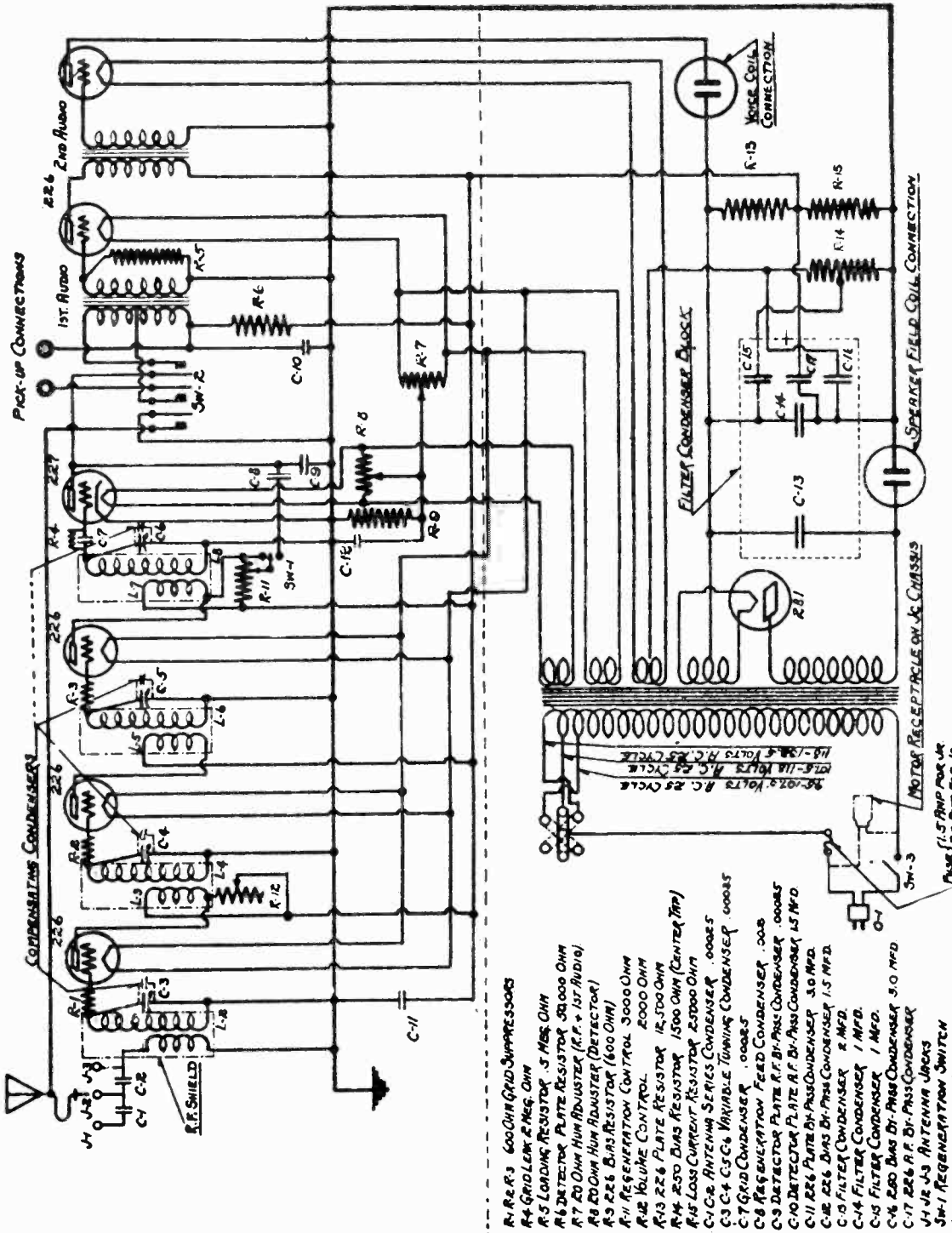


DIAGRAMMATIC VIEW OF POWER
UNIT, DYNAMIC SPEAKER
CONNECTED.

MODELS R1, R2 AND C2
CHASSIS JR AND JC
25 CYCLE

MODELS R1, R2, C2
CHASSIS Jr and Jc
Schematic Voltage

THOMAS A. EDISON, INC.



EDISON R1, R2 and C2
Chassis Jr and Jc (25 cycle)

- R1, R2, R3 600 OHM GRID SUPPRESSORS
- R4 GRID LEAK 2 MEG. OHM
- R5 LOADING RESISTOR .5 MEG. OHM
- R6 DETECTOR PLATE RESISTOR 30,000 OHM
- R7 20 OHM HUM RESISTOR (R.F. + 1st Audio)
- R8 20 OHM HUM RESISTOR (DETECTOR)
- R9 225 OHM BIAS RESISTOR (600 OHM)
- R10 REGENERATION CONTROL 3000 OHM
- R11 VOLUME CONTROL 2000 OHM
- R12 250 OHM BIAS RESISTOR 12,500 OHM
- R13 250 OHM BIAS RESISTOR 1500 OHM (CENTER TAP)
- R14 LOSS CURRENT RESISTOR 2000 OHM
- C1 C2 ANTENNA SERIES CONDENSER .0005
- C3 C4 C5 C6 VARIABLE TUNING CONDENSER .0005
- C7 GRID CONDENSER .0005
- C8 REGULATION FEED CONDENSER .005
- C9 DETECTOR PLATE R.F. BY-PASS CONDENSER .0005
- C10 DETECTOR PLATE A.F. BY-PASS CONDENSER 15 MFD
- C11 225 OHM BIAS BY-PASS CONDENSER .30 MFD
- C12 225 OHM BIAS BY-PASS CONDENSER 1.5 MFD
- C13 FILTER CONDENSER 2 MFD
- C14 FILTER CONDENSER 1 MFD
- C15 FILTER CONDENSER 1 MFD
- C16 250 OHM BIAS BY-PASS CONDENSER 3.0 MFD
- C17 225 OHM BIAS BY-PASS CONDENSER 3.0 MFD
- SW-1 REGENERATION SWITCH
- SW-2 PHONO-AUDIO SWITCH
- SW-3 ON-OFF SWITCH
- Q1 LINE RECEPTACLE (MALE)

R-1, R-2, C-2

CX-350	2nd A.F.	CX-326	1st R.F.	CX-381	Rect.
CX-326	1st A.F.	CX-336	2nd R.F.		
C-327	Det.	CX-336	3rd R.F.		

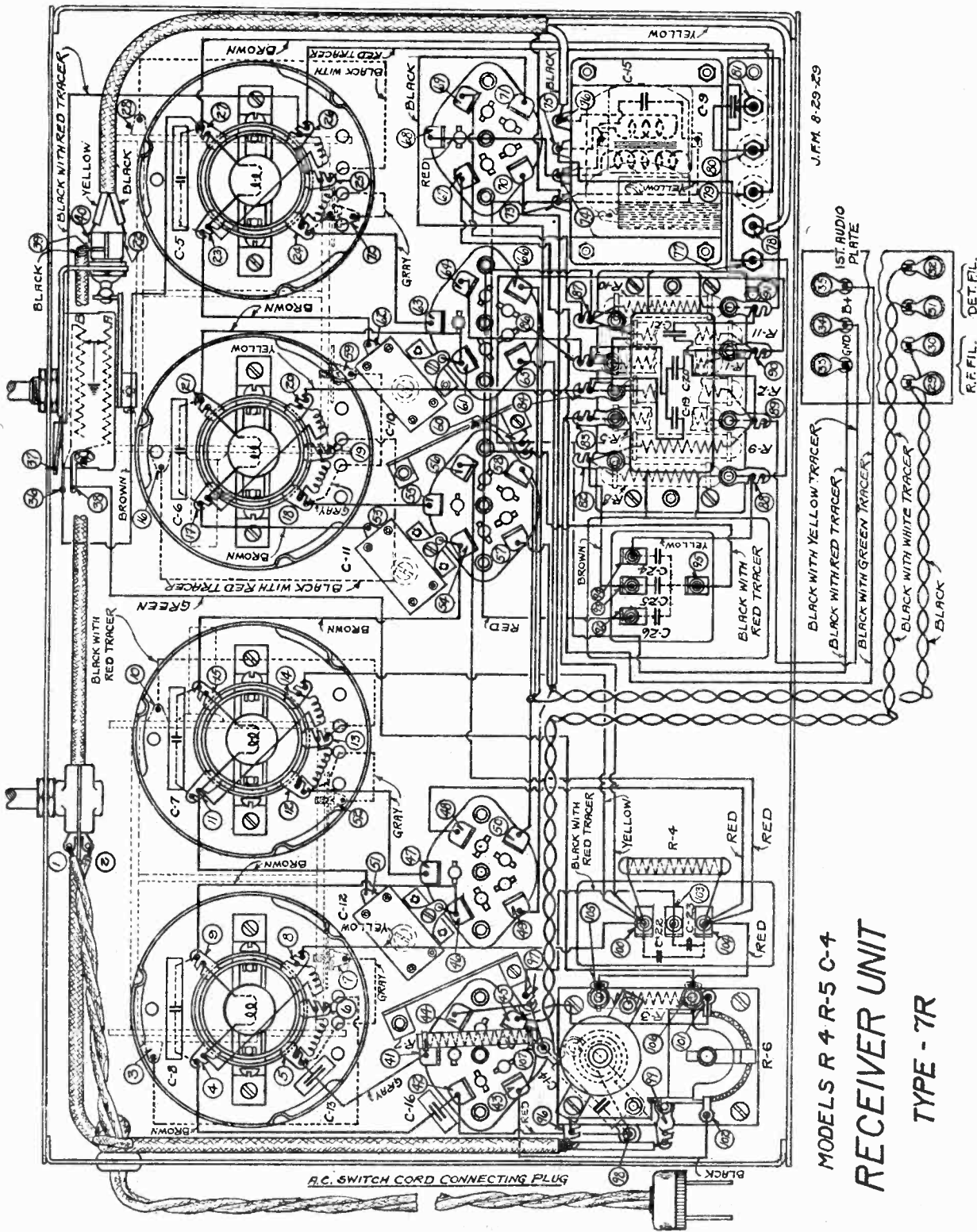
(A.C.)

EDISON, Inc.—Models R-1, R-2 and Edison Radio
Phonograph Combination C-2
Line Voltage 102—Set on 102.5
Volume Control Position Max

TUBE NO.	TYPE OF TUBE	POSITION OF TUBE IN SET OR ETC.	TUNE OUT				TUNE IN TESTER				PLATE VOLTS	PLATE CURRENT MA.	SERIES RESISTOR OHMS
			A VOLTS	B VOLTS	C VOLTS	D VOLTS	CATHODE RESISTOR VOLTS	HEATERS PLATE VOLTS	HEATERS MA.	TEST			
225	1 R.F.		1.45	1.80	9.5	3.5	10	6.5					
226	2 R.F.		1.45	1.80	9.5	3.5	10	6.5					
226	3 R.F.		1.45	1.80	9.5	3.5	10	6.5					
227	Det.		1.9	33		9.5	1.5						
228	1 A.F.		1.35	115	8.5		2.6	10	7.5				
250	2 A.F.		7.2	380	55		36	66	80				
281	Rect.		7.2				100						

MODELS R4, R5, C4
Receiver Chassis Wiring

THOMAS A. EDISON, INC.



J.F.M. 8-29-23

MODELS R 4 R-5 C-4
RECEIVER UNIT
TYPE - 7R

MODELS R4, R5, C4
Parts List

THOMAS A. EDISON, INC.

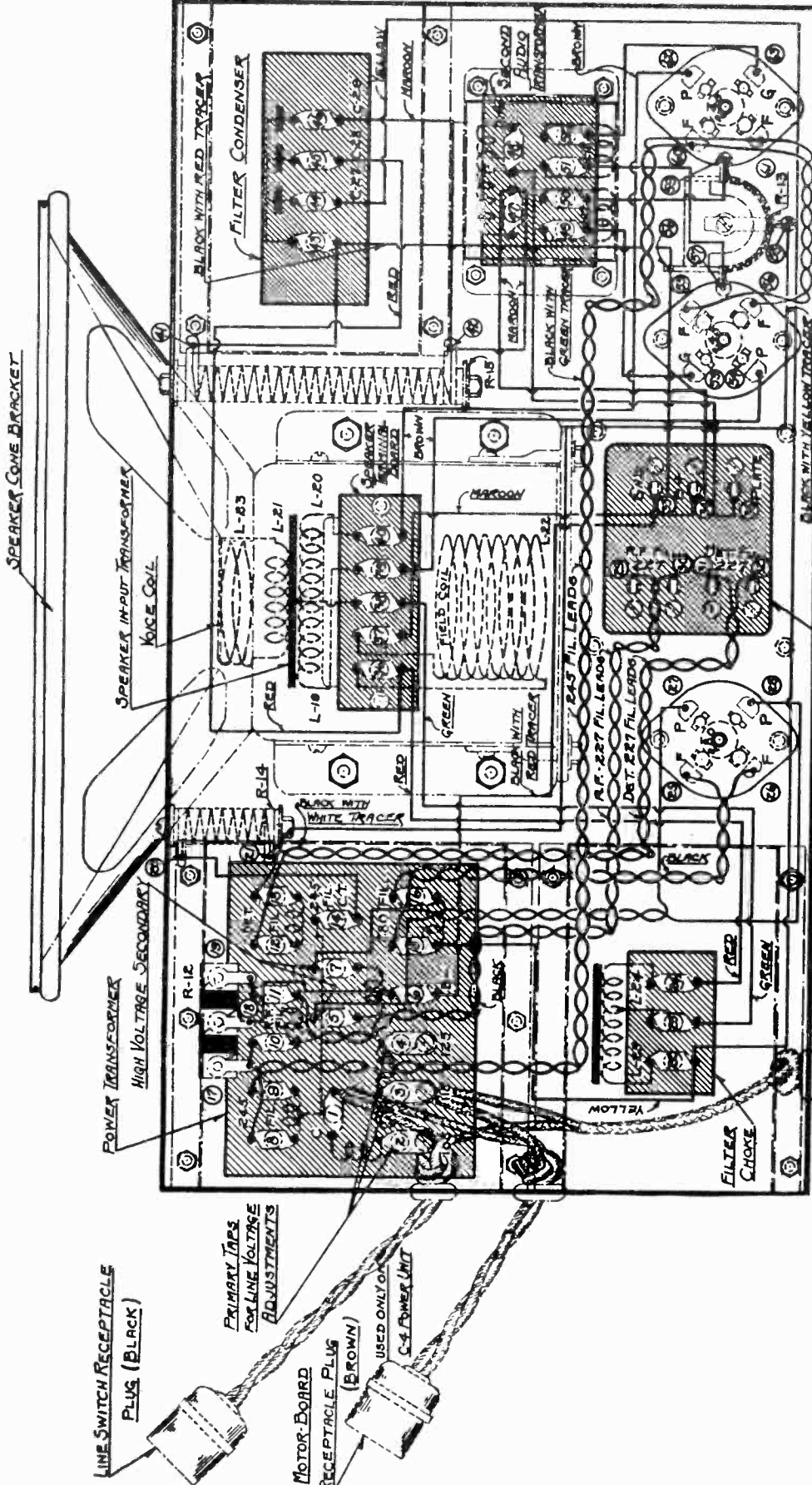
IDENTIFICATION OF PARTS (Continued)

NO.	NAME AND FUNCTION	ELECTRICAL VALUE
R-10	Hum balance resistor (1st a. f.)	6,000 ohm resistance, 1 watt.
R-11	Bias resistor, 1st a. f. stage.	2,000 ohm resistance, 1 watt.
R-12	R. f. and a. f. heater center tapped resistor.	20 ohm fixed center-tapped resistance.
R-13	Push-pull balancing resistor.	200 ohm center-tapped potentiometer.
R-14	Bias resistor, 2nd a. f. stage.	780 ohm, 5 watt resistance.
R-15	Power supply loss current resistor.	10,000 ohm, 5 watt resistance.
L-1	Long wave primary, 1st r. f. transformer.	Each a 500 microhenry coil.
L-2	Long wave primary, 2nd r. f. transformer.	
L-3	Long wave primary, 3rd r. f. transformer.	
L-4	Long wave primary, detector input transformer.	
L-5	Short wave primary, 1st r. f. transformer.	Each a 7½ turn coil.
L-6	Short wave primary, 2nd r. f. transformer.	
L-7	Short wave primary, 3rd r. f. transformer.	Each a 245 microhenry coil, (measured in shld).
L-8	Short wave primary, detector input transformer.	
L-9	Secondary, 1st r. f. transformer.	
L-10	Secondary, 2nd r. f. transformer.	
L-11	Secondary, 3rd r. f. transformer.	50 to 65 millihenry choke.
L-12	Secondary, detector input transformer.	
L-13	Detector plate r. f. choke.	4:1 ratio a. f. transformer.
L-14	Primary, 1st a. f. transformer.	
L-15	Secondary, 1st a. f. transformer.	5:1 ratio a. f. transformer with separate secondary connected in series by variable resistances R-13.
L-16	Primary, 2nd a. f. transformer.	
L-17	Secondary, 2nd a. f. transformer.	Speaker input transformer, mounted in speaker frame, utilizing center tapped primary.
L-18	Secondary, and a. f. transformer.	
L-19	Half primary, speaker input transformer.	4,500 ohm field coil.
L-20	Half primary, speaker input transformer.	
L-21	Secondary, speaker input transformer.	20 henry, 375 ohm choke.
L-22	Field coil, dynamic speaker.	
L-23	Voice coil, dynamic speaker.	Power transformer.
L-24	Inside third of filter choke.	
L-25	Outside two-thirds of filter choke.	Power transformer.
L-26	Detector heater secondary winding.	
L-27	R. f. and a. f. heater secondary winding	
L-28	and a. f. fil. secondary winding.	
L-29	Rectifier fil. secondary winding.	
L-30	Half high voltage secondary winding.	
L-31	Half high voltage secondary winding.	
L-32	Low line voltage primary winding.	
L-33	Additional section of primary winding for medium voltage.	
L-34	Additional section of primary winding for high line voltage.	
S-1	Radio-phonos. switch.	S. P. D. T. toggle switch, operated by volume control shaft.
S-2	Line switch.	S. P. S. T. toggle switch.
	Light-O-Matic Switch.	Located in dial mechanism, operating Light-O-Matic pilot light.
	Motor Receptacle (Brown).	This plug provides 110 volts A. C. for operation of phonograph motor in radio phonograph combination model.
	Volume Control	{ A—Wire wound, 5,000 ohms. B—Graphite, 10,000 ohms.

IDENTIFICATION OF PARTS
TO ACCOMPANY PLATE No. 1-A
"LIGHT-O-MATIC" MODELS R-4, R-5 and C-4

NO.	NAME AND FUNCTION	ELECTRICAL VALUE
C-1	Tuning condenser, 1st r. f. stage.	{ 2-gang variable condenser, maximum capacity, each section 355 mmfd.
C-2	Tuning condenser, 2nd r. f. stage.	
C-3	Tuning condenser, 3rd r. f. stage.	{ 2-gang variable condenser, maximum capacity, each section 355 mmfd.
C-4	Tuning condenser, detector stage.	
C-5	Each a fixed condenser tuning the long wave primary circuit of the associated transformer to approximately 450 kilocycles.	{ Each a .00095 mfd. fixed moulded mica condenser.
C-6		
C-7	Long antenna series condenser.	.000125 mfd. fixed moulded mica condenser.
C-8	Neutralizing condensers, 1st, 2nd and 3rd r. f. stages, respectively.	{ Each an adjustable condenser, 40 to 80 mmfd.
C-9		
C-10	Detector grid condenser.	.0001 mfd. fixed moulded mica condenser.
C-11	Detector plate condenser.	.001 mfd. fixed moulded mica condenser.
C-12	High frequency cut-off condenser.	.00045 mfd. fixed moulded mica condenser.
C-13	Detector Neutralizing Condenser	.000125 Mfd. fixed condenser.
C-14	Plate by-pass condenser, 1st r. f. stage.	{ 1 mid. 300v. paper condenser. 1 mid. 300v. paper condenser. .16 mfd. 300v. paper condenser. (C-19, 20 and 21 in same can.)
C-15	Bias by-pass condenser, 1st r. f. stage.	
C-16	Hum balance condenser (1st a. f.)	{ 1 mid. 300v. paper condenser. 1 mid. 150v. paper condenser. (C-22 and 23 in same can.)
C-17	Plate by-pass condenser, 2nd and 3rd r. f.	
C-18	Bias by-pass condenser, 2nd and 3rd r. f.	{ 1 mid. 300v. paper condenser. .5 mid. 300v. paper condenser. 1 mid. 150v. paper condenser. (C-24, 25 and 26 in same can.)
C-19	A. f. by-pass condenser, detector plate.	
C-20	Filter condenser, detector plate supply	{ 2 mid. 600v. paper condenser. 2 mid. 600v. paper condenser. 1 mid. 300v. paper condenser. (C-27, 28 and 29 in same can.)
C-21	Bias by-pass condenser, 1st a. f. stage.	
C-22	1st filter condenser.	{ Each an adjustable air and mica dielectric condenser mounted on side of variable condenser section which it shunts.
C-23	2nd filter condenser.	
C-24	3rd filter condenser.	{ 1,000 ohm resistance, 1 watt. 1,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt.
C-25	Tuning compensator, 1st r. f.	
C-26	Tuning compensator, 2nd r. f.	{ 40,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt. 20 ohm potentiometer. 1.5 megohm resistance, 1 watt. 25,000 ohm resistance, 1 watt. 25,000 ohm resistance, 1 watt.
C-27	Tuning compensator, 3rd r. f.	
C-28	Tuning compensator, detector.	{ 1,000 ohm resistance, 1 watt. 1,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt.
C-29	Bias resistor, 1st r. f. stage.	
C-30	Isolating resistor, 1st r. f.	{ 40,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt. 20 ohm potentiometer. 1.5 megohm resistance, 1 watt. 25,000 ohm resistance, 1 watt. 25,000 ohm resistance, 1 watt.
C-31	Minimum bias resistor, 2nd and 3rd r. f.	
C-32	Bleeder resistor.	{ 40,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt. 20 ohm potentiometer. 1.5 megohm resistance, 1 watt. 25,000 ohm resistance, 1 watt. 25,000 ohm resistance, 1 watt.
C-33	Isolating resistor, 2nd and 3rd r. f.	
C-34	Detector heater hum adjuster.	{ 1,000 ohm resistance, 1 watt. 1,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt.
C-35	Detector grid leak	
C-36	2nd section detector filter resistor.	{ 40,000 ohm resistance, 1 watt. 400 ohm resistance, 1 watt. 20 ohm potentiometer. 1.5 megohm resistance, 1 watt. 25,000 ohm resistance, 1 watt. 25,000 ohm resistance, 1 watt.
C-37	1st section detector filter resistor.	

THOMAS A. EDISON, INC. MODELS R4, R5, C4
 Power Unit Chassis Wiring



COLOR CHART (CABLE LEADS)
 T-3-28 J1M

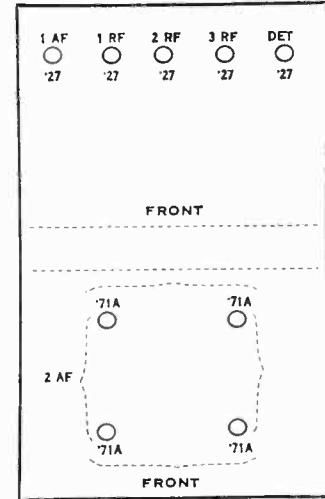
DESCRIPTION	COLOR
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DET. 211 FIL.	BLACK W/WHITE TRACER
DET. 212 FIL.	BLACK W/WHITE TRACER
DET. 213 FIL.	BLACK W/WHITE TRACER
DET. 214 FIL.	BLACK W/WHITE TRACER
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DET. 272 FIL.	BLACK W/WHITE TRACER
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DET. 295 FIL.	BLACK W/WHITE TRACER
DET. 296 FIL.	BLACK W/WHITE TRACER
DET. 297 FIL.	BLACK W/WHITE TRACER
DET. 298 FIL.	BLACK W/WHITE TRACER
DET. 299 FIL.	BLACK W/WHITE TRACER
DET. 300 FIL.	BLACK W/WHITE TRACER

MODELS R-4 R-5 C-4
 POWER UNIT
 TYPE - 8P

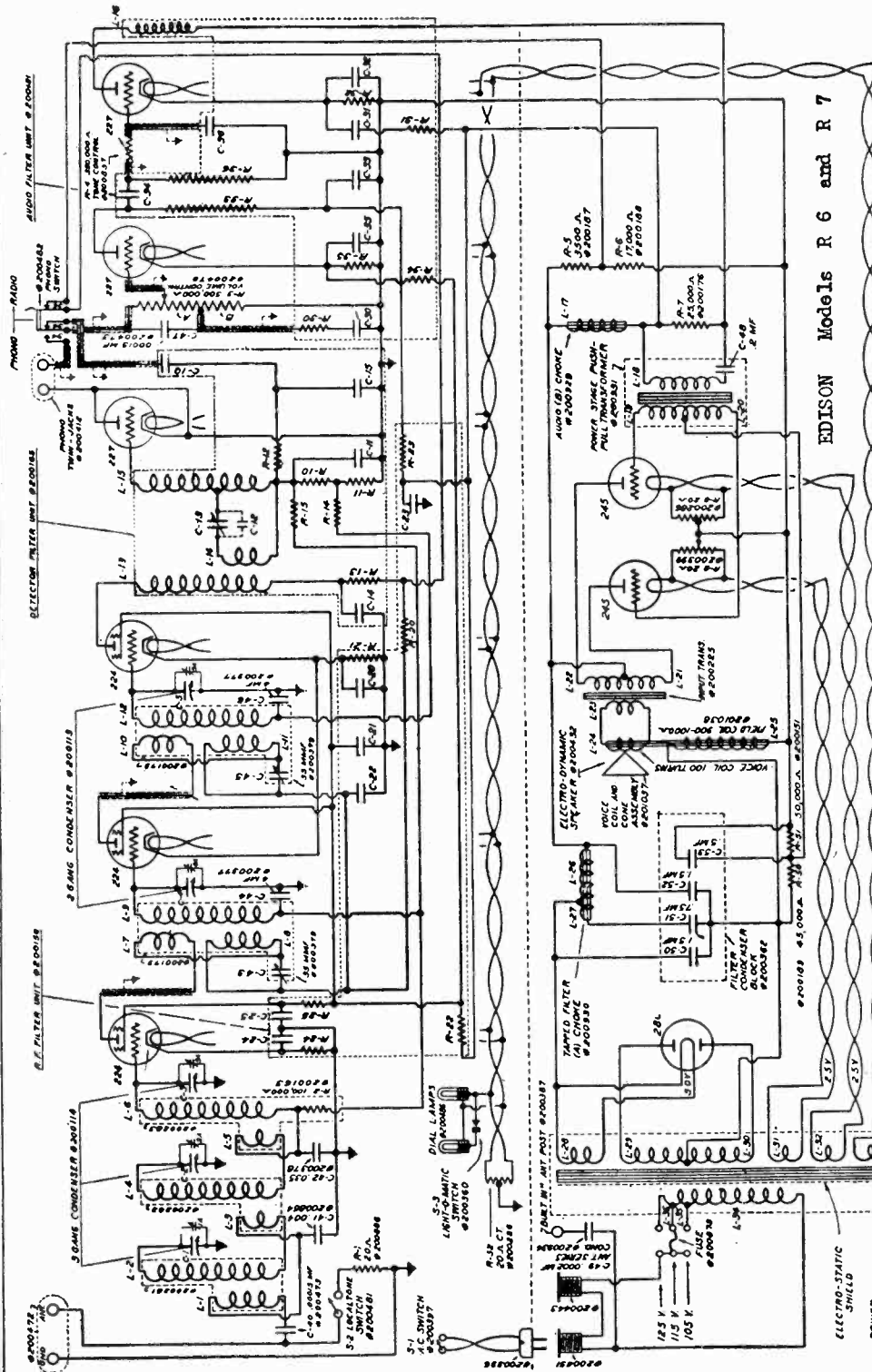
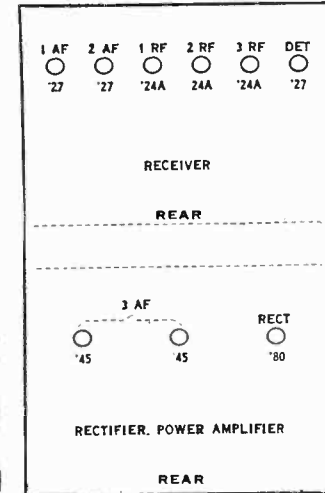
MODELS R6, R7
Schematic

THOMAS A. EDISON, INC.

Models Edisons R4, R5 (DC)



Models Edisons R6, R7

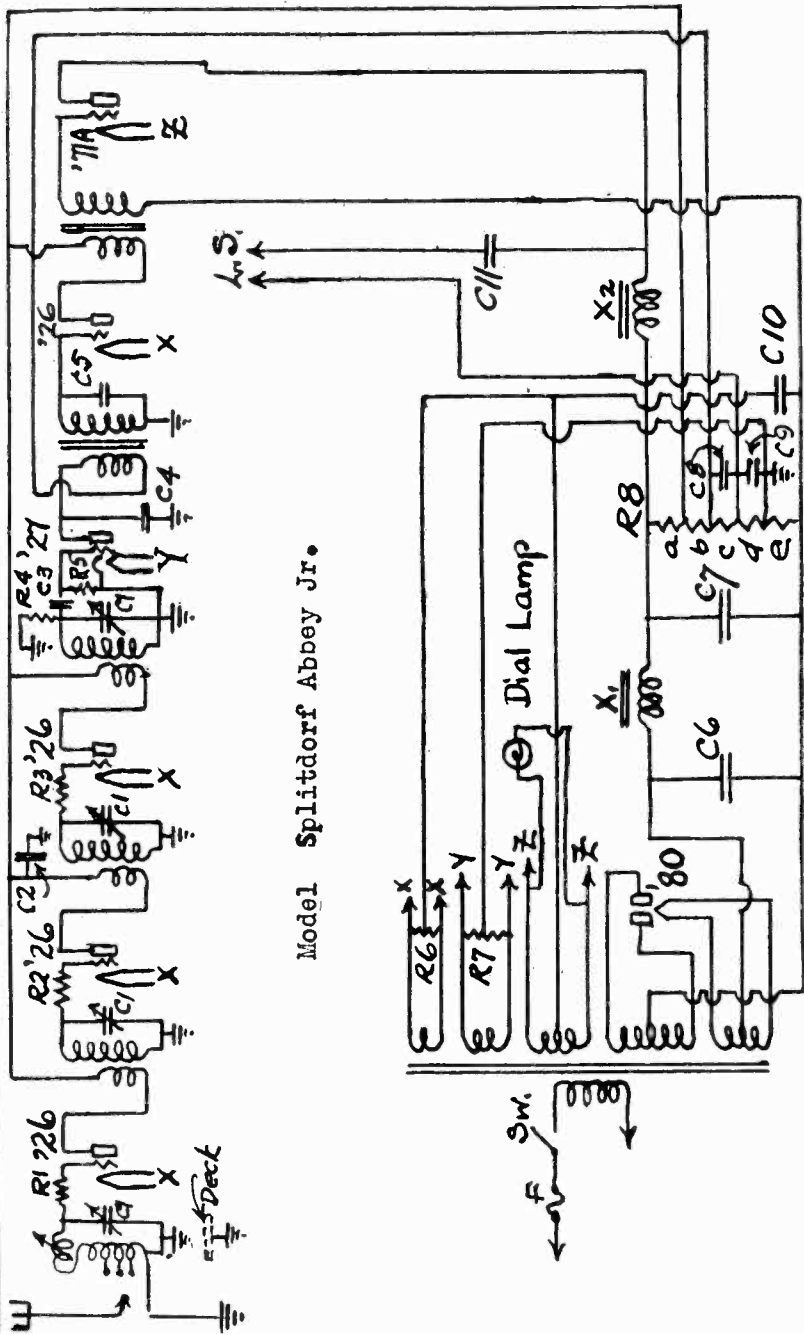


OPERATING VALUES

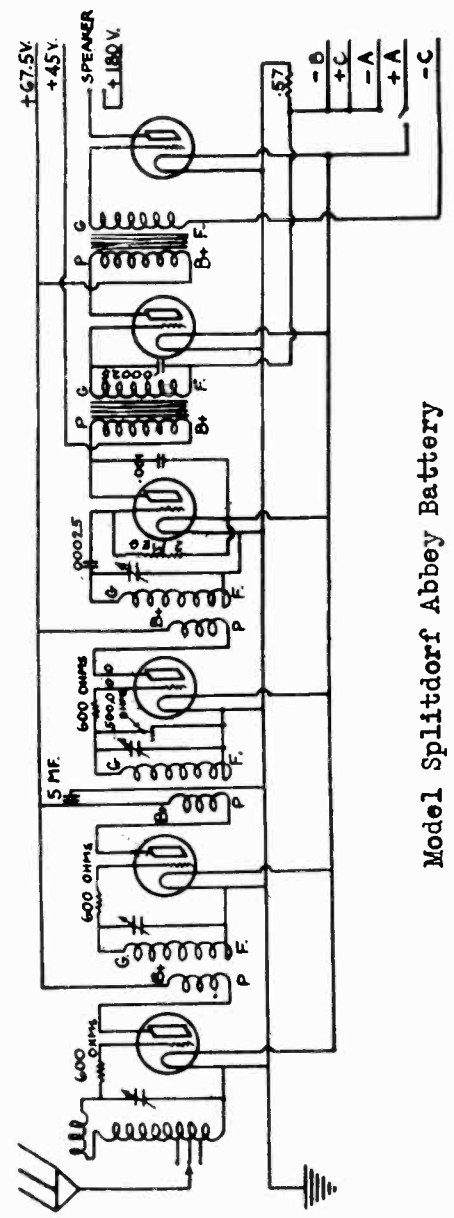
TYPE	NO.	VALUE	RESISTANCE	CAPACITANCE	INDUCTANCE	TRANSFORMER	WATTAGE	OTHER
RESISTOR	R-1	500K	500,000					
RESISTOR	R-2	100K	100,000					
RESISTOR	R-3	50K	50,000					
RESISTOR	R-4	25K	25,000					
RESISTOR	R-5	10K	10,000					
RESISTOR	R-6	5K	5,000					
RESISTOR	R-7	2.5K	2,500					
RESISTOR	R-8	1.25K	1,250					
RESISTOR	R-9	625	625					
RESISTOR	R-10	312.5	312.5					
RESISTOR	R-11	156.25	156.25					
RESISTOR	R-12	78.125	78.125					
RESISTOR	R-13	39.0625	39.0625					
RESISTOR	R-14	19.53125	19.53125					
RESISTOR	R-15	9.765625	9.765625					
RESISTOR	R-16	4.8828125	4.8828125					
RESISTOR	R-17	2.44140625	2.44140625					
RESISTOR	R-18	1.220703125	1.220703125					
RESISTOR	R-19	0.6103515625	0.6103515625					
RESISTOR	R-20	0.30517578125	0.30517578125					
RESISTOR	R-21	0.152587890625	0.152587890625					
RESISTOR	R-22	0.0762939453125	0.0762939453125					
RESISTOR	R-23	0.03814697265625	0.03814697265625					
RESISTOR	R-24	0.019073486328125	0.019073486328125					
RESISTOR	R-25	0.0095367431640625	0.0095367431640625					
RESISTOR	R-26	0.00476837158203125	0.00476837158203125					
RESISTOR	R-27	0.002384185791015625	0.002384185791015625					
CAPACITOR	C-1	500PF		0.0000005				
CAPACITOR	C-2	1000PF		0.000001				
CAPACITOR	C-3	2000PF		0.000002				
CAPACITOR	C-4	5000PF		0.000005				
CAPACITOR	C-5	10000PF		0.00001				
CAPACITOR	C-6	20000PF		0.00002				
CAPACITOR	C-7	50000PF		0.00005				
CAPACITOR	C-8	100000PF		0.0001				
CAPACITOR	C-9	200000PF		0.0002				
CAPACITOR	C-10	500000PF		0.0005				
CAPACITOR	C-11	1000000PF		0.001				
CAPACITOR	C-12	2000000PF		0.002				
CAPACITOR	C-13	5000000PF		0.005				
CAPACITOR	C-14	10000000PF		0.01				
CAPACITOR	C-15	20000000PF		0.02				
CAPACITOR	C-16	50000000PF		0.05				
CAPACITOR	C-17	100000000PF		0.1				
CAPACITOR	C-18	200000000PF		0.2				
CAPACITOR	C-19	500000000PF		0.5				
CAPACITOR	C-20	1000000000PF		1.0				
CAPACITOR	C-21	2000000000PF		2.0				
CAPACITOR	C-22	5000000000PF		5.0				
CAPACITOR	C-23	10000000000PF		10.0				
CAPACITOR	C-24	20000000000PF		20.0				
CAPACITOR	C-25	50000000000PF		50.0				
CAPACITOR	C-26	100000000000PF		100.0				
CAPACITOR	C-27	200000000000PF		200.0				
INDUCTOR	L-1	0.1MH			0.0001			
INDUCTOR	L-2	0.2MH			0.0002			
INDUCTOR	L-3	0.5MH			0.0005			
INDUCTOR	L-4	1.0MH			0.001			
INDUCTOR	L-5	2.0MH			0.002			
INDUCTOR	L-6	5.0MH			0.005			
INDUCTOR	L-7	10.0MH			0.01			
INDUCTOR	L-8	20.0MH			0.02			
INDUCTOR	L-9	50.0MH			0.05			
INDUCTOR	L-10	100.0MH			0.1			
INDUCTOR	L-11	200.0MH			0.2			
INDUCTOR	L-12	500.0MH			0.5			
INDUCTOR	L-13	1000.0MH			1.0			
INDUCTOR	L-14	2000.0MH			2.0			
INDUCTOR	L-15	5000.0MH			5.0			
INDUCTOR	L-16	10000.0MH			10.0			
INDUCTOR	L-17	20000.0MH			20.0			
INDUCTOR	L-18	50000.0MH			50.0			
INDUCTOR	L-19	100000.0MH			100.0			
TRANSFORMER	T-1	115V/250V				115/250		
TRANSFORMER	T-2	1000VA					1000	
TRANSFORMER	T-3	500VA					500	
TRANSFORMER	T-4	250VA					250	
TRANSFORMER	T-5	125VA					125	
TRANSFORMER	T-6	62.5VA					62.5	
TRANSFORMER	T-7	31.25VA					31.25	
TRANSFORMER	T-8	15.625VA					15.625	
TRANSFORMER	T-9	7.8125VA					7.8125	
TRANSFORMER	T-10	3.90625VA					3.90625	
TRANSFORMER	T-11	1.953125VA					1.953125	
TRANSFORMER	T-12	0.9765625VA					0.9765625	
TRANSFORMER	T-13	0.48828125VA					0.48828125	
TRANSFORMER	T-14	0.244140625VA					0.244140625	
TRANSFORMER	T-15	0.1220703125VA					0.1220703125	

EDISON—Models R6 and R7
Line Voltage 115—Voltage Tap 115
*Grid Volts 8-10 on Strong Signal
+Volume Control Minimum 2.5—Maximum 5

THOMAS A. EDISON, INC. MODEL Splitdorf Abbey Jr.
MODEL Splitdorf Abbey Bat
Schematic

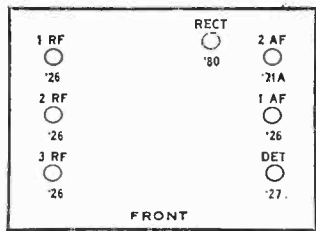


Model Splitdorf Abbey Jr.

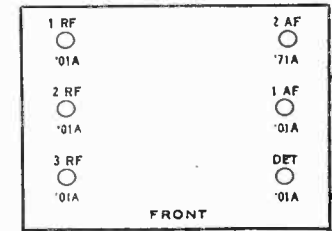


Model Splitdorf Abbey Battery

Model Splitdorf Abbey Jr.

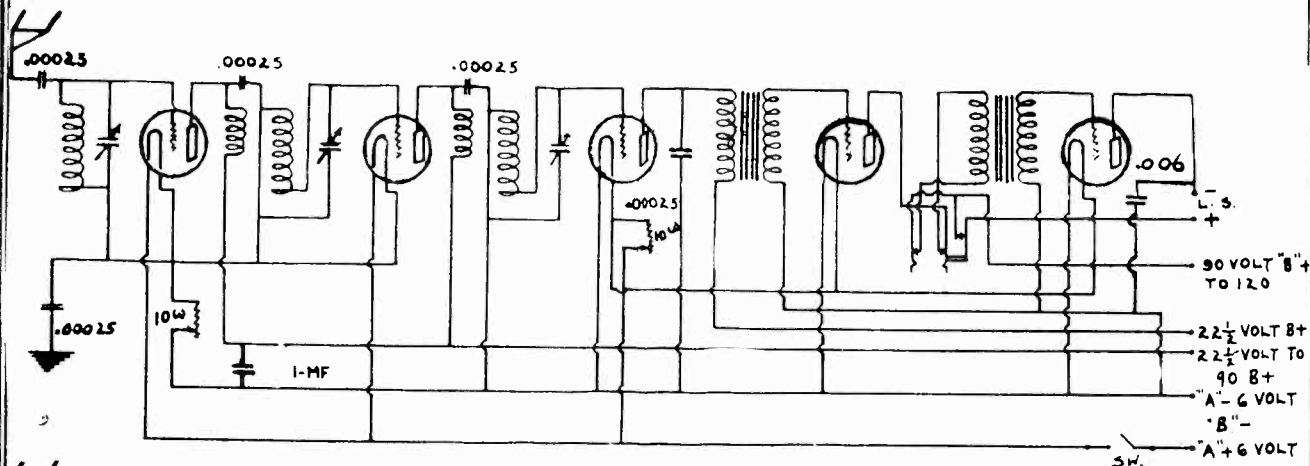


Model Splitdorf Abbey—Battery

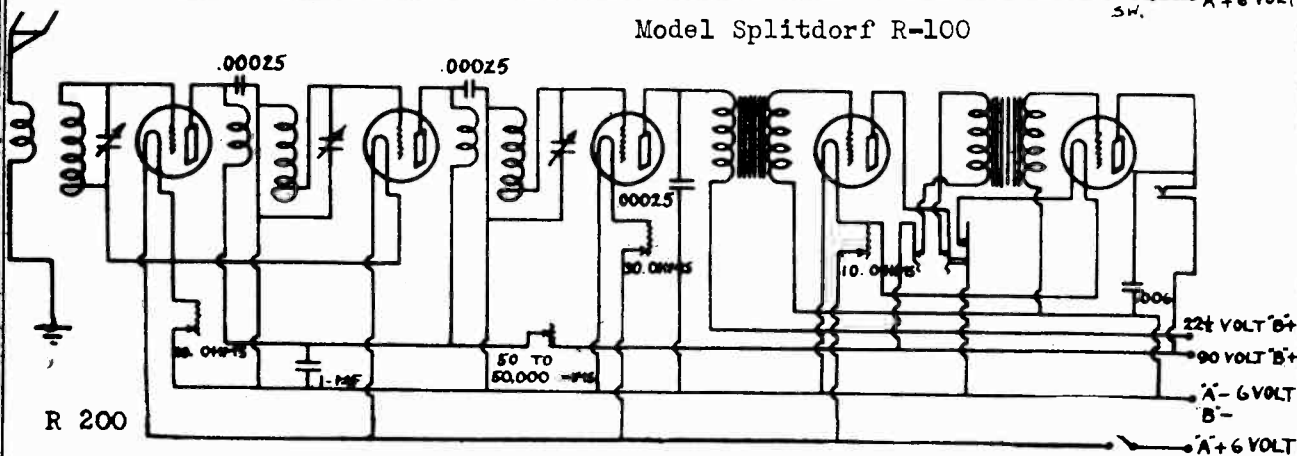


MODEL Splitdorf R-100
 MODEL Splitdorf R-200
 MODEL Splitdorf RV-695
 Schematic

THOMAS A. EDISON, INC.



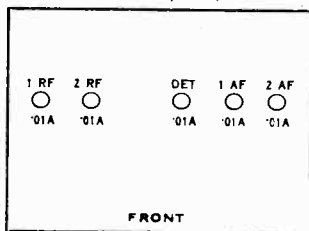
Model Splitdorf R-100



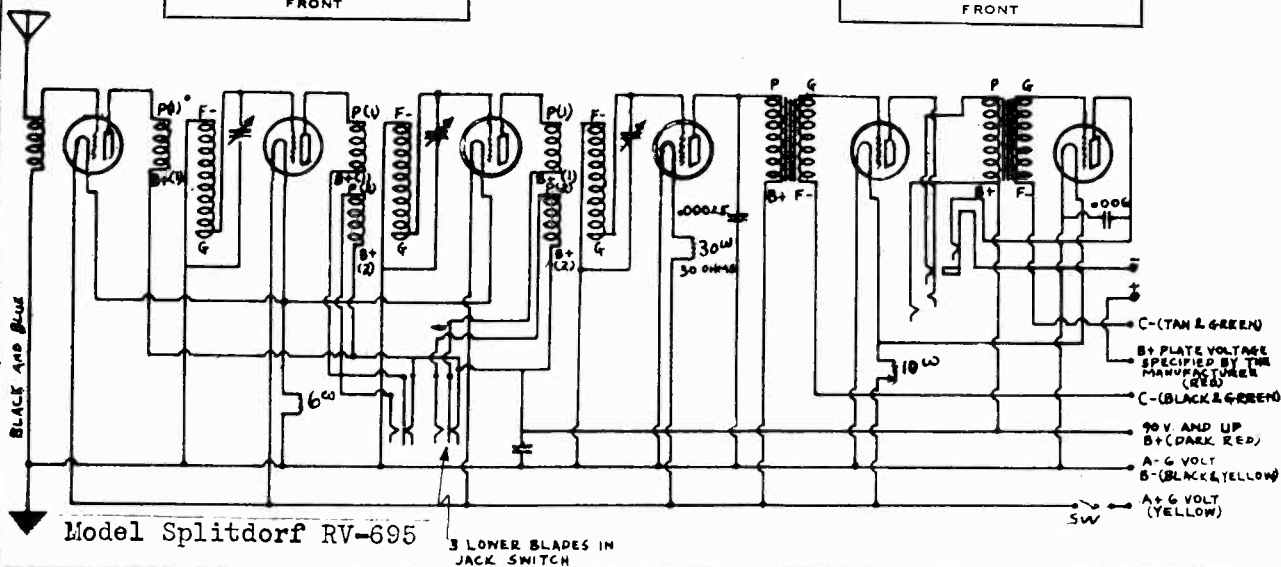
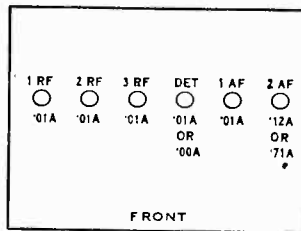
R 200

Model Splitdorf R-200

Models Splitdorfs R100, R200.



Model Splitdorf RV695

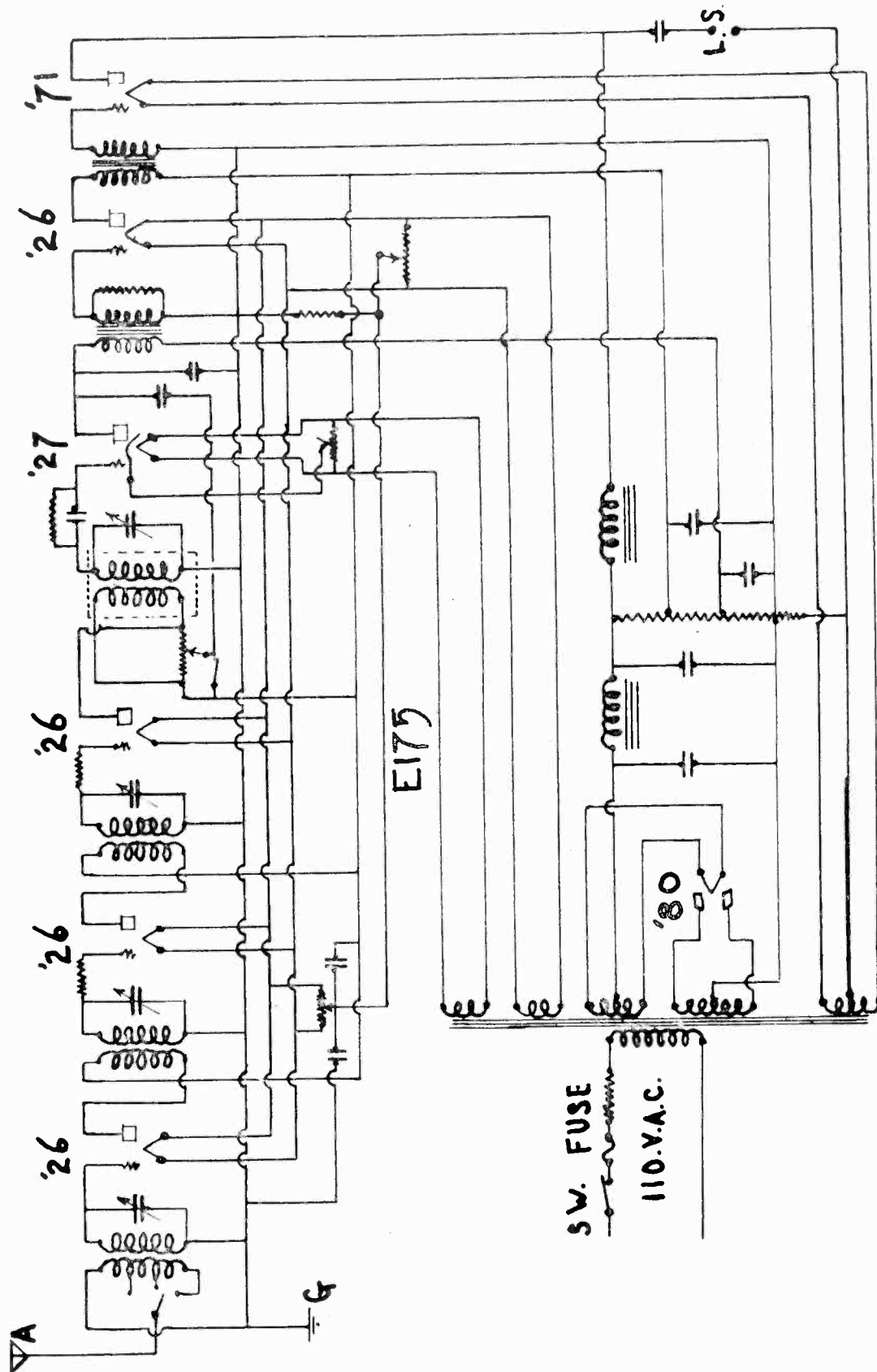


Model Splitdorf RV-695

3 LOWER BLADES IN JACK SWITCH

MODEL Splitdorf E-175
Schematic

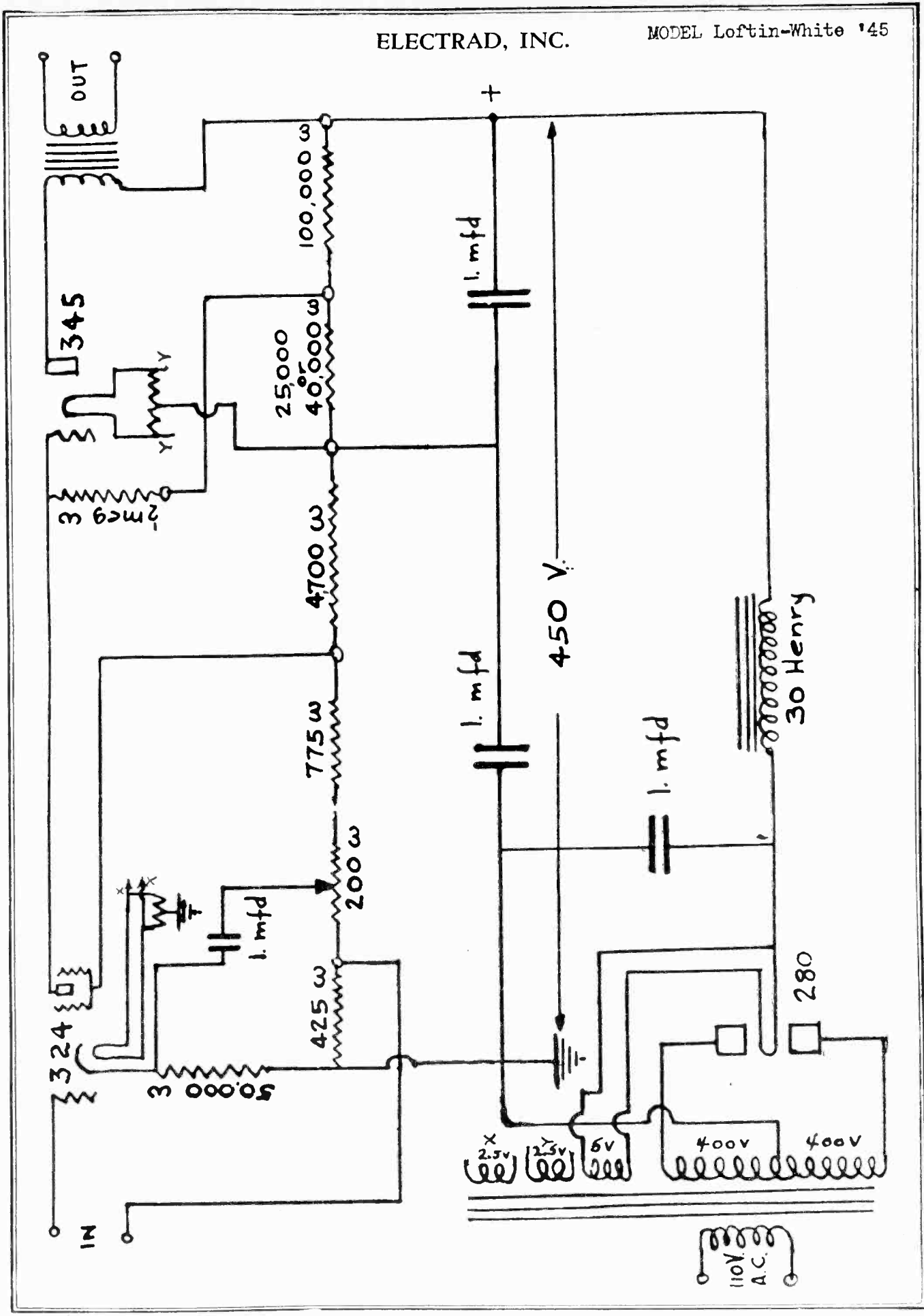
THOMAS A. EDISON, INC.



Model Splitdorf E-175

ELECTRAD, INC.

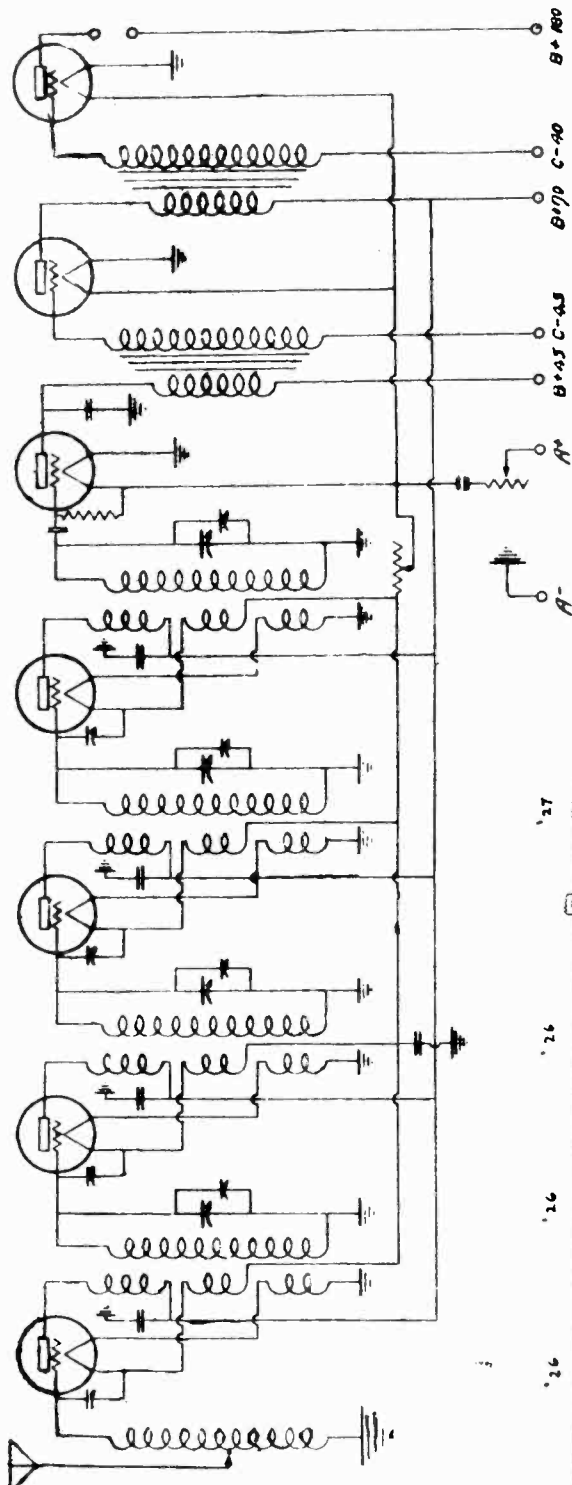
MODEL Loftin-White '45



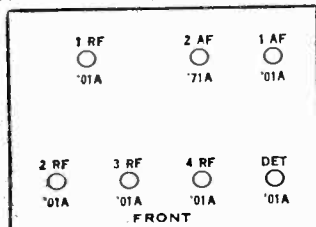
ELECTRICAL
RESEARCH LABORATORIES, Inc.

MODEL S-61
MODEL R-1
Schematic

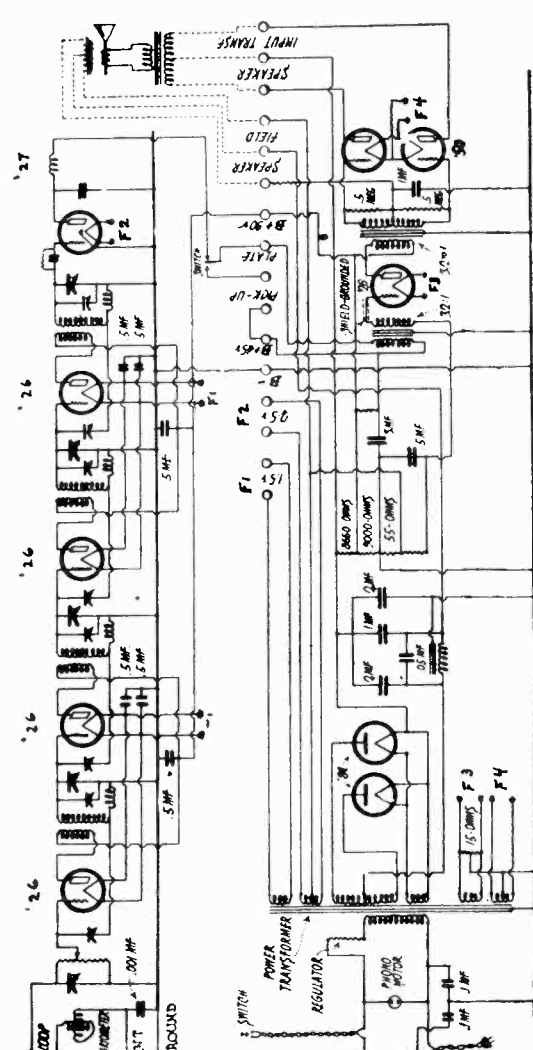
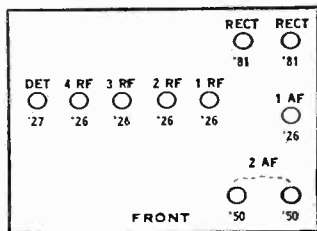
ERLA S-61 RFL SET RADIO RECEIVER
CIRCUIT



Model Erla S61 (1927)



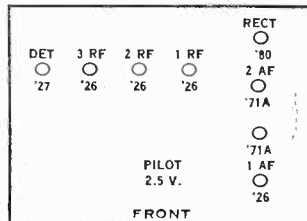
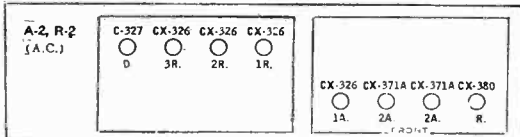
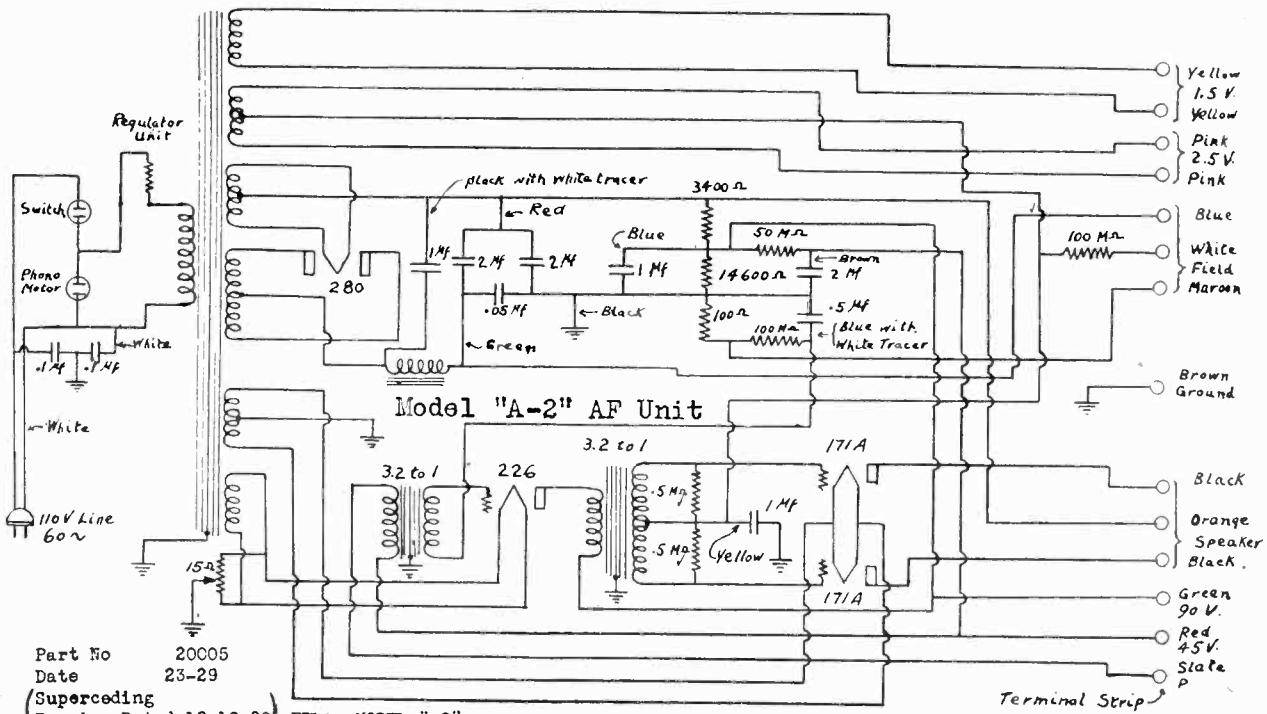
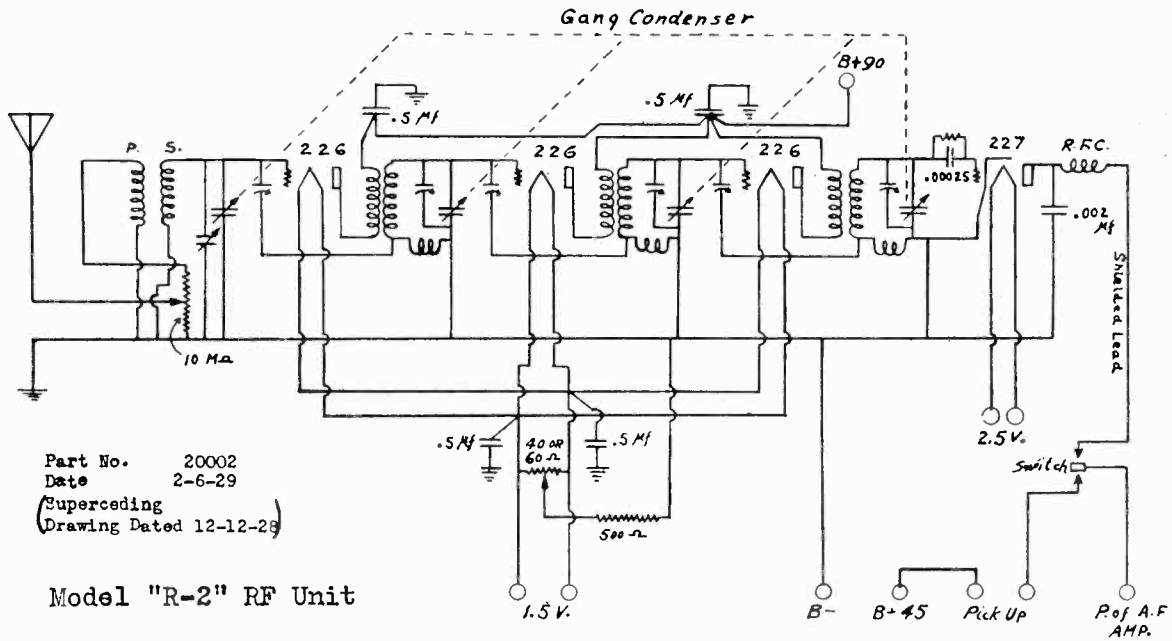
Model Erla R1:A (1928)



ERLA Model R-1 and Model A Power Unit

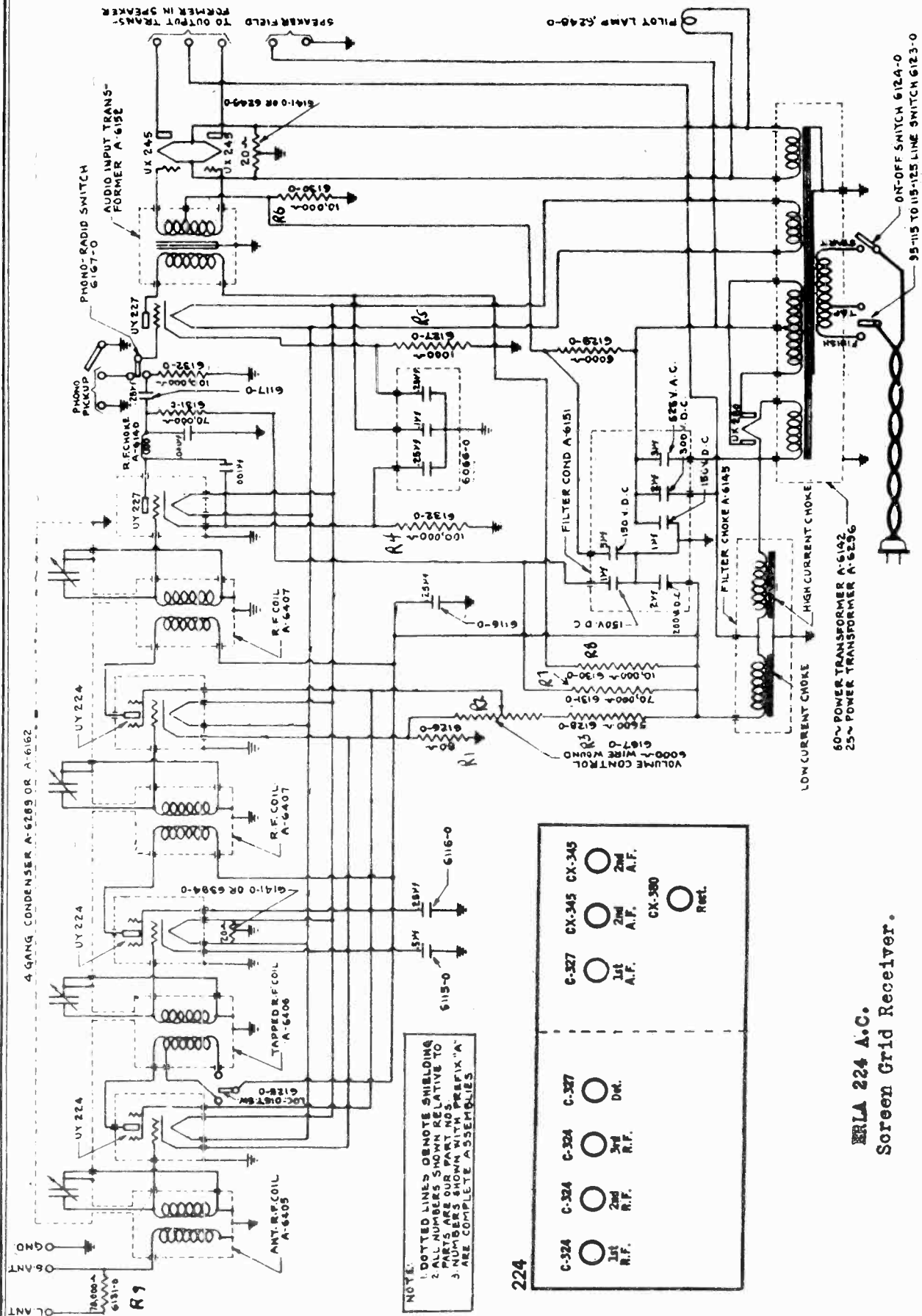
MODEL RF Unit
 MODEL AF Unit
 Schematic

ELECTRICAL
 RESEARCH LABORATORIES, Inc.



ELECTRICAL RESEARCH LABORATORIES, Inc.

MODEL 224 AC Schematic



NOTE:
 1. DOTTED LINES DENOTE SHIELDING
 2. ALL NUMBERS SHOWN RELATIVE TO PARTS ARE OUR PART NUMBER PREFIX "A"
 3. NUMBERS SHOWN WITH PREFIX "A" ARE COMPLETE ASSEMBLIES

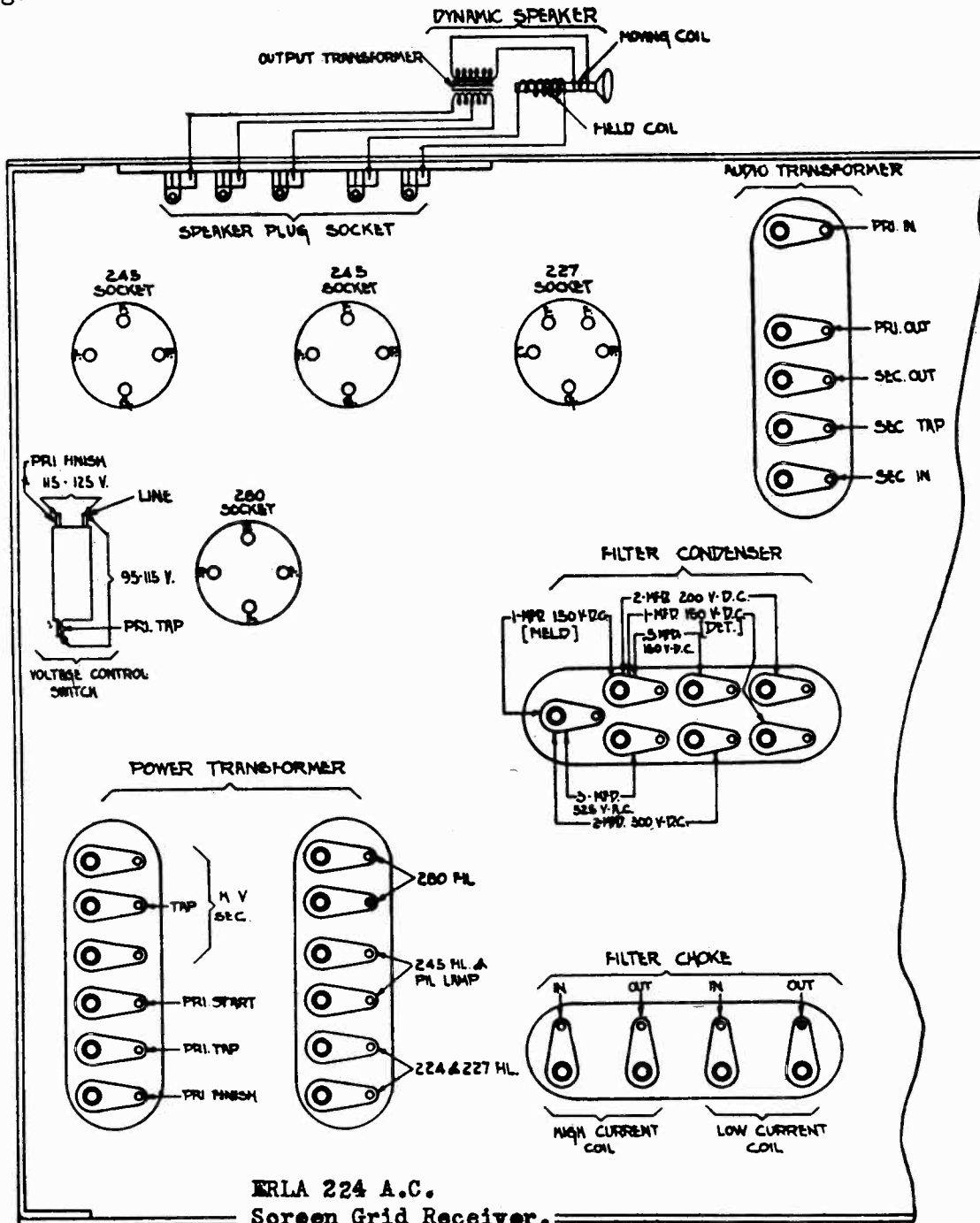
224

C-324	C-324	C-327	CX-345
1st R.F.	2nd R.F.	Det.	1st A.F.
CX-350	Rect.		

**ERLA 224 A.C.
Screen Grid Receiver.**

MODEL 224 AC
Chassis
Voltage

ELECTRICAL
RESEARCH LABORATORIES, Inc.



ERLA 224 A.C.
Screen Grid Receiver.

Details of Power Supply Terminal Connections

Tube	Fil.	Screen Grid to cathode	Plate to cathode	Ground to cathode	Grid to Filament
280	4.8 to 5v AC		340 to 360v DC		
245	2.4 to 2.5v AC		240 to 250v DC		
Audio	227	2.35 to 2.4v AC	90 to 100v DC	4.5v DC	45 to 50v DC
DET.	227	2.35 to 2.4v AC	60 to 75v DC	6 to 7.5v DC	
	224	2.35 to 2.4v AC	75 to 80v DC	1.5 to 2v DC	

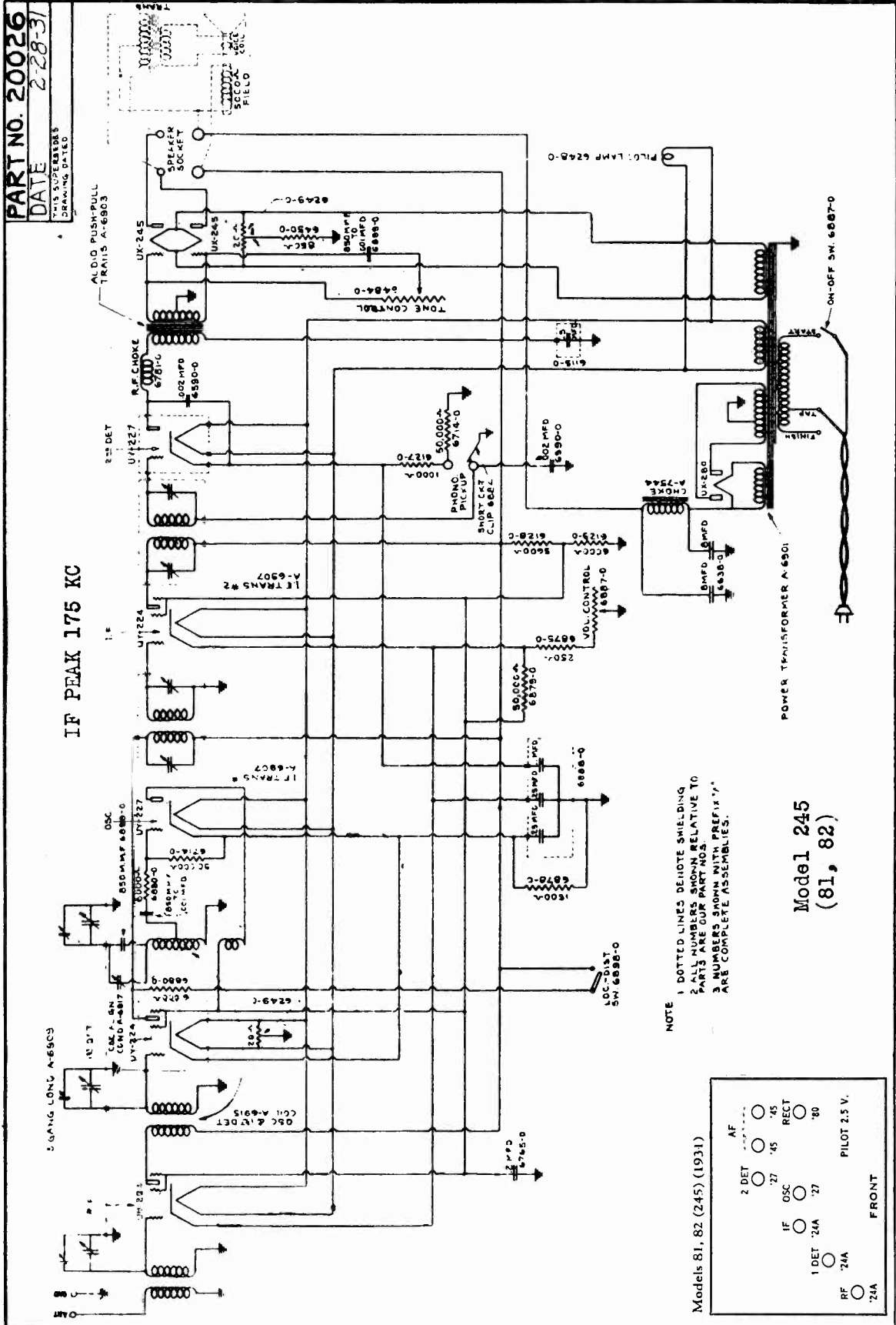
(The above are based on line voltage of 110 volts and the switch in the 95-115 position.)

(Volume control set to full volume position.)

ELECTRICAL
RESEARCH LABORATORIES, Inc.

MODEL 81, 82 (245)
Schematic

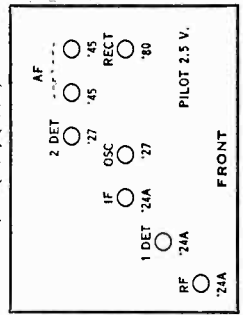
PART NO. 20026
THIS SUPERSEDES
DATE 2-28-31
DRAWING DATED



IF PEAK 175 KC

NOTE
1. DOTTED LINES DENOTE SHIELDING
2. PARTS ARE FOR PART NO. RELATIVE TO
3. NUMBERS SHOWN WITH PREFIX 'Y' ARE COMPLETE ASSEMBLIES.

Model 245
(81, 82)



Models 81, 82 (245) (1931)

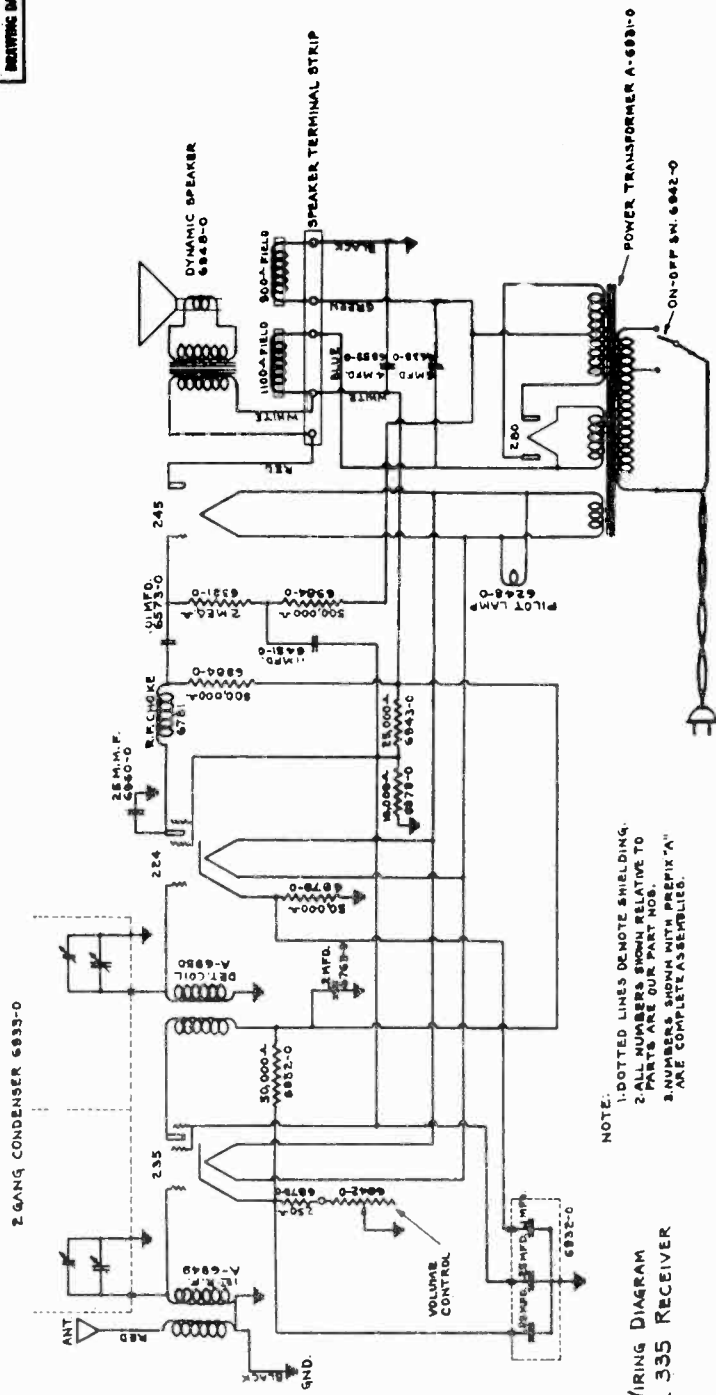
ELECTRICAL
RESEARCH LABORATORIES, Inc.

MODEL 335
Schematic

PART NO. 20027
DATE 4-8-31
THIS SUPERSEDES
PREVIOUS DATED

NAME-

CHANGES DATE



NOTE:
1. DOTTED LINES DENOTE SHIELDING.
2. ALL NUMBERS SHOWN RELATIVE TO
3. NUMBERS ARE QUIN PART NOS.
4. MAKE COMPLETE ASSEMBLY.

WIRING DIAGRAM
MODEL 335 RECEIVER

DO NOT SCALE THIS DRAWING WORK TO DIMENSIONS SHOWN

<input type="radio"/> '24	<input type="radio"/> '27	<input type="radio"/> '45	<input type="radio"/> '80
<input type="radio"/> 1RF	<input type="radio"/> 1AF	<input type="radio"/> 2AF	<input type="radio"/> RECT
<input type="radio"/> '24	<input type="radio"/> 271	<input type="radio"/> 271-A	<input type="radio"/> '80
<input type="radio"/> 2RF	<input type="radio"/> '24	<input type="radio"/> '27	<input type="radio"/> DET

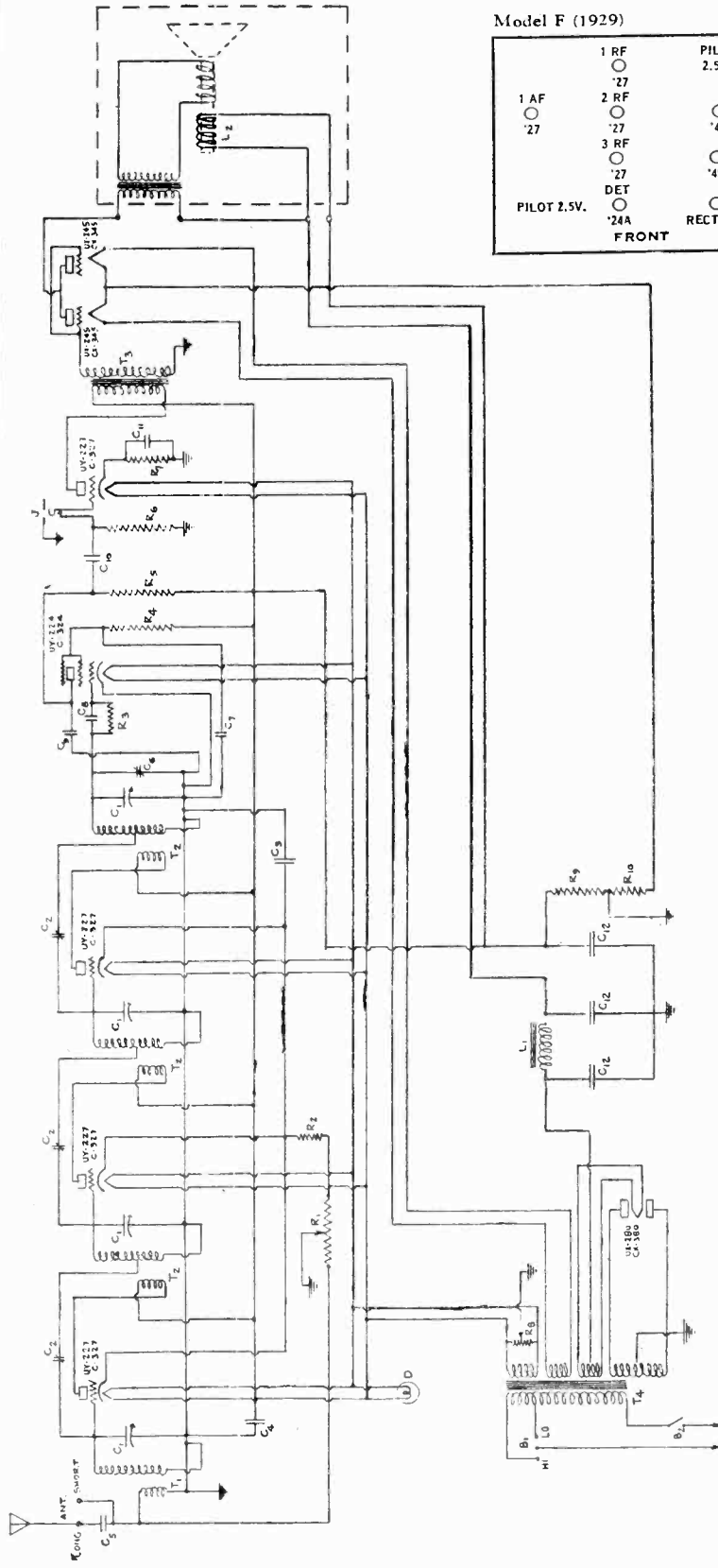
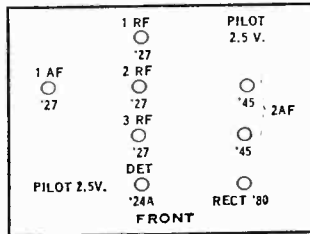
<input type="radio"/> '27	<input type="radio"/> '45	<input type="radio"/> '80	<input type="radio"/> RECT
<input type="radio"/> 1AF	<input type="radio"/> 2AF	<input type="radio"/> '24	<input type="radio"/> SUPER
<input type="radio"/> '24	<input type="radio"/> '27	<input type="radio"/> 245	<input type="radio"/> SUPER
<input type="radio"/> '24	<input type="radio"/> '24	<input type="radio"/> '24	<input type="radio"/> SUPER

DIMENSION TOLERANCES		MATERIAL	
FUNCTIONAL SIZE UNLESS A TOL. OF .001" IS SPECIFIED		ERLA	
MILLIMETER SIZE UNLESS A TOL. OF .001" IS SPECIFIED		ELECTRICAL RESEARCH LABORATORIES, INC. CHICAGO	
MILLIMETER SIZE UNLESS A TOL. OF .001" IS SPECIFIED		SCALE	
MILLIMETER SIZE UNLESS A TOL. OF .001" IS SPECIFIED		CHECKED	
MILLIMETER SIZE UNLESS A TOL. OF .001" IS SPECIFIED		REPT	
MILLIMETER SIZE UNLESS A TOL. OF .001" IS SPECIFIED		DATE	

MODEL F
Schematic
Data

EMERSON RADIO AND PHONOGRAPH
CORPORATION

Model F (1929)



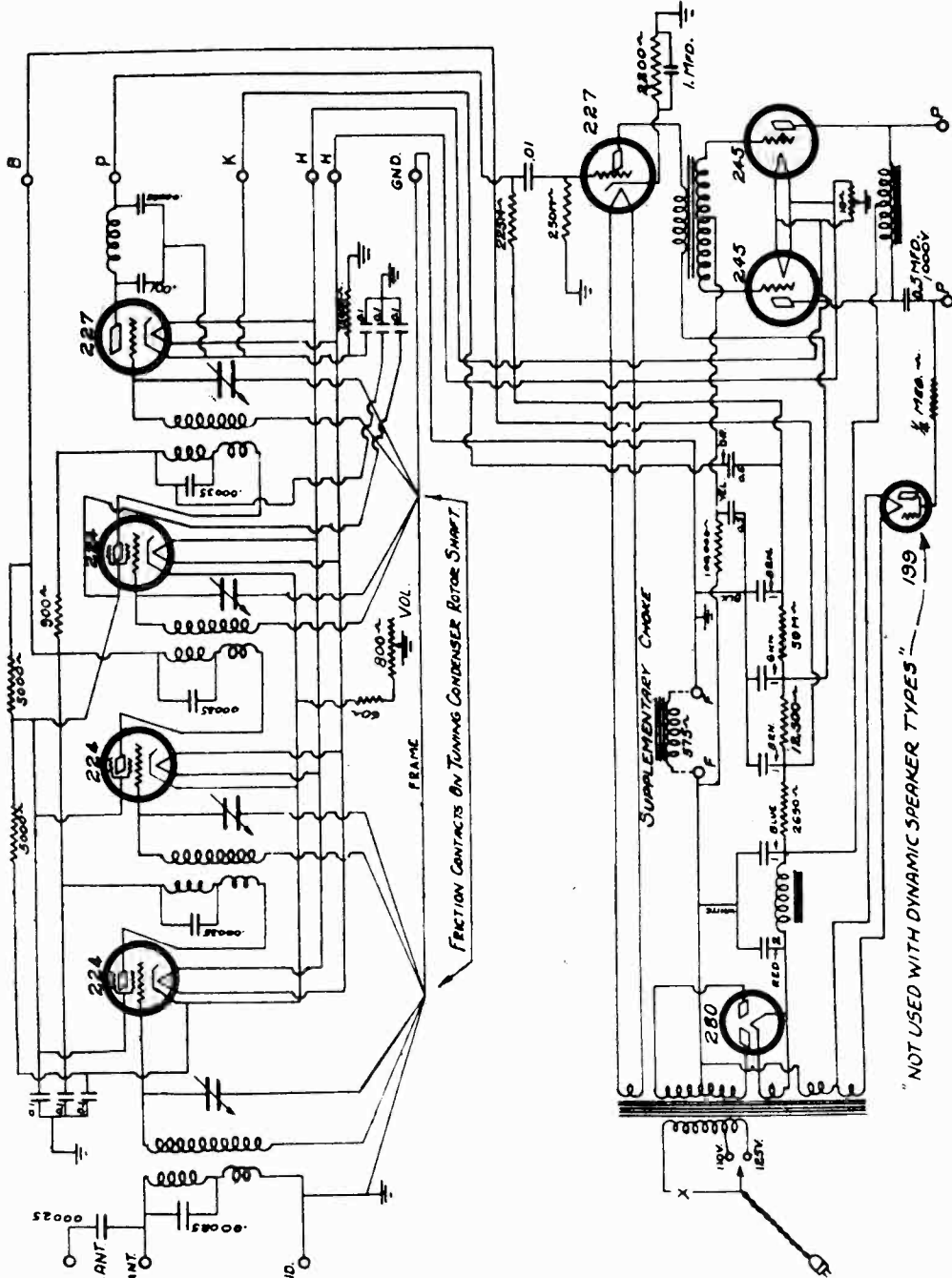
Model "F"
Line Voltage 115—Set on High Volt Tap—Volume Control Position Full On *Last Stage Is 2 No. 245 in Parallel

TUBE NO. IN SOCKET	TYPE OF TUBE	POSITION OF TAP	TUNE OUT		TUNE IN TESTER		TUNE IN TESTER		PLATE SCREEN	
			VOLTS	RESISTANCE	VOLTS	RESISTANCE	VOLTS	RESISTANCE		RESISTANCE
1	2B7	1st RF	8.4	119	2.3	115	7	3.6	4.6	8
2	2B7	2nd RF	8.4	119	2.3	115	7	3.6	4.6	8
3	2B7	3rd RF	8.4	119	2.3	115	7	3.6	4.6	8
4	2B4	Det.	8.4	90	2.3	50	0.48	0.17	0.7	5
5	245	1st A	8.4	128	8.3	100	8.5	6.2	7.5	1.3
6	245	2nd A	5.2	290	8.4	175	31	24	28	4
7	250	Rect.	-	-	4.75	-	-	24	28	4
8								90	-	-

- C₁ Tuning Condenser.
- C₂ Neutralizing Condenser.
- C₃ R.F. Grid Bias Condenser .25 MF.
- C₄ R.F. Plate By-Pass Condenser .25 MF.
- C₅ Antenna Condenser .00025 MF.
- C₆ Det. Padding Condenser.
- C₇ Det. Screen Grid Bias Condenser .25 MF.
- C₈ Det. Control Grid Condenser .0001 MF.
- C₉ Det. Plate Condenser .0005 MF.
- C₁₀ 1st Audio Coupling Condenser 0.1 MF.
- C₁₁ 1st Audio Grid Condenser 0.5 MF.
- C₁₂ Filter Condensers 8.0 MF Each.
- L₁ Filter Choke.
- L₂ Speaker Field 2500 Ohms.
- J Phonograph Jack.
- D Dial Lamp.
- R₁ Volume Control 15,000 Ohms.
- R₂ R.F. Grid Bias Resistance 620 Ohms.
- R₃ Det. Control Grid Resistance .5 Megohm.
- R₄ Det. Screen Grid Resistance 5 Megohm.
- R₅ 1st Audio Coupling Resistance .1 Megohm.
- R₆ 1st Audio Grid Resistance .5 Megohm.
- R₇ 1st Audio Grid Bias Resistance 1750 Ohms.
- R₈ Hum Control 20 Ohms.
- R₉ Loss Current Resistance 4500 Ohms.
- R₁₀ 245 Grid Bias Resistance 650 Ohms.
- T₁ Antenna Transformer.
- T₂ R.F. Inter stage Transformer.
- T₃ Input Audio Transformer.
- T₄ Power Transformer.
- B₁ Hi-Lo S.P.D.T. Toggle Switch.
- B₂ S.P.S.T. Toggle Switch.

MODEL 65
Schematic

EMERSON RADIO AND PHONOGRAPH
CORPORATION



"NOT USED WITH DYNAMIC SPEAKER TYPES" 199

Voltage Data On Next Page

RED	BLUE	GREEN	GREEN	BROWN	YELLOW	ORANGE
2MFD	1MFD	1MFD	1MFD	1MFD	1MFD	1MFD
600V	400V	300V	300V	300V	200V	200V

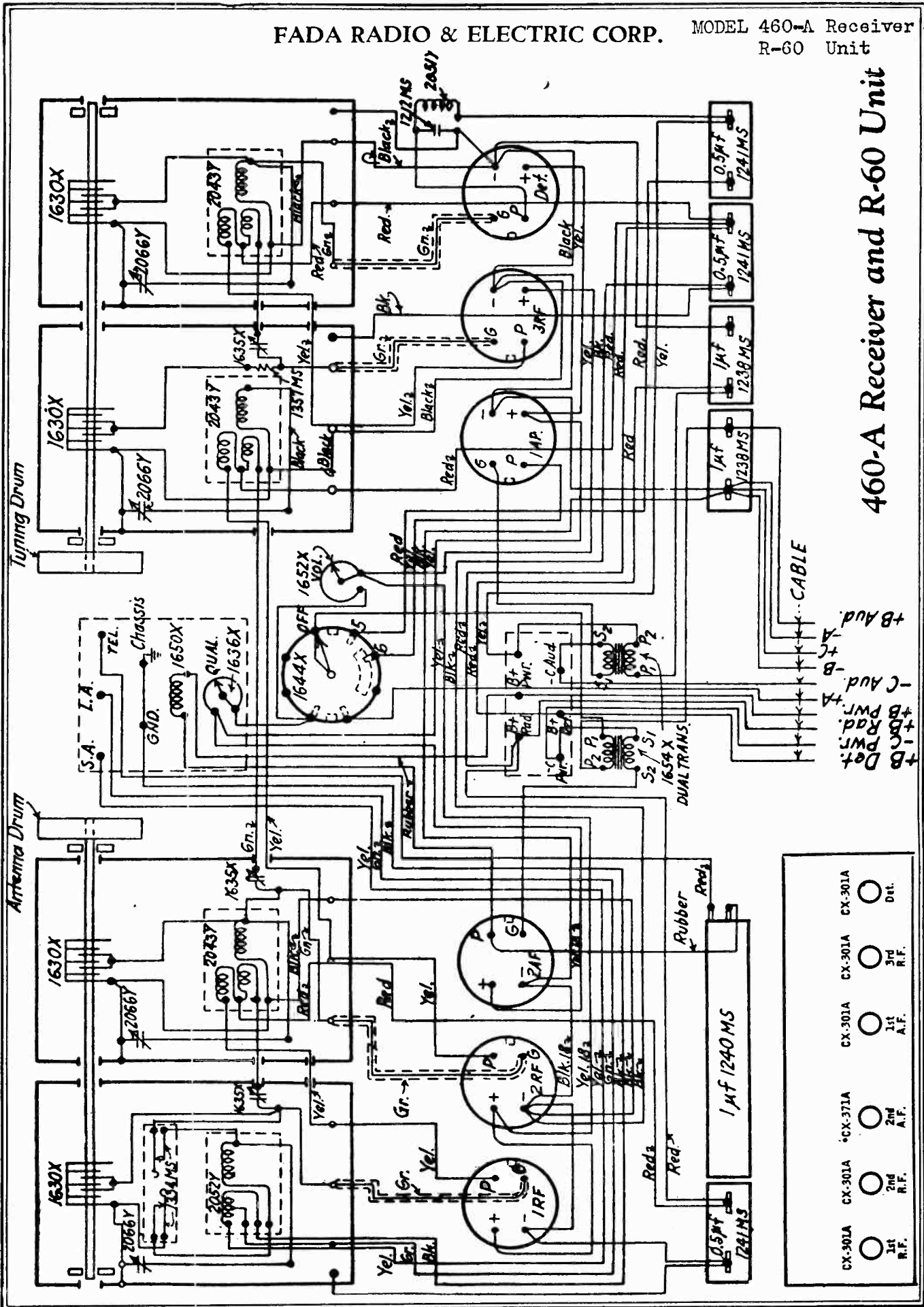
WHITE

FILTER CONDENSERS

BLACK

FADA RADIO & ELECTRIC CORP. MODEL 460-A Receiver
R-60 Unit

460-A Receiver and R-60 Unit



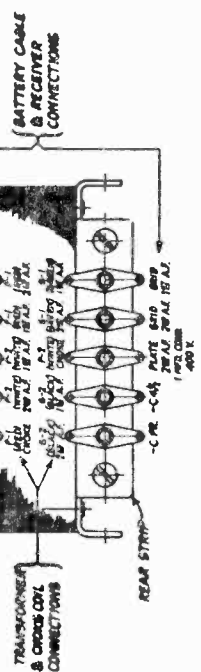
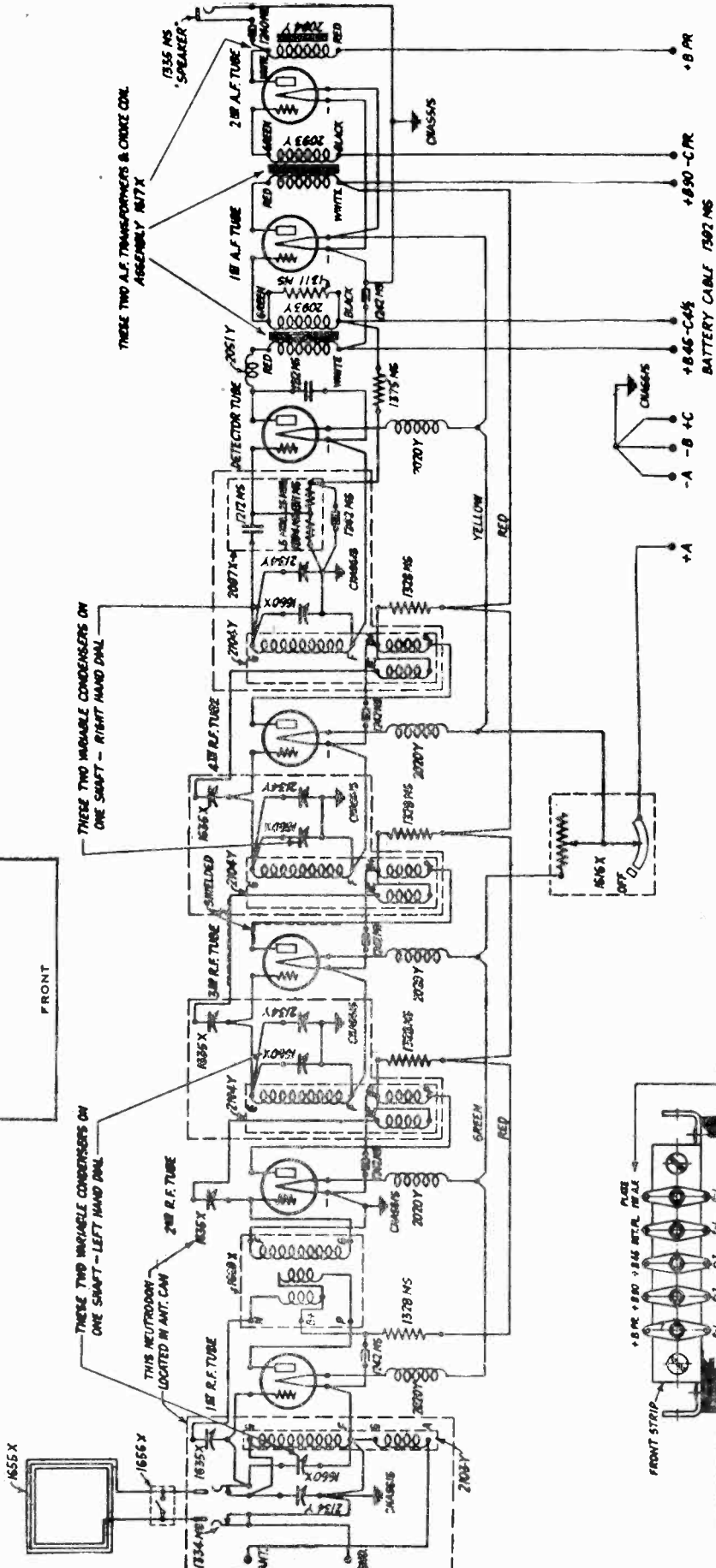
CX-301A	CX-301A	CX-301A	CX-371A	CX-301A
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.
1st R.F.	2nd R.F.	1st A.F.	2nd A.F.	3rd R.F.

MODEL 475-A
SF 45/75
Schematic

FADA RADIO & ELECTRIC CORP

Models Fada's 475A, 45-75A

- 1 RF 2 RF 3 RF 4 RF DET
- 01A 01A 01A 01A 01A 01A 01A 01A 01A 01A

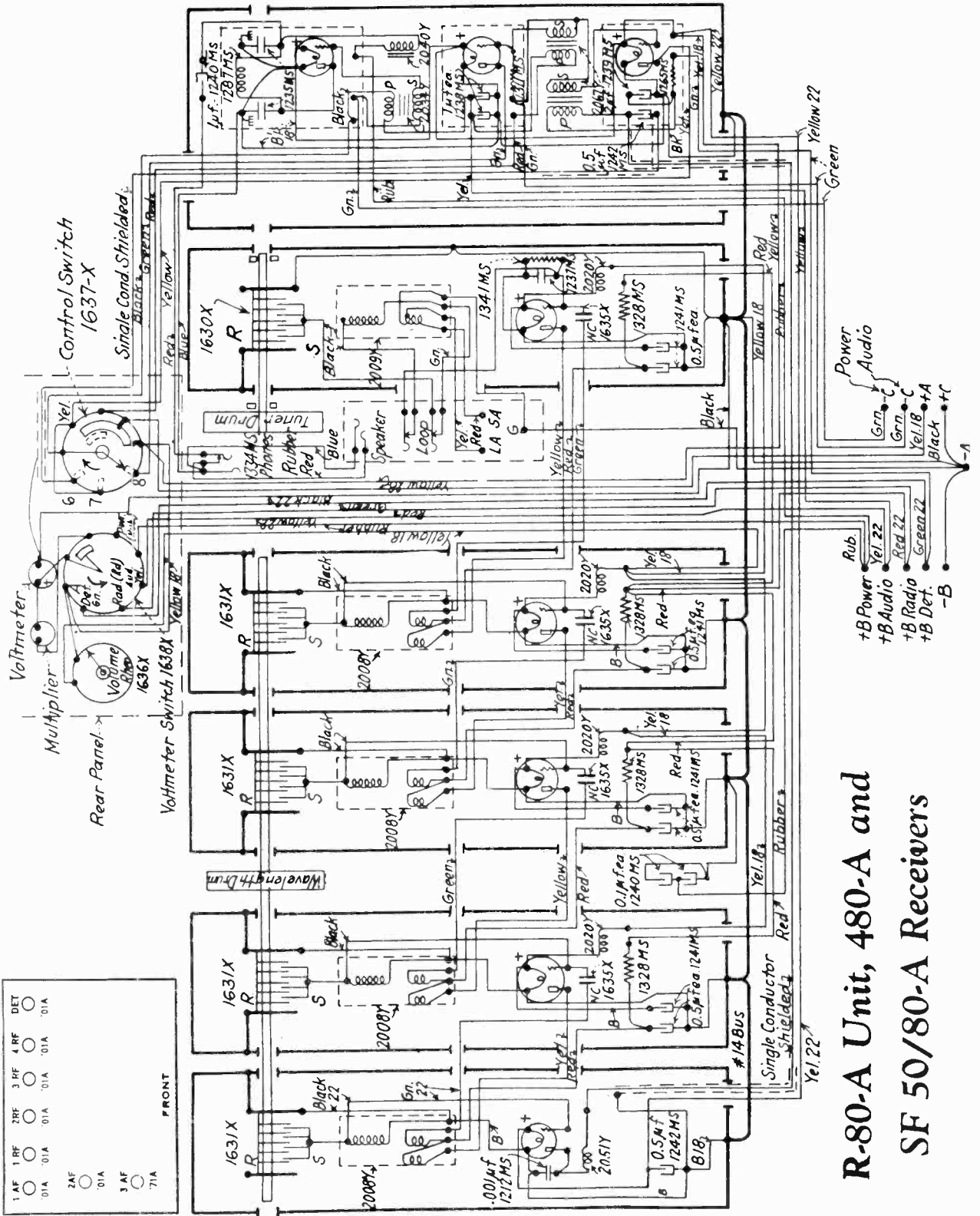


TRANSFORMER TERMINAL STRIP CONNECTIONS

475-A and SF 45/75 Receivers

FADA RADIO & ELECTRIC CORP.

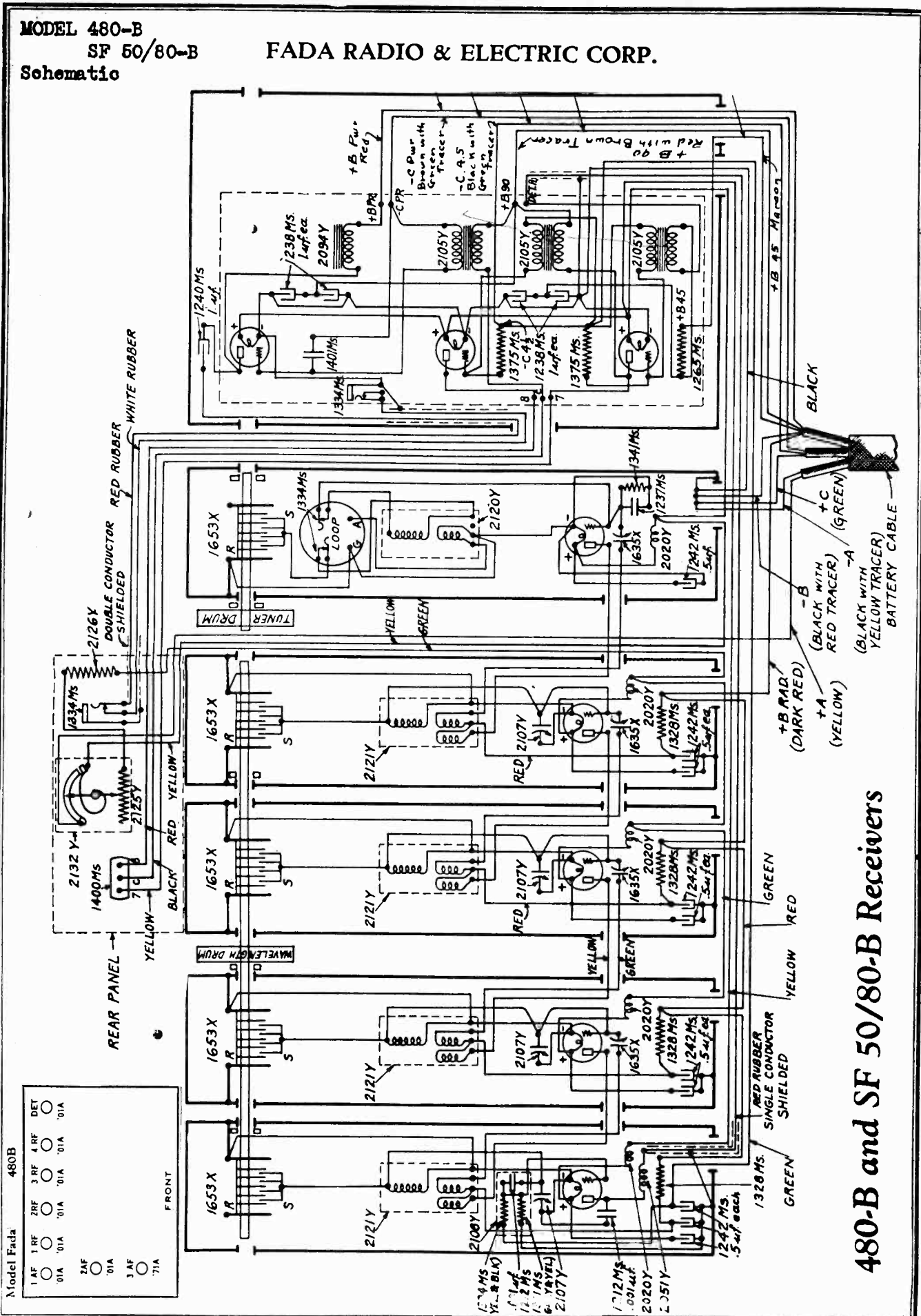
MODEL R-80-A Unit
480-A
SF 50/80-A
Schematic



R-80-A Unit, 480-A and
SF 50/80-A Receivers

MODEL 480-B
SF 50/80-B
Schematic

FADA RADIO & ELECTRIC CORP.



Model Fada 480B

1 AF	2 RF	3 RF	4 RF	DET
01A	01A	01A	01A	01A
2 AF	01A	01A	01A	01A
3 AF	01A	01A	01A	01A
71A				

FRONT

REAR PANEL

480-B and SF 50/80-B Receivers

FADA RADIO & ELECTRIC CORP.

MODEL "C" Electric Unit

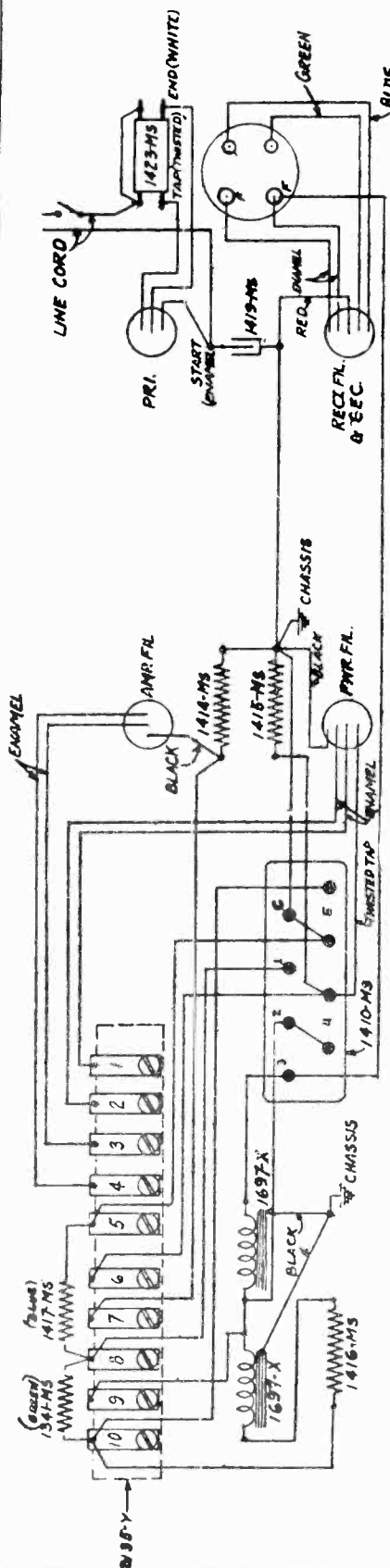
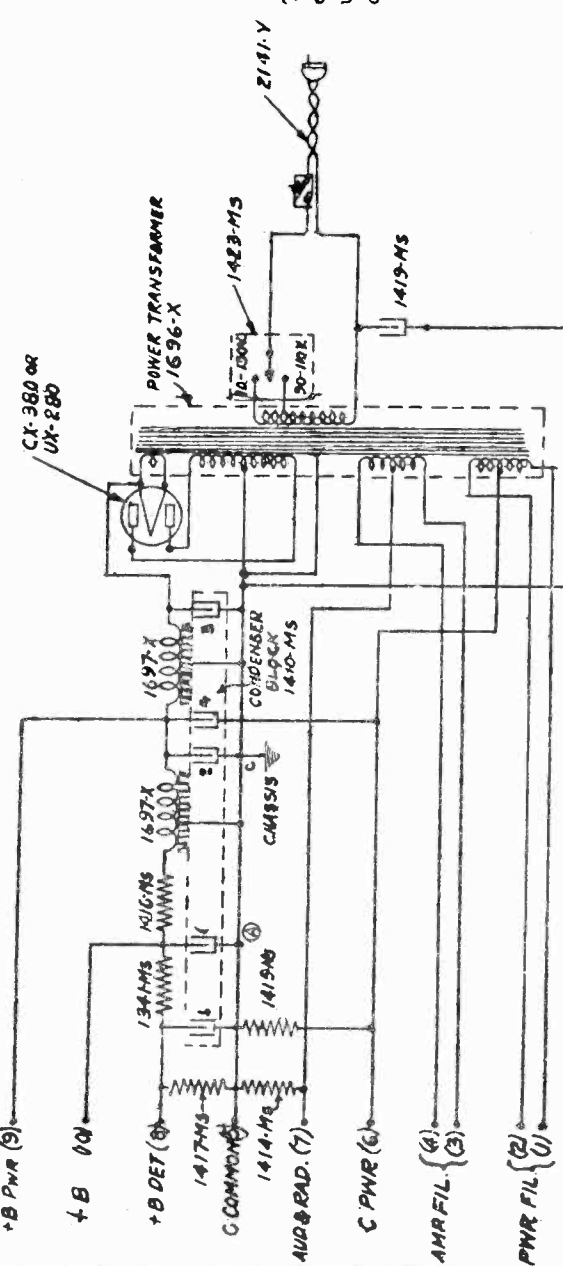


TABLE OF CABLE CONNECTIONS

- 1 } POWER FILAMENT
- 2 }
- 3 } AMP FILAMENT
- 4 }
- 5. C. COMMON
- 6- C. PWR
- 7. C. AUD. & RAD.
- 8- +B DET.
- 9- +B PWR
- 10- +B

Type "J" unit for 25 cycle current is similar, except that a 1706X power transformer is used instead of the 1696X transformer as indicated on the type "C" unit for 60 cycles.

ACTUAL WIRING DIAGRAM



SCHEMATIC WIRING DIAGRAM

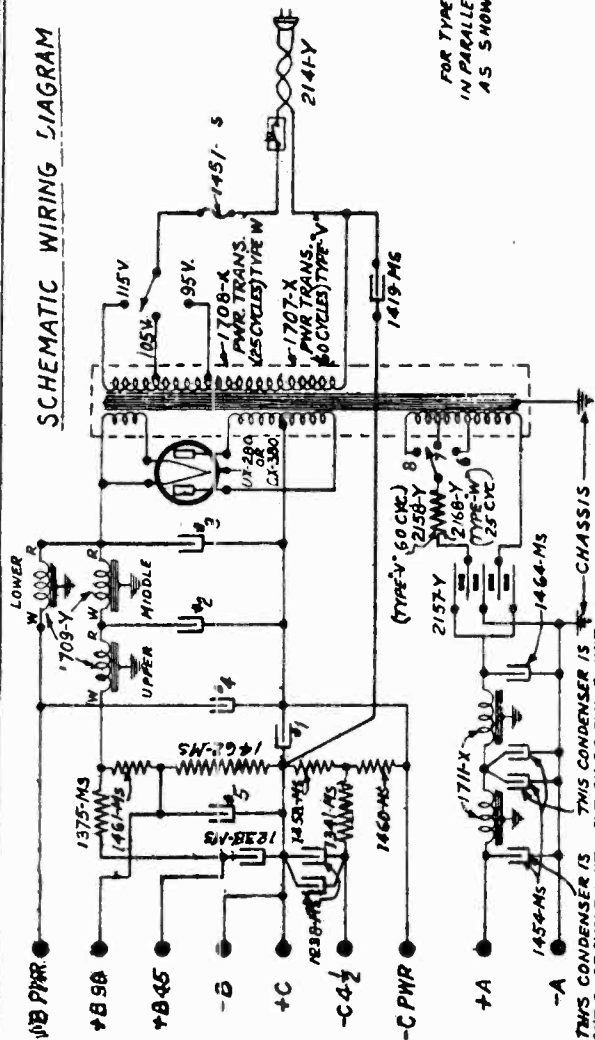
- 1341 Ms Carbon 20,000 ohms red and green or green only
- 1414 Ms Wire 250 ohms yellow and white
- 1415 Ms Wire 2,000 ohms green and white
- 1416 Ms Wire 3,000 ohms white and white
- 1417 Ms Carbon 50,000 ohms blue

Type "C" Electric Unit, used with "Special" and "7" AC Receivers

FADA RADIO & ELECTRIC CORP.

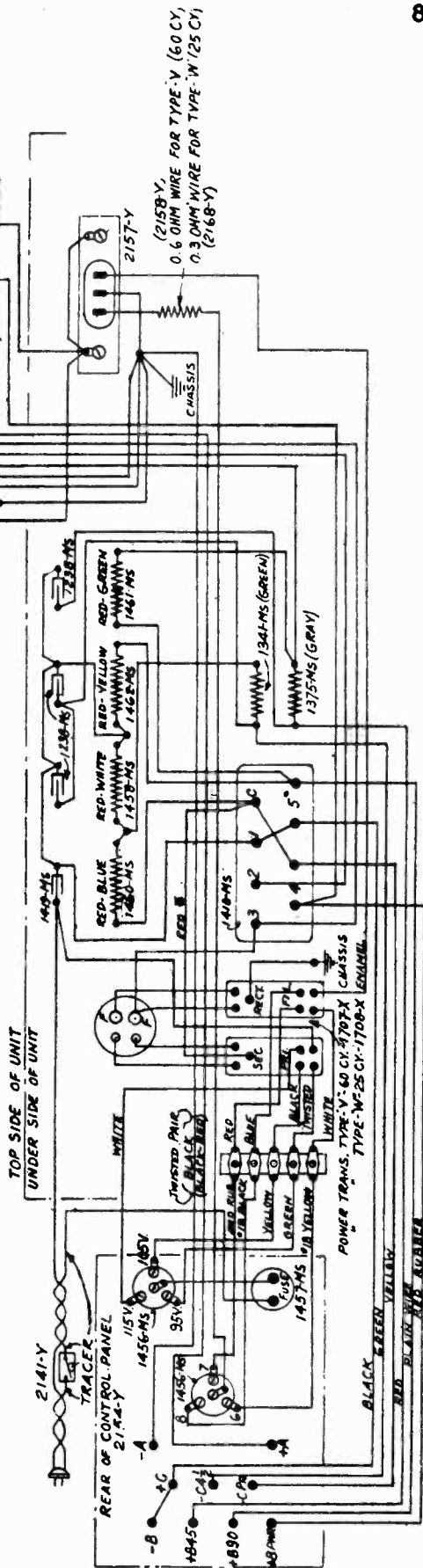
MODEL ABC S.P.U.
86-V, 82-W

SCHEMATIC WIRING DIAGRAM



FOR TYPE-W 25 CYCLE CONNECT THIS IN PARALLEL WITH OTHER 1464-MS AS SHOWN BY BROKEN LINE

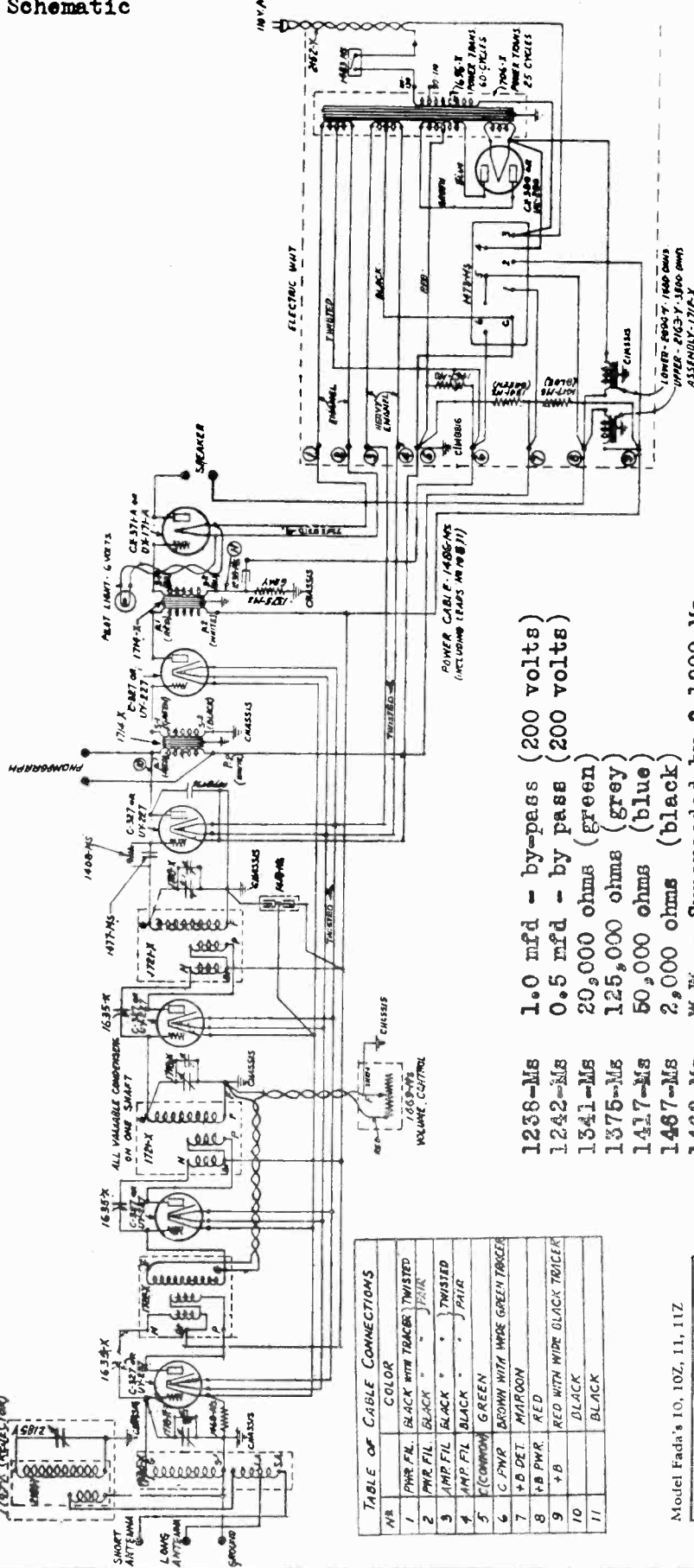
TOP SIDE OF UNIT
UNDER SIDE OF UNIT



ACTUAL WIRING DIAGRAM

“ABC” Six Volt Tube Supply Unit — Types 86-V and 82-W

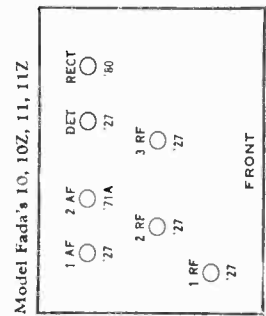
MODEL 10,11,30,31
 MODEL 10Z,11Z,30Z,31Z FADA RADIO & ELECTRIC CORP.
 Schematic



- 1.0 mfd - by-pass (200 volts)
- 0.5 mfd - by pass (200 volts)
- 20,000 ohms (green)
- 125,000 ohms (grey)
- 50,000 ohms (blue)
- 2,000 ohms (black)
- W.W. - Superseded by 2-1299-MS
- Volume control - 20,000 ohms
- .000125 mfd moulded mica (green dot)
- Condenser - .001 mfd moulded mica (yellow)
- Pilot lamp - 6 volts (orange)
- 2-1299-MS Resistor - 250 ohms (light brown)
- 2094-Y Choke - 1,400 ohms
- 2163-Y Choke - 3,500 ohms

TABLE OF CABLE CONNECTIONS

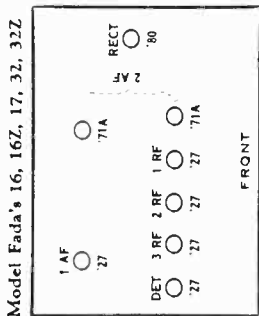
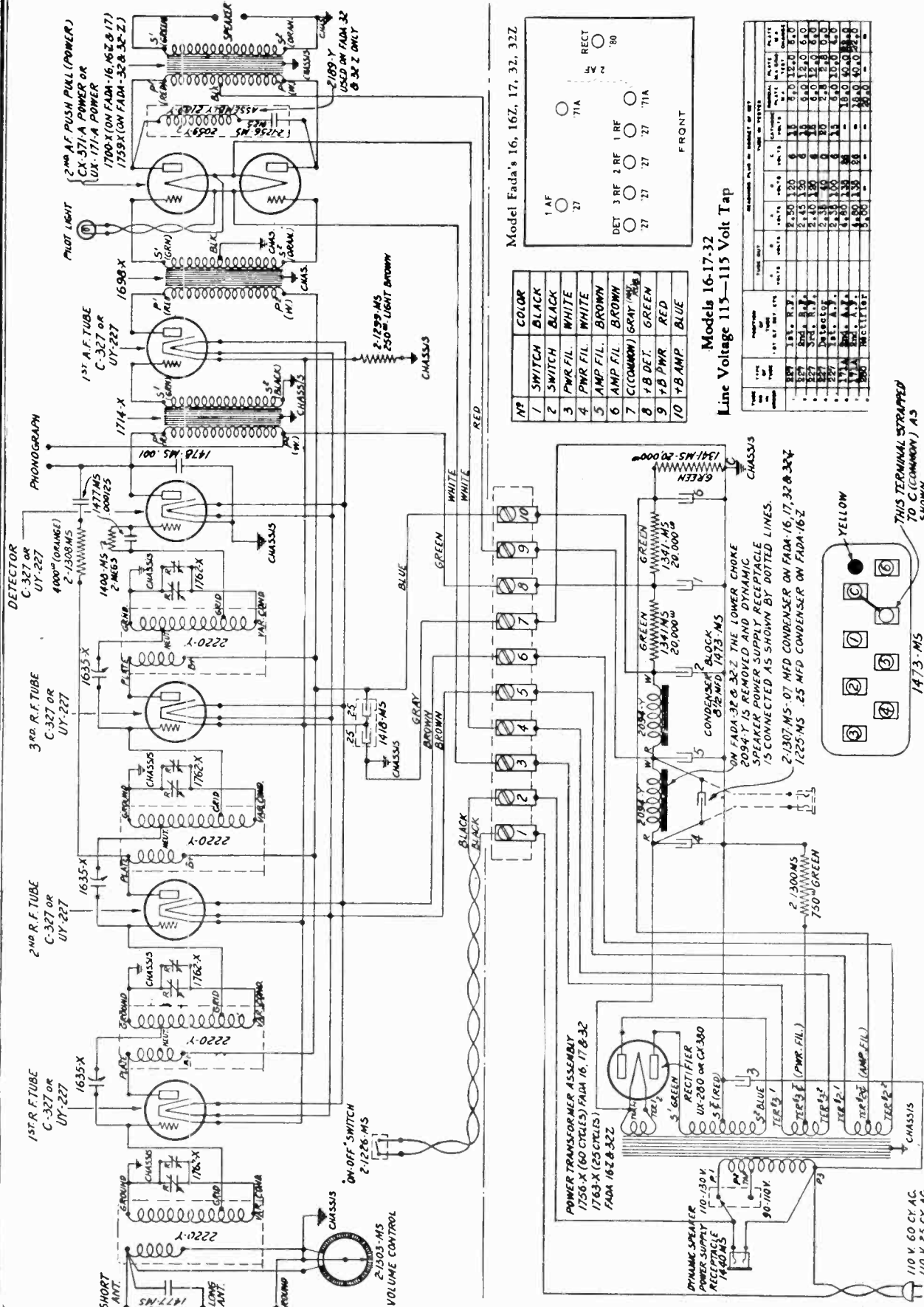
NR	COLOR
1	PWR FIL. BLACK WITH TRACER TWISTED
2	PWR FIL. BLACK * TWISTED
3	AMP FIL. BLACK * TWISTED
4	AMP FIL. BLACK * PAIR
5	COMMON GREEN
6	C.PWR. BROWN WITH WIDE GREEN TRACER
7	+B DET. MARRON
8	+B PWR. RED
9	+B RED WITH WIDE BLACK TRICER
10	BLACK
11	BLACK



10, 11, 30 and 31 Receivers—60 cycles
 10Z, 11Z, 30Z and 31Z Receivers—25 cycles

MODEL 16,17,32
MODEL 16Z,32Z
Schematic

FADA RADIO & ELECTRIC CORP.

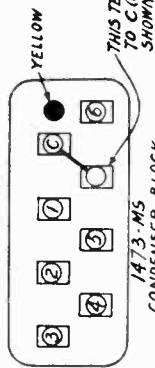


NO	COLOR
1	SWITCH BLACK
2	PWR FIL. WHITE
3	AMP FIL. BROWN
4	AMP FIL. BROWN
5	1 B DET. GREEN
6	1 B PWR. RED
7	1 B AMP. BLUE

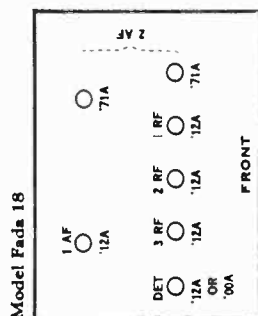
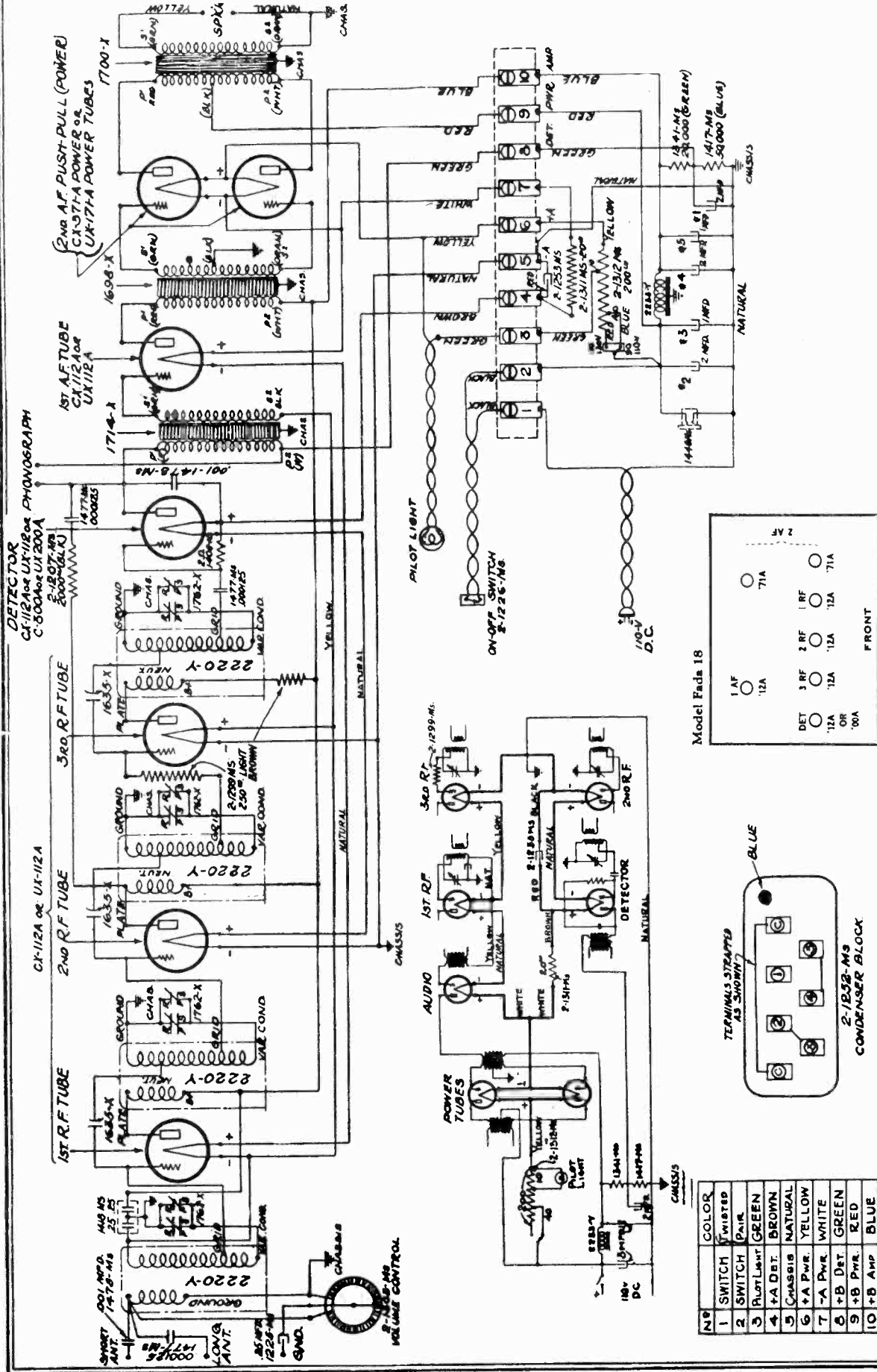
Models 16-17-32
Line Voltage 115-115 Volt Tap

TYPE	NO.	WATTAGE	RESISTANCE	INDUCTIVE REACTANCE	CAPACITIVE REACTANCE	IMPEDANCE	ADJUSTMENT
RES.	185	120	6	11	6.70	12.0	6.0
RES.	186	120	6	11	6.70	12.0	6.0
RES.	187	120	6	11	6.70	12.0	6.0
RES.	188	120	6	11	6.70	12.0	6.0
RES.	189	120	6	11	6.70	12.0	6.0
RES.	190	120	6	11	6.70	12.0	6.0
RES.	191	120	6	11	6.70	12.0	6.0
RES.	192	120	6	11	6.70	12.0	6.0
RES.	193	120	6	11	6.70	12.0	6.0
RES.	194	120	6	11	6.70	12.0	6.0
RES.	195	120	6	11	6.70	12.0	6.0
RES.	196	120	6	11	6.70	12.0	6.0
RES.	197	120	6	11	6.70	12.0	6.0
RES.	198	120	6	11	6.70	12.0	6.0
RES.	199	120	6	11	6.70	12.0	6.0
RES.	200	120	6	11	6.70	12.0	6.0

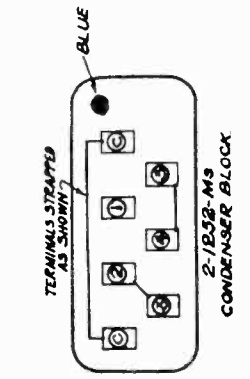
16, 17 and 32 Receivers - 60 cycles 16-Z and 32-Z Receivers - 25 cycles



MODEL 18 DC
Schematic
FADA RADIO & ELECTRIC CORP.



Model Fada 18



NO	SWITCH	COLOR
1	SWITCH TWISTED PAIR	BROWN
2	SWITCH PAIR	GREEN
3	PLATE LIGHT	BROWN
4	+A DET.	NATURAL
5	CHASSIS	NATURAL
6	+A PWR.	YELLOW
7	-A PWR.	WHITE
8	+B DET.	GREEN
9	+B PWR.	RED
10	+B AMP	BLUE

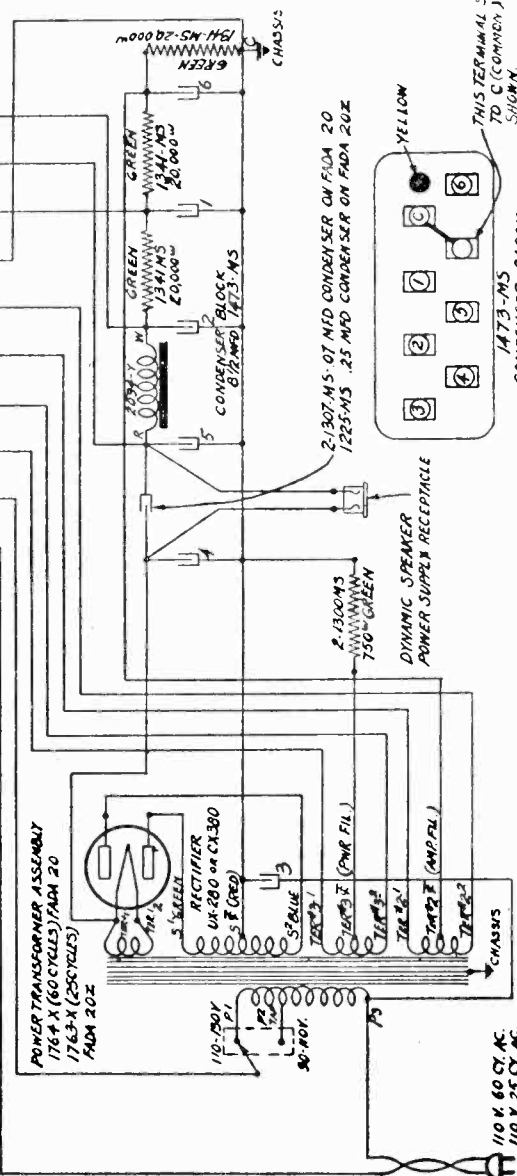
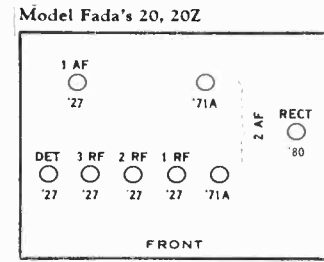
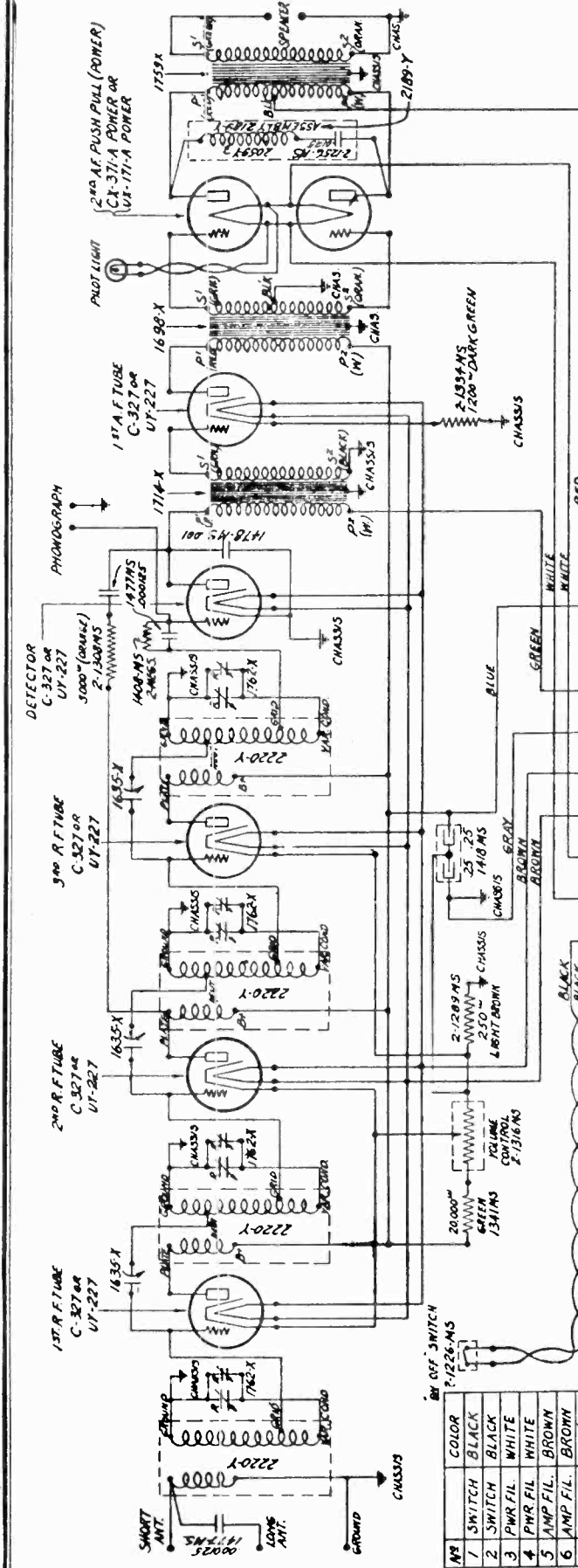
18 DC Receiver
for use with direct current only

FADA RADIO & ELECTRIC CORP.

MODEL 20,
MODEL 20Z
Schematic

Line Voltage 115—Set on High Voltage—Volume Control Position Max

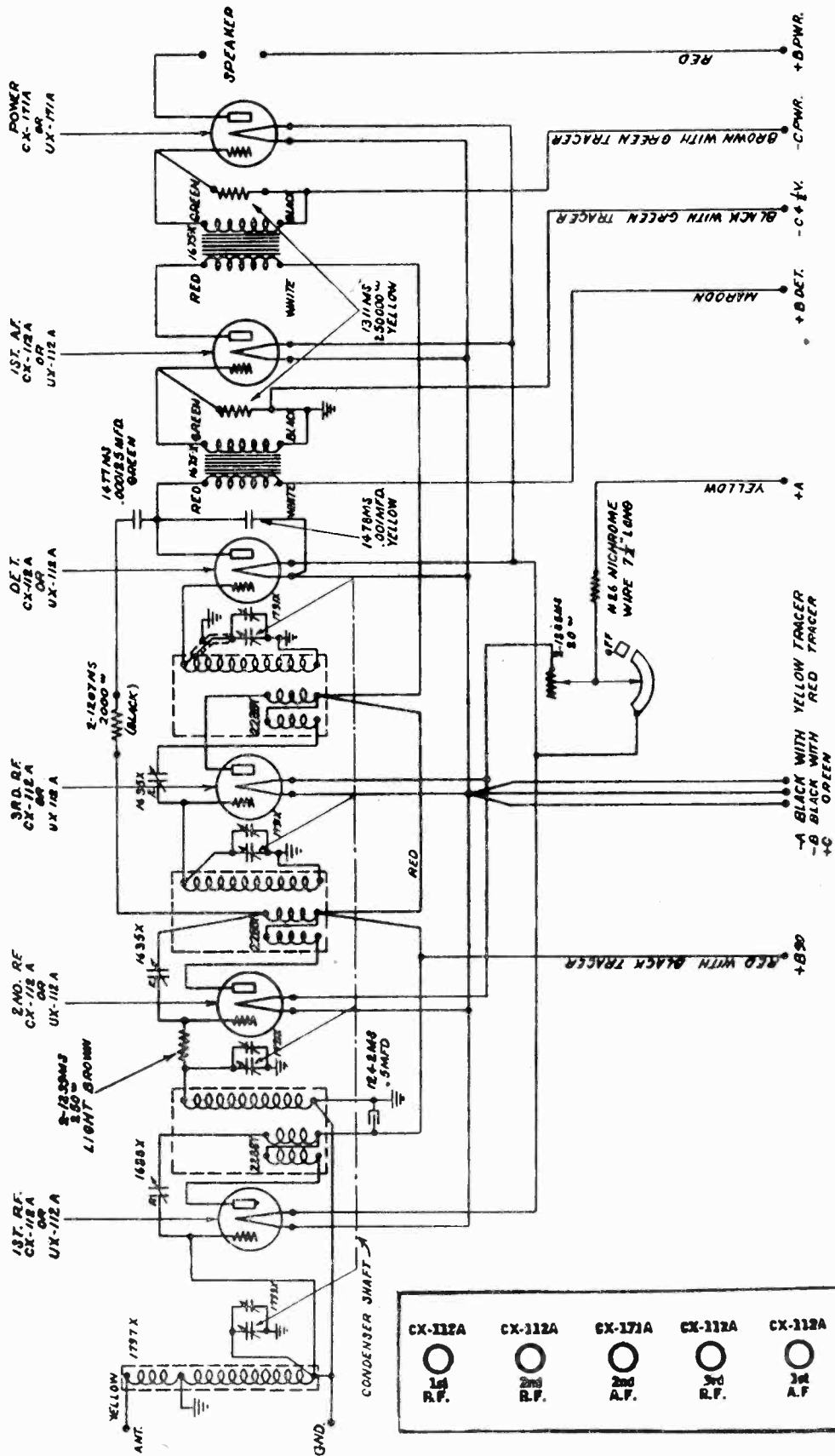
TUBE NO. IN BRACKET	TYPE OF TUBE	POSITION OF TUBE 1ST 2ND 3RD ETC.	READING PLUG IN SOCKET OF SET											
			A VOLTS	B VOLTS	C VOLTS	D VOLTS	E VOLTS	F VOLTS	G VOLTS	H VOLTS	I VOLTS	J VOLTS		
387	1st RF		2.5	142	8.4	140	7	16	6.2	11.0	4.8	-	-	-
387	2nd RF		2.5	142	8.4	140	7	16	6.2	11.0	4.8	-	-	-
387	3rd RF		2.5	142	8.4	140	7	16	6.8	11.0	4.8	-	-	-
387	DET.		2.5	46	8.4	46	0	21	3.4	5.0	1.6	-	-	-
387	1st AF		2.5	188	5.0	184	33	-	80.0	25.0	5.8	-	-	-
371	2nd AF		2.5	188	5.0	184	33	-	80.0	25.0	5.8	-	-	-
371	3rd AF		2.5	188	5.0	184	33	-	80.0	25.0	5.8	-	-	-
580	Rect.		5.1	-	5.0	-	-	-	84	-	-	-	-	-



20 Receiver—AC 60 cycles 20-Z Receiver—AC 25 cycles

MODEL 22 Battery Schematic

FADA RADIO & ELECTRIC CORP.

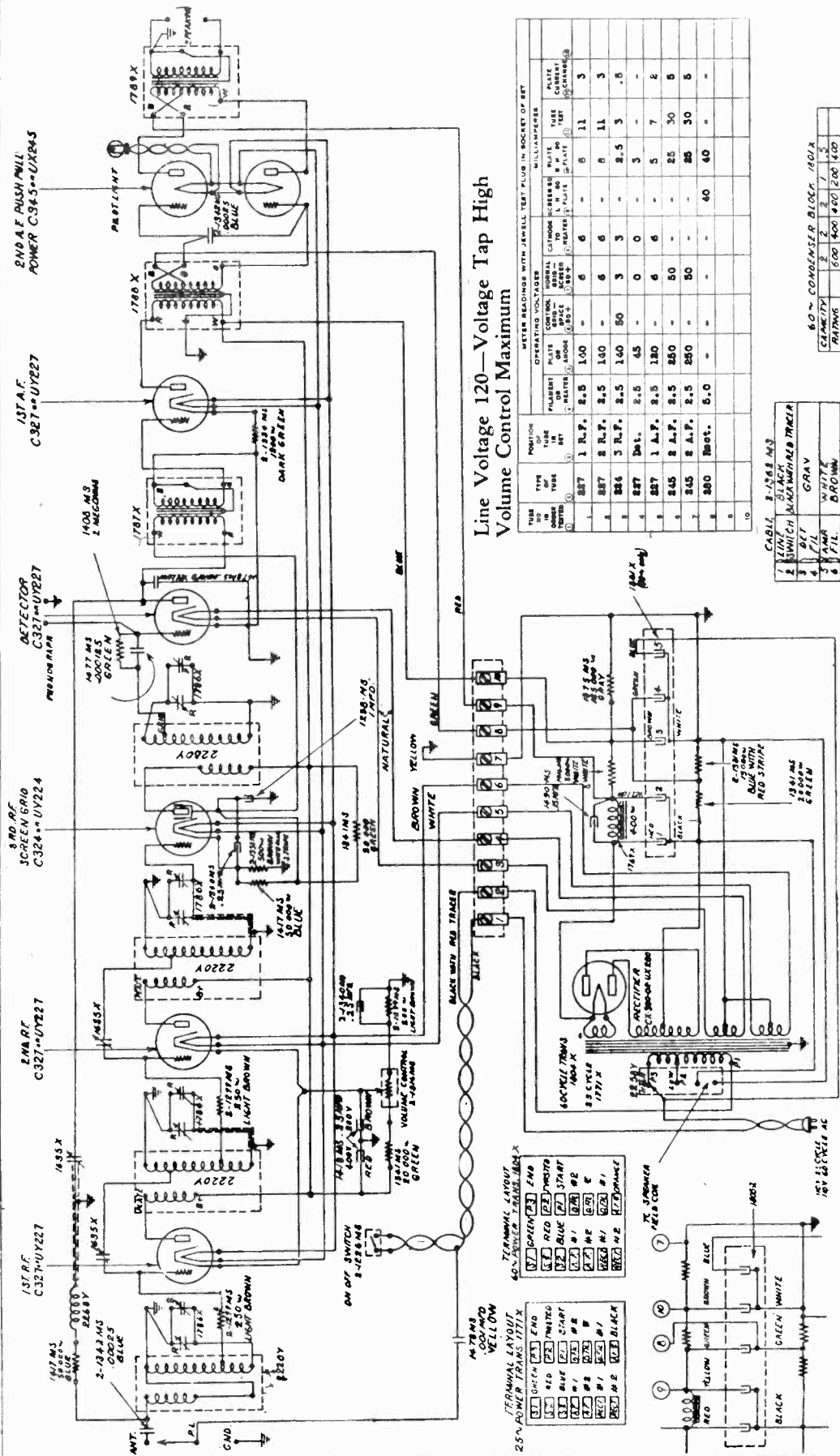


BATTERY CABLE 2090Y

22 Battery Model Receiver

CX-112A	CX-112A	CX-171A	CX-112A	CX-112A	CX-112A
1st R.F.	2nd R.F.	2nd A.F.	3rd R.F.	3rd A.F.	Det.

MODEL 25 and 25Z
M-250 and M-250Z units FADA RADIO & ELECTRIC CORP.



Line Voltage 120—Voltage Tap High
Volume Control Maximum

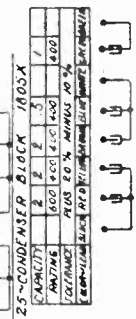
METER READINGS WITH JEWELL TEST PLUG IN SOCKET OF SET	OPERATING VOLTAGE		MILLIAMPERES	
	PLATE	GRID	PLATE	GRID
1	2.5	1.00	6	11
2	2.5	1.40	6	11
3	2.5	1.40	3	3
4	2.5	1.40	0	0
5	2.5	1.80	6	5
6	2.5	2.50	50	25
7	2.5	2.50	50	30
8	2.5	5.0	40	60
9				
10				

60% CONDENSER BLOCK 1A01X

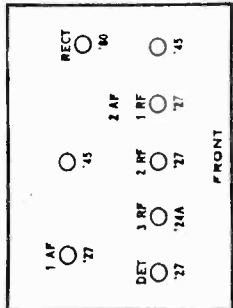
CAPACITY	2	2	1	5
RATINGS	600	400	200	400
VOLTAGES	250	200	100	200
WARRANTY	250V	200V	100V	200V

CABLE 3-2528 M3

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10



25 and 25-Z Receivers
used with
M-250 and M-250-Z Electric Units



TERMINAL LAYOUT 25-CYCLE TRANSFORMER

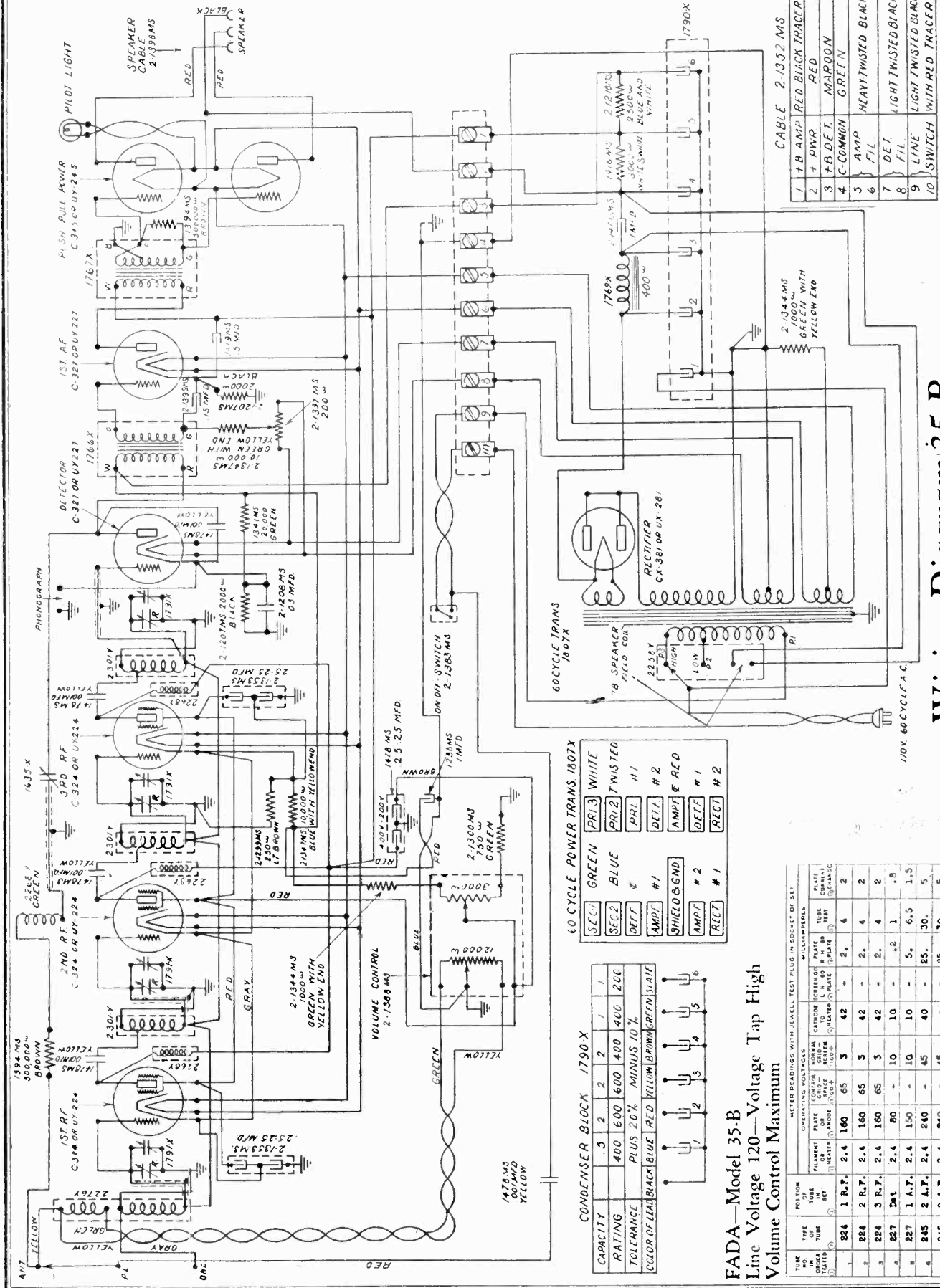
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

TERMINAL LAYOUT 60-CYCLE TRANSFORMER

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

FADA RADIO & ELECTRIC CORP.

MODEL 35-B
Schematic, Voltage



CABLE 2-1352 MS

1	7B AMP	RED BLACK TRACER
2	7 PWR	RED
3	7B DET.	MARON
4	C-COMM	GREEN
5	AMP	HEAVY TWISTED BLACK
6	FIL.	
7	DET.	LIGHT TWISTED BLACK
8	FIL.	
9	LINE	LIGHT TWISTED BLACK
10	SWITCH	WITH RED TRACER

60 CYCLE POWER TRANS 1807X

SEC 1	GREEN	PRI 3	WHITE
SEC 2	BLUE	PRI 2	TWISTED
DET.		PRI 1	# 1
AMP 1		DET.	# 2
SHIELD GND		AMP 1	RED
AMP 2		DET.	# 1
RECT.		RECT.	# 2

CONDENSER BLOCK 1790-X

CAPACITY	.5	2	2	2	1	1
RATING	400	600	600	400	400	200
TOLERANCE	PLUS 20%	MINUS 10%				
COLOR OF LEAD	BLACK	BLUE	RED	YELLOW	BROWN	GREEN

FADA—Model 35-B
Line Voltage 120—Voltage Tap High
Volume Control Maximum

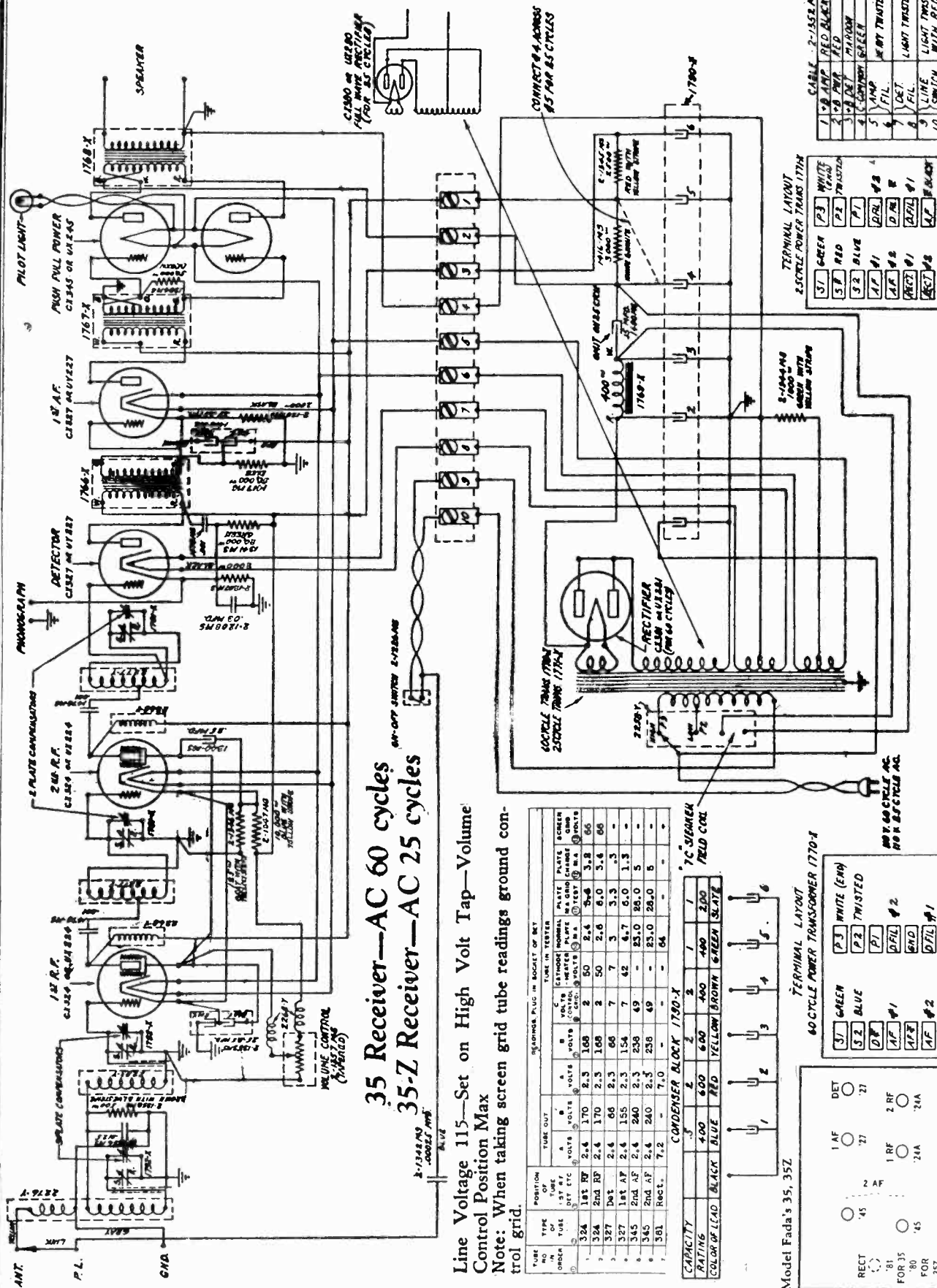
OPERATING VOLTAGES WITH JEWELL TEST PLUG IN SOCKET OF SET

TUBE NO.	TYPE OF TUBE	POSITION IN SET	OPERATING VOLTAGES				MILLIAMPERES
			FILAMENT	GRID 1	CATHODE HEATERS	PLATE	
224	1 R.P.	2,4	160	65	3	42	2.4
224	2 R.P.	2,4	160	65	3	42	2.4
224	3 R.P.	2,4	160	65	3	42	2.4
227	DET.	2,4	80	10	10	10	1.8
227	1 A.P.	2,4	150	10	10	5	6.5
245	2 A.P.	2,4	240	45	40	25	30
245	2 A.P.	2,4	240	45	40	25	30
260	Rect.	7,1	-	-	-	32.5	32.5

Wiring Diagram 35-B

MODEL 35
MODEL 35Z
Schematic

FADA RADIO & ELECTRIC CORP.



35 Receiver—AC 60 cycles
35-Z Receiver—AC 25 cycles

Line Voltage 115—Set on High Volt Tap—Volume Control Position Max
Note: When taking screen grid tube readings ground control grid.

TUBE ORDER	TYPE OF TUBE	POSITION	TUBE OUT		TUBE IN TESTER		PLATE SCREEN			
			A	B	VOLTS	MA		VOLTS	MA	
1	324	1st RF	2.4	1.70	2.3	1.68	2.4	3.8	66	
2	324	2nd RF	2.4	1.70	2.3	1.68	2.4	3.4	66	
3	327	DET	2.4	66	2.3	66	7	3.3	45	
4	327	1st AF	2.4	155	2.3	154	7	4.2	6.0	1.3
5	345	2nd AF	2.4	240	2.3	238	49	23.0	28.0	5
6	345	2nd AF	2.4	240	2.3	238	49	23.0	28.0	5
7	381	Rect.	7.2	7.0	7.0	7.0	54	54	54	54

CAPACITY	1	2	3	4	5	6
RATING	400	600	400	400	200	200
COLOR OF LEAD	BLACK	BLUE	RED	YELLOW	BROWN	GREEN SLATE

TERMINAL LAYOUT

1	DET	'21
2	1 AF	'27
3	2 AF	'24A
4	1 RF	'24A
5	2 RF	'21A

Model Fada's 35, 35Z

TERMINAL LAYOUT

31	GREEN	P3	WHITE	(ENH)
32	BLUE	P2	TWISTED	
41	AF #1	D FIL	GRD	
42	AF #2	D FIL	GRD	
43	AF #1	RECT #1		
44	AF #2	RECT #2		

60 CYCLE POWER TRANSFORMER 1770-Z

7C-588MKN
FIELD COIL

CABLE 2-1558AMS

1	AMP	RED	BLACK-TRACER
2	AMP	RED	
3	DET	PINK	
4	DET	GREEN	
5	AMP	WHT TWISTED	BLACK
6	FIL	DET	LIGHT TWISTED BLACK
7	FIL	DET	LIGHT TWISTED BLACK
8	FIL	DET	LIGHT TWISTED BLACK
9	LINE	SWITCH	LIGHT TWISTED BLACK
10	SWITCH		WITH RED TRACER

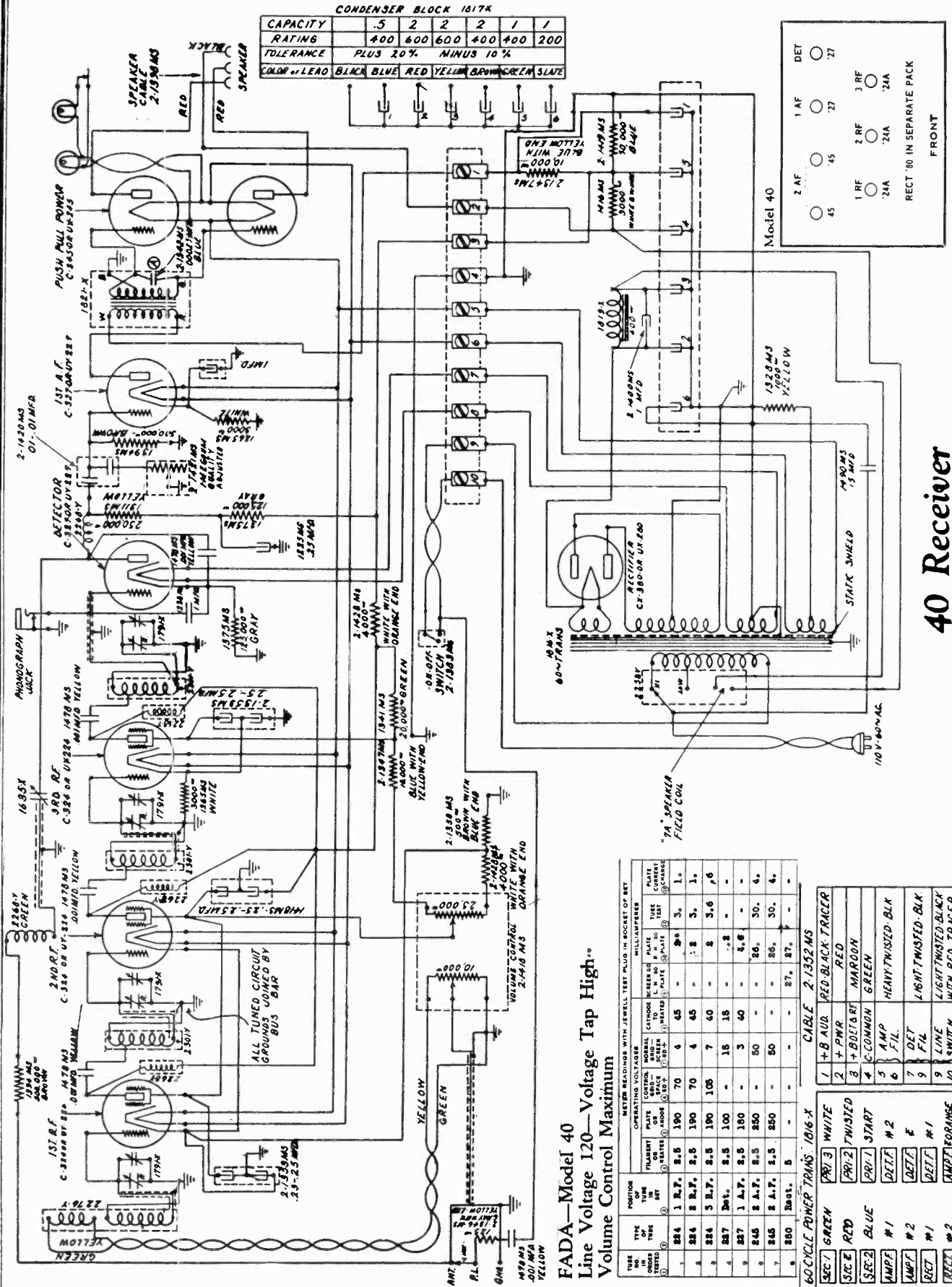
TERMINAL LAYOUT

31	GREEN	P3	WHITE
32	RED	P2	TWISTED
41	AF #1	D FIL	GRD
42	AF #2	D FIL	GRD
43	AF #1	RECT #1	
44	AF #2	RECT #2	

60 CYCLE POWER TRANS 1770-Z

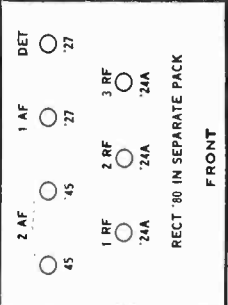
MODEL 40
Schematic

FADA RADIO & ELECTRIC CORP.



CONDENSER BLOCK 1817X

CAPACITY	.5	2	2	2	1	1
RATING	400	600	600	400	400	200
TOLERANCE	PLUS 20% MINUS 10%					
COLOR OF LEAD	BLACK	BLUE	RED	YELLOW	BROWN	GREEN SLATE



FADA-Model 40
Line Voltage 120—Voltage Tap High—
Volume Control Maximum

METER READINGS WITH JEWELL TEST PLUG IN SOCKET OF DET

TUBE NO. ORDER	TYPE OF TUBE	POSITION OF TAP IN SOCKET	OPERATING VOLTAGES			MILLIAMPERES					
			FLAMENT (1)	HEATER (2)	GRID (3)	CATHODE (4)	SCREEN (5)	PLATE (6)			
1	2A5	1 R.T.	8.5	190	70	4	45	-	24	3	1.
2	2A7	2 R.T.	8.5	190	70	4	45	-	2	3	1.
3	2A8	5 R.T.	8.5	190	105	7	40	-	2	3-6	6
4	2A9	Det.	8.5	100	-	15	15	-	1.8	-	-
5	2A10	1 A.T.	8.5	100	-	3	40	-	26	30	4.
6	2A11	2 A.T.	8.5	250	-	50	-	-	26	30	4.
7	2A12	2 A.T.	8.5	250	-	50	-	-	26	30	4.
8	2A13	500 MA	5	-	-	-	-	-	27	87	-

60-CYCLE POWER TRANS. 1816-X

CABLE 2-1352 MS

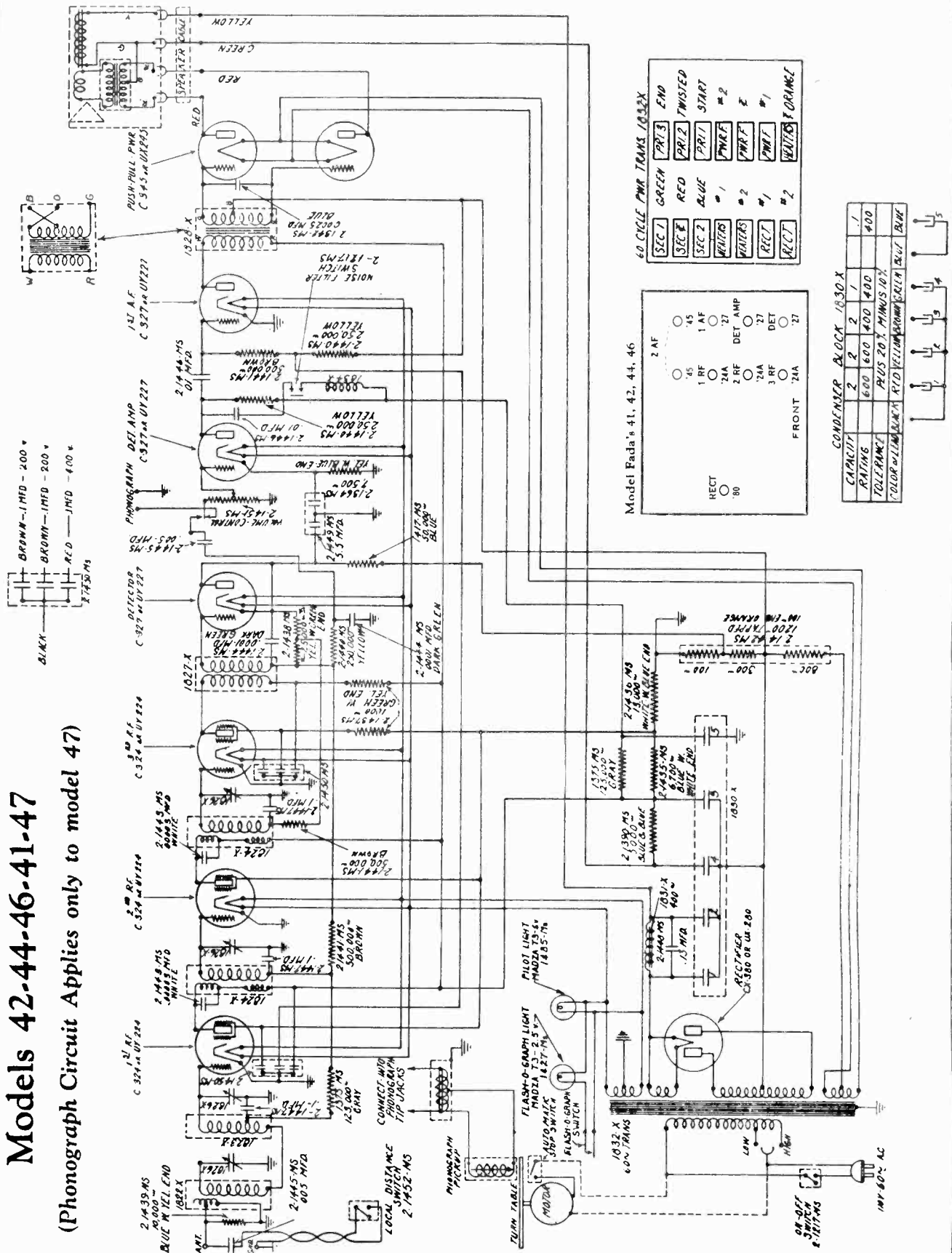
SEC. #	TYPE OF TUBE	POSITION OF TAP IN SOCKET	OPERATING VOLTAGES	MILLIAMPERES
1	+ B	AUB	RED-BLACK-TRACER	
2	+ PWR		RED	
3	+ BOLT & RT		MAROON	
4	+ COMMON		GREEN	
5	+ AMP		HEAVY-TWISTED-BLK	
6	+ FIL			
7	+ DET			
8	+ FIL		LIGHT-TWISTED-BLK	
9	+ LINE		LIGHT-TWISTED-BLK	
10	+ SWITCH		WITH RED-TRACER	

40 Receiver

MODEL 42,44,46,41,47

Schematic

FADA RADIO & ELECTRIC CORP.



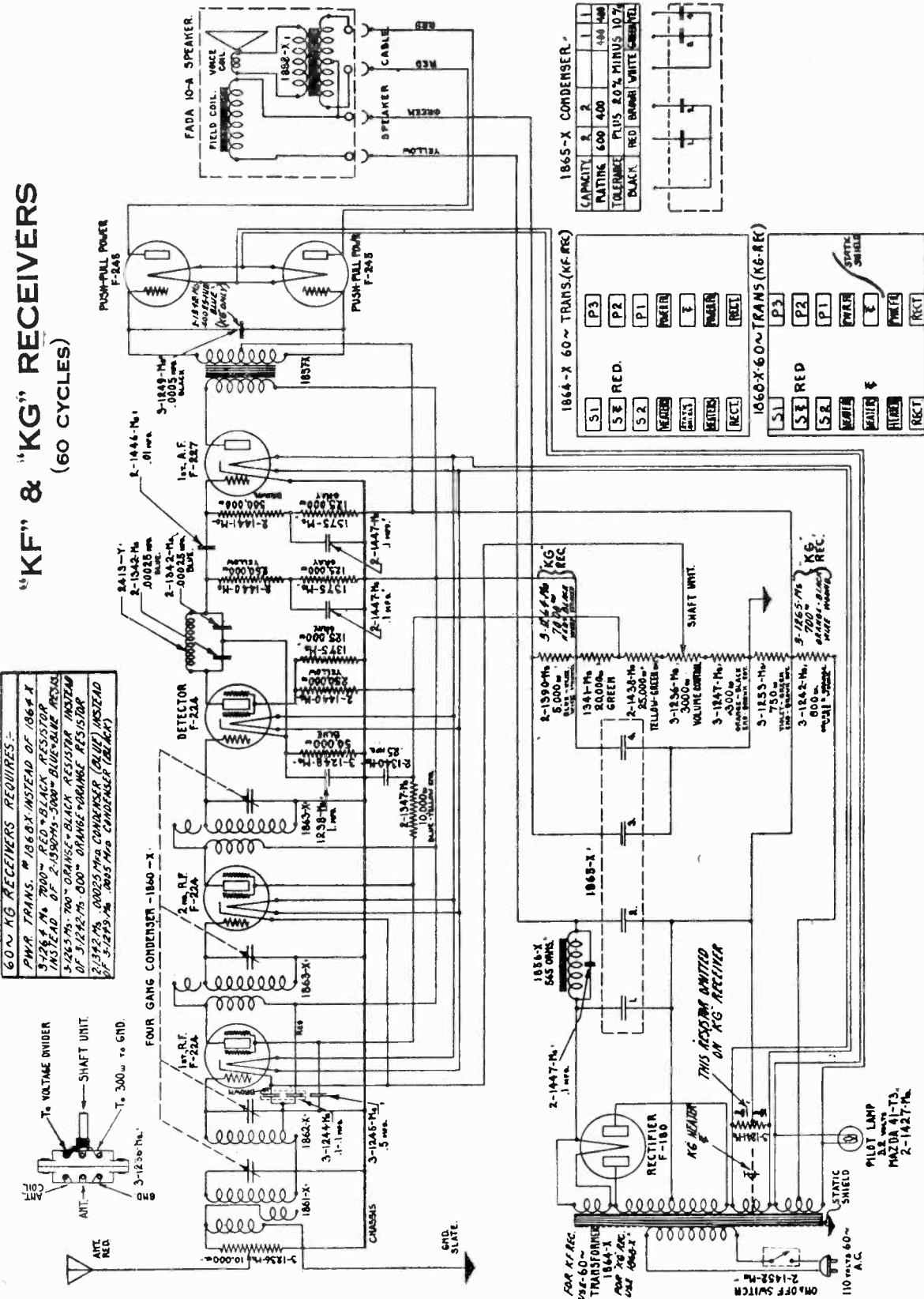
Models 42-44-46-41-47
(Phonograph Circuit Applies only to model 47)

FADA RADIO & ELECTRIC CORP.

MODEL "KF", (43)
MODEL "KG", (761,762,
764,766)
Schematic

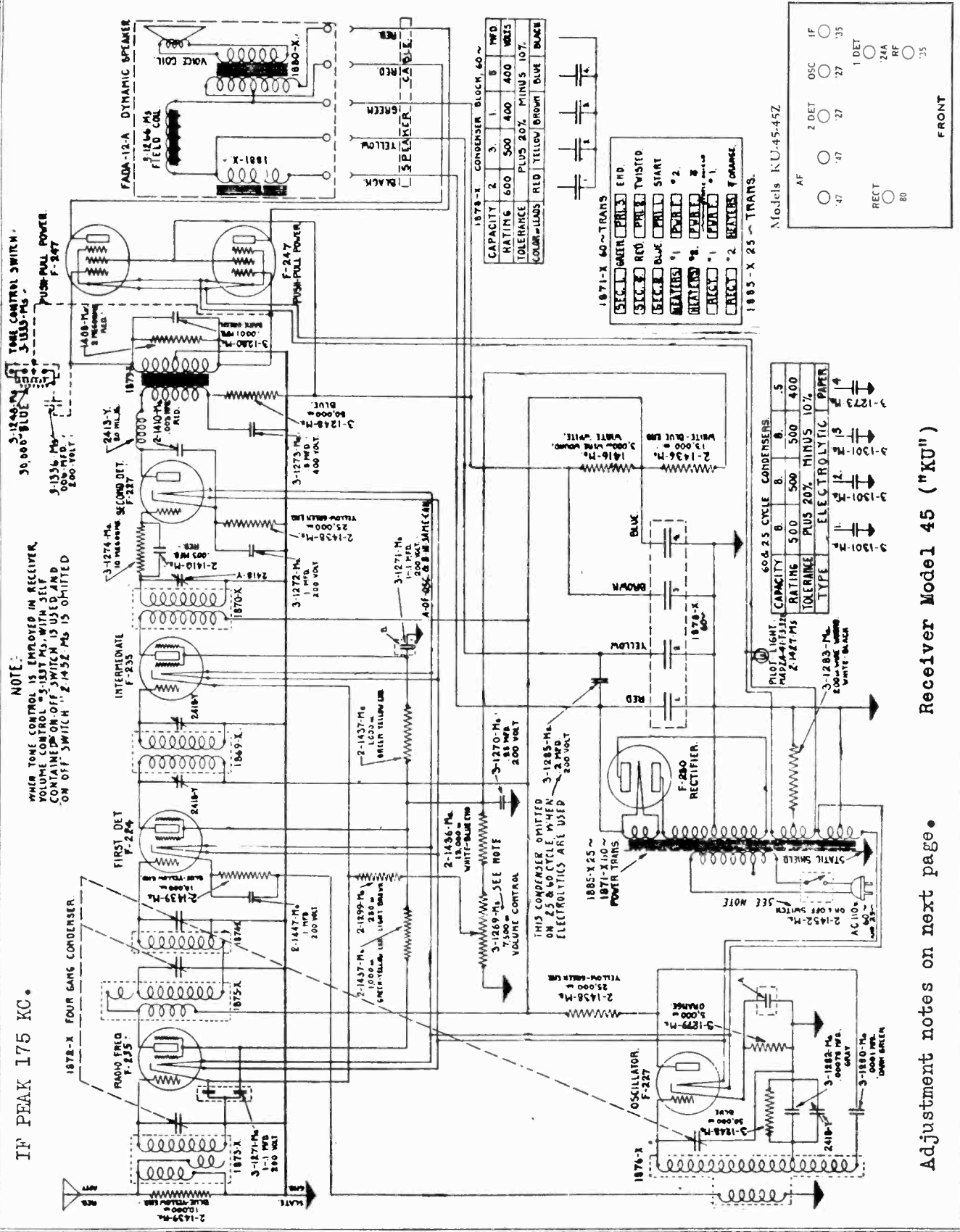
"KF" & "KG" RECEIVERS
(60 CYCLES)

- 60~KG RECEIVERS REQUIRES:-
- PWR TRANS. # 1868-X INSTEAD OF 1864-X
 - 3-126-7 M. 7000~ RED~BLACK RESISTOR
 - 183 LEAD OF 2-1580-M. 5000~ BLUE~BLUE RESISTOR
 - 3-1263-M. 700~ ORANGE~BLACK RESISTOR INSTEAD OF 3-1242-M. 6000~ ORANGE~ORANGE RESISTOR
 - 2-1342-M. 00025-MFD CONDENSER (BLUP) INSTEAD OF 2-1413-M. 0005-MFD CONDENSER (TELE-CL)



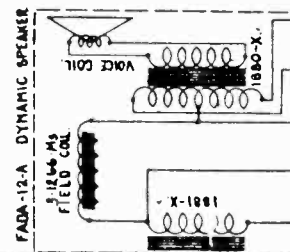
Model "KF" Chassis. Receiver model 43
Model "KG" Chassis. Receiver model 761,762,764,766

MODEL 45, 45-Z (KU) FADA RADIO & ELECTRIC CORP.
Schematic



IF PEAK 175 KC.

NOTE:
WHEN TONE CONTROL IS EMPLOYED IN RECEIVER,
VOLUME CONTROL 3-1531-M5 WITH SELF
CONTAINED ON-OFF SWITCH IS USED AND
ON OFF SWITCH 2-1452-M5 IS OMITTED



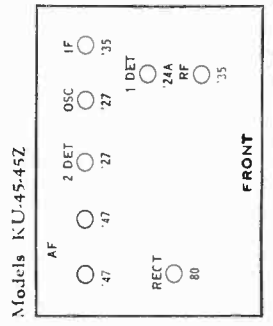
1878-X CONDENSER BLOCK, 60~

CAPACITY	2	3	1	8	5
RATING	600	500	400	400	400
TOLERANCE	PLUS 20% MINUS 10%				
COLOR-CODES	RED	YELLOW	BROWN	BLUE	BLACK

1871-X 60~ TRANS

SEC. 1	WHITER	PHIL	END
SEC. 2	RED	PHIL	TWISTED
SEC. 3	BLUE	PHIL	START
SEC. 4	WHITE	PHIL	2
SEC. 5	RED	PHIL	2
SEC. 6	WHITE	PHIL	1
SEC. 7	RED	PHIL	1
SEC. 8	WHITE	PHIL	1

1885-X 25~ TRANS.



60~ 25 CYCLE CONDENSERS

CAPACITY	8	5	5	5	5
RATING	500	500	500	500	400
TOLERANCE	PLUS 20% MINUS 10%				
TYPE	ELECTROLYTIC PAPER				

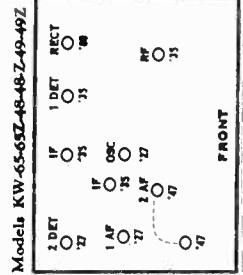
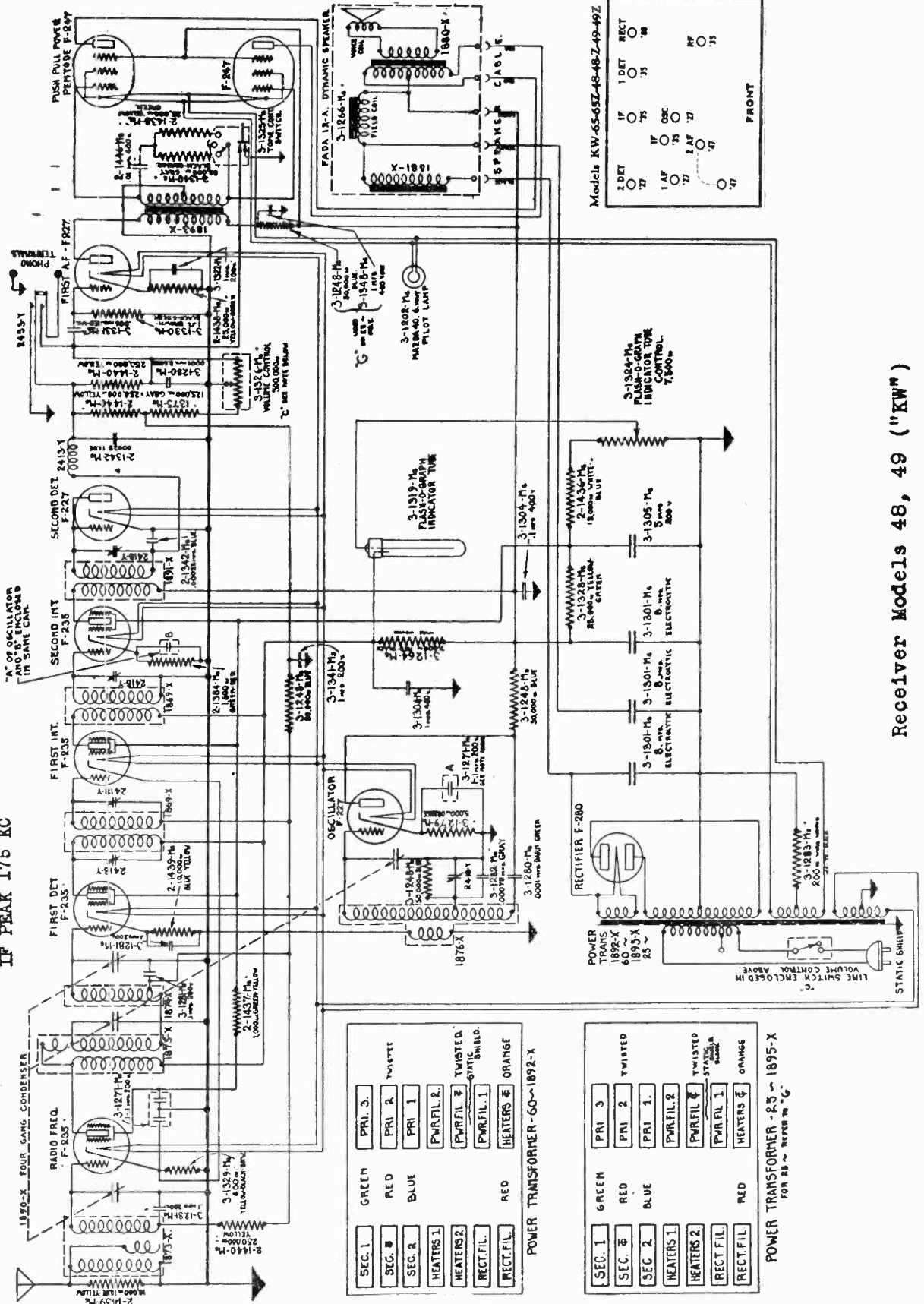
Adjustment notes on next page.

Receiver Model 45 ("KU")

FADA RADIO & ELECTRIC CORP

MODEL 48,49 (KW)
Schematic

IF PEAK 175 KC



POWER TRANSFORMER - 60-1892-X

SEC. 1	GREEN	PRI. 3	
SEC. 2	RED	PRI. 2	TWISTED
SEC. 3	BLUE	PRI. 1	
HEATERS 1		PWR.FIL. 2	
HEATERS 2		PWR.FIL. 1	TWISTED
RECT.FIL.		PWR.FIL. 1	SHIELD
RECT.FIL.	RED	HEATERS	ORANGE

POWER TRANSFORMER - R-5 - 1895-X
FOR R-5 - REFER TO 'C'

SEC. 1	GREEN	PRI. 3	
SEC. 2	RED	PRI. 2	TWISTED
SEC. 3	BLUE	PRI. 1	
HEATERS 1		PWR.FIL. 2	
HEATERS 2		PWR.FIL. 1	TWISTED
RECT.FIL.		PWR.FIL. 1	SHIELD
RECT.FIL.	RED	HEATERS	ORANGE

Receiver Models 48, 49 ("KW")

MODEL 45, 48, 49
Service Notes

FADA RADIO & ELECTRIC CORP.

SPECIAL DATA FOR MODELS 45, 48 and 49 RECEIVERS

Trimmer adjustment frequencies are 175 KC, 600 KC and 1400 KC. The trimmer condensers on the model 45 receiver are located in the rear right hand corner of the chassis looking at the chassis from the front. Two of the IF trimmers are on the right hand side, near the rear and the third trimmer condenser (IF) is that most distant from the right hand rear corner of the chassis. The trimmer upon the rear of the chassis, near the right hand corner is the oscillator series condenser.

In the models 48 and 49, the oscillator series condenser control is accessible from the top of the chassis, on the left end of the chassis to the left of the shields. The four IF trimmers are accessible through the rear of the chassis, one the left end, looking at the chassis from the front.

The suggested output meter is of the type suitable for connection across the speaker voice coil. The 1st detector control grid must be disconnected for the IF trimmer adjustments and the oscillator "A" lead is connected to the 1st detector control grid cap upon the tube.

The variable gang condenser compensators for the model 45 are located on top of their respective tuning condenser sections. They can be adjusted with a screw driver. The compensator adjusting screws are at ground potential. The adjustment is made at 1400 KC without disturbing the main tuning sections. The suggestion is made to connect the antenna circuit of the receiver through a dummy antenna or a 250 mmfd condenser. The oscillator series condenser is adjusted at 600 KC

The main tuning condenser compensators are located at the top of their main tuning sections in the 48 and 49 models. They can be adjusted with a screw driver and since the screws are at ground potential and insulated screw driver is not required. There are four holes in the overall condenser and tube housing cover. The screw driver is inserted through these holes.

The tuning condenser compensators are adjusted at 1400 KC. The oscillator series condenser is adjusted at 600 KC. The intermediate trimmers are adjusted at 175 KC. Due to the physical location of the oscillator series condenser it is permissible to remove the overall condenser and tube shield housing cover to permit the insertion of the standard #4 socket wrench for adjustment purposes.

The suggestion is made to check the 175 KC adjustment of the test oscillator by beating that signal against one of its harmonics represented by the carrier frequency of a broadcasting station of correct frequency which is tuned in with the receiver operated in normal manner. Some of the harmonics of a 175 KC signal are 1400 KC., 1225 KC., 1050 KC., 875 KC., and 700 KC.

FADA RADIO & ELECTRIC CORP.

MODEL 50, 70, 71, 72
50-Z, 70-Z
Schematic
Voltage

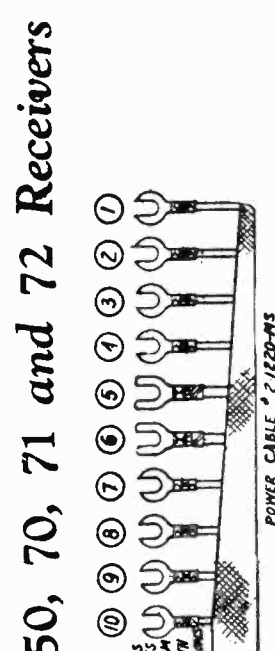
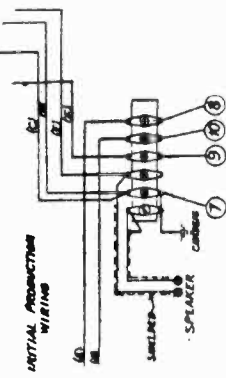
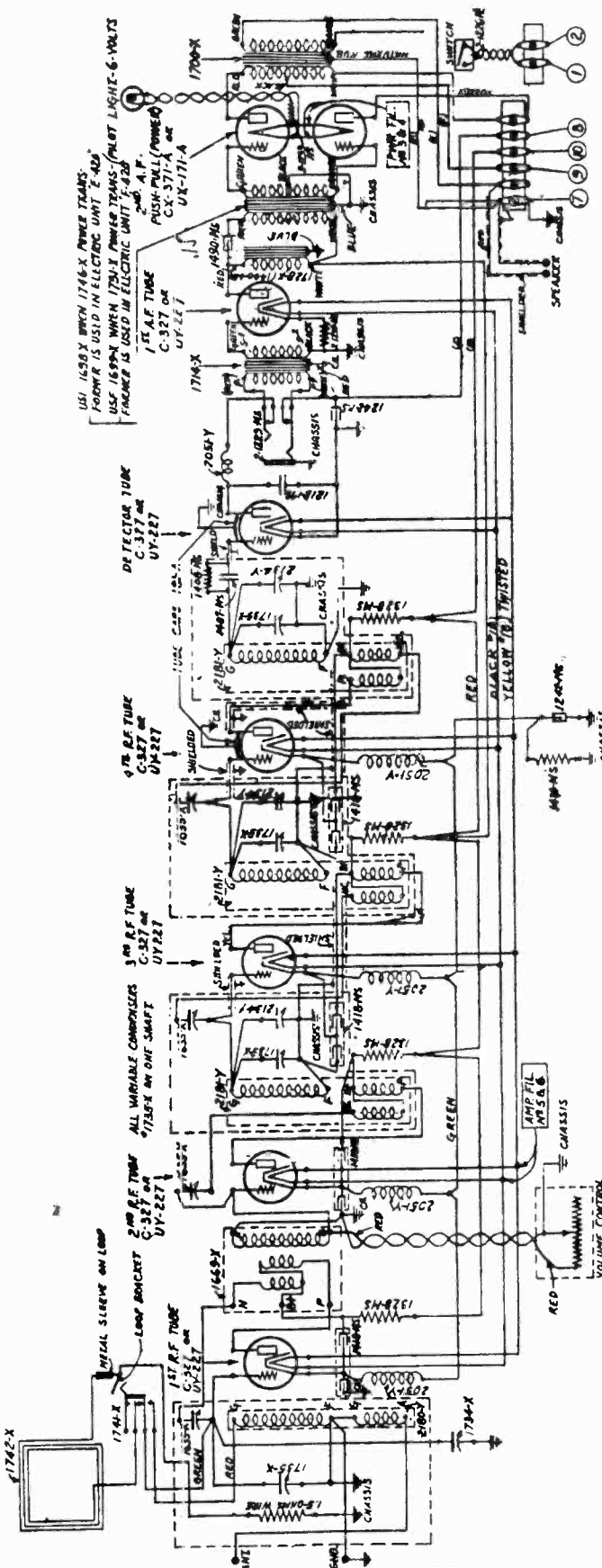


TABLE OF CABLE CONNECTIONS

NO	COLOR
1	LINE BLACK WITH RED TRACER
2	SWITCH BLACK TWISTED
3	PWR. BLACK TWISTED
4	FIL. BLACK TWISTED
5	AMP. BLACK TWISTED
6	FIL. BLACK TWISTED
7	C. (COMMON) GREEN
8	450EI MAROON
9	450 PWR. RED WITH BLACK TRACER
10	450 PWR. RED WITH BLACK TRACER

OTHER ENDS OF LEADS CONNECTED TO POINTS DESIGNATED IN DIAGRAM AND IN ACCORDANCE WITH TABLE OF CABLE CONNECTIONS

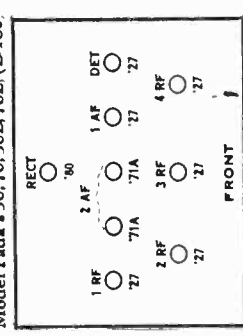
50, 70, 71 and 72 Receivers

Model E-180, E-180Z
E-420, E-420Z
power packs are shown on pages following.

FADA—Models 50-70 with E-180 Electric Unit Line Voltage 120—110-130 Volt Tap

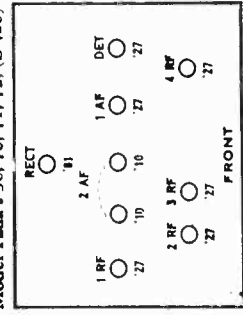
Model Fada's 50, 70, 50Z, 70Z, (E-180)

Model Fada's 50, 70, 71, 72, (E-420)

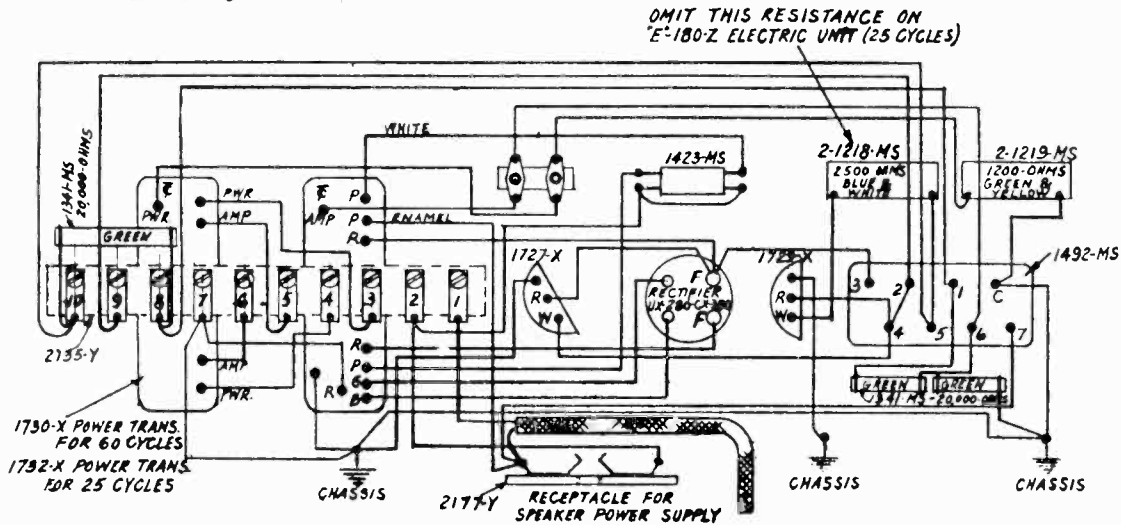


REAR PANEL PLUG IN SOCKET OF SET

TYPE TUBE	TYPE TUBE	100 VOLTS	110 VOLTS	120 VOLTS	130 VOLTS	140 VOLTS	150 VOLTS	160 VOLTS	170 VOLTS	180 VOLTS	190 VOLTS	200 VOLTS	250 VOLTS
50Z7	181	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
227	227	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
227	227	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
227	227	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
227	227	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
174A	174A	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
280	280	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

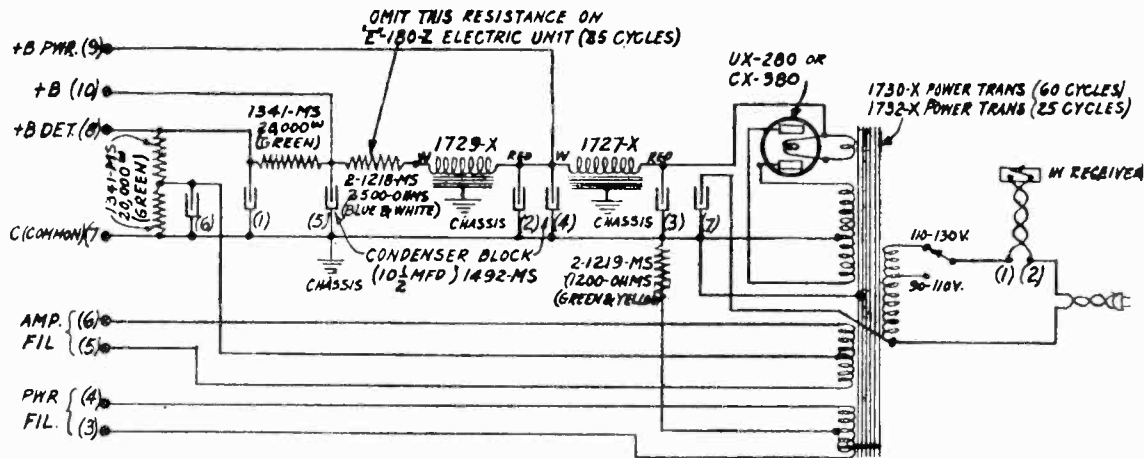
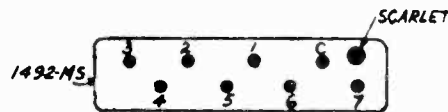


MODEL E-180, E-180Z
 Electric Unit FADA RADIO & ELECTRIC CORP.
 for 50, 70, 71, 72



ACTUAL WIRING DIAGRAM OF E-180 & E-180-Z ELECTRIC UNIT

Nor should it be a difficult matter to keep in mind that all "E-180" sets can be identified by their having two round cans in the "rear row" (the power pack). This immediately identifies the set as requiring a 280 rectifier tube and type 171-A amplifier tubes.



SCHEMATIC WIRING DIAGRAM OF E-180 & E-180-Z ELECTRIC UNIT

ELECTRICAL VALUES

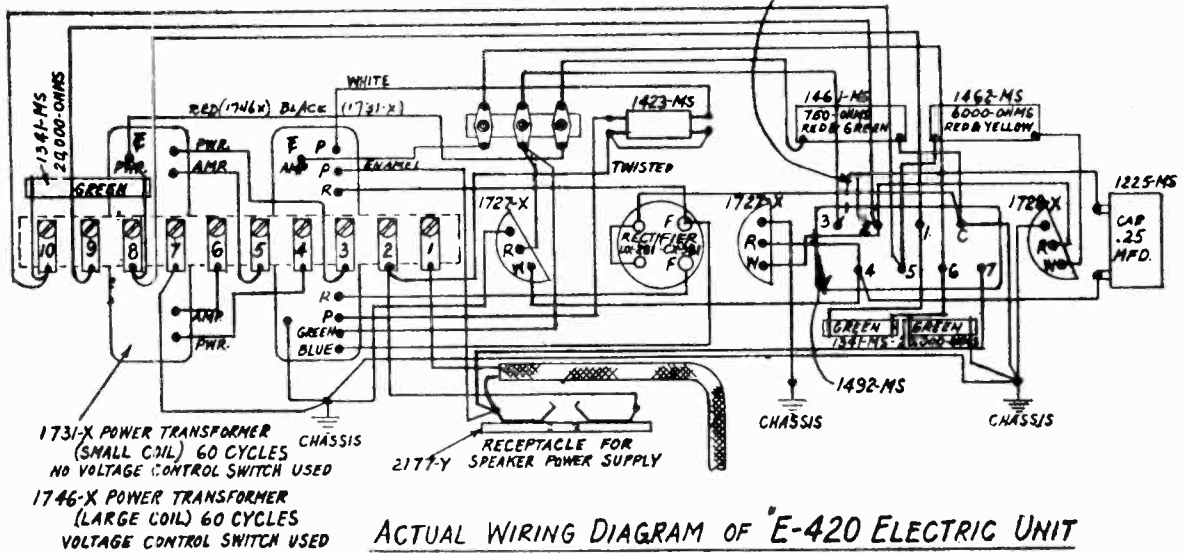
ELECTRIC UNIT TYPE E- 180

- 1225-MS .25 mfd 400 volts
- 1341-MS carbon 20,000 ohms (green)
- 1461-MS wire 750 ohms red-green
- 1462-MS wire 6000 ohms red-yellow
- 1492-MS condenser block 10.5 mfd
- 2-1218-MS wire 2500 ohms blue-white
- 2-1219-MS wire 1200 ohms green-yellow
- 1727-X choke 600 ohms
- 1729-X choke 3500 ohms

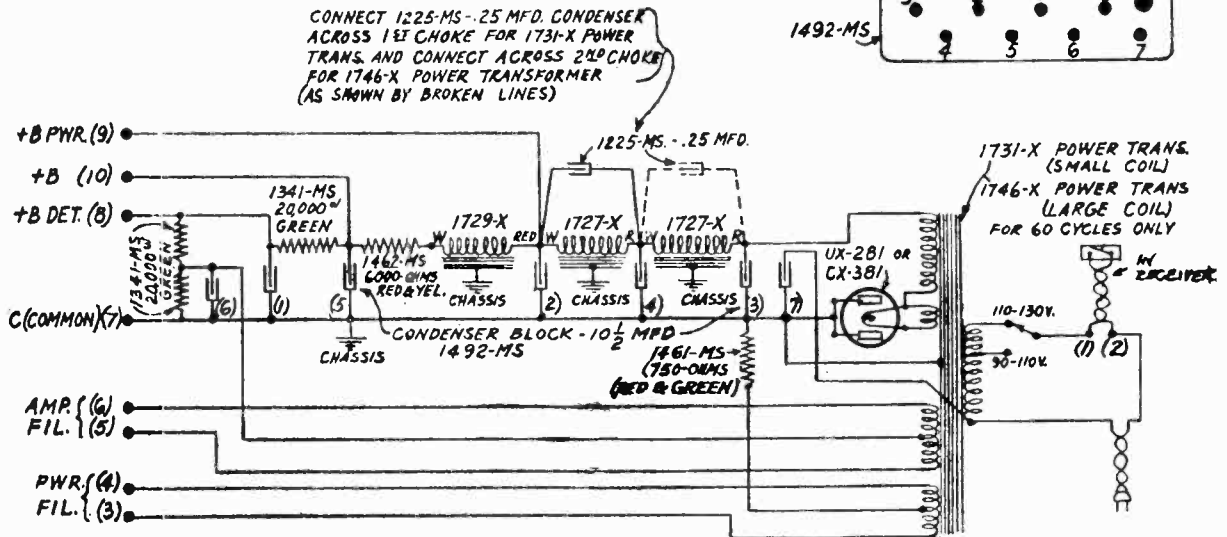
FADA RADIO & ELECTRIC CORP.

MODEL E-420, E-420Z
Electric Unit
for 50, 70, 71, 72

CONNECT *1225-MS-.25 MFD CONDENSER TO *3 LUG FOR 1731-X POWER TRANS, AND CONNECT *1225-MS TO *2 LUG FOR 1746-X POWER TRANSFORMER.



Now it should not be a difficult matter to keep in mind that all "E-420" sets can be identified by their having three round cans in the "rear row" (the power pack). This immediately identifies the set as requiring a 281 rectifier tube and type 210 amplifier tubes.



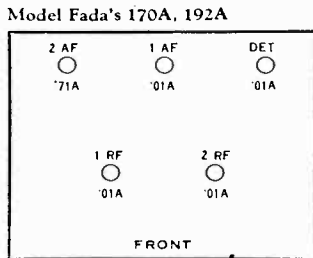
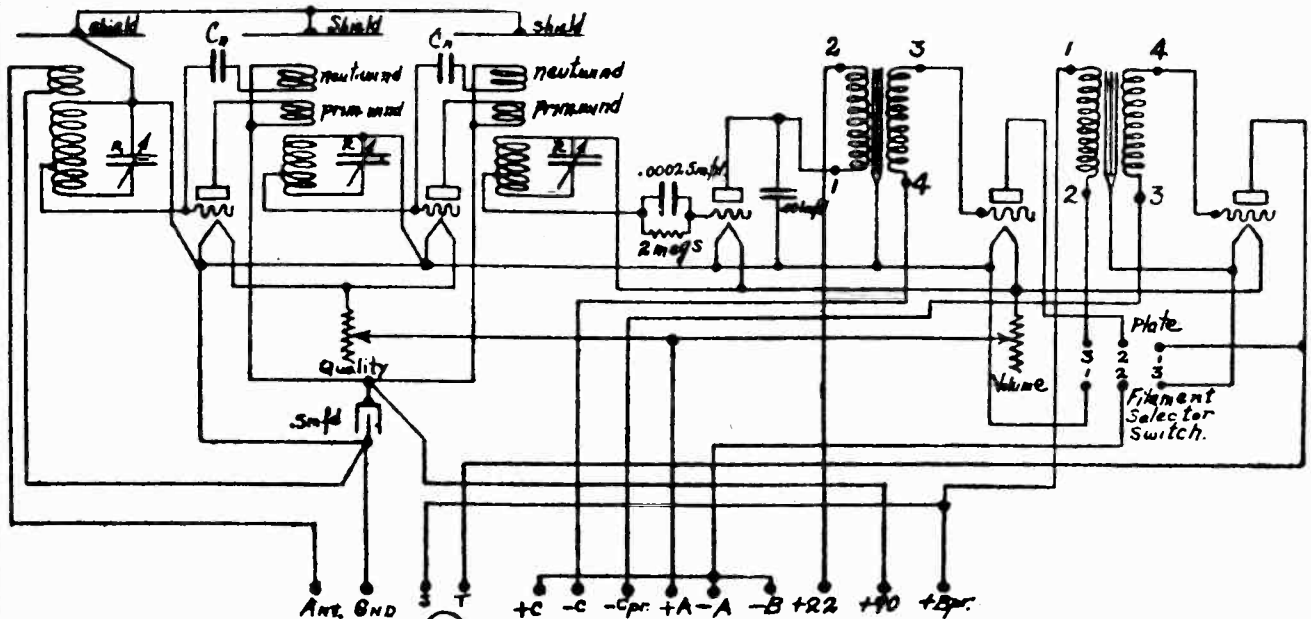
SCHEMATIC WIRING DIAGRAM OF "E-420" ELECTRIC UNIT.

ELECTRICAL VALUES
ELECTRIC UNIT TYPE E-420

1225-MS	.25 mfd 400 volts	2-1218-MS	wire 2500 ohms blue-white
1341-MS	carbon 20,000 ohms green	2-1219-MS	wire 1200 ohms green-yellow
1461-MS	wire 750 ohms red-green	1727-X	choke 600 ohms
1462-MS	wire 6000 ohms red-yellow	1729-X	choke 3500 ohms
1492-MS	condenser block 10.5 mfd		

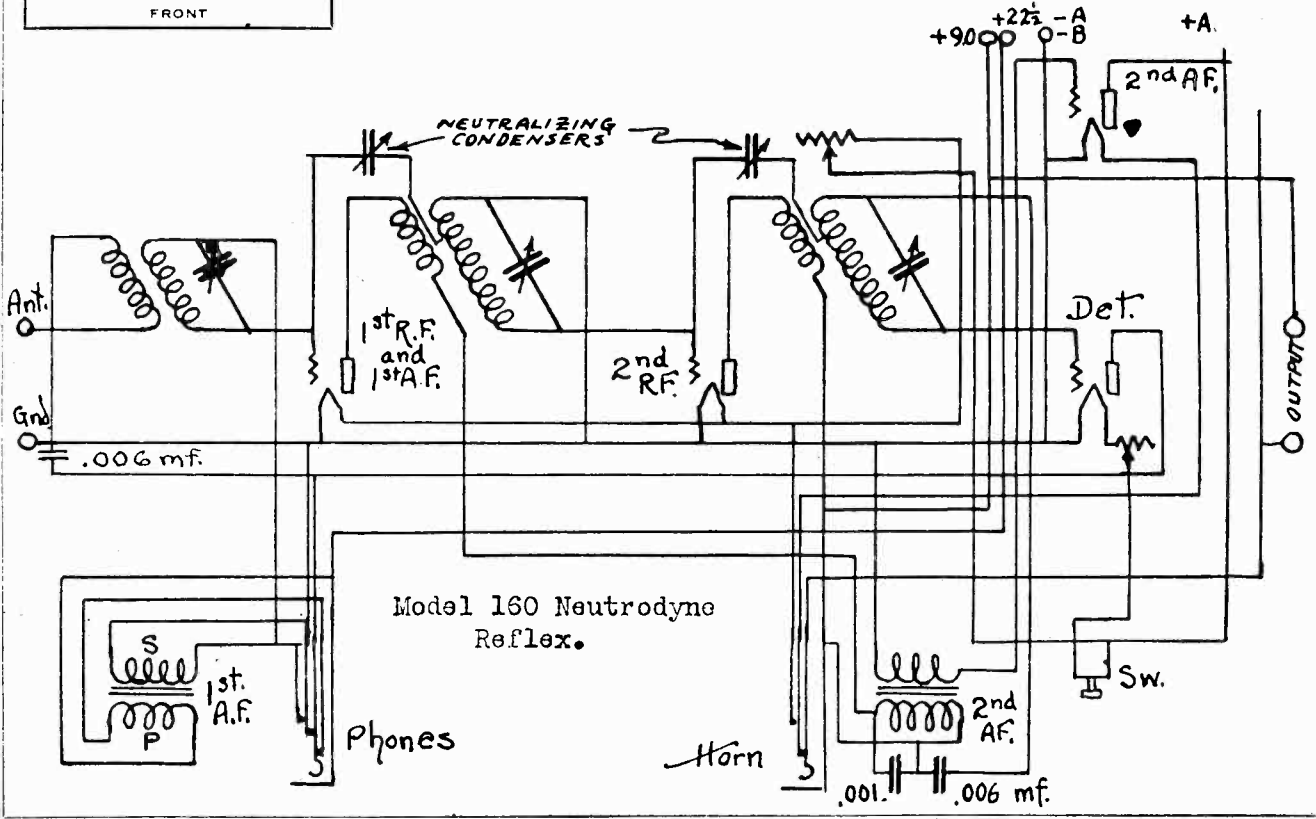
MODEL 192-A Receiver
 192-S
 192-BS Units
 MODEL 160 Neutrodyne

FADA RADIO & ELECTRIC CORP.



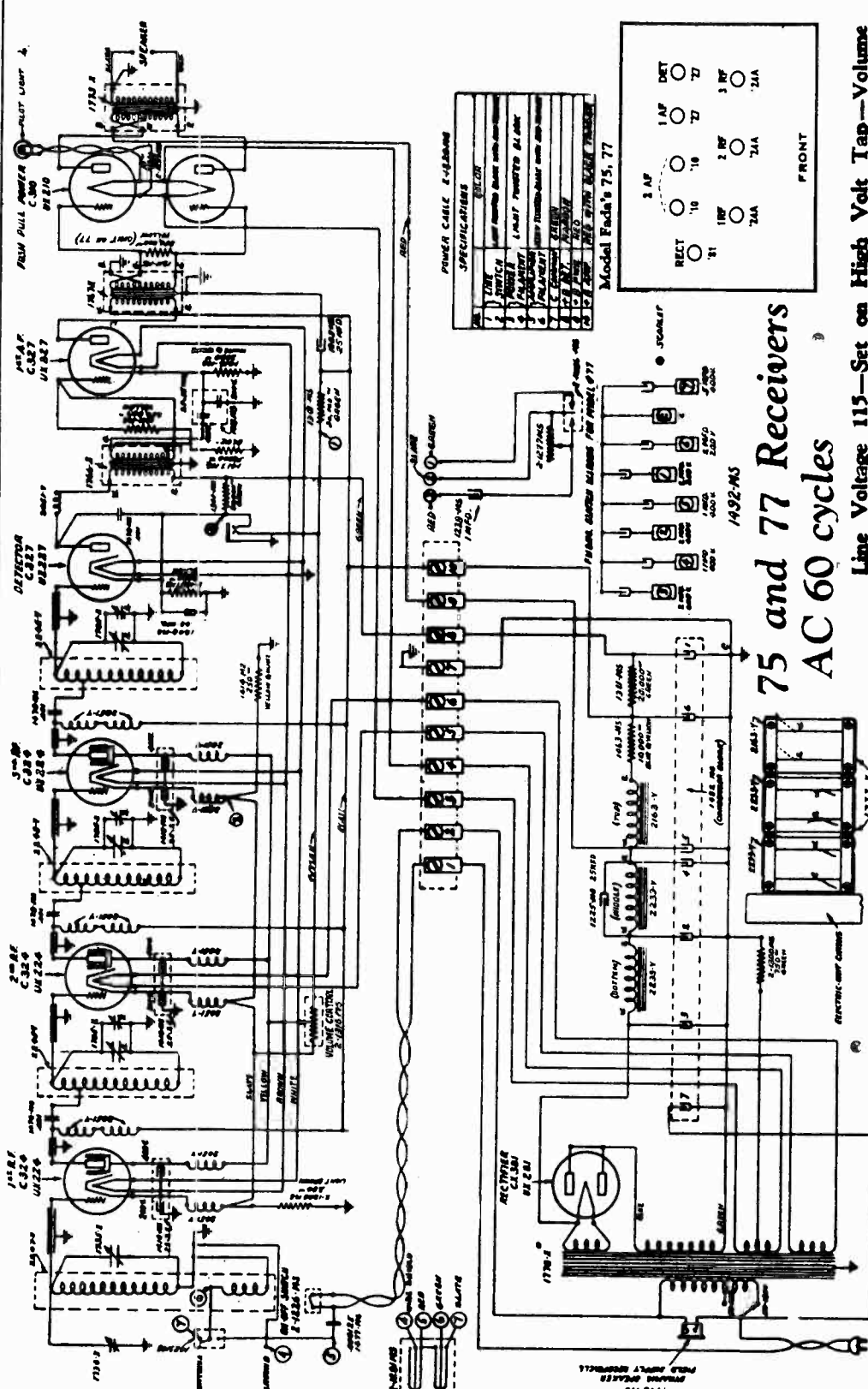
(Note S= Sleeve
 T= TIP
 connections to jack) 192-A Receiver, 192-S and 192 BS Units

Model 192-A Receiver, 192-S and 192-BS Units



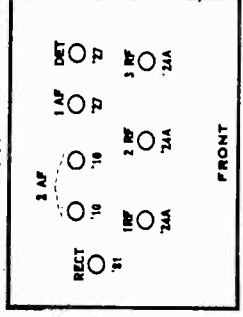
FADA RADIO & ELECTRIC CORP.

MODEL 75, 77
Schematic
Voltage
Notes



POWER CABLE 4-168888
SPECIFICATIONS

1	ZINC	100% PURE
2	SWITCH	100% PURE
3	PLATE	100% PURE
4	GRID	100% PURE
5	SCREEN	100% PURE
6	CONTROL	100% PURE
7	RECTOR	100% PURE
8	DIODE	100% PURE
9	ANODE	100% PURE
10	CATHODE	100% PURE
11	HEATER	100% PURE
12	BASE	100% PURE
13	SOCKET	100% PURE
14	PLATE	100% PURE
15	GRID	100% PURE
16	SCREEN	100% PURE
17	CONTROL	100% PURE
18	RECTOR	100% PURE
19	DIODE	100% PURE
20	ANODE	100% PURE
21	CATHODE	100% PURE
22	HEATER	100% PURE
23	BASE	100% PURE
24	SOCKET	100% PURE



75 and 77 Receivers
AC 60 cycles

Line Voltage 115—Set on High Volt Tap—Volume Control Position Max
Note: When taking screen grid tube readings control grid should be grounded.

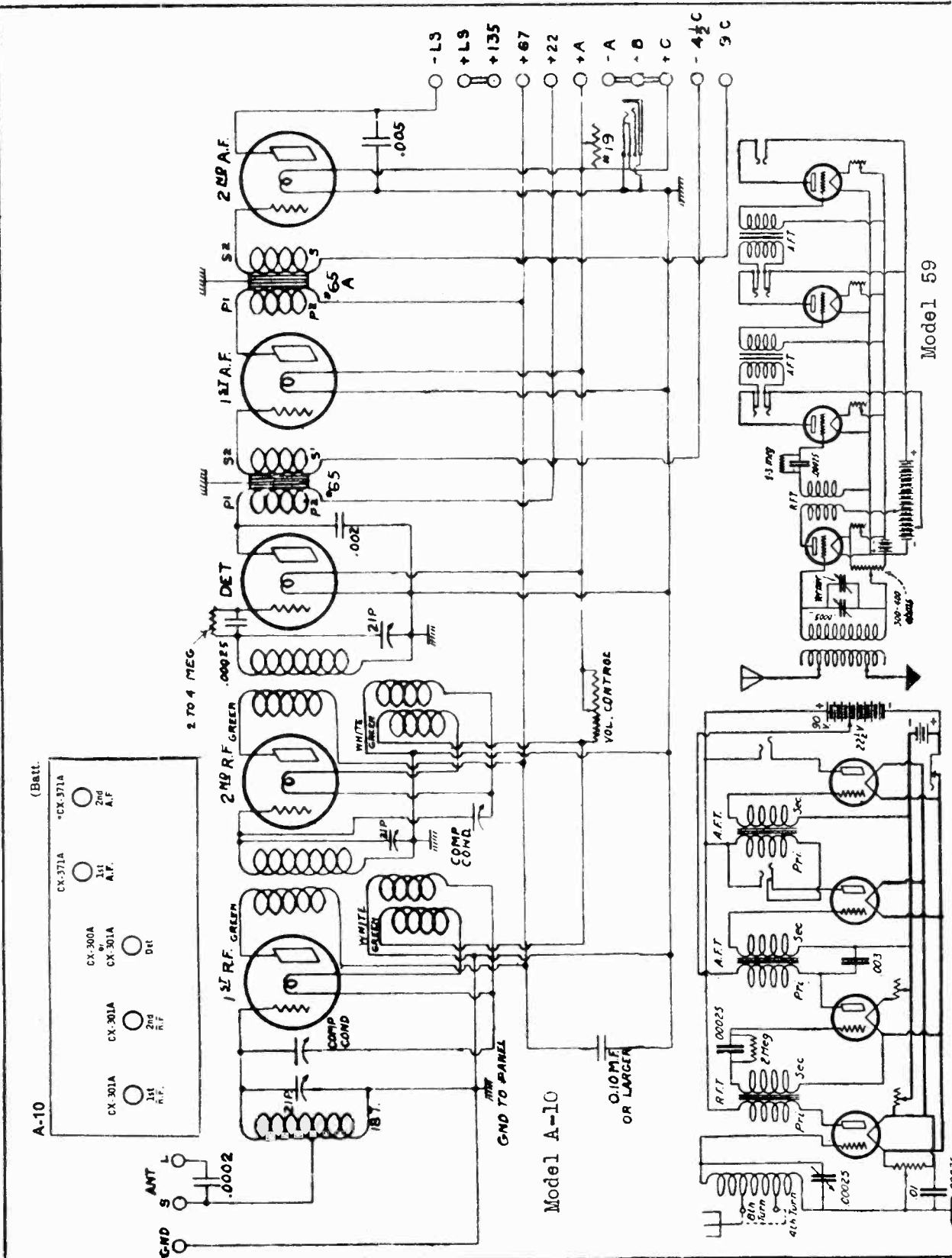
RECOMMENDED VALUES IN NUMBER OF SET

TYPE	TYPE	FUNCTION	RECOMMENDED VALUE	MINIMUM VALUE	MAXIMUM VALUE
1	6X250	RF AMP	1.0	0.5	2.0
2	6X250	DET	1.0	0.5	2.0
3	6X250	AF AMP	1.0	0.5	2.0
4	6X250	AF AMP	1.0	0.5	2.0
5	6X250	AF AMP	1.0	0.5	2.0
6	6X250	AF AMP	1.0	0.5	2.0
7	6X250	AF AMP	1.0	0.5	2.0
8	6X250	AF AMP	1.0	0.5	2.0
9	6X250	AF AMP	1.0	0.5	2.0
10	6X250	AF AMP	1.0	0.5	2.0
11	6X250	AF AMP	1.0	0.5	2.0
12	6X250	AF AMP	1.0	0.5	2.0
13	6X250	AF AMP	1.0	0.5	2.0
14	6X250	AF AMP	1.0	0.5	2.0
15	6X250	AF AMP	1.0	0.5	2.0
16	6X250	AF AMP	1.0	0.5	2.0
17	6X250	AF AMP	1.0	0.5	2.0
18	6X250	AF AMP	1.0	0.5	2.0
19	6X250	AF AMP	1.0	0.5	2.0
20	6X250	AF AMP	1.0	0.5	2.0
21	6X250	AF AMP	1.0	0.5	2.0
22	6X250	AF AMP	1.0	0.5	2.0
23	6X250	AF AMP	1.0	0.5	2.0
24	6X250	AF AMP	1.0	0.5	2.0
25	6X250	AF AMP	1.0	0.5	2.0
26	6X250	AF AMP	1.0	0.5	2.0
27	6X250	AF AMP	1.0	0.5	2.0
28	6X250	AF AMP	1.0	0.5	2.0
29	6X250	AF AMP	1.0	0.5	2.0
30	6X250	AF AMP	1.0	0.5	2.0
31	6X250	AF AMP	1.0	0.5	2.0
32	6X250	AF AMP	1.0	0.5	2.0
33	6X250	AF AMP	1.0	0.5	2.0
34	6X250	AF AMP	1.0	0.5	2.0
35	6X250	AF AMP	1.0	0.5	2.0
36	6X250	AF AMP	1.0	0.5	2.0
37	6X250	AF AMP	1.0	0.5	2.0
38	6X250	AF AMP	1.0	0.5	2.0
39	6X250	AF AMP	1.0	0.5	2.0
40	6X250	AF AMP	1.0	0.5	2.0
41	6X250	AF AMP	1.0	0.5	2.0
42	6X250	AF AMP	1.0	0.5	2.0
43	6X250	AF AMP	1.0	0.5	2.0
44	6X250	AF AMP	1.0	0.5	2.0
45	6X250	AF AMP	1.0	0.5	2.0
46	6X250	AF AMP	1.0	0.5	2.0
47	6X250	AF AMP	1.0	0.5	2.0
48	6X250	AF AMP	1.0	0.5	2.0
49	6X250	AF AMP	1.0	0.5	2.0
50	6X250	AF AMP	1.0	0.5	2.0
51	6X250	AF AMP	1.0	0.5	2.0
52	6X250	AF AMP	1.0	0.5	2.0
53	6X250	AF AMP	1.0	0.5	2.0
54	6X250	AF AMP	1.0	0.5	2.0
55	6X250	AF AMP	1.0	0.5	2.0
56	6X250	AF AMP	1.0	0.5	2.0
57	6X250	AF AMP	1.0	0.5	2.0
58	6X250	AF AMP	1.0	0.5	2.0
59	6X250	AF AMP	1.0	0.5	2.0
60	6X250	AF AMP	1.0	0.5	2.0

COMPENSATING INSTRUCTIONS FOR MODELS 75 AND 77
The compensating condenser is located beneath the small hole in the left side of each RF shield can (facing the front of the set) and may be adjusted with a screw driver. There is no compensating condenser in the shield can to the extreme left; its function being performed by the antenna vernier.

FEDERAL RADIO CORP.

MODELS A-10, 59, 102
Schematic



- (Batt.)
- A-10
 - CX-301A 1st R.F.
 - CX-301A 2nd R.F.
 - CX-301A Det.
 - CX-300A or CX-301A 1st A.F.
 - CX-371A 2nd A.F.

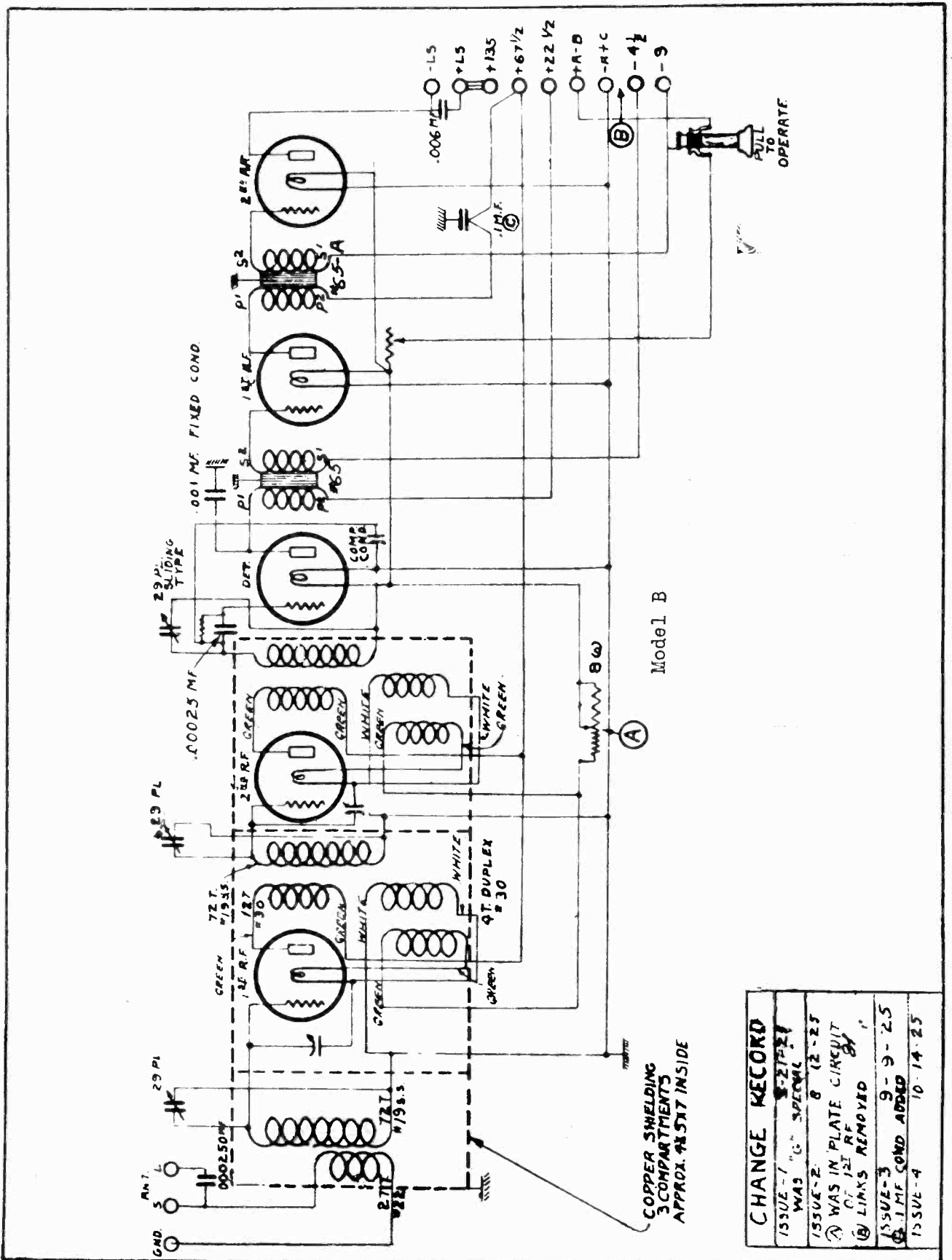
Model A-10
0.10MΩ
OR LARGER

Model 59

Model 102

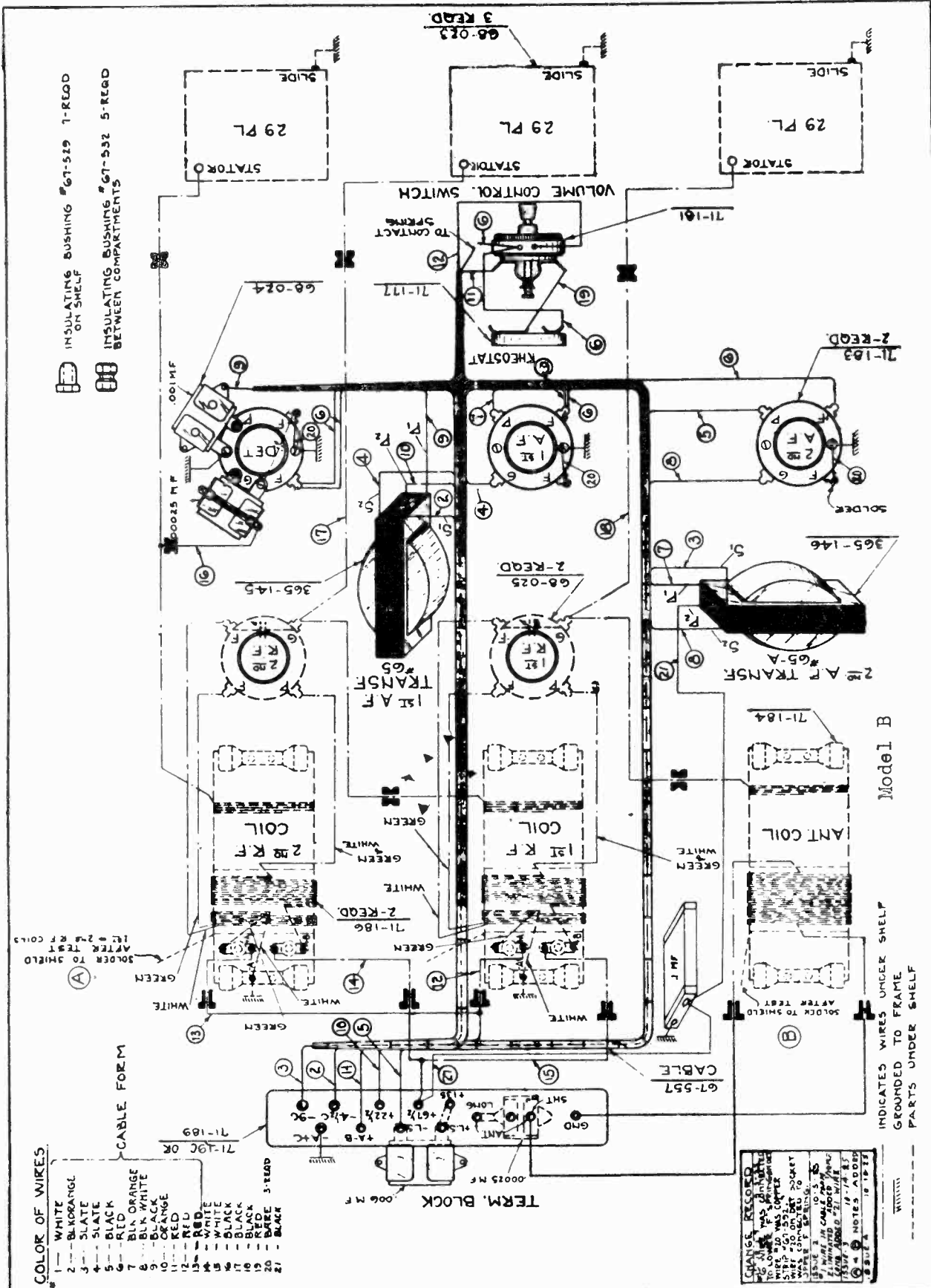
FEDERAL RADIO CORP.

MODEL B
Schematic



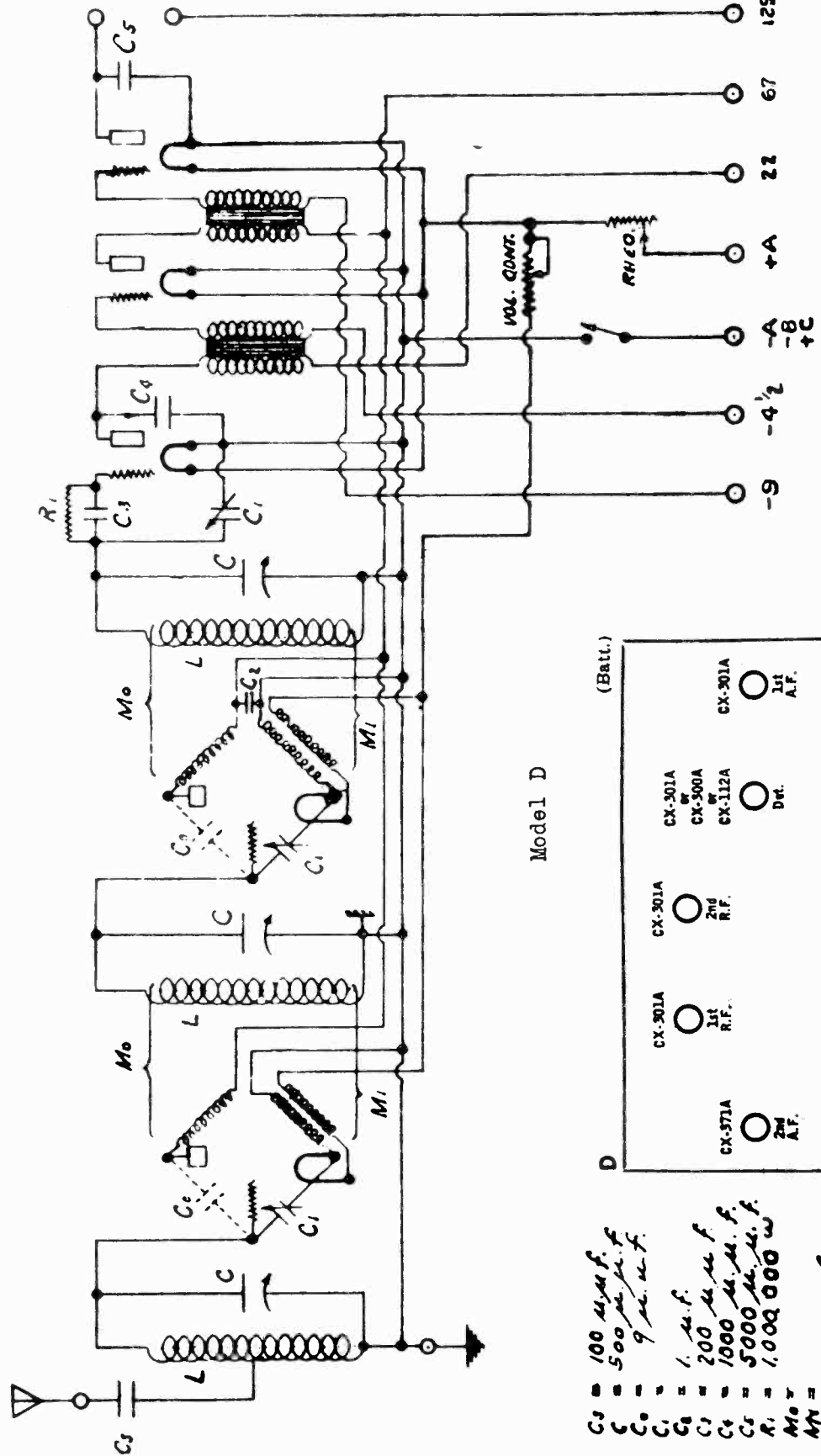
MODEL B
Wiring Diagram

FEDERAL RADIO CORP.

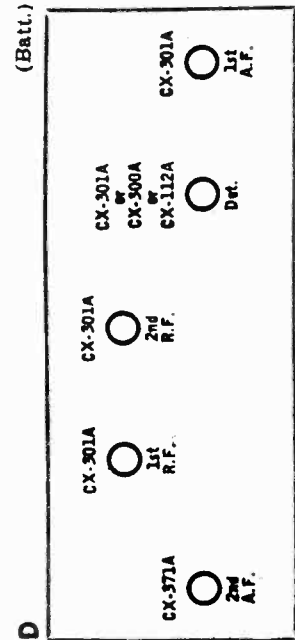


FEDERAL RADIO CORP.

MODEL D, CODE 68-070
Schematic



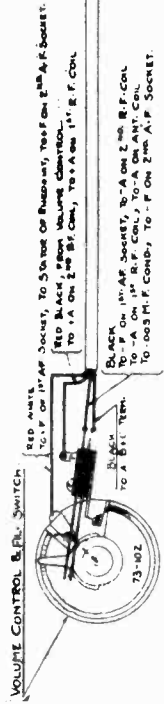
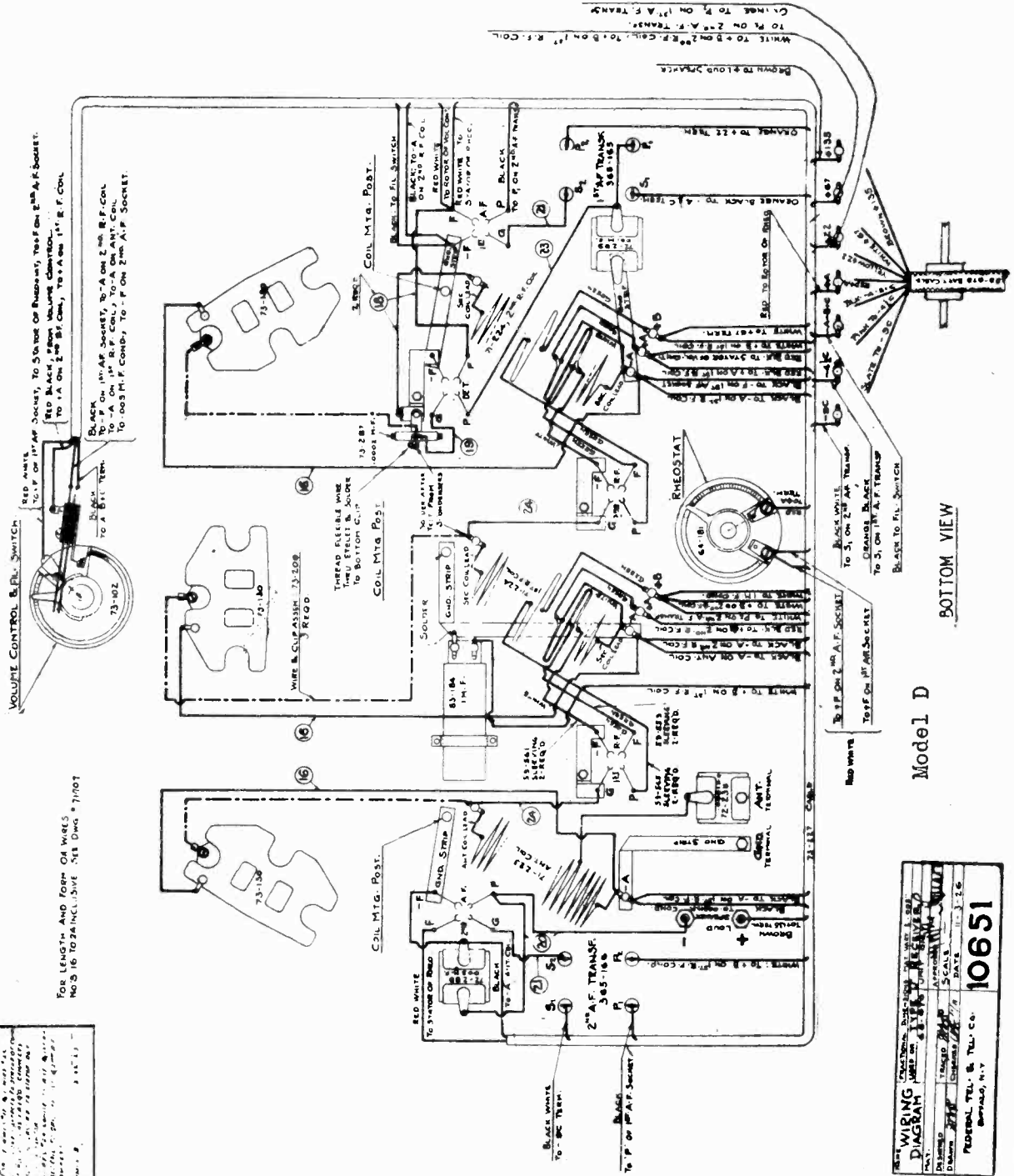
Model D



- C3 = 100 Mc. f.
- C = 500 Mc. f.
- C1 = 9 Mc. f.
- C2 = 1 Mc. f.
- C3 = 200 Mc. f.
- C4 = 1000 Mc. f.
- C5 = 5000 Mc. f.
- R1 = 1,000,000 Ω
- M1 =
- M2 =
- L = 165 μH.

MODEL D, Battery
Wiring Diagram

FEDERAL RADIO CORP.



FOR LENGTH AND FORM OF WIRE
NO. 5 16 TO 24 INCL. SIZE 518 Data 7/1007

CHANGE RECORD	
DATE	REVISION

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
APPROVED BY	
DATE	
SCALE	
10651	
FEDERAL TEL. & TEL. CO. BERRIDGE, N.Y.	

BOTTOM VIEW

Model D

FEDERAL RADIO CORP.

MODEL D CODE 79-070
Schematic

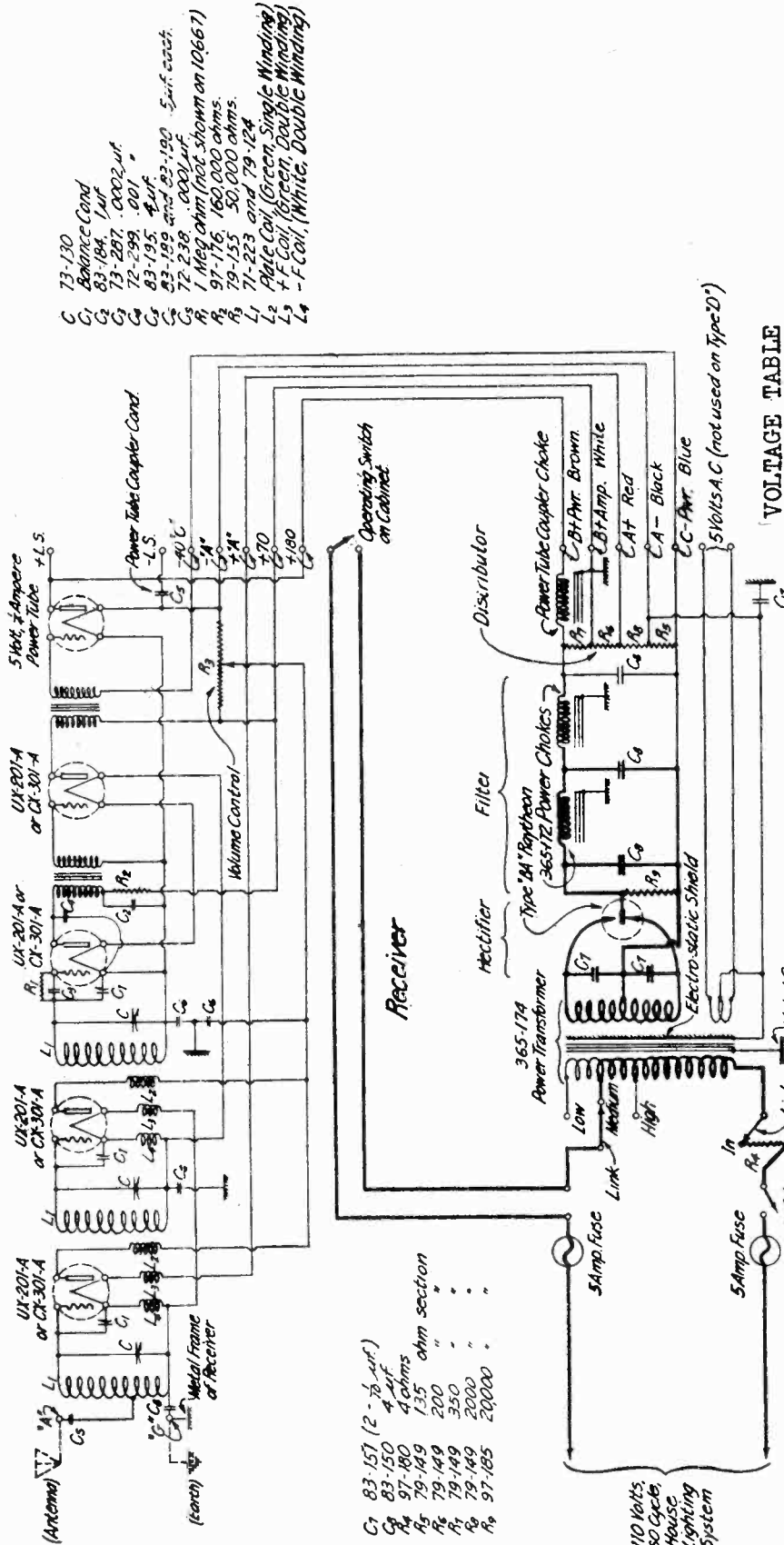


Plate voltages are measured between -F and the tube elements.

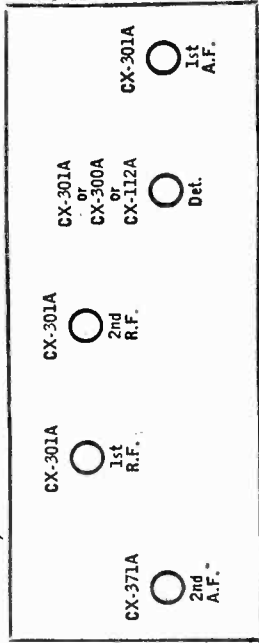
Element	Voltage
1st RF Plate	60 volts
2nd RF Plate	65 volts
Detector Plate	21*volts
1st AF Plate	70 volts
Output Plate	187 volts

Measured with low resistance voltmeter. When high resistance meter is used, voltage may be 50 volts.

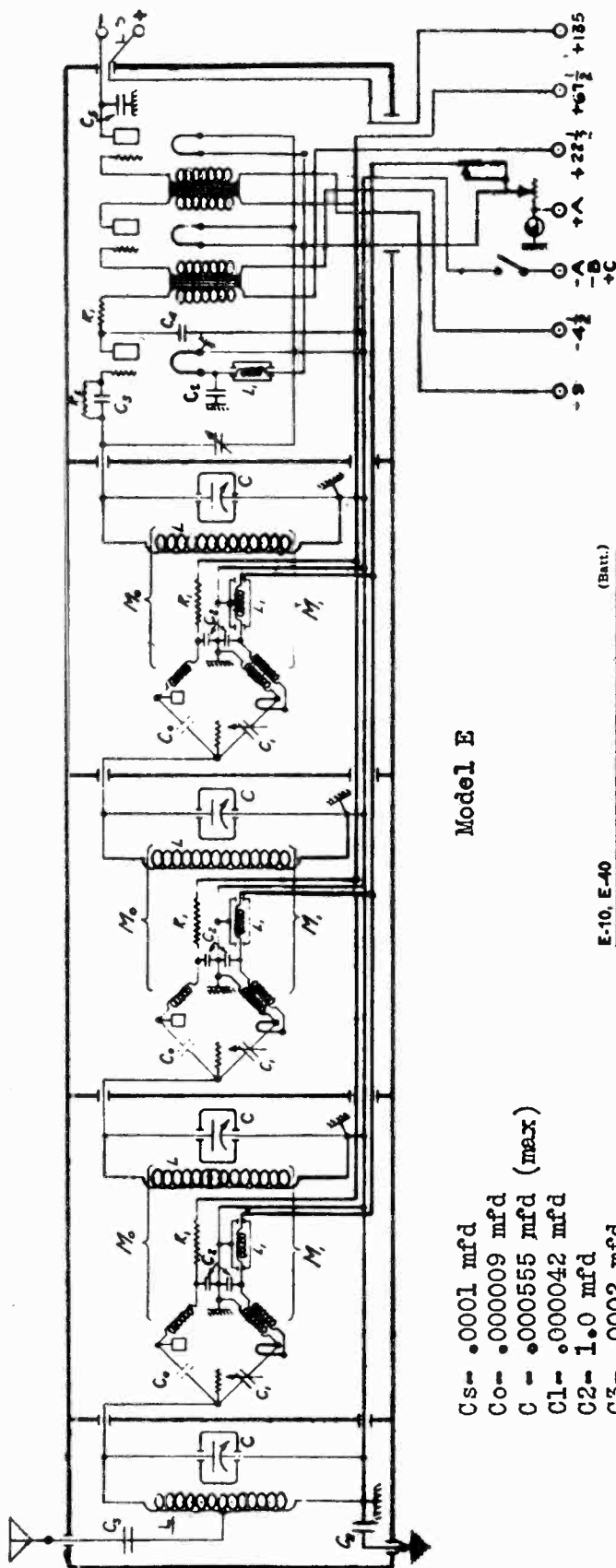
VOLTAGE TABLE

Model D

D-10-60, D-40-60



60 Cycle Power Supply Unit, Code 79-001



Model E

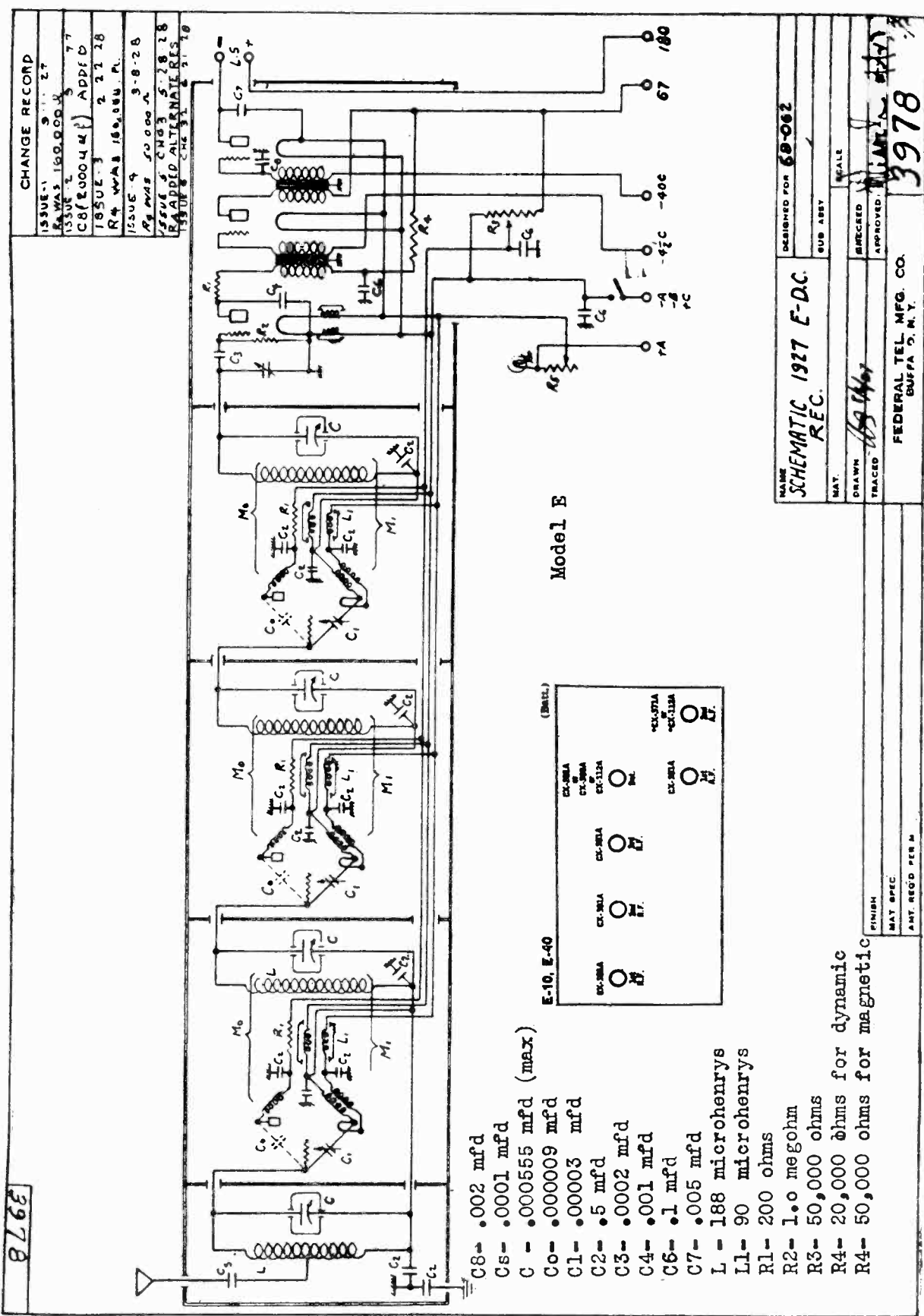
E-10, E-40	
CK-301A	1 1/2 2nd AF.
CK-301A	2 2nd AF.
CK-301A	3 2nd AF.
CK-301A	4 2nd AF.
CK-301A	5 2nd AF.
CK-3007	Di.
CK-3112A	Di.
CK-3011A	1 1/2 2nd AF.
CK-3011A	2 2nd AF.
CK-3011A	3 2nd AF.
CK-3011A	4 2nd AF.
CK-3011A	5 2nd AF.

(Batt.)

- C5 = .0001 mfd
- C6 = .000009 mfd (max)
- C7 = .000555 mfd
- C1 = .000042 mfd
- C2 = 1.0 mfd
- C3 = .0002 mfd
- C4 = .001 mfd
- C5 = .005 mfd
- M0 = 25.5 microhenrys
- M1 = 5.25 microhenrys
- R1 = 200 ohms (low capacity)
- R2 = 1.0 megohm
- L = 100 microhenry
- L1 = 360 microhenry

MODEL E DC
Schematic

FEDERAL RADIO CORP.



3978

CHANGE RECORD

ISSUE 1	3-11-27
RAWAS	100,000
ISSUE 2	5-7-27
C8 (20004M)	ADDED
ISSUE 3	2-21-28
R4	WAS 100,000 P.
ISSUE 4	3-8-28
R4	WAS 50,000 A.
ISSUE 5	5-28-28
R4	ADDED ALTERNATE RES.
ISSUE 6	2-31-29

Model E

(BULK)

CK-30A	CK-30A	CK-30A	CK-30A	CK-30A	CK-30A
CK-30A	CK-30A	CK-30A	CK-30A	CK-30A	CK-30A
CK-30A	CK-30A	CK-30A	CK-30A	CK-30A	CK-30A
CK-30A	CK-30A	CK-30A	CK-30A	CK-30A	CK-30A

- C8= .002 mfd
- Cs= .0001 mfd
- C = .000555 mfd (max)
- C0= .000009 mfd
- C1= .00003 mfd
- C2= .5 mfd
- C3= .0002 mfd
- C4= .001 mfd
- C6= .1 mfd
- C7= .005 mfd
- L = 188 microhenrys
- L1= 90 microhenrys
- R1= 200 ohms
- R2= 1.0 megohm
- R3= 50,000 ohms
- R4= 20,000 ohms for dynamic
- R4= 50,000 ohms for magnetic

DESIGNED FOR 68-062

NAME: SCHEMATIC 1927 E-DC.

REC.:

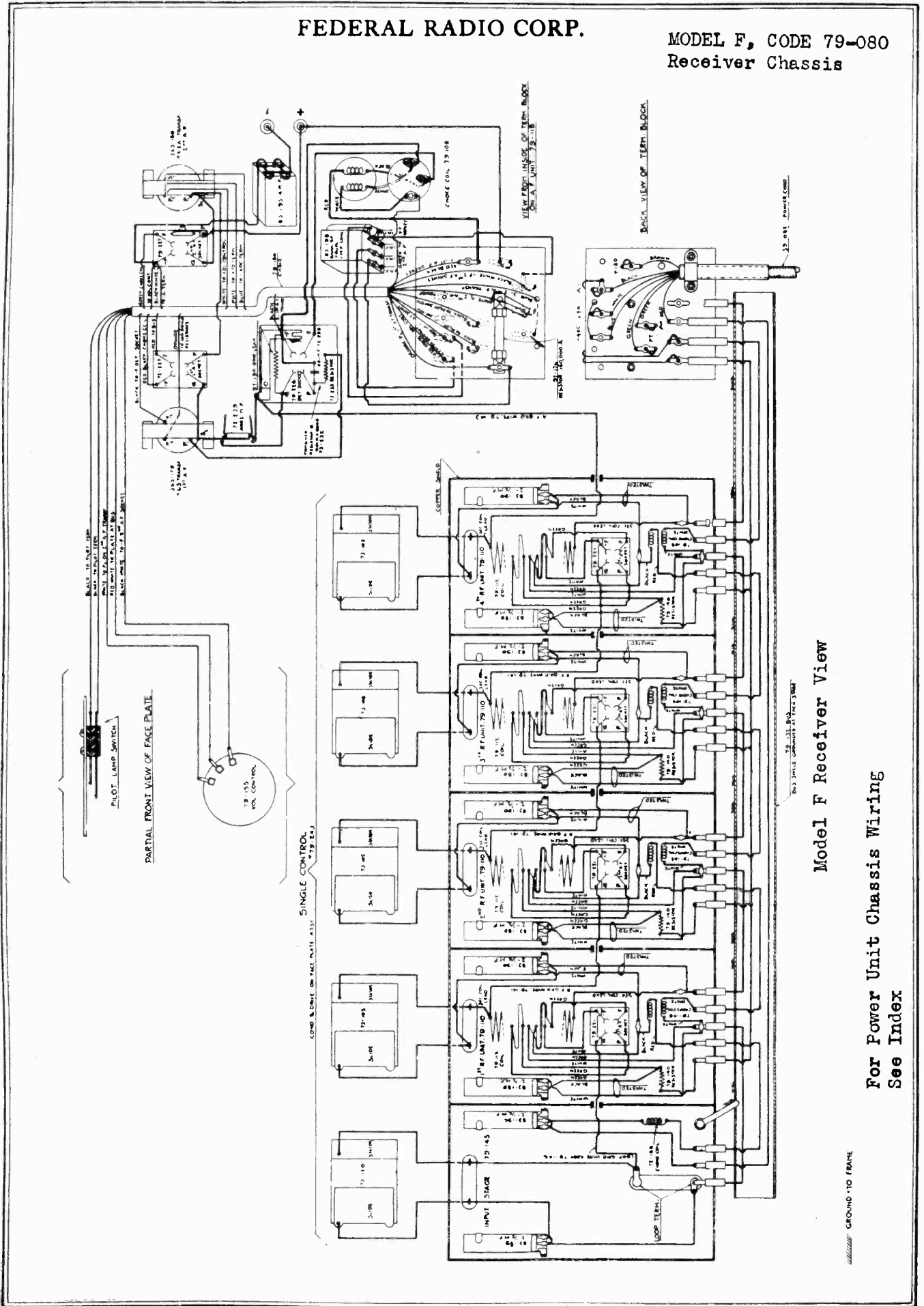
MAT. SPEC. FINISH: 3978

ANT. RECD PER M:

FEDERAL TEL. MFG. CO.
SUPT. N. Y.

FEDERAL RADIO CORP.

MODEL F, CODE 79-080 Receiver Chassis



Model F Receiver View

For Power Unit Chassis Wiring See Index

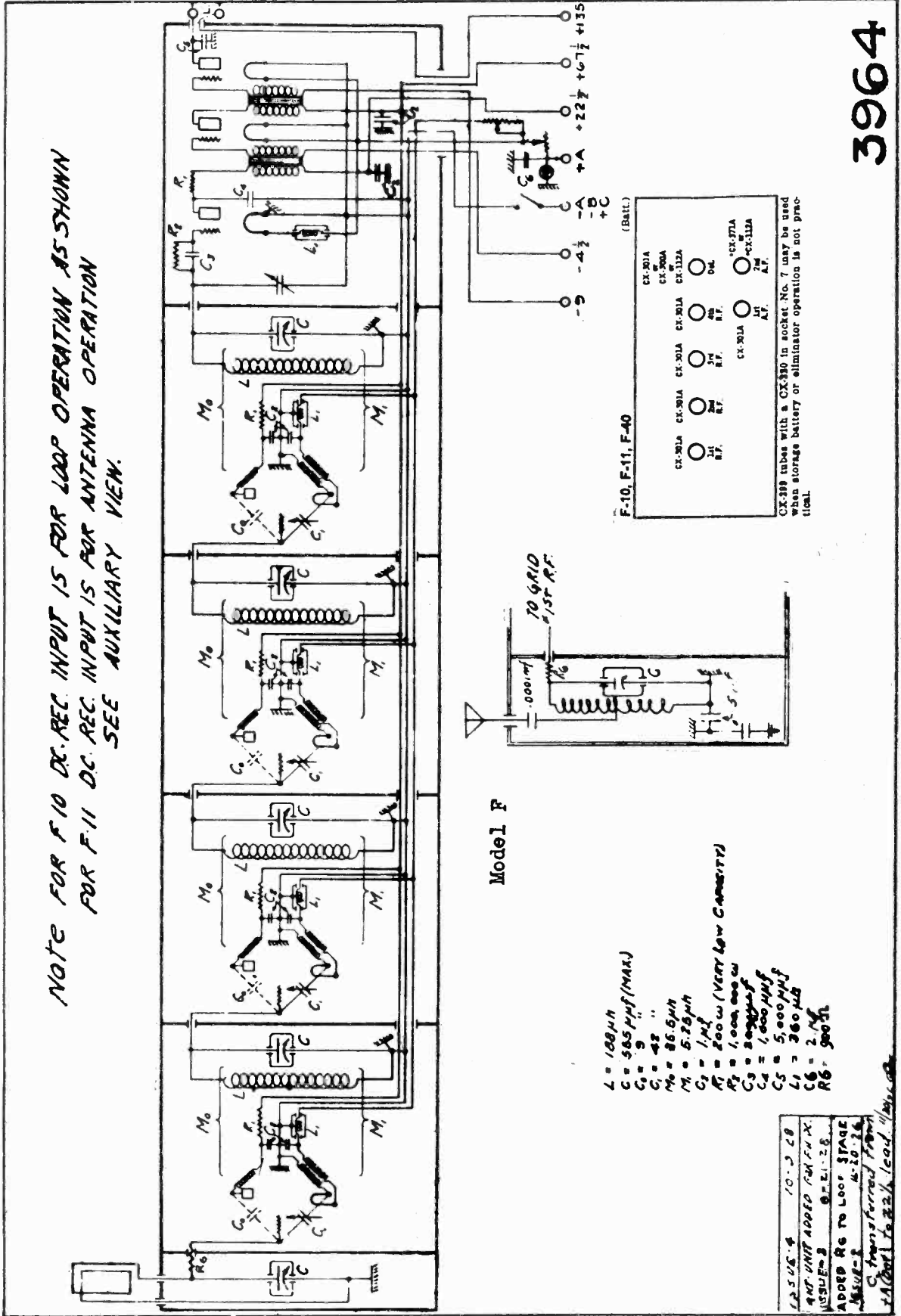
GROUND TO FRAME

FEDERAL RADIO CORP.

MODEL F-10 DC

F-11 DC

NOTE FOR F-10 DC REC INPUT IS FOR LOOP OPERATION AS SHOWN
FOR F-11 DC REC INPUT IS FOR ANTENNA OPERATION
SEE AUXILIARY VIEW.



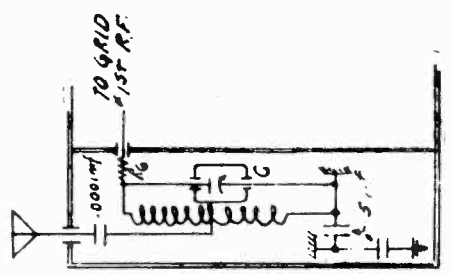
F-10, F-11, F-40

CX-301A	CX-301A	CX-301A	CX-301A	CX-301A	CX-371A
LT	RF	RF	RF	RF	2M
RF	RF	RF	RF	RF	A.P.

(BATT.)
+C
-B
+A
+227
+G-12
+135
-S
-42
-9

CX-310 tubes with a CX-310 in socket No. 7 may be used when storage battery or eliminator operation is not practical.

Model F



- L = 108µH
- C = 565µmf (VAR.)
- C₅ = 5
- C₆ = 47 "
- M₀ = 86.5µH
- M₁ = 5.25µH
- C₂ = 1µf
- R₁ = 200Ω (VERY LOW CAPACITIVITY)
- R₂ = 1,000,000Ω
- C₃ = 2000µmf
- C₄ = 1,000µmf
- C₅ = 5,000µmf
- L₁ = 360µH
- C₆ = 2µf
- R₆ = 500Ω

L25 US-4 10-3 28
ANT UNIT ADDED 10/1/47
ISSUES 3 9-21-28
ADDED R₆ TO LOOP STAGE
ISSUE 2 4-10-34
C₁ transferred from
TAP to 22k load 4/10/34

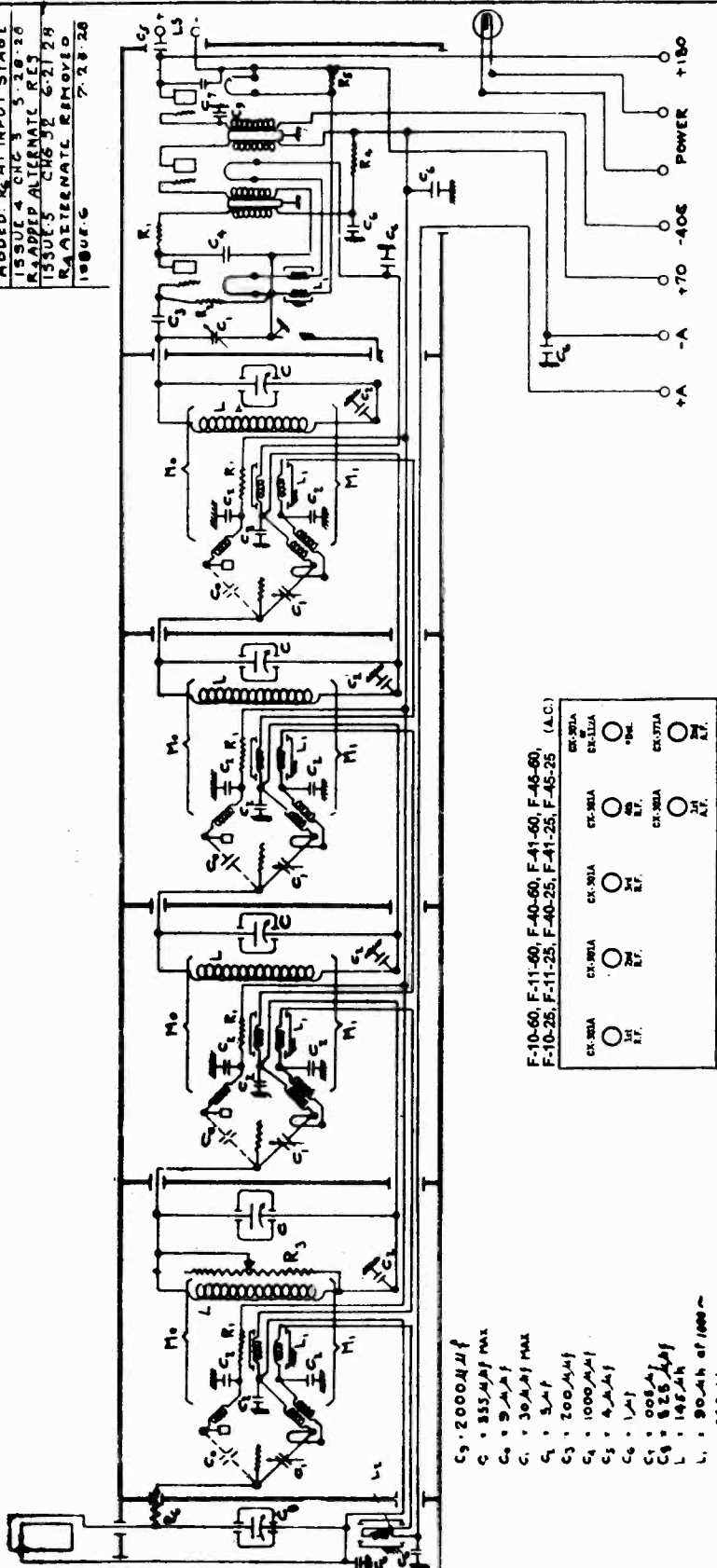
3964

FEDERAL RADIO CORP.

MODEL F (25 Cycle)

CHANGE RECORD

ISSUE 1	10-18-37
C ₉ (2000 μf) ADDED	
ISSUE 2	2-17-38
R ₄ WAS 160,000 Ω	
ISSUE 3	8-0-38
CHANGED INPUT STAGE	
ADDED R ₂ AT INPUT STAGE	
ISSUE 4	5-28-38
READDED ALTERNATE REF	
ISSUE 5	6-21-38
ALTERNATE REMOVED	
ISSUE 6	7-28-38



NAME	DESIGNED FOR
SCHEMATIC FOR 25 CYCLE TYPE F REC	SUB ASST
MAT.	SCALE
DRAWN	CHECKED
TRACED	APPROVED
FEDERAL TEL. MFG. CO. BUFFALO, N. Y.	
3982	

(A.C.)

CK-301A	CK-301A	CK-301A	CK-301A
CK-301A	CK-301A	CK-301A	CK-301A
CK-301A	CK-301A	CK-301A	CK-301A
CK-301A	CK-301A	CK-301A	CK-301A

- C₁ - 2000 μf
- C₂ - 855 μf MAX
- C₃ - 5 μf
- C₄ - 30 μf MAX
- C₅ - 5 μf
- C₆ - 200 μf
- C₇ - 1000 μf
- C₈ - 4 μf
- C₉ - 008 μf
- C₁₀ - 525 μf
- L₁ - 90 μh at 1000 ~
- L₂ - 260 μh at 1000 ~
- M₁ & M₂ = 25Ah AT R.F.
- R₁ - 200 Ω
- R₂ - 1,000,000 Ω
- R₃ - 500,000 Ω
- R₄ - 20,000 Ω
- R₅ - 100 Ω
- R₆ - 500 Ω

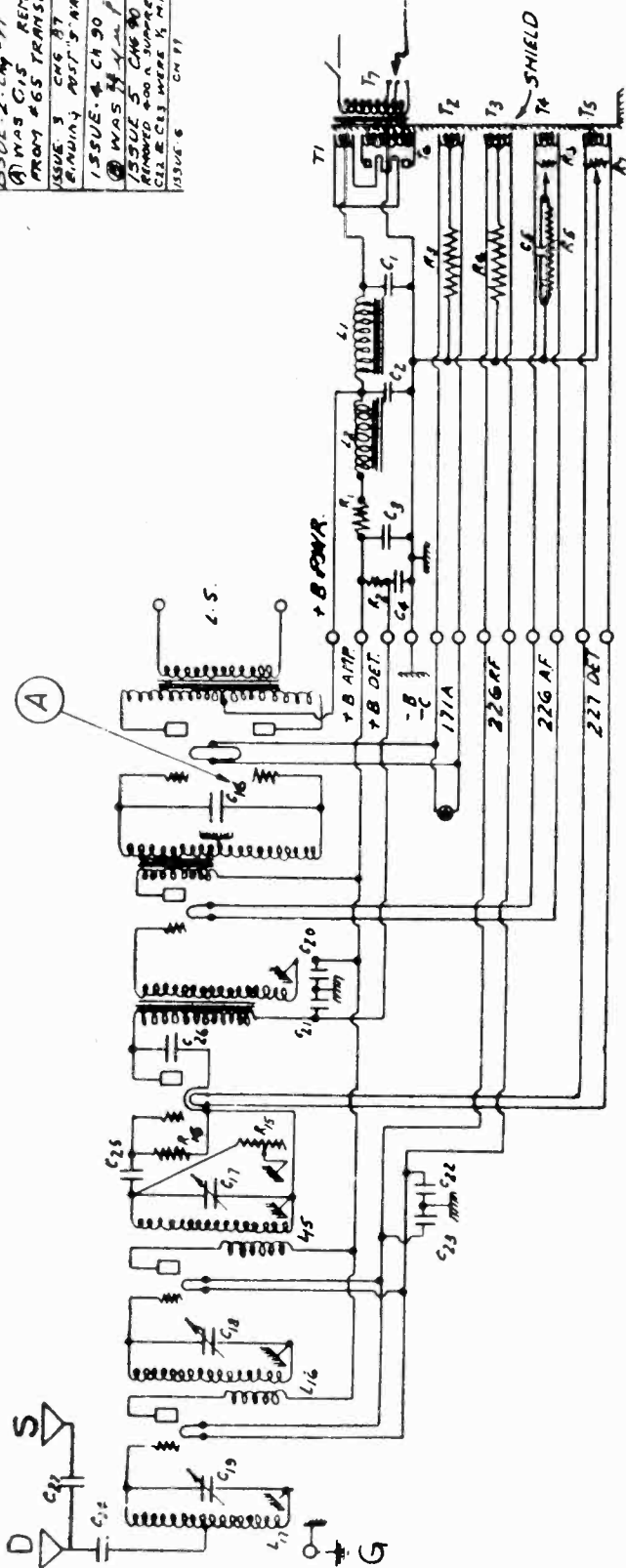
Model F

FEDERAL RADIO CORP.

MODEL G (25 Cycle)

CHANGE RECORD
 ISSUE 1 6-29-28
 ADD 25 AMP ANTENNA CIRCUIT
 ISSUE 2 CM 28 7-27-28
 (A) WAS C15 REMOVED C16
 FROM #65 TRANSF
 ISSUE 3 CM 28 8-13-28
 BINDING POST'S WAS WIPED L
 ISSUE 4 CM 30 9-15-28
 WAS H
 ISSUE 5 CM 30 8-17-28
 C12 & C13 WERE K
 ISSUE 6 CM 31 9-27-28

MAKE NO CHANGES. REPORT ALL ERRORS
 FRACTIONAL DIMENSIONS MAY VARY .003
 UNLESS OTHERWISE NOTED



PARTS LIST FOR RECEIVER

- C15 = 202 M μ F
- C16 = .0002 MF
- C17 = .0003 MF
- C18 = .0003 MF
- C19 = .0003 MF
- C20 = 1/2 MF
- C21 = 1/2 MF
- C22 = 1/10 MF
- C23 = 1/10 MF
- C24 = .0001 MF
- C25 = .0002 MF
- C26 = .001 MF
- C27 = 50 M μ F
- C28 = 50 M μ F
- C29 = 50 M μ F
- C30 = 50 M μ F
- C31 = 50 M μ F
- C32 = 50 M μ F
- C33 = 50 M μ F
- C34 = 50 M μ F
- C35 = 50 M μ F
- C36 = 50 M μ F
- C37 = 50 M μ F
- C38 = 50 M μ F
- C39 = 50 M μ F
- C40 = 50 M μ F
- C41 = 50 M μ F
- C42 = 50 M μ F
- C43 = 50 M μ F
- C44 = 50 M μ F
- C45 = 50 M μ F
- C46 = 50 M μ F
- C47 = 50 M μ F
- C48 = 50 M μ F
- C49 = 50 M μ F
- C50 = 50 M μ F
- C51 = 50 M μ F
- C52 = 50 M μ F
- C53 = 50 M μ F
- C54 = 50 M μ F
- C55 = 50 M μ F
- C56 = 50 M μ F
- C57 = 50 M μ F
- C58 = 50 M μ F
- C59 = 50 M μ F
- C60 = 50 M μ F
- C61 = 50 M μ F
- C62 = 50 M μ F
- C63 = 50 M μ F
- C64 = 50 M μ F
- C65 = 50 M μ F
- C66 = 50 M μ F
- C67 = 50 M μ F
- C68 = 50 M μ F
- C69 = 50 M μ F
- C70 = 50 M μ F
- C71 = 50 M μ F
- C72 = 50 M μ F
- C73 = 50 M μ F
- C74 = 50 M μ F
- C75 = 50 M μ F
- C76 = 50 M μ F
- C77 = 50 M μ F
- C78 = 50 M μ F
- C79 = 50 M μ F
- C80 = 50 M μ F
- C81 = 50 M μ F
- C82 = 50 M μ F
- C83 = 50 M μ F
- C84 = 50 M μ F
- C85 = 50 M μ F
- C86 = 50 M μ F
- C87 = 50 M μ F
- C88 = 50 M μ F
- C89 = 50 M μ F
- C90 = 50 M μ F
- C91 = 50 M μ F
- C92 = 50 M μ F
- C93 = 50 M μ F
- C94 = 50 M μ F
- C95 = 50 M μ F
- C96 = 50 M μ F
- C97 = 50 M μ F
- C98 = 50 M μ F
- C99 = 50 M μ F
- C100 = 50 M μ F

PARTS LIST FOR POWER UNIT

- R1 = 3300
- R2 = 13,000
- R3 = 13,000
- R4 = 1400
- R5 = 2500
- R6 = 40
- R7 = 40
- L1 = 15M-288
- L2 = 55-1000
- L3 = 10
- L4 = 10
- L5 = 16
- L6 = 3360 TAP 1680
- L7 = 727 TAPS 688 & 610

Model G

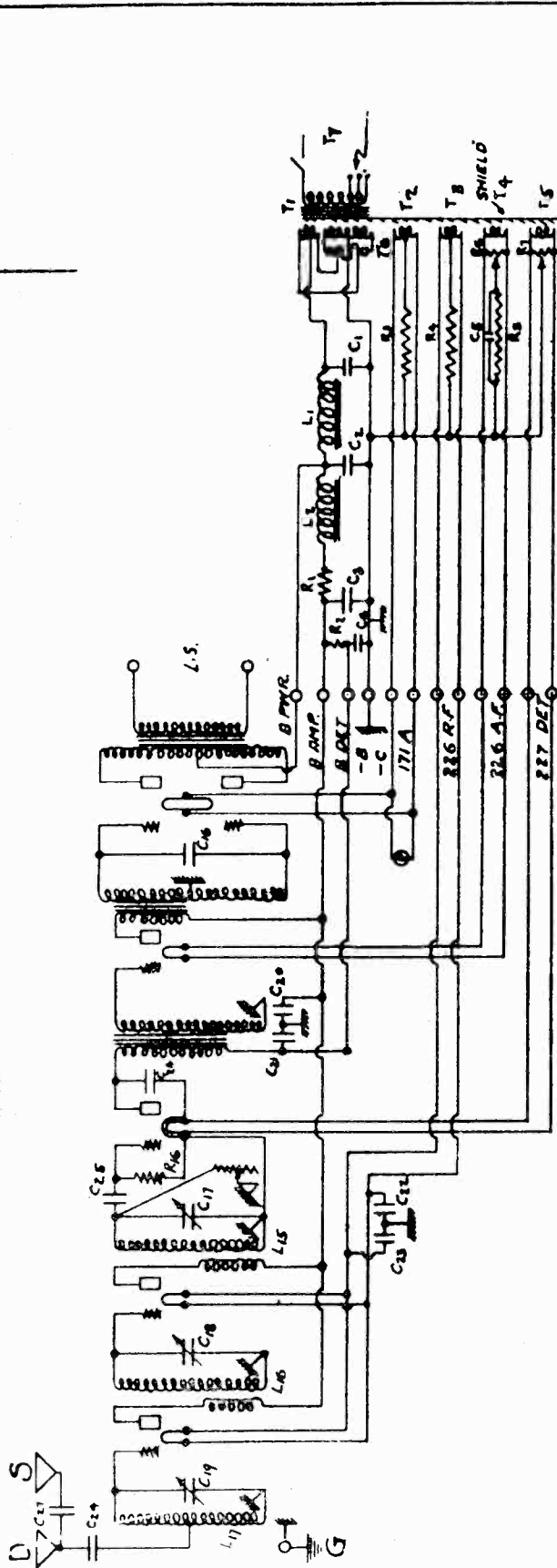
NAME	DESIGNED FOR	REC. & CORR. UNIT
MAT	SUB. ARMY	SCALE
DRAWN	6-29-28	CHECKED
TRACED	6-29-28	APPROVED
3985		
FEDERAL TEL. MFG. CO. SUFFALO, N. Y.		

3985

MODEL H CODE 71-030

FEDERAL RADIO CORP.

CHANGE RECORD
ISSUE 1 8/7/22



PARTS LIST FOR REC.

- C16 = .0002mf
- C17 = .0003mf
- C18 = .0003mf
- C19 = .0003mf
- C20 = 1/2 mf
- C21 = 1/2 mf
- C22 = 1/2 mf
- C23 = 1/2 mf
- C24 = .0001mf
- C25 = .0002mf
- C26 = .001mf
- C27 = .5mf
- L45 = 262 μh
- L46 = 862 μh
- L47 = 202 μh
- R45 = 500,000 Ω
- R46 = 2 meg

PARTS LIST FOR POWER UNIT

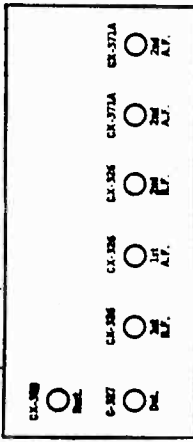
- C1 = 1mf
- C2 = 1mf
- C3 = 2mf
- C4 = 1mf
- C5 = 1/2 mf
- R1 = 3500 Ω
- R2 = 13,000 Ω
- R3 = 1300 Ω
- R4 = 1400 Ω
- R5 = 2800 Ω
- R6 = 40 Ω
- R7 = 40 Ω
- L1 = 154-285 Ω
- L2 = 554-1600 Ω
- T1 = 24
- T2 = 29
- T3 = 8
- T4 = 8
- T5 = 12
- T6 = 2990
- T7 = 579

VOLTAGES

Plate voltages are measured between the chassis and the respective tube plates.

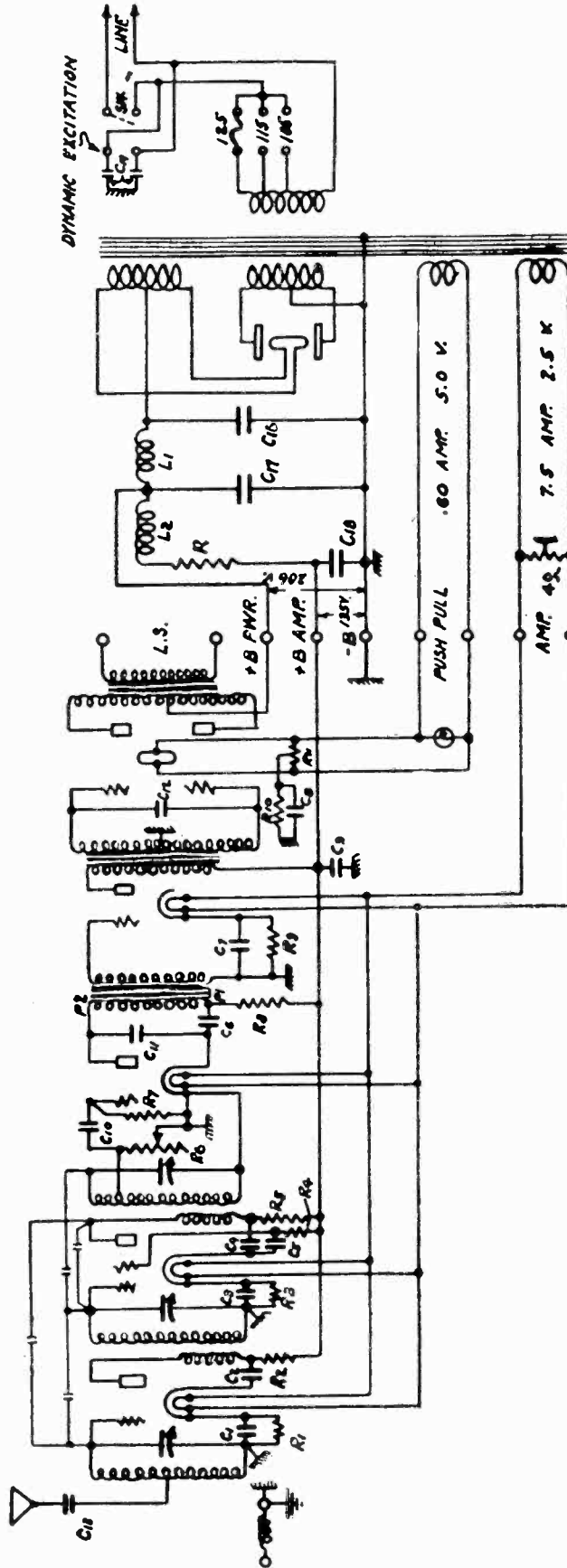
1st RF Plate	125 volts	1st RF Fil.	1.45 volts
2nd RF Plate	125 volts	2nd RF Fil.	1.45 volts
Detector Plate	62 volts	Detector Fil	2.25 volts
1st AF Plate	125 volts	1st AF Fil.	1.45 volts
Output Plates	190 volts	Output Fil.	5.1 volts
Grids and Cathodes	0 volts		

M-10-60, M-40-60, M-41-60,
M-10-25, M-30-25, M-41-25



FEDERAL RADIO CORP.

MODEL K



Model K

K-10-60, K-40-60, K-41-60,
K-10-25, K-40-25, K-41-25

(A.C.)

CX-380	1st A.F.	CX-371A	2nd A.F.
6X4	Rect.	C-327	1st R.F.
6AR5	Audio Amp.	CX-371A	2nd A.F.
6AV6	Detector & AF	C-324	2nd R.F.
C-327	1st A.F.	C-327	1st A.F.
C-327	Det.		

C1	.25 μf
C2	.25
C3	.25
C4	.25
C5	.25
C6	.25
C7	.25
C8	.25
C9	.001
C10	.001
C11	.0002
C12	.0001

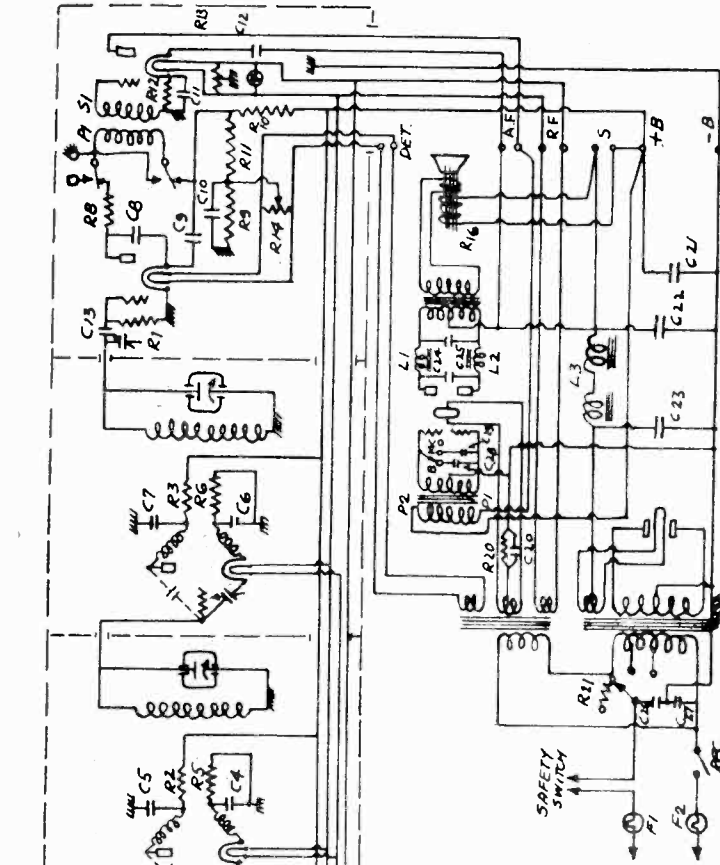
R1	1000 Ω
R2	500 Ω
R3	45,000 Ω
R4	5,000 Ω
R5	20,000 Ω
R6	2,700 Ω
R7	15,000 Ω
R8	10,000 Ω
R9	50 Ω
R10	50 Ω

25 CYCLE
1500 Ω
15K 200 Ω
60M 1070 Ω
2 M.F.
4 M.F.
4 M.F.
0.1 M.F.

60 CYCLE
R 1500 Ω
L1 15K 200 Ω
L2 60M 1070 Ω
C4 1 M.F.
C5 1 M.F.
C6 2 M.F.
C7 0.1 M.F.

MODEL M

FEDERAL RADIO CORP.



- REC. PARTS**
- | UNIT CAP. | DIELECTRIC | RATING |
|-----------|------------|--------|
| C1 | 25' | 200 |
| C3 | 25' | 400 |
| C4 | 25' | 200 |
| C5 | 25' | 400 |
| C6 | 25' | 200 |
| C7 | 25' | 400 |
| C8 | .001 | MICA |
| C9 | 1 | MICA |
| C10 | 1 | MICA |
| C11 | .003 | MICA |
| C12 | 1 | MICA |
| C13 | .00009 | MICA |
- POWER UNIT PARTS**
- | | | |
|-----|--------|-------|
| C10 | AMPHER | 200 |
| C21 | " | 600 |
| C22 | " | 600 |
| C23 | " | 600 |
| C24 | .015 | 1,400 |
| C25 | .015 | 1,400 |
| C27 | .015 | 1,400 |
| C28 | .003 | 1,400 |
| C29 | .0015 | 1,400 |
- REC. PARTS**
- | RESISTOR | OHMS |
|----------|----------|
| R1 | 200 OHMS |
| R2 | 200 |
| R3 | 200 |
| R4 | 1500 |
| R5 | 1500 |
| R6 | 1500 |
| R7 | 5 MEG |
| R8 | 200 OHMS |
| R9 | 13,000 |
| R10 | 40,000 |
| R11 | 40 |
| R12 | 1500 |
| R13 | 40 |
| R14 | 30 |
| R15 | 500,000 |
- POWER UNIT PARTS**
- | RESISTOR | OHMS |
|----------|----------|
| R10 | 800 OHMS |
| R11 | 14 OHMS |
| R1 | 5 AMP |
| R2 | 5 AMP |

Type M

FEDERAL—Type M
Line Voltage 113—Set on 113 Volt Tap—Volume Control Position Off

TYPE NO. MODEL	TYPE OF TUBE	POSITION OF TUBE IN SET	TUBE OUT					TUBE IN TEST SET					PLATE M.A. RANGE CHANGE	SCREEN M.A. RANGE CHANGE	GRID M.A. RANGE CHANGE		
			1 VOLTS	2 VOLTS	3 VOLTS	4 VOLTS	5 VOLTS	1 VOLTS	2 VOLTS	3 VOLTS	4 VOLTS	5 VOLTS					
1	1A7	1st AF	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
2	1B7	2nd AF	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
3	1B7	3rd AF	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
4	1B5	1st P	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
5	1B5	2nd P	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
6	1B5	3rd P	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
7	1B5	Rect.	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3
8	1B5	Rect.	2.7	1.60	2.6	11.5	0	0	1.6	1.6	3	1.6	3	1.6	3	1.6	3

M-35-60, M-40-60, M-41-60, M-45-60, M-46-60,
M-35-25, M-40-25, M-41-25, M-45-25, M-46-25 (A.C.)

CX-380 CX-345 CX-345

Rect. 2nd A.F. 2nd A.F.

C-327 C-327 C-327 Dct.

C-327 C-327 C-327 C-327

1st R.F. 2nd R.F. 3rd R.F. 1st A.F.

MODEL 35, 40

Data

MODEL "Cathedral Tone"

Schematic

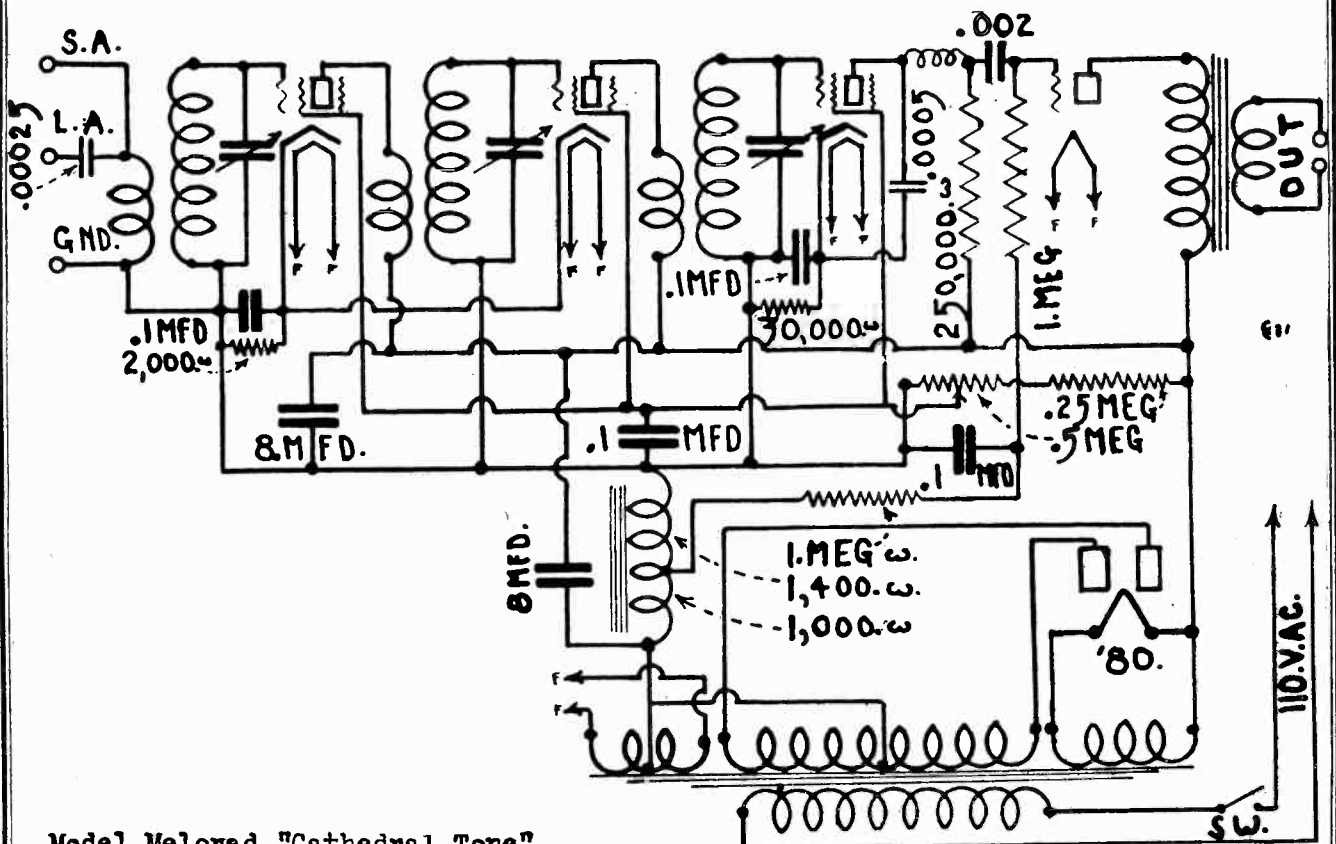
FEDERATED PURCHASER

Model 35, 40

ADJUSTMENTS The 175 kc. oscillator must be accurately tuned to 175 kc. and only 175 kc. If this precaution is not observed it will be impossible to align the oscillator to the rest of the set and the set will not operate correctly as the oscillator is designed for exact 175 kc. operation.

The second intermediate frequency amplifier transformer shield can is removed and one side of the small variator condenser is disconnected from the primary coil. This coil is connected so that it still is in the plate circuit of the tube but the tuning condenser is not connected in the circuit. Now remove the grid cap from the intermediate amplifier tube and connect a 3 megohm resistor from the control grid to ground. Now connect the output from the 175 kc. oscillator to the grid of the intermediate frequency amplifier tube and tune the secondary for maximum deflection of the output meter. (Low voltage alternating current meter, 0 to 3 volts, connected across the voice coil of speaker). Now remove the shield can and connect the small tuning condenser that was previously removed back across the primary coil. With the 175 kc. oscillator connected the same as before, tune the primary for a maximum deflection of the output meter. (Caution: Do not under any circumstances try to retune the secondary after having tuned the primary. **This is important.**) After having tuned this stage proceed to the next intermediate frequency:

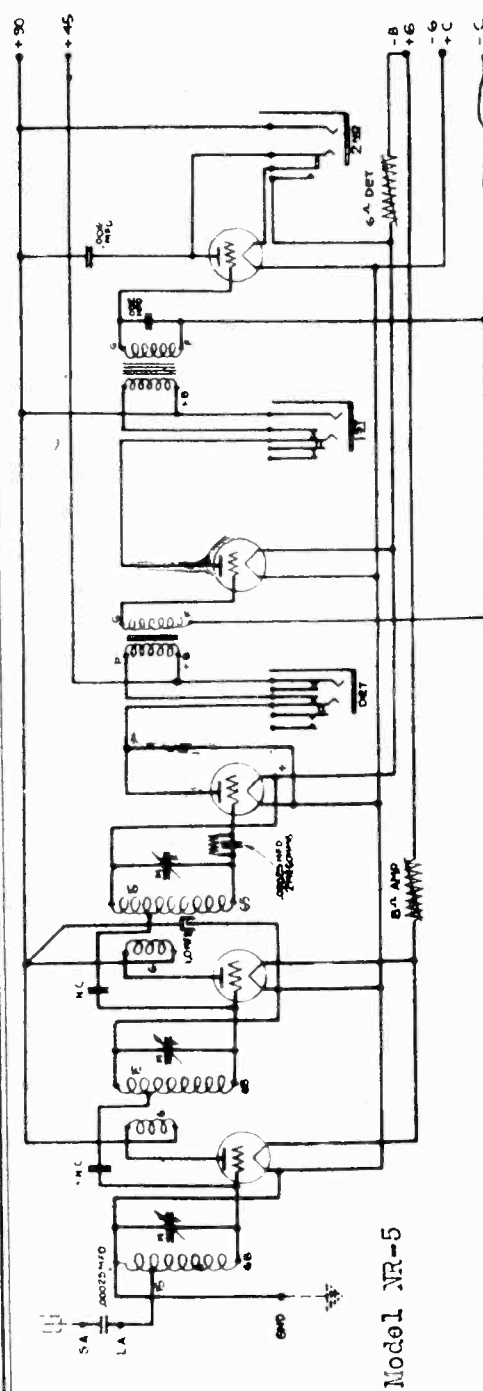
(b) Replace the grid cap on the intermediate frequency amplifier and proceed to the first detector tube. Remove this tube cap and connect the 175 kc. oscillator as before, being sure to connect the 3 megohm resistor from control grid to ground. Now proceed to tune the intermediate frequency transformer by tuning the secondary first for maximum deflection of the output meter and then tuning the primary for maximum deflection. Tuning this transformer must be done very carefully as the selectivity of the whole receiver depends entirely on the tuning of this transformer.



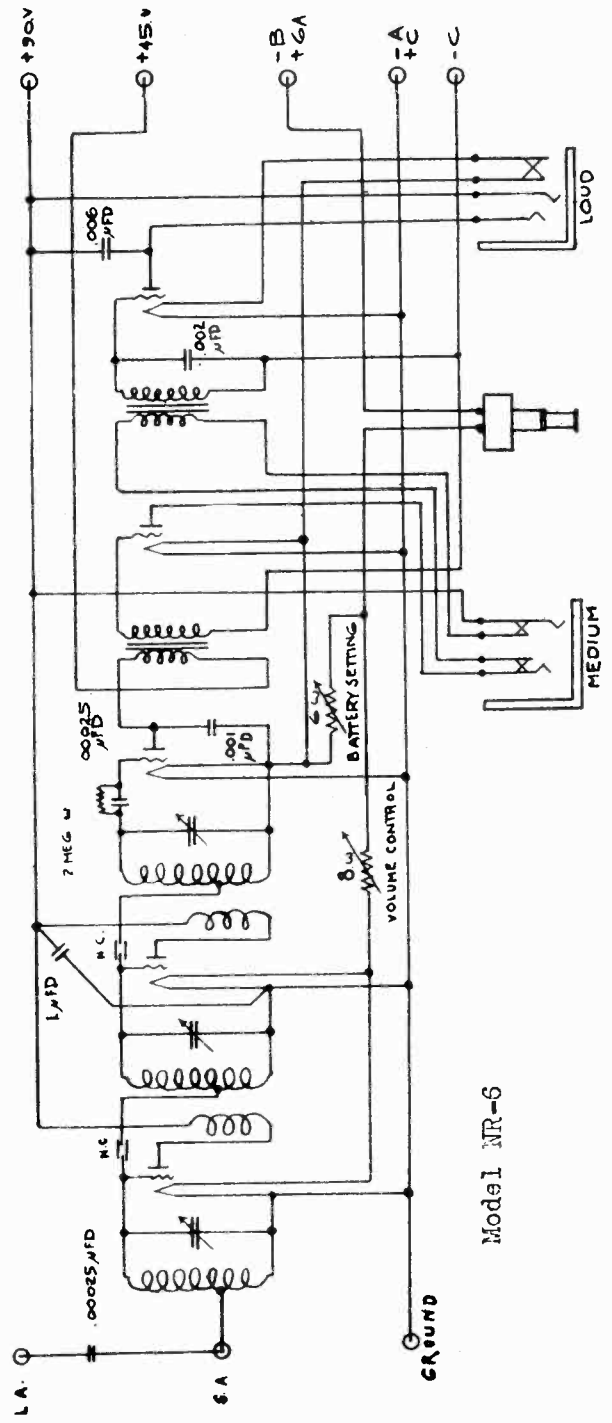
Model Melorad "Cathedral Tone"

FREED RADIO AND TELEVISION CORP.

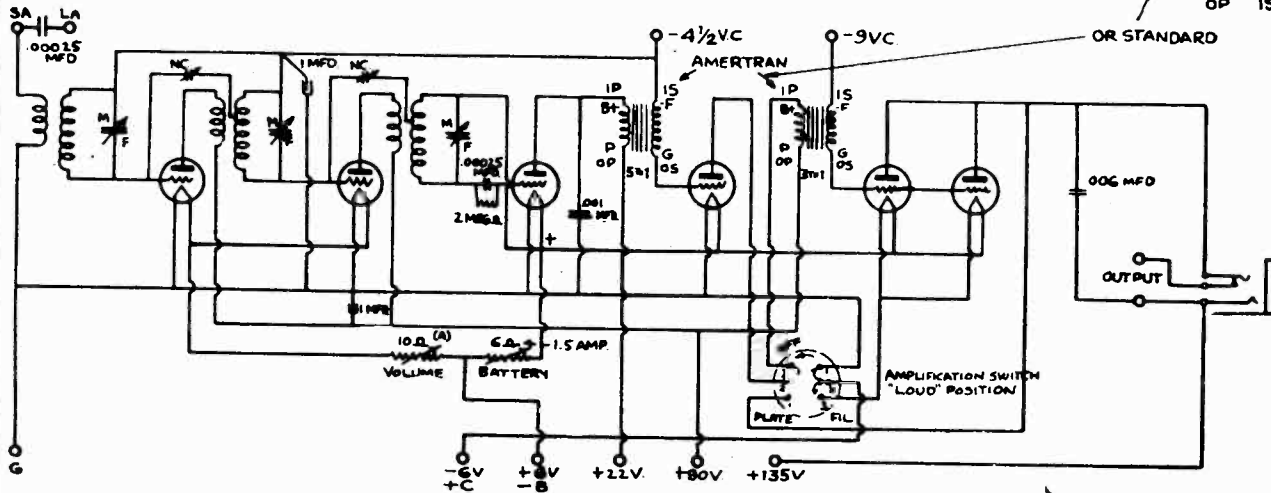
MODEL NR-5
MODEL NR-6



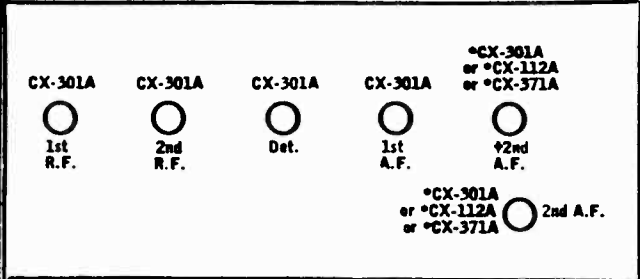
ALTERATION TABLE		REVISION	DATE	BY	APPROVAL
NO. 1	RE-NAME DET	U.S.			
NO. 2	ADD DET TO CHASSIS				
NO. 3	ADD DET TO CHASSIS				



MODEL NR-7
 MODEL NR-8, NR-8A
 FREED RADIO AND TELEVISION CORP.

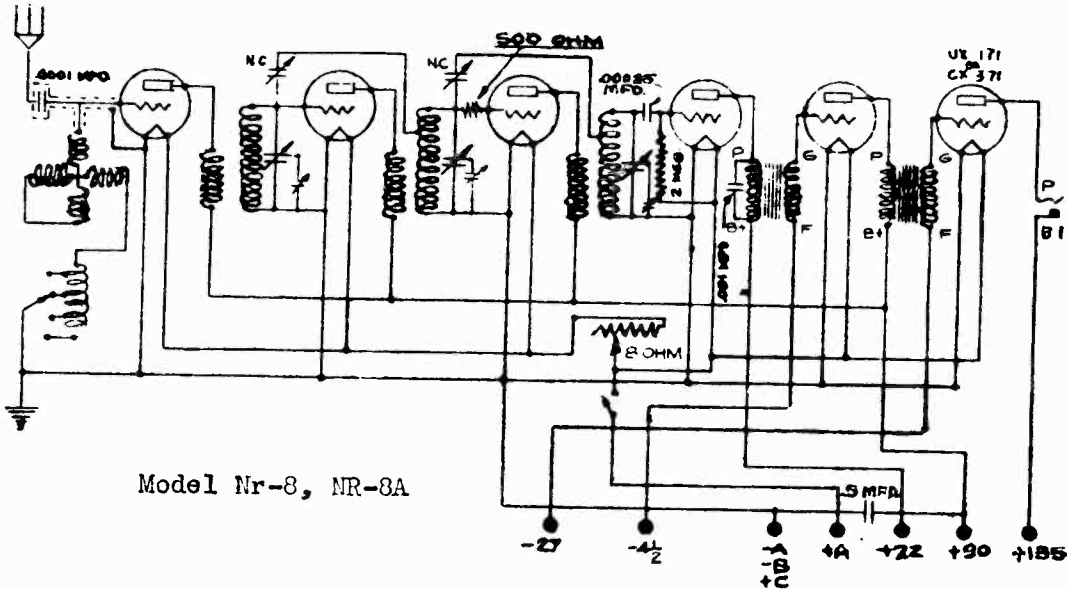
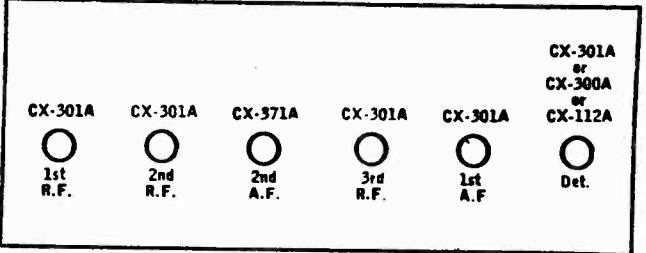


NR-7 (Batt.)

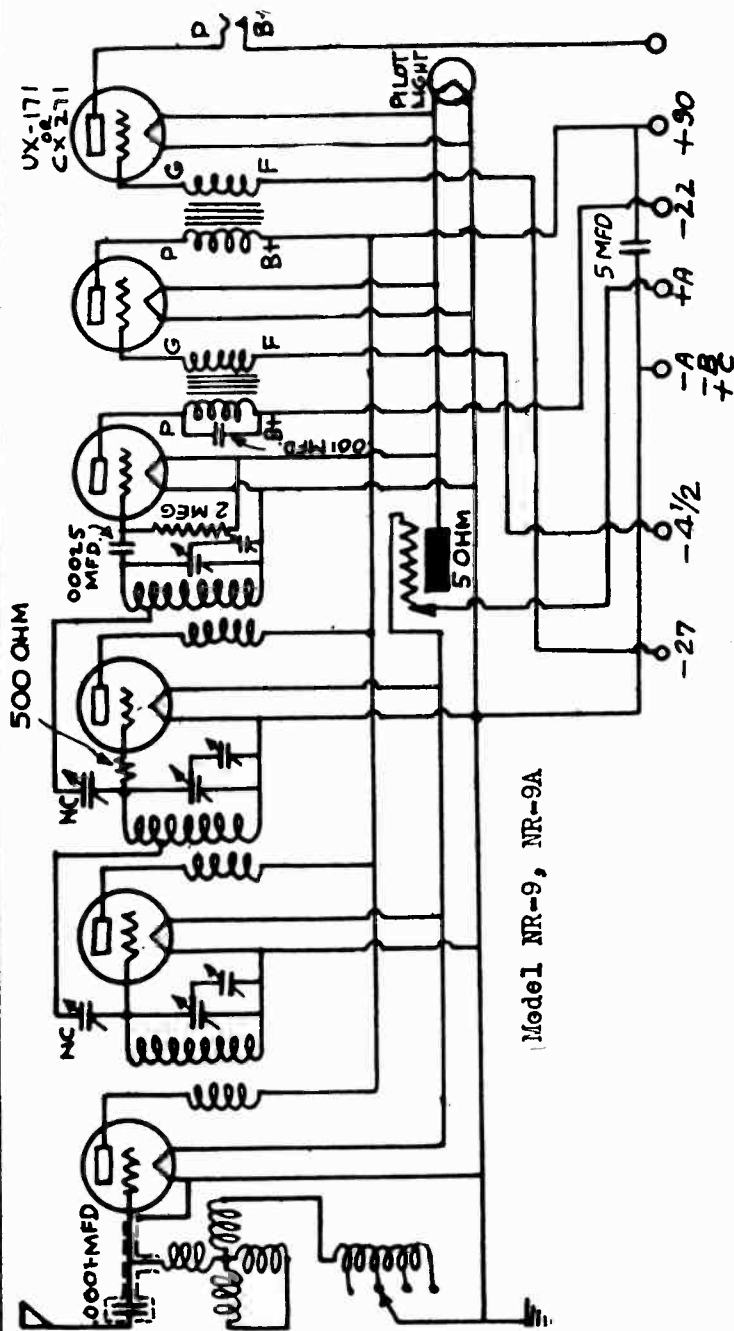


† If CX-301A's are used, use both stages in parallel. If power tubes are used, one tube in either 2nd A. F. socket is sufficient.

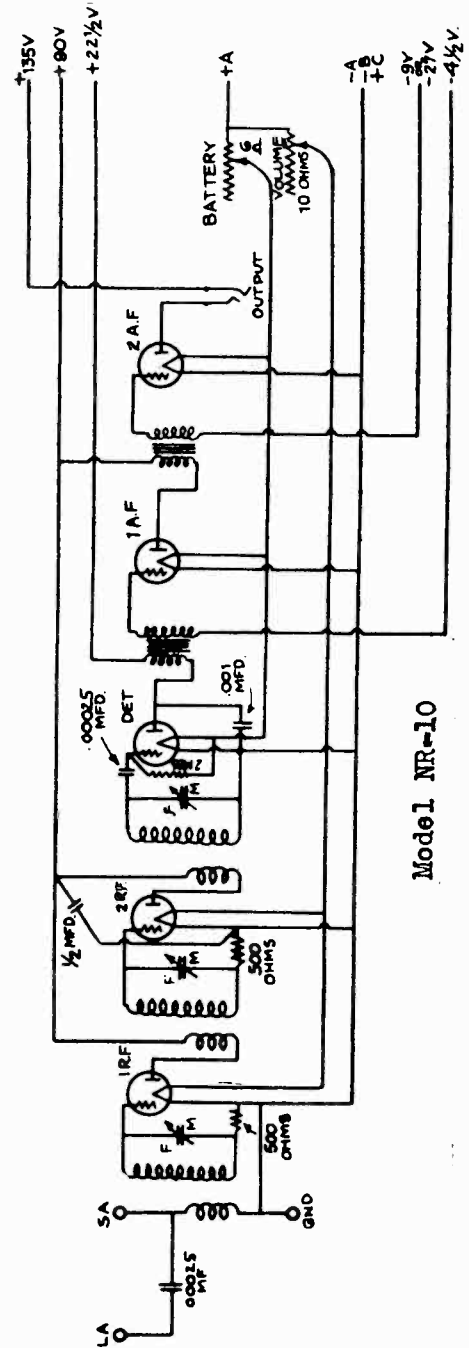
NR-8, (Batt.)



FREED RADIO AND TELEVISION CORP. MODEL NR-9, NR-9A
MODEL NR-10



Model NR-9, NR-9A



Model NR-10

Models NR-9

1 RF	2 RF	2 AF	3 RF	1 AF	DET
'01A	'01A	'71A	'01A	'01A	'01A

FRONT

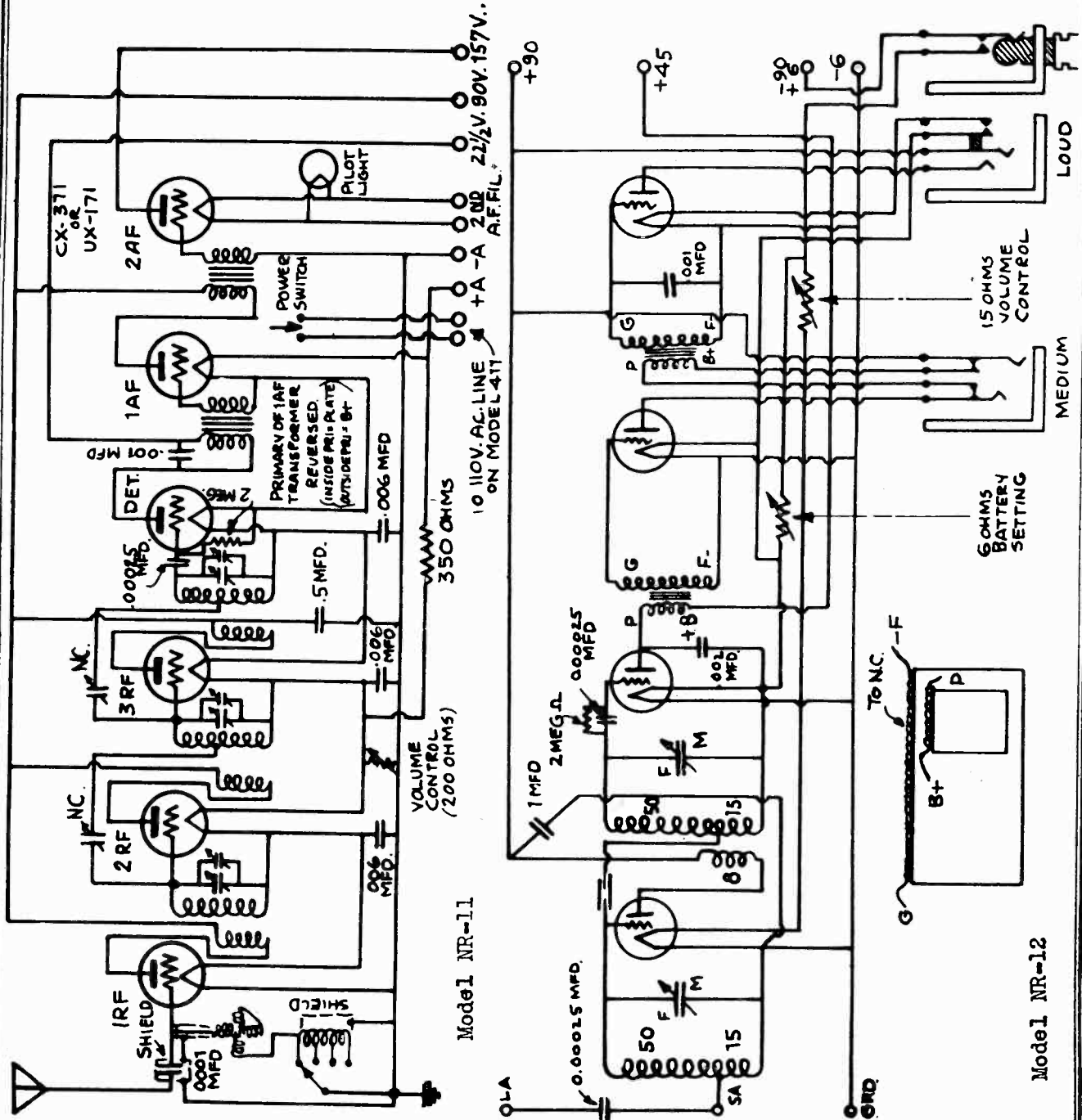
Model NR-10

1 RF	2 AF	2 RF	1 AF	DET
'01A	'71A	'01A	'01A	'01A

FRONT

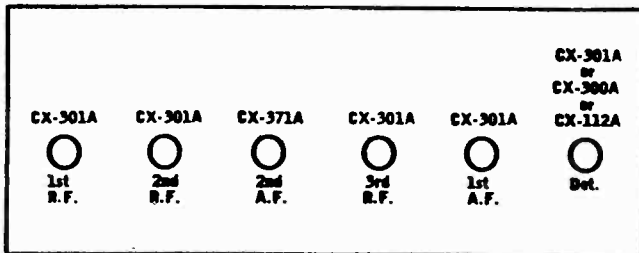
MODEL NR-11
MODEL NR-12

FREED RADIO AND TELEVISION CORP.



Power Pack For NR-11 On Next Page

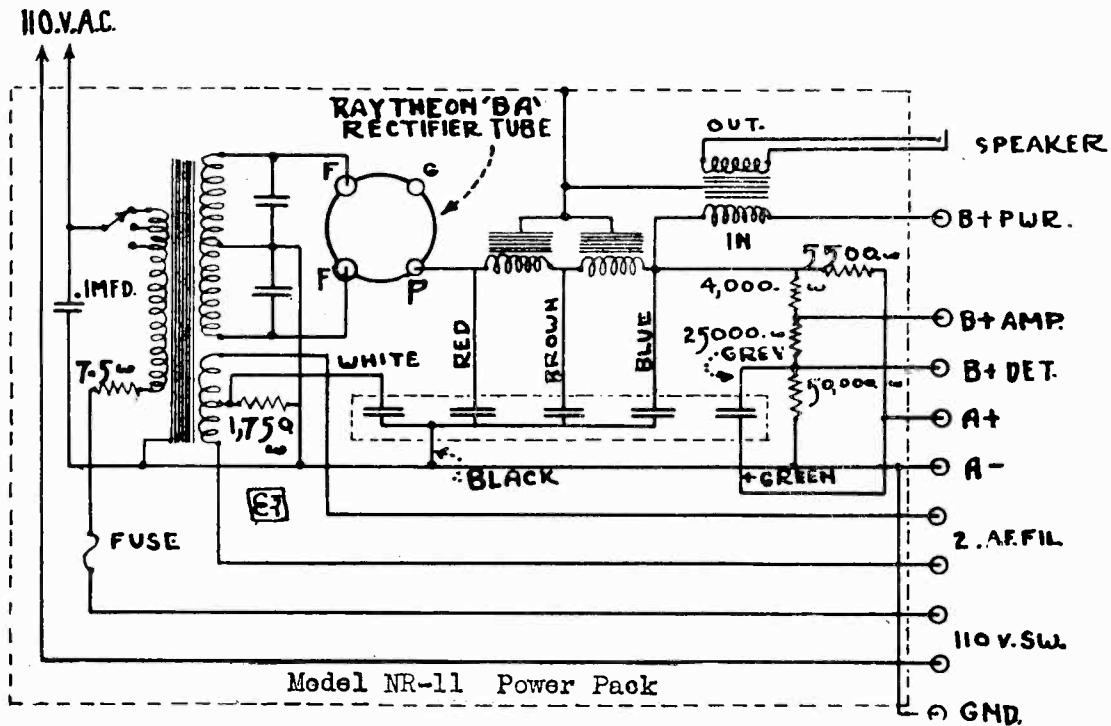
NR-11



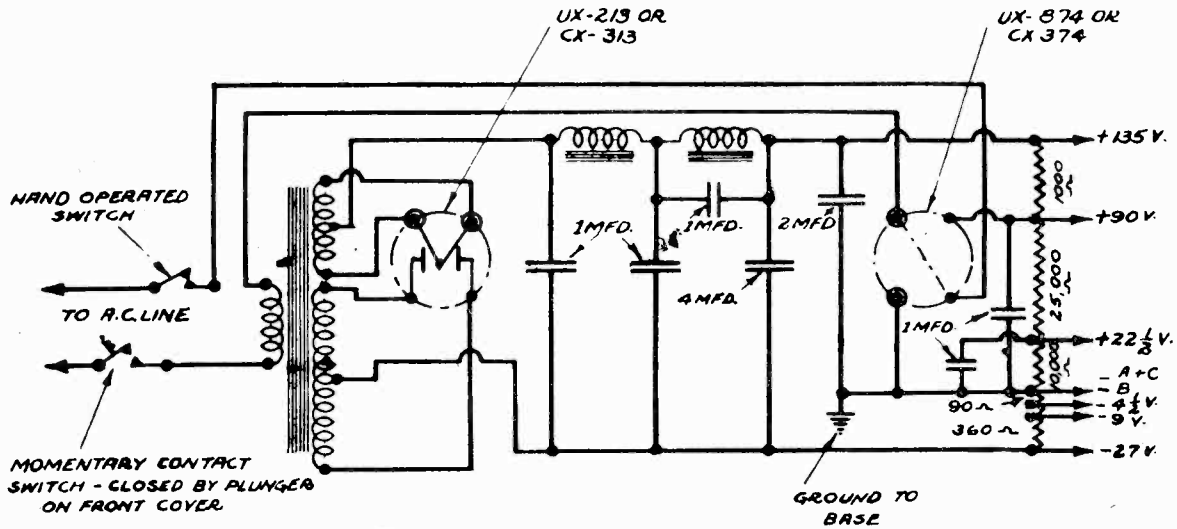
This is an A.C. series filament receiver. All tubes except the 2nd A.F. stage tube must be 1/4 ampere tubes.

FREED RADIO AND TELEVISION CORP.

MODEL NR-11
Power Pack
MODEL ABC
Power Pack



Model NR-11 Power Pack



Model ABC Power Pack

ALTERATION TABLE				
ALT. LET.	REMARKS	DATE	BY	APP'D.
C	REDESIGN	10-6	J. L.	[Signature]

DEFINATOR	J. L.
TRACER	
CHECKER	
APPROVAL	
DATE	11/14/46
CHIEF ENGINEER	

Freed-Cisemann
SPERRY BUILDING BROOKLYN NEW YORK

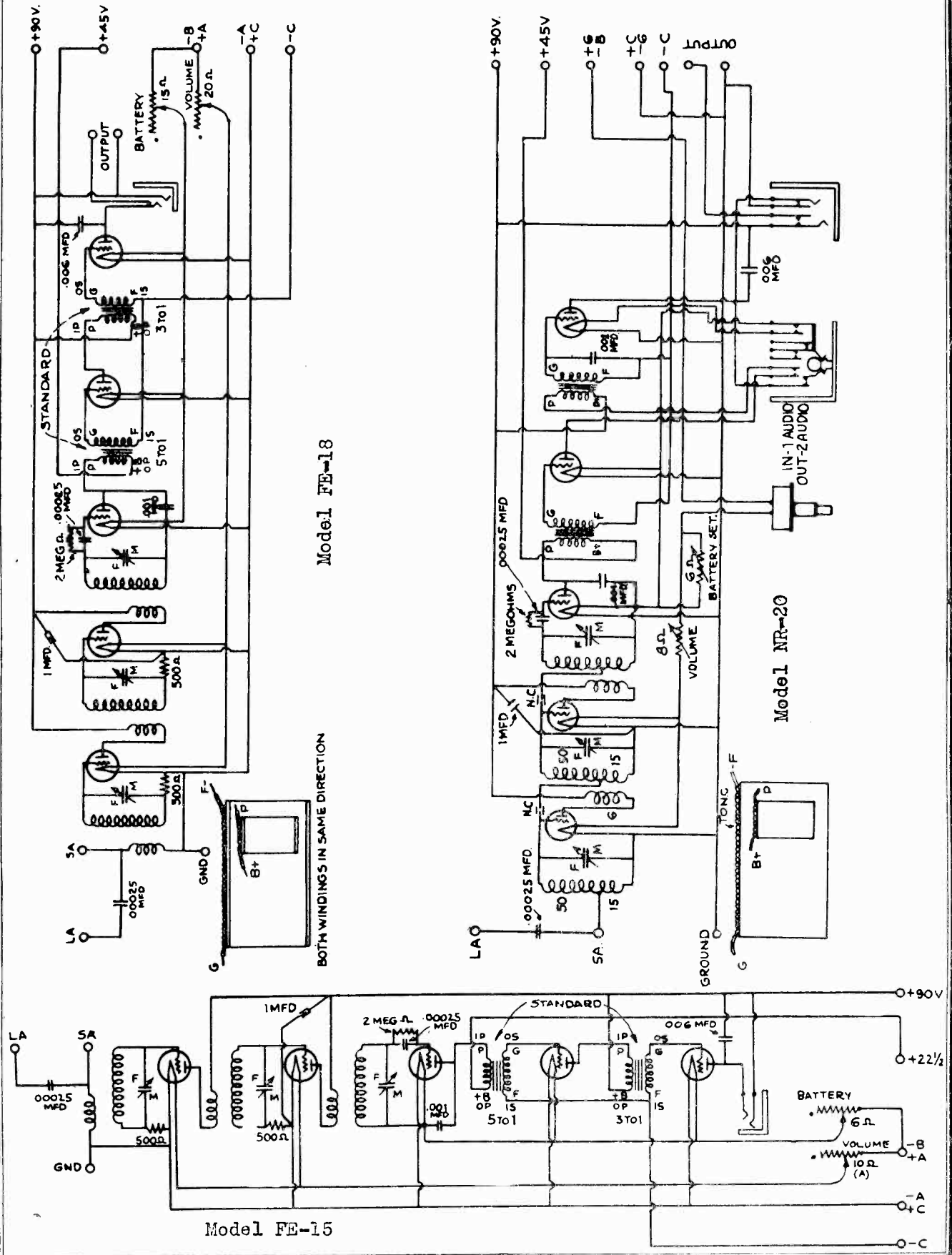
SCHEMATIC CIRCUIT DIAGRAM
-OF-
B AND C ELIMINATOR
SCALE DATE 4-12-27

949

DRAWING NUMBER W.D.-16

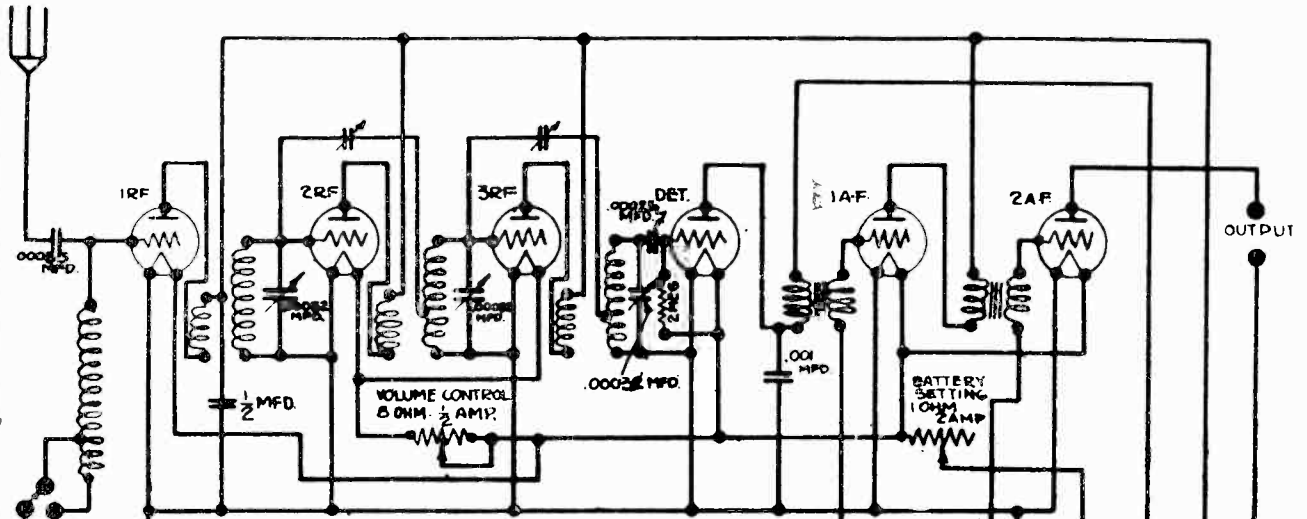
MODEL FE-15
 MODEL FE-18
 MODEL NR-20

FREED RADIO AND TELEVISION CORP.



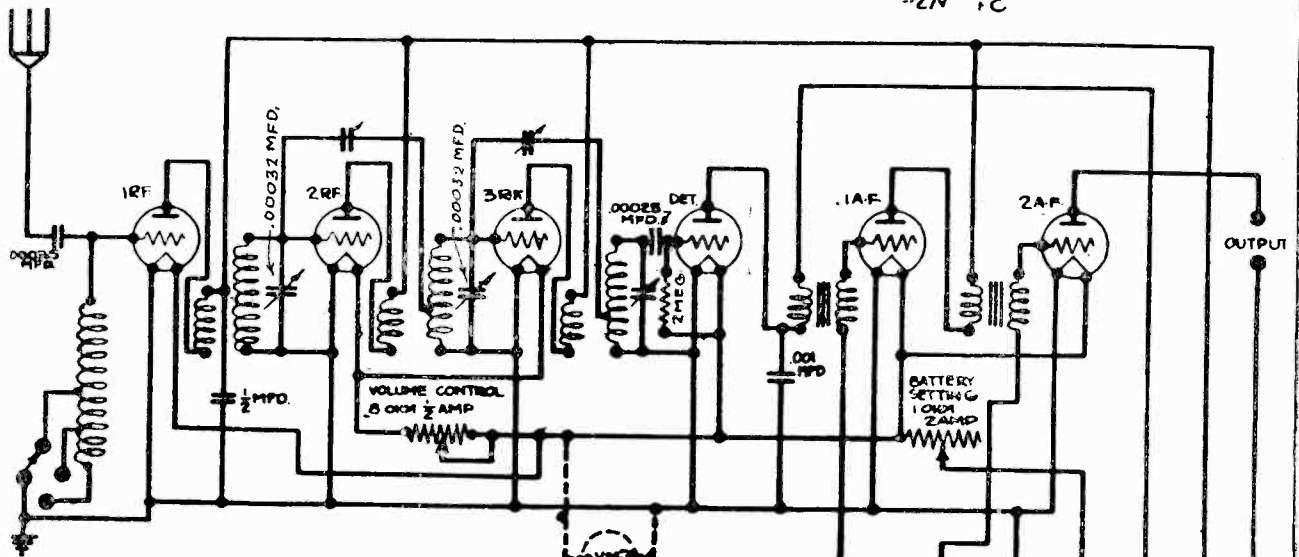
FREED - EISEMANN RADIO CORP.

MODEL FE-30, 30N
MODEL 40N, 48N



Model FE-30, 30N

-4 1/2 V
-9V OR -27V
-A
+A
+22 1/2 V +90V +135V



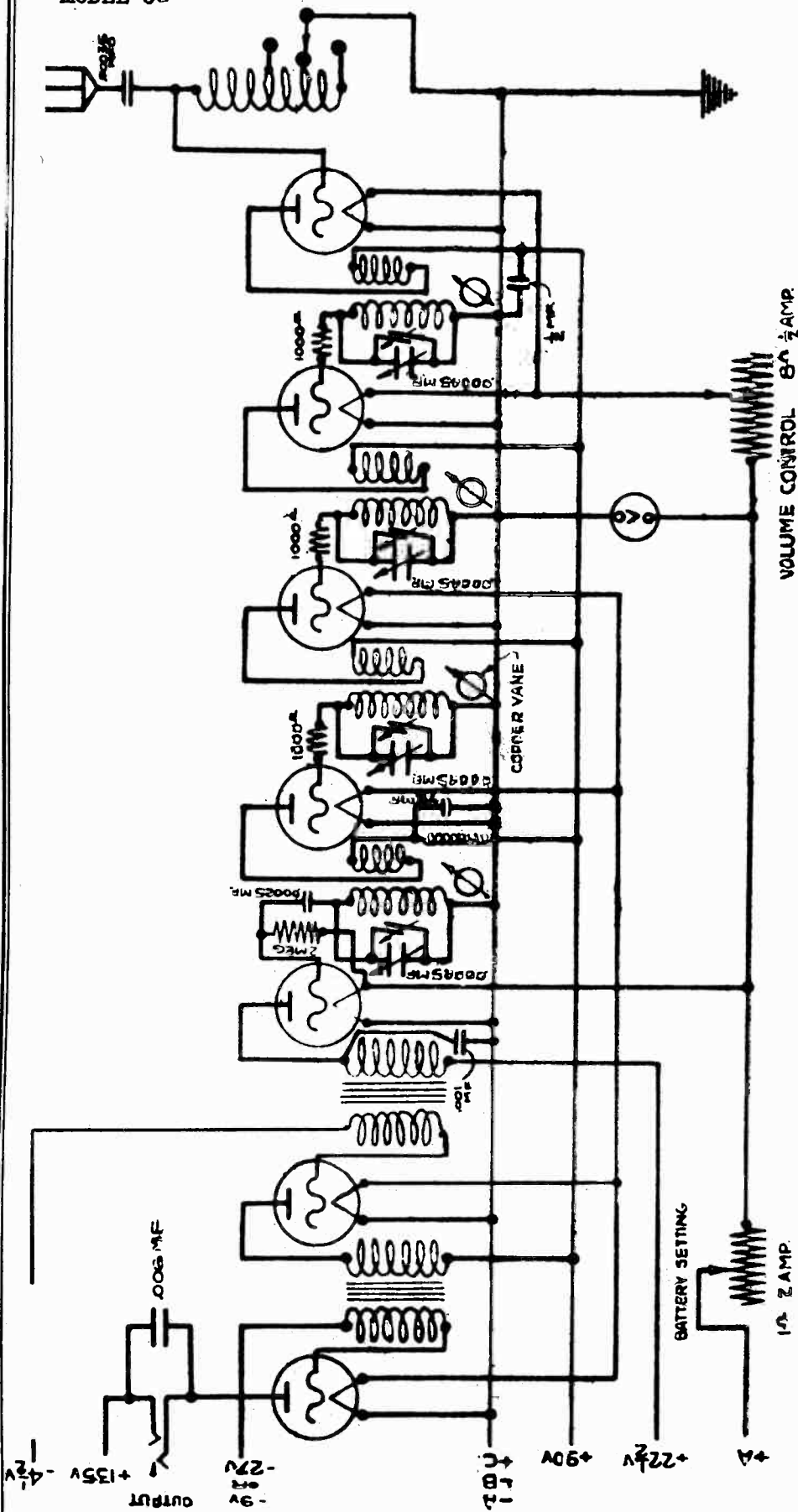
Model 40N, 48N

ON MODEL 40N ONLY

-4 1/2 V
-9V OR -27V
-A
+A
+22 1/2 V +90V +135V

MODEL 50

FREED RADIO AND TELEVISION CORP.

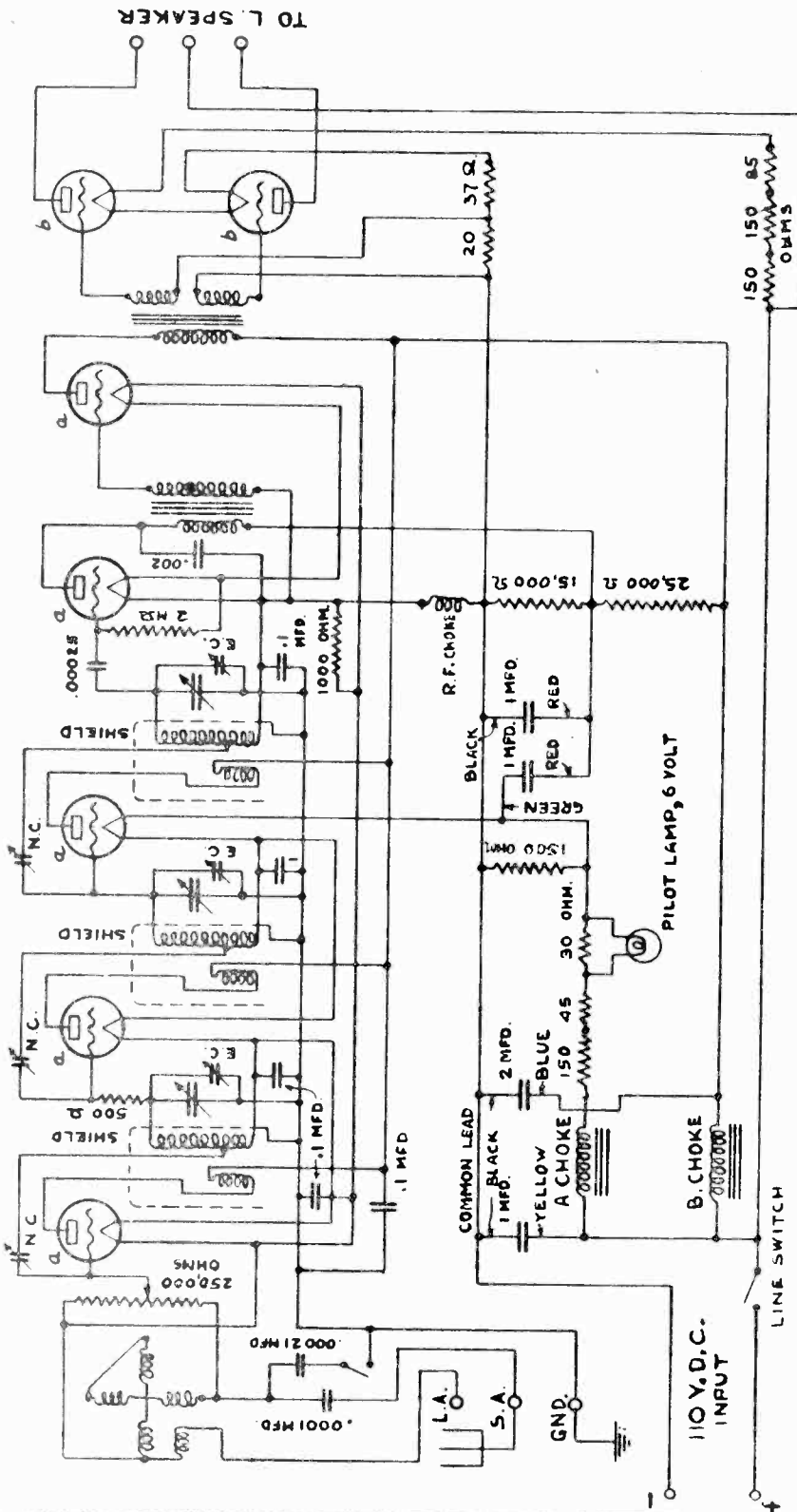


Freed-Eisemann
 SPERRY BUILDING BROOKLYN NEW YORK
MODEL 50 RECEIVER
SCHEMATIC WIRING
 DATE: 4-13-27
 SCALE

ALTERATION TABLE		DELINATOR	W
NO. LET.	REMARKS	TRACER	
		CHECKER	
		APPROVAL	
		BATCH	
		CHIEF ENGINEER	

FREED RADIO AND TELEVISION CORP.

MODEL NR-55 DC



NOTE: RESISTANCES 66 AND 45 OHMS WOUND ON ONE TUBE
RESISTANCES 30, 20 AND 37 OHMS WOUND ON ONE TUBE

Freed-Cisemann
PASSAIC N. J.

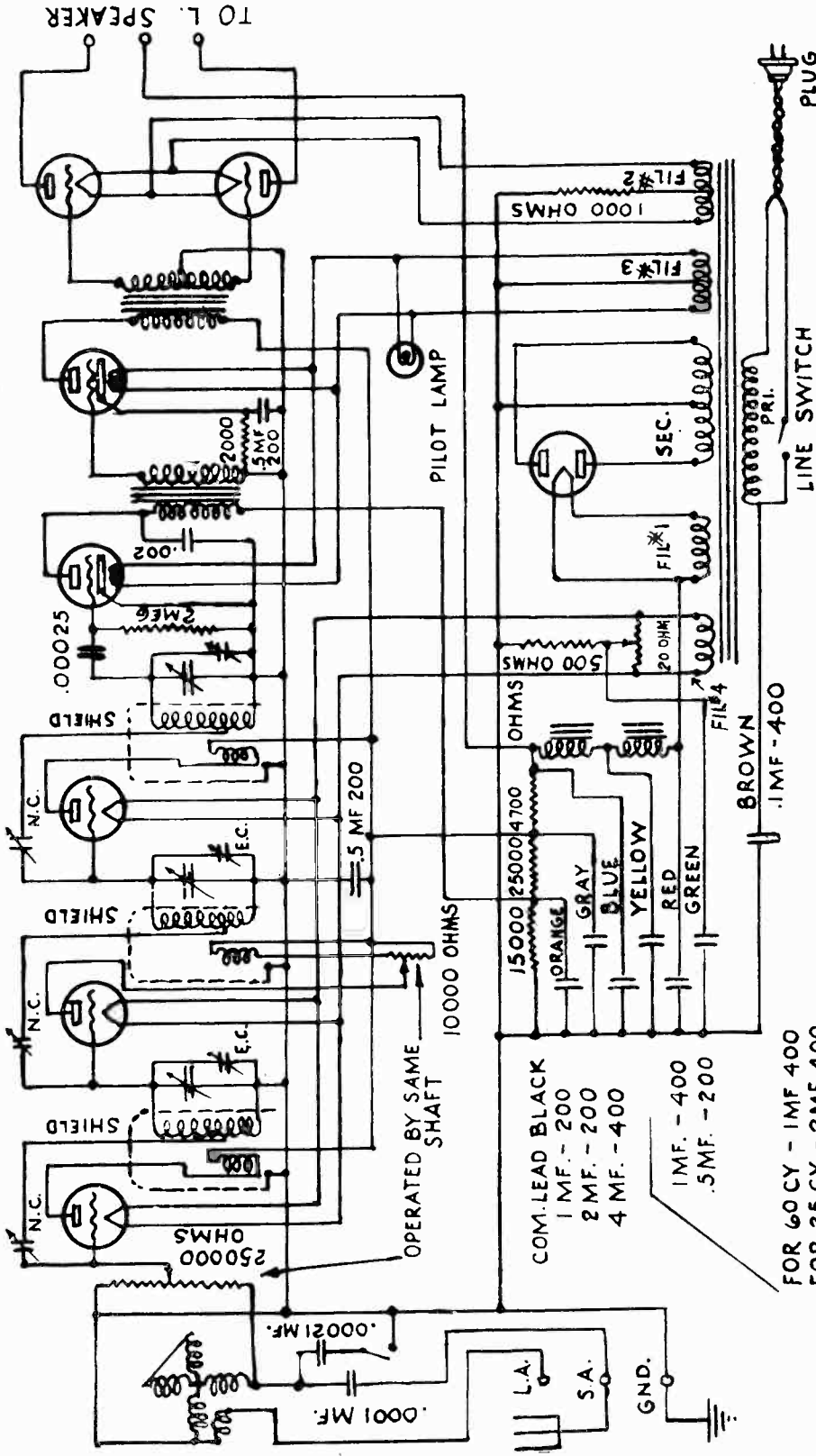
SCHEMATIC WIRING DIAGRAM
TYPE NR-55 D.C.

SCALE DATE 5-6-29

(D.C.) RATION TABLE		
MARKS	DATE	BY
	5/19/29	S.S.
DEFINATOR		S.S.
TRACER		
CHECKER		
APPROVAL		
DATE		
CHIEF ENGINEER		

- NR-55DC, NR-56DC
- 6X-301A Det. 6X-301A 1st A.F.
 - 6X-301A 3rd R.F. 6X-371A 2nd A.F.
 - 6X-301A 2nd R.F. 6X-371A 2nd A.F.
 - 6X-301A 1st R.F.

MODEL NR-55, NR-56 AC FREED RADIO AND TELEVISION CORP.



(A.U.)

NR-55, NR-56

<input type="radio"/> CX-380	<input type="radio"/> Det.	<input type="radio"/> C-327	<input type="radio"/> 1st A.F.
<input type="radio"/> Rect.	<input type="radio"/> 3rd R.F.	<input type="radio"/> CX-371A	<input type="radio"/> 2nd A.F.
<input type="radio"/> CX-326	<input type="radio"/> 2nd R.F.	<input type="radio"/> CX-371A	<input type="radio"/> 2nd A.F.
<input type="radio"/> 1st R.F.			

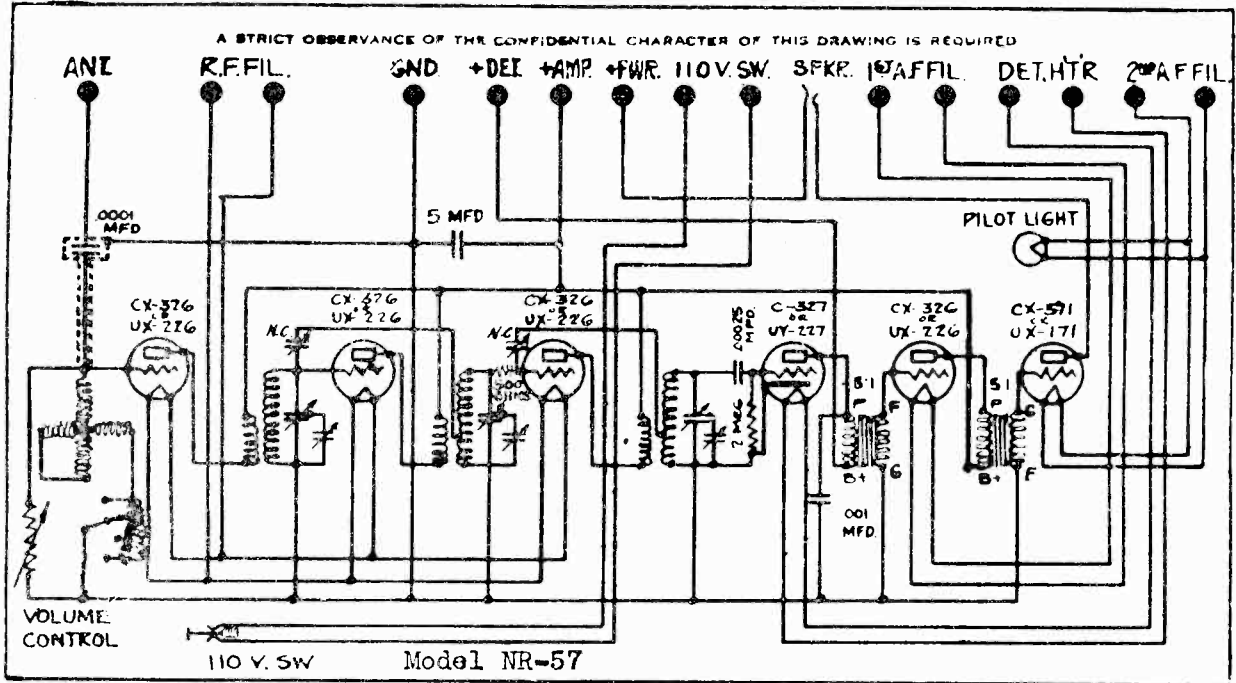
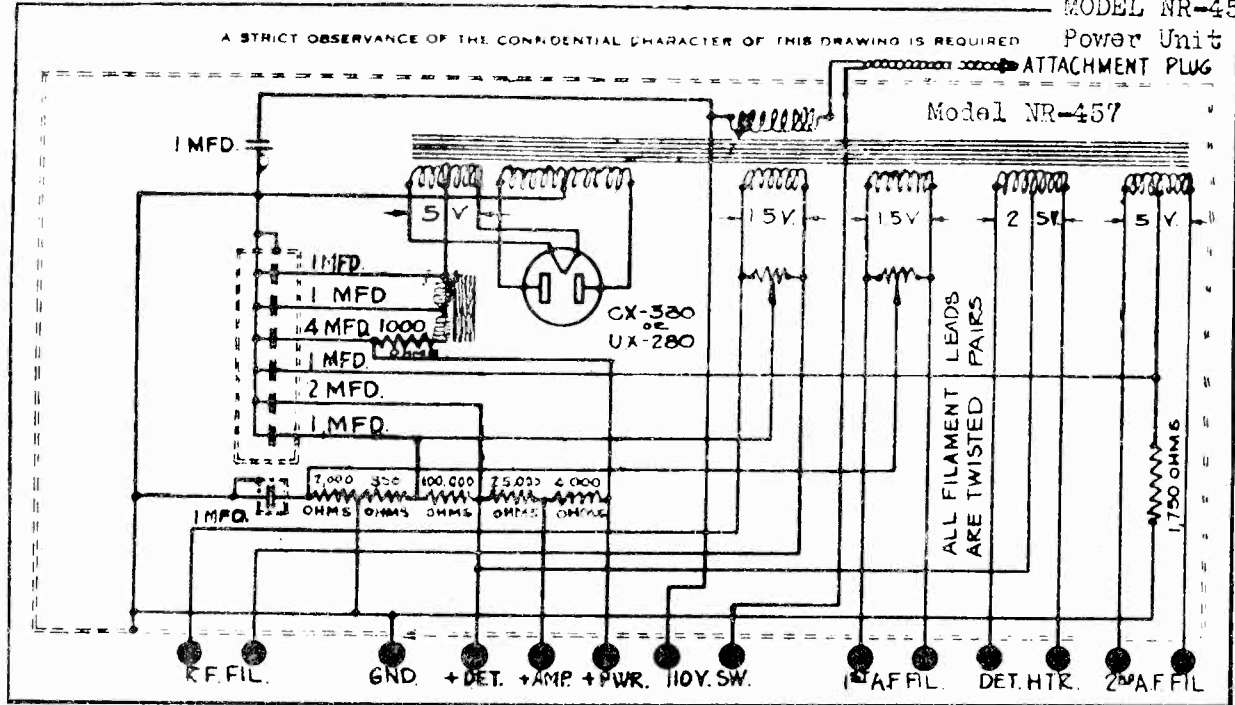
FREED-EISEMANN—Model 55
Line Voltage 116—Volume Control Position Full On

TUBE ORDN.	TYPE OF TUBE	MEASURED PLUG IN SOCKET OR SET				TUBE IN TESTER				
		A VOLTS	B VOLTS	C VOLTS	PLATE VOLTS	A VOLTS	B VOLTS	C VOLTS	PLATE VOLTS	
226	1st 2V	1.5	80	1.65	76	5	-	2.4	4.0	2.2
226	2nd 2V	1.5	80	1.65	76	5	-	2.4	4.0	2.2
226	3rd 2V	1.5	80	1.65	76	5	-	2.4	4.0	2.2
227	2nd A	2.14	32	1.9	30	-	-	1.0	1.0	0.0
227	1st A	2.16	98	1.97	72	4.5	5	2.5	5.0	2.5
171A	2nd A	5.0	135	4.95	125	50	-	13.4	35	22
171A	2nd A	5.0	135	4.95	125	50	-	13.4	35	22
280	Rect.	5.0	-	5.4	-	-	-	40	-	-

FOR 60 CY - 1MF 400
FOR 25 CY - 2MF 400

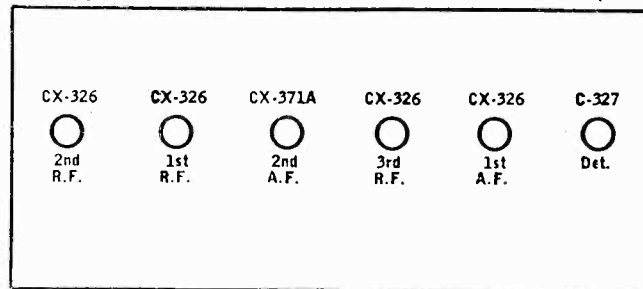
FREED RADIO AND TELEVISION CORP.

MODEL NR-57
Schematic
MODEL NR-457
Power Unit
ATTACHMENT PLUG

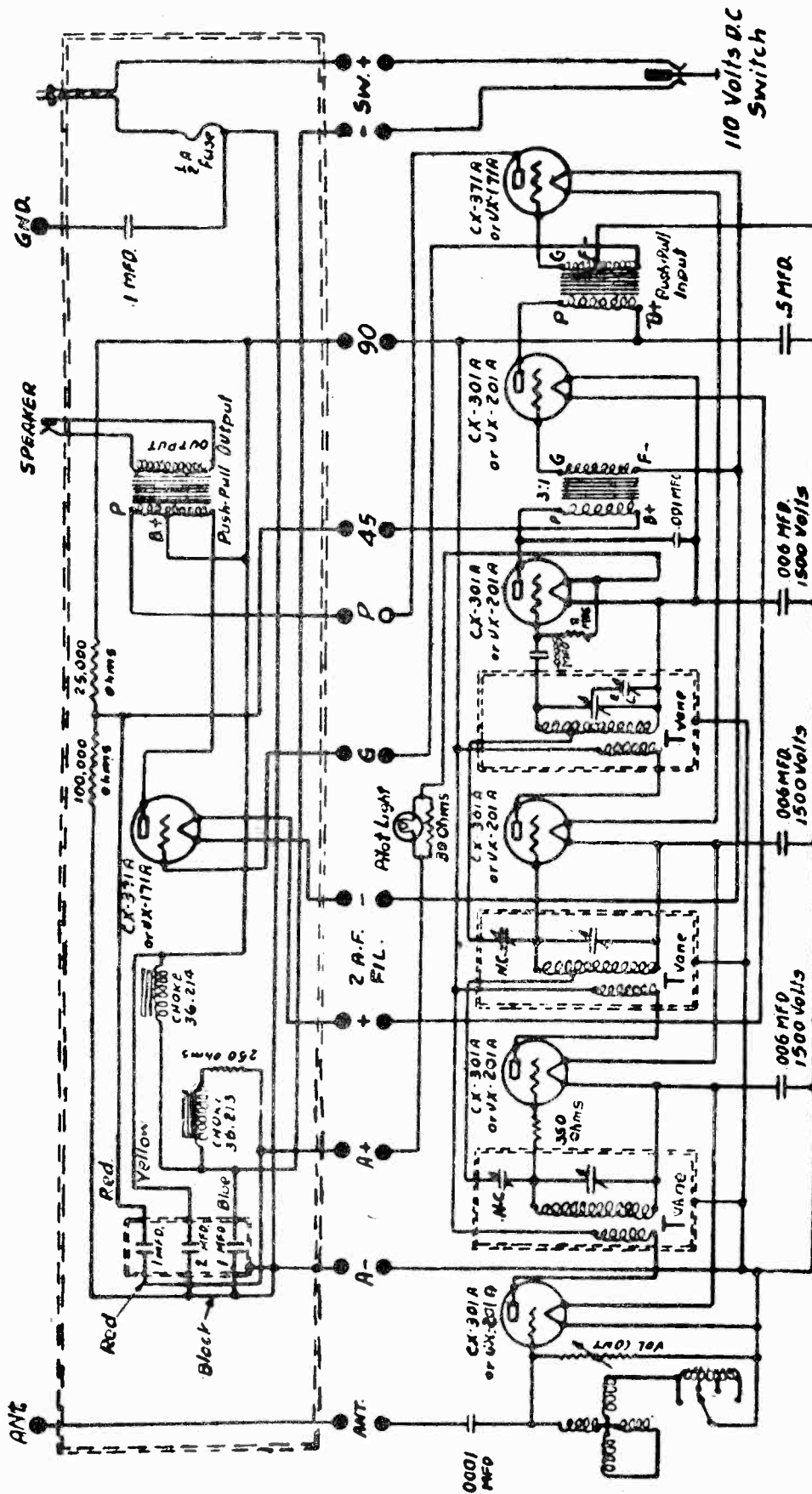


NR-57

(A.C.)

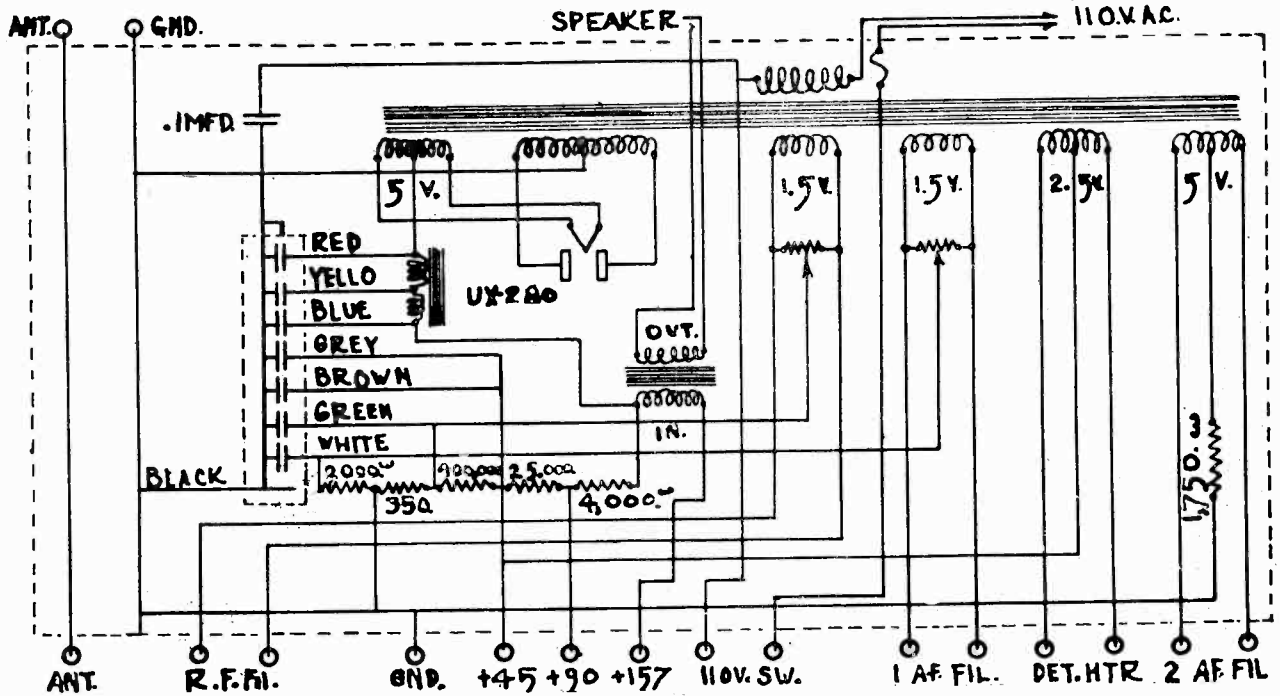


Power unit uses CX-380.

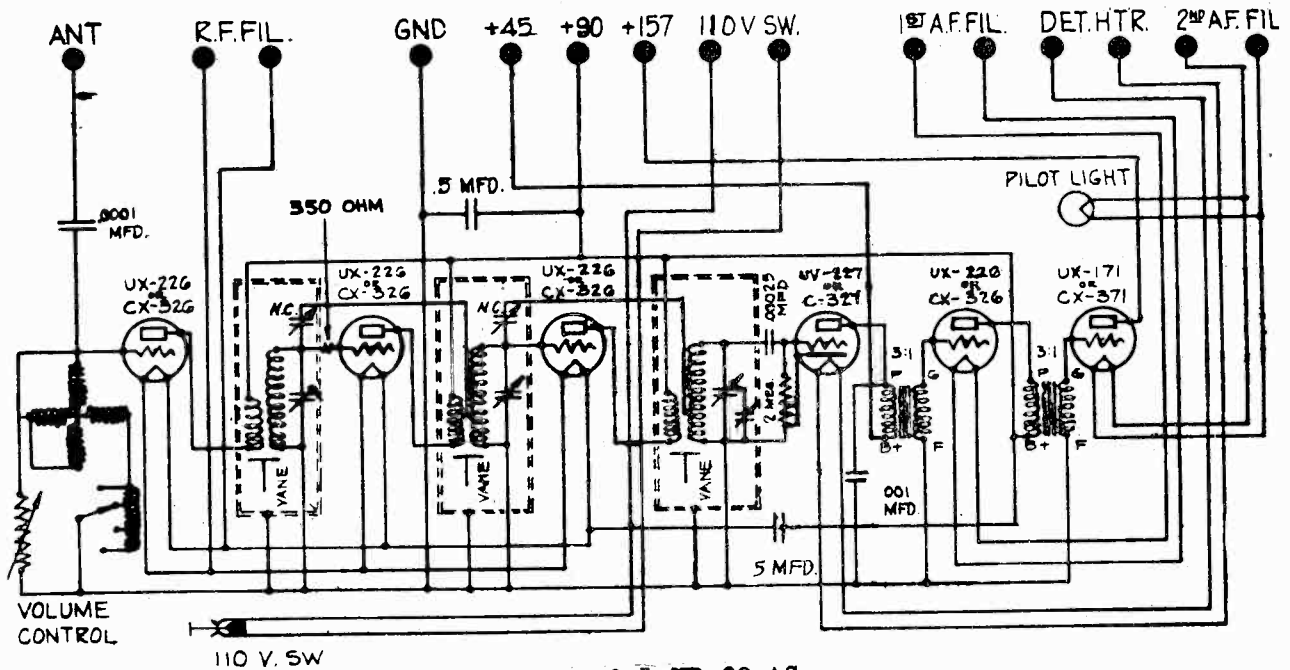


FREED RADIO AND TELEVISION CORP.

MODEL NR-60 AC
Schematic
MODEL NR-460 AC
Power Pack
110V AC.



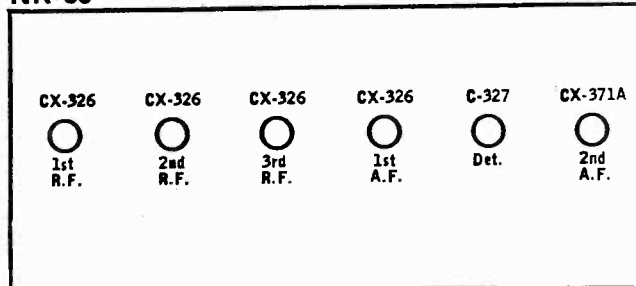
Model NR-460 AC



Model NR-60 AC

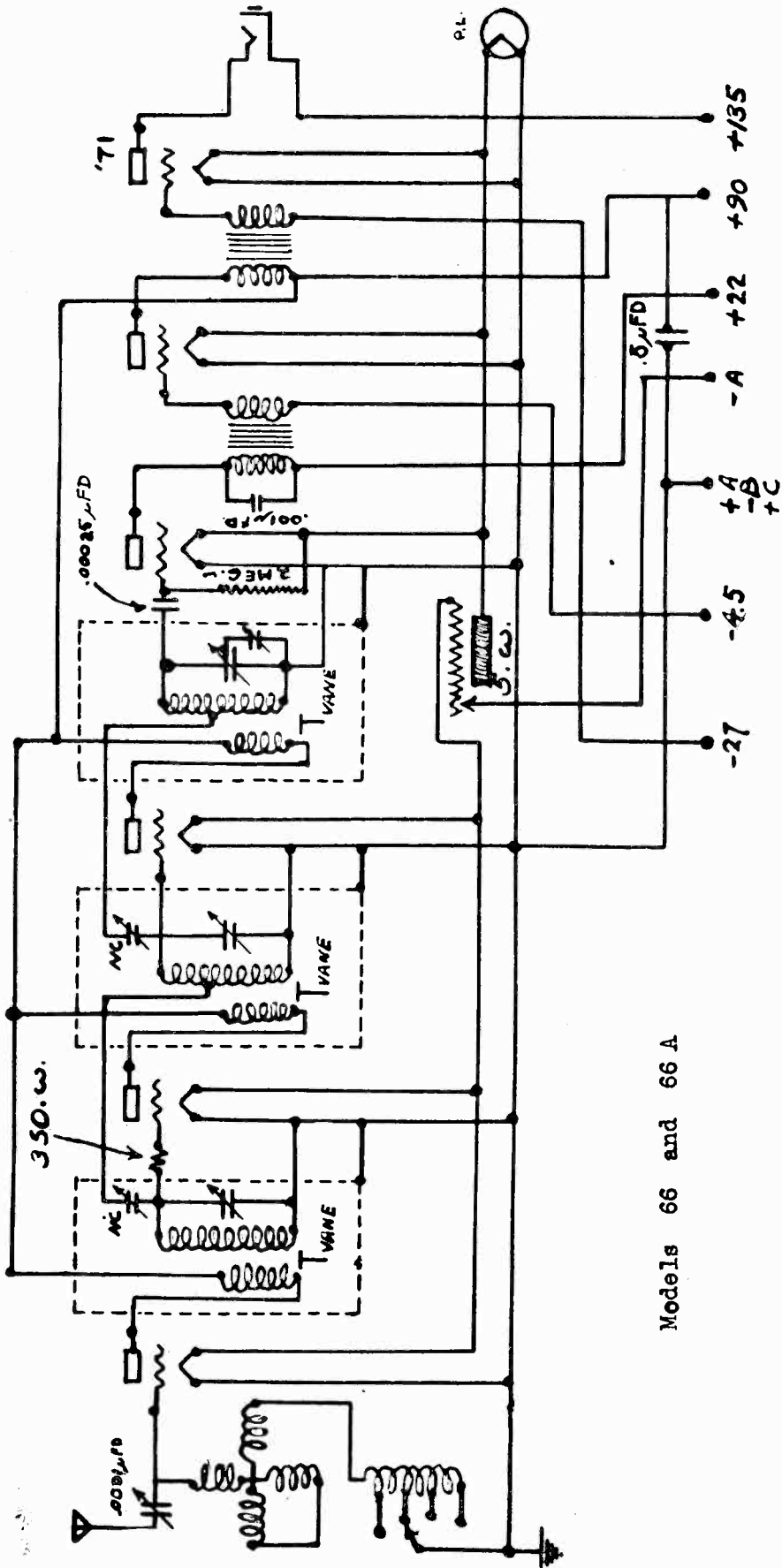
NR-60

(A.C.)

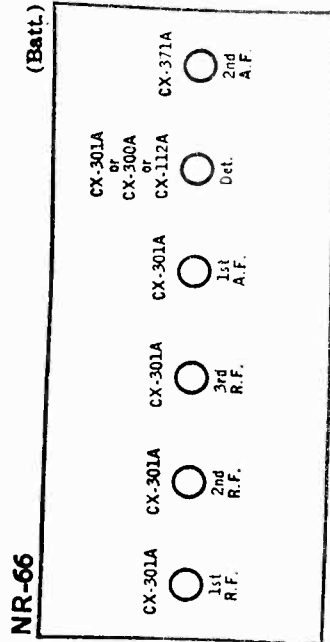


MODEL NR-66, 66A

FREED RADIO AND TELEVISION CORP.



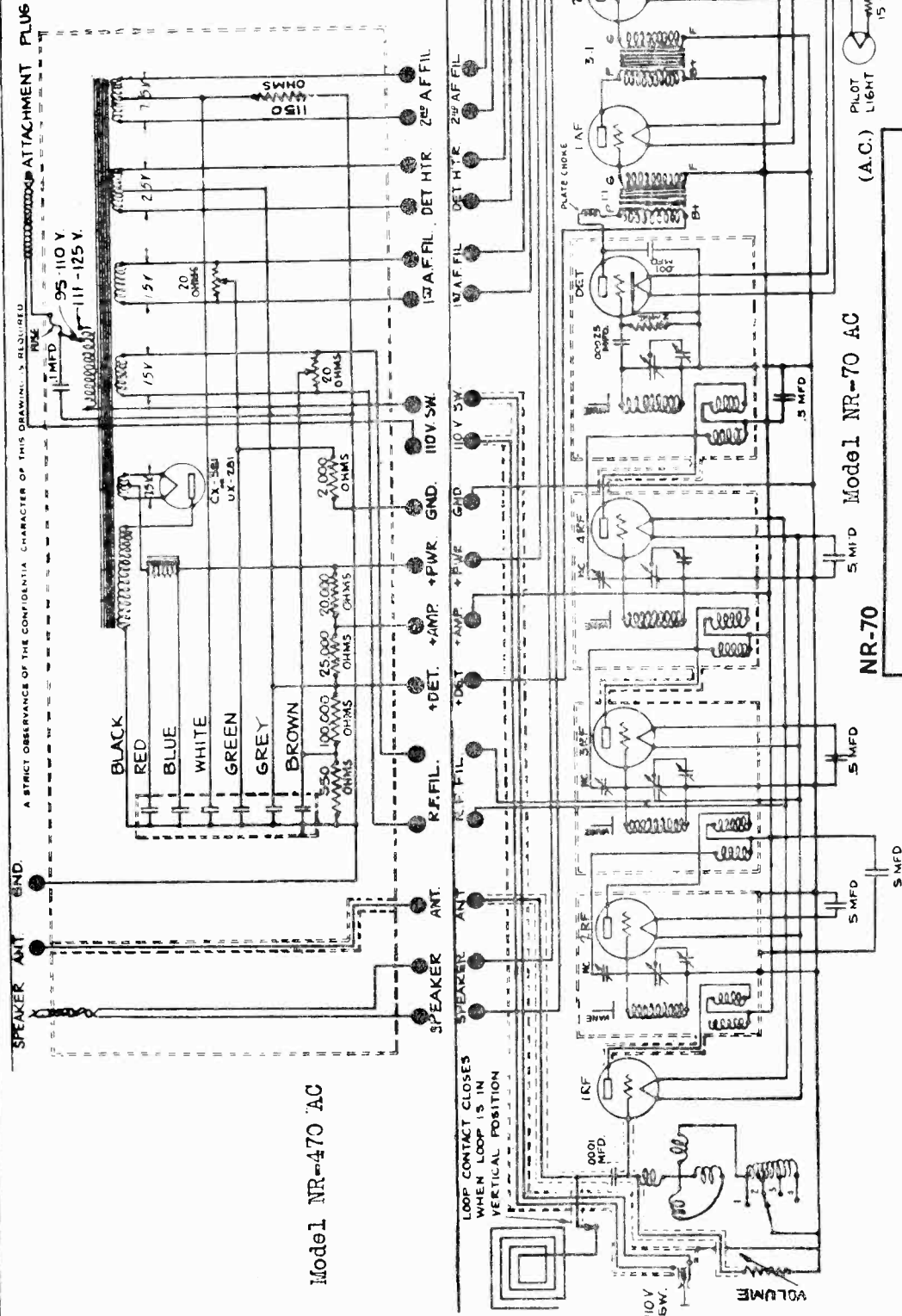
Models 66 and 66 A



FREED RADIO AND TELEVISION CORP.

MODEL NR-70 AC
Receiver
MODEL NR-470 AC
Power Pack

NOTE
2,000 350 & 110 OHM
RESISTANCES WOUND
ON SAME TUBE.
20,000 OHM RESISTANCE
COMPOSED OF 2-10,000
OHM RESISTANCES
CONNECTED IN SERIES



Model NR-470 AC

Model NR-70 AC

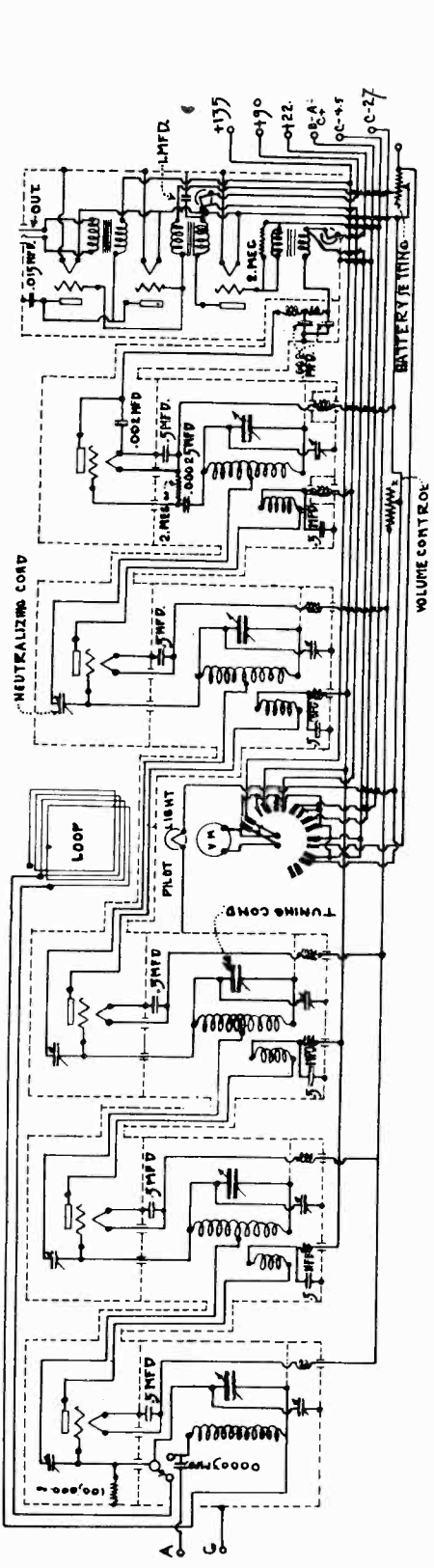
- CX-326 2nd R.F.
- CX-326 3rd R.F.
- CX-326 1st R.F.
- CX-310 2nd A.F.
- CX-326 1st A.F.
- CX-326 4th R.F.
- CX-326 CX-326
- C-327 Det.

CX-381 used in Power Pack Can.

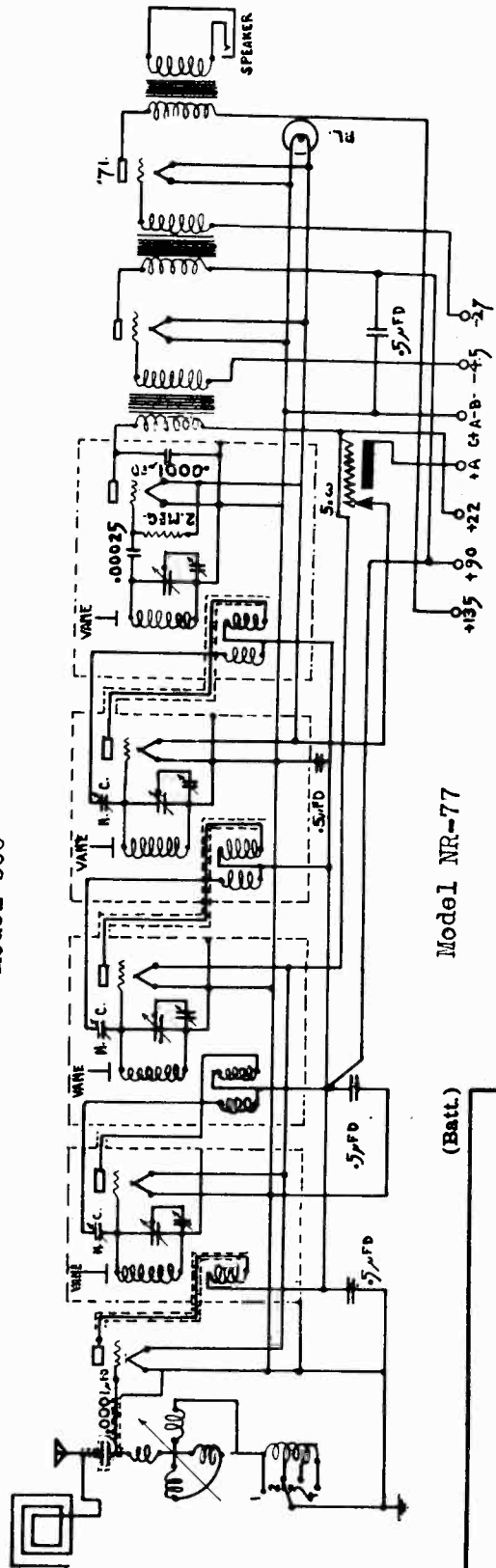
A STRICT OBSERVANCE OF THE CONFIDENTIAL CHARACTER OF THIS DRAWING IS REQUIRED

MODEL NR-77
MODEL 800

FREED RADIO AND TELEVISION CORP.



Model 800



Model NR-77

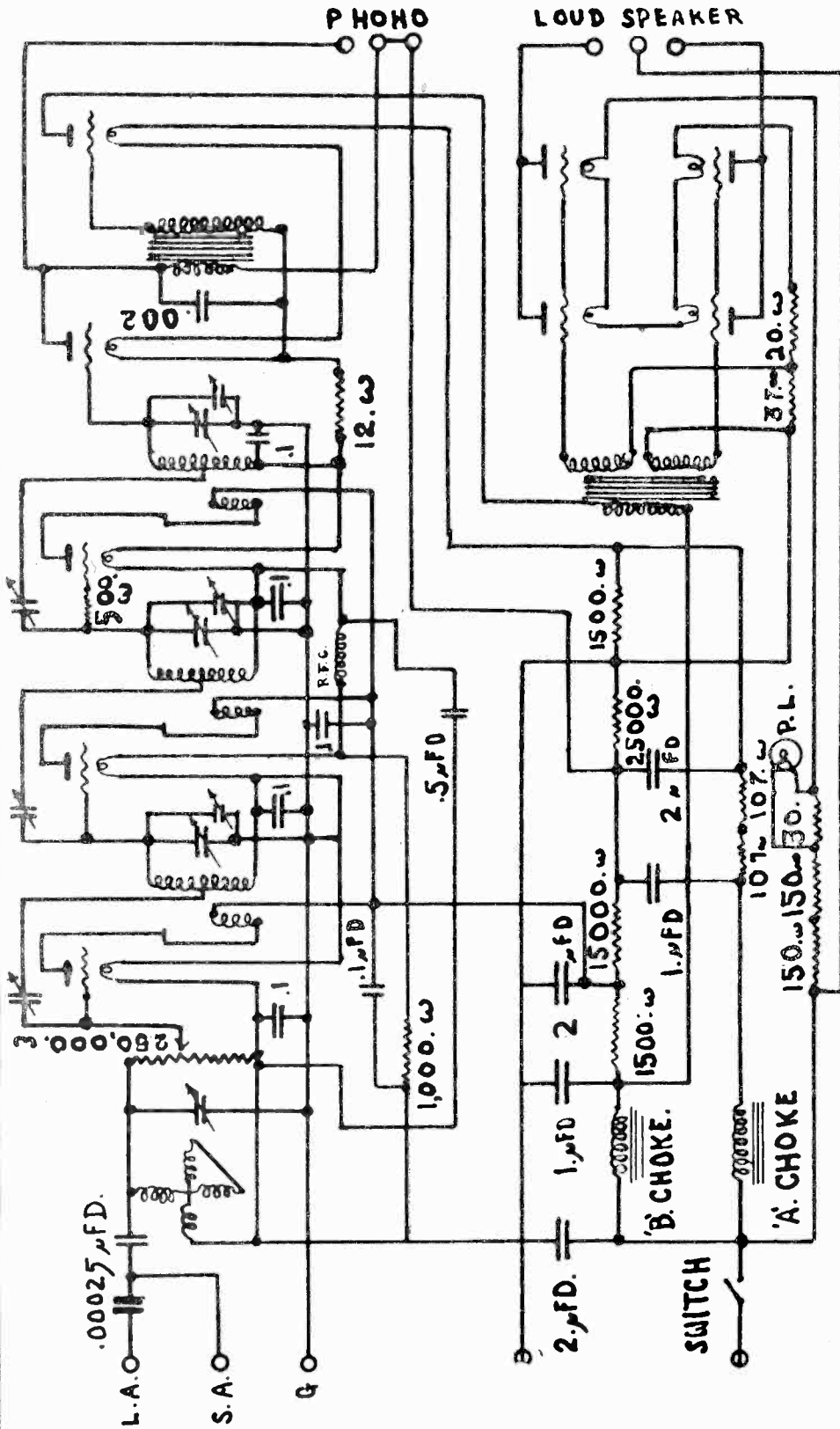
(Batt.)

NR-77

CX-301A	CX-301A	CX-301A	CX-377A	CX-301A	CX-301A	CX-118A
2nd R.F.	3rd R.F.	1st A.F.	2nd A.F.	1st A.F.	4th R.F.	8el

FREED RADIO AND TELEVISION CORP.

MODEL NR-78 DC
NR-79 DC



FREED-EISEMANN—Model 78 D. C.
Line Voltage 110 D. C.—Set on D. C. Volt Tap—Volume Control Position Full On

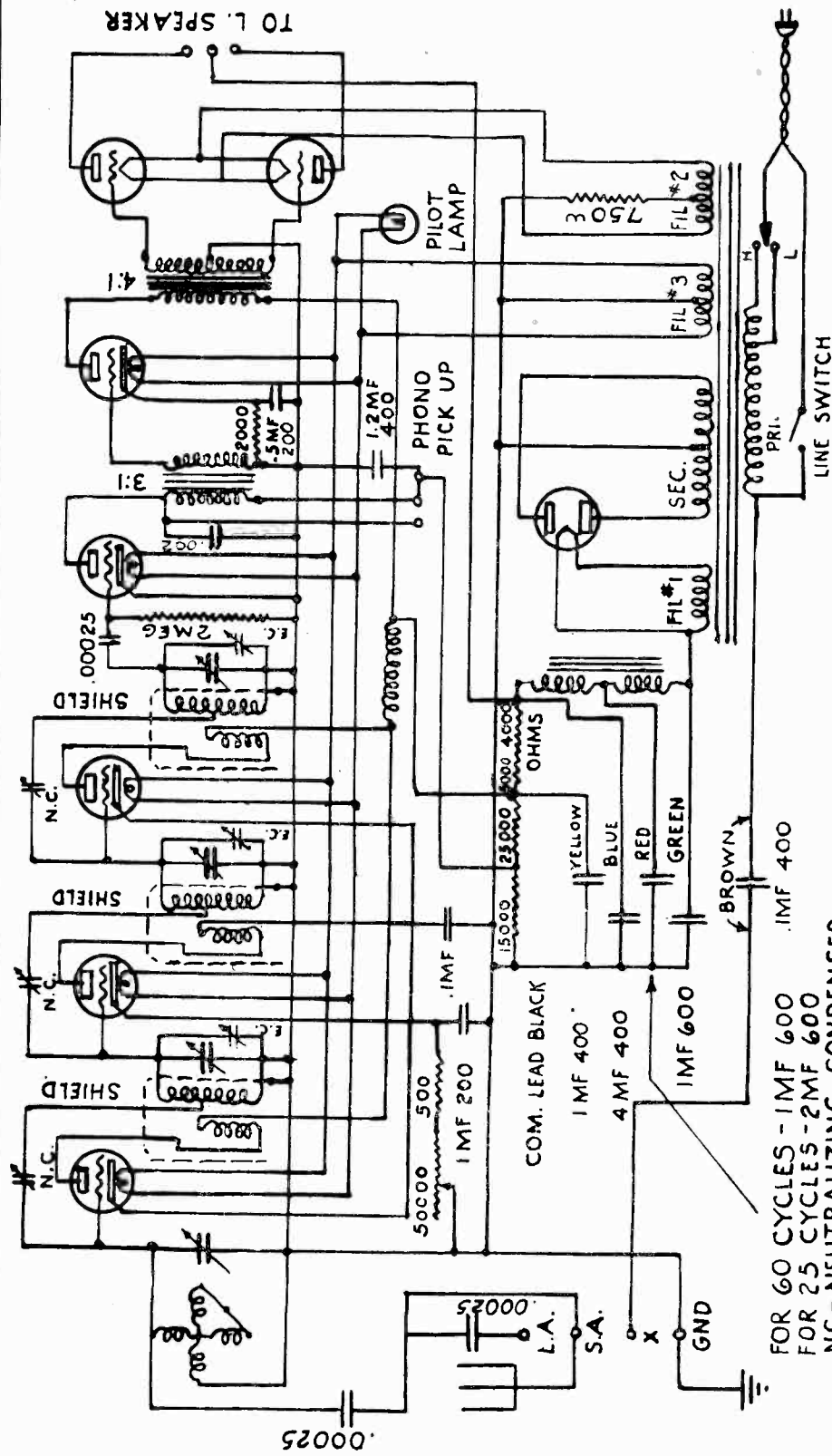
TUBE NO UNDER	TYPE OF TUBE	POSITION	TUBE OUT		TUBE IN TESTER		RESISTOR VALUE	VOLTAGE	CURRENT	TAP
			VOLTS	MA	VOLTS	MA				
1	201A	1st RF	4.5	75	4.5	75	3.7	4.0	0.5	3.7
2	201A	2nd RF	4.5	75	4.5	75	3.7	4.0	0.5	3.7
3	201A	3rd RF	4.5	75	4.5	75	3.7	4.0	0.5	3.7
4	201A	Det.	4.5	75	4.5	75	3.7	4.0	0.5	3.7
5	177A	1st A	4.5	75	4.5	75	3.7	4.0	0.5	3.7
6	177A	2nd A	4.5	75	4.5	75	3.7	4.0	0.5	3.7
7	177A	3rd A	4.5	75	4.5	75	3.7	4.0	0.5	3.7
8	177A	4th A	4.5	75	4.5	75	3.7	4.0	0.5	3.7
9	177A	5th A	4.5	75	4.5	75	3.7	4.0	0.5	3.7

NR-78DC, NR-79DC (D.C.)

CX-301A Det. CX-301A 1st A.F.
 CX-301A 2nd R.F. CX-301A 3rd R.F.
 CX-301A 2nd A.F. CX-372A 2nd A.F.
 CX-372A 1st R.F. CX-372A 2nd A.F.

MODEL NR-78 AC
NR-79 AC

FREED RADIO AND TELEVISION CORP.



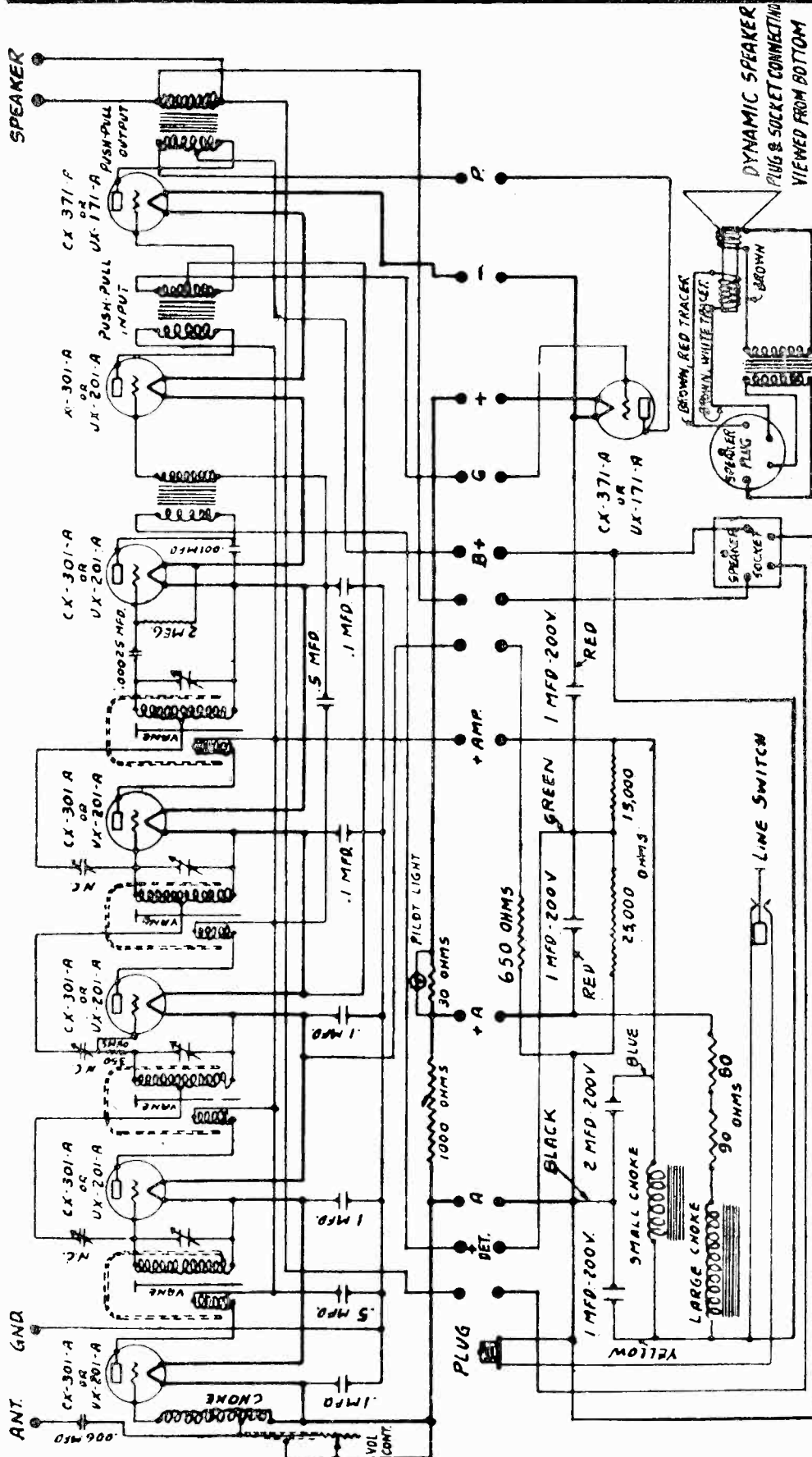
FREED-EISEMANN—Model 78-79
Line Voltage 116—Set on High Volt Tap—Volume Control Position Full On

TYPE	PART NUMBER	TUBE DATA	TUBE IN TABLE		TUBE IN SOCKET		PART NUMBER	TUBE DATA		
			TYPE	POWER	TYPE	POWER				
1	257	1.5T 3P	2.15	0.8	2.07	0.8	5	5.3	7.0	4.5
2	257	250A 2P	2.15	0.8	2.07	0.8	5	5.3	7.0	4.5
3	257	250A 2P	2.15	0.8	2.07	0.8	5	5.3	7.0	4.5
4	257	250A 2P	2.15	0.8	2.07	0.8	5	5.3	7.0	4.5
5	257	1.5T 3P	2.15	0.8	2.07	0.8	5	5.3	7.0	4.5
6	245	250A 2P	2.45	2.00	2.35	1.95	37	25	35	4
7	245	250A 2P	2.45	2.00	2.35	1.95	37	25	35	4
8	250	250A 2P	2.45	2.00	2.35	1.95	37	25	35	4
9	250	250A 2P	2.45	2.00	2.35	1.95	37	25	35	4

- FOR 60 CYCLES - IMF 600
FOR 25 CYCLES - 2MF 600
NC - NEUTRALIZING CONDENSER
EC - EQUALIZING CONDENSER
- NR-78, NR-79 (A.C.)
- | | | | | |
|--------|--------|--------|--------|----------|
| EX-380 | REL. | C-327 | 0.0025 | 2nd A.F. |
| C-327 | 0.0025 | CX-345 | 0.0025 | 2nd A.F. |
| C-327 | 0.0025 | CX-345 | 0.0025 | 2nd A.F. |
| C-327 | 0.0025 | C-327 | 0.0025 | 1st A.F. |
| C-327 | 0.0025 | C-327 | 0.0025 | 1st R.F. |

FREED RADIO AND TELEVISION CORP.

MODEL NR-80 DC



(D.C.)

NR-80DC

ON TABLE		DELINEATOR	
DATE	BY	TRACER	CHECKER
6-20-28	SAP		
7-10-28	STP		
6-20-28	STP		
7-10-28	STP		
7-16-28	STP		

APPROVAL

DATE

CHIEF ENGINEER

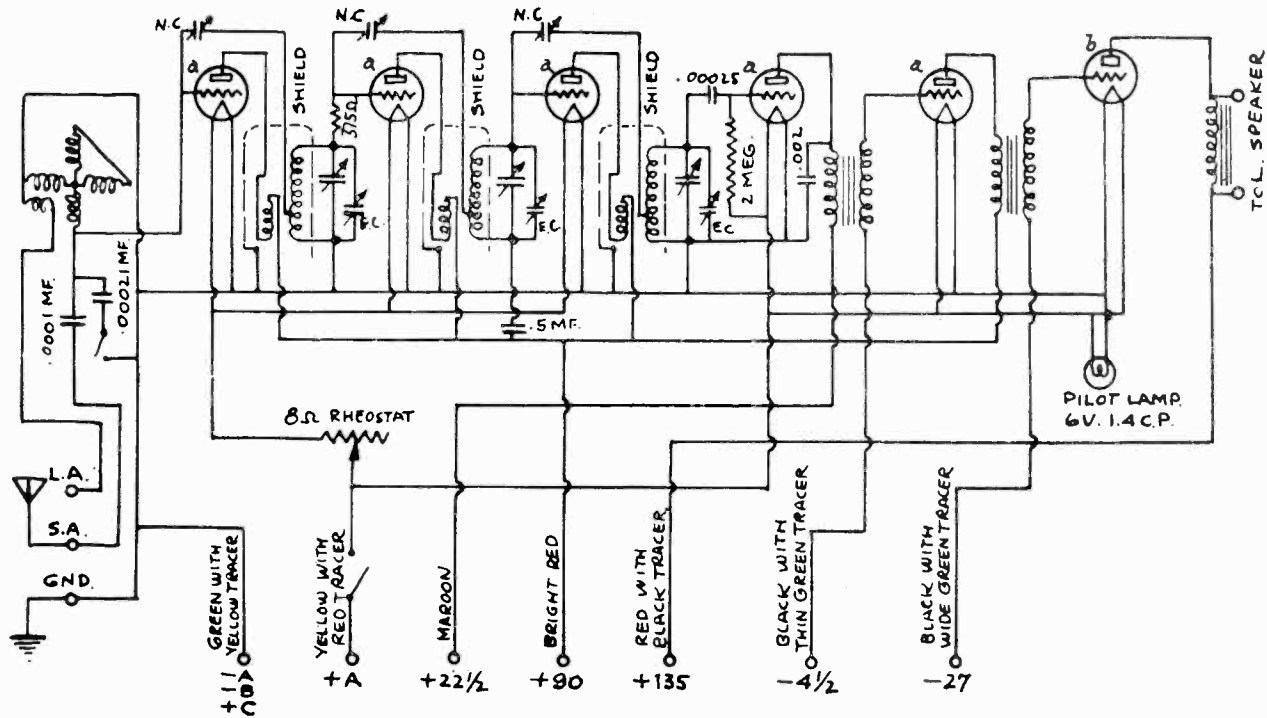
SCALE

DATE 6-20-28

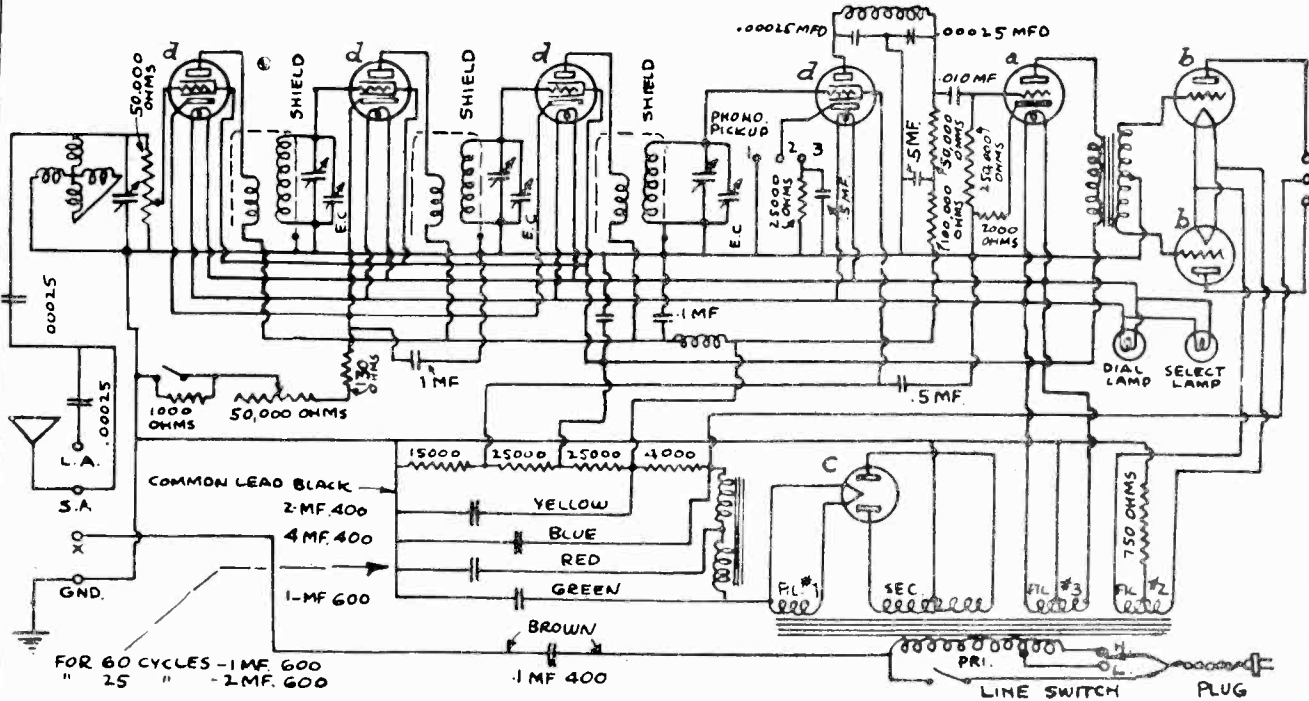
Freed-Owemann
 JUNIUS ST. & LIBERTY AVE. BROOKLYN NEW YORK
SCHEMATIC WIRING DIAGRAM
NR-80 D.C. TYPE

MODEL NR-53
MODEL NR-90-S

FREED RADIO AND TELEVISION CORP.



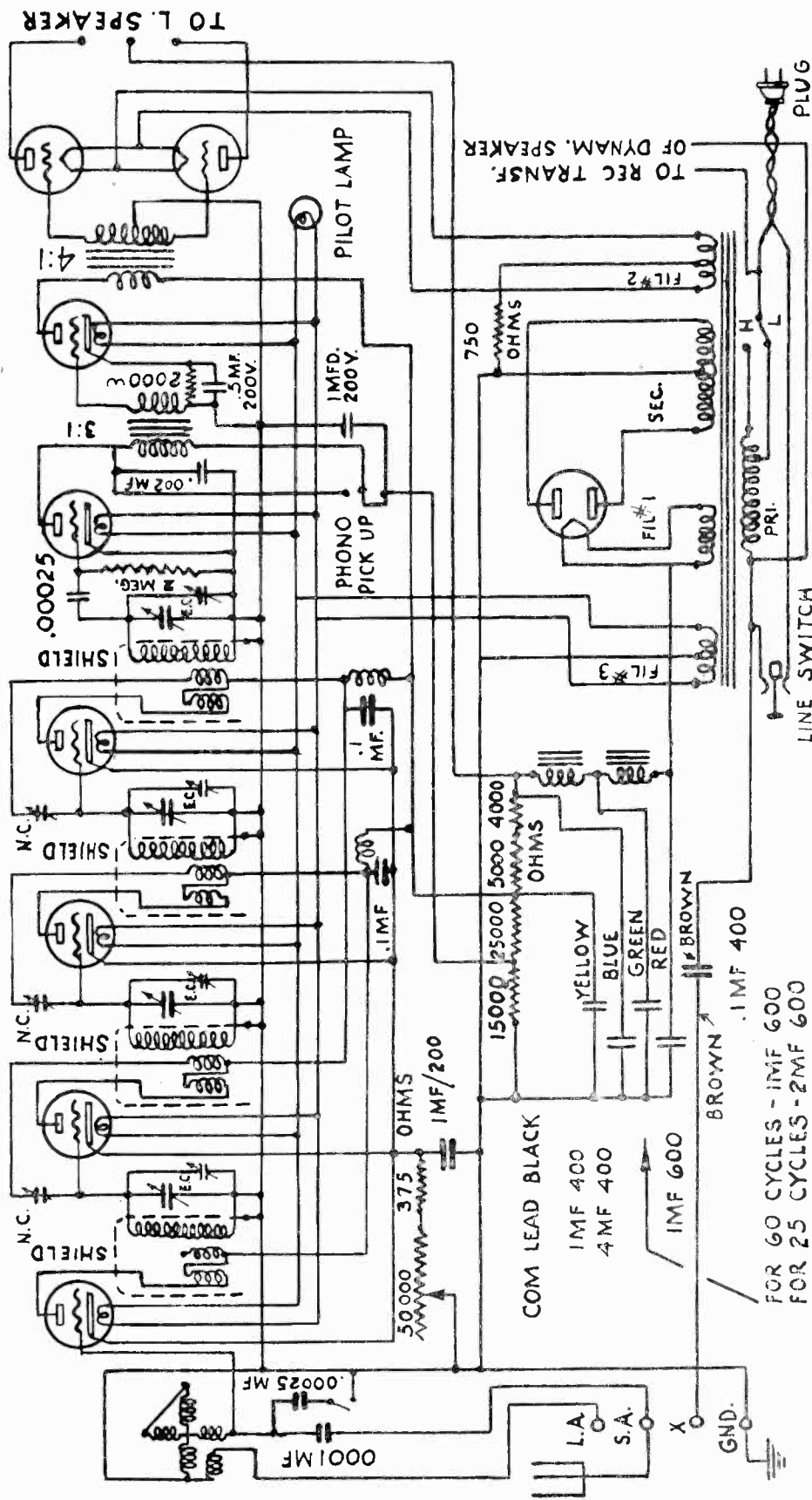
Model NR-53



Model NR-90-S

FREED RADIO AND TELEVISION CORP.

MODEL NR-95 AC



NR-95
 FREED-EISEMANN—Model 95
 Line Voltage 116—Set on High Volt Tap—Volume Control Position Full On

TUBE NO.	TYPE	POSITION	TUBE OUT		TUBE IN TESTER		READINGS PLUG IN SOCKET OF SET				
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	D VOLTS			
227	1st 6F	1	2.40	76	2.25	71	4	5	2.8	5.6	2.8
227	2nd 6F	2	2.40	76	2.25	71	4	5	2.8	5.6	2.8
227	3rd 6F	3	2.40	75	2.25	71	4	5	2.8	5.6	2.8
227	4th 6F	4	2.40	75	2.25	71	4	5	2.8	5.6	2.8
227	Det.	5	2.40	82	2.25	15	1.5	-	1.0	1.7	.7
245	2nd A	6	2.57	209	2.37	183	35	-	22	26	4
245	2nd A	7	2.57	208	2.37	183	35	-	22	26	4
280	Rect.	8	5.5	-	4.8	-	-	-	64	-	-

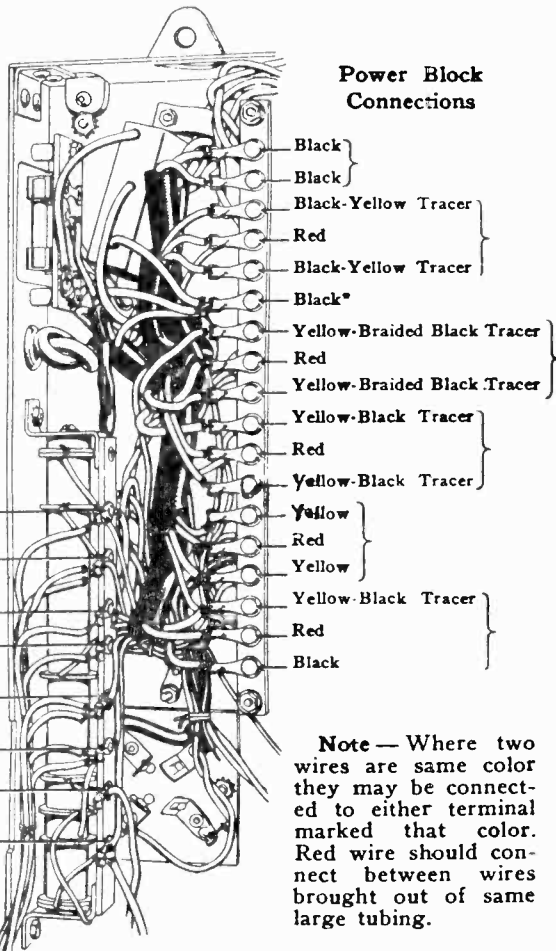
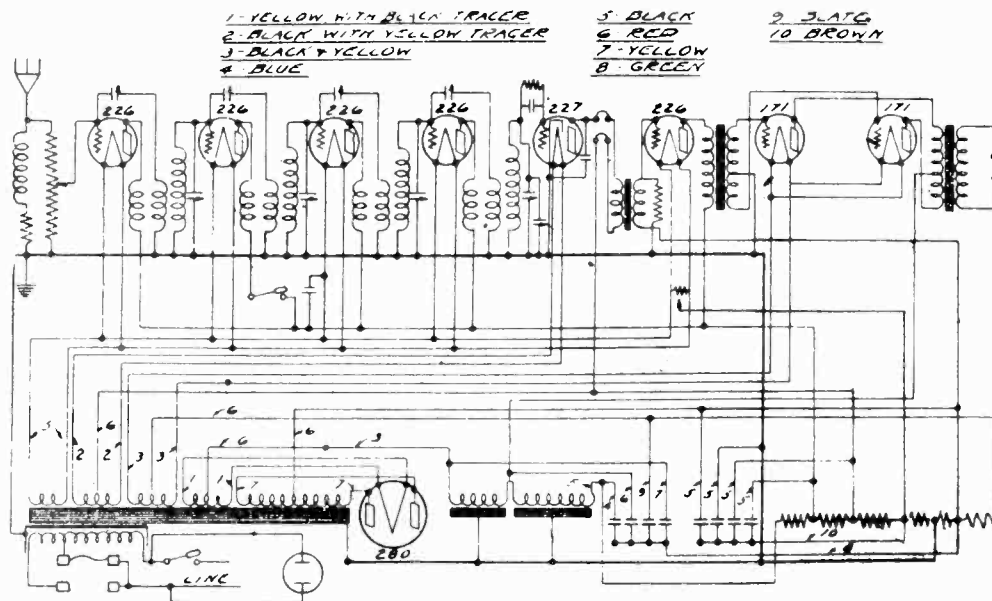
NR-95 (A.C.)

CX-380	Rect.	C-327	1st R.F.	C-327	2nd R.F.	C-327	3rd R.F.	C-327	4th R.F.	C-327	Det.
CX-345	2nd A.F.	C-327	2nd A.F.	C-327	1st A.F.	C-327	1st A.F.	C-327	1st A.F.	C-327	1st A.F.
CX-345	2nd A.F.	C-327	2nd A.F.	C-327	1st A.F.	C-327	1st A.F.	C-327	1st A.F.	C-327	1st A.F.

FOR 60 CYCLES - 1MF 600
 FOR 25 CYCLES - 2MF 600

JESSE FRENCH & SONS PIANO CO.

MODEL 8 Tube AC



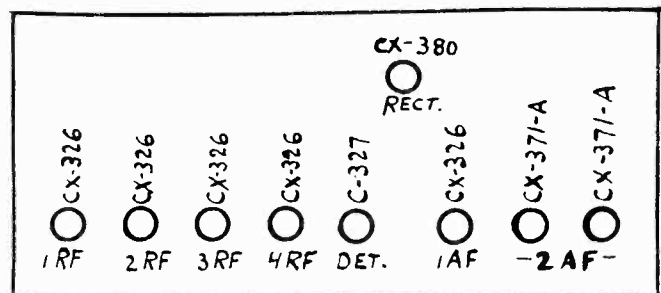
JESSE FRENCH
 8 - A.C. Power Set.

Line Voltage 116—2nd A. F. Stage—2 Tubes Push Pull

TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST #, 2ND, ETC.	READINGS, PLUS IN SOCKET OF SET									
			TUBE OUT					TUBE IN TESTER				
			A VOLTS	B VOLTS	C VOLTS	D VOLTS	E VOLTS	CATHODE VOLTS	NORMAL PLATE MA TEST	PLATE MA GRID TEST	PLATE MA CHANGE	
1	226	1st. R.F.	1.55	117	1.5	110	5.5	-	6.5	10.5	4.0	
2	226	2nd. R.F.	1.55	117	1.5	110	5.5	-	6.5	10.5	4.0	
3	226	3rd. R.F.	1.55	117	1.5	110	5.5	-	6.5	10.5	4.0	
4	226	4th. R.F.	1.55	117	1.5	110	5.5	-	6.5	10.5	4.0	
5	2-7	Detector	2.40	125	2.2	25	45	-	1.4	1.4	0.0	
6	226	1st. A.F.	1.55	107	1.5	100	7.5	-	3.5	7.0	3.5	
7	171A	2nd. A.F.	5.30	170	5.0	158	33	-	18.0	21.0	3.0	
8	171A	2nd. A.F.	5.30	170	5.0	158	33	-	18.0	21.0	3.0	

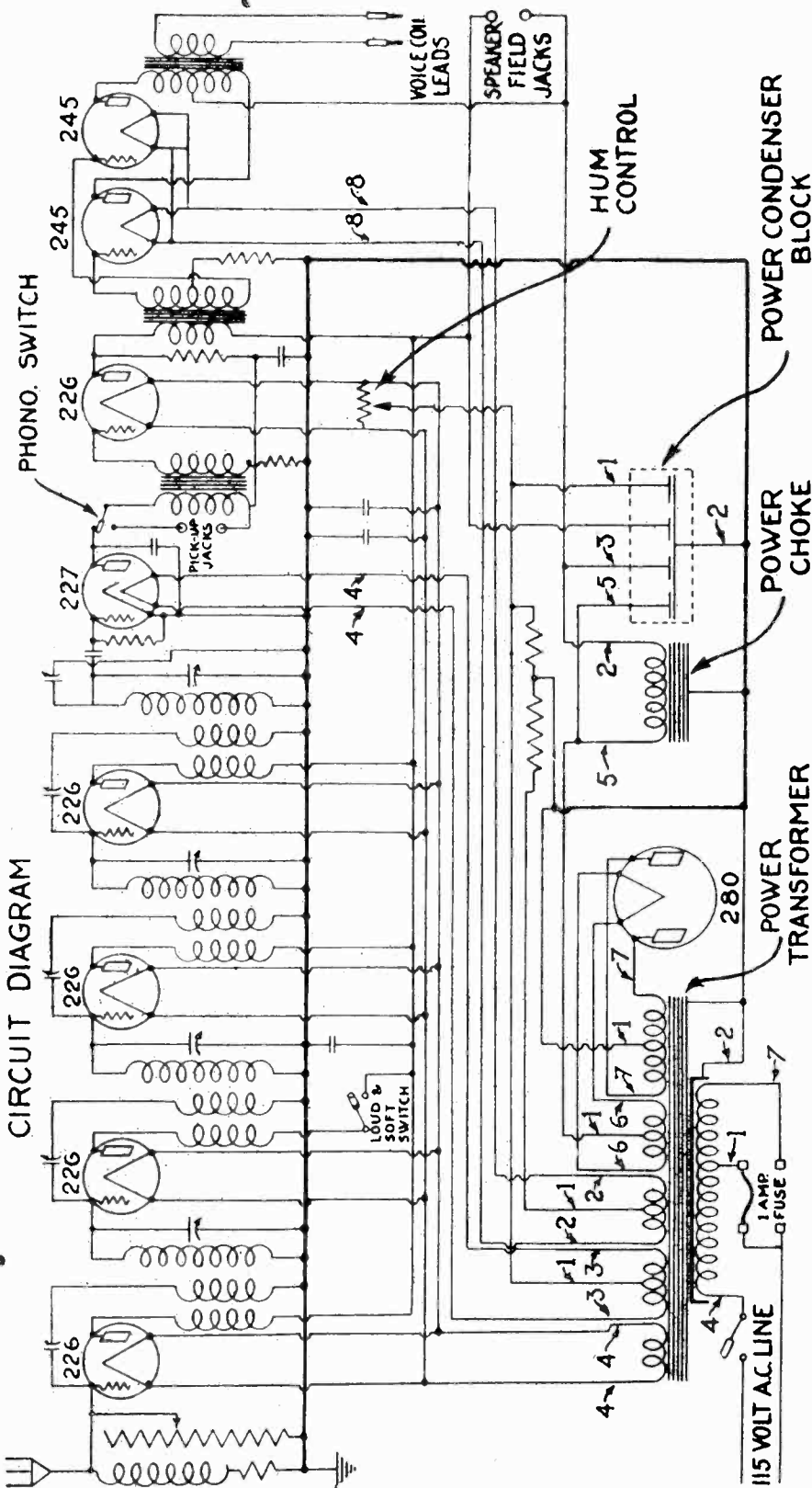
Page 4
 Sec. 6

Note—Where two wires are same color they may be connected to either terminal marked that color. Red wire should connect between wires brought out of same large tubing.



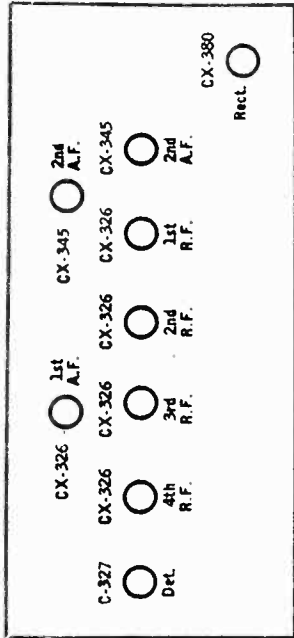
MODEL 5-093

JESSE FRENCH & SONS PIANO CO.



JESSE FRENCH

Model 5-093

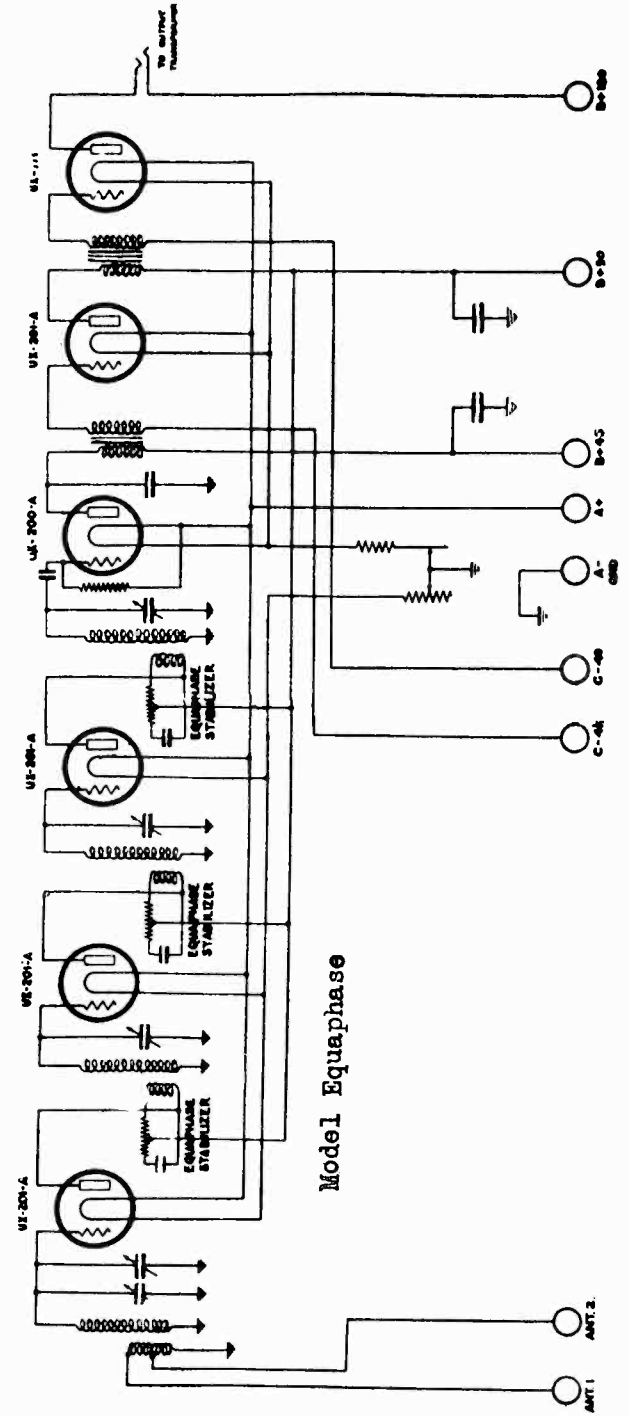
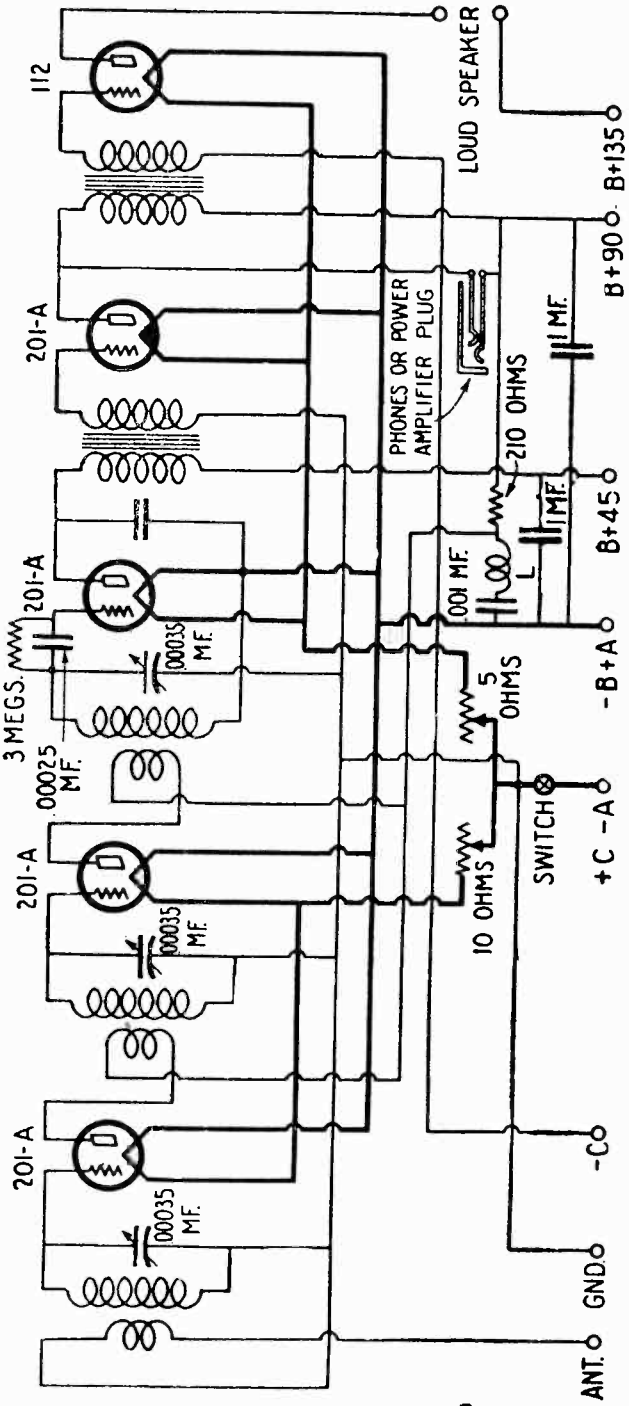


Line Voltage 120—Set on 120 Volt Tap—Volume Control Position Max
 Note: "C" Bias Voltage Reading on Audio tubes is low due to the current draw of the set tester and high resistances in the set.

TUBE ORDER	TYPE	POSITION OF TUBE IN SET	RESOURCES PLUG IN SOCKET OF SET											
			TUBE IN TESTER		VOLTAGE NORMAL		PLATE VOLTAGE		BIAS VOLTAGE		BIAS CURRENT			
			A	B	A	B	A	B	A	B	A	B	A	B
1	226	1st RF	1.5	1.4	132	10	6	9	4	4	-	-	-	-
2	226	2nd RF	1.5	1.4	132	10	6	9	4	4	-	-	-	-
3	226	3rd RF	1.5	1.4	132	10	6	9	4	4	-	-	-	-
4	226	4th RF	1.5	1.4	132	10	6	9	4	4	-	-	-	-
5	245	1st AF	8.0	8.5	50	0	10	8	0	0	-	-	-	-
6	245	2nd AF	1.5	1.4	117	6.5	4.5	6.5	5	5	-	-	-	-
7	245	PF	2.5	2.4	245	11.5	85	80	4.5	4.5	-	-	-	-
8	245	PF	2.5	2.4	245	11.5	85	80	4.5	4.5	-	-	-	-
9	280	Rect.	5.0	4.9	-	-	-	-	-	-	-	-	-	-

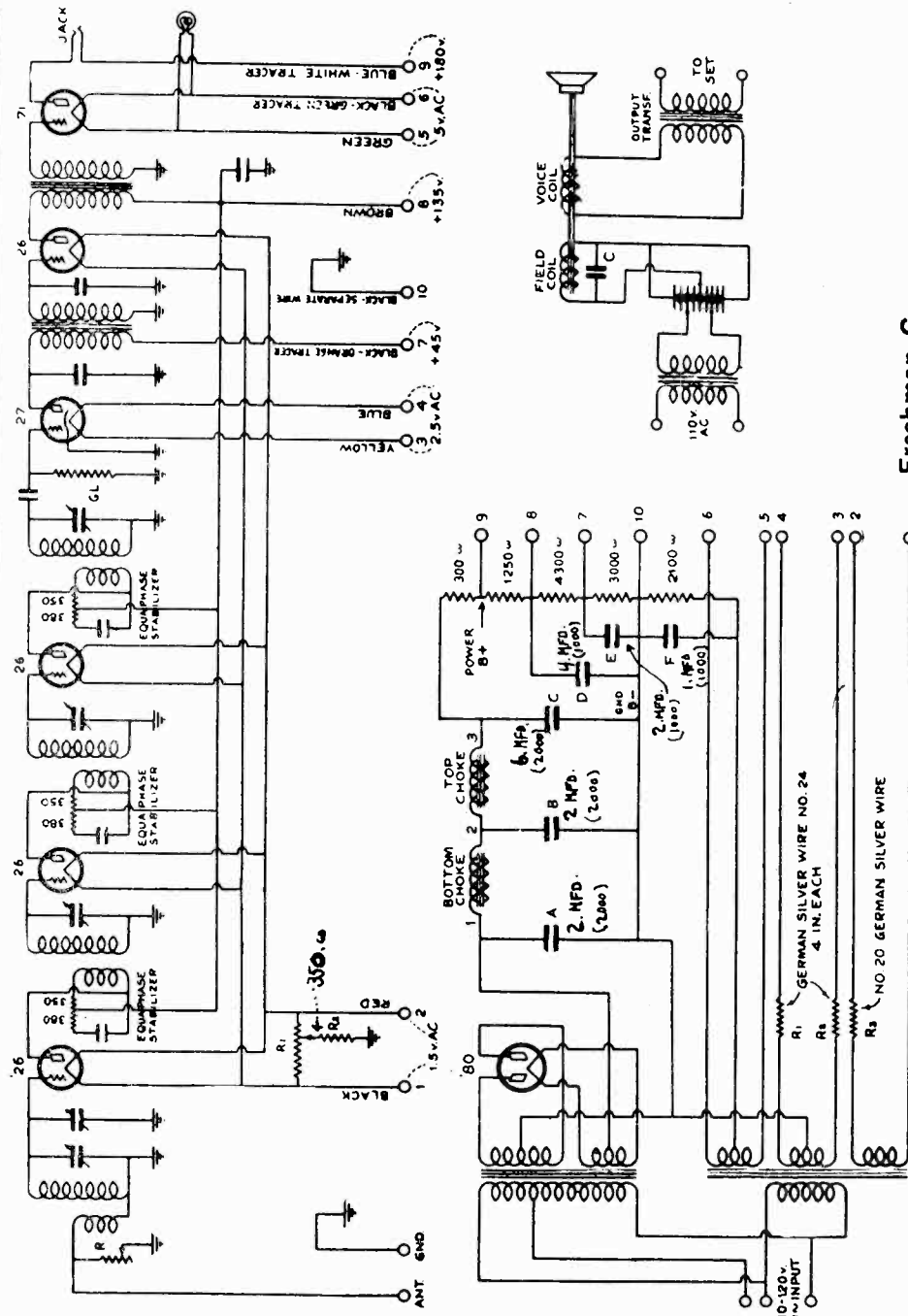
CHARLES FRESHMAN CO., INC.

MODEL Masterpiece
MODEL Equaphase

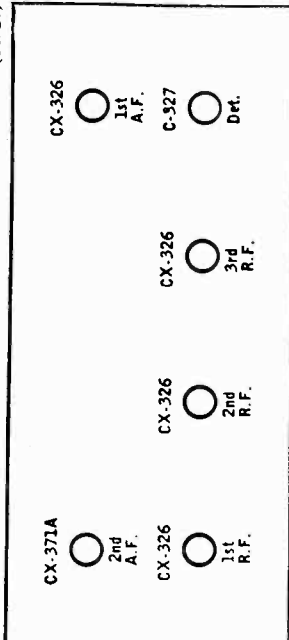


MODEL G

CHARLES FRESHMAN CO., INC.



Freshman G (A.C.)



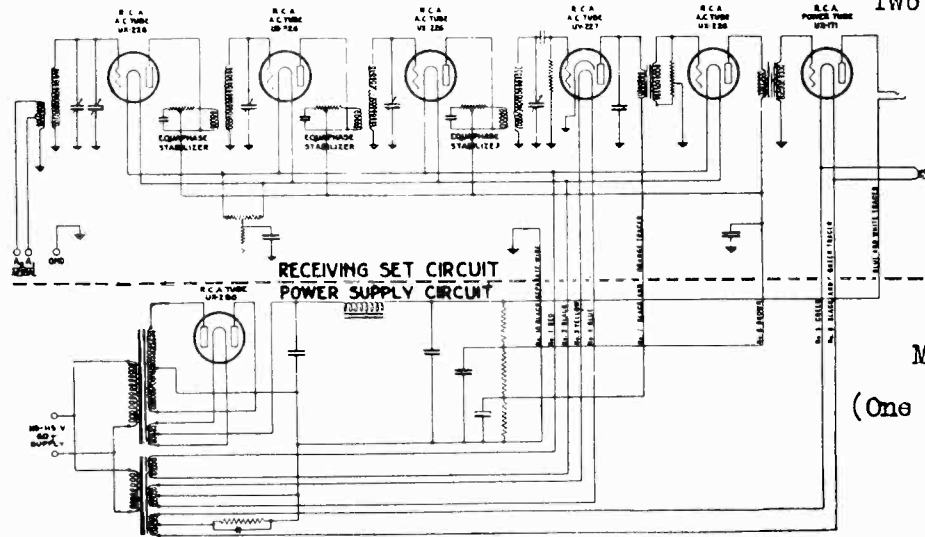
A. C. operated. To be used with model 9-60-5 Power Supply Unit using a CX-380.

FRESHMAN—Model "G"
Line Voltage 120—120 Volt Tap

TUBE NO. UNDER	TYPE TUBE	POSITION	TUBE OUT			TUBE IN TESTER			PLATE M.A. TEST	PLATE M.A. RANGE	PLATE M.A. TEST CURRENTS
			VOLTS	VOLTS	VOLTS	CATHODE VOLTS	NORMAL PLATE M.A.	TEST			
226	1st. A.F.	1	1.45	1.40	1.35	1.35	9	5	9	4	
226	2nd. R.F.	2	1.45	1.40	1.35	1.35	9	5	9	4	
226	3rd. R.F.	3	1.45	1.40	1.35	1.35	9	5	9	4	
227	Detector	4	2.5	1.40	2.00	50	0	5	3.1	1	
276	1st. A.F.	5	1.45	1.40	1.35	1.35	9	5	9	4	
276	2nd. A.F.	6	5.5	200	5.10	175	87	16.0	18.0	2.0	
280	Rectifier	7	5.10	—	5.10	—	—	20	—	—	

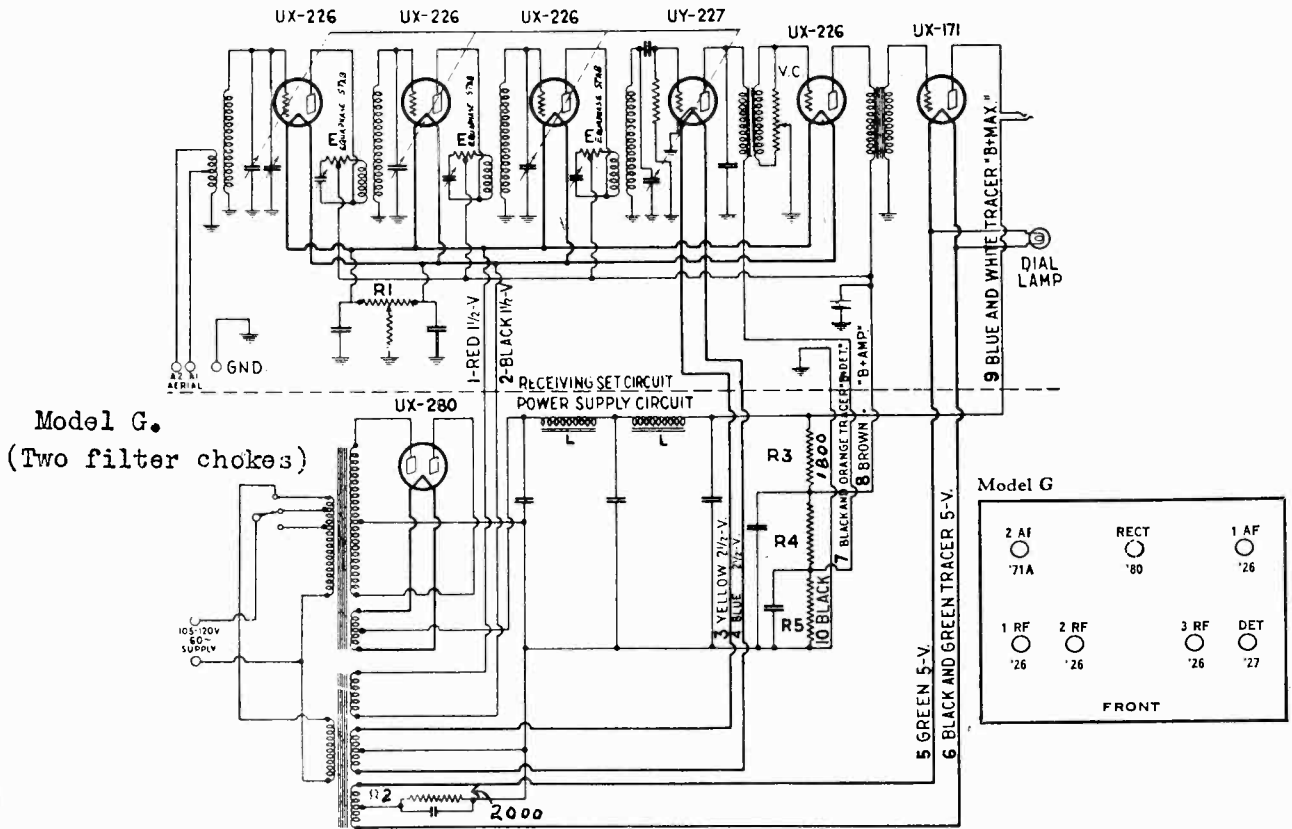
CHARLES FRESHMAN CO., INC.

MODEL G, with
G-60-S Power Unit
Two Types.



Model G.
(One filter choke)

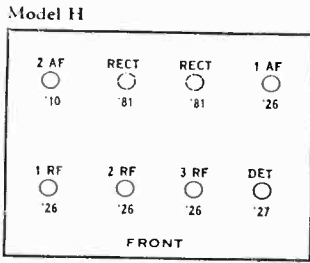
Schematic diagram of Model "G" Chassis and Model G-60-S Power Supply.
Note the one choke coil in Power Supply Circuit.



Circuits of the Freshman "Model G" Equaphase and the "Model G-60-S" Power Supply Unit.

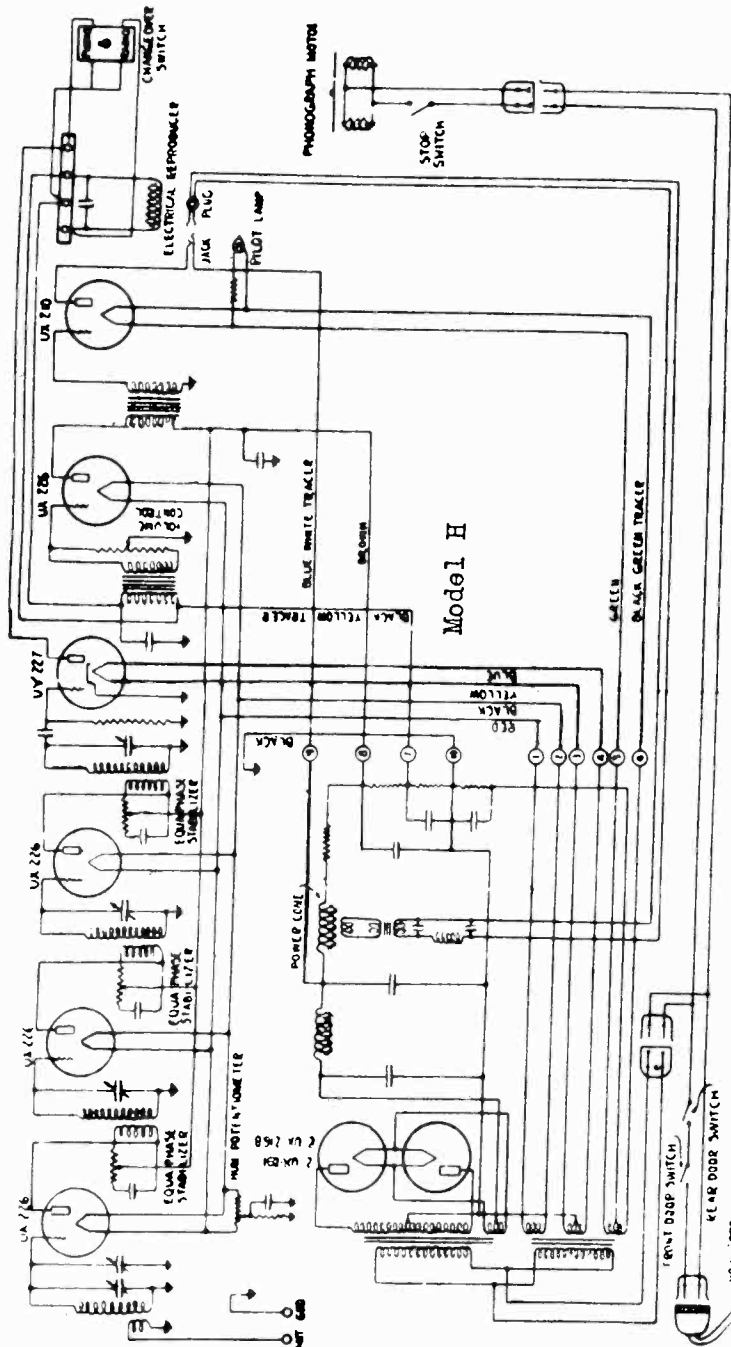
Tube	Fil. Voltage.	Plate Voltage.	Grid Voltage
RF1	1.5	130	7.
RF2	1.5	130	7.
RF3	1.5	130	7.
Det.	2.5	50	0.
AF1	1.5	130	7.
AF2	5.0	180	40.

MODEL H
 MODEL ABC Power Unit CHARLES FRESHMAN CO., INC.



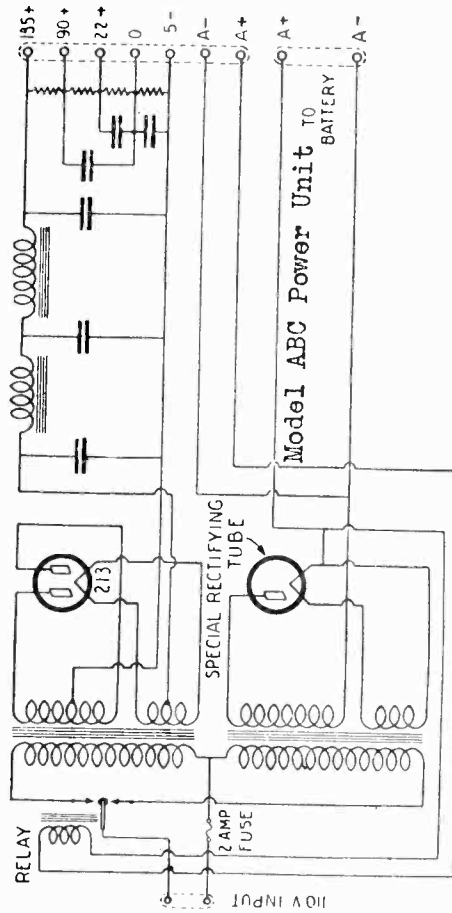
FRESHMAN—Model "H"
 Line Voltage 120—120 Volt Tap

TUBE TYPE OR ORDER	POSITION	TUBE DATA				READINGS PLUG IN SOCKET OF SET					
		1ST	2ND	3RD	4TH	A	B	C	NORMAL PLATE VOLTS	PLATE CHANGE	
226	1st. R.F.	1.45	1.48	1.35	1.40	10	10	10	5.3	9.6	4.5
226	2nd. R.F.	1.45	1.48	1.35	1.40	10	10	10	5.3	9.6	4.5
226	3rd. R.F.	1.45	1.48	1.35	1.40	10	10	10	5.3	9.6	4.5
227	DETECTOR	2.35	1.40	2.00	50	0	0	0	2.75	2.75	0.0
226	1st. A.F.	1.45	1.48	1.35	1.40	10	10	10	5.3	9.6	4.5
210	2nd. A.F.	7.5	4.80	7.3	41.0	33	33	33	21.0	24.0	4.0
281	RECTIFIER	-	-	7.5	-	-	-	-	48.0	-	-



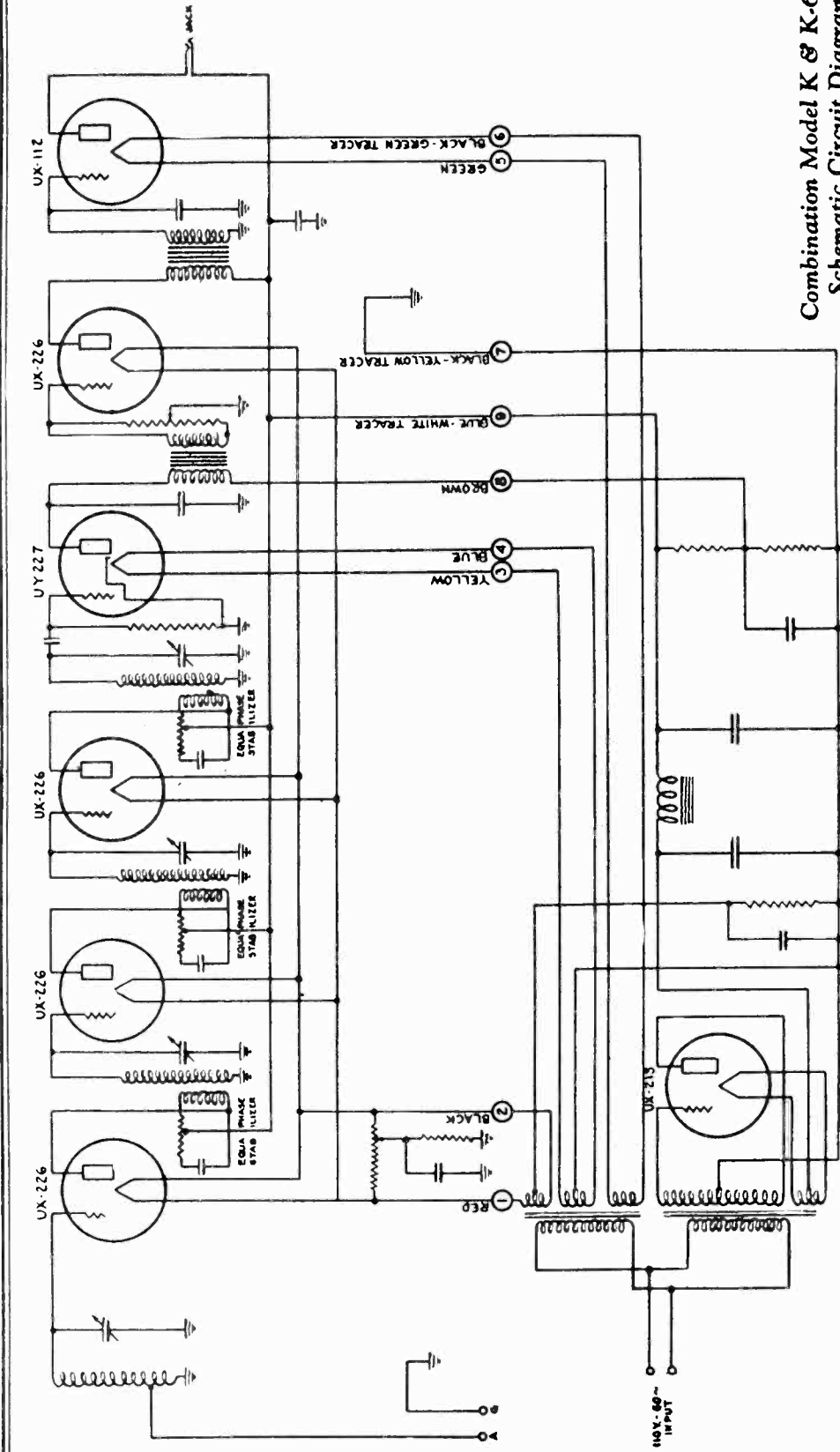
DISTRIBUTING CABLE

H-60 S POWER SUPPLY UNIT

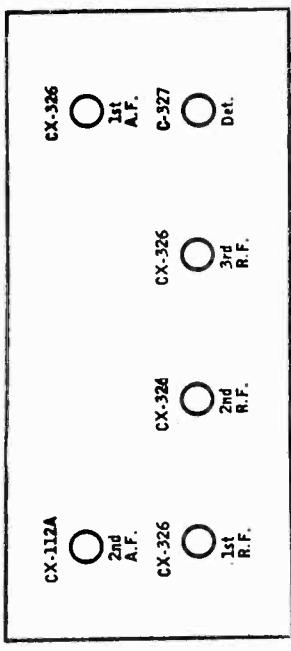


CHARLES FRESHMAN CO., INC.

Combination Model K & K-60-S
Schematic Circuit Diagram.



Freshman K (A.C.)

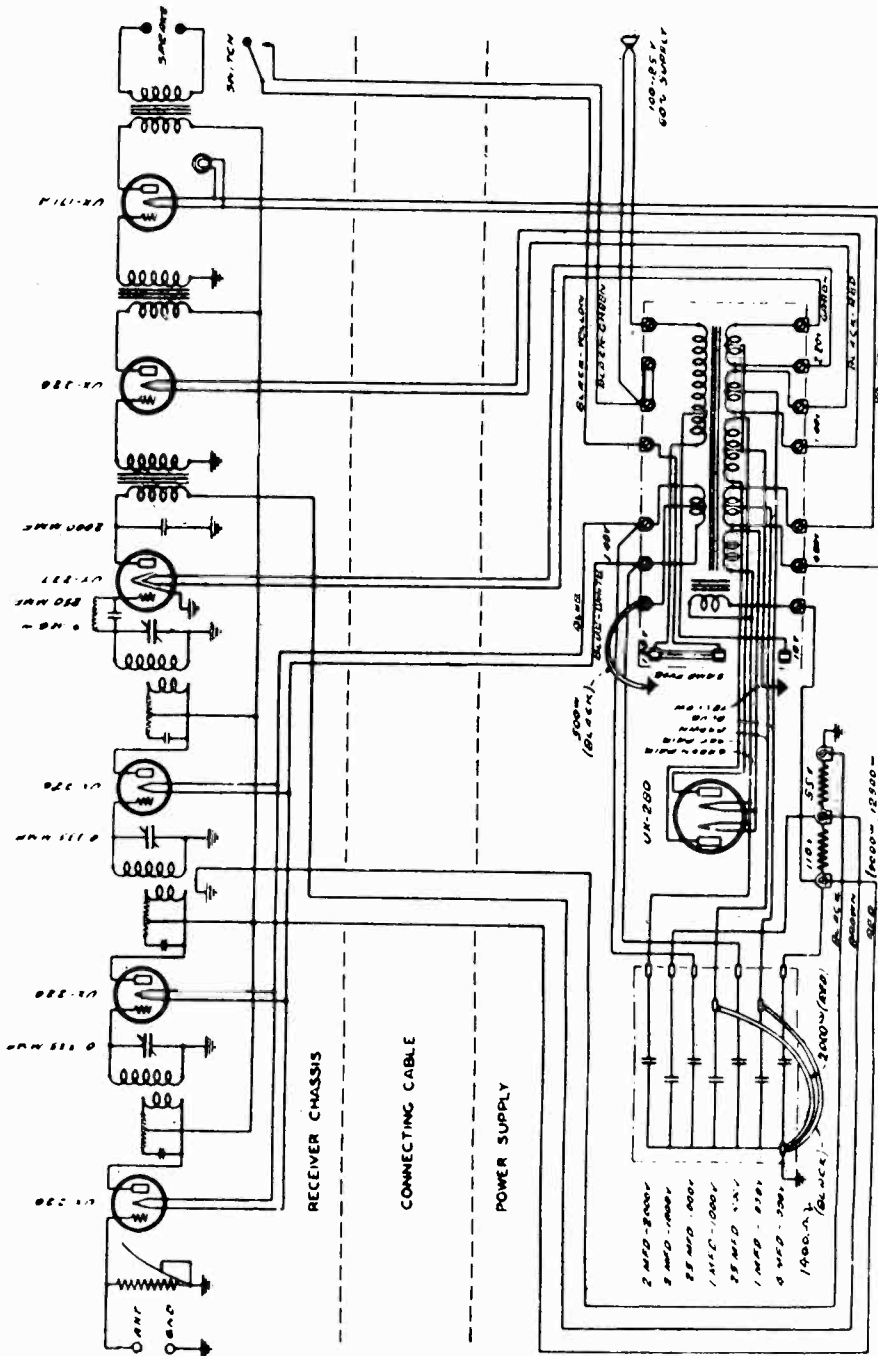


FRESHMAN—Model "K"
Line Voltage 120—120 Volt Tap

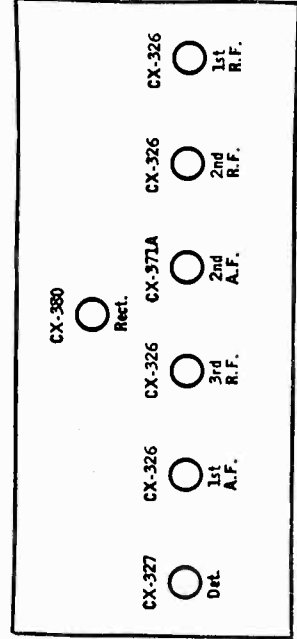
TUBE NO. IN COMB.	TYPE AND TUBE	POSITION OF TUBE	TAP IN TESTER			TAP OUT			MEASURED PLATE IN MODEL OF SET			TUBE IN TESTER				
			1st	2nd	3rd	A	B	C	1	2	3	1	2	3		
1	226	1st. R.F.	1.45	1.45	1.45	1.35	1.40	0	0	0	5.2	9.4	4.2	5.2	9.4	4.2
2	226	2nd. R.F.	1.45	1.45	1.45	1.35	1.40	0	0	0	5.2	9.4	4.2	5.2	9.4	4.2
3	226	3rd. R.F.	1.45	1.45	1.45	1.35	1.40	0	0	0	5.2	9.4	4.2	5.2	9.4	4.2
4	226	Detector	2.55	1.40	2.00	4.5	0	0	0	0	2.5	2.5	0.0	2.5	2.5	0.0
5	226	1st. A.F.	1.45	1.45	1.45	1.35	1.40	0	0	0	5.2	9.4	4.2	5.2	9.4	4.2
6	112A	2nd. A.F.	5.0	1.40	4.7	1.55	1.2	0	0	0	10.0	14.0	4.0	10.0	14.0	4.0
7	250	Rectifier	-	-	-	4.7	-	-	-	-	20.0	-	-	20.0	-	-

MODEL M

CHARLES FRESHMAN CO., INC.



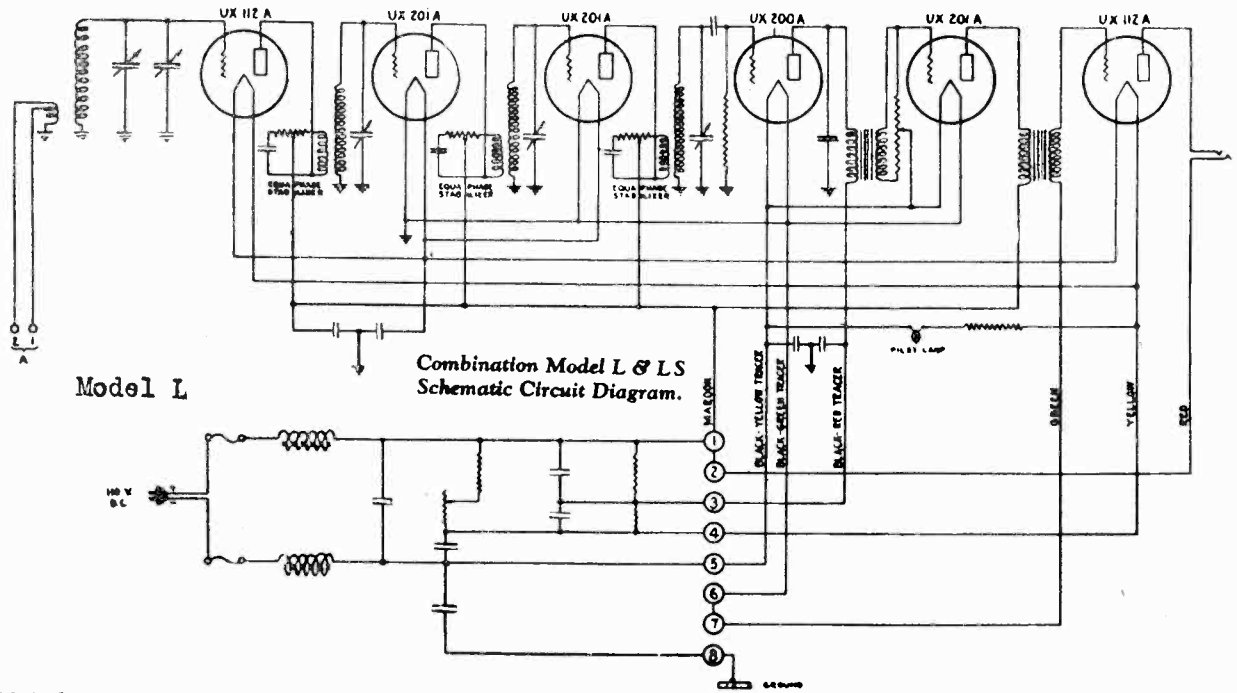
FRESHMAN—Model "M"
Line Voltage 120—120 Volt Tap



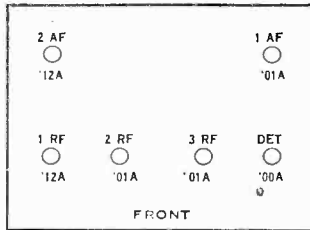
TUBE TYPE OR ORDER	POSITION IN SET, ETC.	TUBE OUT				TUBE IN TESTER			
		A	B	C	D	WOLFS	WOLFS	WOLFS	WOLFS
225	1st. R.F.	1.45	158	1.35	150	12	5.5	9.7	4.2
226	2nd. R.F.	1.45	158	1.35	150	12	5.5	9.7	4.2
227	3rd. R.F.	1.45	158	1.35	150	12	5.5	9.7	4.2
228	Detector	2.35	150	2.00	50	0	2.75	2.75	0.0
171A	1st. A.F.	1.45	158	1.35	150	10	5.5	9.7	4.2
171B	2nd. A.F.	4.90	150	4.80	135	26	17.0	19.0	2.0
280	Rectifier	-	-	4.80	-	-	22.0	-	-

CHARLES FRESHMAN CO., INC.

MODEL L
MODEL N



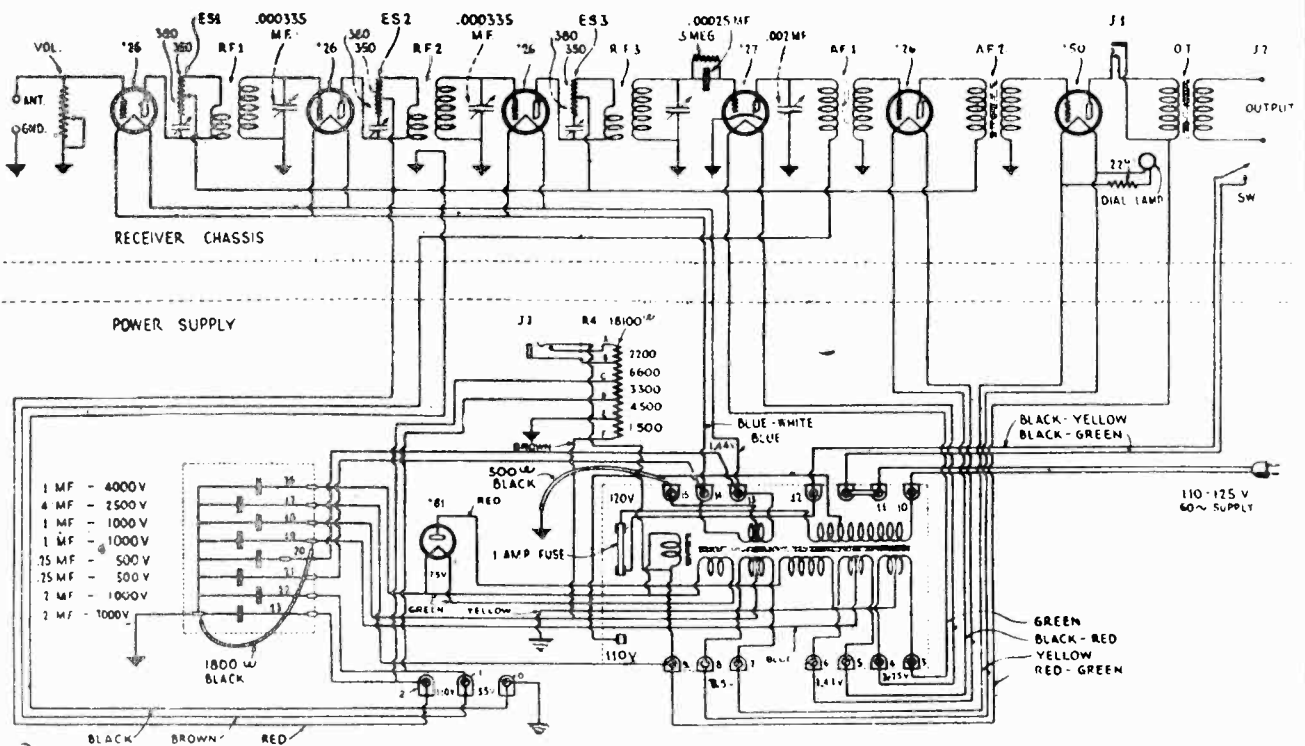
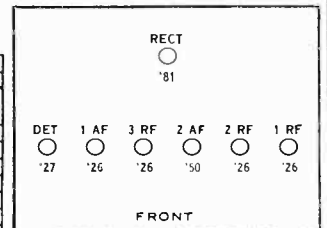
Model L



FRESHMAN—Model "N"
Line Voltage 119—120 Volt Tap

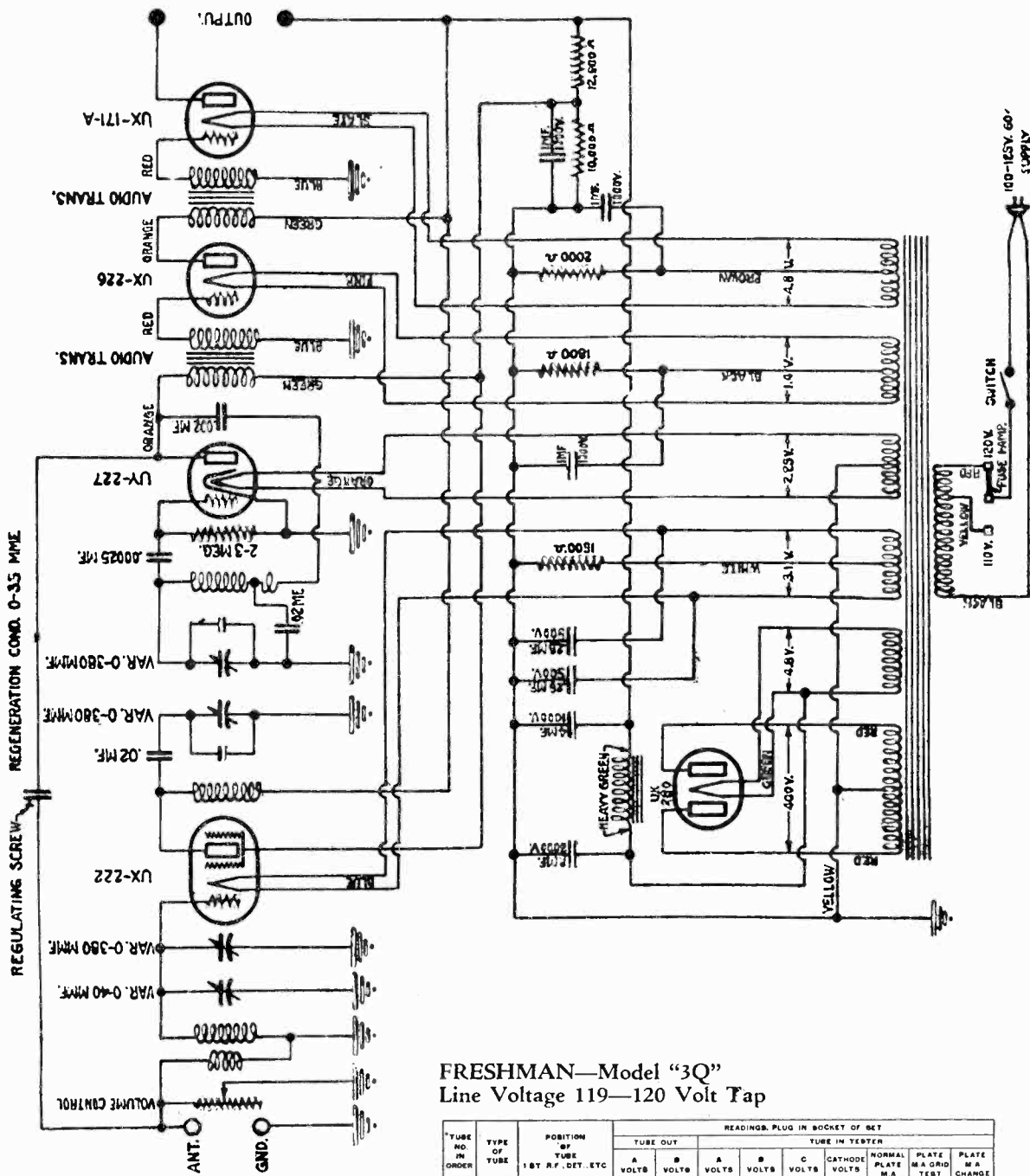
TUBE NO. IN CHASSIS	TYPE OF TUBE	POSITION OF TUBE 1ST A.F., DET. ETC.	REARBOARD PLUG IN SOCKET OF SET						TUBE IN TESTER		
			A VOLTS	B VOLTS	C VOLTS	D VOLTS	E VOLTS	F VOLTS	CATHODE VOLTS	NORMAL PLATE M.A. TEST	PLATE M.A. CHARGE
1	226	1st. R.F.	1.45	100	1.35	90	6	-	3.2	7.4	4.2
2	226	2nd. R.F.	1.45	100	1.35	90	6	-	3.2	7.4	4.2
3	226	3rd. R.F.	1.45	100	1.35	90	6	-	3.2	7.4	4.2
4	227	Detector	2.40	100	2.25	50	0	-	2.2	2.2	0.0
5	226	1st. A.F.	1.45	100	1.35	90	6	-	3.2	7.4	4.2
6	250	2nd. A.F.	7.4	350	7.2	300	50	-	32.0	43.5	7.0
7	281	Rectifier	-	-	7.2	-	-	-	46.0	-	-

Model N

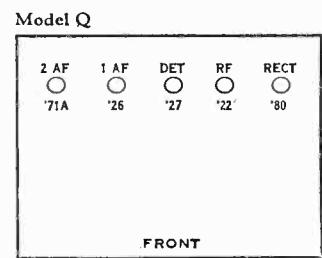


MODEL 3-Q-15
3-Q-16

CHARLES FRESHMAN CO., INC.



REGULATING SCREW
REGENERATION COND. 0-35 MME

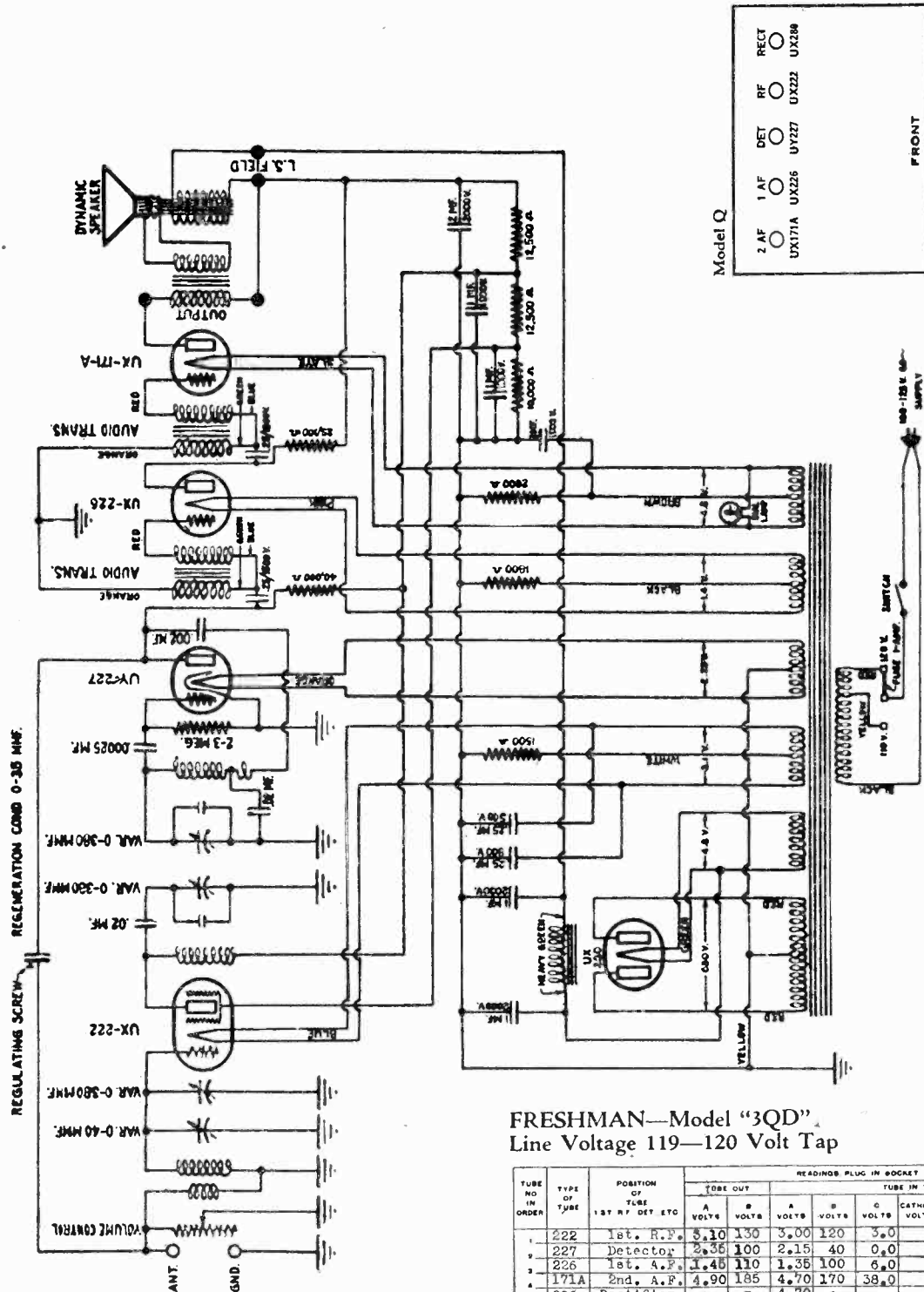


FRESHMAN—Model "3Q"
Line Voltage 119—120 Volt Tap

TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST R.F., DET., ETC.	READINGS, PLUG IN SOCKET OF SET										
			TUBE OUT			TUBE IN TESTER							
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	CATHODE VOLTS	NORMAL PLATE MA	PLATE MA GRID TEST	PLATE MA CHANGE		
1	222	1st. R.F.	3.10	162	3.00	150	3.0						
2	227	Detector	2.35	150	2.10	50	0.0			2.75	2.75	0.0	
3	226	1st. A.F.	1.45	150	1.35	140	10			4.2	8.6	4.4	
4	171A	2nd. A.F.	4.90	140	4.60	125	25			16.5	18.0	1.5	
5	280	Rectifier	-	-	4.60	-	-			22.0	-	-	

CHARLES FRESHMAN CO., INC.

MODEL QD-16-S



Model Q

2 AF	UX171A	UX226	UX222	UX228
1 AF	UX226	UX227	UX222	UX228
DET	UX227			
RF	UX222			
RECT	UX228			

FRONT

FRESHMAN—Model "3QD"
Line Voltage 119—120 Volt Tap

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST RF DET ETC	READINGS PLUG IN SOCKET OF SET						TUBE IN TESTER		
			A VOLTS	B VOLTS	C VOLTS	CATHODE VOLTS	NORMAL PLATE MA	PLATE MA TEST	PLATE MA CHANGE		
1	222	1st. R.F.	3.10	130	3.00	120	5.0				
2	227	Detector	2.36	100	2.15	40	0.0	2.75	2.75	0.0	
3	226	1st. A.F.	1.45	110	1.35	100	6.0	4.0	8.0	4.0	
4	171A	2nd. A.F.	4.90	185	4.70	170	38.0	16.0	18.0	2.0	
5	280	Rectifier	"	"	4.70	"	"	22.0	"	"	
6											
7											
8											
9											
10											

