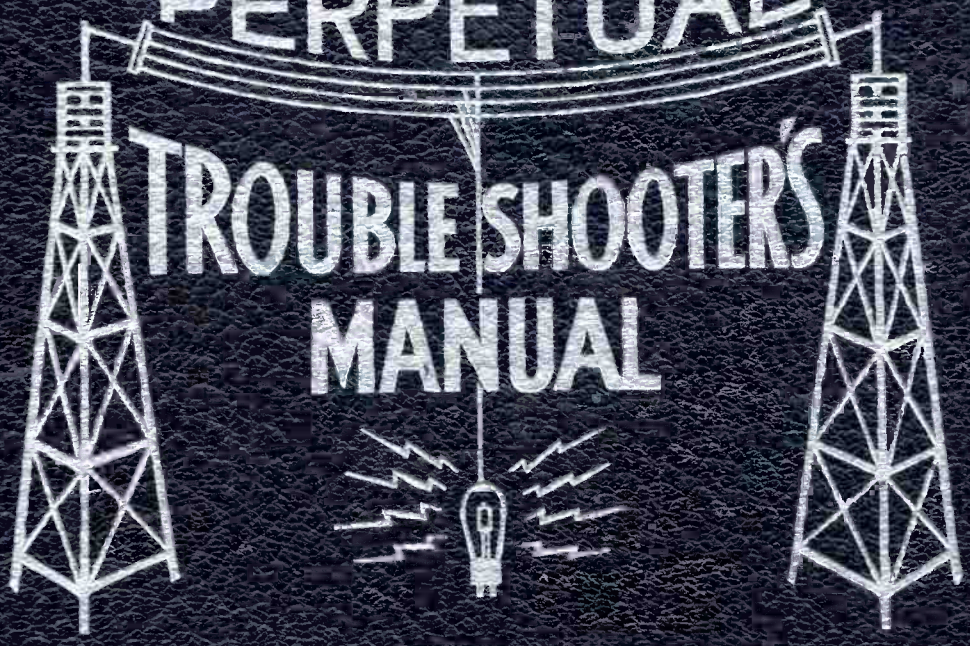
VOLUME I

PERPETUAL TROUBLE SHOOTER'S MANUAL



JOHN F. RIDER

PERPETUAL

TROUBLE SHOOTER'S MANUAL

by

JOHN F. RIDER

Published by

JOHN F. RIDER

1440 Broadway New York City

Other manuals by John F. Rider

Perpetual Trouble Shooter's Manual Volume I

About 1000 pages. Price $7.50

Perpetual Trouble Shooter's Manual Volume II

About 780 pages. Price $6.50

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About 1185 pages. Price $7.50

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About 350 pages. Price $3.50

The Perpetual Trouble Shooter's Manuals listed above are the "standard" of the radio service industry.

Their absolute supremacy as sources of accurate—complete and detailed radio service data is established by their use by the world-famous tube manufacturing organizations, such as E. T. Cunningham, Inc., National Union Radio Corp., RCA Radiotron, Inc.—the most famous service instrument manufacturers, like Weston, Hickok, Readrite and Supreme and their use and recommendation by the world's leading radio receiver manufacturers.

Printed in U. S. A.

AUTHOR'S FOREWORD

This issue of Volume I is slightly different than earlier printings. One of the changes is to be found in the method of indexing. You will note that it is the same as used in Volumes II and III as recently issued.

The reason for this change is that the method of indexing as originally introduced in Volume III proved so much more popular than that previously employed in Volumes I and II, that it was deemed most advantageous to establish a uniform index which would serve best over the years to come.

Present owners of Volumes II and III, that is, owners of these manuals purchased prior to November 15, may find that index which accompanies Volume III and the index in Volume II does not conform with the pages in Volume I. We regret the slight inconvenience caused, but feel that it is all for the better.

The complete index mentioned above and the Volume II index mentioned above can be used to determine if the service information desired is to be found in Volume I. Reference to the individual index in Volume I will then indicate the correct page.

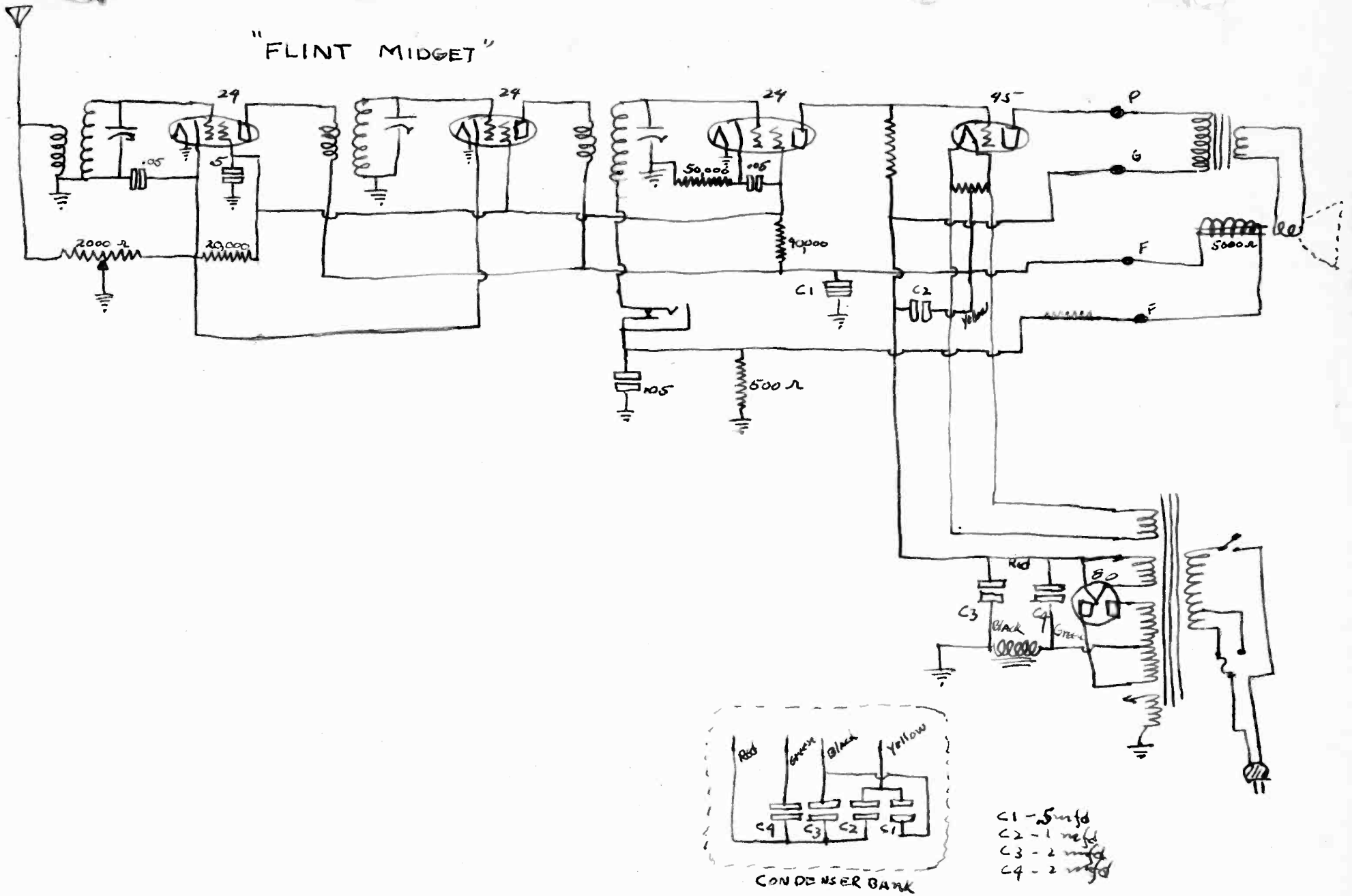
Another change in this revised issue is that the text matter contained in the front of the earlier printings has been removed. This is the result of requests from service men who found very little occasion at this date to refer to text originally prepared years ago.

In every other respect this Volume I is fully the equal of the earlier issues and in very many cases, has additional information not contained in earlier issues.

The pages in this revised issue have been printed from engravings and we trust that the increased legibility of type, the increased number of cases where electrical values are included, the increased number of socket layouts—in general more data—will be received with favor and will perhaps offset the slight inconvenience with respect to the indexing.

JOHN F. RIDER.

"FLINT MIDGET"



PIEDMONT AMATEUR RADIO ASSOCATION

of

PORTLAND, OREGON

5017 N Interstate Ave. Phone WAlnut 3393

INDEX

RCA-VICTOR CO., INC.

RADIART LABORATORIES

RADIO PRODUCTS CO.

RADIOTROPE

REES-MACE

REMLER COMPANY, LTD.

SAMSON ELECTRIC CO.

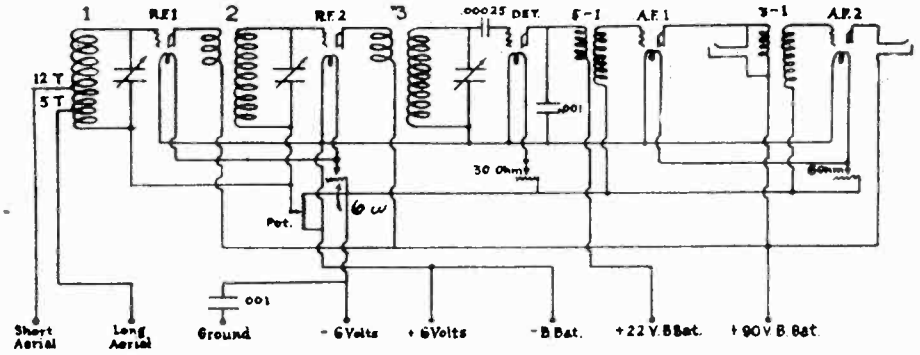
SCOTT TRANSFORMER CO.

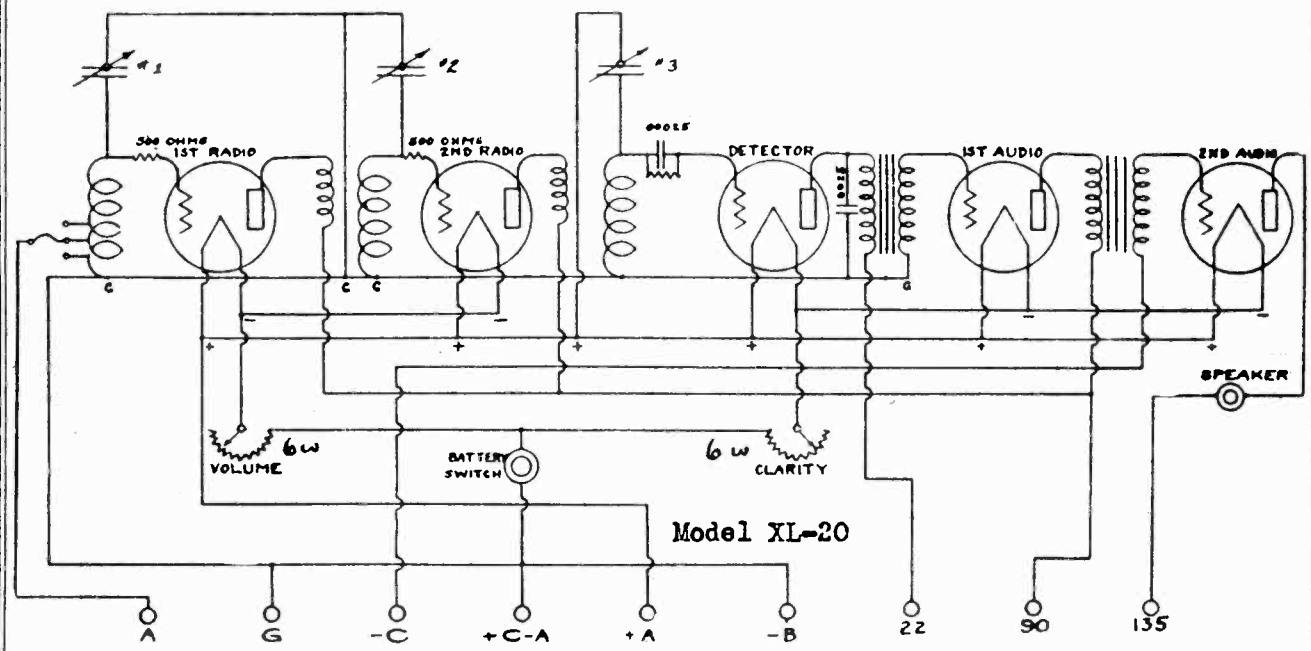
SENTINEL RADIO CORP.

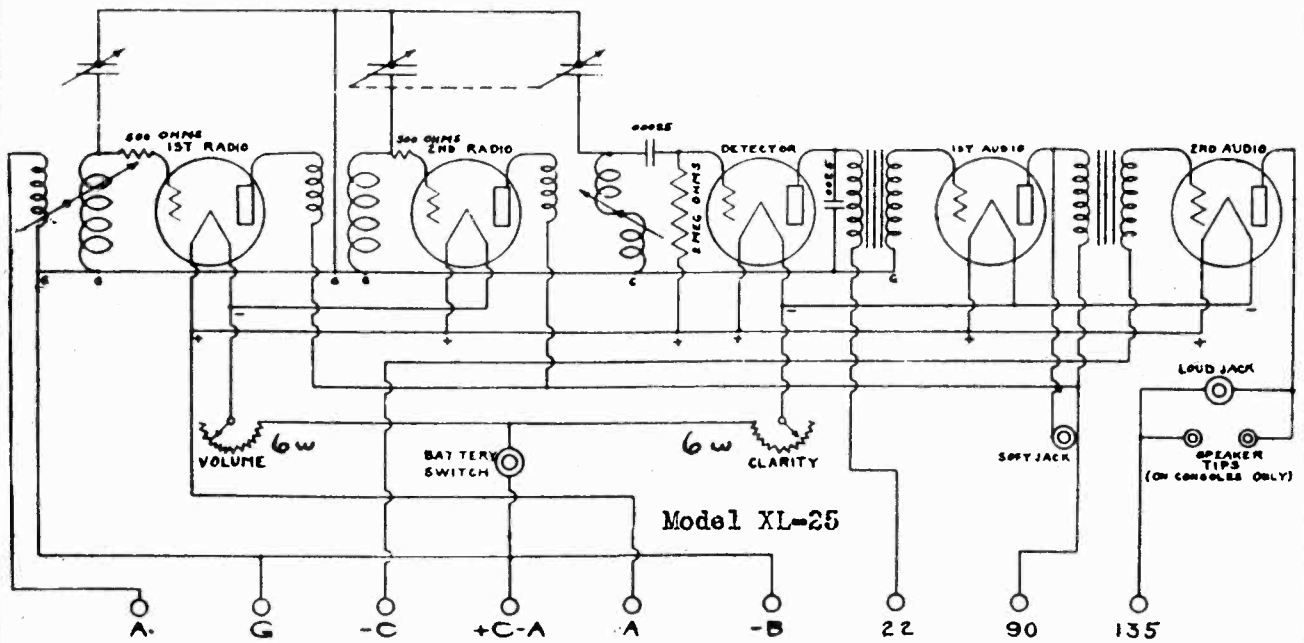
SILVER-MARSHALL, INC.

THE A-C DAYTON CO.

MODEL XL-5
XL-20
XL-25

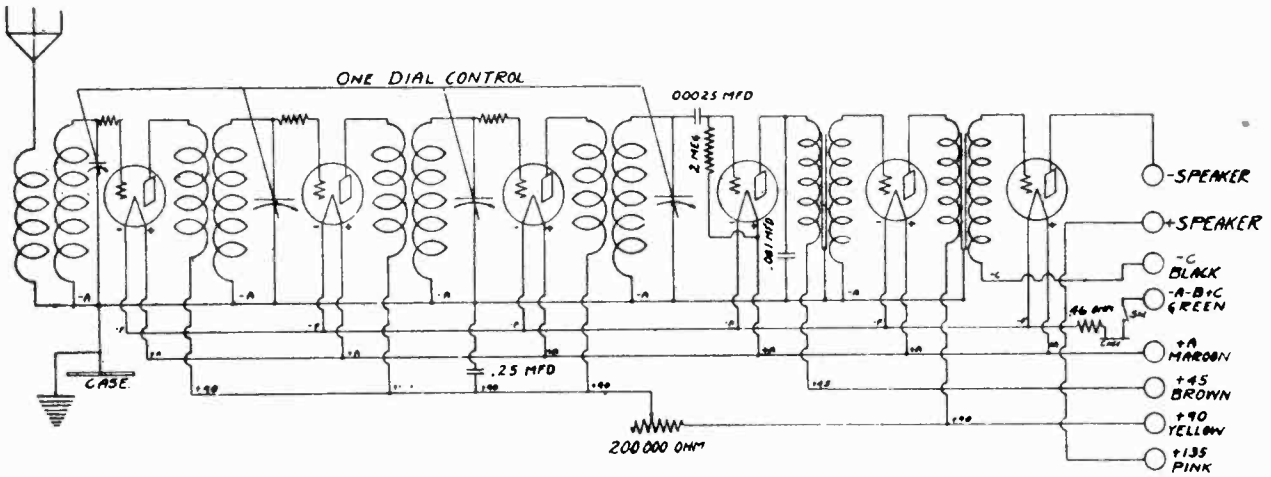






MODEL XL - 50
XL - 60

THE A-C DAYTON CO.



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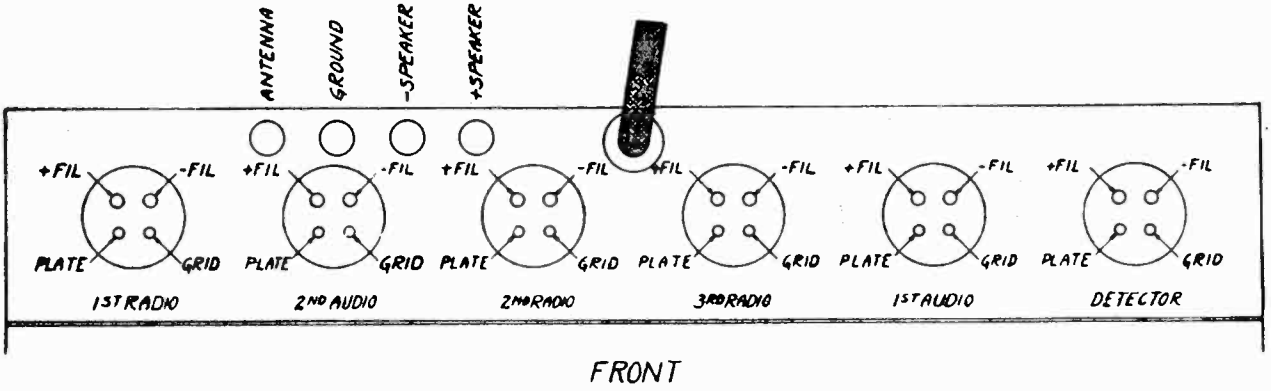
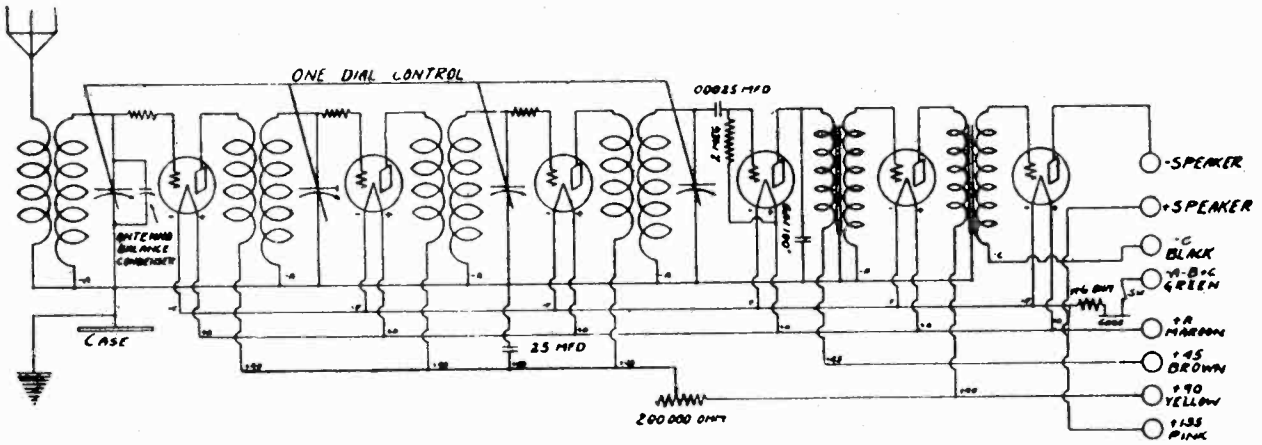


FRONT

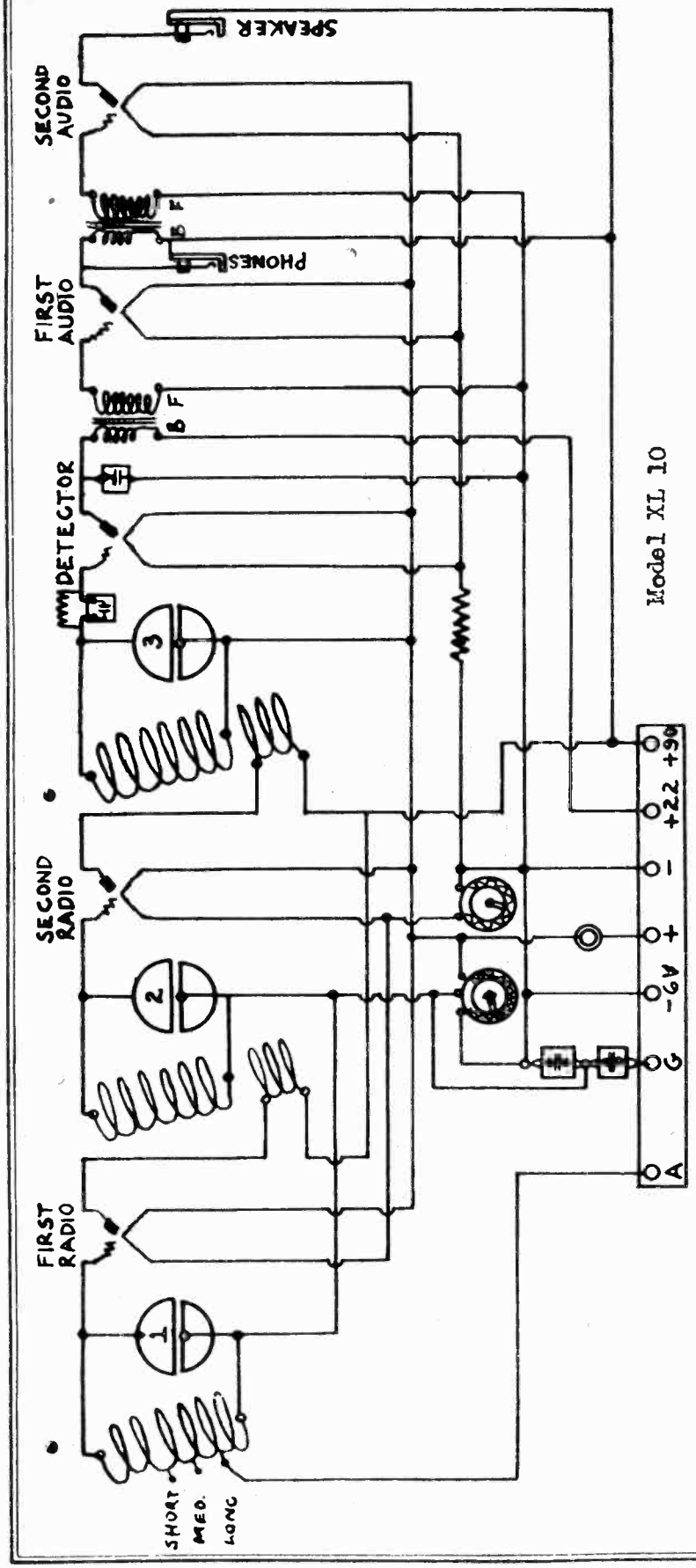
THE A-C DAYTON CO

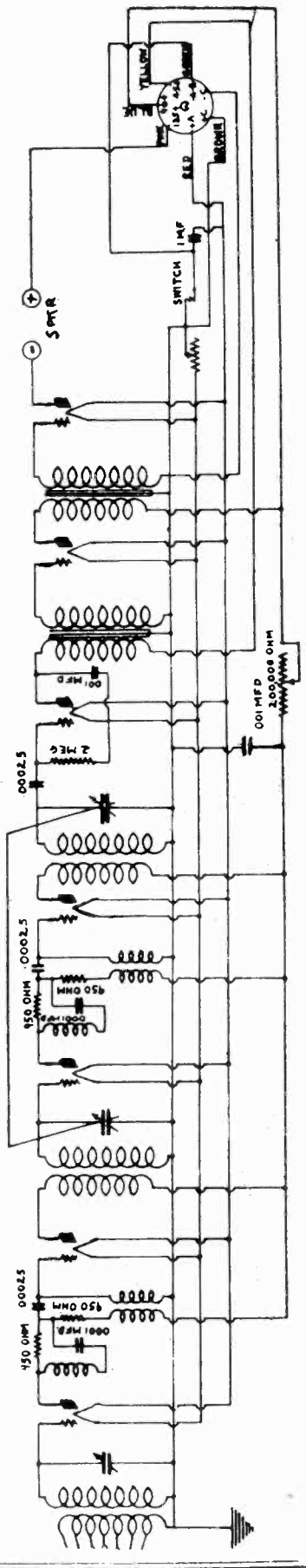


Model XL - 60

THE A-C DAYTON CO.

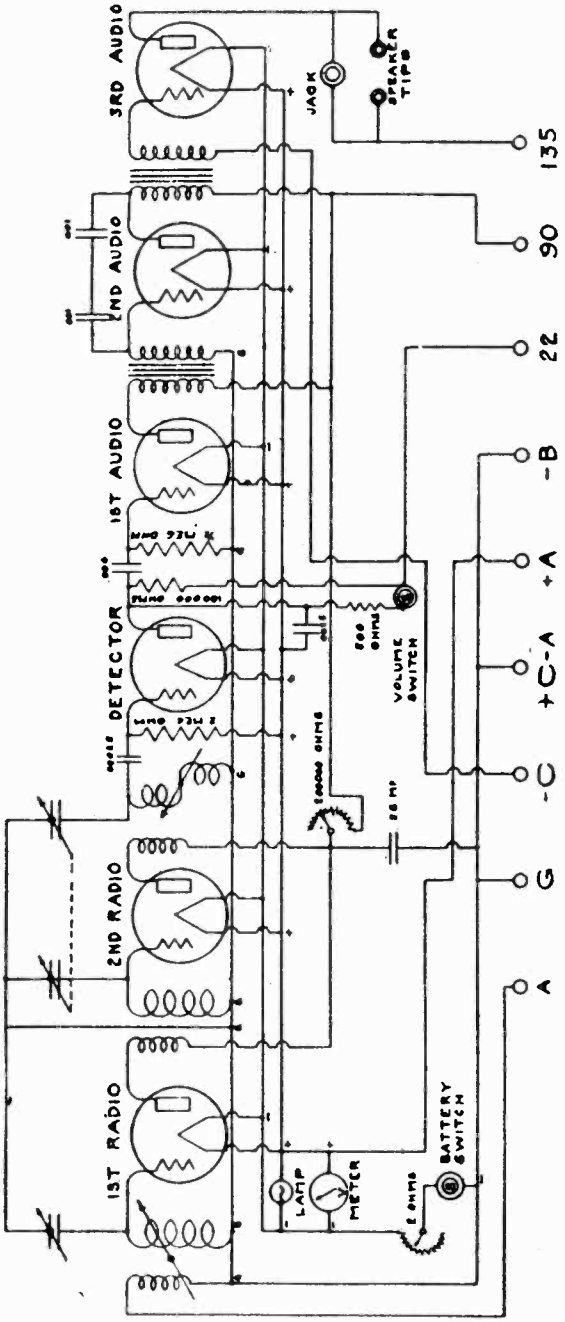
MODEL XL - 10
XL - 70



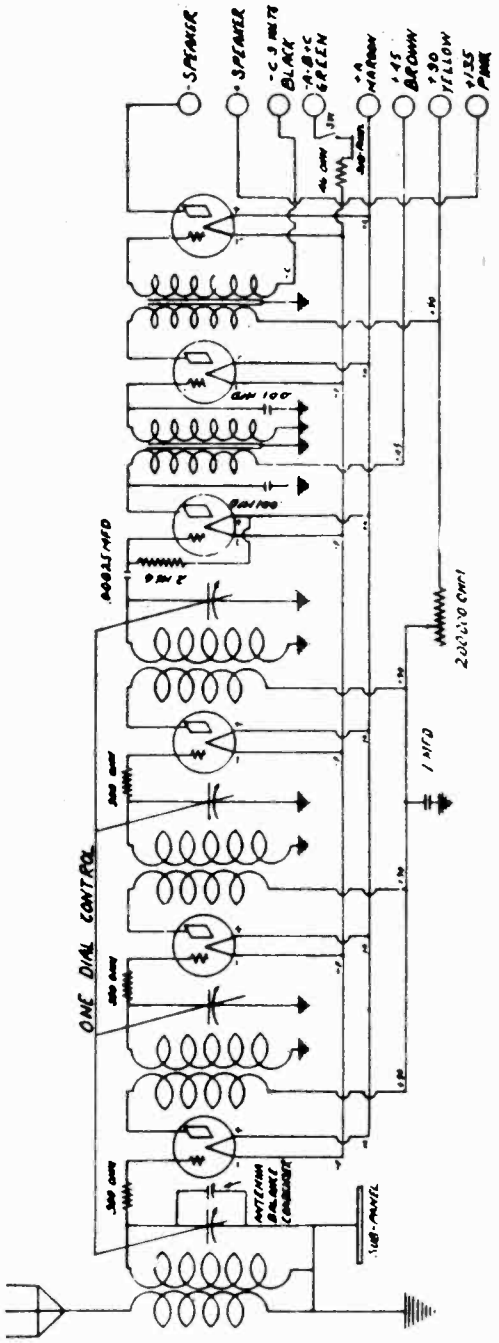


MODEL XL - 30
XL - 61

THE A-C DAYTON CO



Model XL - 30



Model XL - 61 Battery

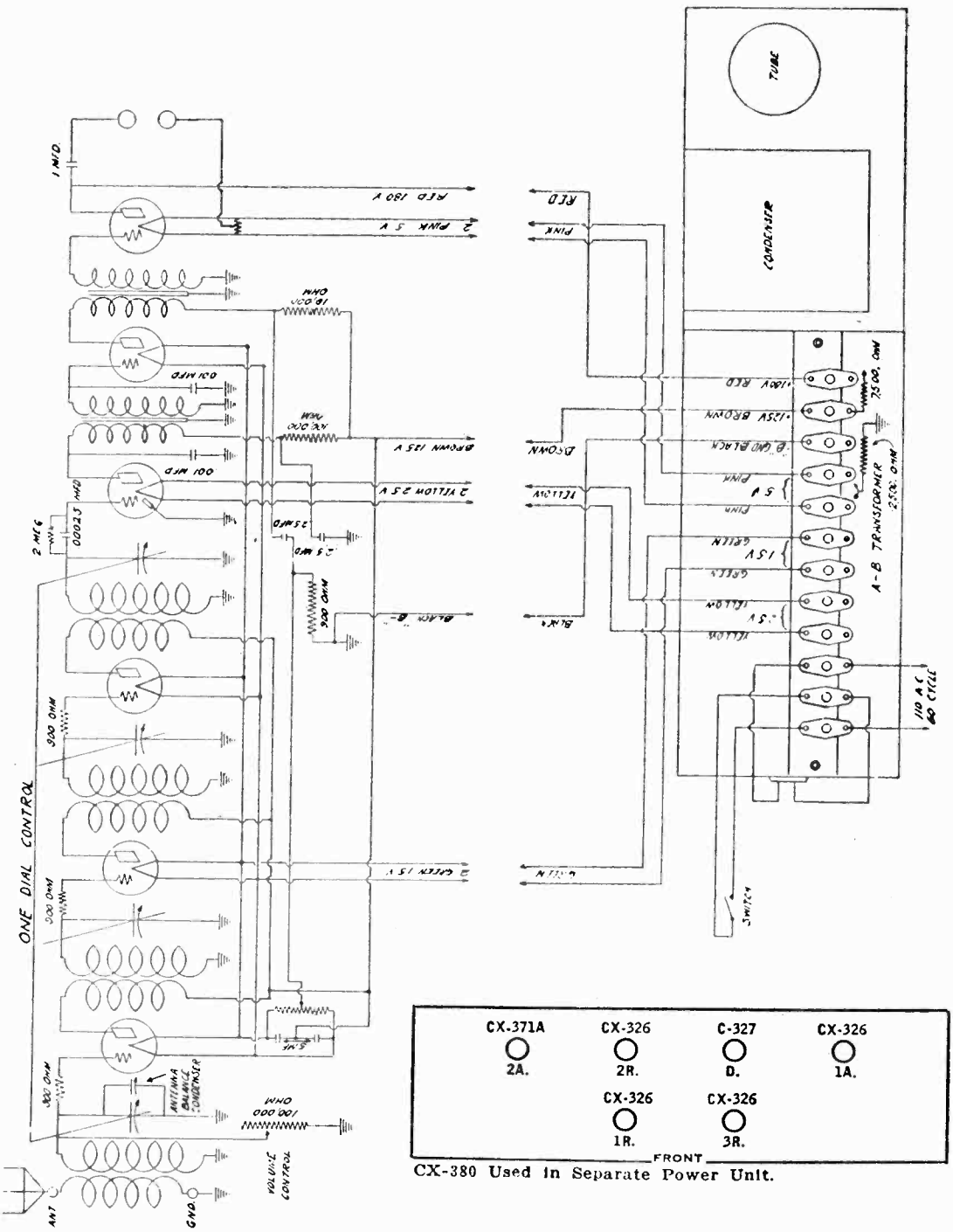
XL 61 (Batt.)

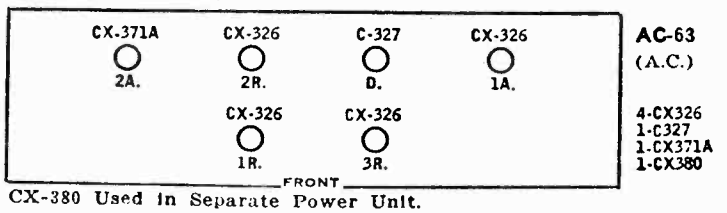
*CX-112A	CX-301A	CX-301A or CX-300A or CX-112A	CX-301A
2nd A.F.	2nd R.F.	Det.	1st A.F.

CX-301A 1st R.F. CX-301A 3rd R.F.

THE A-C DAYTON CO

MODEL AC - 63





AC-63
(A.C.)

4-CX326
1-C327
1-CX371A
1-CX380

CX-380 Used in Separate Power Unit.

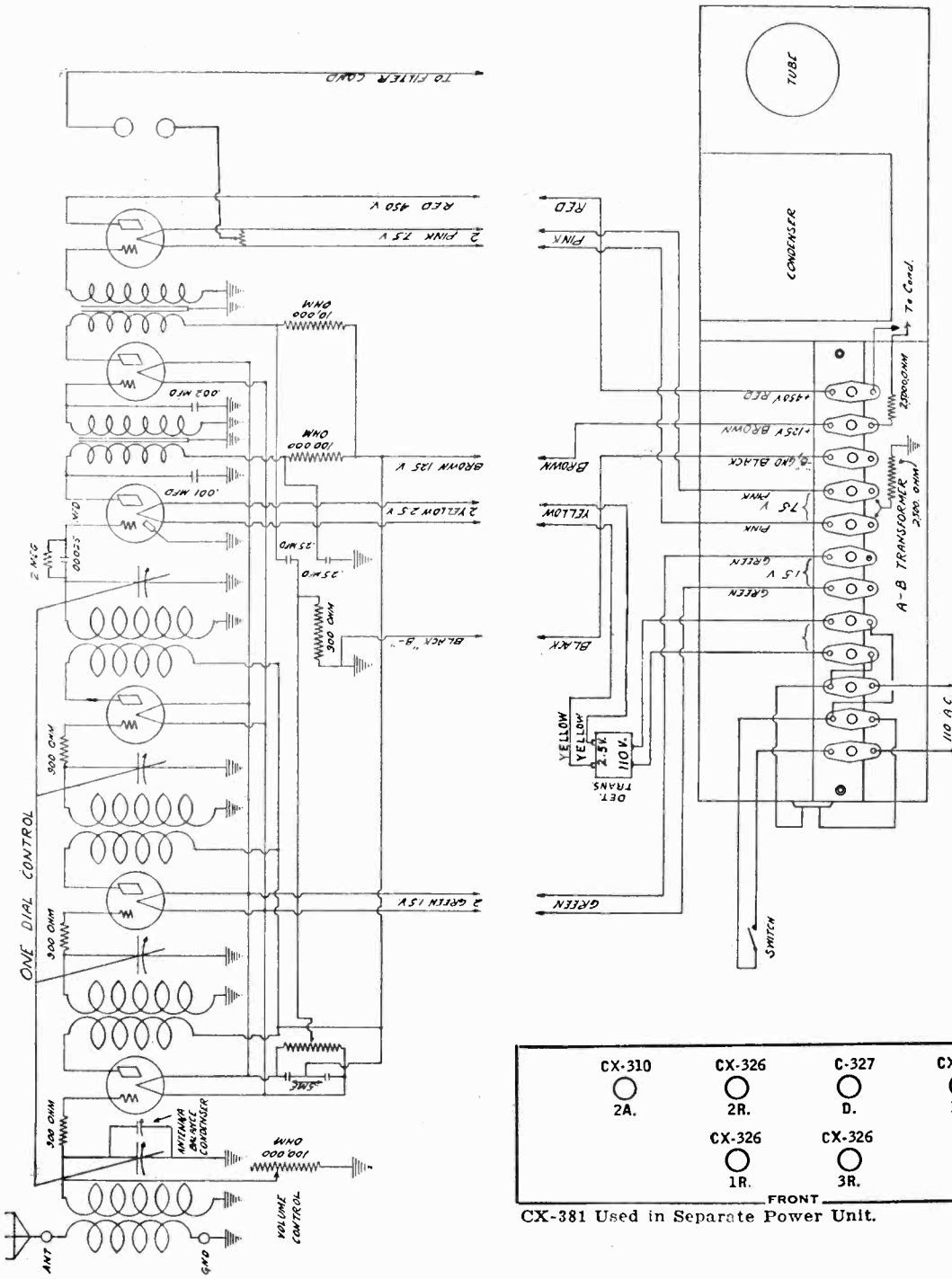
VOLTAGES OF VARIOUS CIRCUITS

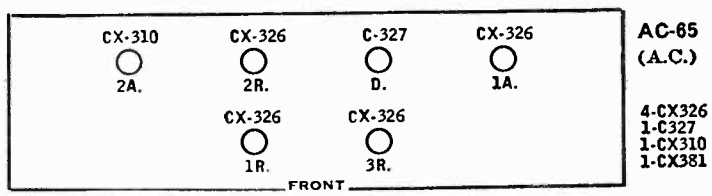
Tube Socket	Plate Volts	Plate Current	Filament Volts	"C" Bias
1st R. F.	150 V.	4 mils	1.5 V.	11 V.
2nd R. F.	150 V.	4 mils	1.5 V.	11 V.
3rd R. F.	150 V.	4 mils	1.5 V.	11 V.
Detector	25 V.	1.5 mils	2.5 V.	0 V.
1st A. F.	120 V.	2 mils	1.5 V.	11 V.
2nd A. F.	160 V.	16 mils	5.00 V.	40 V.

The above readings are taken at 120 Volt line voltage. These readings may vary 5% plus or minus.

MODEL AC - 65

THE A-C DAYTON CO.





CX-381 Used in Separate Power Unit.

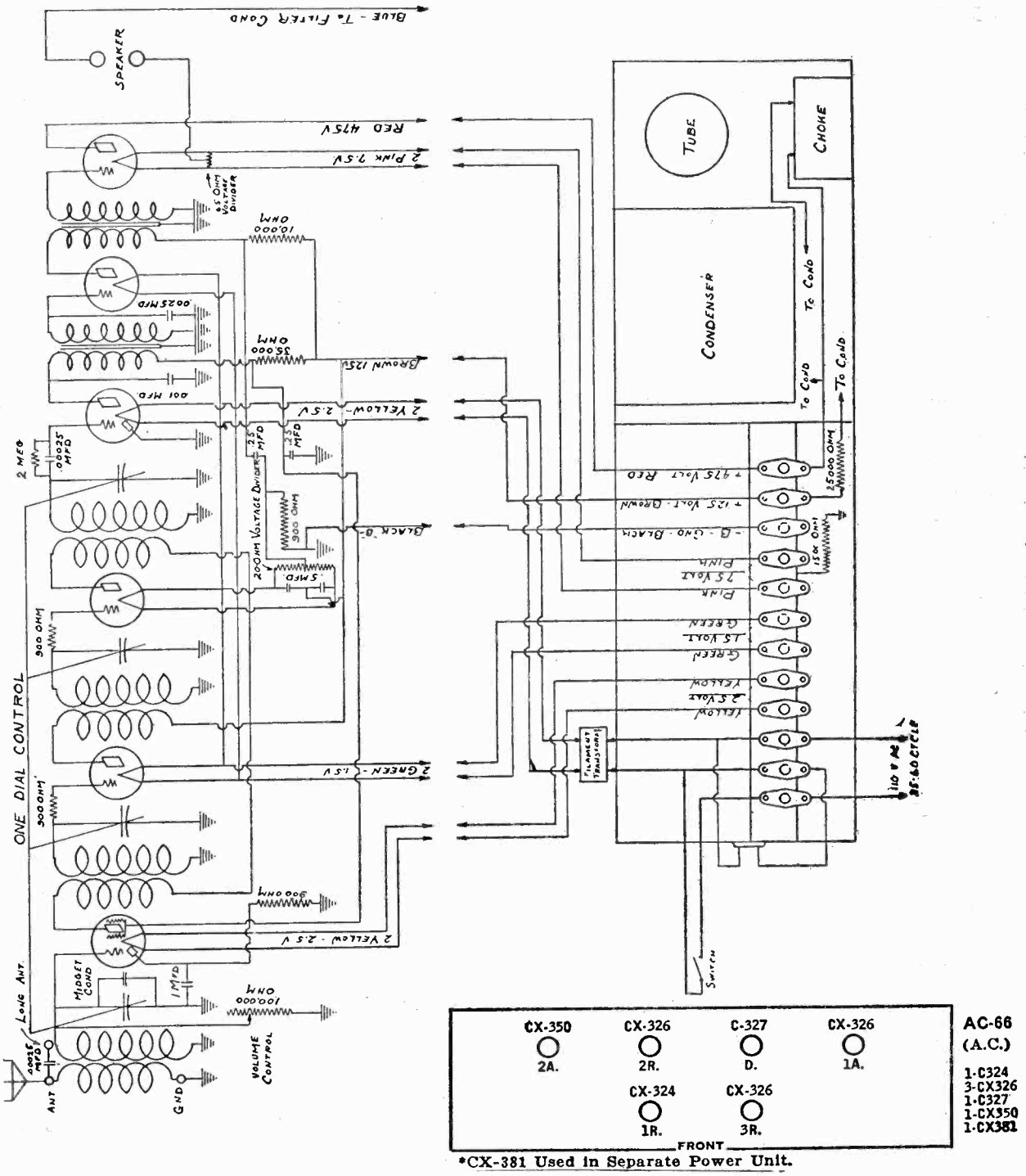
VOLTAGES OF VARIOUS CIRCUITS

Tube Socket	Plate Volts	Plate Current	Filament Volts	"C" Bias
1st R. F.	145 V.	4 mils	1.5 V.	11 V.
2nd R. F.	145 V.	4 mils	1.5 V.	11 V.
3rd R. F.	145 V.	4 mils	1.5 V.	11 V.
Detector	25 V.	1.3 mils	2.45 V.	0 V.
1st A. F.	120 V.	2 mils	1.5 V.	11 V.
2nd A. F.	430 V.	18 mils	6.75 V.	42 V.

The above readings are taken at 120 Volt line voltage. Readings may vary 5% plus or minus.

MODEL AC - 66

THE A-C DAYTON CO.



AC-66
(A.C.)

1-C324
3-CX326
1-C327
1-CX350
1-CX381

*CX-381 Used in Separate Power Unit.

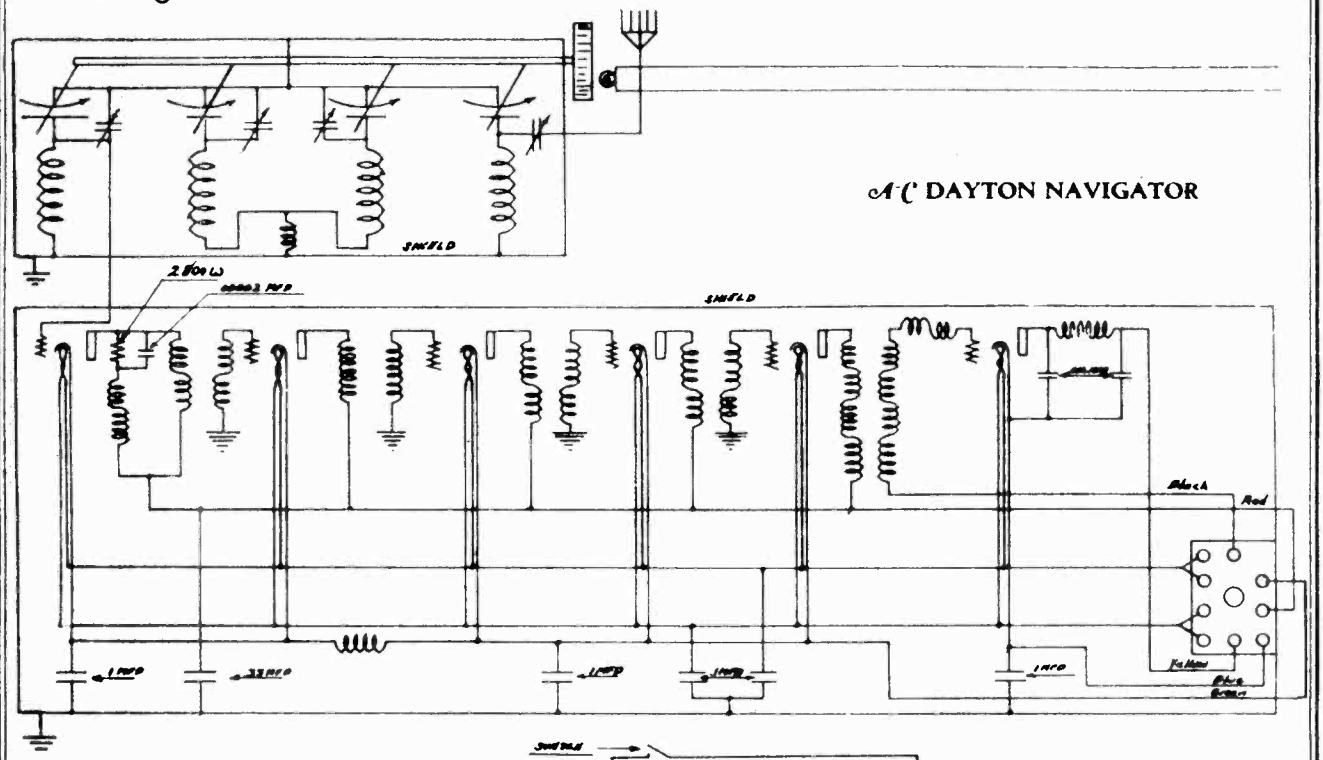
VOLTAGES AT THE VARIOUS SOCKETS

Tube Socket	Plate Volts	Plate Current	Filament Volt	C Bias
1st R. F.	130 V.	1 mil.	2.4 V.	1.5 V.
2nd R. F.	130 V.	4 mils.	1.4 V.	9 V.
3rd R. F.	130 V.	4 mils.	1.4 V.	9 V.
Detector	38 V.	2 mils.	2.4 V.	0 V.
1st A. F.	110 V.	2 mils.	1.4 V.	9 V.
2nd A. F.	350 V.	40 mils.	6.75 V.	63 V.

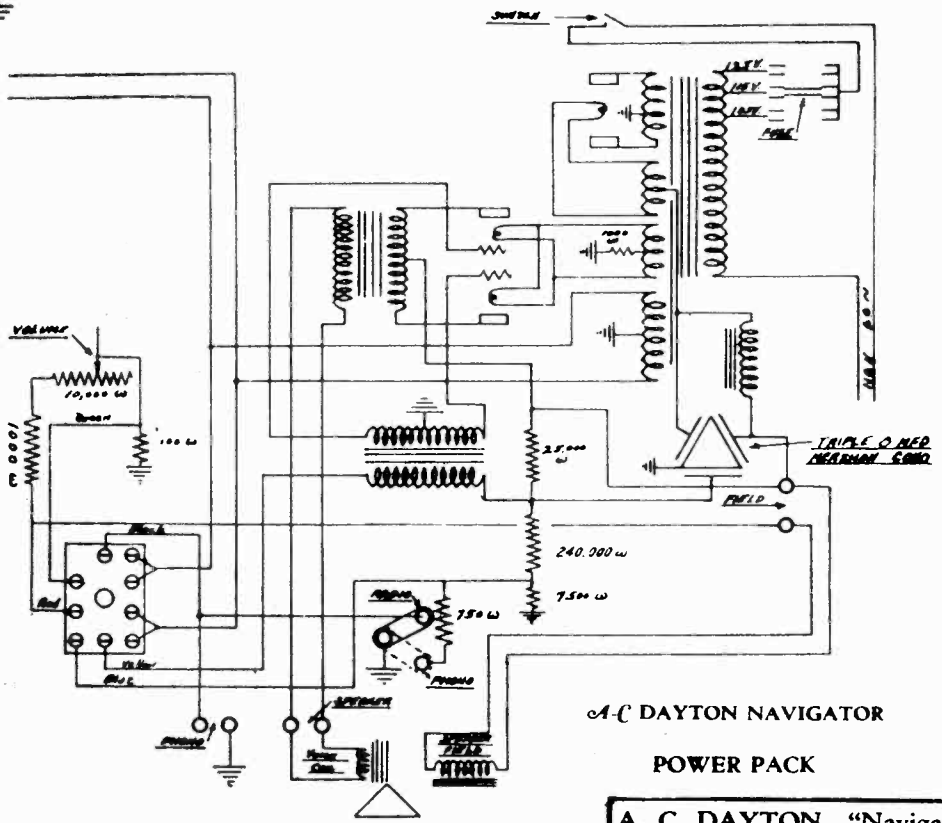
The above readings can only be taken on a Set Analyzer. They may vary 5% depending on tubes and line voltage.

MODEL
"Navigator"

THE A-C DAYTON CO.

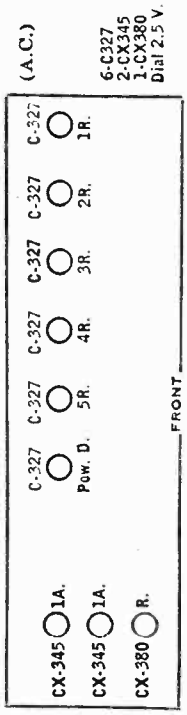


A-C DAYTON NAVIGATOR



A-C DAYTON NAVIGATOR

POWER PACK

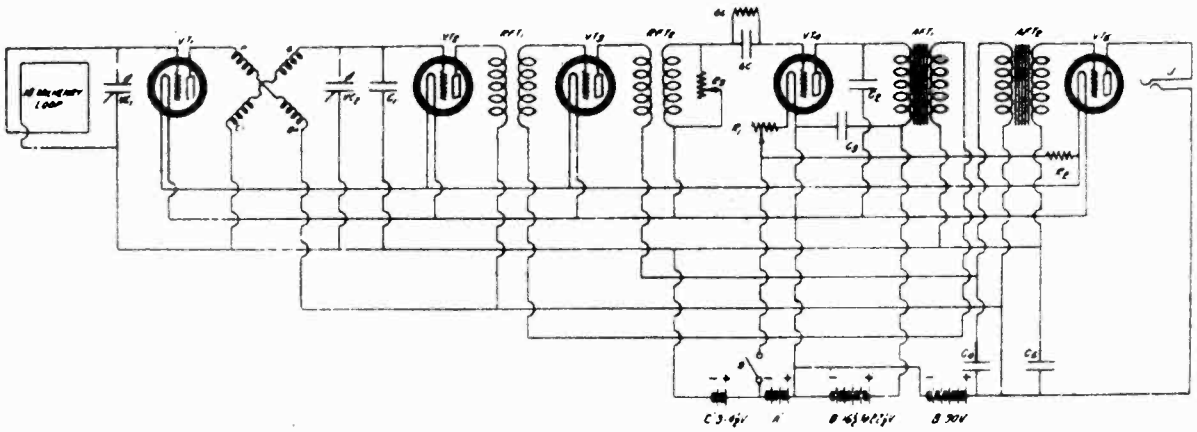


A. C. DAYTON—"Navigator" Line Voltage—115

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST RF 2ND ETC	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS CONTROL GRID	TUBE IN TESTER CATHODE-HEATER VOLTS	TUBE IN TESTER NORMAL PLATE M A	TUBE IN TESTER PLATE M A GRID TEST	TUBE IN TESTER PLATE CHANGE M A	TUBE IN TESTER SCREEN GRID VOLTS
1	227	1st RF	2.5	111	2.4	110	3.5	3.5	5	9	4	-
2	227	2nd RF	2.5	111	2.4	110	3.5	3.5	5	9	4	-
3	227	3rd RF	2.5	111	2.4	110	3.5	3.5	5	9	4	-
4	227	4th RF	2.5	111	2.4	110	3.5	3.5	5	9	4	-
5	227	5th RF	2.5	111	2.4	110	3.5	3.5	5	9	4	-
6	227	Det.	2.5	185	2.4	185	15.0	0	1	-	-	-
7	245	Audio	2.5	235	2.4	230	50	-	22	26	4	-
8	245	Audio	2.5	235	2.4	230	50	-	28	36	4	-
9	280	Rect.	4.9	-	4.75	-	-	-	85	-	-	-

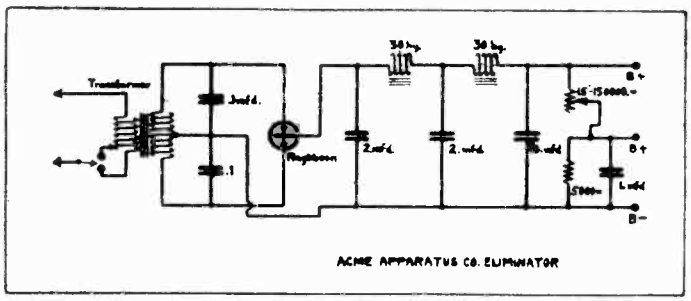
ACME APPARATUS CO.

MODEL 5 Tube Reflex
"B" Unit



CONSTANTS FOR ACME 5 TUBE REFLEX (1926)

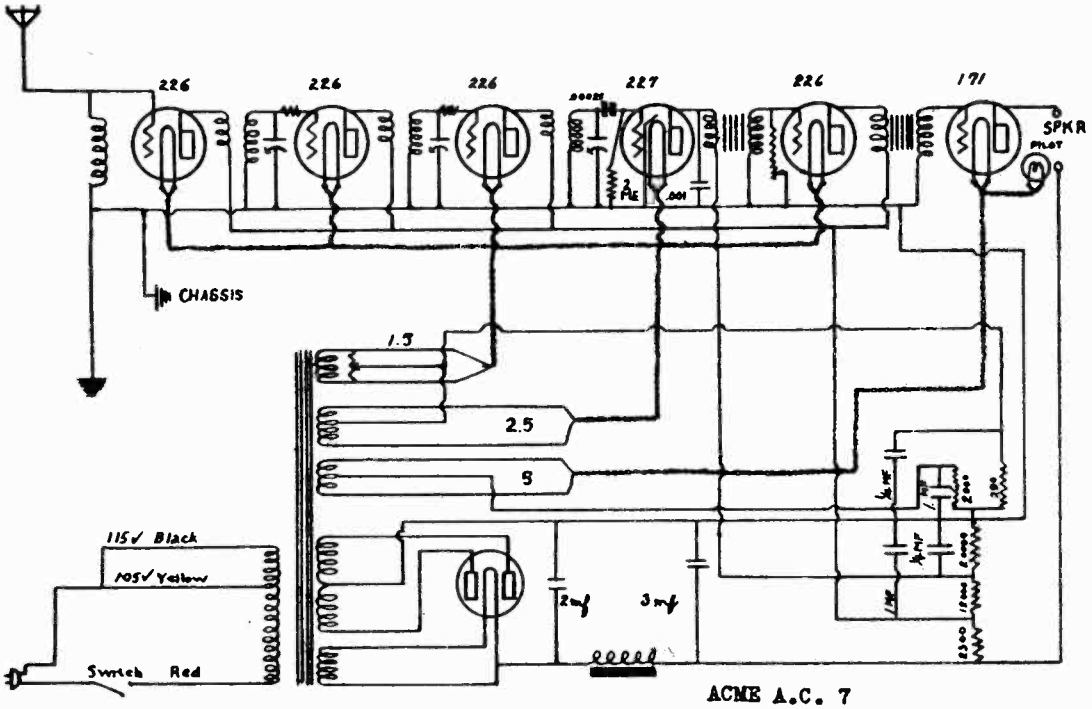
C1	.0004 mfd.	GC	.00025 mfd.
C2	.002 mfd.	GL	.5 to 2 meg
C4	.002 mfd.	R1	6 ohms
C5	1. mfd.	R2	1 ohm
C3	2. mfd.	R3	2000 ohms



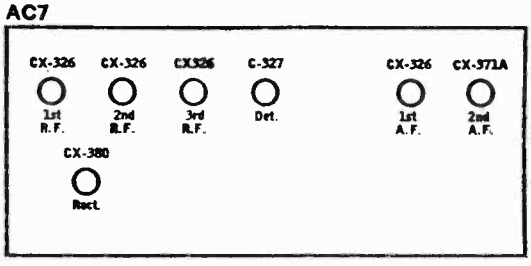
ACME APPARATUS CO. "B" ELIMINATOR (1926)

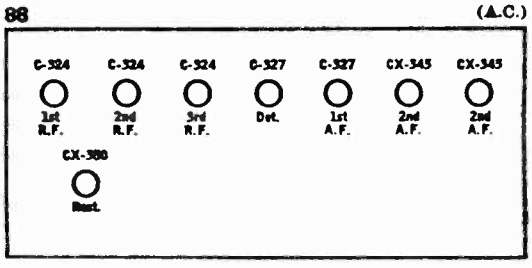
ACME ELECTRIC & MFG. CO.

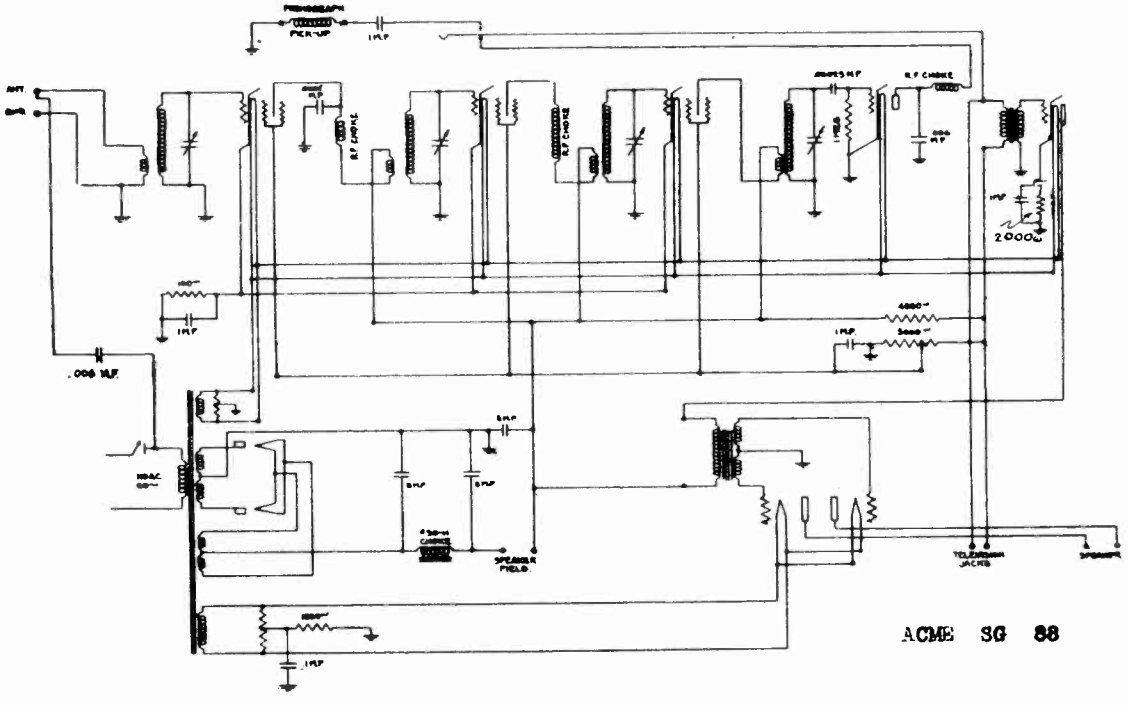
MODEL AC-7
SG-88



ACME A.C. 7



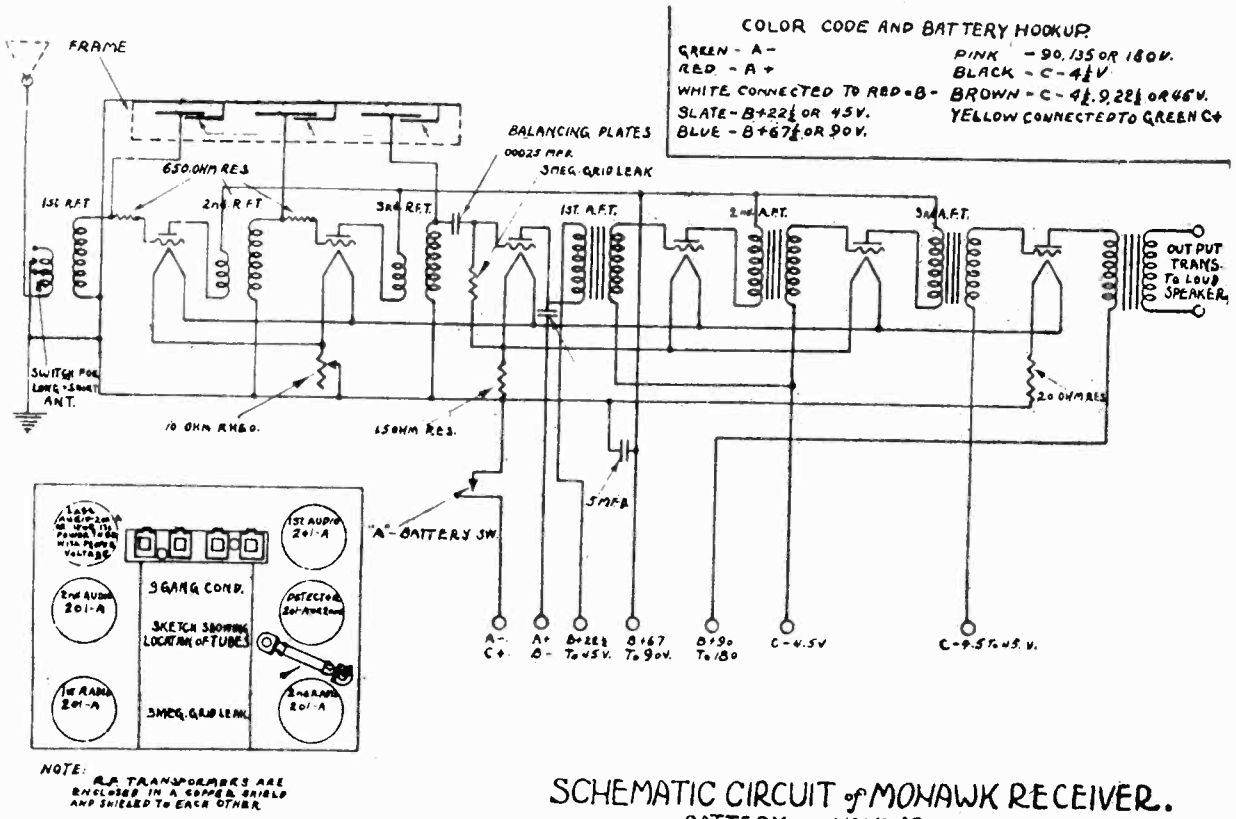




ACME SG 88

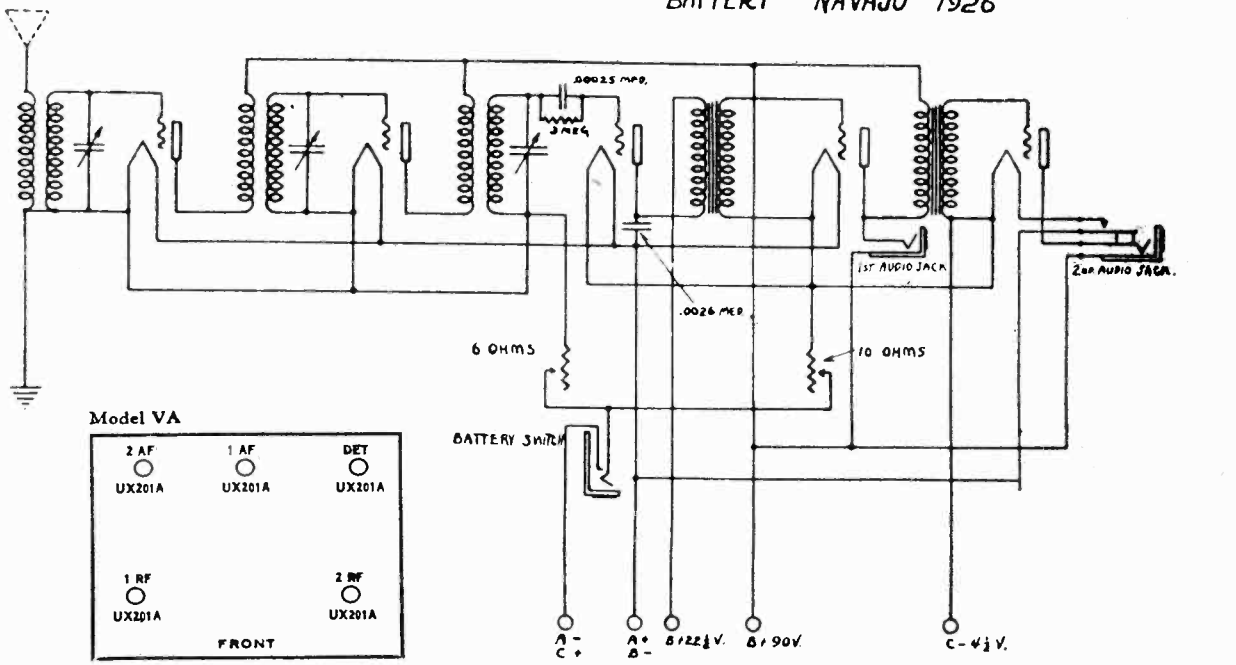
ALL-AMERICAN MOHAWK CORP.

MODEL Navajo
VA
Battery Operated



NOTE: R.F. TRANSFORMERS ARE ENCLOSED IN A COPPER SHIELD AND SHIELED TO EACH OTHER

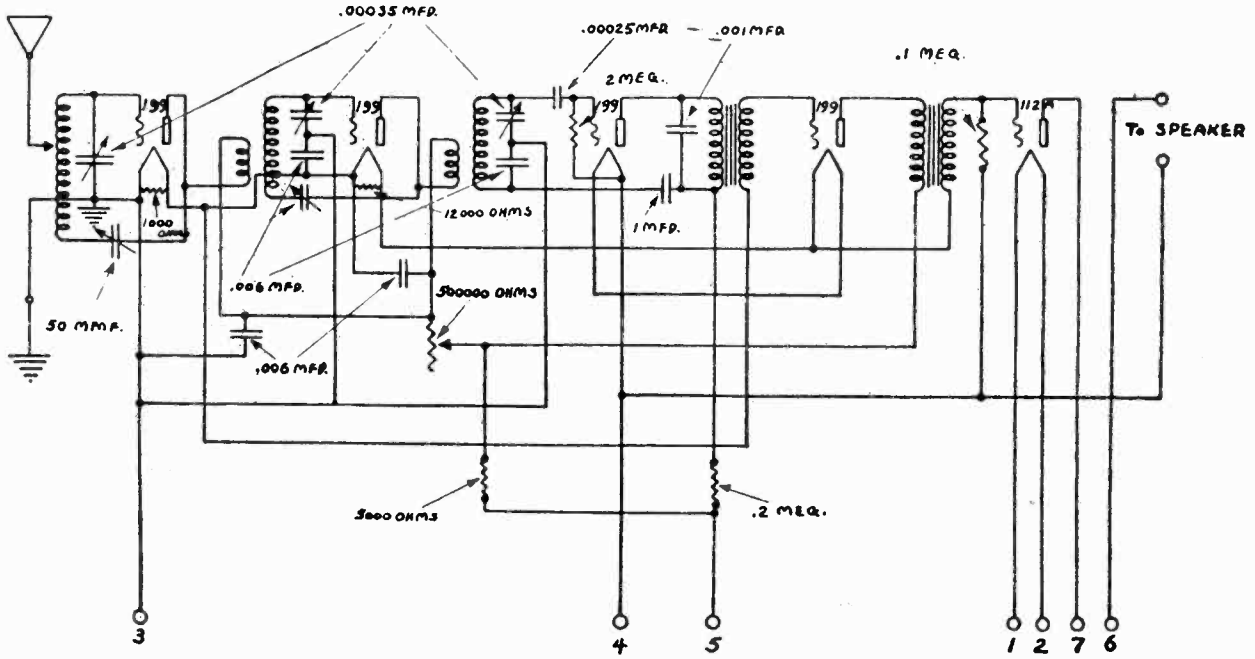
SCHEMATIC CIRCUIT of MOHAWK RECEIVER.
BATTERY NAVAJO 1926



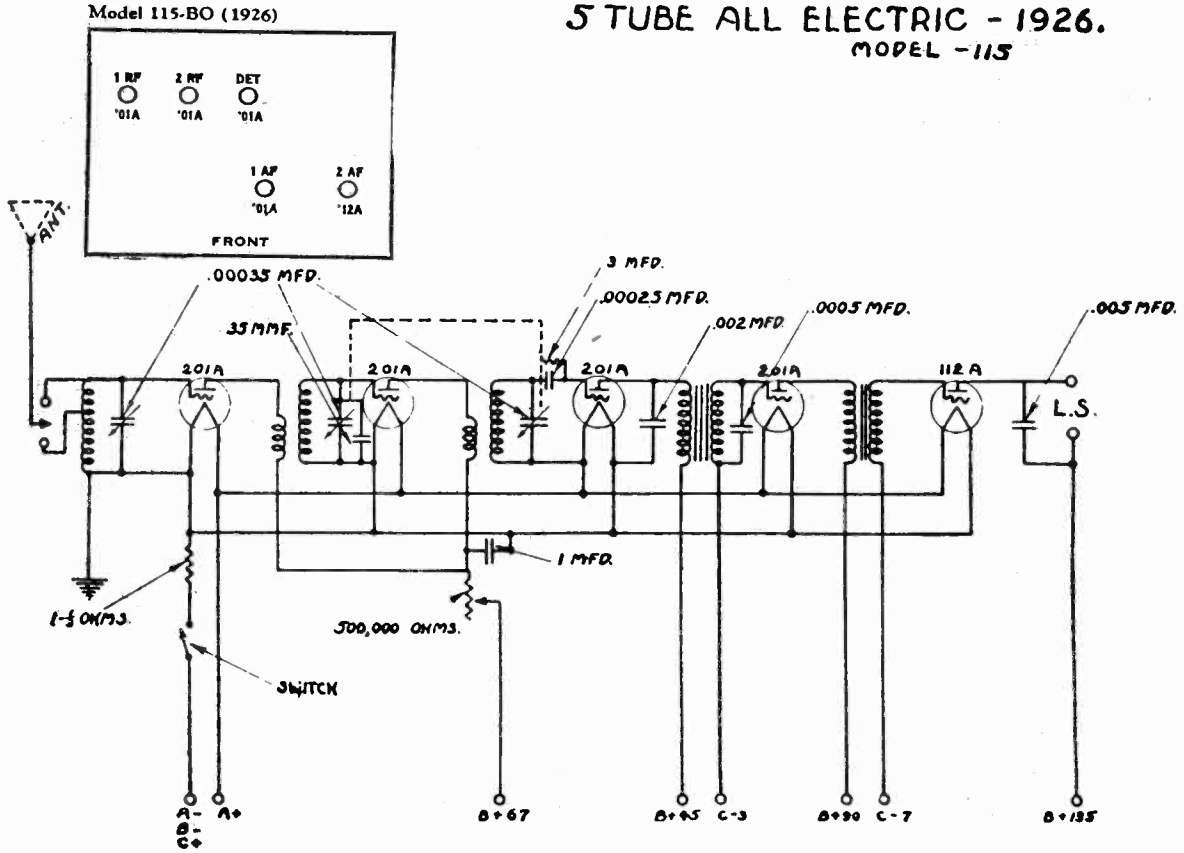
Model VA

5 TUBE VA CIRCUIT -1925-26-

MODEL 115 -1926 **ALL-AMERICAN MOHAWK CORP.**
5 Tube All-Electric
MODEL 115- 1926
5 Tube All-Battery



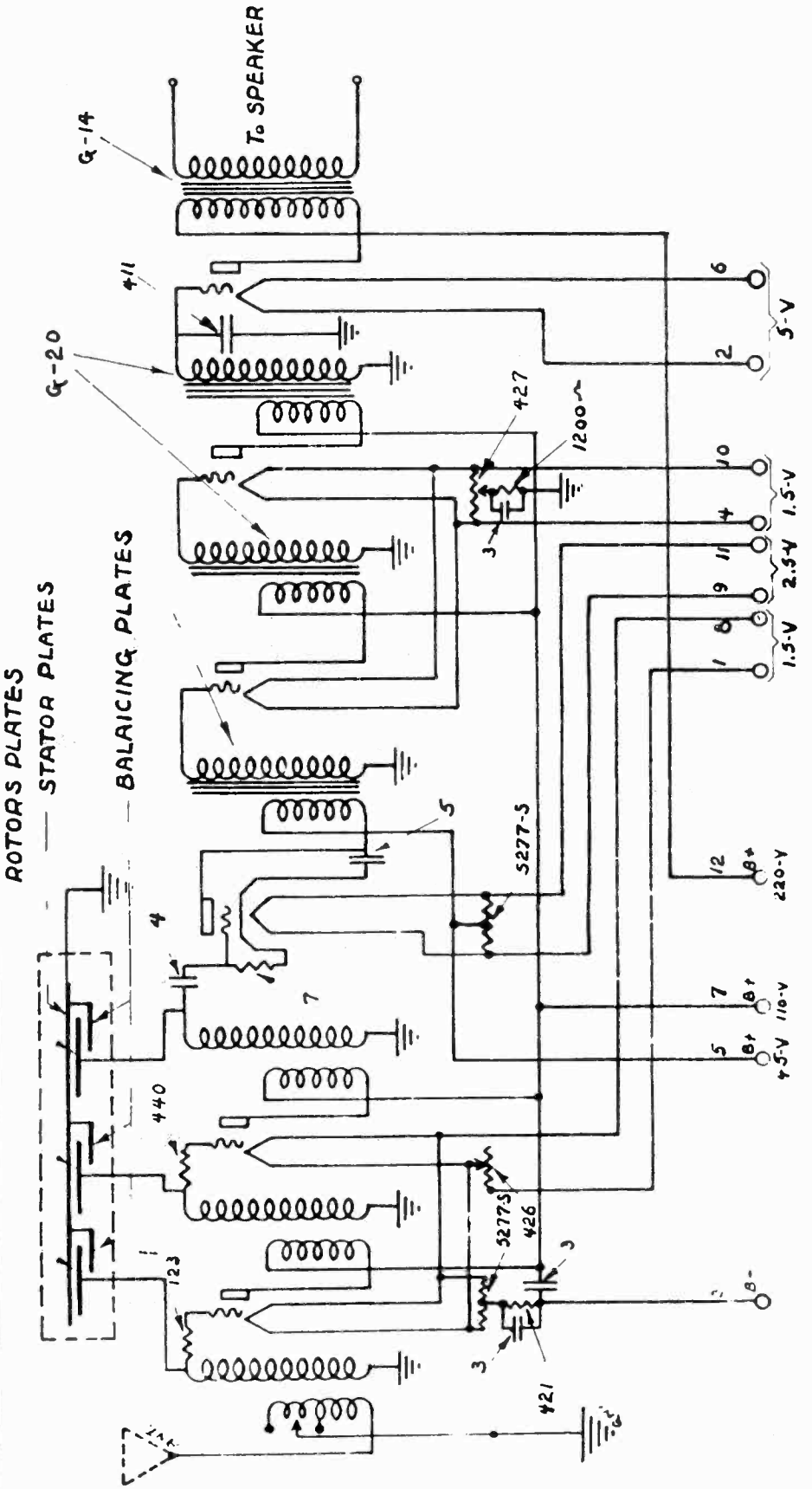
5 TUBE ALL ELECTRIC - 1926.
MODEL -115



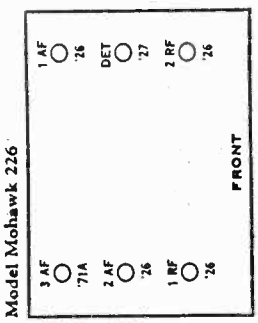
5 TUBE ALL AMERICAN BATTERY SET.
MODEL 115 - 1926-27.

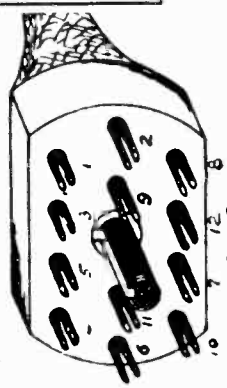
ALL-AMERICAN MOHAWK CORP.

MODEL Mohawk 1926
All-Electric
226 Type
Receiver Chassis



CIRCUIT OF MOHAWK SET - 1926 - (ALL ELECTRIC)

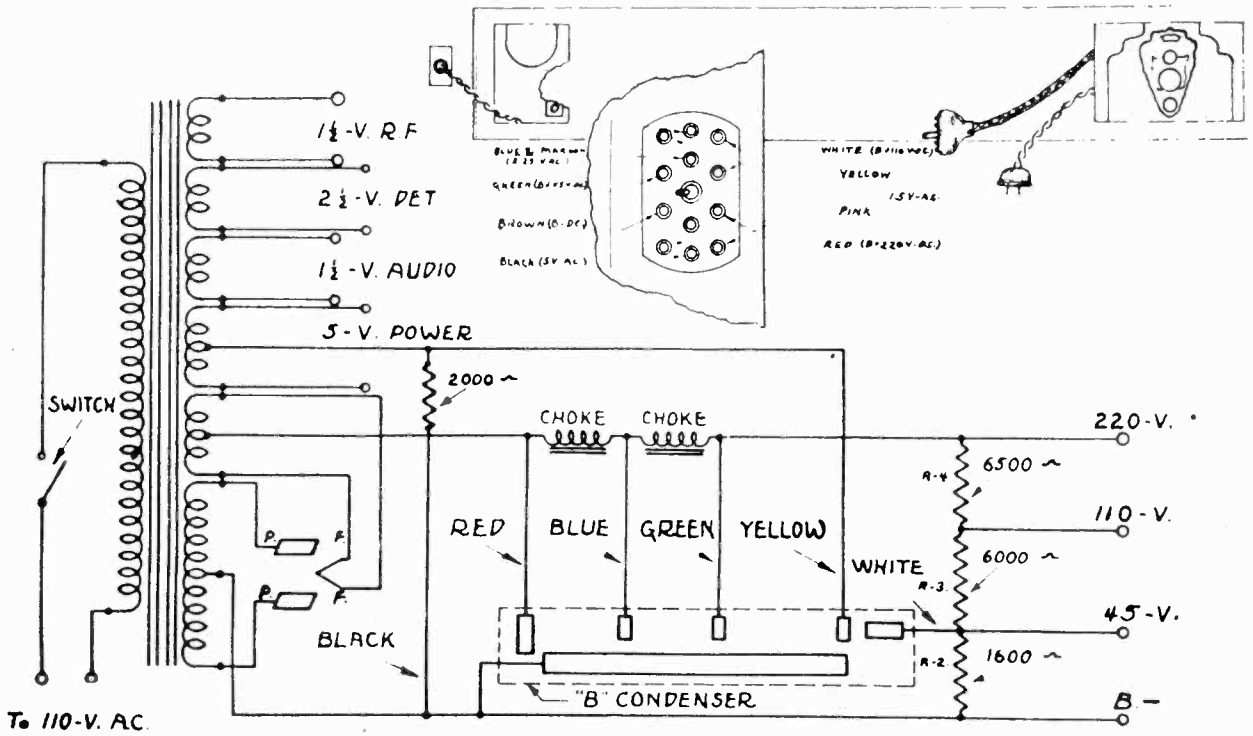




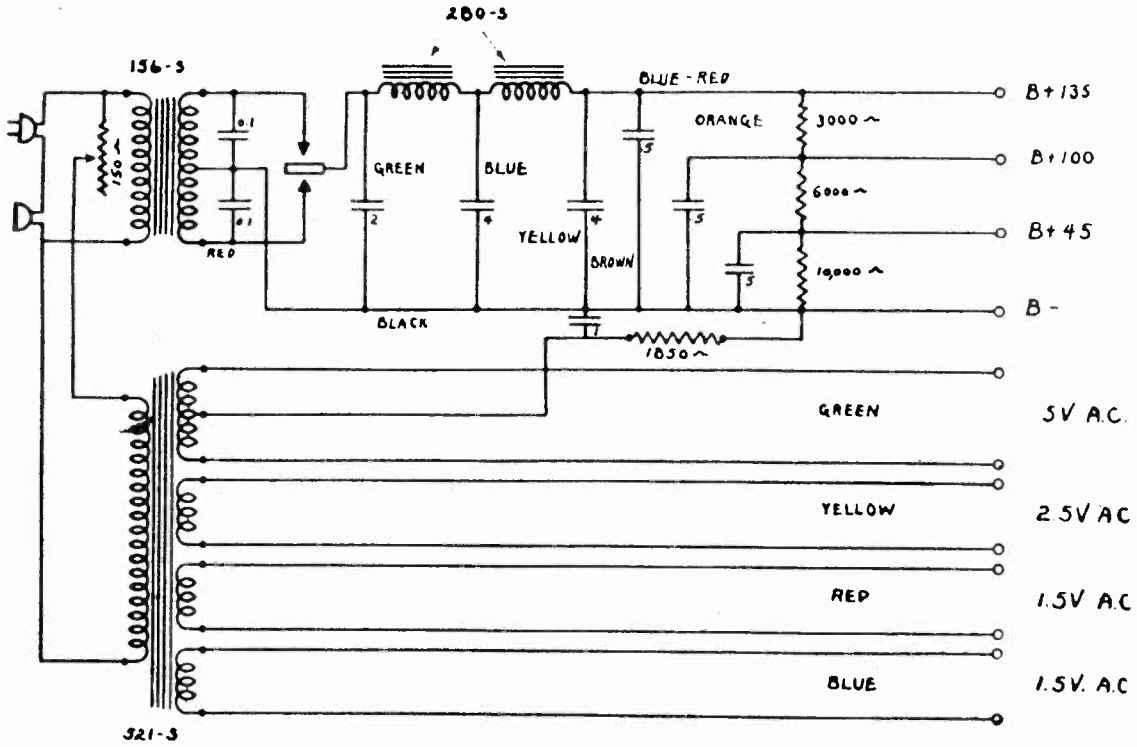
CABLE PLUG.

MODEL Mohawk 226
12 Contact
Power Pack
A-10 Eliminator

ALL-AMERICAN MOHAWK CORP.



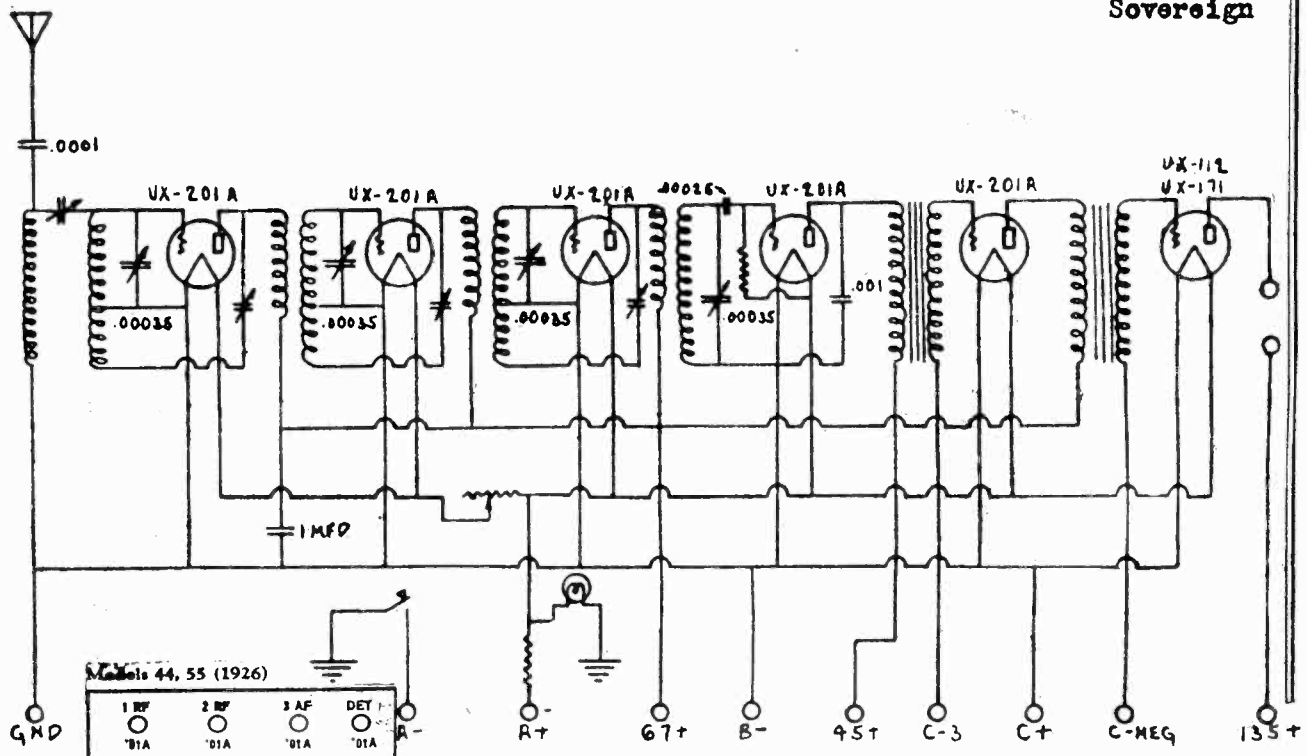
12 CONTACT POWER PACK for Mohawk 226
WITH NEW TYPE CONDENSER



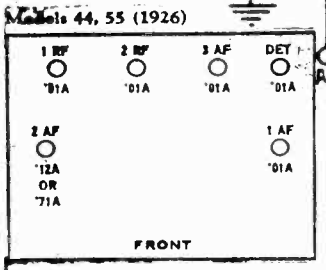
A-10 MOHAWK ELIMINATOR

ALL-AMERICAN MOHAWK CORP.

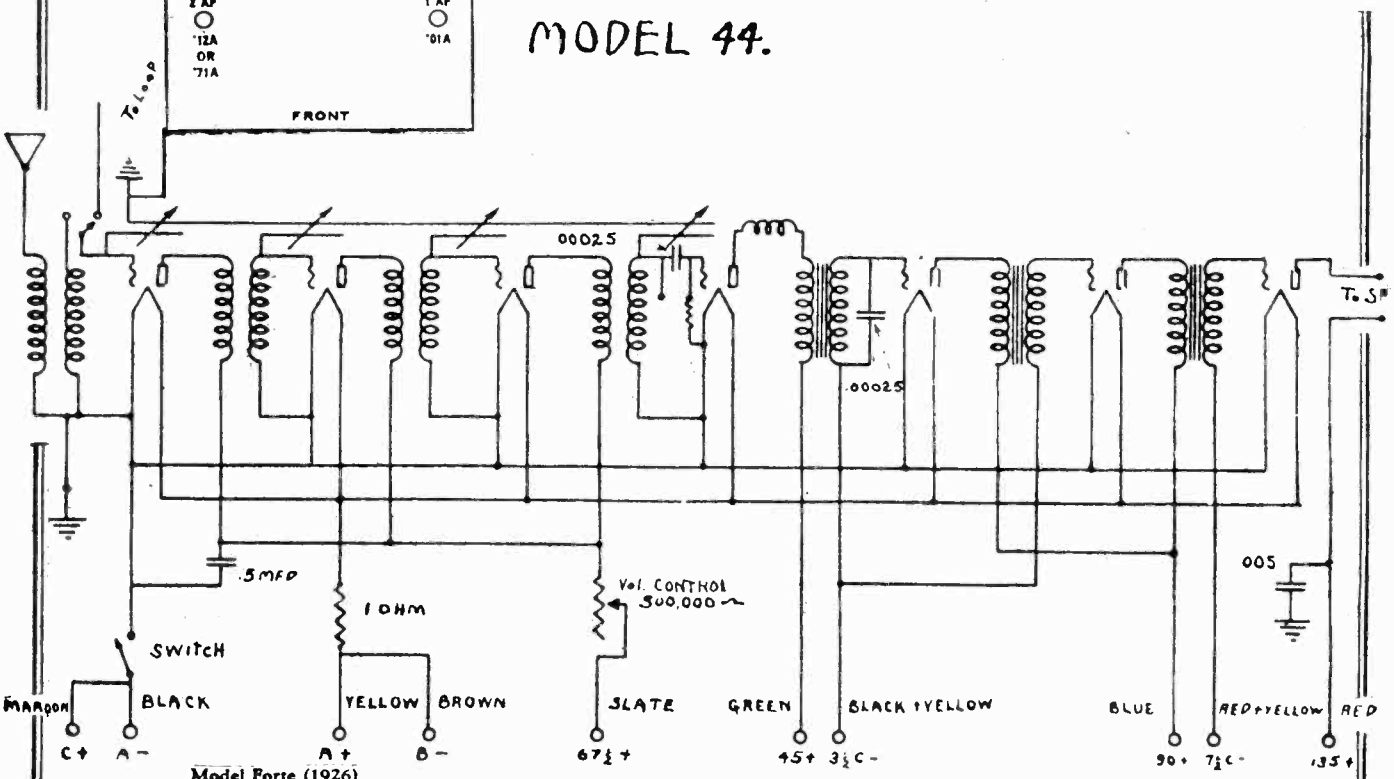
MODEL 44
7 Tube Forte
Lorraine
Sovereign



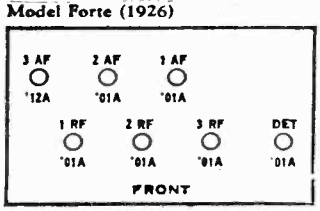
Models 44, 55 (1926)



MODEL 44.



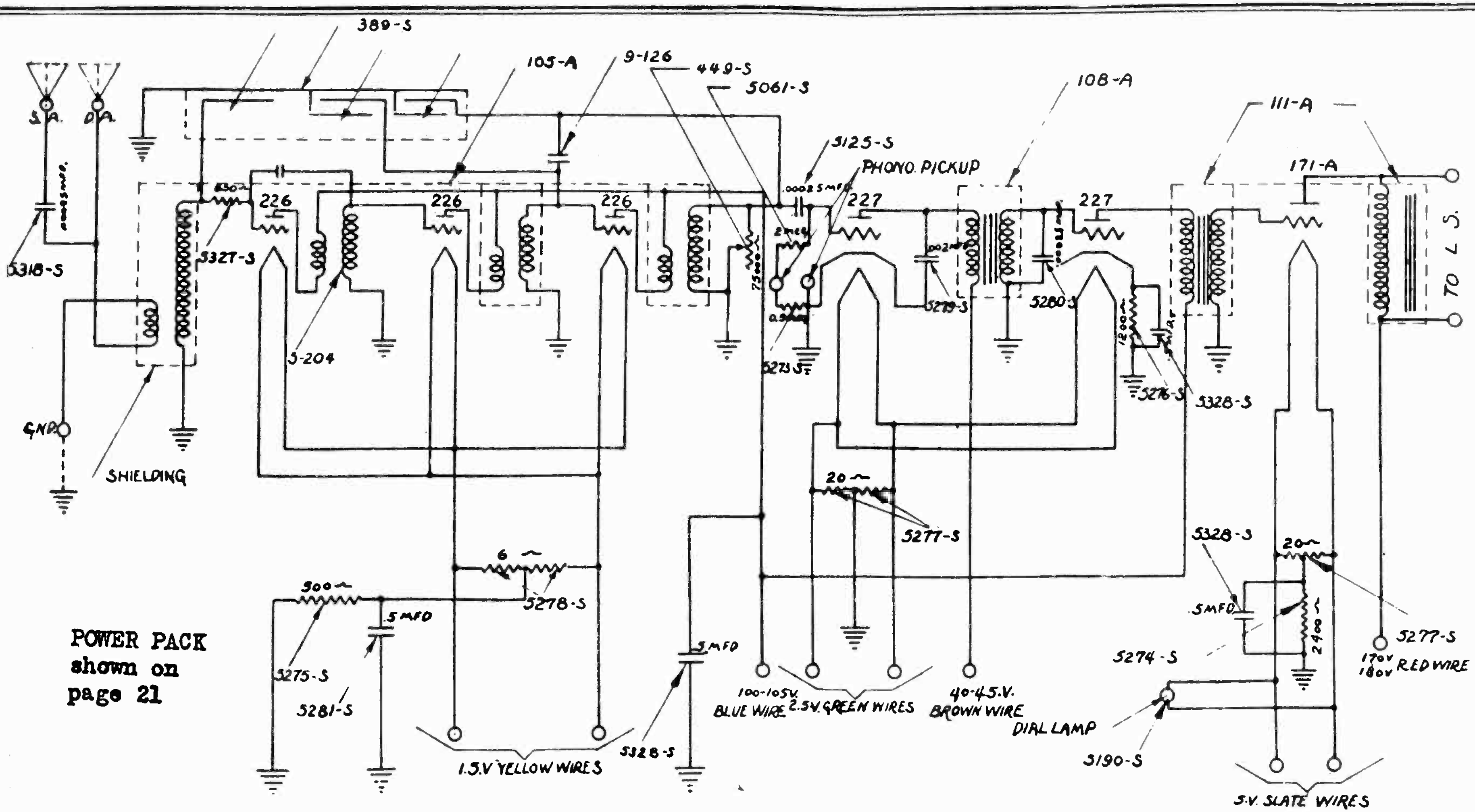
Model Forte (1926)



7 TUBE BATTERY OPERATED
1927 FORTE, LORRAINE AND SOVEREIGN

MODEL 60,61,62, 65,66
Receiver Chassis

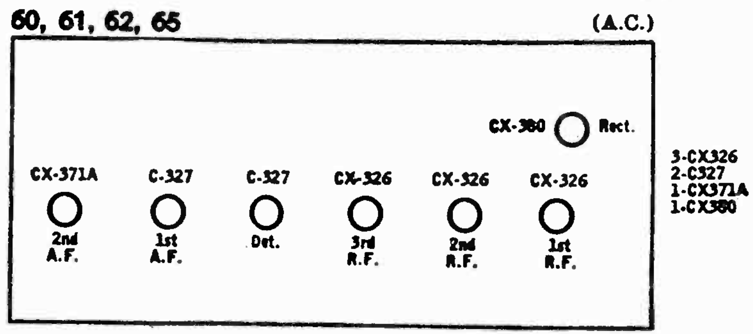
ALL-AMERICAN MOHAWK CORP.



POWER PACK shown on page 21

60, 61, 62, 65

(A.C.)



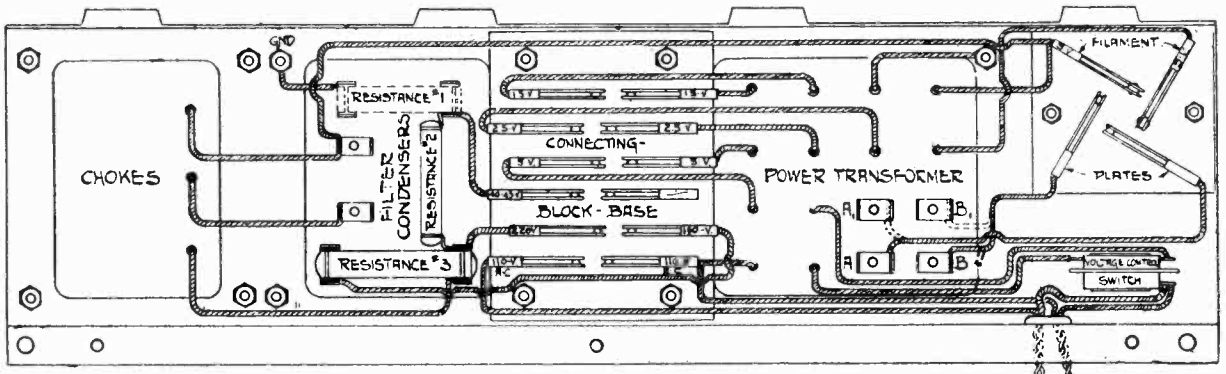
3-CX326
2-C327
1-CX371A
1-CX380

ALL AMERICAN—Models 60-61-62-65-66
Line Voltage 110:—95-115 Volt Tap:—Volume Control Full

Tube No. in Order	Type of Tube	Position of Tube 1st. R.F., Det., Etc.	Readings, Plug in Socket of Set: Tube Out: A Volts	Tube Out: B Volts	Tube in Tester: A Volts	B Volts	C Volts	Cathode Volts	Normal Plate M.A.	Plate M.A. Grid Test	Plate M.A. Change
1	226	1st.R.F.	1.4	120	1.25	112	8	-	3.2	6.6	3.4
2	226	2nd.R.F.	1.4	120	1.25	112	8	-	3.2	6.6	3.4
3	226	3rd.R.F.	1.4	120	1.25	112	8	-	3.2	6.6	3.4
4	227	Detector	2.4	110	2.20	40	0	0	2.2	2.2	0.0
5	227	1st.A.F.	2.4	120	2.20	112	8	6	3.0	6.4	3.4
6	171A	2nd.A.F.	4.7	180	4.50	155	40	-	15.0	16.5	1.5
7	280	Rectifier	-	-	4.70	-	-	-	19.0	-	-
8											
9											
10											

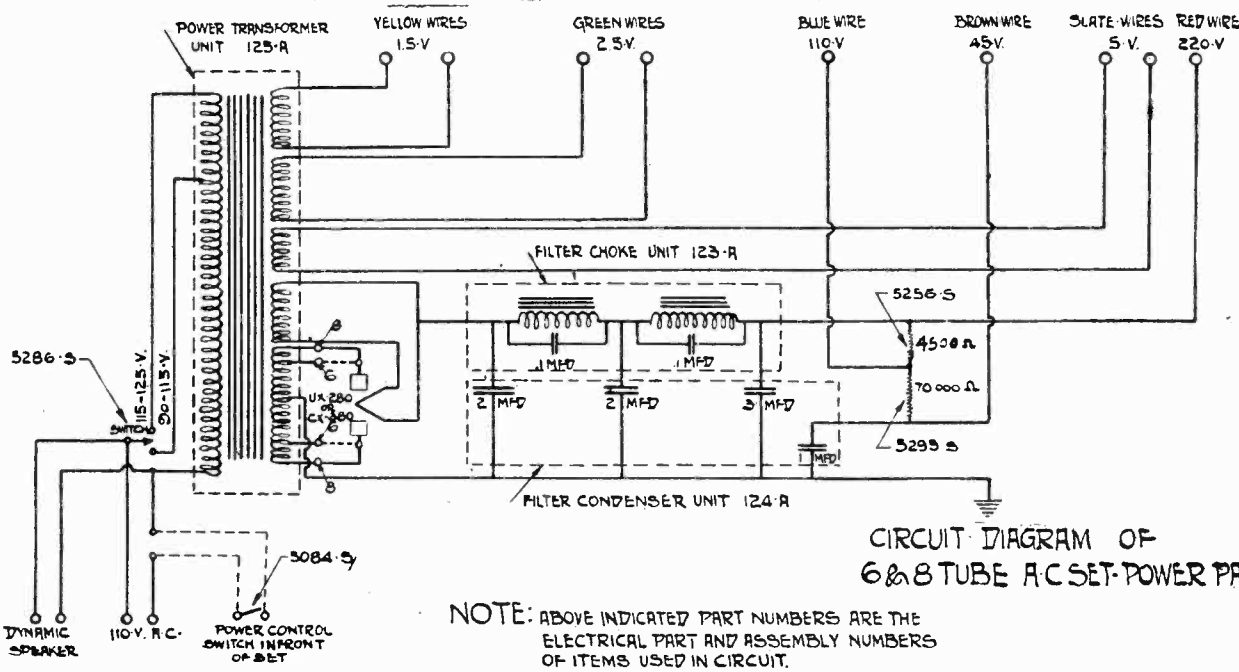
ALL-AMERICAN MOHAWK CORP.

MODEL 60,61,62, 65,66
Power Pack



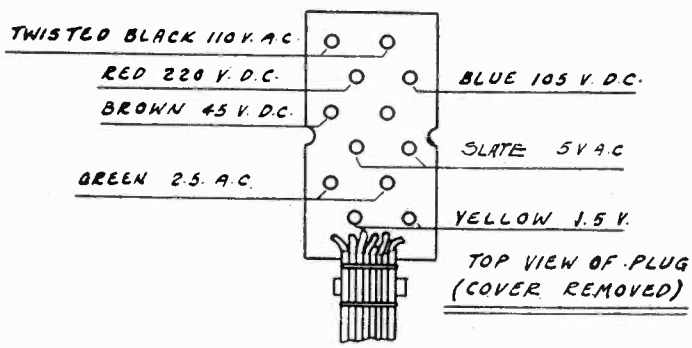
BLUE RESISTANCE #1 = 10,000 Ω
RED . . . #2 = 25,000 Ω OR ORANGE-70,000 Ω WITH RES. #1 OUT
MAROON . . . #3 = 4500 Ω

NOTE:-
WIRING FOR 8 TUBE SET-AS SHOWN-
WIRING FOR 6 TUBE SET- PLATE WIRE 'A' LEAD TO 'A'
AND PLATE WIRE 'B' LEAD TO 'B'.



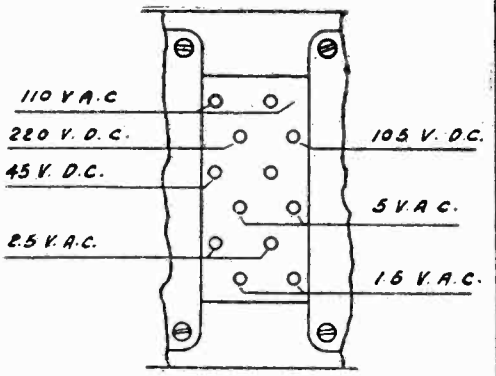
CIRCUIT DIAGRAM OF
6 & 8 TUBE A.C SET-POWER PACK

NOTE: ABOVE INDICATED PART NUMBERS ARE THE ELECTRICAL PART AND ASSEMBLY NUMBERS OF ITEMS USED IN CIRCUIT. WHEN ORDERING PARTS OR ASSEMBLIES SPECIFY THIS NUMBER AS WELL AS NAME OF ITEM

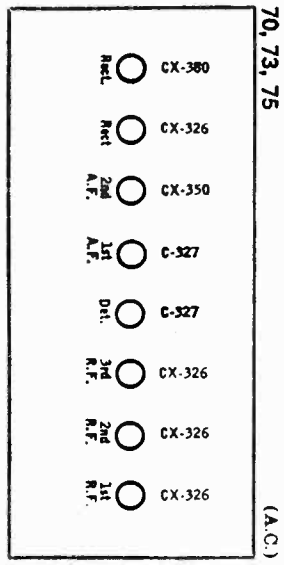


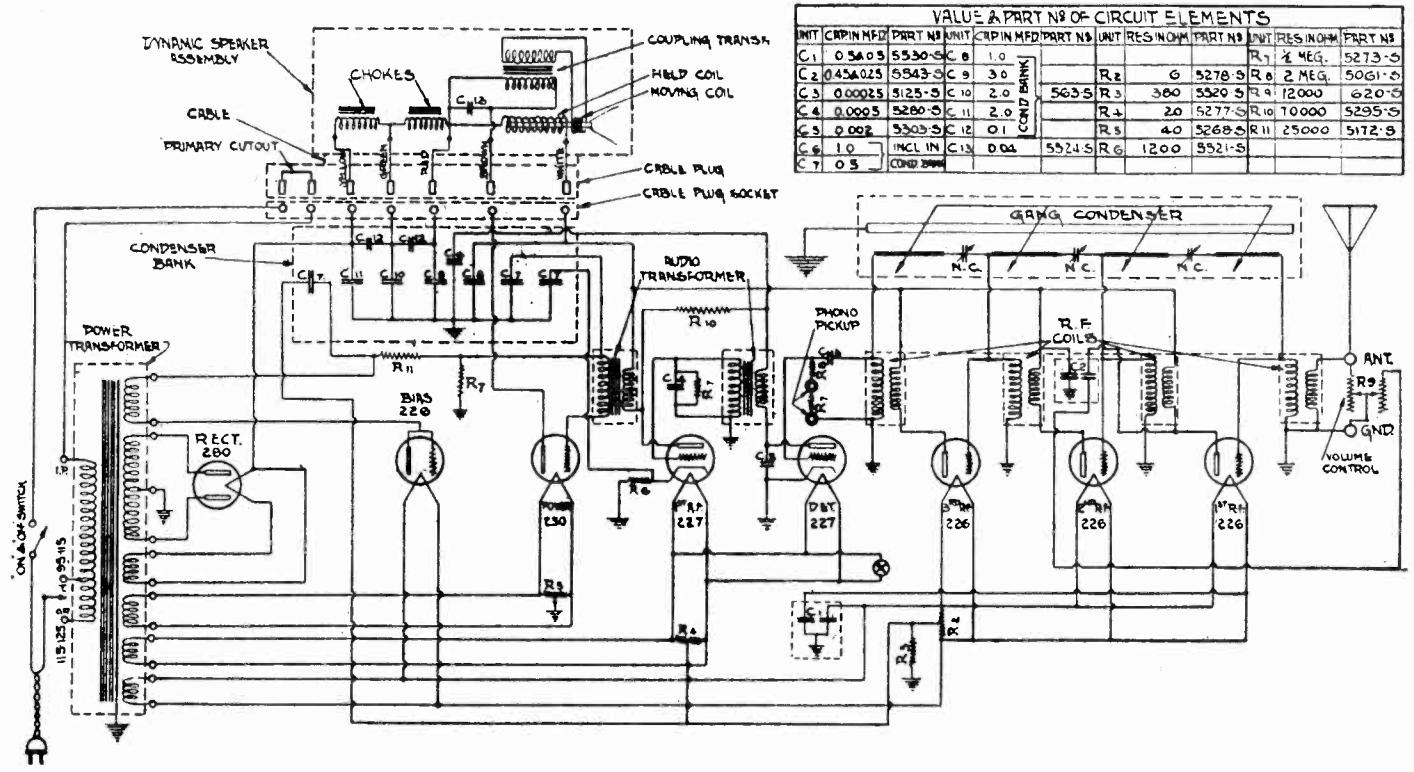
TOP VIEW OF PLUG (COVER REMOVED)

TOP VIEW OF PLUG (COVER REMOVED)



TOP VIEW OF CONNECTING PLUG SOCKET IN POWER PACK





VALUE & PART Nº OF CIRCUIT ELEMENTS

UNIT	CAP IN MFD	PART Nº	UNIT	CAP IN MFD	PART Nº	UNIT	RES IN OHM	PART Nº	UNIT	RES IN OHM	PART Nº
C1	0.5&0.5	5530-S	C8	1.0	COND BANK				R7	½ MEG.	5273-S
C2	0.45&0.25	5543-S	C9	3.0		R2	6	5278-S	R8	2 MEG.	5061-S
C3	0.00025	5125-S	C10	2.0	563-S	R3	380	5320-S	R9	12000	620-S
C4	0.0005	5280-S	C11	2.0		R4	20	5277-S	R10	10000	5295-S
C5	0.002	5303-S	C12	0.1		R5	40	5268-S	R11	25000	5172-S
C6	1.0	INCL IN COND BANK	C13	0.04	5524-S	R6	1200	5321-S			
C7	0.5										

HUM— If an undue amount of hum is experienced it may be caused by any of the following:—Defective tube in either the detector or first a.f. stage. Center tapped resistors open on one side of filament or heater connection or one-half of center tapped resistor shorted out. Center tap of 20 ohm resistor across 227 heater terminals open. A grounded 226 filament or short circuited grid bias resistor.

The hum will also be increased by a defective 226 bias tube for the 250 power tube, filter or load resistor, or by-pass condensers short circuited or open. The adjustable center tapped resistor on the 250 tubes filament being out of adjustment will likewise cause an increase in the hum level. As the filter circuit is a part of the loud speaker assembly it may be checked for hum trouble by substituting another speaker assembly. The condenser bank and power transformer may be substituted in checking for defects in these units which may cause hum. Generally most causes of hum are defective 227 tubes and improper adjustment of the 250 tube filament center tapped resistor.

Possible causes of hum in the power supply and their remedy will be taken up in the paragraph "Power Unit Servicing". It is important that a good ground connection be employed with this receiver as sometimes the hum level will increase where a poor ground connection is used.

TUBE VOLTAGE READINGS— The following gives the values of the various tube readings which should be obtained: When line voltage is = 110 V. A.C., and the line voltage control switch on power pack is in the 95-115 position: (Note these values will vary slightly.)

R. F. tubes 226-326 type
Filament voltage—1.45 to 1.50, "B" voltage—100 to 120,
"C" voltage—7 to 9.

Detector 227-327 type
Heater voltage—2.40 to 2.50, "B" voltage—35 to 50,
Cathode Bias, 0., Heater Bias 6-9 plus.

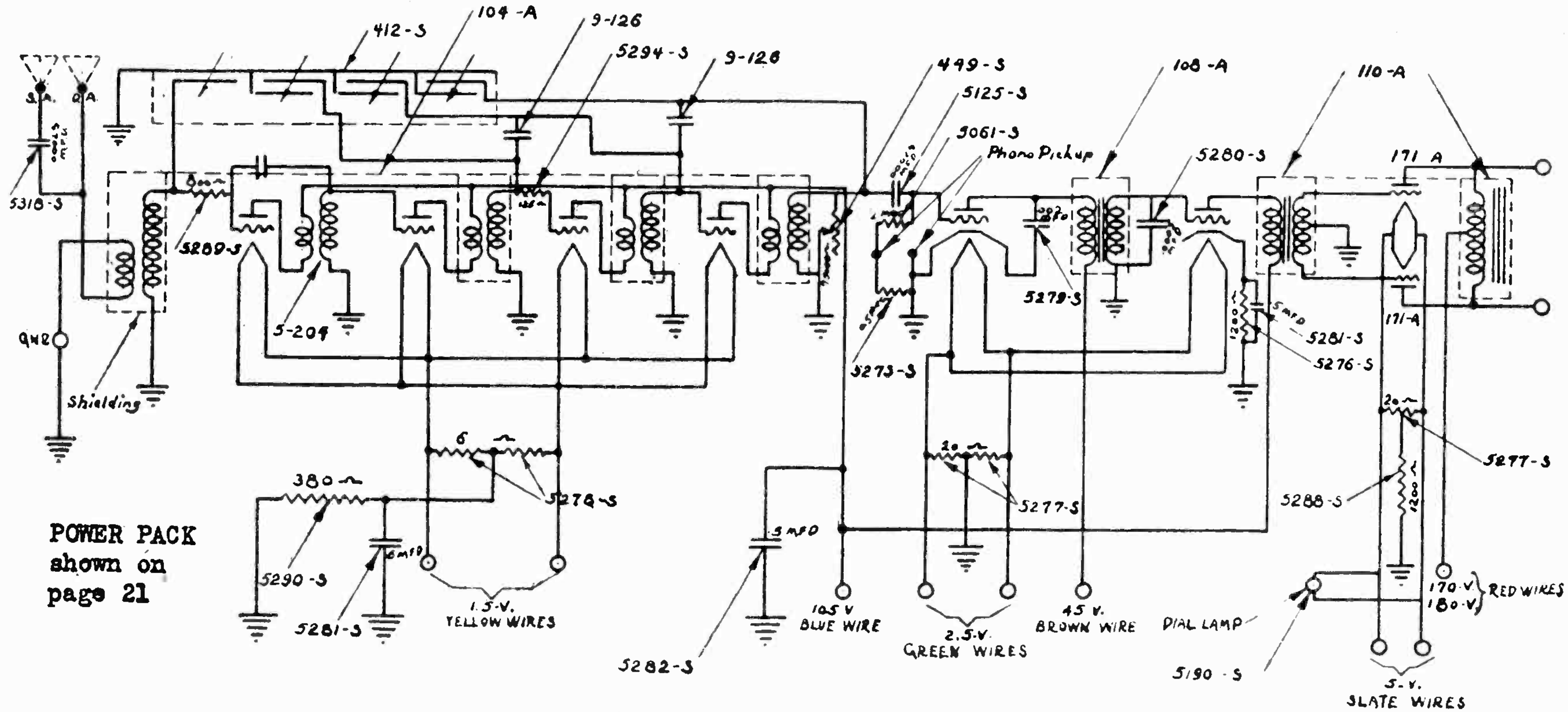
First A.F. Amplifier 227-327 type
Heater voltage—2.40 to 2.50, "B" voltage—100 to 120,
Cathode bias—6 to 9, Heater Bias 6-9 plus.

Power Amplfier 250-350
Filament voltage—7.30 to 7.40, "B" voltage—300 to 325
"C" voltage—52 to 56.

Bias Tube
Filament voltage 1.4 to 1.50.

ALL-AMERICAN MOHAWK CORP.

MODEL 80, 83, 84, 85, 86, 88 Receiver Chassis

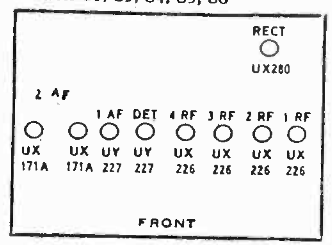


POWER PACK shown on page 21

ALL AMERICAN—Models 80-83-84-85-86-88
Line Voltage 110:—95-115 Volt Tap:—Volume Control Full—2nd A. F. Stage—2 Tubes Push Pull

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 M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st.R.F.	1.4	120	1.25	112	9	-	3.5	7.3	3.8
2	226	2nd.R.F.	1.4	120	1.25	112	9	-	3.5	7.3	3.8
3	226	3rd.R.F.	1.4	120	1.25	112	9	-	3.5	7.3	3.8
4	226	4th.R.F.	1.4	120	1.25	112	9	-	3.5	7.3	3.8
5	227	Detector	2.4	110	2.20	40	0	-	2.2	2.2	0
6	227	1st A.F.	2.4	120	2.20	112	0	7	4.4	6.4	2.0
7	171A	2nd.A.F.	4.7	180	4.50	162	42	-	16.0	18.0	2.0
8	171A	2nd.A.F.	4.7	180	4.50	162	42	-	16.0	18.0	2.0
9	280	Rectifier	-	-	4.70	-	-	-	20.0	-	-
10											

Models 80, 83, 84, 85, 86



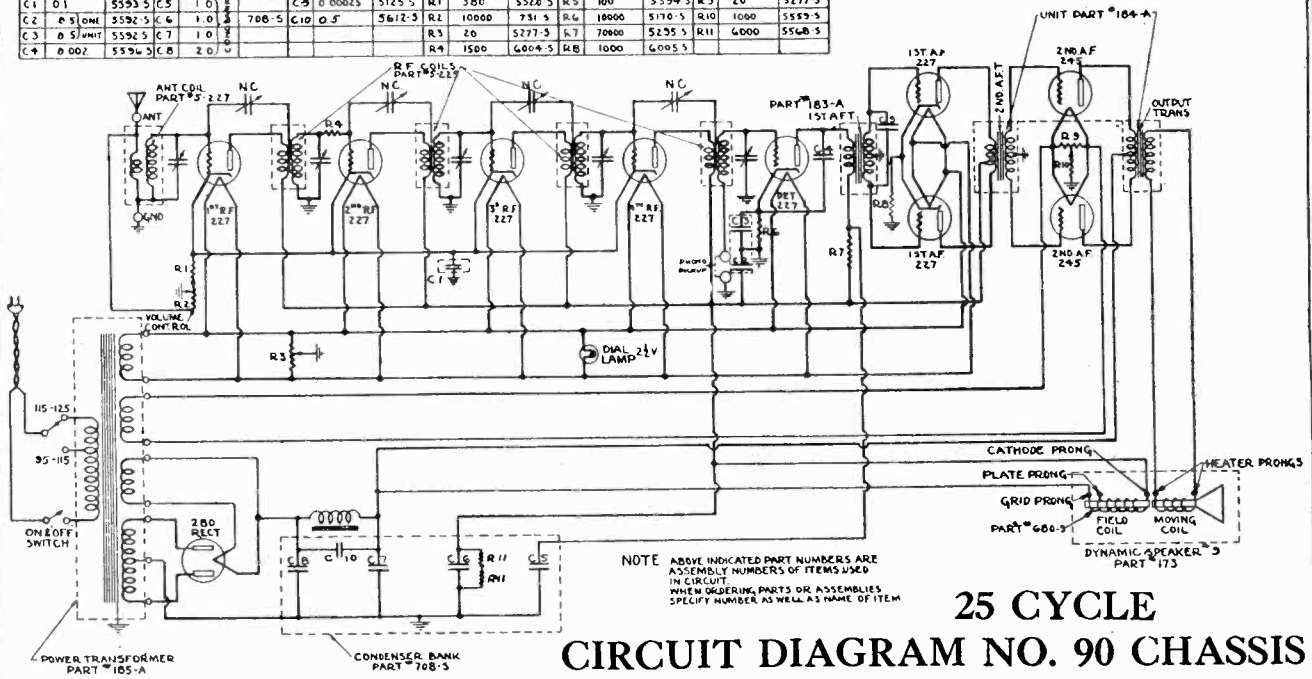
MODEL 90
25 Cycle

ALL-AMERICAN MOHAWK CORP.

182-W

VALUE AND PART Nº OF CIRCUIT ELEMENTS

UNIT	CAP IN MFD	PART Nº	UNIT	CAP IN MFD	PART Nº	UNIT	CAP IN MFD	PART Nº	UNIT	RES IN OHMS	PART Nº	UNIT	RES IN OHMS	PART Nº	UNIT	RES IN OHMS	PART Nº
C1	0.1	5593-S	C5	1.0		C9	0.00025	5125-S	R1	380	5520-S	R5	100	5594-S	R9	20	5277-S
C2	0.5 ONE	5592-S	C6	1.0	708-S	C10	0.5	5612-S	R2	10000	731-S	R6	10000	5170-S	R10	1000	5559-S
C3	0.5 UNIT	5592-S	C7	1.0					R3	20	5277-S	R7	70000	5295-S	R11	6000	5568-S
C4	0.002	5596-S	C8	2.0					R4	1500	6004-S	R8	1000	6005-S			



NOTE ABOVE INDICATED PART NUMBERS ARE ASSEMBLY NUMBERS OF ITEMS USED IN CIRCUIT. WHEN ORDERING PARTS OR ASSEMBLIES SPECIFY NUMBER AS WELL AS NAME OF ITEM

25 CYCLE
CIRCUIT DIAGRAM NO. 90 CHASSIS

VOLTAGE READINGS

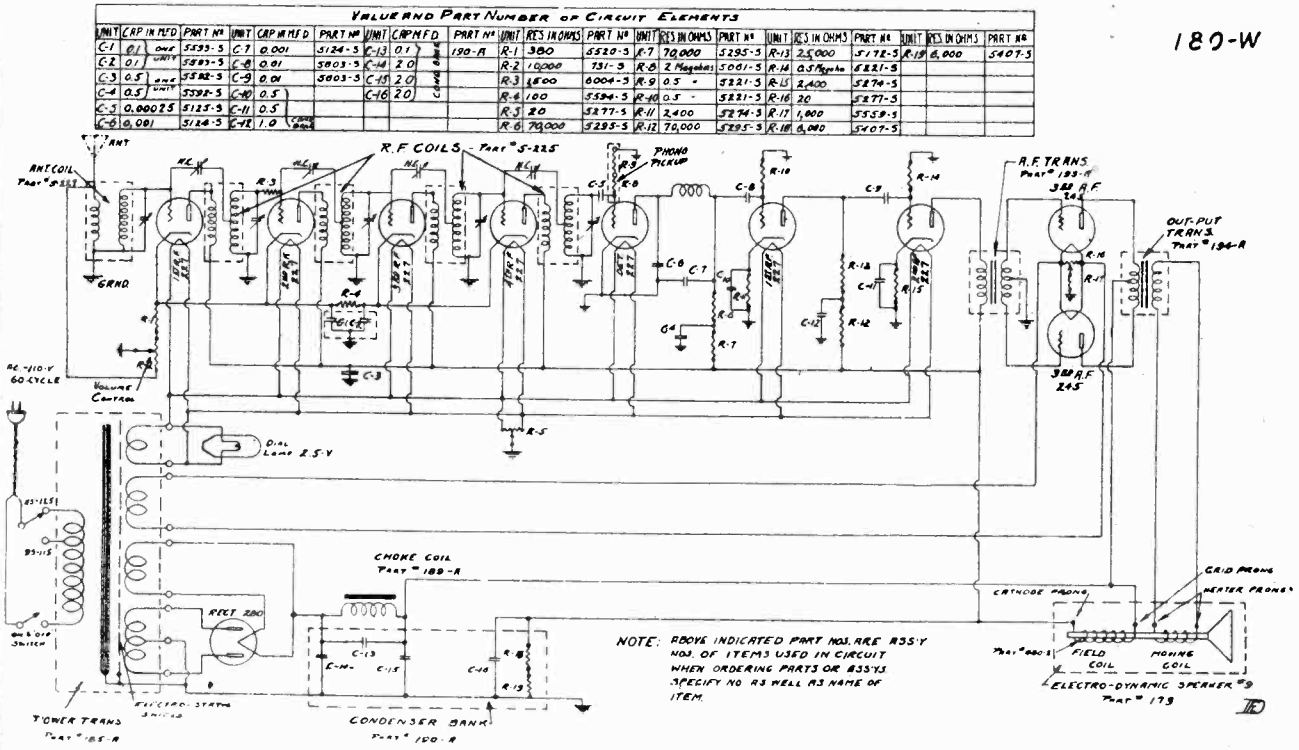
Type of Tube	Position of Tube	Tube in Tester A Volts	Tube in Tester B Volts	Tube in Tester C Volts	Cathode-Heater Volts	Normal Plate M. A.
227	1 R. F.	2.3	100	6.25	6.0	3.5
227	2 R. F.	2.4	100	5.50	5.5	3.5
227	3 R. F.	2.3	95	6.25	5.5	3.5
227	4 R. F.	2.4	100	6.25	5.5	3.5
227	DET.	2.3	56	5.00	5.0	0.5
227	1 P. P.	2.4	90	5.00	5.0	3.5
227	1 P. P.	2.4	90	5.00	6.0	3.5
245	2 P. P.	2.2	210	42.00		24.0
245	2 P. P.	2.2	210	42.00		24.0
280	RECT.	4.5				38 x 2

SOCKET LAYOUT SAME AS NO. MODEL 90 - 60 CYCLE

ALL-AMERICAN MOHAWK CORP.

MODEL 90
60 Cycle

180-W

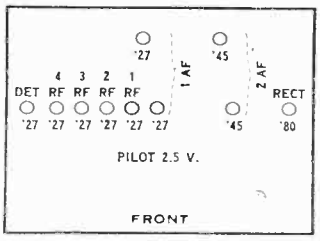


Lyric No. 90 A. C. receiver
—60 CYCLE

TUBE VOLTAGE AND CURRENT READINGS. Below is given a standard set of readings for the tubes of the Lyric A. C. No. 90 receiver, which will serve as a reference in tube voltage and plate current readings:

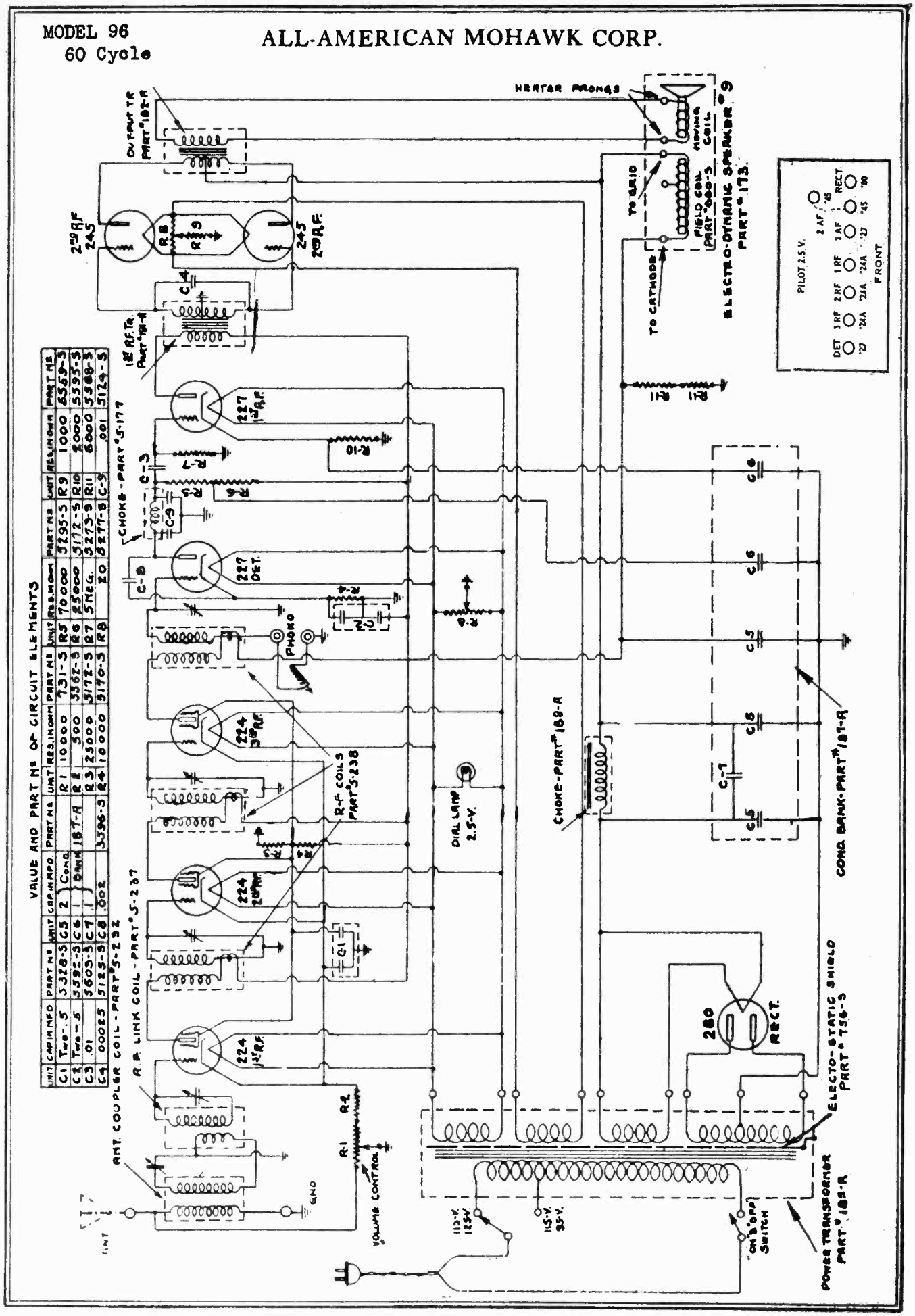
Type of Tube	Position of Tube	Tube Out A Volts	Tube Out B Volts	Tube in Tester A Volts	Tube in Tester B Volts	Tube in Tester C Volts	Cathode-Heater Volts	Normal Plate
227	1 R. F.	2.45	120	2.40	114	6.5	6.5	5.3
227	2 R. F.	2.45	120	2.40	115	6.5	6.5	4.6
227	3 R. F.	2.45	120	2.40	113	7.5	7.5	5.8
227	4 R. F.	2.45	120	2.40	113	7.5	7.5	5.9
227	DET.	2.45	84	2.40	16	.5	.0	.7
227	1 A. F.	2 45	94	2.40	30	.5	2.5	1.0
227	2 A. F.	2.45	128	2.40	106	1.5	7.0	3.6
245	P. P.	2.55	256	2.45	232	45.0		23.0
245	P. P.	2.55	256	2.45	232	45.0		23.0
280	RECT.	5.30		4.90				78.0

Models 90, 93, 94, 95 (1929)



MODEL 96
60 Cycle

ALL-AMERICAN MOHAWK CORP.

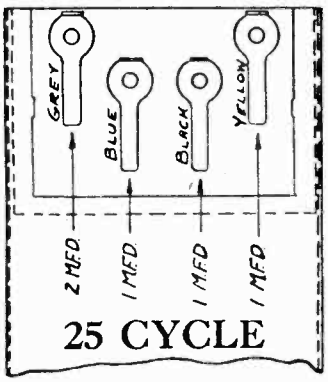


VALUE AND PART Nº OF CIRCUIT ELEMENTS

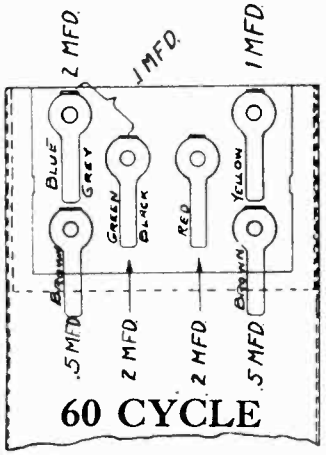
UNIT	CAP IN MFD	PART Nº	UNIT	CAP IN MFD	PART Nº	UNIT	RESISTOR	PART Nº	UNIT	RESISTOR	PART Nº
C1	Two-.5	5328-S	C5	2	Cond.	R1	10000	7351-S	R5	70000	3295-S	R9	1000	6569-S
C2	Two-.5	5592-S	C6	1	Unit 187-A	R2	300	3362-S	R6	25000	5172-S	R10	2000	5595-S
C3	.01	3603-S	C7	1		R3	25000	5172-S	R7	5 Meg.	3273-S	R11	6000	5568-S
C4	.00025	5183-S	C8	.002	3596-S	R4	10000	5170-S	R8	20	8277-S	C9	.001	5124-S

ALL-AMERICAN MOHAWK CORP.

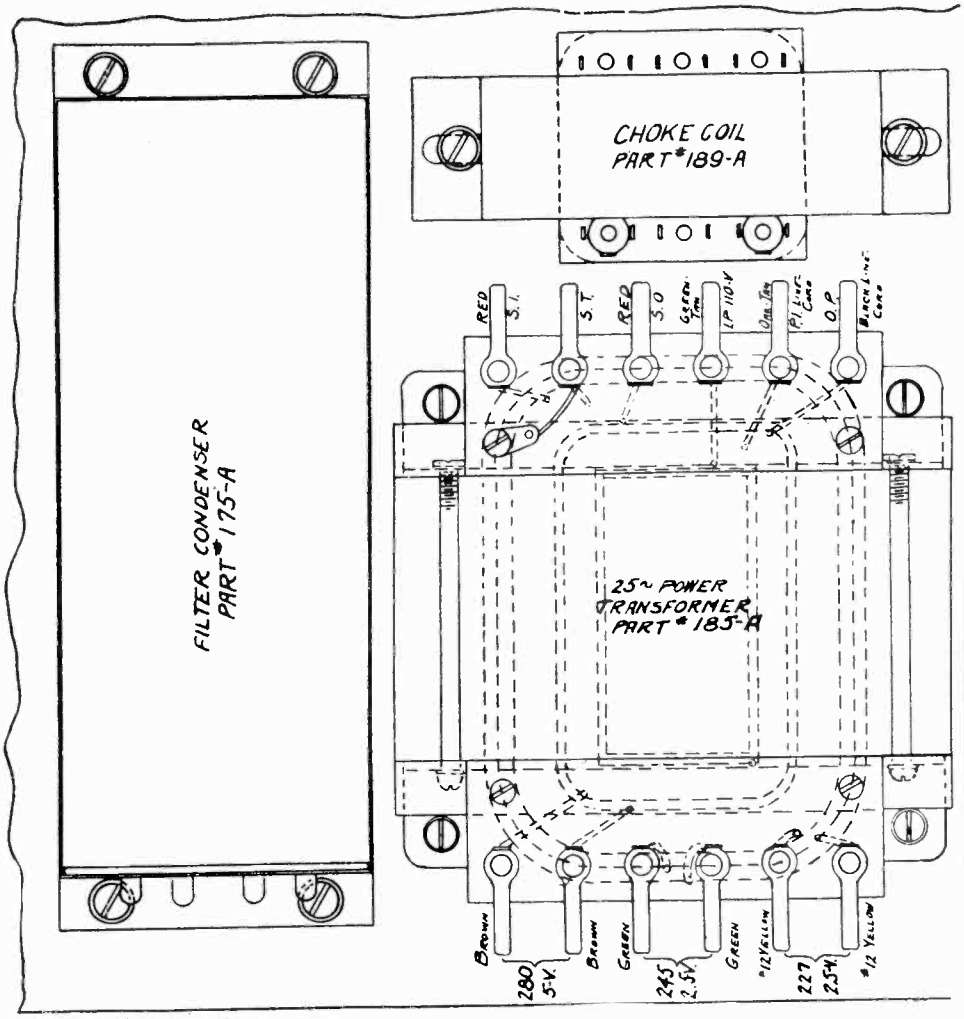
MODEL 90
Data



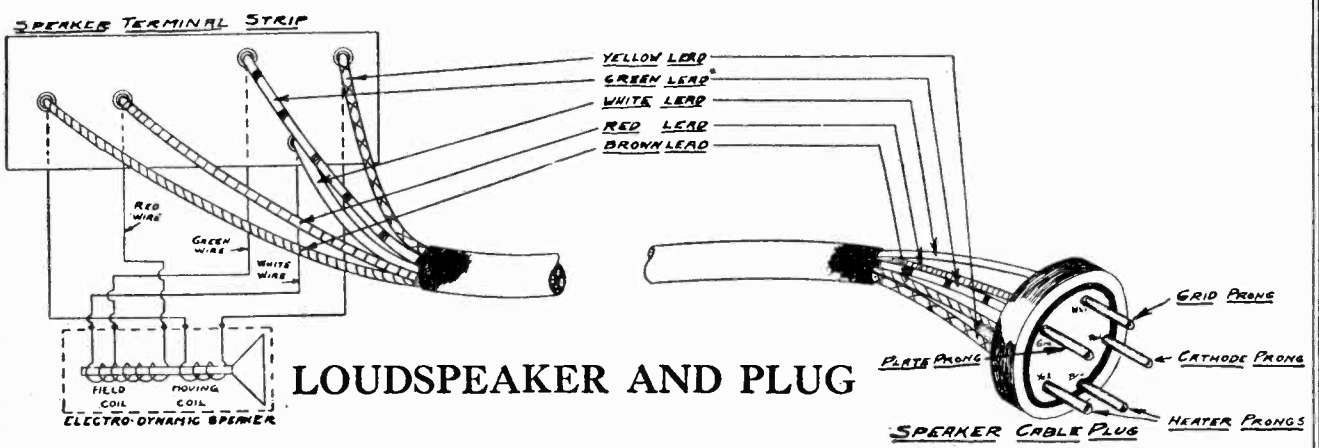
FRONT VIEW OF CONDENSER TERMINALS



FRONT VIEW OF CONDENSER TERMINALS

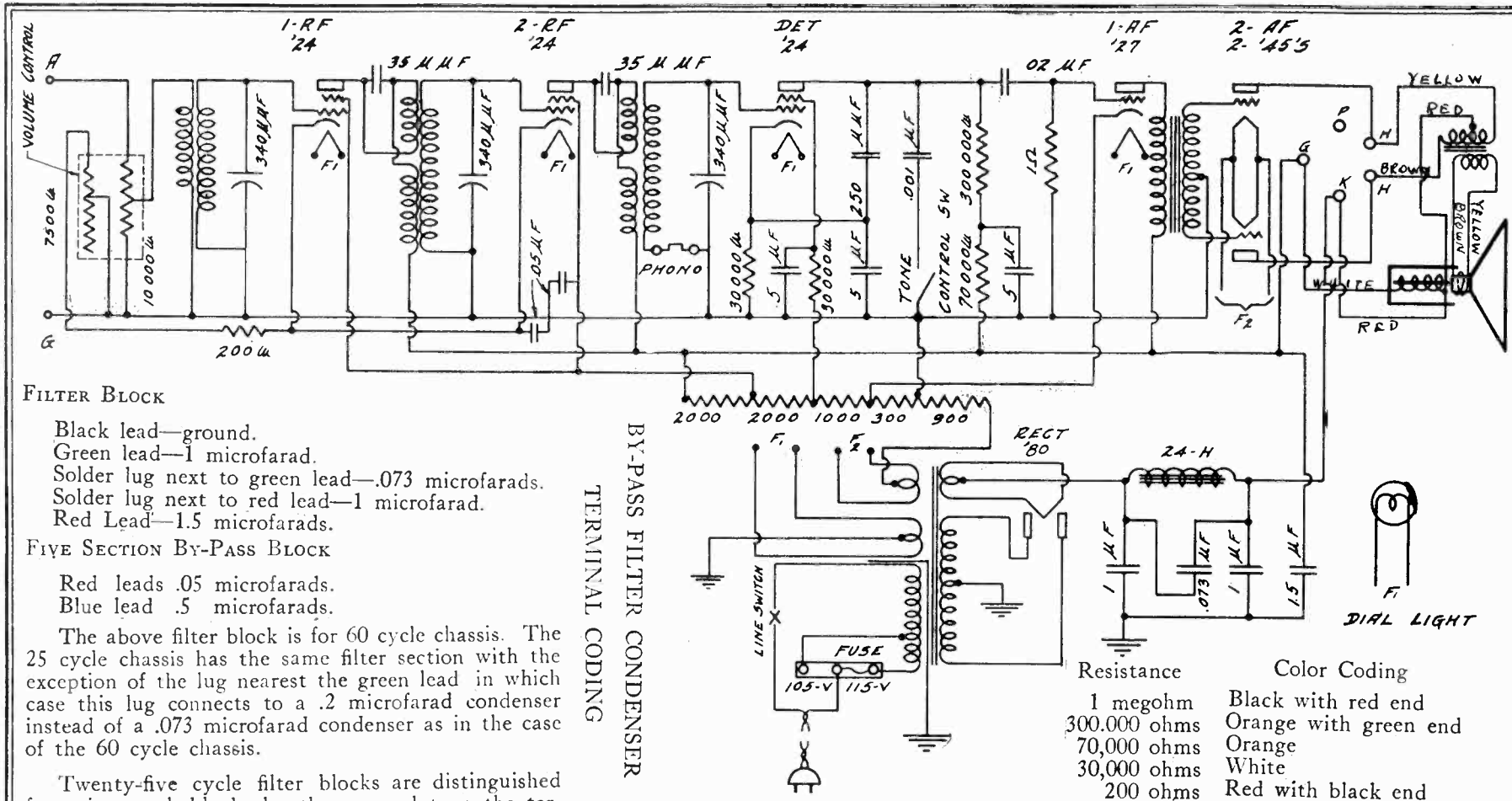


POWER PACK TERMINALS NO. 90 CHASSIS



LOUDSPEAKER AND PLUG

MODEL LYRIC D ALL-AMERICAN MOHAWK CORP.



Filter Block

Black lead—ground.
Green lead—1 microfarad.
Solder lug next to green lead—.073 microfarads.
Solder lug next to red lead—1 microfarad.
Red Lead—1.5 microfarads.

Five Section By-Pass Block

Red leads .05 microfarads.
Blue lead .5 microfarads.

The above filter block is for 60 cycle chassis. The 25 cycle chassis has the same filter section with the exception of the lug nearest the green lead in which case this lug connects to a .2 microfarad condenser instead of a .073 microfarad condenser as in the case of the 60 cycle chassis.

Twenty-five cycle filter blocks are distinguished from sixty cycle blocks by the green dot on the terminal strip at the bottom.

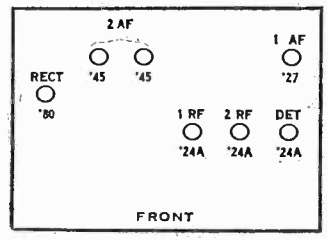
BY-PASS FILTER CONDENSER TERMINAL CODING

Resistance	Color Coding
1 megohm	Black with red end
300.000 ohms	Orange with green end
70,000 ohms	Orange
30,000 ohms	White
200 ohms	Red with black end

Below is a standard list of voltage readings for the tubes of the LYRIC AC Model D receiver:

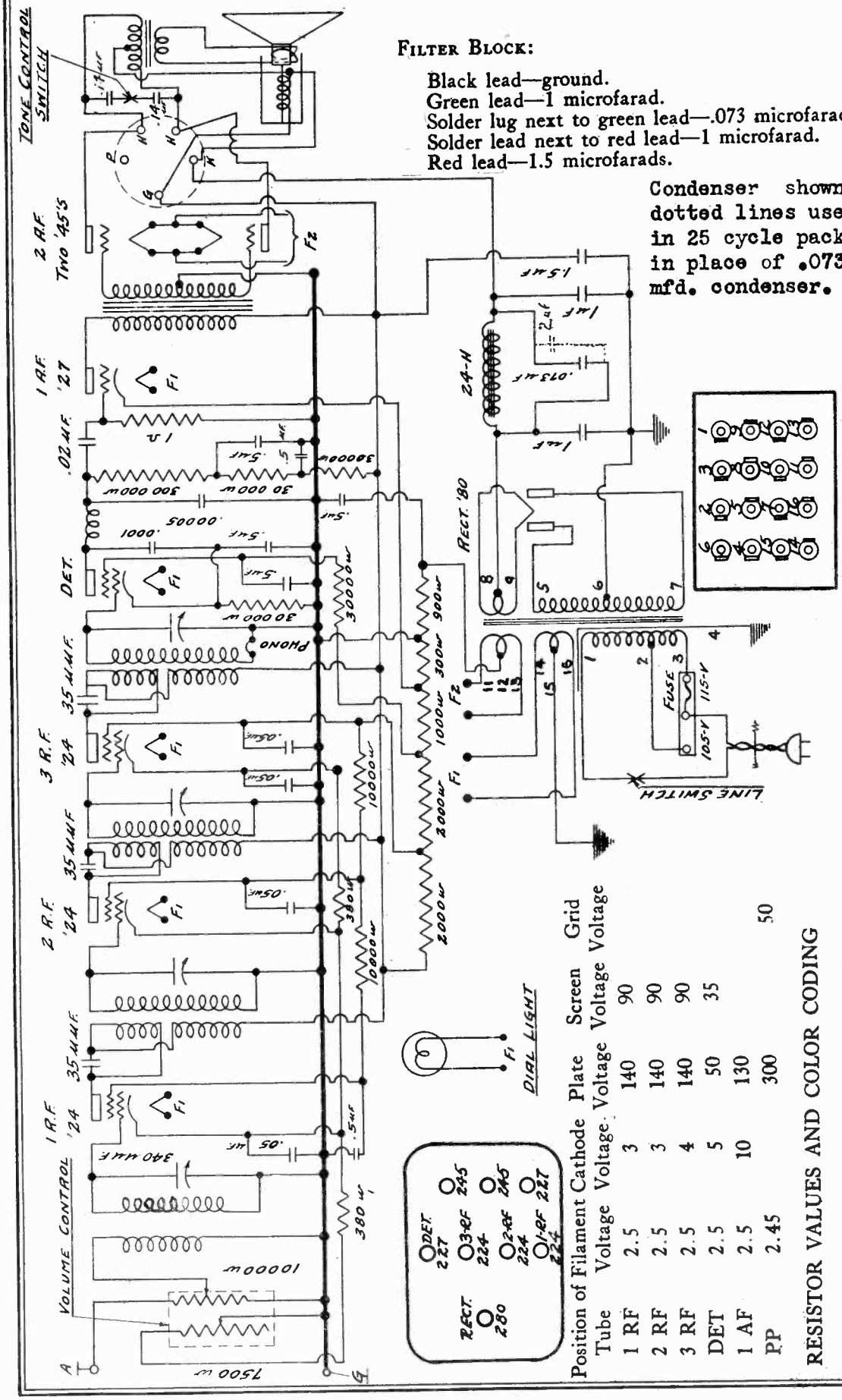
Type of Tube	Position of Tube	Filament Voltage	Cathode Voltage	Plate Voltage	Screen Voltage	Grid Voltage
224	1 RF	2.5	1.6	140	90	
224	2 RF	2.5	1.6	140	90	
224	DET	2.5	5	50	35	
227	1 AF	2.5	10	130		
245	PP	2.45		300		50
245	PP	2.45		300		50

Model D (1929)



ALL-AMERICAN MOHAWK CORP.

MODEL H



Filter Block:

Black lead—ground.
Green lead—1 microfarad.
Solder lug next to green lead—.073 microfarads.
Solder lead next to red lead—1 microfarad.
Red lead—1.5 microfarads.

Condenser shown in dotted lines used in 25 cycle pack in place of .073 mfd. condenser.

RESISTOR VALUES AND COLOR CODING

Resistance	Color Coding
1 megohm	Black with red end
300,000 ohms	Orange with green end
30,000 ohms	White
10,000 ohms	Blue
380 ohms	Blue with black end

Position of Tube	Filament Voltage	Cathode Voltage	Plate Voltage	Screen Voltage	Grid Voltage
1 RF	2.5	3	140	90	
2 RF	2.5	3	140	90	
3 RF	2.5	4	140	90	
DET	2.5	5	50	35	
1 AF	2.5	10	130		
PP	2.45		300		50

FIXED CONDENSER VALUES AND COLOR CODING

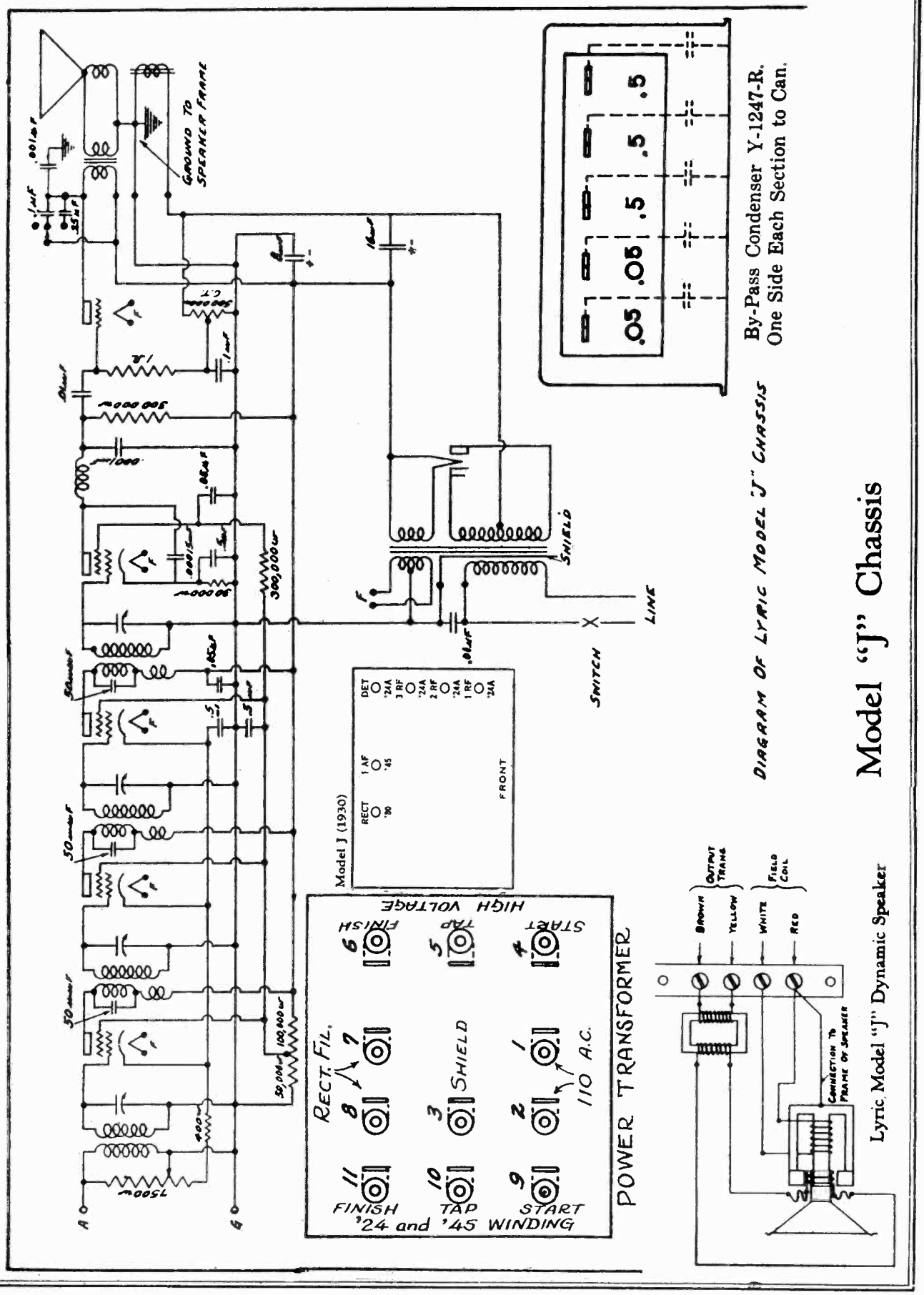
Capacity	Color Coding
35 micro-microfarads	Grey dot
50 micro-microfarads	Blue dot and white dot
100 micro-microfarads	Orchid dot

Five Section By-Pass Block, Lead Type:

Red leads .05 microfarads.
Blue lead .5 microfarads.

MODEL "J"
Schematic

ALL-AMERICAN MOHAWK CORP.



ALL-AMERICAN MOHAWK CORP.

MODEL "J"
Data

Model "J" Chassis

TECHNICAL DATA

The following table shows normal voltages to be found on the LYRIC A. C. Model "J" receiver:

Type of Tube	Position of Tube	Filament Voltage	Cathode Voltage	Plate Voltage	Screen Voltage	Grid Voltage
'24	1 RF	2.25	2.5	250	70	
'24	2 RF	2.25	2.5	250	70	
'24	3 RF	2.25	2.5	250	70	
'24	DET	2.25	3.0	180*	60*	
'45	AUD	2.25		250		—50*
'80	RECT	4.8		360 A.C.		

*Due to the high resistance of the circuit, these voltages can only be accurately measured with an electrostatic voltmeter.

The voltages tabulated above are standard under the following conditions:—

1. Line voltage 114.
2. Volume control in full on position.
3. Antenna disconnected so that no signal is received.
4. Measurements made with a 1000 ohm per volt voltmeter.
5. Except where a minus sign precedes the value, the negative side of the instrument is to be connected to the chassis pan.
6. Tested tubes are used.

Slight variation in voltages will be experienced due to manufacturing tolerance on both the parts of the set and the tubes.

RESISTOR VALUES AND COLOR CODING

Each resistance unit in this set has a distinguishing color code to designate its resistance and current handling capacity. It is recommended that when ordering resistors for replacement purposes, they be specified by colors, resistance and their position in the circuit. This will prevent any possibility of errors.

Resistance	Limits		Watts	Color Code
400 ohms (Wire Wound)	390-	410	1	None
30,000 ohms	27,000-	33,000	1	White or Orange-black-orange
150,000 ohms	135,000-	165,000	1	Violet-green-orange or Brown-green-yellow
300,000 ohms	270,000-	330,000	1	Orange-green end or Orange-black-yellow
500,000 ohms	450,000-	550,000	1	Red-green-yellow or Green-black-yellow
1,000,000 ohms	750,000-	1,250,000	1	Black-red end or Brown-black-green

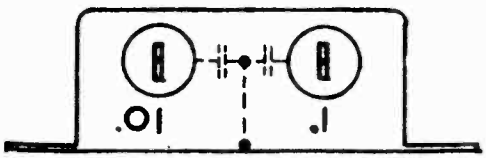
The color coding listed above is in accordance with R. M. A. standards wherever possible. The first color indicates the body, the second the end and the third the band or dot.

FIXED CONDENSER VALUES AND COLOR CODING

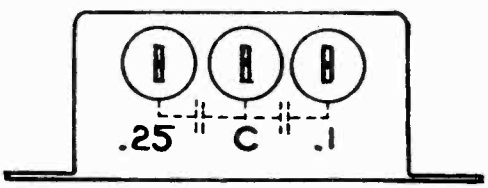
The small condensers in this chassis are color coded and should be ordered the same way as resistors.

Capacitance	Limits	Color Code
.00005 mfd.	.000045-.000055	Grey Dot
.0001	.00009 -.00011	Purple Dot
.00015	.000135-.000165	Yellow Dot
.001	.0009 -.0011	Blue Dot
.01	.009 -.011	None

Diagrams show the connections of the various tone control and by-pass condenser blocks. The electrolytic condensers may be distinguished by the diameters of their cans. The 16 mfd. unit is in a 2½" container while the 8 mfd. unit is in a 1⅜" container.



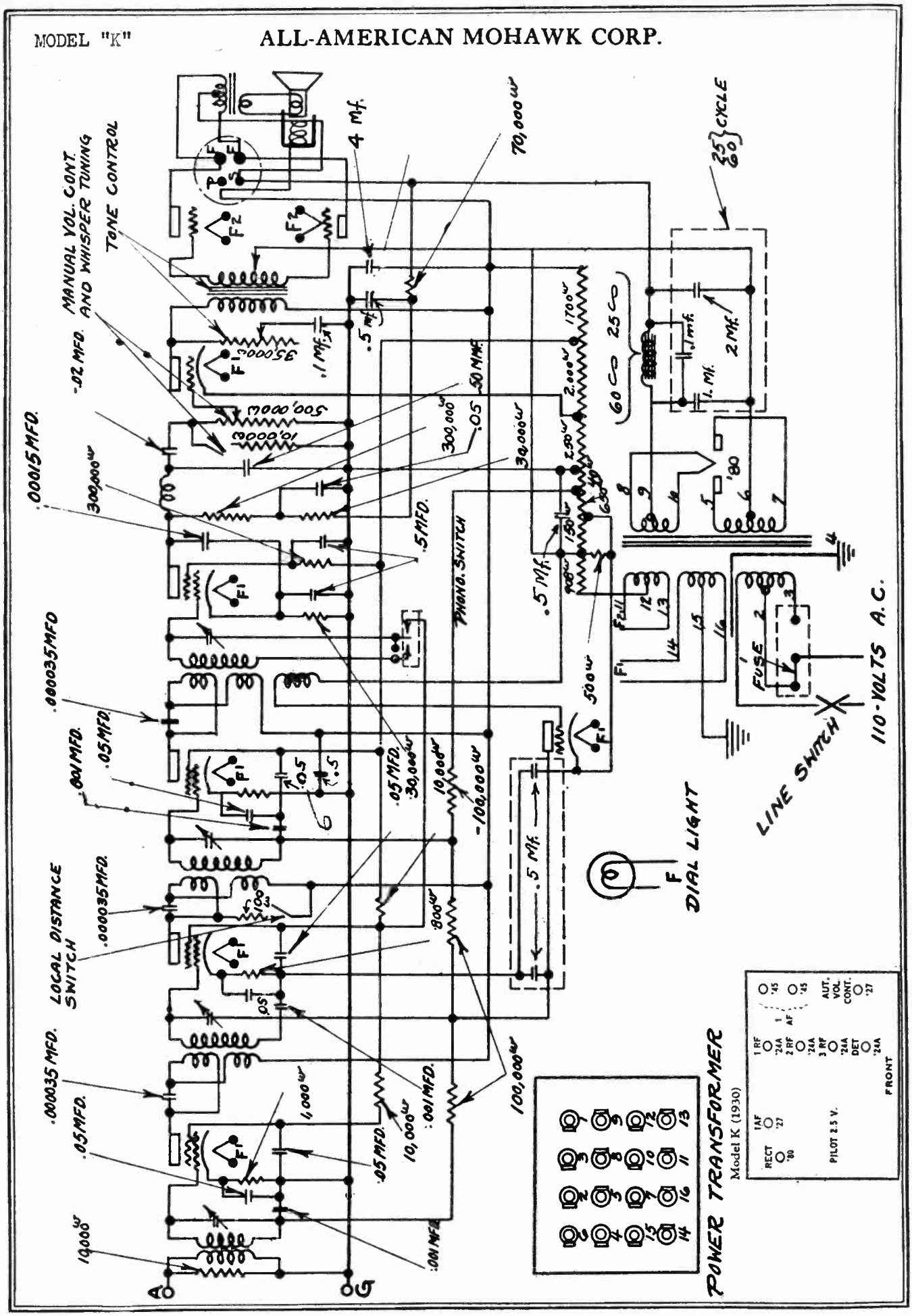
Aux. By-Pass Condenser Y-1276-R.
One Side Each Section to Can.



Tone Control Condenser Y-1279-R.
One Side Each Section to Central Lug.

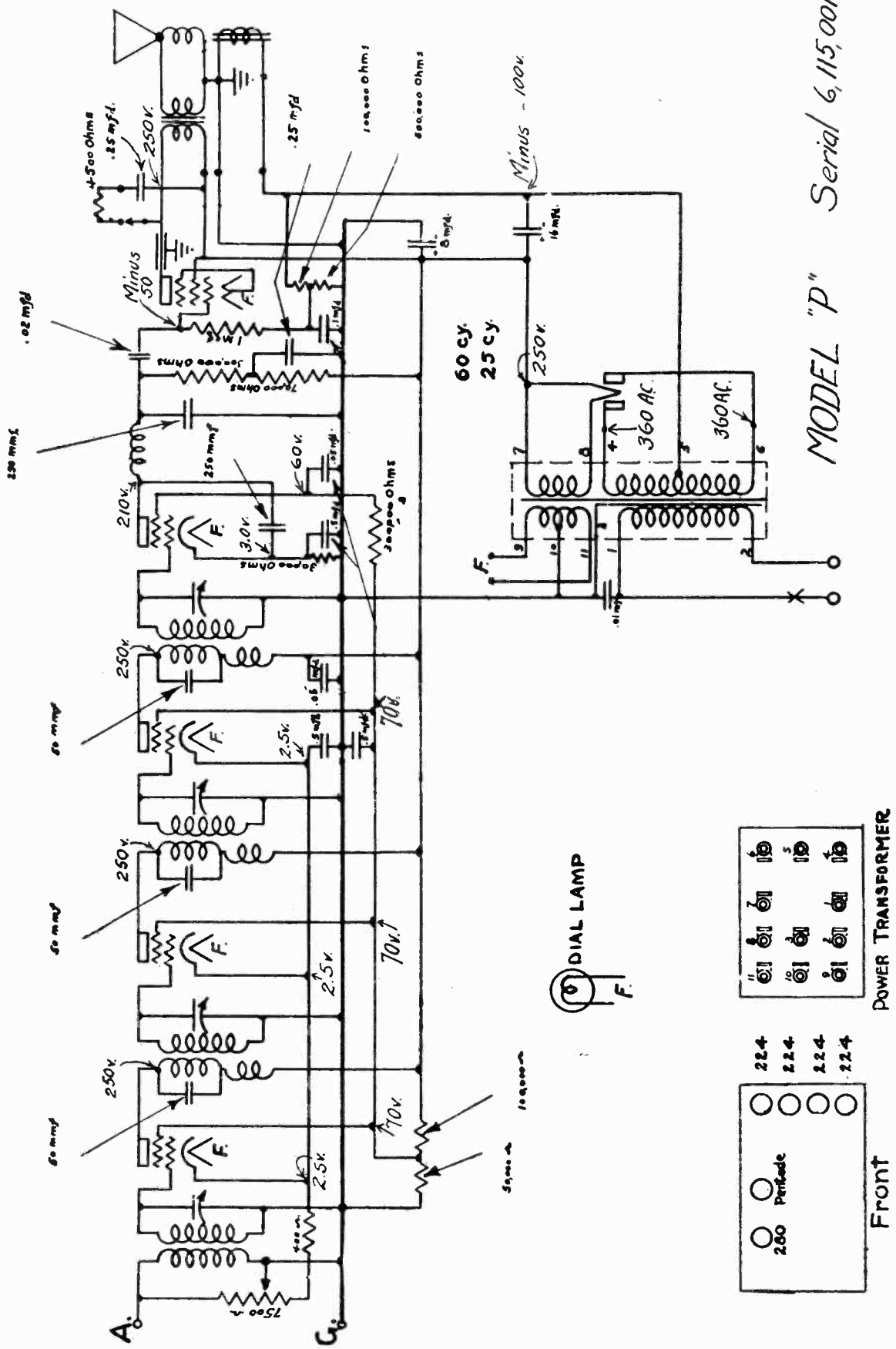
MODEL "K"

ALL-AMERICAN MOHAWK CORP.



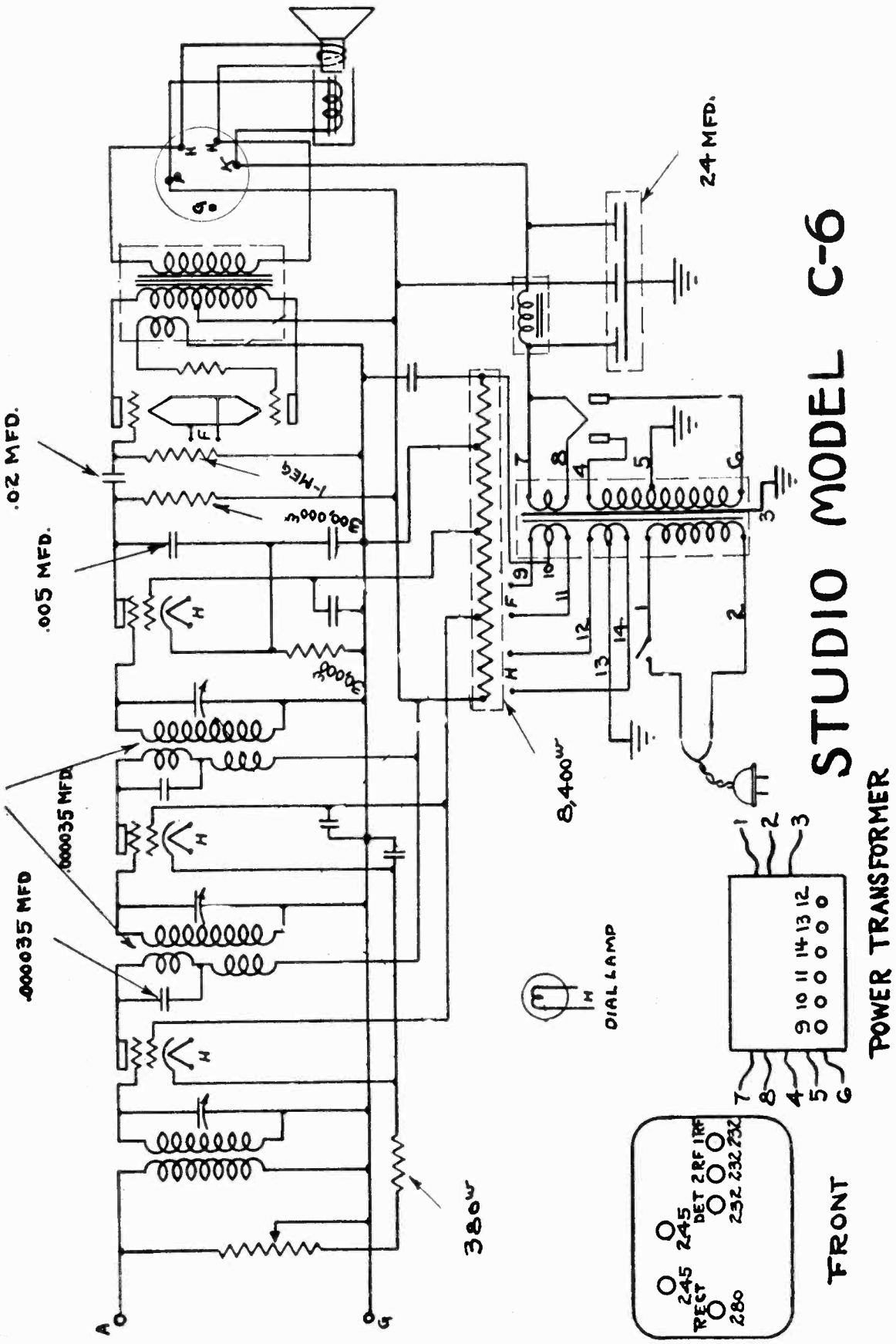
MODEL "P"

ALL-AMERICAN MOHAWK CORP.



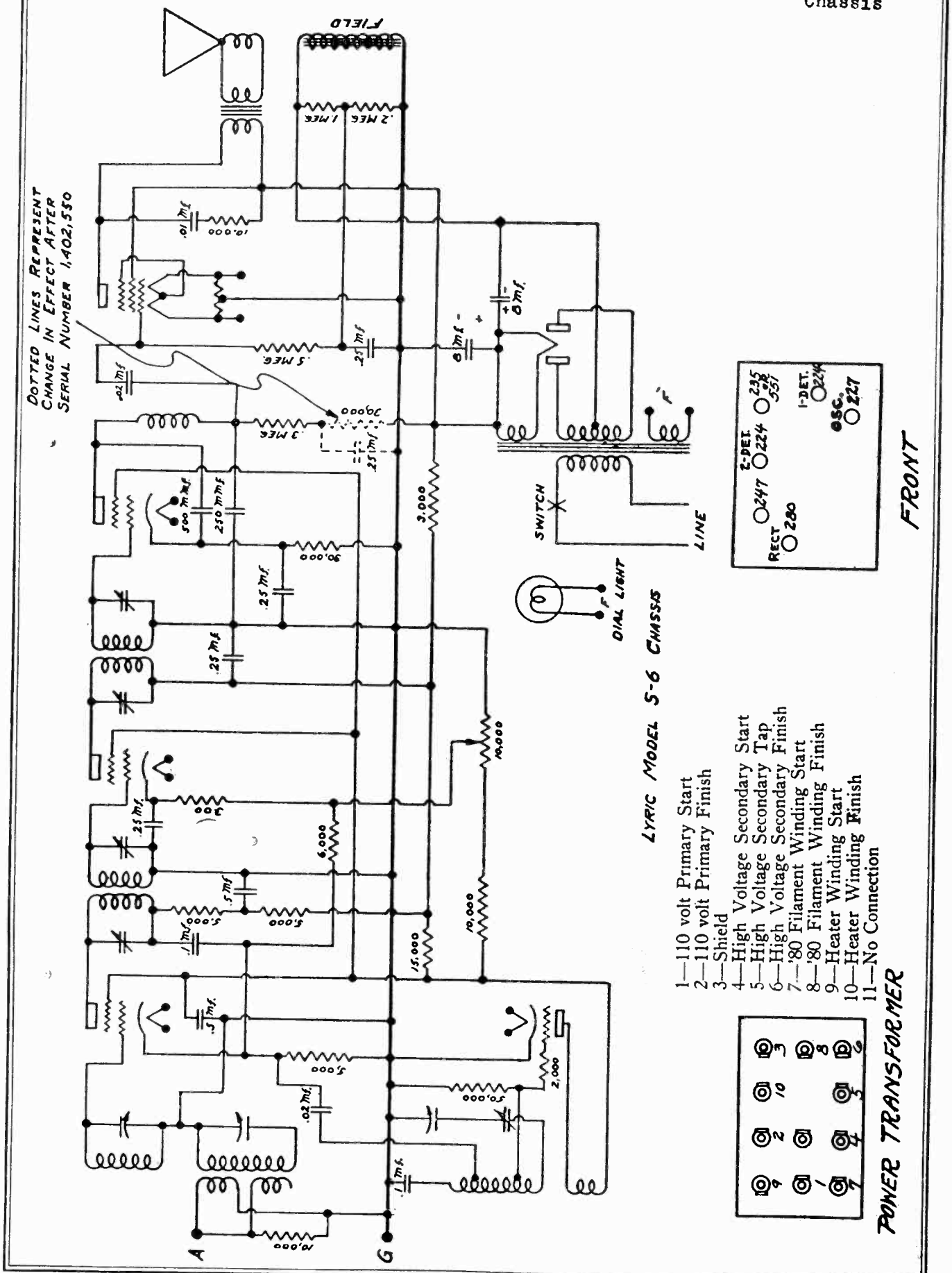
MODEL
Schematic C-6

ALL-AMERICAN MOHAWK CORP.



ALL-AMERICAN MOHAWK CORP.

MODEL S-6
Chassis



DOTTED LINES REPRESENT CHANGE IN EFFECT AFTER SERIAL NUMBER 1,402,550

LYRIC MODEL S-6 CHASSIS

1—110 volt Primary Start
2—110 volt Primary Finish
3—Shield
4—High Voltage Secondary Start
5—High Voltage Secondary Tap
6—High Voltage Secondary Finish
7—'80 Filament Winding Start
8—'80 Filament Winding Finish
9—Heater Winding Start
10—Heater Winding Finish
11—No Connection

POWER TRANSFORMER

MODEL S-6
Data

ALL-AMERICAN MOHAWK CORP.

Model S-6

TECHNICAL DATA

Resistors:

All carbon resistors used in these chassis are color coded in accordance with the R.M.A. code.

Resistance	*Color*	*Capacity*	*Tolerance*	*Part No.*
300 ohms	Orange-black-brown	1/3 watt	10%	14-1773
2,000 ohms	Red-black-red	1/3 watt	10%	14-1806
3,000 ohms	Orange-black-red	1 watt	10%	14-1498
5,000 ohms	Green-black-red	1/3 watt	10%	14-1600
6,000 ohms	Blue-black-red	1/3 watt	10%	14-1502
10,000 ohms	Brown-black-orange	1/3 watt	10%	14-1599
15,000 ohms	Brown-green-orange	3 watt	10%	14-1745
30,000 ohms	Orange-black-orange	1/3 watt	10%	14-1555
50,000 ohms	Green-black-orange	1/3 watt	10%	14-1544
100,000 ohms	Brown-black-yellow	1/3 watt	10%	14-1541
200,000 ohms	Red-black-yellow	1/3 watt	10%	14-1730
300,000 ohms	Orange-black-yellow	1/3 watt	10%	14-1556
500,000 ohms	Green-black-yellow	1/3 watt	10%	14-1531

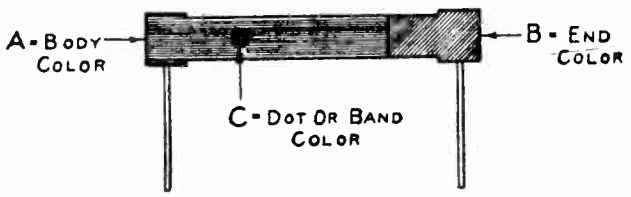
One-third watt resistors are approximately ¾" long x ¼" diameter.

One watt resistors are approximately 1¾" long x ¼" diameter.

Three watt resistors are approximately 1¾" long x ⅜" diameter.

RESISTOR COLOR CODE

All resistors on LYRIC Model "S" receivers have their resistance value indicated by the RMA Color Code which is described below.



A—Body color denotes first significant figure.

B—End color denotes second significant figure.

C—Dot or band color denotes number of zeros following second significant figure.

0—Black	5—Green
1—Brown	6—Blue
2—Red	7—Violet
3—Orange	8—Grey
4—Yellow	9—White

A few samples of this code are given below.

Body Color	*End Color*	*Dot Color*	*Resistance*
Orange	Black	Yellow	300,000 ohms
Brown	Green	Orange	15,000 ohms
Violet	Green	Red	7,500 ohms
Orange	Black	Brown	300 ohms

Condensers:

Fixed mica condensers used in these receivers are color coded to indicate capacity.

Capacity	*Color*	*Tolerance*	*Part Number*
.0005 Mfd.	Green, Black, Brown	10%	14-1186

Paper bypass condensers used in these receivers are of the cub type and are plainly marked to show capacity In addition each unit carries a distinguishing color dot indicating the voltage rating as listed below:

Voltage	*Color*
200	Green dot or label
400	Red dot or label
600	Yellow dot or label

Normal Working Voltages:

1. Line voltage 115 volts.
2. Volume control in full "ON" position.
3. Antenna disconnected so that no signal is received.
4. Measurements made with 1000 ohm per volt meter.
5. Except where a minus sign preceeds the reading the NEGATIVE SIDE OF THE INSTRUMENT IS TO BE CONNECTED TO THE CHASSIS PAN.
6. Tested tubes are used.

In a normal receiver all voltages will be within 5% of the values listed below:—

Position of tube	*Type of tube*	*Filament Voltage*	*Cathode Voltage*	*Plate Voltage*	*Screen Voltage*	*Grid Voltage*
1st Det.	-24	2.5	4.2	185	70	0
Oscillator	-27	2.5	0	70		0
I.F. Amp.	-51 or -35	2.5	1.8	195	70	0
2nd Det.	-24	2.5	4.5	195**	70	0
Output	-47	2.5		225	245 (note)	-17**

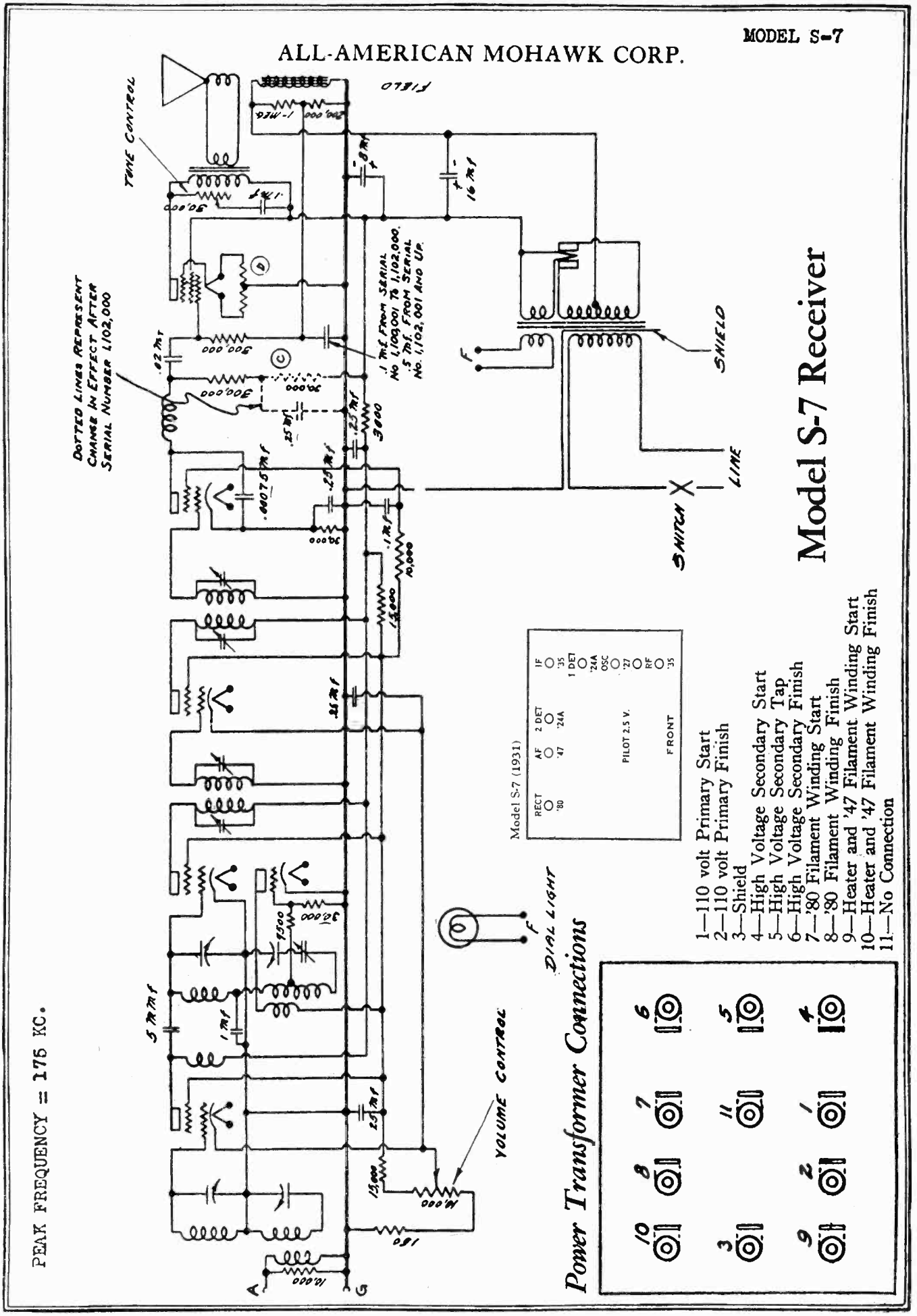
Speaker Field Current—49 M.A.

Note—Screen of pentode is connected to cathode pin on socket.

** Owing to the high resistance of the circuit these voltages can be measured accurately only with an electrostatic voltmeter.

MODEL S-7

ALL-AMERICAN MOHAWK CORP.



MODEL S-7
Data

ALL-AMERICAN MOHAWK CORP.

Model S-7

TECHNICAL DATA

Resistors:

All carbon resistors used in these chassis are color coded in accordance with the R.M.A. code. In the following table the nominal resistance, power capacity, test limits, color marks and part numbers are listed.

Resistance	*Color*	*Capacity*	*Tolerance*	*Part No.*
150 ohms	Brown-green-brown	1/3 watt	10%	11-1760 or 11-1603
3,000 ohms	Orange-black-red	2 watt	10%	11-1759
4,500 ohms	Yellow-green-red	1/3 watt	10%	11-1542
7,500 ohms	Violet-green-red	1/3 watt	10%	11-1642
10,000 ohms	Brown-black-orange	1/3 watt	10%	11-1599
15,000 ohms	Brown-green-orange	1/3 watt	10%	11-1601
15,000 ohms	Brown-green-orange	2 watt	10%	11-1745
30,000 ohms	Orange-black-orange	1/3 watt	10%	11-1555
200,000 ohms	Red-black-yellow	1/3 watt	10%	11-1730
300,000 ohms	Orange-black-yellow	1/3 watt	10%	11-1556
500,000 ohms	Green-black-yellow	1/3 watt	10%	11-1531

One third watt resistors are approximately ¾" long by ¼" in diameter.

One watt resistors are approximately 1¾" long by ¼" in diameter.

Two watt resistors are approximately 1¾" long by ⅜" in diameter.

Condensers:

Fixed mica condensers used in these receivers are color coded to indicate capacity. In the following table nominal capacity, test limits, color code and part number are listed.

Capacity	*Color*	*Tolerance*	*Part Number*
.00075 Mfd.	Violet, Green, Brown	10%	11-1801
5 m. mfd.	Black, Green, Black	10%	11-1595

Paper bypass condensers used in these receivers are of the cub type and are plainly marked to show capacity. In addition each unit carries a distinguishing color dot indicating the voltage rating as listed below.

Voltage	*Color*
200	Green dot or label
400	Red dot or label
600	Yellow dot or label

Normal Working Voltages:

1. Line voltage 115 volts.
2. Volume control in full "ON" position.
3. Antenna disconnected so that no signal is received.
4. Measurements made with 1000 ohm per volf meter.
5. Except where a minus sign preceeds the reading the NEGATIVE SIDE OF THE INSTRUMENT IS TO BE CONNECTED TO THE CHASSIS PAN.
6. Tested tubes are used.

In a normal receiver all voltages will be within 5% of the values listed below:

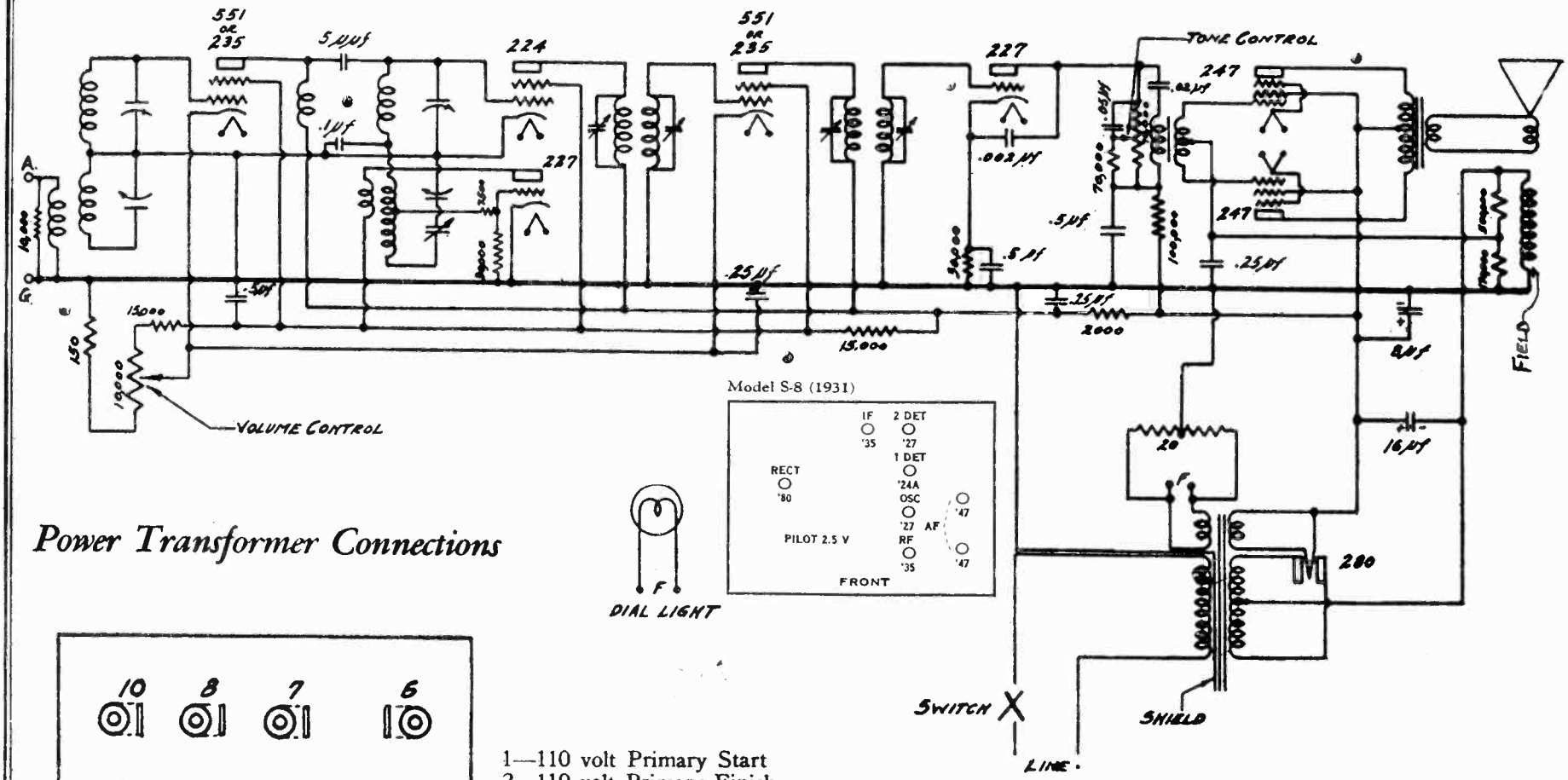
Position of tube	*Type of tube*	*Filament Voltage*	*Cathode Voltage*	*Plate Voltage*	*Screen Voltage*	*Grid Voltage*
R.F. Amp.	-51 or 35	2.50 A. C.	2.00	195.0	70.0	0
1st Det.	-24	2.50 A. C.		195.0	70.0	0
Oscillator	-27	2.50 A. C.	0	70.0		0
I.F. Amp.	-51 or 35	2.50 A. C.	2.00	195.0	70.0	0.
2nd. Det.	-24	2.50 A. C.	4.50	168.0 **	70.0	0
Output	-47	2.50 A. C.		230.0	250.0 (note)	-17.0**
Rectifier	-80	5.00 A. C.		350.0 A. C.		

Speaker field current—57 M. A.

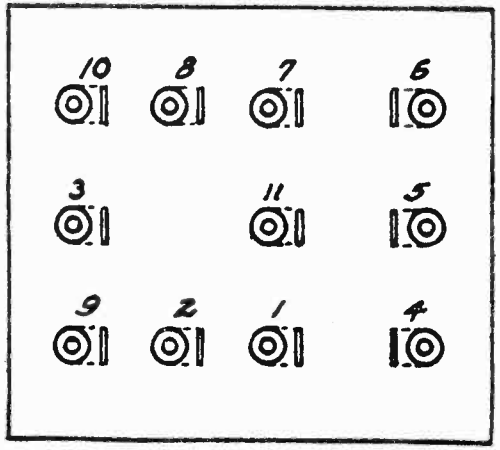
** Owing to the high resistance of the circuit these voltages can be measured accurately only with an electrostatic voltmeter.

Note—Screen of pentode is connected to cathode pin on socket.

PEAK FREQUENCY = 175 KC.



Power Transformer Connections



1—110 volt Primary Start
2—110 volt Primary Finish
3—Shield
4—High Voltage Secondary Start
5—High Voltage Secondary Tap
6—High Voltage Secondary Finish
7—'80 Filament Winding Start
8—'80 Filament Winding Finish
9—Heater and '47 Filament Winding Start
10—Heater and '47 Filament Winding Finish
11—No Connection

Model S-8 Receiver

ALL-AMERICAN MOHAWK CORP. MODEL S-8

MODEL S-8
Data

ALL-AMERICAN MOHAWK CORP

Model S-8

TECHNICAL DATA

Resistors:

All carbon resistors used in these chassis are color coded in accordance with the R.M.A. code. In the following table the nominal resistance, power capacity, test limits, color marks and part numbers are listed.

Resistance	*Color*	*Capacity*	*Tolerance*	*Part No.*
150 ohms	Brown-green-brown	1/3 watt	10%	12-1603 or 12-1760
2,000 ohms	Red-black-red	3 watt	10%	12-1777
7,500 ohms	Violet-black-red	1/3 watt	10%	12-1642
10,000 ohms	Brown-black-orange	1/3 watt	10%	12-1599
15,000 ohms	Brown-green-orange	1/3 watt	10%	12-1601
15,000 ohms	Brown-green-orange	3 watt	10%	12-1745
30,000 ohms	Orange-black-orange	1/3 watt	10%	12-1555
70,000 ohms	Violet-black-orange	1/3 watt	10%	12-1558
100,000 ohms	Brown-black-yellow	1/3 watt	10%	12-1614
170,000 ohms	Brown-violet-yellow	1/3 watt	10%	12-1734
500,000 ohms	Green-black-yellow	1/3 watt	10%	12-1531

One-third watt resistors are approximately ¾" long by ¼" in diameter.

One watt resistors are approximately 1¾" long by ¼" diameter.

Three watt resistors are approximately 1¾" long by ⅜" in diameter.

Condensers:

Fixed mica condensers used in these receivers are color coded to indicate capacity. In the following table nominal capacity, test limits, color code and part numbers are listed.

Capacity	*Color*	*Tolerance*	*Part Number*
5 m. mfd.	Black, Green, Black	10%	12-1595
.002	Red, Black, Red	10%	12-1625

Paper bypass condensers used in these receivers are of the cub type and are plainly marked to show capacity. In addition each unit carries a distinguishing color dot indicating the voltage rating as listed below.

Voltage	*Color*
200	Green dot or label
400	Red dot or label
600	Yellow dot or label

Part numbers for these units are given on the schematic diagram at the end of the manual.

Normal Working Voltages:

1. Line voltage 115 volts.
2. Volume control in full "On" position.
3. Antenna disconnected so that no signal is received.
4. Measurements made with 1000 ohm per volt meter.
5. Except where a minus sign preceeds the reading the NEGATIVE SIDE OF THE INSTRUMENT IS TO BE CONNECTED TO THE CHASSIS PAN.
6. Tested tubes are used.

In a normal receiver all voltages will be within 5% of the values listed below:—

Position of tube	*Type of tube*	*Filament Voltage*	*Cathode Voltage*	*Plate Voltage*	*Screen Voltage*	*Grid Voltage*
R.F. Amp.	-51 or -35	2.5 A. C.	2.1	200	70	0
1st Det.	-24	2.5 A. C.		205	70	0
Oscillator	-27	2.5 A. C.	0	70		0
I.F. Amp.	-51 or -35	2.5 A. C.	2.1	200	70	0
2nd Det.	-24	2.5 A. C.	10	125		0
Output	-47	2.5 A. C.		235	250 (note)	-17.0**

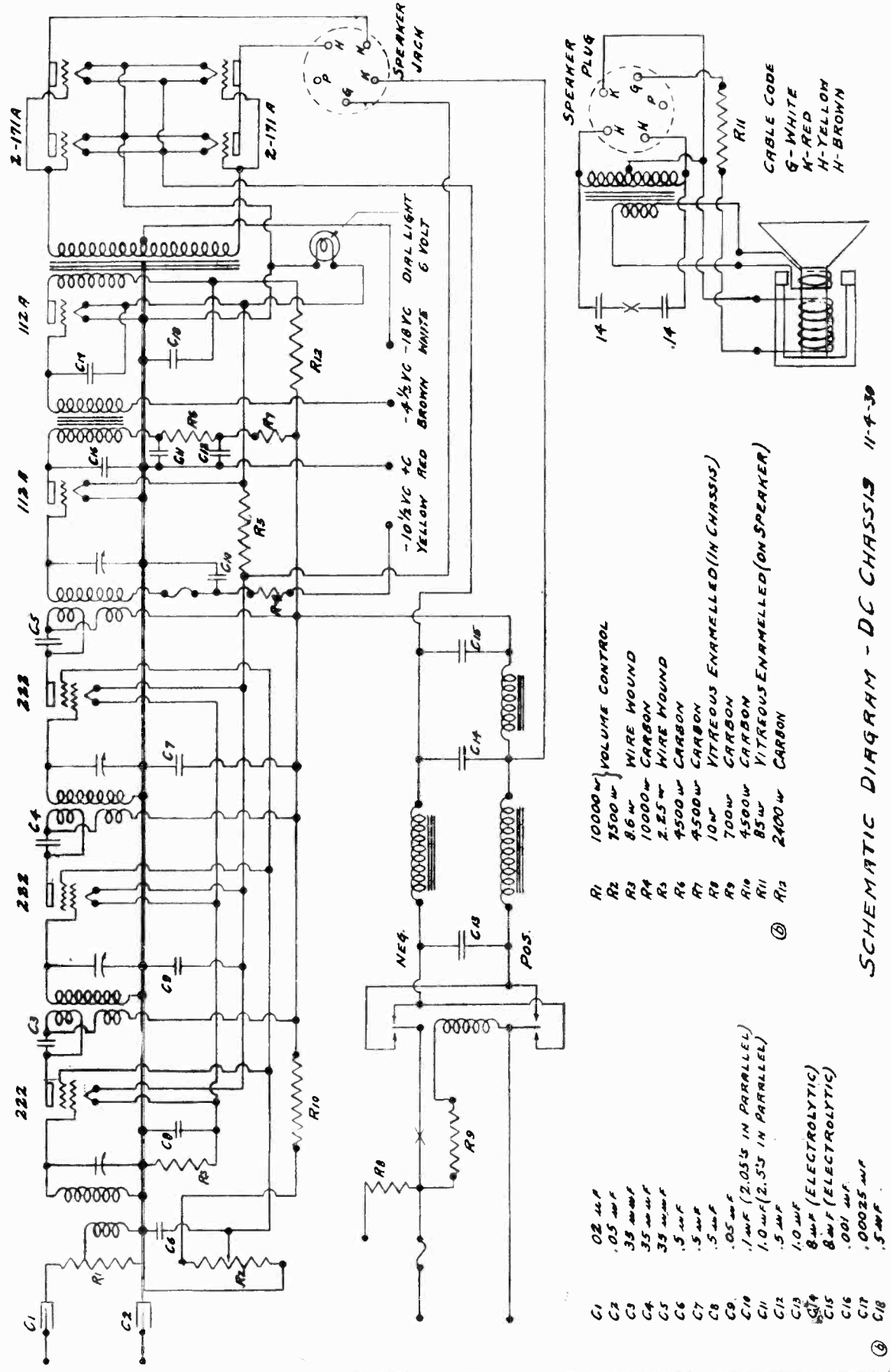
Speaker field current—91 M.A.

Note—Screen of pentode is connected to cathode pin on socket.

**Owing to the high resistance of the circuit these voltages can be measured accurately only with an electrostatic voltmeter.

MODEL - DC

ALL-AMERICAN MOHAWK CORP

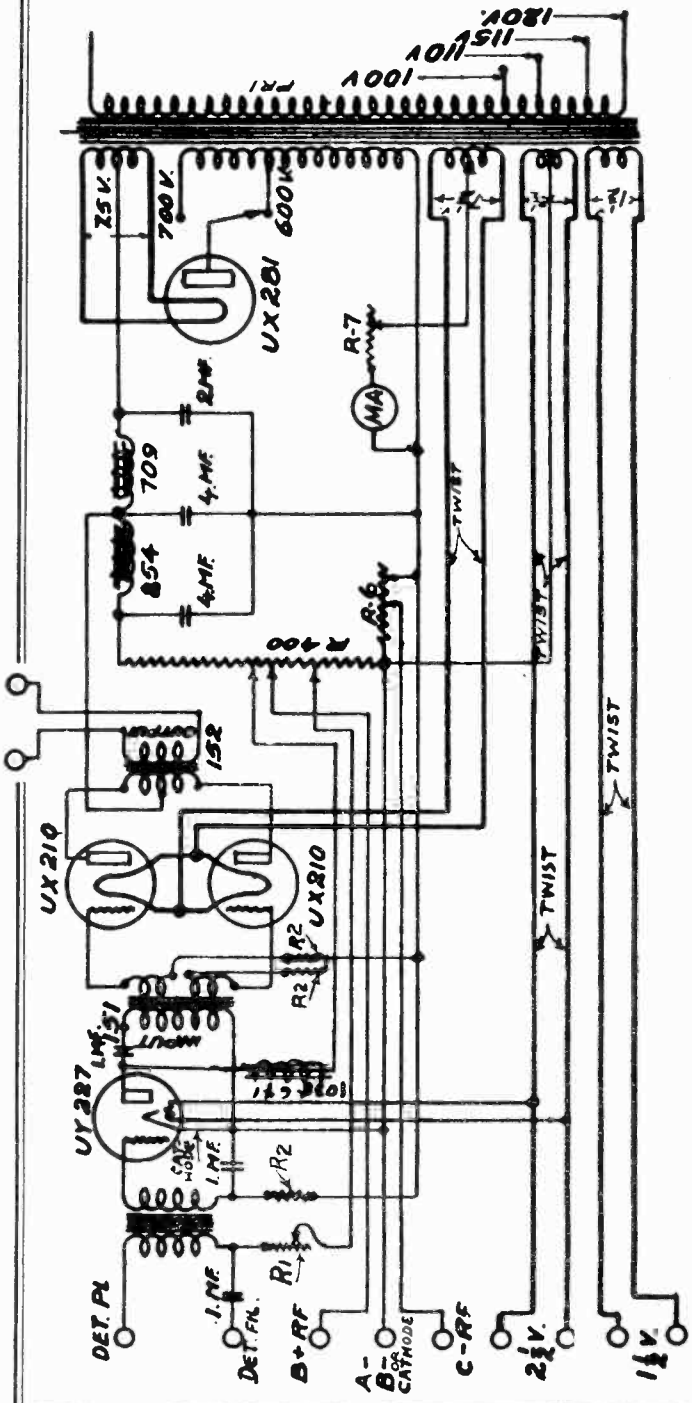


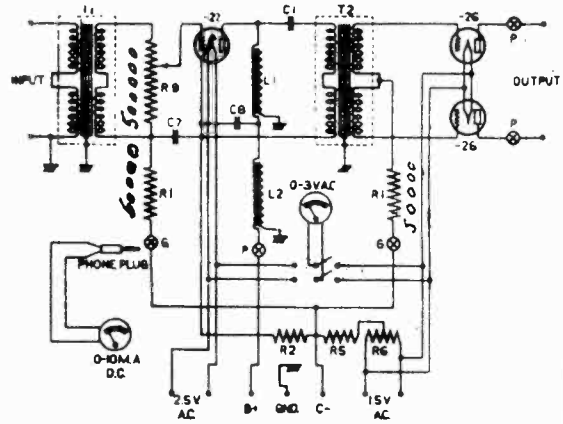
R1	10000 w	VOLUME CONTROL	
R2	1500 w		
R3	8.6 w	WIRE WOUND	
R4	10000 w	CARBON	
R5	2.25 w	WIRE WOUND	
R6	4500 w	CARBON	
R7	4500 w	CARBON	
R8	10 w	VITREOUS ENAMELLED (IN CHASSIS)	
R9	700 w	CARBON	
R10	4500 w	CARBON	
R11	85 w	VITREOUS ENAMELLED (ON SPEAKER)	
R12	2400 w	CARBON	

C1	.02 mf	
C2	.05 mf	
C3	.35 mmf	
C4	.35 mmf	
C5	.35 mmf	
C6	.5 mf	
C7	.5 mf	
C8	.5 mf	
C9	.05 mf	
C10	.1 mf (2.05 in PARALLEL)	
C11	1.0 mf (2.5 in PARALLEL)	
C12	.5 mf	
C13	1.0 mf	
C14	8 mf (ELECTROLYTIC)	
C15	8 mf (ELECTROLYTIC)	
C16	.001 mf.	
C17	.00025 mf	
C18	.5 mf	

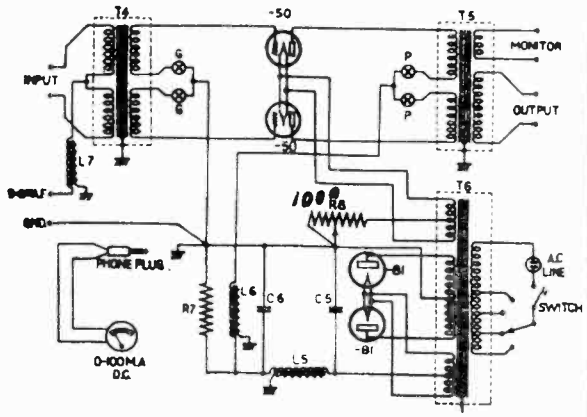
SCHEMATIC DIAGRAM - DC CHASSIS 11-4-30

AMERICAN TRANSFORMER CO. MODEL 25-A Amp'ier

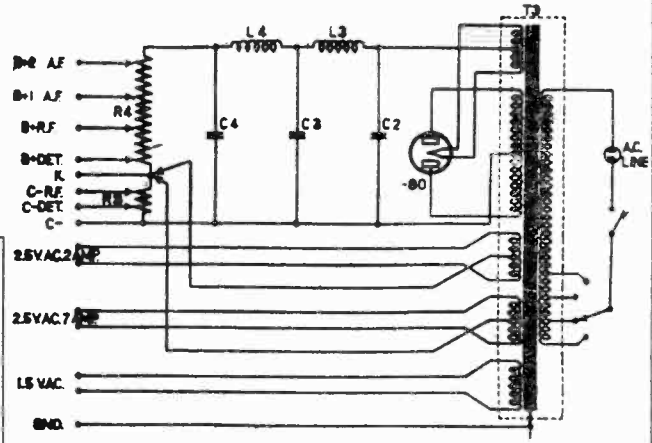




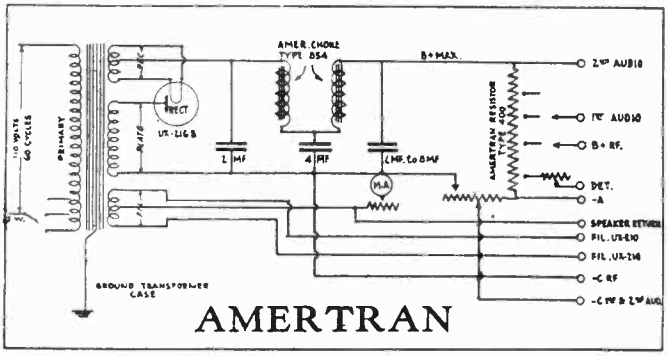
25-A Power Amplifier
(A Unit)



25-A Power Amplifier
(PA Unit)

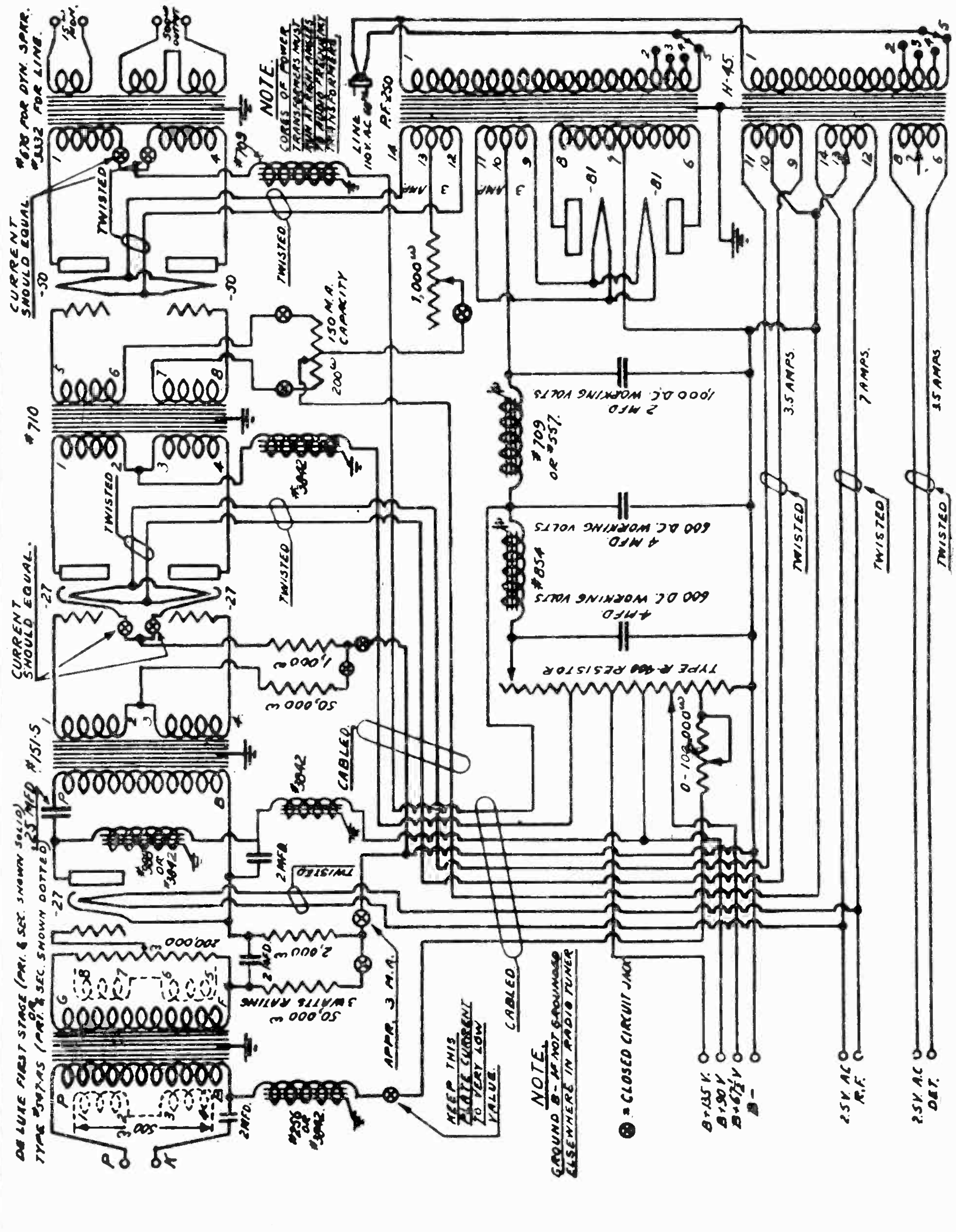


25-A Power Amplifier
(P Unit)



MODEL 250 Amertran Power Amplifier

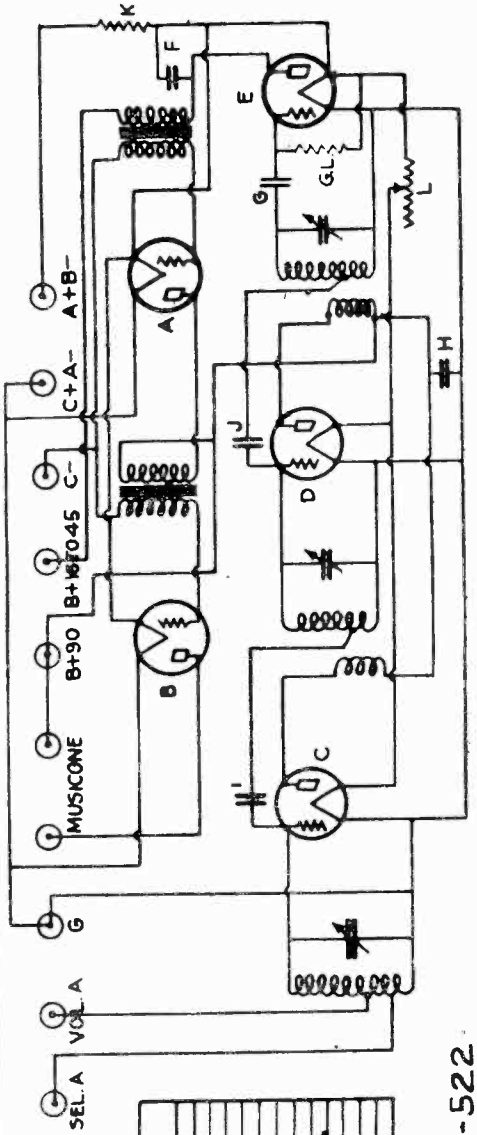
AMERICAN TRANSFORMER CO.

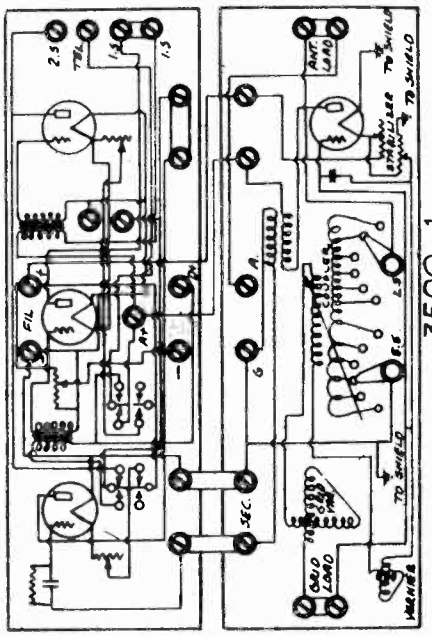


250 POWER AMPLIFIER

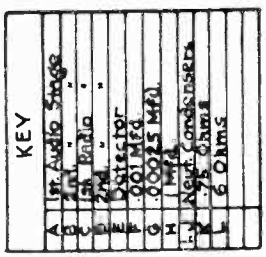
AMRAD CORPORATION

MODEL S-522
MODEL 3500-1
MODEL 3500-2

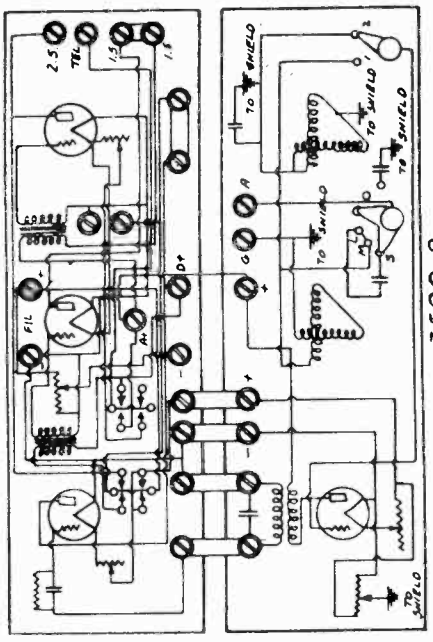




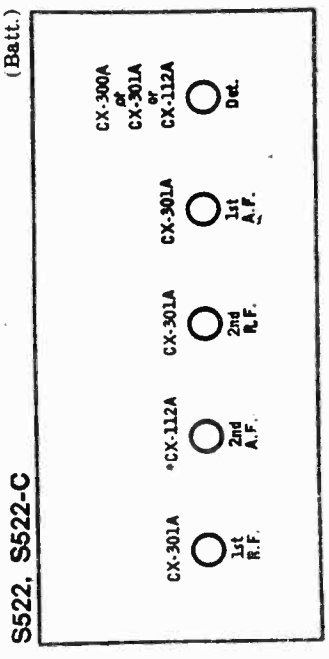
INTERNAL WIRING OF DETECTOR & STAGE AMPLIFIER 3634
& BROADCAST TUNER 3475 AS VIEWED FROM REAR OF INSTRUMENT



S-522

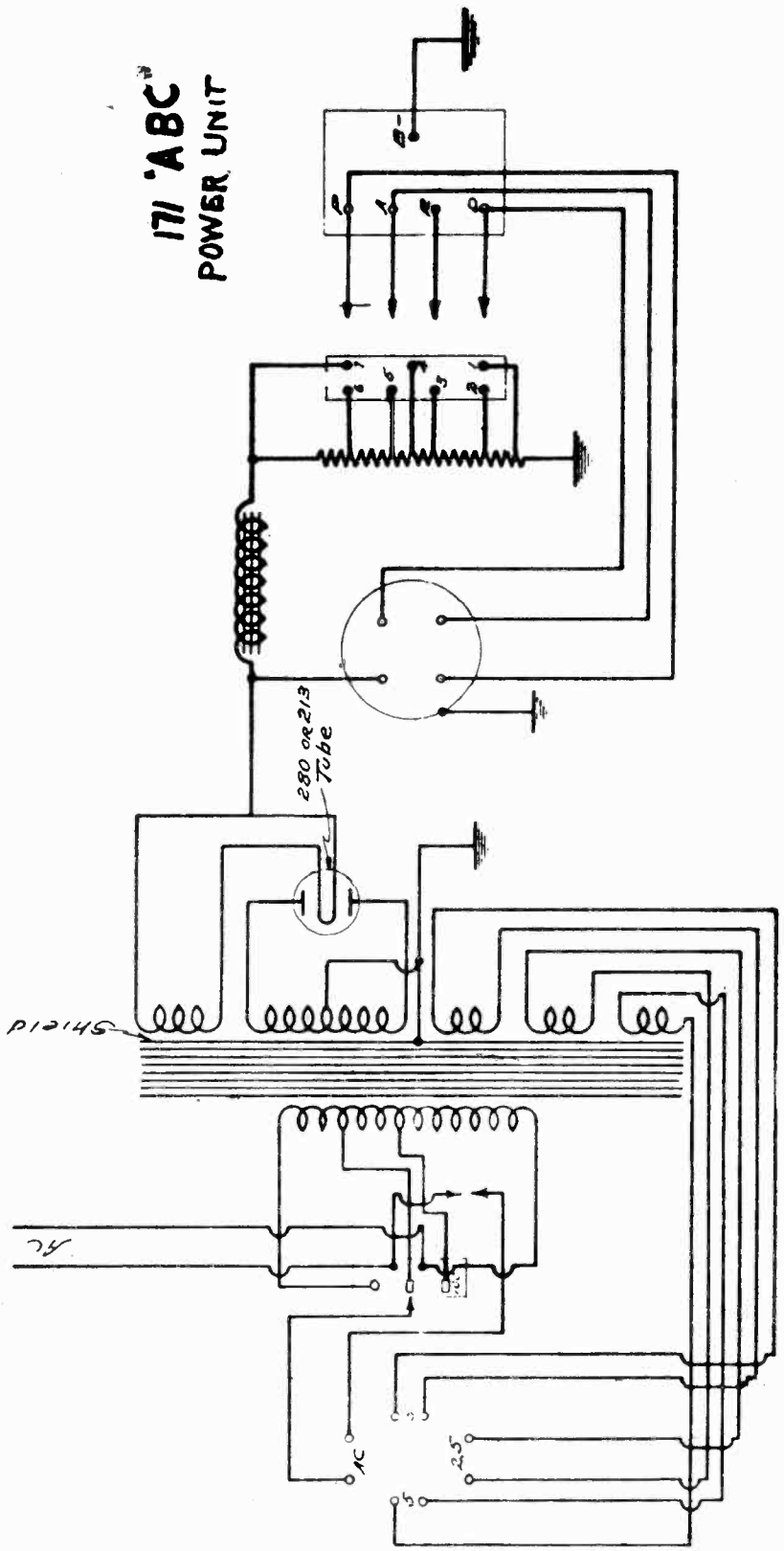


INTERNAL WIRING OF DETECTOR & STAGE AMPLIFIER 3634 AND
BROADCAST TUNER 3730 AS VIEWED FROM FRONT OF INSTRUMENTS



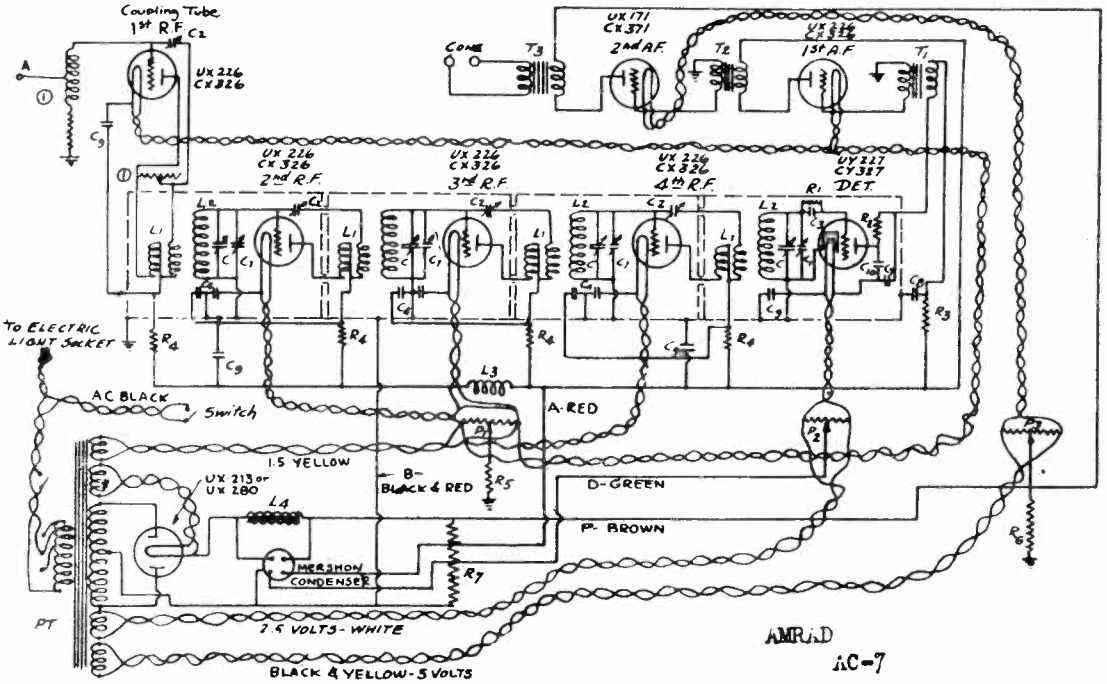
MODEL 171 ABC
Power Pack

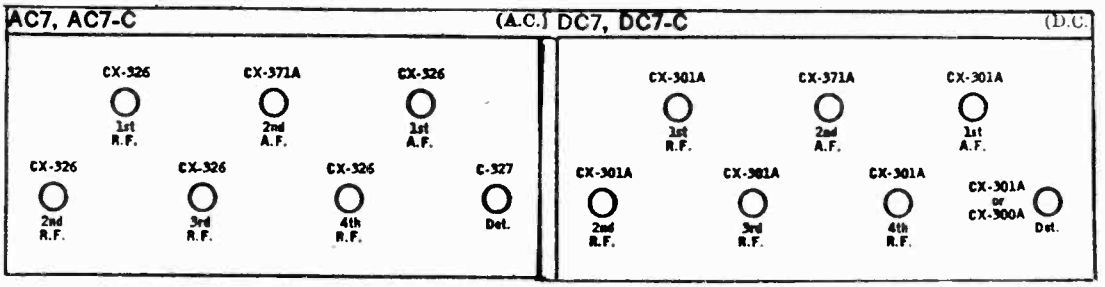
AMRAD CORPORATION

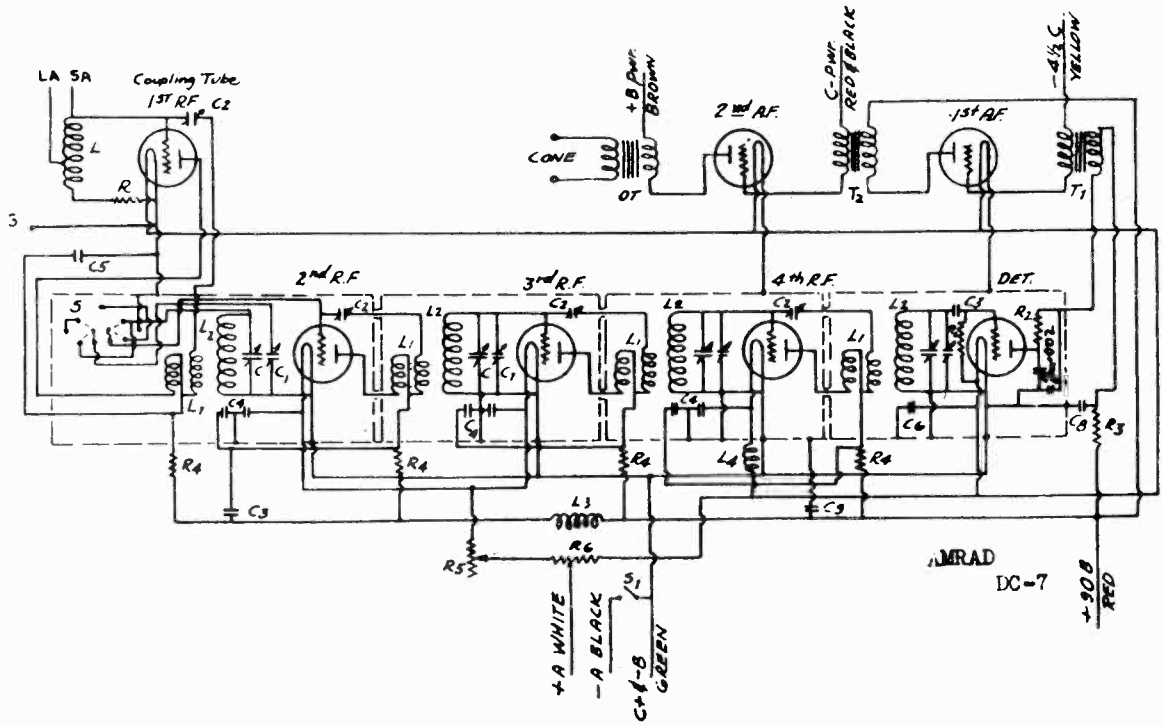


AMRAD CORPORATION

MODEL AC-7
MODEL DC-7

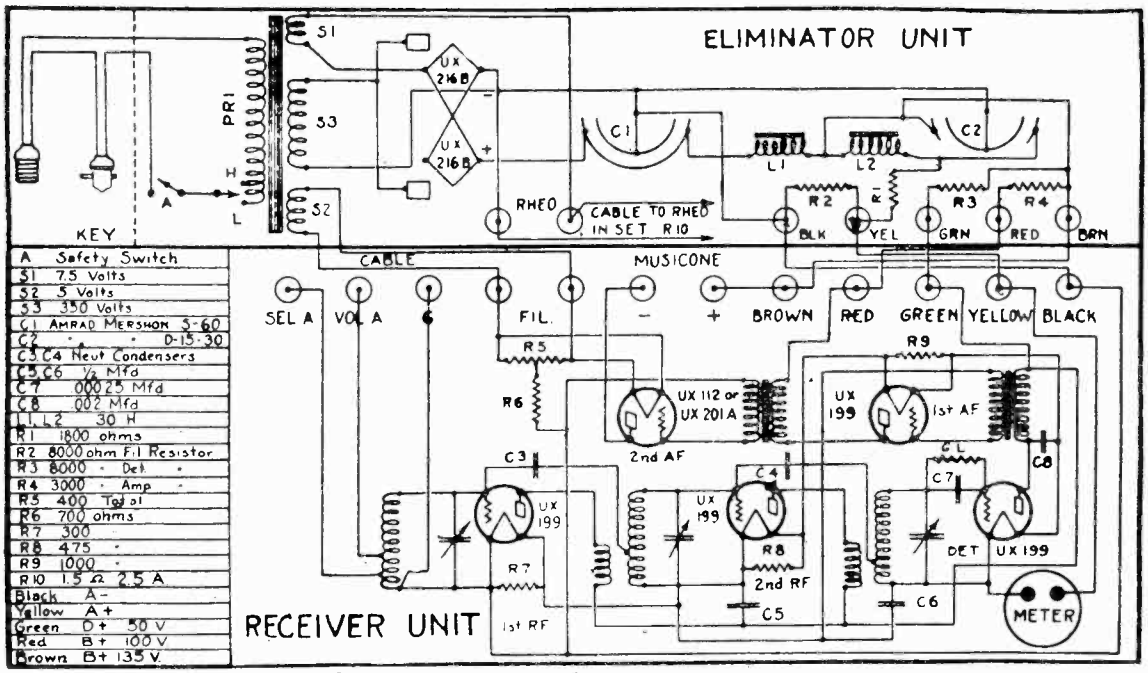






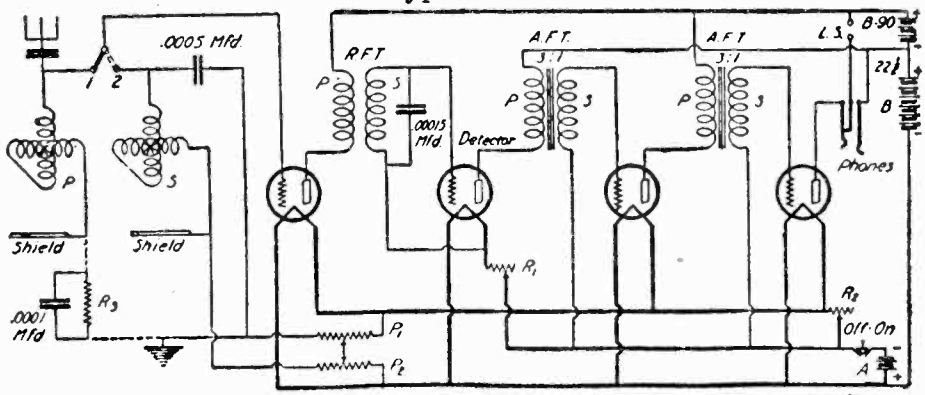
MODEL AC-5
MODEL 80,82,83
MODEL Inductrol

AMRAD CORPORATION

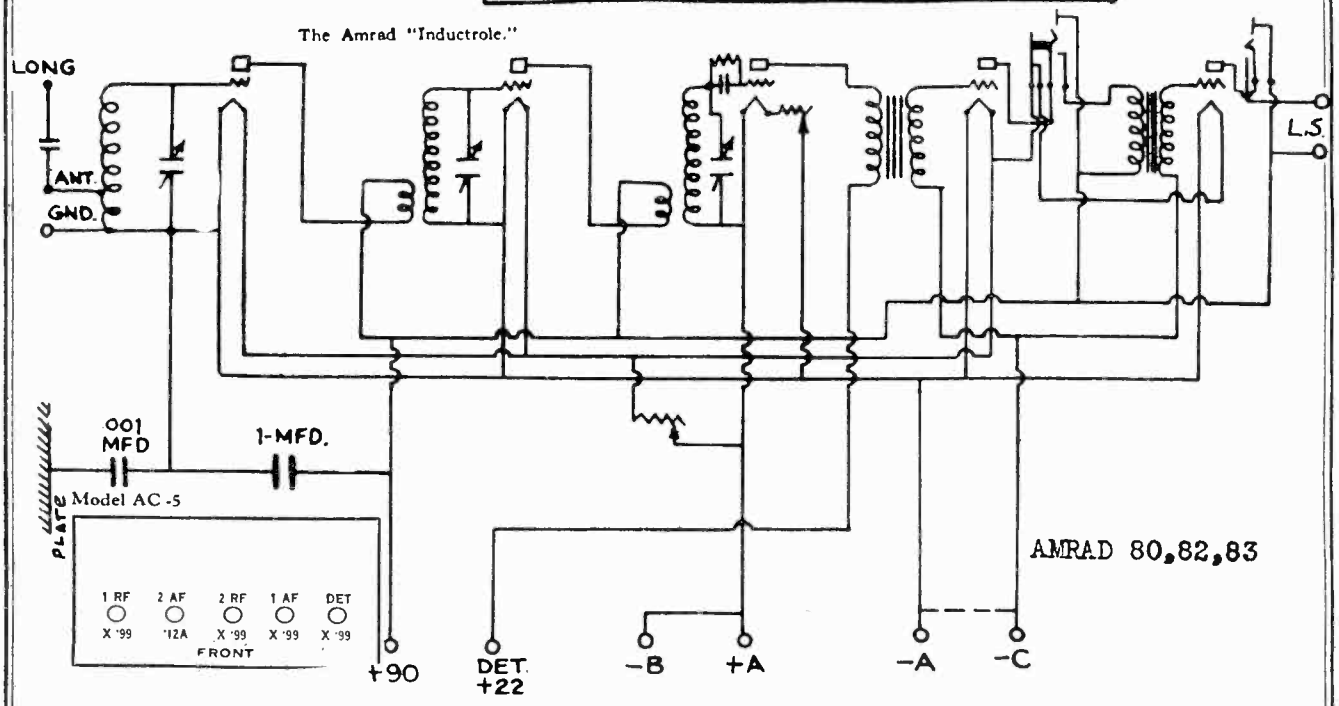


A	Safety Switch
S1	7.5 Volts
S2	5 Volts
S3	350 Volts
C1	AMRAD MERSHON 5-60
C2	" " D-15-30
C3 C4	Neut Condensers
C5 C6	½ Mfd
C7	00025 Mfd
C8	002 Mfd
L1 L2	30 H
R1	1800 ohms
R2	8000 ohm Fil Resistor
R3	8000 " Det "
R4	3000 " Amp "
R5	400 Total
R6	700 ohms
R7	300 "
R8	475 "
R9	1000 "
R10	1.5 Ω 2.5 A
Black	A-
Yellow	A+
Green	B+ 50 V
Red	B+ 100 V
Brown	B+ 135 V

NEUTRODYNE. Type AC-5 and Power Unit.

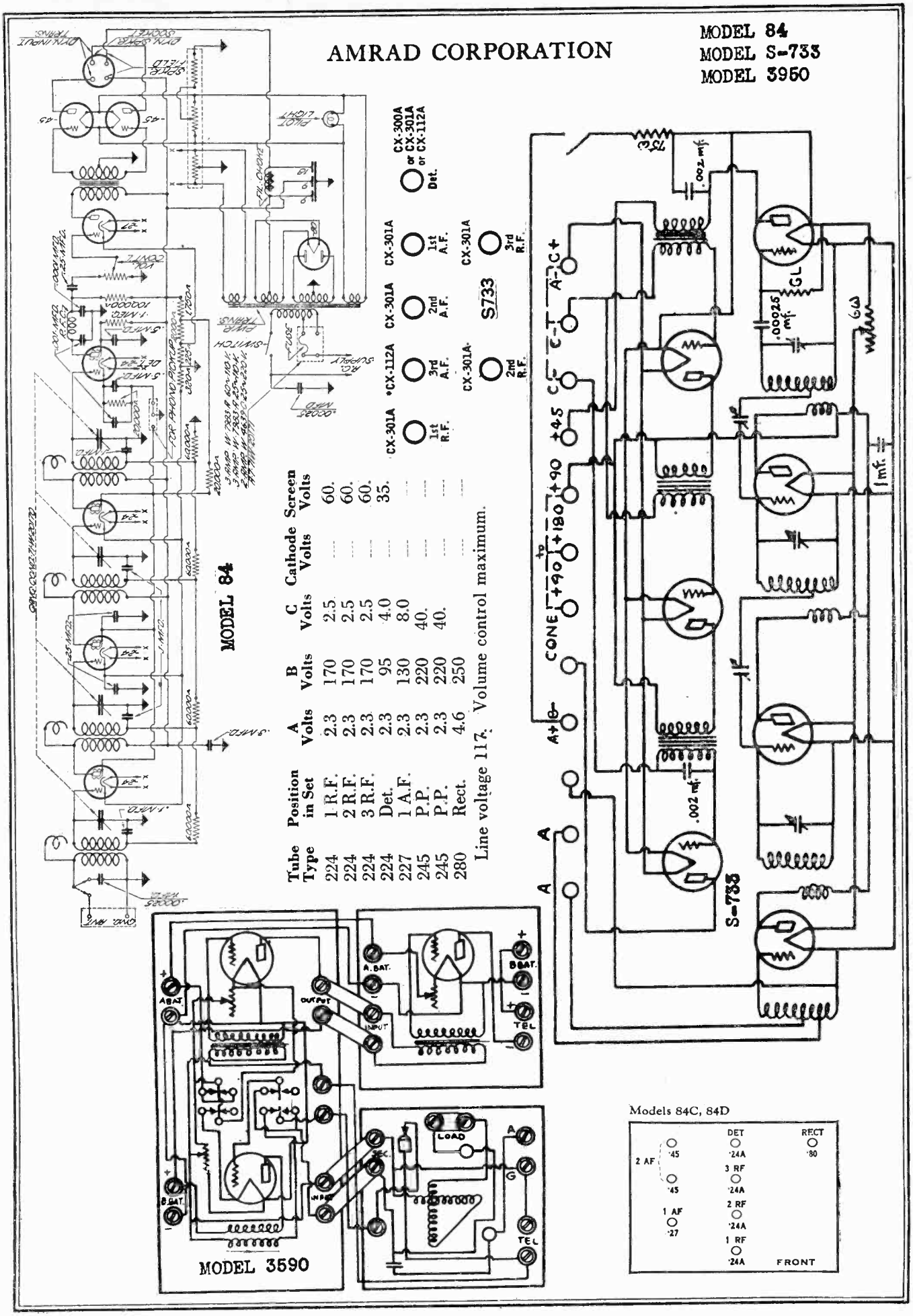


The Amrad "Inductrole."



AMRAD CORPORATION

MODEL 84
MODEL S-733
MODEL 3950

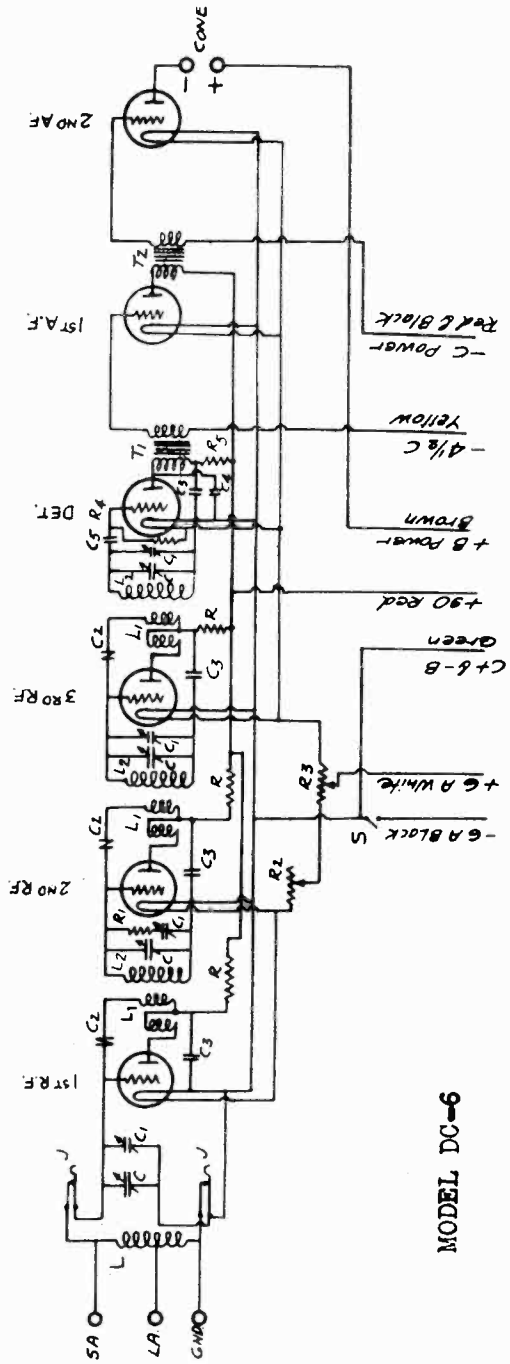


Tube Type	Position in Set	A Volts	B Volts	C Volts	Cathode Volts	Screen Volts
224	1 R.F.	2.3	170	2.5	...	60.
224	2 R.F.	2.3	170	2.5	...	60.
224	3 R.F.	2.3	170	2.5	...	60.
224	Det.	2.3	95	4.0	...	35.
227	1 A.F.	2.3	130	8.0	...	...
245	P.P.	2.3	220	40.	...	...
245	P.P.	2.3	220	40.	...	...
280	Rect.	4.6	250	...	...	...

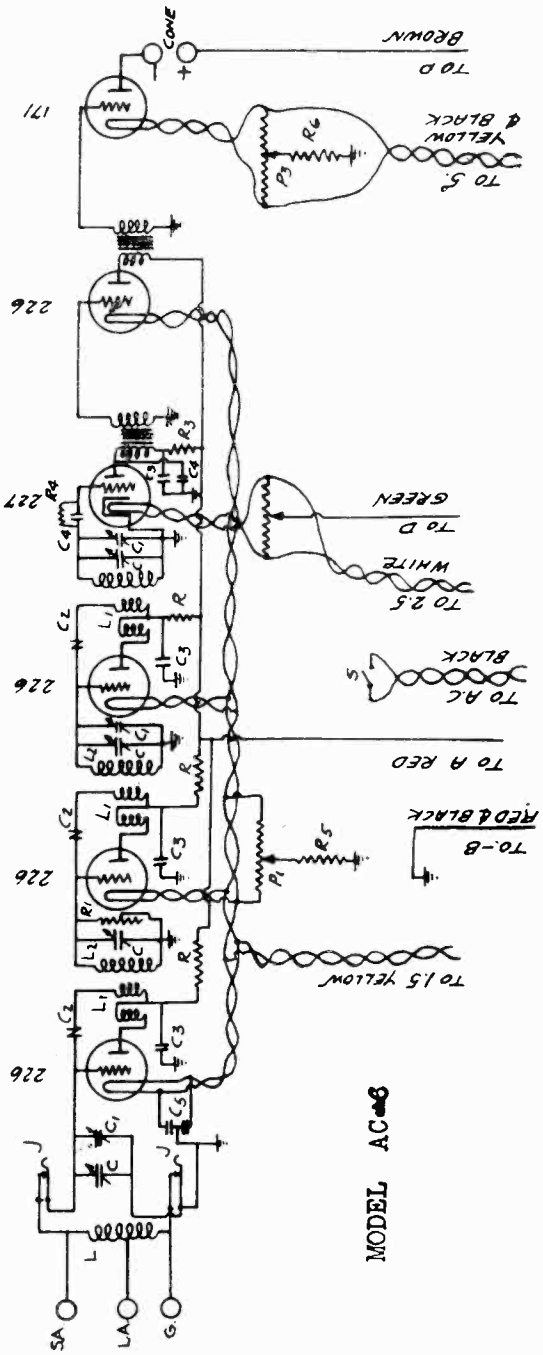
Line voltage 117. Volume control maximum.

MODEL AC-6
MODEL DC-6

AMRAD CORPORATION

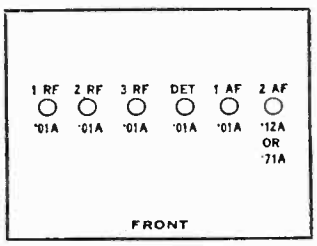


MODEL DC-6

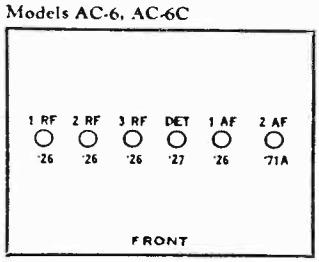


MODEL AC-6

Models DC-6, DC-6C

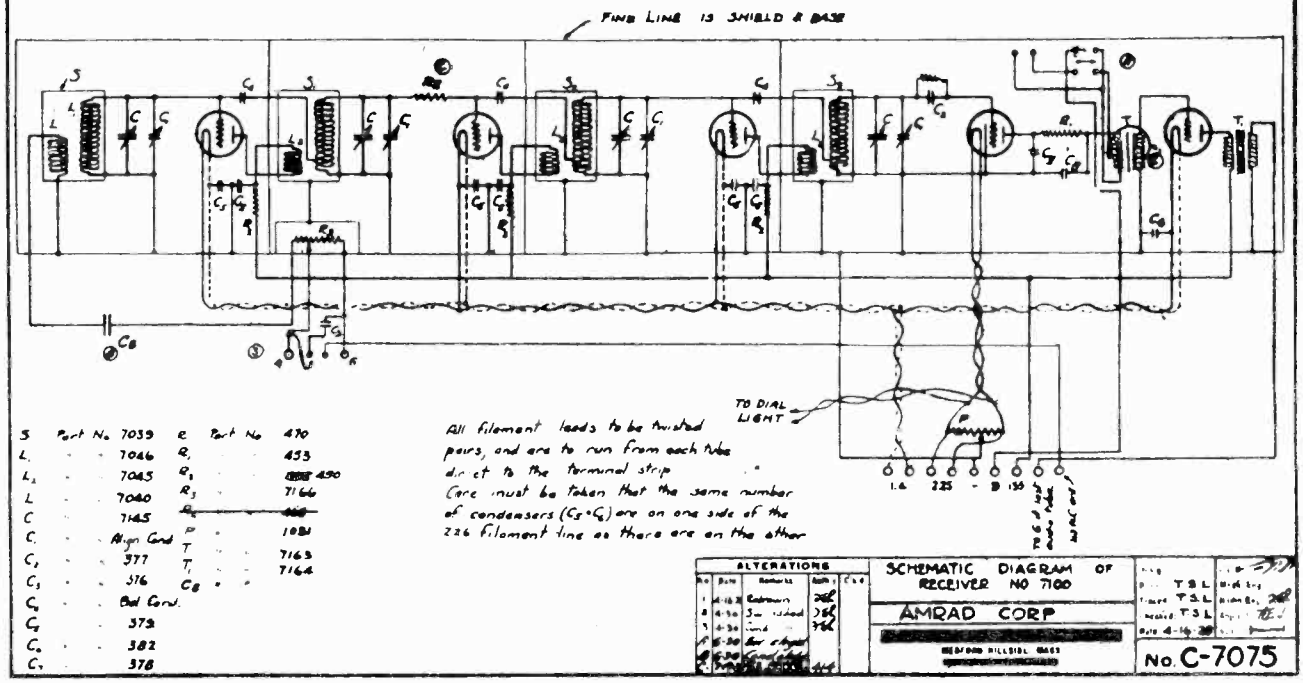


Models AC-6, AC-6C



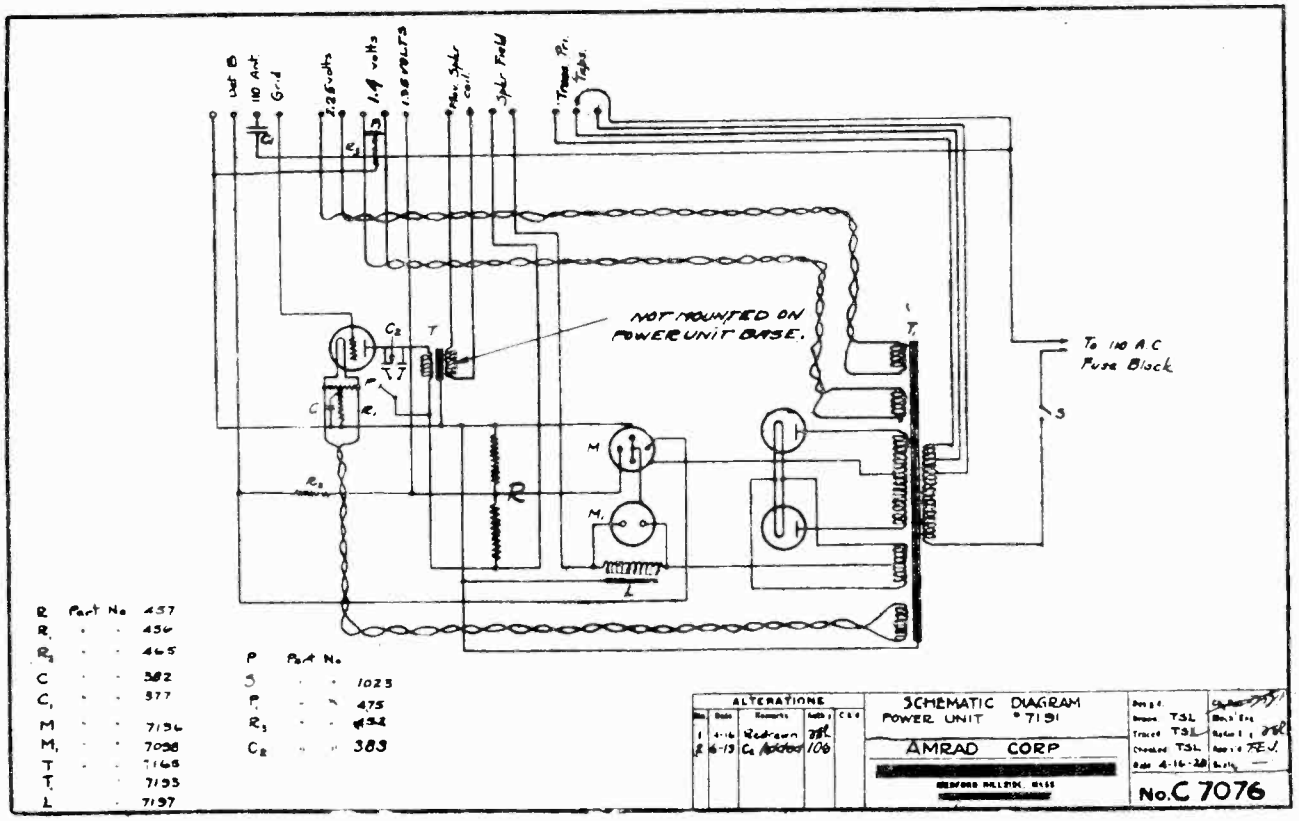
AMRAD CORPORATION

MODEL 7100 Receiver
MODEL 7191 Power Unit



S	Part No.	7039
L_1		7046
L_2		7045
L_3		7040
C		7145
C_1		Align Cond
C_2		377
C_3		376
C_4		Bal Cond.
C_5		379
C_6		382
C_7		378

R	Part No.	470
R_1		453
R_2		490
R_3		7166
R_4		[illegible]
P		1031
T		7163
T_1		7164
C_8		

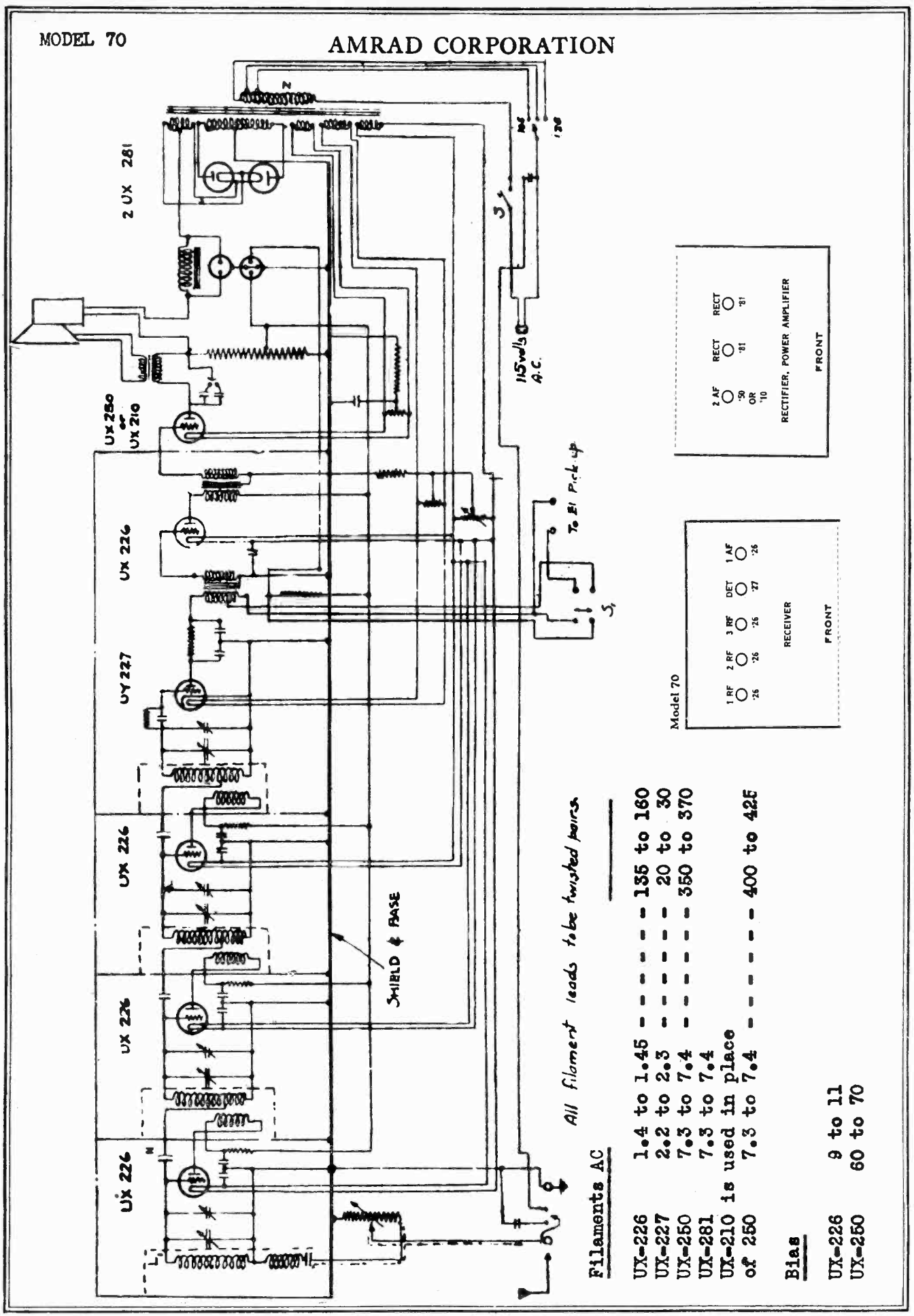


R	Part No.	457
R_1		456
R_2		465
C		382
C_1		377
M		7196
M_1		7098
T		7166
T_1		7193
L		7197

P	Part No.	
S		1023
P		475
R_3		452
C_2		383

MODEL 70

AMRAD CORPORATION

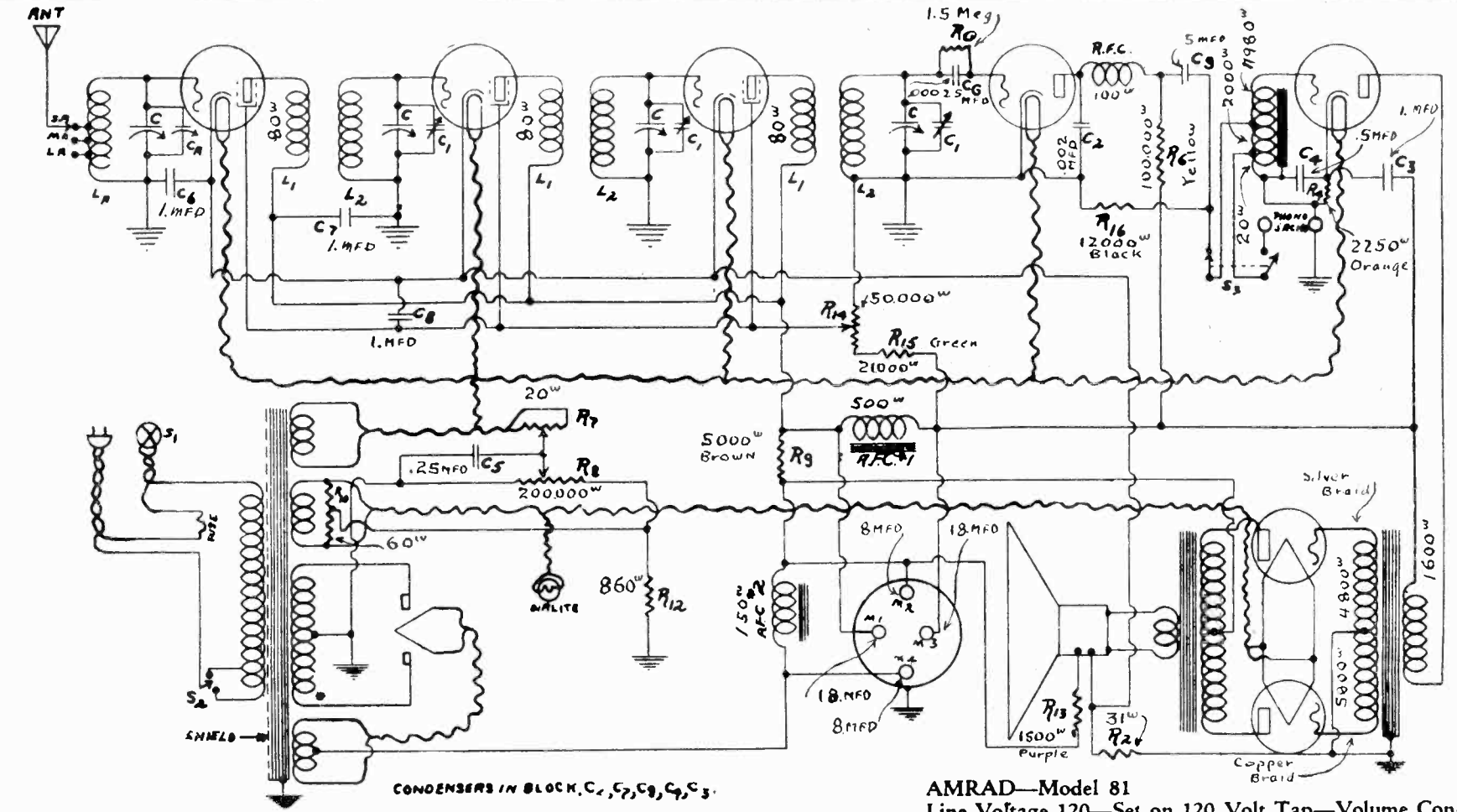


Filaments AC

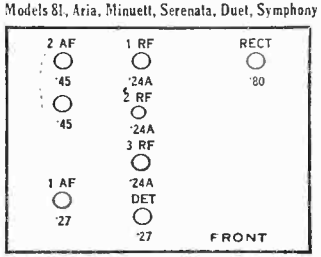
UX-226	1.4 to 1.45 - - - - - - - - 135 to 160
UX-227	2.2 to 2.3 - - - - - - - - 20 to 30
UX-250	7.3 to 7.4 - - - - - - - - 350 to 370
UX-281	7.3 to 7.4
UX-210 is used in place of 250	7.3 to 7.4 - - - - - - - - 400 to 425

Bias

UX-226	9 to 11
UX-250	60 to 70



Models 81, Aria, Minuett, Serenata, Duet, Symphony



BEL - CANTO SERIES

Aria, Minuett
Serenata, Duet
Symphony

RCA Speaker
0.8 Ohm
Secondary
410 Ohm Primary
7000 Ohm Field

Peerless Speaker
Single turn
Secondary
550 Ohm Primary

Condenser Data on next page.

AMRAD—Model 81

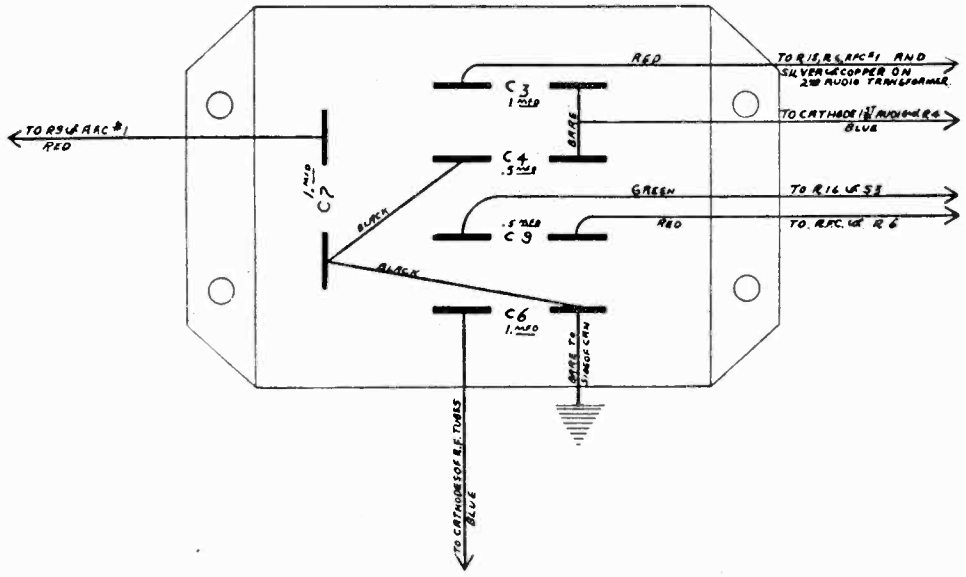
Line Voltage 120—Set on 120 Volt Tap—Volume Control Position Full On

Note: To get the 10.5 V. reading (4-8) the hum control potentiometer must be turned to ground side.

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST RF 2ND DET ETC	READINGS PLUG IN SOCKET OF SET								
			TUBE OUT		TUBE IN TESTER						
			G VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS (CONTROL GRID)	CATHODE-HEATER VOLTS	NORMAL PLATE MA	PLATE MA GRID 1 TEST	PLATE CHANGE MA	SCREEN GRID VOLTS
1	224	1st RF	2.32	190	2.25	180	1.5	-	4	7.5	3.5	80
2	224	2nd RF	2.32	190	2.25	180	1.5	-	4	7.5	3.5	80
3	224	3rd RF	2.32	190	2.25	180	1.5	-	4	7.5	3.5	80
4	227	Det.	2.32	140	2.25	30	0	-	1.5	1.6	.1	-
5	227	1st AF	2.32	190	2.25	160	10.5	-	4.1	5.2	1.1	-
6	245	2nd AF	2.32	300	2.25	250	50	-	28	32	.4	-
7	245	2nd AF	2.32	300	2.25	250	50	-	28	32	.4	-
8	280	Rect.		-	4.65	-	-	-	110	-	-	-
9												
10												

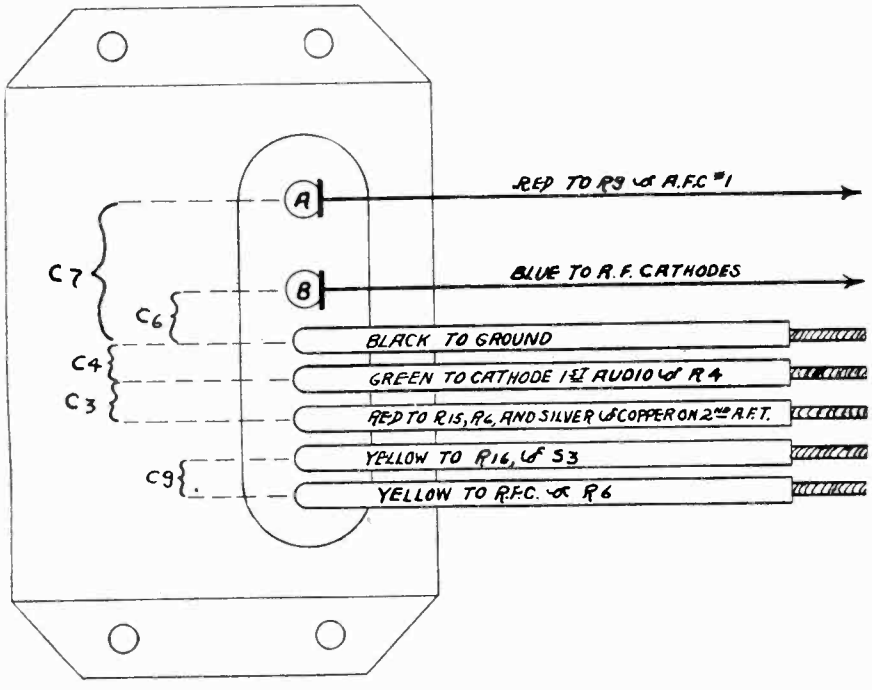
MODEL Bel-Canto 81
Condenser Data

AMRAD CORPORATION



BY-PASS BLOCK CONDENSER, NO. 8113

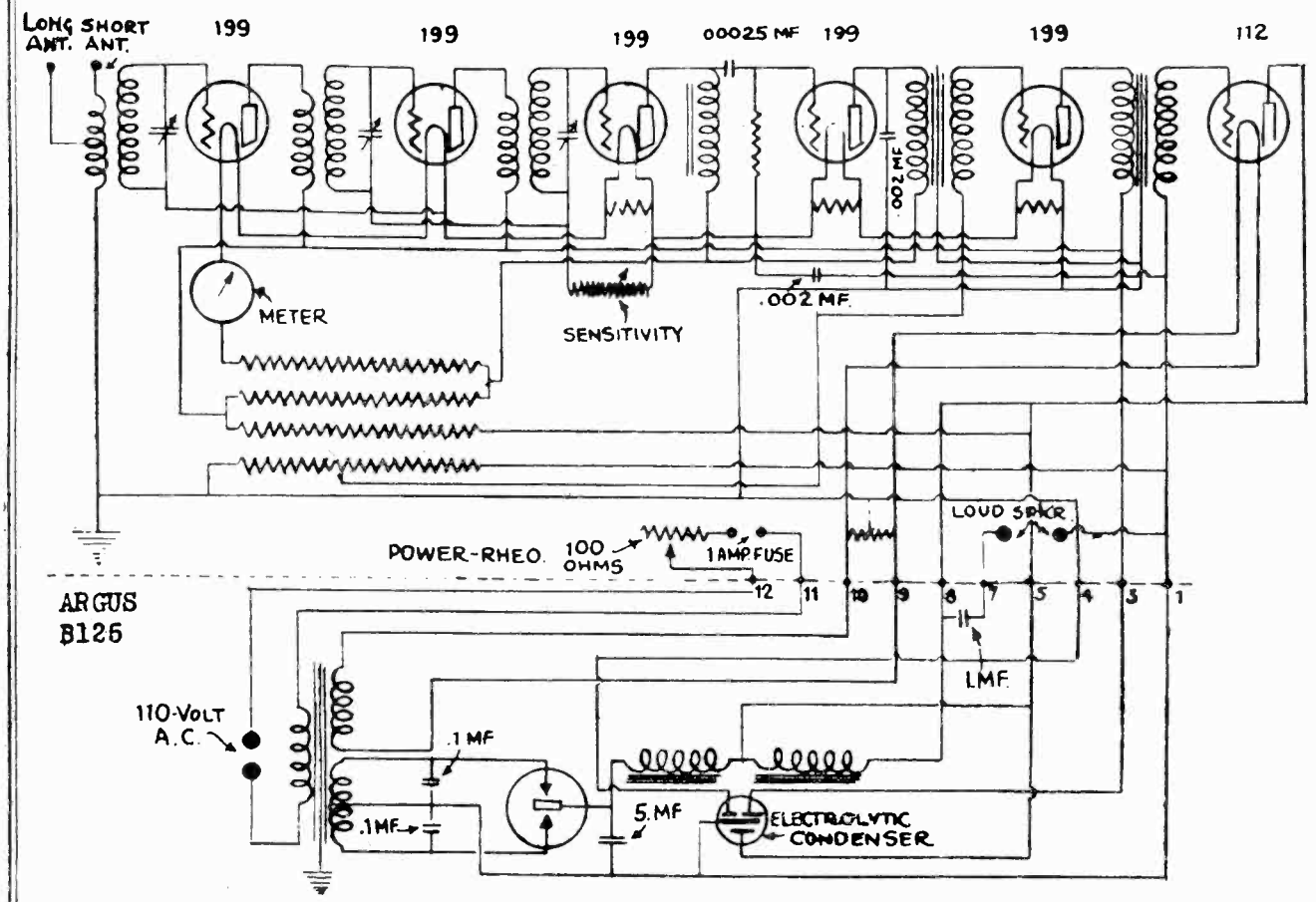
"Lug Terminal" Style. This block contains Fixed Condensers, C3, C4, C6, C7, C9. The different units are indicated, with their connections to their respective circuits.

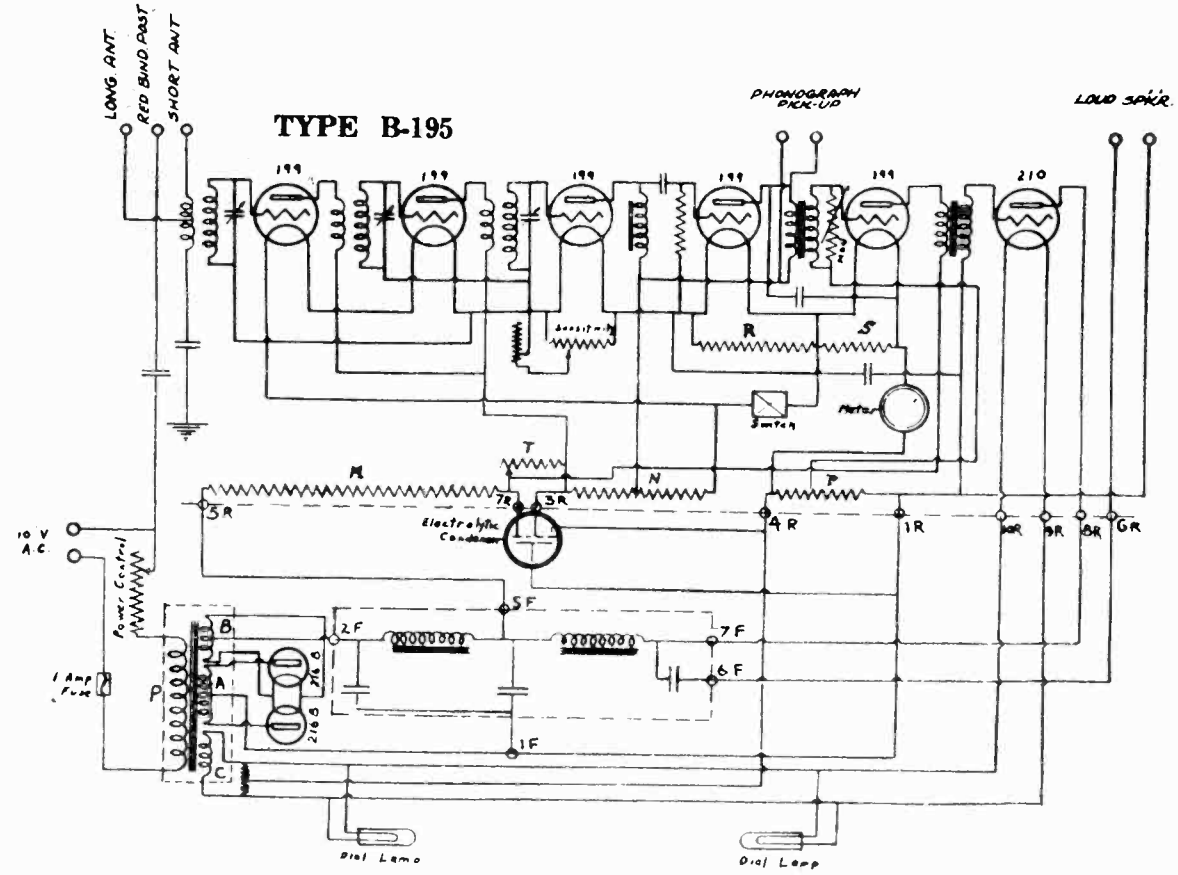


BY-PASS BLOCK CONDENSER, NO. 8113

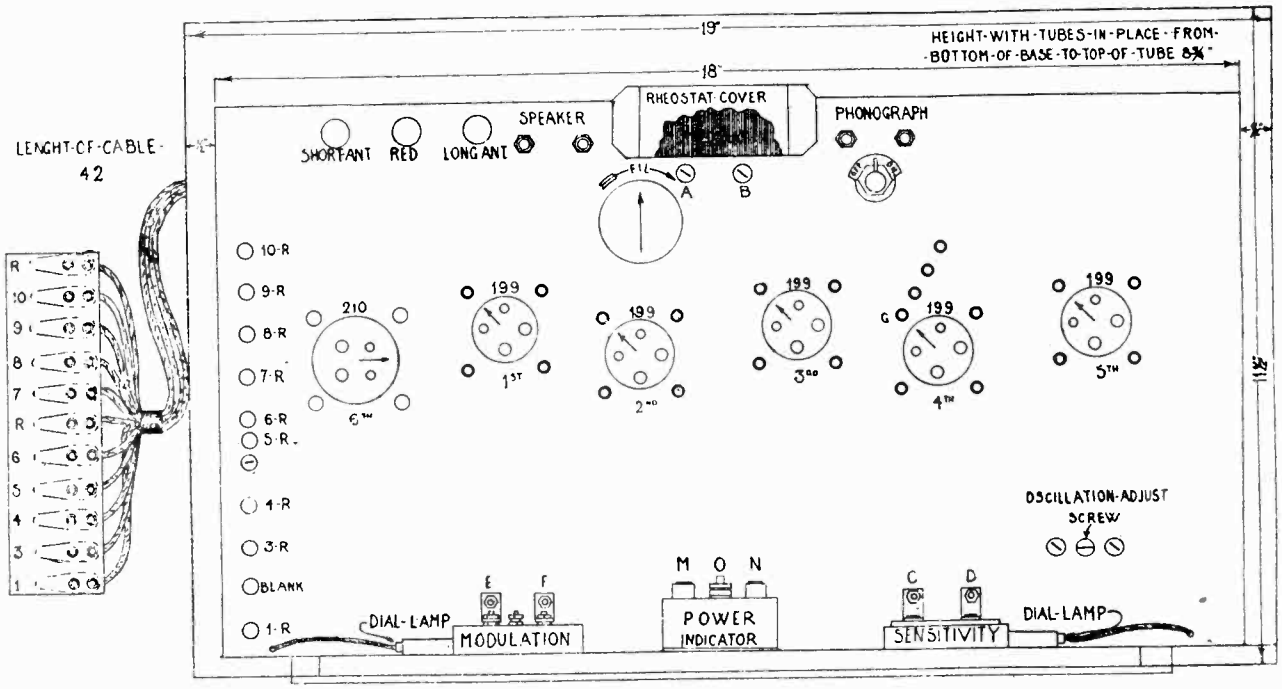
"Wire Terminal" Style. This block contains the same units as does the No. 8113 "Lug Terminal" Style. To test for capacity, opens or shorts, it is necessary to disconnect at least one terminal of the unit from the circuit.

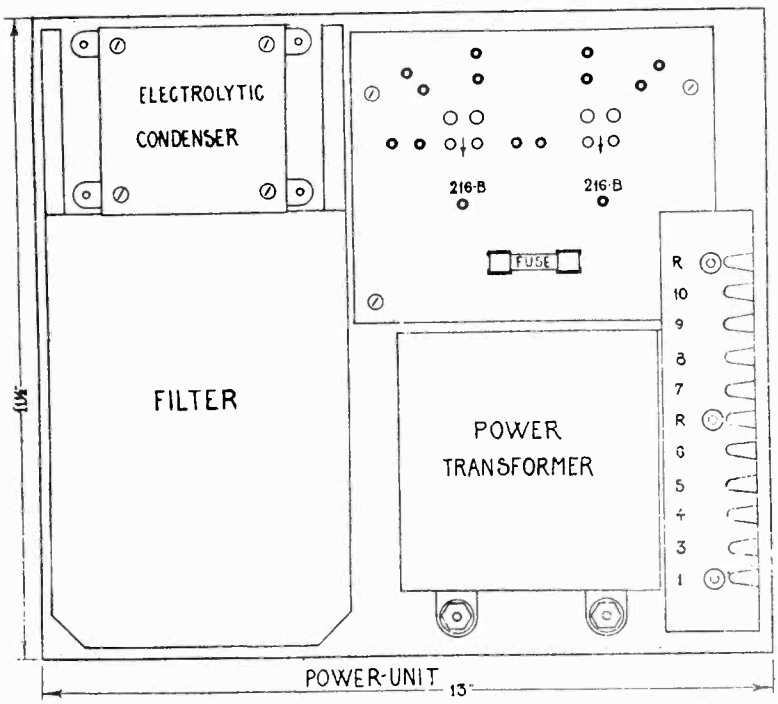
ARGUS RADIO CORP.





ARGUS RADIO CORP.



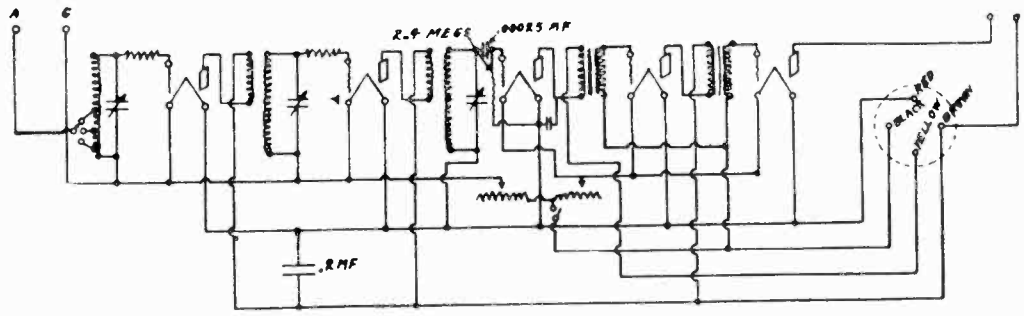


Inside view of ARGUS ELECTRIC RADIO RECEIVER, Model B195,

TWO-PIECE CHASSIS. Diagram shows location of connecting cables.

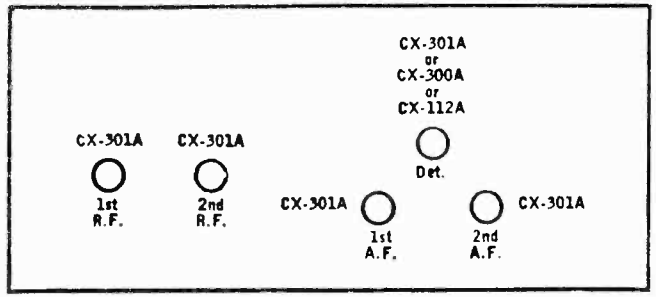
ATWATER KENT MFG. CO.

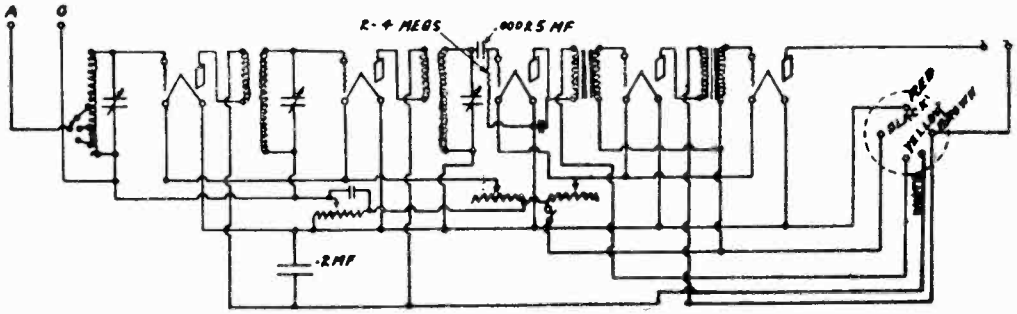
MODEL 10
MODEL 10-B
MODEL 12



MODEL 10 No. 4700

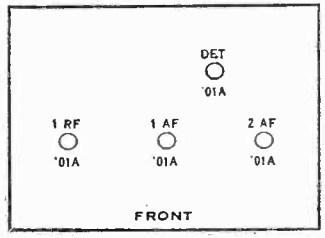
10 (Batt.)



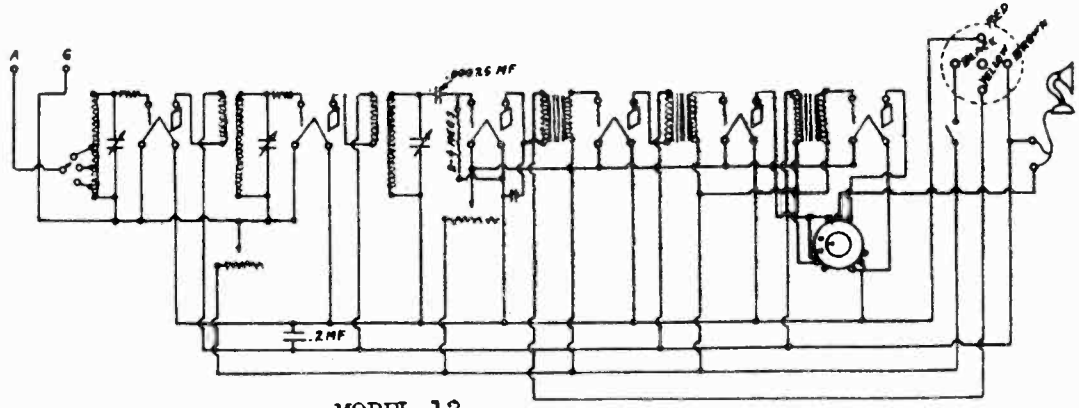


MODEL 10-B

Model 9 (1923)

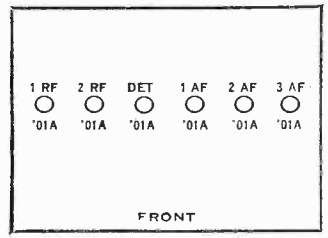


NOTE.—This set has two R.F. rheostats (one for each R.F. tube). —F1R connects to the slider lead of the 1st R.F. rheostat instead of to —F2R.



MODEL 12

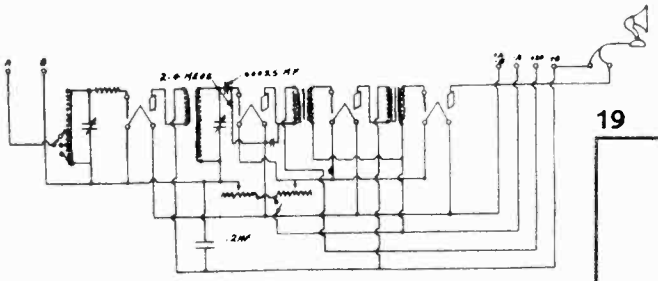
Model 12 (1923)



(Diagram shows one rheostat controlling detector and all three A.F. tubes. In actual set, rheostat controls detector and 1st audio only, 2nd and 3rd audio tubes being on separate fixed resistances.)

MODEL 19
MODEL 20 # 7570
MODEL 20 # 4640

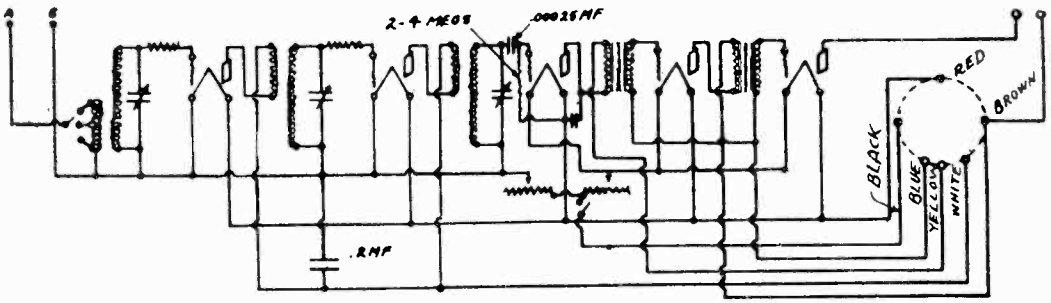
ATWATER KENT MFG. CO.



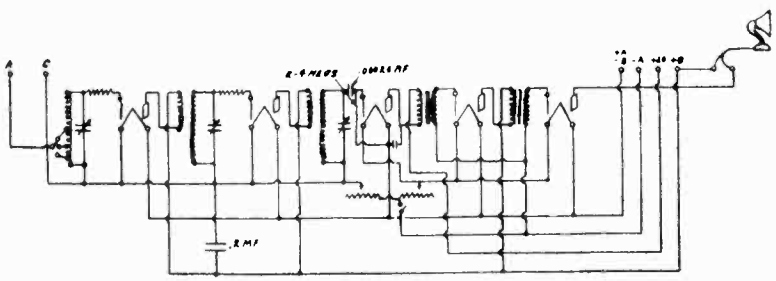
MODEL 19 SET No. 4880.

19 (Batt.)

CX-301A	CX-301A or CX-300A or CX-112A	CX-301A	CX-301A
1st R.F.	Det.	1st A.F	2nd A.F.



MODEL 20 COMPACT SET No. 7570. WIRING DIAGRAM.



MODEL 20 SET No. 4640.

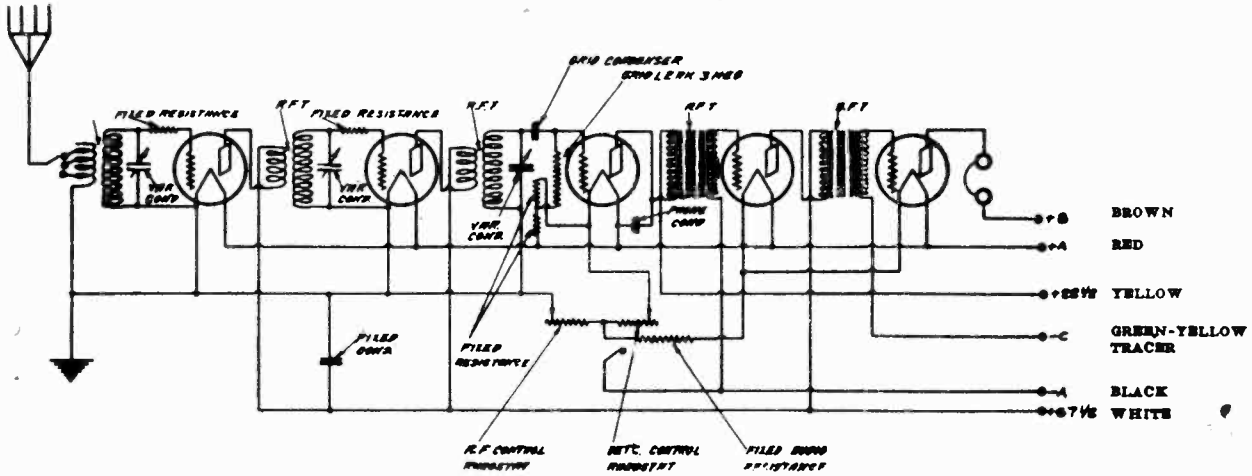
20 (Batt.)

CX-301A	CX-301A	CX-301A or CX-300A or CX-112A	CX-301A	*CX-301A
1st R.F	2nd R.F.	Det.	1st A.F	2nd A.F

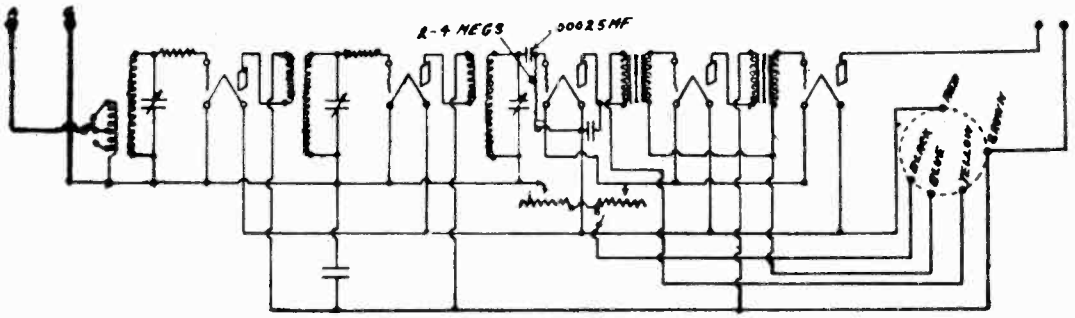
* This tube is a CX-371A in Model 20 compact.

MODRL 20 # 7960
MODEL 21 # 7780

ATWATER KENT MFG. CO.

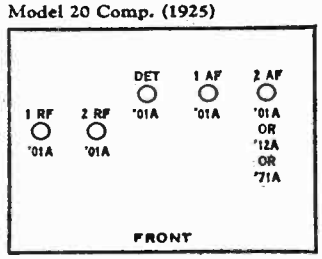


MODEL 20 COMPACT SET NO. 7960. WIRING DIAGRAM.

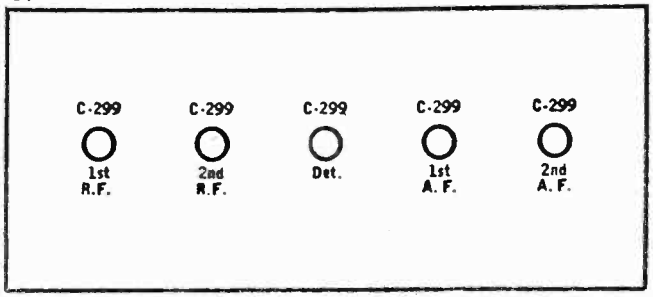


MODEL 21 DRY CELL SET No. 7780.

Model 20 Comp. (1925)

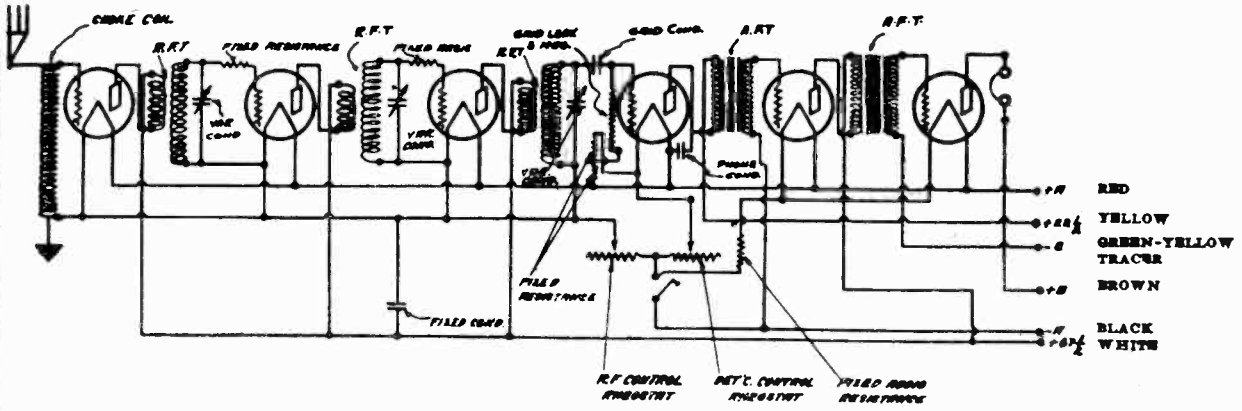


21 (Batt.)

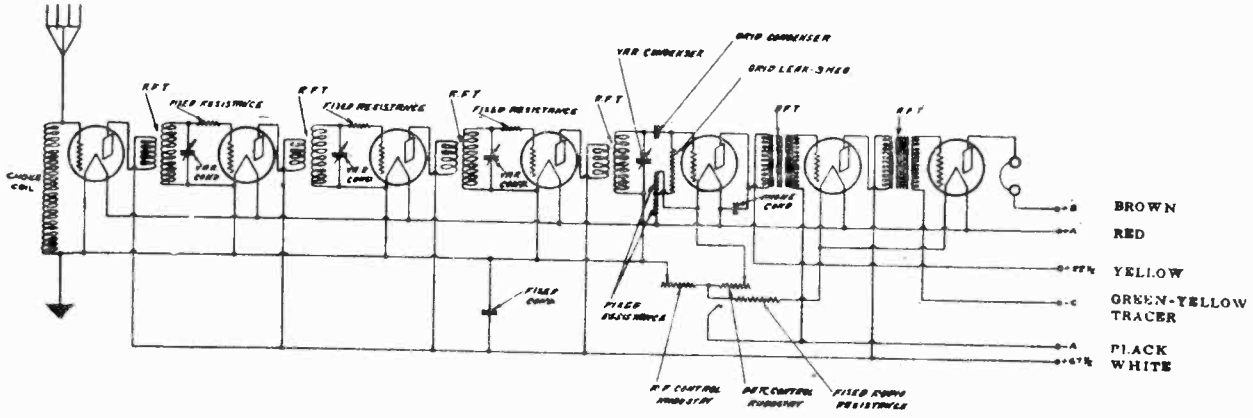


MODEL 30
MODEL 32
MODEL 35
MODEL 48

ATWATER KENT MFG. CO.



WIRING DIAGRAM OF MODELS 30, 35 AND 48. (In Model 35, one rheostat controls the three R.F. filaments and a fixed resistance is connected in series with the detector and two A.F. filaments.)



WIRING DIAGRAM OF MODEL 32.

32 (Batt.)

CX-301A 1st R.F.	CX-301A 2nd R.F.	CX-301A 3rd R.F.	CX-301A 4th R.F.	CX-301A or CX-300A or CX-112A Det.	CX-301A 1st A.F.	CX-371A or CX-112A 2nd A.F.

30, 33, 35, 48, 49 (Batt.)

CX-301A 1st R.F.	CX-301A 2nd R.F.	CX-301A 3rd R.F.	CX-301A or CX-300A or CX-112A Det.	CX-301A 1st A. F.	*CX-371A or *CX-112A 2nd A. F.

ATWATER KENT MFG. CO.

MODEL 33
MODEL 36 Early
MODEL 36 Late
MODEL 49

MODEL 36 ABOVE SERIAL No. 2,610,000

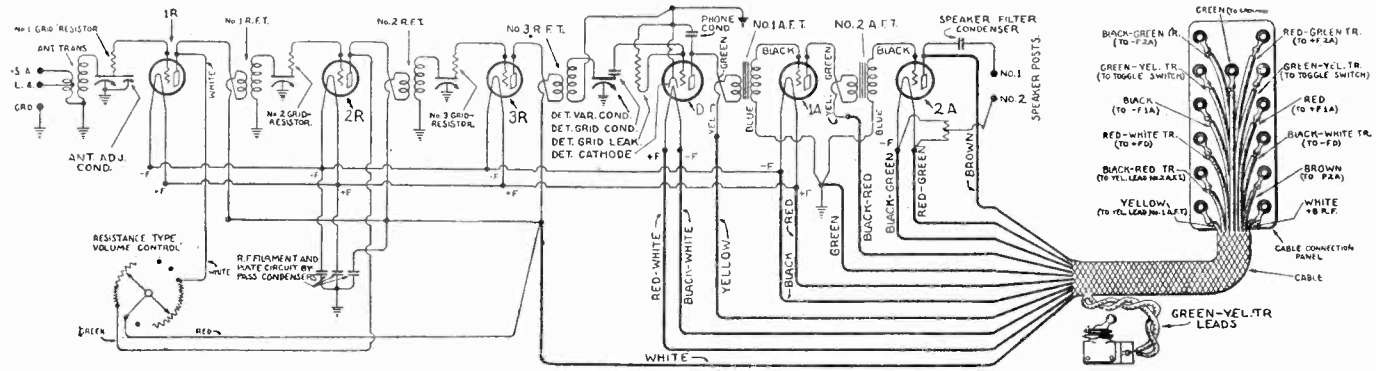
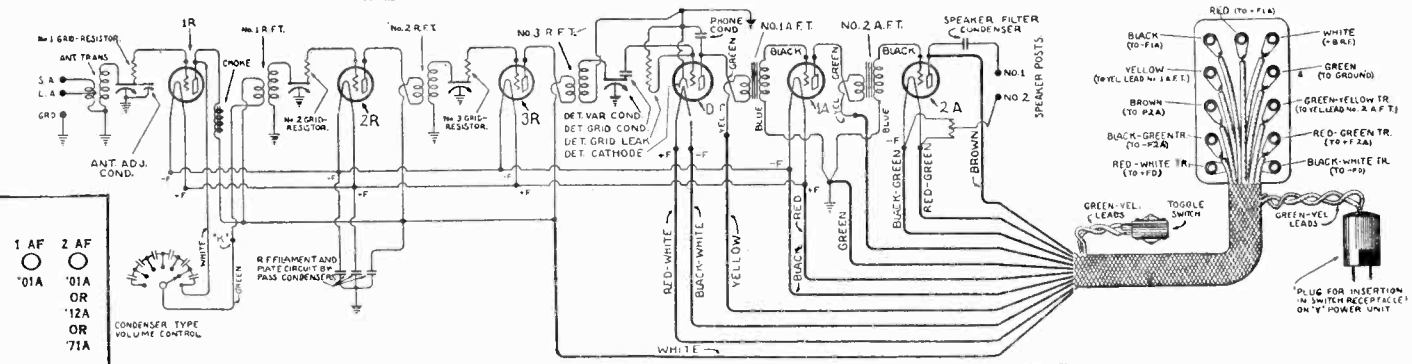


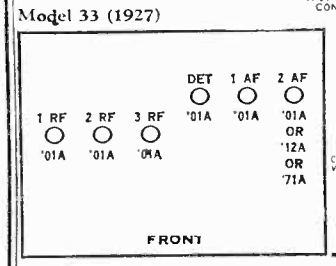
FIG. 70. WIRING DIAGRAM OF MODEL 36 WITH RESISTANCE-TYPE VOLUME CONTROL.

MODEL 36 BELOW SERIAL No. 2,610,000

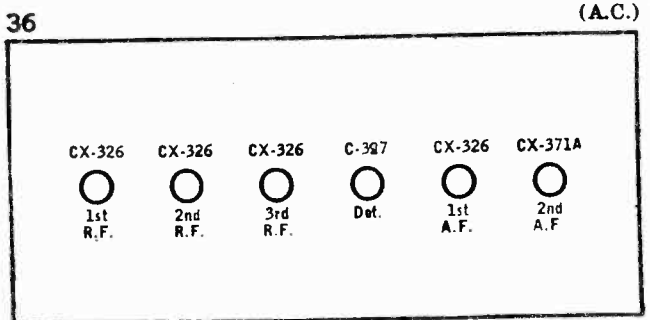


WIRING DIAGRAM OF MODEL 36 WITH CONDENSER-TYPE VOLUME CONTROL.

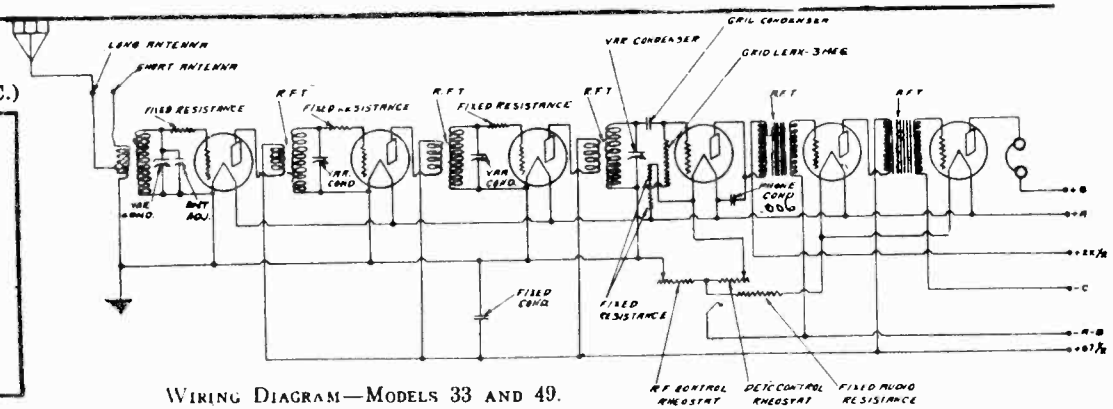
Model 33 (1927)



36 (A.C.)



CX-380 used in separate power unit.

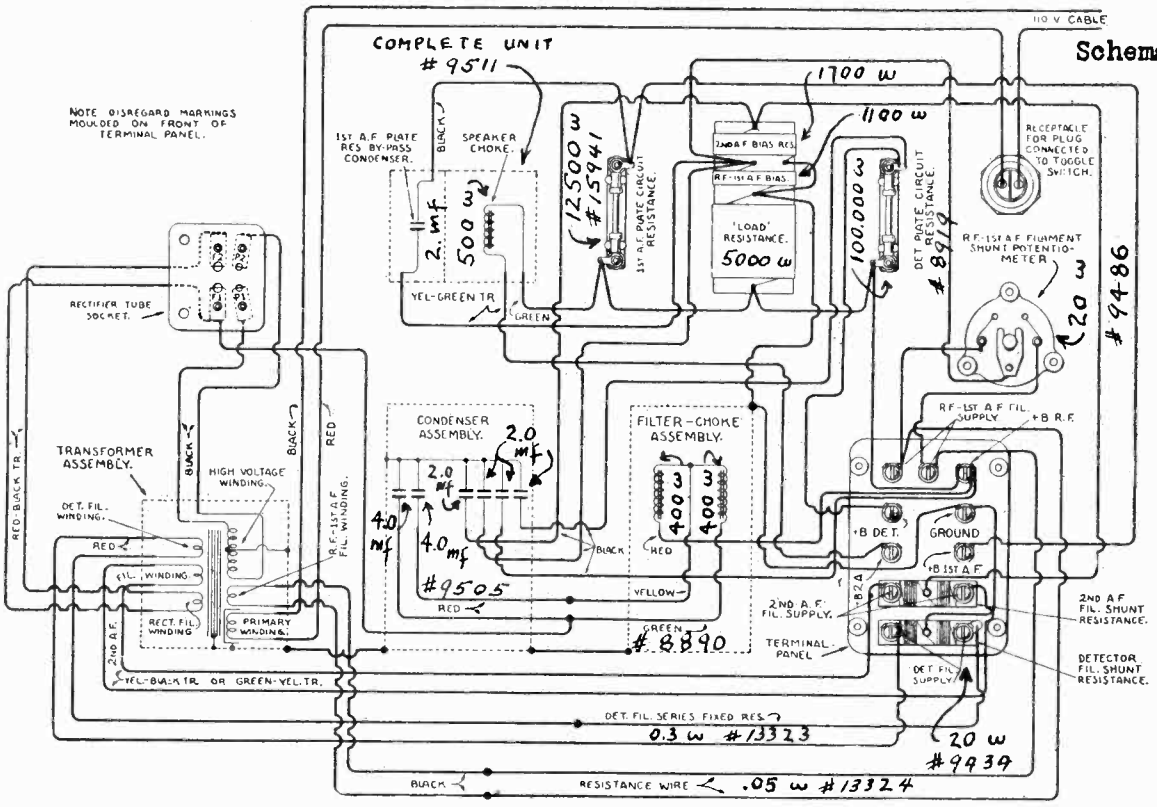


WIRING DIAGRAM—MODELS 33 AND 49.

ATWATER KENT MFG. CO.

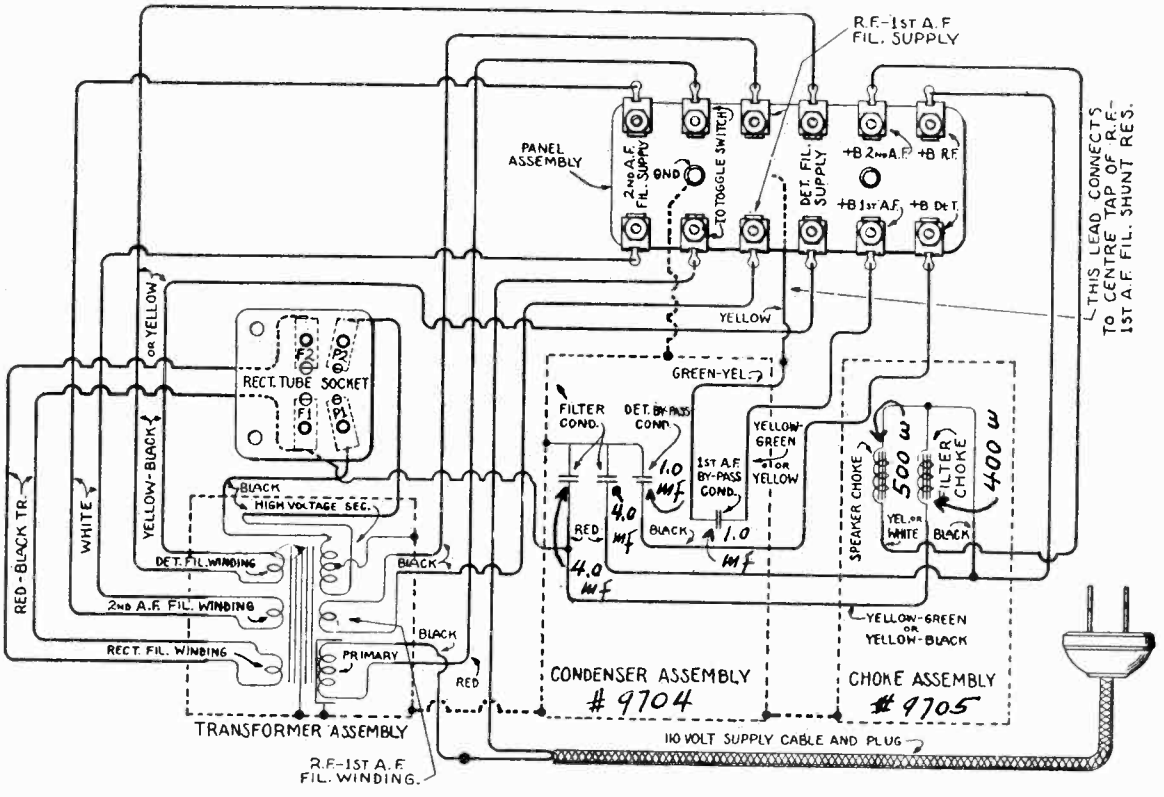
MODEL 36
Power Pack

Schematic



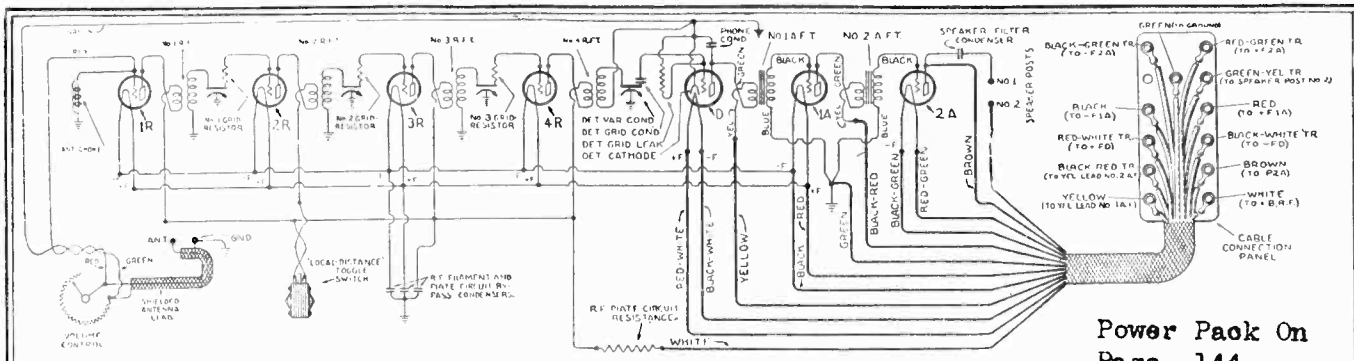
Model "Y" Power Units below Serial No. 260,000

(Used with Model 36 Sets below Serial No. 2,610,000)



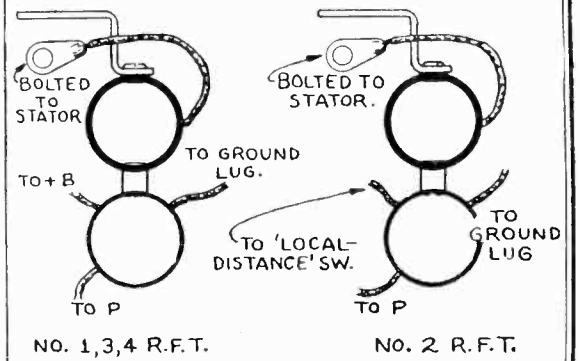
Model "Y" Power Units Above Serial No. 260,000

(Used with Model 36 Sets above Serial No. 2,610,000)

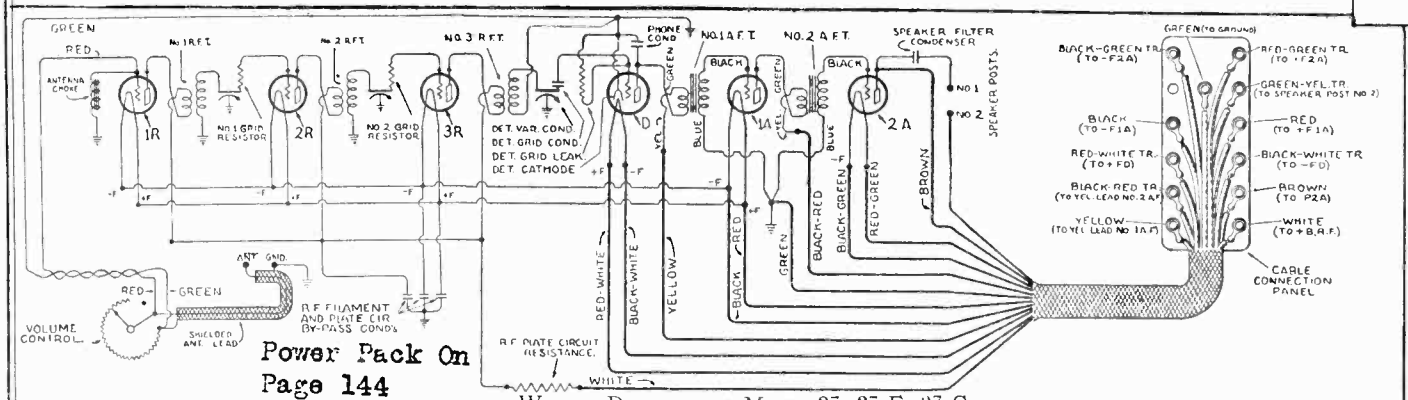


WIRING DIAGRAM OF MODEL 38.

A 2nd A. F. filament-shunt resistor is used before Serial No. 1,752,000 and the green-yellow tracer cable lead is not used. Connections for this resistor are shown in dotted lines in the diagram on page 61. A schematic diagram of the volume control is shown in Fig. 78.



SKETCH SHOWING CONNECTIONS FROM R. F. TRANSFORMERS



WIRING DIAGRAM OF MODEL 37, 37-F, 37-C.

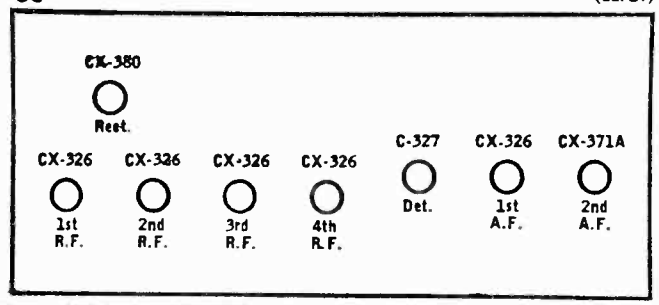
A 2nd A. F. filament-shunt resistor is used before Serial No. 1,385,000, in which case speaker post No. 2 connects to the centre tap of this resistor, and the green-yellow tracer lead is not used. The R. F. plate circuit resistor is used after Serial No. 1,385,000.

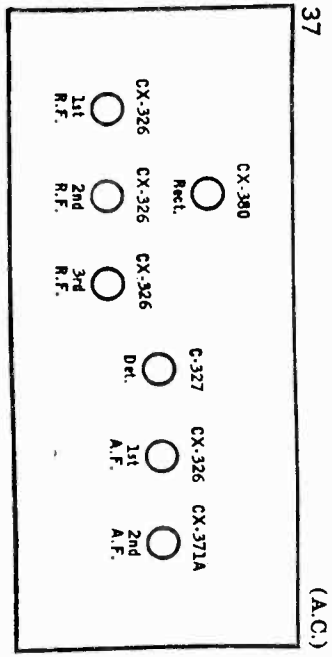
In Model 37-C the on-off switch is connected to the two terminals on either side of the ground eyelet. A 2nd-A. F. filament shunt resistor is used in the chassis of all Model 37-C receivers.

ATWATER-KENT—Models 37-38

Line Voltage 115—On Early Models "B" and "C" Voltages Are Lower Than Shown

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE (1 ST. 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 M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st R.F.	1.3	173	1.25	165	10	-	4.8	8.4	3.6
2	226	2nd R.F.	1.3	173	1.25	165	10	-	4.8	8.4	3.6
3	226	3rd R.F.	1.3	173	1.25	165	10	-	4.8	8.4	3.6
4	227	Detector	2.25	80	2.0	22.5	-	-	2.2	2.2	0.0
5	226	1st A.F.	1.3	173	1.25	165	10	-	4.8	8.4	3.6
6	171	2nd A.F.	4.6	192	4.3	180	36	-	18.0	19.5	1.5
7	280	Rectifier	-	-	4.3	-	-	-	20.0	-	-
8											
9											
10											





Power pack reference on page 1-8.

MODEL 37
Power Pack
Early and Late

ATWATER KENT MFG. CO.

Data

Schematic

RESISTORS	Early	Late
Detector plate	100000 ohms #8919 Green paint	65000 ohms # 15592 1 watt black or bl. and gr.
1st a-f plate	12500 ohms #15941 red See late.	12500 ohms # 15941 red or purple and yellow or red.
R-f and 1st a-f bias	1100 ohms # 9691 eliptical	625 ohms # 13128 eliptical
2nd a-f bias	1750 ohms # 9692 eliptical	2200 ohms # 13289 eliptical
Filament shunt	20 ohms # 9434	20 ohms # 9434 flat, wire
Speaker choke	500 ohms	500 ohms
Filter chokes	1600 ohms total	1600 ohms total
CONDENSERS	See schematic	See Schematic. Condenser unit is # 13315. Also houses transformer.

Special Note.
A 1. mfd condenser is also contained in the transformer-condenser housing but this condenser is not connected in the model 37 power pack.

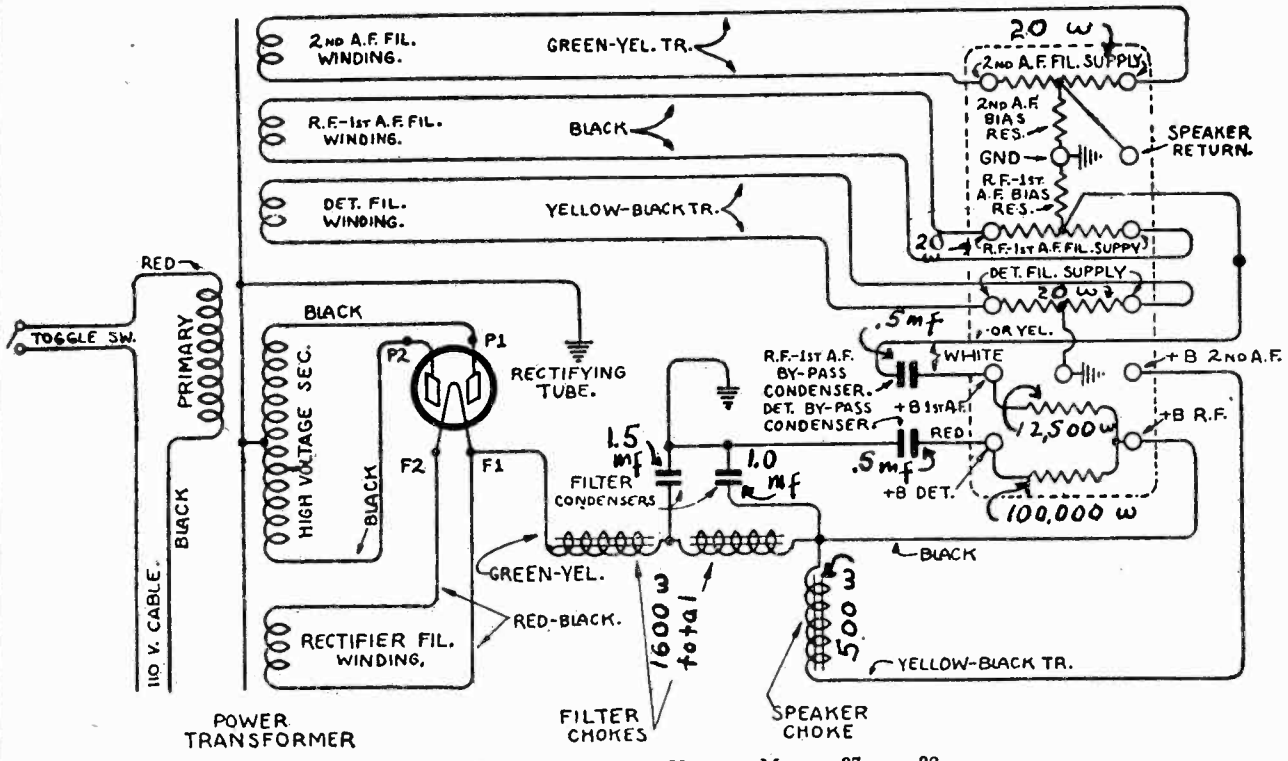
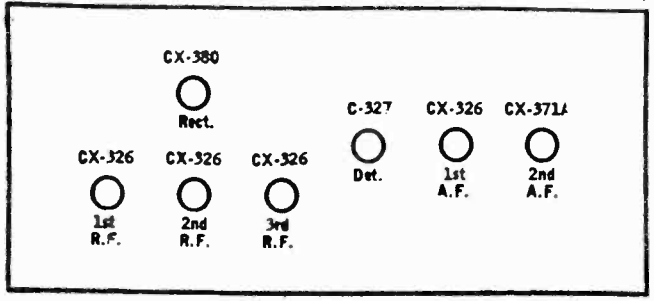


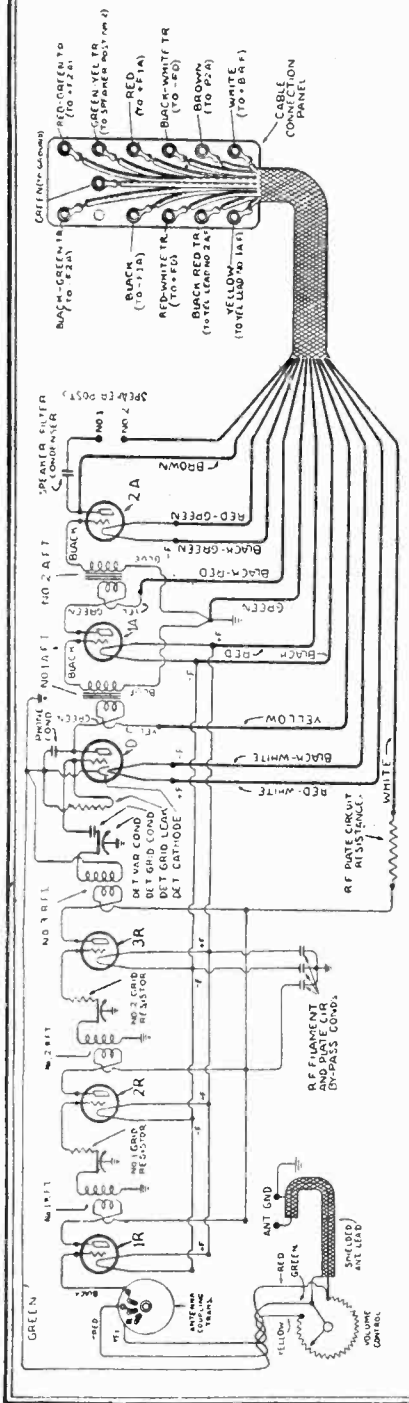
DIAGRAM OF POWER UNIT IN MODELS 37 AND 38

ATWATER KENT MFG. CO.

MODEL 40
MODEL 42
MODEL 52

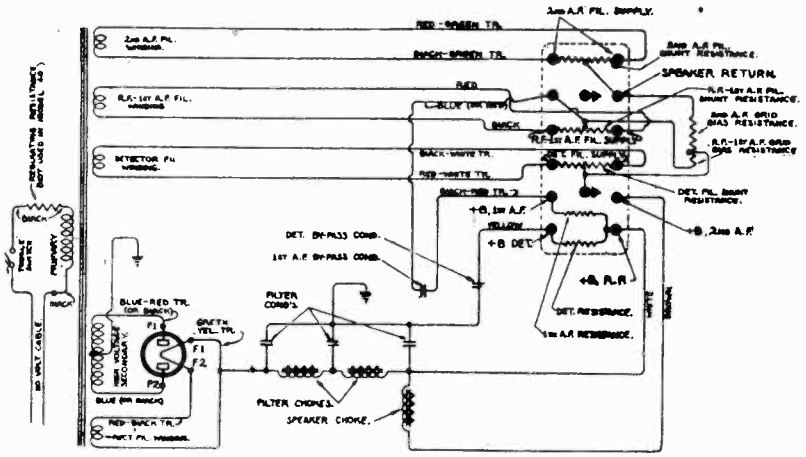
40, 42, 52 (A.C.)





WIRING DIAGRAM OF MODEL 40, 40-F, 42, 42-F, 52, 56 AND 57.

Model 52 does not have the shielded antenna lead, but is provided with two twenty-foot leads which are connected to the volume control, black for antenna and black green tracer for ground. Model 56 and 57 have antenna and ground posts at the bottom of the cabinet.



SCHEMATIC DIAGRAM OF POWER UNIT IN MODELS 40, 42, 52, AND 56.
SOME EARLY UNITS OF THIS TYPE HAVE COLOR SCHEME SIMILAR TO UNIT IN MODEL 56 SET.
NOTE THAT COLORS AS NOW STANDARDIZED CORRESPOND WITH THE COLORS OF SET-CABLE LEADS.

ATWATER-KENT—Model 40
Line Voltage 115

TUBE SOCKET NUMBER	TYPE OF TUBE	POSITION OF TUBE (1ST R.F. DET. ETC)	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS	TUBE IN TESTER CATHODE VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st.R.F.	1.3	145	1.25	138	10	-	4.8	8.4	3.6
2	226	2nd.R.F.	1.3	145	1.25	138	10	-	4.8	8.4	3.6
3	226	3rd.R.F.	1.3	145	1.25	138	10	-	4.2	8.0	3.8
4	227	Detector	2.25	157	2.0	40	-	-	2.2	2.2	0.0
5	226	1st.A.F.	1.3	172	1.28	130	8	-	5.8	7.6	3.8
6	171A	2nd.A.F.	4.2	210	4.1	148	32	-	14.4	15.4	1.0
7	280	Rectifier	-	-	4.5	-	-	-	16.5	-	-
8											
9											

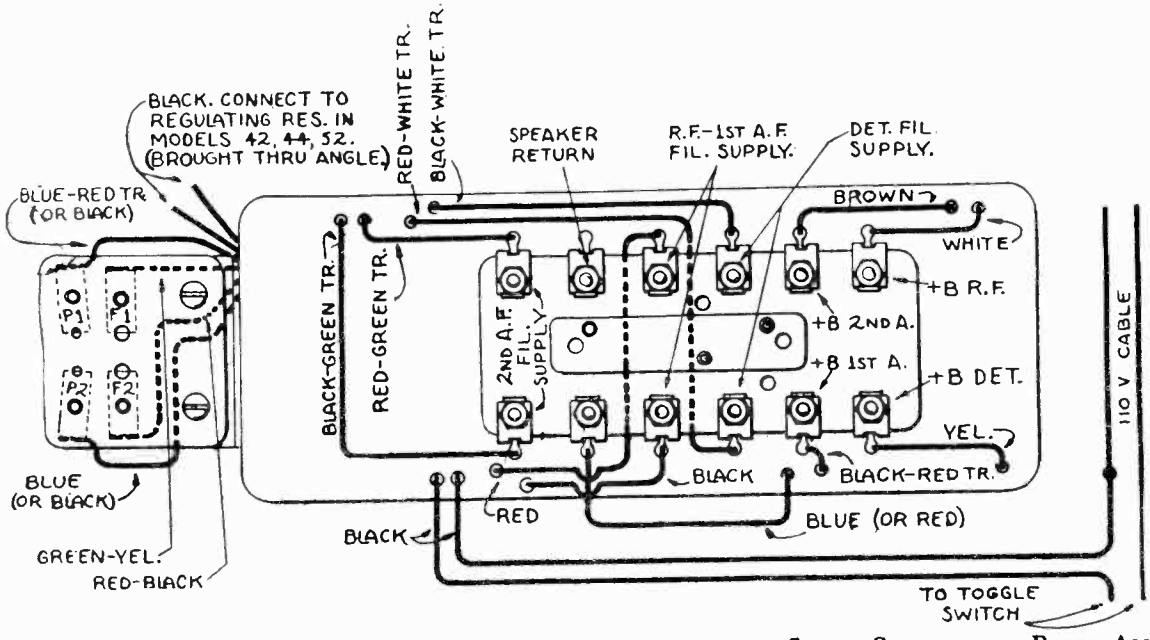
ATWATER-KENT—Models 42-44-52-56
Line Voltage 115—4th R. F.—Tube in Model 44 Only

TUBE SOCKET NUMBER	TYPE OF TUBE	POSITION OF TUBE (1ST R.F. DET. ETC)	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS	TUBE IN TESTER CATHODE VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st.R.F.	1.55	164	1.4	152	12	-	5.4	9.1	3.7
2	226	2nd.R.F.	1.55	164	1.4	152	12	-	5.7	9.2	3.5
3	226	3rd.R.F.	1.5	156	1.4	152	11.5	-	5.4	9.1	3.7
4	227	Det.	2.25	174	2.15	38	0	-	2.2	2.2	0.0
5	226	1st.A.F.	1.5	192	1.4	150	10.5	-	5.0	8.7	3.7
6	171A	2nd.A.F.	4.7	232	4.5	162	36	-	15.0	16.0	1.0
7	280	Rectifier	-	-	4.8	-	-	-	18.0	-	-
8											
9											

MODEL 40,42,44,52
Power Unit Layout
MODEL 40,45
2nd Type Power Unit

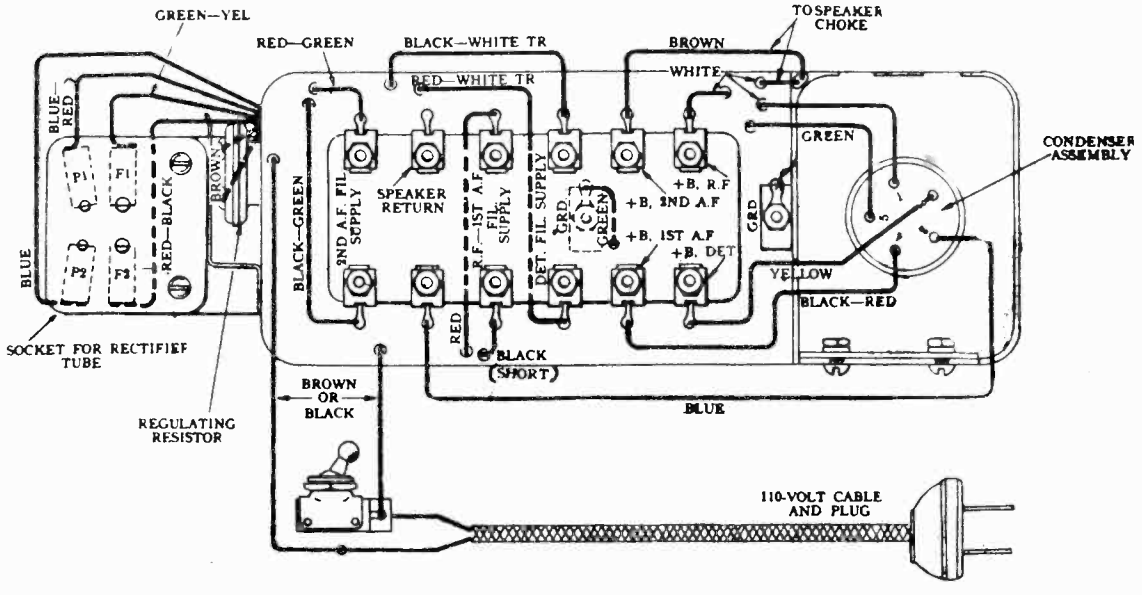
ATWATER KENT MFG. CO.

Schematic



POWER UNIT IN MODELS 40, 42, 44 AND 52, SHOWING CONNECTIONS FROM SEALED CONTAINER TO PANEL ASSEMBLY, RECTIFIER SOCKET AND REGULATING RESISTANCE

This view shows the approximate position of leads from sealed container. In Models 42, 44 and 52, a hole is cut in the rectifier-socket mounting angle and the two black leads are brought up through the hole and connect to the regulating resistance, which is mounted upright at the left-hand end of the sealed container.



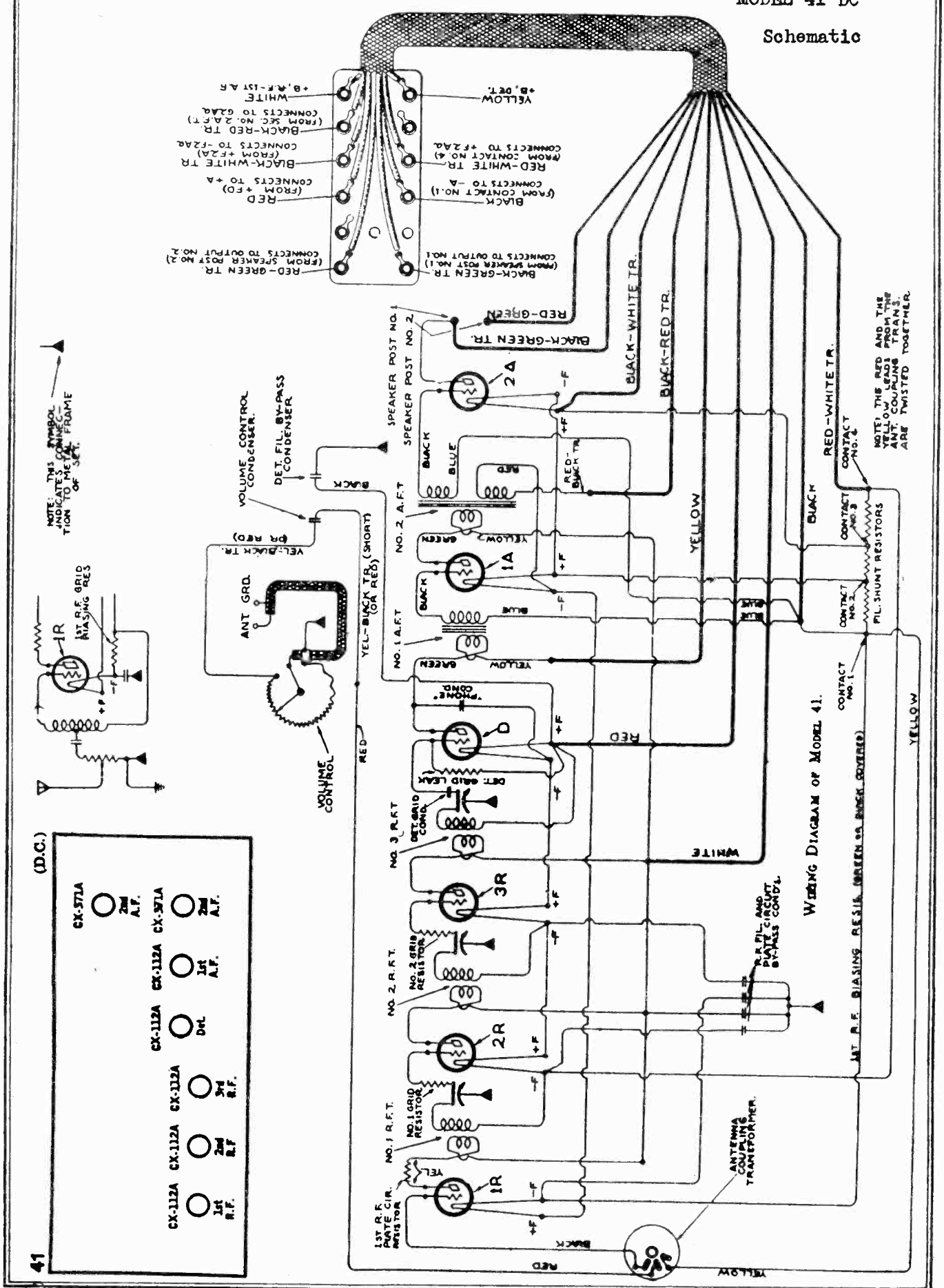
VIEW SHOWING CONNECTIONS IN 2ND TYPE OF POWER UNIT FOR MODELS 40 AND 45.

This view shows the panel assembly moved to left of normal position.
The regulating resistor is not used in these models.

ATWATER KENT MFG. CO.

MODEL 41 DC

Schematic

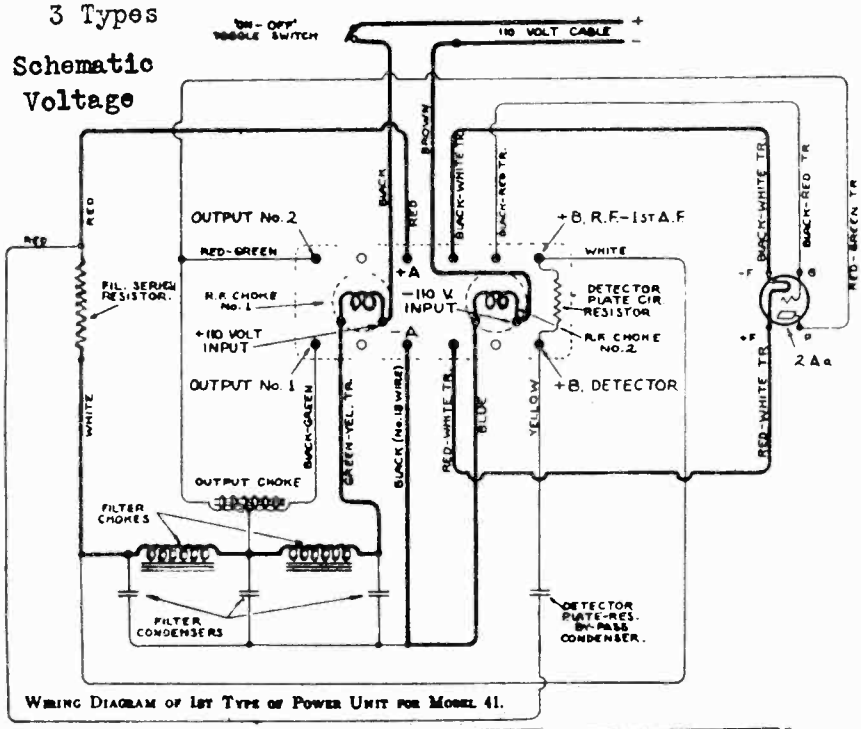


Power pack reference on page 1-12.

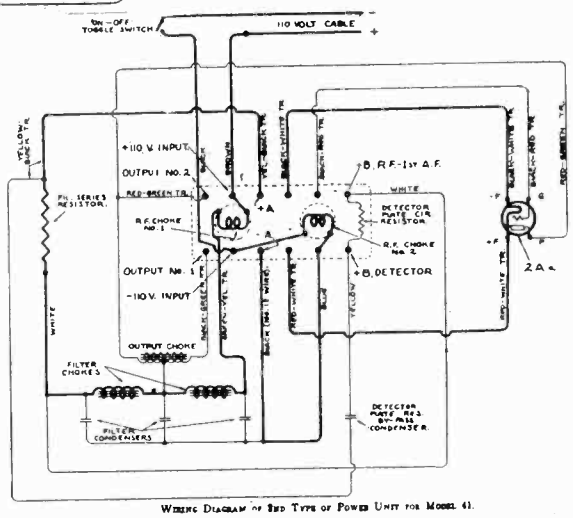
MODEL 41
Power Pack
3 Types

ATWATER KENT MFG. CO.

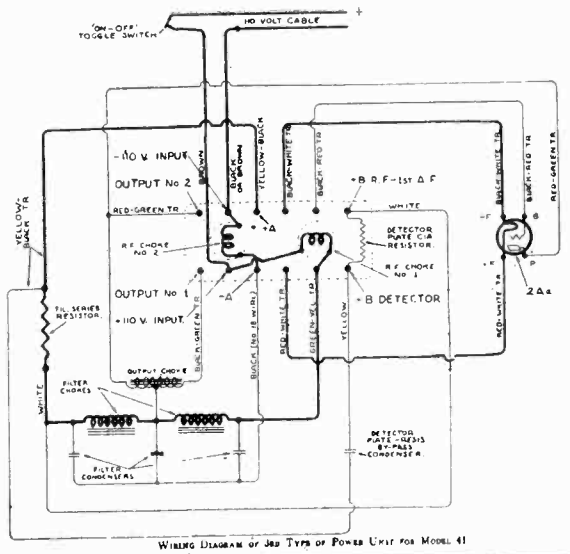
Schematic Voltage



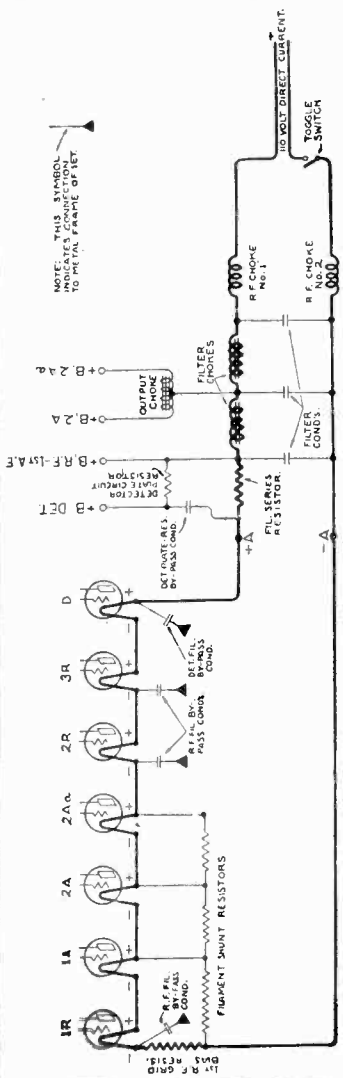
WIRING DIAGRAM OF 1ST TYPE OF POWER UNIT FOR MODEL 41.



WIRING DIAGRAM OF 2ND TYPE OF POWER UNIT FOR MODEL 41.



WIRING DIAGRAM OF 3RD TYPE OF POWER UNIT FOR MODEL 41



SIMPLIFIED DIAGRAM OF POWER UNIT AND FILAMENT CIRCUIT IN MODEL 41 RECEIVER.
Tubes of the 112-A type are used in all sockets except 2A and 2Aa.

Filament Voltage

1st R.F.	4.8 V.
2nd R.F.	4.9 V.
3rd R.F.	4.6 V.
Detector	4.6 V.
1st A.F.	4.9 V.
2nd A.F.	4.8 V.

Plate Voltage

1st R.F.	60 V.
2nd R.F.	65 V.
3rd R.F.	65 V.
Detector	24 V.
1st A.F.	81 V.
2nd A.F.	81 V.

Grid Bias

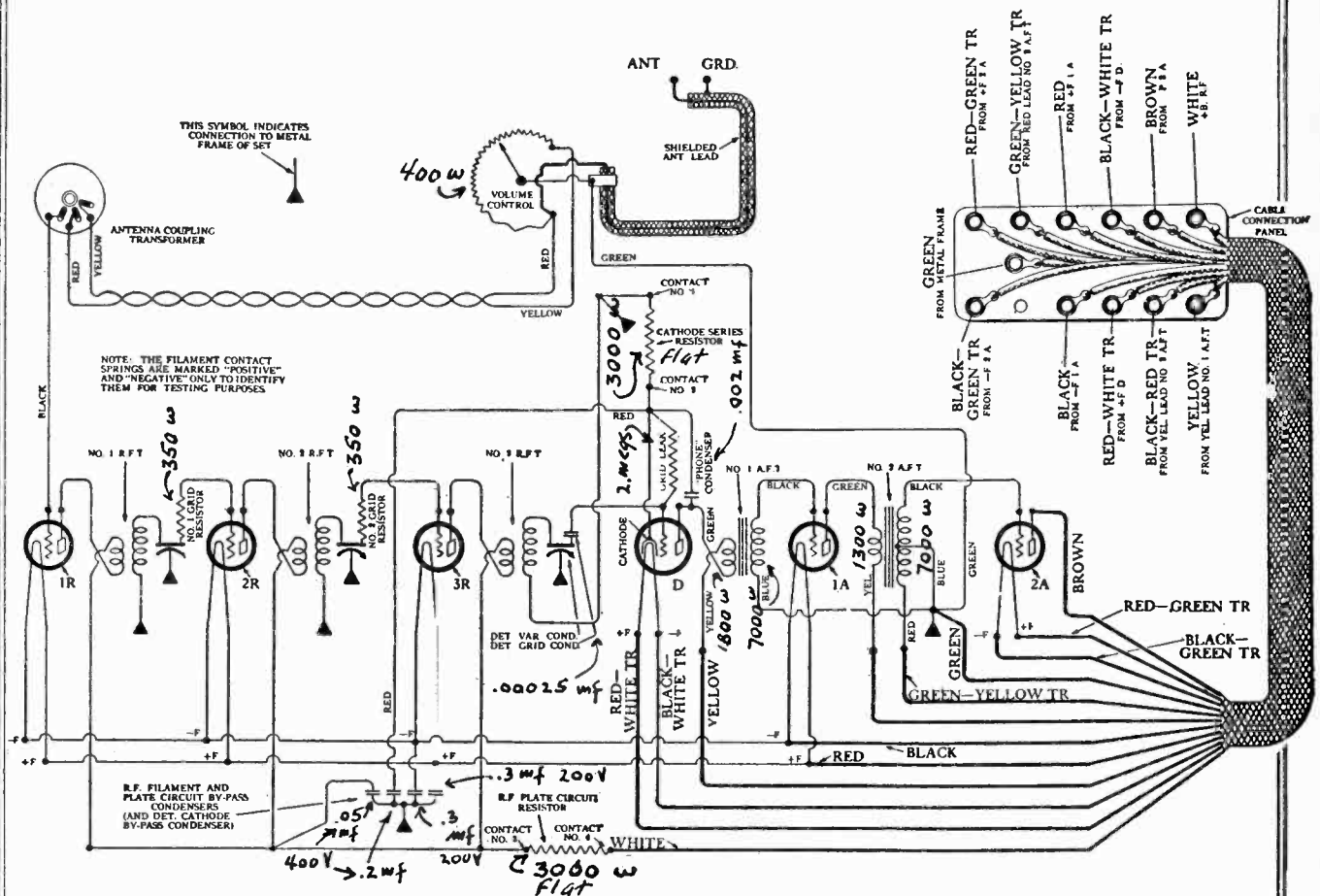
1st R.F.	2 V.
1st A.F.	4.8 V.
2nd A.F.	9.7 V.

Voltage at 2nd A.F. Tube on Power Unit

Filament Voltage	4.8 V.
Grid Bias Voltage	9.7 V.
Plate Voltage	85 V.

ATWATER KENT MFG. CO. MODEL 43 Receiver

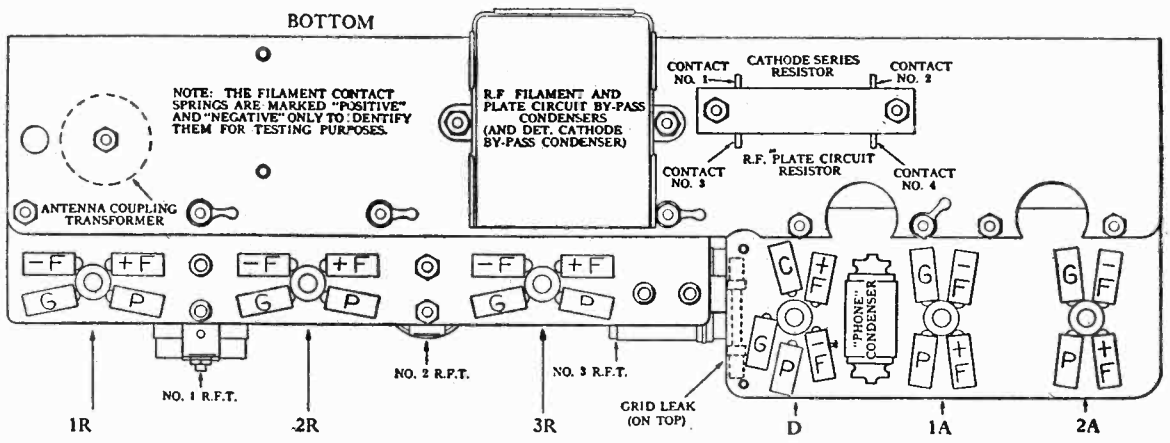
Schematic



WIRING DIAGRAM OF MODEL 43 SET.

The +B, 1st A. F. cable lead is black with a red tracer.

Wiring diagram of Model 43 power pack is shown on 152

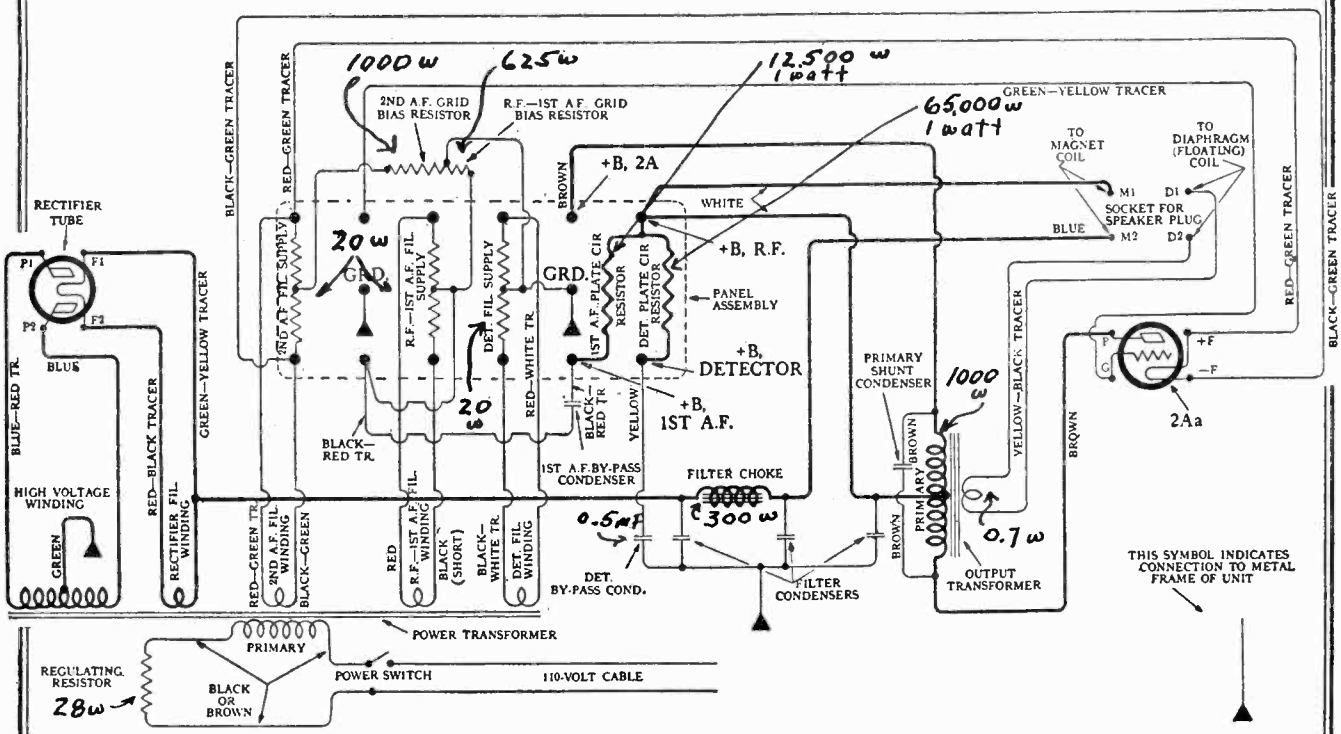


TEST CHART FOR MODEL 43.

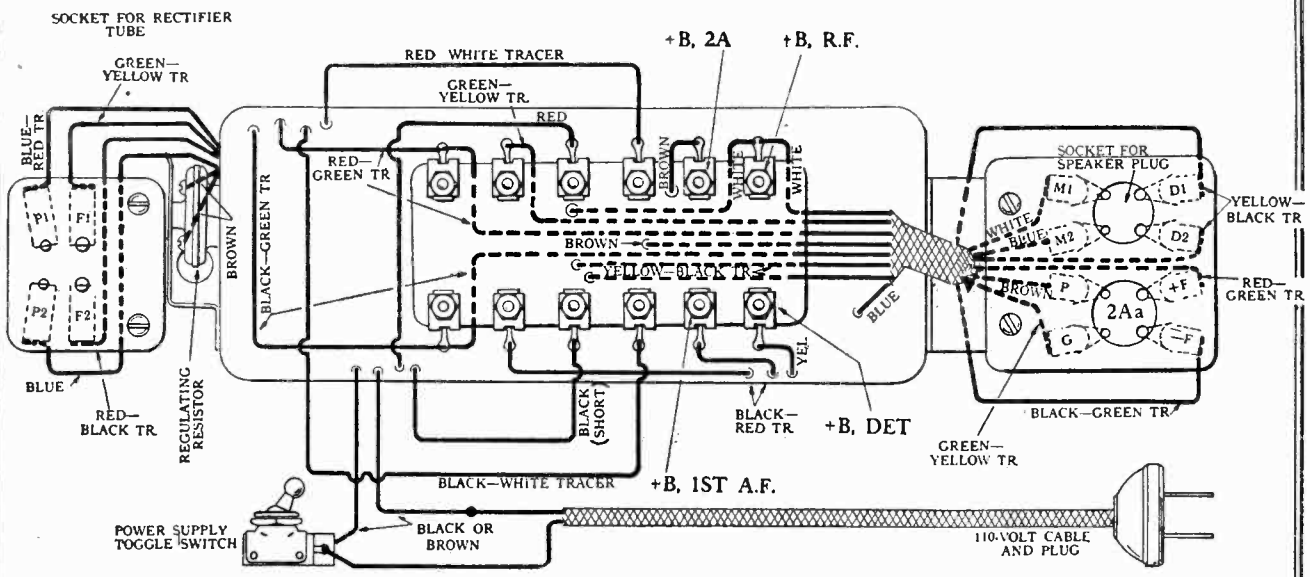
Power pack reference on page 1-14.

MODEL 43
Power Pack
Schematic

ATWATER KENT MFG. CO.



WIRING DIAGRAM OF POWER UNIT IN MODEL 43.



SHOWING CONNECTIONS AND APPROXIMATE POSITION OF LEADS FROM SEALED CONTAINER IN MODEL 43 POWER UNIT.

early type of power unit for Model 43, two brown leads from the primary-shunt condenser connect to the +B, 2A terminal and to the brown P2Aa lead respectively. In later models these connections are made internally.

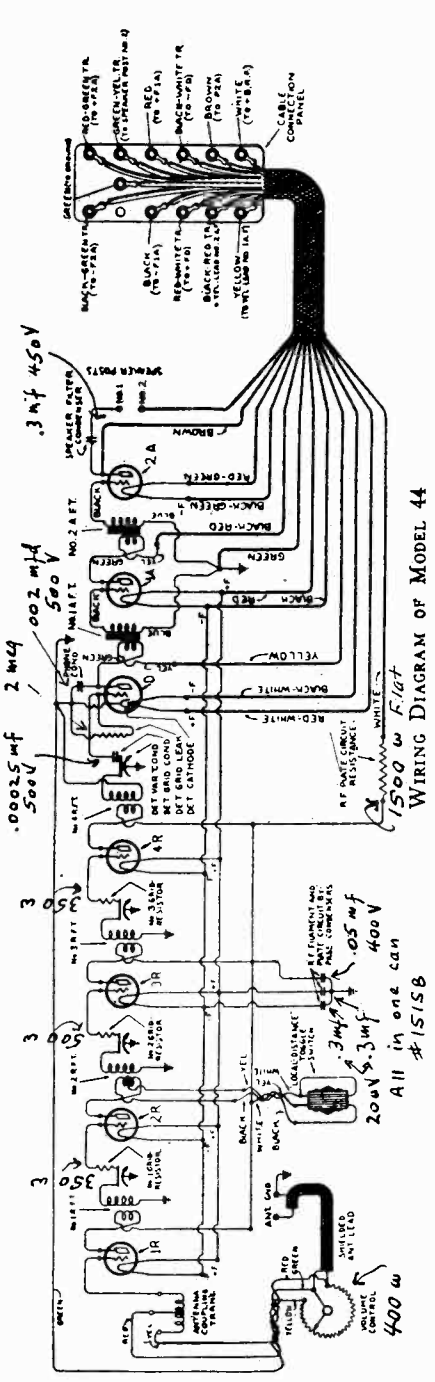
MODEL 44 and 45 **ATWATER KENT MFG. CO.**

SPECIAL NOTE.

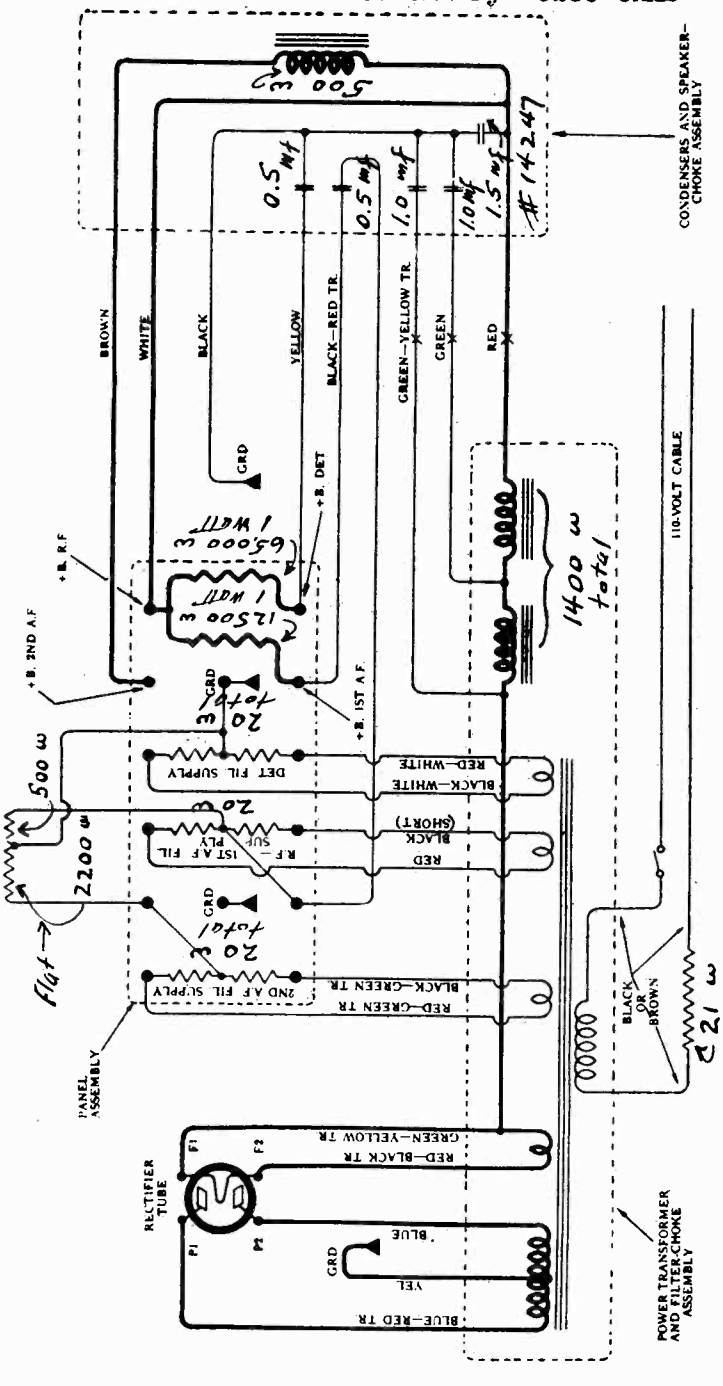
1st type power unit for Model 44 is shown on page 145. Second type power unit for Model 45 is shown on page 148.

TRANSFORMERS IN MODELS 44 and 45

1st a-f primary 1000 ohms # 8060
1st a-f secondary 7000 ohms
2nd a-f primary 1700 ohms # 7661
2nd a-f secondary 3250 ohms



WIRING DIAGRAM OF MODEL 44



WIRING DIAGRAM OF 2ND TYPE OF POWER UNIT FOR MODEL 44

Power unit references on pages 1-9 and 1-10.

Model 50

CONDENSERS

Detector grid	.00025	mfd	# 8593	500 volts
Detector phone	.002	mfd	# 8590	500 volts
Plate bypass	.3	mfd	# 14902	450 volts

RESISTORS

Detector grid leak	2.0	megs	# 15892 (8195)	1 watt
1st r-f plate	12500	ohms	# 8796	yellow glass
A-f filament	1.5	ohms	# 8627	black covered, flexible
Detector rheostat	20	ohms	# 8310	
R-f rheostat	5	ohms	# 8599	
R-f grid leak	2.0	megs	# 15892 (8195)	1 watt

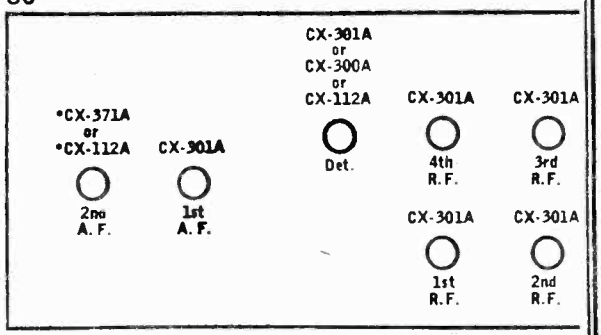
CHOKES

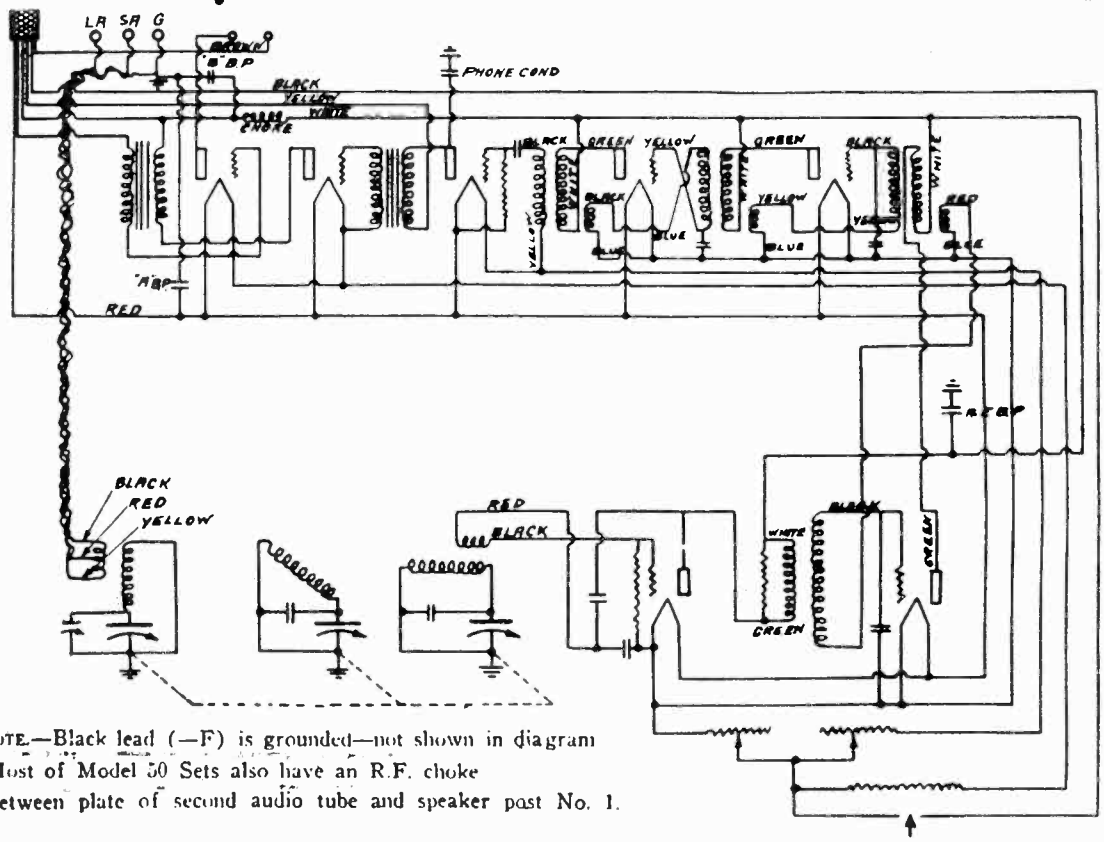
A-f plate	35	ohms	# 8232

TRANSFORMERS

1st a-f primary	1000	ohms	# 8650
1st a-f secondary	7000	ohms	
2nd a-f primary	1400	ohms	# 8940
2nd a-f secondary	7000	ohms	

50





NOTE.—Black lead (—F) is grounded—not shown in diagram
Most of Model 50 Sets also have an R.F. choke
between plate of second audio tube and speaker post No. 1.

WIRING DIAGRAM OF MODEL 50.

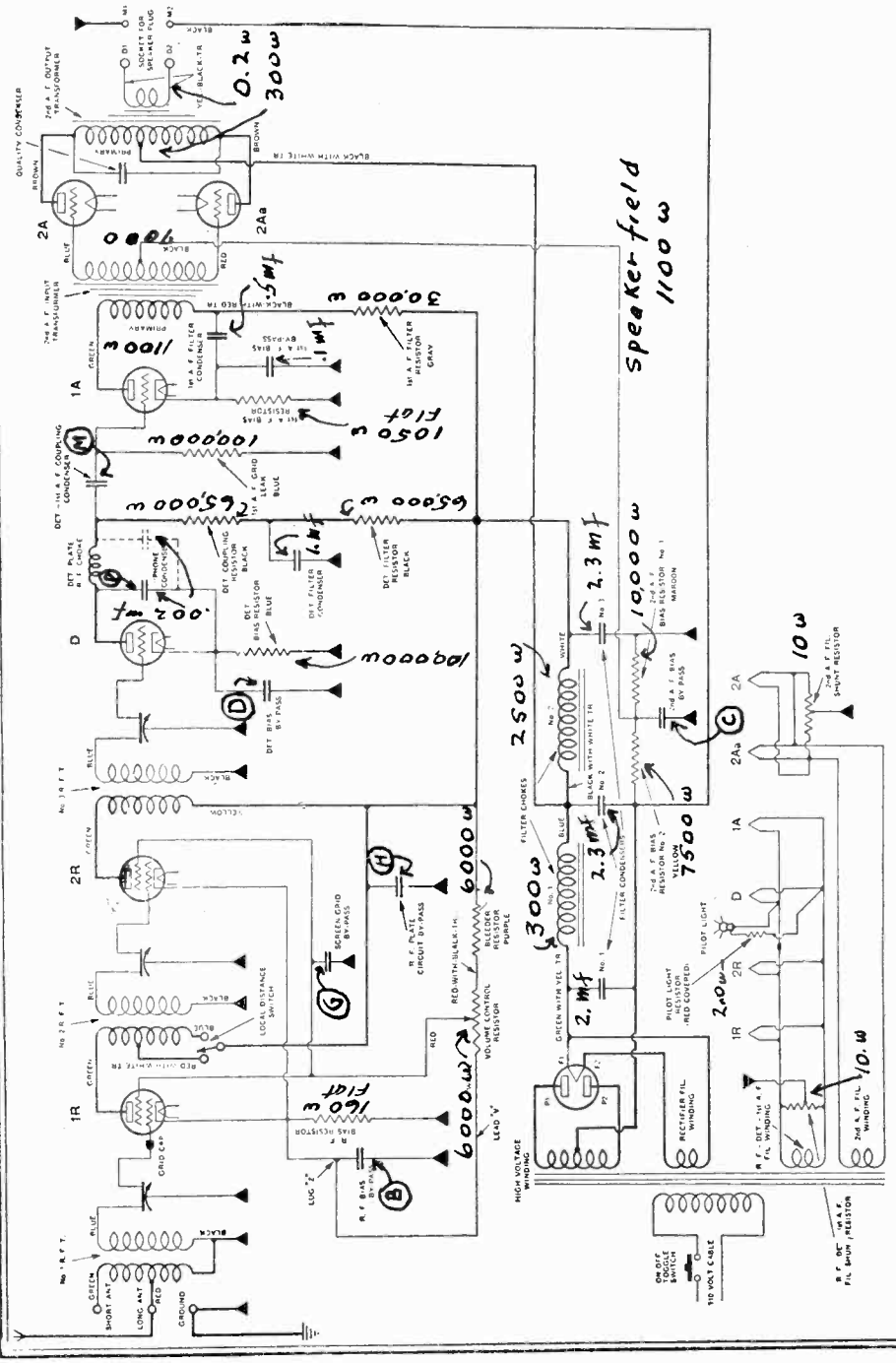
ATWATER KENT MFG. CO.

MODEL 55, 55-C
Early

VOLTAGE TABLE

Tube	Filament		Plate		Grid		Screen	
	Early	late	Early	late	Early	late	Early	late
R-F	2.2	2.2	160	160	2.8	3.7	78	96
Det	2.2	2.2	101	101	11.	11.		
1st A-F	2.2	2.2	64	69	1.8*	2.8*		
2nd A-F	2.2	2.2	213	230	39.	46		
Rec	4.5	4.5						

* Measured voltage, not operating voltage. Line voltage 110 V.

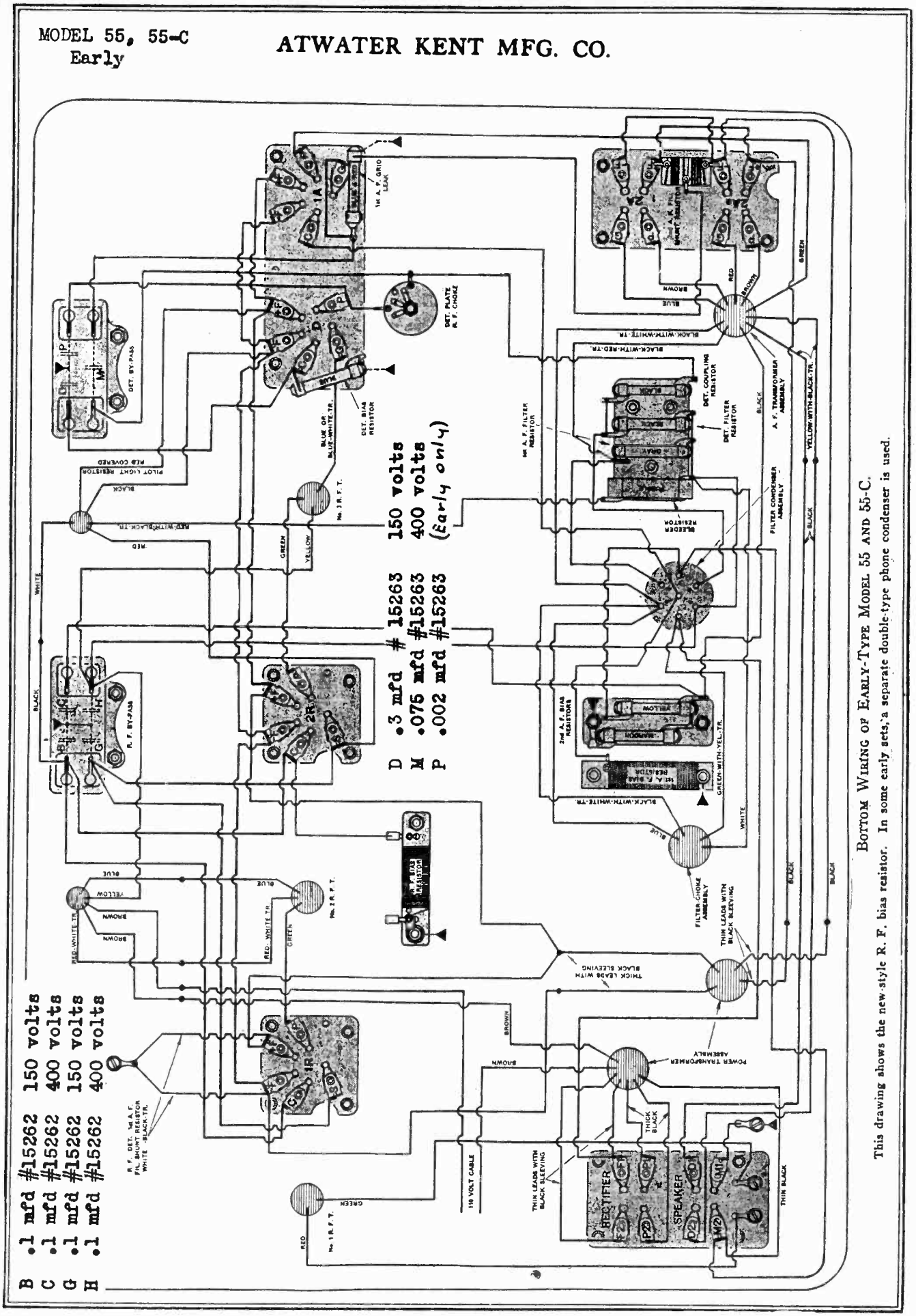


FILTER CONDENSER CONNECTIONS. See chassis
• These numbers refer to the figures shown within the circle representing the filter condenser can.

1st a-f filter	.5 mfd	connected between centre stud and terminal (3)
Detector filter	1. mfd	connected between terminal (4) and can
1st a-f bias	.5 mfd	connected between centre stud and can
Filter #1	2.0 mfd	connected between terminals (1) and (4)
Filter #2	2.3 mfd	connected between terminals (2) and (4)
Filter #3	2.3 mfd	connected between terminals (6) and can.

MODEL 55, 55-C
Early

ATWATER KENT MFG. CO.



BOTTOM WIRING OF EARLY-TYPE MODEL 55 AND 55-C.

This drawing shows the new-style R. F. bias resistor. In some early sets, a separate double-type phone condenser is used.

ATWATER KENT MFG. CO.

MODEL 55 and 55-C
Late

Schematic

Chassis

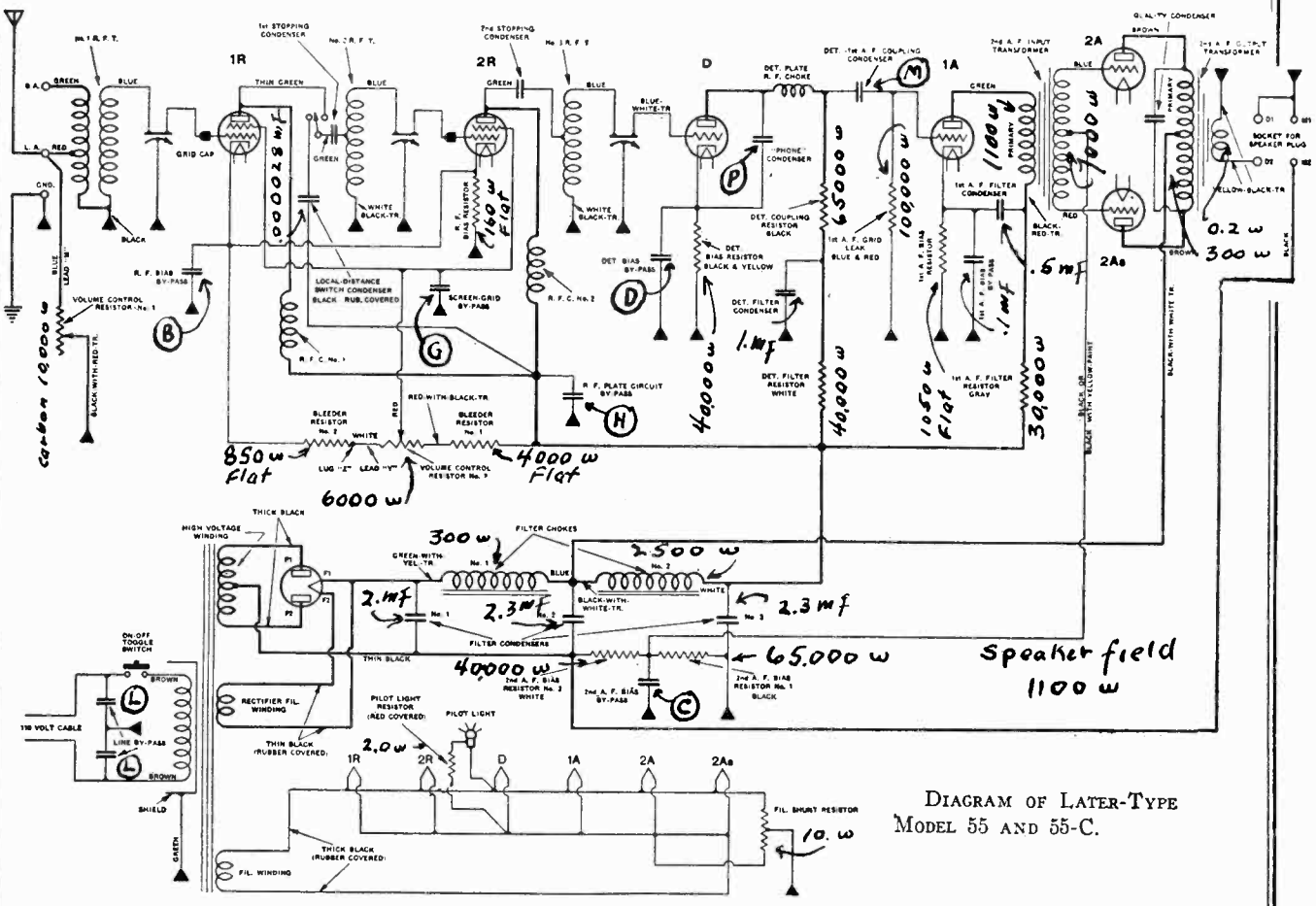
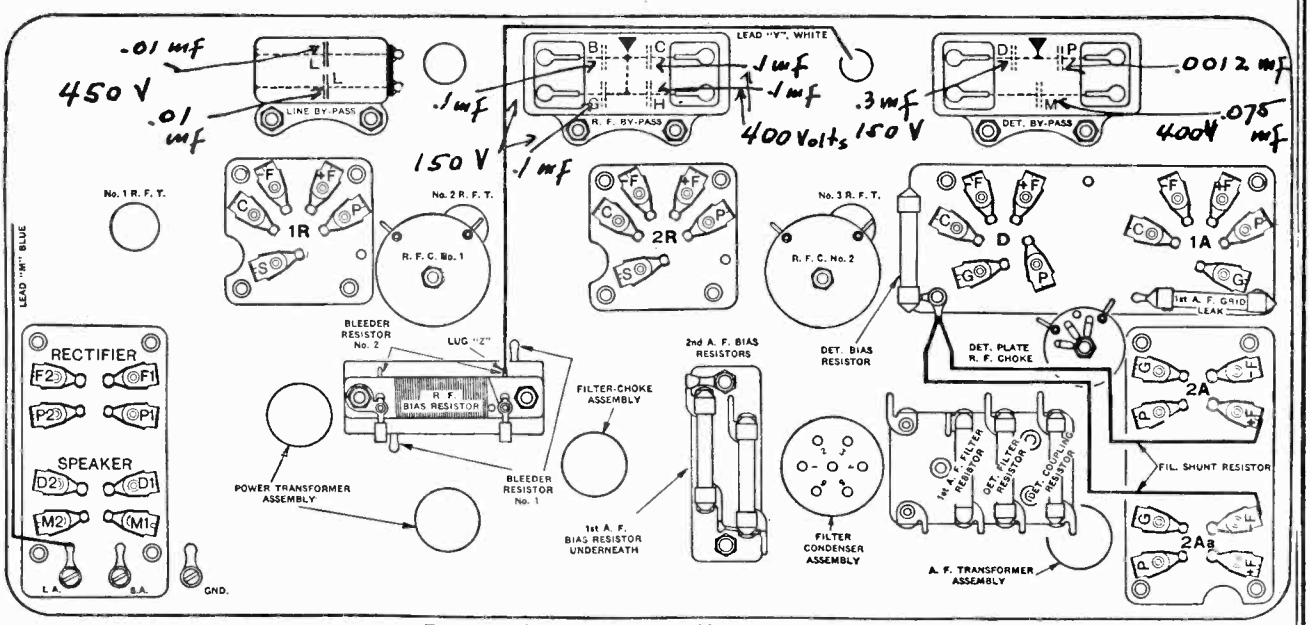


DIAGRAM OF LATER-TYPE MODEL 55 AND 55-C.



BOTTOM CHART OF LATER-TYPE MODEL 55 AND 55-C.

Condenser references on pages 1-17 and 1-18.

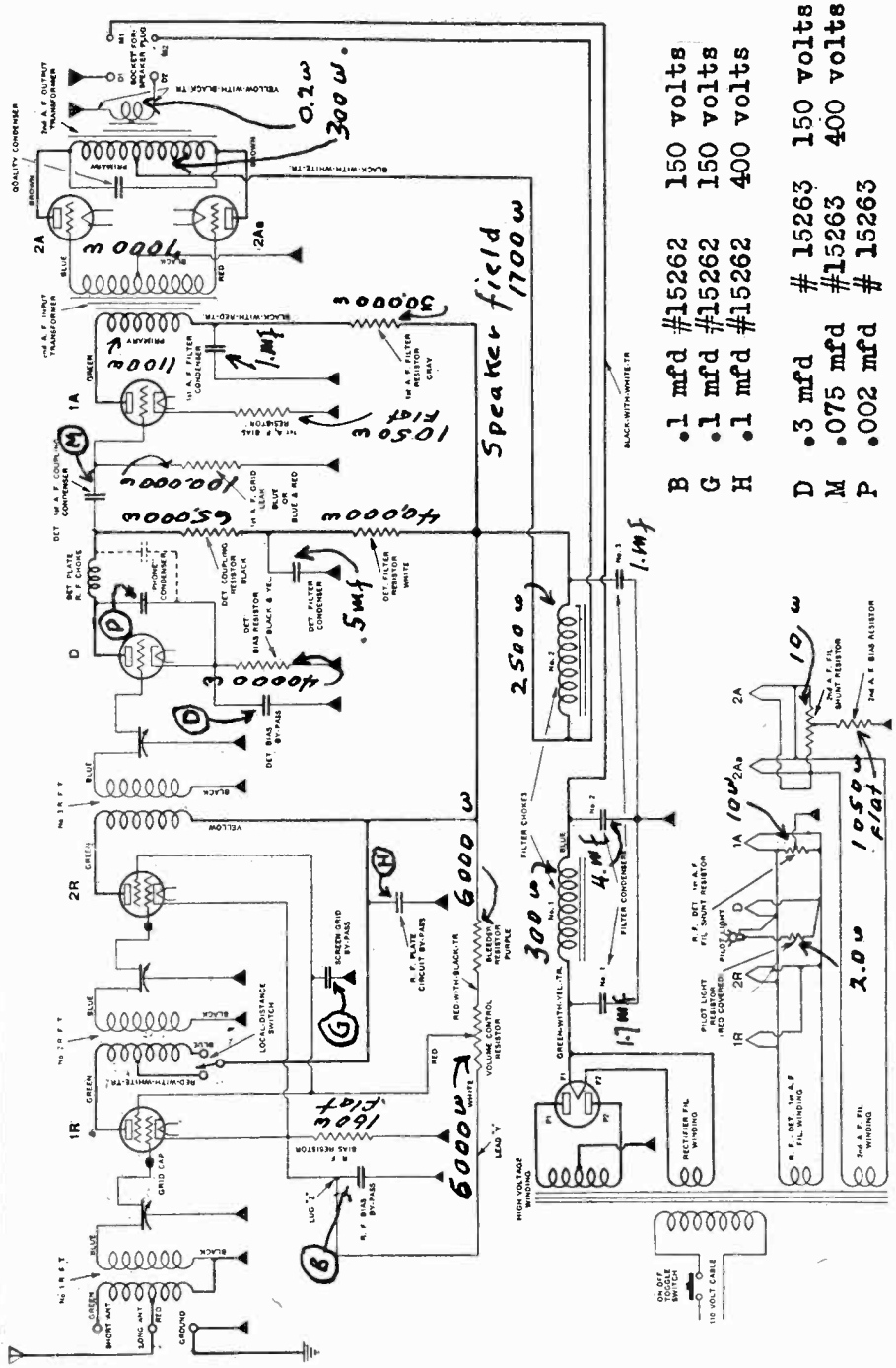
MODEL 55-F and 55-FC
Early

ATWATER KENT MFG. CO.

VOLTAGE TABLE

Tube	Filament	Plate	Grid	Screen
R-F	2.2	160	3.7	96
Det	2.2	101	11.	
1st A-F	2.2	69	2.8*	
2nd A-F	4.5	174	41.	
Rect.	4.5			

* Measured voltage, not operating voltage. Line voltage 110 V.



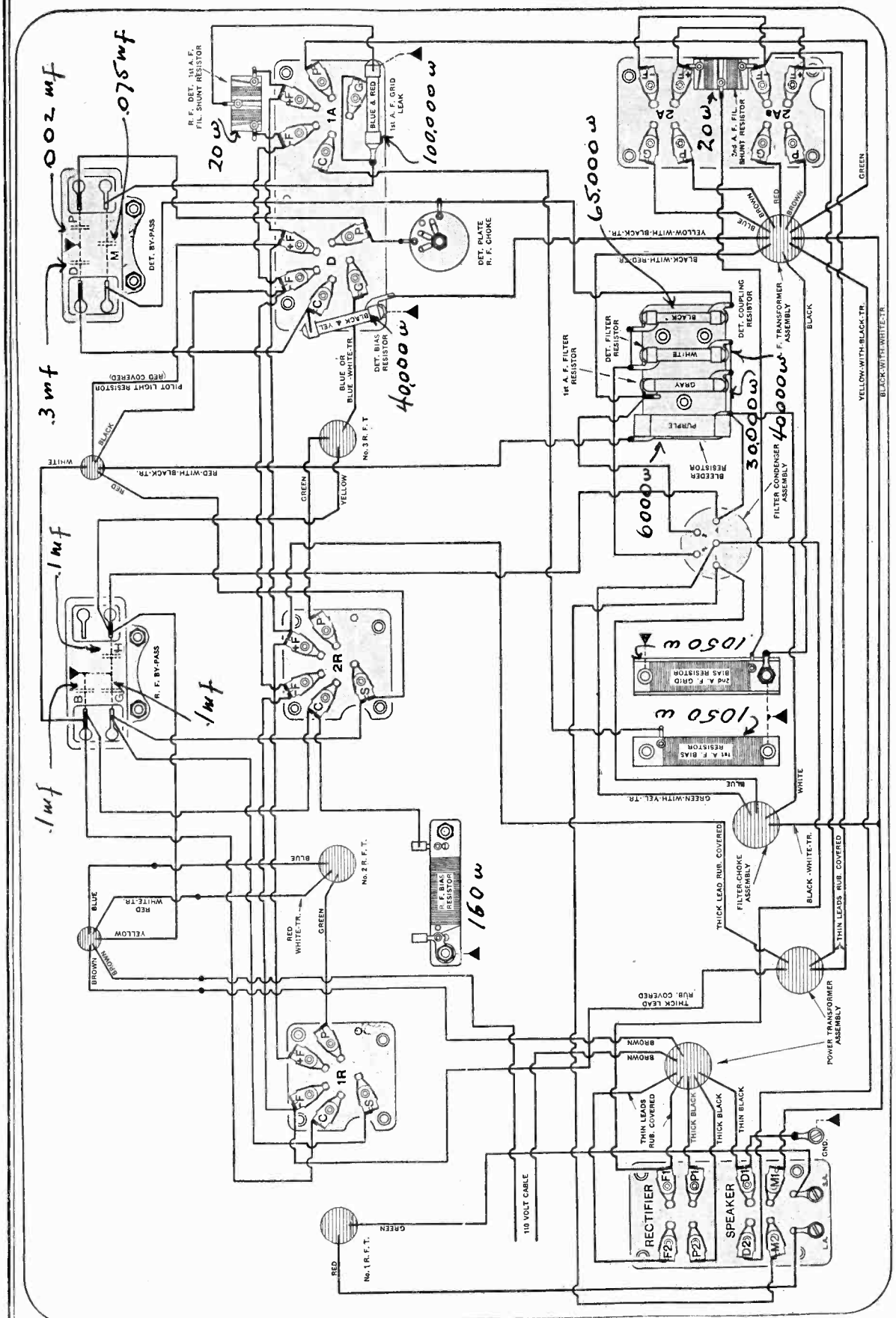
IAGRAM OF EARLY-TYPE MODEL 55-F AND 55-F-C.

FILTER CONDENSER CONNECTIONS. (See chassis layout
The numbers and connections stated are marked upon the filter unit can and are also shown on the chassis layout within the cirle designating the filter condenser can.

Filter #1	**1.7 mfd**	**connected between the center stud and can**
Filter #2	**4.0 mfd**	**connected between terminal (1) and can**
Filter #3	**1.0 mfd**	**connected between terminal (4) and can**
Detector filter	**.5 mfd**	**connected between terminal (2) and can**
A-f filter	**1.0 mfd**	**connected between terminal (3) and can**

ATWATER KENT MFG. CO.

MODEL 55-F and 55-FC Early Chassis



BOTTOM WIRING OF EARLY-TYPE MODEL 55-F AND 55-F-C.

Some of these sets had a combination resistor, No. 15274, which is superseded by two separate resistors, No. 16988 being used as R. F. bias resistor, and No. 17077 as filament shunt resistor.

MODEL 55-F and 55-FC
Late
Chassis

ATWATER KENT MFG. CO.

FILTER CONDENSER CONNECTIONS. See data pertaining thereto on page 162
Bypass condenser specifications are shown below.

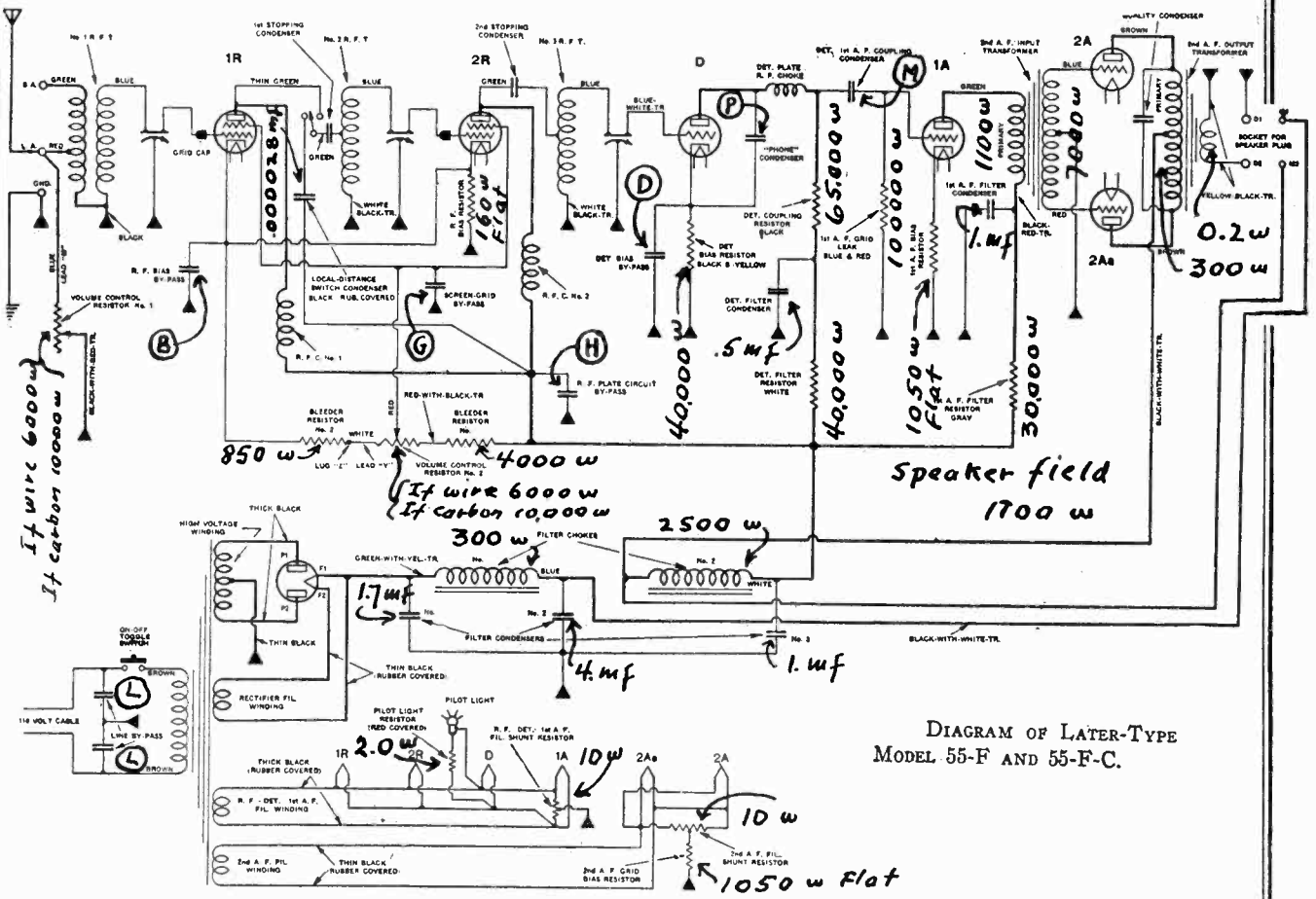
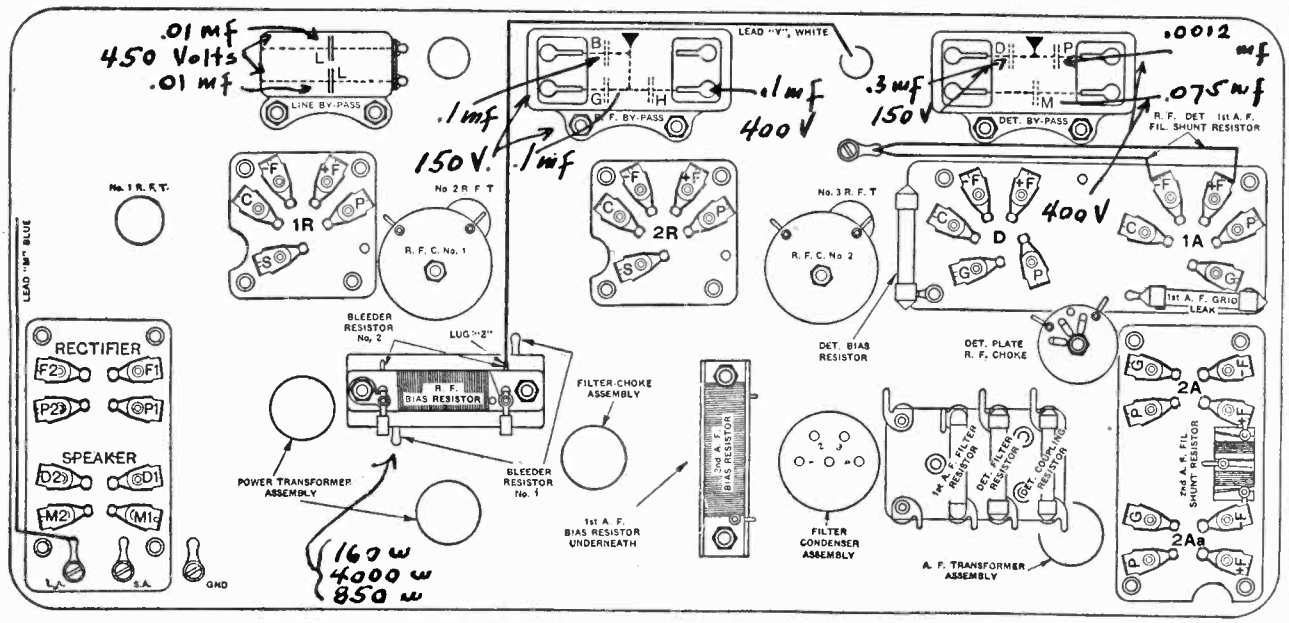


DIAGRAM OF LATER-TYPE MODEL 55-F AND 55-F-C.

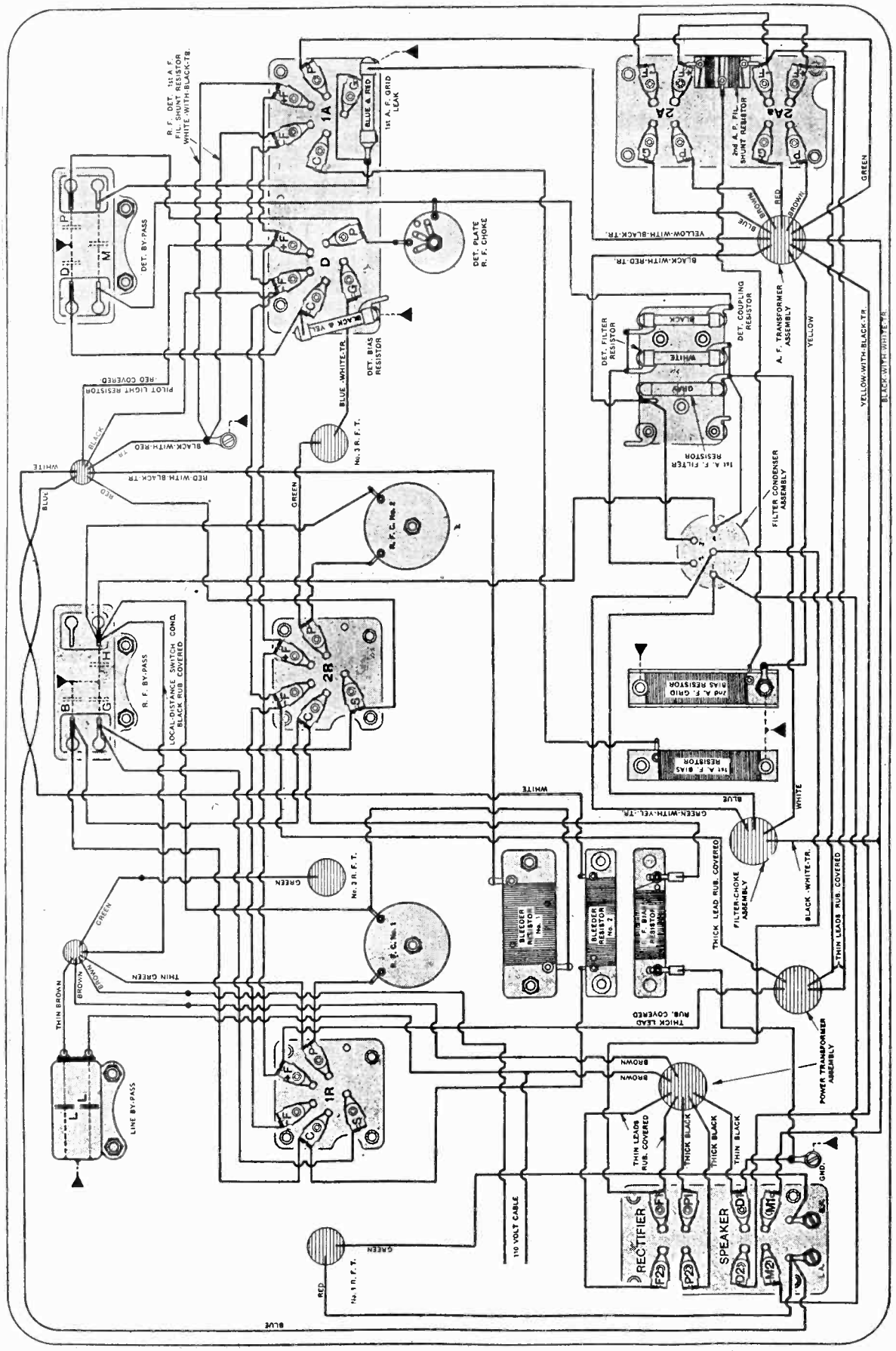


BOTTOM CHART OF LATER-TYPE MODEL 55-F AND 55-F-C.

Condenser reference on page 1-20.

ATWATER KENT MFG. CO.

MODEL 55-F and 55-FC
Late Chassis



BOTTOM WIRING OF LATER-TYPE MODEL 55-F AND 55-F-C.

The 1st-A. F. bias resistor is mounted under the 2nd-A. F. bias resistor. The three other wire-wound resistors are mounted together, being insulated from each other by sheets of fibre.

Some of these sets had a combination resistor, No. 16868, which is superseded by two separate resistors, No. 16988 being used as R. F. bias, and No. 16989 as bleeder No. 2.

ATWATER KENT MFG. CO.

VOLTAGE DATA FOR MODELS 60 and 60-C (1st and 2nd Types)

Line voltage 110. 120 volt line is 10 percent higher.

Tube	Filament	Plate	Grid	Screen	
R-F (1st)	2.2	160	7.3	119	119
R-F (2nd-3rd)	2.2	160	3.7	83	
Det.	2.2	101	11.		
A-F (1st)	2.2	69	1.8*		
A-F (2nd)	2.2	230	44.		
Rect.	4.5				

* Measured, not actual operating voltage.

VOLTAGE DATA FOR MODEL 60 and 60-C (3rd Type)

Line voltage 110. Volume control at minimum.

Tube	Filament	Plate	Grid	Screen
R-F	2.3	170	16.5*	142
Det.	2.3	119	1.5	
A-F (1st)	2.3	73	1.9**	
A-F (2nd)	2.3	224	36. ***	

* Local distance switch at distance

** Measured, not actual operating voltage.

*** If 2nd A-F bias resistor #1 is open, bias will be about 85 v.

Checking Sensitivity of Set

When checking the sensitivity of the set, it is necessary to use an oscillator, and a meter to indicate maximum output volume.

A local oscillator is necessary to ensure constancy of signal strength; signals from broadcast stations are not sufficiently constant for this work.

An output meter is necessary to ensure a reliable indication of output volume; the ear is not reliable enough for this purpose.

The oscillator feeds a weak signal into the receiver. The signal is amplified in the receiver and produces a reading on a meter which is connected to the output of the set. This meter indicates the strength of output volume. The reading on the output meter is greatest when all the tuned circuits in the set are adjusted to the same frequency as the oscillator signal.

1. *Oscillator.*

The oscillator must provide modulated R. F. signals at four different frequencies in the broadcast range. *These four frequencies should correspond to dial settings of 5, 45, 65 and 95 on the dial of a 3rd type Model 60-C* ***which has the original factory synchronism.***

Each of the four R. F. oscillators should have an adjustable pick-up so that the strength of each oscillator may be controlled independently of the other three.

2. *Output Measuring Circuit.*

The output measuring circuit is shown and described

Adjusting Trimmer Condensers

1. Connect the common pick-up lead from the four R. F. oscillators to one end of a No. 8112 condenser. Connect the other end of this condenser to the Long-Antenna post. Connect the oscillator container to the Ground post.
2. Put plug "A" of the output measuring circuit in the speaker-plug socket on the set. Plug an F-4 type speaker in socket "B." Throw switch "D" to the right.
3. Put all tubes in the set; power switch on; volume control at maximum; local-distance switch at distance. Break away the sealing wax on the trimmer-condenser screws
4. *Tune set exactly to 5 on dial.* Reduce or increase the amount of pick-up from the 1st oscillator to secure a reading of about 20 on the output meter.
5. With a screw-driver, turn the pressure screw of the 4th trimmer condenser one way or the other, as necessary, to the point where the reading on the output meter is greatest. Repeat this process on the 3rd trimmer, then on the 2nd, and finally on the 1st. Reduce the pick-up from the 1st oscillator if necessary in order to keep the needle of the galvanometer near the centre of its scale.

This adjustment of the trimmer-condenser screws is termed the CORRECT POSITION.

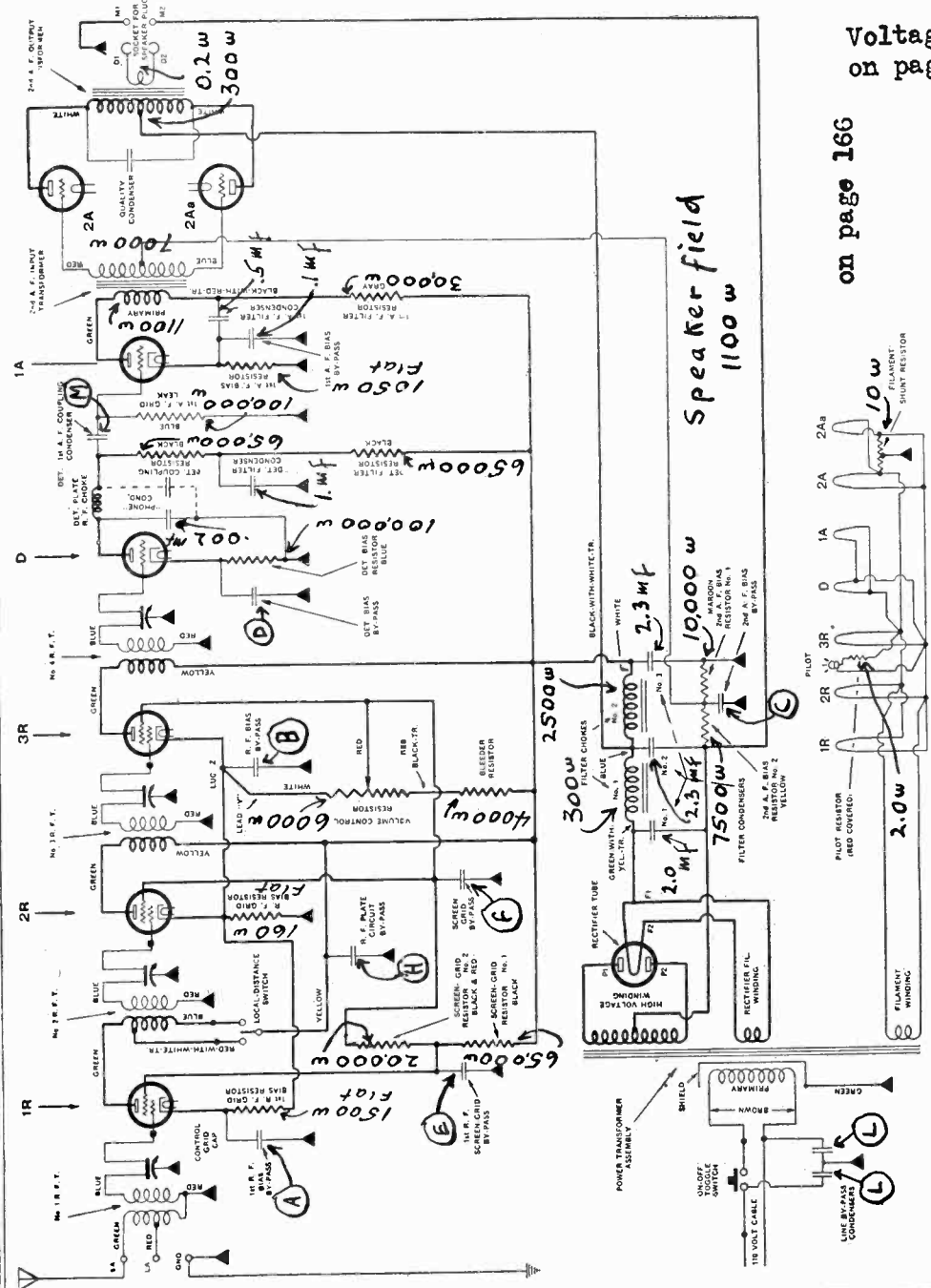
ATWATER KENT MFG. CO.

MODEL 60 and 60-C
Early
Schematic

FILTER CONDENSER CONNECTIONS. See chassis layout Data

The numbers listed as connections are marked upon the filter condenser unit and shown within the circle designating the condenser unit on the chassis layout.

1st a-f filter	.5 mfd	connected between center stud and terminal (3)
Detector filter	1. mfd	connected between terminal (4) and can
1st a-f bias	.5 mfd	connected between center stud and can
Filter #1	2.0 mfd	connected between terminals (1) and (4)
Filter #2	2.3 mfd	connected between terminals (2) and (4)
Filter #3	2.3 mfd	connected between terminals (6) and can



Voltage data on page 173

on page 166

BYPASS CONDENSER VALUES. The bypass condensers are designated by letters, exclusive of those within the filter condenser can. For bypass condensers, see schematic above and chassis layout

RF Bypass # 1	A	.1 mfd	150 volts	E	.1 mfd	150 volts
	F	.1 mfd	400 volts	H	.1 mfd	400 volts
RF Bypass #2	B	.1 mfd	150 volts	C	.1 mfd	150 volts
	L	.01 mfd	400 volts	L	.01 mfd	400 volts
Detector Bypass	D	.3 mfd	150 volts	M	.075 mfd	400 volts

EARLY-TYPE MODEL 60 AND 60-C.

Voltage reference on page 1-24.

MODEL 61,61-C DC
Early
Schematic

ATWATER KENT MFG. CO.

FILTER CONDENSER DATA. The filter condenser unit in the Model 61 and 61-C, (Direct Current) Early, contains two of the filter condensers and two other bypass condensers. The numbers to bd quoted in connection with the connections are marked upon the condenser can and are shown upon the chassis layout

1st a-f filter	.5 mfd	connected between terminals(1)and (3)
Detector filter	1.0 mfd	connected between terminals (2) and (6)
Filter # 2	4.0 mfd	connected between terminal (4) and center stud
Filter # 3	2.0 mfd	connected between terminal (5) and center stud

Filter #1 is a part of one of the bypass units as stated elsewhere on this page.

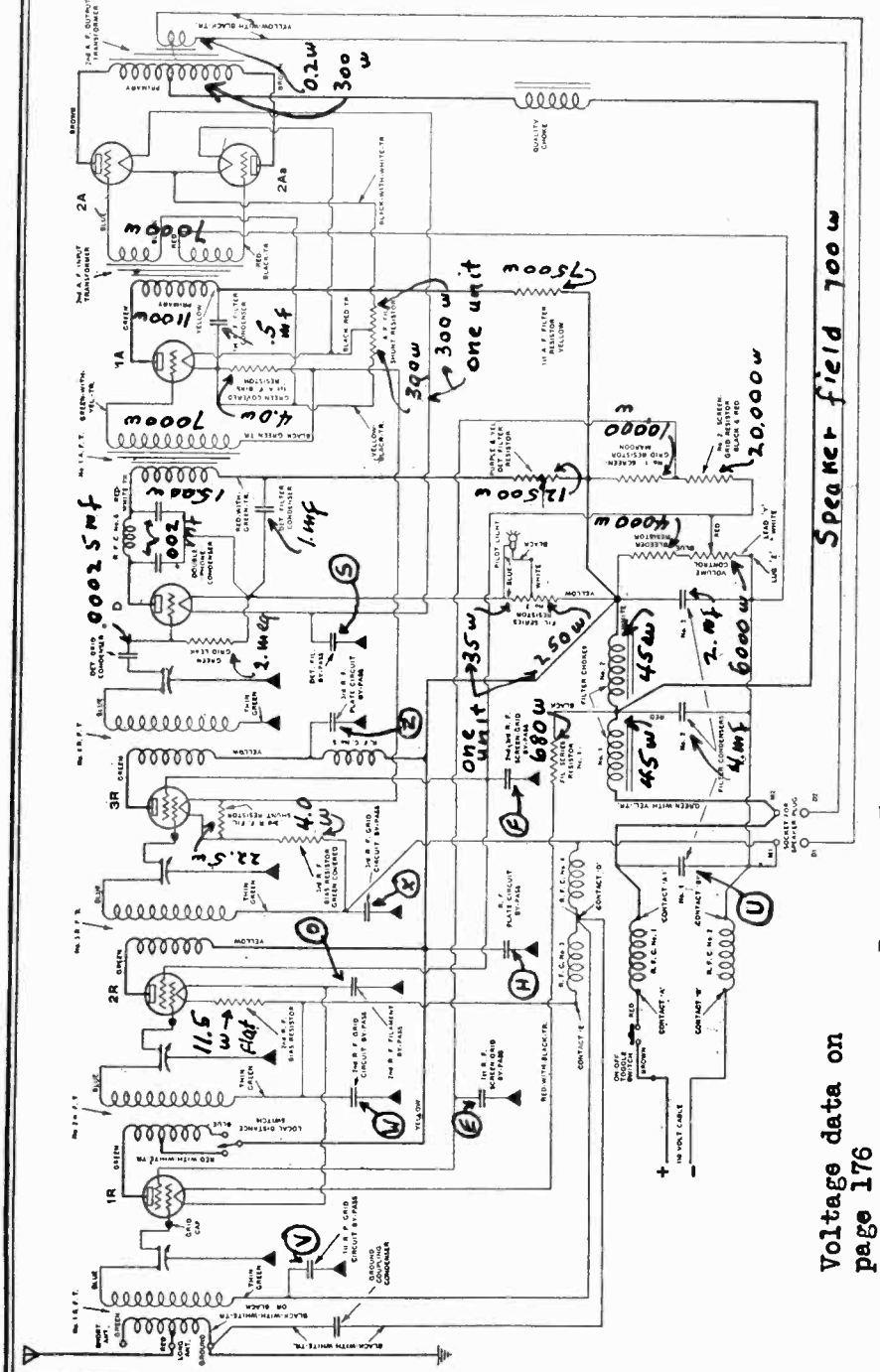


DIAGRAM OF EARLY MODEL 61 AND 61-C (DIRECT CURRENT).

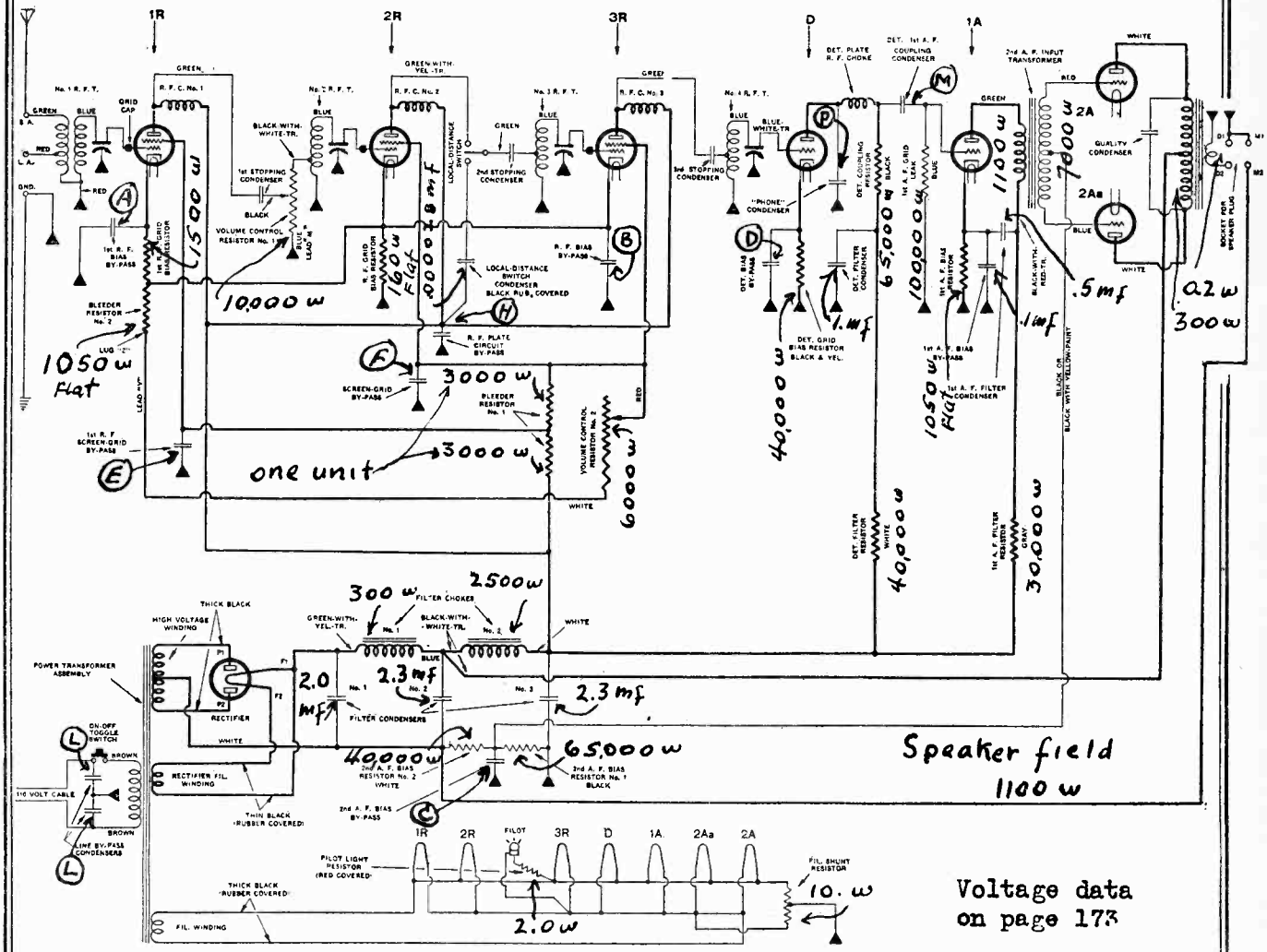
BYPASS CONDENSERS. The following designating letters are shown upon the schematic wiring diagram and also upon the chassis layout

RF Bypass #1	E	.1 mfd	150 volts	O	.1 mfd 400 volts
	V	.1 mfd	150 volts	W	.1 mfd 400 volts
RF Bypass #2	F	.1 mfd	400 volts	H	.1 mfd 400 volts
	X	.1 mfd	150 volts	Z	.1 mfd 150 volts
Detector Bypass	S	.3 mfd	150 volts	U*	.075 mfd 400 volts

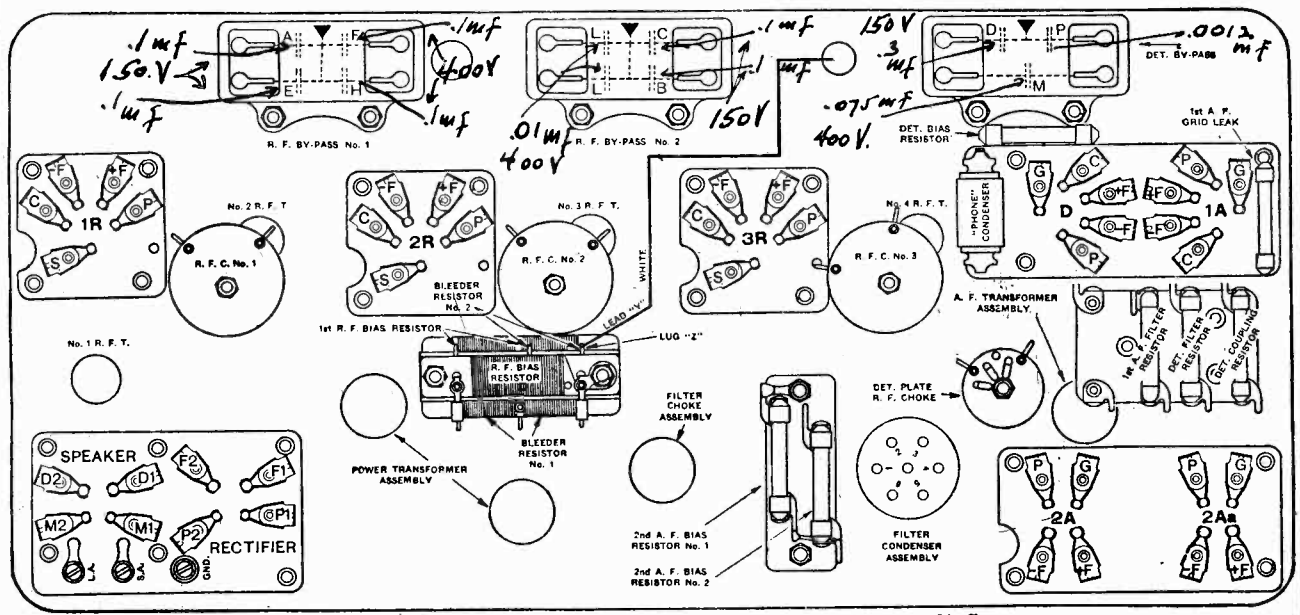
* Condenser U is Filter #1

Voltage reference on page 1-28.

ATWATER KENT MFG. CO. MODEL 60 and 60-C Late Schematic



CIRCUIT OF LATER MODEL 60 AND 60-C.

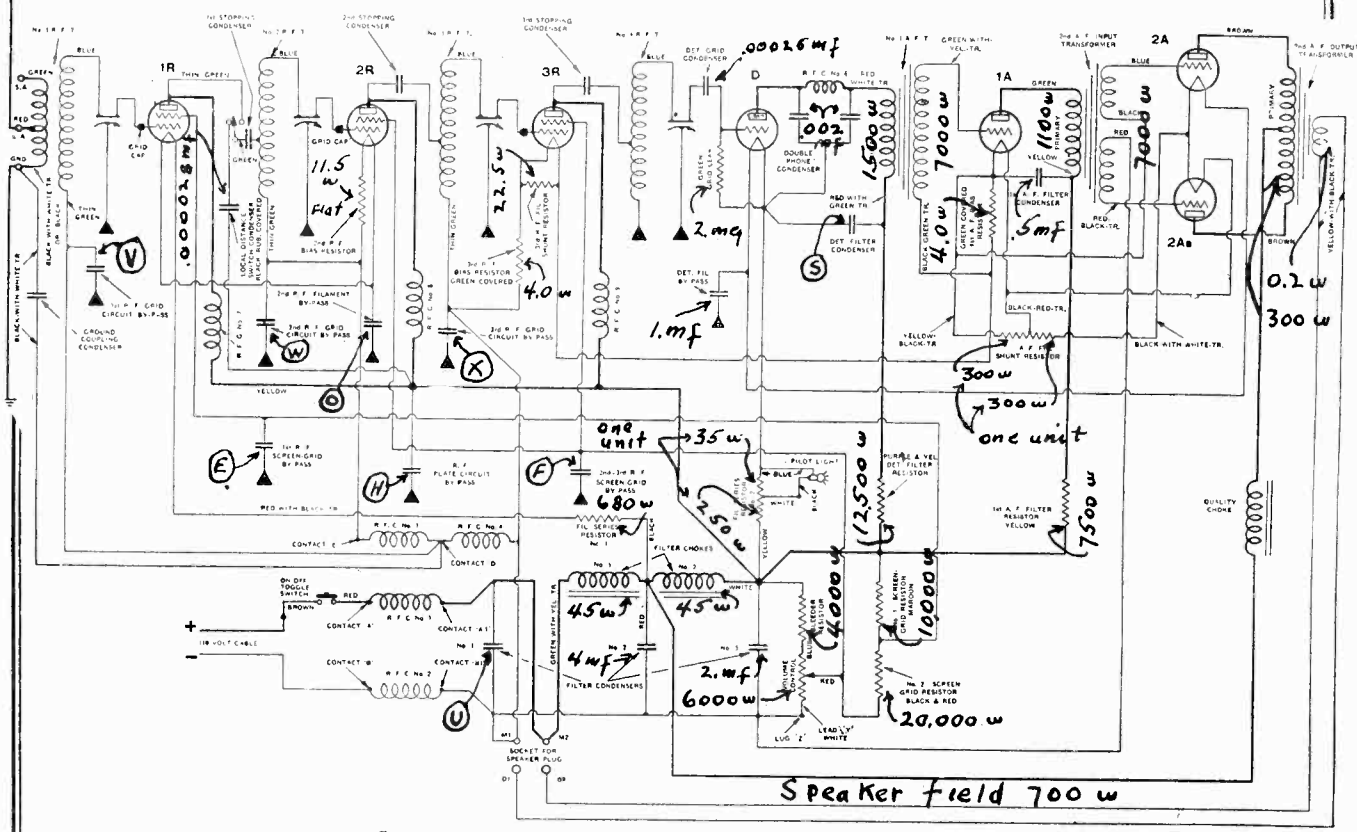


BOTTOM CHART OF LATER-TYPE MODEL 60 AND 60-C.

Voltage reference on page 1-24.

MODEL 61-61-C
Late Schematic

ATWATER KENT MFG. CO



SCHEMATIC DIAGRAM OF LATER MODEL 61 AND 61-C (DIRECT CURRENT).

FILTER CONDENSER SPECIFICATIONS are shown on page 174.
BYPASS CONDENSER designations shown upon wiring diagram also appear upon chassis layout on page 177. For BYPASS CONDENSER data refer only to page 177 and not to page 174.

	R-F	Det.	1st A-F	2nd A-F
Fil.	2.9	4.6	4.6	4.6
Plate	78	32	50	80
Grid	4.6*		1.4	9
Screen	60**			

61

CX-322	CX-322	CX-322	CX-112A	CX-112A
1st R.F.	2nd R.F.	3rd R.F.	Det.	1st A.F.

CX-371A	CX-371A
2nd A.F.	2nd A.F.

* This voltage applies only to the 1st R-F stage. The 2nd R-F bias voltage is 1.4 volts and the 3rd R-F bias voltage is 0.9 volts.

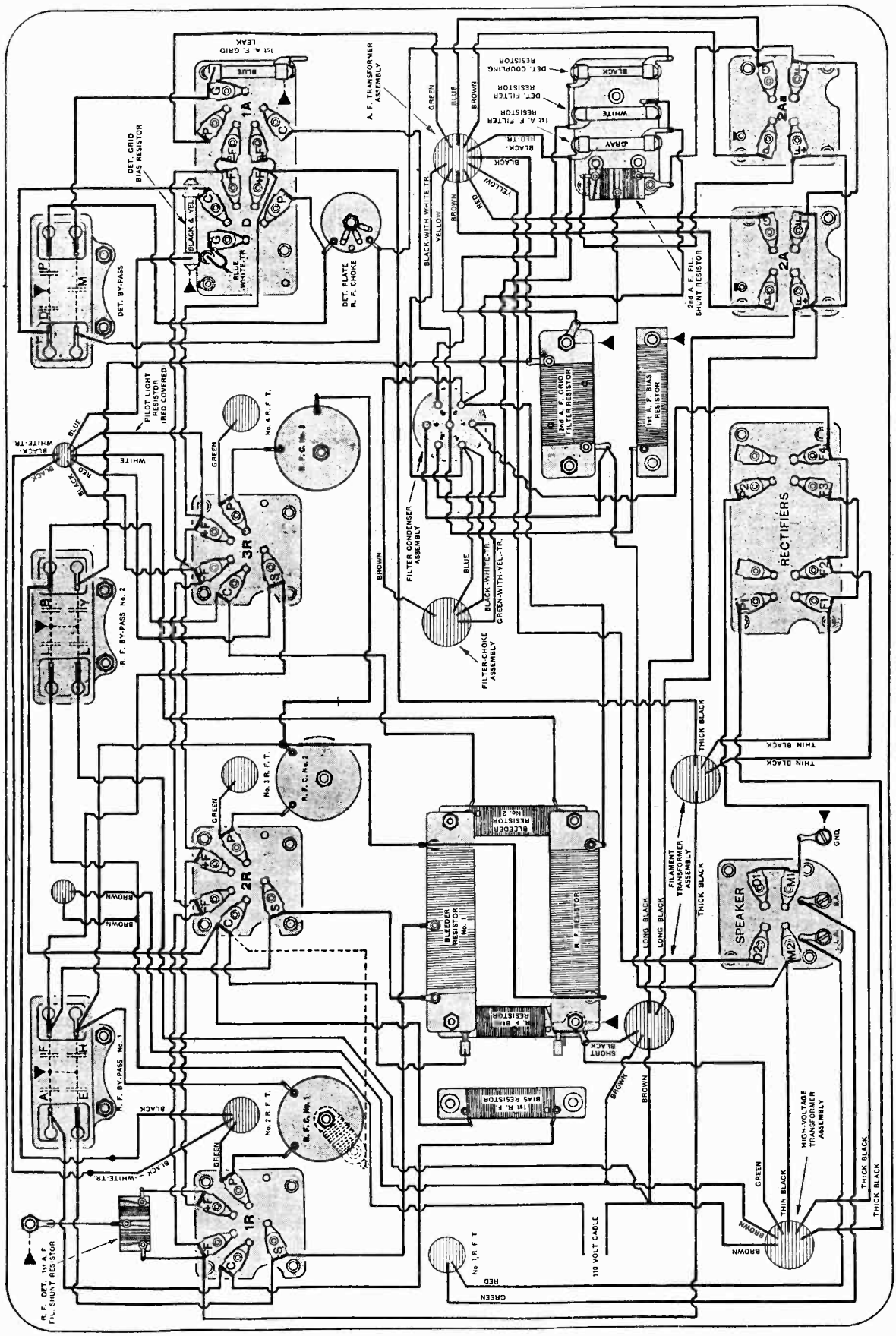
** The screen voltage quoted applies only to the third R-F tube. The other R-F tubes secure different values of screen voltage. R-F tube number 1 or rather the first R-F stage has 46 volts applied to its screen. Likewise the 2nd R-F stage has 46 volts applied to its screen.

The forementioned voltage measurements are made with the volume control adjusted to minimum.

Condenser reference on page 1-26.

ATWATER KENT MFG. CO.

MODEL 66
Chassis



BOTTOM WIRING OF LATER-TYPE MODEL 66.

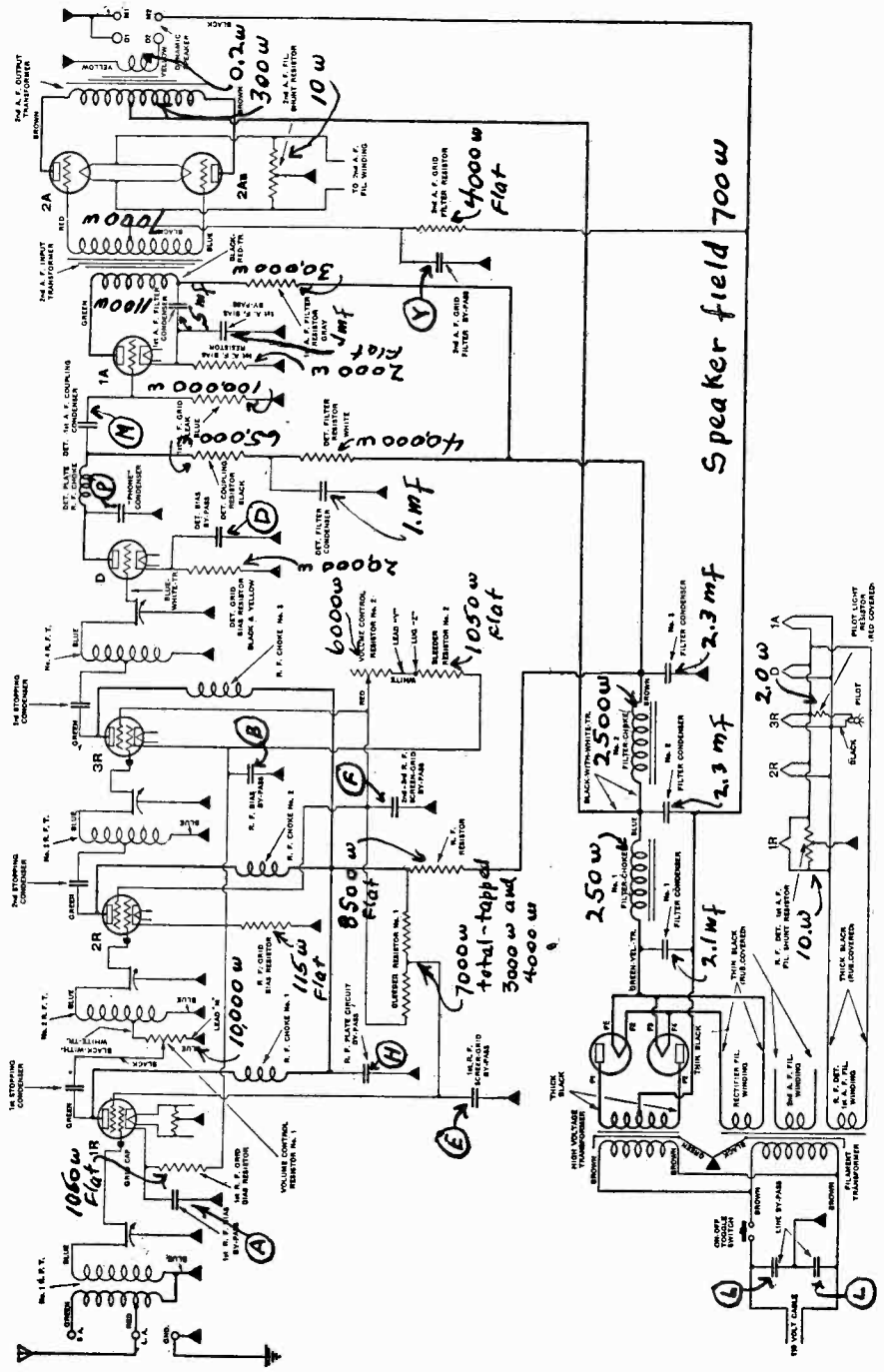
The resistor shown in dotted lines is the old-style R. F. bias resistor. This is shown merely to indicate how the old-style R. F. bias resistor was connected. The 1st-R. F. bias resistor is mounted on top of the new-style R. F. bias resistor. The 1st-A. F. bias resistor is mounted under the 2nd-A. F. grid-filter resistor.

MODEL 66
Schematic
Data

ATWATER KENT MFG. CO

FILTER CONDENSER CONNECTIONS. The following specifications should be used in conjunction with the schematic shown below and the chassis layout shown on The numerals refer to the numbers marked upon the condenser can

Filter #1	2.1 mfd connected between terminals (1) and (4)
Filter #2	2.3 mfd connected between terminals (2) and (4)
Filter #3	2.3 mfd connected between terminal (6) and can
Detector filter	1.0 mfd connected between terminal (5) and can
1st a-f filter	0.5 mfd connected between center stud and can
1st a-f bias	0.1 mfd connected between center stud and (3)



CIRCUIT OF MODEL 66.

In some early Model 66, volume control resistor No. 1 is connected across the R. F. choke coil in the plate circuit of the 1st-R. F. tube. The slider of this resistor is connected to a tap on No. 2 R. F. T. through a coupling condenser.

BYPASS CONDENSER VALUES. The letter designations given should be used in conjunction with the schematic wiring diagram above and the chassis layout

RF Bypass #1	A	.1 mfd	150 volts	F	.1 mfd	400 volts
	E	.1 mfd	150 volts	H	.1 mfd	400 volts
RF Bypass #2	B	.1 mfd	150 volts	L	.01 mfd	400 volts
	Y	.1 mfd	150 volts	L	.01 mfd	400 volts
Detector Bypass	D	.3 mfd	150 volts	M	.075 mfd	400 volts
				P	.0012 mfd	400 volts

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MODEL 67, 67-C
Early and Late
Schematic

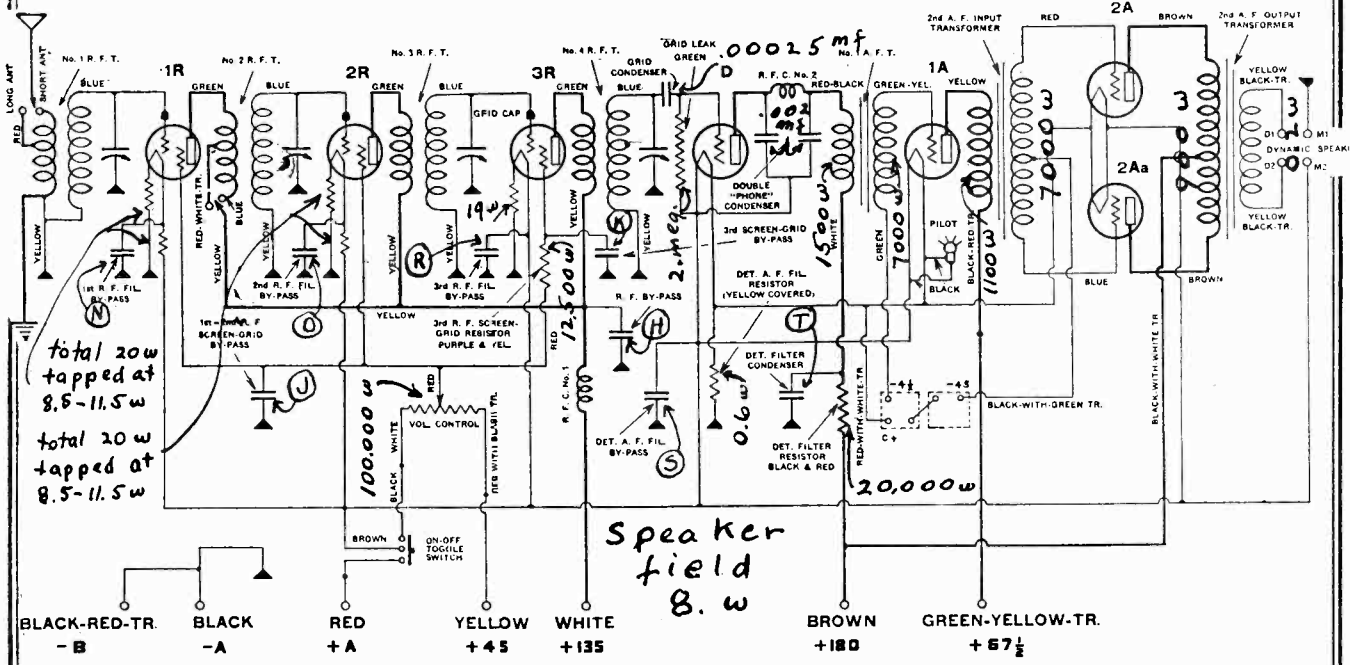


DIAGRAM OF EARLY MODEL 67 AND 67-C (BATTERY OPERATED).

Voltage data on page 180

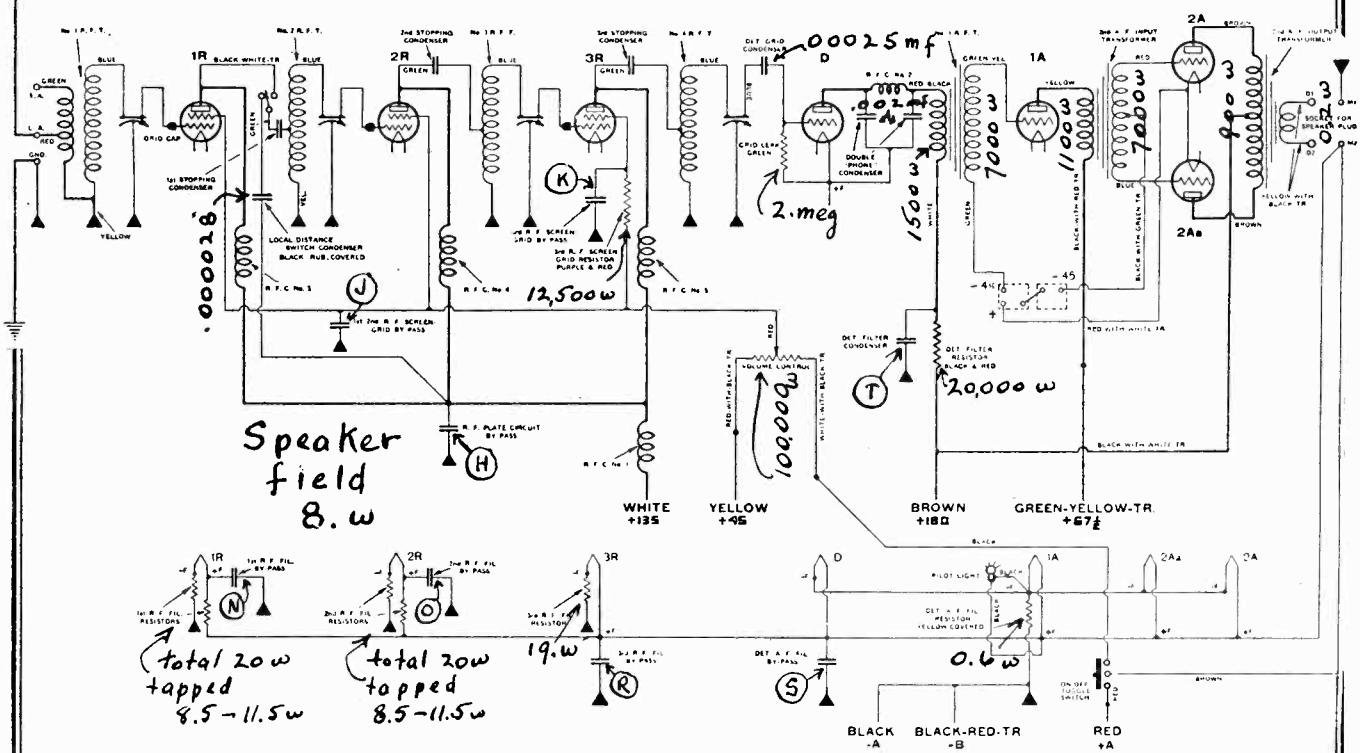


DIAGRAM OF LATER MODEL 67 AND 67-C (BATTERY OPERATED).

Voltage reference on page 1-32.

MODEL 66 Voltage
MODEL 67 and 67-C
Voltage

ATWATER KENT MFG. CO.

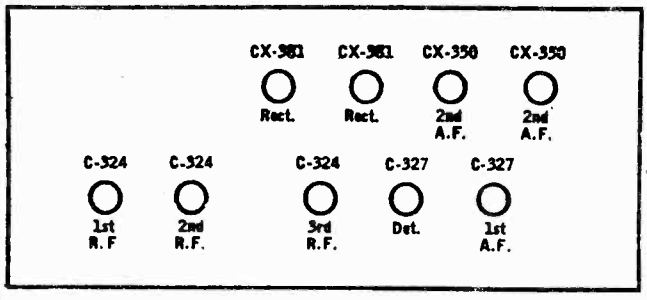
VOLTAGE DATA FOR MODEL 66

Line voltage 110. Line voltage of 120 volts increases voltage 10%.

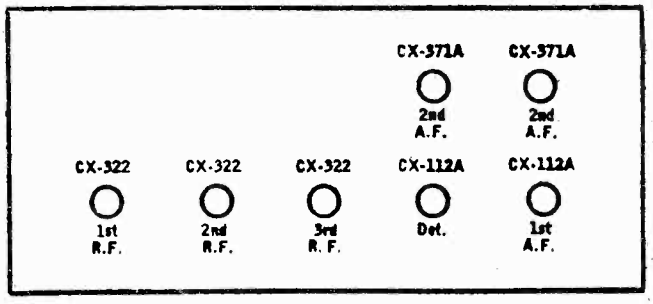
Tube	Filament	Plate	Grid	Screen
R-F (1st)	2.2	158	5.5	110
R-F (2nd-3rd)	2.2	160	2.8	78
Detector	2.2	206	23.	
A-F (1st)	2.2	137	2.8*	
A-F (2nd)	6.9	412	78.	

* This is the measured voltage, not the actual operating voltage.

66 (A.C.)



67 (Batt.



VOLTAGE DATA FOR MODELS 67 and 67-C

These values apply when the total "B" voltage is 150 volts.

Tube	Filament	Plate	Grid	Screen
RF (1st-2nd)	3.3	110	1.5	30
R-F (3rd)	3.3	110	2.5	25
Det.	5.0	50	--	
A-F (1st)	5.0	55	4.5	
A-F (2nd)	5.0	150	45.	

These values apply when the total "B" voltage is 180 volts.

Tube	Filament	Plate	Grid	Screen
R-F (1st-2nd)	3.3	135	1.5	45
R-F (3rd)	3.3	135	2.5	40
Det.	5.0	60	--	
A-F (1st)	5.0	65	4.5	
A-F (2nd)	5.0	180	45.	

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MODEL 70, 74, 76
Chassis D

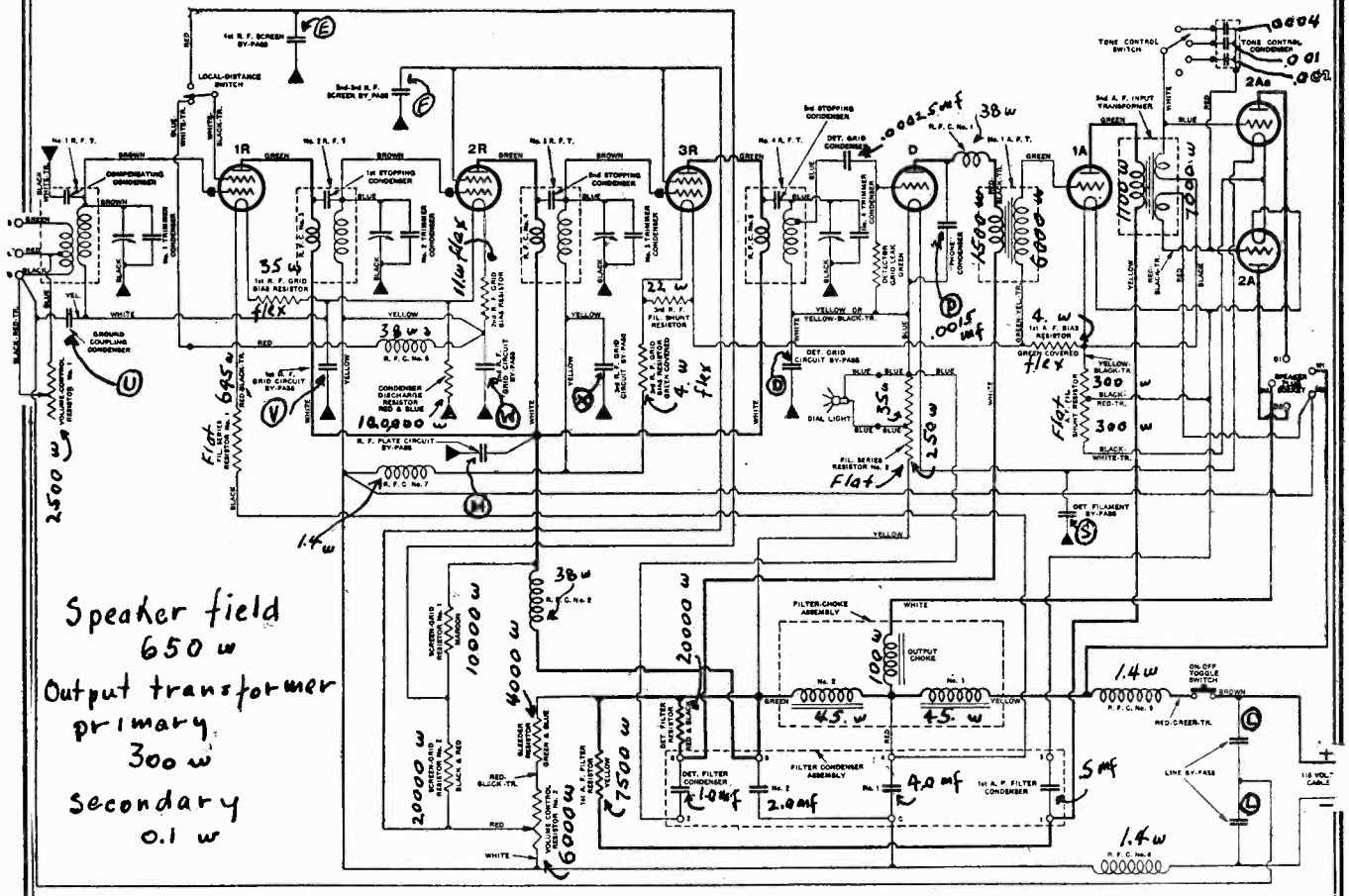

DIAGRAM OF D-1 CHASSIS.

BYPASS CONDENSERS. The letters within the circles adjacent to the various bypass condensers correspond with the letters shown within the respective bypass units on chassis layout
Note exception stated beneath the following tabulation.

RF Bypass #1	L	.1 mfd	400 volts	L	.1 mfd	400 volts	# 14710
	U	.02 mfd	400 volts				
RF Bypass #2	E	.1 mfd	400 volts	F	.1 mfd	400 volts	# 15262
	V1*	.1 mfd	400 volts	W1*	.1 mfd	400 volts	
RF Bypass #3	H	.1 mfd	400 volts	S	.1 mfd	400 volts	# 16680
	P	.0015mfd	400 volts				
RF Bypass #4	D	.1 mfd	400 volts	V	.1 mfd	400 volts	# 15262
	X	.1 mfd	400 volts	W	.1 mfd	400 volts	

* Used only in D-2 chassis as shown in wiring diagram of D-2 receiver
These two condensers are not used in D-1 chassis, but are shown in their proper position in the chassis layout

Tone control All condensers are rated at 100 volts

SPECIAL NOTE.
Chassis D-1 and D-2 are identical except for the minor changes noted above in connection with bypass condensers W1 and V1 and also as noted on the D-2 schematic

MODEL 70, 74, 76
Chassis "D-1"

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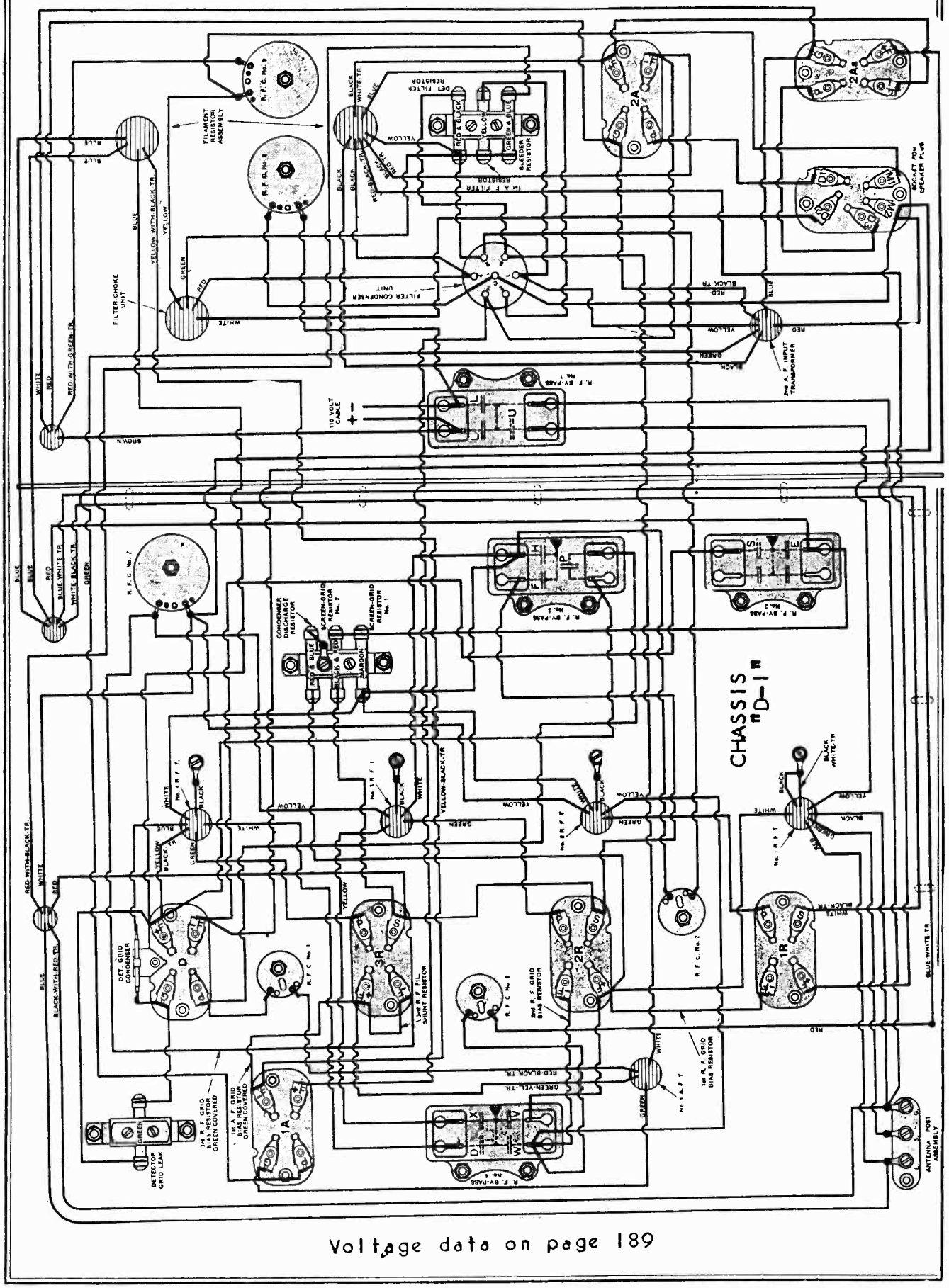
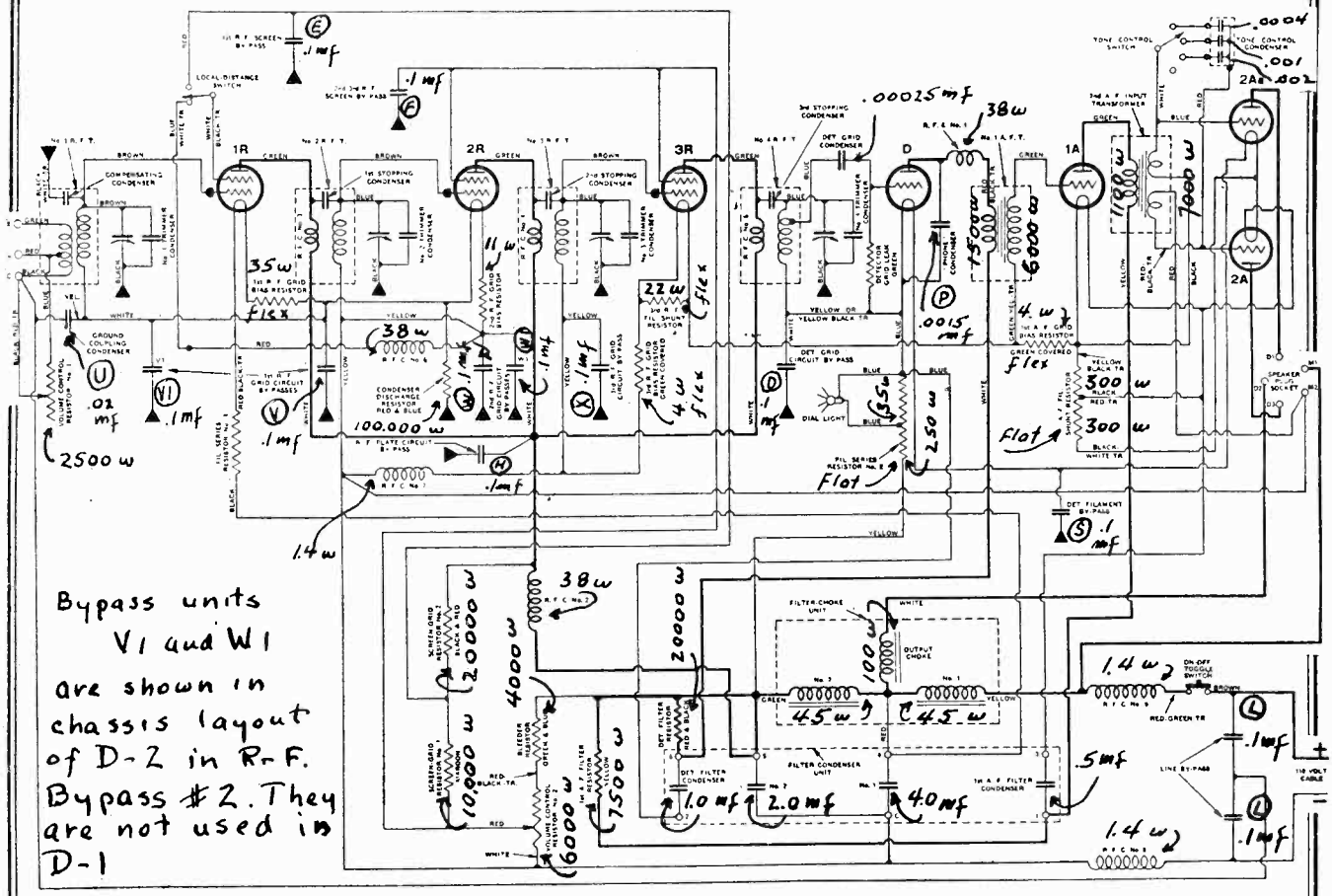


Voltage data on page 189

Voltage reference on page 1-35.

ATWATER KENT MFG. CO.

MODEL 70, 74, 76
Chassis "D-2"



SCHEMATIC DIAGRAM OF TYPE D-2 CHASSIS.

Note the addition of by-pass condensers V-1 and W-1 and the reversal of screen-grid resistors No. 1 and No. 2.

VOLTAGE TABLE FOR TYPE D CHASSIS

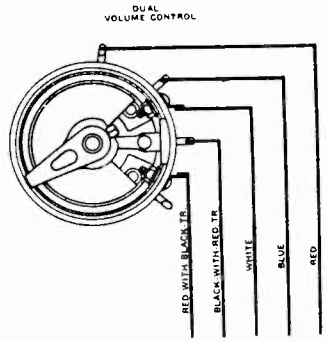
Set in operation. Volume control at maximum.
L-D switch at distance.

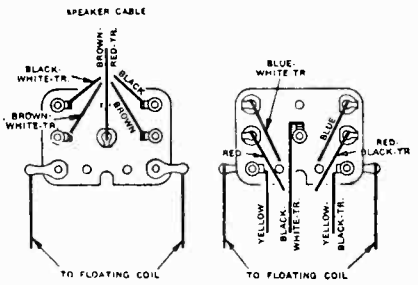
Use High Resistance D. C. Voltmeter (about 0-50-250) to Measure Plate and Grid Voltages.
Use A. C. Voltmeter to Measure Filament Voltages.

APPROX. VOLTAGES, USING 120 V. LINE

TUBE	FILAMENT VOLTAGE	PLATE VOLTAGE	CONTROL-GRID VOLTAGE	SCREEN VOLTAGE
1st-R.F.	3.3	75	4.2	60*
2nd-R.F.	3.3	75	1.3	50
3rd-R.F.	3.3	75	1	50
Detector	5	20	—	—
1st-A.F.	5	45	6	—
2A	5	75	10	—
2Aa	5	80	10	—

All readings made from cathode in heater-type tubes, and from —F in plain-filament-type tubes.
Use 250-volt scale to measure 2nd A. F. grid voltage.
*This is 50 volts in D-2 chassis.

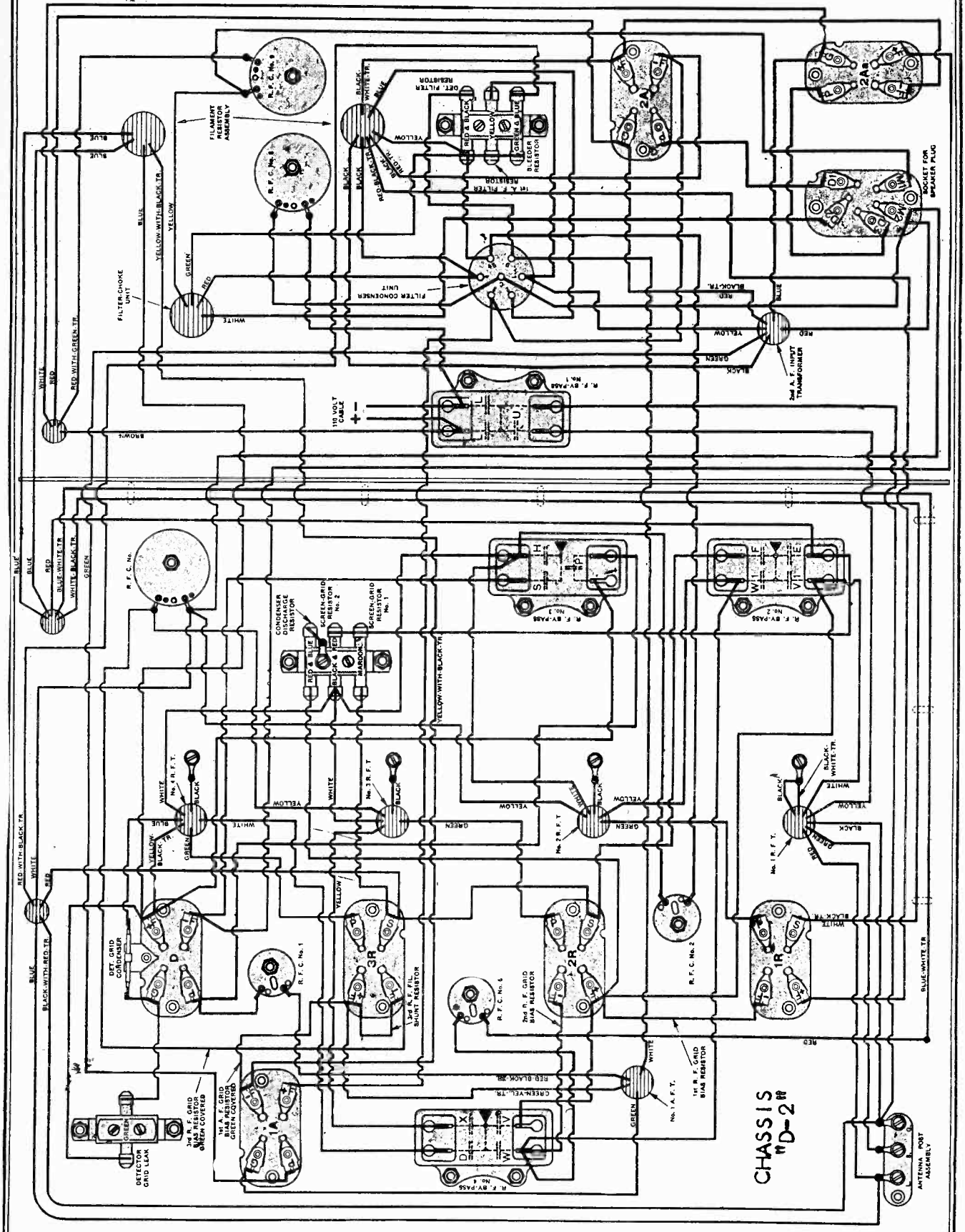




SPEAKER PANEL CONNECTIONS

MODEL 70,74,76
Chassis "D-2"
Layout

ATWATER KENT MFG. CO.



Voltage data on page 189

Voltage reference on page 1-35.

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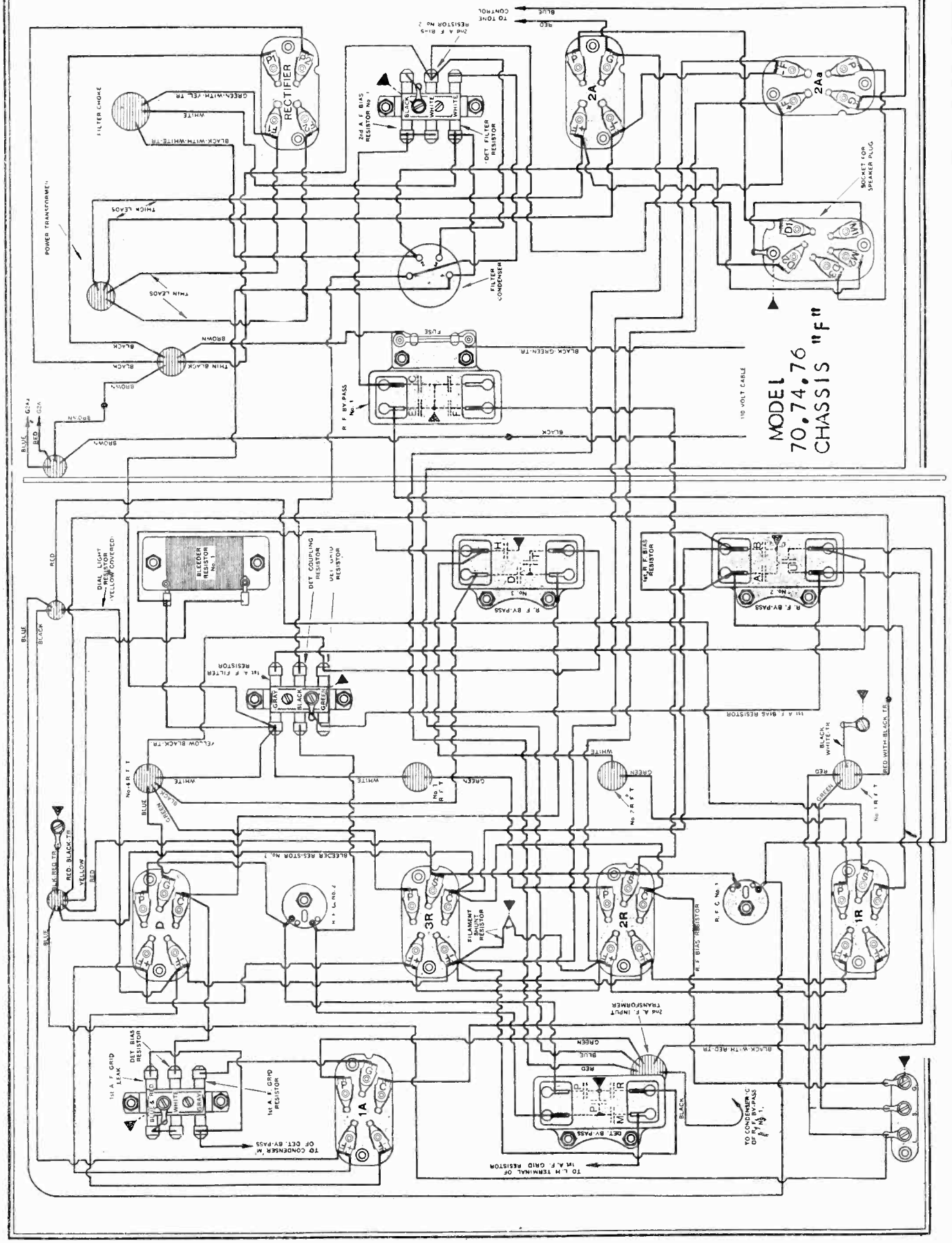
MODEL 70, 74 and 76
Chassis "F"

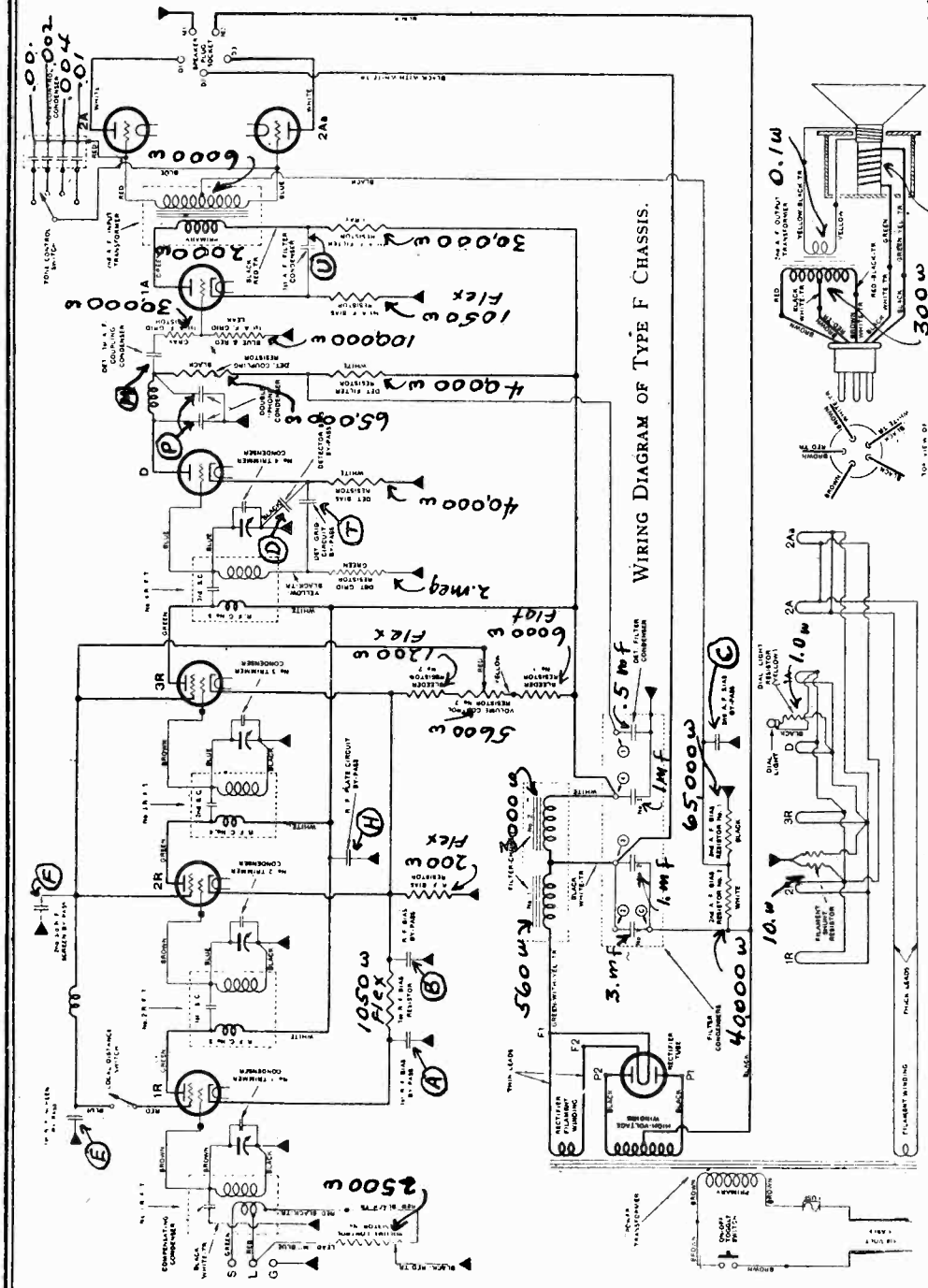
In some early Type F Chassis, a line by-pass condenser is used, and the 1st-A. F. grid resistor (gray) is omitted.



MODEL 70,74,76
Chassis F

ATWATER KENT MFG. CO.

Voltage data on page 186



WIRING DIAGRAM OF TYPE F CHASSIS.

In some early-type F chassis, a line by-pass condenser is used and the 1st-A. F. grid resistor (gray) is omitted.
In later-type F chassis, the filter condenser has only four contacts, and the top of the 1st-A.F. grid resistor.
A.F. grid leak is connected to the opposite end of the 1st-A.F. grid resistor.

FILTER CONDENSER. In early models, the filter condenser has five contacts as indicated by the numbers within circles in the diagram. For those shown there

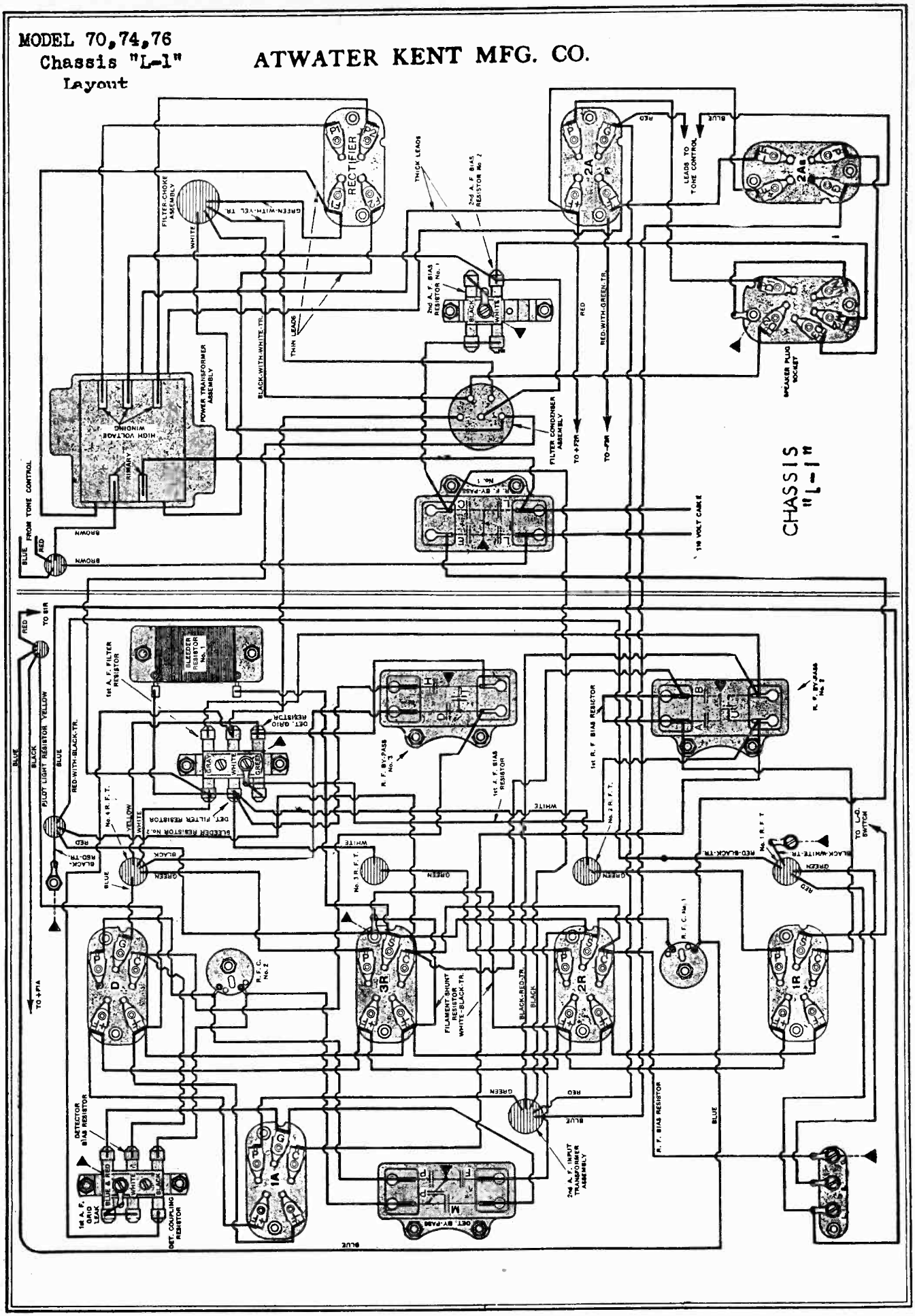
Detector filter	.5 mfd	connected between terminal (1) and can
Filter #1	3.0 mfd	connected between terminal (2) and center stud
Filter #2	1.0 mfd	connected between terminal (3) and center stud
Filter #3	1.0 mfd	connected between terminal (4) and can

BYPASS CONDENSERS. The letters within the circles correspond with the designations within the bypass units shown in the chassis layout

RF Bypass #1	C	C	.1 mfd	400 volts	E	.1 mfd	400 volts # 15790
		F	.01mfd	400 volts	(In very early F "F" is .1 mfd.)		
RF Bypass #2		A	.1 mfd	150 volts	U	.12 mfd	400 volts # 15770
		B	.1 mfd	150 volts			
RF Bypass #3		D	.1 mfd	400 volts	H	.2 mfd	400 volts # 15780
		T	.04 mfd	400 volts			
Detector Bypass		R	.1 mfd	400 volts	M	.075 mfd	400 volts # 15640
		P	.0012 mfd	400 volts	P	.00025 mfd	400 volts
Tone Control		All condensers are rated at 100 volts					

MODEL 70,74,76
Chassis "L-1"
Layout

ATWATER KENT MFG. CO.



MODEL 70,74,76
Chassis L-1

ATWATER KENT MFG. CO.

BYPASS CONDENSERS. The letters within the circles designate the condensers within the multiple units shown on the chassis layout

RF Bypass #1	L	.01 mfd	400 volts	L	.01 mfd	400 volts	# 15790
	C	.1 mfd	400 volts	E	.1 mfd	400 volts	
RF Bypass #2	A	.1 mfd	150 volts	U	.12 mfd	400 volts	#15770
	B	.1 mfd	150 volts				
RF Bypass #3	D	.1 mfd	400 volts	H	.2 mfd	400 volts	# 15780
	T	.04 mfd	400 volts				
Detector Bypass	F	.1 mfd	400 volts	M	.075 mfd	400 volts	# 15640
	P	.0012 mfd	400 volts	P	.00025 mfd	400 volts	
Tone Control	All condensers rated at 100 volts						

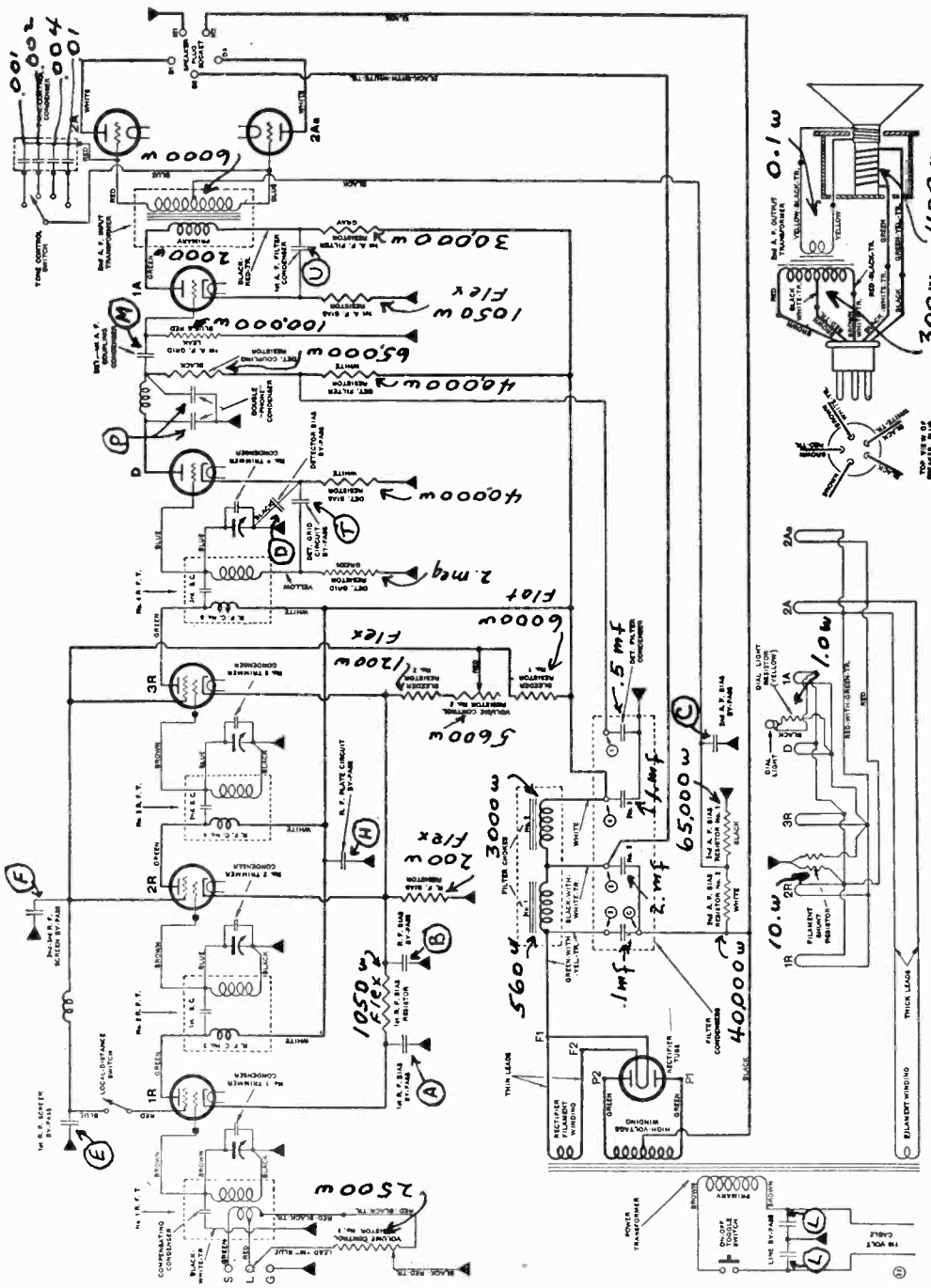


DIAGRAM OF L-1 CHASSIS.

FILTER CONDENSERS

Numerals within circles adjacent to filter condensers designate connections upon condenser can terminal block. These numbers are also shown upon the chassis layout

Detector filter	.5 mfd connected between terminal (1) and can
Filter #1	.1 mfd connected between terminal (3) and center stud
Filter #2	2.0 mfd connected between terminal (2) and center stud
Filter #3	1.0 mfd connected between terminal (4) and can

ATWATER KENT MFG. CO.

MODEL 70, 74, 76
Chassis L-2

BYPASS CONDENSERS. The letters within circles designate the condensers within the multiple units shown on the chassis layout

RF Bypass #1	L	.01 mfd	400 volts	L	.01 mfd	400 volts	# 15790
	C	.1 mfd	400 volts	E	.1 mfd	400 volts	
RF Bypass #2	A	.1 mfd	150 volts	U	.12 mfd	400 volts	# 15770
	B	.1 mfd	150 volts				
RF Bypass #3	D	.1 mfd	400 volts	H	.2 mfd	400 volts	# 15780
	T	.04 mfd	400 volts				
Detector Bypass	F	.1 mfd	400 volts	M	.075 mfd	400 volts	# 15640
	P	.0012 mfd	400 volts	P	.00025 mfd	400 volts	
Tone Control	All condensers are rated at 100 volts						

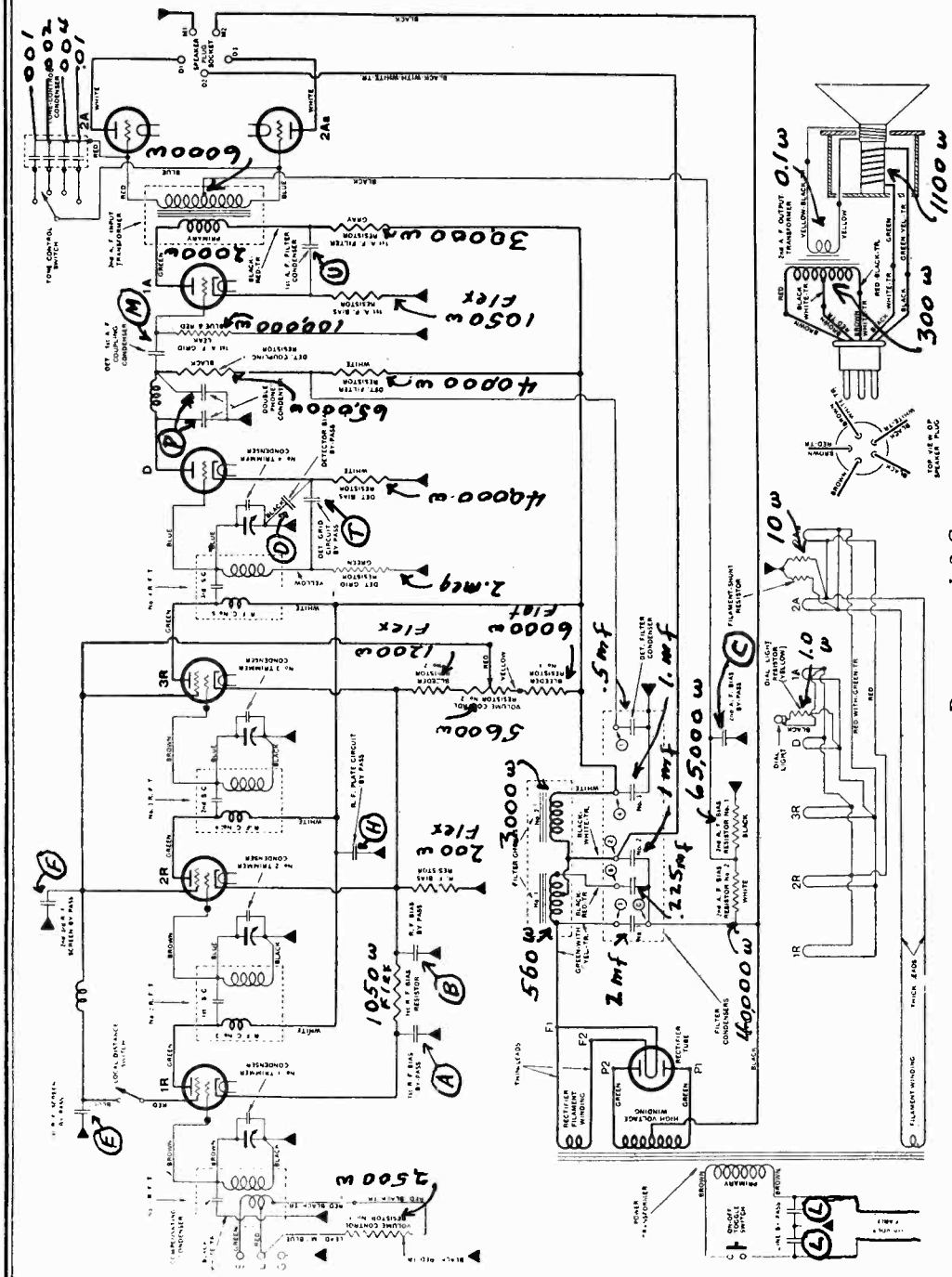


DIAGRAM OF L-2 CHASSIS.

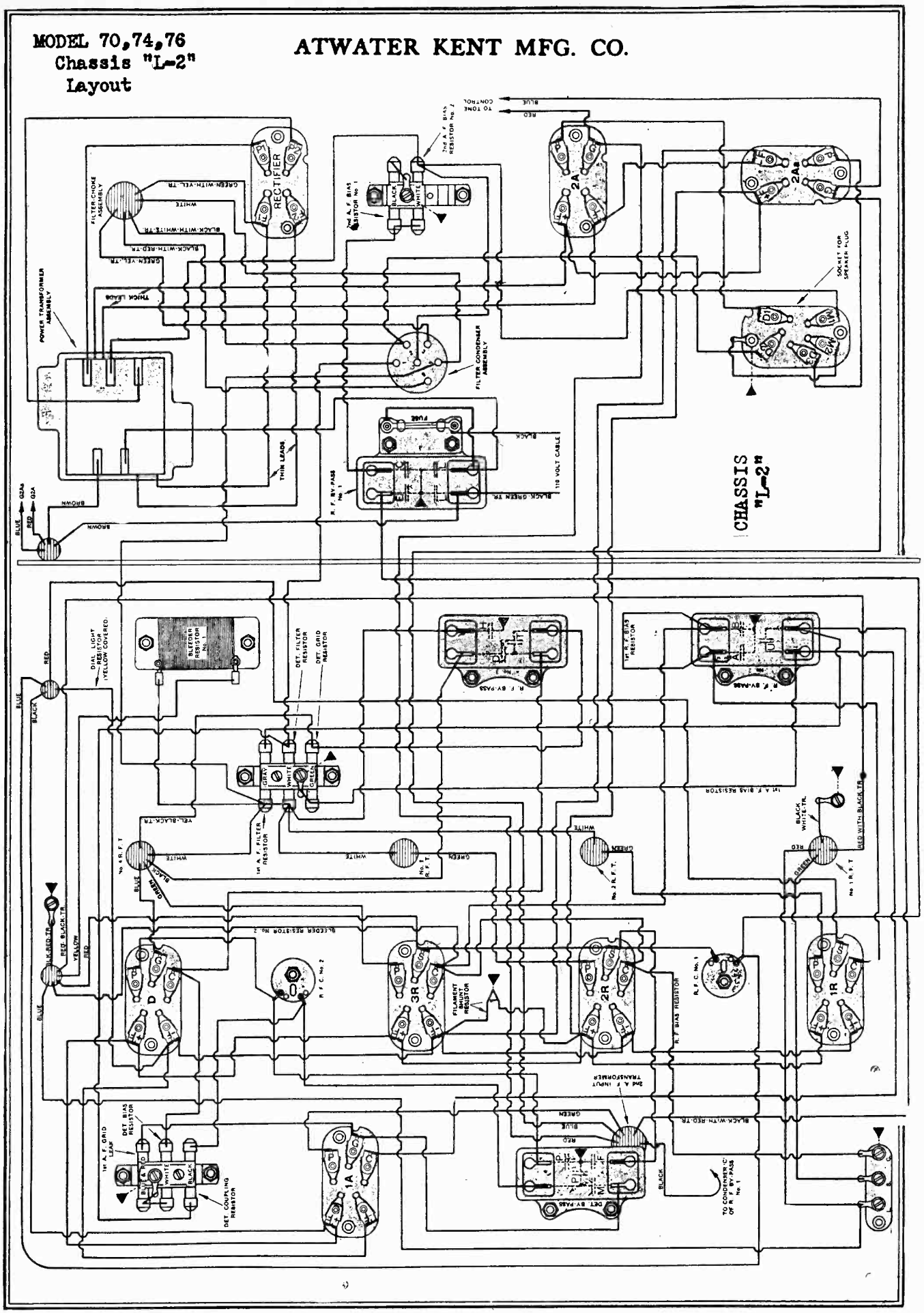
In the majority of L-2 sets, the filament shunt resistor is connected across the R.F. filaments
Also, a 2-ampere fuse is connected in one side of the 110-volt line.

FILTER CONDENSERS. Numerals in circles designate connections upon filter condenser terminal block.

Detector filter	.1 mfd	connected between terminal (1) and can
Filter #1	2.0 mfd	connected between terminal (2) and center stud
Filter #2	1.0 mfd	connected between terminal (3) and center stud
Filter #3	1.0 mfd	connected between terminal (4) and can
Resonant condenser	.225 mfd	connected between terminal (5) and center stud

MODEL 70,74,76
Chassis "L-2"
Layout

ATWATER KENT MFG. CO.



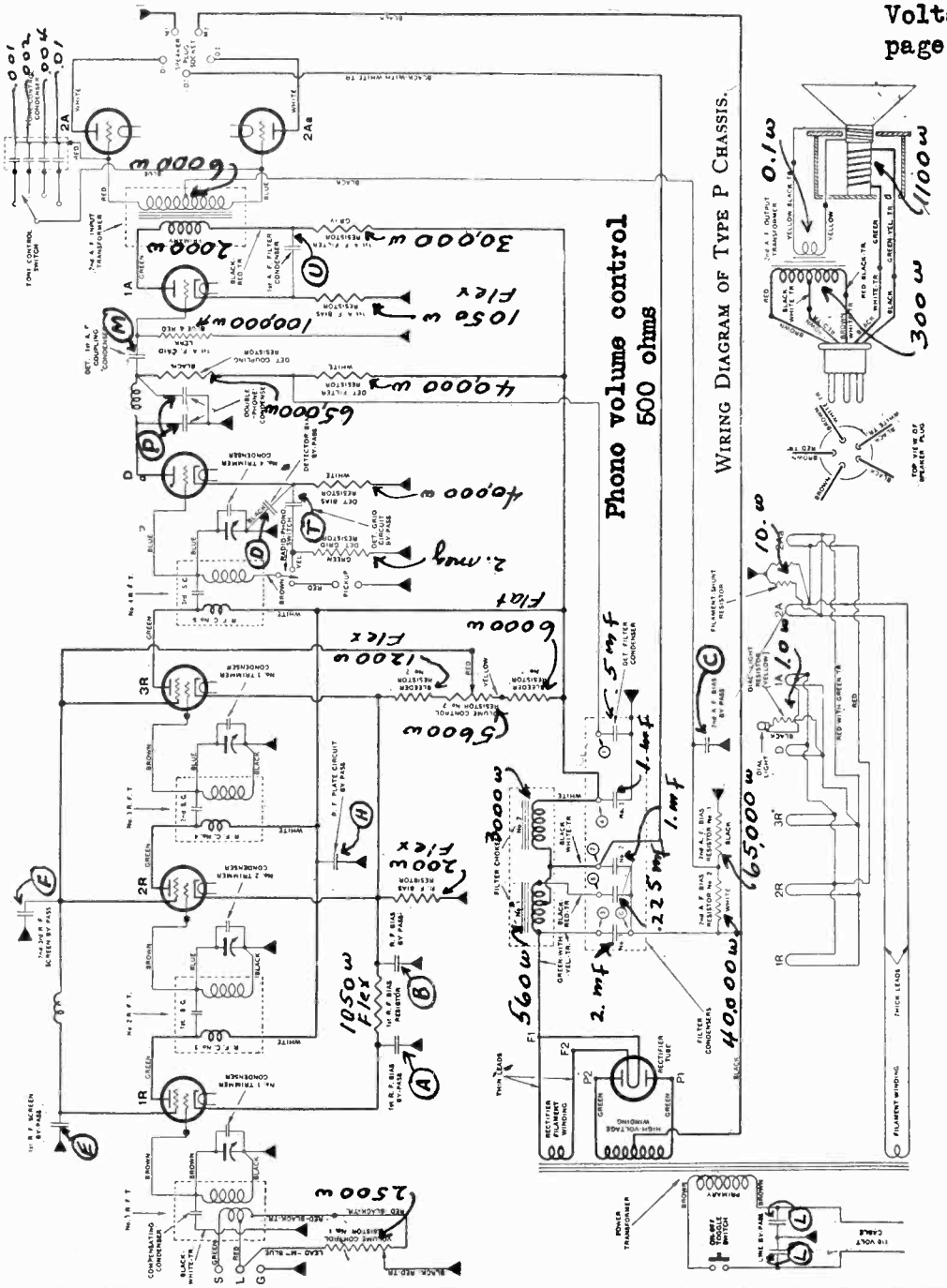
MODEL 76
Chassis P

ATWATER KENT MFG. CO.

BYPASS CONDENSERS. The letters within circles designate the condensers within the multiple units shown on the chassis layout

RF Bypass #1	L	.01 mfd	400 volts	L	.01 mfd	400 volts # 15790
	C	.1 mfd	400 volts	E	.1 mfd	400 volts
RF Bypass #2	A	.1 mfd	150 volts	U	.12 mfd	400 volts # 15770
	B	.1 mfd	150 volts			
RF Bypass #3	D	.1 mfd	400 volts	H	.2 mfd	400 volts # 15780
	T	.04 mfd	400 volts			
Detector Bypass	F	.1 mfd	400 volts	M	.075 mfd	400 volts # 15640
	P	.0012 mfd	400 volts	P	.00025 mfd	400 volts
Tone Control	All condensers are rated at 100 volts					

Voltage data on page 194



Voltage reference on page 1-44

MODEL 70,74,76
Chassis "L-2"- "P"
Voltage Data
Notes

ATWATER KENT MFG. CO.

VOLTAGE TABLE FOR TYPE L-2 AND P CHASSIS

Set in operation. Volume control at maximum.
L-D (or 'phono) switch up.

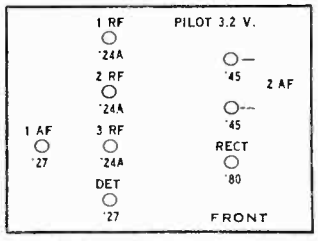
Use High Resistance D. C. Voltmeter (about 0-50-250) to Measure Plate and Grid Voltages.
Use A. C. Voltmeter to Measure Filament Voltages.

APPROX. VOLTAGES, USING 120 V. LINE

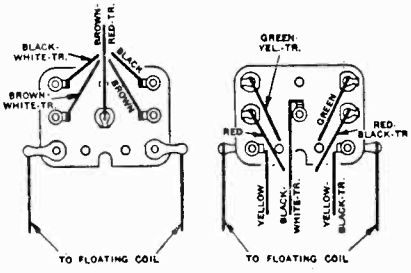
TUBE	FILAMENT VOLTAGE	PLATE VOLTAGE	CONTROL-GRID VOLTAGE	SCREEN VOLTAGE
1st-R.F.	2.4	180	5	85
2nd-R.F.	2.35	180	4.5	86
3rd-R.F.	2.35	180	4.5	86
Detector	2.35	110	14**	—
1st-A.F.	2.35	70	2	—
2A	2.45	250	55*	—
2Aa	2.45	250	55*	—
Rectifier	5.	—	—	—

* Use 250-volt scale.
** This is the voltage across the detector bias resistor; when measuring from grid to cathode, the voltage reading is only 2.
All readings made from cathode in heater-type tubes, and from —F in plain-filament-type tubes.

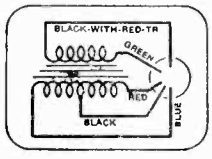
Models 75P, 70, 74, 76, 60 (3rd type) (1930)



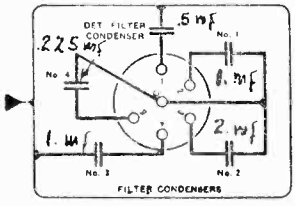
SPEAKER CABLE



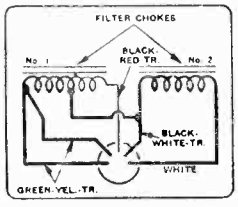
SPEAKER PANEL CONNECTIONS



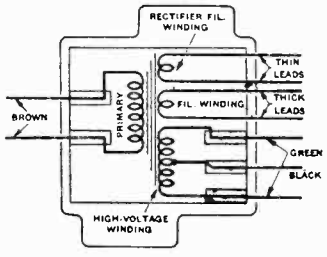
INPUT
A. F. TRANSFORMER
ASSEMBLY



FILTER CONDENSER
ASSEMBLY

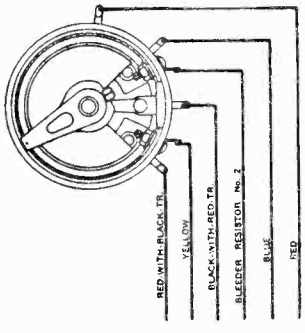


FILTER-CHOKE
ASSEMBLY



POWER TRANSFORMER
ASSEMBLY

DUAL
VOLUME CONTROL



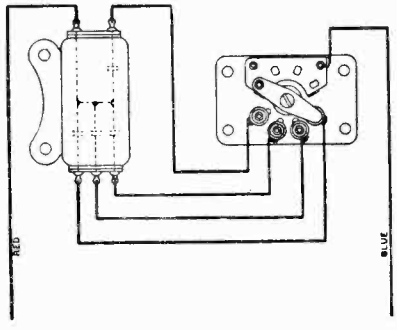
LOCAL-DISTANCE
SWITCH

ON-OFF
SWITCH

DIAL LIGHT

TONE
CONTROL
CONDENSER

TONE
CONTROL
SWITCH



Condensers in R.F. By-Pass No. 1

L—Line by-pass.
L—Line by-pass.
C—2nd-A.F. bias by-pass.
E—1st-R.F. screen by-pass.

Condensers in Detector By-Pass

F—2nd-3rd R.F. screen by-pass.
M—Detector-1st A.F. coupling condenser.
P—Phone condenser.
P—Phone condenser.

Condensers in R.F. By-Pass No. 2

A—1st-R.F. bias by-pass.
B—R.F. bias by-pass.
U—1st-A.F. filter condenser.

Condensers in R.F. By-Pass No. 3

D—Detector bias by-pass.
H—R.F. plate-circuit by-pass.
T—Detector grid-circuit by-pass.

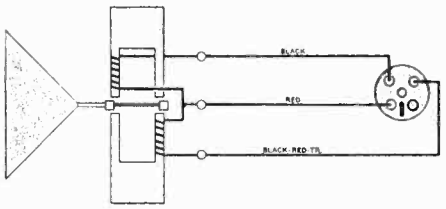
CONNECTION OF UNITS IN TYPE L-2 CHASSIS, AND, AT RIGHT, CONNECTIONS TO TERMINAL PANEL OF TYPE N SPEAKER.

ATWATER KENT MFG. CO.

MODEL 70,76
Chassis "Q"
Voltage

Type Q Chassis (battery operated) has three stages of screen-grid R. F. amplification, grid detection, one stage of transformer-coupled audio, and a double-audio output stage.

An output filter choke and condenser are used in the Q-2 (above Serial No. 5704025), as shown in the diagram below. The Q-1 Chassis does not have these two parts.



CONNECTIONS OF INDUCTOR TYPE J SPEAKER.

VOLTAGE TABLE FOR TYPE Q CHASSIS

Set in operation. Volume control at maximum. L-D switch at distance.

Use High Resistance D. C. Voltmeter (about 0-50-250) to Measure Plate and Grid Voltages.
Use A. C. Voltmeter to Measure Filament Voltages.

180 VOLTS "B" BATTERY

TUBE	FILAMENT VOLTAGE	PLATE VOLTAGE	CONTROL-GRID VOLTAGE	SCREEN VOLTAGE
1st-R.F.	3.3	135	1.5	45
2nd-R.F.	3.3	135	1.5	45
3rd-R.F.	3.3	135	2.5	45
Detector	5.0	70	—	—
1st-A.F.	5.0	67	45	—
2A	5.0	180	45	—
2Aa	5.0	180	45	—

R.F. By-Pass No. 1

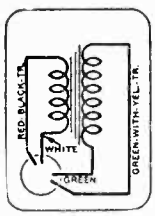
G—R.F. screen by-pass.
V—1st-R.F. grid-circuit by-pass.
Y—Output filter condenser.
N—1st-R.F. filament by-pass.

R.F. By-Pass No. 2*

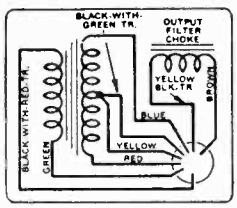
H—R.F. plate-circuit by-pass.
T—Detector filter condenser.
P—"Phone" condenser.
P—"Phone" condenser.

R.F. By-Pass No. 3

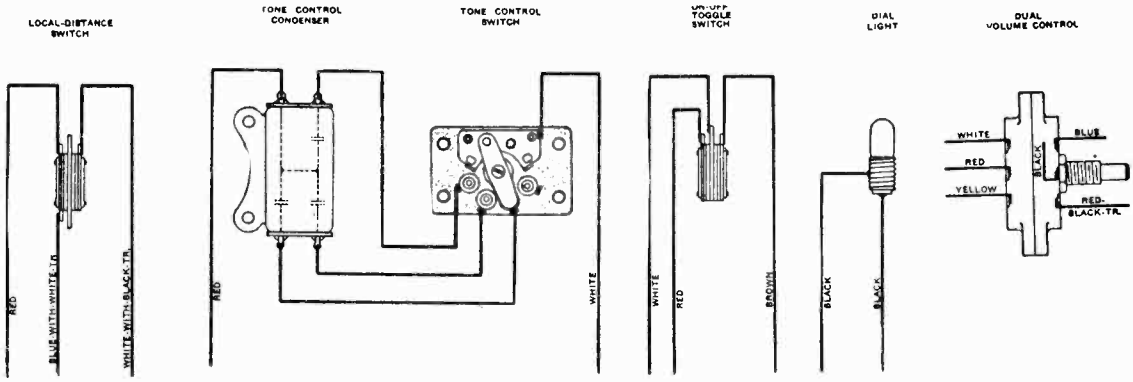
S—Detector filament by-pass.
R—3rd-R.F. filament by-pass.
R—3rd-R.F. filament by-pass.
O—2nd-R.F. filament by-pass.



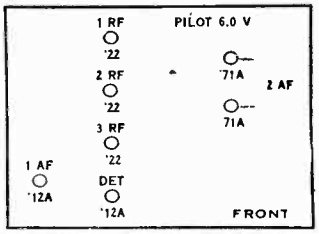
No. 1 A. F. T.



2nd A. F. INPUT TRANSFORMER



Models Q (Battery), D (DC) (1930)



The output filter choke is not used in the Q-1 chassis.

*The connections shown for R. F. by-pass No. 2 are correct when this part is No. 16060. However, if a No. 18350 (H-28) is used, "P" and "P" are at top and "H" and "T" are at bottom; therefore, the connections to this condenser are correspondingly changed.

MODEL 70,76
Chassis Q

ATWATER KENT MFG. CO.

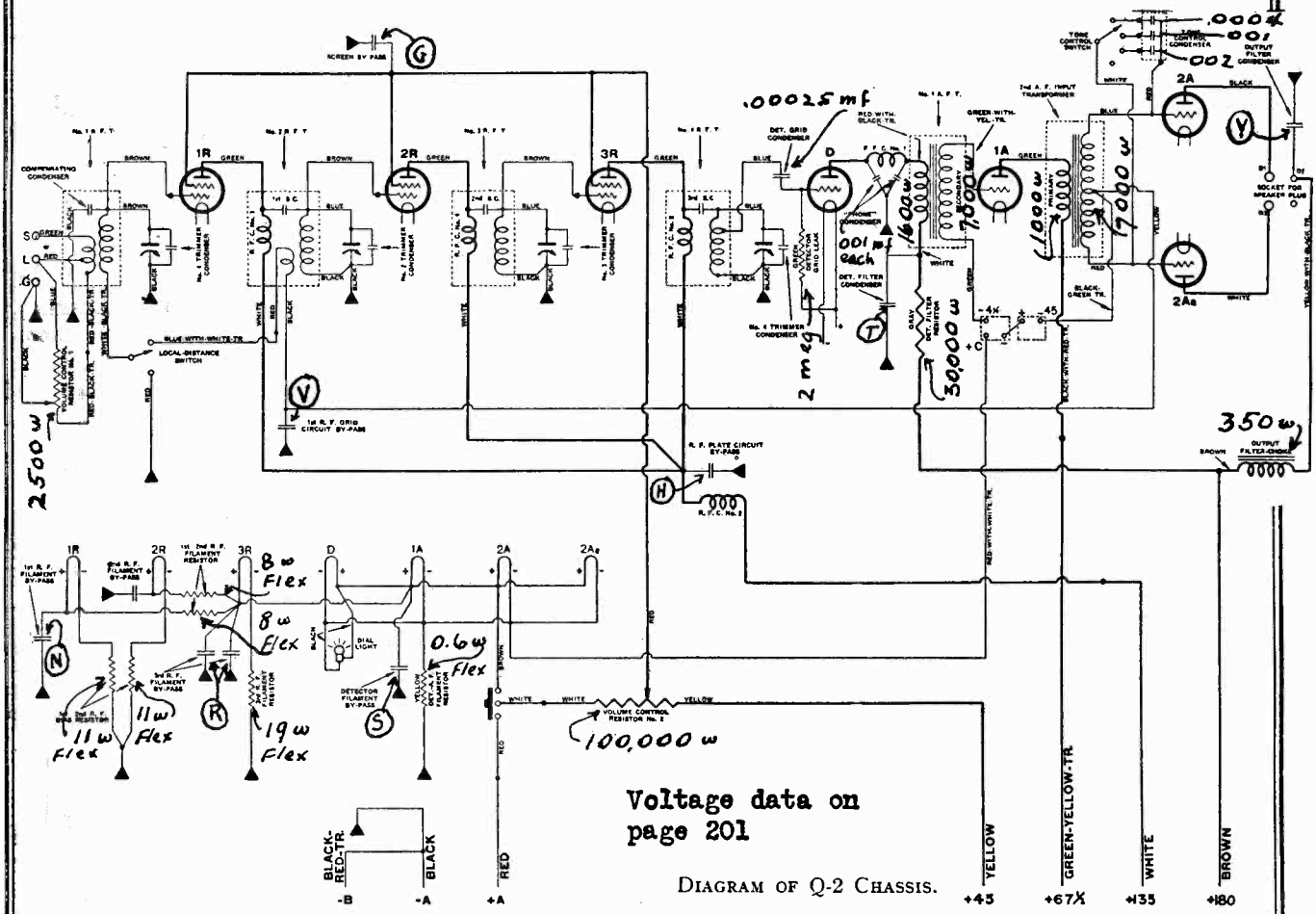
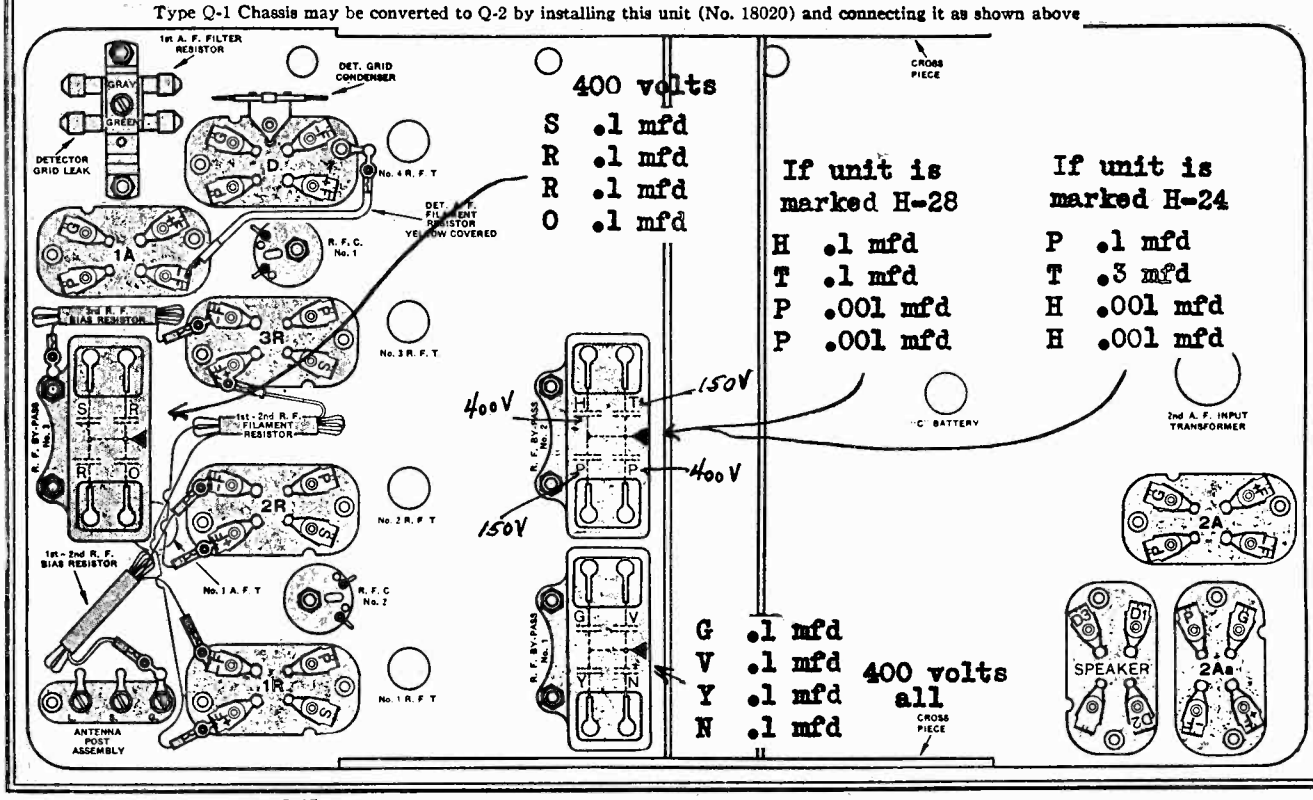
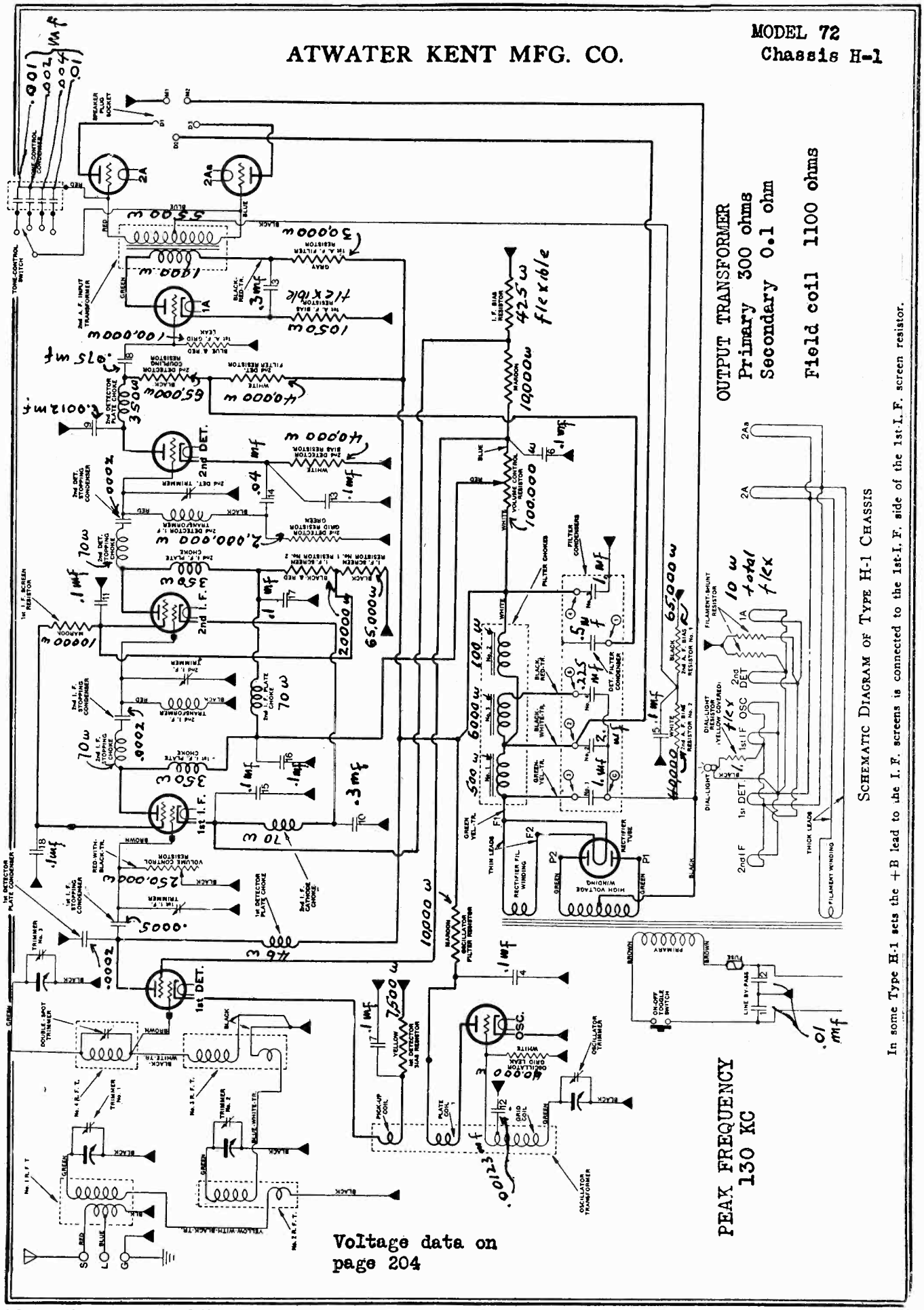


DIAGRAM OF Q-2 CHASSIS.

The output filter choke and filter condenser are used only in Type Q-2 Chassis. The choke is mounted in the 2nd-A. F. input transformer container. Type Q-1 Chassis may be converted to Q-2 by installing this unit (No. 18020) and connecting it as shown above



Voltage reference on page 1-45.



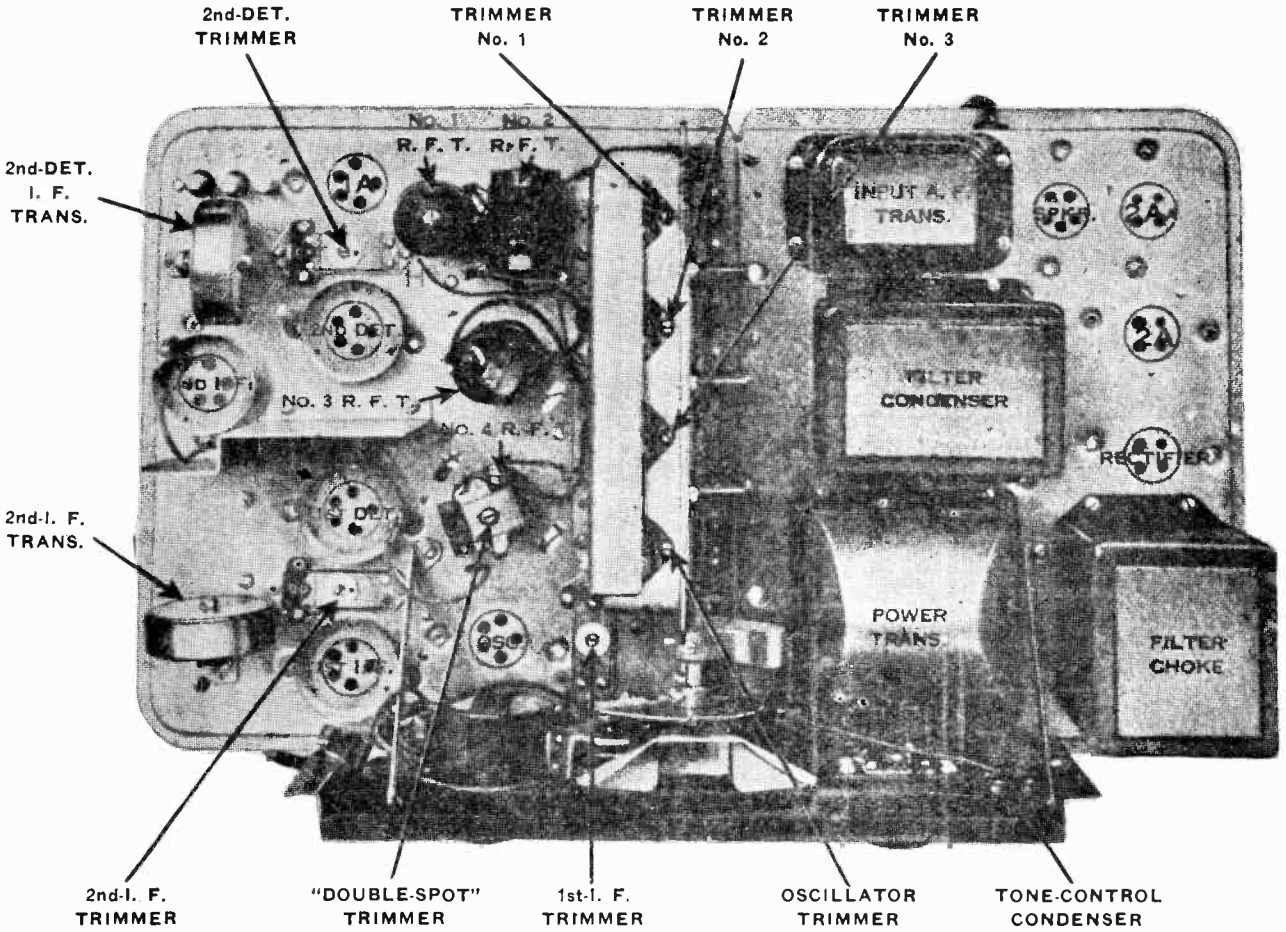
Voltage reference on page 1-48.

MODEL 72
Chassis "H-1"
Voltage

ATWATER KENT MFG. CO.

TYPE H-1, No. 16500, SUPER-HETERODYNE CHASSIS

(Below Serial No. 5,855,201)



Top View of Atwater Kent Type H-1 Super-Heterodyne Chassis

Tube	"A" Volts	"B" Volts	Control Grid	Screen
1st Det	2.4	150	3.	12.
Osc.	2.3	100	10.*	
1st IF	2.3	150	3.	75.
2nd IF	2.3	145	3.	86.
2nd Det	2.3	100	13.**	
1st AF	2.3	65	2.	
2nd AF PP	2.5	250	55.*	
2nd AF PP	2.5	250	55.*	
Rect.	4.7			

With volume control at minimum, the IF plate voltage is reduced to about 150 volts and screen voltage is reduced to about 10 volts. * Use 250 volts scale of high resistance voltmeter. ** This is the voltage across the detector bias resistor.

ATWATER KENT MFG. CO.

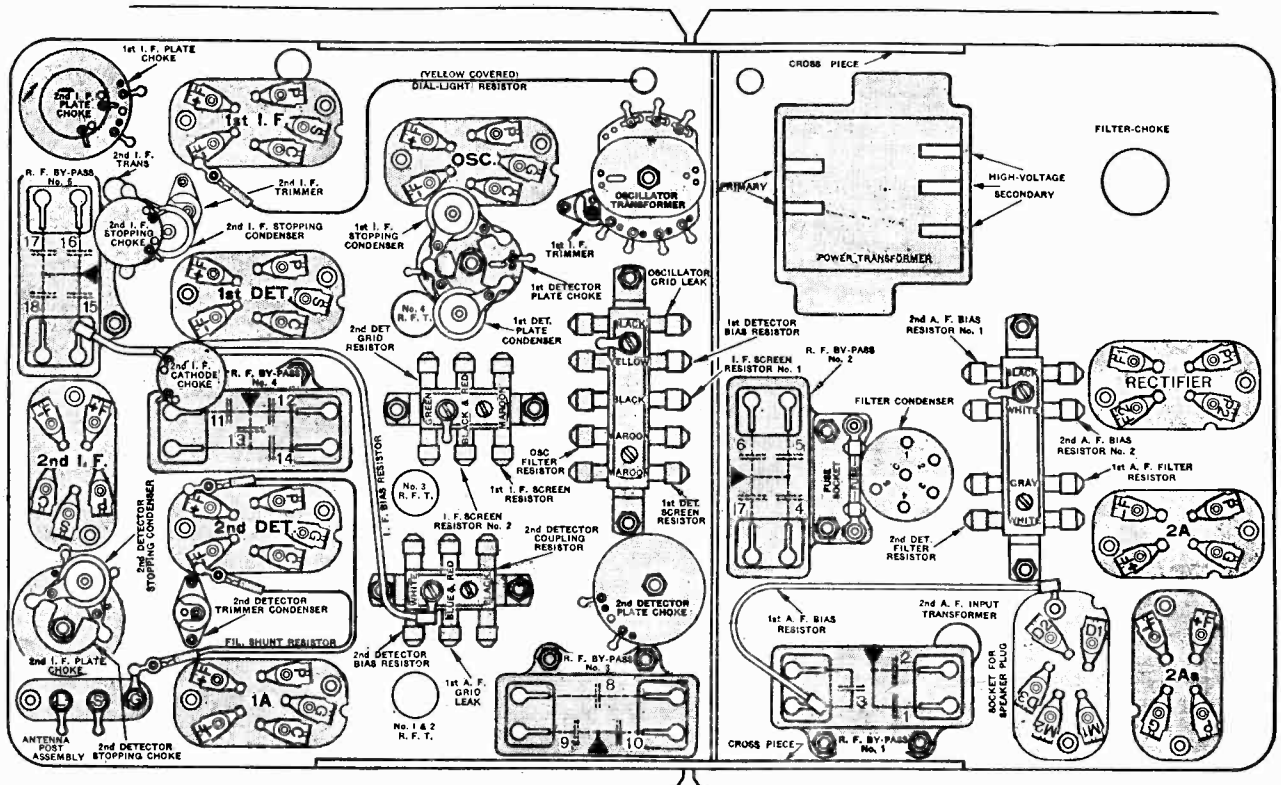
MODEL 72
Chassis H-1
Below serial
5,855,201

FILTER CONDENSERS. Numerals in circles indicate connections upon filter condenser terminal block. These numbers are shown upon the parts layout below and also upon the chassis layout

Detector filter	.1 mfd	connected between terminal (1) and can
Filter #1	2.0 mfd	connected between terminal (2) and center stud
Filter #2	1.0 mfd	connected between terminal (3) and center stud
Filter #3	1.0 mfd	connected between terminal (4) and can
Resonant condenser	.225 mfd	connected between terminal (5) and center stud

BYPASS CONDENSERS. The small numerals adjacent to the bypass condensers corresponds with the designating numerals upon the chassis layout

RF Bypass #1	1	.01 mfd	400 volts	2	.01 mfd	400 volts	# 17360
	3	.3 mfd	400 volts				
RF Bypass #2	4	.1 mfd	400 volts	5	.1 mfd	400 volts	# 15262
	6	.1 mfd	400 volts	7	.1 mfd	400 volts	
RF Bypass #3	8	.075 mfd	400 volts	9	.0012 mfd	400 volts	# 16745
	10	.3 mfd	150 volts				
RF Bypass #4	11	.1 mfd	400 volts	12	.00123mfd	400 volts	# 17370
	13	.1 mfd	400 volts	14	.04 mfd	400 volts	
RF Bypass #5	15	.1 mfd	400 volts	16	.1 mfd	400 volts	# 15262
	17	.1 mfd	400 volts	18	.1 mfd	400 volts	



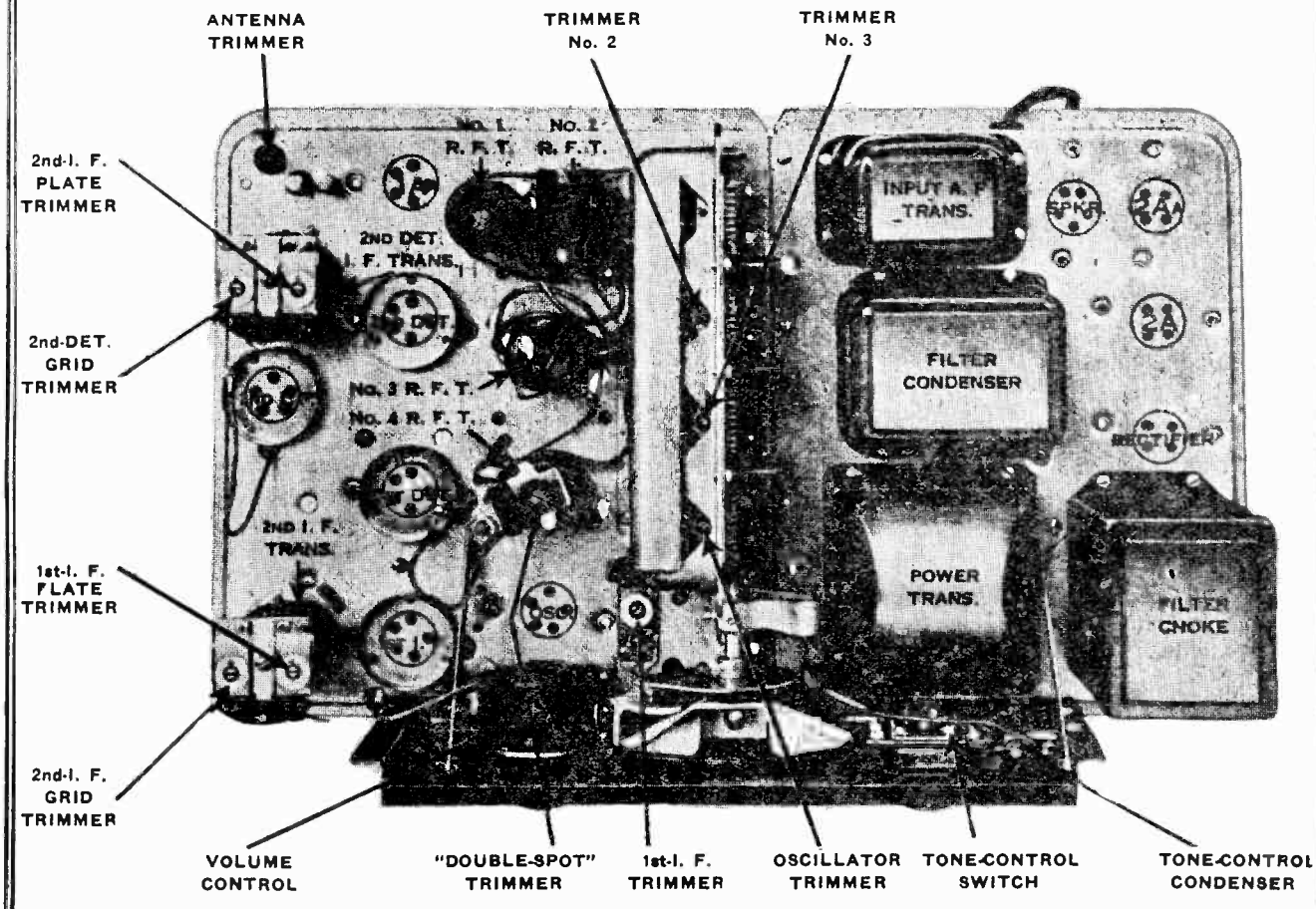
BOTTOM CHART OF TYPE H-1 CHASSIS

MODEL 72
Chassis "H-2"
Voltage

ATWATER KENT MFG. CO.

TYPE H-2, No. 16500, SUPER-HETERODYNE CHASSIS

(Above Serial No. 5,855,201)



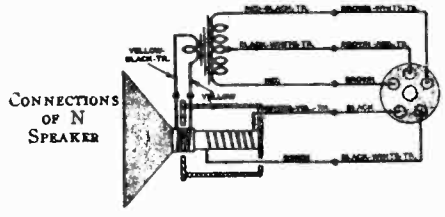
Top View of Atwater Kent Type H-2 Super-Heterodyne Chassis
Note that trimmer No. 1 is omitted. The antenna trimmer serves the same purpose

VOLTAGE TABLE FOR TYPE H-2 CHASSIS

Set in operation. Volume control at maximum

Tube	"A" Volts	"B" Volts	Control Grid	Screen
1st Det	2.3	150	4.	15.
Osc	2.5	130	10.*	
1st IF	2.3	150	3.5	100.
2nd IF	2.3	150	3.5	85.
2nd Det	2.3	100	14.**	
1st AF	2.3	70	2.	
2nd AF PP	2.5	250	55.*	
2nd AF PP	2.5	250	55.*	
Rect.	4.7			

With the volume control at minimum, the IF voltage is reduced to 15 volts. * Use 250 volt scale of high resistance voltmeter. ** This is the voltage across the detector bias resistor; when measuring from grid to cathode, the voltage reading is only 2. All readings made from cathode in heater type tubes and -P in filament type tubes.

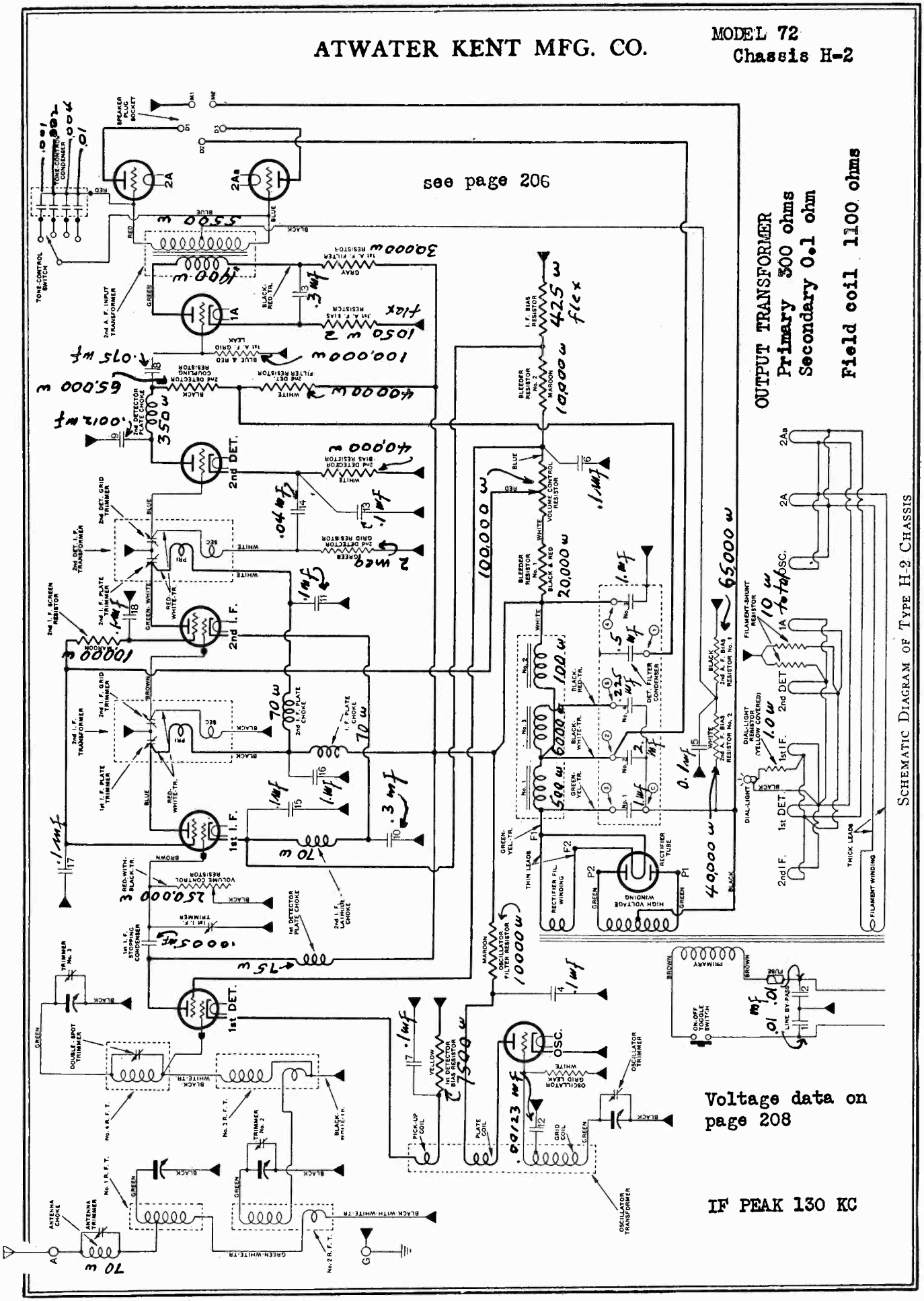


THE DOUBLE SPOT CIRCUIT

The double spot circuit is simultaneously tuned to two different frequencies. The complete circuit consists of #3 and #4 RF transformers and #3 variable condenser. A part of this circuit, #4 RFT, the double spot trimmer and #3 variable condenser is automatically tuned to 260 KC more than the desired frequency.

ATWATER KENT MFG. CO.

MODEL 72
Chassis H-2



Voltage reference on page 1-50.

MODEL 72
Chassis H-2
Above serial
5,855,201

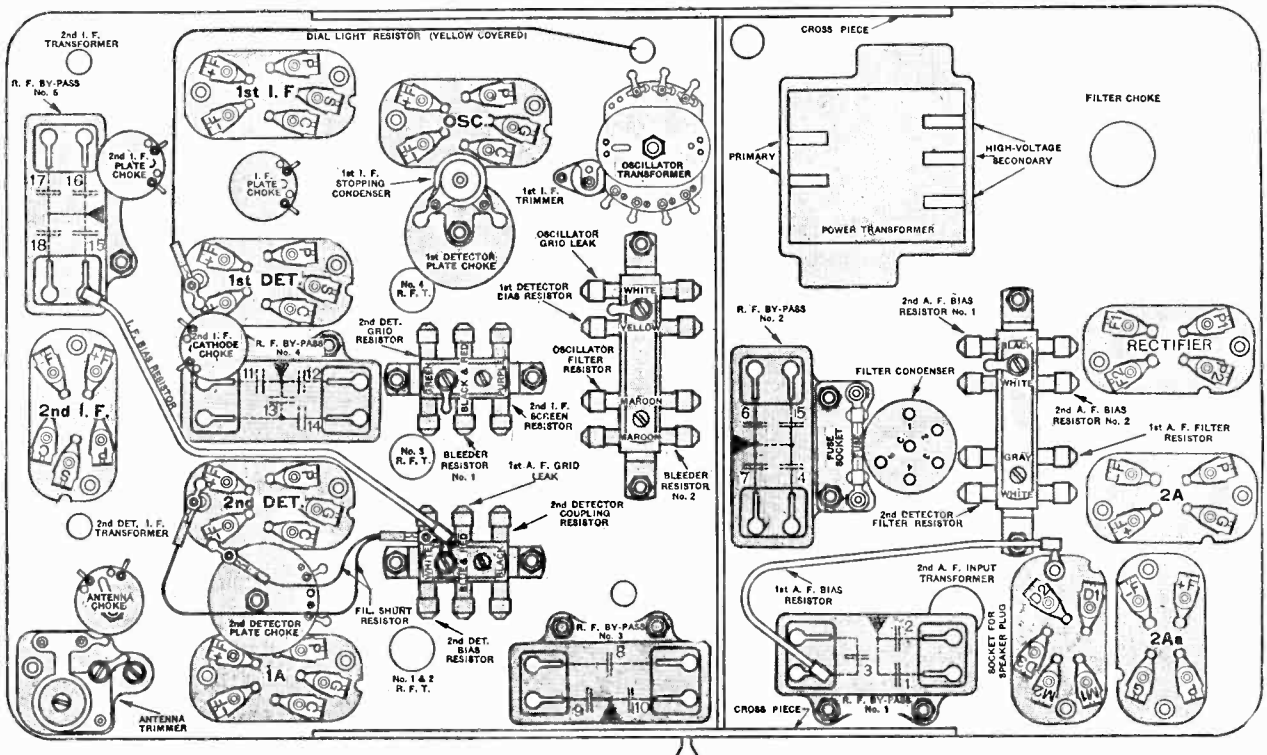
ATWATER KENT MFG. CO.

FILTER CONDENSERS. Numerals in circles shown on wiring diagram indicate connections upon filter condenser terminal block. These numbers are also shown upon the parts layout below. Also upon the chassis wiring diagram

Detector filter	.1 mfd	connected between terminal (1)	and can
Filter #1	2.0 mfd	connected between terminal (2)	and center stud
Filter #2	1.0 mfd	connected between terminal (3)	and center stud
Filter #3	1.0 mfd	connected between terminal (4)	and can
Resonant condenser	.225 mfd	connected between terminal (5)	and center stud

BYPASS CONDENSERS. The small numerals adjacent to the various bypass condensers shown on the wiring diagram correspond with the designating numerals upon the parts layout below and the chassis

RF Bypass #1	1	.01	mfd	400 volts	2	.01	mfd	400 volts	# 17360
	3	.3	mfd	400 volts					
RF Bypass #2	4	.1	mfd	400 volts	5	.1	mfd	400 volts	# 15262
	6	.1	mfd	400 volts	7	.1	mfd	400 volts	
RF Bypass #3	8	.075	mfd	400 volts	9	.0012	mfd	400 volts	# 16745
	10	.3	mfd	150 volts					
RF Bypass #4	11	.1	mfd	400 volts	12	.00123	mfd	400 volts	# 17370
	13	.1	mfd	400 volts	14	.04	mfd	400 volts	
RF Bypass #5	15	.1	mfd	400 volts	16	.1	mfd	400 volts	# 15262
	17	.1	mfd	400 volts	18	.1	mfd	400 volts	

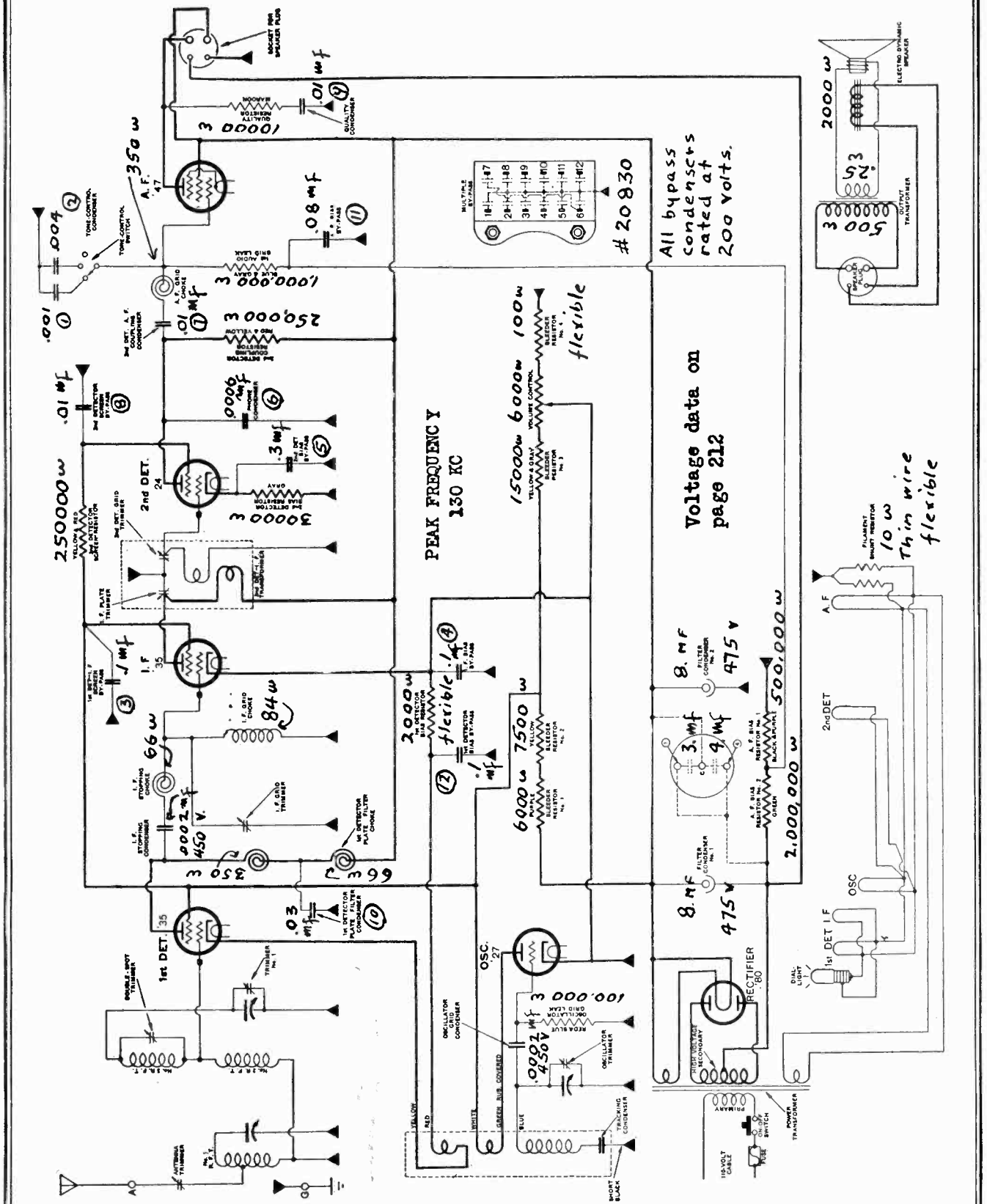


BOTTOM VIEW OF TYPE H-2 CHASSIS

In this chart. the 2nd-I. F. screen resistor should be maroon instead of purple.

MODEL 80, 80-F
83, 83-F

ATWATER KENT MFG. CO.

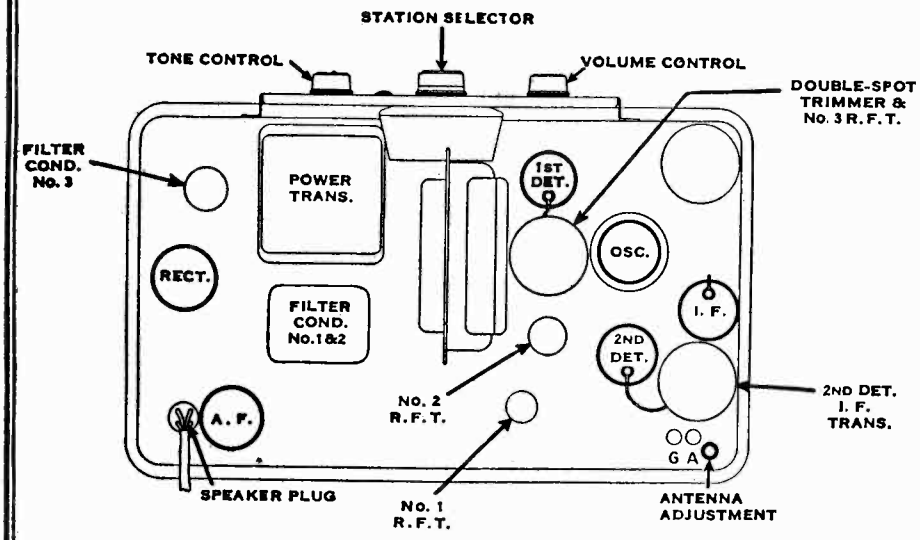


In Model 83 and 83-F, a filter-condenser unit is used and it is connected as shown in dotted lines. This unit is NOT used in Model 80 and 80-F. In Model 83, 83-F, the electrolytic filter condenser No. 1 is not used, and the filament circuit is slightly different.

Voltage reference on page 1-56.

MODEL 80, 80-F
83, 83-F

ATWATER KENT MFG. CO.



TOP VIEW OF MODEL 83, 83-F.

The circle in the upper right-hand corner is the shield that covers the coupling unit between the 1st-detector and the I. F. tubes.

Condensers in Multiple By-pass Model 80, 80-F, 83, 83-F

1—Tone-control condenser.
2—Tone-control condenser.
3—1st-detector—I. F. screen by-pass.
4—I. F. bias by-pass.
5—2nd-detector bias by-pass.
6—Phone condenser.
7—2nd-detector—A. F. coupling condenser.
8—2nd-detector screen by-pass.
9—Quality condenser.
10—1st-detector plate filter condenser.
11—A. F. bias by-pass.
12—1st-detector bias by-pass.

The numbers given above correspond with the numbers marked upon the multiple condenser unit.

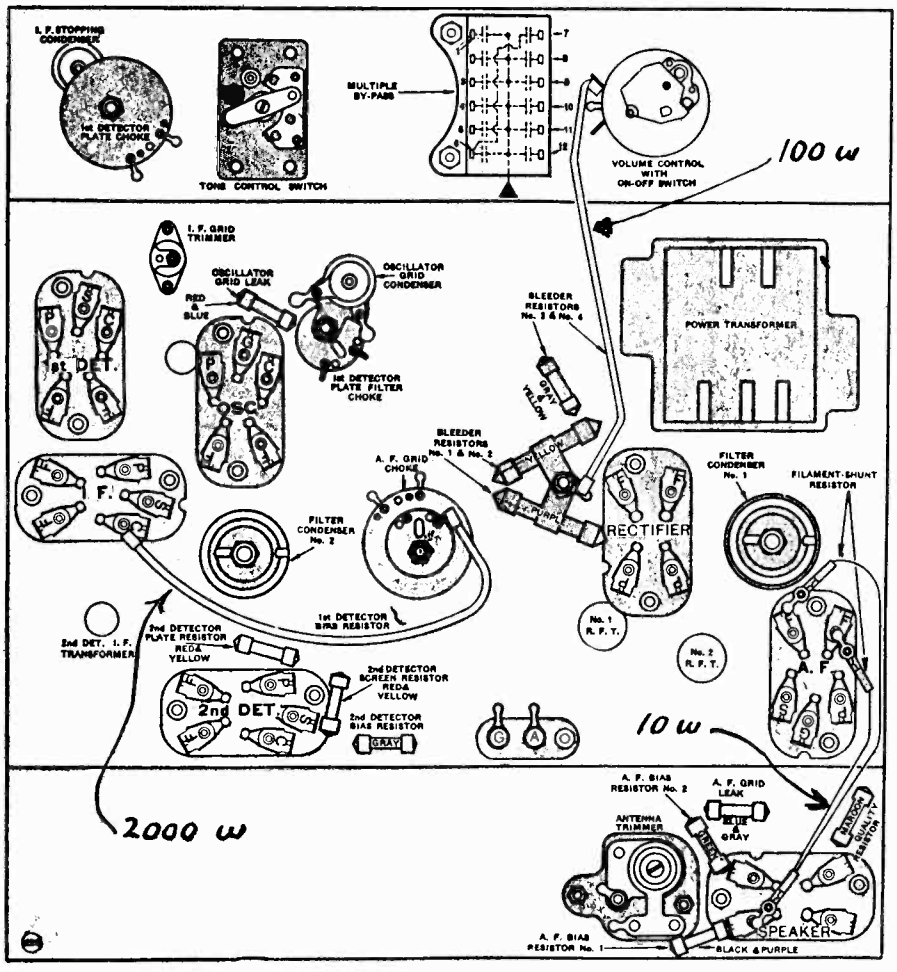


CHART OF MODEL 80, 80-F.

The parts on Model 83, 83-F are similar except that Model 83, 83-F has a filter condenser unit and only one electrolytic condenser.

VOLTAGE TABLE

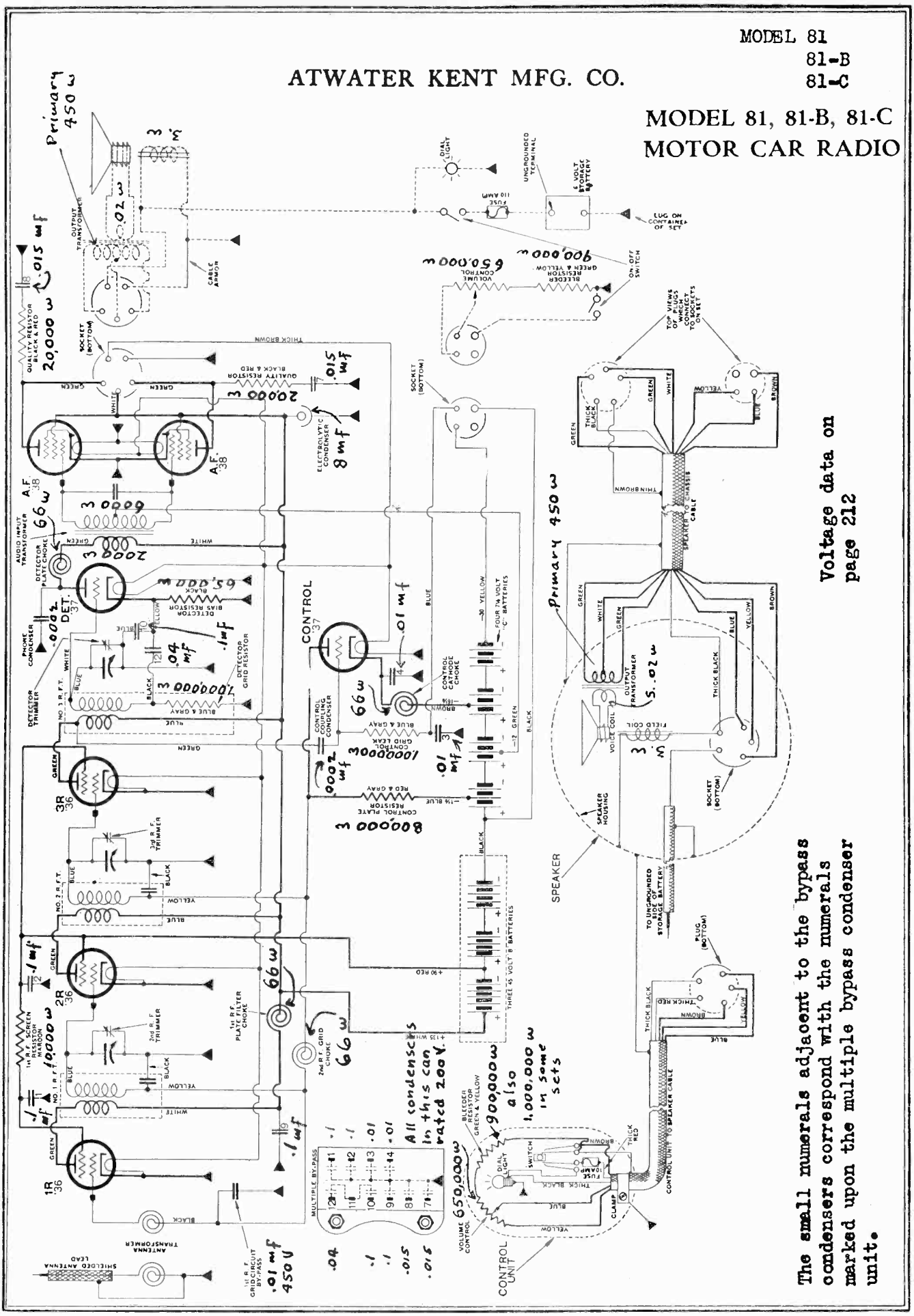
	Fil.	Plate	Screen	Control
1st Det.	2.4	225	90	5.
I-F	2.4	230	95	2.
2nd Det	2.4	110	45	5.
1st A-F	2.4	230	240	4.
2nd A-F	2.4	100		*
Osc	2.4			

* A variable depending upon several factors. Capacity of voltmeter leads may cause oscillator tube to cease functioning.

MODEL 81
81-B
81-C

ATWATER KENT MFG. CO.

MODEL 81, 81-B, 81-C
MOTOR CAR RADIO



Voltage reference on page 1-56.

VOLTAGE DATA

ATWATER KENT MFG. CO.

VOLTAGE TABLE

FOR MODEL 80, 81, 82, 82-D, 82-Q, 83, 84, 84-D, 84-Q, 85, 85-Q, 86, 87 and 89

The voltages listed in this table are only approximate, and are measured values, not actual operating values. Turn volume control to maximum.

Use 250-volt scale of a 1000-ohm-per-volt D. C. voltmeter.

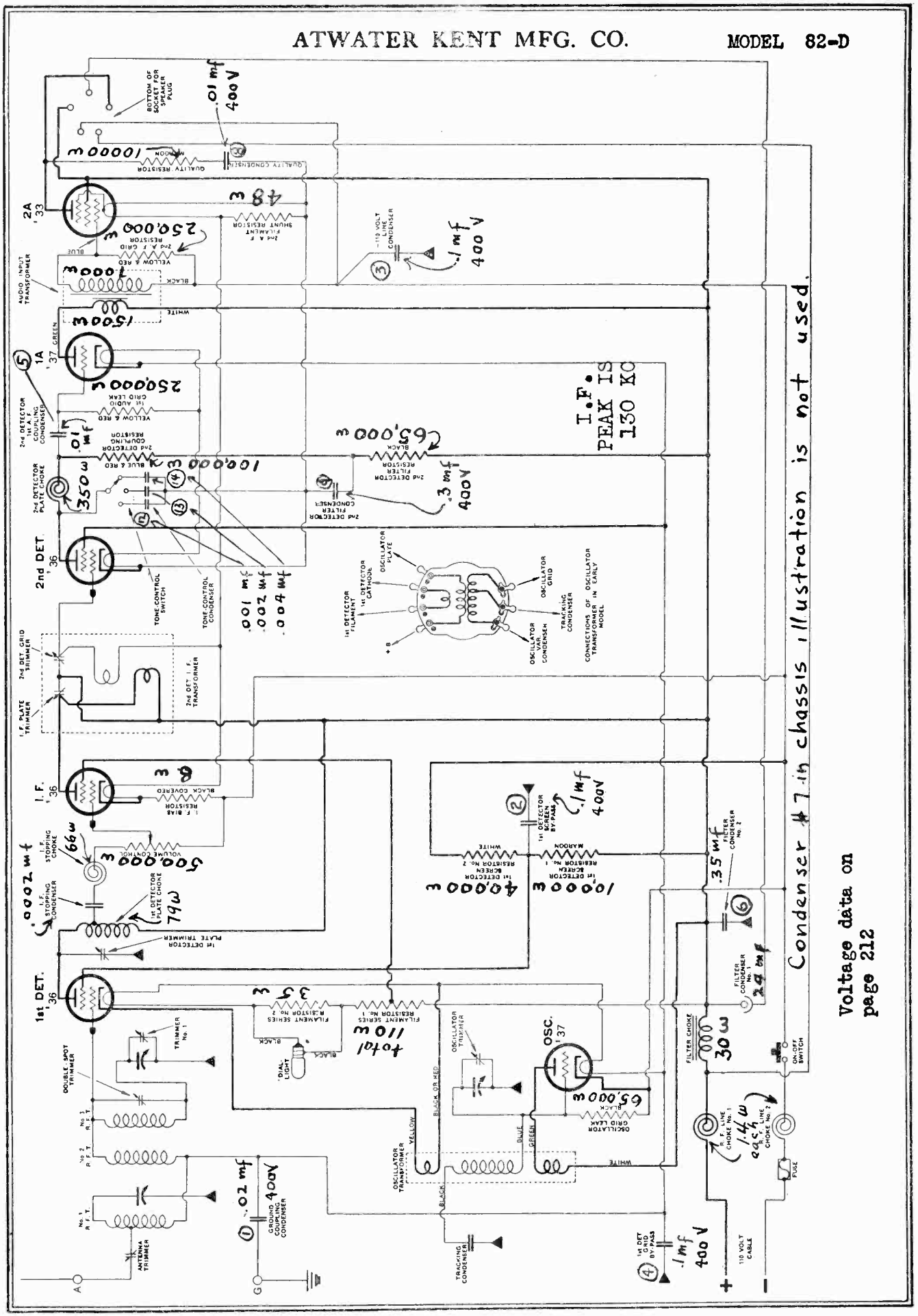
All plate, screen and grid measurements are made from cathode in heater-type tube, and from —F in plain-filament-type tube.

When replacing a tubular resistor, use a resistor of the same identifying color. In a few cases, owing to engineering changes, the color of a resistor in a chassis may not agree with the color specified in the diagram. In such a case, disregard the diagram and use a replacement resistor having the same color as the defective unit. However, if a resistor has been removed, or its identification destroyed, replace it with a resistor having the color that is specified in the diagram for that set.

		MODEL 80	MODEL 81	MODEL 82	MODEL 82-D	MODEL 82-Q	MODEL 83	MODEL 84	MODEL 84 D	MODEL 84 Q	MODEL 85	MODEL 85-Q	MODEL 86	MODEL 87	MODEL 89
	LINE VOLTAGE	110	—	110	112	—	110	110	120	—	110	—	115	110	110
	TOTAL "B" VOLTAGE	—	125	—	—	125	—	—	—	125	—	125	—	—	—
R. F. TUBE**	FILAMENT	—	5.5	—	—	2	—	—	—	2	—	—	2.4	2.4	2.4
	PLATE	—	125	—	—	125	—	—	—	125	—	—	125	170	125
	SCREEN	—	75	—	—	60	—	—	—	65	—	—	40	80	50
	GRID	—	SMALL	—	—	3	—	—	—	3	—	—	2	2	2
1ST DET. TUBE†	FILAMENT	2.4	5.5	2.4	5.5	2	2.4	2.4	5.7	2	2.4	2	2.4	2.4	2.4
	PLATE	225	95	135	70	135	225	205	80	135	135	125	125	160	120
	SCREEN	90	—	50	50	40	90	65	50	25	50	40	35	80	50
	GRID	5	7	4	5	3	5	6	5	3	3	3	4	11	4
I. F. TUBE	FILAMENT	2.4	—	2.4	6	2	2.4	2.4	6.5	2	2.4	2	2.4	2.4	2.4
	PLATE	230	—	140	95	125	230	215	105	125	135	125	125	170	125
	SCREEN	95	—	50	50	60	95	65	55	65	50	65	40	80	50
	GRID	2	—	SMALL	SMALL	3	2	3	SMALL	SMALL	2	3	2	2	2
2ND DET. TUBE	FILAMENT	2.4	—	2.4	5.5	2	2.4	2.4	5	2	2.4	2	2.4	2.4	2.4
	PLATE	110	—	105	55	45	110	90	55	60	100	40	95	90	120
	SCREEN	45	—	65	10	25	45	45	10	25	65	25	60	—	—
	GRID	5	—	8	2	3	5	6	1	3	7	3	8	SMALL	15
1ST A. F. TUBE	FILAMENT	2.4	5.5	2.4	5.5	2	2.4	2.4	6	2	2.4	2	2.4	2.4	2.4
	PLATE	230	120	230	75	55	230	205	80	55	215	55	210	90	120
	SCREEN	240	123	240	—	—	240	215	—	—	225	—	220	—	—
	GRID	4	11	5	3	3	4	5	2.5	3	5	3	5	3	4
2ND A. F. TUBE	FILAMENT	—	—	—	2	2	—	—	2	2	—	2	—	2.4	2.4
	PLATE	—	—	—	85	120	—	—	90	120	—	120	—	200	225
	SCREEN	—	—	—	90	125	—	—	95	125	—	125	—	210	235
	GRID	—	—	—	7	15	—	—	7	5	—	15	—	14	14
OSC. TUBE	FILAMENT	2.4	—	2.4	5	2	2.4	2.4	6	2	2.4	2	2.4	2.4	2.4
	PLATE	95	—	95	100	60	100	70	110	60	100	40	95	85	100
	GRID	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CONTROL TUBE	FILAMENT	—	5.5	2.4	—	—	—	—	—	—	2.4	—	2.4	—	2.4
	PLATE	—	3	15	—	—	—	—	—	—	15	—	30	—	25
	SCREEN	—	—	8	—	—	—	—	—	—	7	—	7	—	5
	GRID	—	2	4	—	—	—	—	—	—	4	—	4	—	3

* The measured oscillator grid voltage will vary dependent on the capacity of the voltmeter leads. In some cases, the presence of the leads will stop oscillation and no reading will be secured for grid bias. In other cases, the reading will be only slight, or it may be as high as 10 volts.

**This includes the 1st, 2nd and 3rd R. F. tubes in Model 81. †This is the detector tube in Model 81.

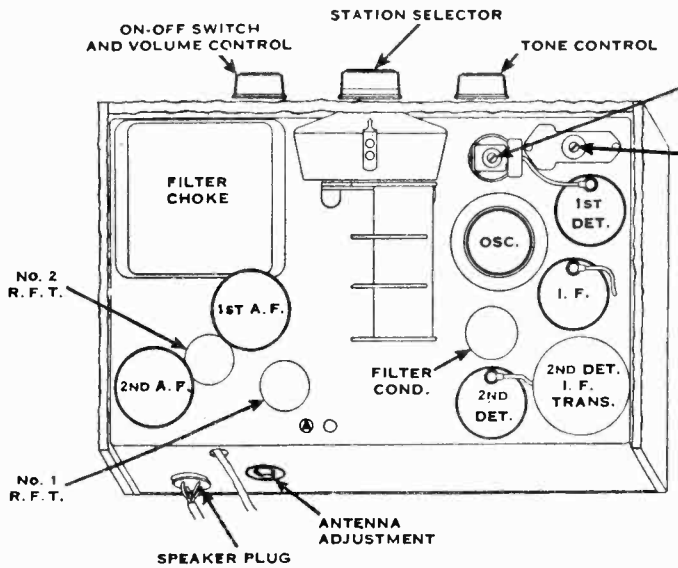


Voltage reference on page 1-56.

MODEL 82-D

ATWATER KENT MFG. CO.

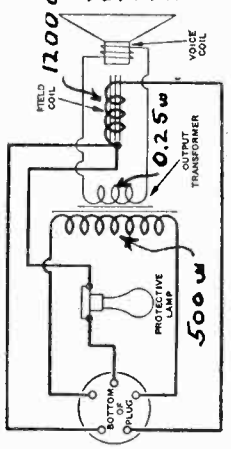
MODEL 82-D TOP VIEW AND CHART



TOP VIEW OF MODEL 82-D.

All bypass condensers 400 volts except tone control which is 100 volts

The protective lamp (75 watts) is connected in series with the electrolytic filter condenser in the chassis. If the 110-volt D. C. supply plug is reversed, the lamp will light. When the 110-volt plug is properly inserted, the lamp does not light. This action is due to the fact that the electrolytic condenser passes current if the polarity of the applied D. C. voltage is not correct.



CIRCUIT OF SPEAKER USED IN MODEL 82-D, 84-D.

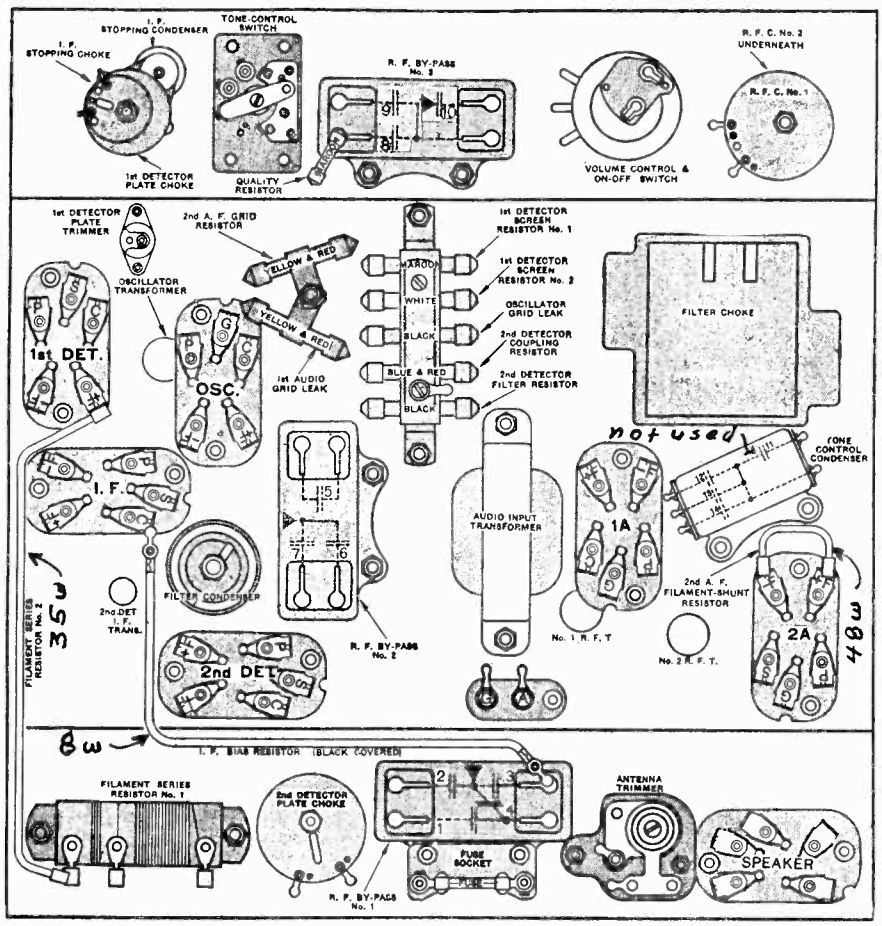


CHART OF MODEL 82-D.

By-pass Condensers in Model 82-D

R. F. By-pass No. 1

1—Ground coupling condenser.
2—1st-detector screen by-pass.
3—110-volt line condenser.
4—1st-detector grid by-pass.

R. F. By-pass No. 2

5—2nd-detector—1st-A.F. coupling condenser
6—Filter condenser No. 2.
7—Not used.

R. F. By-pass No. 3

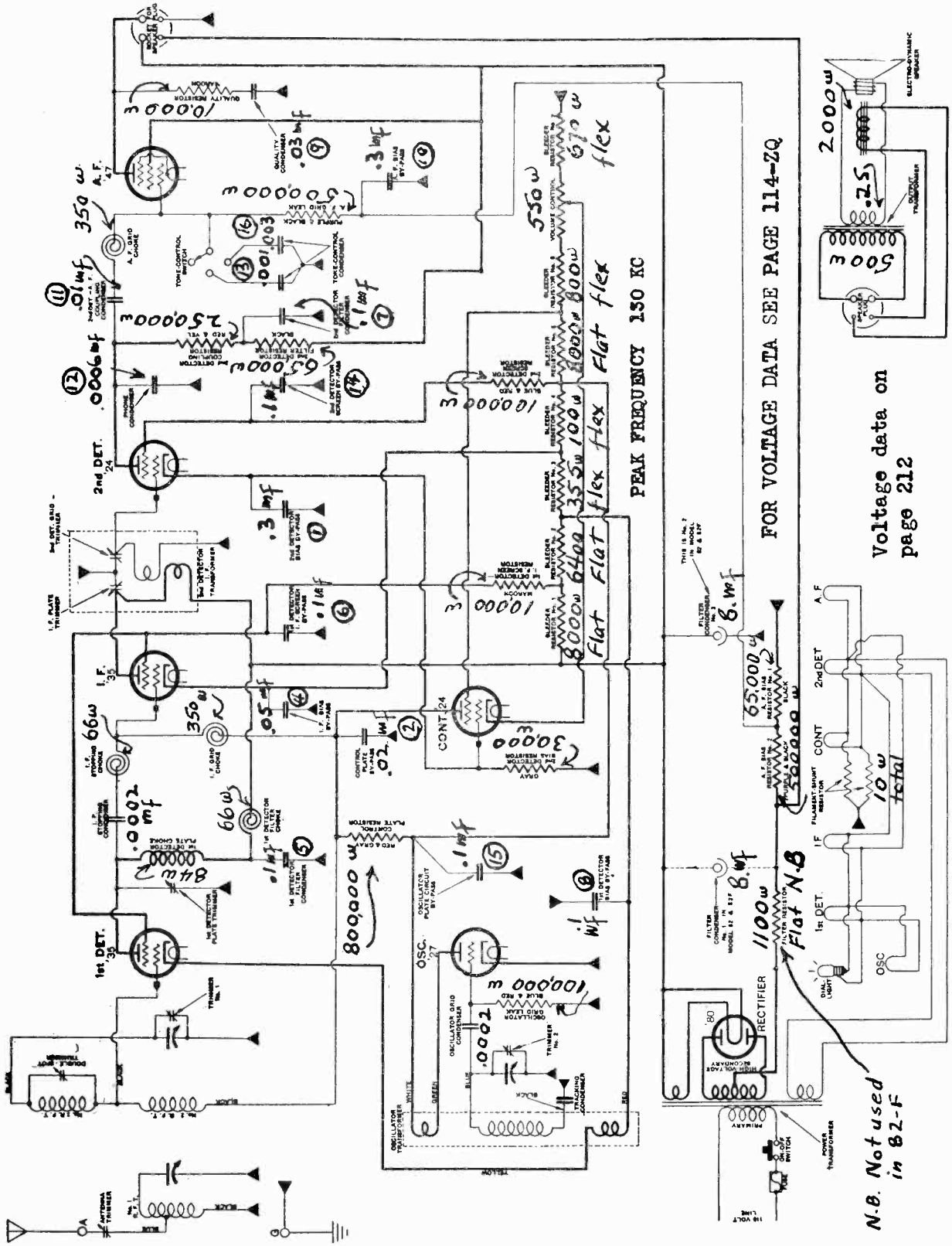
8—Quality condenser.
9—2nd-detector filter condenser.
10—110-volt line by-pass.

Tone-control Condenser

11—Not used.
12—Tone condenser.
13—Tone condenser.
14—Tone condenser.

MODEL 82, 82-F

ATWATER KENT MFG. CO.

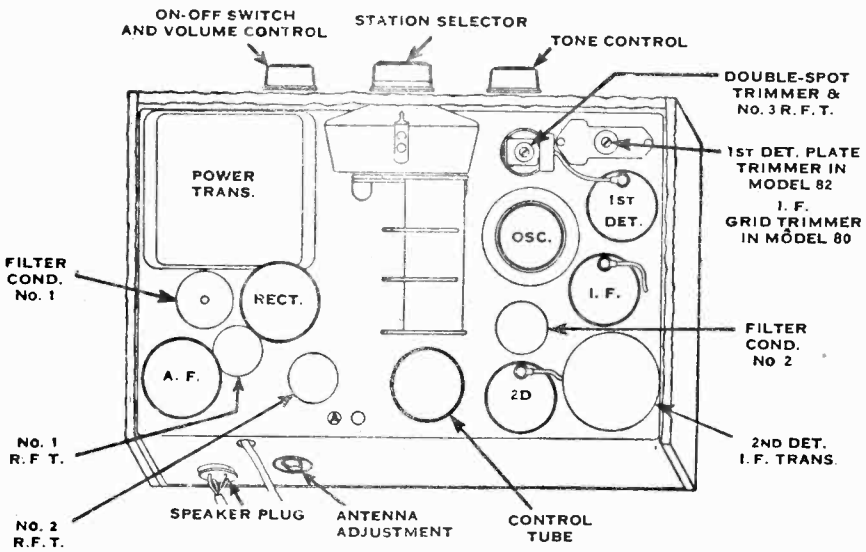


Numerals adjacent to bypass condensers designate units shown upon parts layout on next page within multiple condensers. Condenser voltage ratings are shown upon next page.

Voltage reference on page 1-56.

MODEL 82, 82-F

ATWATER KENT MFG. CO.



TOP VIEW OF MODEL 82, 82-F.

The top view of Model 80, 80-F is similar except that it has no control tube and the position of No.1 and No. 2 R. F. T. is interchanged.

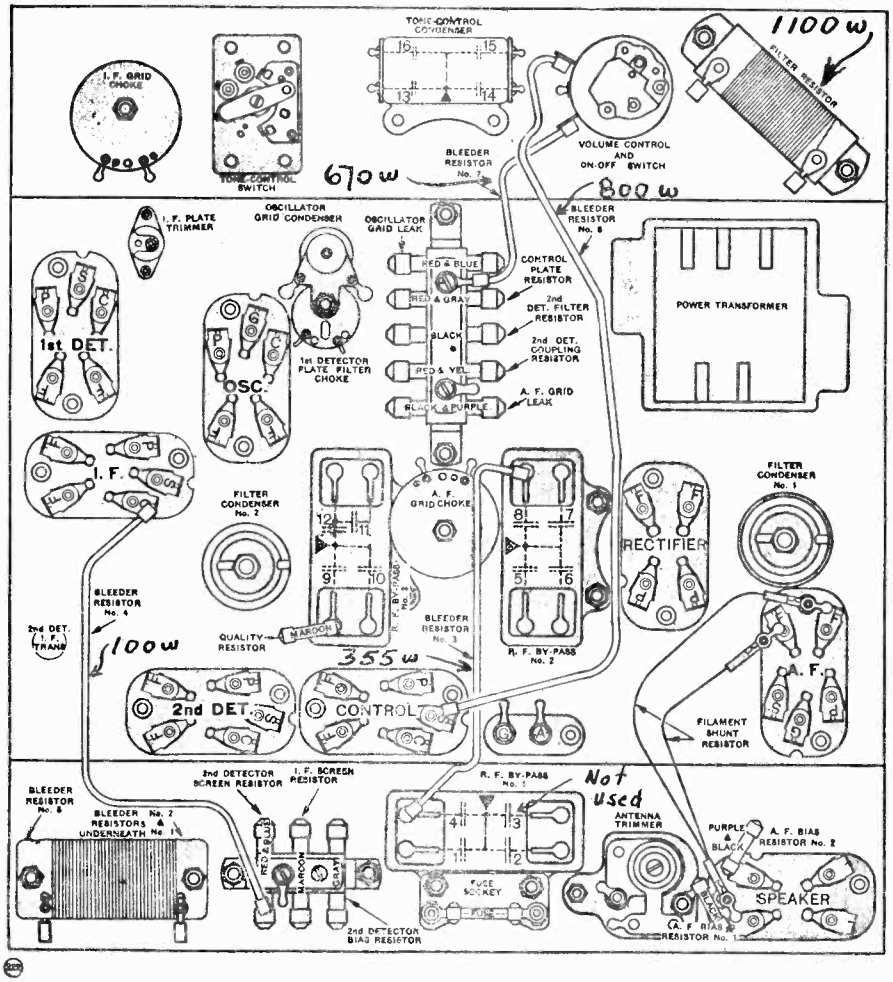


CHART OF MODEL 82, 82-F.

The filter resistor is not used in Model 82-F.

CONDENSERS

RF Bypass # 1
 # 21180
All 400 Volts

RF Bypass # 2
 # 15262
5-6 150 volts
7-8 400 volts

RF Bypass # 3
 # 21170
All 400 volts

Tone Control
 # 20010
All 100 volts

By-pass Condensers in Model 82, 82-F

R. F. By-pass No. 1

1—2nd-detector bias by-pass.
2—Control plate by-pass.
3—Not used.
4—I. F. bias by-pass.

R. F. By-pass No. 2

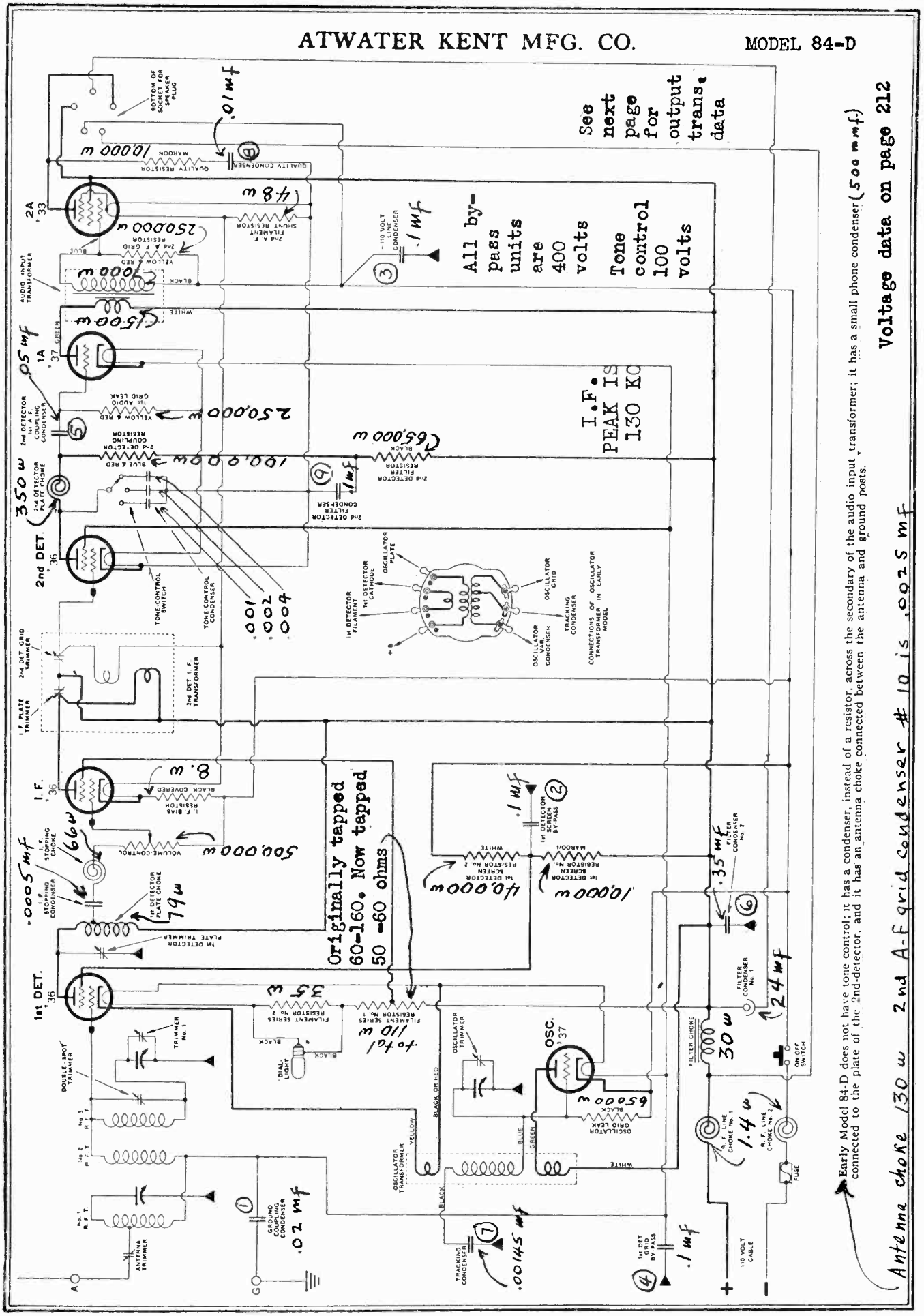
5—1st-detector filter condenser.
6—1st-detector—I. F. screen by-pass.
7—2nd-detector filter condenser.
8—1st-detector bias by-pass.

R. F. By-pass No. 3

9—Quality condenser.
10—A. F. bias by-pass.
11—2nd-detector—A. F. coupling condenser.
12—Phone condenser.

Tone-control Condenser

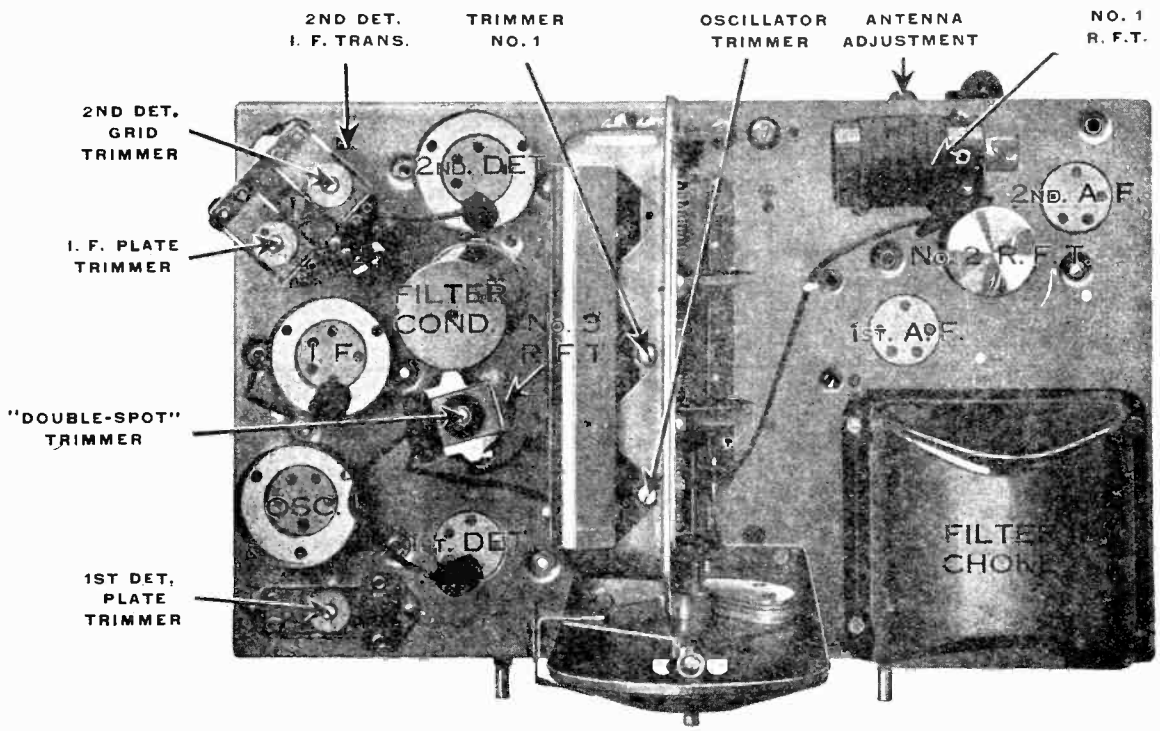
13—Tone condenser.
14—2nd-detector screen by-pass.
15—Oscillator plate-circuit by-pass.
16—Tone condenser.



Voltage reference on page 1-56.

MODEL 84-D

ATWATER KENT MFG. CO.



TOP VIEW OF MODEL 84-D.

OUTPUT TRANSFORMER

Primary 500 ohms
Secondary 0.25 ohm

Field coil 1200 ohms

By-pass Condensers in Model 84-D

Condensers in R. F. By-pass No. 1

1—Ground coupling condenser.
2—1st-detector screen by-pass.
3—110-volt line condenser.
4—1st-detector grid by-pass.

R. F. By-pass No. 2

5—2nd-detector—1st-A. F. coupling condenser.
6—Filter condenser No. 2.
7—Tracking condenser.

R. F. By-pass No. 3

8—Quality condenser.
9—2nd-detector filter condenser.
10—2nd-A. F. grid condenser in early-type sets, 2nd-detector phone condenser in later-type sets.

Tone-control Condenser (Late-type sets only)

11—Not used.
12—Tone condenser.
13—Tone condenser.
14—Tone condenser.

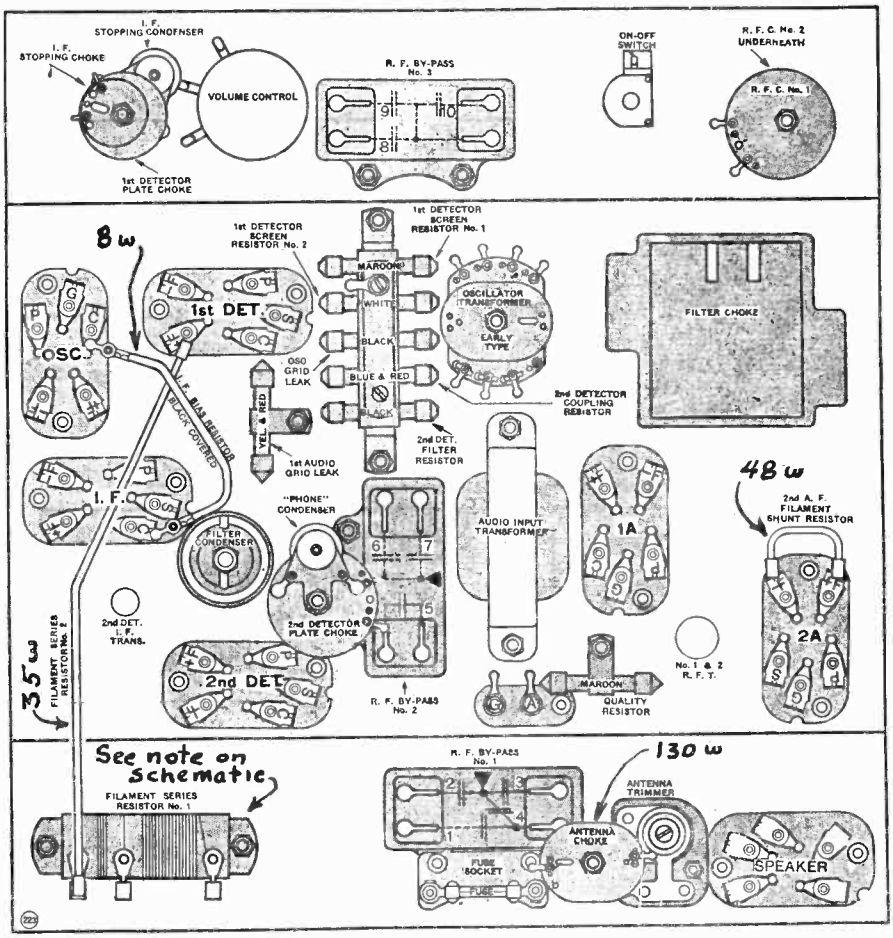
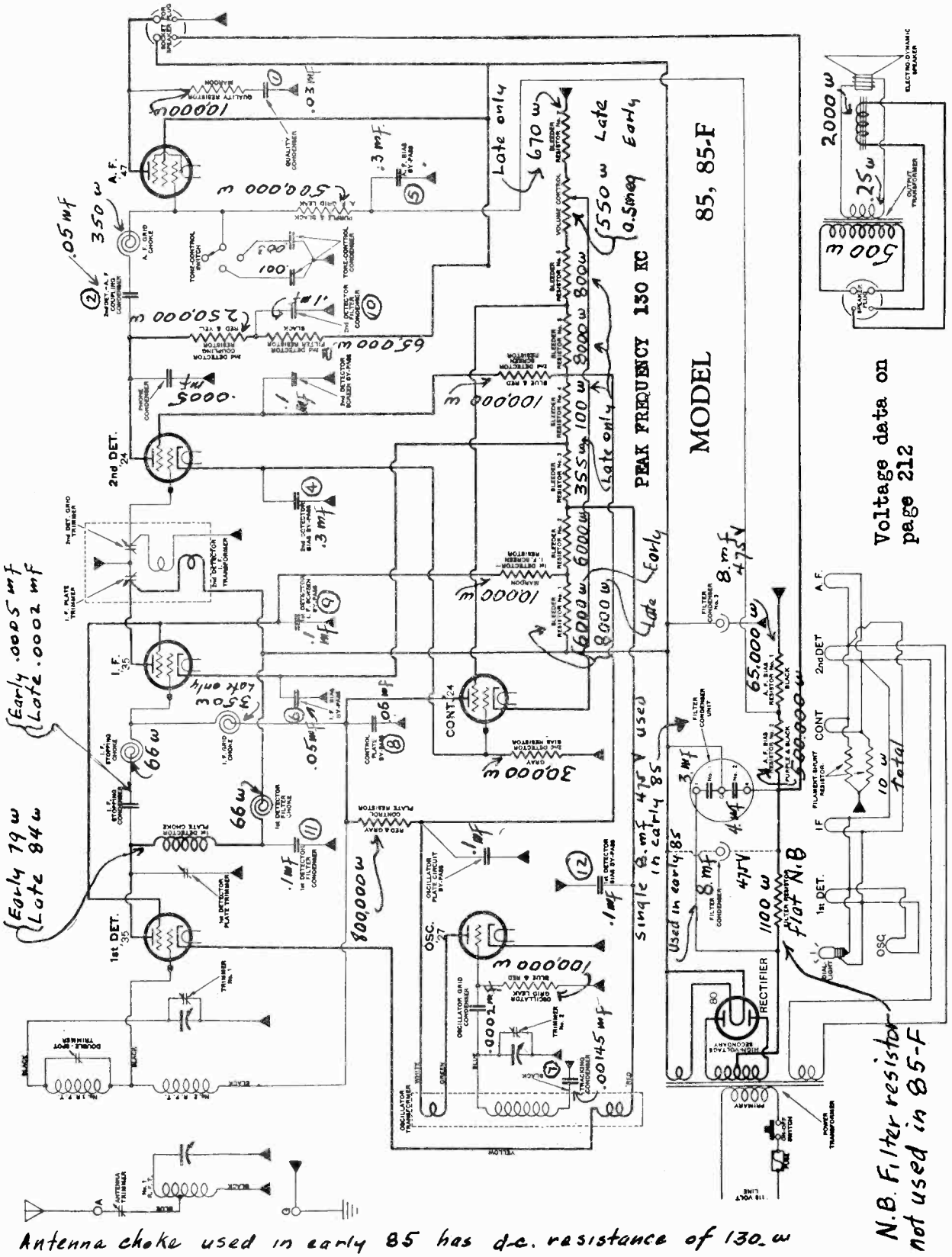


CHART OF MODEL 84-D. (EARLY TYPE WITHOUT TONE CONTROL.)

MODEL 85, 85-F

ATWATER KENT MFG. CO.

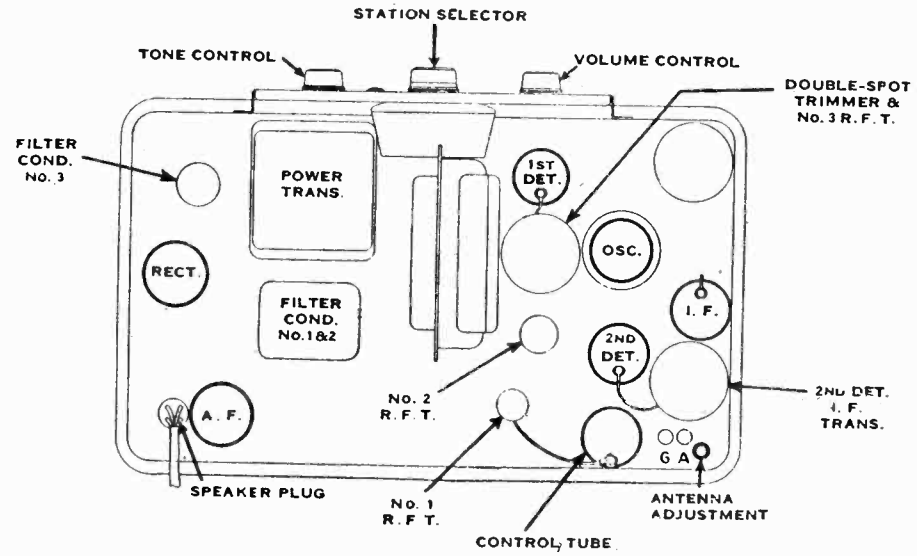


a few early-type Model 85 do not have automatic volume control; they have three electrolytic filter condensers; the circuit of these early Model 85 sets is similar to Model 80. The tracking condenser is mounted on the oscillator transformer in Model 82 and some 85 sets. The filament circuit of Model 82 is somewhat different from that shown above.

Voltage reference on page 1-56.

MODEL 85, 85-F

ATWATER KENT MFG. CO.



TOP VIEW OF MODEL 85, 85-F.

The circle in the top right corner represents the shield for the coupling unit between the 1st-detector and I. F. tubes.

CONDENSERS

RF Bypass # 1
19160 Early
19980 Late
All 400 volts

RF Bypass # 2
19150 Early
19990 Late
All 400 volts

RF Bypass # 3
15262
All 400 volts

Tone Control
16490 Early
20010 Late
All 100 volts

See schematic

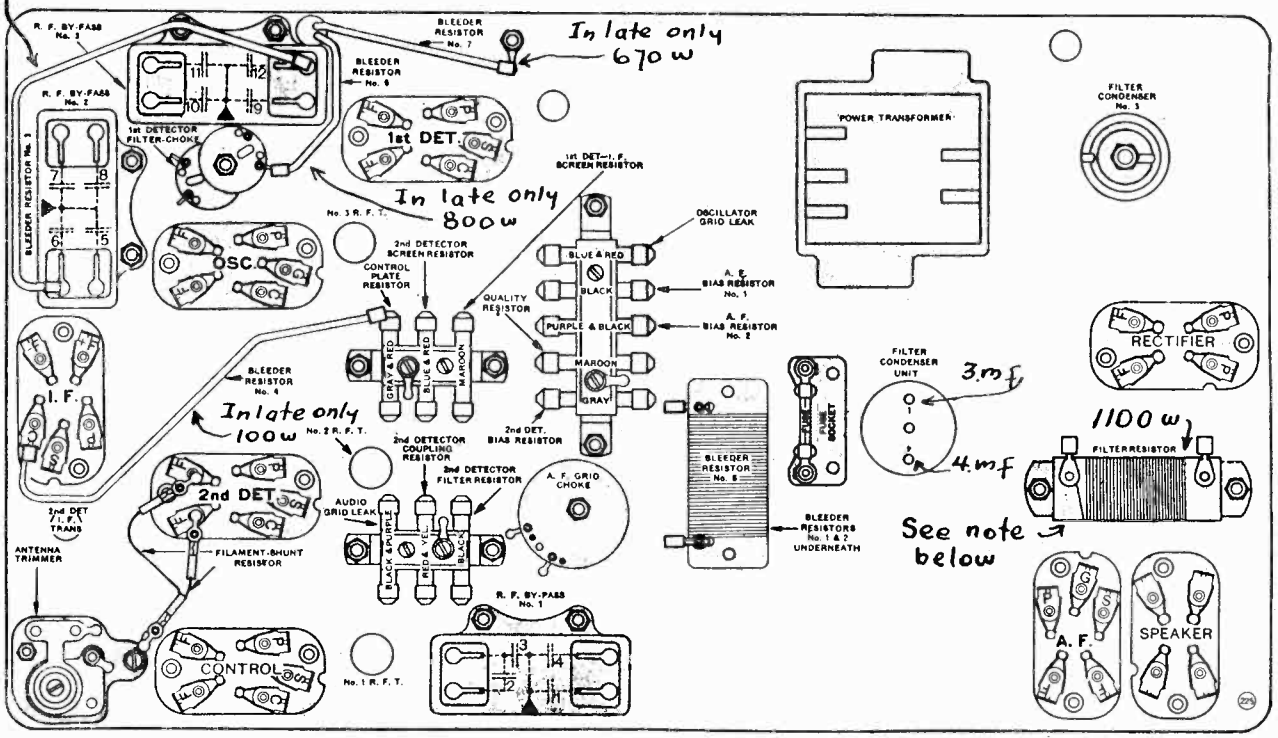


CHART OF MODEL 85, 85-F.

The filter resistor is not used in Model 85-F.

By-pass Condensers in Model 85, 85-F

R. F. By-pass No. 1

1—Quality condenser.
2—2nd-detector—A. F. coupling condenser.
3—Phone condenser.
4—2nd-detector bias by-pass.

R. F. By-pass No. 2

5—A. F. bias by-pass.
6—I. F. bias by-pass.
7—Tracking condenser.
8—Control-plate by-pass.

R. F. By-pass No. 3

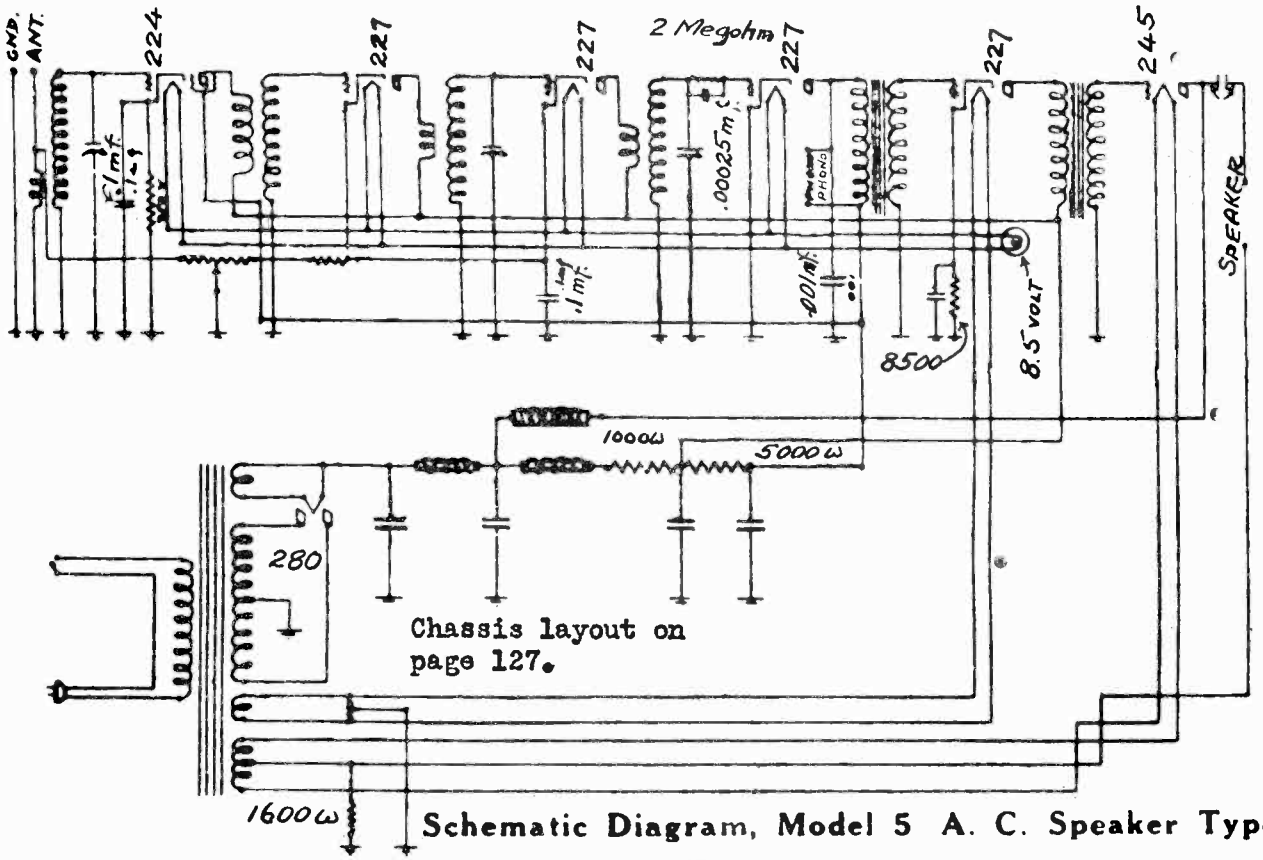
9—1st-detector—I. F. screen by-pass.
10—2nd-detector filter condenser.
11—1st-detector filter condenser
12—1st-detector bias by-pass.

Tone-control Condenser (on front panel)

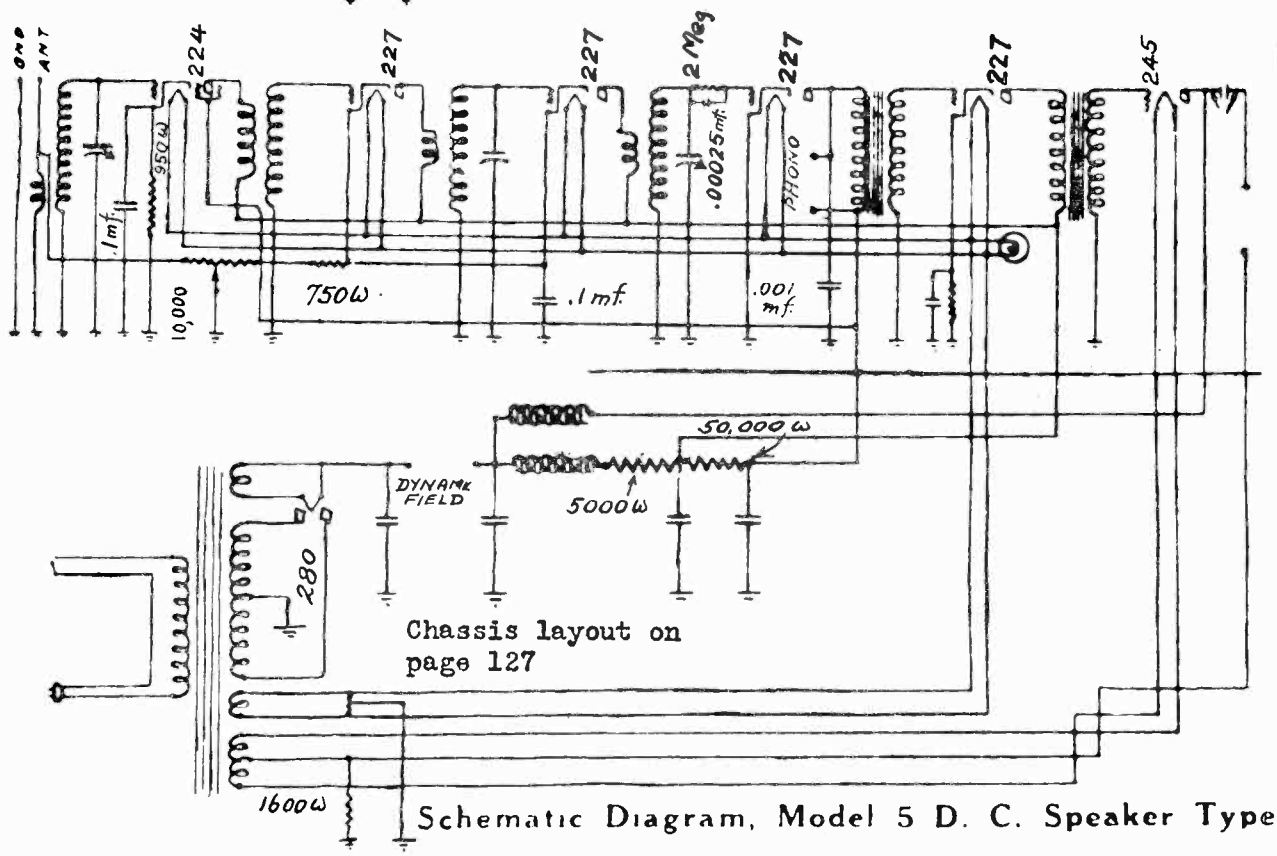
Two top contacts—2nd-detector screen by-pass and oscillator plate-circuit by-pass.
Two bottom contacts—tone-control condensers.

ATCHISON RADIO MFG. CO.

MODEL 5 AC
MODEL 5 DC



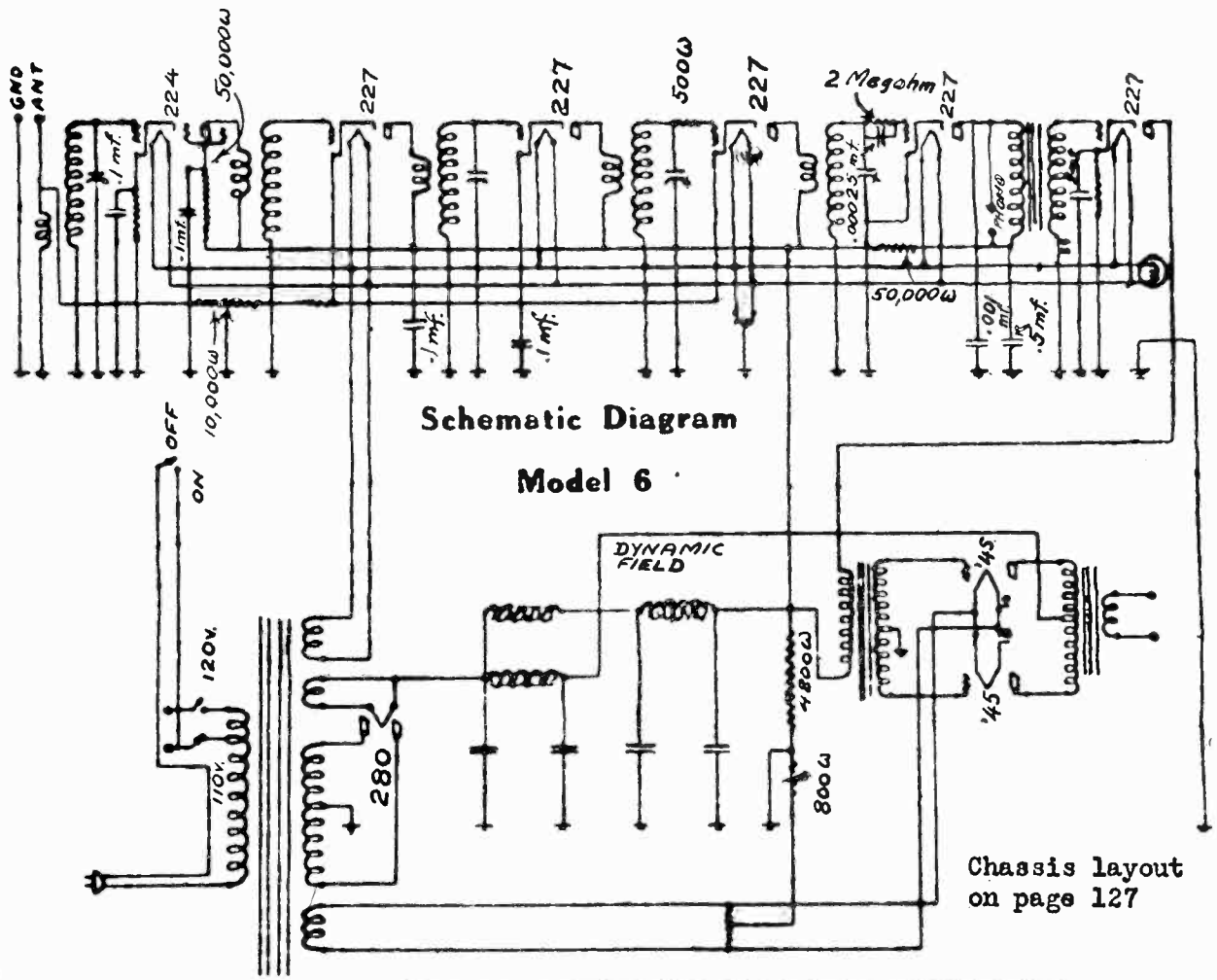
Schematic Diagram, Model 5 A. C. Speaker Type



Schematic Diagram, Model 5 D. C. Speaker Type

MODEL 6 AC

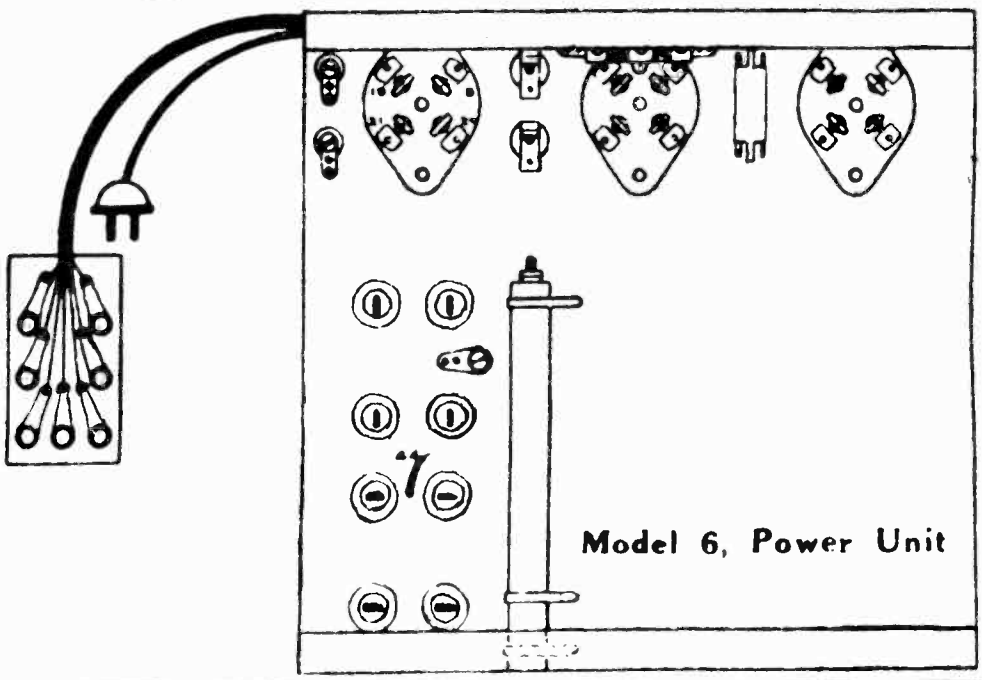
ATCHISON RADIO MFG. CO.



Schematic Diagram

Model 6

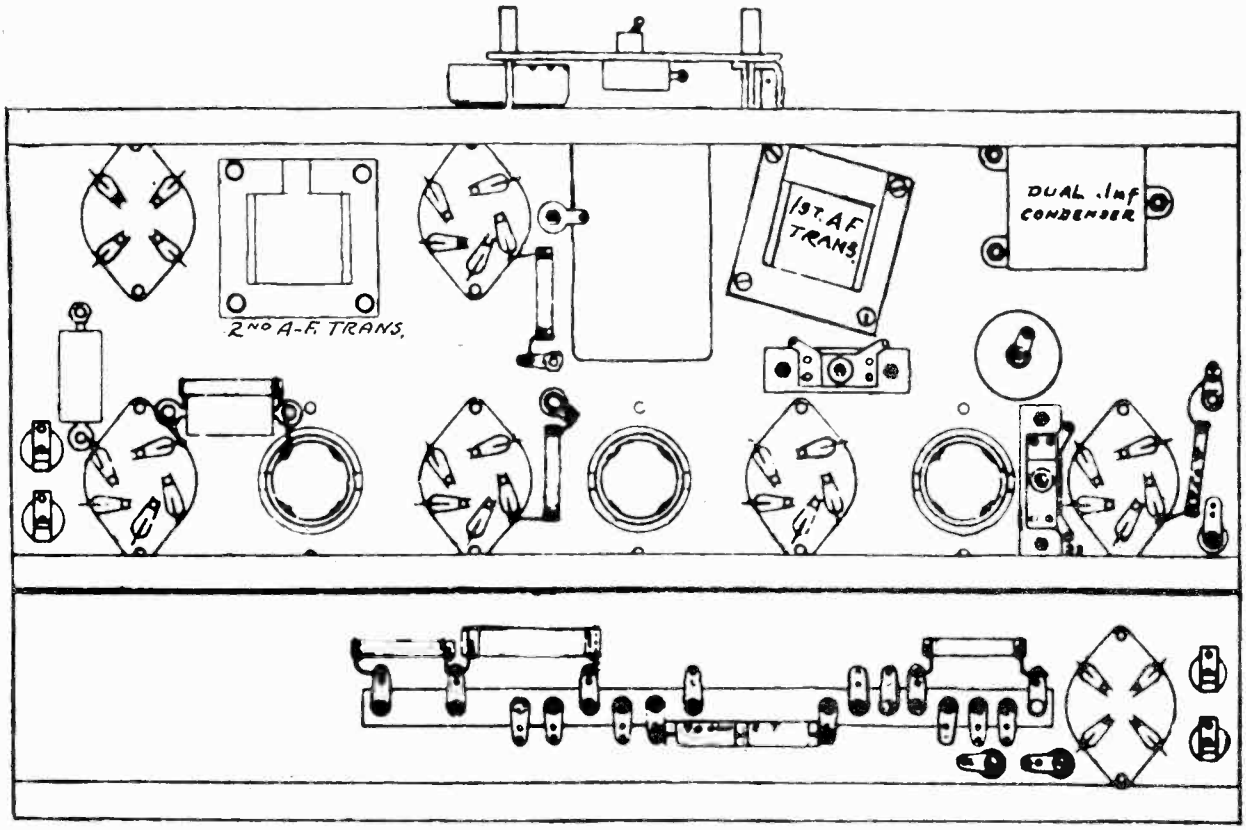
Chassis layout on page 127



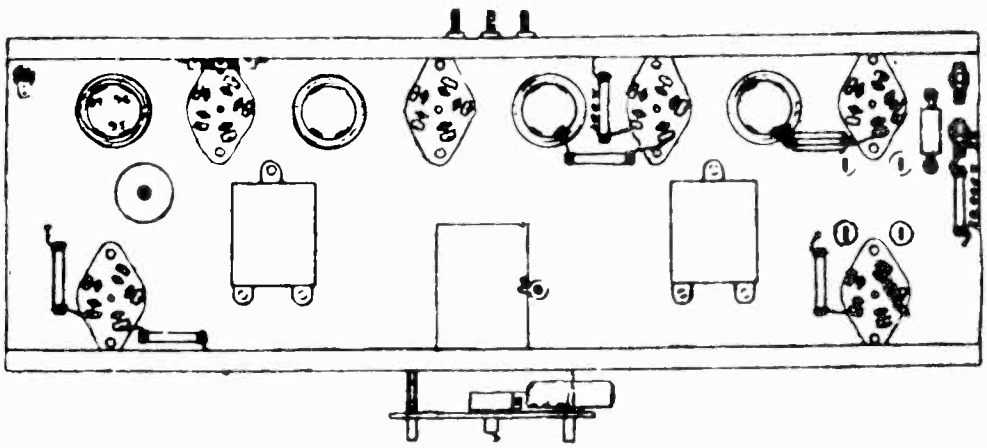
Model 6, Power Unit

ATCHISON RADIO MFG. CO.

MODEL 5 Chassis
MODEL 6 Chassis



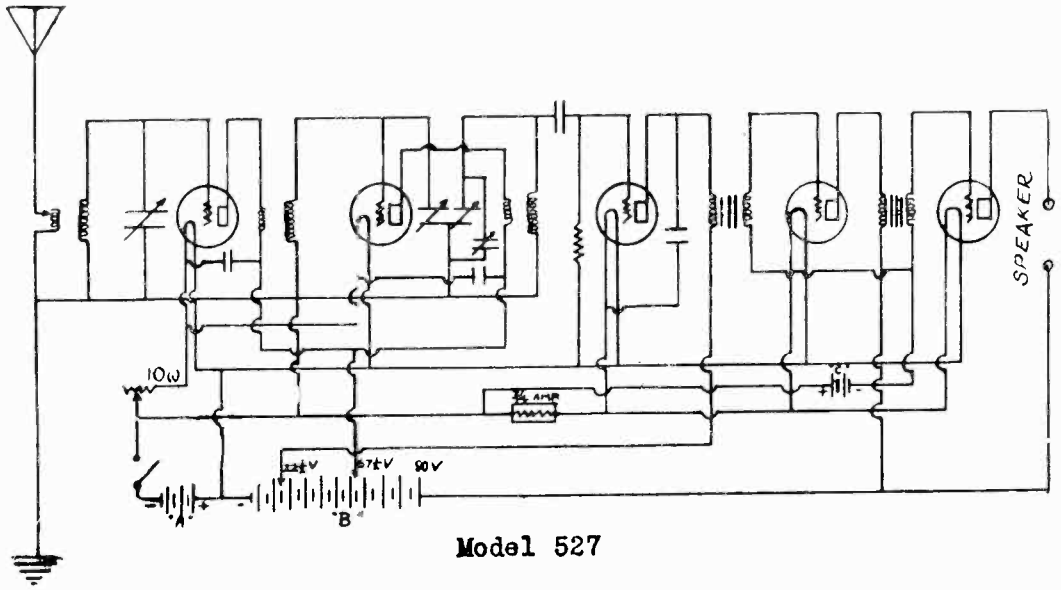
Model 5, Chassis Arrangement



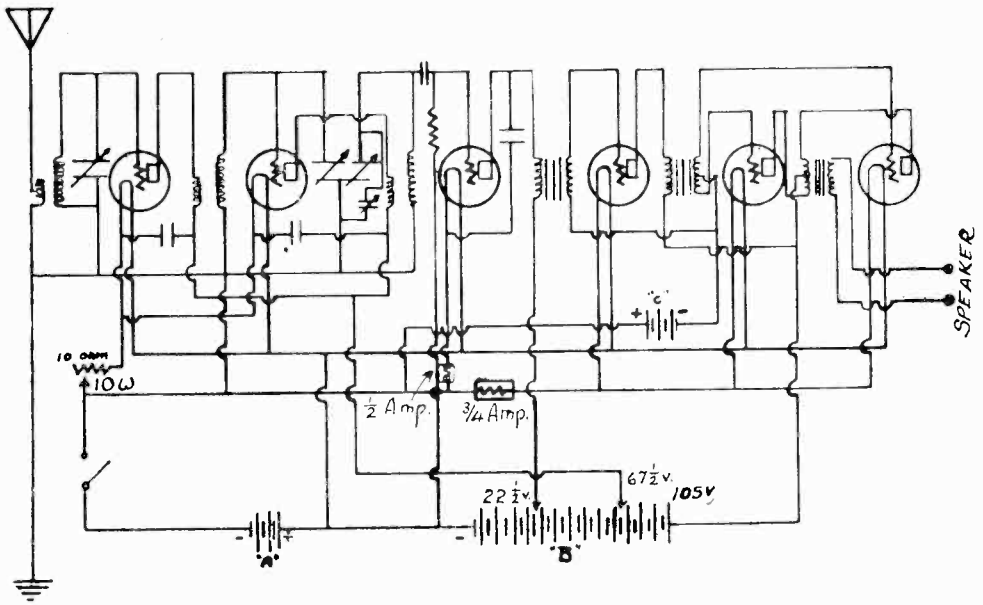
Model 6. Chassis Arrangement

AUDIOLA RADIO CO.

MODEL 527
MODEL 627



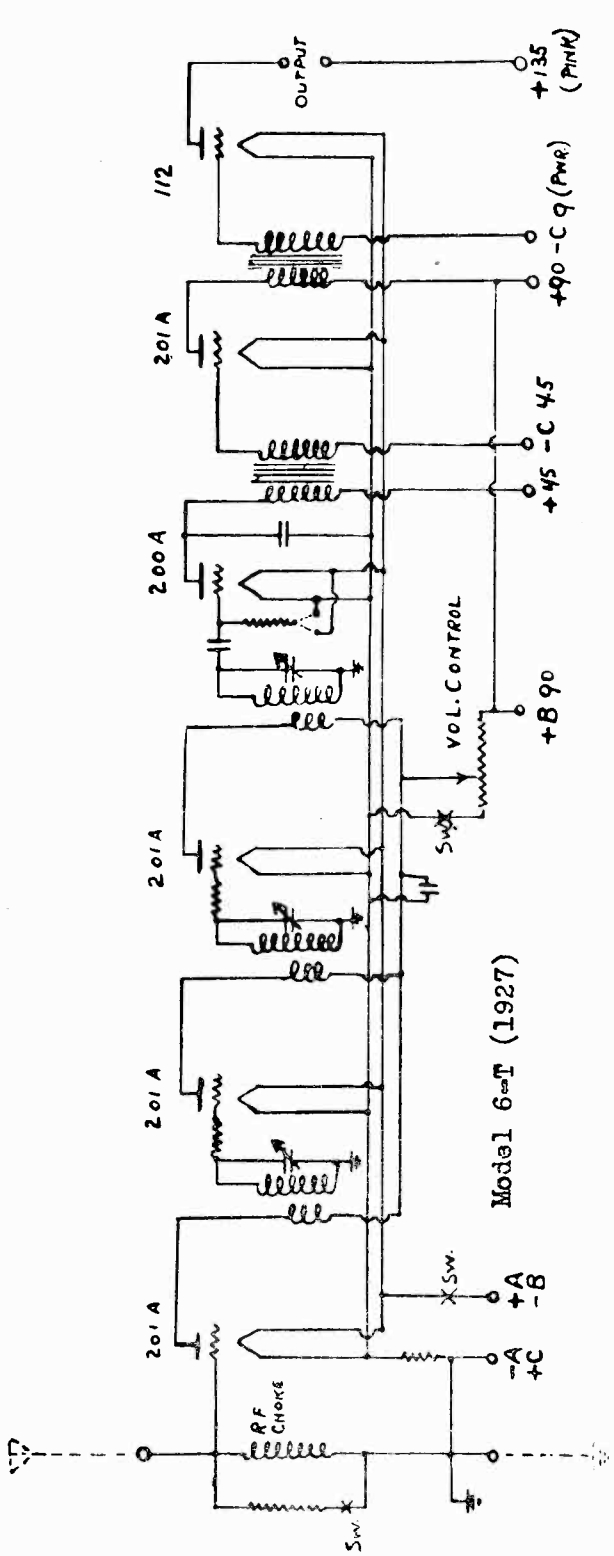
Model 527

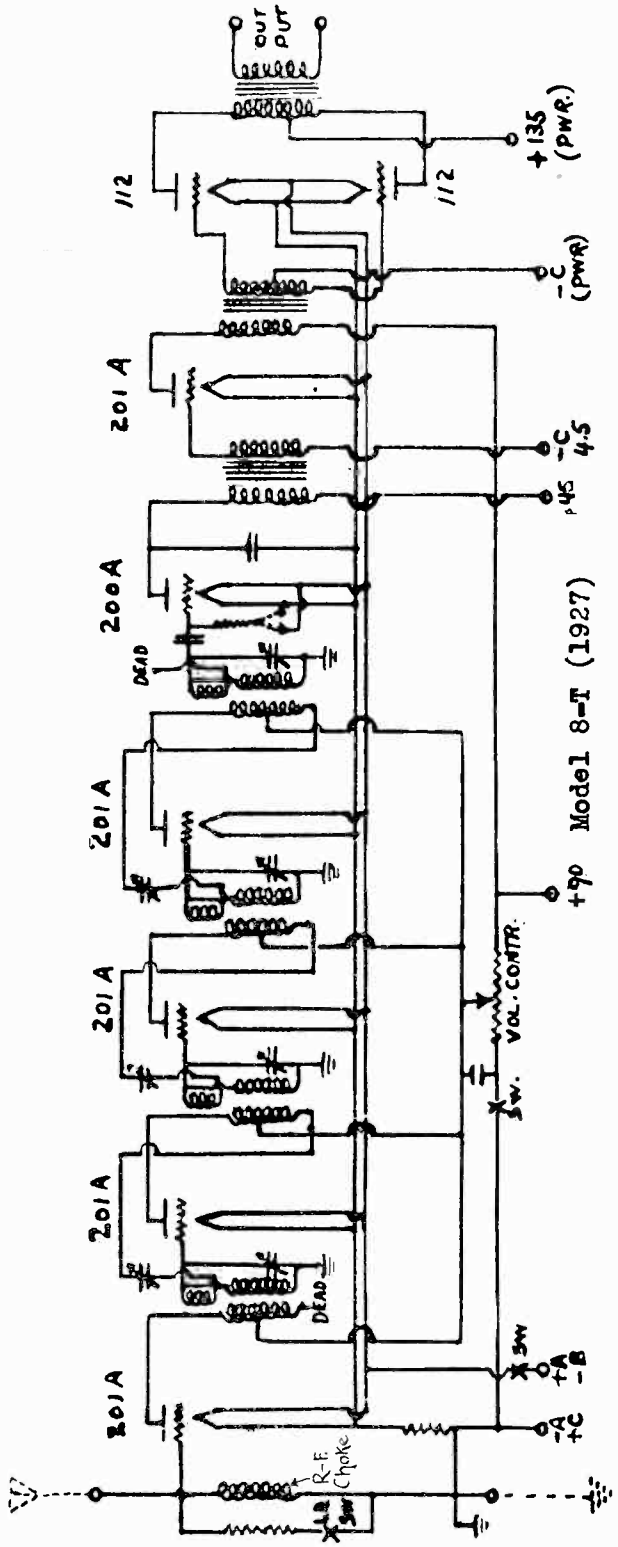


Model 627

MODEL 6-T (1927)
MODEL 8-T (1927)

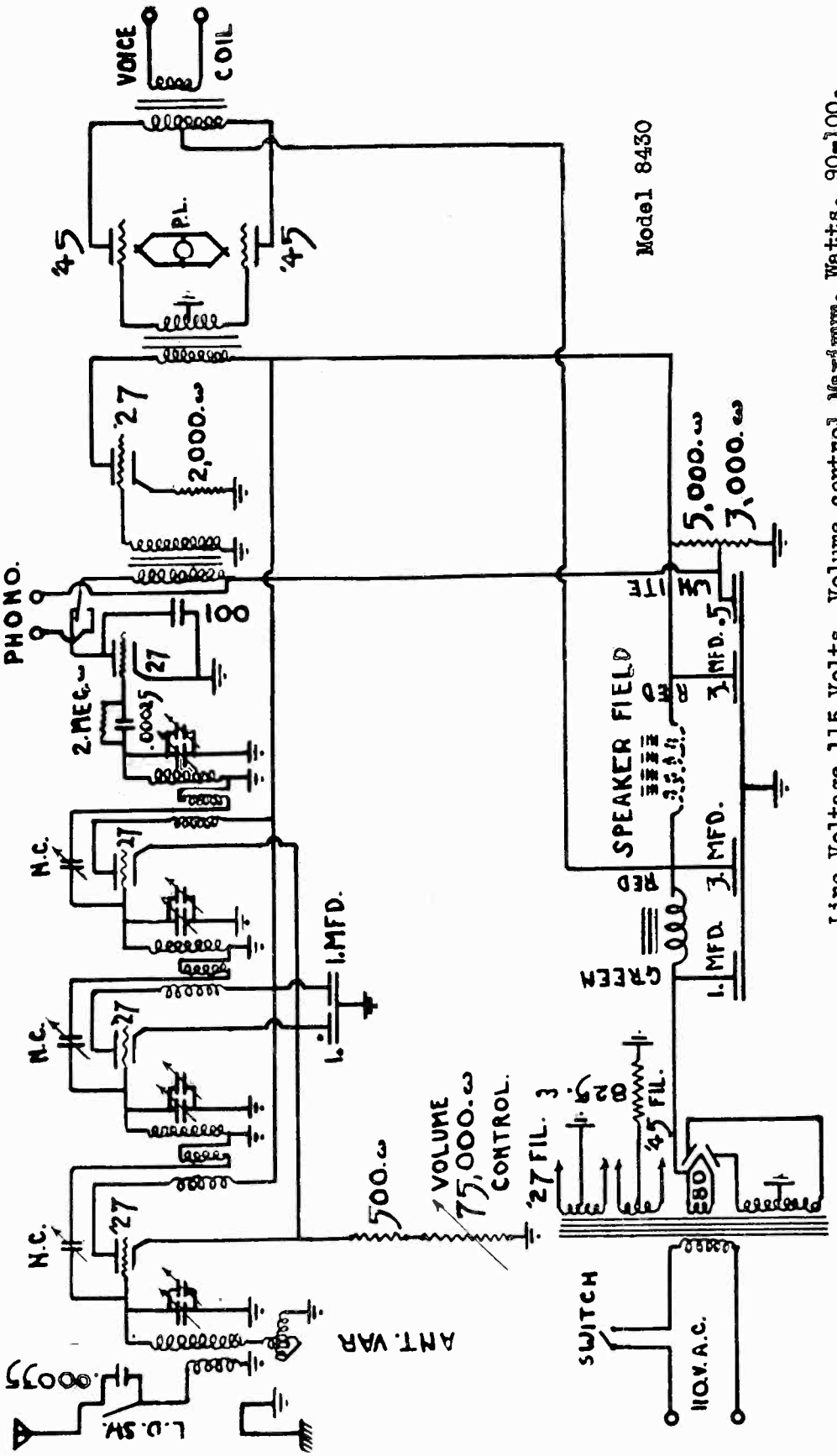
AUDIOLA RADIO CO.





AUDIOLA RADIO CO.

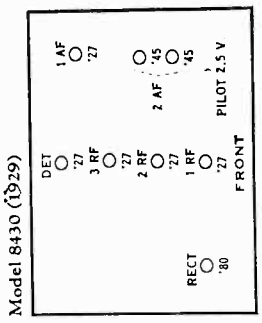
MODEL 8430



Line Voltage 115 Volts. Volume control Maximum. Watts. 90-100.

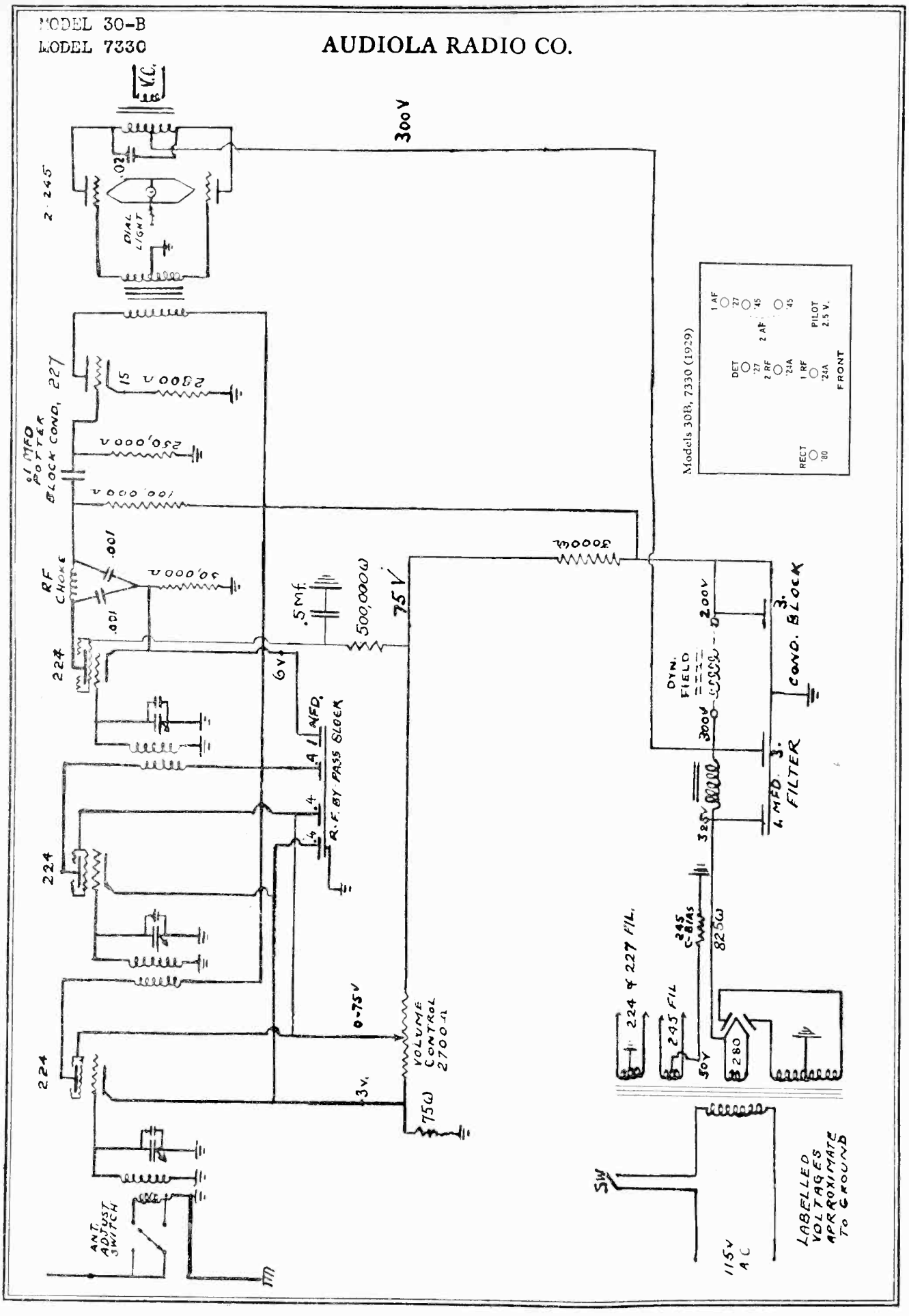
	Fil.	Plate	Grid	Plt. Crnt.
R-F	2.4	135-150	8-10	5. - 8. ma
Det.	2.4	80-80*		2. - 4.
A-F (1st)	2.4	135-150	10-14	4. - 6.
A-F (2nd)	2.4	210-250	40-50	22.-32.
Rect.	4.7-5.2			95.-105.

Voltage across field 80 - 100. Field current 40-50 ma.



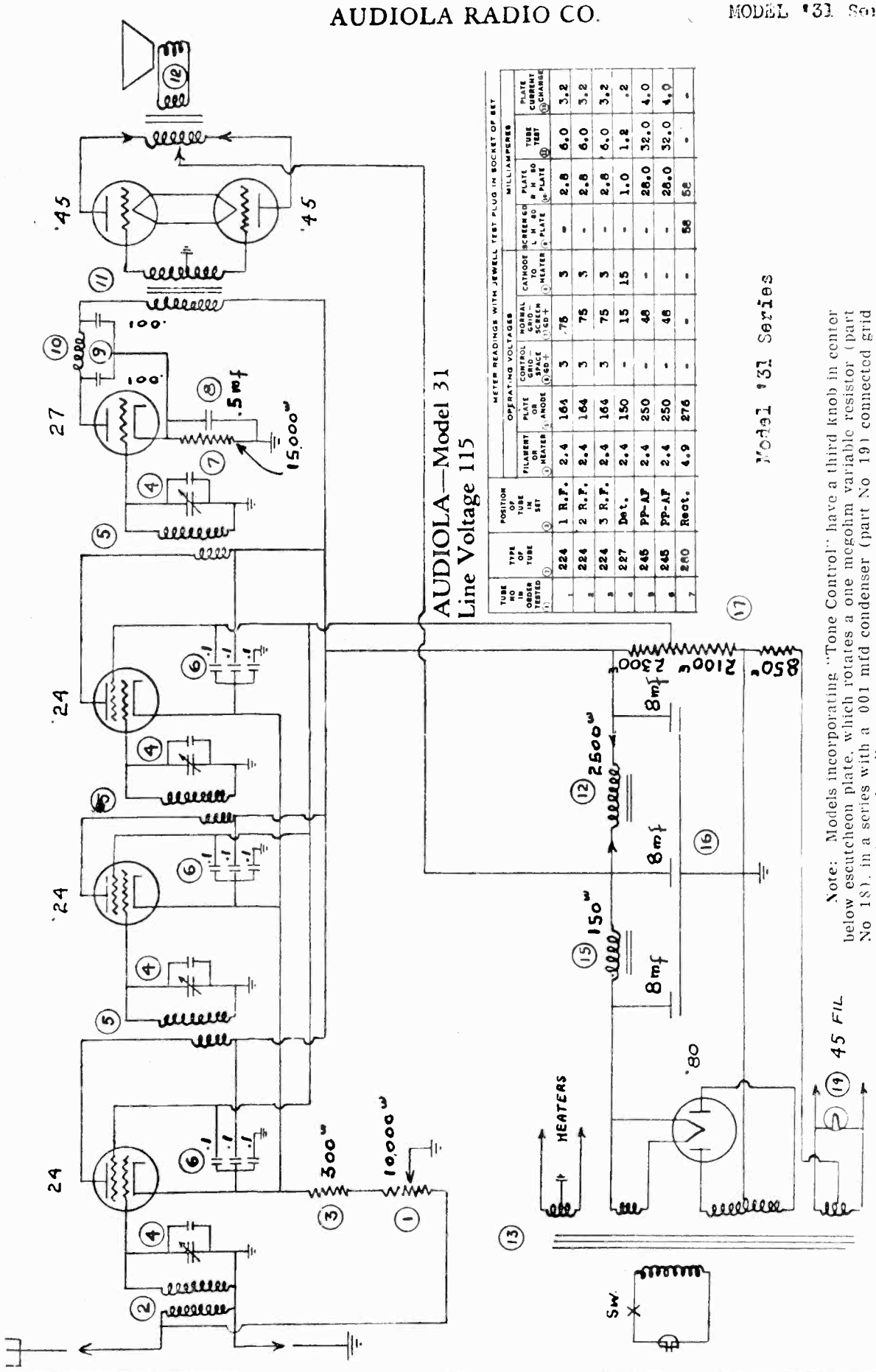
MODEL 30-B
MODEL 7330

AUDIOLA RADIO CO.



AUDIOLA RADIO CO.

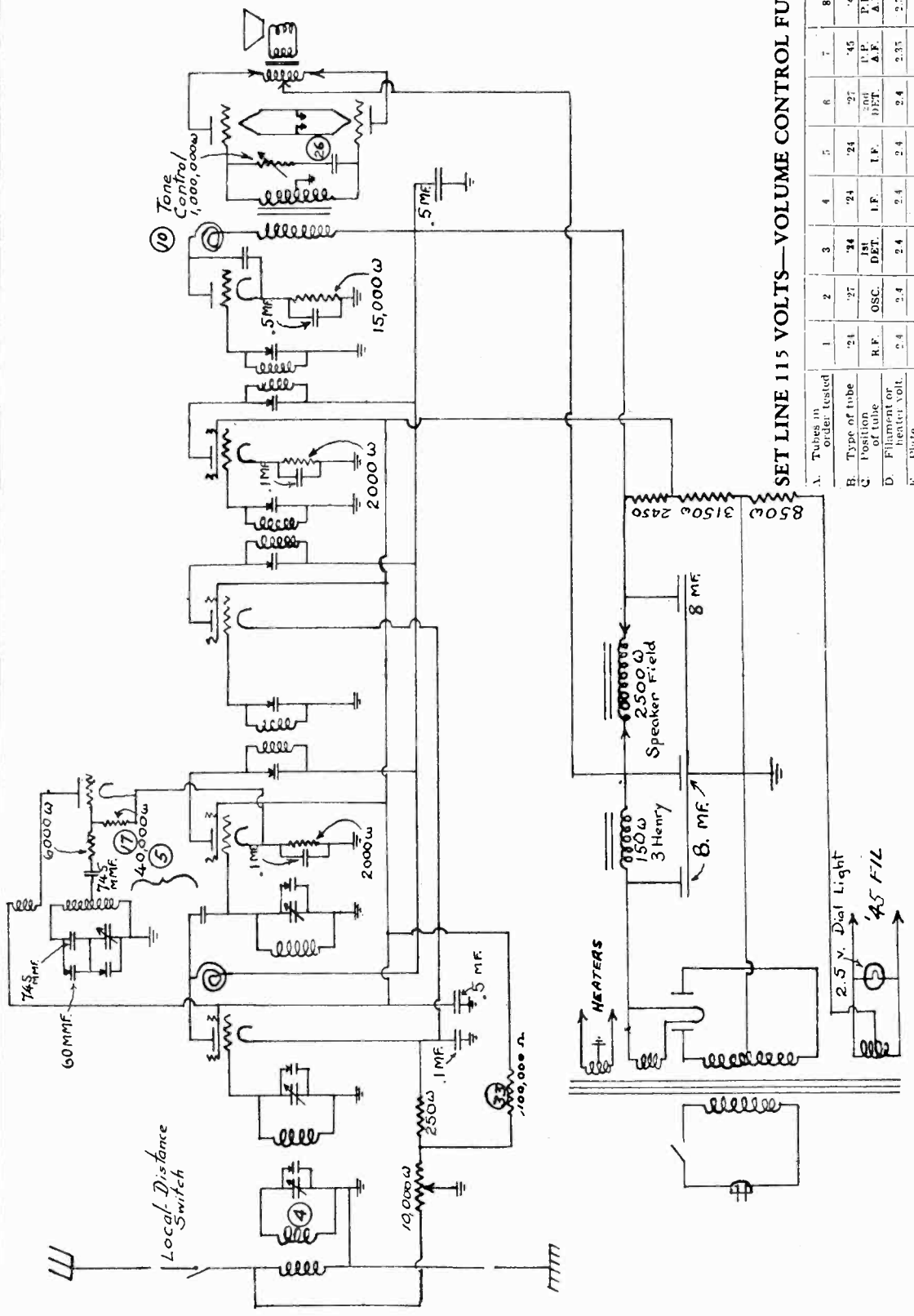
MODEL '31 Series



Note: Models incorporating "Tone Control" have a third knob in center below escutcheon plate, which rotates a one megohm variable resistor (part No 181), in a series with a 001 mfd condenser (part No 191 connected grid to grid in the push-pull stage

MODEL '31 Super

AUDIOLA RADIO CO.



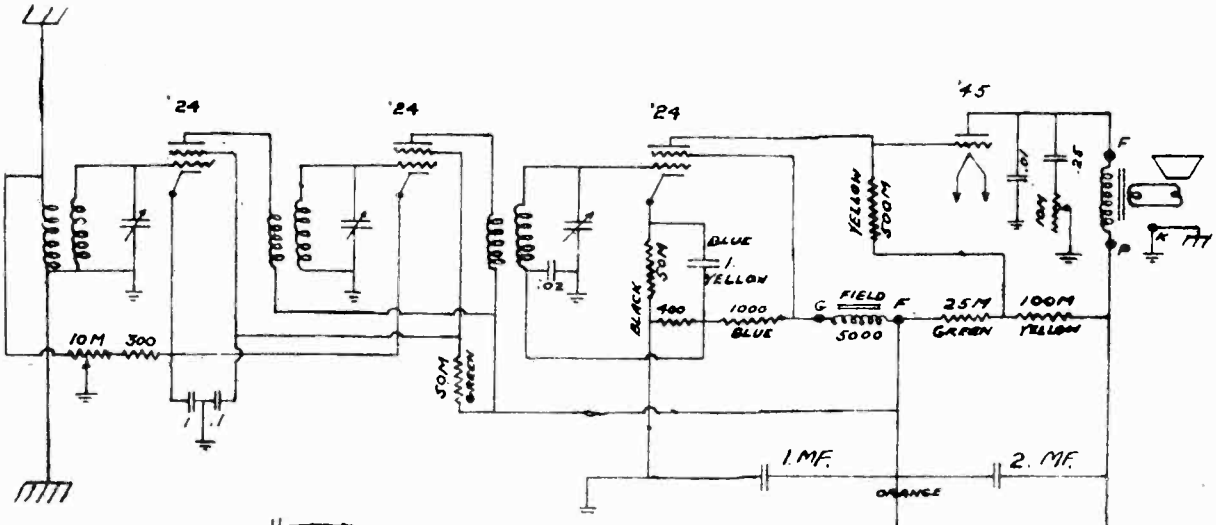
SET LINE 115 VOLTS—VOLUME CONTROL FULL ON

	1	2	3	4	5	6	7	8	9
A. Tubes in order tested	'24	'27	'24	'24	'24	'27	'45	'45	'80
B. Type of tube	R.F.	OSC.	1st DET.	I.F.	I.F.	2nd DET.	P.P. A.F.	P.P. A.F.	RECT.
C. Position of tube	2.4	2.4	2.4	2.4	2.4	2.4	2.35	2.35	4.7
D. Filament or heater volt.	160	80	160	160	160	150	245	245	260
E. Plate voltage	2.5	...	6.0	2.5	1.0	18	48	48	...
F. Control grid voltage*	80	...	80	8.0	80	...	...	...	...
G. Screen grid voltage	2.5	*12.0	8.0	2.5	4.0	18	...	...	...
H. Cathode to heater	4.0	*7.0	.2	3.0	2.0	1.0	28	28	58
I. Plate current									

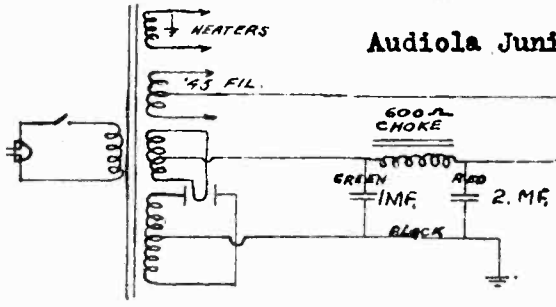
*Non-Oscillating.

MODEL Audiola Jr.
MODEL 6 Tube Pentode
'31

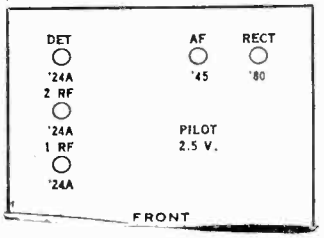
AUDIOLA RADIO CO.

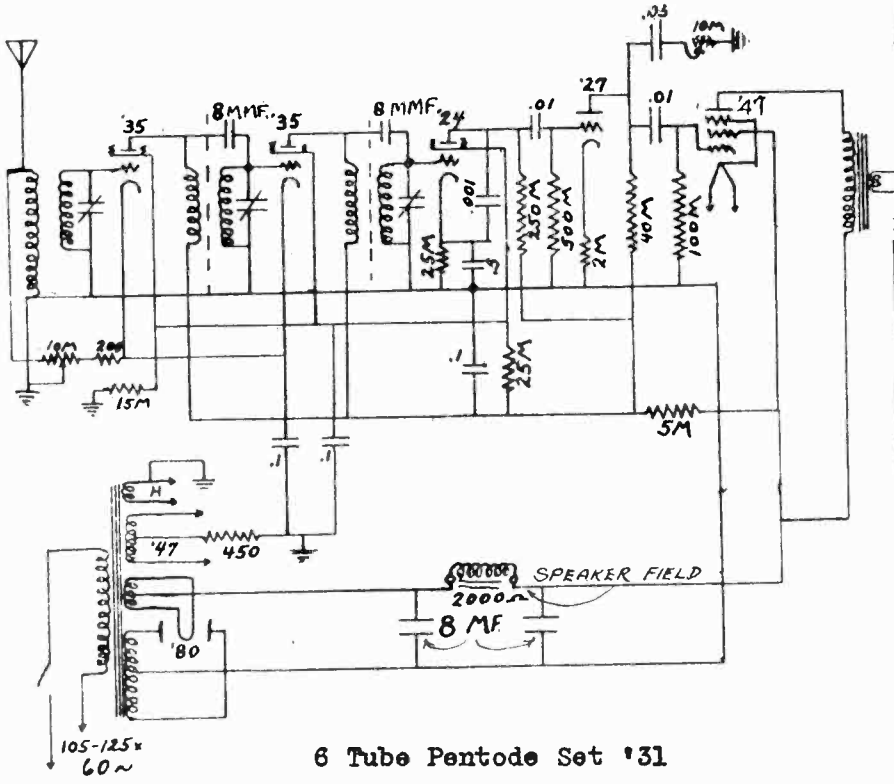


Audiola Junior

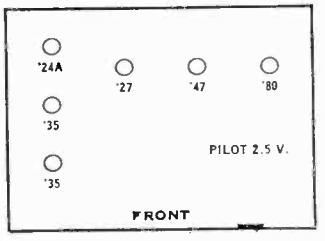


Junior Model (1930)





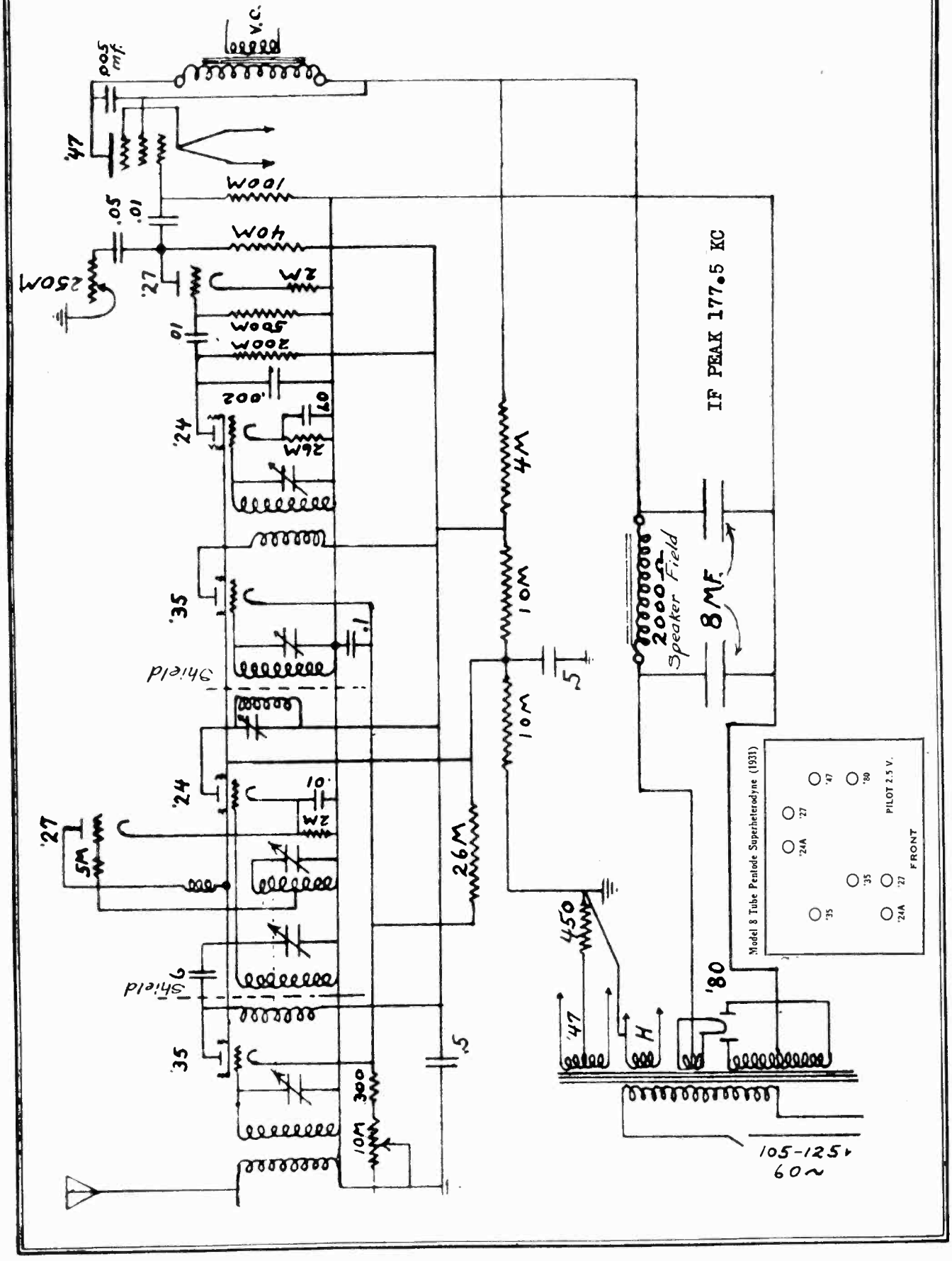
Model 6 Tube Pentode Set (1931)



6 Tube Pentode Set '31

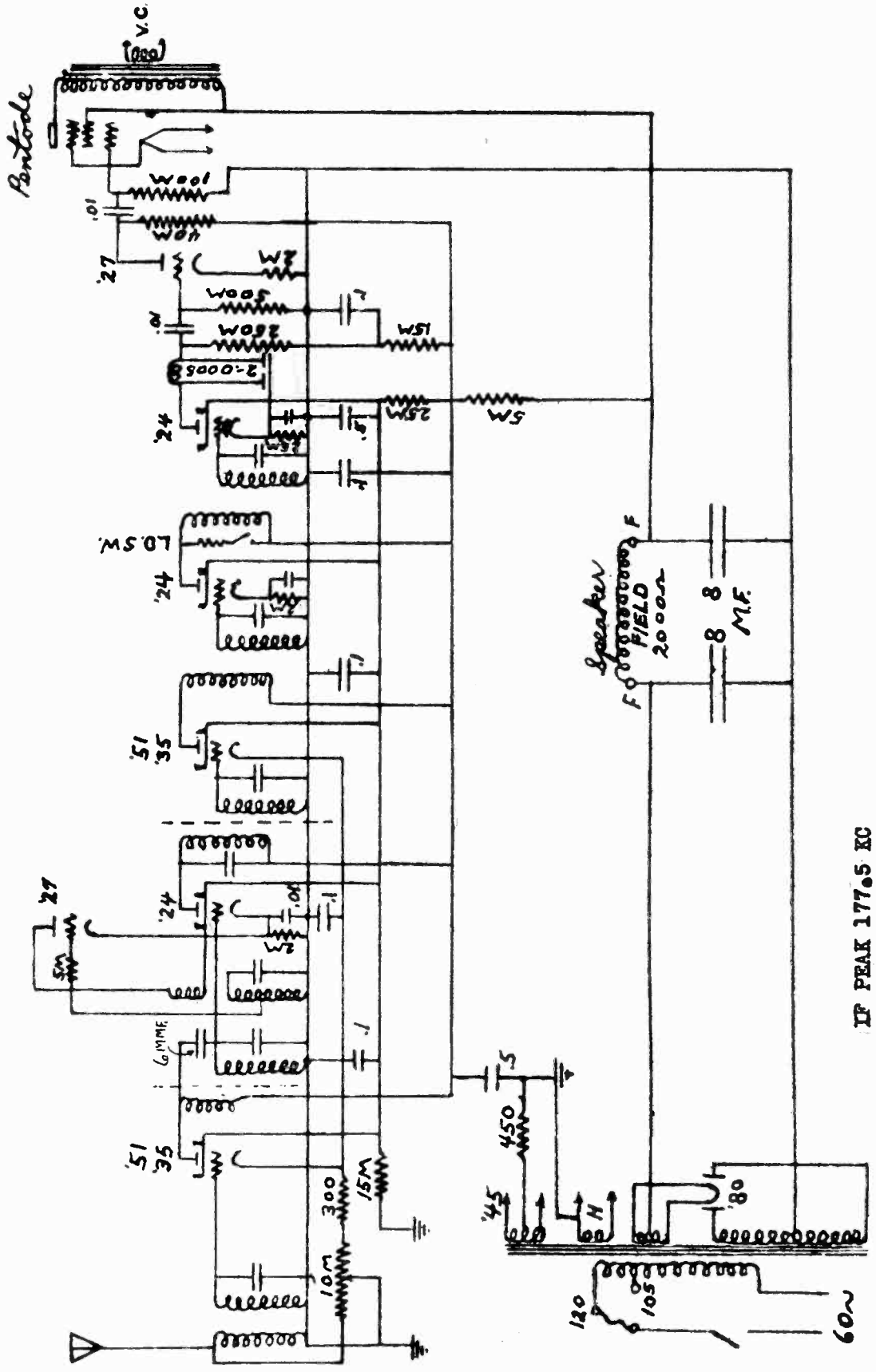
MODEL 8 Tube Super
Pentode '31

AUDIOLA RADIO CO.



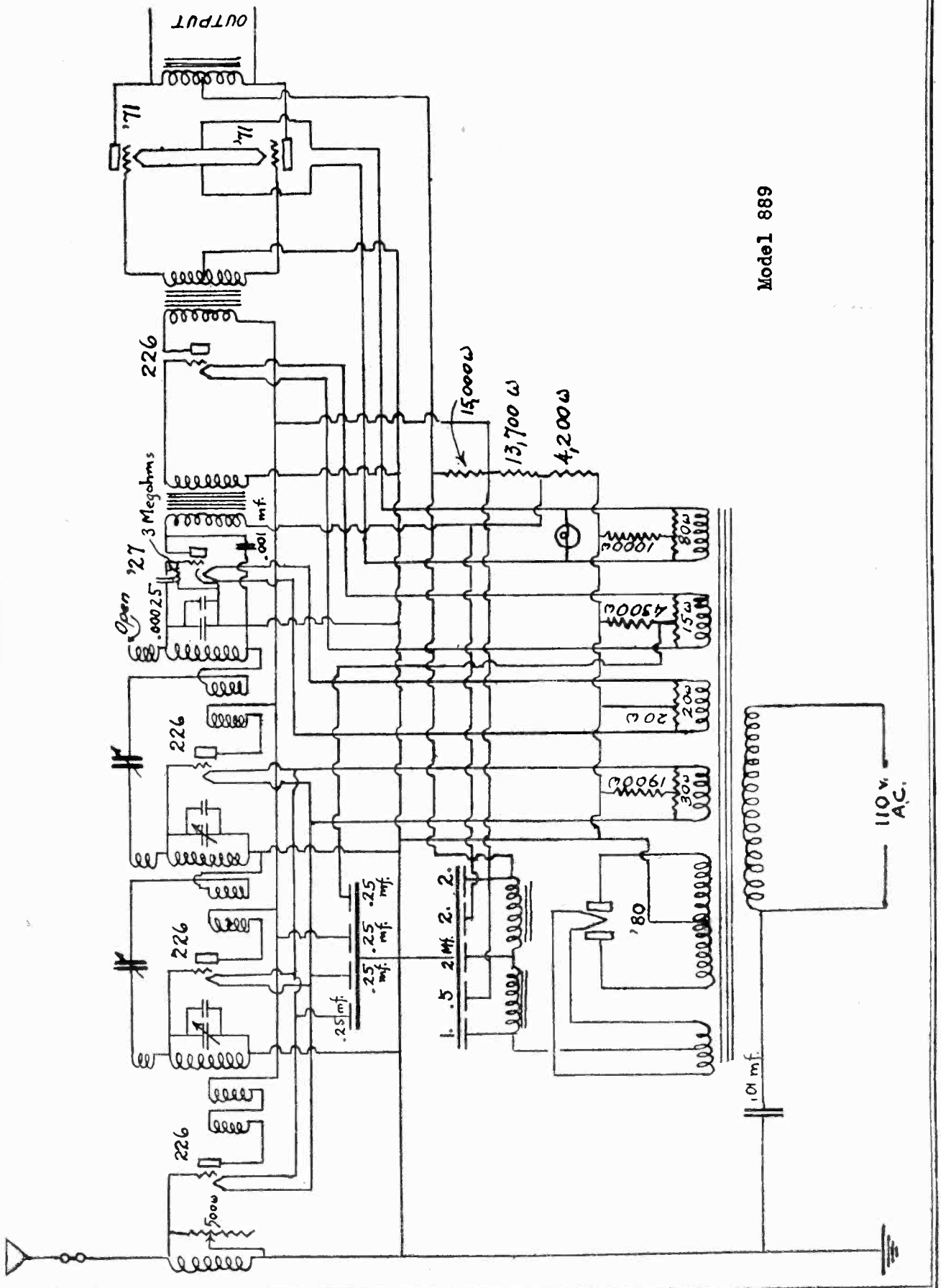
AUDIOLA RADIO CO.

MODEL 9 Tube Super
(1) Pentode '51



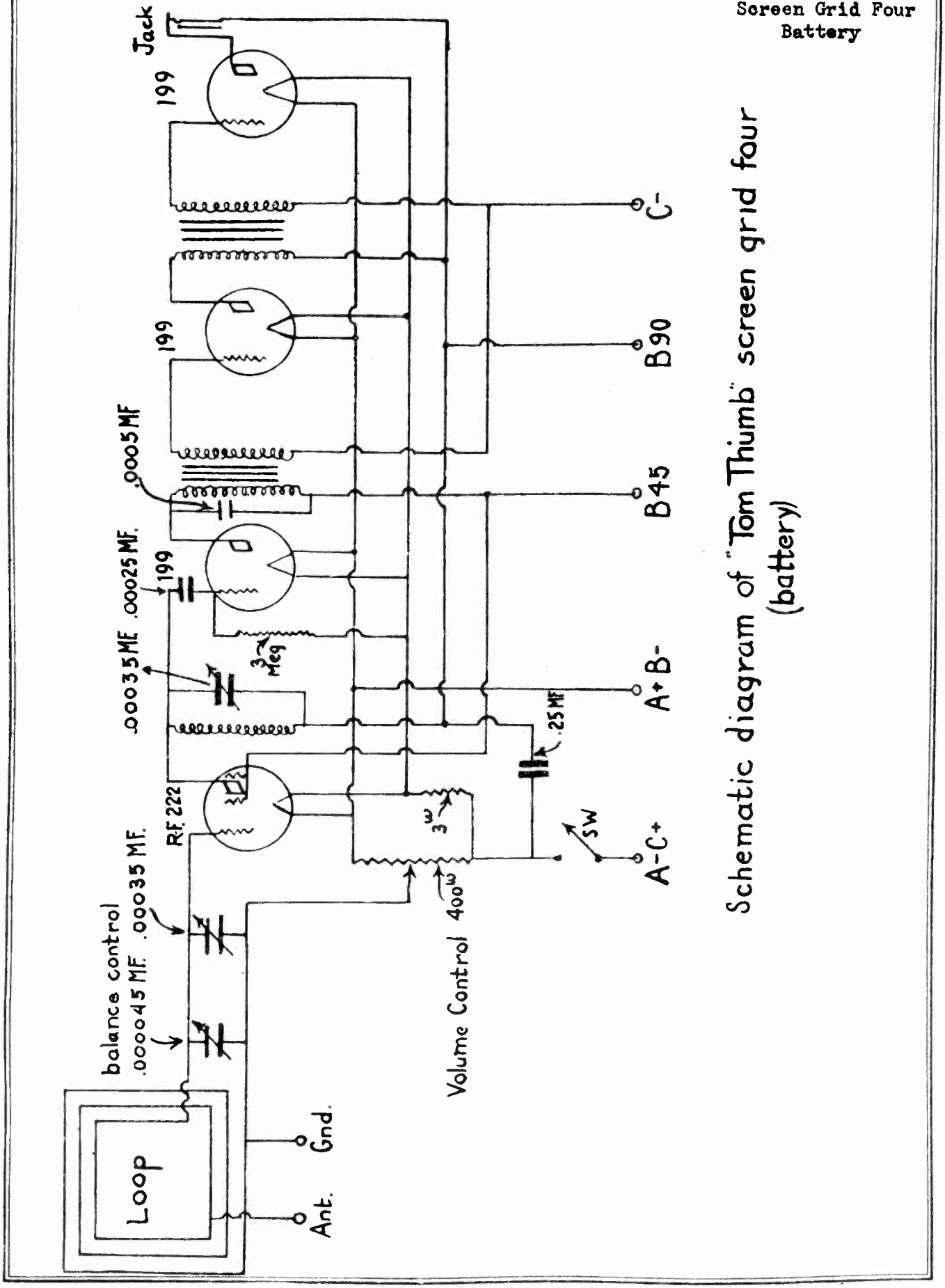
MODEL 889

AUDIOLA RADIO CO.

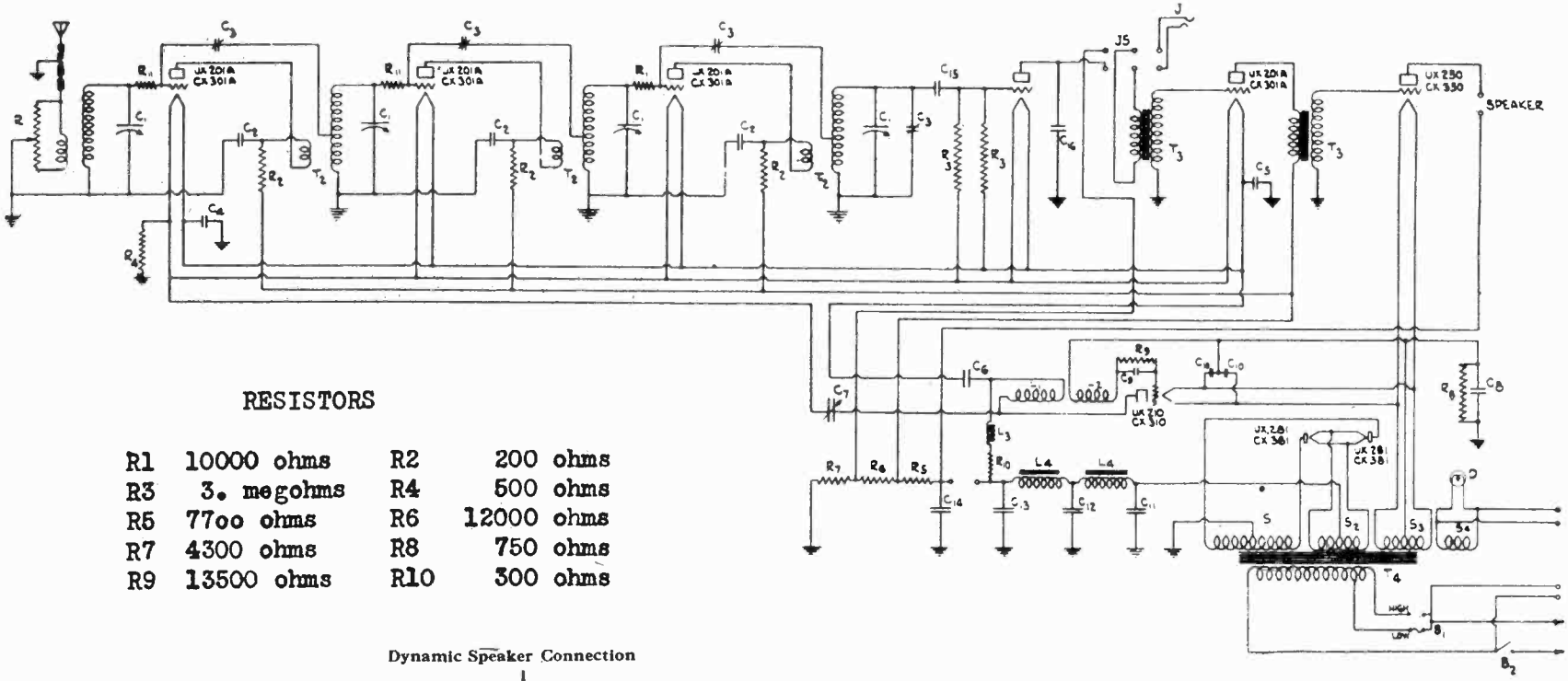


AUTOMATIC RADIO MFG. CO.

MODEL "TOM THUMB"
Screen Grid Four
Battery

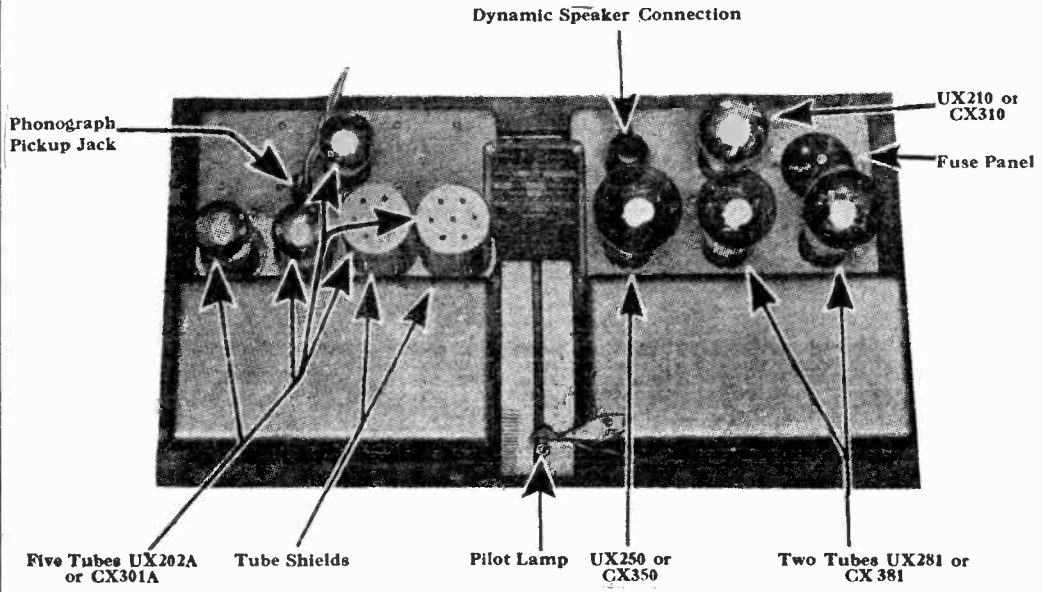


Schematic diagram of "Tom Thumb" screen grid four (battery)



RESISTORS

R1	10000 ohms	R2	200 ohms
R3	3. megohms	R4	500 ohms
R5	7700 ohms	R6	12000 ohms
R7	4300 ohms	R8	750 ohms
R9	13500 ohms	R10	300 ohms

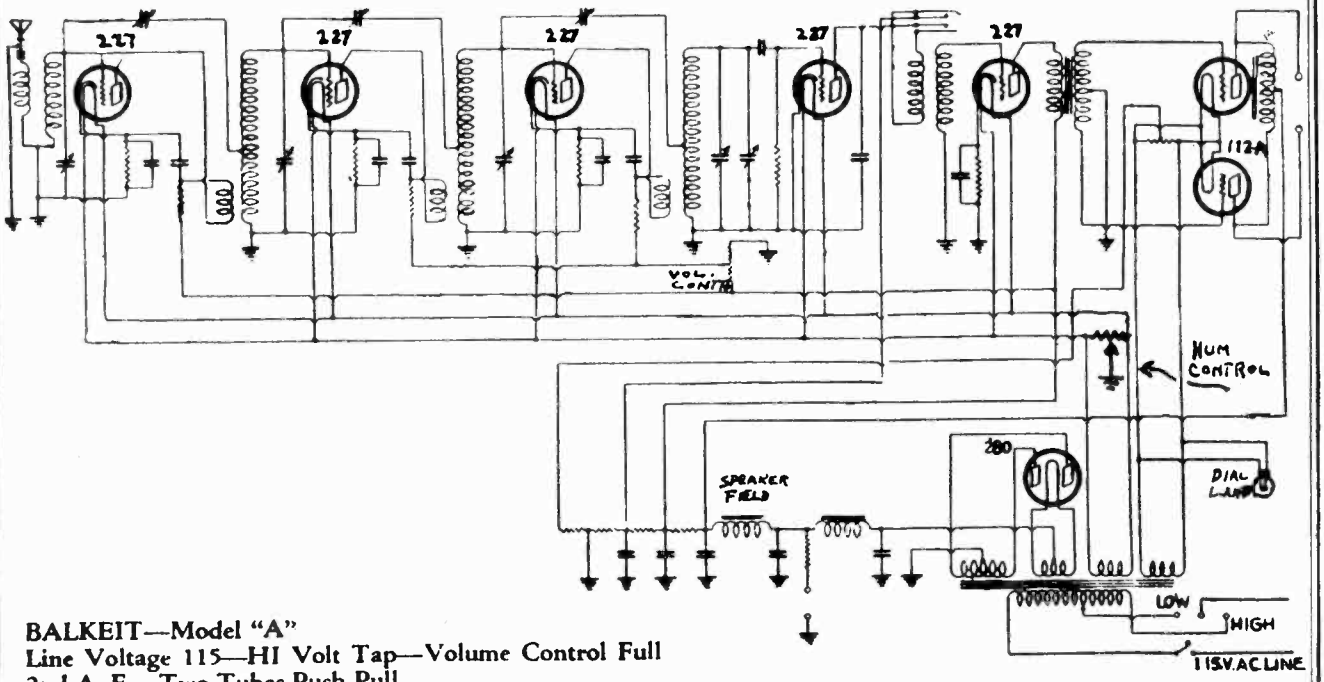


CONDENSERS

C1	.00037 mfd	C2	.1 mfd
C3	.00002 mfd	C4	.5 mfd
C5	1. mfd	C6	.006 mfd
C7	.00025 mfd	C8	2. mfd
C9	.0025 mfd	C10	.002 mfd
C11	2. mfd	C12	3. mfd
C13	4. mfd	C14	4. mfd
C15	.00015 mfd		

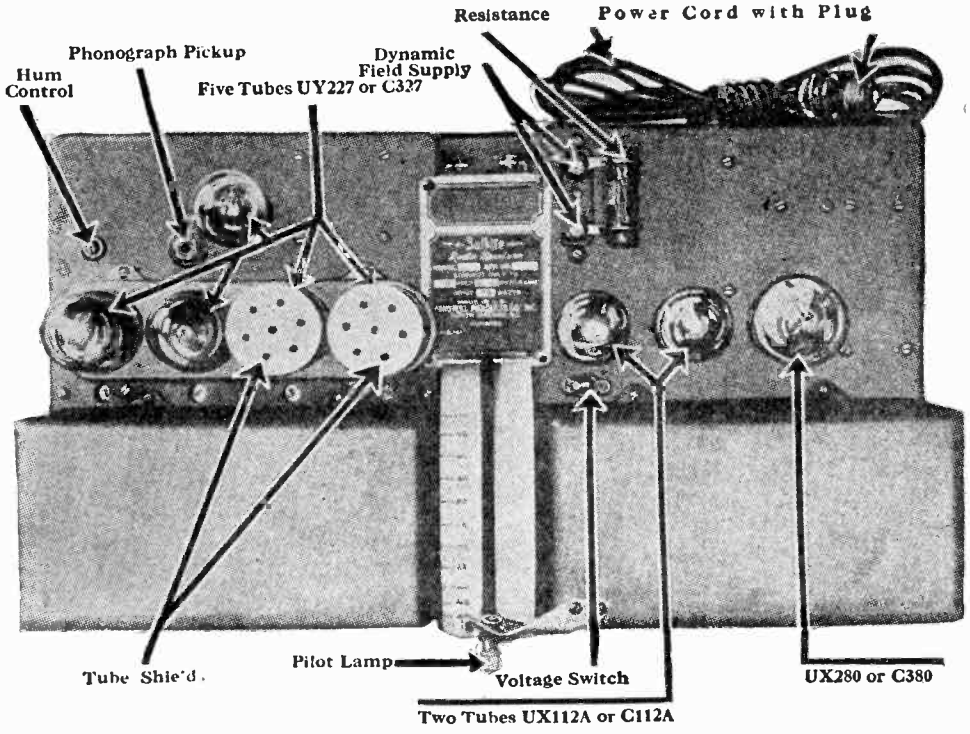
MODEL A-3, A-5, A-7

BALKEIT RADIO CO.



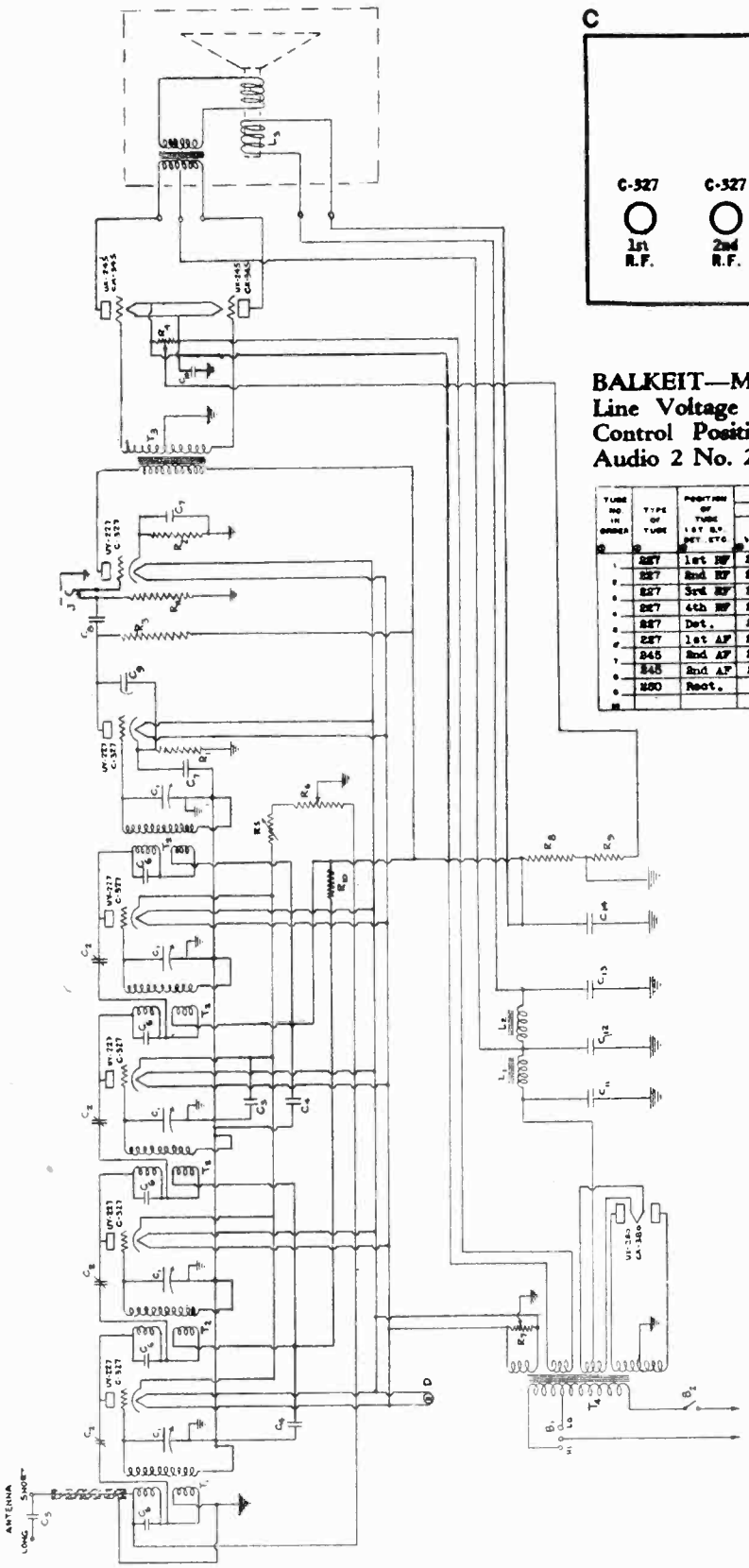
BALKEIT—Model "A"
Line Voltage 115—HI Volt Tap—Volume Control Full
2nd A. F.—Two Tubes Push Pull

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST R.F. DET. ETC.	READINGS TAKEN IN SOCKET OF SET								
			TUBE OUT		TUBE IN TESTER						
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	CATHODE VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	227	1st R.F.	2.3	98	2.1	84	5	-	3.1	4.5	1.4
2	227	2nd R.F.	2.3	98	2.1	84	5	-	3.1	4.5	1.4
3	227	3rd R.F.	2.3	98	2.1	84	5	-	3.1	4.5	1.4
4	227	Detector	2.3	46	2.1	30	0	-	2.2	2.4	0.2
5	227	1st A.F.	2.3	98	2.1	84	5	-	3.1	4.5	1.4
6	112A	2nd A.F.	4.7	142	4.5	132	9.5	-	9.0	13.8	4.8
7	112A	2nd A.F.	4.7	142	4.5	132	9.5	-	9.0	13.8	4.8
8	280	Rectifier	-	-	4.5	-	-	-	32.0	-	-
9											
10											

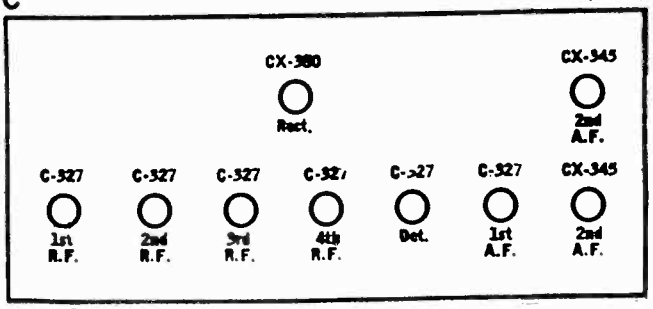


MODEL "C"

BALKEIT RADIO CO.



C (A.C.)



BALKEIT—Model "C"
Line Voltage 115—Set on High Volt Tap—Volume Control Position Full On—Use 120 V. Scale—2nd Audio 2 No. 245 in Parallel

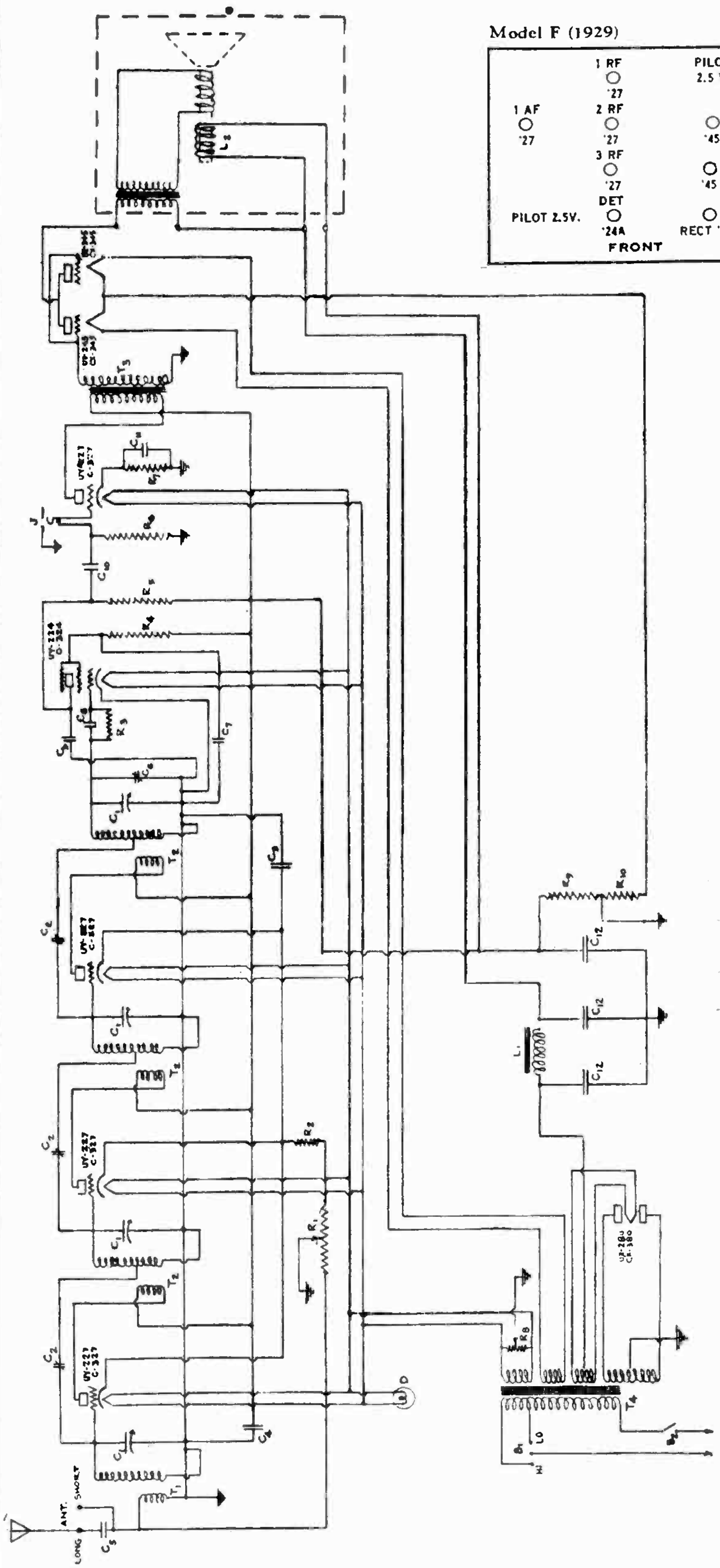
TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE (AT BY DET. ETC)	READINGS, PLUG IN SOCKET OF SET: TUBE OUT — A VOLTS	TUBE OUT — B VOLTS	TUBE IN TESTER — A VOLTS	TUBE IN TESTER — B VOLTS	TUBE IN TESTER — C VOLTS (CONTROL GRID)	TUBE IN TESTER — GRID(CATHODE) - NEGATIVE VOLTS	TUBE IN TESTER — SCREEN(NORMAL) PLATE M.A.	TUBE IN TESTER — PLATE M.A. (GRID TEST)	TUBE IN TESTER — PLATE CHANGE M.A.	SCREEN GRID VOLTS
	227	1st RF	2.36	116	2.4	117	10	10	3.8	4.6	.8	-
	227	2nd RF	2.36	116	2.4	117	10	10	3.8	4.6	.8	-
	227	3rd RF	2.35	116	2.4	117	10	10	3.8	4.6	.8	-
	227	4th RF	2.35	116	2.4	117	10	10	3.8	4.6	.8	-
	227	Det.	2.36	68	2.4	69	8.5	8.5	0.3	0.4	.1	-
	227	1st AF	2.35	116	2.4	117	8	7.5	4.6	6.1	1.5	-
	245	2nd AF	2.4	-	2.3	285	41	-	84	88	4.	-
	245	2nd AF	2.4	-	2.3	285	41	-	84	88	4.	-
	280	Rect.	-	-	4.75	-	-	-	94	-	-	-

C-1	Tuning Condenser		
C-2	Neutralizing Condenser		
C-3	R. F. Grid Bias Condenser	.25	MF
C-4	R. F. Plate By-Pass Condenser	.25	MF
C-5	Antenna Condenser	.00025	MF
C-6	Primary By-Pass Condenser	.00025	MF
C-7	Grid Bias Condenser	1.0	MF
C-8	1st Audio Coupling Condenser	0.1	MF
C-9	Detector Plate Condenser	.002	MF
C-10	By-Pass Condenser	.25	MF
C-11	Filter Condenser	2	MF
C-12	Filter Condenser	2	MF
C-13	Filter Condenser	2	MF
C-14	Filter Condenser	1	MF
J	Phonograph Jack		
L-1	Filter Choke		
L-2	Filter Choke		
L-3	Speaker Field		
R-1	Detector Grid Bias Resistance	25,000 Ohms	
R-2	1st Audio Grid Bias Resistance	1,750 Ohms	
R-3	1st Audio Coupling Resistance	.1 Megohn	
R-4	Mid-Tap Resistance	20 Ohms	
R-5	R. F. Grid Bias Resistance	2,000 Ohms	
R-6	Volume Control	15,000 Ohms	
R-7	Hum Control	20 Ohms	
R-8	Loss Current Resistance	3,600 Ohms	
R-9	245 Grid Bias Resistance	770 Ohms	
R-10	R. F. Plate Rsistance		
R-11	1st Audio Grid Resistance	.5 Megohn	
T-1	Antenna Transformer		
T-2	R. F. Interstage Transformer		
T-3	Input Push-Pull Transformer		
T-4	Power Transformer		
B-1	HI-LO S.P.D.T. Toggle Switch		
B-2	S.P.S.T. Toggle Switch		
D	Dial Lamp		

Chassis layout on next page.

MODEL "F"

BALKEIT RADIO CO.



BALKEIT—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 Order	Type of Tube	Position of Tube 1st RF Det Etc.	Tube Out: A Volts	Tube Out: B Volts	Tube in Tester: A Volts	Tube in Tester: B Volts	C Volts (Control Grid)	Cathode-Heater Volts	Normal Plate M.A.	Plate M.A. Grid Test	Plate Change M.A.	Screen Grid Volts
1	227	1st RF	2.4	119	2.3	115	7	7	3.8	4.6	.8	-
2	227	2nd RF	2.4	119	2.3	115	7	7	3.8	4.6	.8	-
3	227	3rd RF	2.4	119	2.3	115	7	7	3.8	4.6	.8	-
4	224	Det.	2.4	50	2.3	50	0.8	-	0.7	0.7	-	5.
5	227	1st A	2.4	188	2.3	100	8.5	8.5	6.8	7.8	1.3	-
6	245	2nd A*	5.8	180	2.4	175	31	-	34.	38	4.	-
7	245	2nd A*	5.8	190	2.4	175	31	-	34.	38	4	-
8	280	Rect.	-	-	4.75	-	-	-	80.	-	-	-
9												
10												

C_1 Tuning Condenser.
C_2 Neutralizing Condenser.
C_3 R.F. Grid Bias Condenser .25 MF.
C_4 R.F. Plate By-Pass Condenser .25 MF.
C_5 Antenna Condenser .00025 MF.
C_6 Det. Padding Condenser.
C_7 Det. Screen Grid Bias Condenser .25 MF.
C_8 Det. Control Grid Condenser .0001 MF.
C_9 Det. Plate Condenser .0005 MF.
C_{10} 1st Audio Coupling Condenser 0.1 MF.
C_{11} 1st Audio Grid Condenser 0.5 MF.
C_{12} Filter Condensers 8.0 MF Each.
L_1 Filter Choke.
L_2 Speaker Field 2500 Ohms.
J Phonograph Jack.
D Dial Lamp.
R_1 Volume Control 15,000 Ohms.
R_2 R.F. Grid Bias Resistance 620 Ohms.
R_3 Det. Control Grid Resistance .5 Megohm
R_4 Det. Screen Grid Resistance .5 Megohm
R_5 1st Audio Coupling Resistance .1 Megohm.
R_6 1st Audio Grid Resistance .5 Megohm.
R_7 1st Audio Grid Bias Resistance 1750 Ohms.
R_8 Hum Control 20 Ohms.
R_9 Loss Current Resistance 4500 Ohms
R_{10} 245 Grid Bias Resistance 650 Ohms
T_1 Antenna Transformer.
T_2 R.F. Inter stage Transformer.
T_3 Input Audio Transformer
T_4 Power Transformer.
B_1 Hi-Lo S.P.D.T. Toggle Switch.
B_2 S.P.S.T. Toggle Switch.

Chassis layout on next page

BALKITE PRODUCTS CO.

SPECIFICATIONS

Balkite Models and Specifications

Current Models

Balkite AB 6-180, "A" and "B" Current Supply

	Max. Output	
"A"	6 volts	2 amperes
"B"	180	55 m.a.

B Voltages, 180, 135, 90, 67½, 45 or 22½

Consumption: watts 127
Dimensions: 10¼" x 18½" x 7¾"

Balkite AB 6-135, "A" and "B" Current Supply.

	Max. Output	
"A"	6 volts	2 amperes
"B"	135	40 m.a.

B Voltages, 135, 90, 67½, 45 or 22½

Consumption: watts 117
Dimensions: 10¼" x 18½" x 7¾"

Balkite A-6, "A" Current Supply.

Output
6 volts 2 amperes

Consumption: watts 100
Dimensions: 6" x 10¾" x 8⅜"

Balkite B-180, "B" Current Supply.

Output
180 volts 55 m.a.

Voltages, 180, 135, 90, 67½ and 45 or 22½

Consumption: watts 27
Dimensions 4½" x 12¾" x 8¾"

Balkite B-135, "B" Current Supply.

Output
135 volts 40 m.a.

Voltages, 135, 90, 67½ and 45 or 22½
Consumption: watts 17
Dimensions: 4½" x 8¼" x 8 5/16"

Balkite BW, "B" Current Supply.

Output
90 volts 18 m.a.

Voltage, 90 and 45 or 22½
Consumption: watts 6
Dimensions: 3 5/16" x 7⅝" x 8¾"

Balkite Model J Charger, Full Rate and Trickle Charger

Charging Rates
High Rate, 2½ amperes
Low Rate, ½ ampere

Consumption: watts 60
Dimensions: 5⅜" x 8½" x 7⅝"

Balkite Model N Trickle Charger, Trickle Charger

Charging Rates
High Rate, .8 ampere
Low Rate, .5 ampere

Consumption: watts 20
Dimensions: 4⅛" x 7½" x 6¼"

Balkite Model K Trickle Charger, Trickle Charger

Charging Rate, .5 ampere

Consumption: watts 15
Dimensions: 2¾" x 5½" x 5¼"

Previous Models

Balkite BY, "B" Current Supply.

Output
150 volts 40 milliamperes

Voltages, 150, 135, 90, 67½ and 45 or 22½
Consumption: watts 17
Dimensions: 4½" x 12¾" x 8¾"

Balkite BX, "B" Current Supply.

Output
135 volts 30 milliamperes

Voltages, 135, 90, 67½ and 45 or 22½
Consumption: watts 12
Dimensions: 4½" x 8¼" x 8⅝"

Balkite Combination, Model "KX", "B" Current Supply and Trickle Charger.

"B" Output
135 volts 30 milliamperes

"B" Voltages, 135, 90, 67½ and 45 or 22½
"A" Charging Rate, 0.5 ampere
Consumption: watts 17
Dimensions: 13¼" x 4½" x 8⅞"

Balkite "B", Model D, "B" Current Supply.

Output
90 volts 20 milliamperes

Voltages, 90, 45 or 22½
Consumption: watts 7
Dimensions: 3⅝" x 7⅝" x 8¾"

Balkite BII, "B Current Supply.

Output
90 volts 40 milliamperes

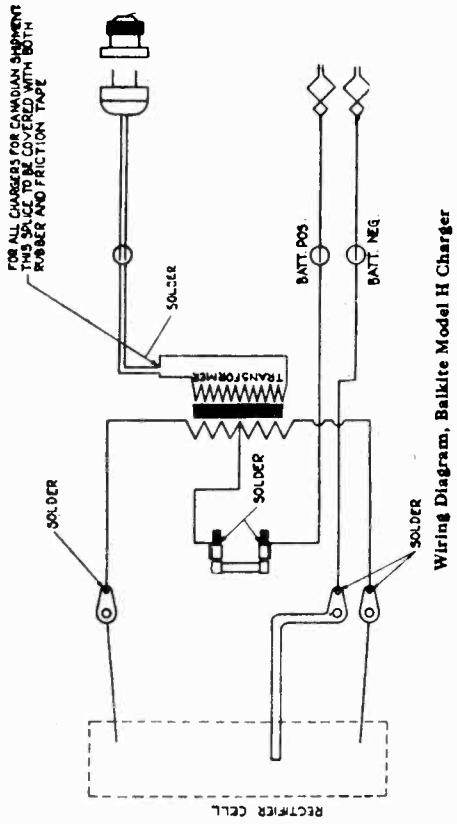
Voltages, 90, 45, 22½
Consumption: watts 10

Balkite Model H Charger, High Rate Charger.
Charging Rate, 2½ amperes
Consumption: watts 60

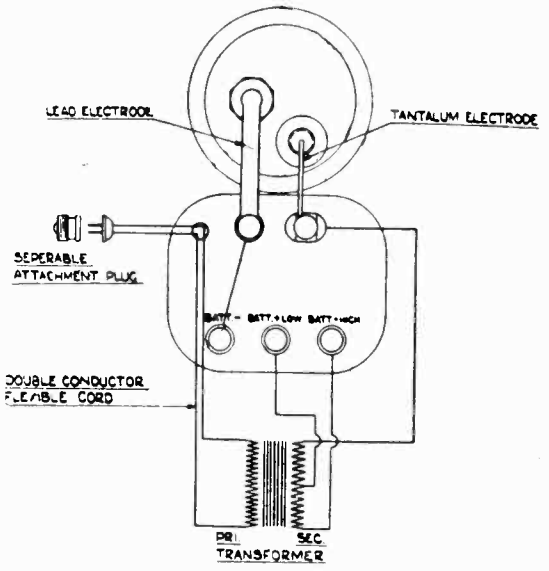
Balkite Model A Charger, High Rate Charger.
Charging Rate, 3 amperes
Consumption: watts 80

MODEL H - J Chargers
MODEL K - N Chargers

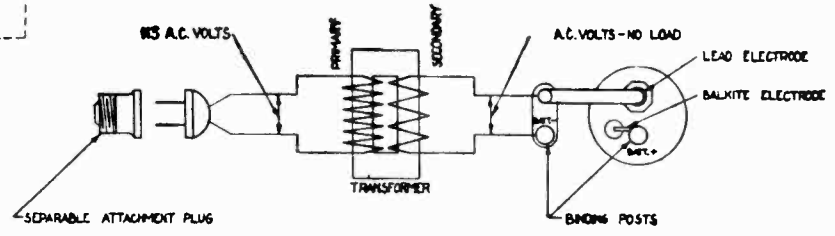
BALKITE PRODUCTS CO.



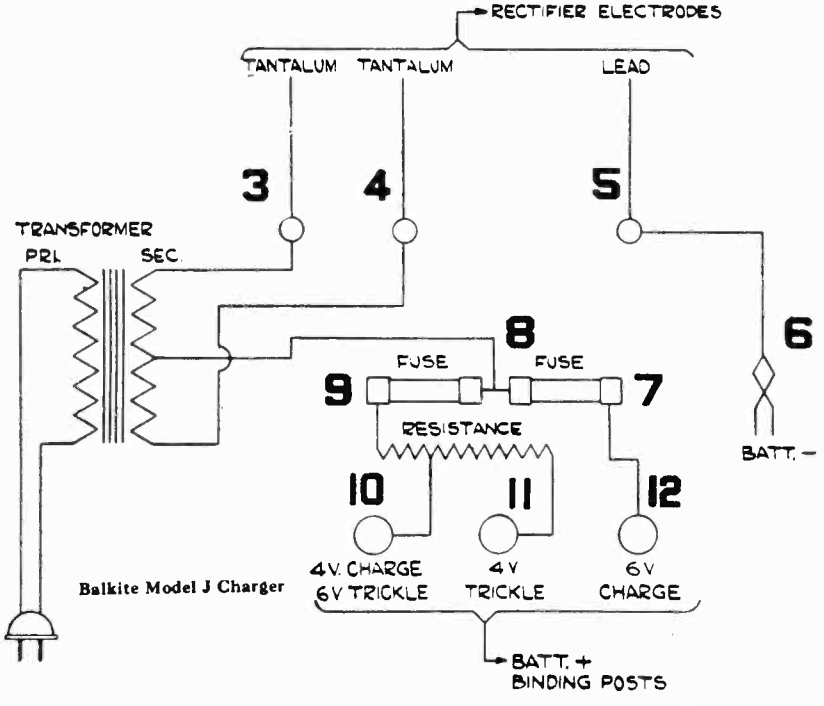
Wiring Diagram, Balkite Model H Charger



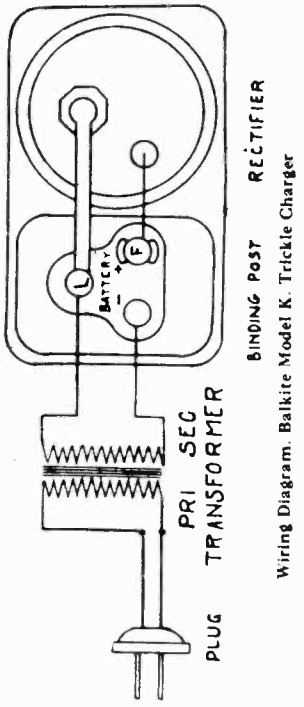
Wiring Diagram, Balkite Model N Charger



Wiring Diagram, Balkite Model K, Trickle Charger



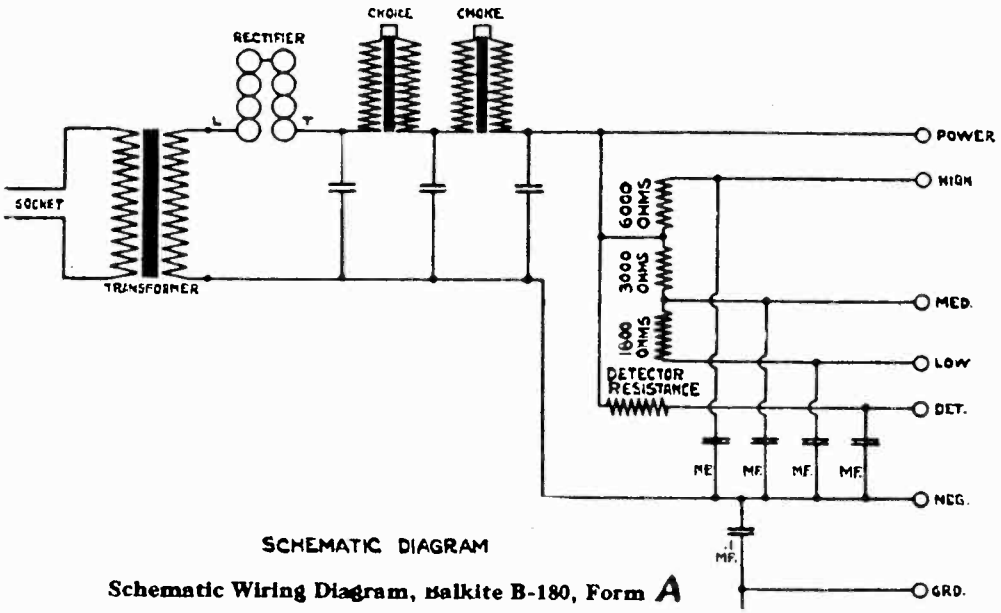
Balkite Model J Charger



Wiring Diagram, Balkite Model K, Trickle Charger

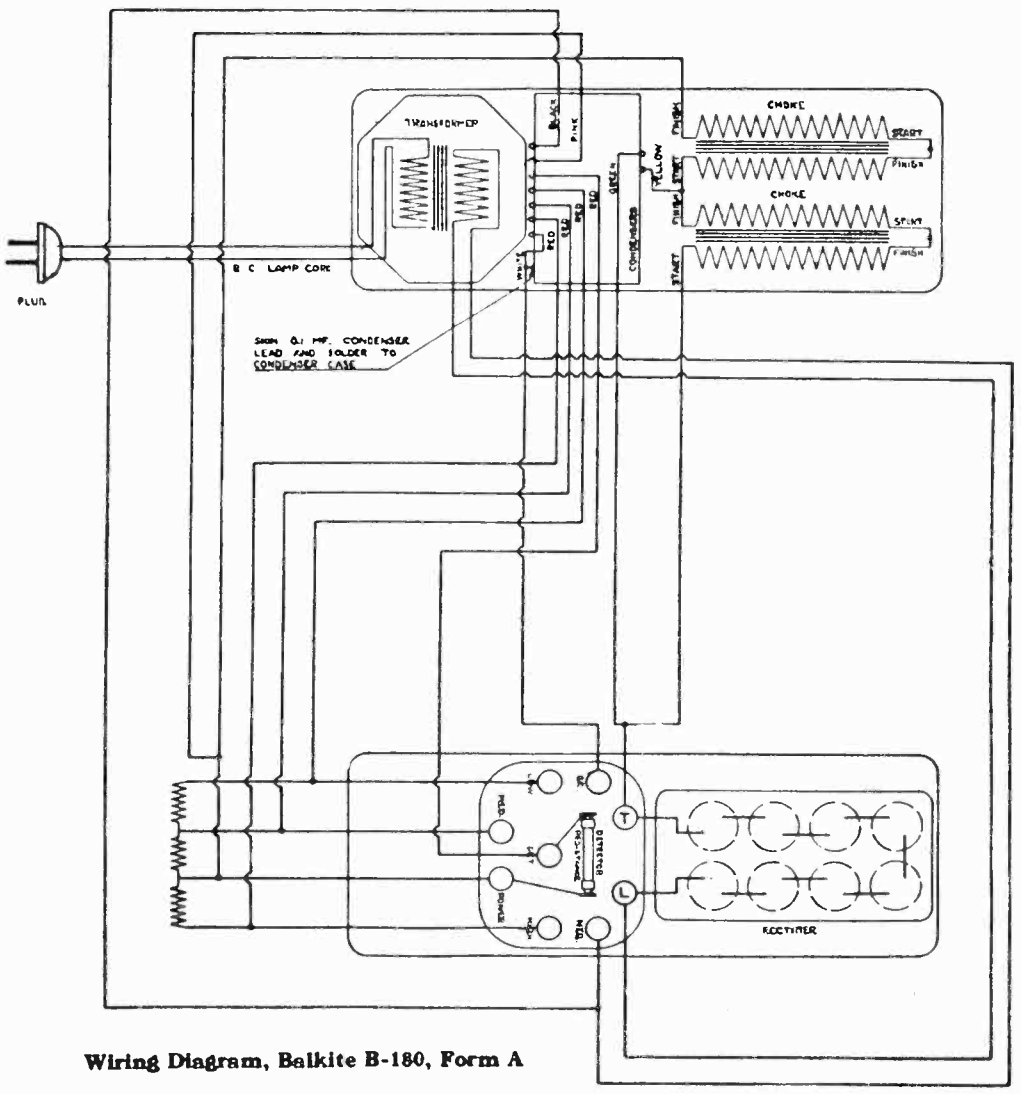
MODEL B-180 Form A

BALKITE PRODUCTS CO.



SCHEMATIC DIAGRAM

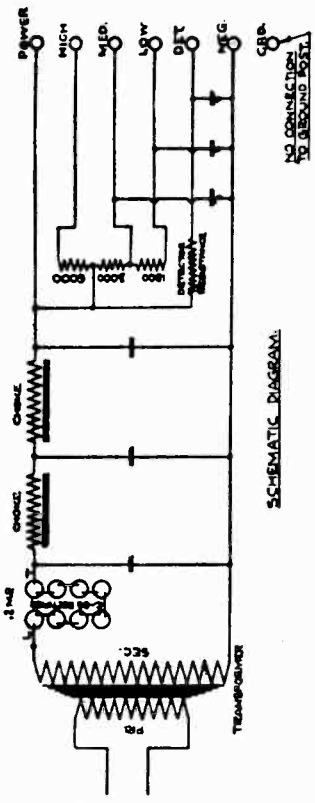
Schematic Wiring Diagram, Balkite B-180, Form A



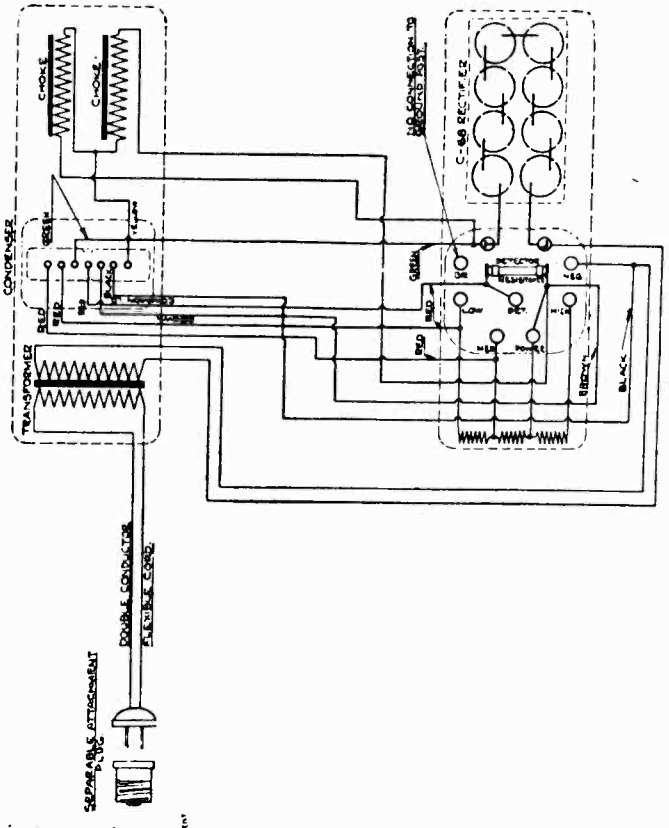
Wiring Diagram, Balkite B-180, Form A

MODEL AB-6-180 Form A
MODEL B-180 Form B

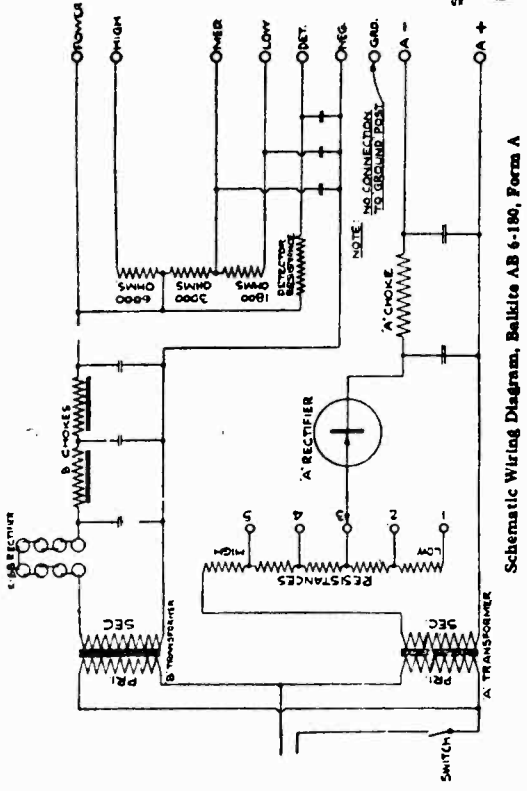
BALKITE PRODUCTS CO.



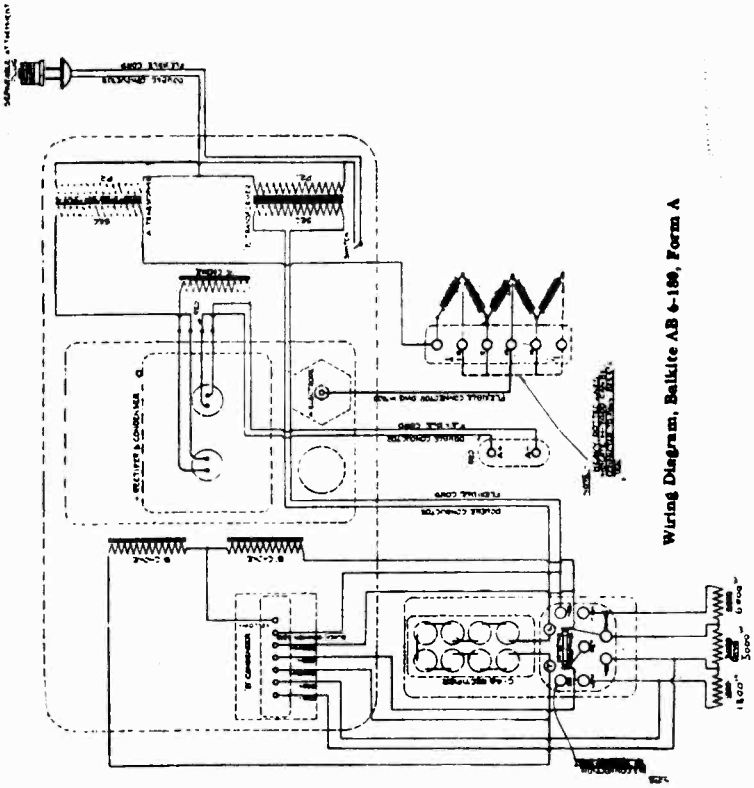
Schematic Wiring Diagram, Balkite B-180, Form B



Wiring Diagram, Balkite B-180, Form B



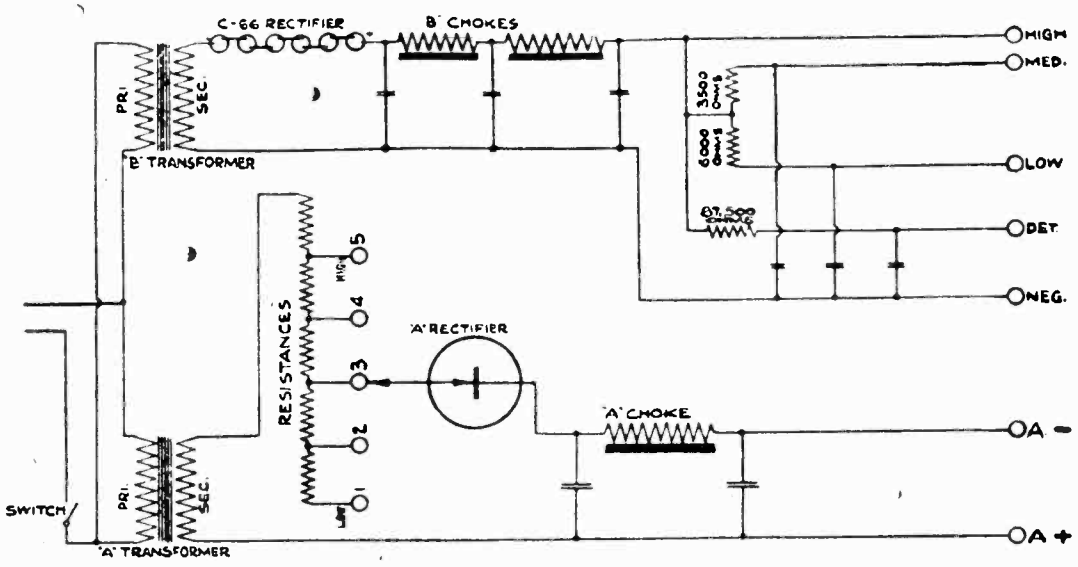
Schematic Wiring Diagram, Balkite AB 6-180, Form A



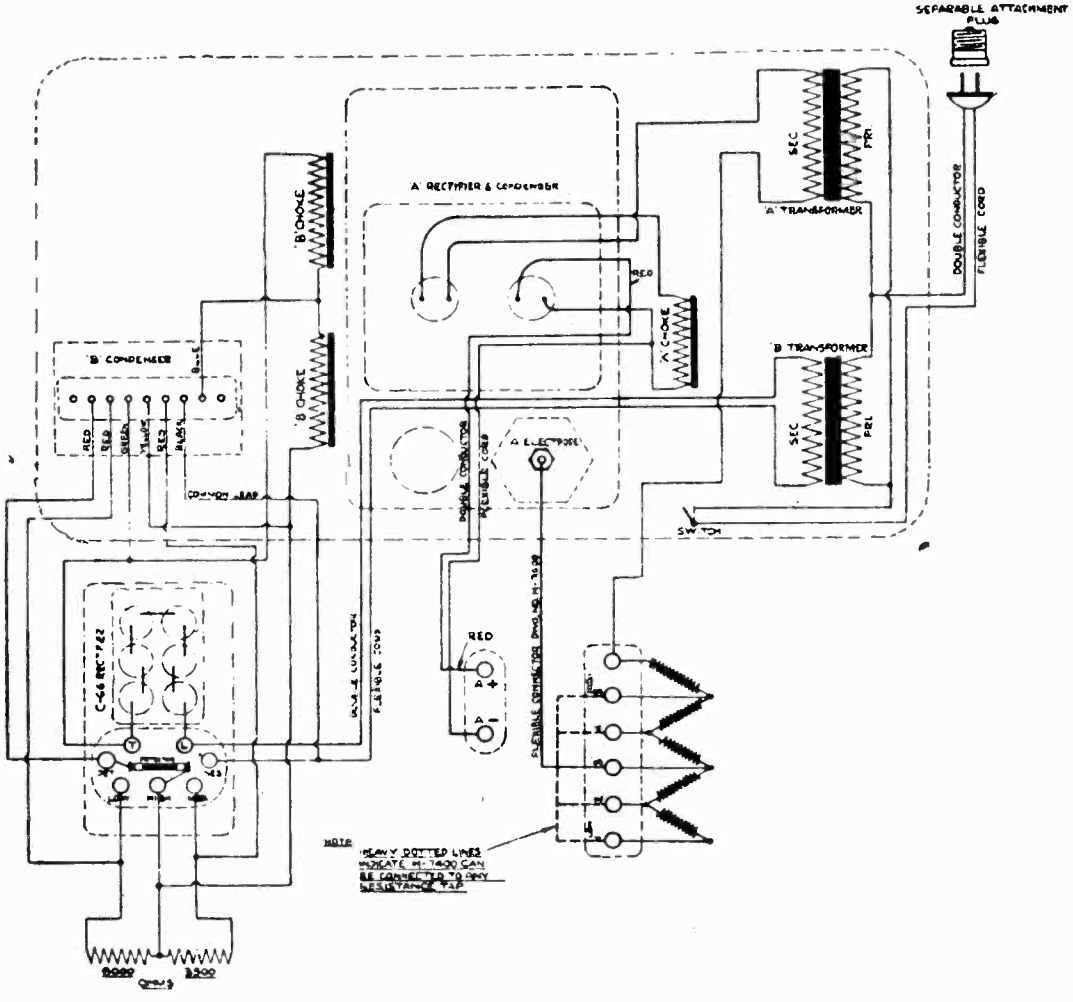
Wiring Diagram, Balkite AB 6-180, Form A

MODEL AB-6-135 Form A

BALKITE PRODUCTS CO.



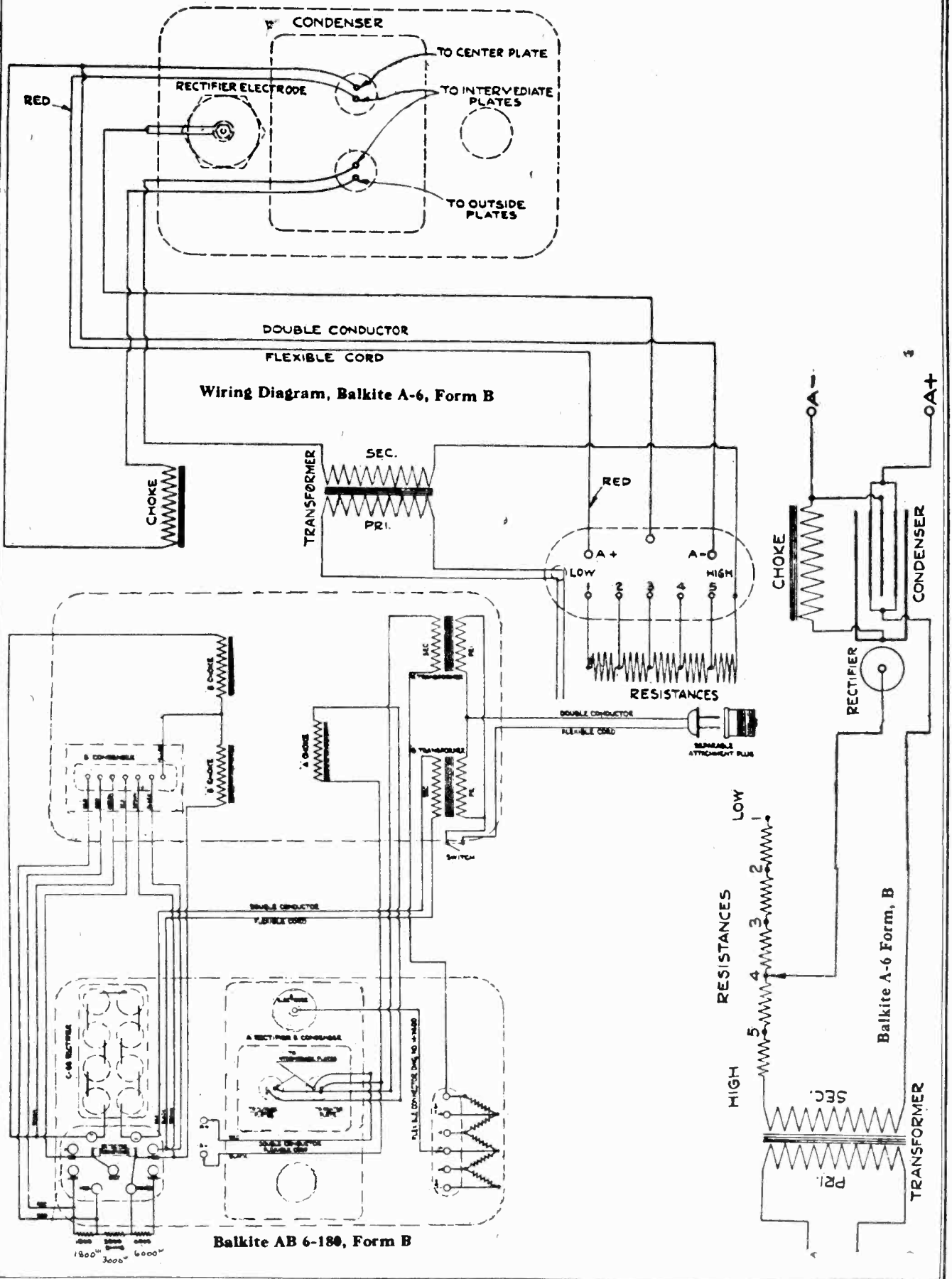
Schematic Wiring Diagram, Balkite AB 6-135, Form A



Wiring Diagram, Balkite AB 6-135, Form A

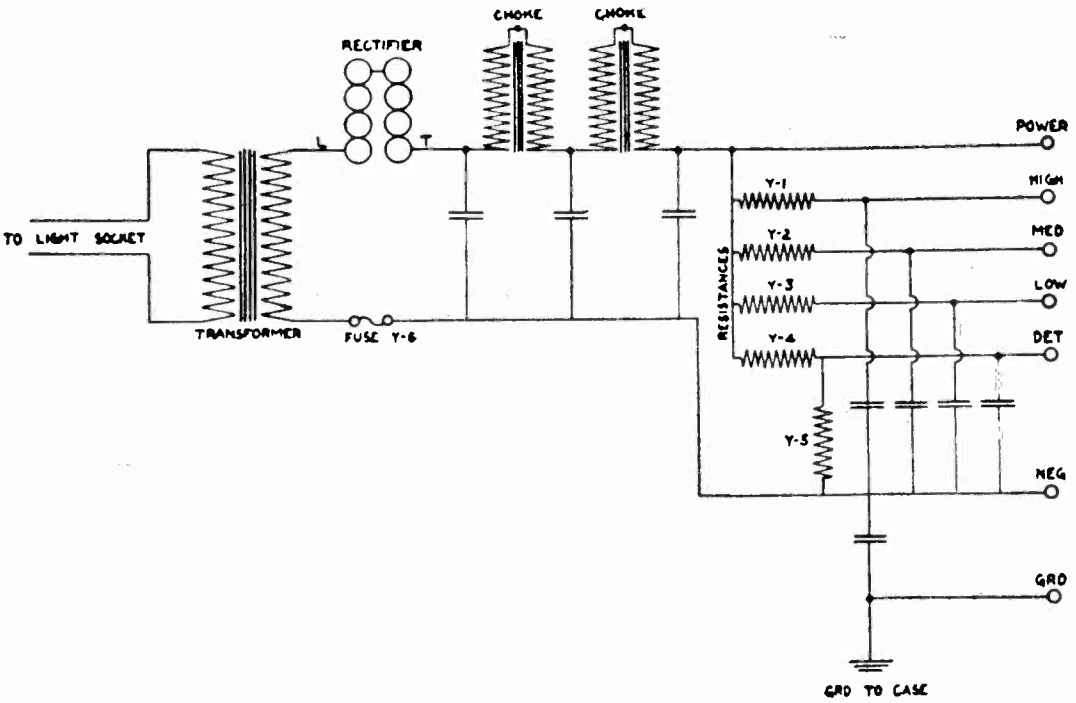
MODEL AB-6 Form B

BALKITE PRODUCTS CO.

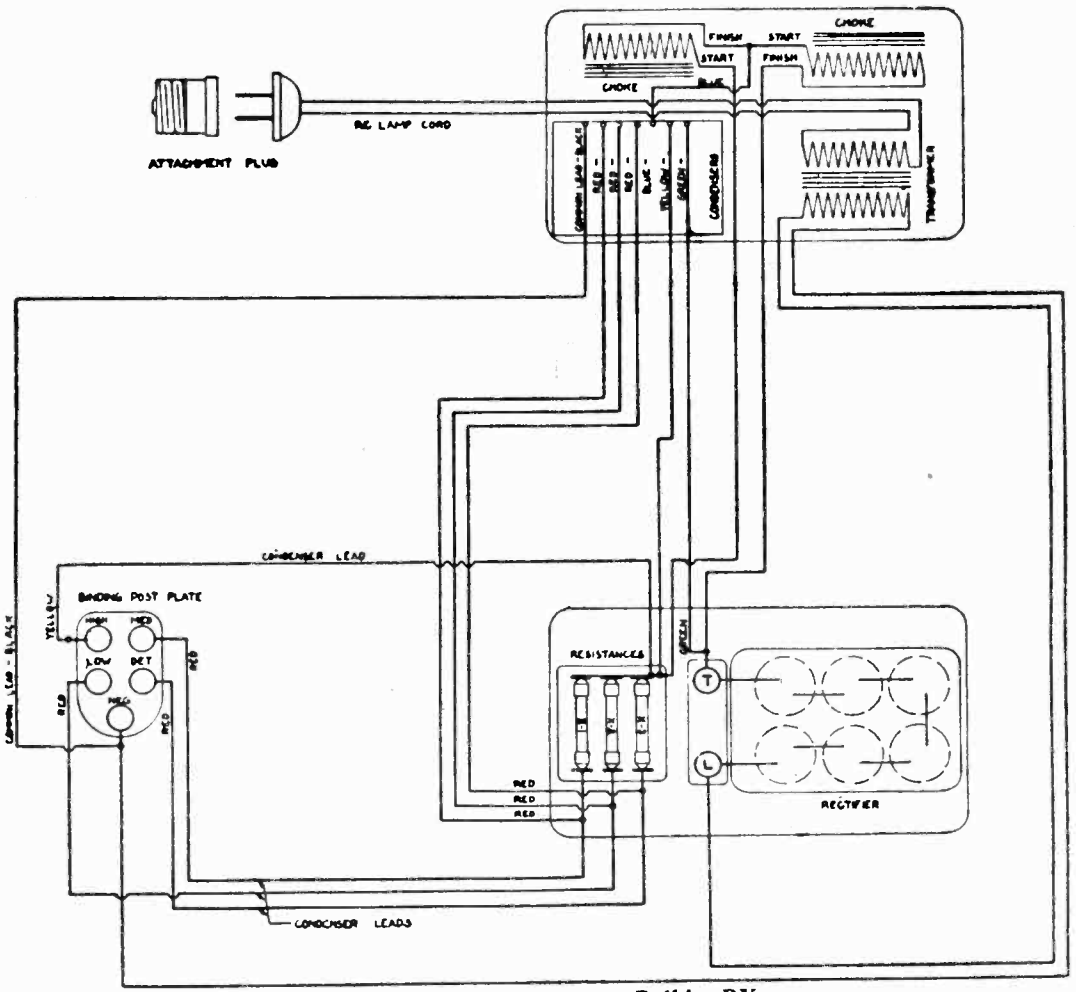


MODEL BY

BALKITE PRODUCTS CO.



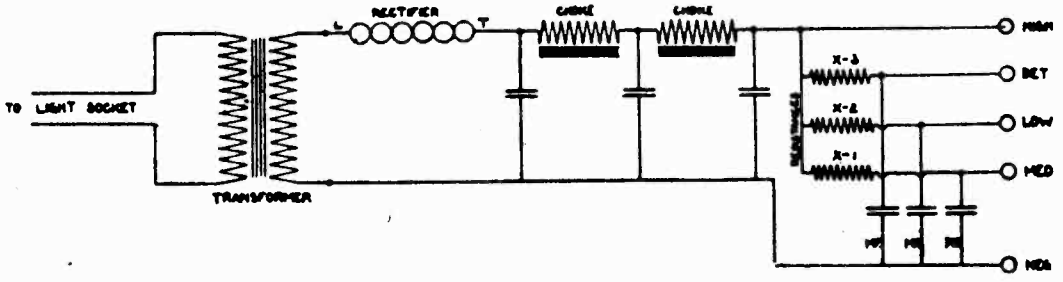
Schematic Wiring Diagram, Balkite BY



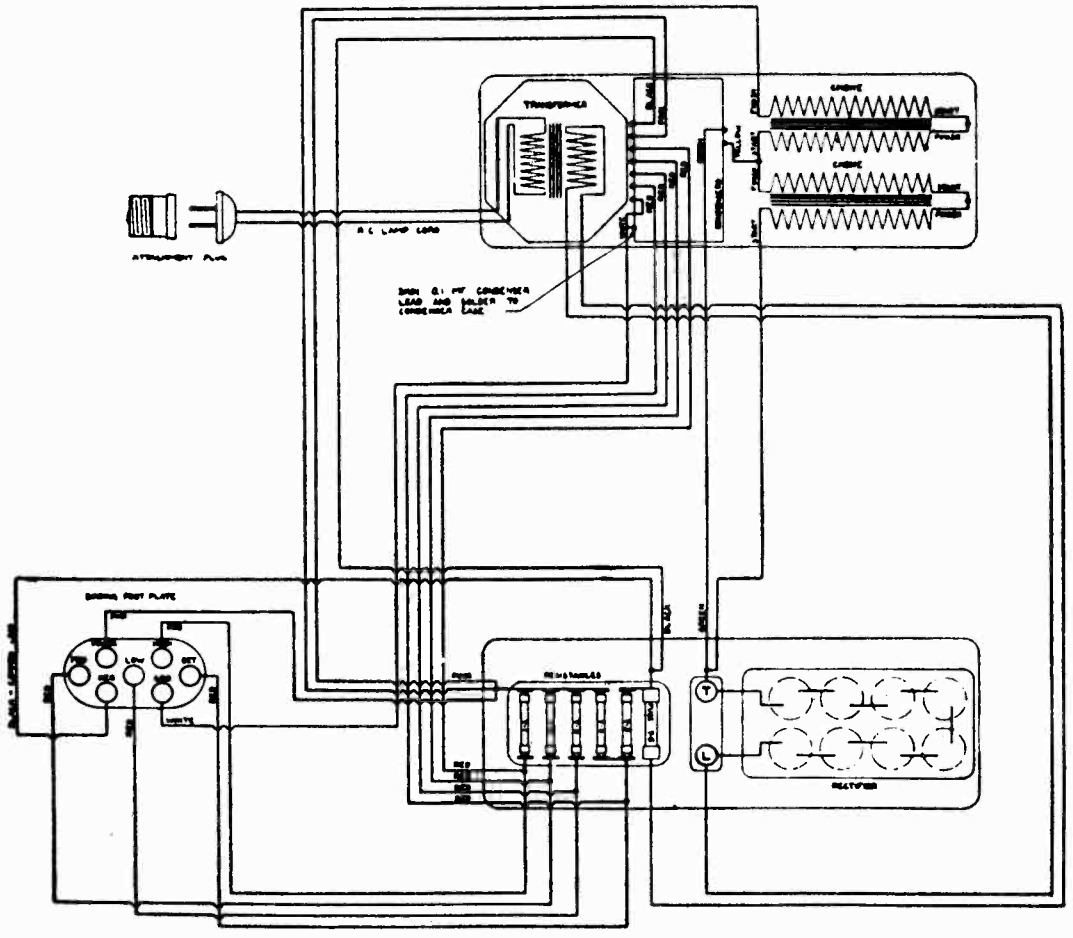
Wiring Diagram, Balkite BY

MODEL A-6
MODEL B-X

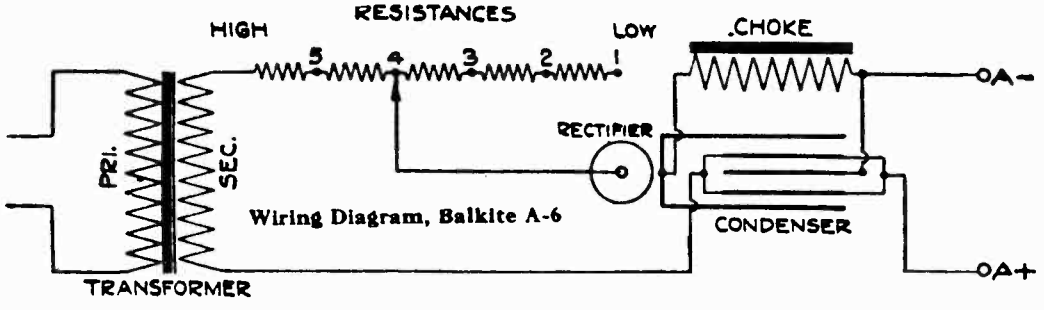
BALKITE PRODUCTS CO.



Schematic Wiring Diagram, Balkite BX



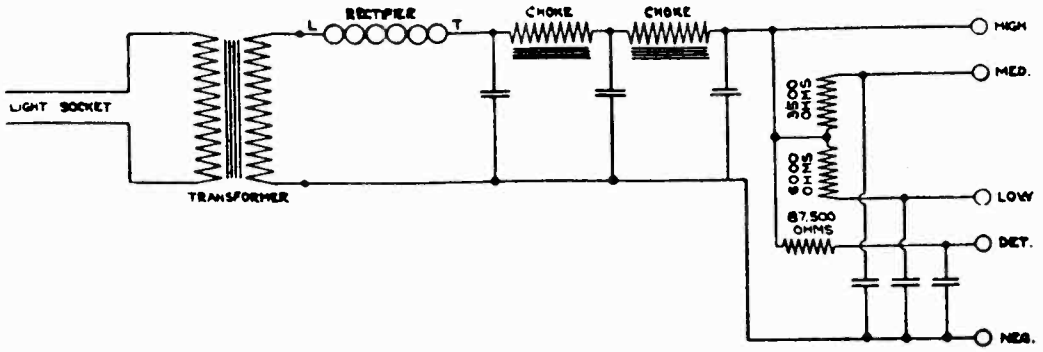
Wiring Diagram, Balkite BX



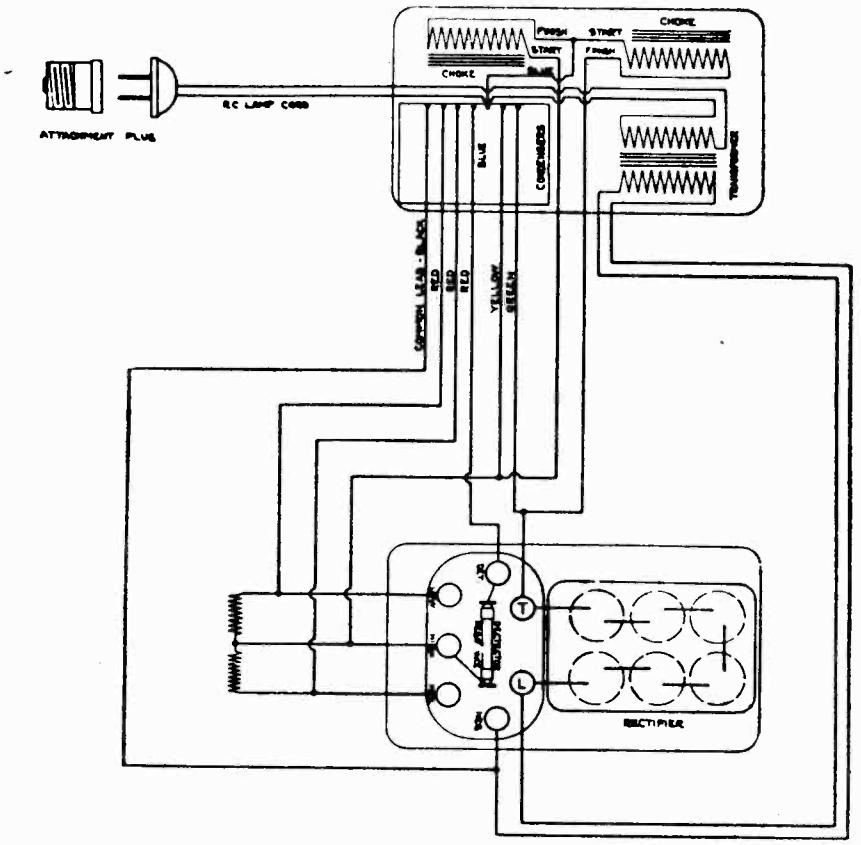
Wiring Diagram, Balkite A-6

BALKITE PRODUCTS CO.

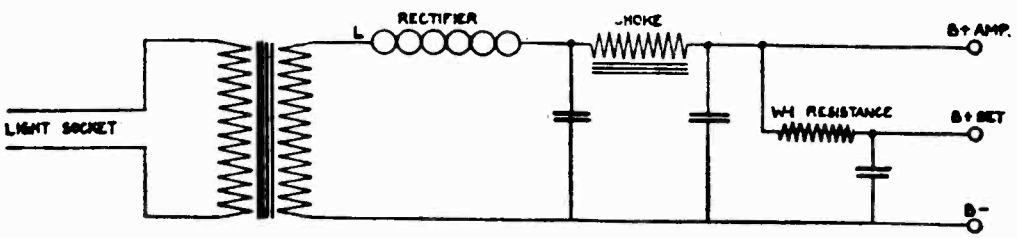
MODEL B-135 Form A
MODEL B-W



Schematic Wiring Diagram, Balkite B-135



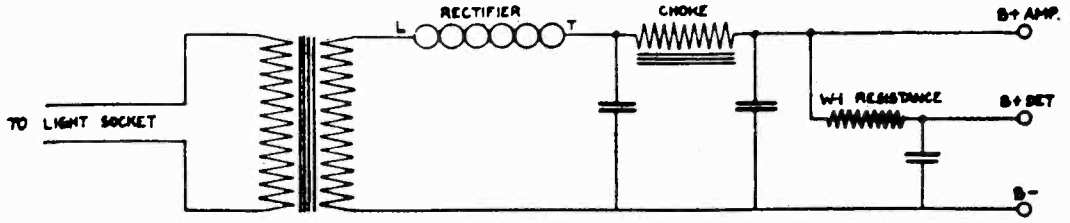
Wiring Diagram, Balkite B-135, Form A



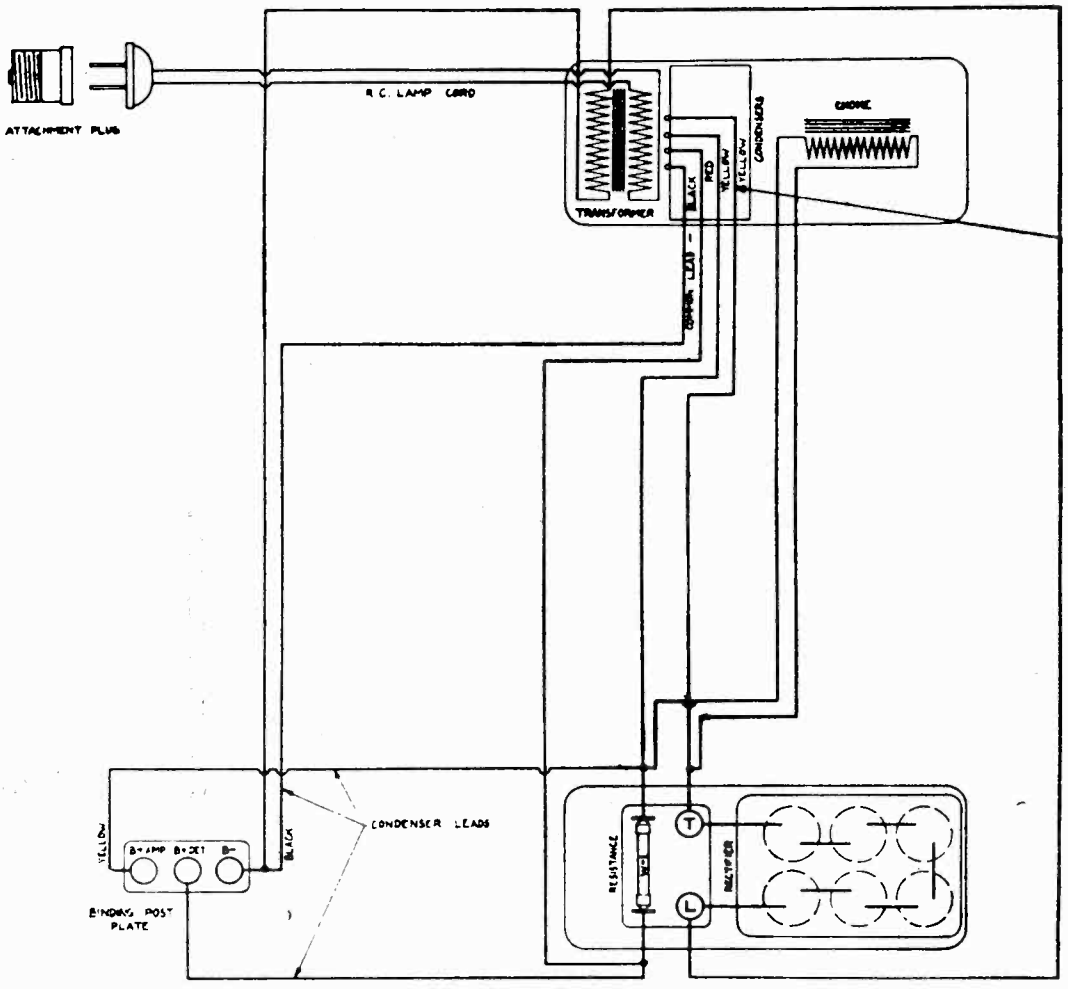
Wiring Diagram, Balkite BW

MODEL B-H
MODEL B-W Form D
MODEL B Form D

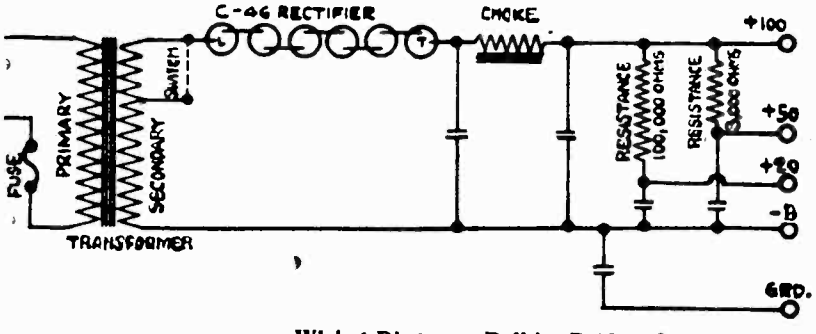
BALKITE PRODUCTS CO.



Schematic Wiring Diagram, Balkite BW or Balkite B, Model D



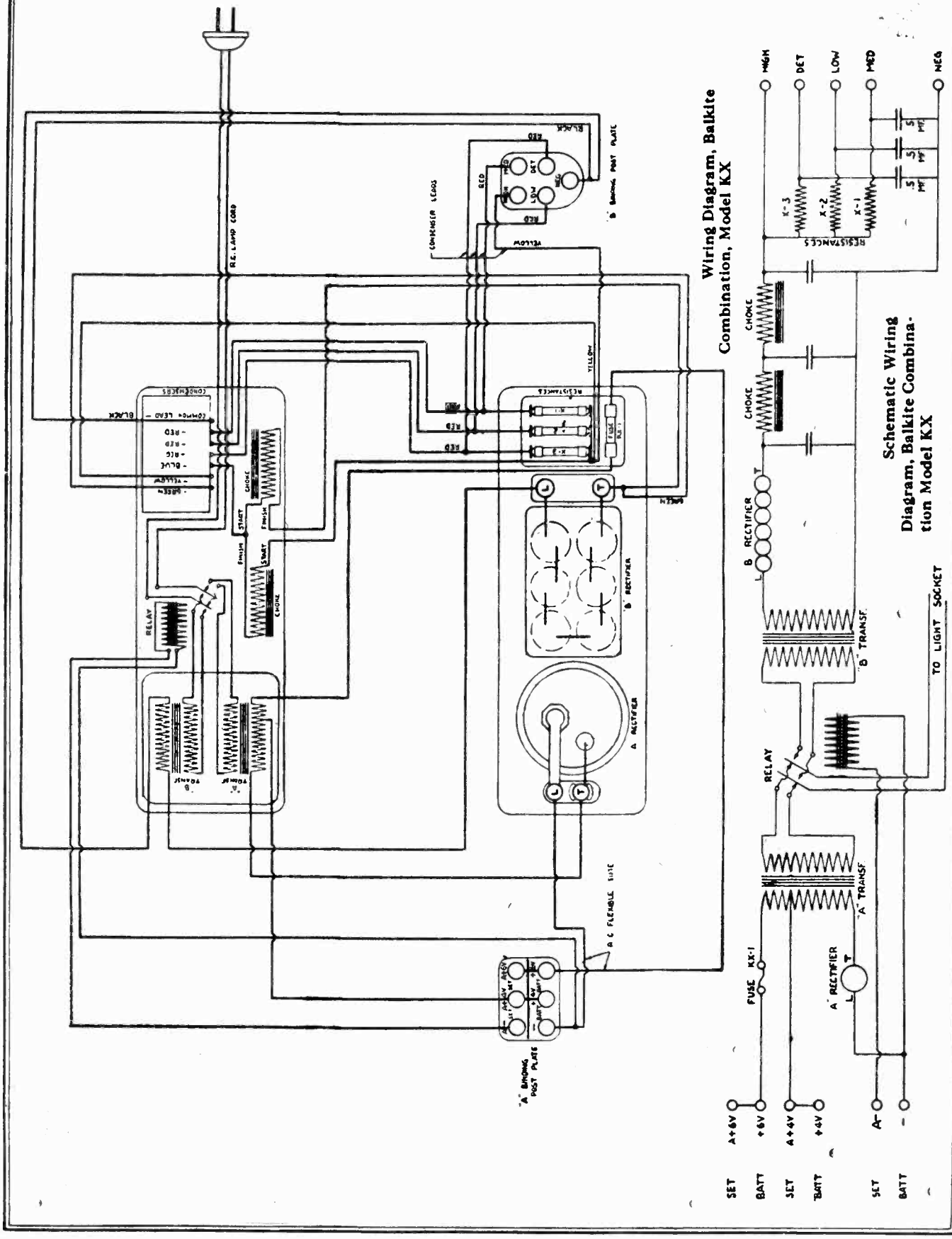
Wiring Diagram, Balkite BW or Balkite B, Model D



Wiring Diagram, Balkite B-H

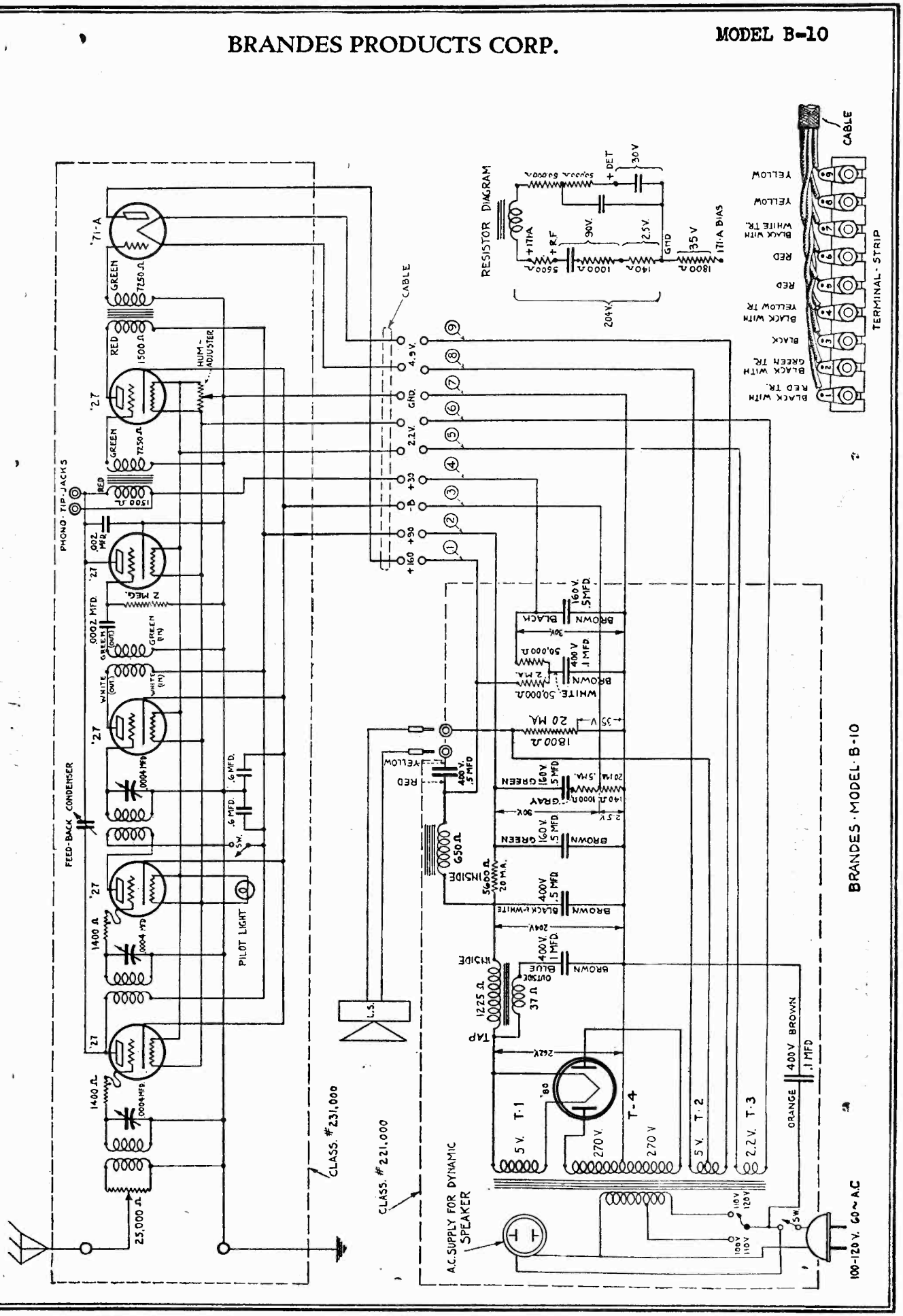
BALKITE PRODUCTS CO.

MODEL K-X



BRANDES PRODUCTS CORP.

MODEL B-10



MODEL B-10 - Voltage

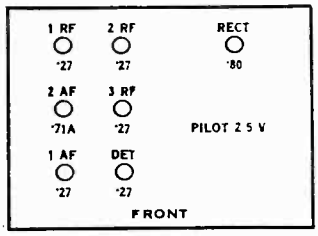
BRANDES PRODUCTS CORP.

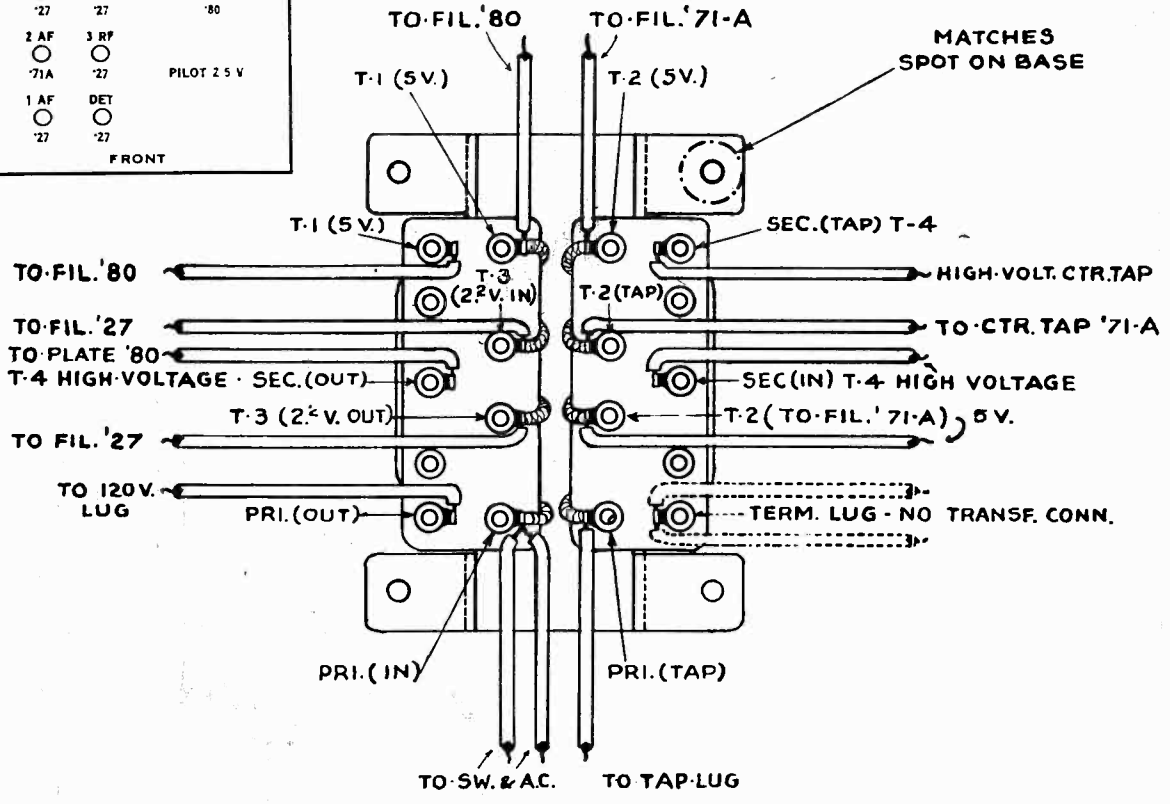
Input Voltage 115				Switch 110-120 Side			
Tube No.	Type Tube	Position of Tube	A Volts	B Volts	C Volts	Normal Plate MA	Plate MA Grid Test
1	'27	1st R.F.	2	88	3	4.3	8.
2	'27	2nd R.F.	2	88	3	4.3	8.
3	'27	3rd R.F.	2	88	3	6.	9.2
4	'27	Detector	2	36	3	3.	3.1
5	'27	1st Audio	2	88	3	5.3	8.2
6	'71A	2nd Audio	5	164	35	20.	30
7	'80	Rectifier	5				

The above readings are the average and may vary due to differences in line voltage, variation in tube characteristics, etc.

The readings are given merely as a guide to work from.

Models B10, B11, B12

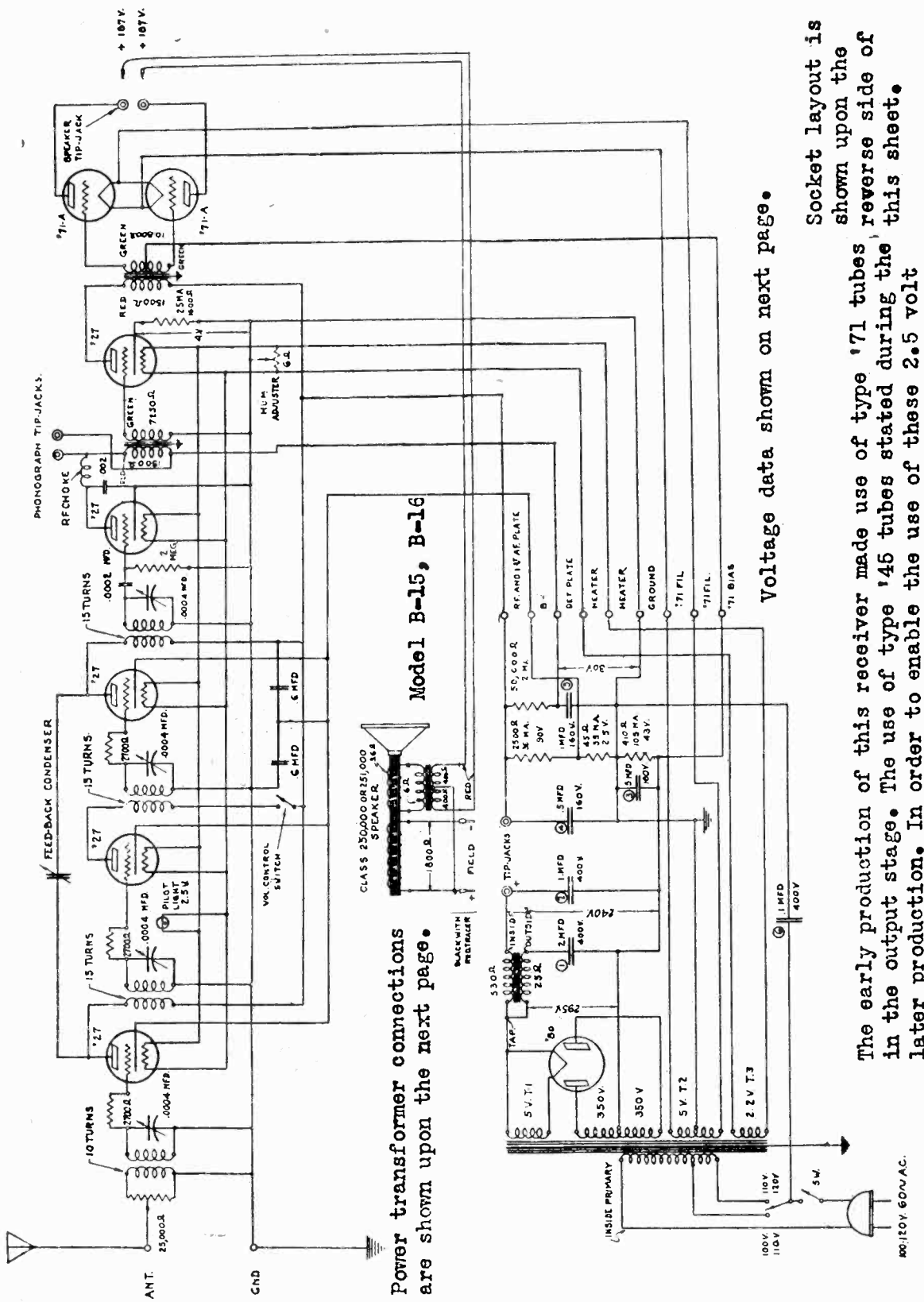




POWER · TRANSFORMER · ASSEMBLY

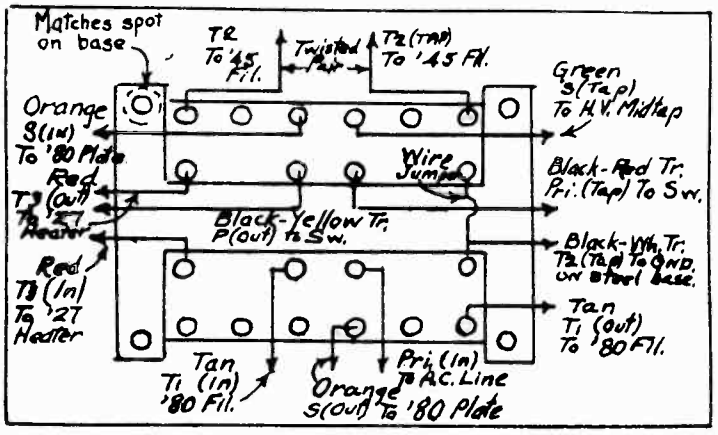
MODEL B-15, B-16

BRANDES PRODUCTS CORP.



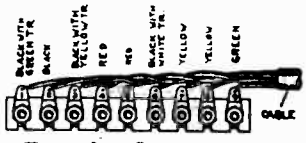
BRANDES PRODUCTS CORP.

MODEL B-15, B-16
Voltage and Data



POWER TRANSFORMER CONNECTIONS
FOR LATE MODELS

Condenser Block

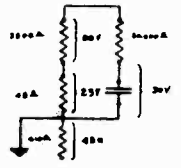


Terminal Strip

BRANDES—Models 15 and 16
Line Voltage 112—Volume Control Position Max
*Grid leak not shorted.

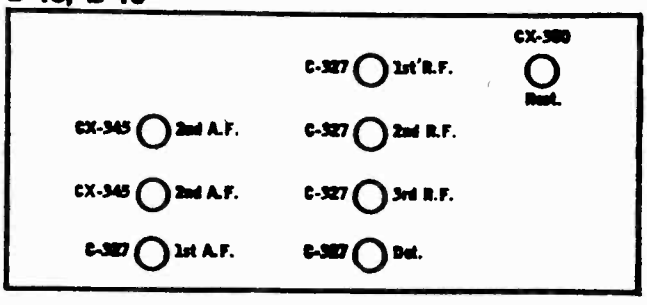
TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST RF DET ETC	READINGS PLUG IN SOCKET OF SET									
			TUBE OUT		TUBE IN TESTER							
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS (CONTROL GRID)	CATHODE - HEATER VOLTS	NORMAL PLATE M A	PLATE M A GRID TEST	PLATE CHANGE M A	SCREEN GRID VOLTS
	227	1st RF	2.3	94	2.2	90	2.5	-	5.6	10.0	4.4	-
	227	2nd RF	2.3	94	2.2	90	2.5	-	5.6	10.0	4.4	-
	227	3rd RF	2.3	94	2.2	90	2.5	-	5.6	10.0	4.4	-
	227	Det.	2.3	80	2.2	24	0	-	1.3	1.3	0	-
	227	1st A	2.3	95	2.2	85	5	-	3	4.2	1.2	-
	245	2nd A	2.4	210	2.3	190	36	-	18	21	3	-
	245	2nd A	2.4	210	2.3	190	36	-	18	21	3	-
	280	-	5	-	4.8	-	-	-	100	-	-	-

The above voltage table shows '45 type tubes in the output stage. When '71s are used, the filament voltage without the tubes in the sockets is 4.5 and the plate voltage under similar conditions is 200. With the tubes in the sockets the filament voltage is about 4.5, the plate voltage about 187, grid bias, 36 volts and plate current about 20 ma.



Resistor Diagram

B-15, B-16

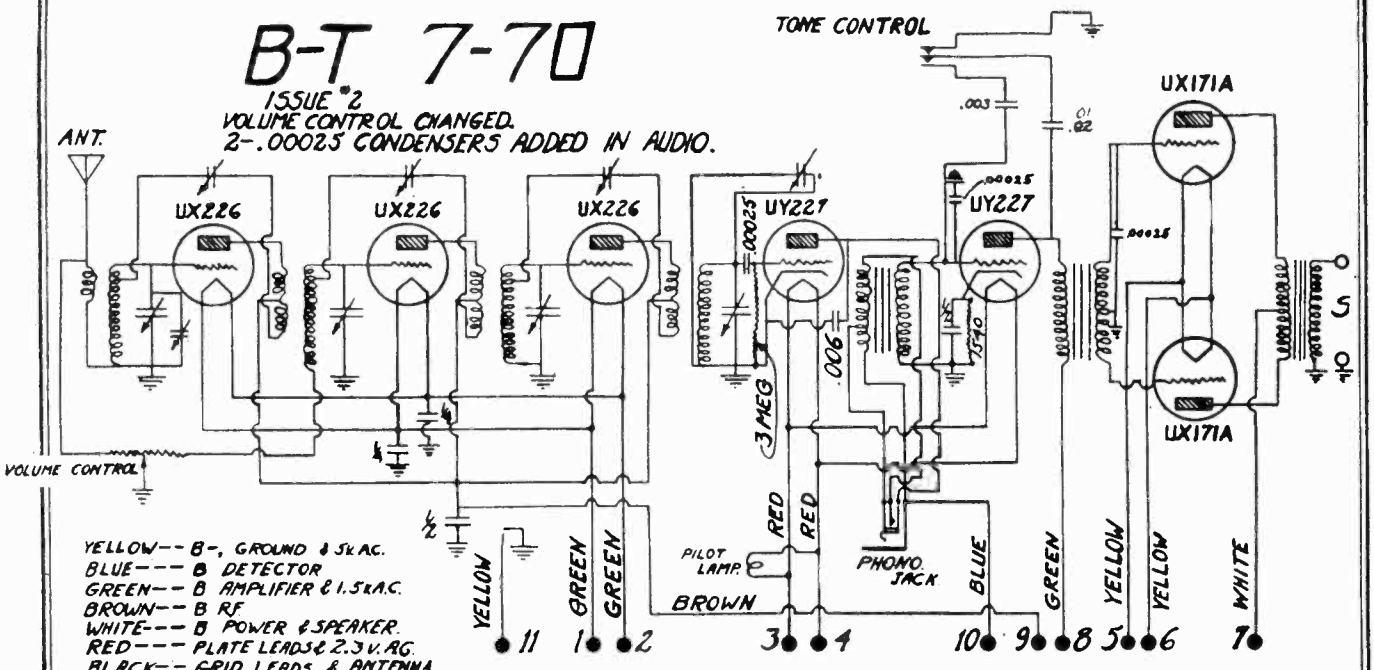


BREMER-TULLY MFG. CO

MODEL 7-70
Receiver

B-T 7-70

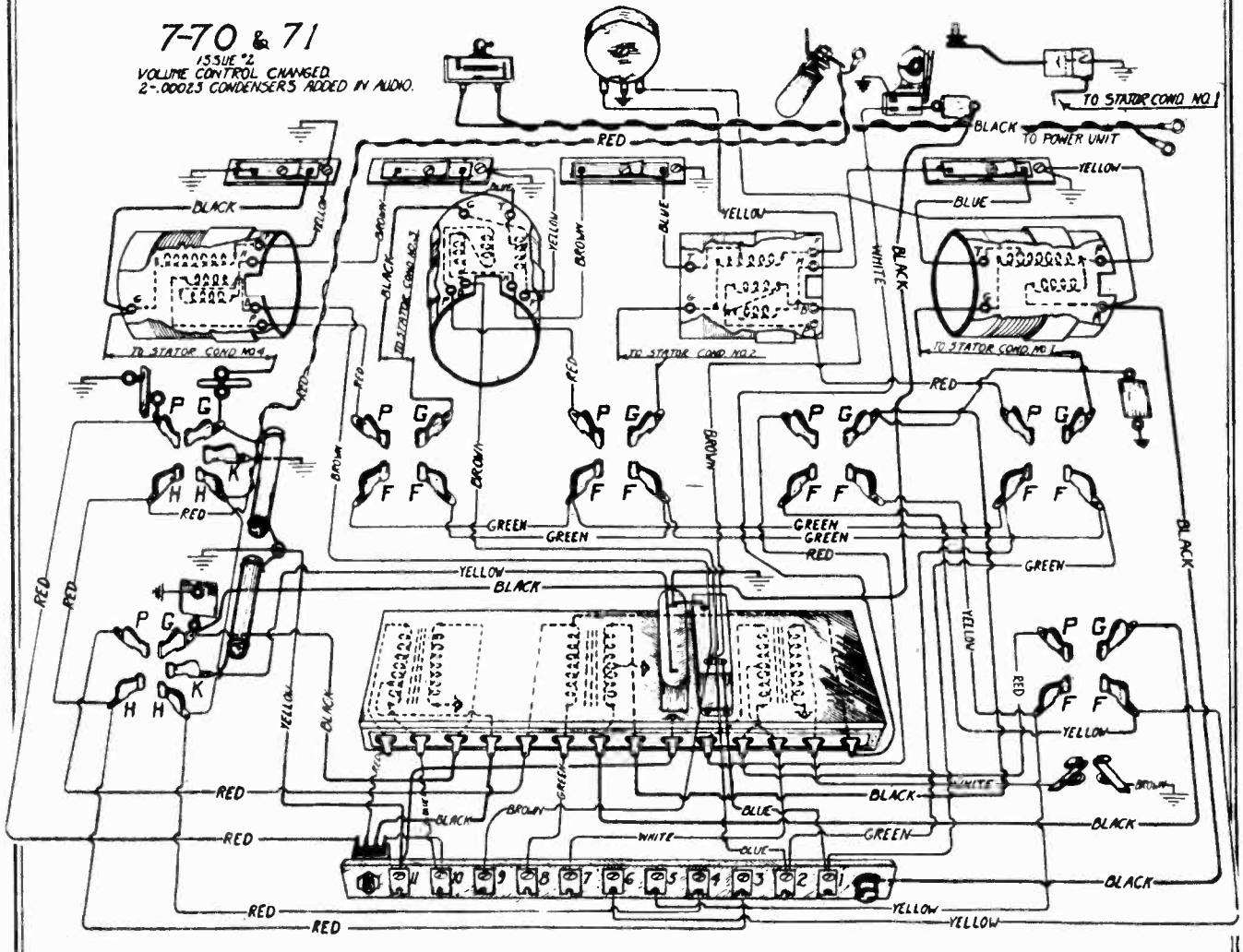
ISSUE #2
VOLUME CONTROL CHANGED.
2-.00025 CONDENSERS ADDED IN AUDIO.



YELLOW -- B-, GROUND & 5k A.C.
BLUE --- B DETECTOR
GREEN -- B AMPLIFIER & 1.5k A.C.
BROWN -- B RF
WHITE --- B POWER & SPEAKER.
RED --- PLATE LEADS & 2.3 V. A.G.
BLACK -- GRID LEADS & ANTENNA

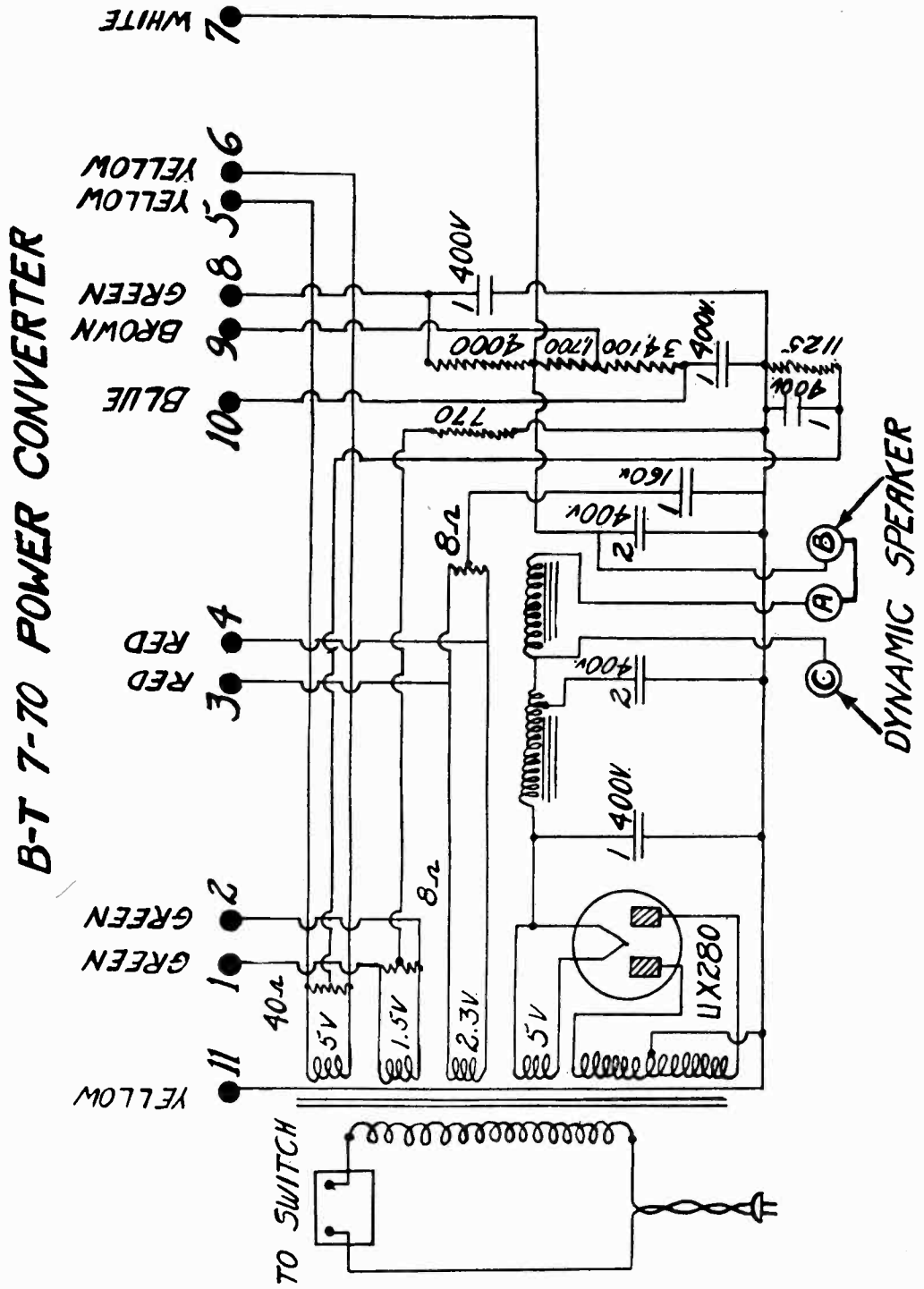
7-70 & 71

ISSUE #2
VOLUME CONTROL CHANGED.
2-.00025 CONDENSERS ADDED IN AUDIO.



MODEL 7-70
Power Converter

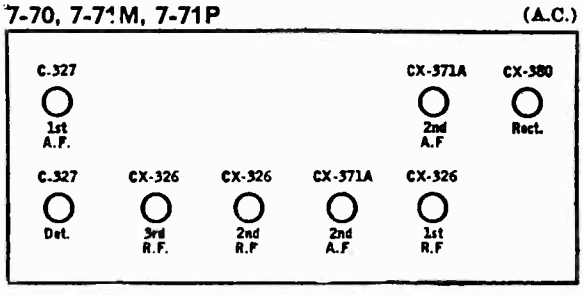
BREMER-TULLY MFG. CO



BREMER-TULLY—Models 7-70 and 7-71
Line Voltage 115

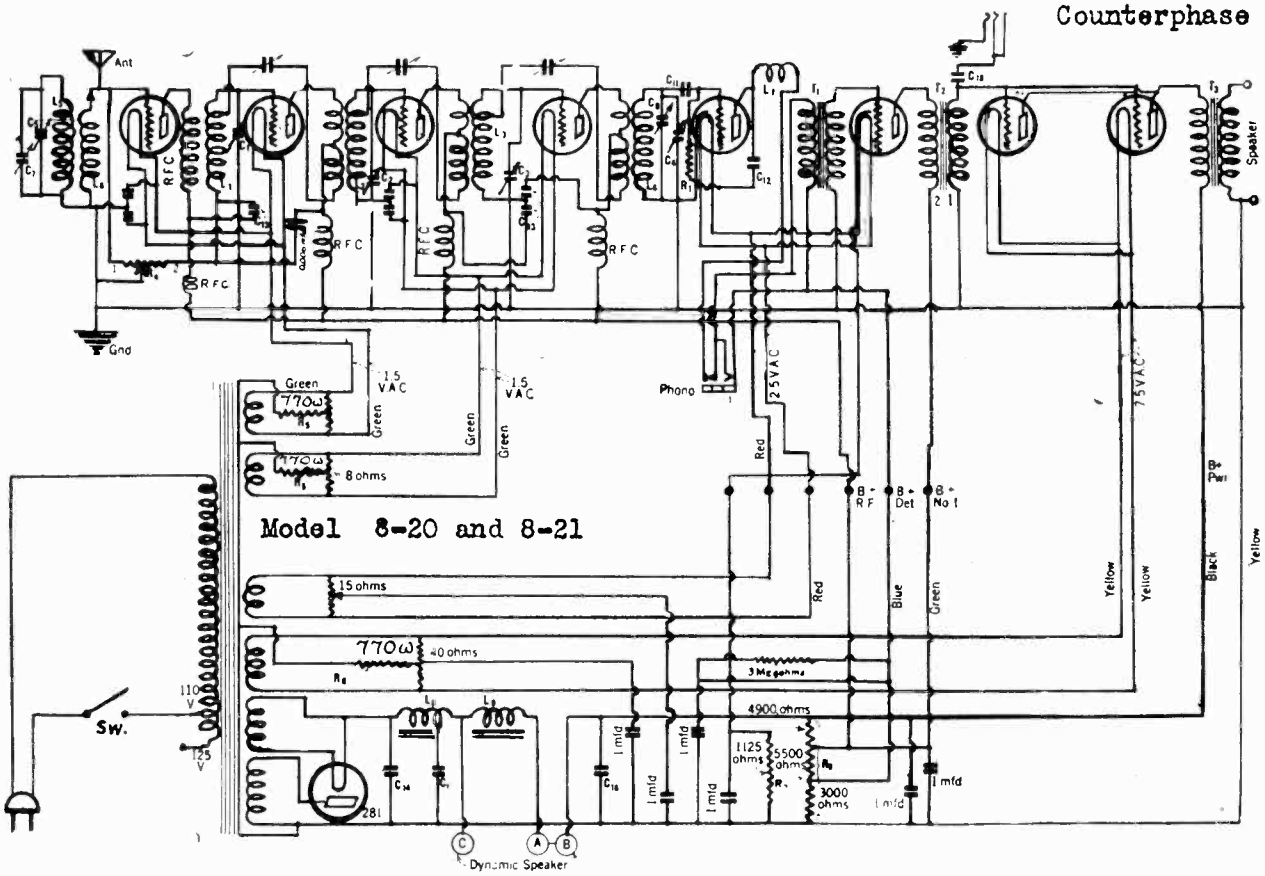
TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST RF DET ETC	READINGS PLUG IN SOCKET OF SET								
			TUBE OUT		TUBE IN TESTER						
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	CATHODE VOLTS	NORMAL PLATE M A	PLATE M A GRID TEST	PLATE M A CHANGE
	226	1st.R.F.			1.4	150	9	—	5	12	7
	171A	Push-Pull			4.9	130	30	—	18	31	13
	226	2nd.R.F.			1.4	150	9	—	5	12	7
	226	3rd.R.F.			1.4	150	9	—	5	12	7
	227	Detector			2.1	60	0	—	2	—	—
	227	1st.A.F.			1.1	150	8	—	5	8	3
	171A	Push-Pull			4.9	150	18	—	18	31	13

7-70, 7-71M, 7-71P (A.C.)

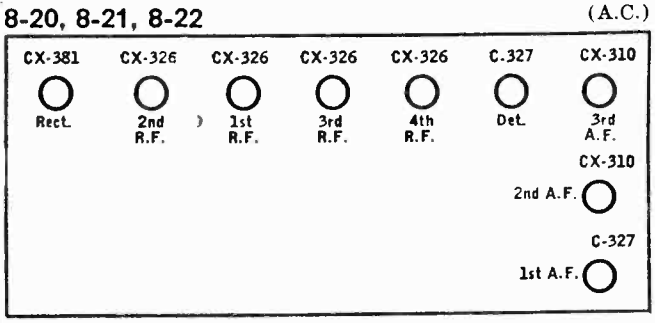


BREMER-TULLY MFG. CO

MODEL 8-20, 8-21
MODEL 8
Counterphase

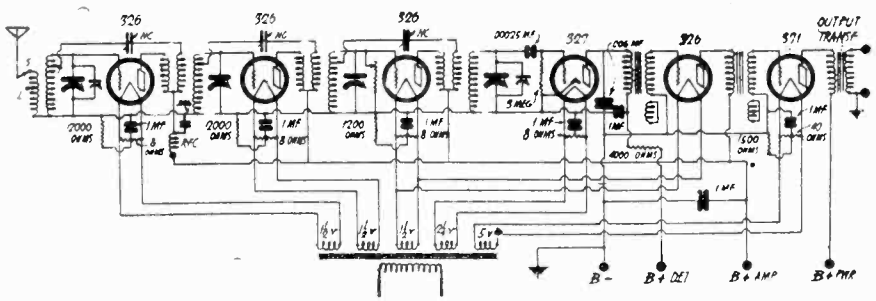


8-20, 8-21, 8-22



(A.C.) BREMER-TULLY—Models 8-20 and 8-21
Line Voltage 115

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE (SBY 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 M A	PLATE M A GRID TEST	PLATE M A CHARGE
1	226	1st. R.F.			1.4	150	10		5	10	5
2	226	Ant.			1.4	150	10		5	10	5
3	226	2nd. R.F.			1.4	150	10		5	10	5
4	226	3rd. R.F.			1.4	150	10		5	10	5
5	227	Detector			2.2	60	0		2	-	-
6	227	1st. A.F.			2.2	130	7		5	10	5
7	310	2nd. A.F.			7.5	350	18		20	50	30
8	310	2nd. A.F.			7.5	350	18		20	50	30
9											
10											

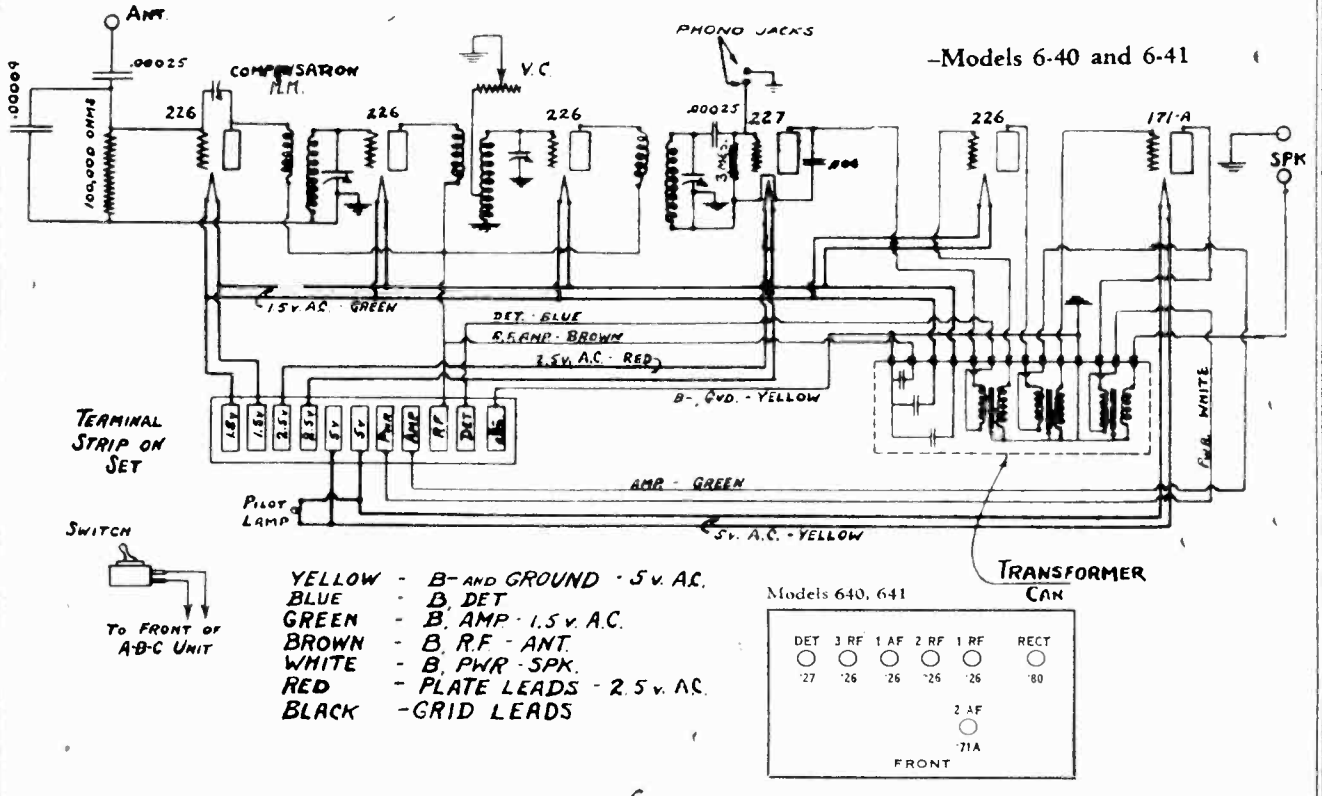


Model Counterphase "8"

MODEL 6-40, 6-41

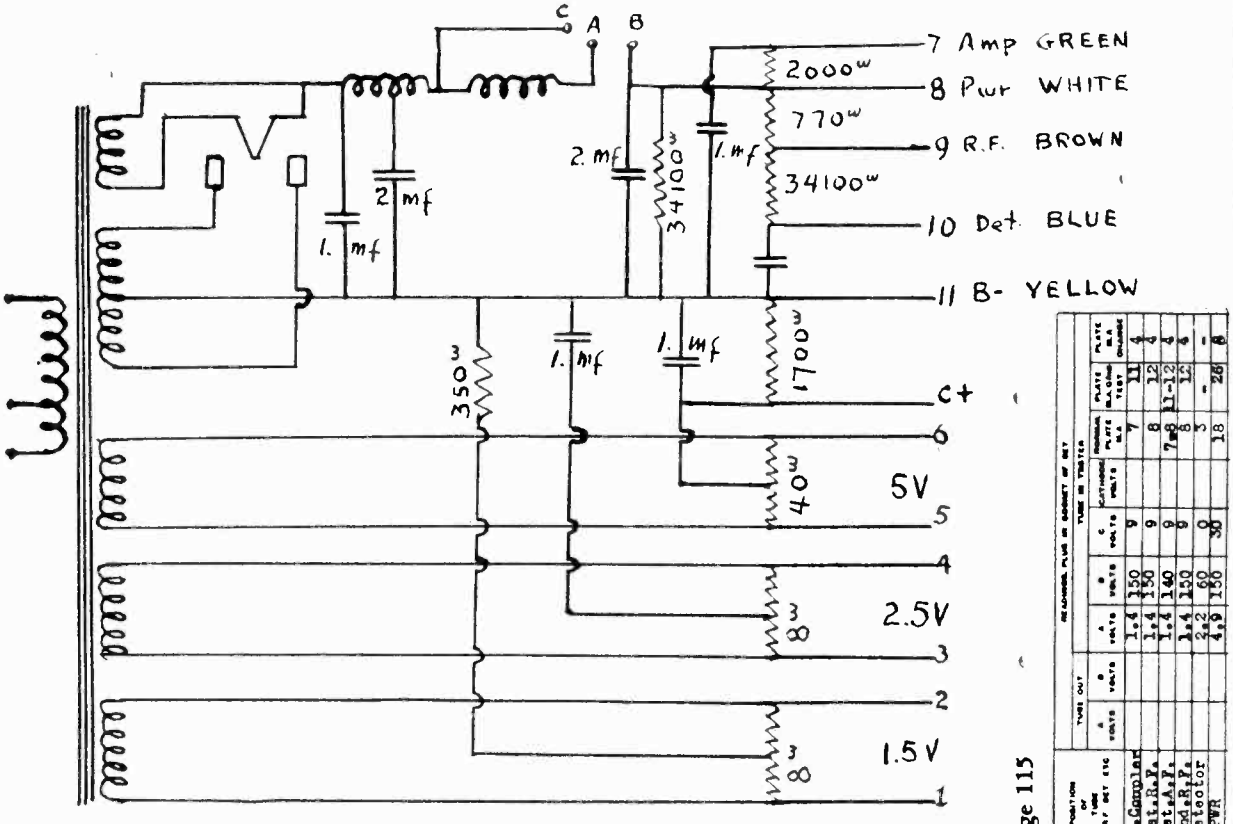
BREMER-TULLY MFG. CO

–Models 6-40 and 6-41



YELLOW - B- AND GROUND - 5 V. A.C.
BLUE - B. DET
GREEN - B. AMP - 1.5 V. A.C.
BROWN - B. R.F. - ANT.
WHITE - B. PWR - SPK.
RED - PLATE LEADS - 2.5 V. A.C.
BLACK - GRID LEADS

Models 640, 641



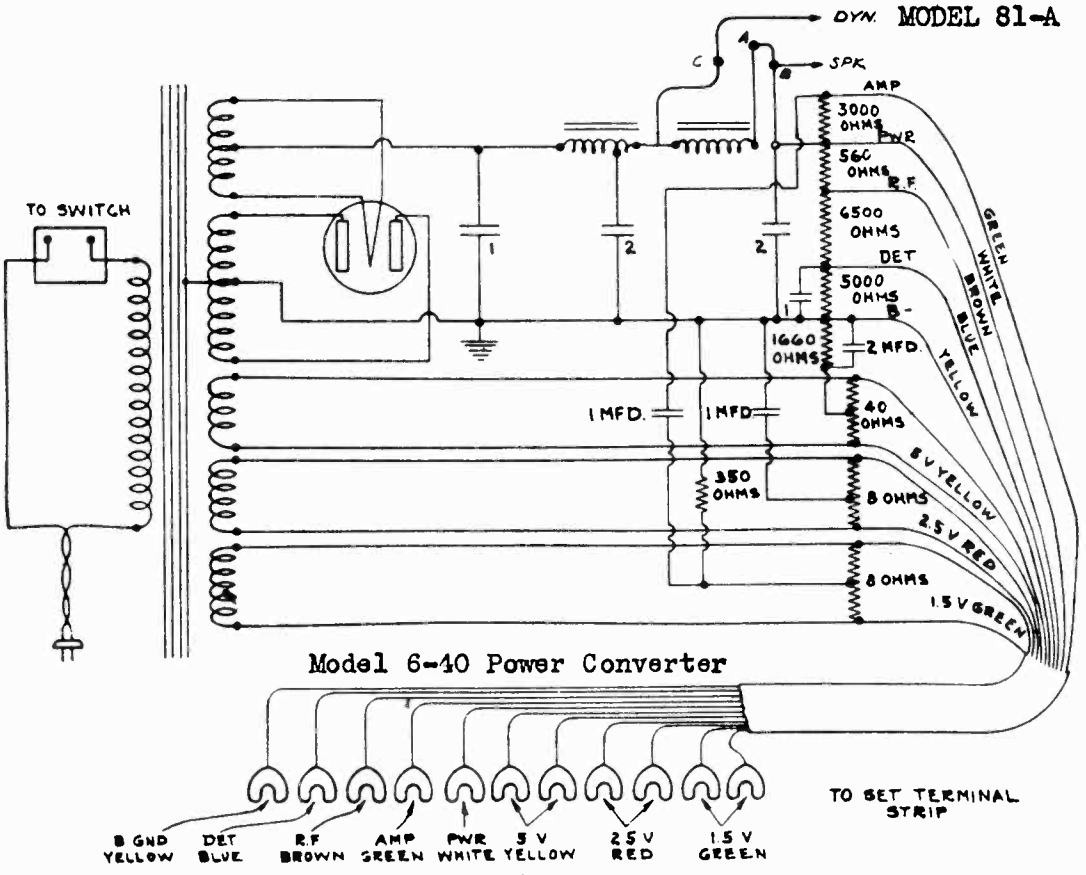
Model 6-40 ABC Power Pack

Line Voltage 115

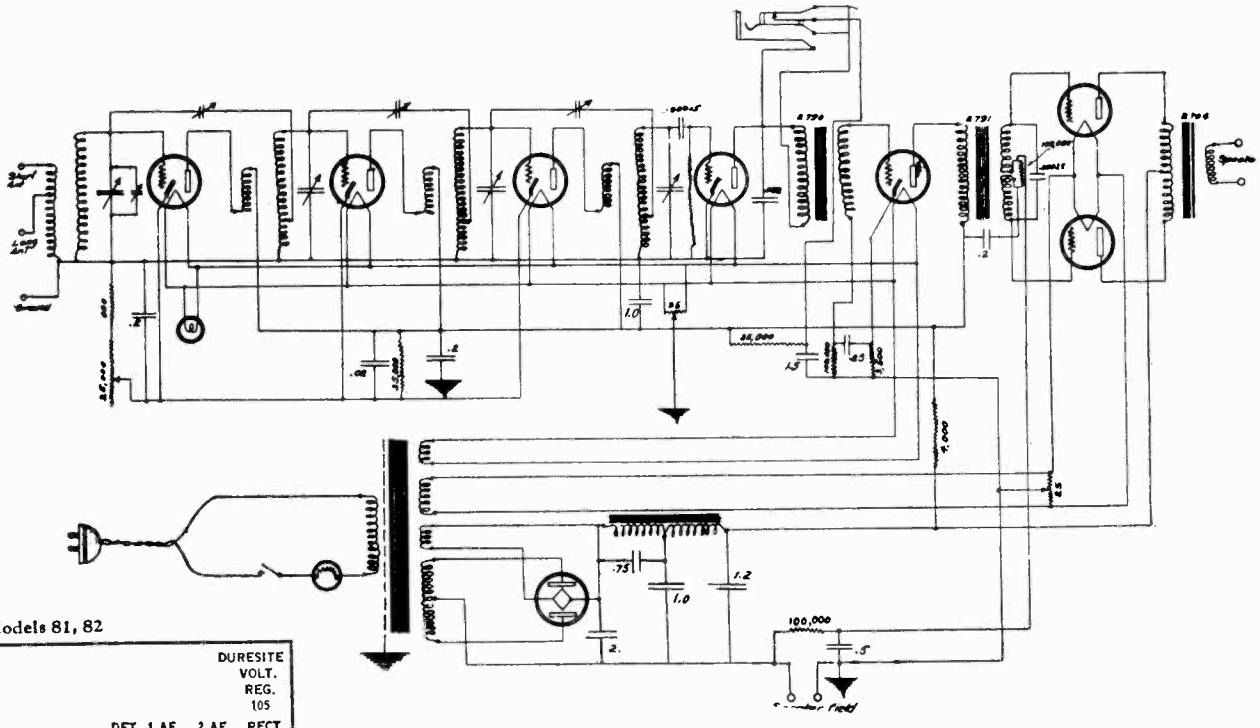
TUBE SOCKET NO.	TYPE OF TUBE	POSITION OF TUBE (1ST R.F. DET. ETC.)	TUBE OUT		TUBE IN TESTER							
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	FILAMENT VOLTS	NORMAL PLATE M.A.	PLATE READING TEST	PLATE M.A. READING
1	226	Ant. Coupler			1.4	150	9		7	11	4
2	226	1st. R.F.			1.4	150	9		8	12	4
3	226	1st. A.F.			1.4	140	9		7-8	11-12	4
4	226	2nd R.F.			1.4	150	9		8	12	4
5	227	Detector			2.2	60	0		3	-	-
6	171A	PWR			4.9	150	30		18	28	8

BREMER-TULLY MFG. CO

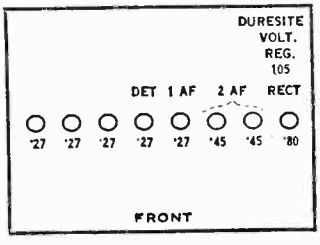
MODEL 6-40
Converter
MODEL 81-A



Model 6-40 Power Converter



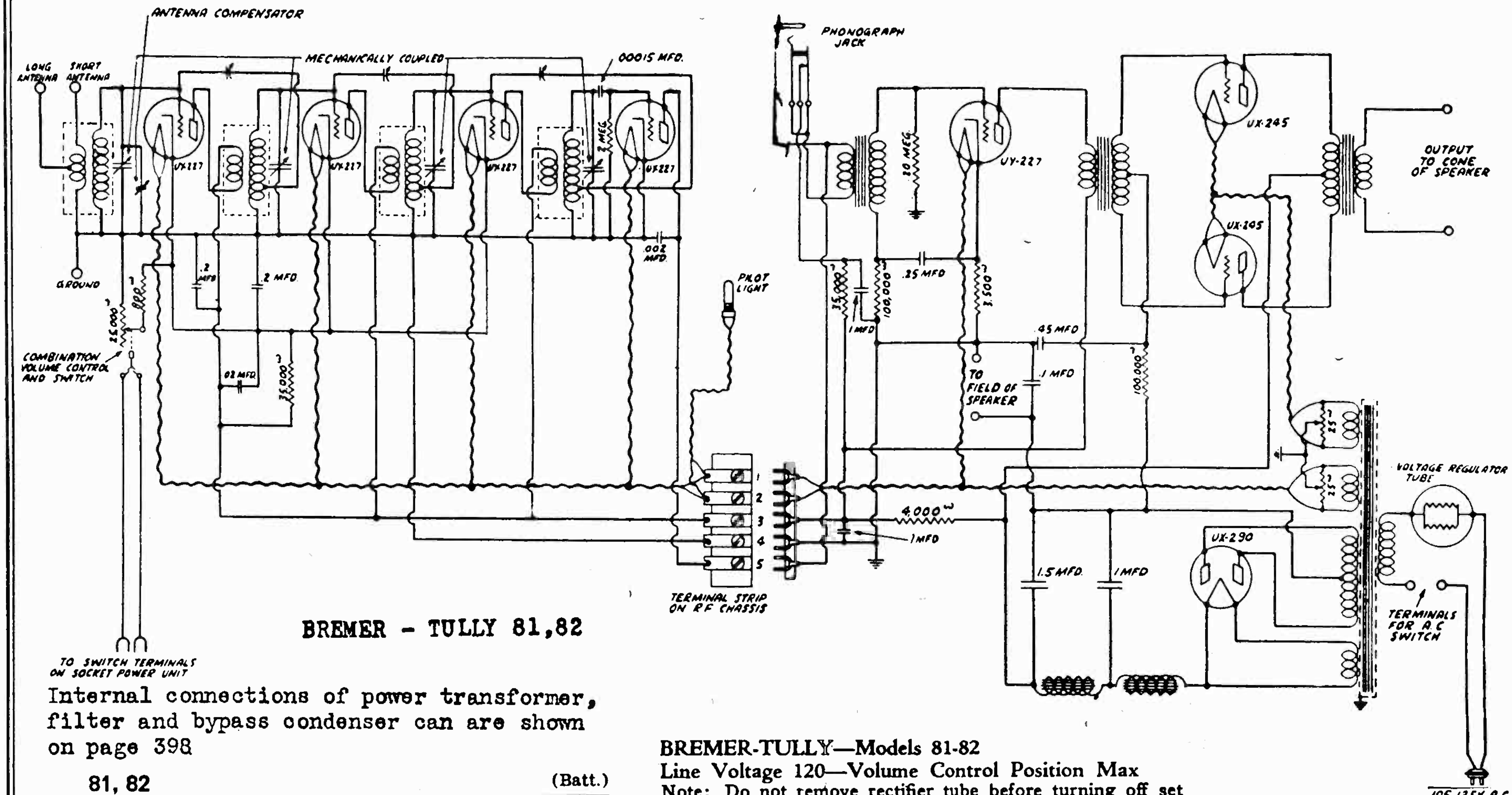
Models 81, 82



Model 81-A

MODEL 81, 82

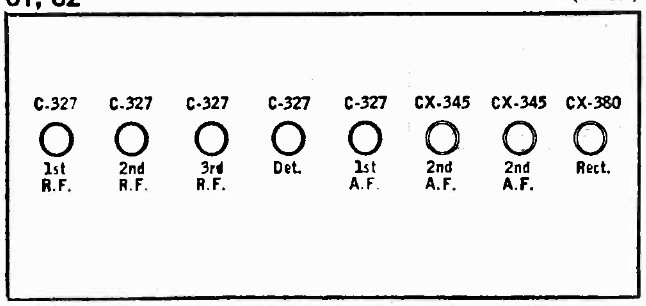
BREMER-TULLY MFG. CO



BREMER - TULLY 81,82

Internal connections of power transformer, filter and bypass condenser can are shown on page 398

81, 82 (Batt.)

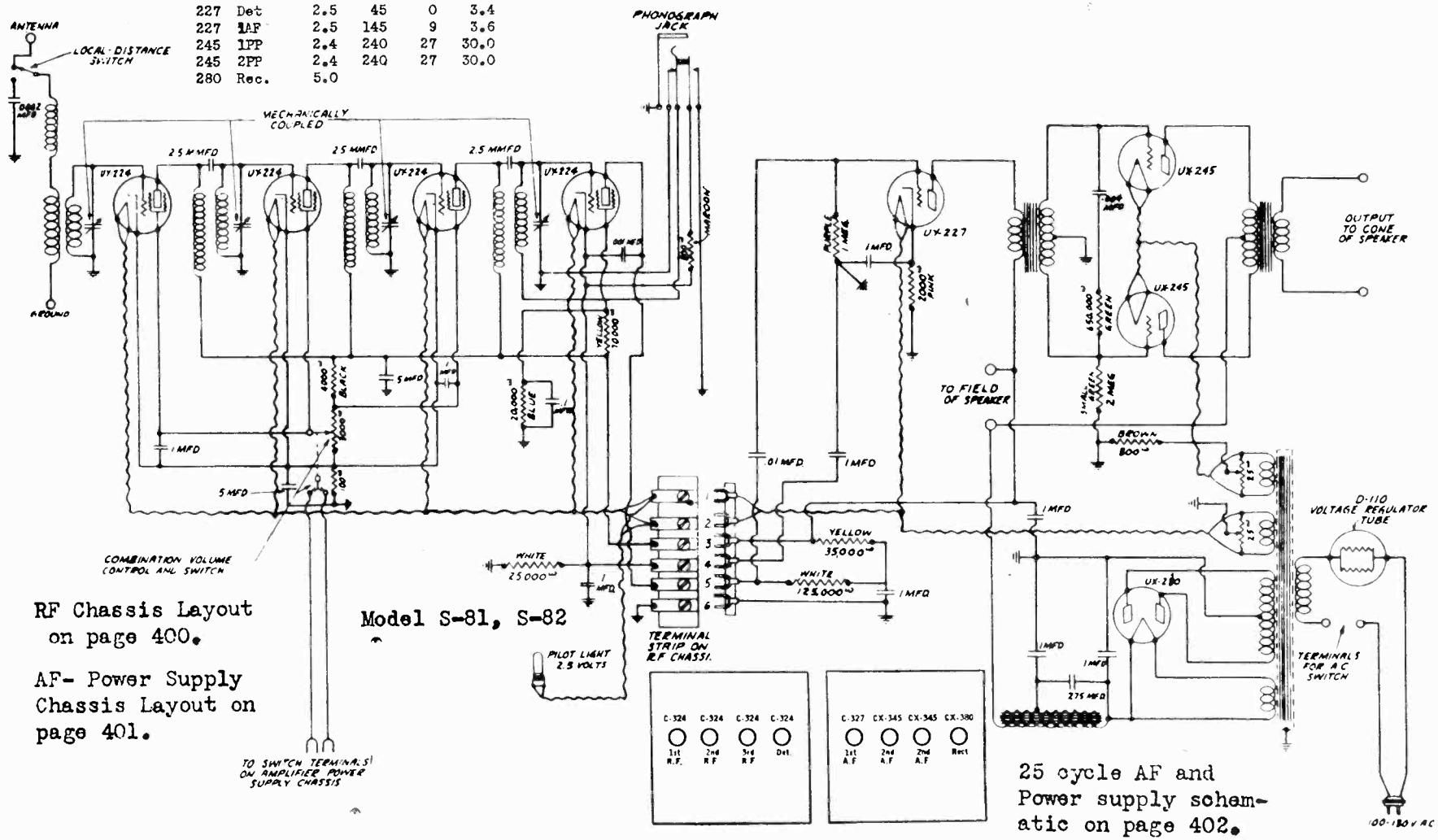


BREMER-TULLY—Models 81-82
Line Voltage 120—Volume Control Position Max
Note: Do not remove rectifier tube before turning off set as filament voltage is too high with rectifier tube out.

Tube No. in Order (1)	Type of Tube (2)	Position of Tube 1st RF Det. etc (3)	Readings Plug in Socket of Set: Tube Out — A Volts (4)	Tube Out — B Volts (5)	Tube in Tester — A Volts (6)	B Volts (7)	C Volts (Control Grid) (8)	Cathode-Heater Volts (9)	Normal Plate M A (10)	Plate M A Grid Test (11)	Plate Change M A (12)	Screen Grid Volts (13)
1	227	1st RF	2.75	160	2.5	152	13	13	3.0	6.1	3.1	-
2	227	2nd RF	2.75	160	2.5	152	13	13	3.0	11.8	8.8	-
3	227	3rd RF	2.75	160	2.5	152	13	13	3.0	11.8	8.8	-
4	227	Det.	2.75	160	2.5	152	-	-	3.2	3.2	0	-
5	227	1st AF	2.75	180	2.6	44	13	13	3.7	4.3	.6	-
6	245	2nd AF	2.65	208	2.45	148	-	-	26	30	4	-
7	245	2nd AF	2.65	208	2.45	256	-	-	25	30	4	-
8	280		4.85	-	4.75	256	-	-	80	-	-	-
9	Ballast		77 W-A.C.									
10												

AF and Power Unit Chassis layout is shown on the reverse side of this page.

		A	B	C	Plate Current
227	1RF	2.5	150	12	5.5 ma
227	2RF	2.5	150	12	5.5
227	3RF	2.5	150	12	5.5
227	Det	2.5	45	0	3.4
227	1AF	2.5	145	9	3.6
245	1PP	2.4	240	27	30.0
245	2PP	2.4	240	27	30.0
280	Rec.	5.0			



RF Chassis Layout on page 400.

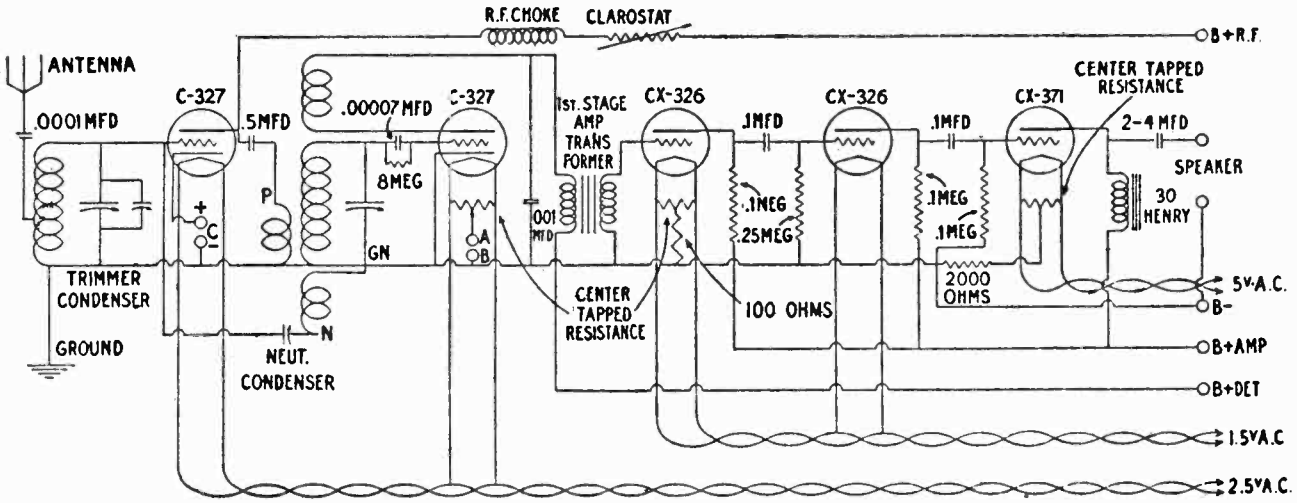
AF- Power Supply Chassis Layout on page 401.

Model S-81, S-82

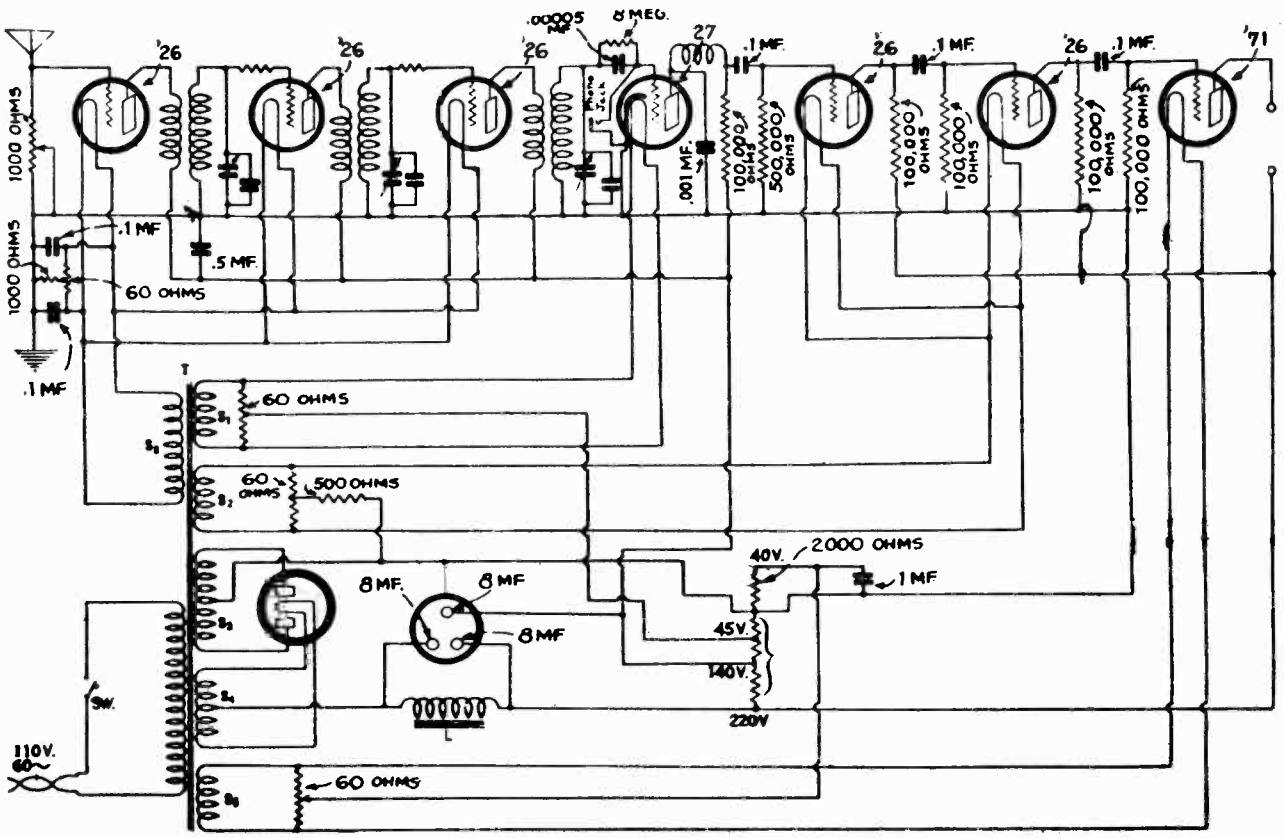
25 cycle AF and Power supply schematic on page 402.

BROWNING - DRAKE CORP.

MODEL 5 Tube AC Kit
MODEL 34,36,38



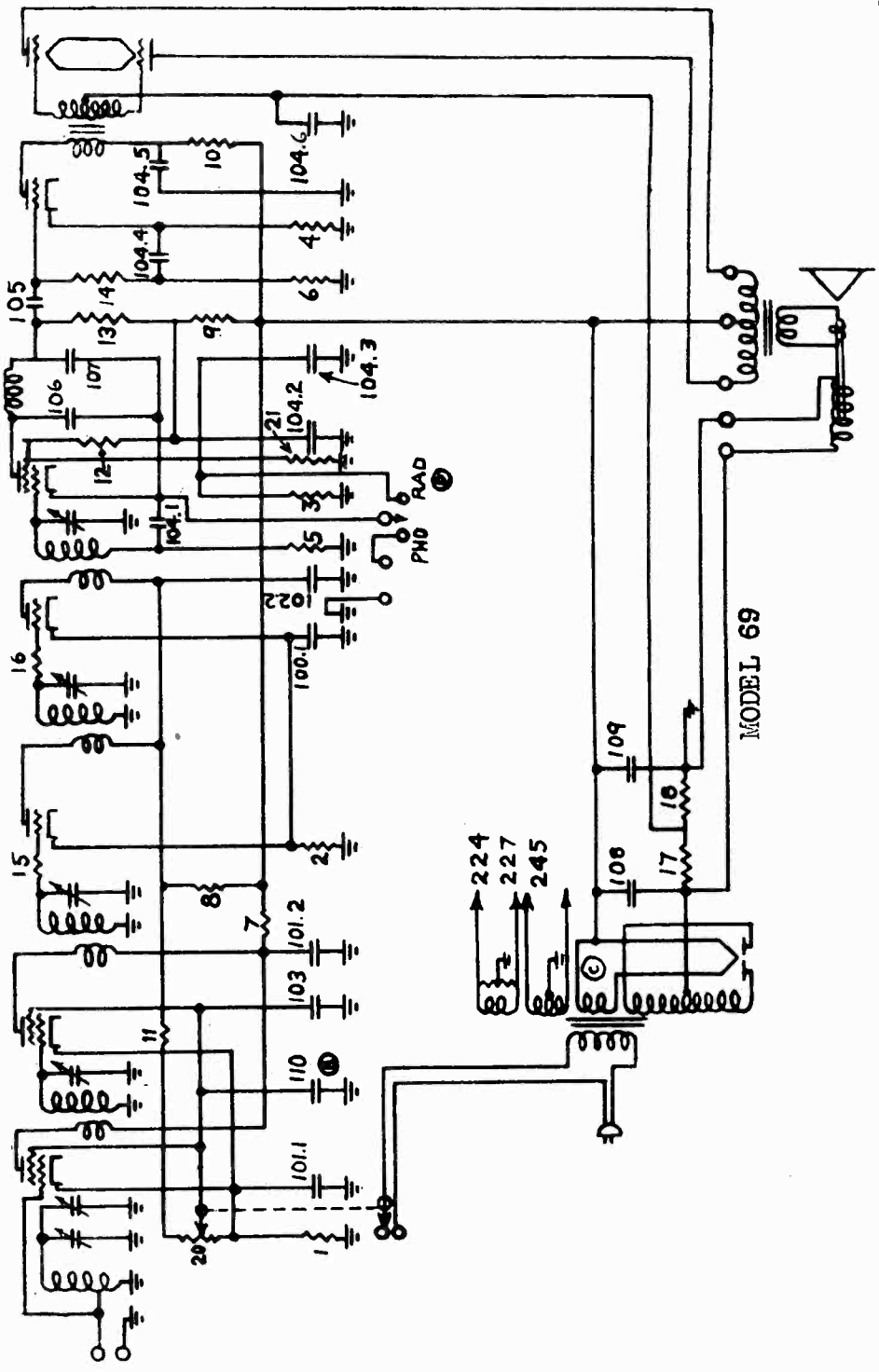
THE SCHEMATIC WIRING OF THE FIVE TUBE A-C



BROWNING DRAKE 34, 36 and 38

MODEL 69

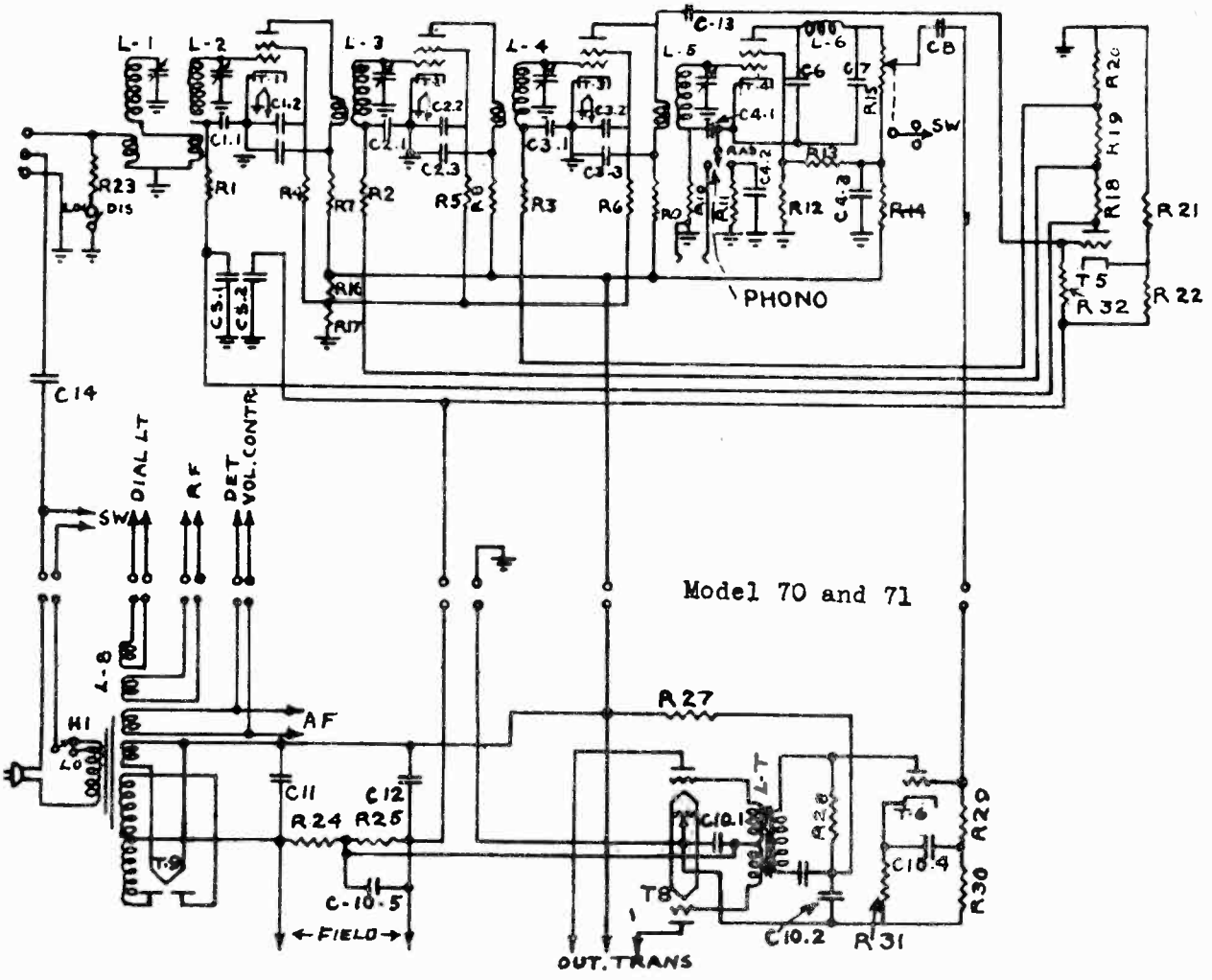
BROWNING - DRAKE CORP.



1. 400 ohms; 2. 600 ohms; 3. 50000 ohms; 4. 3000 ohms; 5. .5 megohm; 6. 1 megohm; 7. 45000 ohms; 8. 20000 ohms; 9. .25 megohm; 10. 60000 ohms; 11. 90 ohms; 12 and 13. .25 megohm; 14. 2 megohms 15. 2000 ohms; 16. 2000 ohms; 17 and 18. .25 megohms; 19. 30 ohms. 20. 10000 ohms; 21. .1 megohm 101.1 and 101.2 and 102.1 and 102.2 are .5 mfd. each. 103 is .1 mfd. 104.1 and 104.2 and 104.3 and 104.4 and 104.5 are .2 mfd.; 104.6 is .5 mfd.; 105. .01 mfd.; 106. .00025 mfd.; 107. .00025 mfd.; 108 and 109 are 8 mfd. and 110 is .01 mfd.

MODEL 70, 71

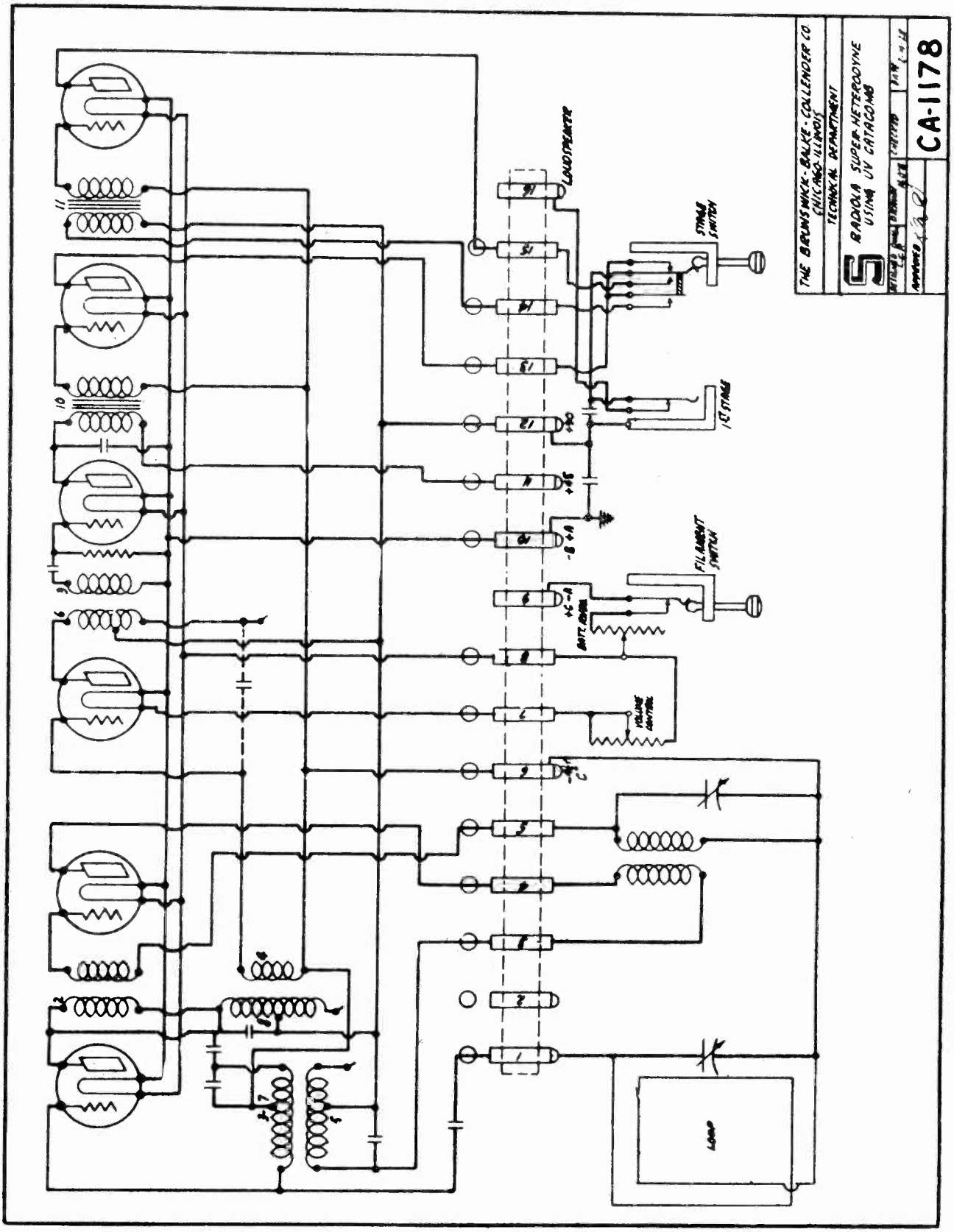
BROWNING - DRAKE CORP.



R1,R2,R3,R14,R15	.25 megohm	R28	20000 ohms
R4,R5,R6	10000 ohms	R30,R32	2 megohms
R7,R8,R9	20000 ohms	R31	2000 ohms
R10,R29	1 mfgohm	C1.1;C2.1;C3.1;C1.2;C2.2;C3.2	.1 mfd
R11,R18,R19	40000 ohms	C1.3;C2.3;C3.3	.1 mfd
R12	.1 megohm	C4.1;C4.2	.1 mfd.
R13	.25 megohm	C4.3	.25 mfd
R16	40000 ohms	C5.1; C5.2	1. mfd
R17	90000 ohms	C6,C7, C13	.00025 mfd
R20	200000 ohms	C8	.01 mfd.
R21	300 ohms	C10.1	.25 mfd
R22	45 ohms	C10.2	.5 mfd
R23,R26	20 ohms	C10.3	.1 mfd
R24	.5 megohm	C10.4	.2 mfd
R25	.15 megohm	C10.5	2. mfd
R27	10000 ohms	C14	.00025 mfd

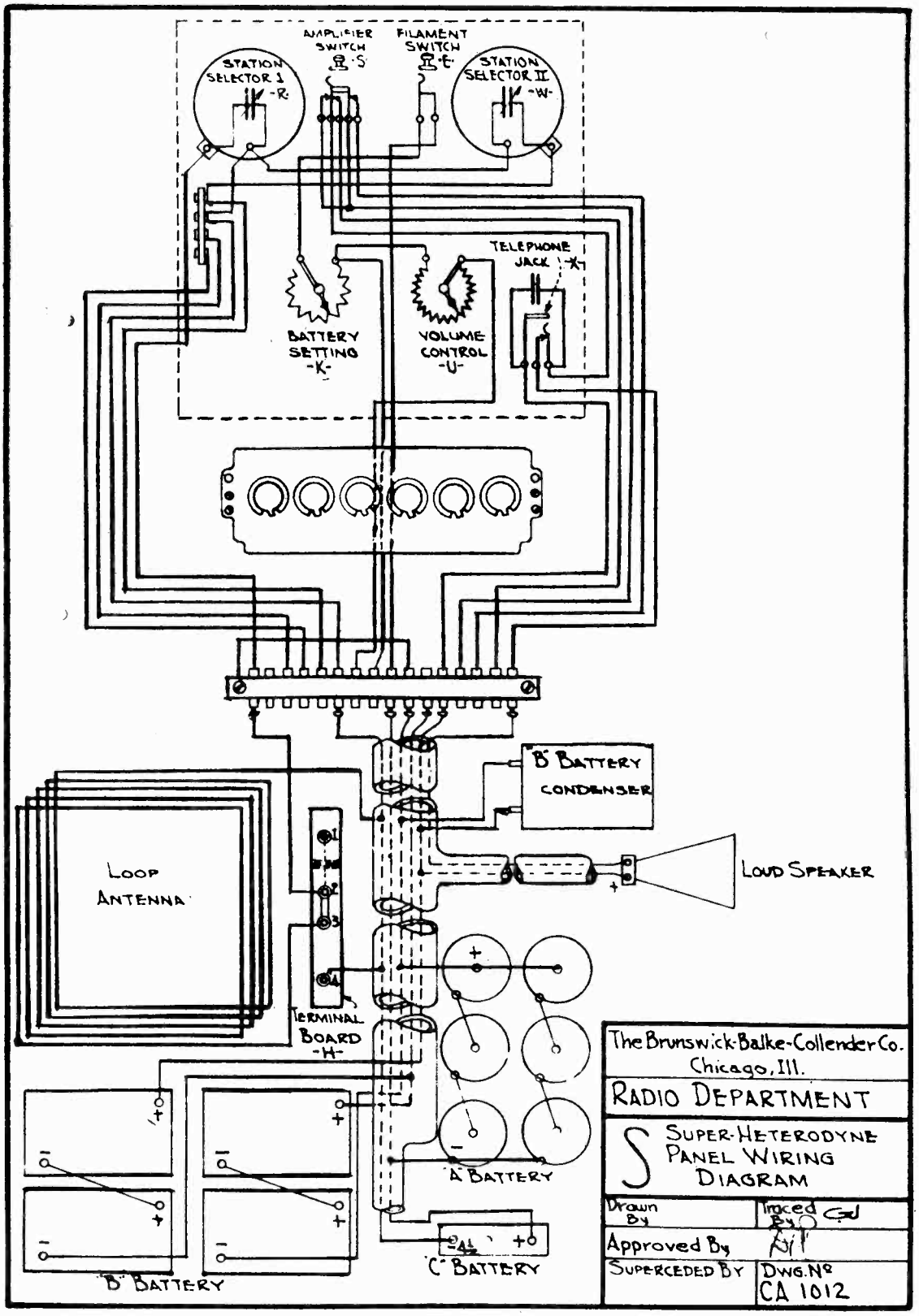
BRUNSWICK RADIO CORPORATION

MODEL Radiola
Superhet erodyne
with UV Catacomb



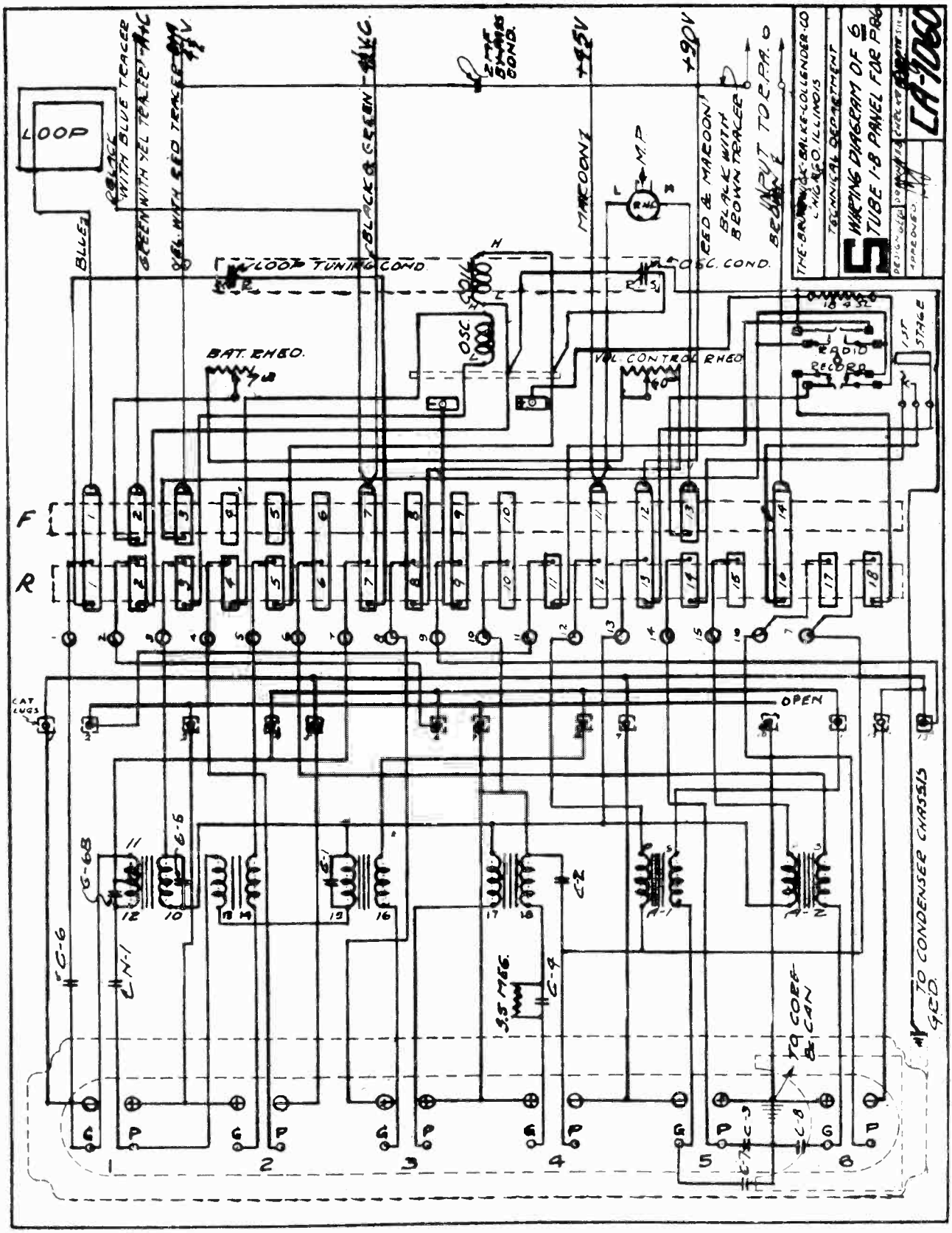
MODEL Superheterodyne
Panel Wiring

BRUNSWICK RADIO CORPORATION



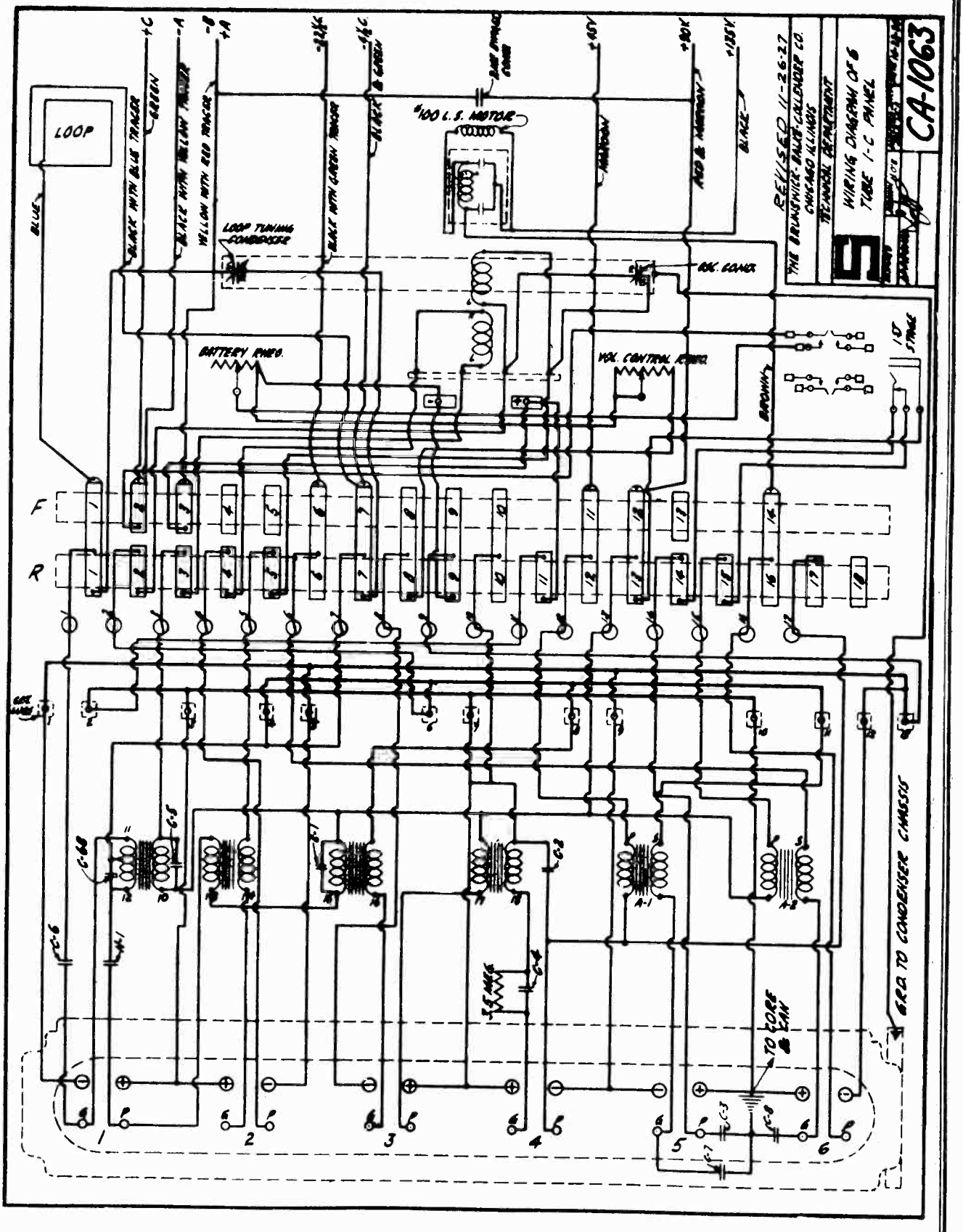
BRUNSWICK RADIO CORPORATION

MODEL PR-6
6 Tube 1-B Panel



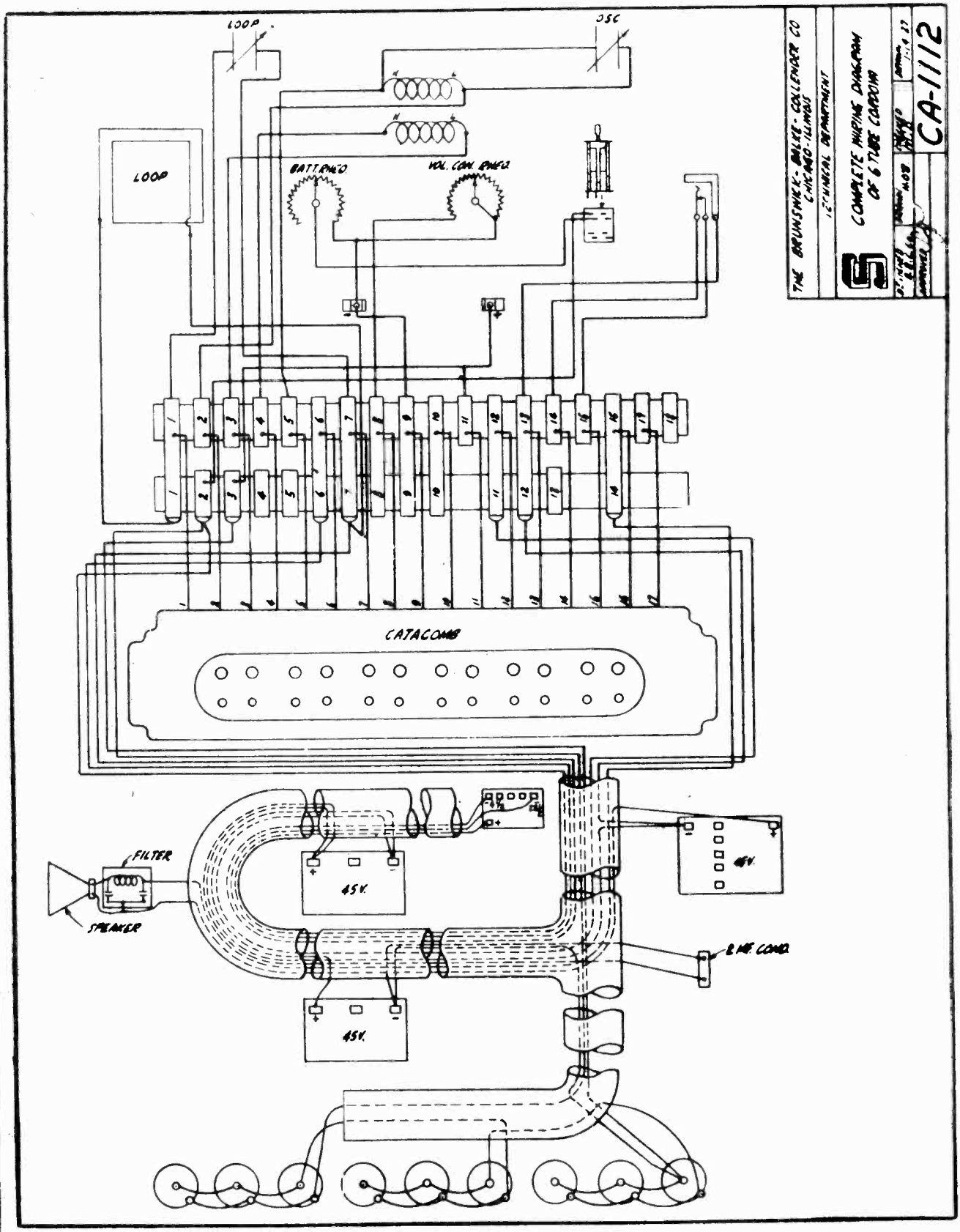
MODEL PR-6
6 Tube 1-C
Panel

BRUNSWICK RADIO CORPORATION



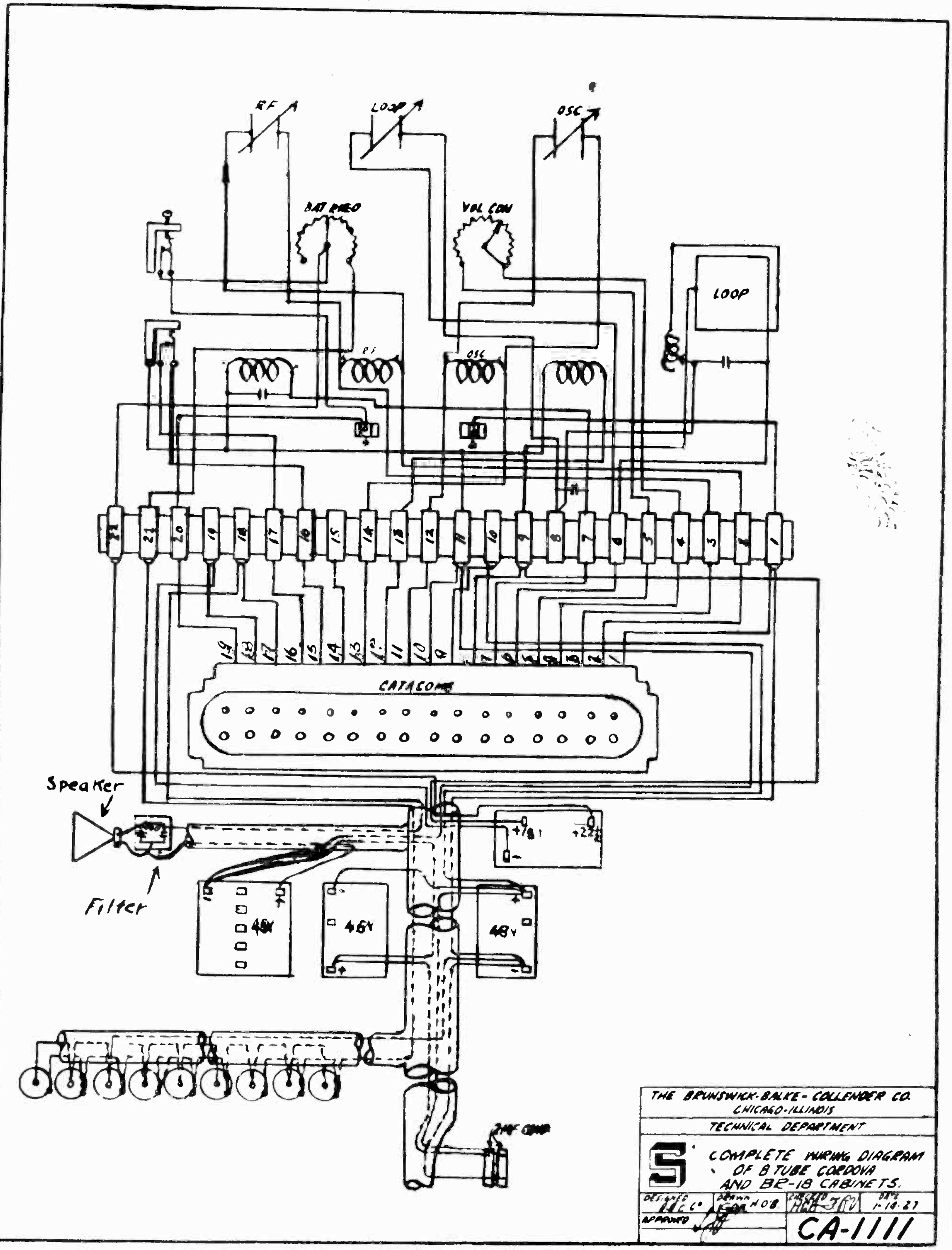
BRUNSWICK RADIO CORPORATION

MODEL 6 Tube
Cordova



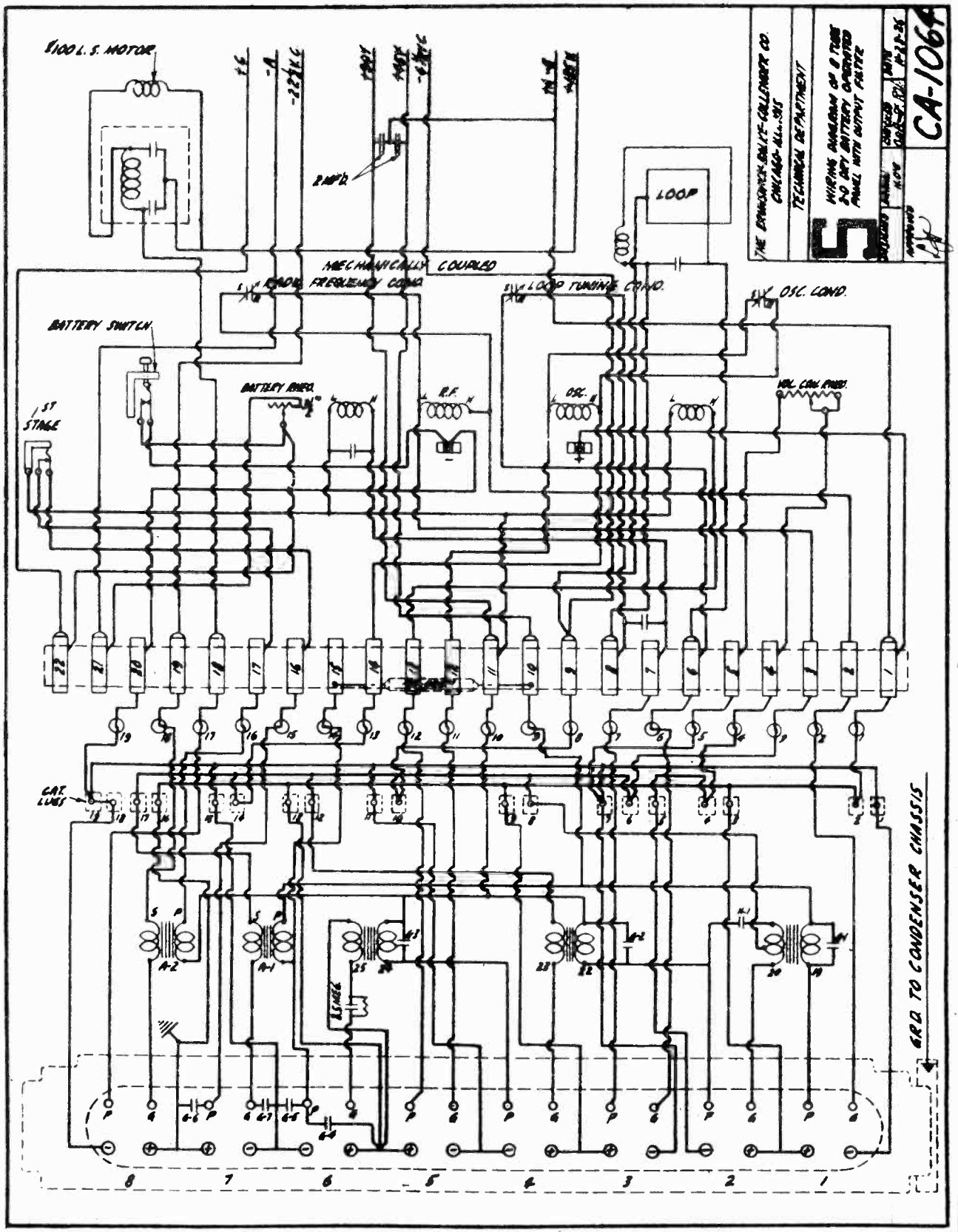
MODEL 8 Tube
Cordova

BRUNSWICK RADIO CORPORATION



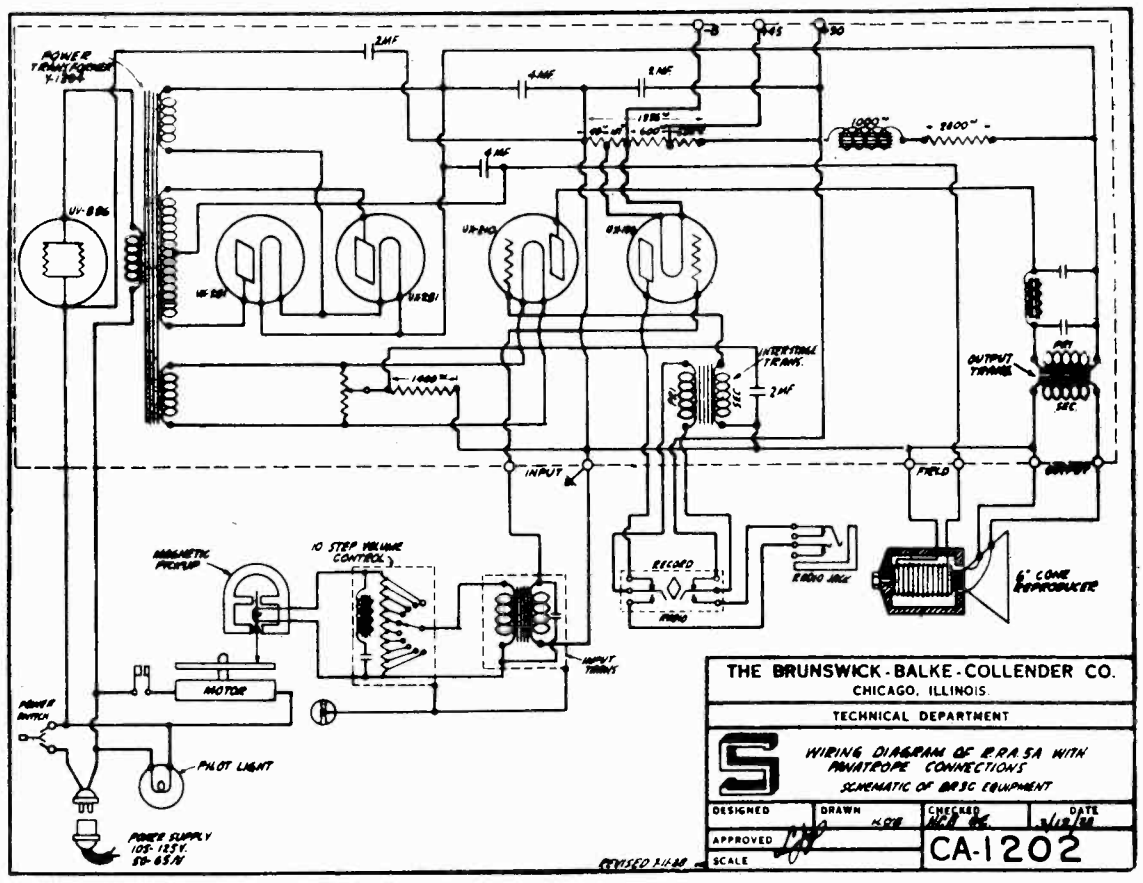
BRUNSWICK RADIO CORPORATION

MODEL 8 Tube
2-D Battery



MODEL RPA-5A

BRUNSWICK RADIO CORPORATION



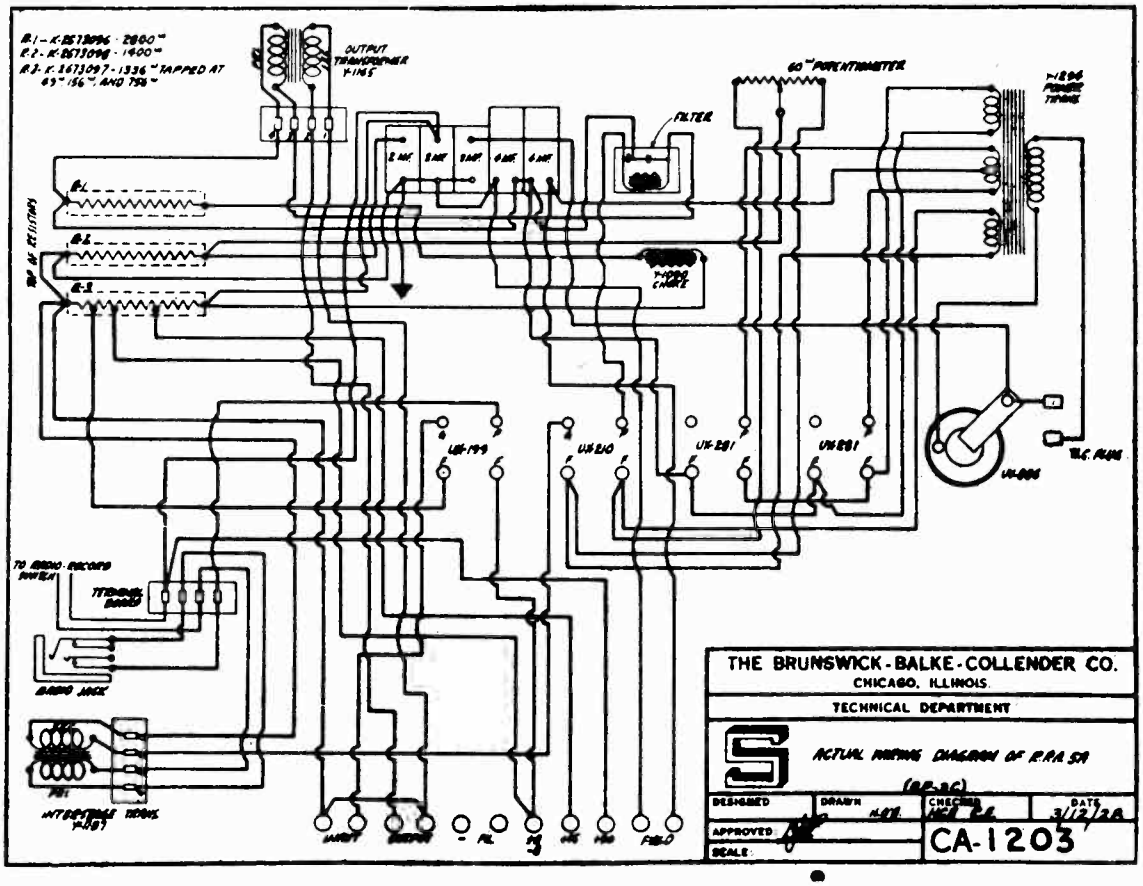
THE BRUNSWICK-BALKE-COLLENDER CO.
CHICAGO, ILLINOIS
TECHNICAL DEPARTMENT

WIRING DIAGRAM OF R.P.A. 5A WITH PANATROPE CONNECTIONS
SCHEMATIC OF BR.3C EQUIPMENT

DESIGNED	DRAWN	CHECKED	DATE
	H.G.R.		3/12/29

APPROVED
SCALE

CA-1202



THE BRUNSWICK-BALKE-COLLENDER CO.
CHICAGO, ILLINOIS
TECHNICAL DEPARTMENT

ACTUAL WIRING DIAGRAM OF R.P.A. 5A
(BR-3C)

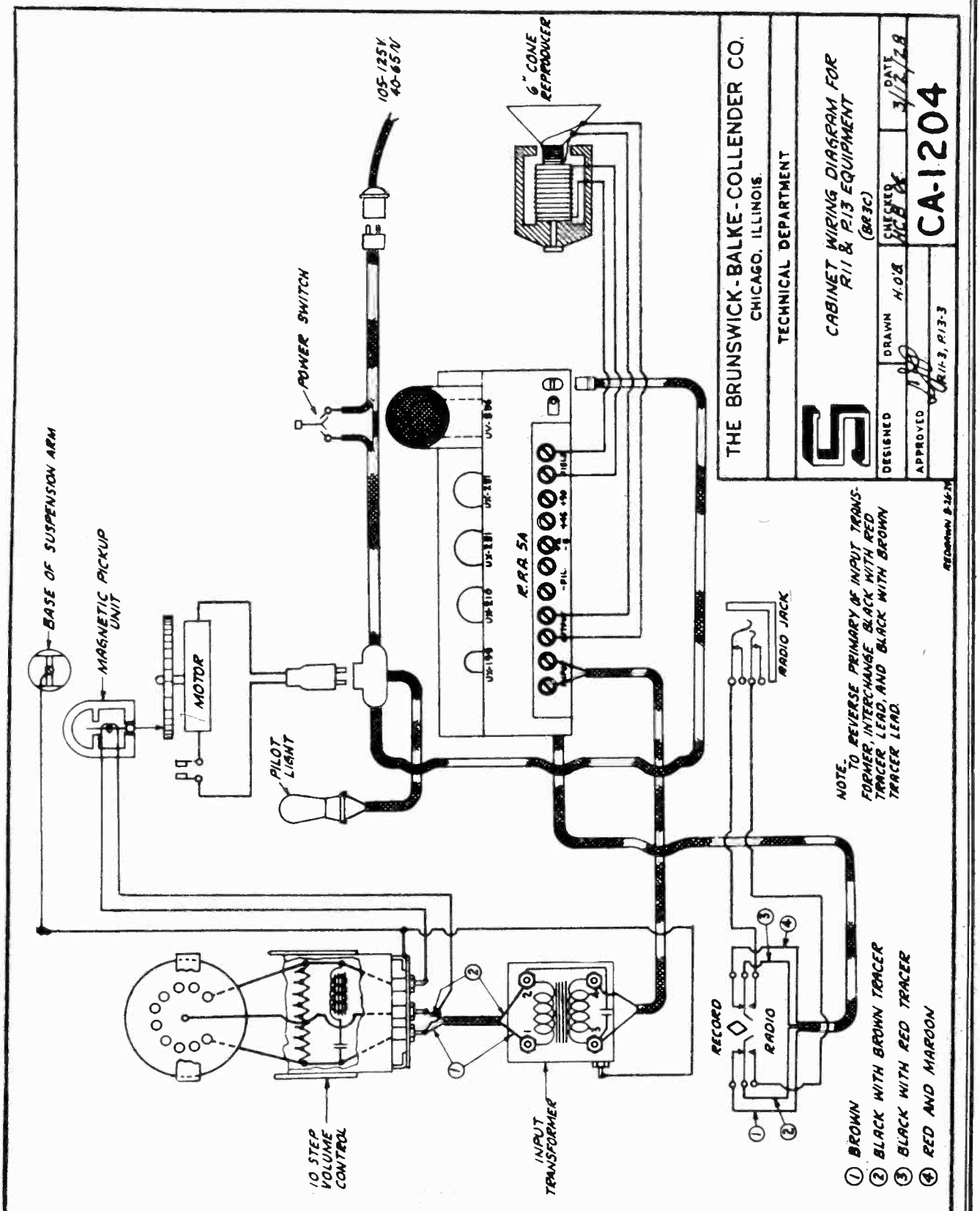
DESIGNED	DRAWN	CHECKED	DATE
	H.G.R.		3/12/29

APPROVED
SCALE

CA-1203

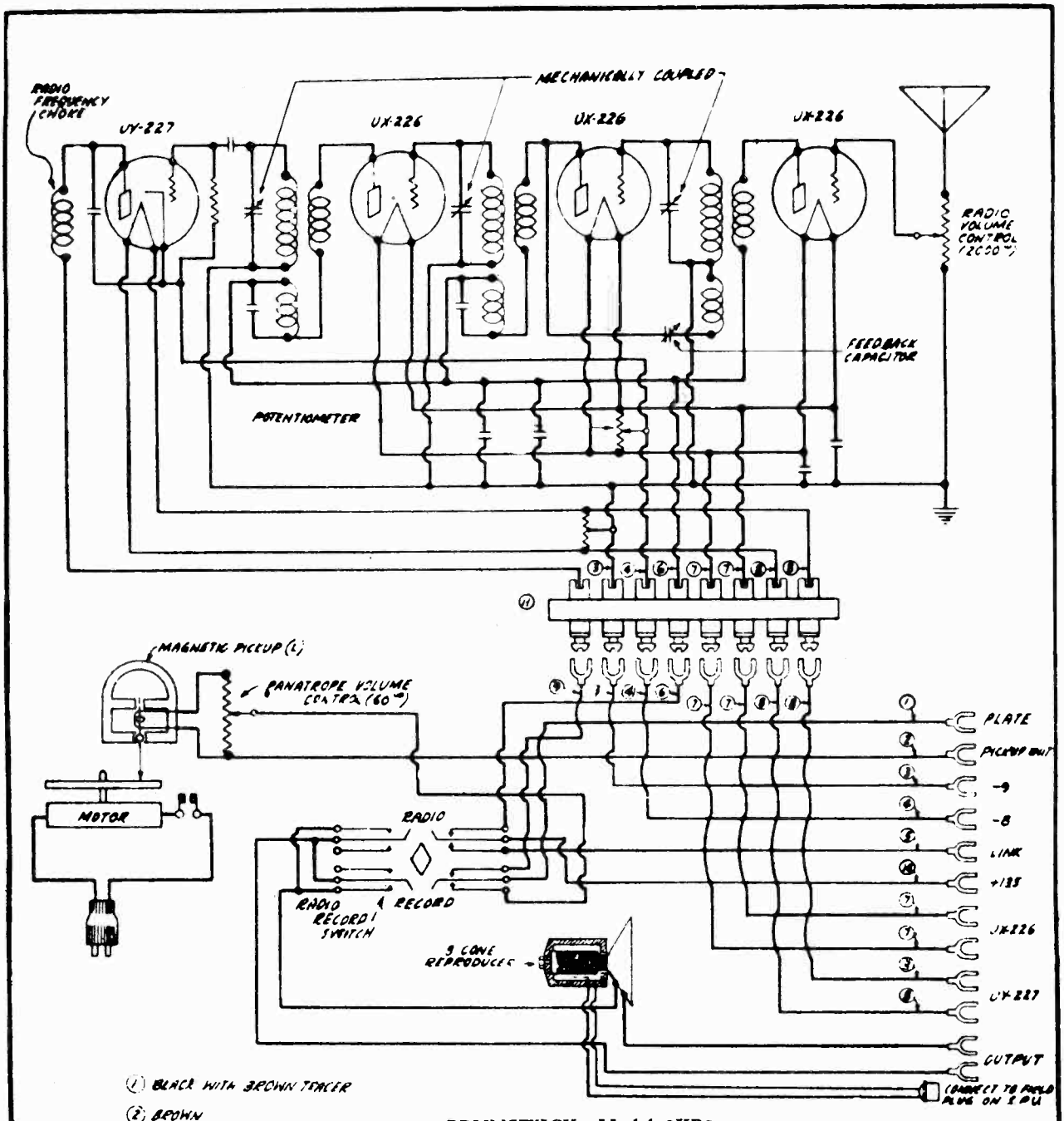
BRUNSWICK RADIO CORPORATION

MODEL P-11, P-13
Cabinet Wiring



MODEL 3 KR8
RF Schematic

BRUNSWICK RADIO CORPORATION



(1) BLACK WITH BROWN TRACER
(2) BROWN
(3) BLACK WITH GREEN TRACER
(4) BLACK WITH RED TRACER
(5) MAROON
(6) RED AND MAROON
(7) BLACK WITH YELLOW TRACER
(8) BLUE
(9) RED
(10) BLACK
(11) BROWN WITH WHITE TRACER

BRUNSWICK—Model 3KR8
Line Voltage 115—Volume Control Minimum

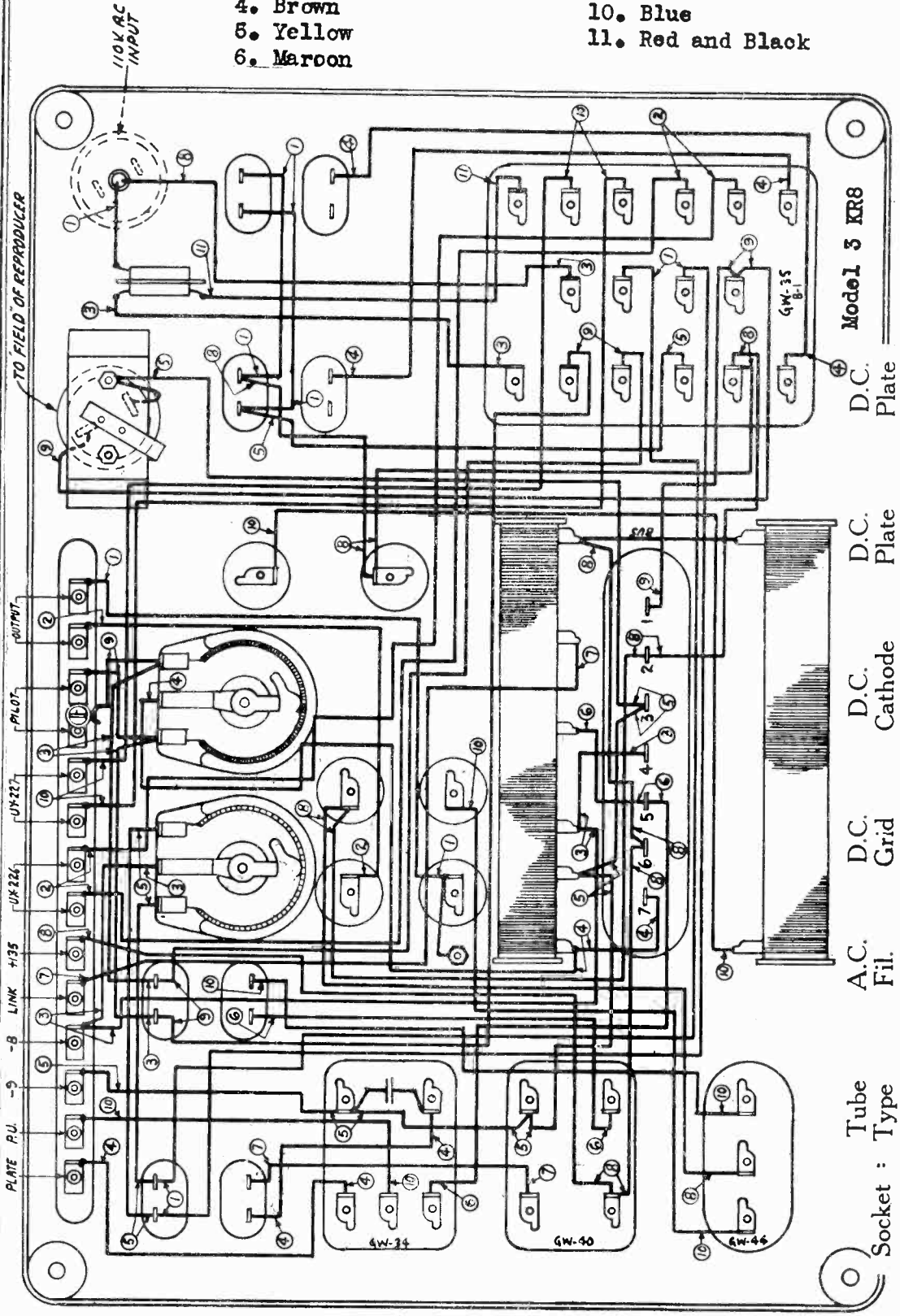
TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE (1ST R.F. DET. ETC)	READINGS PLUG IN SOCKET OF SET								
			TUBE OUT		TUBE IN TESTER						
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	CATHODE VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID VOLT	PLATE M.A. CHARGE
1	226	1st.R.F.	1.5	138	1.4	130	9	-	5	9.5	4.5
2	226	2nd.R.F.	1.5	138	1.4	130	9	-	5	9.5	4.5
3	226	3rd.R.F.	1.5	138	1.4	130	9	-	5	9.5	4.5
4	227	Detector	2.4	138	2.1	45	0	-	2.2	2.2	0
5	226	1st.A.F.	1.5	138	1.4	135	9	-	5	10.0	5.0
6	250	2nd.A.F.	7.0	500	6.6	450	70	-	50	55.0	5.0

BRUNSWICK 3 KR8 Radio Chassis

MODEL 3 KR8
SPU Chassis

BRUNSWICK RADIO CORP.

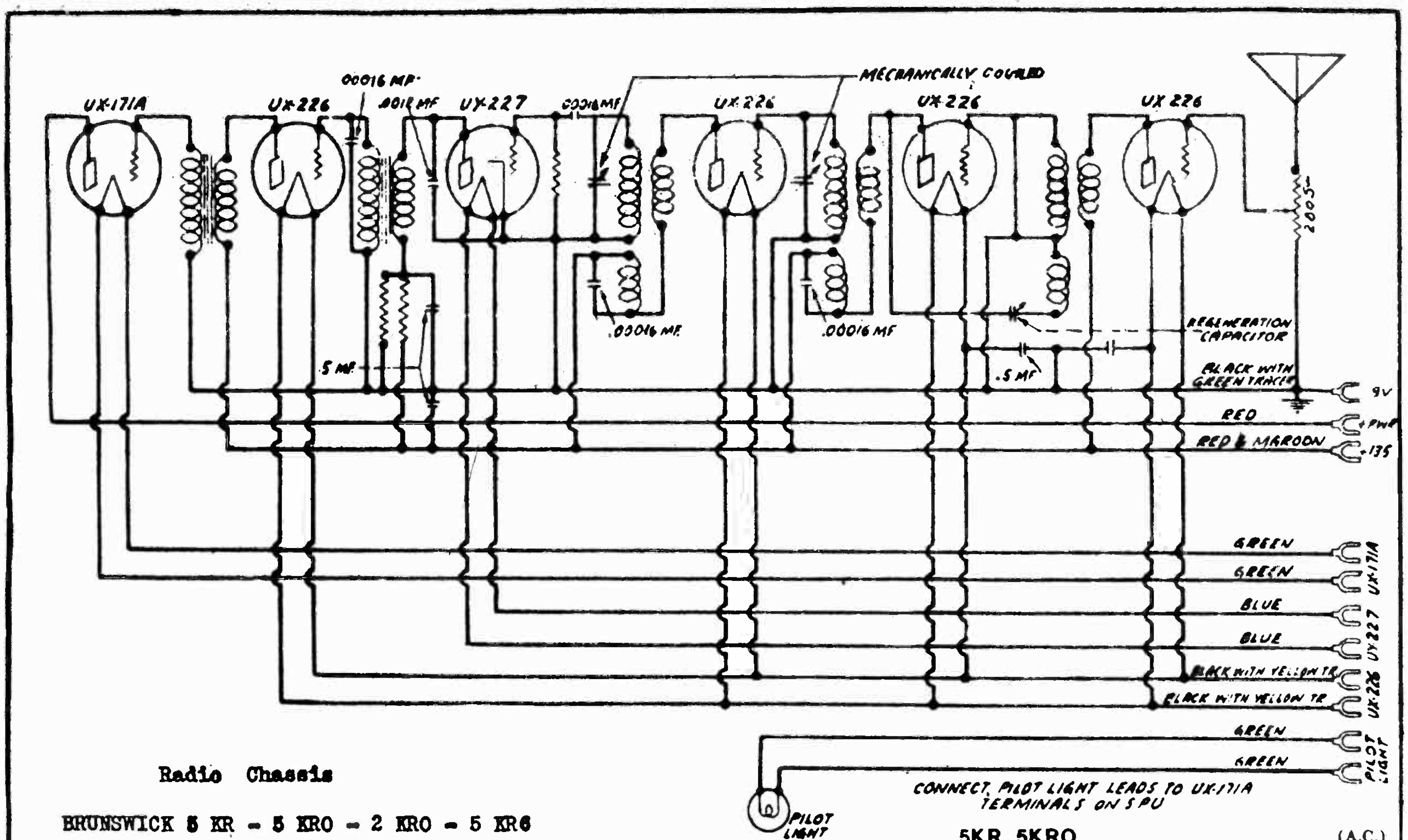
1. Black
2. Black with Yellow Tracer
3. Black with Red Tracer
4. Brown
5. Yellow
6. Maroon
7. Maroon and Red
8. Red
9. Green
10. Blue
11. Red and Black



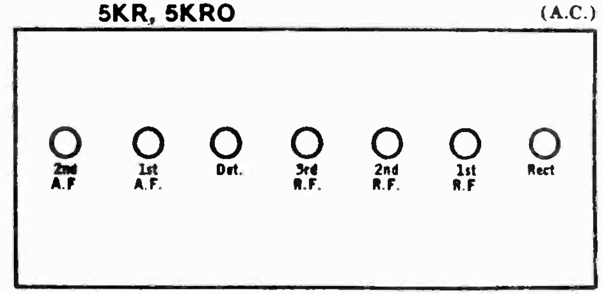
Socket : Tube Type	A.C. Fil. Voltage	D.C. Grid Voltage	D.C. Cathode Voltage	D.C. Plate Voltage	D.C. Plate Current
1st R. F. UX-226	1.4	—9	None	130	4—6
2nd R. F. UX-226	1.4	—9	None	130	4—6
3rd R. F. UX-226	1.4	—9	None	130	4—6
Detector UY-227	2.1	None*	0	45	2—3

MODEL 5 KR,
5 KRO, 5 KR6
2 KRO RF Schematic

BRUNSWICK RADIO CORP.



5KR, 5KRO (A.C.)



Radio Chassis

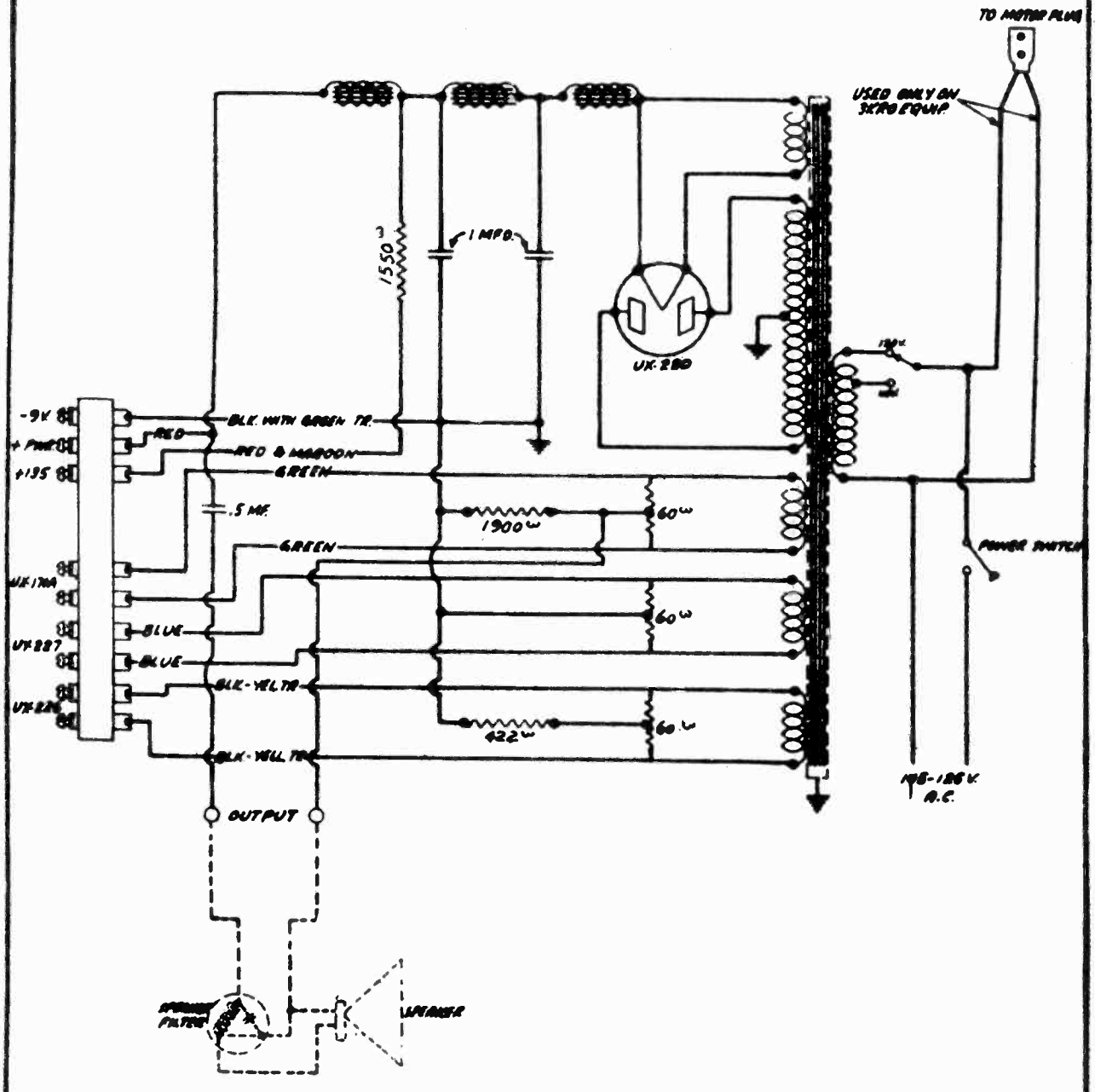
BRUNSWICK 5 KR - 5 KRO - 2 KRO - 5 KR6

BRUNSWICK—Models 5KR—5KRO— —2KRO
Line Voltage 110—110 Volt Tap—Volume Control Minimum

Tube No. in Order	Type of Tube	Position of Tube (1st R.F. Det. etc.)	Readings, Plug in Socket of Set: Tube Out: A Volts	Tube Out: B Volts	Tube in Tester: A Volts	B Volts	C Volts	Cathode Volts	Normal Plate M.A.	Plate M.A. Grid Test	Plate M.A. Change
•	226	1st.R.F.	1.5	140	1.4	135	10	-	5	9	4
•	226	2nd.R.F.	1.5	140	1.4	135	10	-	5	9	4
•	226	3rd.R.F.	1.5	140	1.4	135	10	-	5	9	4
•	227	Detector	2.5	140	2.35	50	0	-	3	3.1	.1
•	226	1st.A.F.	1.5	140	1.4	135	10	-	5	9	4
•	171A	PowerA.F.	5.5	200	5.0	180	30	-	36.0	18.0	2.0
•	280	Rectifier	-	-	5.0	-	-	-	20.0	-	-

BRUNSWICK RADIO CORP.

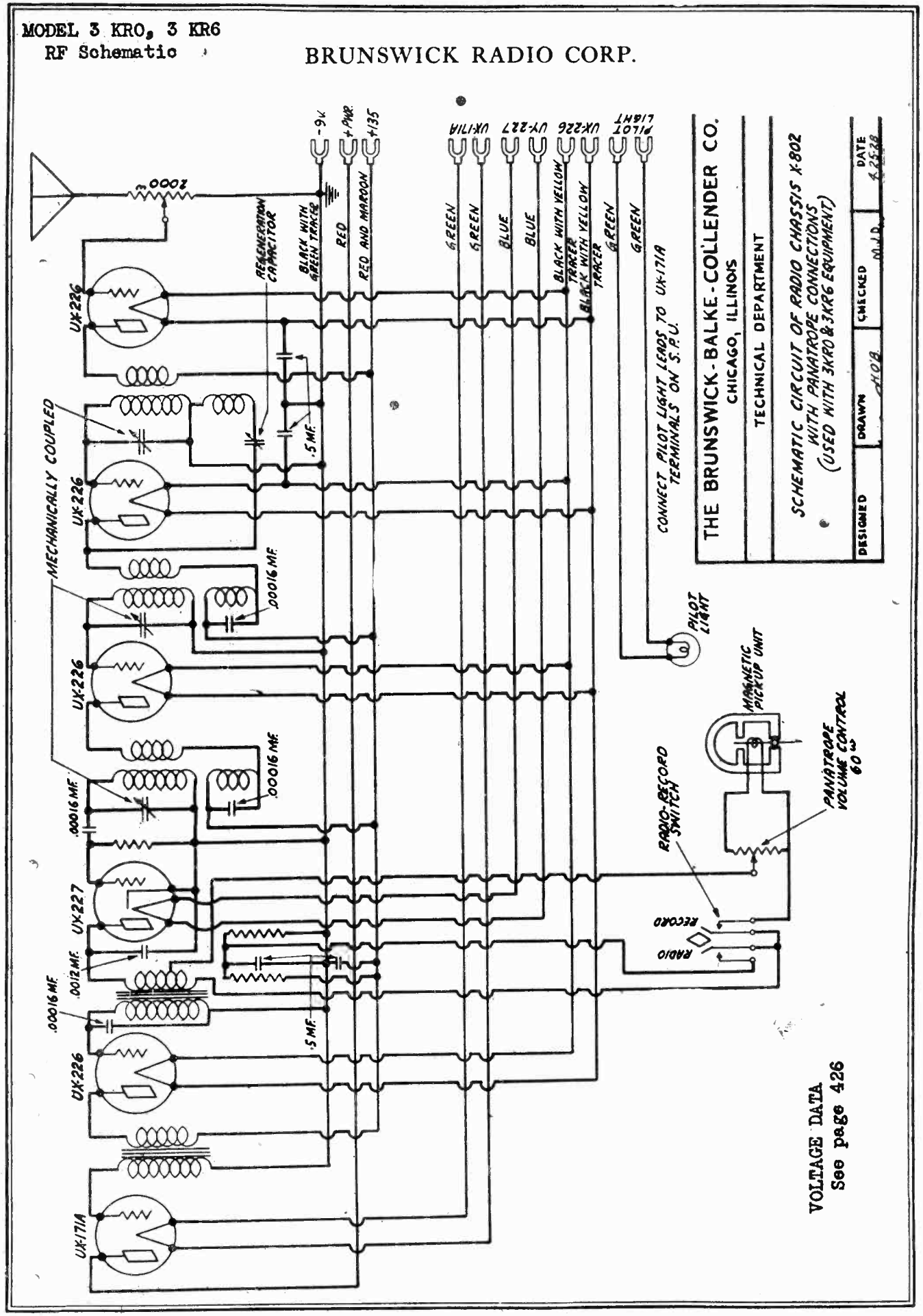
MODEL 5 KR, 5 KRO
2 KRO, 3 KRO
SPU Schematic



Model 5 KR, 5 KRO, 2 KRO, 3 KRO SPU.

MODEL 3 KR0, 3 KR6
RF Schematic

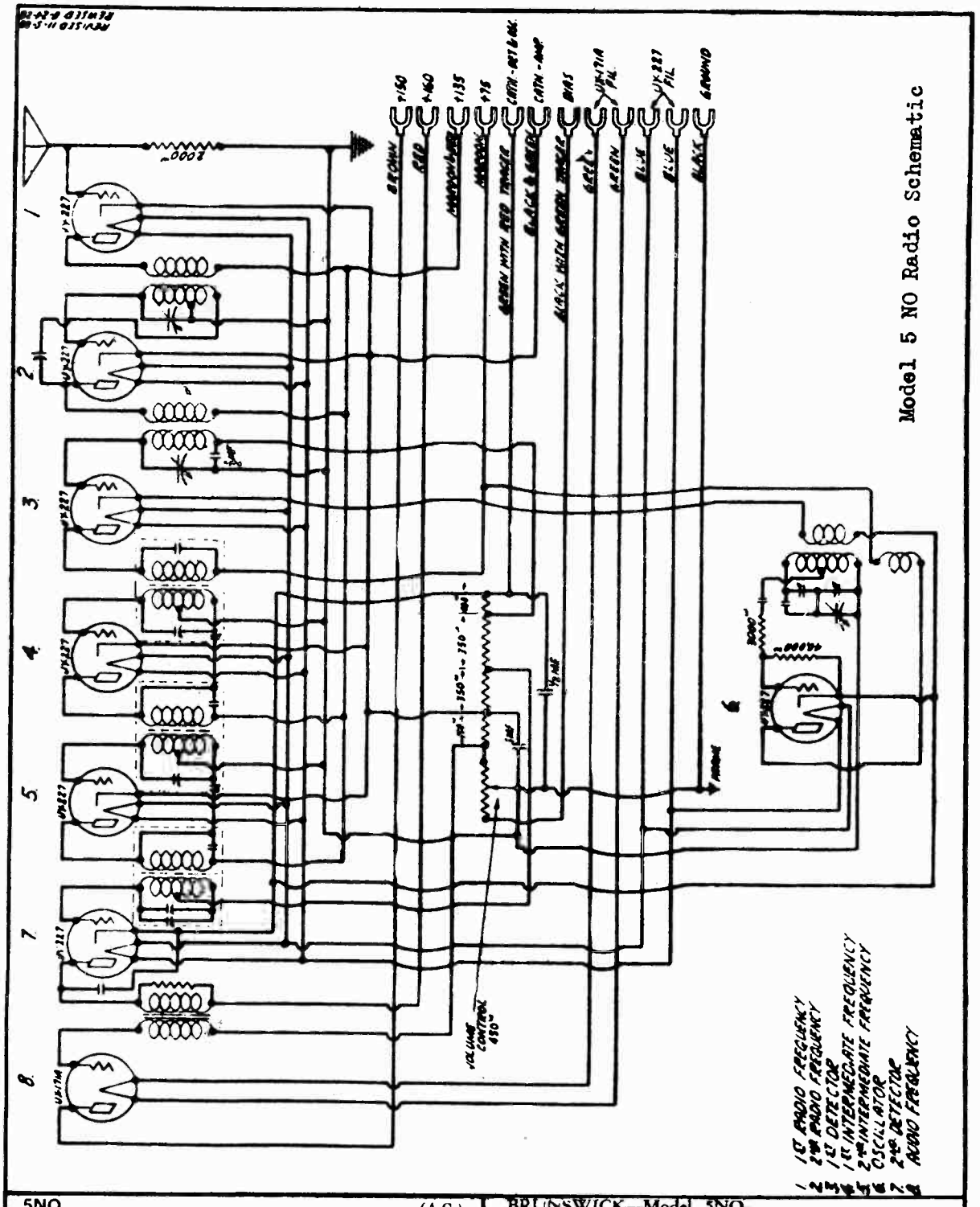
BRUNSWICK RADIO CORP.



VOLTAGE DATA
See page 426

BRUNSWICK RADIO CORP.

MODEL 5 NO
RF Schematic



5NO (A.C.)

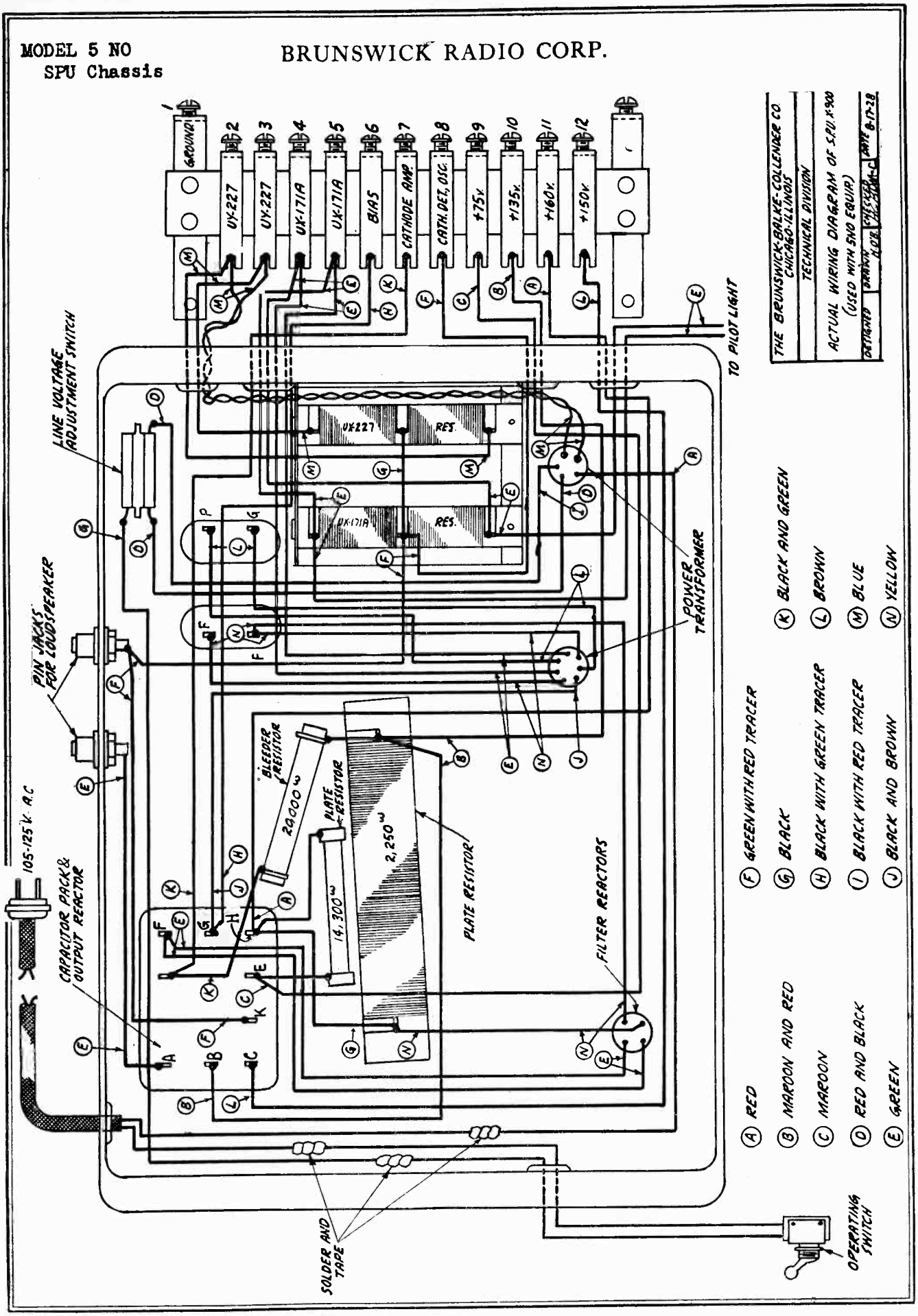
CX-371A	C-327	C-327	C-327	C-327	C-327	C-327	CX-380
A.F. AMP.	Pow. Det.	Oscillator	2nd I.F.	1st I.F.	1st Det.	2nd R.F.	Rect.
						C-327 1st R.F.	

BRUNSWICK—Model 5NO—
Line Voltage 110—Volume Control Minimum

TUBE SOCKET NUMBER	TUBE USED	POSITION OF TUBE (1ST AF 2ND DET ETC)	READINGS TAKEN IN SOCKET OF SET: TUBE OUT — A VOLTS	TUBE OUT — B VOLTS	TUBE IN TESTED — A VOLTS	TUBE IN TESTED — B VOLTS	TUBE IN TESTED — OUTDOOR VOLTS	TUBE IN TESTED — FILAMENT PLATE M.A.	TUBE IN TESTED — PLATE M.A. GRID TEST	TUBE IN TESTED — PLATE M.A. CHANGE
1	227	Ant.Coupler	2.35	170	2.25	160	24	27	1.0	2.0	1.0
2	227	1st.R.F.	2.35	170	2.25	160	24	27	1.0	2.0	1.0
3	227	1st.Det.	2.36	94	2.25	80	10	0	1.0	2.0	1.0
4	227	1st.I.F.	2.35	170	2.25	160	24	27	1.0	3.0	2.0
5	227	2nd.I.F.	2.39	170	2.25	160	24	27	1.0	3.0	2.0
6	227	Oscillator	2.35	120	2.25	75	-	-	7.0	0	0.0
7	227	2nd.Det.	2.35	170	2.25	160	19	-	1.0	2.0	1.0
8	171A	Power	5.5	160	5.0	150	30	-	20.0	22.0	2.0
•	280	Rectifier	-	-	5.0	-	-	-	20.0	-	"

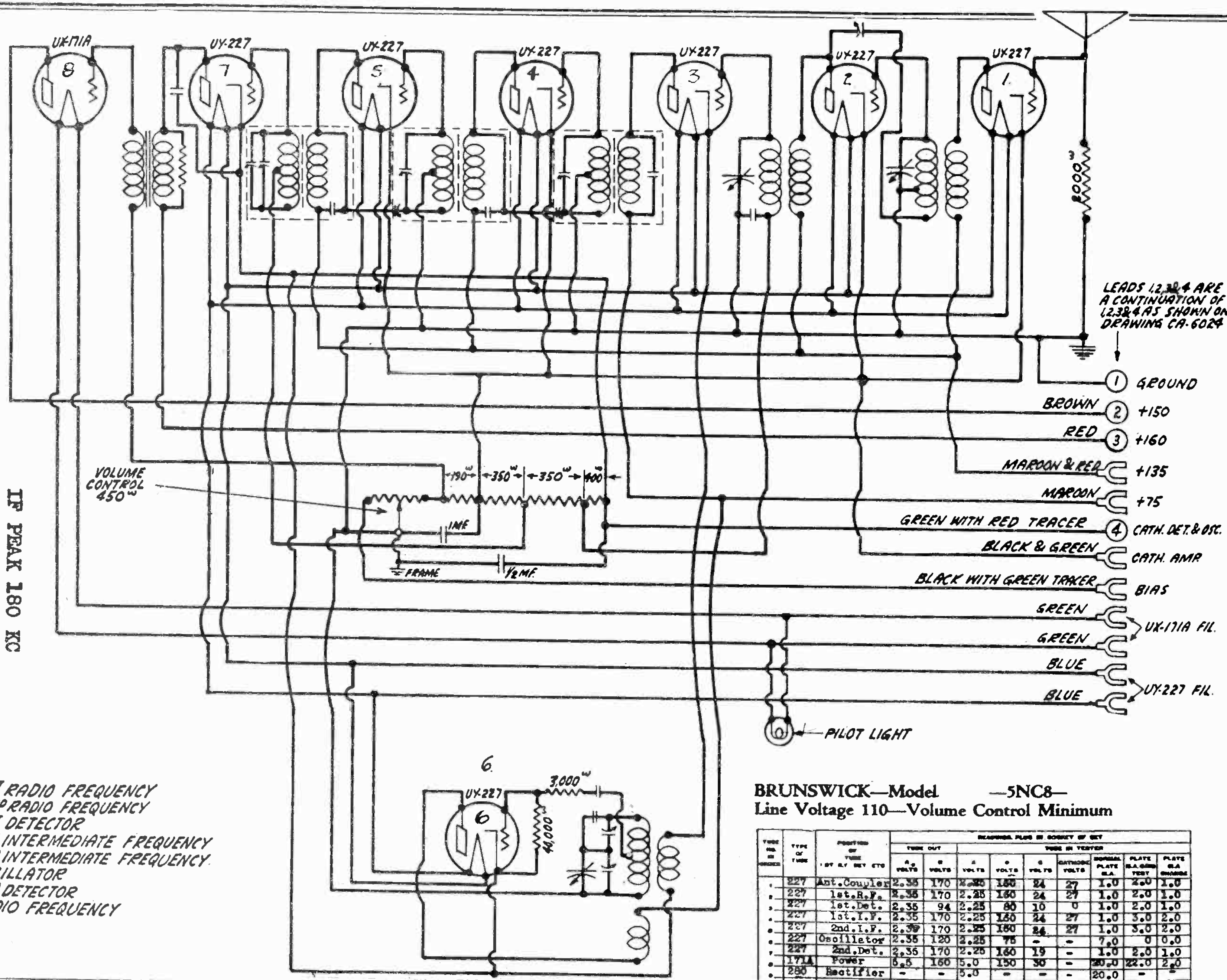
MODEL 5 NO
SPU Chassis

BRUNSWICK RADIO CORP.



BRUNSWICK RADIO CORP.

MODEL 5 NC8
Radio Schematic

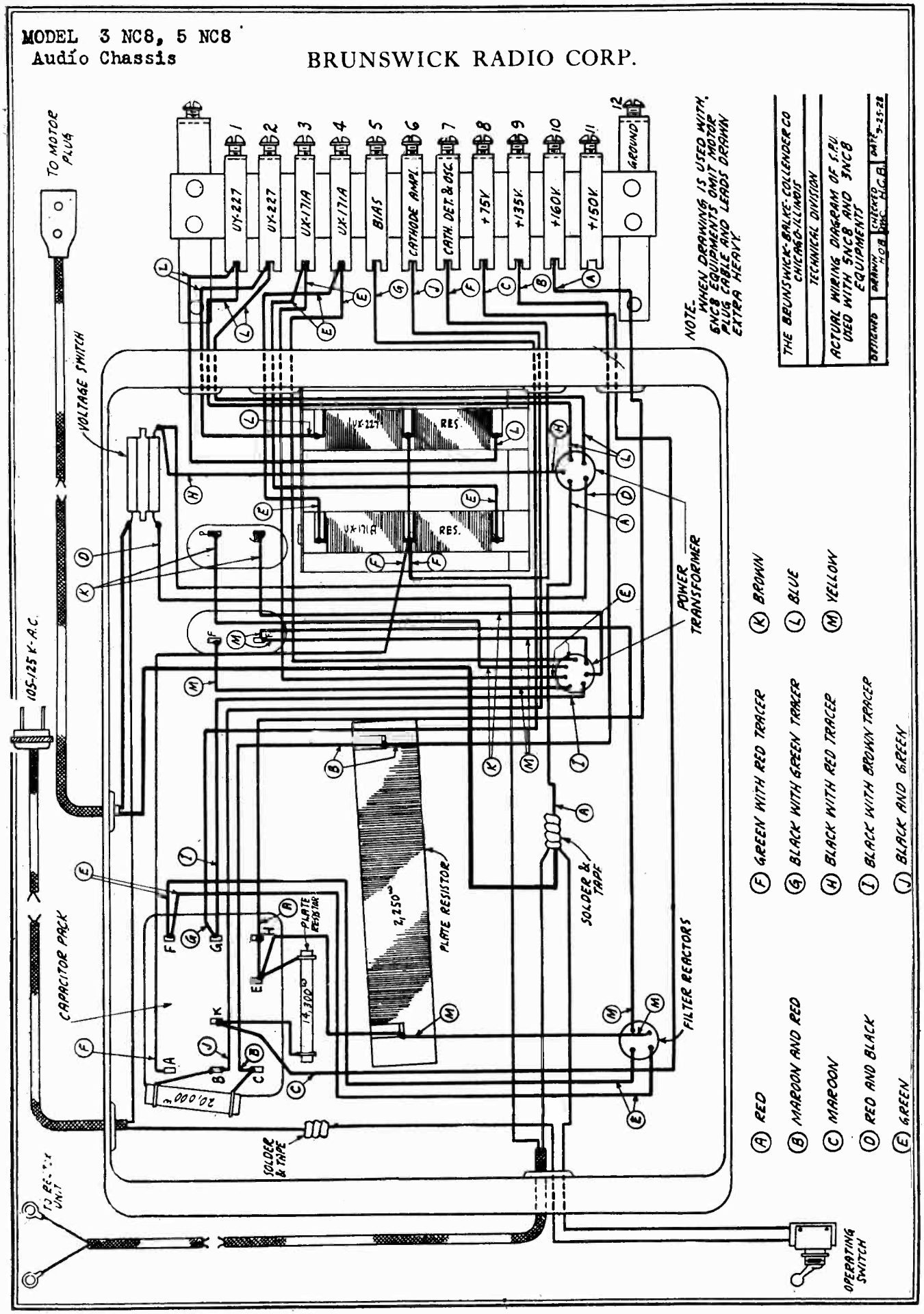


IF PEAK 180 KC

1. 1ST RADIO FREQUENCY
2. 2ND RADIO FREQUENCY
3. 1ST DETECTOR
4. 1ST INTERMEDIATE FREQUENCY
5. 2ND INTERMEDIATE FREQUENCY
6. OSCILLATOR
7. 2ND DETECTOR
8. AUDIO FREQUENCY

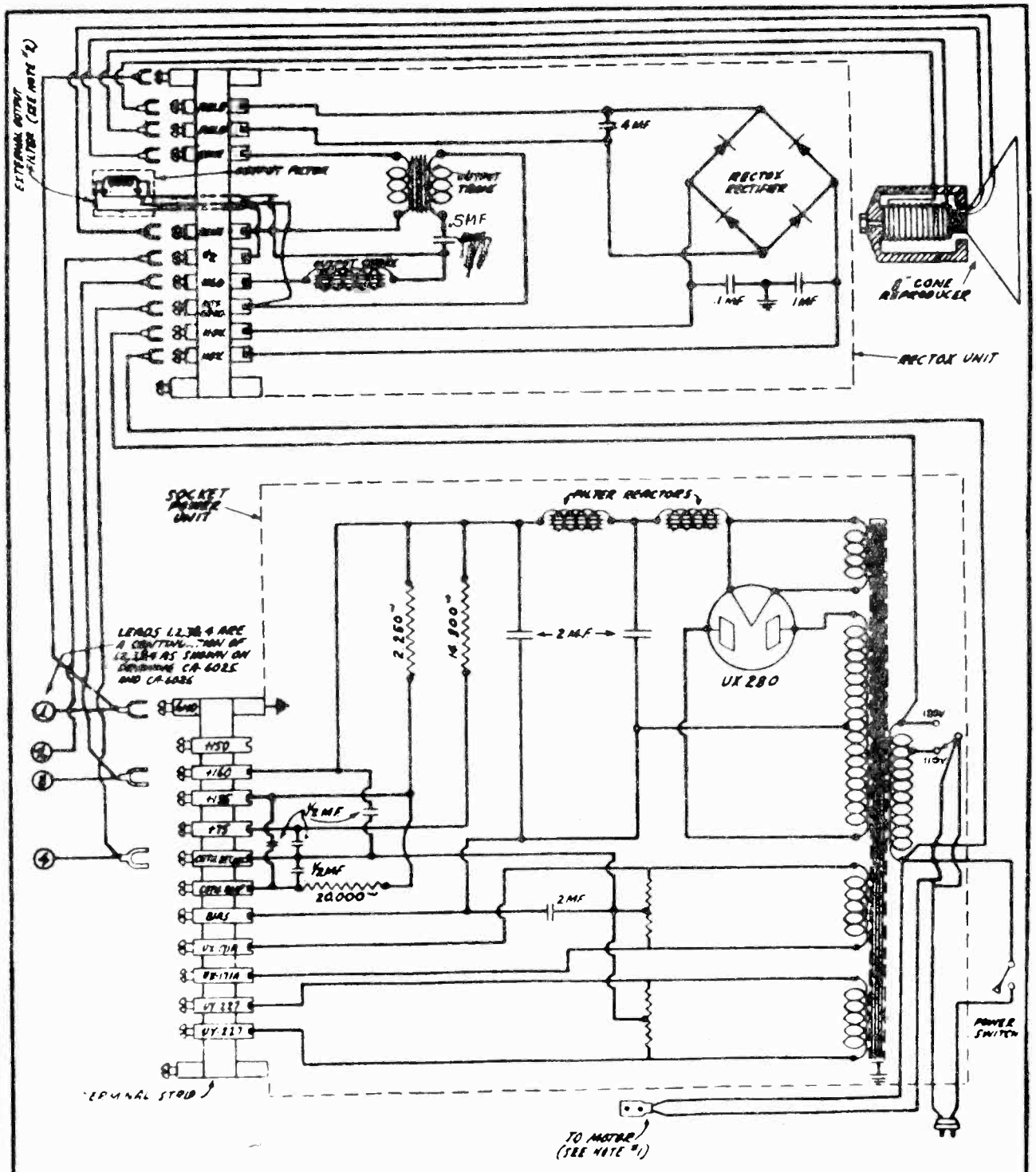
BRUNSWICK—Model —5NC8—
Line Voltage 110—Volume Control Minimum

Tube No. in Order	Type of Tube	Position of Tube 1st R.F. Det. etc.	Readings Plug in Socket of Set: Tube Out: A Volts	Tube Out: B Volts	Tube in Tester: A Volts	B Volts	C Volts	Cathode Volts	Normal Plate M.A.	Plate M.A. Grid Test	Plate M.A. Change
1	227	Ant.Coupler	2.35	170	2.25	160	24	27	1.0	2.0	1.0
2	227	1st.R.F.	2.35	170	2.25	160	24	27	1.0	2.0	1.0
3	227	1st.Det.	2.35	94	2.25	80	10	0	1.0	2.0	1.0
4	227	1st.I.F.	2.35	170	2.25	160	24	27	1.0	3.0	2.0
5	227	2nd.I.F.	2.35	170	2.25	160	24	27	1.0	3.0	2.0
6	227	Oscillator	2.35	120	2.25	75	-	-	7.0	0	0.0
7	227	2nd.Det.	2.35	170	2.25	160	19	-	1.0	2.0	1.0
8	171A	Power	5.5	160	5.0	150	30	-	20.0	22.0	2.0
9	280	Rectifier	-	-	5.0	-	-	-	20.0	-	-



BRUNSWICK RADIO CORP.

MODEL 3 NC8, 5 NC8
Audio Schematic

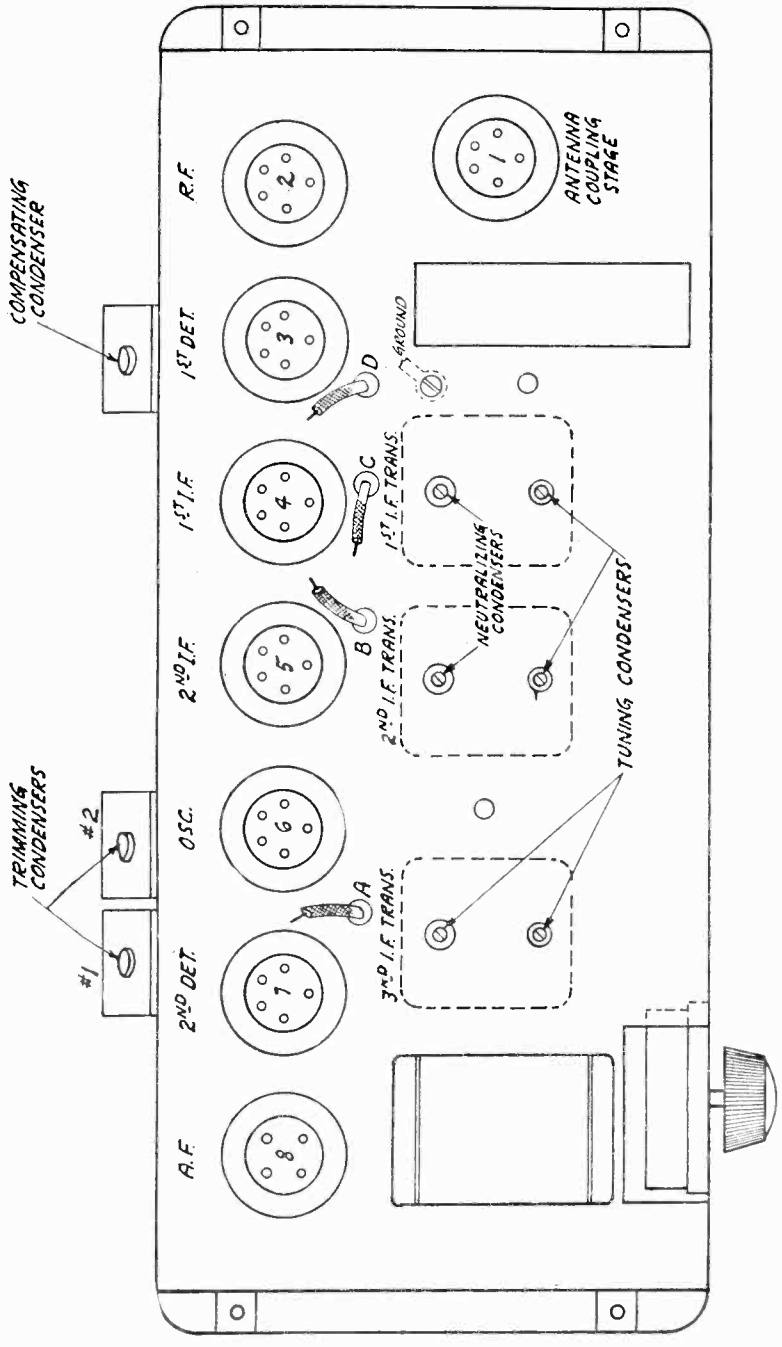


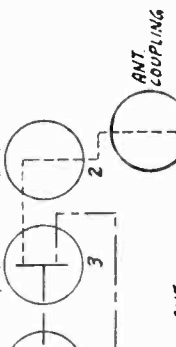
Model 3 NC8, 5 NC8 Audio Schematic

NOTE-
1. MOTOR PLUG AND LEADS NOT USED WITH S PU FOR SNC8 EQUIPMENT
2. EXTERNAL OUTPUT FILTER IS USED ONLY ON THE SNC8 EQUIPMENTS

MODEL 5 NO, 5 NC8,
3 NC8
Trimmer Locations

BRUNSWICK RADIO CORP.





THE BRUNSWICK-BALKE-COLLENDER CO.
CHICAGO ILLINOIS.

TECHNICAL DEPARTMENT

LOCATION OF ADJUSTING CONDENSERS ON 5NO, 5NC8 & 3NC8 EQUIPMENTS

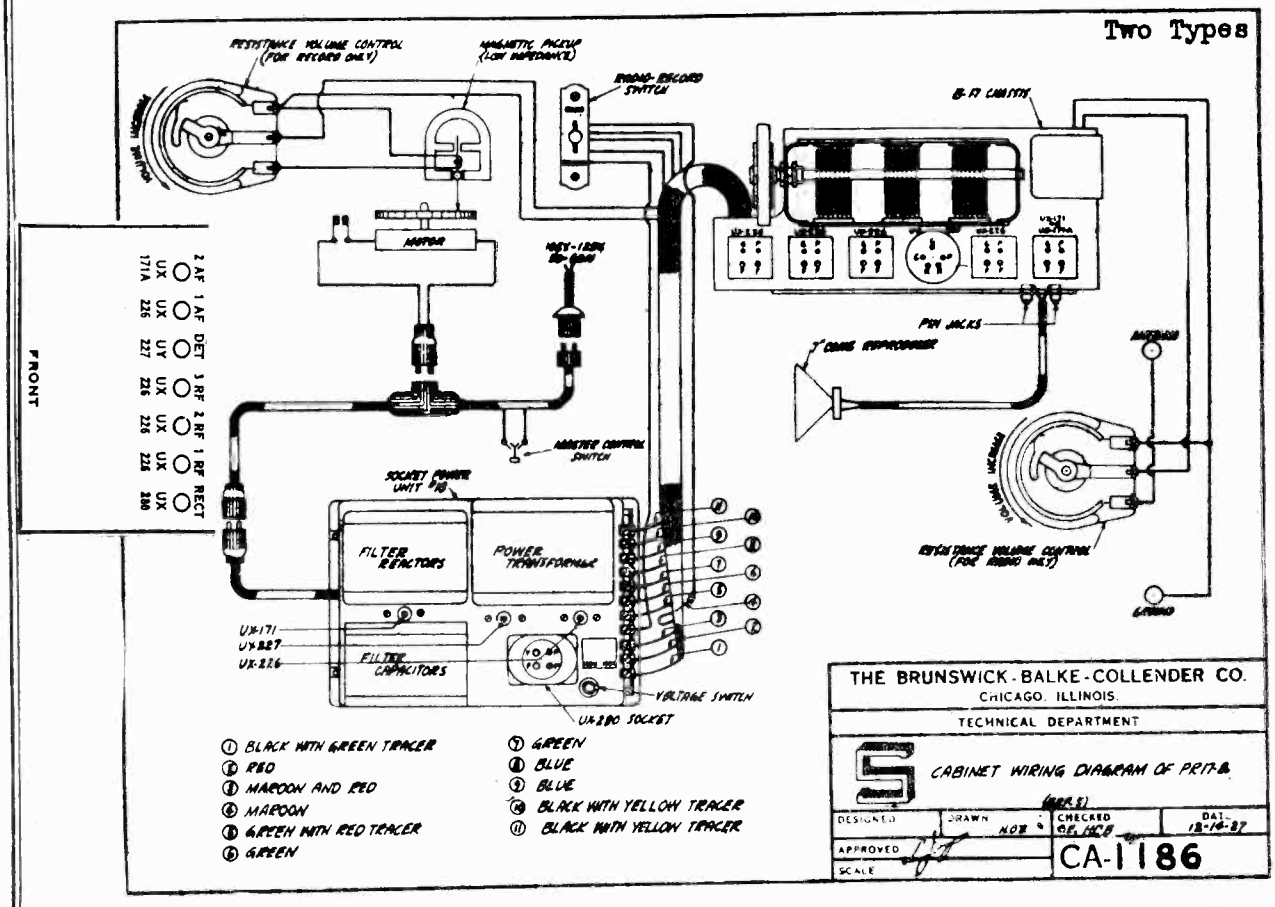
DESIGNED	DRAWN H.O.B.	CHECKED H.O.B.	DATE 10-10-28
APPROVED:			CA-6039
SCALE			

REVISED 11-12-28
REVISED 10-26-28

BRUNSWICK RADIO CORPORATION

MODEL PR-17-8.
BRP-5

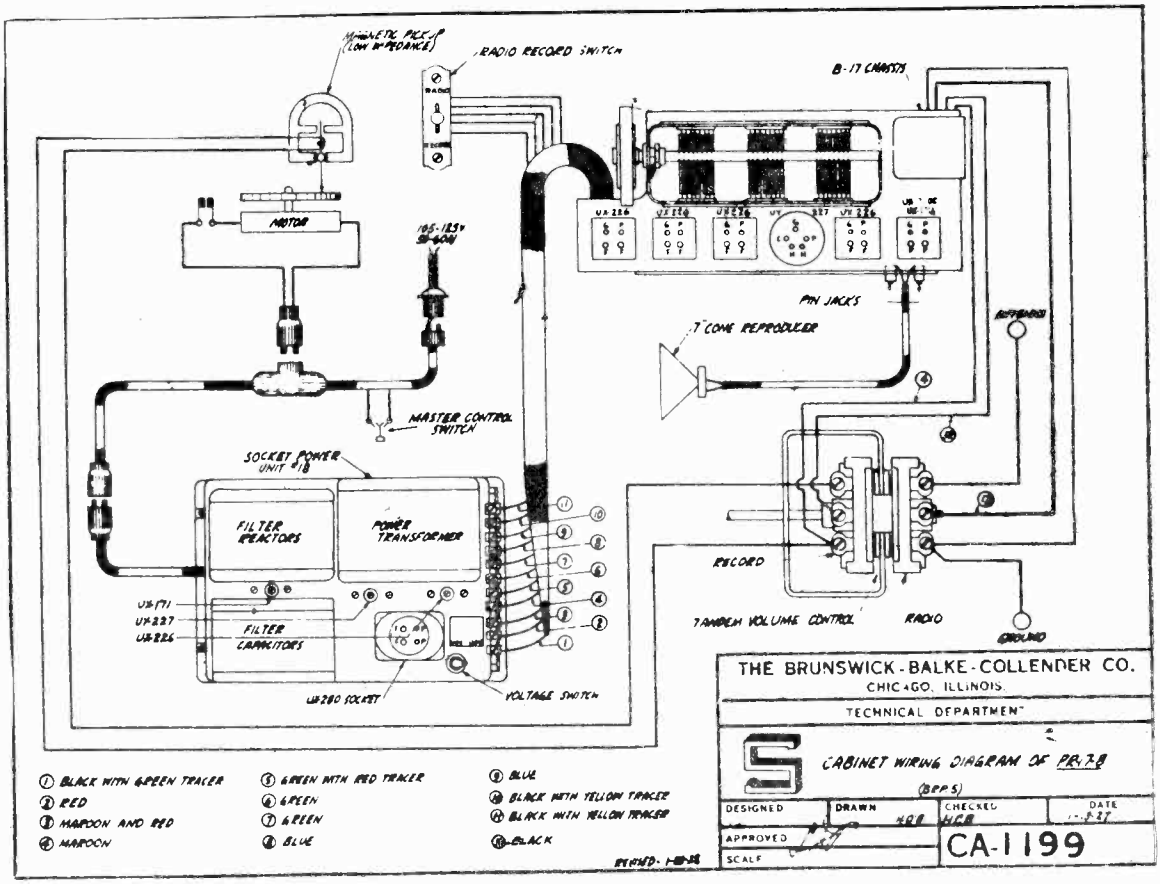
Two Types



THE BRUNSWICK-BALKE-COLLENDER CO.
CHICAGO, ILLINOIS.
TECHNICAL DEPARTMENT

CABINET WIRING DIAGRAM OF PR17-B
(BRP-5)

DESIGNED	DRAWN	CHECKED	DATE
	HOB	HCB	12-16-37
APPROVED			
SCALE		CA-1186	



REVISED 1-19-38

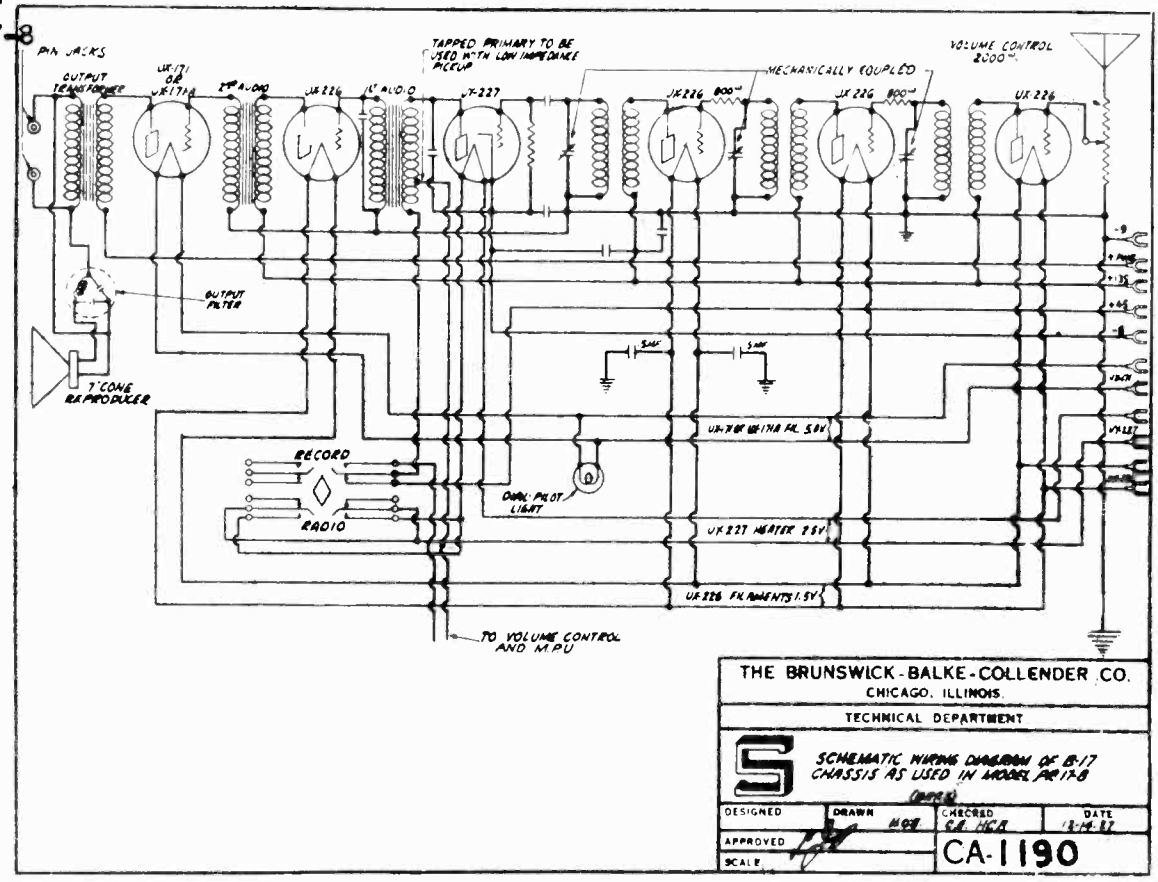
THE BRUNSWICK-BALKE-COLLENDER CO.
CHICAGO, ILLINOIS.
TECHNICAL DEPARTMENT

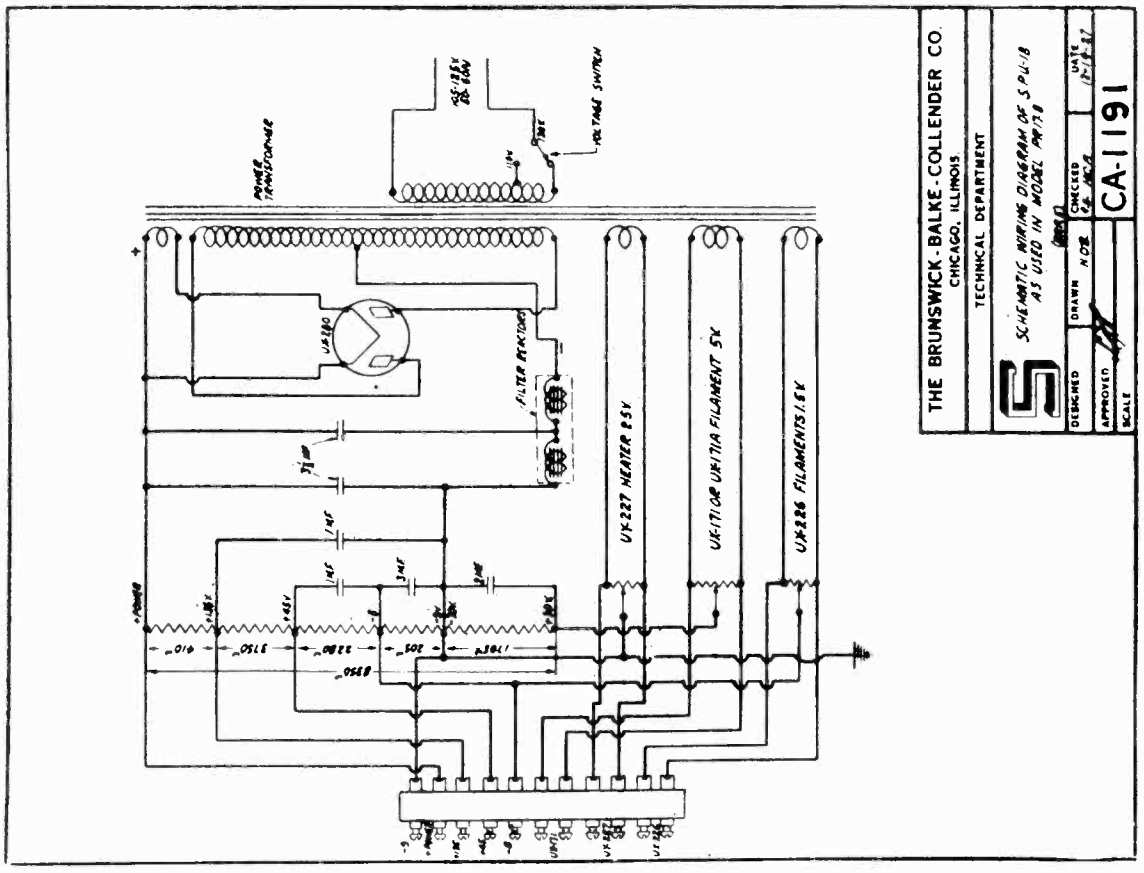
CABINET WIRING DIAGRAM OF PR-7-B
(BPP-5)

DESIGNED	DRAWN	CHECKED	DATE
	HOB	HCB	1-27
APPROVED			
SCALE		CA-1199	

MODEL B-17
MODEL SPU 18
For
PR-17-8

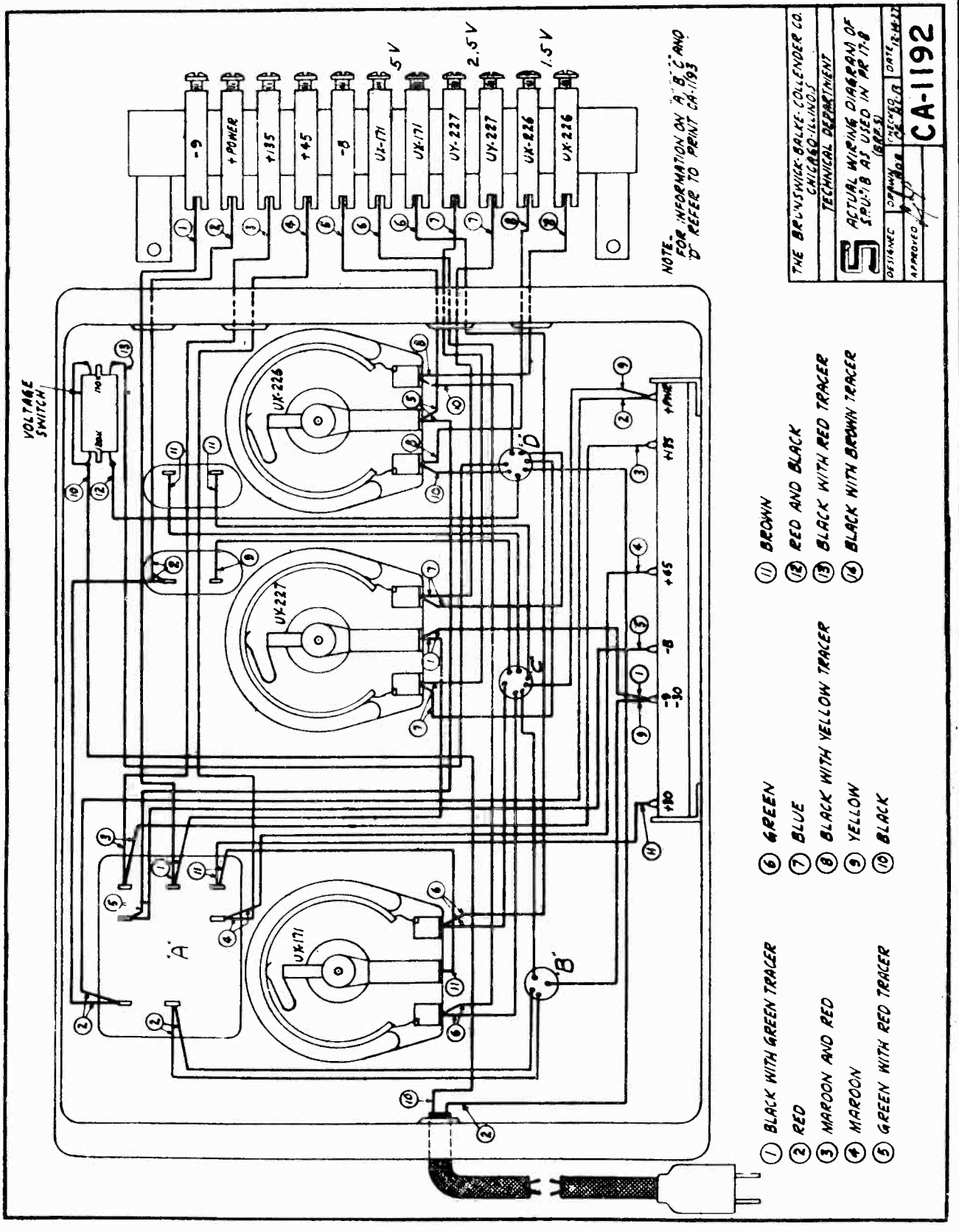
BRUNSWICK RADIO CORPORATION





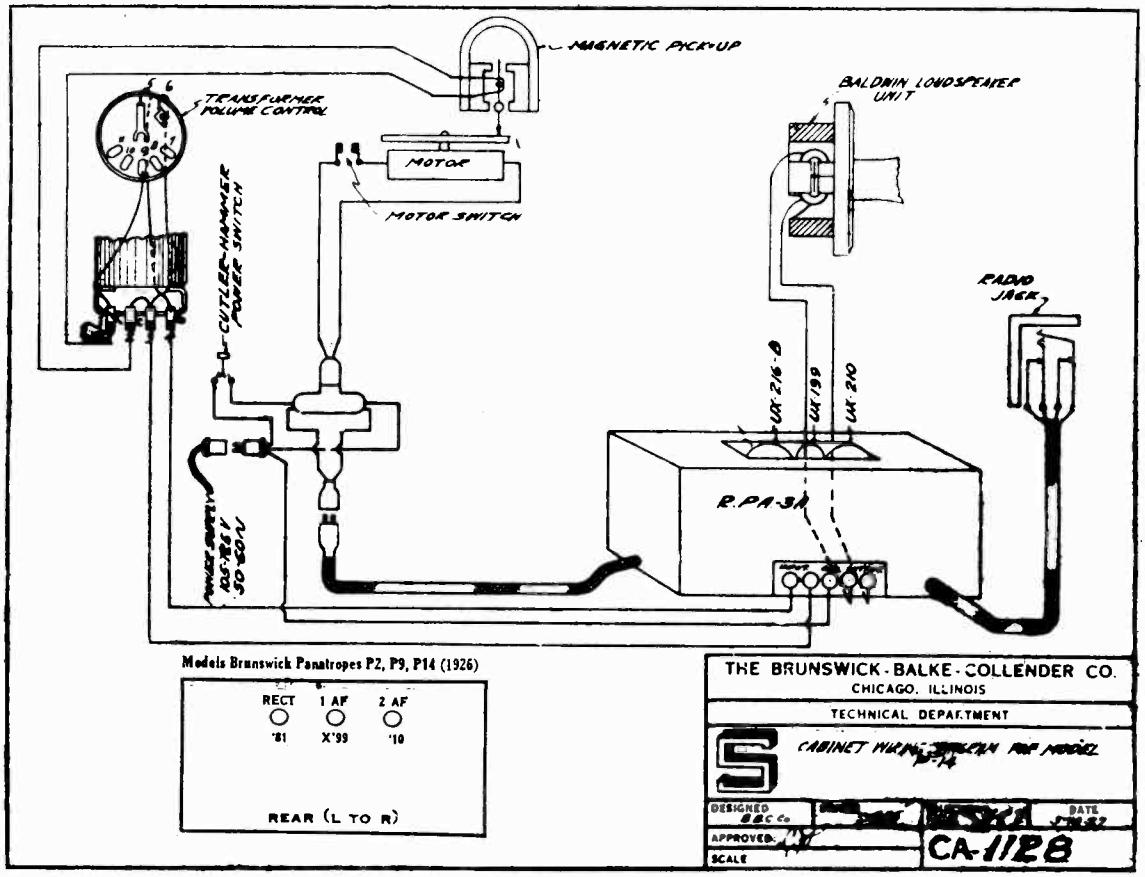
BRUNSWICK RADIO CORPORATION

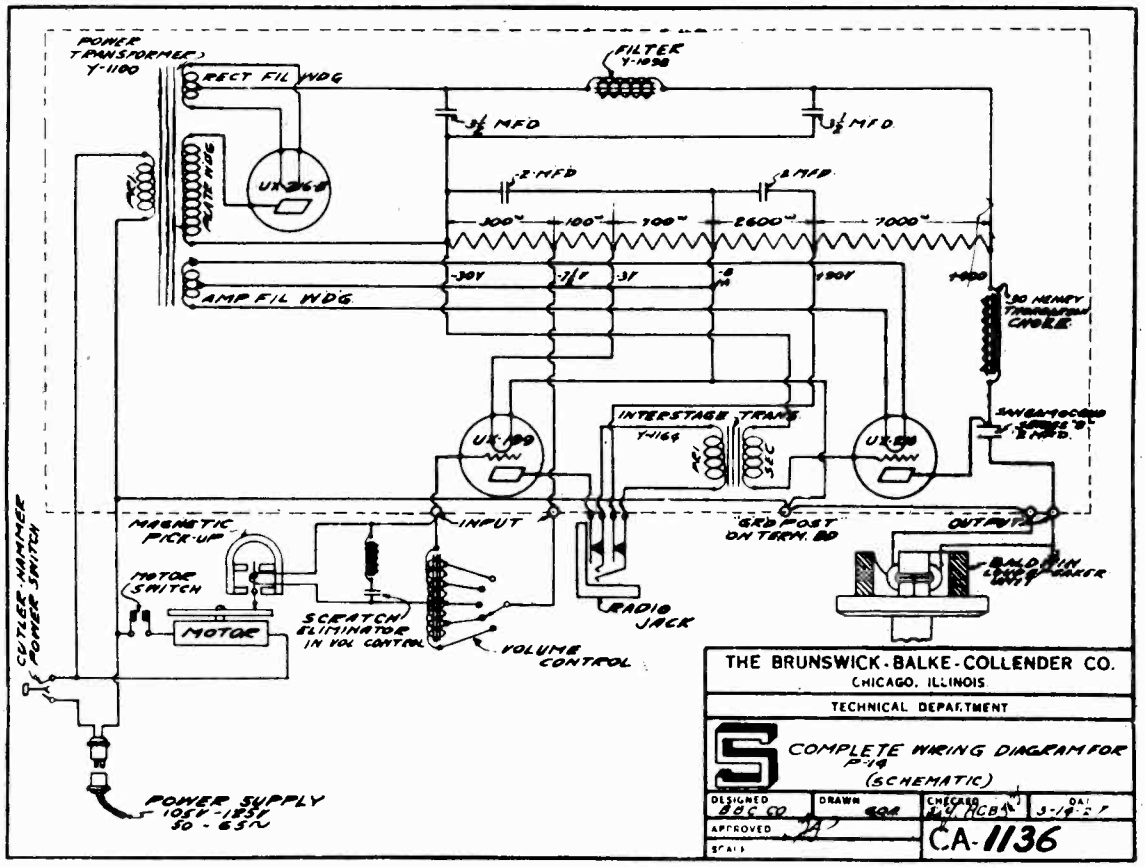
MODEL SPU-18
Chassis for PR-17



MODEL P-14

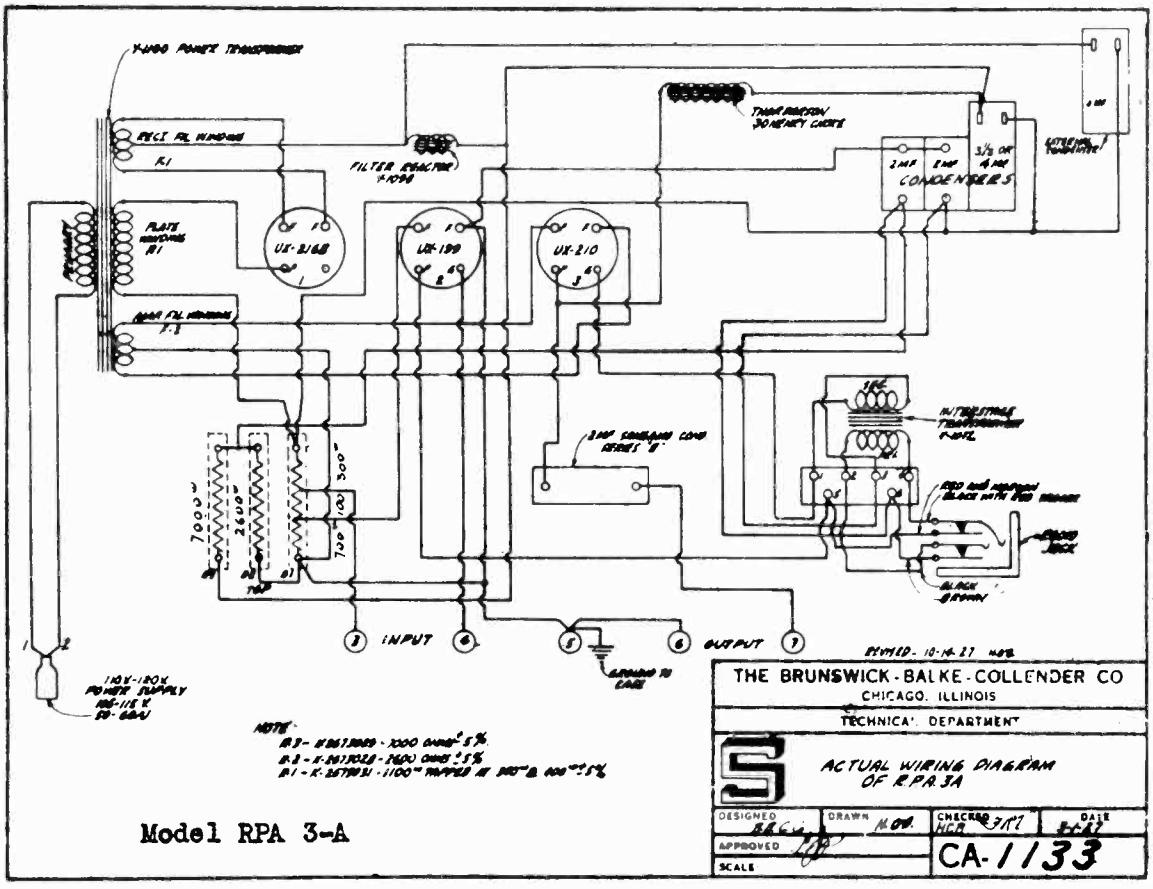
BRUNSWICK RADIO CORPORATION



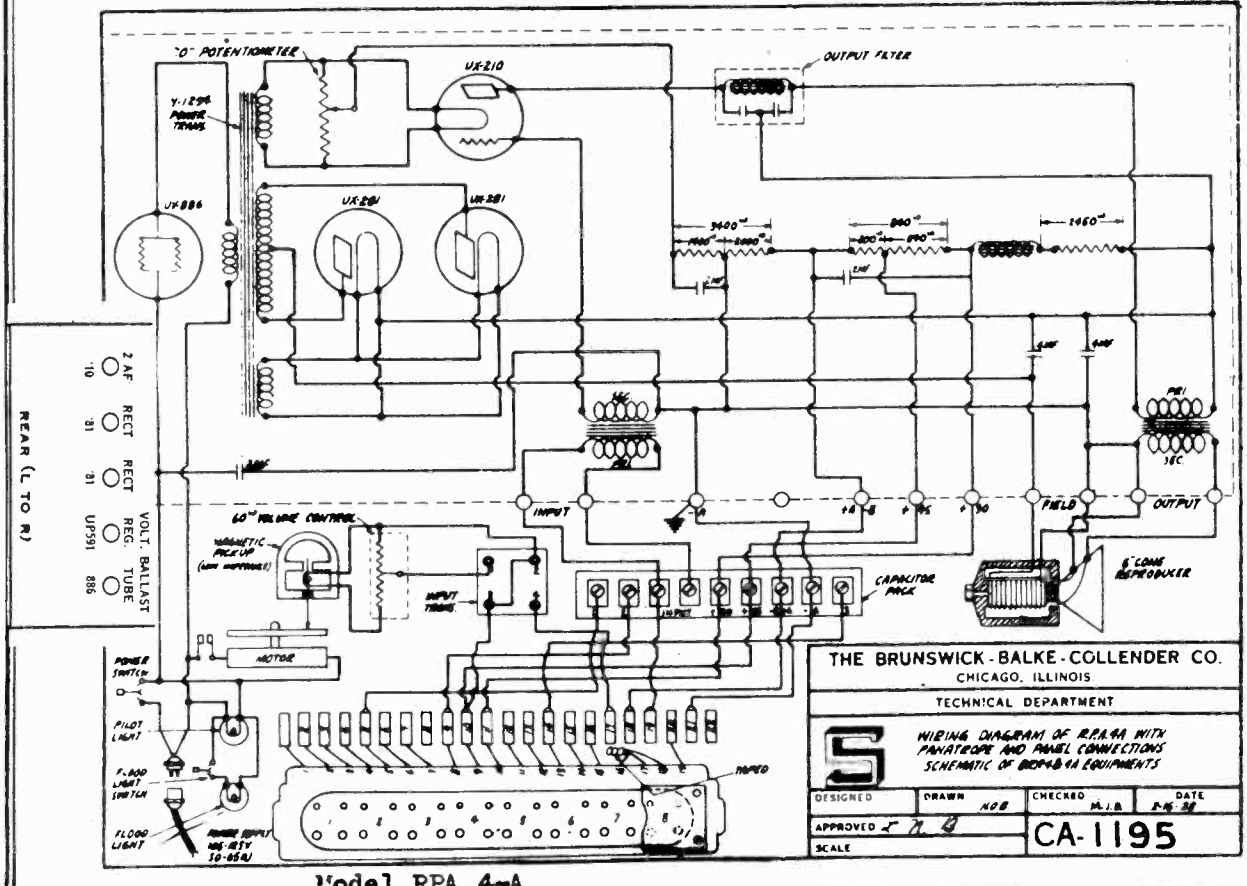


BRUNSWICK RADIO CORPORATION

MODEL RPA-3A
MODEL RPA-4A



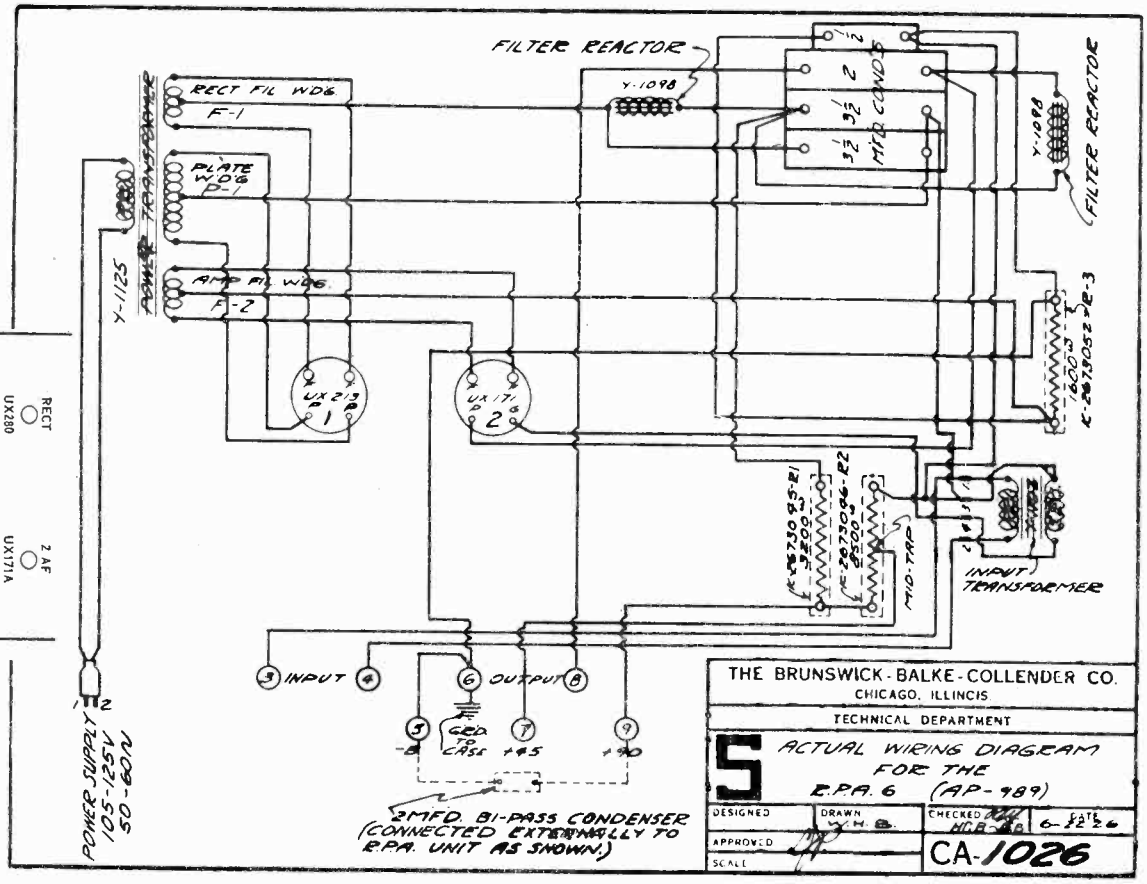
Model RPA 3-A

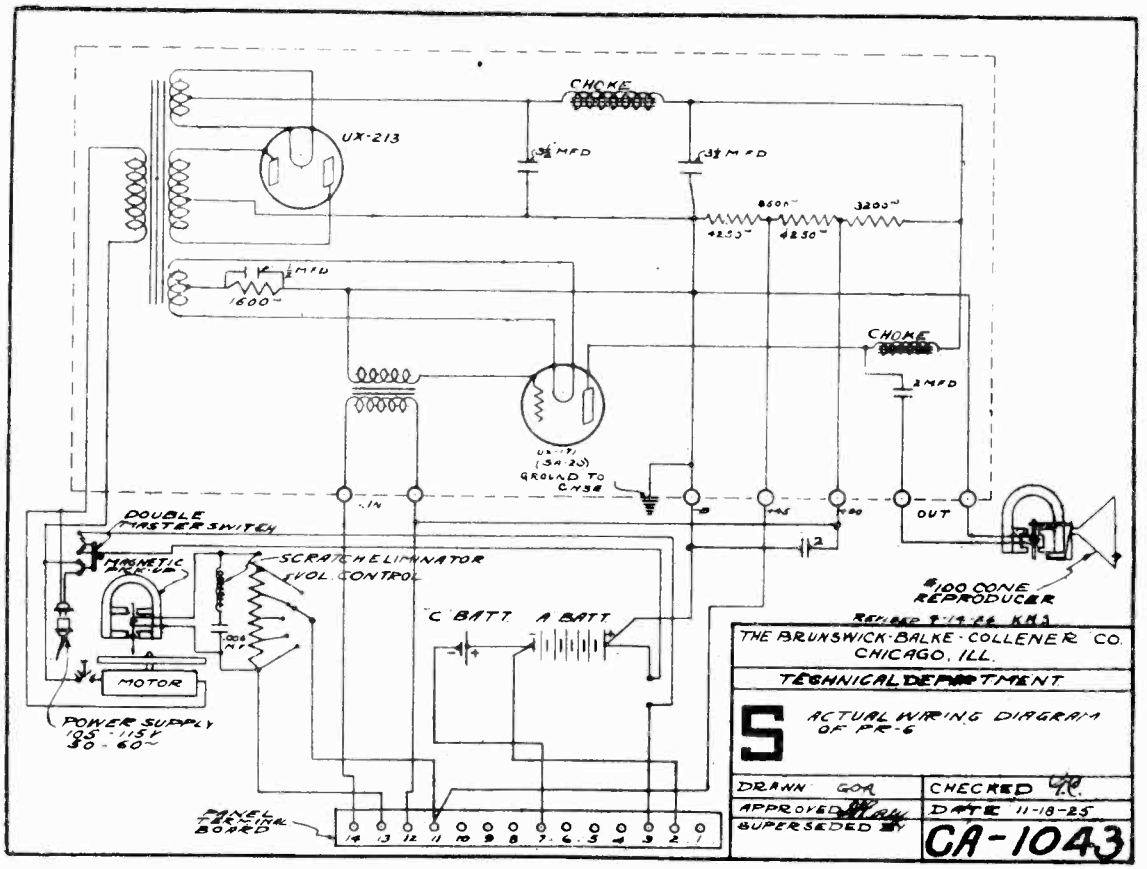


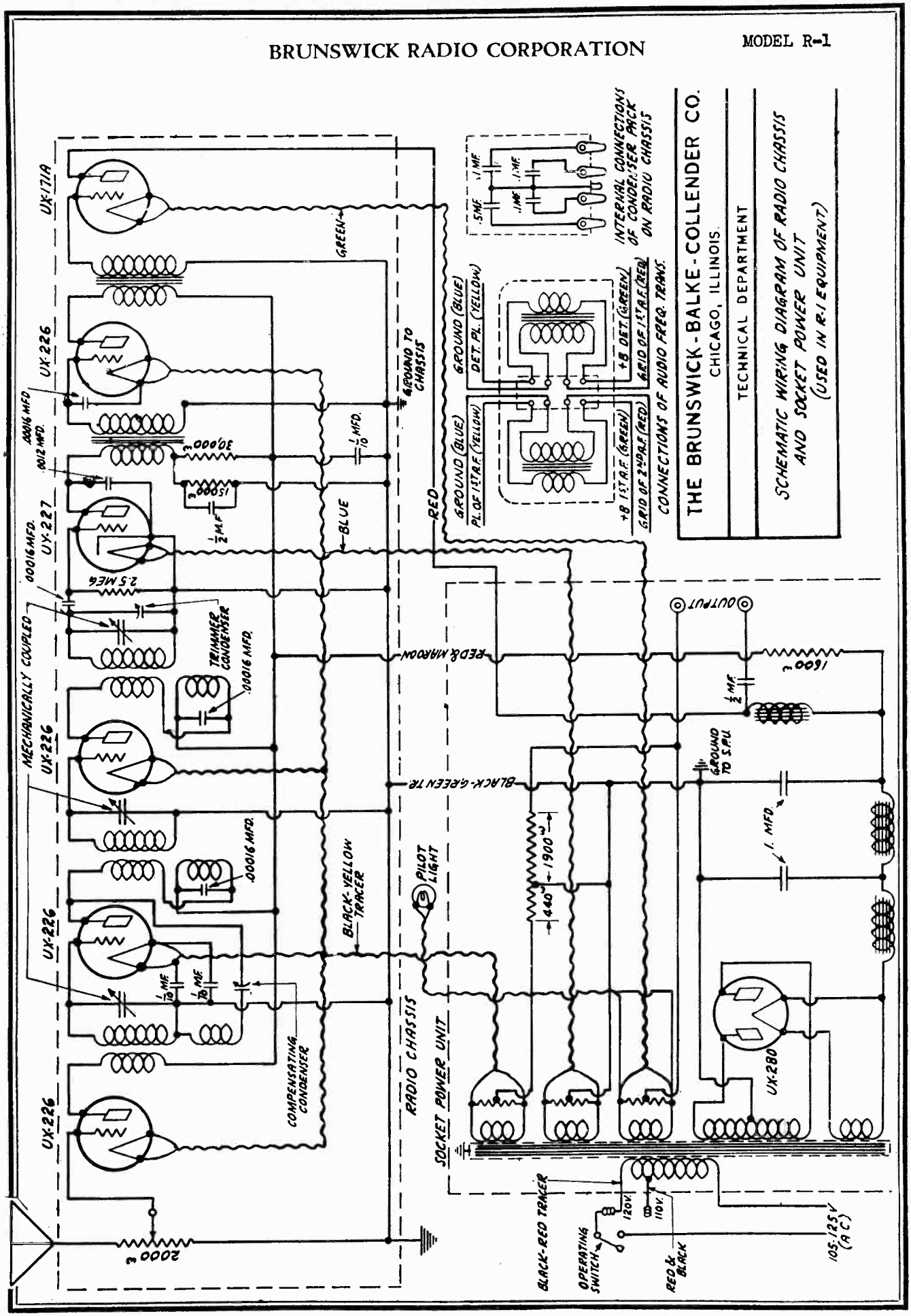
Model RPA 4-A

MODEL RPA-6
MODEL PR-6

BRUNSWICK RADIO CORPORATION

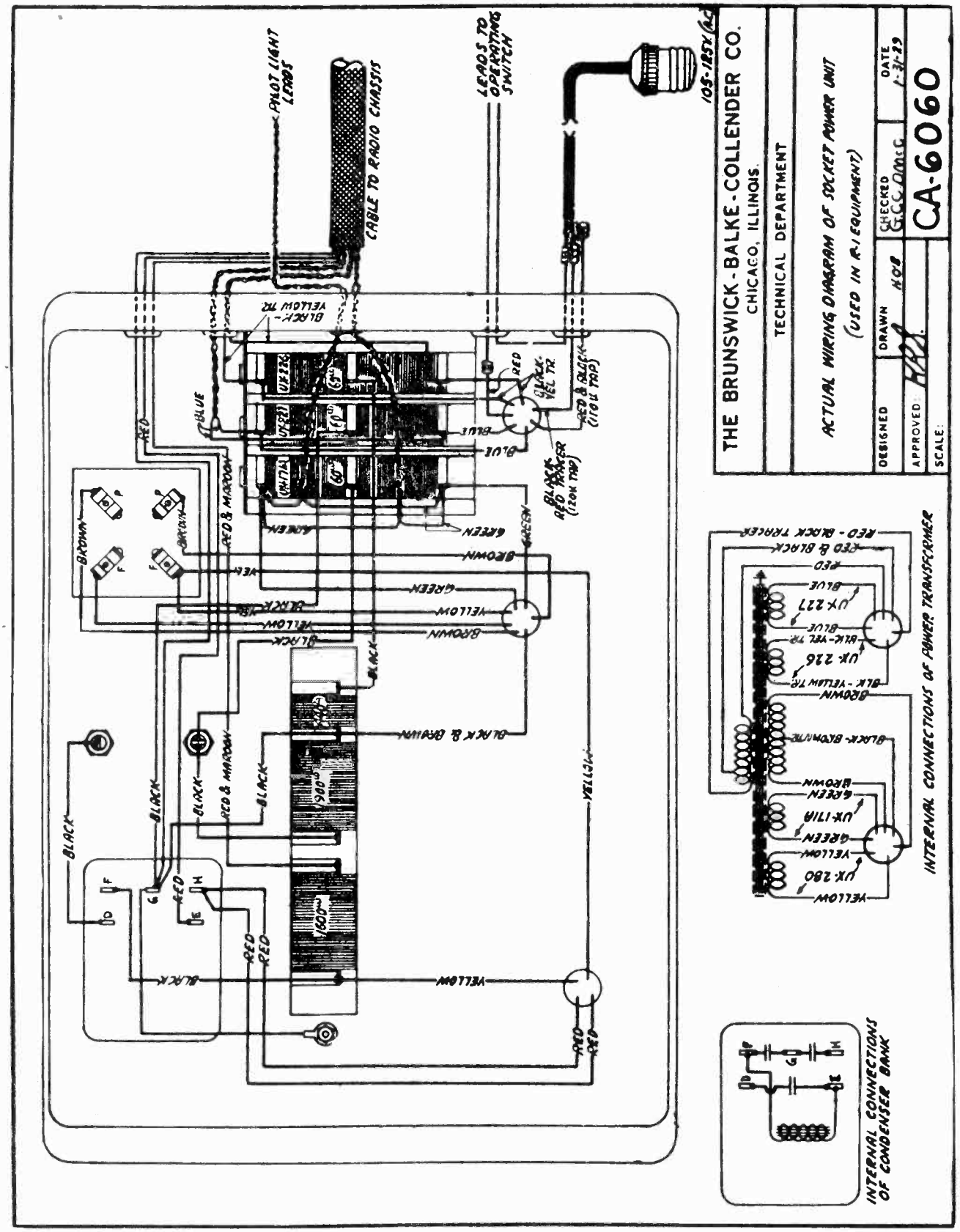






MODEL R-1
Chassis

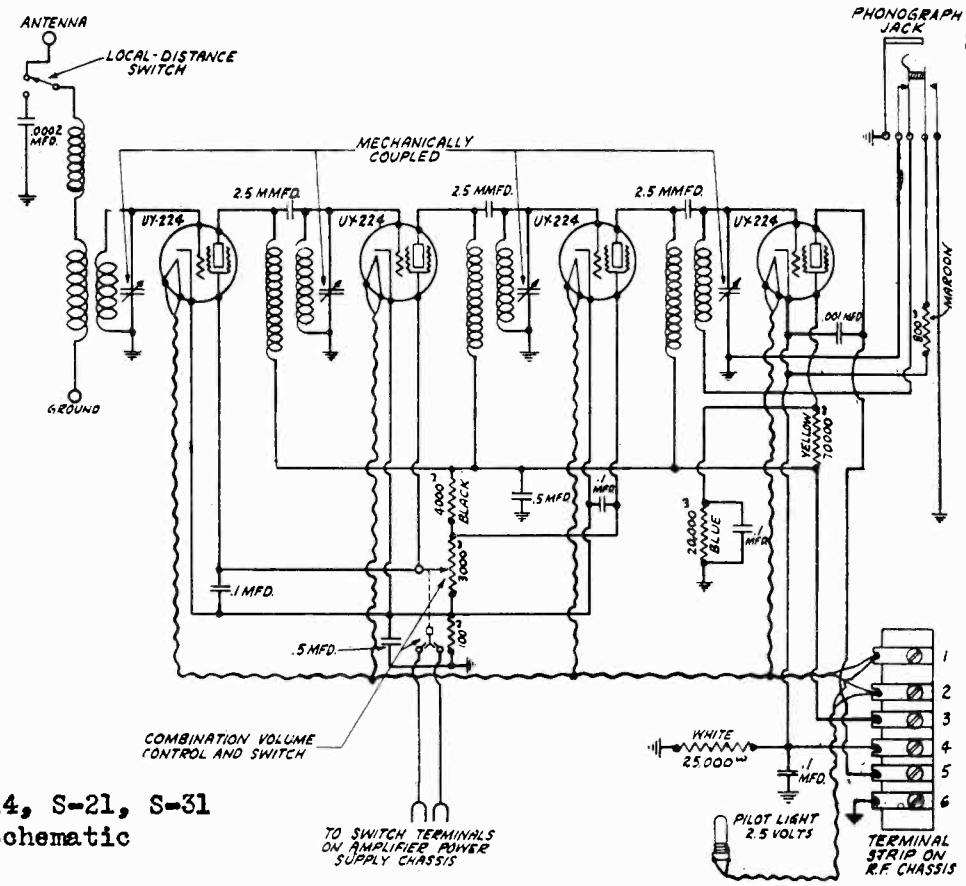
BRUNSWICK RADIO CORPORATION



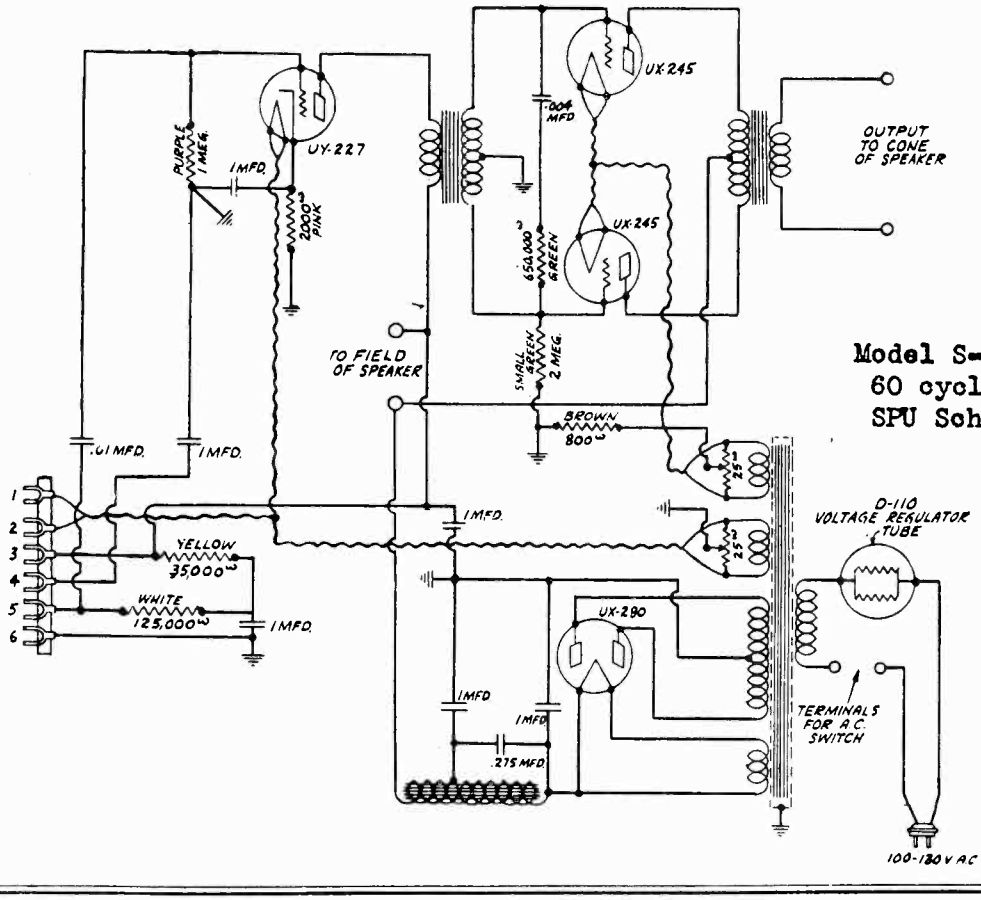
MODEL S-14, S-21, S-31, S-81, S-82 AC Radio Schematic

BRUNSWICK RADIO CORPORATION

MODEL S-14, S21 S-81 AF and SPU Schematic



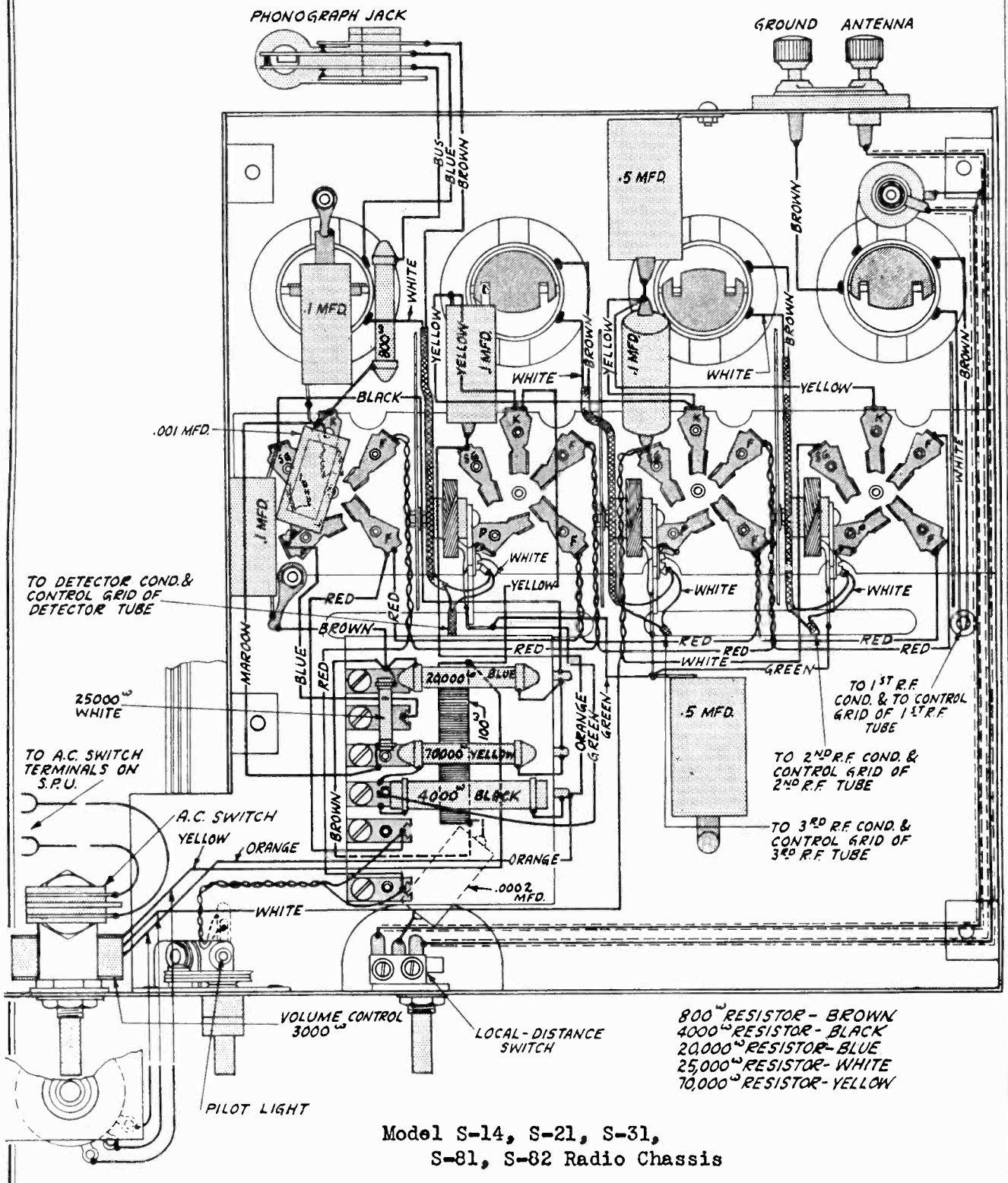
Model S-14, S-21, S-31 Radio Schematic



Model S-14, S-21 60 cycle AF and SPU Schematic

MODEL S-14, S-21, S-31
S-81, S-82 Radio
Chassis

BRUNSWICK RADIO CORPORATION



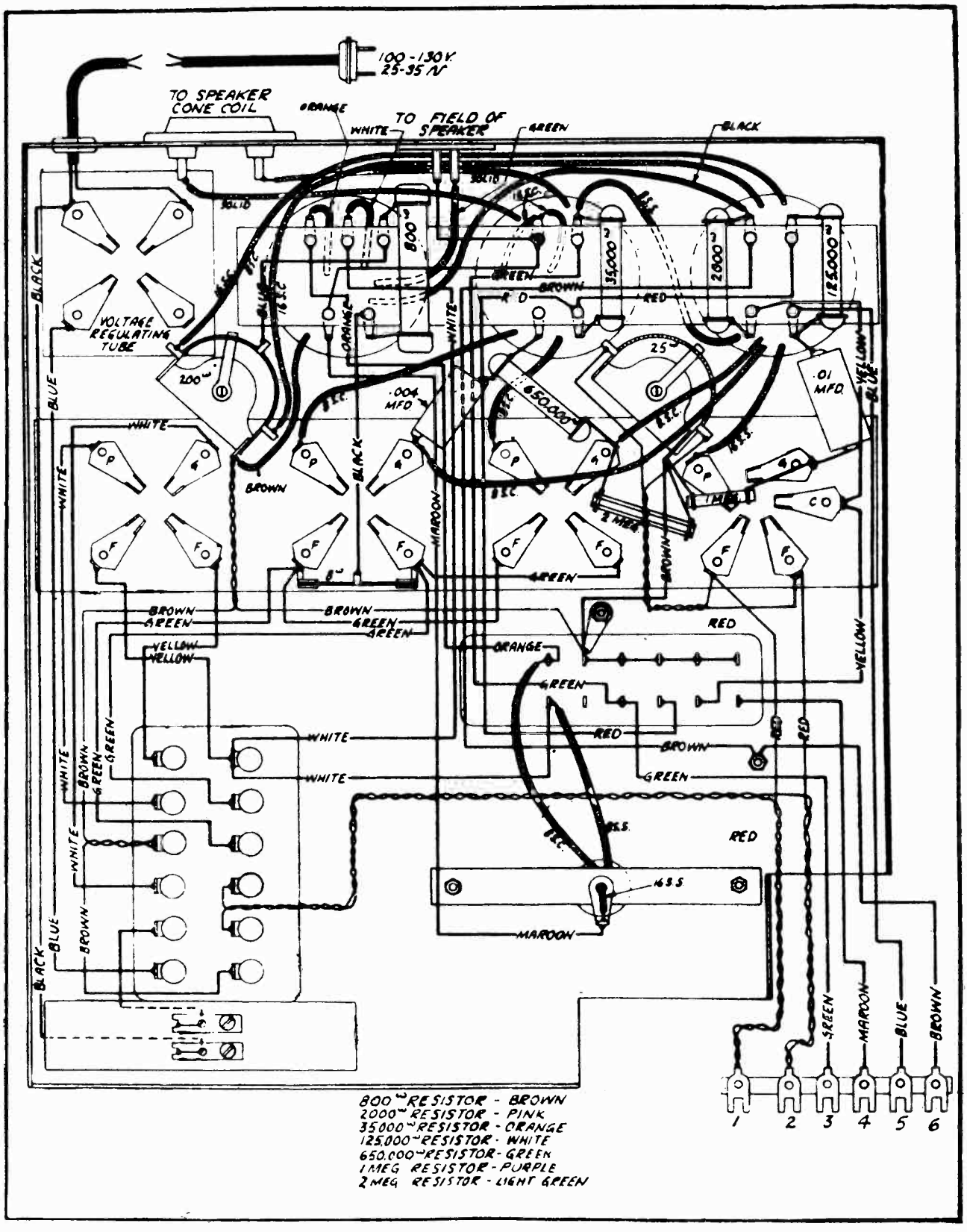
Model S-14, S-21, S-31,
S-81, S-82 Radio Chassis

SCHEMATIC CIRCUIT OF RADIO CHASSIS USING UY-224 TUBES

7008

BRUNSWICK RADIO CORPORATION

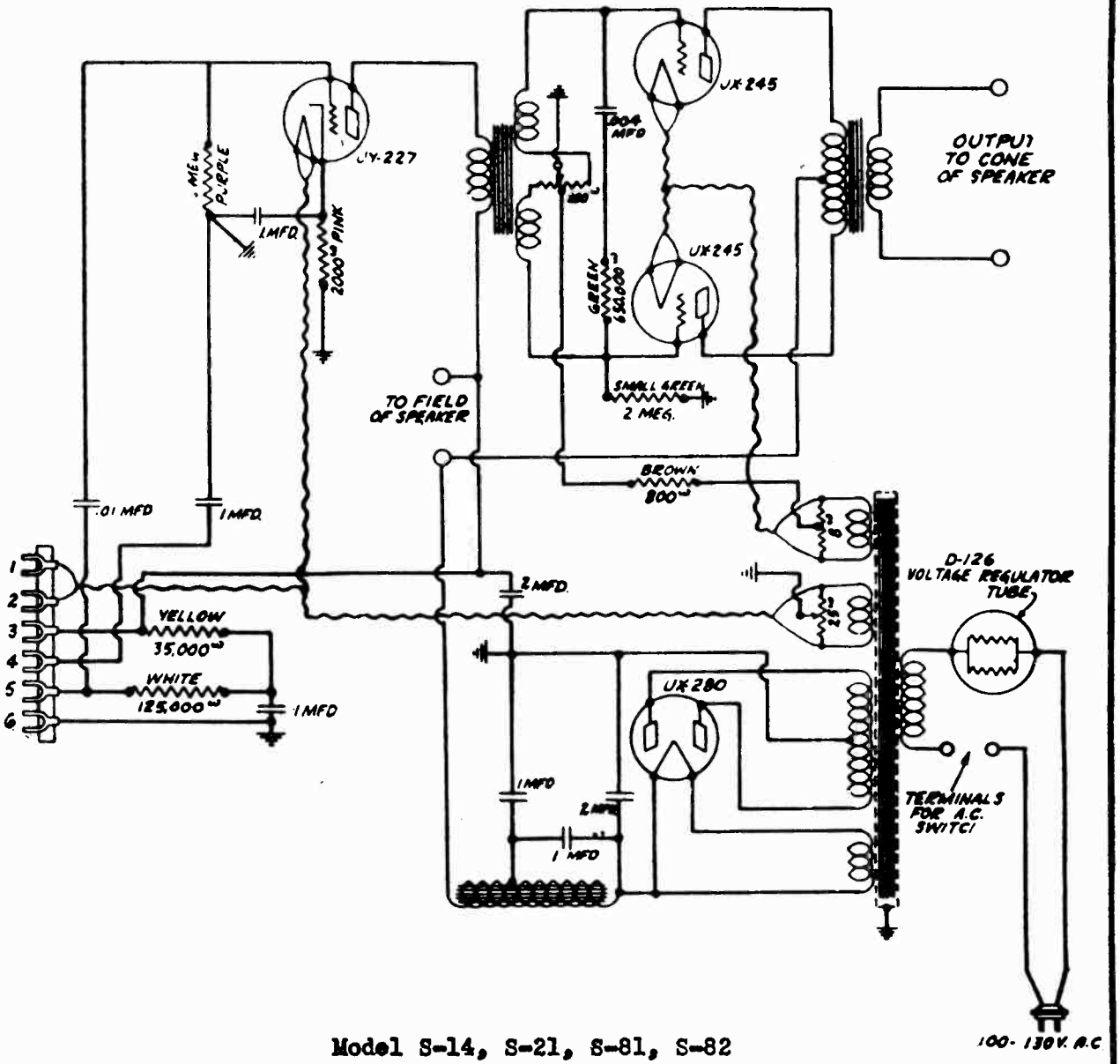
MODEL S-14, S-21,
S-81, S-82
25 cycle AF
Chassis



Model S-14, S-21, S-81, S-82 AF Chassis
25 cycle

MODEL S-14, S-21
S-81, S-82 AC
25 cycle AF
Schematic

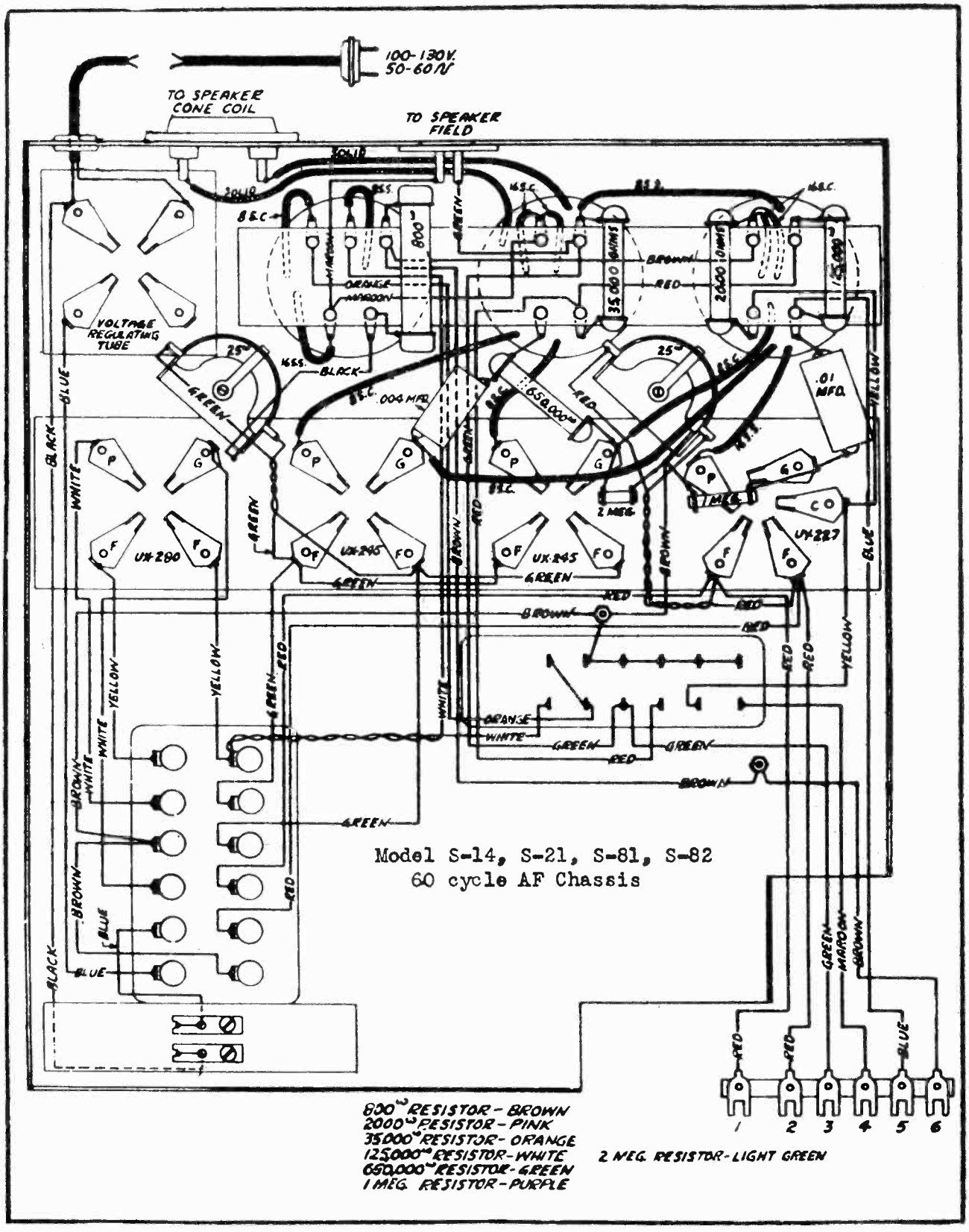
BRUNSWICK RADIO CORPORATION



Model S-14, S-21, S-81, S-82
25 cycle AF Schematic

BRUNSWICK RADIO CORPORATION

MODEL S-14, S-21
S-81, S-82
60 cycle AF
Chassis

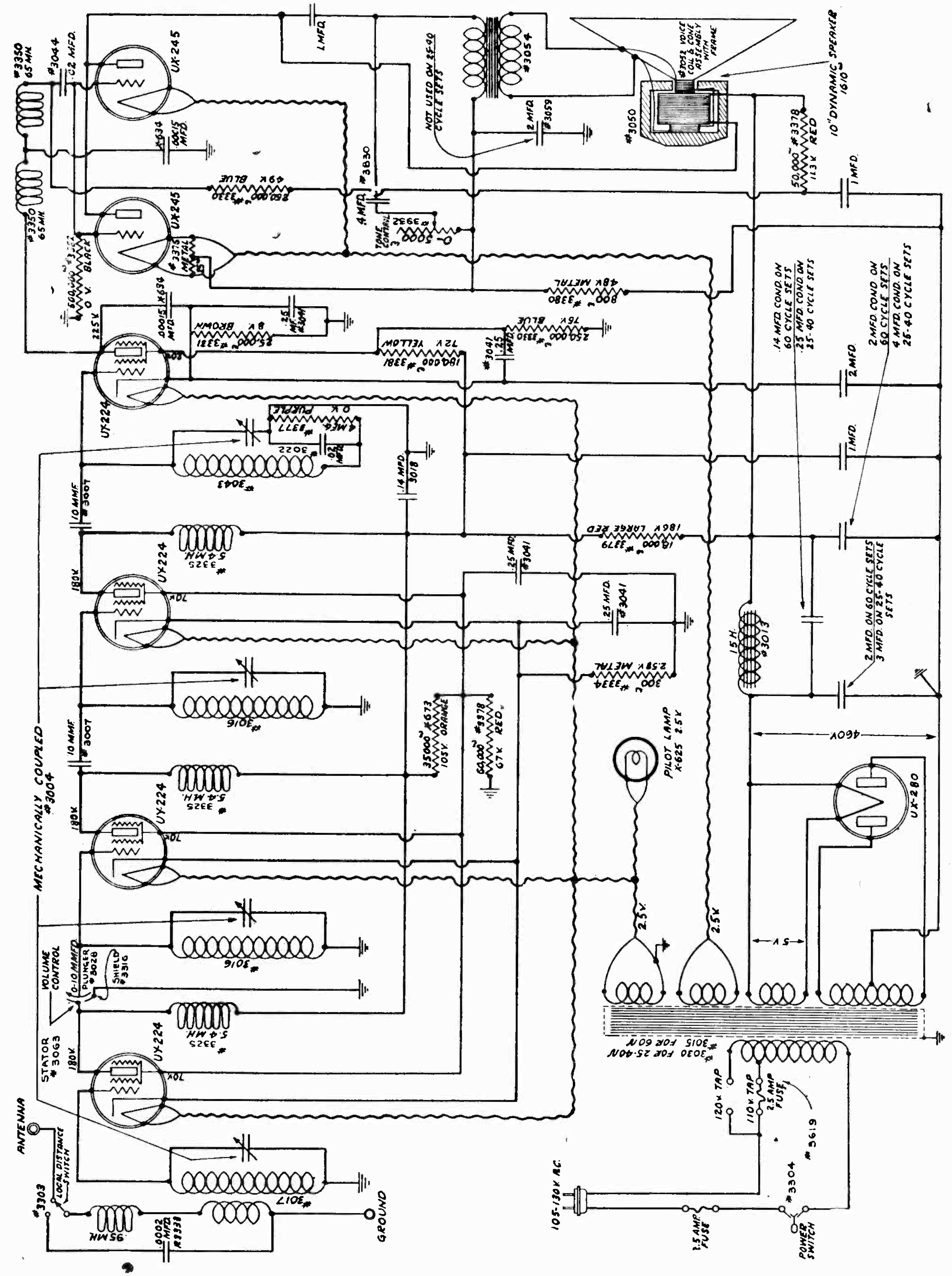


Model S-14, S-21, S-81, S-82
60 cycle AF Chassis

800Ω RESISTOR - BROWN
2000Ω RESISTOR - PINK
35,000Ω RESISTOR - ORANGE
125,000Ω RESISTOR - WHITE
650,000Ω RESISTOR - GREEN
1 MEG. RESISTOR - PURPLE
2 MEG. RESISTOR - LIGHT GREEN

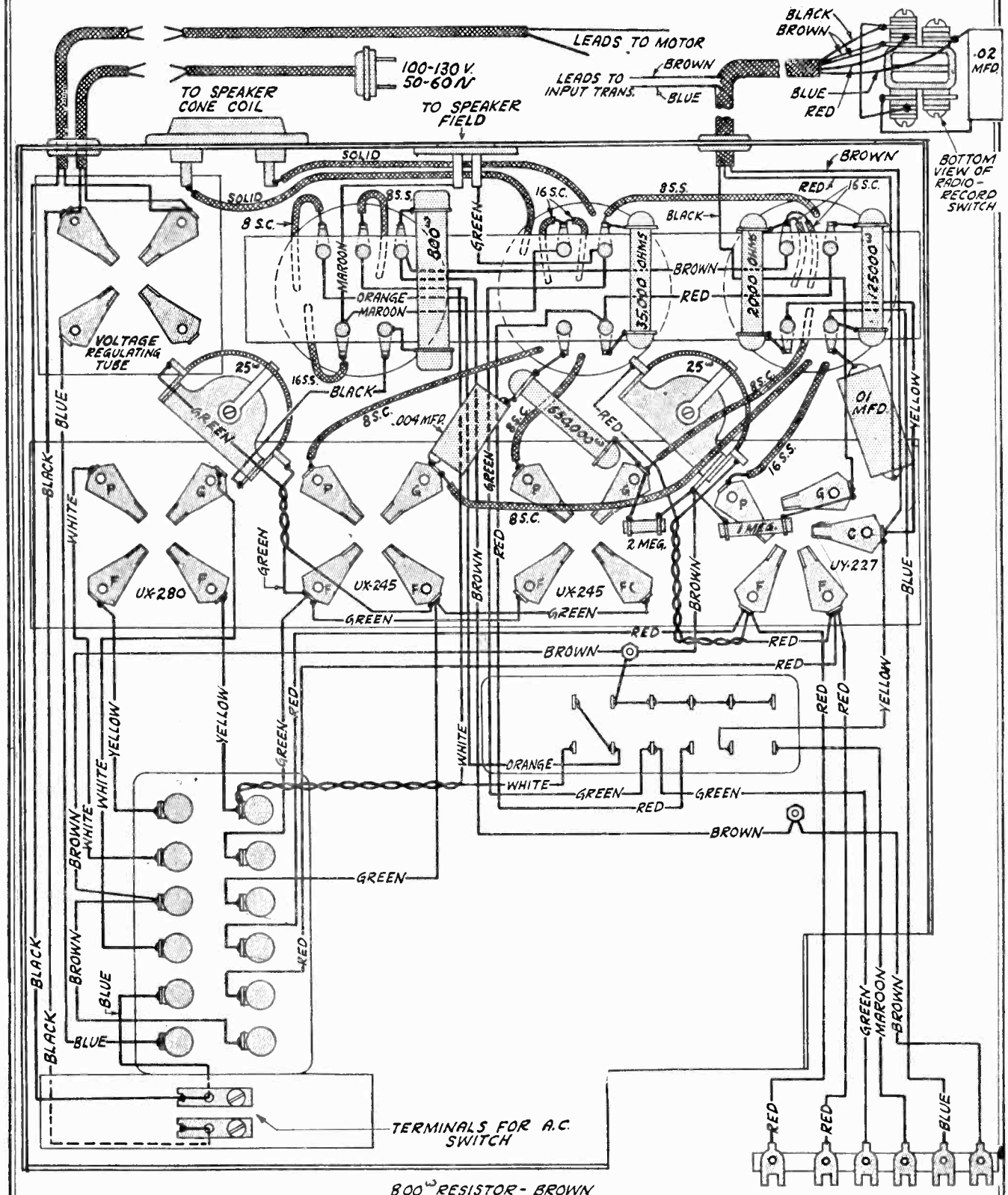
MODEL 15, 22 AC
Schematic
Also 32 and 42 AC

BRUNSWICK RADIO CORPORATION



BRUNSWICK RADIO CORPORATION

MODEL S-31
60 cycle AF
Chassis



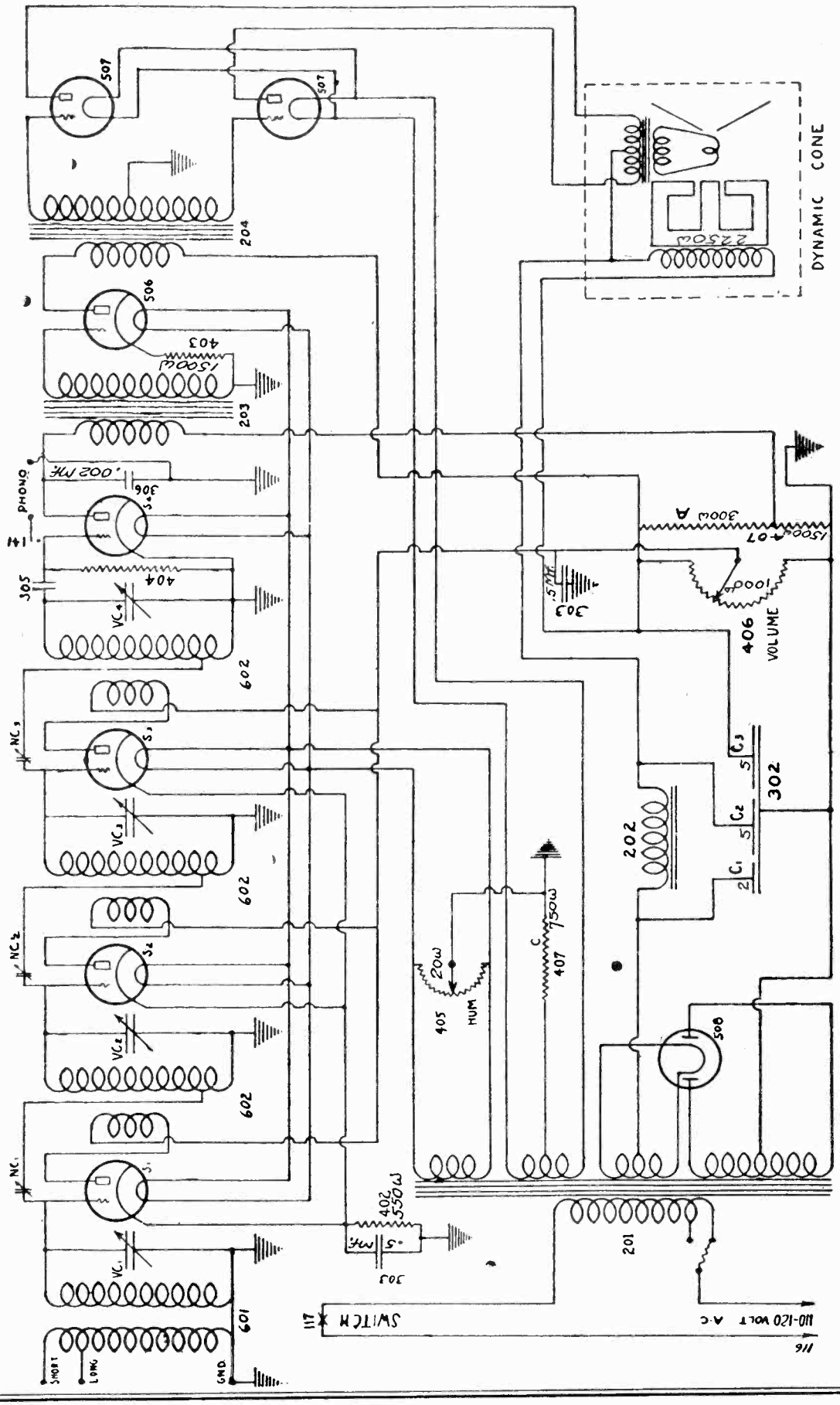
#8S.C. = #8 STRAND COPPER WIRE
#8S.S. = #8 STRAND SILVER WIRE
#16S.C. = #16 STRAND COPPER WIRE
#16S.S. = #16 STRAND SILVER WIRE

800 Ω RESISTOR - BROWN
2000 Ω RESISTOR - PINK
35000 Ω RESISTOR - ORANGE
125,000 Ω RESISTOR - WHITE
650,000 Ω RESISTOR - GREEN
1 MEG. RESISTOR - PURPLE
2 MEG. RESISTOR - GREEN

ACTUAL WIRING DIAGRAM OF AUDIO AMPLIFIER POWER SUPPLY CHASSIS USED S-31 COMBINATION **6083**

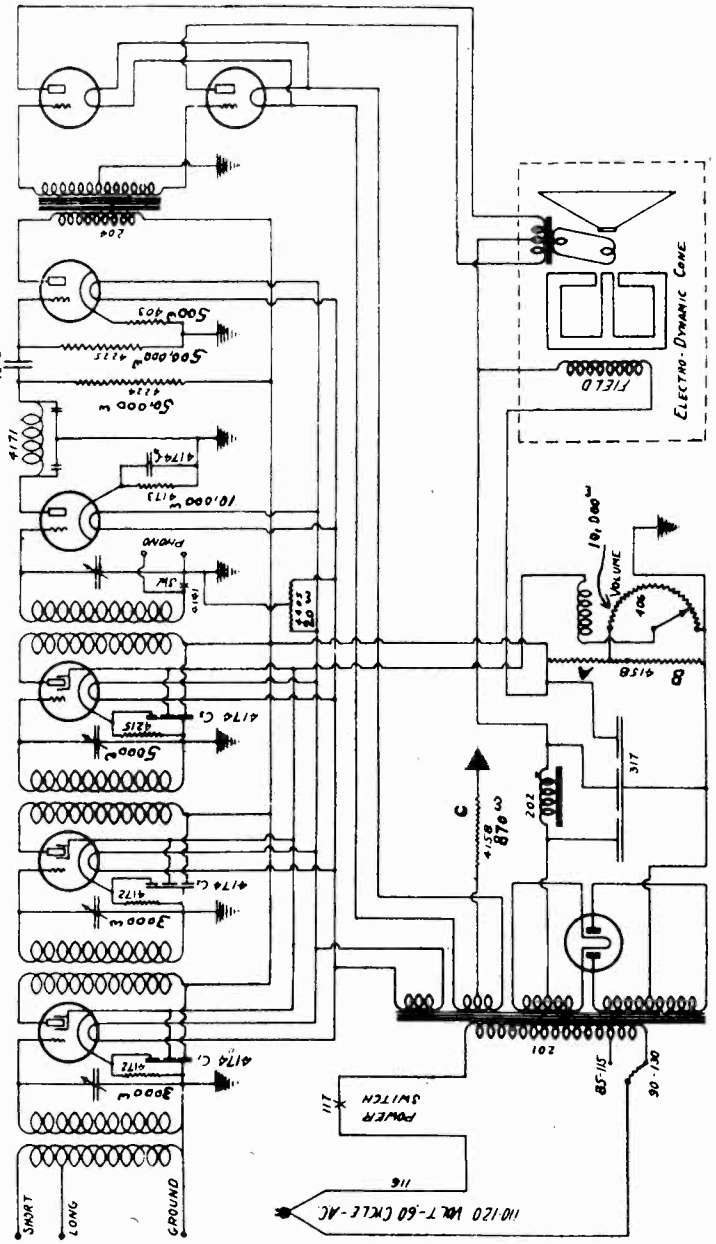
BUSH & LANE PIANO COMPANY

MODEL 10
Schematic



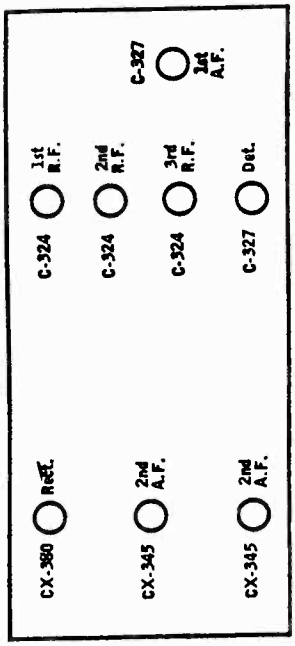
MODEL 12
Schematic and Data

BUSH & LANE PIANO COMPANY



4158—Voltage Divider Resistor 5750 Ohms, Total.

No.12 Screen Grid

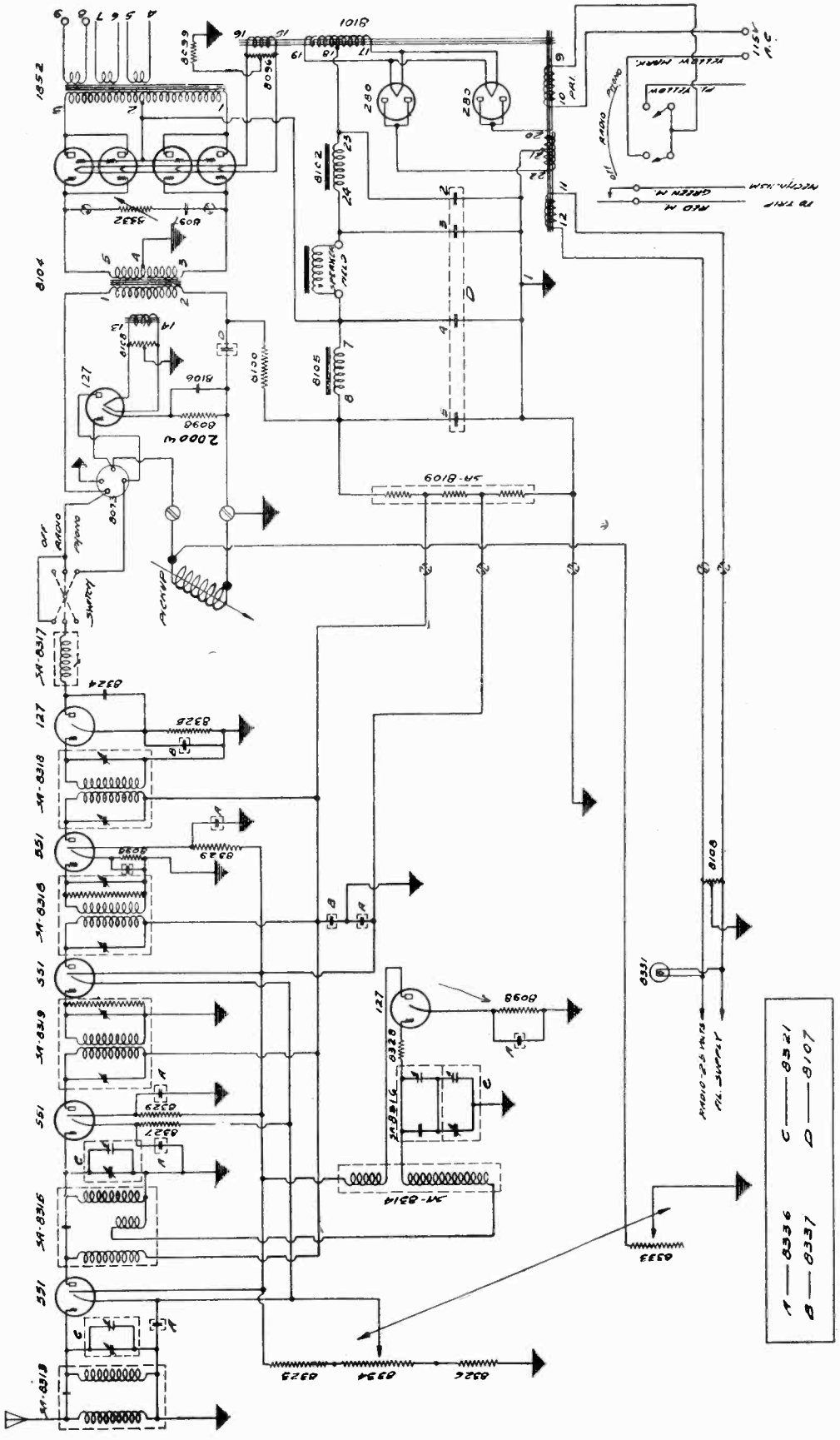


Line Voltage 112—Set on 120 Volt Tap

TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST RF, 2ND RF, ETC.	TUBE OUT A VOLTS	TUBE OUT B VOLTS	READINGS PLUG IN SOCKET OF SET A VOLTS	B VOLTS	C VOLTS (GRID)	TUBE IN TESTER CATHODE HEATER VOLTS	PLATE NORMAL M.A.	PLATE M.A. READING @ TEST	PLATE CHANGE @ M.A.	SCREEN GRID @ VOLTS
1	224	1st RF	2.45	185	2.35	170	3.5	3	1	4	3	65
2	224	2nd RF	2.45	185	2.35	170	3.0	3	1.0	4	3	65
3	224	3rd RF	2.45	185	2.35	170	3.0	3	1.6	4	3	65
4	227	Det.	2.45	150	2.35	130	18.0	18.0	1.8	3	1.2	-
5	227	1st AF	2.45	110	2.35	107	10.0	10	7.4	9	1.5	-
6	245	Pwr.	2.45	225	2.35	250	45	-	86	30	4	-
7	245	Pwr.	2.45	225	2.35	250	45	-	86	30	4	-
8	280	Rect.	5	-	4.8	-	-	-	90	-	-	-
9												
10												

CAPEHART CORPORATION

MODEL 400,401,402
Schematic

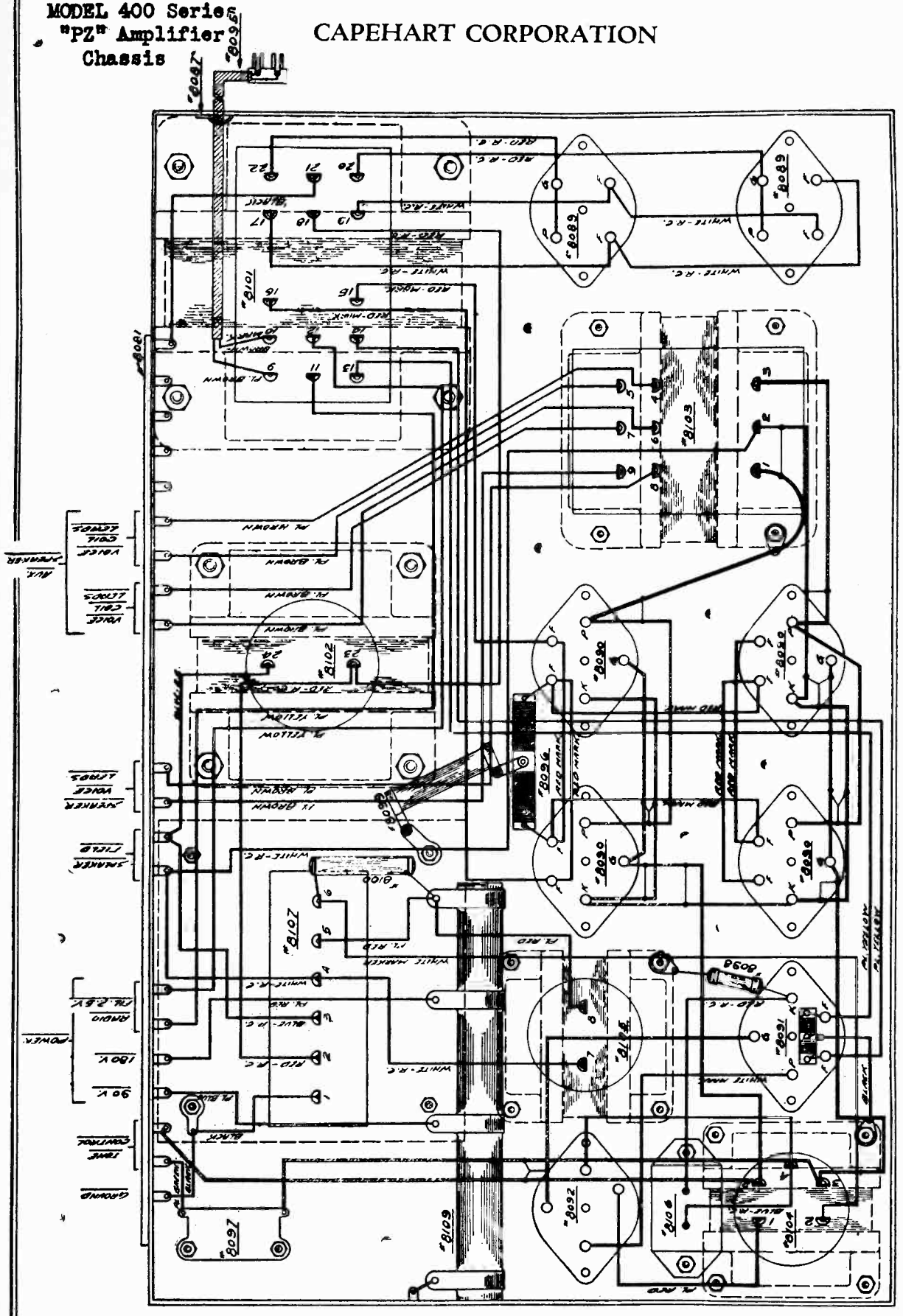


SCHEMATIC - CAPEHART TUNER & AMPLIFIER #400 - #401 - #402

8096 - Large 10 ohm CT
8097 - .004 mfd
8098 - 2000 ohms
8099 - 106 ohms
8100 - 11000 ohms
8108 - Small 10 ohm CT
8106 - Pentode bias cond. 300 mfd
8107 - 5 section cond. 24 mfd
8109 - 6250 ohms
8323 - 20 megohms
8325 - 30000 ohms
8326 - 200 ohms
8327 - 1800 ohms
8328 - 3000 ohms
8329 - 300 ohms
8330 - .0009 mfd
8331 - 2.5 volt lamps

MODEL 400 Series
"PZ" Amplifier
Chassis

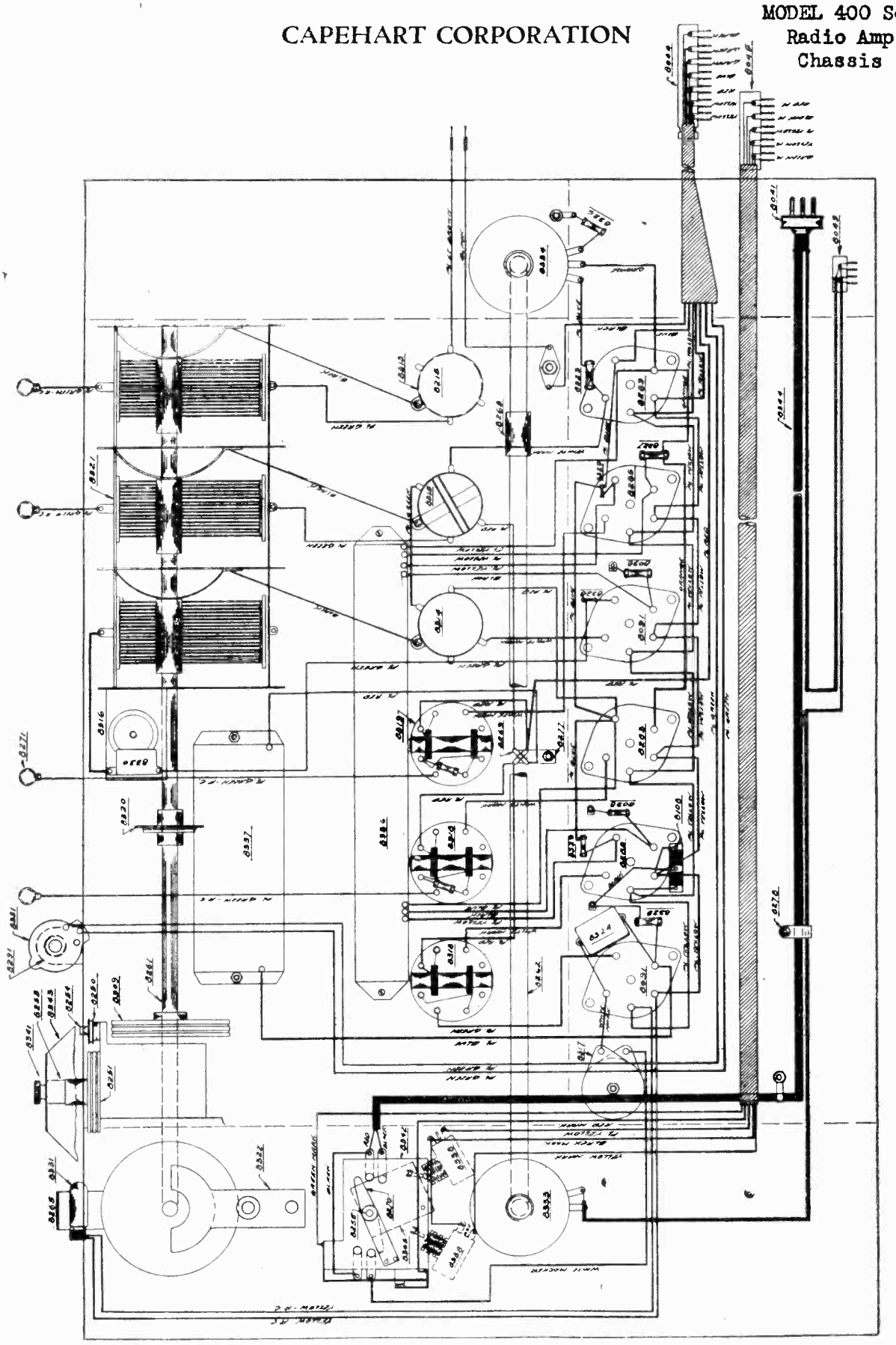
CAPEHART CORPORATION



PICTORIAL - UNDERSIDE OF CAPEHART PZ AMPLIFIER #8078 (400 Series)

CAPEHART CORPORATION

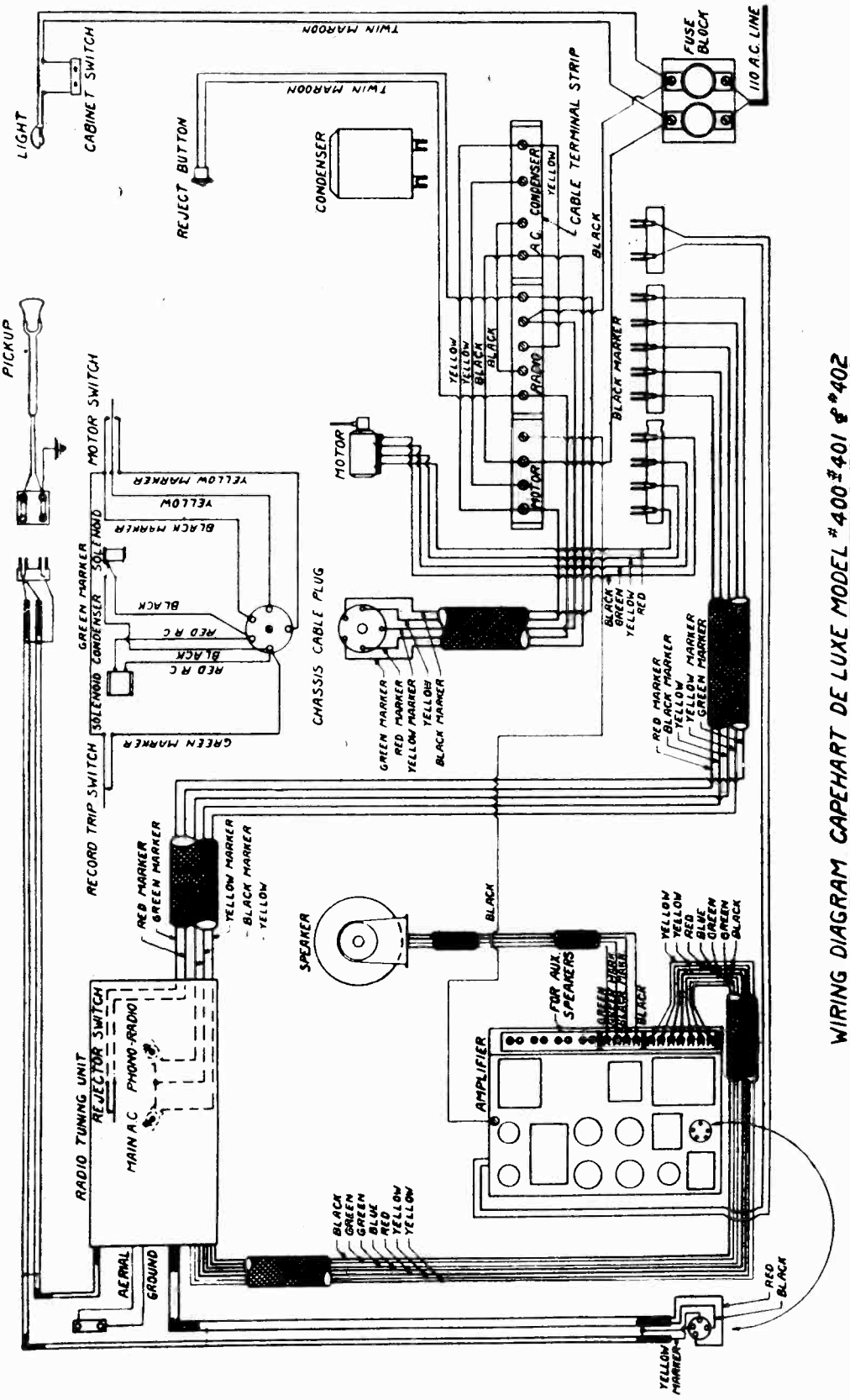
MODEL 400 Series
Radio Amp.
Chassis



VICTORIAL - CAPEHART RADIO TUNER 7807G (400 Series)

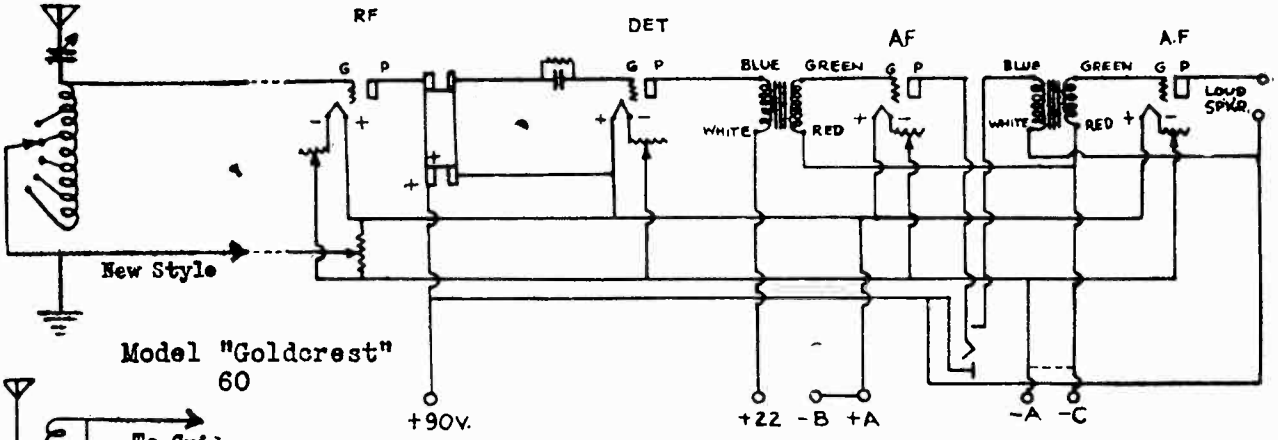
MODEL 400,401,402
Complete Wiring

CAPEHART CORPORATION

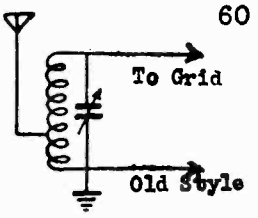


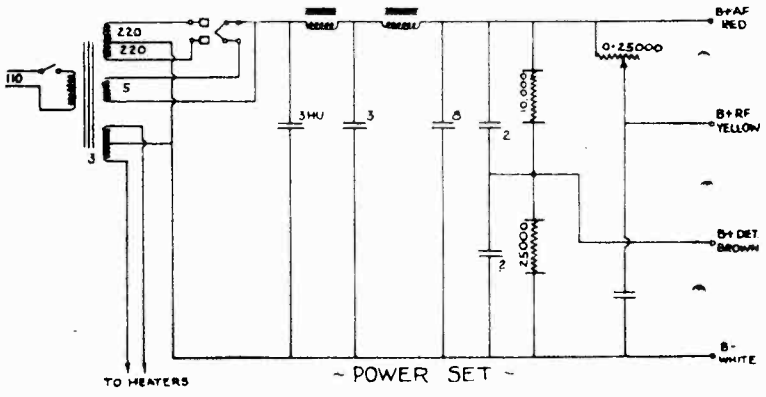
CLEARTONE RADIO CORPORATION

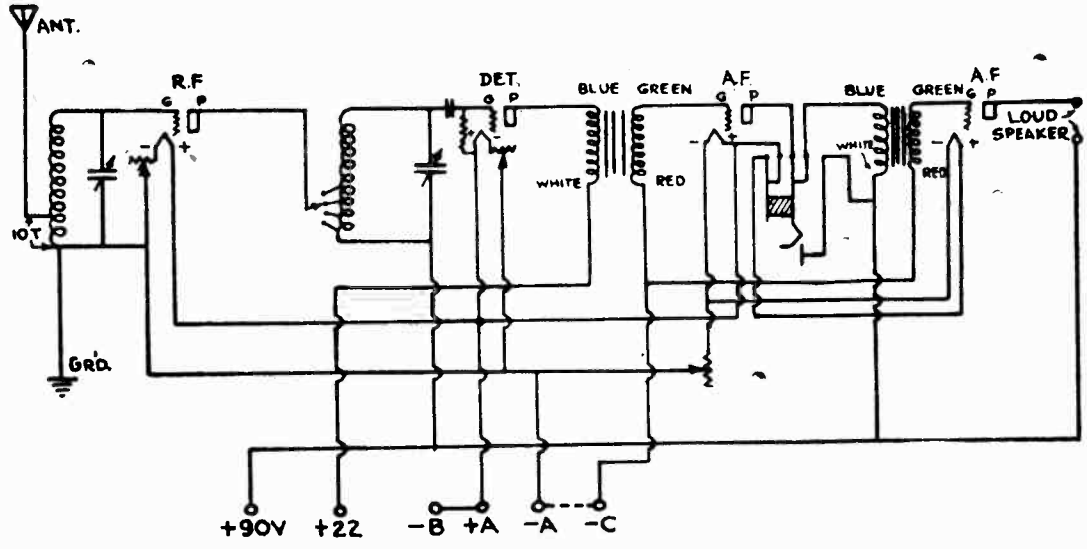
MODEL 60 - Goldcrest
MODEL 70 Clearodyne



Model "Goldcrest" 60



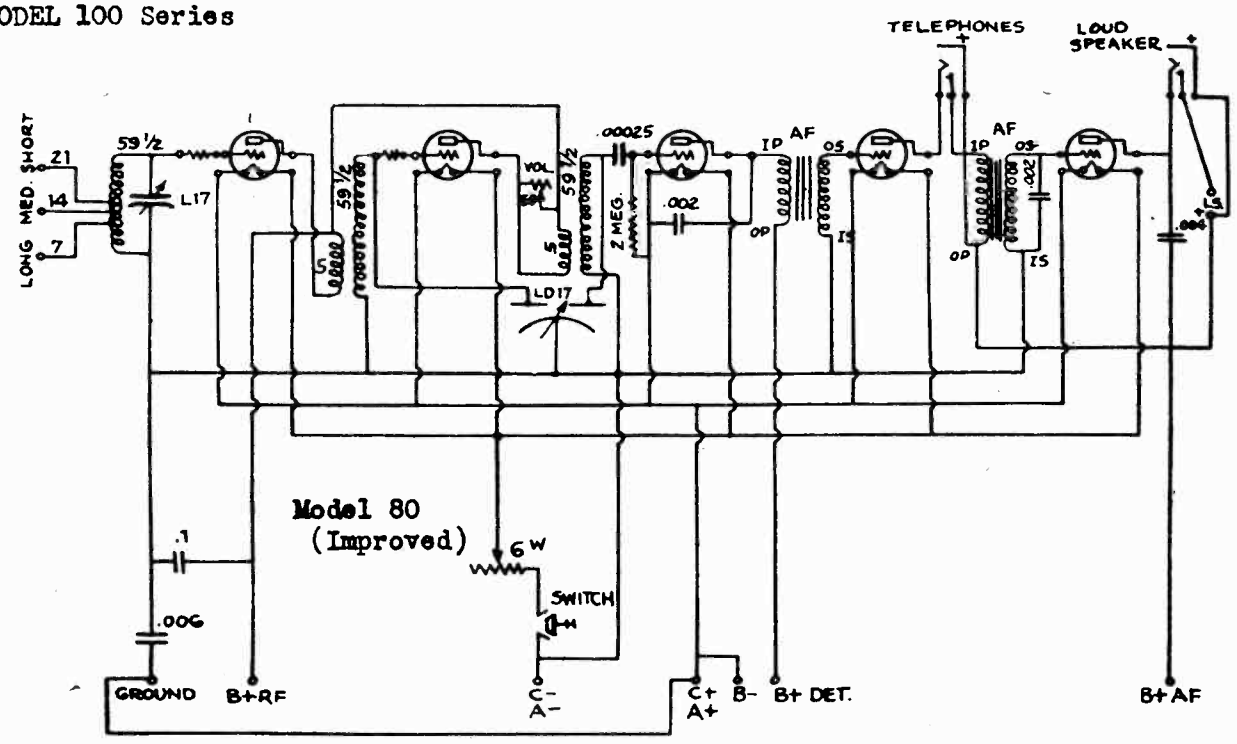




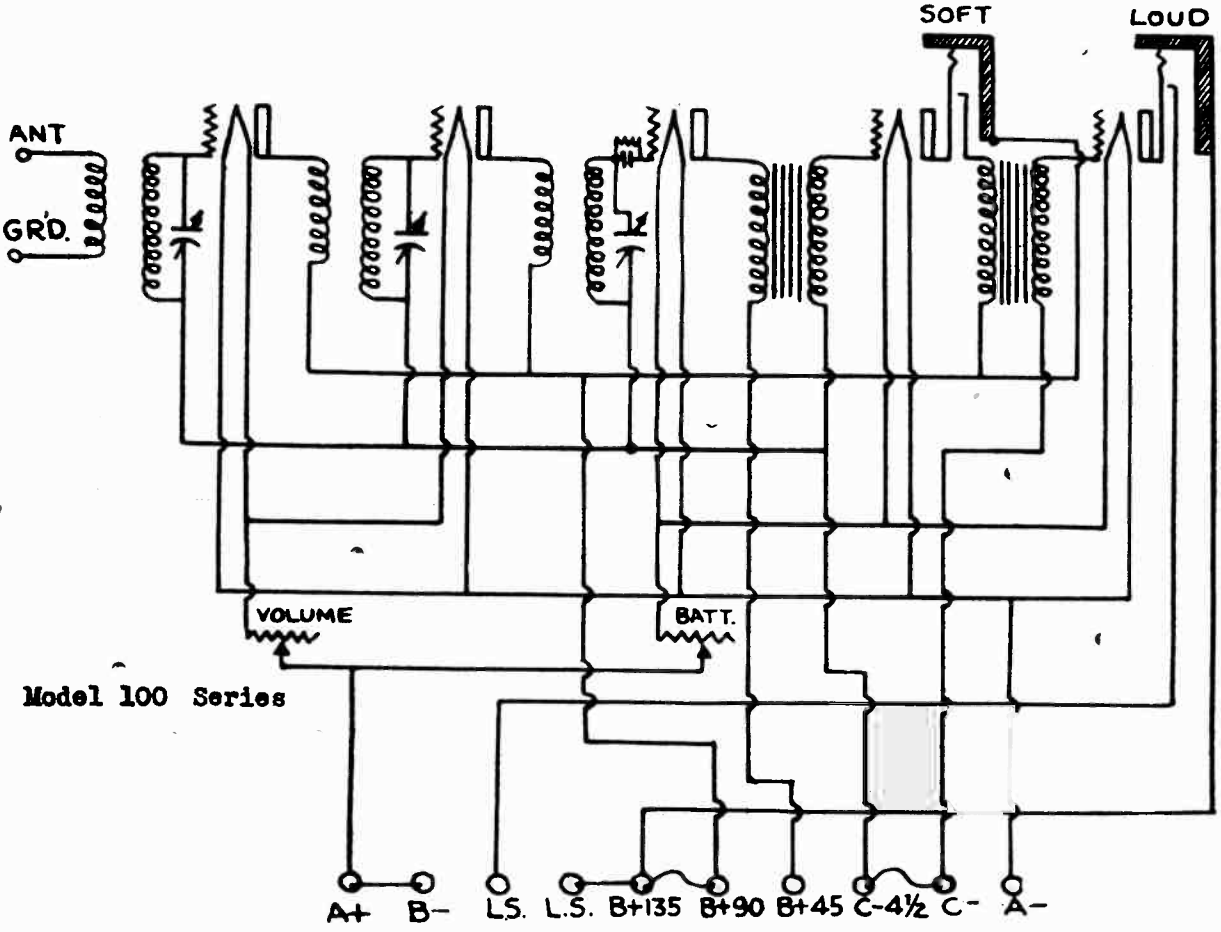
Model Clearodyne 70

MODEL 80
(Improved)
MODEL 100 Series

CLEARTONE RADIO CORPORATION



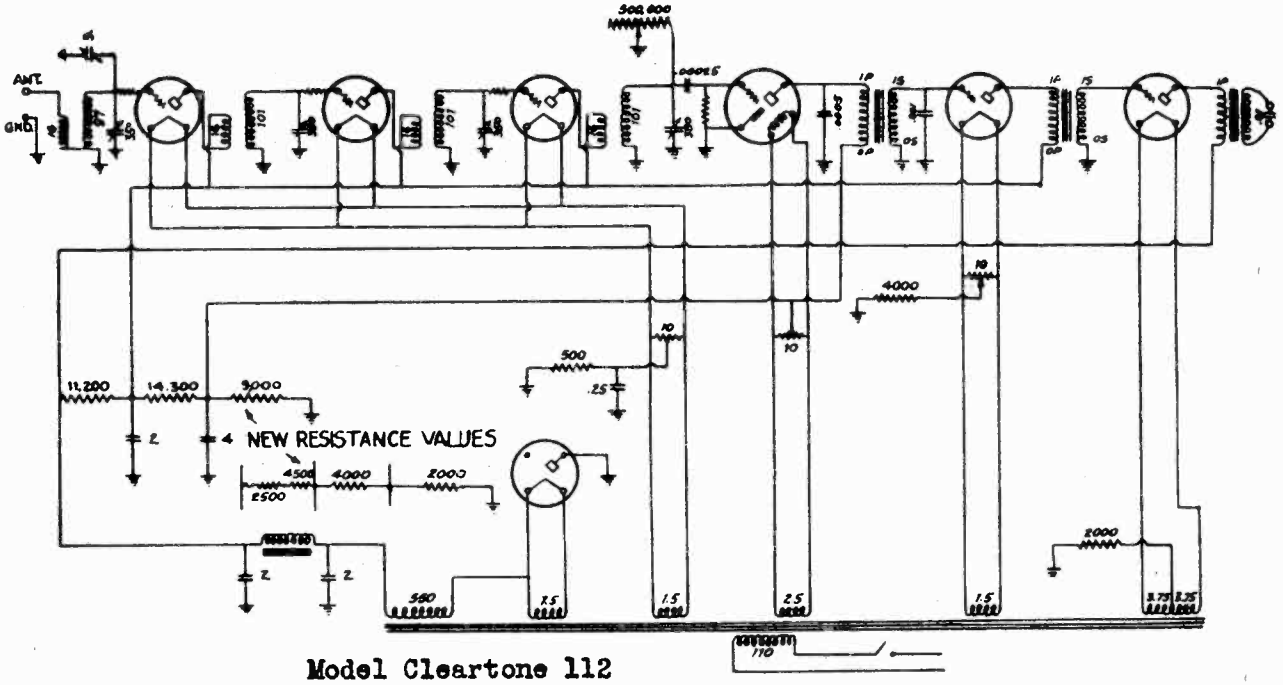
Model 80
(Improved)



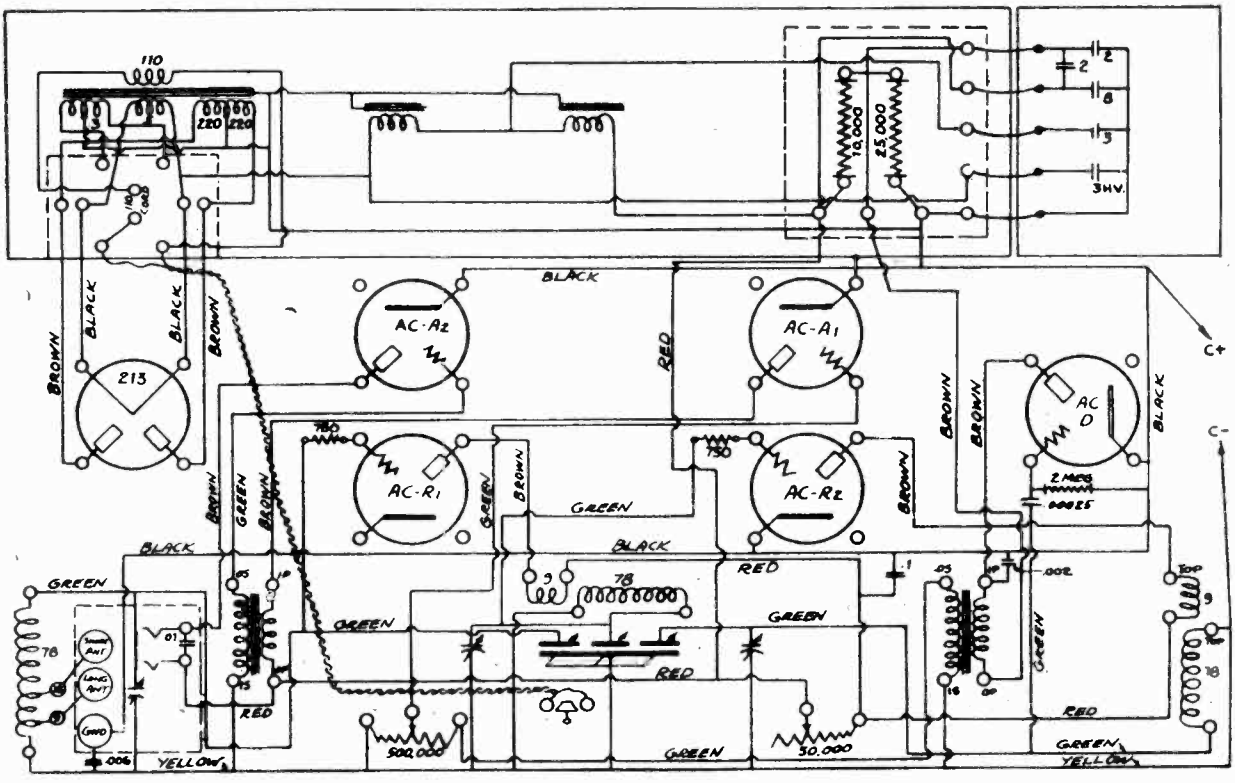
Model 100 Series

CLEARTONE RADIO CORPORATION

MODEL 110
MODEL 112



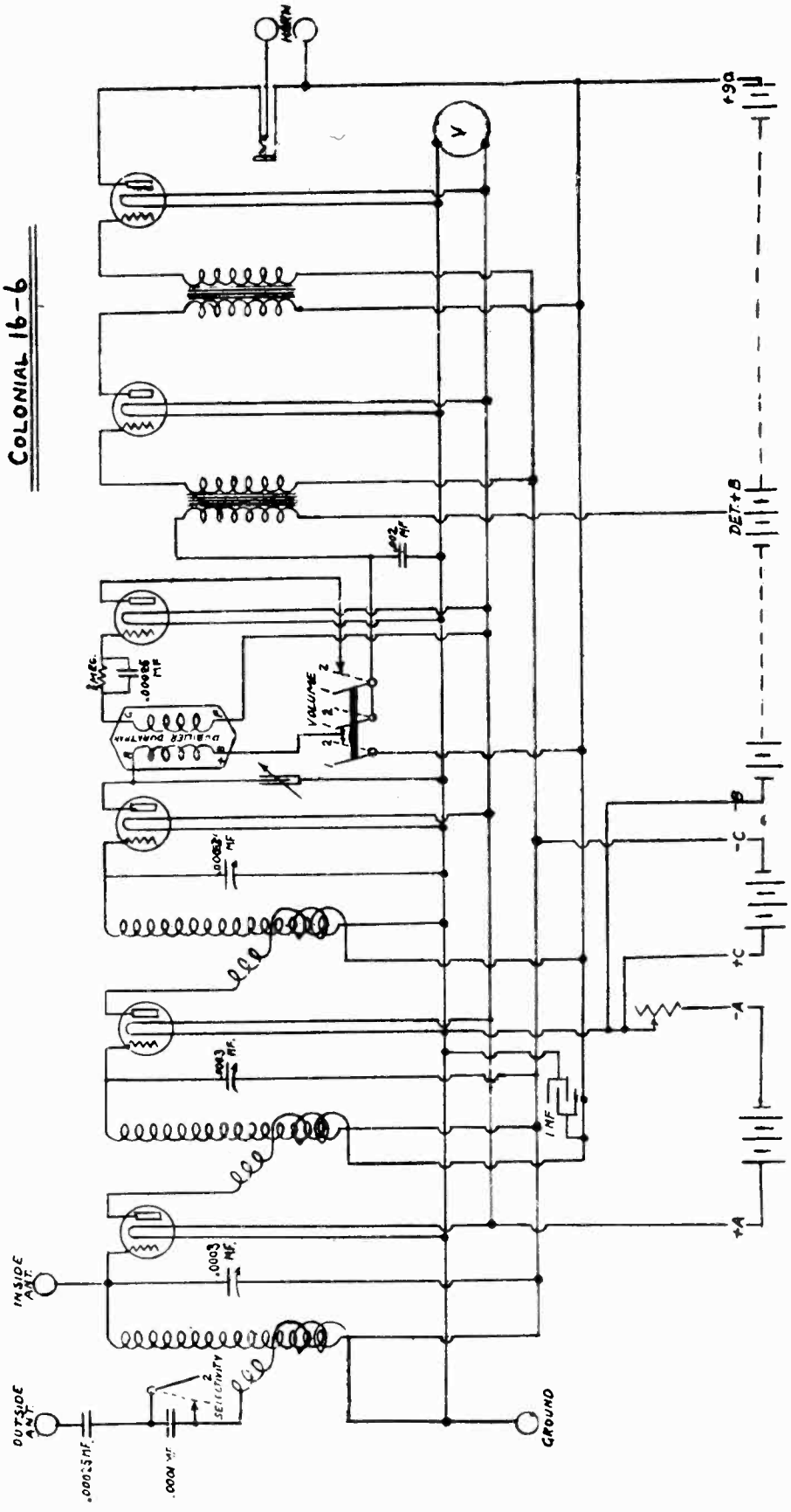
Model Cleartone 112



Model Cleartone 110

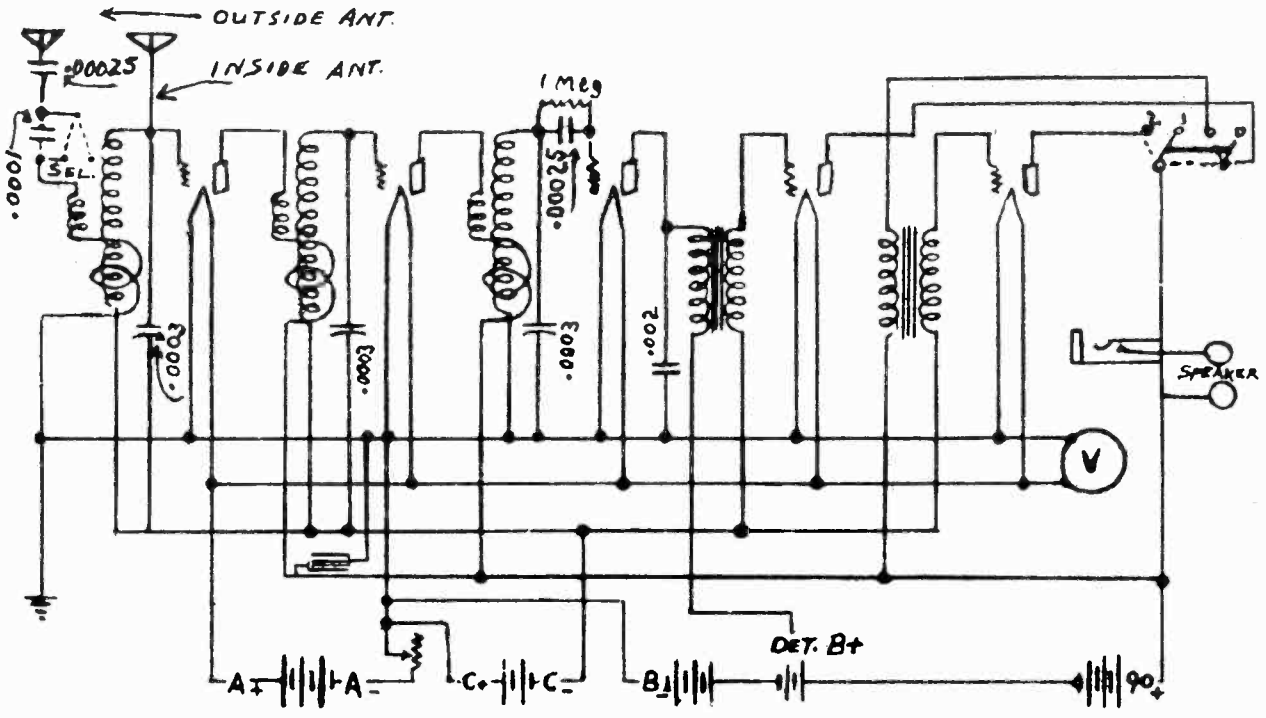
COLONIAL RADIO CORP.

MODEL 16-6

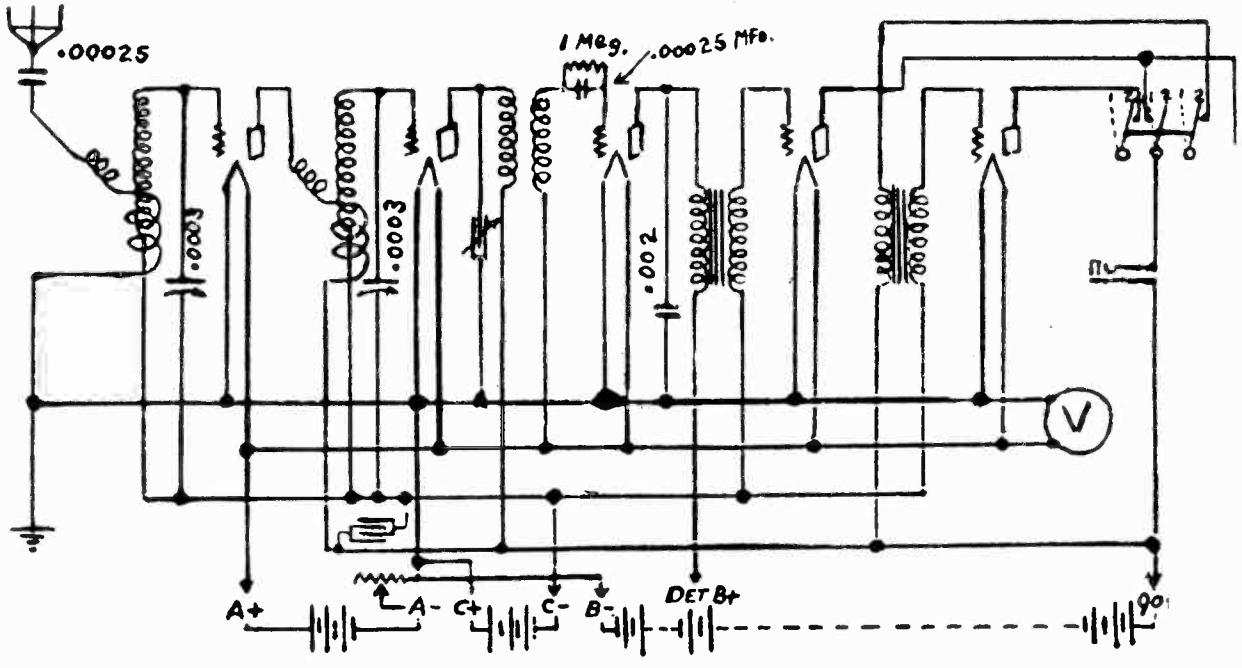


MODEL 16-5
MODEL 17-5

COLONIAL RADIO CORP.



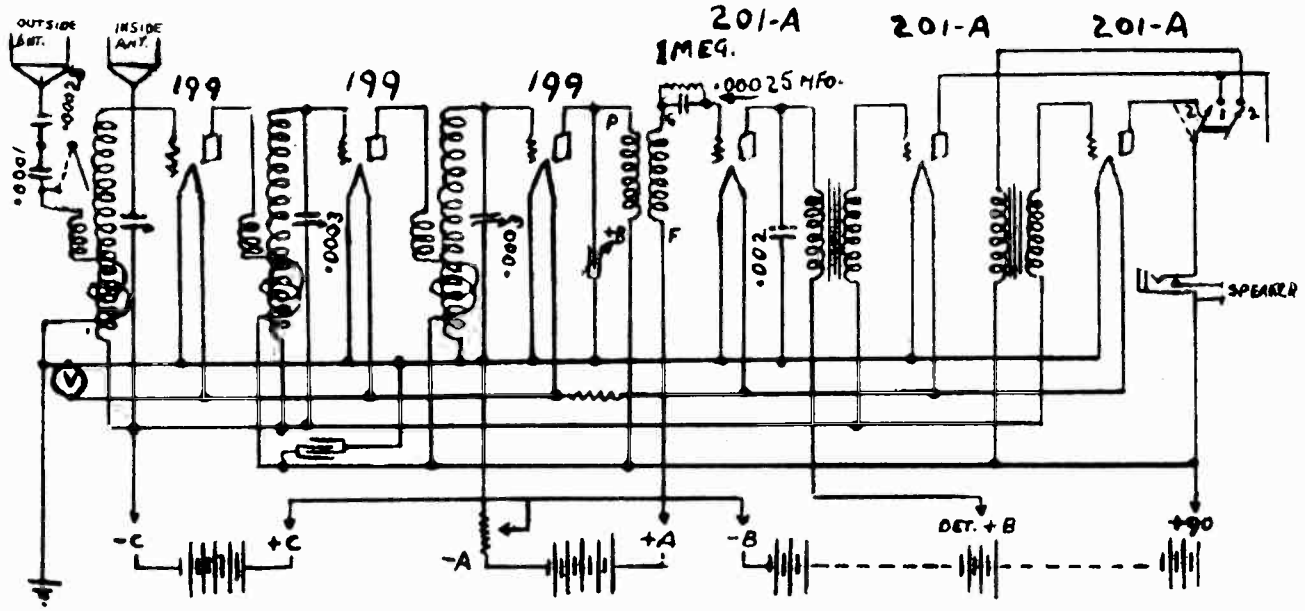
Model 16-5



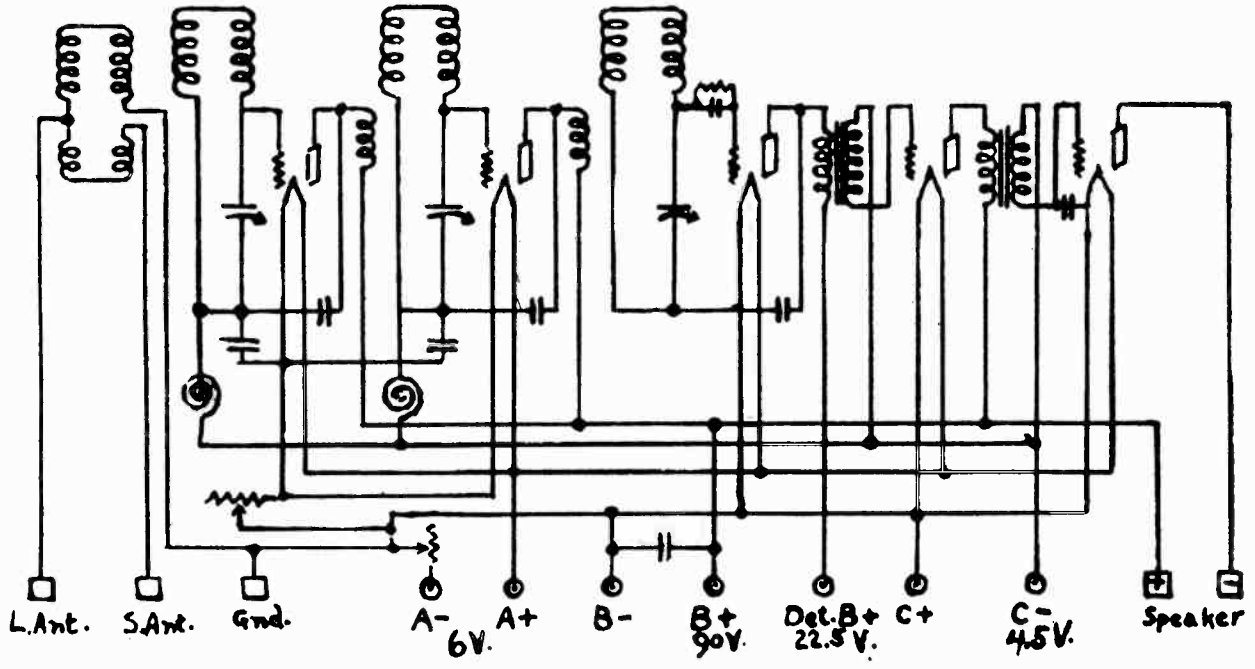
Model 17-5

COLONIAL RADIO CORP.

MODEL 20
MODEL 21



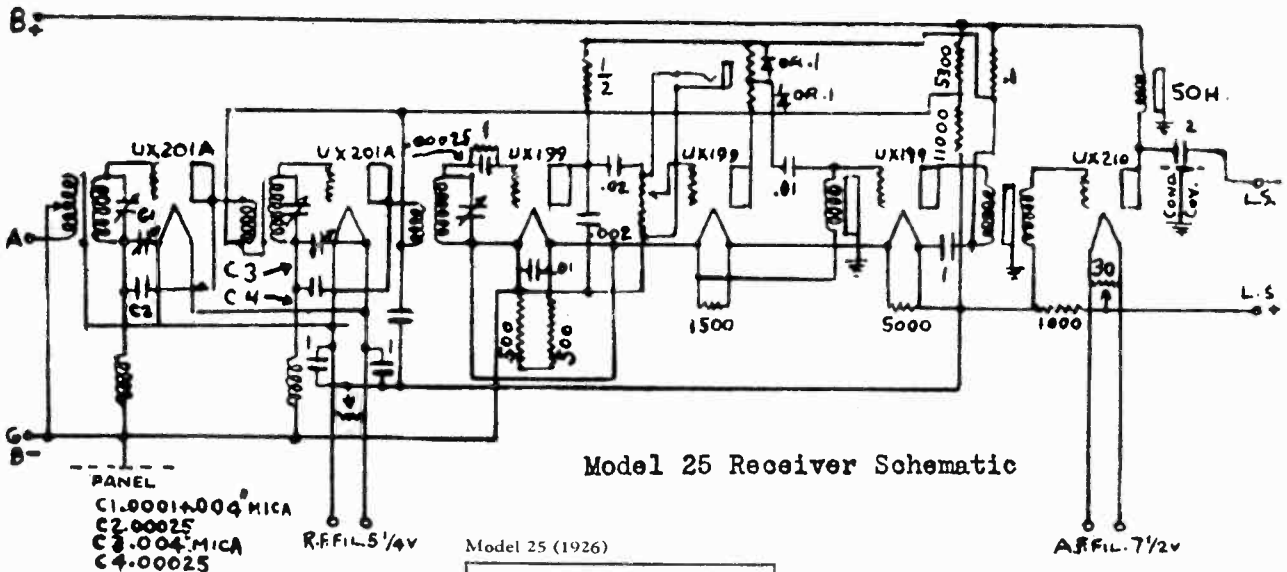
Model 20



Model 21

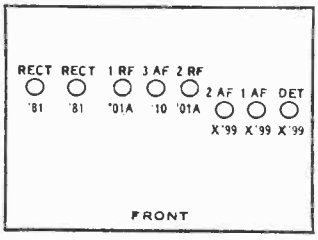
MODEL 25

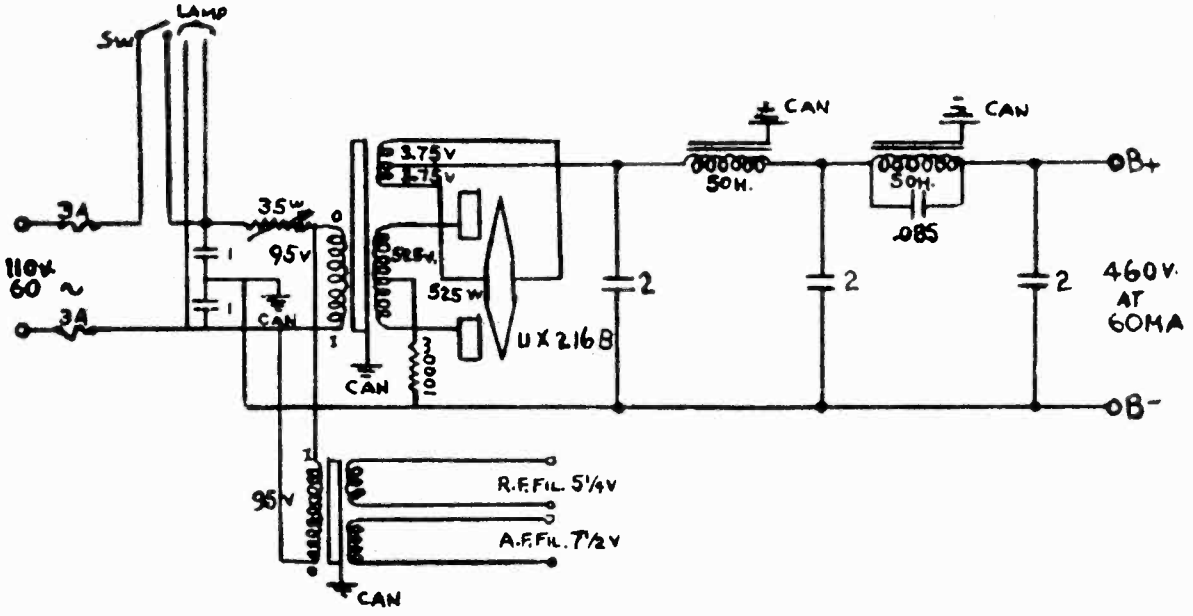
COLONIAL RADIO CORP



Model 25 Receiver Schematic

Model 25 (1926)

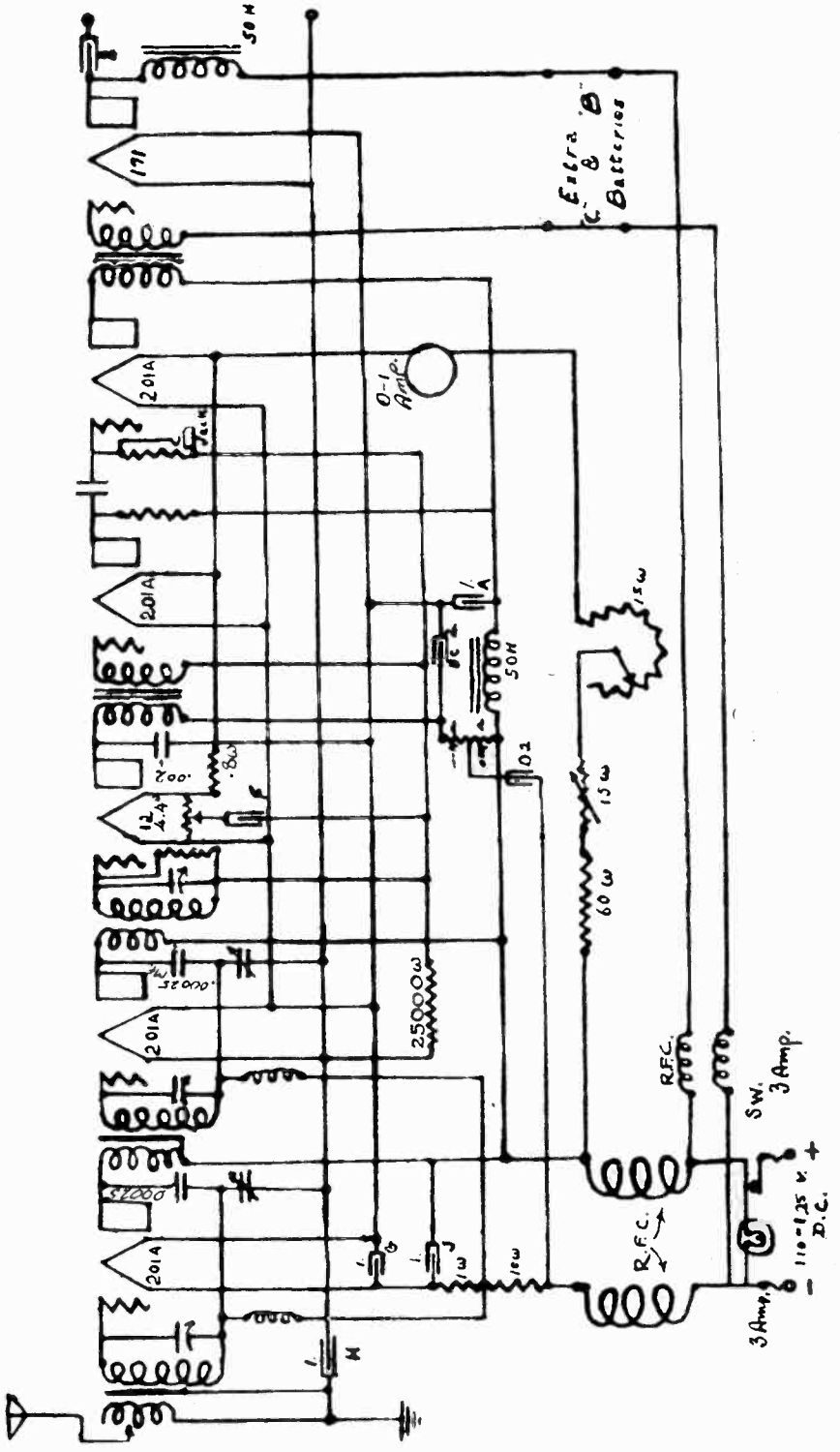




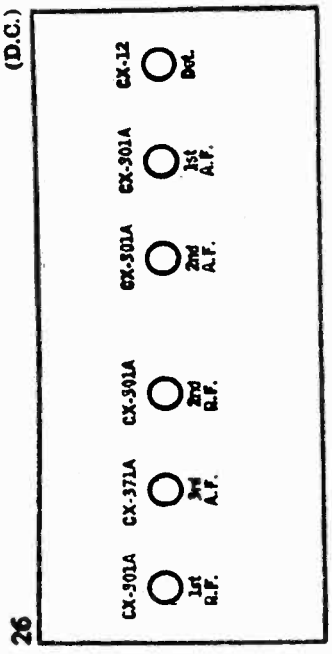
Model 25 Power Pack Schematic

COLONIAL RADIO CORP.

MODEL 26

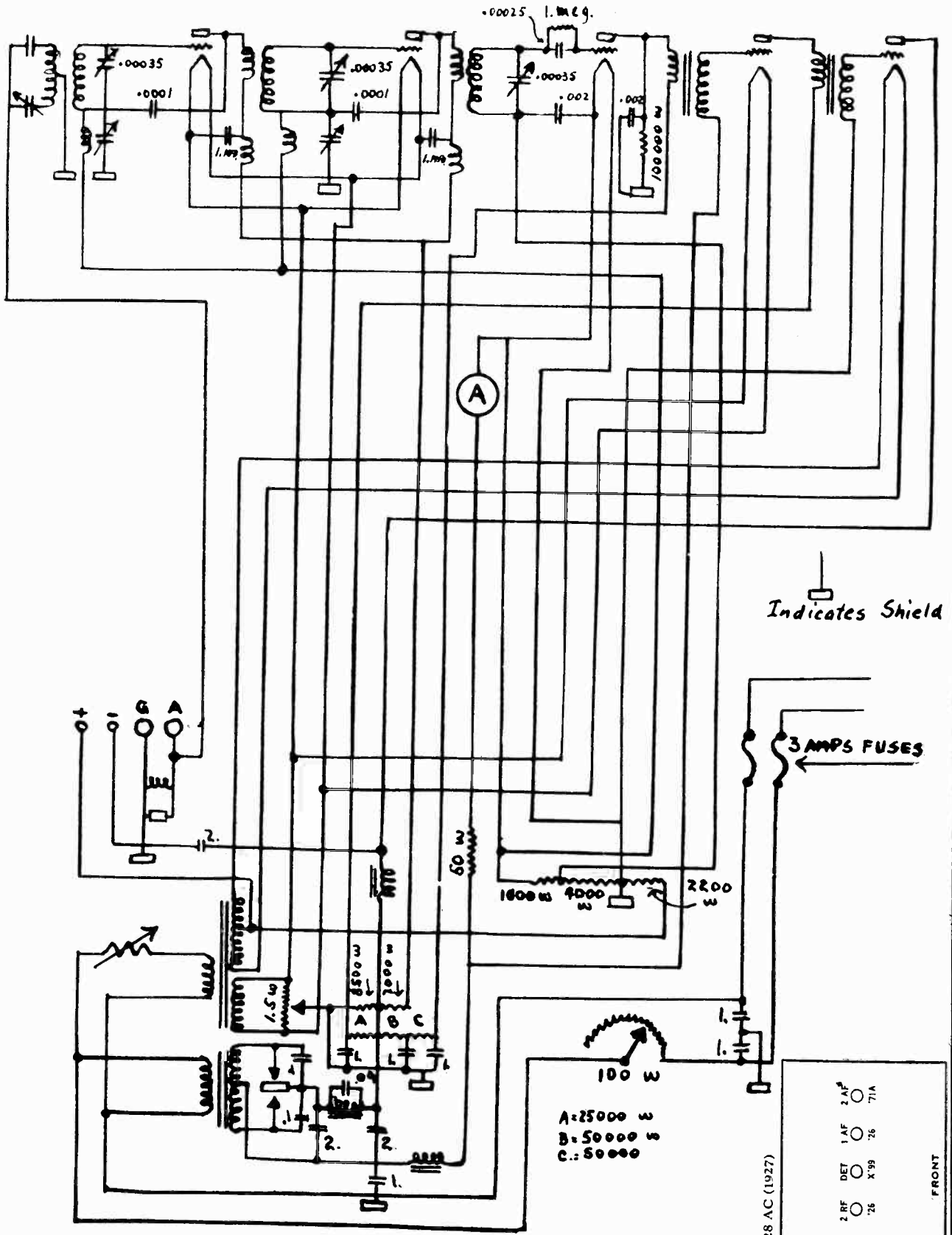


Model 26



MODEL 28 AC

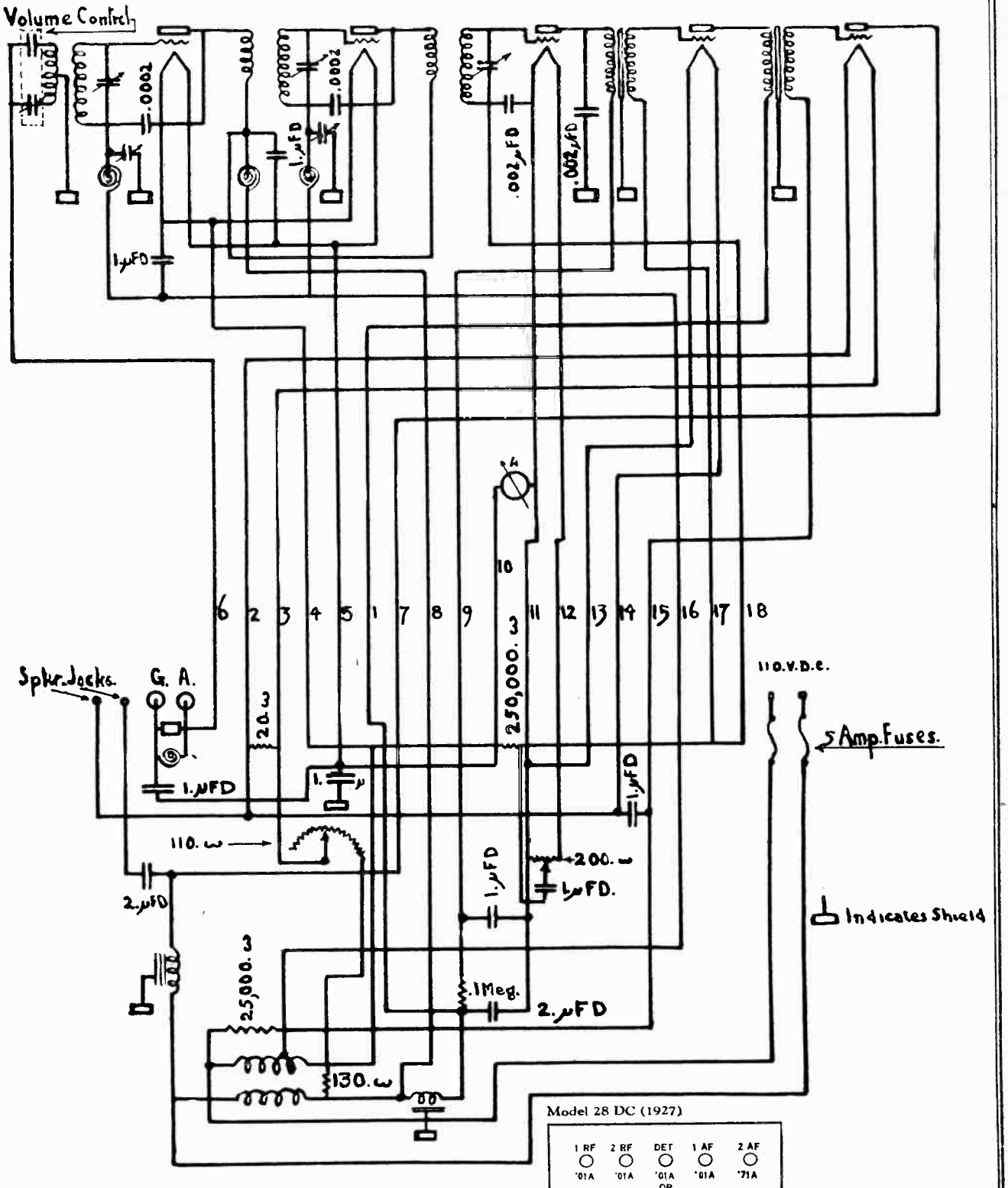
COLONIAL RADIO CORP.



Model 28 AC Serial # 90,001

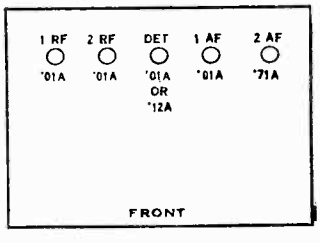
COLONIAL RADIO CORP.

MODEL 28 DC



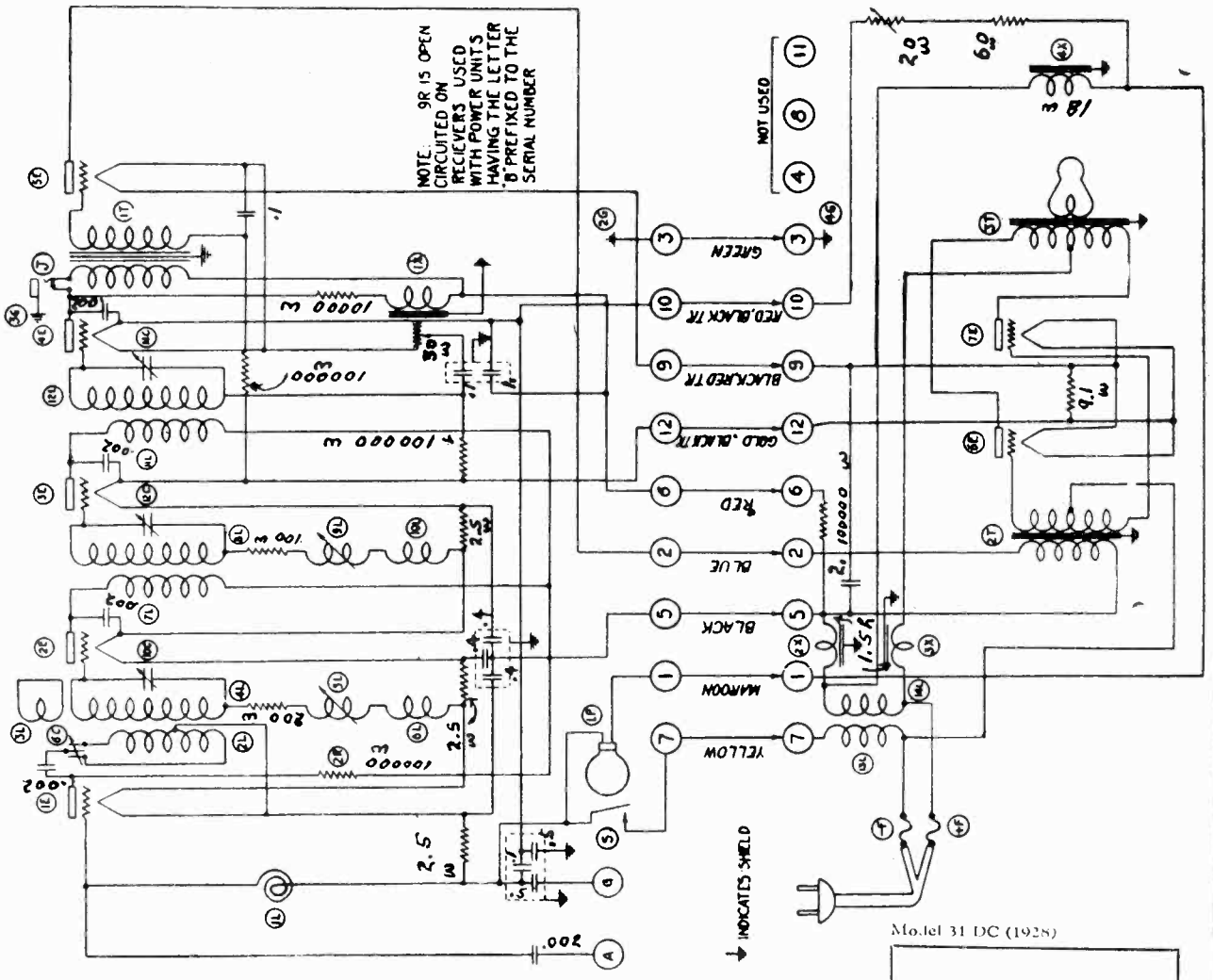
Model 28 DC Serial # 85,001

Model 28 DC (1927)

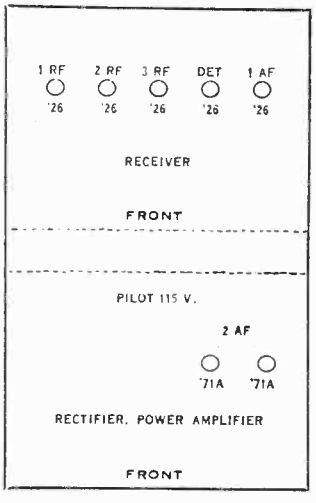


MODEL 31 DC

COLONIAL RADIO CORP.



Model 31 DC (1928)



CIRCUIT DIAGRAM
MODEL 31 DC 50,001 - 40,001
COLONIAL RADIO CORPORATION

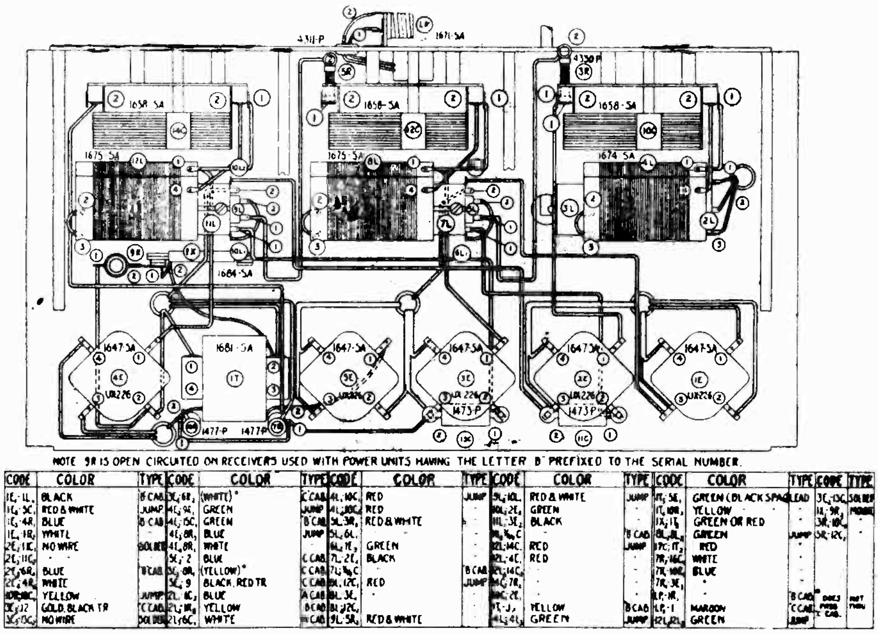
STAGE	TUBE	GRID VOLTAGE		FILAMENT VOLTAGE		PLATE VOLTAGE		PLATE CURRENT	
		MIN.	MAX.	MIN	MAX.	MIN	MAX	MIN	MAX
1ST RF	CX 326 UX 226	2	4	1.4	1.6	50	90	2	5
2ND RF	"	2	4	1.4	1.6	75	120	5	10
3RD RF	"	2	4	1.4	1.6	75	115	5	10
DETECTOR	"	2	4	1.3	1.5	40	70	1	.5
1ST AF	"	1.5	3	1.3	1.5	70	100	2.5	5.5
2ND AF #1	UX 171A CX 371A	12	16	4.4	5.1	75	115	6	20
2ND AF #2	"	12	16	4.4	5.1	75	115	6	20

TUBE CURRENT AND VOLTAGE CHART

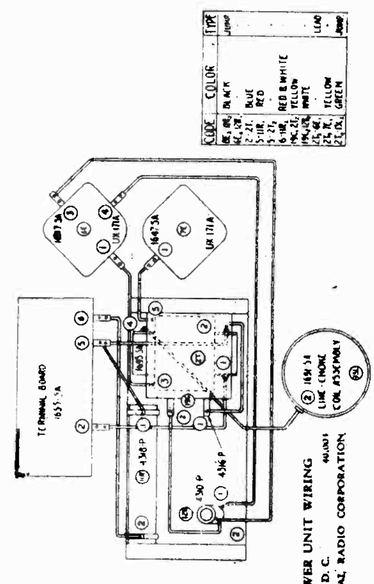
Model 31 D. C. 50,010

COLONIAL RADIO CORP.

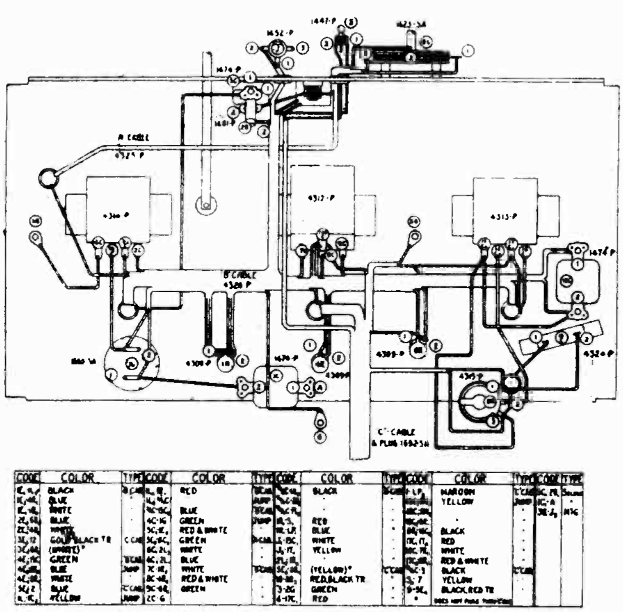
MODEL 31 DC Data
MODEL 31 AC Voltage



TOP VIEW OF RADIO SET WIRING
Model 31 DC 50,002



POWER UNIT WIRING
Model 31 D. C. 40,001
COLONIAL RADIO CORPORATION



BOTTOM VIEW OF RADIO SET WIRING
Model 31 DC 50,003
COLONIAL RADIO CORPORATION

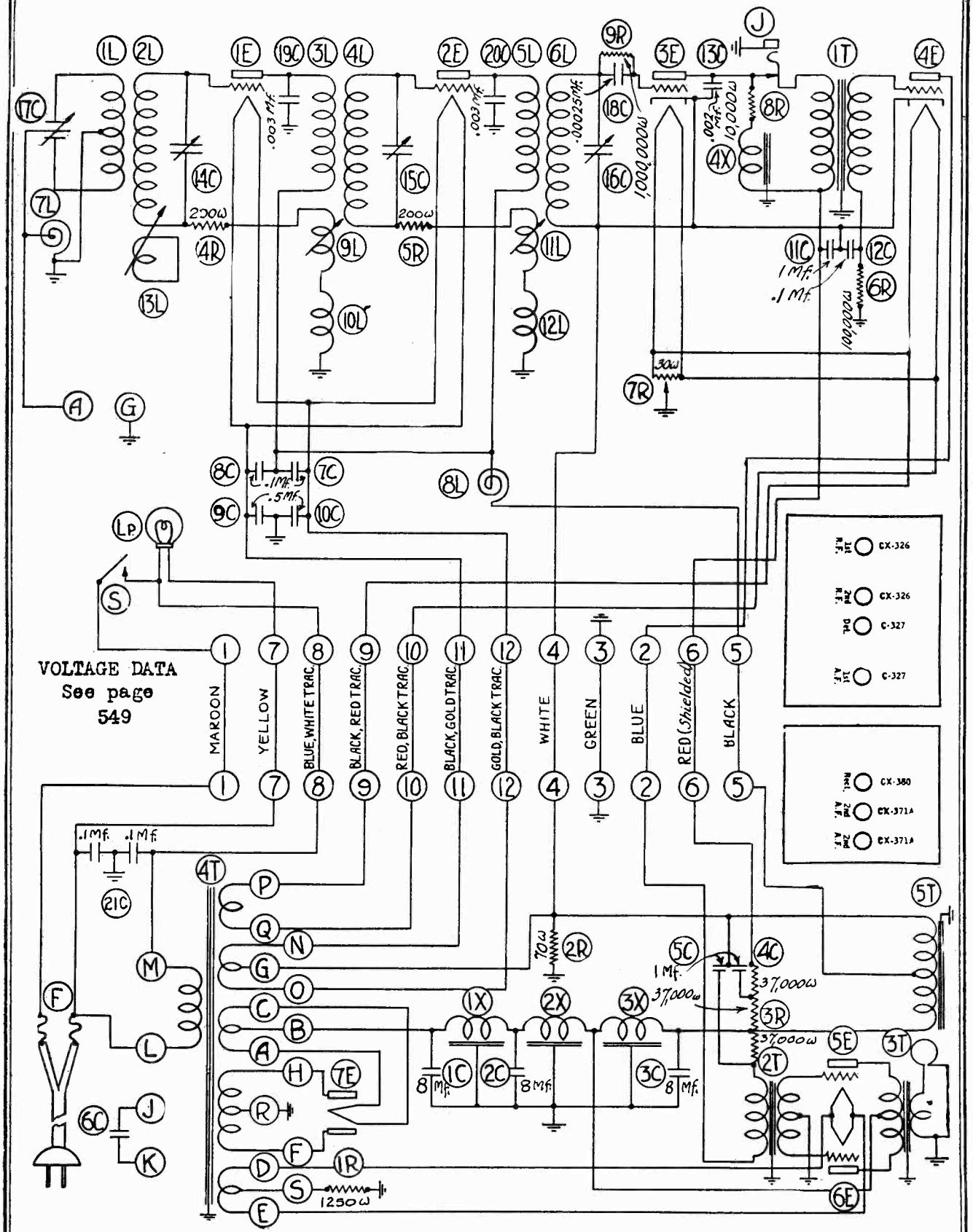
TUBE CURRENT AND VOLTAGE CHART

STAGE	TUBE	GRID VOLTAGE AT SOCKET MIN.	GRID VOLTAGE AT SOCKET MAX.	FILAMENT VOLTAGE AT TRANSFORMER MIN.	FILAMENT VOLTAGE AT TRANSFORMER MAX.	FILAMENT VOLTAGE AT SOCKET MIN.	FILAMENT VOLTAGE AT SOCKET MAX.	PLATE VOLTAGE AT SOCKET MIN.	PLATE VOLTAGE AT SOCKET MAX.	PLATE CURRENT AT SOCKET MIN.	PLATE CURRENT AT SOCKET MAX.
1ST R.F.	UX-226	-4.5	-6.1	1.53	1.77	1.35	1.55	95	125	6	9
2ND R.F.	UX-226	-4.5	-6.1	1.53	1.77	1.35	1.55	95	125	6	9
DETECTOR	UY-227	0	0	1.98	2.42	1.75	2.15	30	40	2	3
1ST A.F.	UY-227	-4.5	-6.1	1.98	2.42	1.75	2.15	80	110	3	4
2ND A.F.	UX-171A	-38	-52	4.6	5.10	4.55	5.05	160	220	15	21
3RD A.F.	UX-171A	-38	-52	4.6	5.10	4.55	5.05	160	220	15	21
RECTIFIER	UX-280	—	—	4.6	5.10	4.55	5.05	—	—	42	58

Model 31 AC 60001-5001

MODEL 31 AC

COLONIAL RADIO CORP.

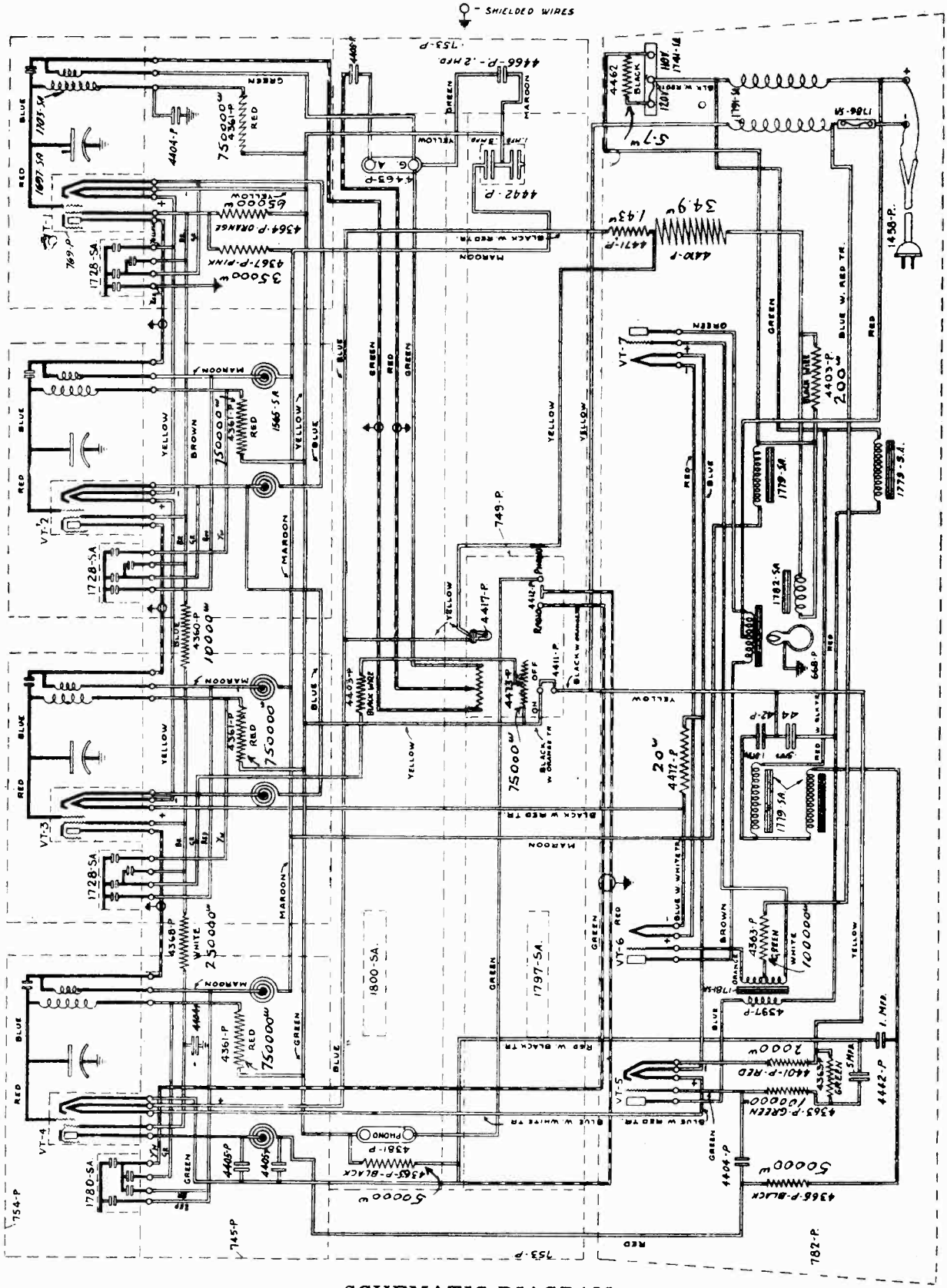


CIRCUIT DIAGRAM

MODEL 31 AC 60001-5001

COLONIAL RADIO CORP.

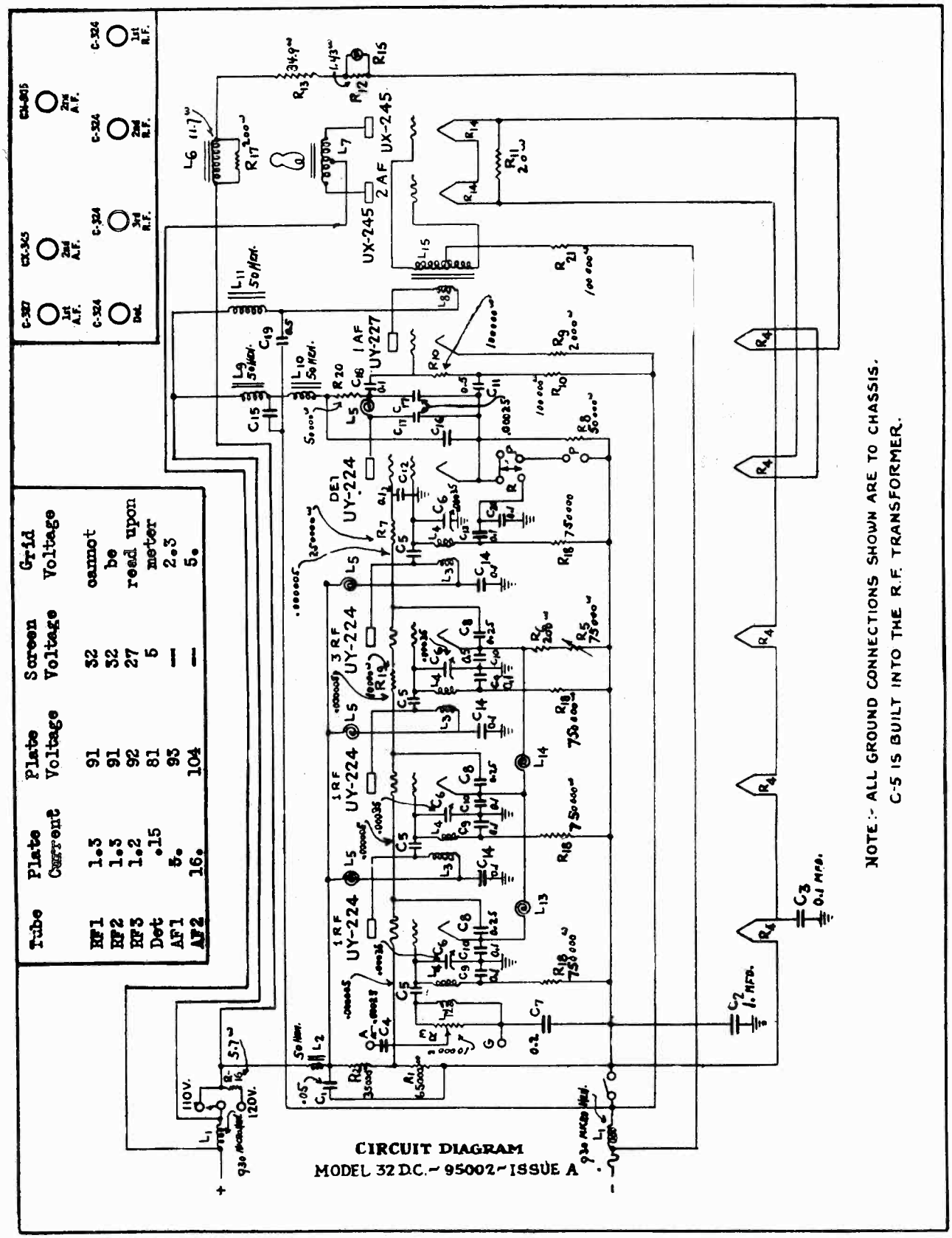
MODEL 32 DC
Chassis



SCHEMATIC DIAGRAM
Model 32 D.C. — 95001 - Issue A

MODEL 32 DC

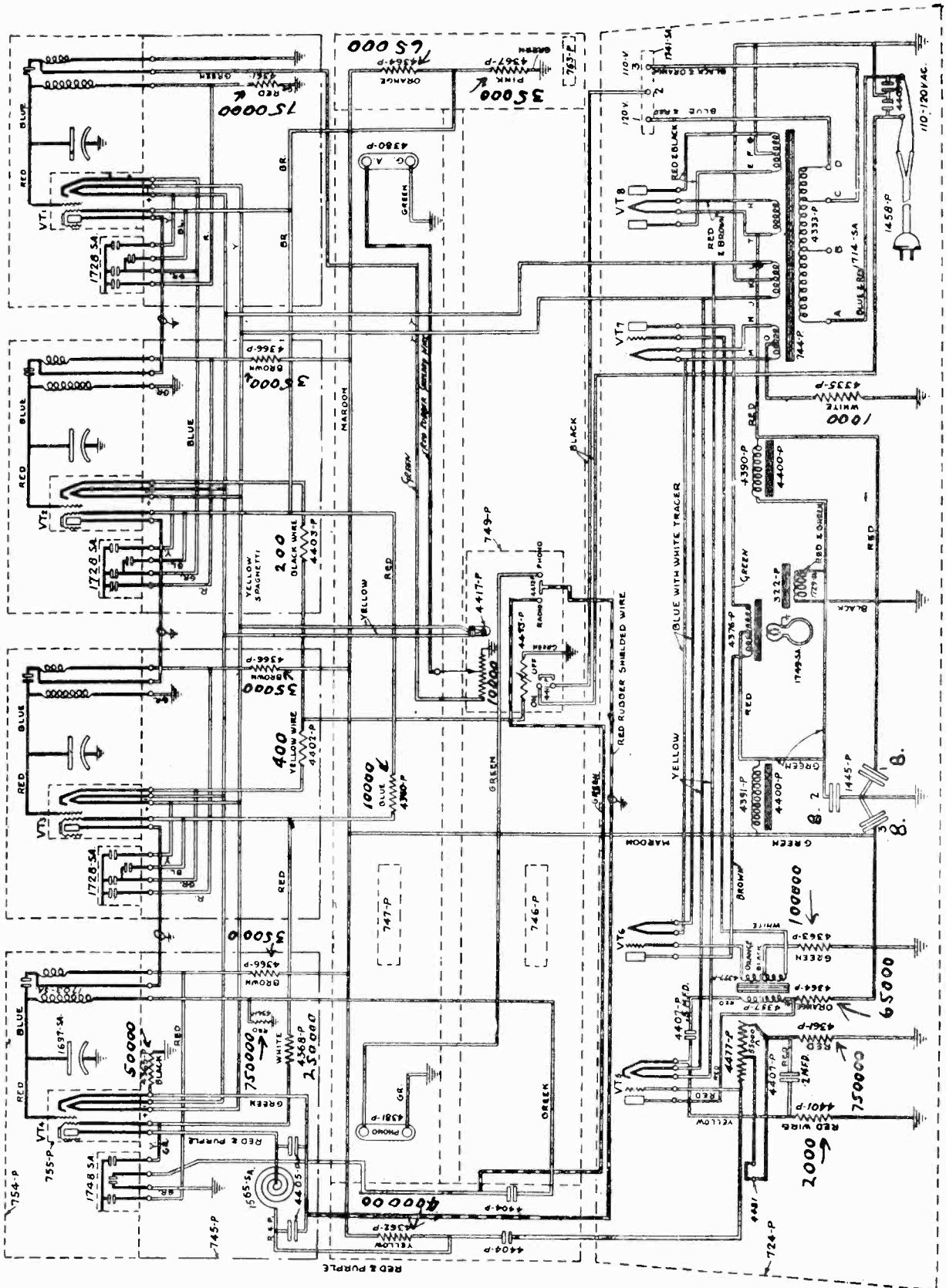
COLONIAL RADIO CORP.



Chassis layout on next page.

COLONIAL RADIO CORP.

MODEL 32 AC
Chassis

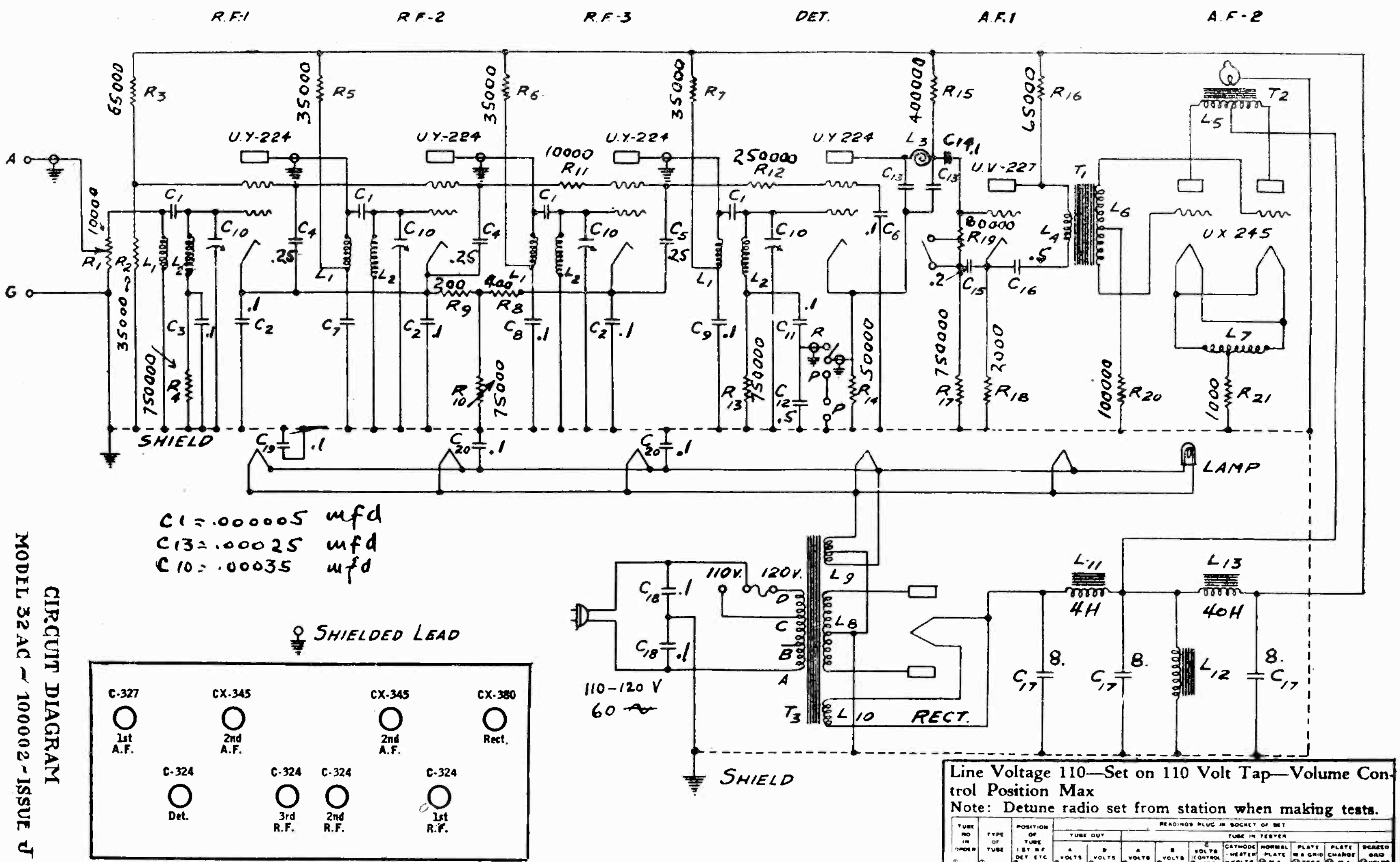


SCHEMATIC DIAGRAM

Model 32 A.C. 100001-Issue-J

MODEL 32 AC
Schematic

COLONIAL RADIO CORP.



NOTE:— C_1 IS BUILT INTO THE R.F. TRANSFORMERS

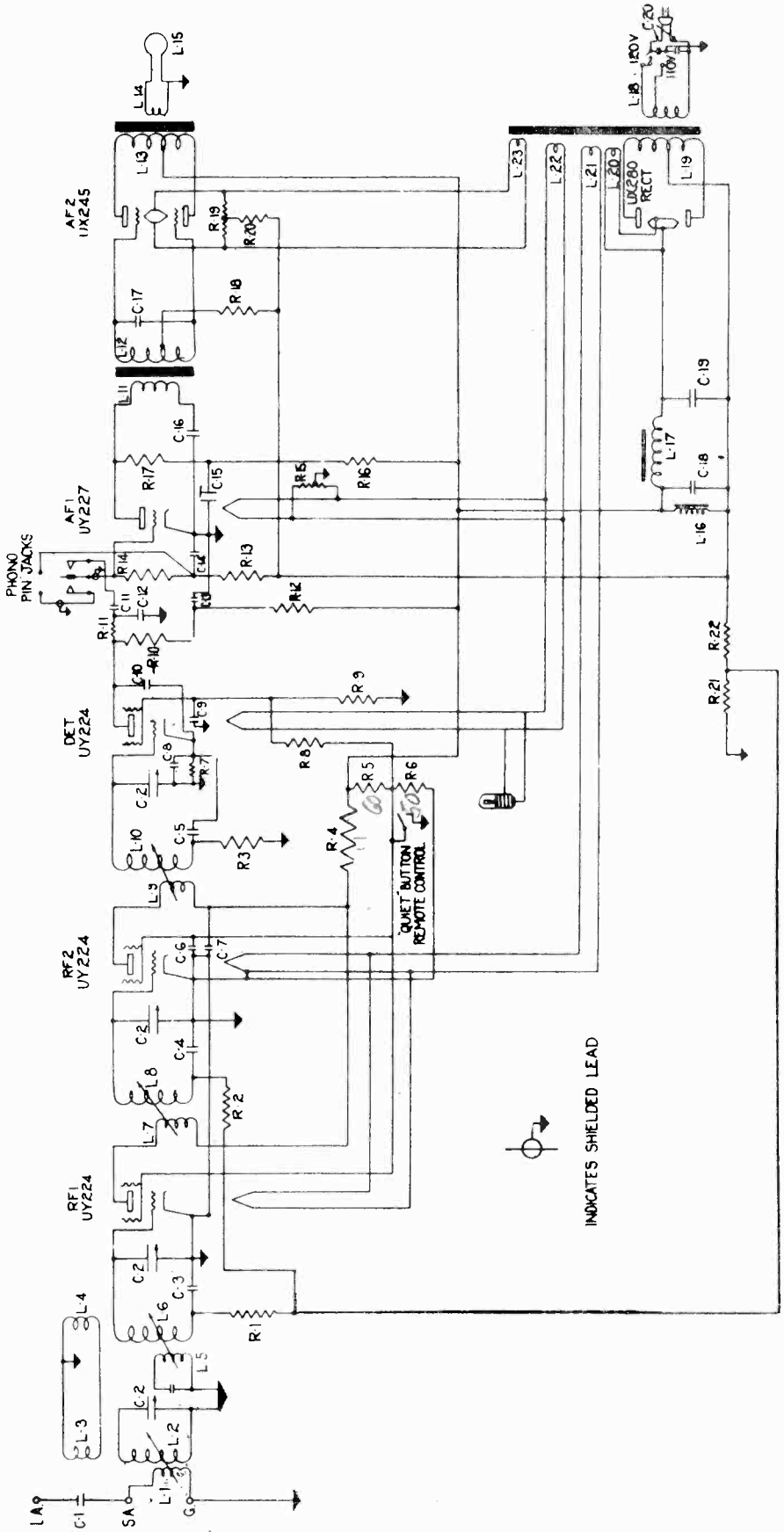
Line Voltage 110—Set on 110 Volt Tap—Volume Control Position Max
Note: Detune radio set from station when making tests.

Tube No. in Order ①	Type of Tube ②	Position of Tube 1st RF Det Etc ③	Readings Plug in Socket of Set: Tube Out: A Volts ④	Tube Out: B Volts ⑤	Tube in Tester: A Volts ⑥	B Volts ⑦	C Volts (Control Grid) ⑧	Cathode-Heater Volts ⑨	Normal Plate MA ⑩	Plate MA Grid Test ⑪	Plate Change MA ⑫	Screen Grid Volts ⑬
1	224	1st RF	2.45	162	2.4	160	1.3	-	3			55
2	224	2nd RF	2.45	162	2.4	160	1.3	-	3			85
3	224	3rd RF	2.45	162	2.4	160	1.3	-	3			86
4	224	Det.	2.45	110	2.4	110	-	-	.8			15
5	227	1st A	2.45	102	2.4	100	-	-	3			-
6	245	2nd A	2.45	235	2.4	230	28	-	22	26	4	-
7	245	2nd A	2.45	235	2.4	230	28	-	22	26	4	-
8	280	Rect.	4.9	-	4.8	-	-	-	100	-	-	-

CIRCUIT DIAGRAM
MODEL 32 AC — 100002 - ISSUE J

COLONIAL RADIO CORP.

MODEL 33,34,35 AC
Schematic



Note—In the 25 cycle models, R_3 is shorted out and there is an additional 1 mfd. condenser connected from the R.F. screen-grids to ground.

Electrical values on next page.

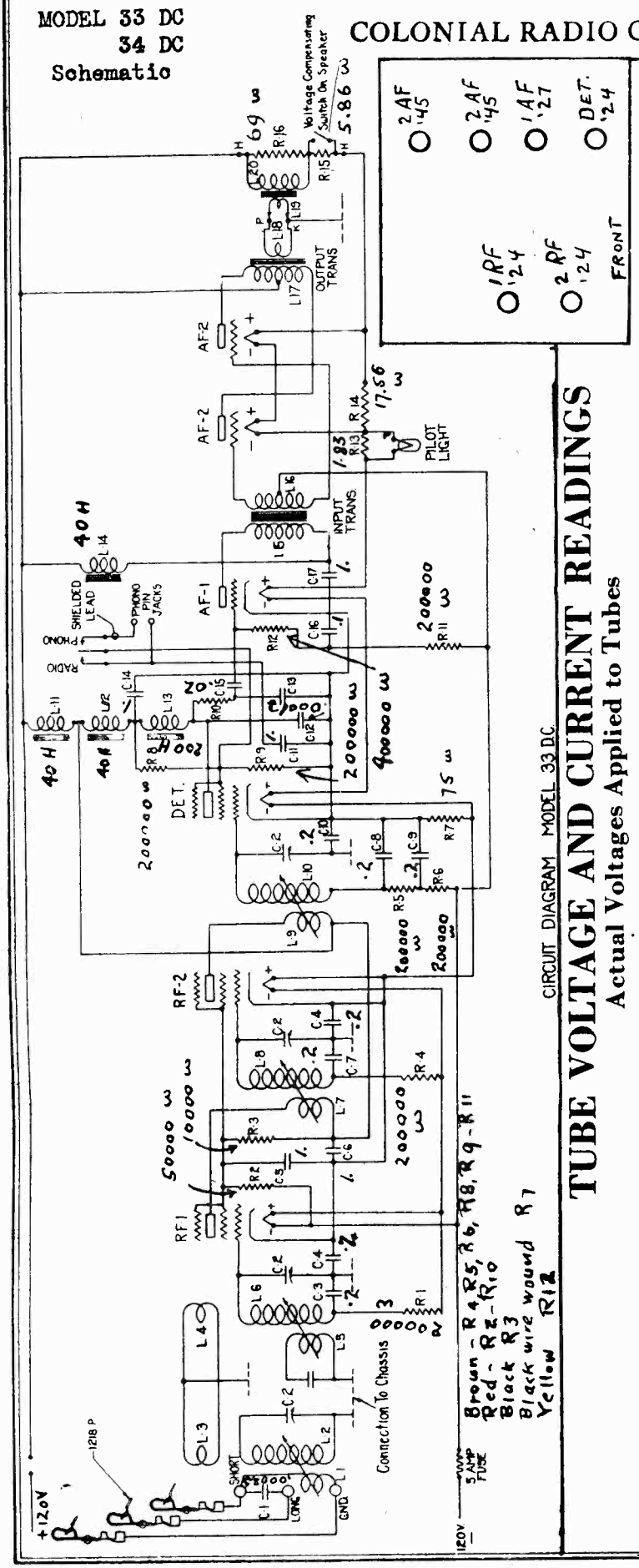
Socket layout on page 560

Remote Control tuning notes on page 560

Remote Control circuit on page 561

MODEL 33 DC
34 DC
Schematic

COLONIAL RADIO CORP.



CIRCUIT DIAGRAM MODEL 33 DC

TUBE VOLTAGE AND CURRENT READINGS

Actual Voltages Applied to Tubes

	RF1	RF2	Det.	AF1	AF2
Plate Voltage	110v.	110v.	105v.	110v.	110v.
Control-Grid Voltage	-2.3	-2.3	-4.8	-4.8	-13
Screen-Grid Voltage	72	72	40		
Plate Current	2.5 m.a.	2.5 m.a.	0.8 m.a.	4 m.a.	15 m.a.

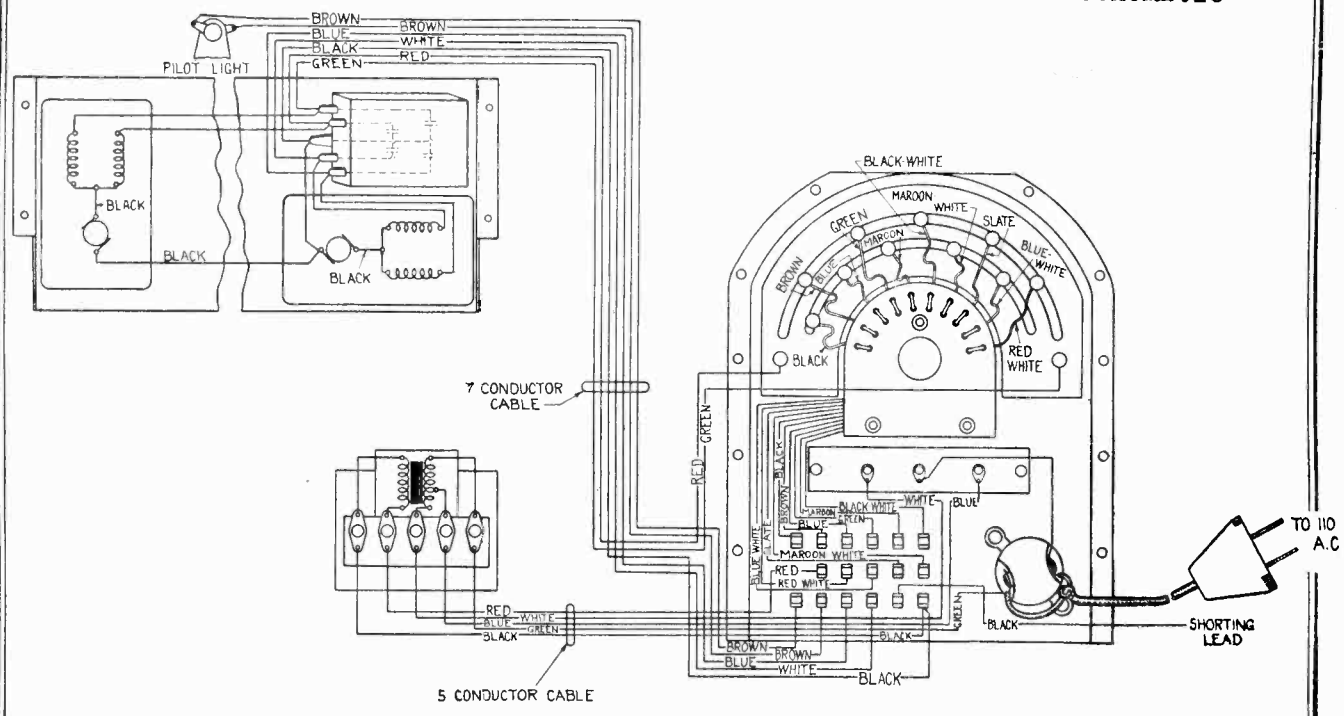
Voltages as Read on a 1000 OHMS Per Volt Meter

Plate Voltages on the 250 v. scale; Control-Grid Voltages on the 50 v. scale; Screen-Grid Voltages on the 100 v. scale

Plate Voltage	100 v.	100 v.	85 v.	100 v	100 v.
Control-Grid Voltage	-0.6	-0.6	-0.5	0.35	12
Screen-Grid Voltage	68	68	10		
Plate Current	2.5 m.a.	2.5 m.a.	0.8 m.a.	4 m.a.	15 m.a.

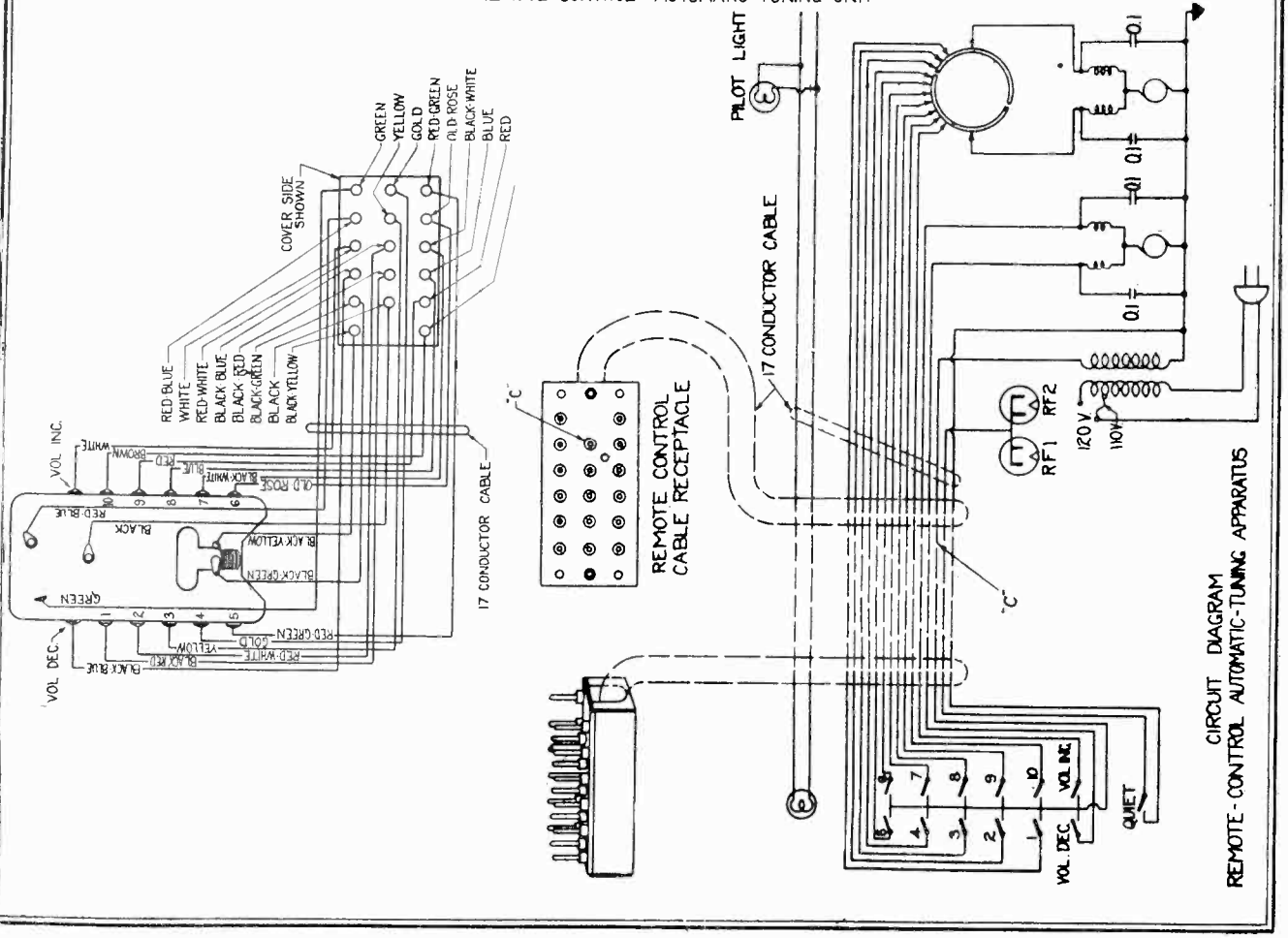
COLONIAL RADIO CORP.

MODEL 33,34,35 AC
Remote Control
Schematic



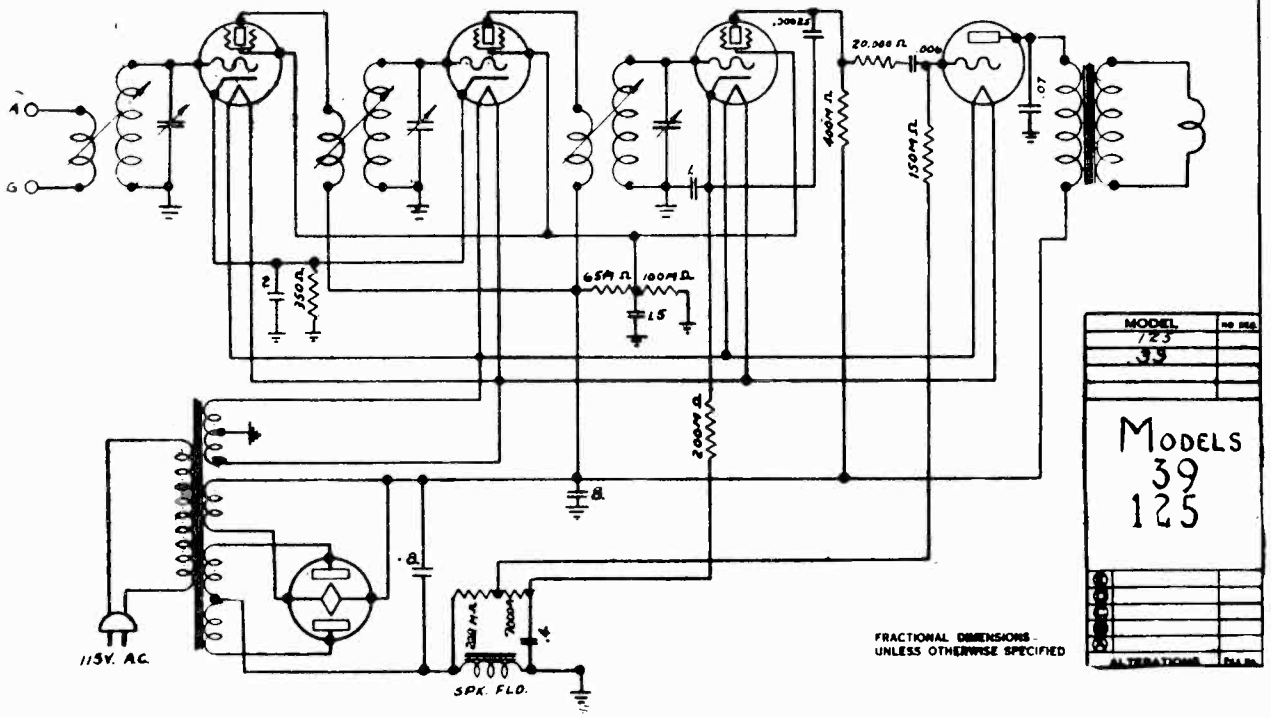
WIRING DIAGRAM

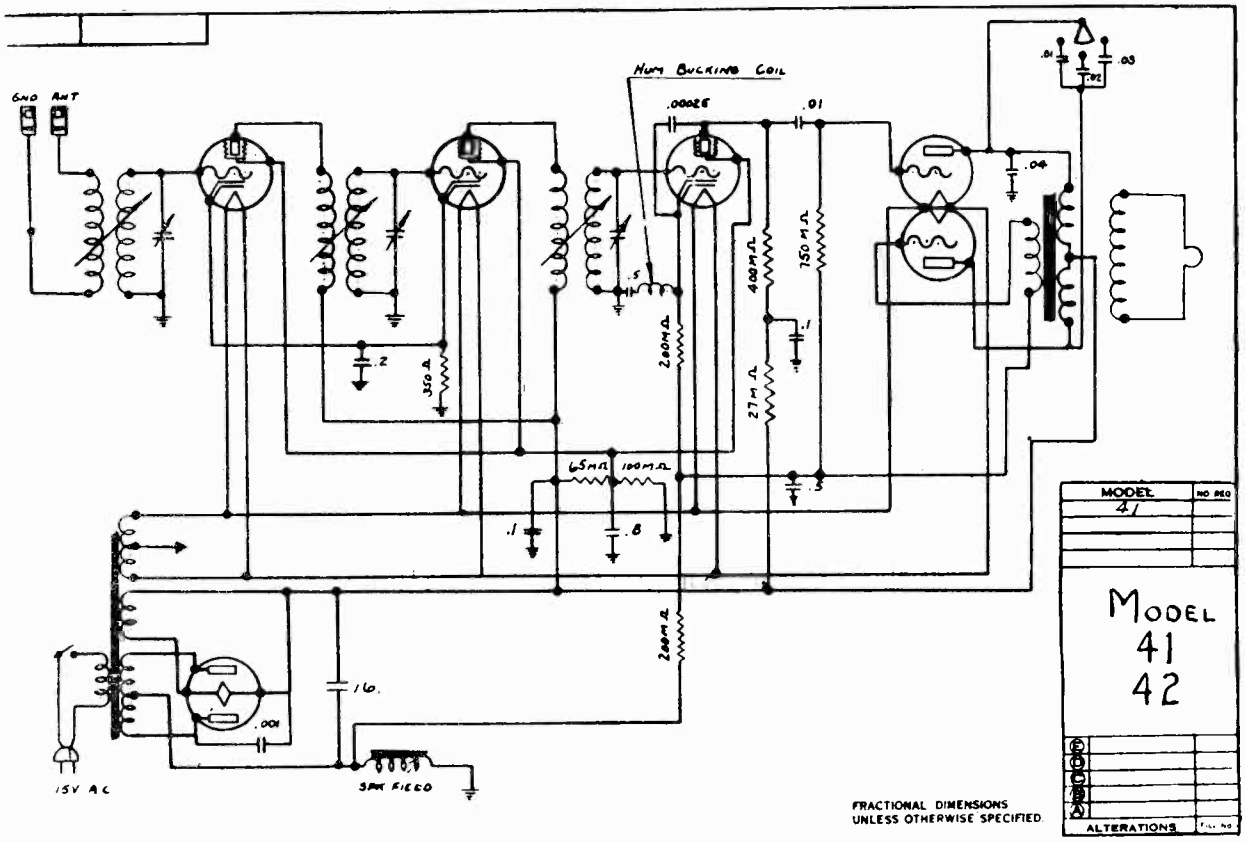
REMOTE-CONTROL AUTOMATIC-TUNING UNIT



MODEL 39, 125
MODEL 41,42
Schematics

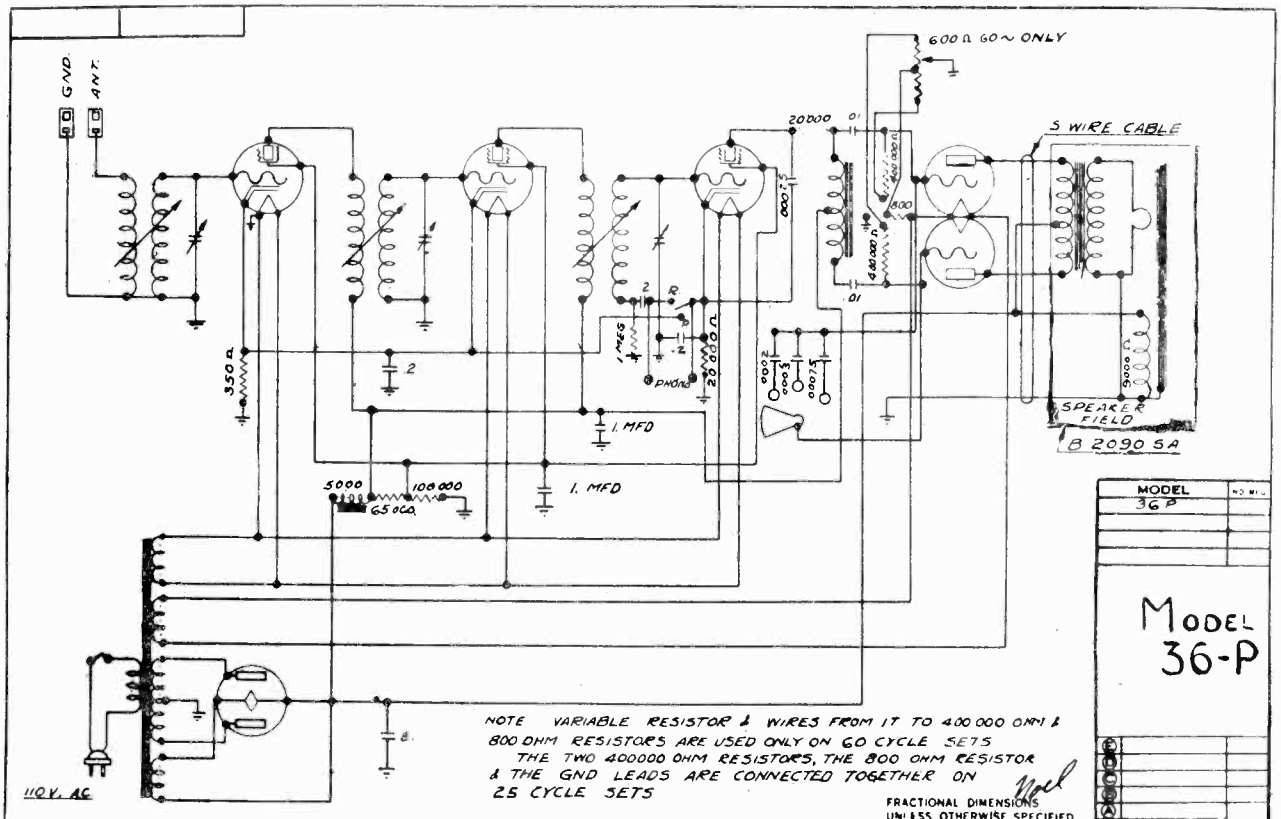
COLONIAL RADIO CORP.

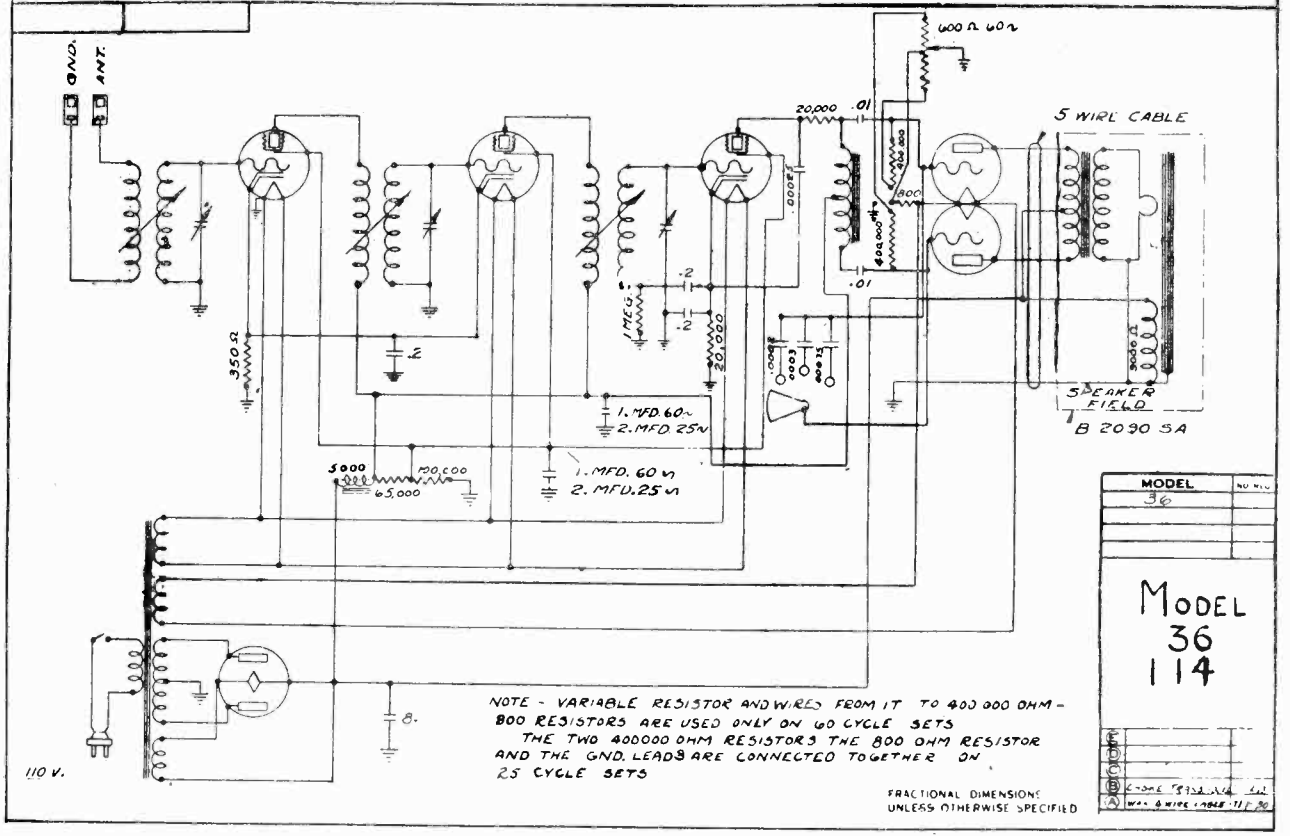




COLONIAL RADIO CORP.

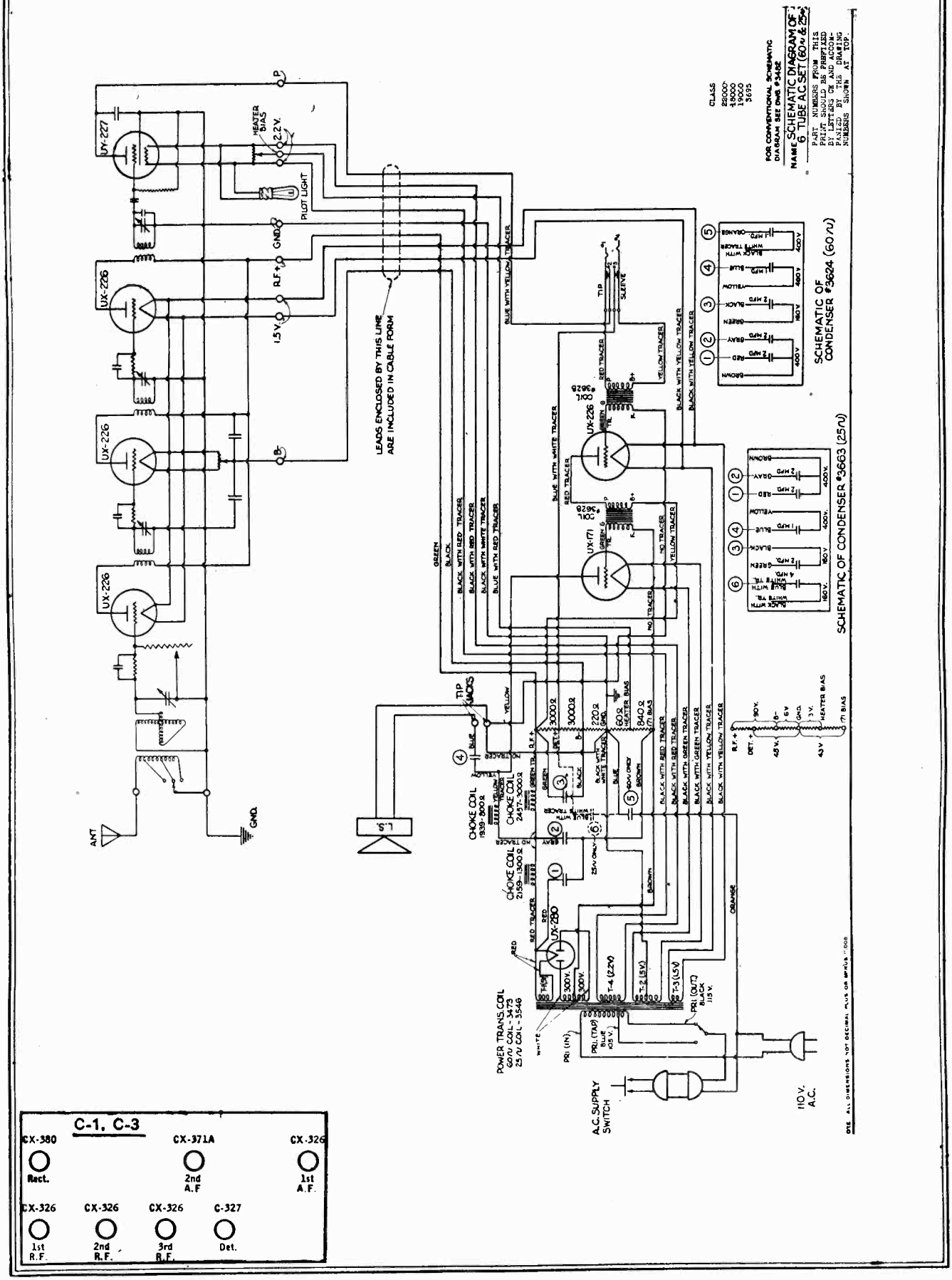
MODEL 36
MODEL 36-P
MODEL 114





COLUMBIA PHONOGRAPH COMPANY

MODEL C-1, C-3
Schematic

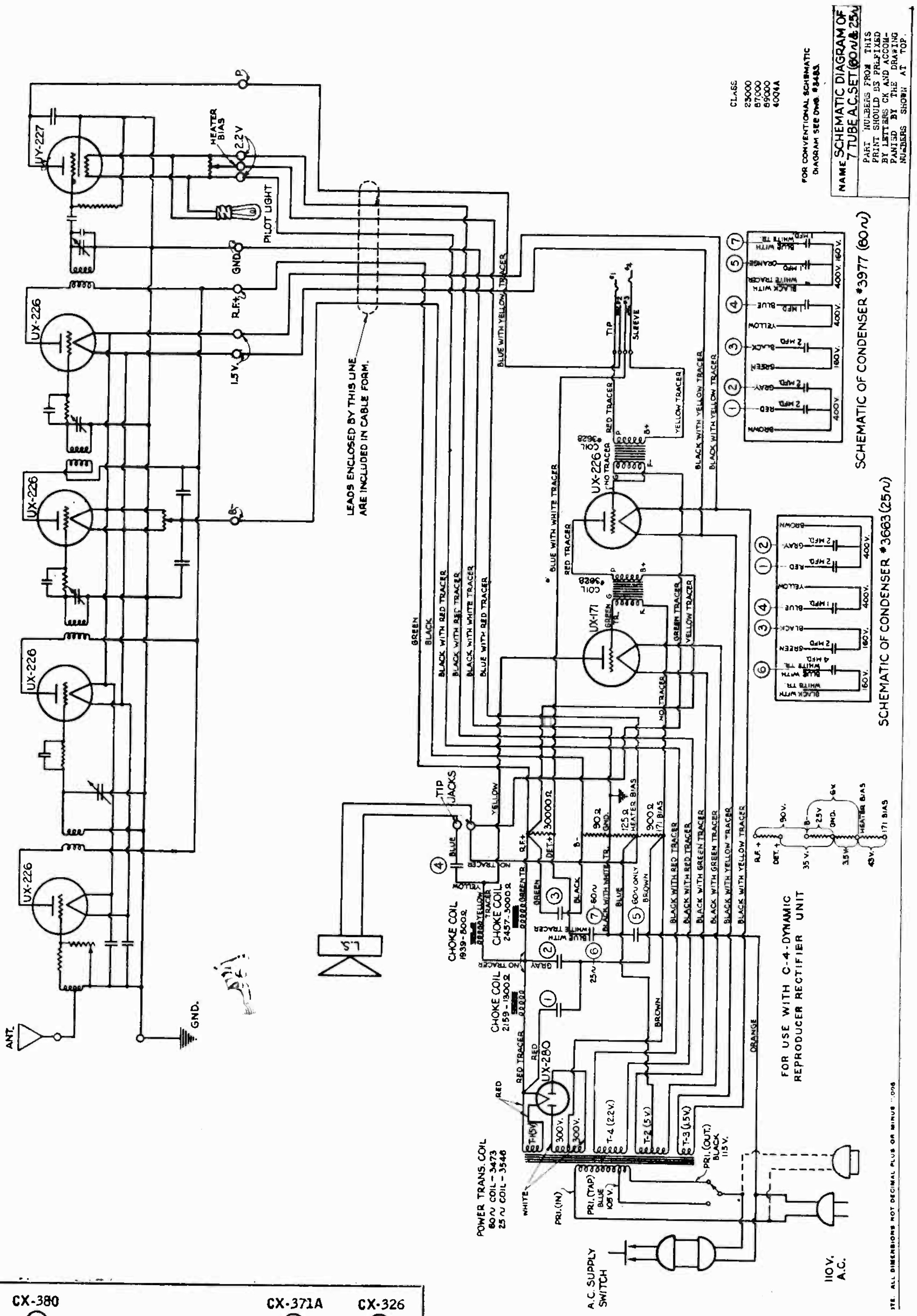


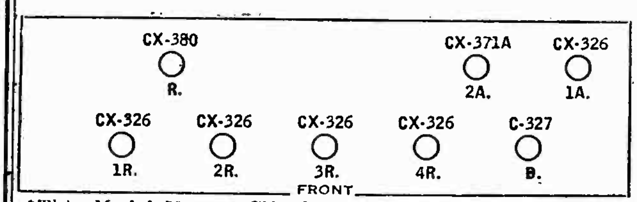
C-1, C-3

CX-380 Rect.		CX-371A 2nd A.F	CX-326 1st A.F.
CX-326 1st R.F.	CX-326 2nd R.F.	CX-326 3rd R.F.	C-327 Det.

MODEL C-2, C-4
Schematic

COLUMBIA PHONOGRAPH COMPANY

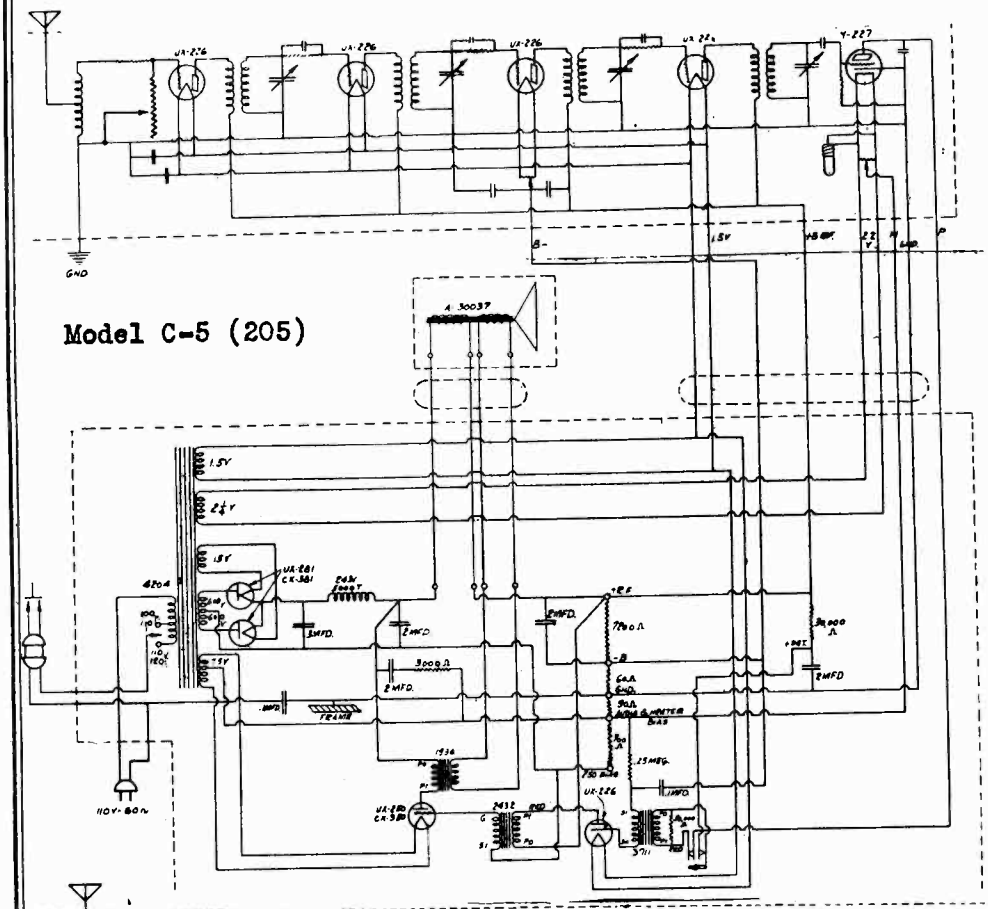


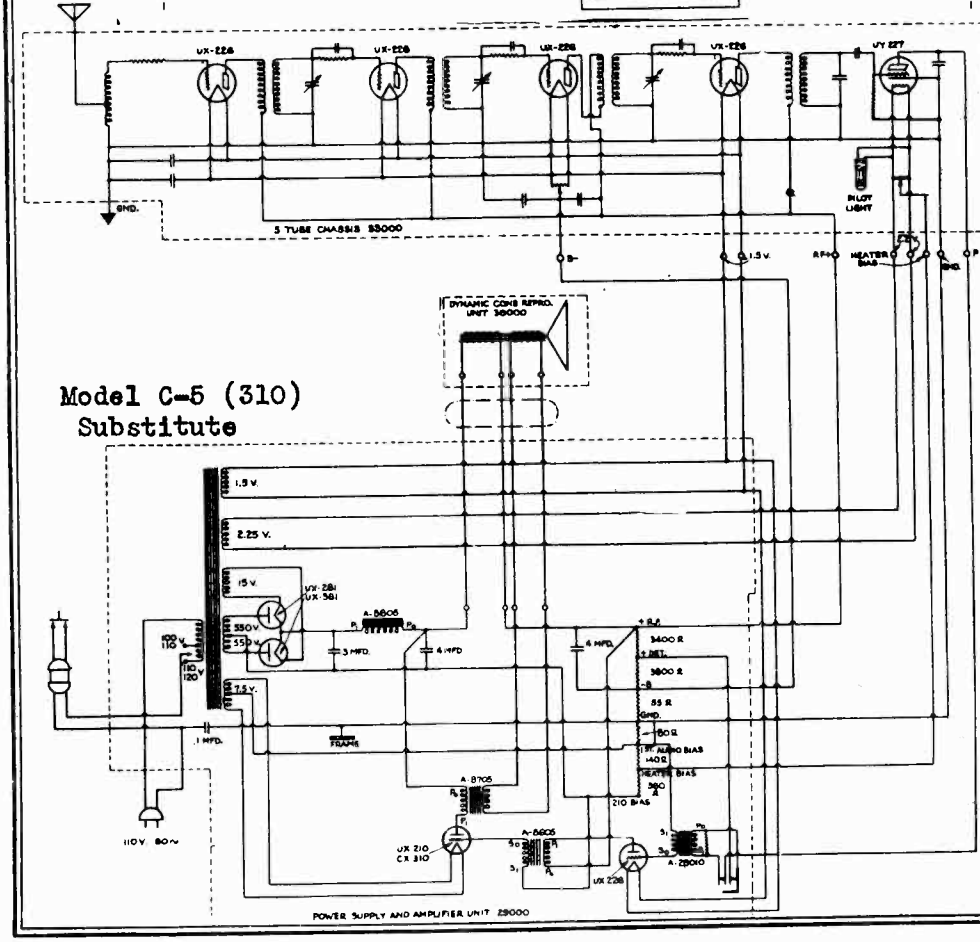


*This Model Uses a CX-381 Also for the Dynamic Speaker Field Supply.

COLUMBIA PHONOGRAPH COMPANY

MODEL C-5 (205)
MODEL C-5 (310)
Schematic
Voltage
Socket

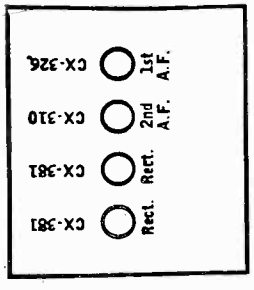




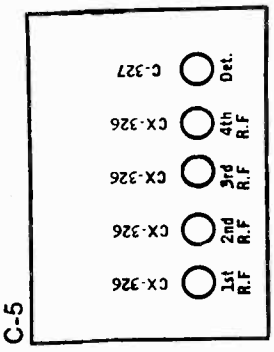
Line Voltage 116

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST A.F DET ETC	RESISTANCE PLUG IN SOCKET OF SET — TUBE OUT: A VOLTS	TUBE OUT: B VOLTS	TUBE IN TESTER: A VOLTS	TUBE IN TESTER: B VOLTS	TUBE IN TESTER: C VOLTS	TUBE IN TESTER: CATHODE VOLTS	PLATE M.A. NORMAL PLATE M.A.	PLATE M.A. PLATE M.A. 1.5 BIAS	PLATE M.A. PLATE M.A. CHARGE
1	226	1st. R.F.	1.48	90	1.4	84	2.5		5.8	9.8	4.0
2	226	2nd. R.F.	1.48	90	1.4	84	2.5		5.8	9.8	4.0
3	226	3rd. R.F.	1.48	90	1.4	84	2.5		5.8	9.8	4.0
4	226	4th. R.F.	1.48	90	1.4	84	2.5		5.8	9.8	4.0
5	227	DET.	2.3	44	2.0	36	3.5		1.6	1.6	0
6	226	1st. A.	1.56	88	1.4	72	2.0		4.8	7.8	3.0
7	210	2nd. A.	7.9	512	7.4	430	32.5		24.	28.	4.0
8	281	Rect.	—	—	7.0	—	—	28.0	—	—	—
9	281	Rect.	—	—	7.4	—	—	28.0	—	—	—

(A.C.)

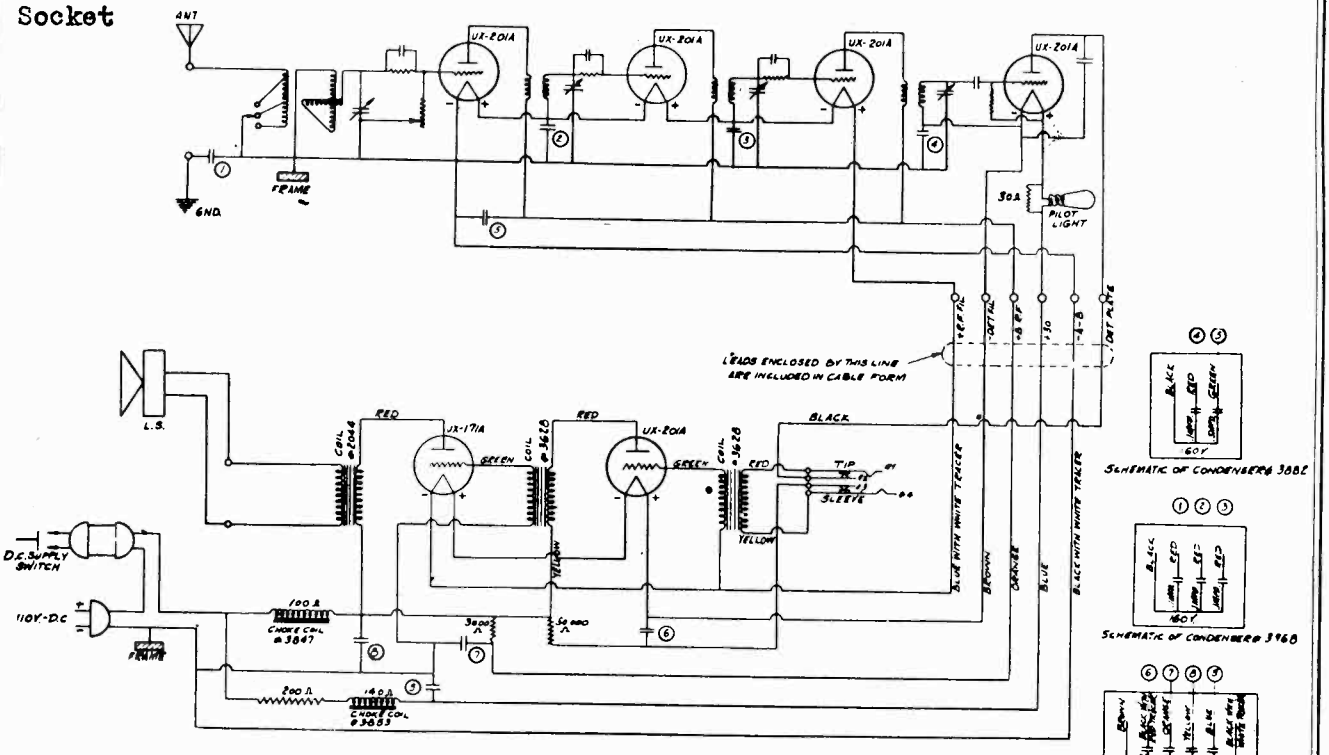


C-5

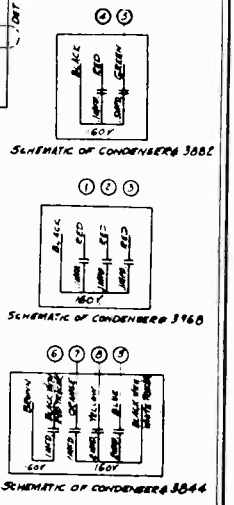


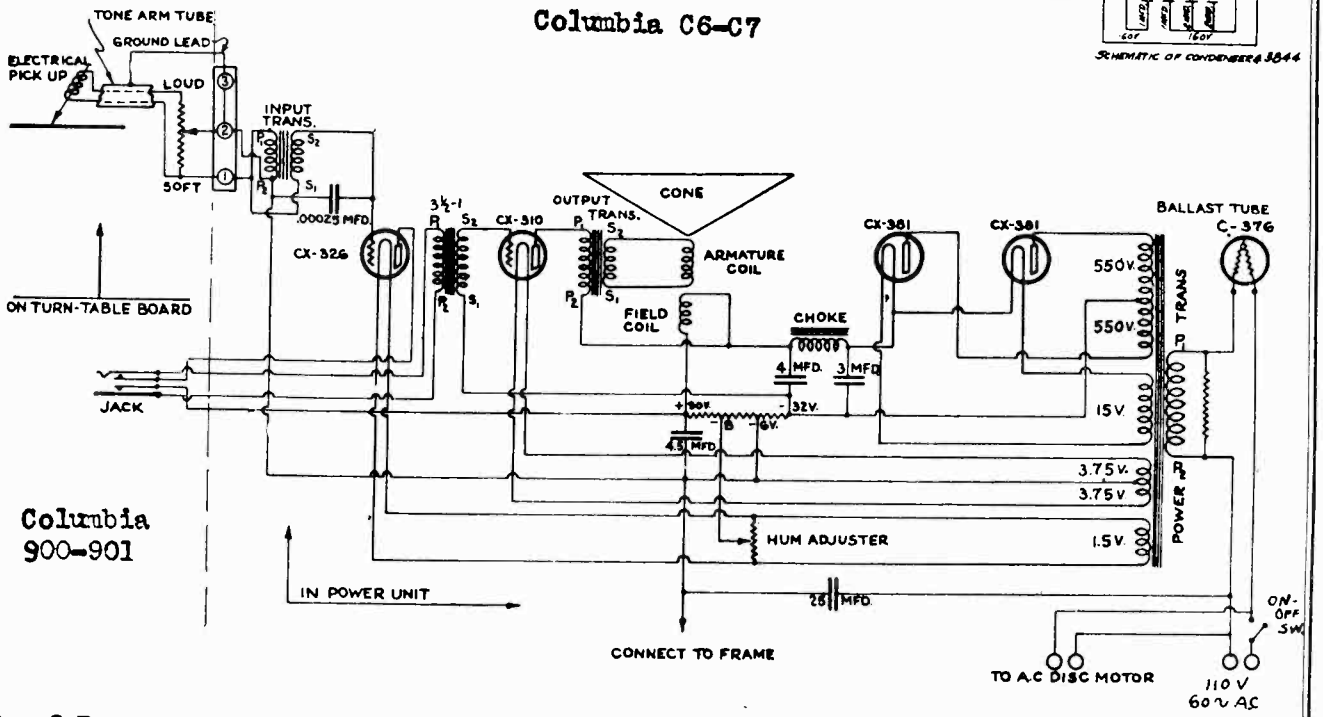
MODEL C-6, C-7
MODEL 900, 901
Schematic
Socket

COLUMBIA PHONOGRAPH COMPANY



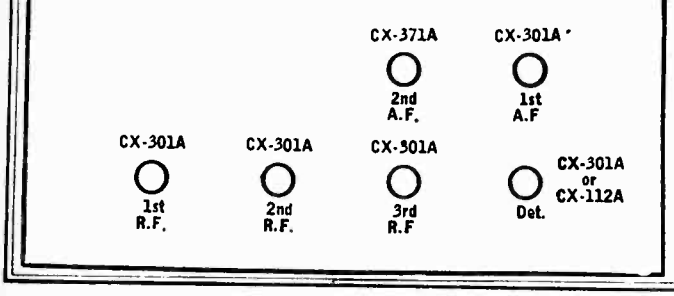
Columbia C6-C7



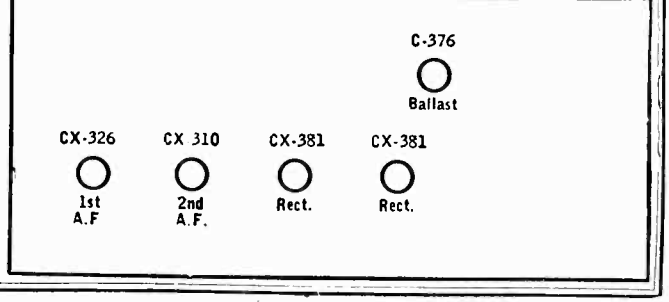


Columbia 900-901

C-6, C-7 (D.C.)

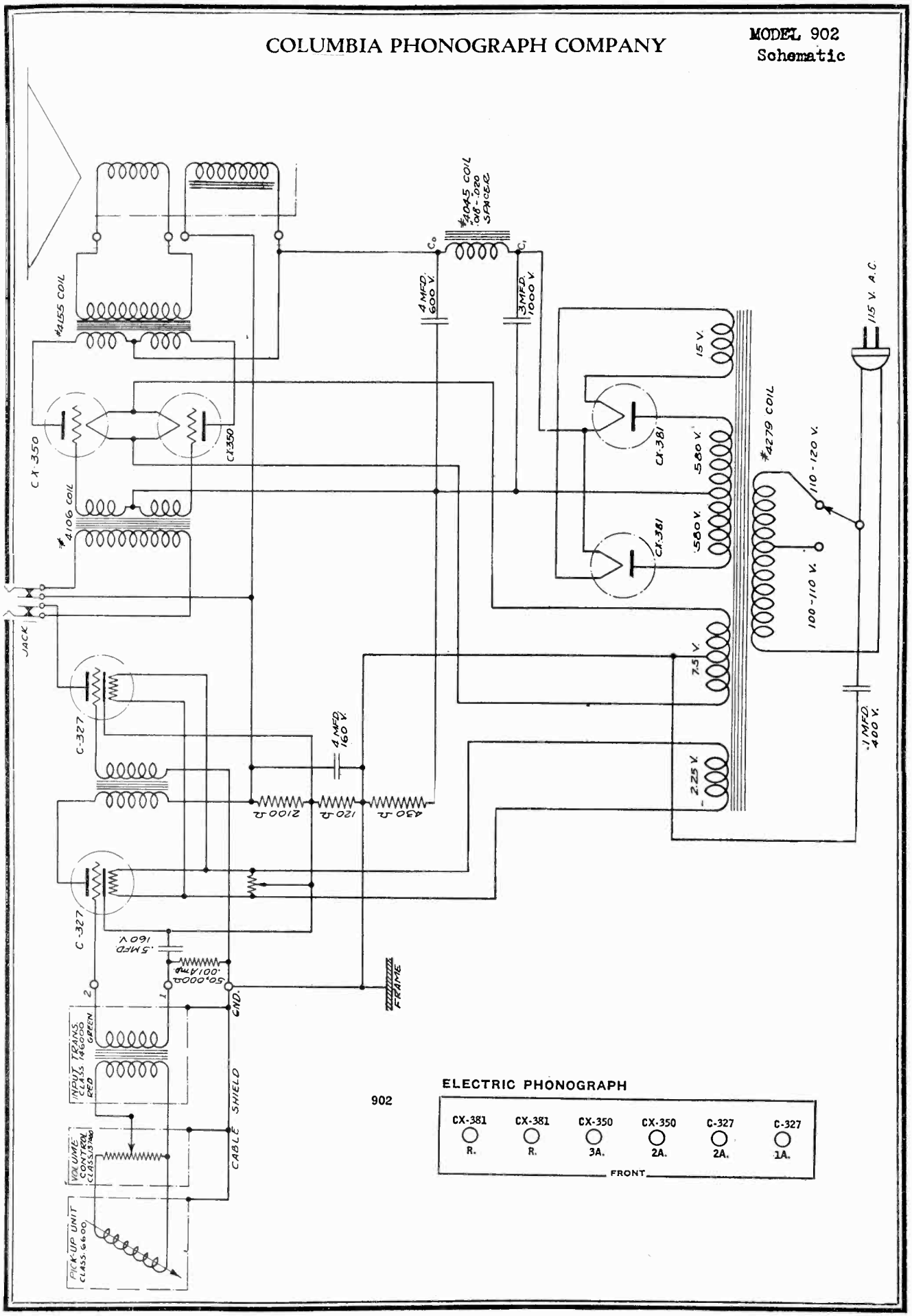


900, 901 Electric Phonograph (A C)



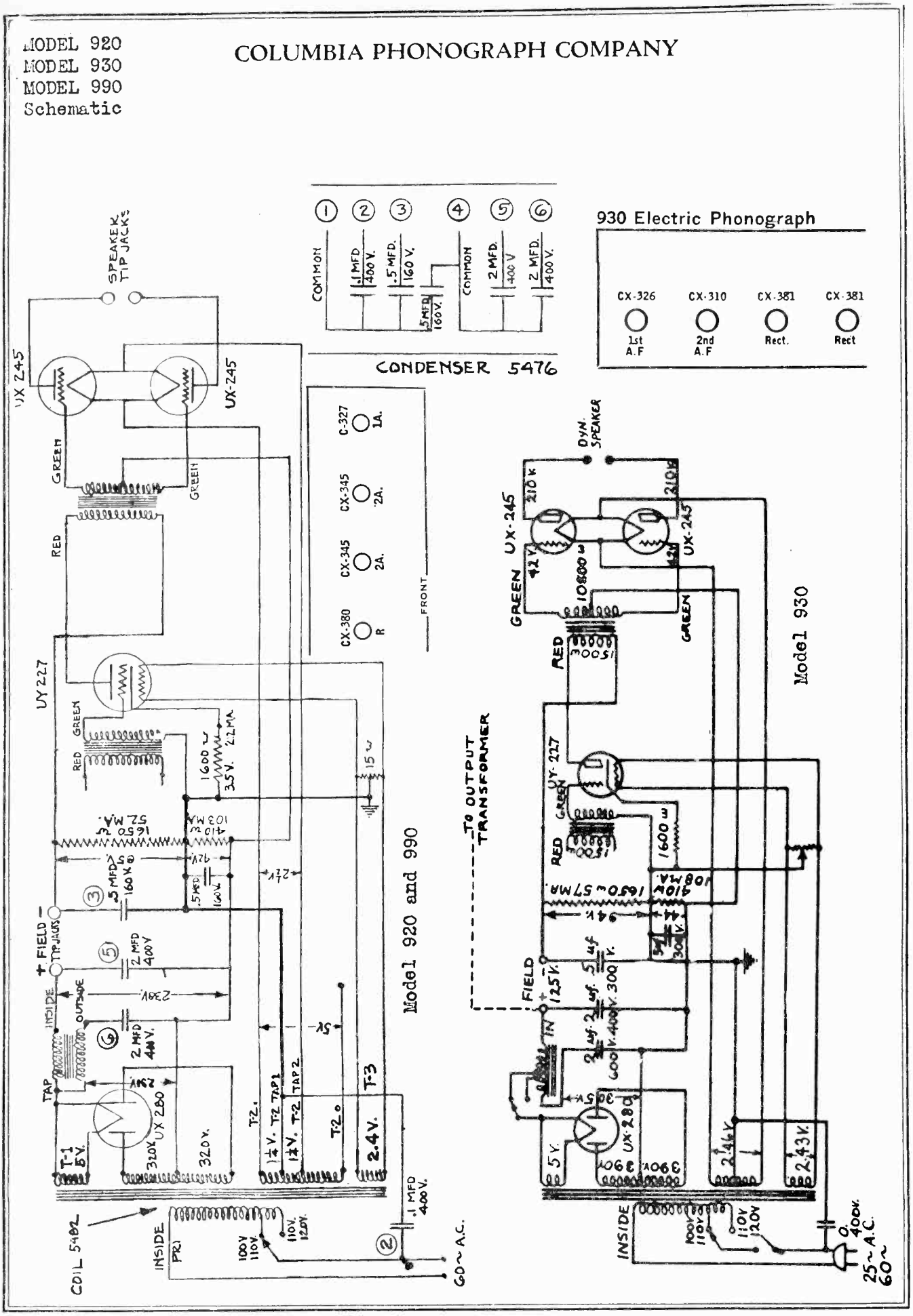
COLUMBIA PHONOGRAPH COMPANY

MODEL 902
Schematic

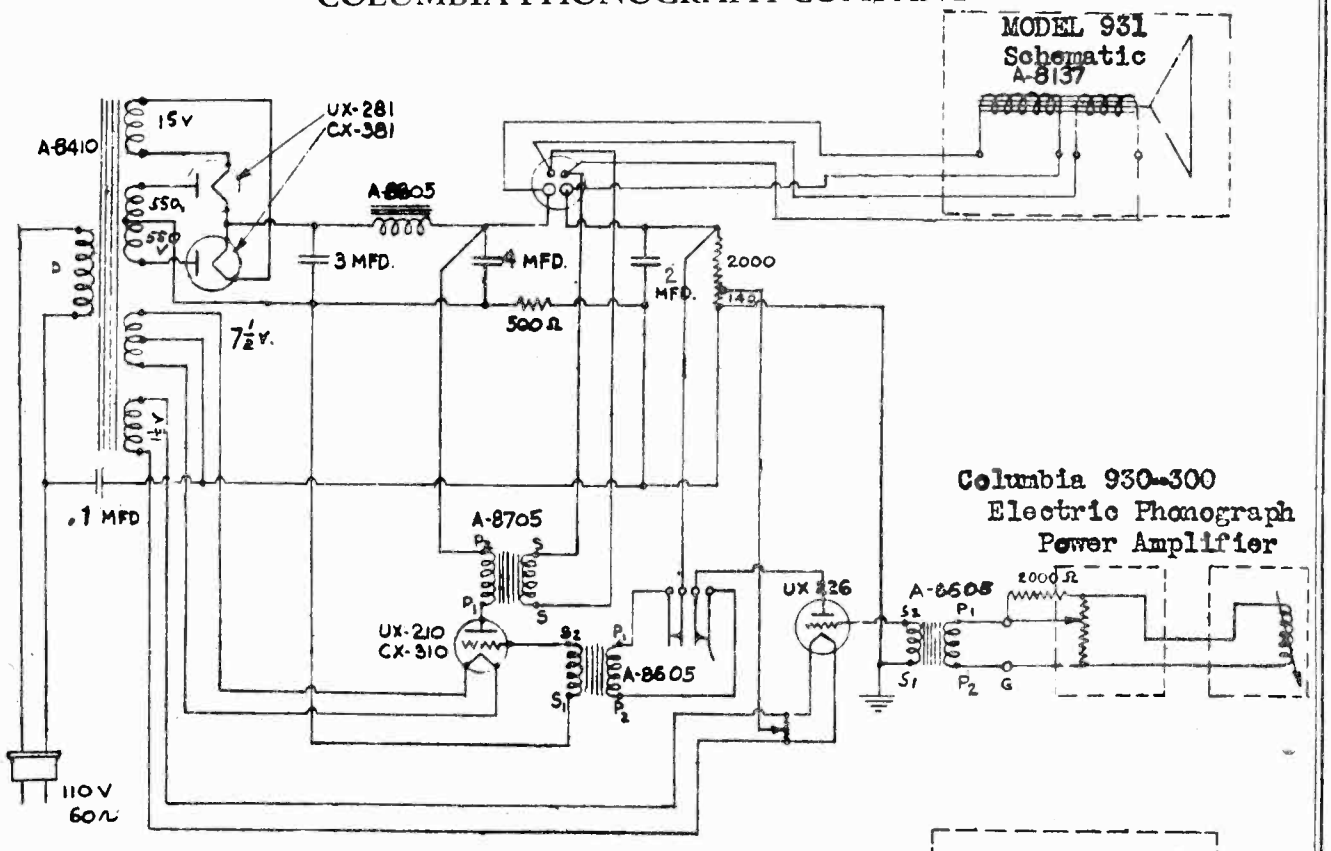


MODEL 920
MODEL 930
MODEL 990
Schematic

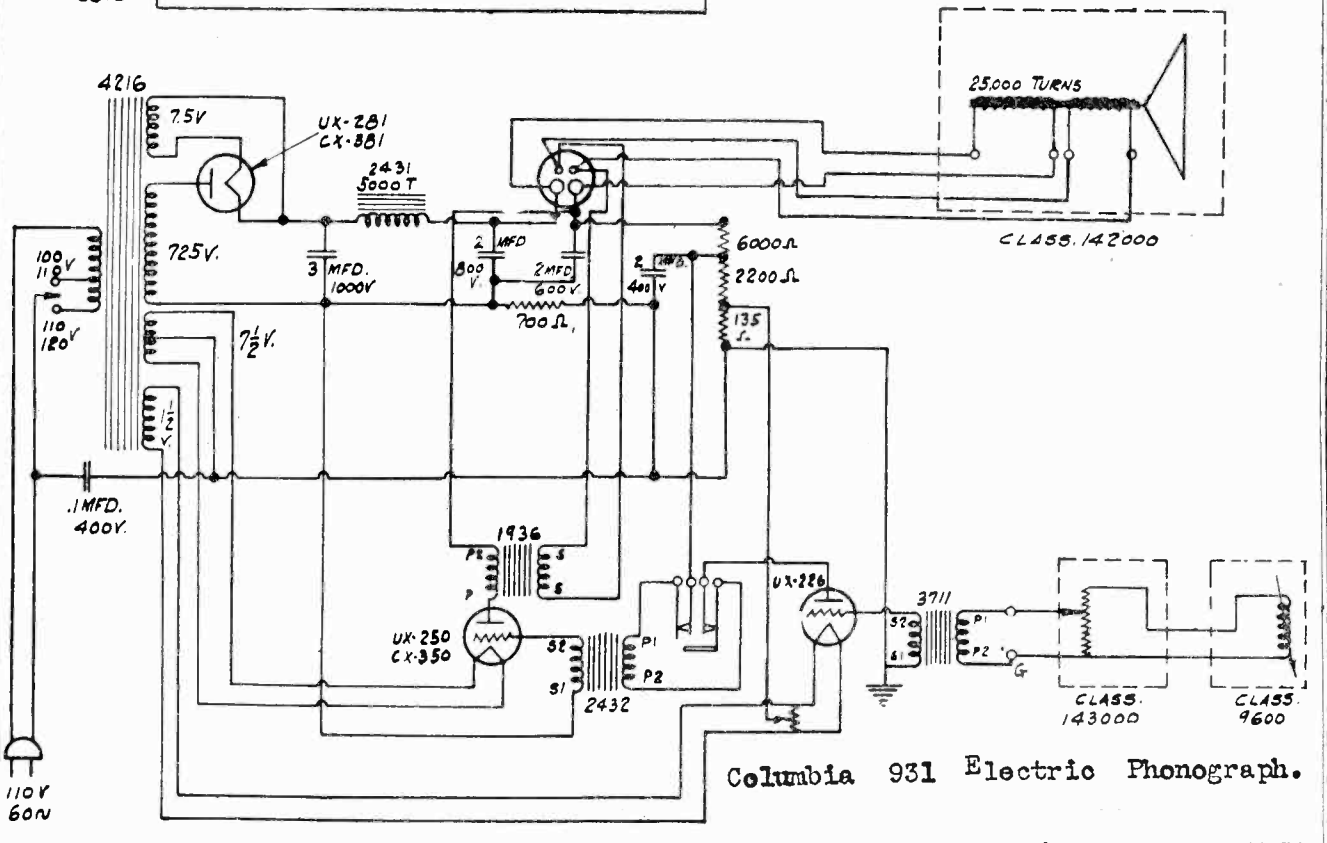
COLUMBIA PHONOGRAPH COMPANY



COLUMBIA PHONOGRAPH COMPANY MODEL 930-300



Columbia 930-300 Electric Phonograph Power Amplifier



Columbia 931 Electric Phonograph.

930 Electric Phonograph (A.C.)

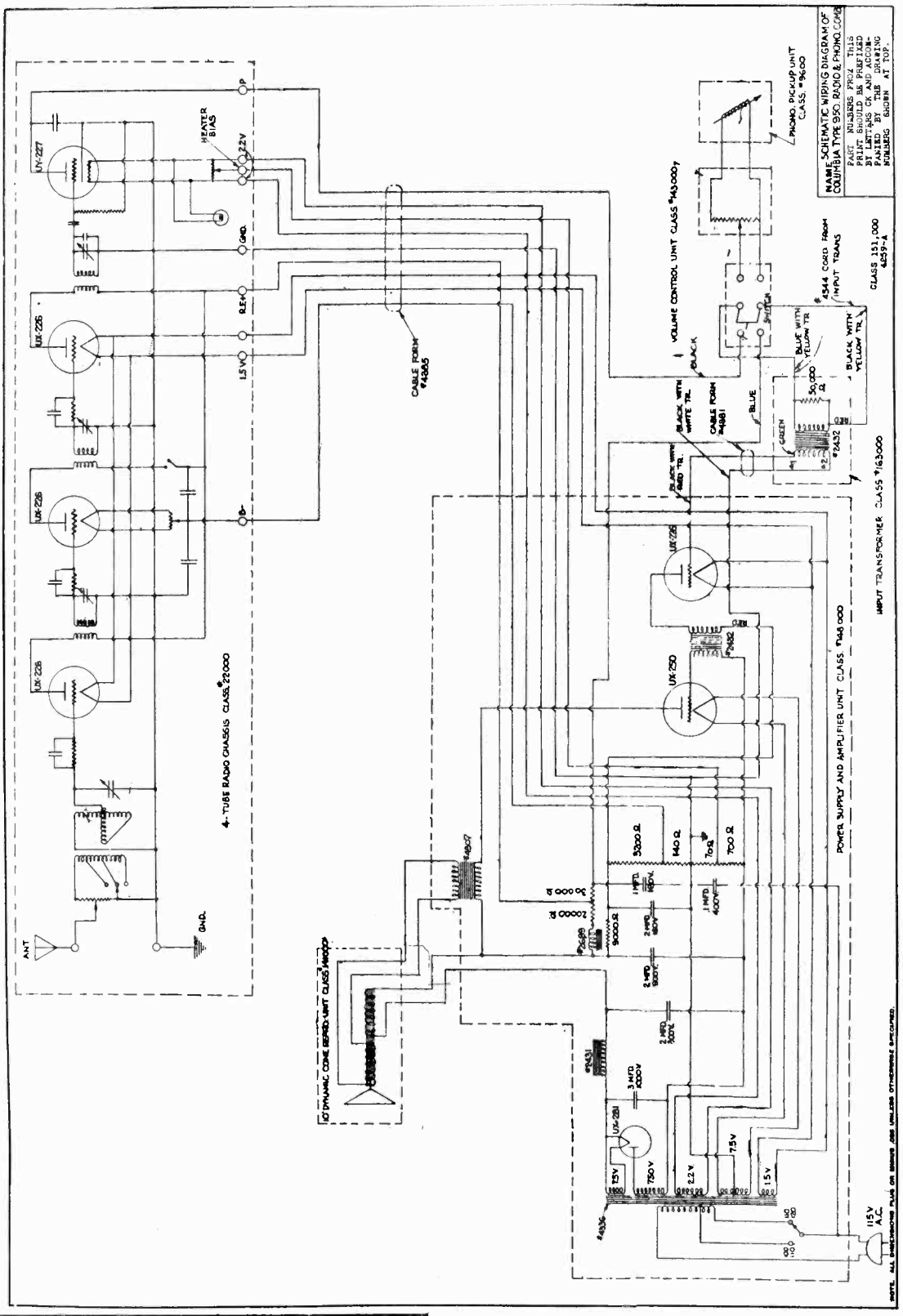
CX-326	CX-310	CX-381	CX-381
1st A.F.	2nd A.F.	Rect.	Rect.

931 Electric Phonograph (A.C.)

CX-381	CX-381	CX-350	CX-326
Rect.	Rect.	2nd A.F.	1st A.F.

COLUMBIA PHONOGRAPH COMPANY

MODEL 950
Schematic

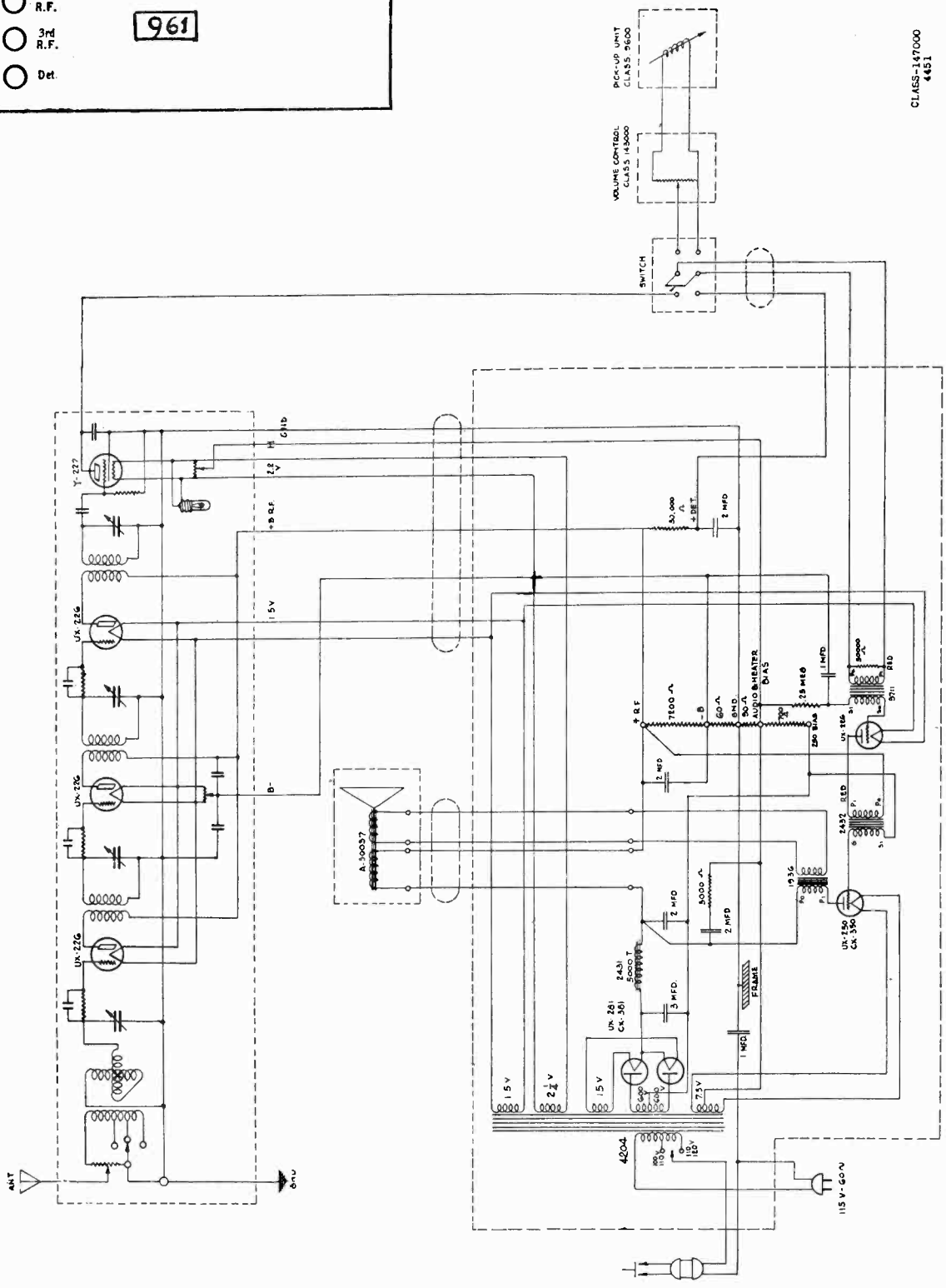


MODEL 961

COLUMBIA PHONOGRAPH COMPANY

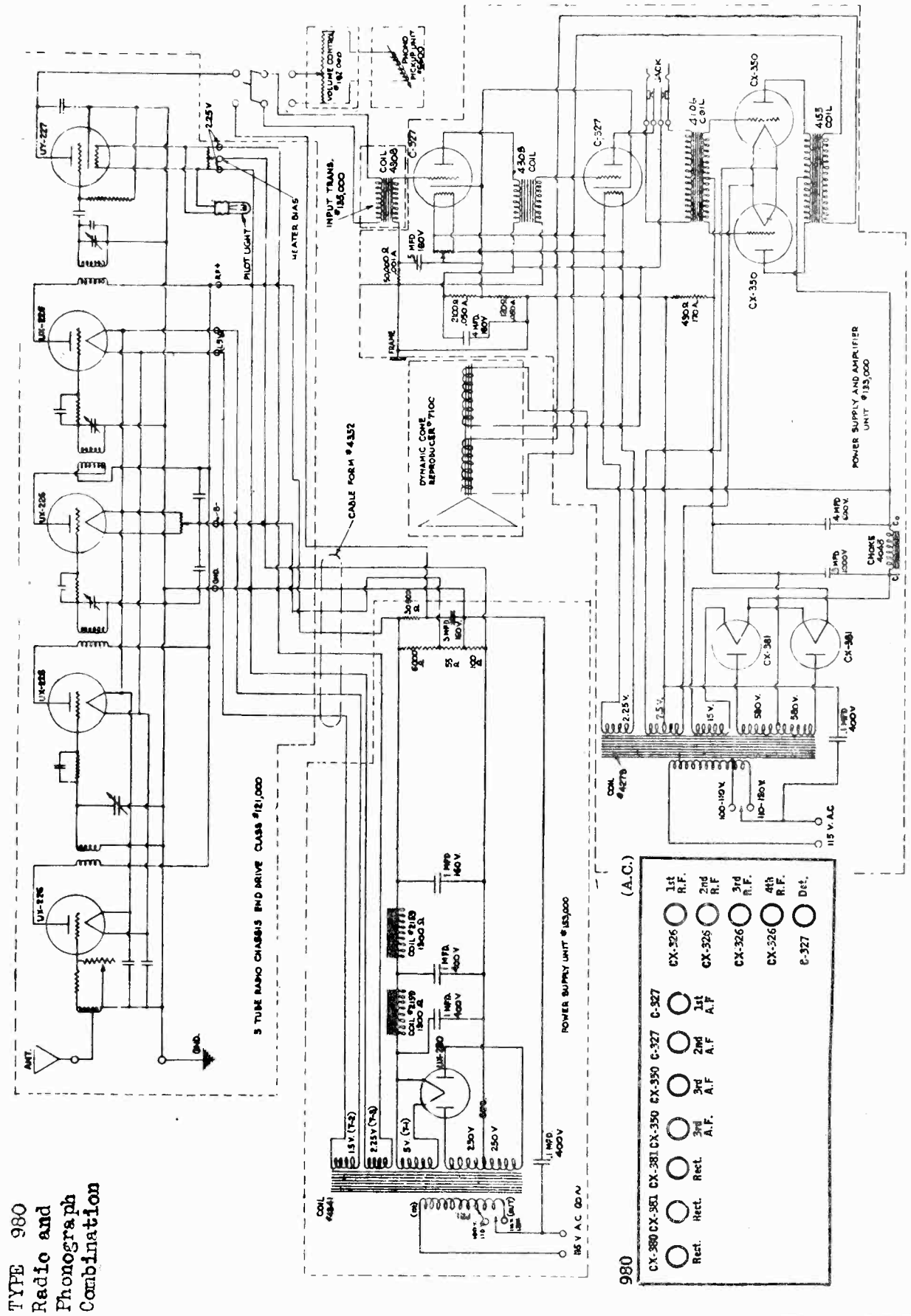
Chassis		CX-381	CX-381	CX-350	CX-326
CX-326	1st R.F.	Rect.	Rect.	2nd A.F.	1st A.F.
CX-326	2nd R.F.				
CX-326	3rd R.F.				
C-327	Det.				

961

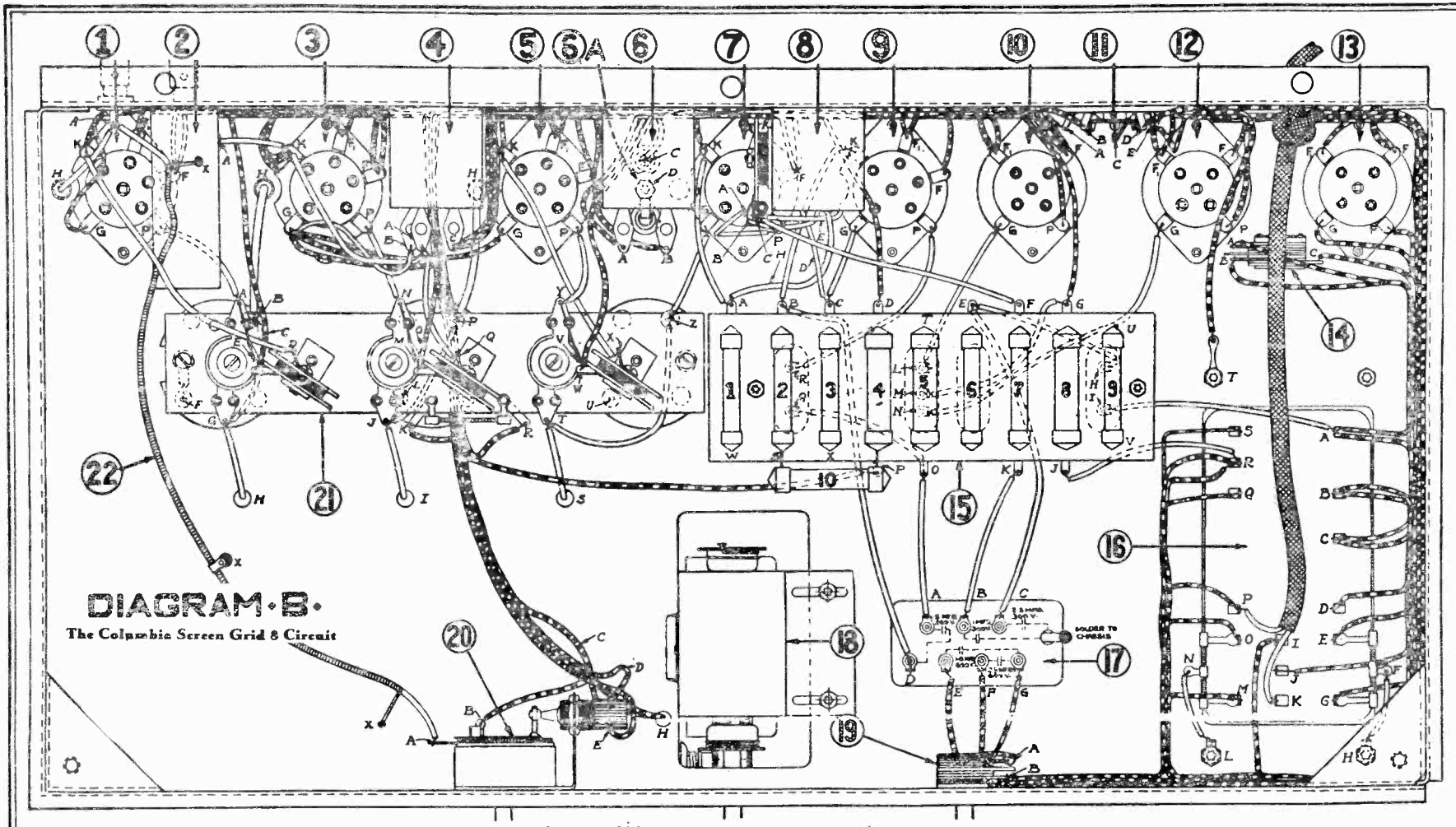


COLUMBIA PHONOGRAPH COMPANY

MODEL 980



TYPE 980
Radio and
Phonograph
Combination



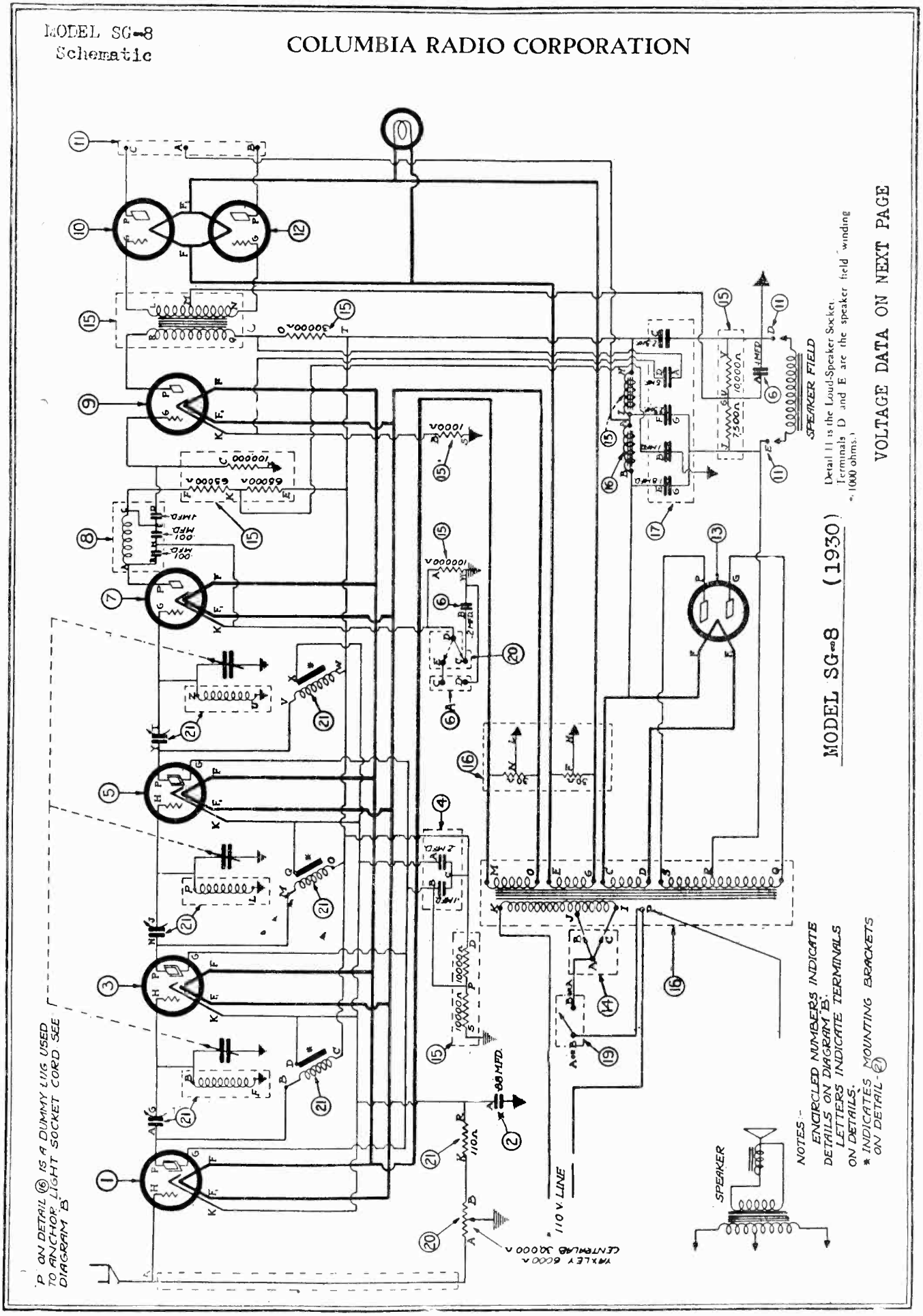
MODEL SG-8 BOTTOM VIEW

Tube No. In Order (1)	Type Of Tube (2)	Position of Tube 1st R.F. Det., Etc (3)	Readings, Plug In Socket Of Set: Tube Out A Volts (4)	Tube Out B Volts (5)	Tube In Tester A Volts (6)	Tube In Tester B Volts (7)	Tube In Tester C Volts (Control Grid) (8)	Tube In Tester Cathode—Heater Volts (9)	Tube In Tester Normal Plate M.A. (10)	Tube In Tester Plate M.A. Grid Test (11)	Tube In Tester Plate Change M.A. (12)	Tube In Tester Screen Grid Volts (13)
1	224	1st R.F.	2.45	180	2.4	174	—1.5	1.5	4.5	6.7	2.2	80
2	224	2nd R.F.	2.45	180	2.4	174	—1.5	1.5	4.5	6.7	2.2	80
3	224	3rd R.F.	2.45	180	2.4	174	—1.5	1.5	4.5	6.7	2.2	80
4	227	Det.	2.45	106	2.4	106	—14.5	14.5	.2			
5	227	1st A.F.	2.45	162	2.4	68	—3.	3.	3.2	3.8	.6	
6	245	2nd.A.F.	2.35	230	2.2	212	—3.8		20	23	3.	
7	245	2nd A.F.	2.35	230	2.2	212	—3.8		19	22	3..	

Line Voltage 115. Set on Low (1) Volt Tap. Volume Control Position Maximum

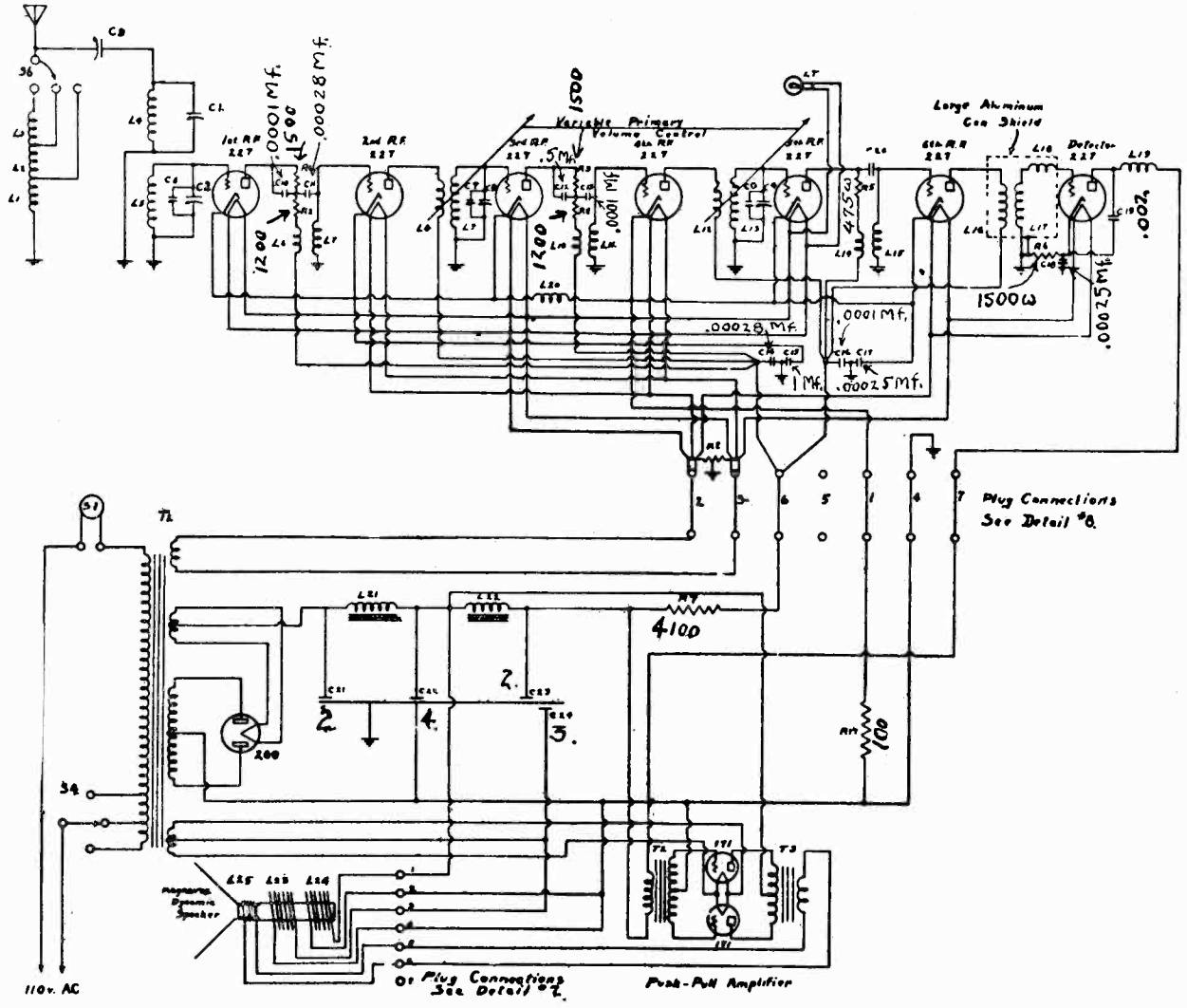
MODEL SG-8
Schematic

COLUMBIA RADIO CORPORATION

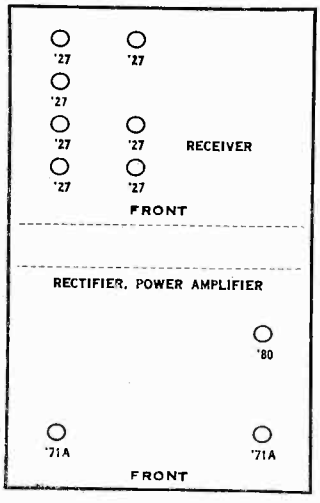


CONTINENTAL RADIO CORPORATION

MODEL "Slagle" 9 with '71A's Schematic



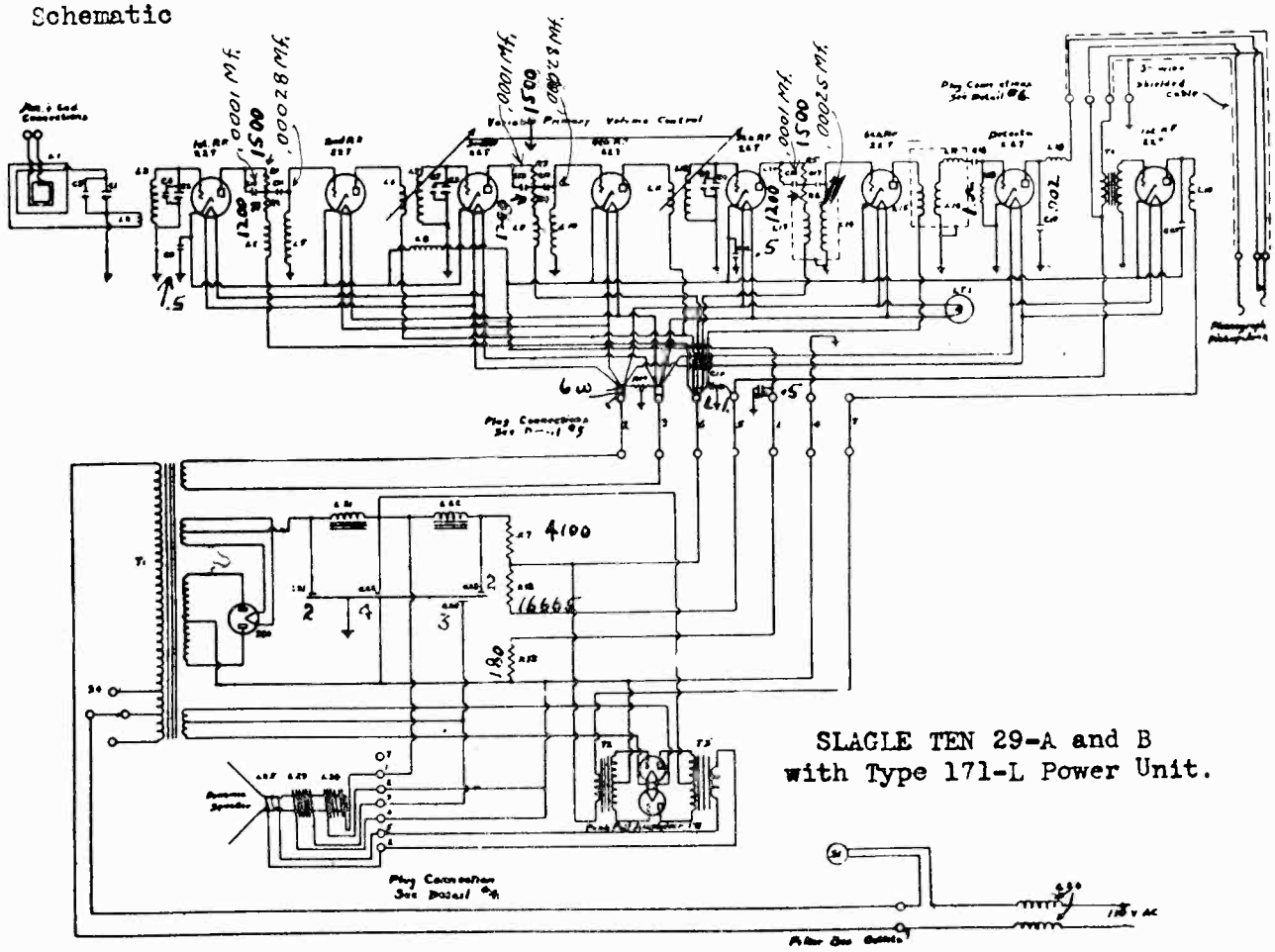
Model Slagel 9



Tube	Fil. Voltage	Plate Voltage	Plate Current	Grid Voltage	Cathode Plus
RF1	2.15	80	4.5ma	3.	3.
RF2	2.15	88	5.3	3.	3.
RF3	2.15	80	4.0	3.	3.
RF4	2.15	88	5.3	3.	3.
RF5	2.15	80	4.5	3.	3.
RF6	2.15	89	4.6	3.	3.
Det	2.15	180	1.	20.	
PP1	4.9	172	17.	37.	
PP2	4.9	172	17	37.	
Rec	4.5				

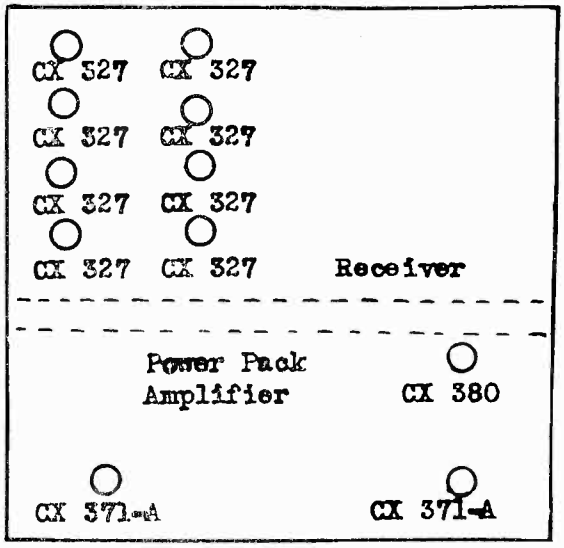
MODEL "Slagle"
10 29-A and
B with '71A
Power Pack.
Schematic

CONTINENTAL RADIO CORPORATION



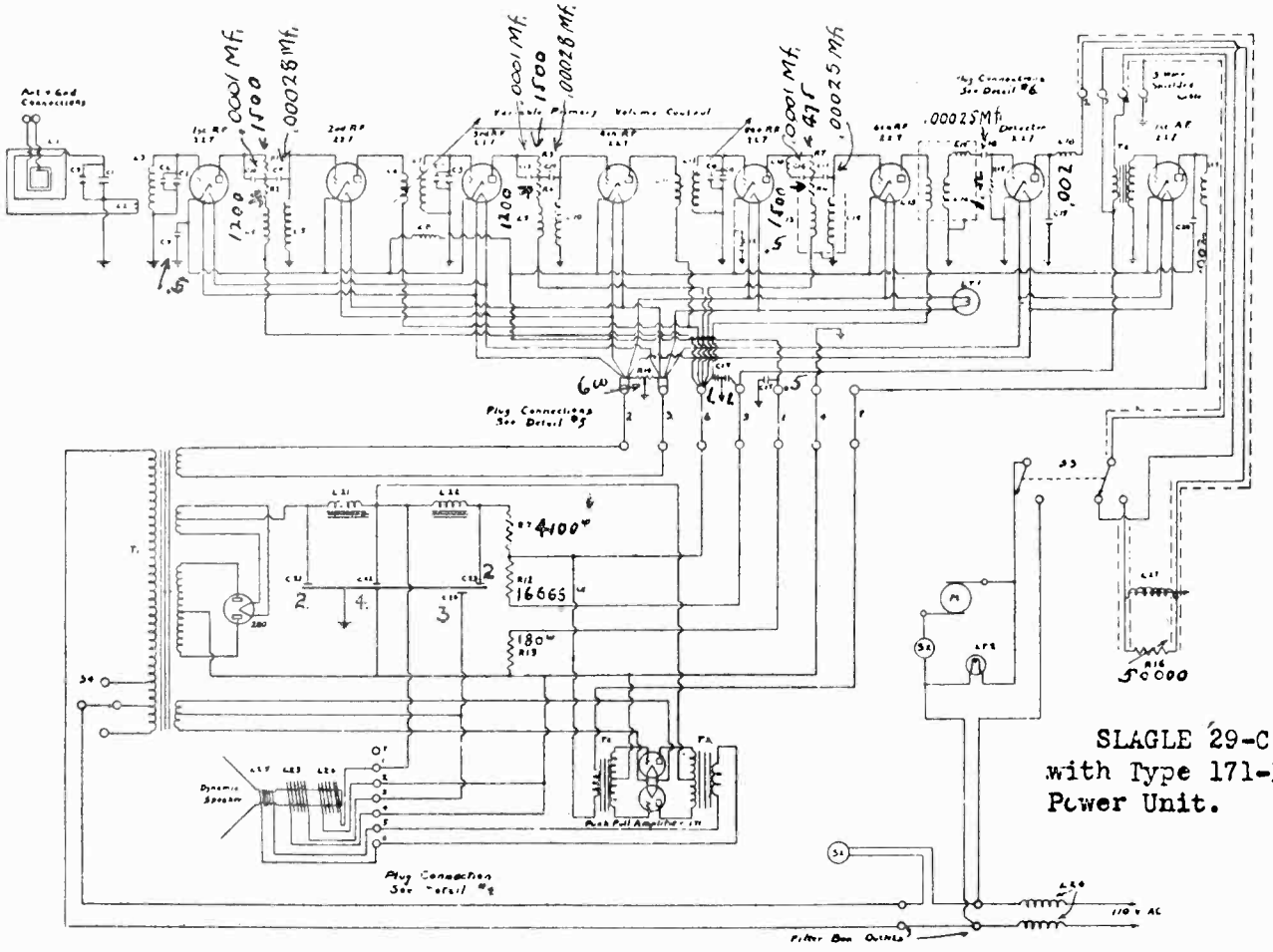
SLAGLE TEN 29-A and B
with Type 171-L Power Unit.

SIAGIE 29 A and B with '71 Pr.Pck.

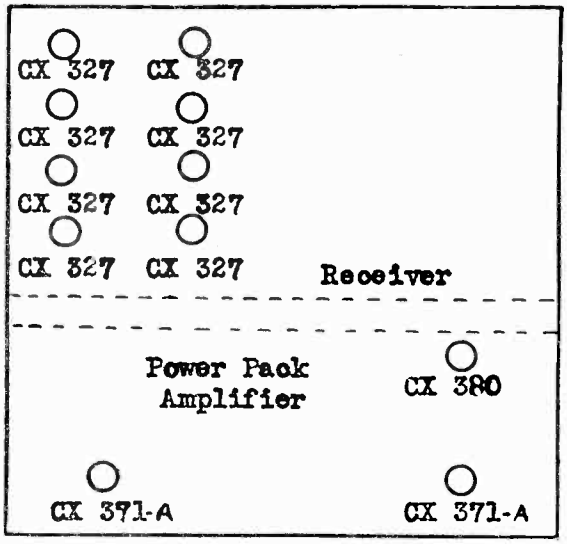


CONTINENTAL RADIO CORPORATION

MODEL "Slagle"
29-C with '71A
Power Pack.
Schematic

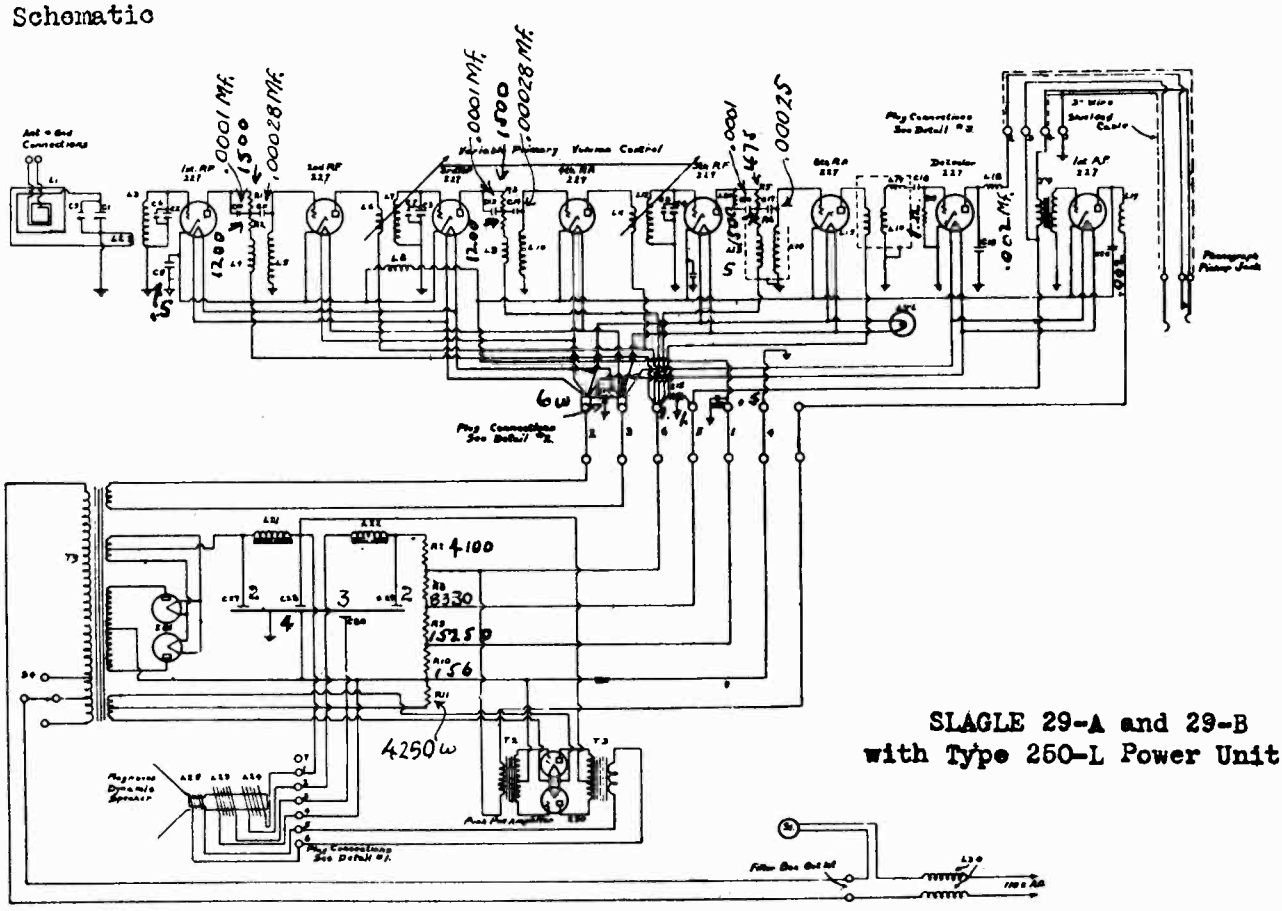


SLAGLE 29-C
with Type 171-L
Power Unit.



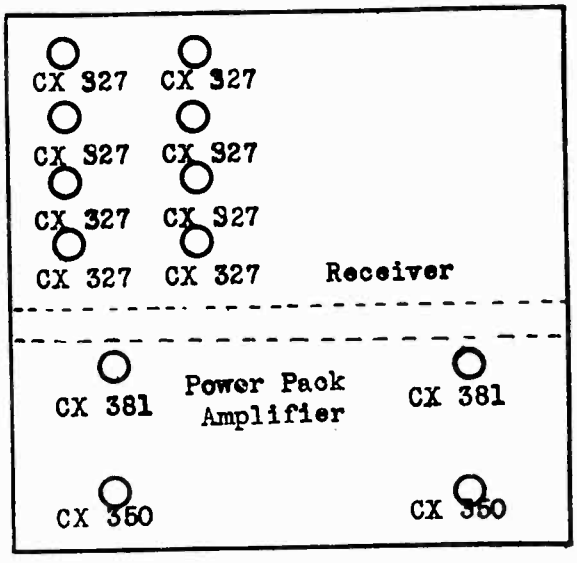
MODEL "Slagle"
29-A and 29-B
with '50 Power
Pack.
Schematic

CONTINENTAL RADIO CORPORATION



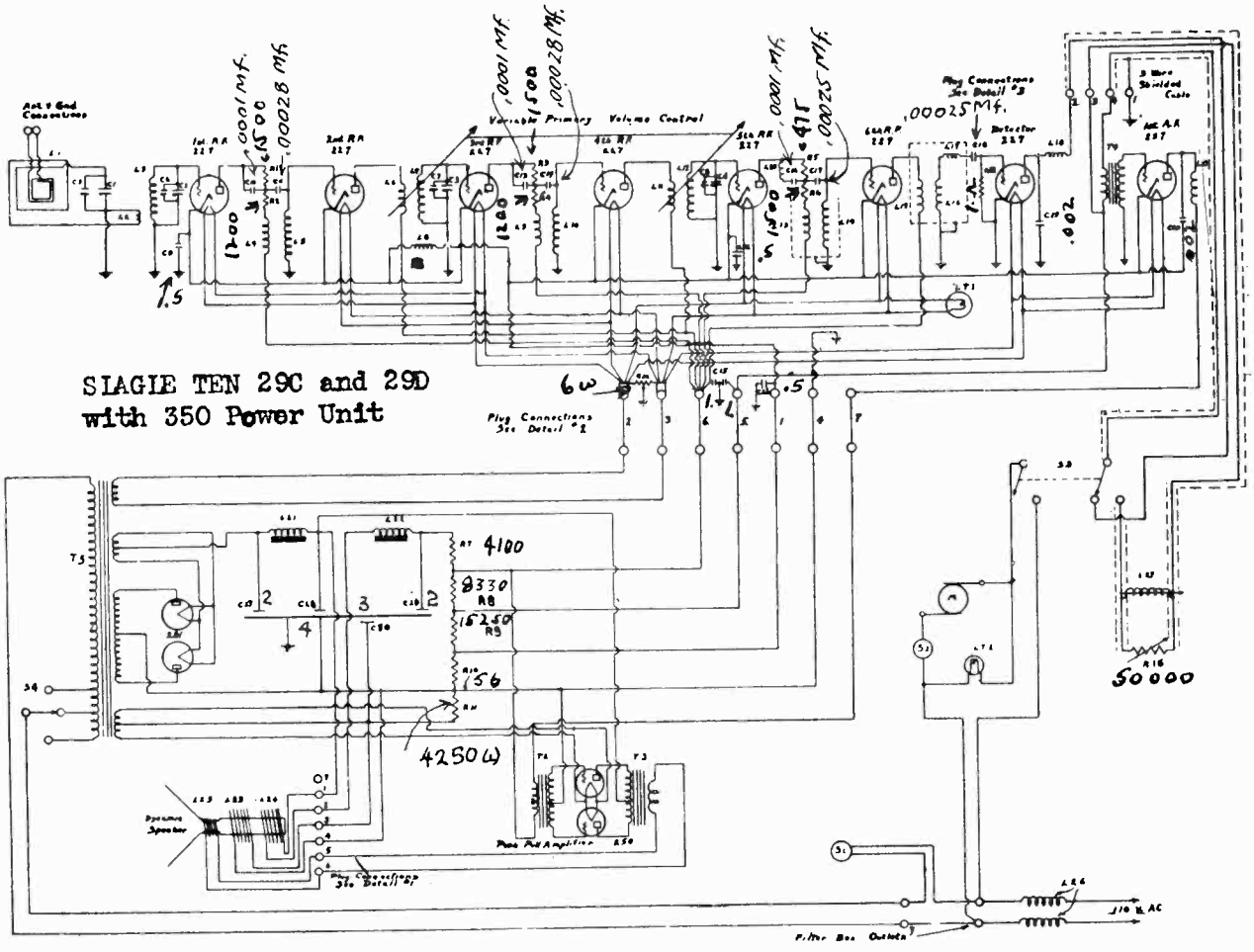
SLAGLE 29-A and 29-B
with Type 250-L Power Unit.

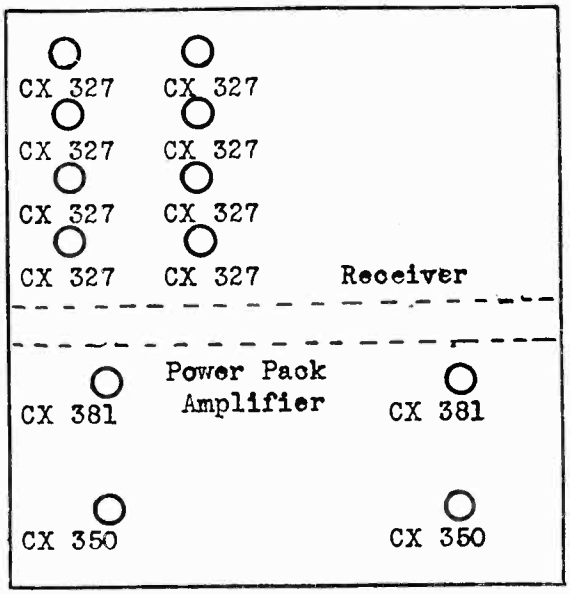
SLAGLE 29A and 29B



CONTINENTAL RADIO CORPORATION

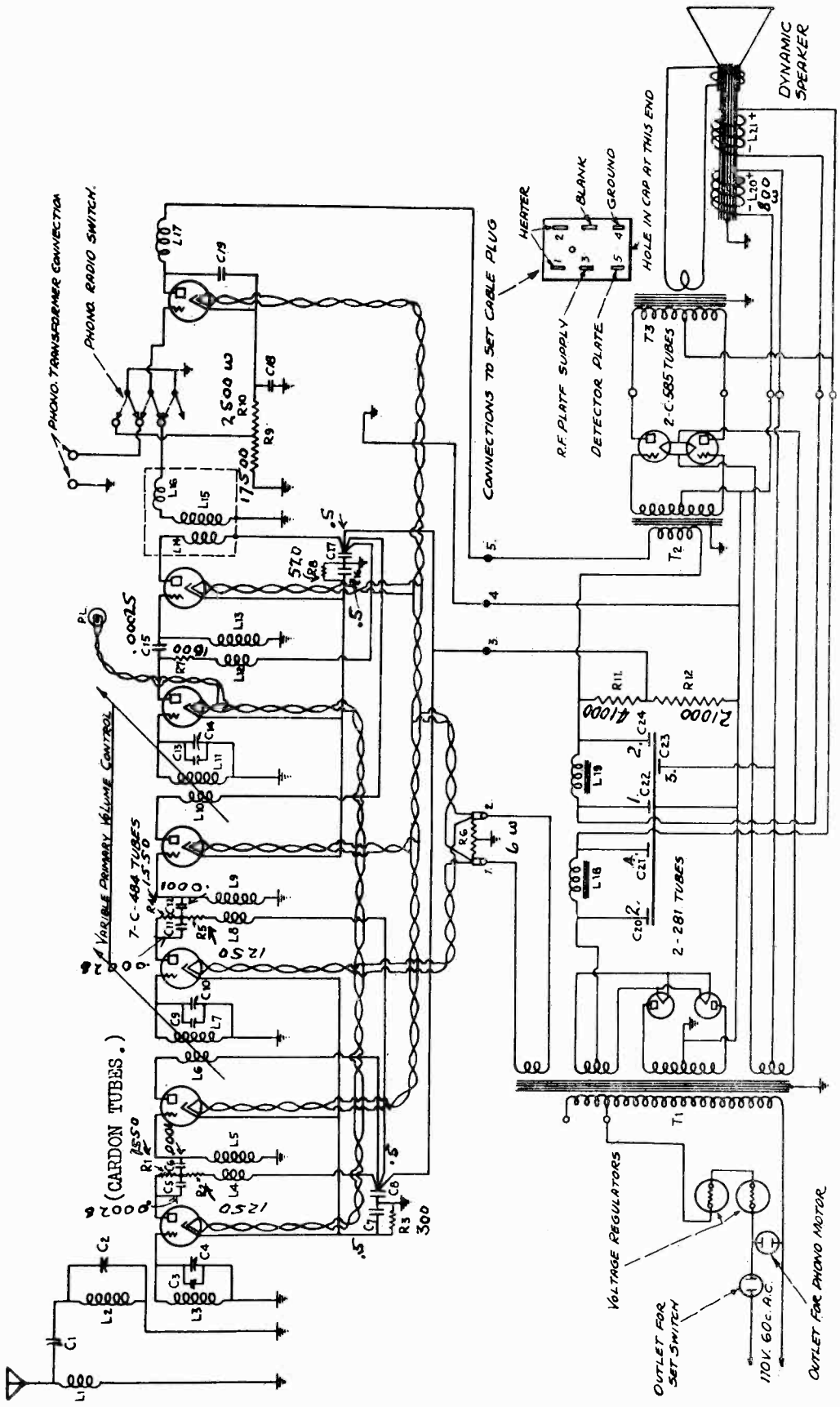
MODEL "Slagle"
29-C and 29-D
with '50 Power
Pack.
Schematic





MODEL Star Raider
R-20, R-30, R-40
Schematic

CONTINENTAL RADIO CORPORATION



MODEL XJ,XL
MODEL 3B, 3C
Schematic

CROSLEY RADIO CORP.

Crosley 3B or 3C Detector and Two-step Amplifier Receiver

MODEL 3B or 3C

MODELS XJ and XL

Crosley Models XJ and XL Circuit

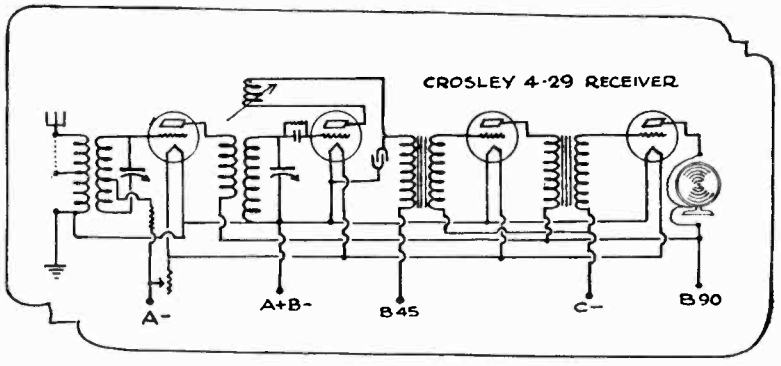
Model XJ

RF	DET	1 AF	2 AF	
'01A OR X'99 OR 12	'01A OR X'99 OR 12	'01A OR X'99 OR 12	'01A OR X'99 OR 12	

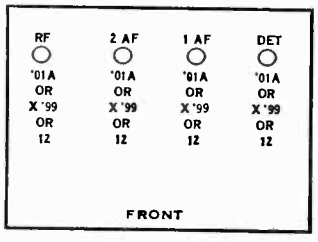
FRONT

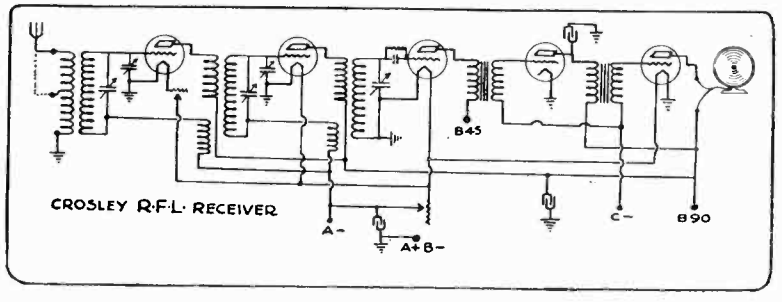
MODEL 4-29
MODEL RFL 60,75
Schematic

CROSLEY RADIO CORP.

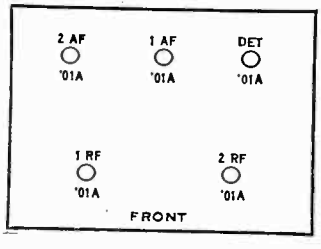


Model 4-29



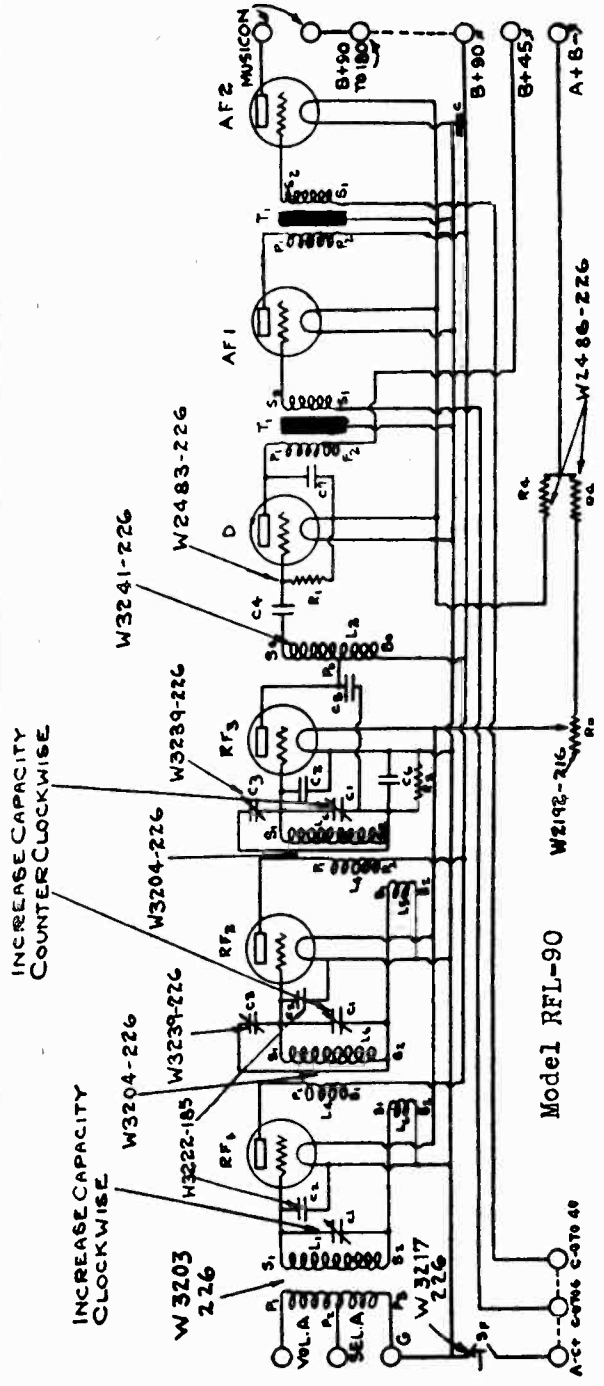


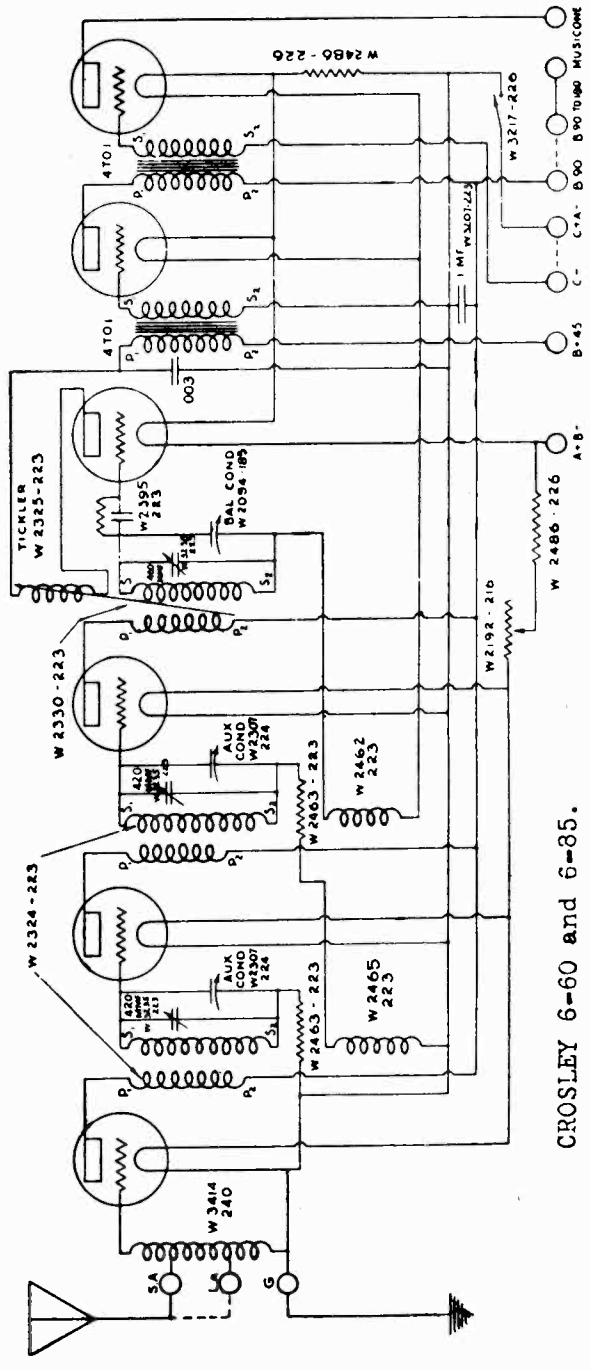
Models RFL60, 75



CROSLEY RADIO CORP.

MODEL RFL 90
MODEL 6-60, 6-85
Schematic





RFL 90 (Batt.)

CX-301A or CX-112A	CX-301A	CX-301A	CX-301A	CX-301A or CX-300A or CX-112A
2nd A.F.	1st A.F.	2nd R.F.	3rd R.F.	Det.

CX-301A — 1st R.F.

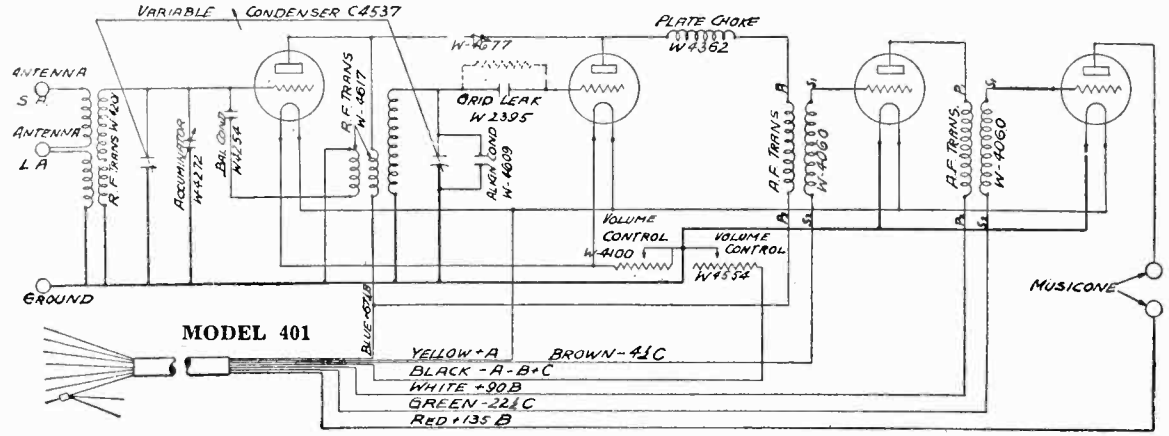
6-60, 6-85 (Batt.)

CX-301A	*CX-112A or *CX-371A	CX-301A	CX-301A	CX-301A or CX-300A or CX-112A
1st R.F.	2nd A.F.	3rd R.F.	1st A.F.	Det.

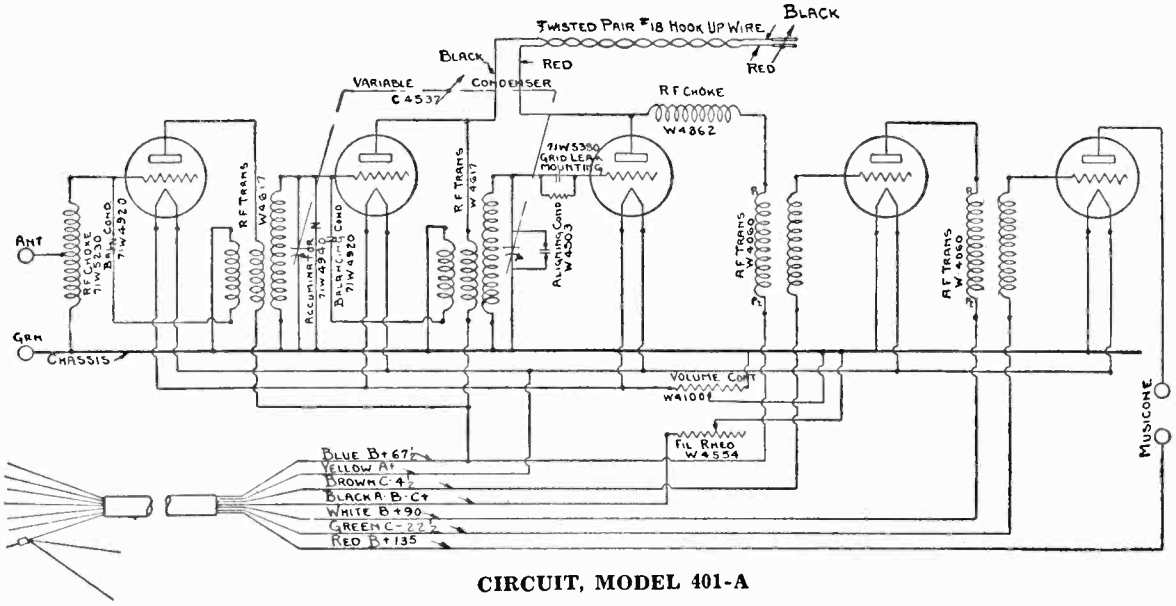
CX-301A — 2nd R.F.

MODEL 401
MODEL 401-A
Schematic

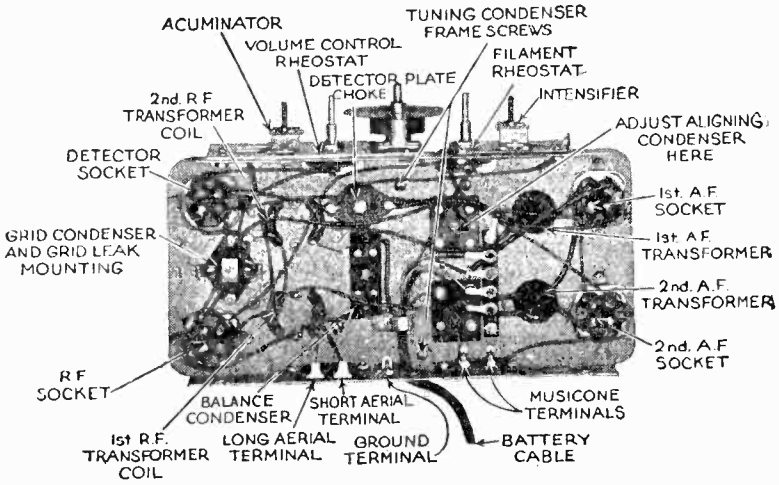
CROSLEY RADIO CORP



MODEL 401

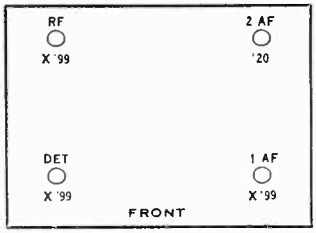


CIRCUIT, MODEL 401-A

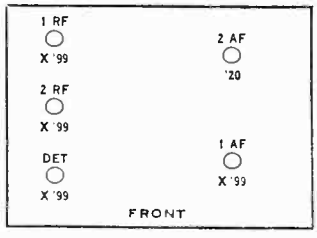


BOTTOM VIEW, MODEL 401 CHASSIS

Model 401 Bandbox Jr.

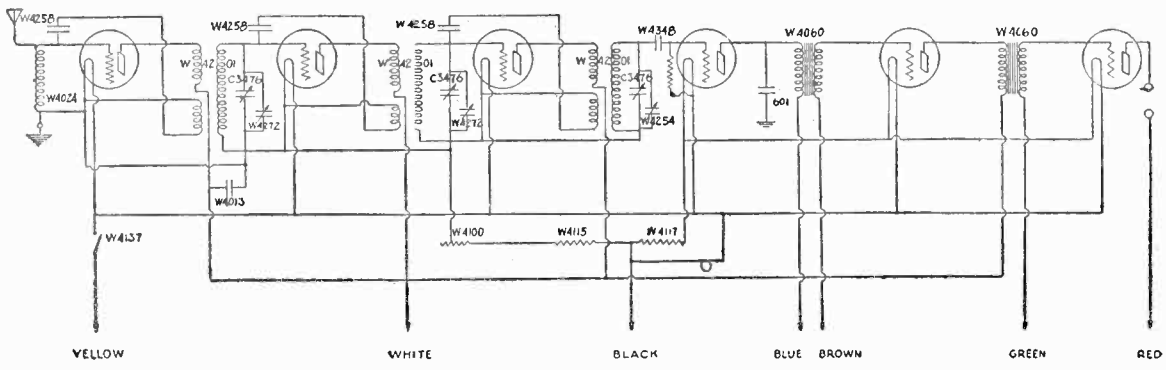


Model 401A Bandbox Jr.

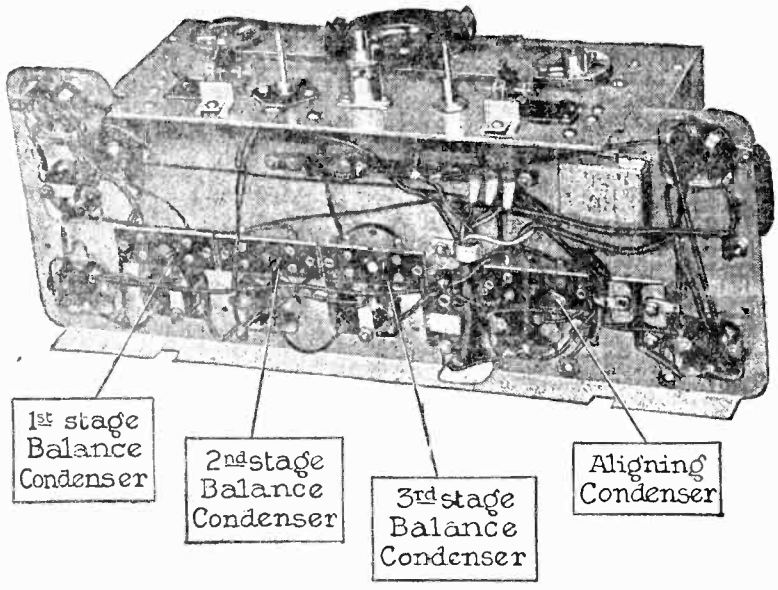


CROSLEY RADIO CORP.

MODEL 601
A-C. Power Unit for A.C.7
Schematic



CIRCUIT OF MODEL 601



BOTTOM VIEW, MODEL 601 CHASSIS

Loudspeaker.

1. Any model Crosley Musicone may be used with Bandbox, Model 601.

2. If a 171 output tube is used with 180 volts on the plate, Crosley Dynacone, Type E, is recommended for greatest volume and highest quality of reproduction. **Type E. Dynacone must be used—Type F cannot be operated with this set.**

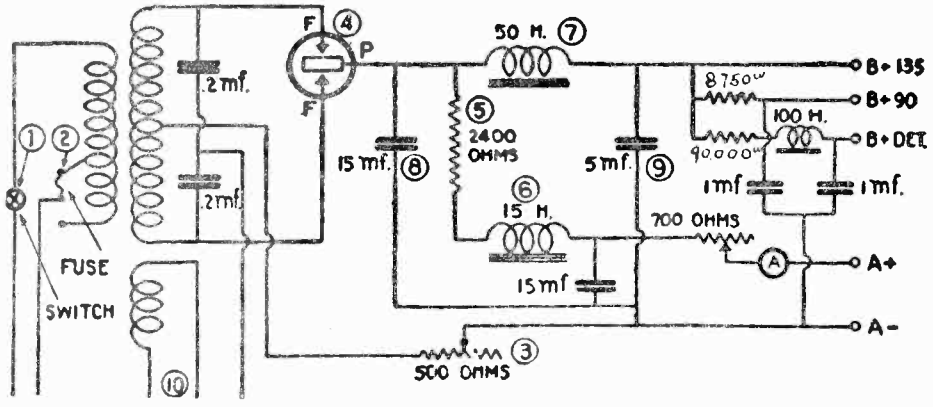
Removing Indicator Dial And Replacing Belts.

1. Take out three screws attaching indicator dial to center pulley and remove dial.

2. Loosen screws which control tension of belts and take off belts. If center tuning condenser is to be replaced, remove also center pulley.

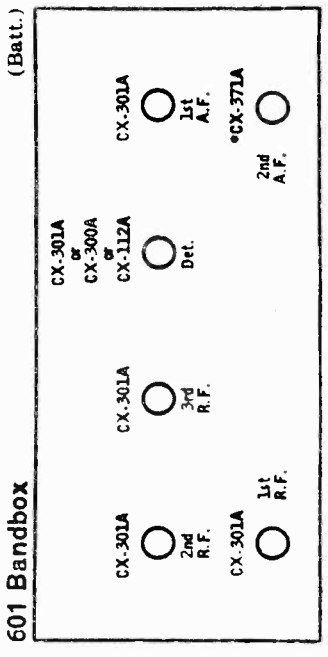
3. Replace in reverse order, being sure to put belts on pulleys with pulley drive pins through belt holes.

A.C.Power Unit for Model A.C.7 Receiver.



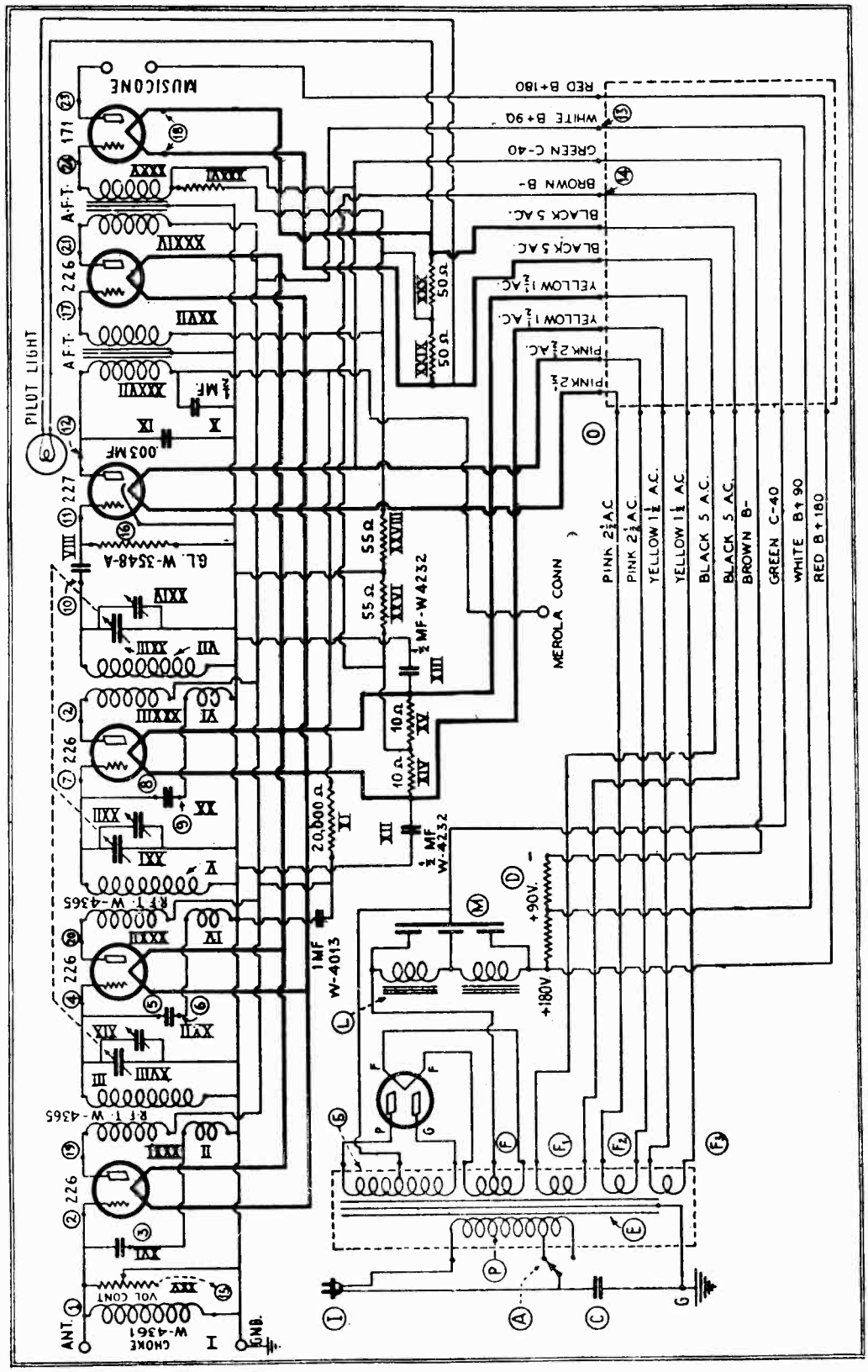
CROSLEY—Model 601

TUBE SOCKET CONNECTION	TYPE OF TUBE	POSITION OF TUBE (ST R F DET ETC)	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS	TUBE IN TESTER CATHODE VOLTS	TUBE IN TESTER NORMAL PLATE M A	TUBE IN TESTER PLATE M A GRID TEST	TUBE IN TESTER PLATE M A CHANGE
1	201A	1st.R.F.	5.1	90	5	90	0.0		7.0	11.0	4.0
2	201A	2nd.R.F.	5.1	90	5	90	0.0		7.0	11.0	4.0
3	201	3rd.R.F.	5.1	90	5	90	0.0		7.0	11.0	4.0
4	201A	Detector	5.1	45	5	45	0.0		2.0	5.5	3.5
5	201A	1st.A.F.	5.1	90	5	90	4.5		5.0	7.0	2.0
6	171A	2nd.A.F.	5.1	135	5	135	22.5		20.0	26.0	6.0



MODEL 602 A.C.
Power Converter for
MODELS 104,105,106
Schematic

CROSLEY RADIO CORP

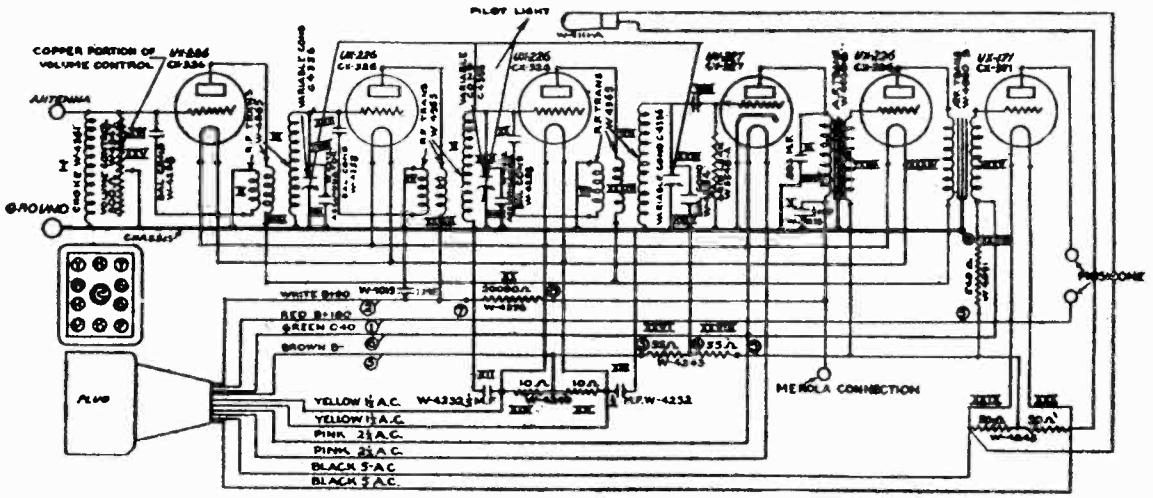


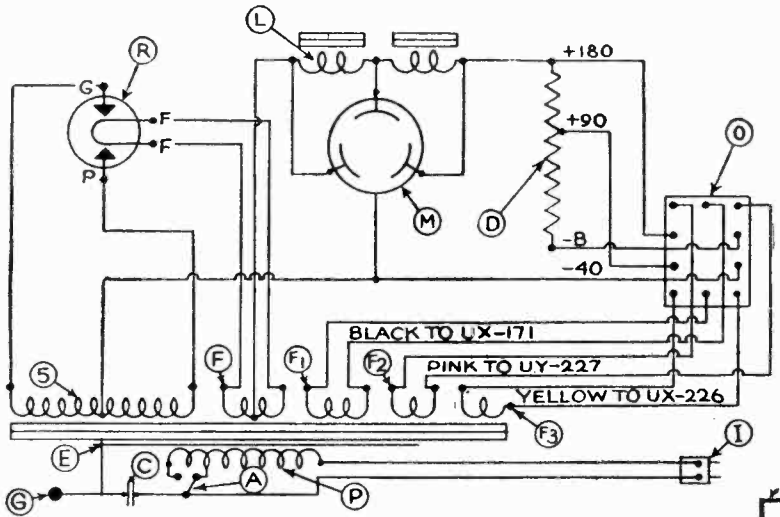
Circuits of the Crosley Model 602 A. C. Bandbox and Power Converter Models 104, 105 and 106. The dotted square at the lower right represents the plug by which the ten connections are made.

Values and Numbers Not Specified in Diagram.
Grid Leak—2 megohms.
VI-VII—R.F. Transformer, W4365.
X—By-Pass Condenser, W4233.
XI—Detector Plate Resistor, W4376.
XIV-XV—Center-Tap Resistor, W4240.
XVI-XVII-XX—Balancing Condensers, W4258.
XIX-XXII—Acuminators, (Compensating Condensers), W4272.
XVIII-XXI-XXIII—Tuning Condensers.
XXIV—Balancing Condenser, W4254.
XXV—Volume Control, 500 ohms, W4247.
XXVII-XXXIV—A.F. Transformers, W4060B (A .0008-mf. by-pass condenser W4512 is shunted across the secondary XXXV).
XXXVI—"C" Biasing Resistor, 540 ohms, W4391.

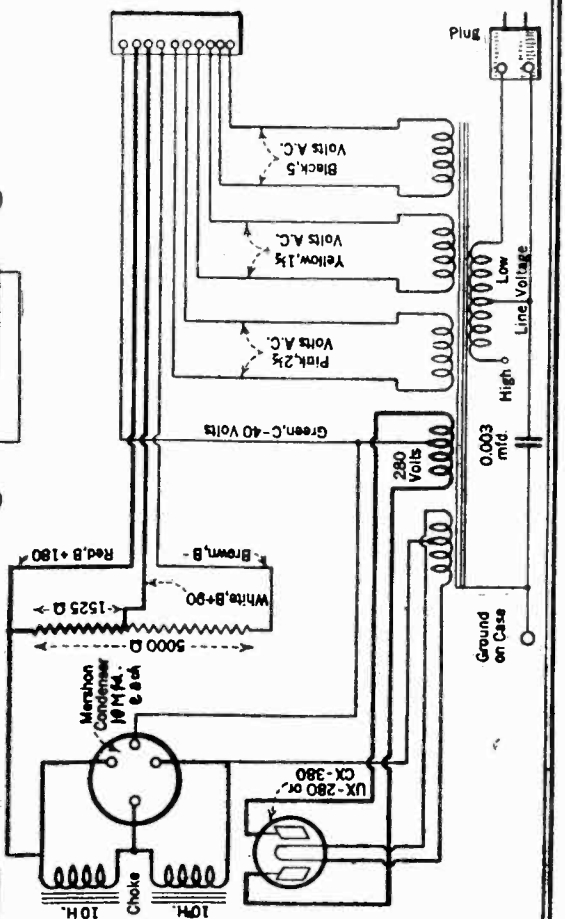
CROSLEY RADIO CORP

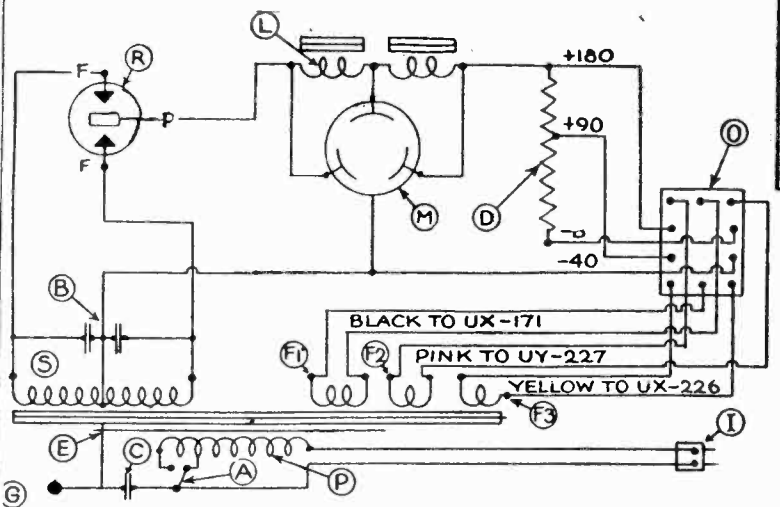
MODEL 602
MODEL 602 Power Unit
MODELS 104,105,106
MODELS 104R,105R





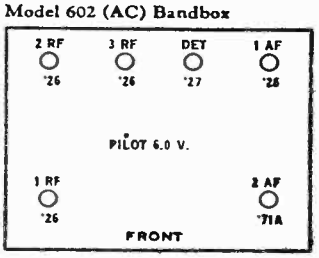
CIRCUIT DIAGRAM OF MODELS 104, 105, AND 106
POWER CONVERTER





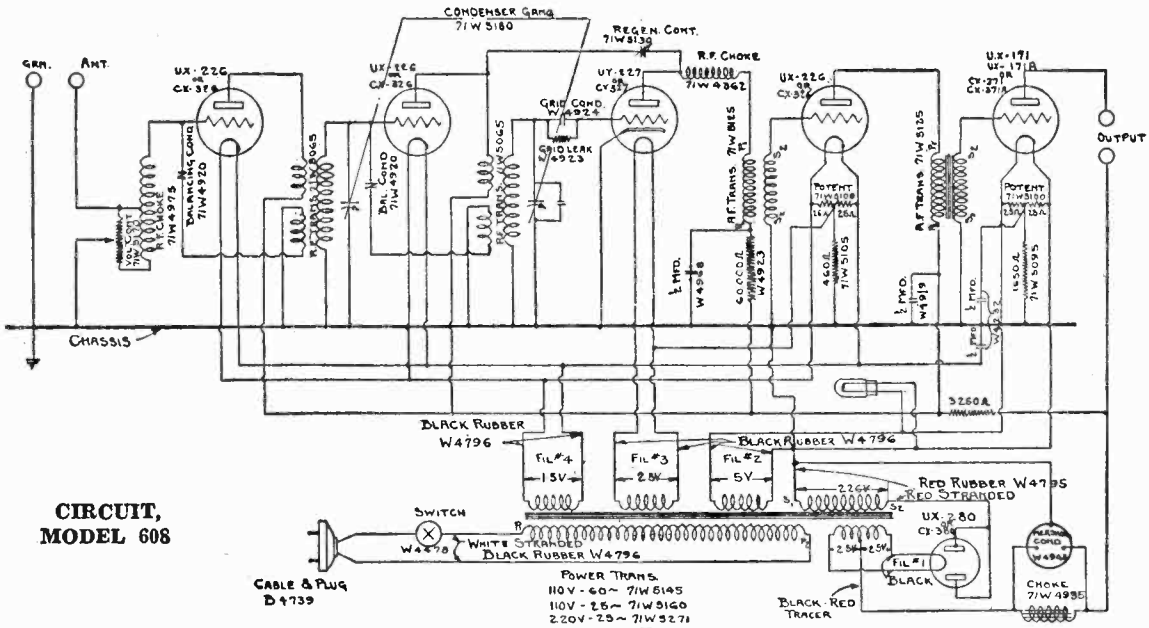
CIRCUIT DIAGRAM OF MODELS 104R AND 105R POWER CONVERTER

Model 602 (AC) Bandbox



MODEL 608
Schematic
Voltage, Bottom View

CROSLEY RADIO CORP.



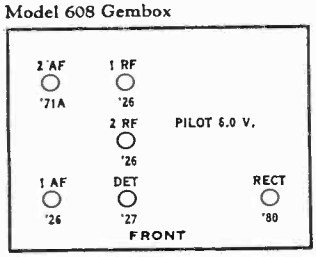
CIRCUIT, MODEL 608

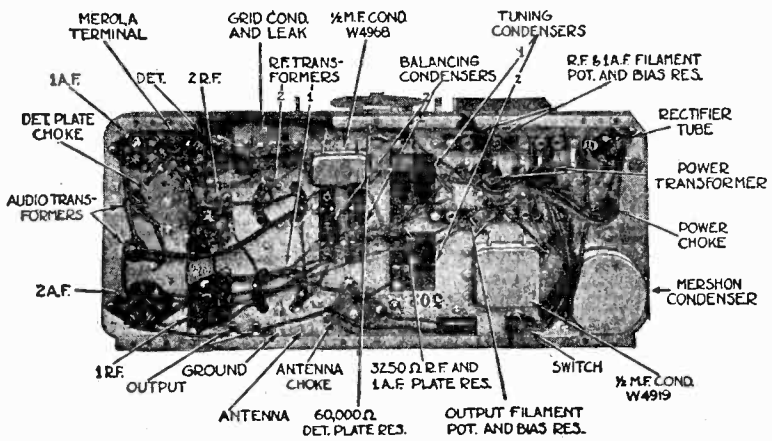
CROSLEY—Model 608

Line Voltage 115—227 Emitter Biased 7 Volts Negative with Respect to Filament. Detector Grid Test Made with Grid Leak Shorted

TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE (1ST R.F., DET., ETC.)	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS	TUBE IN TESTER CATHODE VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st R.F.	1.55	120	1.45	115	7		5.5	9.0	3.5
2	226	2nd R.F.	1.55	120	1.45	115	7		5.5	9.0	3.5
3	227	Detector	2.40	100	2.20	30	0		1.5	1.8	.3
4	226	1st A.F.	1.55	120	1.45	110	7		5.0	8.5	3.5
5	171A	2nd A.F.	5.2	210	5.00	135	25		15.0	17.0	2.0
6	280	Rectifier	5.3		5.00						

Model 608 Gembox





BOTTOM VIEW, MODEL 608 CHASSIS

Tuning Condensers.

1. The complete condenser gang should be removed and replaced as a unit.

2. Take off station selector knob and remove leads from pilot light socket first. Then unsolder condenser leads and remove gang. Replace in reverse order.

Regeneration.

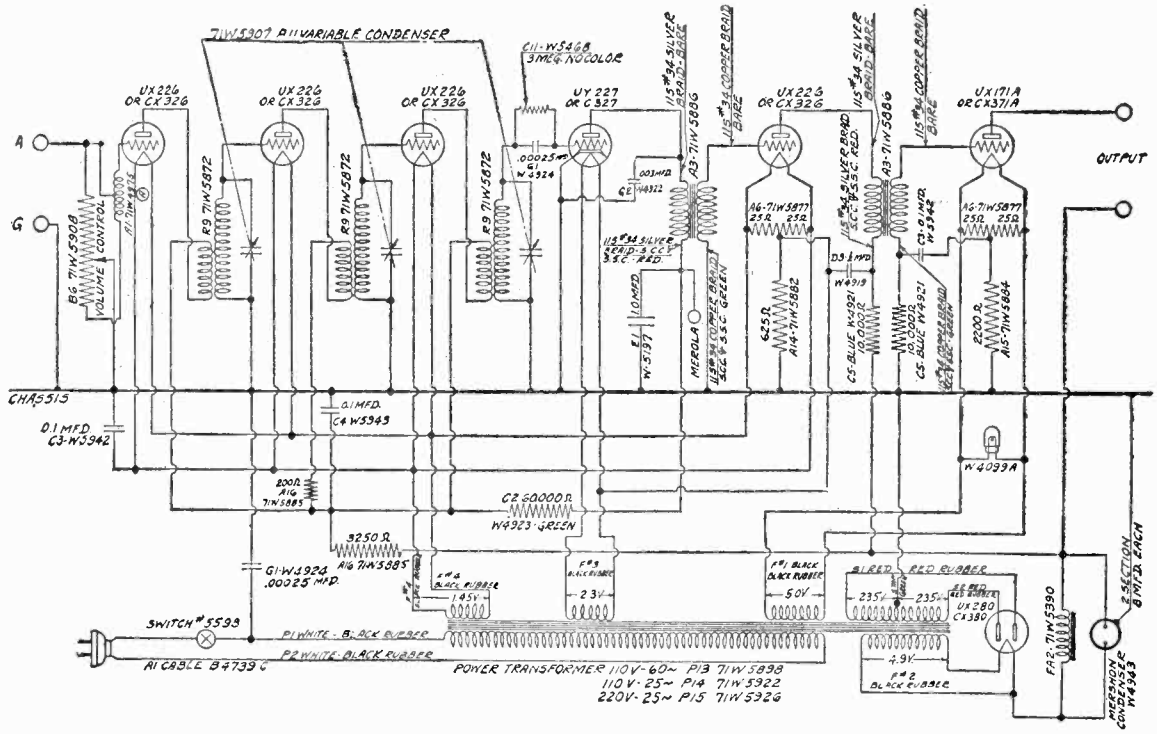
1. Regeneration is secured by means of a small variable condenser connecting the detector plate to the plate of the second r. f. tube. The amount of regeneration may be controlled by adjusting this condenser.

Alignment of Tuning Condensers

1. A small adjustable aligning condenser shunted across the detector-stage tuning condenser serves as a means of aligning the tuning condensers so that they track together properly.

CROSLEY RADIO CORP.

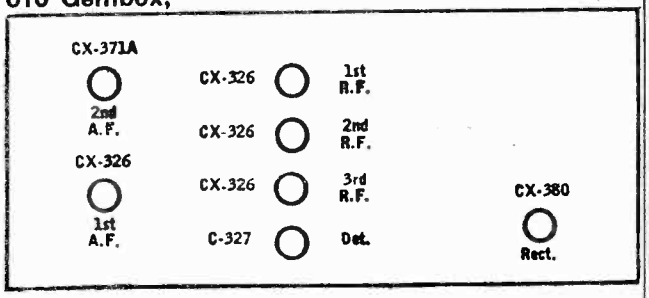
MODEL 610
Schematic
Voltage, Bottom View

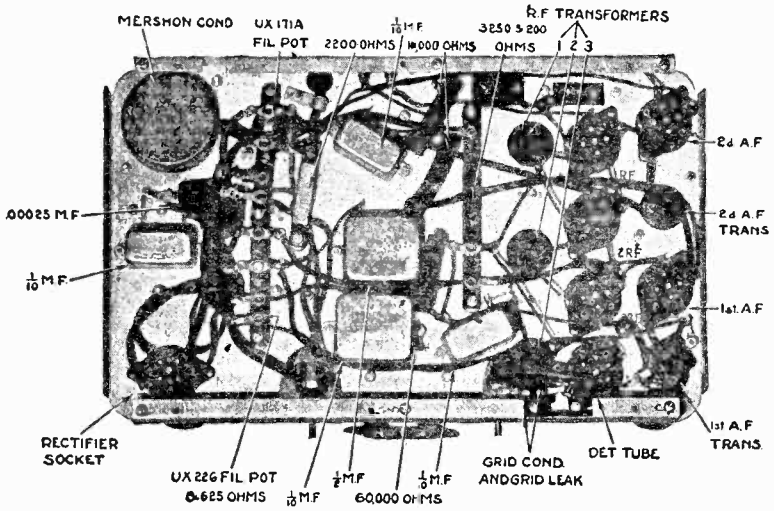


CROSLEY—Models 610-
Line Voltage 115—Volume Control Position Max

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE 1ST R.F. DET. ETC	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS (CONTROL GRID)	CATHODE - HEATER VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID TEST	PLATE CHANGE M.A.	SCREEN GRID VOLTS
1	226	1st RF	1.55	165	1.45	160	13.0	-	5.0	8.0	3.0	-
2	226	2nd RF	1.55	165	1.45	160	13.0	-	5.0	8.0	3.0	-
3	226	3rd RF	1.55	165	1.45	160	13.0	-	5.0	8.0	3.0	-
4	227	Det.	2.50	150	2.30	30	-	13.0	2.5	2.9	0.4	-
5	226	1st AF	1.55	160	1.45	175	13.0	-	5.0	8.0	3.0	-
6	171A	2nd AF	5.3	185	5.00	170	40.0	-	20.0	25.0	3.0	-
7	280	Rect.	5.4	-	5.00	-	-	-	70	-	-	-

610 Gembox, (A.C.)





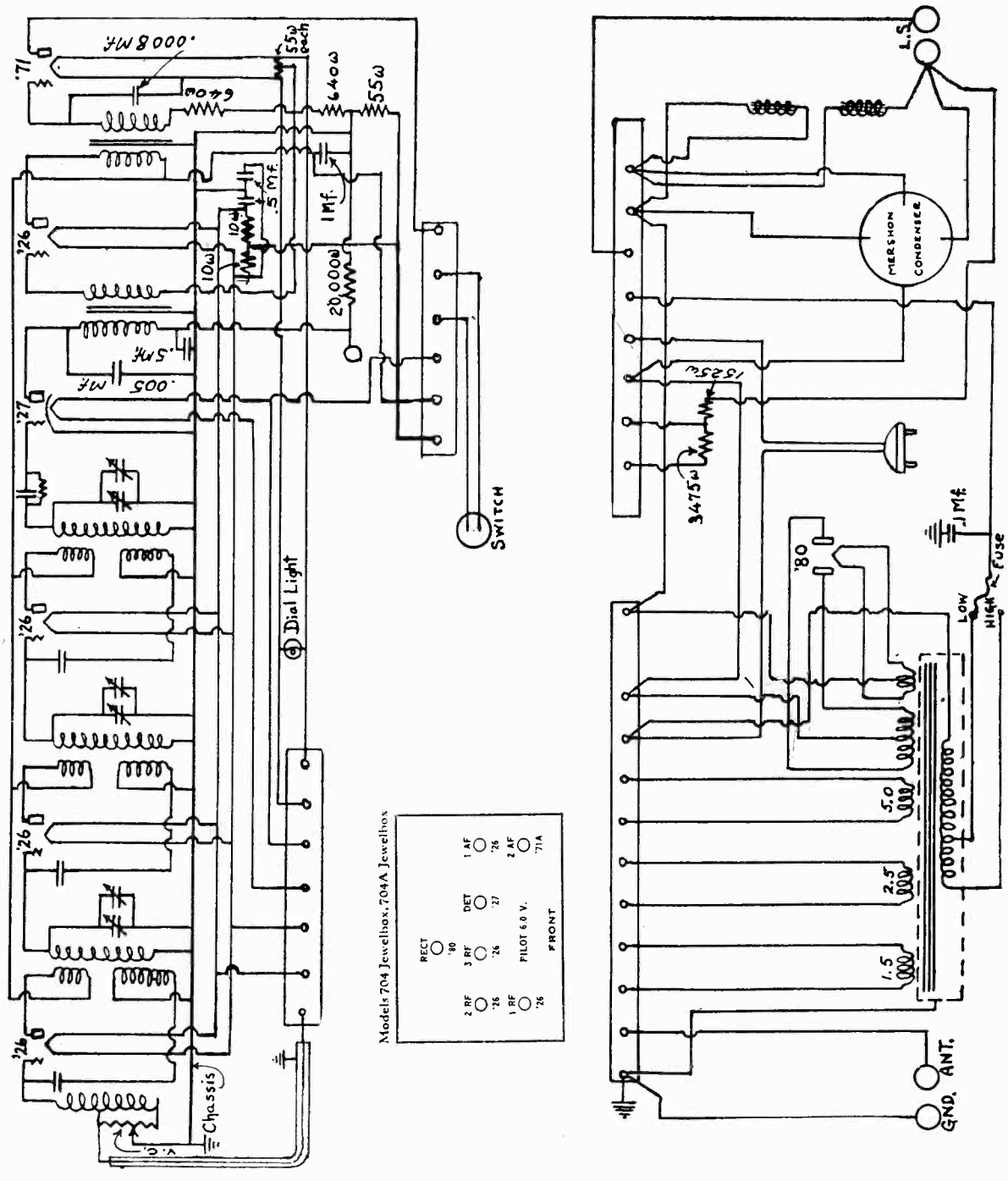
Balancing.

With the set in operation, slightly adjust the angles of the radio-frequency coils until the set does not oscillate at any point in its wave length range or until the sensitivity is improved. The first coil toward the front of the set is the most critical to this adjusting operation, the second coil next,, while the third coil seldom needs to be touched.

In making these adjustments, always replace the lid before checking the operation.

MODEL 704
MODEL 704 Power Unit
Schematic
MODEL 704-A Voltage

CROSLEY RADIO CORP.

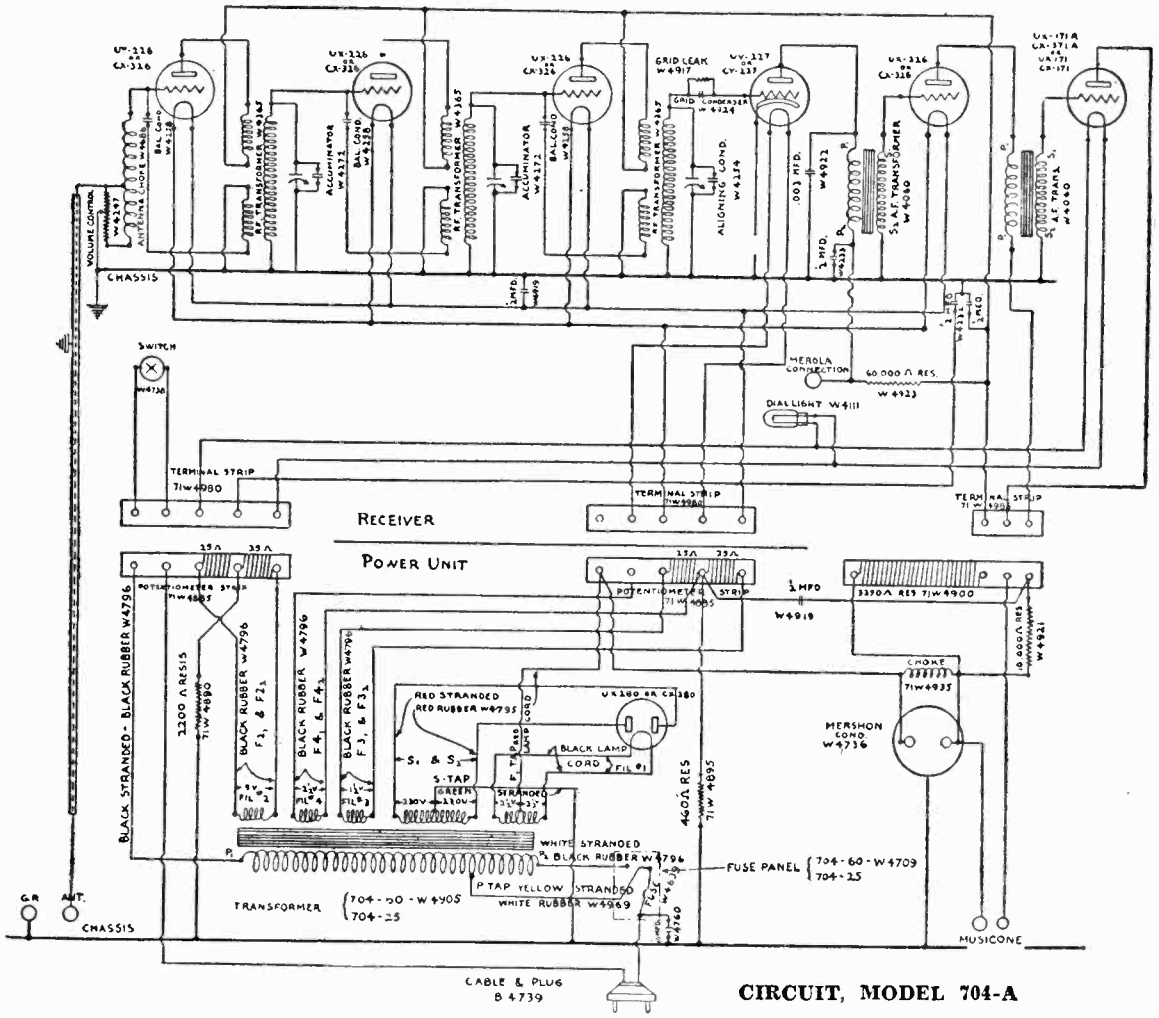


Tube	Fil. Vol.	Plate Vol.	Grid Bias.	Plate Cur.
RF1	1.3	98	3.	7. ma
RF2	1.3	98	3.	7.
RF3	1.3	98	3.	7.
Det	1.7	42	-	2.5
AF1	1.3	95	5.	3.2
AF2	4.8	159	35.	17.
Rec.	4.5			

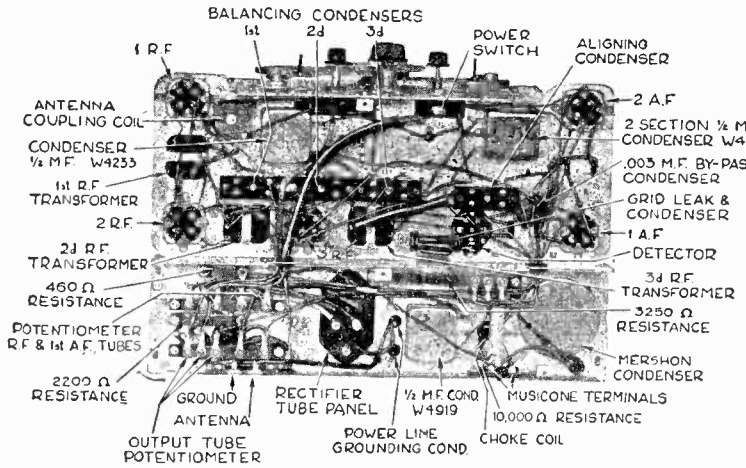
Voltage Data For Crosley 704-A

CROSLEY RADIO CORP

MODEL 704-A
Schematic, Bottom View



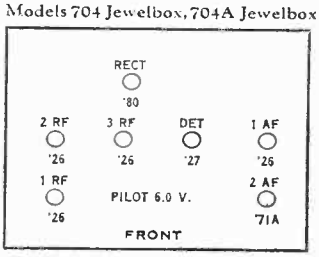
CIRCUIT, MODEL 704-A



BOTTOM VIEW, MODEL 704-A CHASSIS

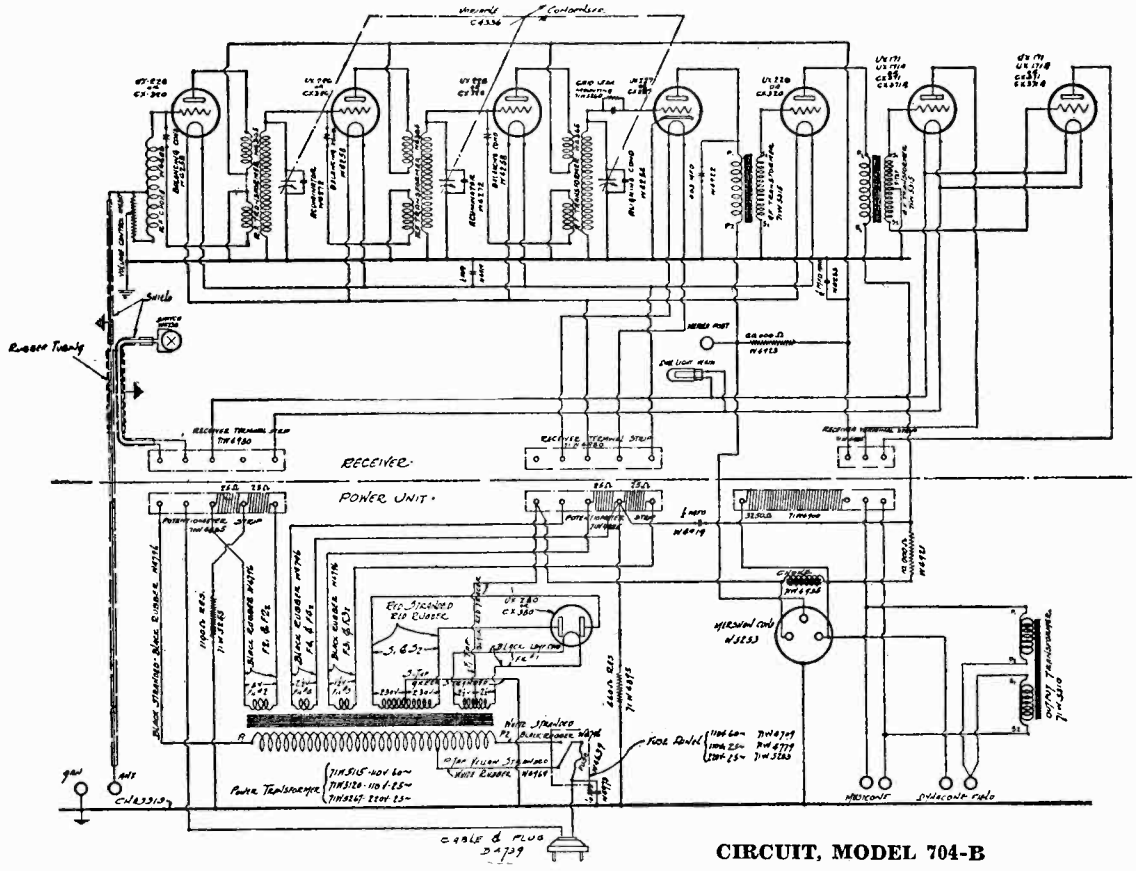
NOTE:—This service sheet applies to all Jewelbox Model 704 sets having seven tubes, including rectifier (single output tube only) numbered from GJD 16,000 to 21,000.

Models 704 Jewelbox, 704A Jewelbox

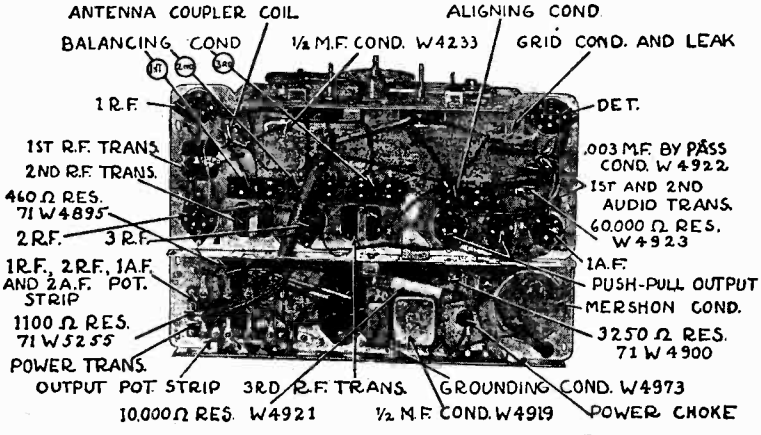


MODEL 704-B
Schematic, Bottom View
Voltage

CROSLEY RADIO CORP.



CIRCUIT, MODEL 704-B

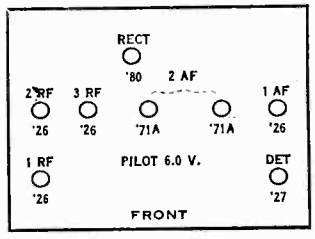


BOTTOM VIEW, MODEL 704-B CHASSIS

Alignment of Tuning Condensers.

1. A small auxiliary variable condenser shunted across the detector tuning condenser serves as a means of aligning the tuning condensers so that they "track" together.

Model 704B Jewelbox

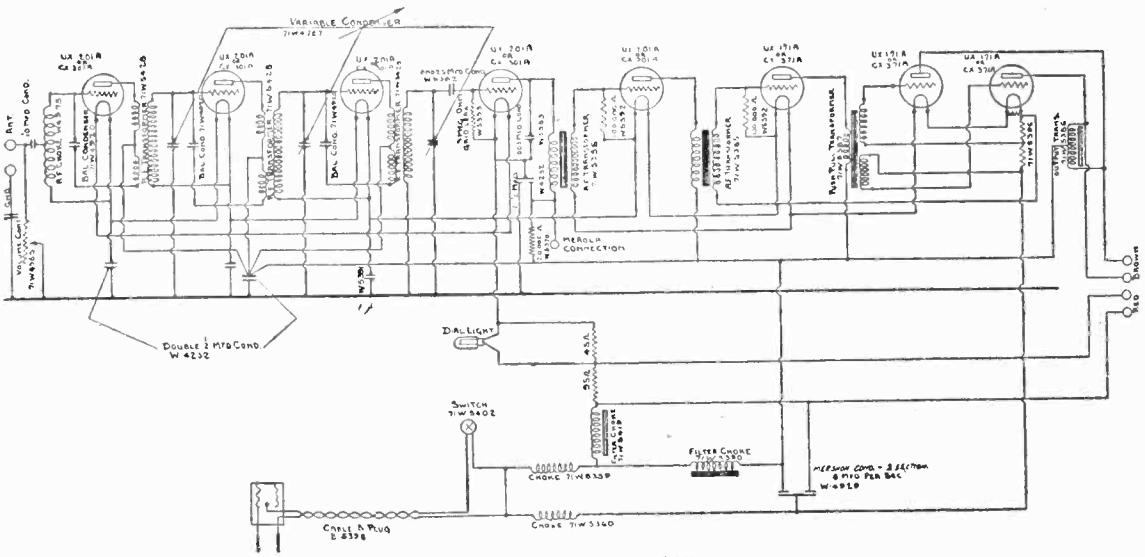


Line Voltage 117.5—227 Emitter Based 11 Volts Negative with Respect to Filament. Detector Grid Test Made with Grid Leak Shorted

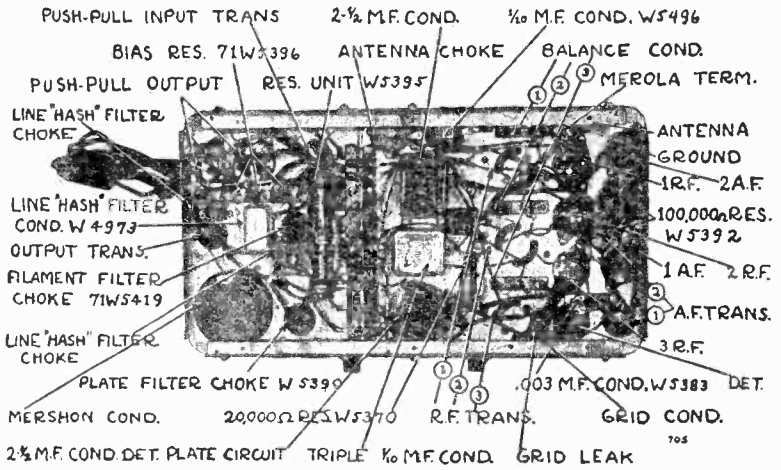
TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE (1ST. R.F., DET., ETC.)	READINGS, PLUG IN SOCKET OF SET								
			TUBE OUT		TUBE IN TESTER						
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS	CATHODE VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st. R.F.	1.6	160	1.5	150	11.0		6.5	12.0	5.5
2	226	2nd. R.F.	1.6	160	1.5	150	11.0		6.5	13.4	6.9
3	226	3rd. R.F.	1.6	160	1.5	150	11.0		6.5	13.4	6.9
4	227	Detector	2.50	150	2.25	30	0.0		2.2	2.75	.55
5	226	1st. A.F.	1.6	220	1.5	120	9.0		6.2	8.0	1.8
6	171A	2nd. A.F.	5.3	185	5.0	170	37.5		20.0	23.0	3.0
7	171A	2nd. A.F.	5.3	185	5.0	170	37.5		20.0	23.0	3.0
8	280	Rectifier	5.3		4.9						

CROSLEY RADIO CORP.

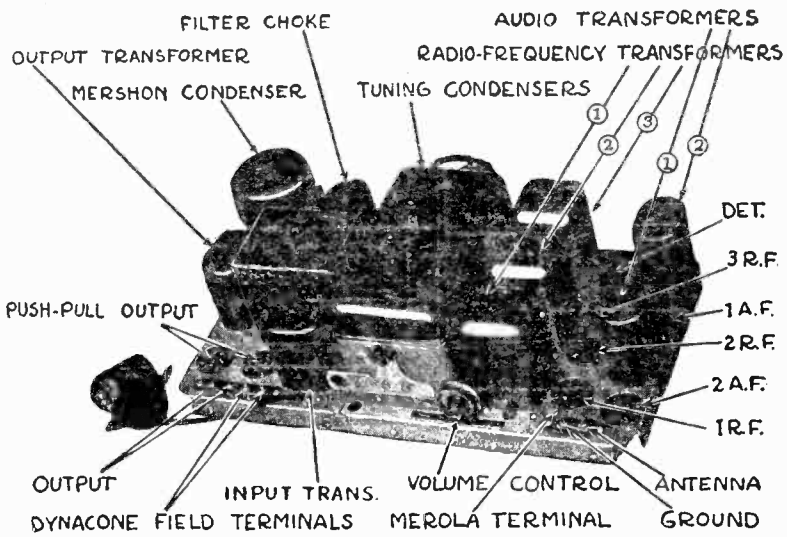
MODEL 705
Schematic,
Bottom and Rear View



CIRCUIT. MODEL 705

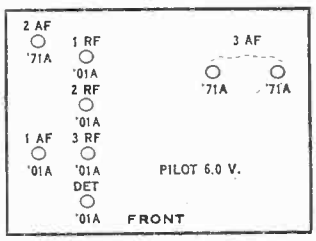


BOTTOM VIEW, MODEL 705 CHASSIS



REAR VIEW, MODEL 705 CHASSIS

Models 705 Showbox (DC), 61, 62



Repairing and Replacing Parts

Replacing Parts.

1. In replacing parts on Model 705 the bottom must be removed.

Tuning Condensers.

1. The complete condenser gang should be removed and replaced as a unit.

2. Take off knobs and remove leads from pilot light socket and volume control first. Next remove switch from holder. Then unsolder condenser leads and remove assembly. Replace in reverse order.

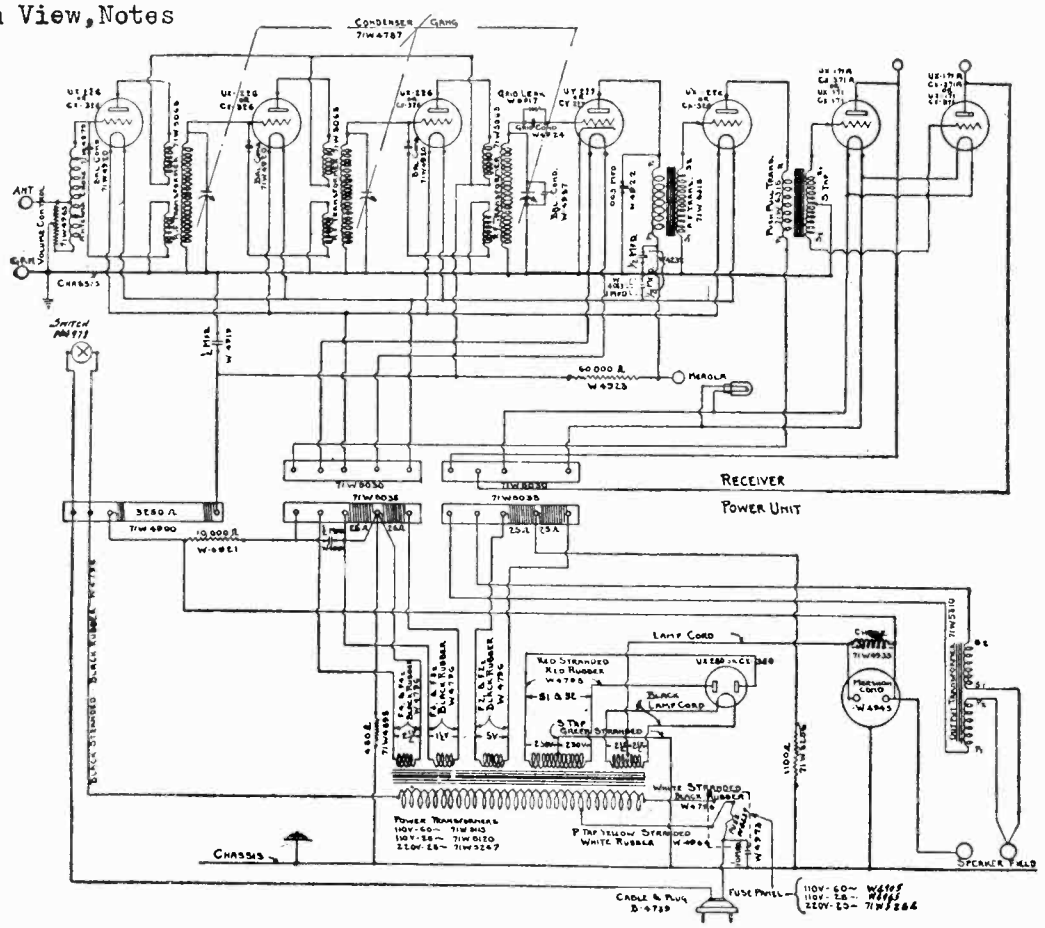
Radio-Frequency Transformers.

1. Unsolder leads first. Then remove shield can. Finally take off transformer coils. Replace in reverse order.

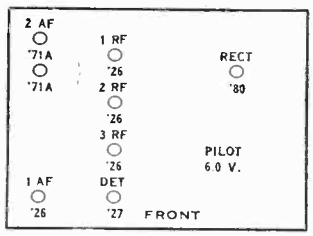
2. **Mark all leads and terminals.**

MODEL 706
Schematic, Voltage
Bottom View, Notes

CROSLEY RADIO CORP.



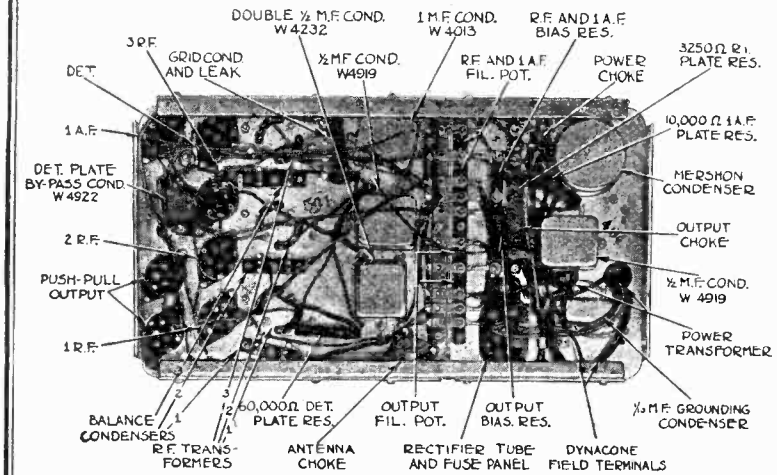
Models 706 Showbox.



CROSLEY- 706

Line Voltage 117.5—227 Emitter Based 11 Volts Negative with Respect to Filament. Detector Grid Test Made with Grid Leak Shorted

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 M.A.	PLATE M.A. GRID TEST	PLATE M.A. CHANGE
1	226	1st. R.F.	1.6	160	1.5	150	11.0		6.5	12.0	5.5
2	226	2nd. R.F.	1.6	160	1.5	150	11.0		6.5	13.4	6.9
3	226	3rd. R.F.	1.6	160	1.5	150	11.0		6.5	13.4	6.9
4	227	Detector	2.50	150	2.25	30	0.0		2.2	2.75	.55
5	226	1st. A.F.	1.6	220	1.5	120	9.0		6.2	8.0	1.8
6	171A	2nd. A.F.	5.3	185	5.0	170	37.5		20.0	23.0	3.0
7	171A	2nd. A.F.	5.3	185	5.0	170	37.5		20.0	23.0	3.0
8	280	Rectifier	5.3		4.9						



BOTTOM VIEW, MODEL 706 CHASSIS

Audio-Frequency Transformers.

1. Both audio transformers are mounted in a single can. They must be removed as a single unit.

2. Unsolder leads. Remove nuts holding assembly in position and take off transformers. Replace in reverse order.

Tuning Condensers.

1. The complete condenser gang should be removed and replaced as a unit.

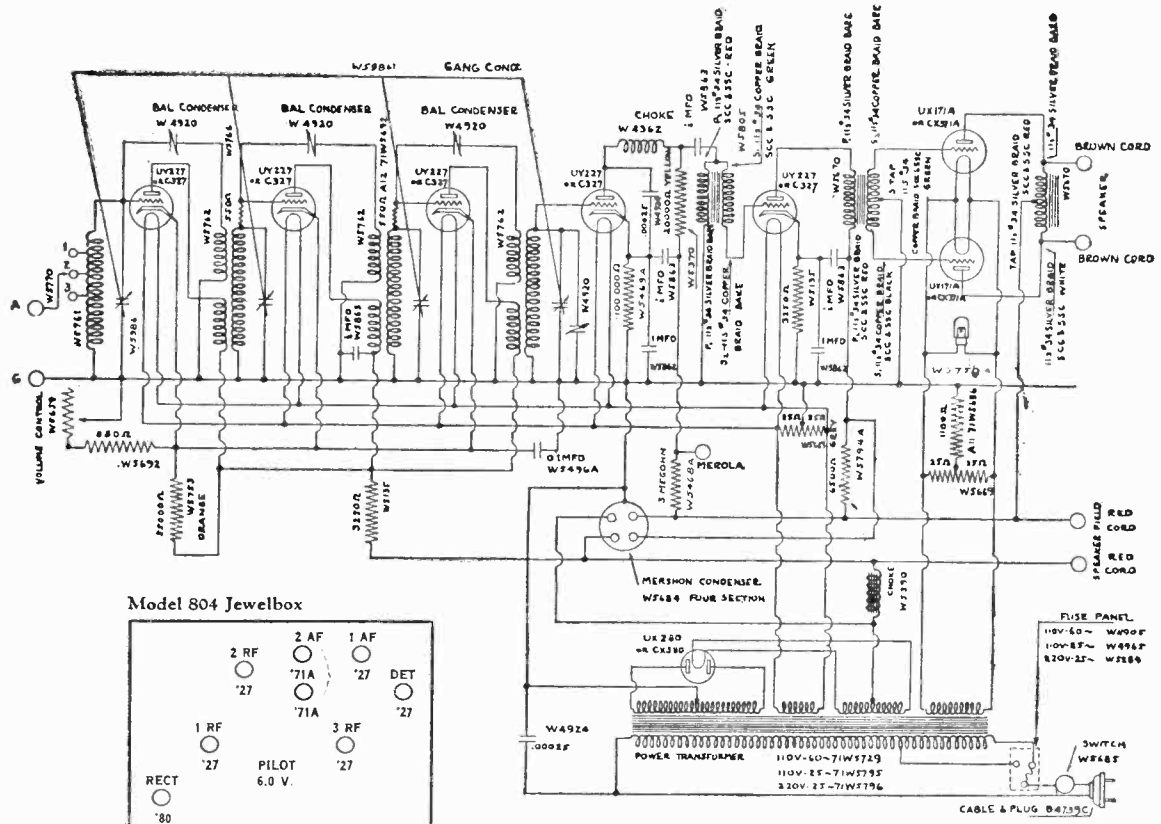
2. Take off knobs and remove leads from pilot light socket and volume control first. Next remove switch from holder. Then unsolder condenser leads and remove assembly. Replace in reverse order.

Radio-Frequency Transformers.

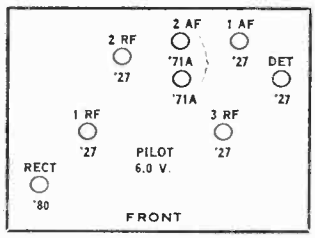
1. Unsolder leads first. Then remove shield can. Finally take off transformer coils. Replace in reverse order.

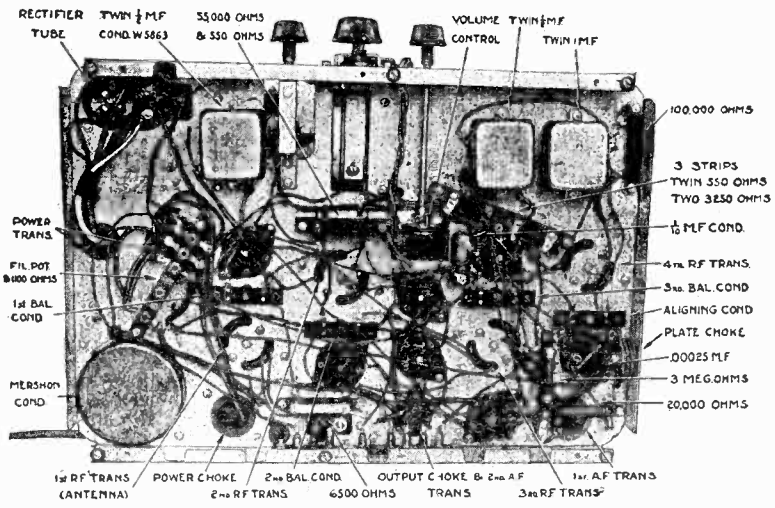
CROSLEY RADIO CORP.

MODEL 804
Schematic, Voltage
Bottom View, Notes



Model 804 Jewelbox





CROSLEY—Model 804
Line Voltage 117.5—Set on High Volt Tap—Volume Control Position Max

TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE (1ST RF DET. ETC)	READINGS, PLUG IN SOCKET OF SET									
			TUBE OUT		TUBE IN TESTER							
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS (CONTROL GRID)	CATHODE-HEATER VOLTS	NORMAL PLATE M.A.	PLATE M.A. GRID (1) TEST	PLATE CHANGE (1) M.A.	SCREEN GRID (1) VOLTS
1	227	1st RF	2.45	185	2.20	175	12	12	5.2	8.0	3.8	-
2	227	2nd RF	2.45	185	2.20	175	12	12	5.2	8.0	3.8	-
3	227 -	3rd RF	2.45	185	2.20	175	12	12	5.2	8.0	3.8	-
4	227	Det.	2.45	150	2.20	150	22	12	0.2	0.25	.05	-
5	227	1st AF	2.45	225	2.20	184	13	12	5.2	8.0	3.8	-
6	171A	2nd AF	5.2	200	5.10	180	40	-	18	25	7.0	-
7	171A	2nd AF	5.2	200	5.10	180	40	-	18	25	7.0	-
8	280	Rect.	5.0	-	4.80	-	-	-	80	-	-	-

Alignment and Balancing.

1. A small, adjustable, aligning condenser is shunted across the detector stage tuning condenser for aligning the tuning condensers controlled by the station selector.

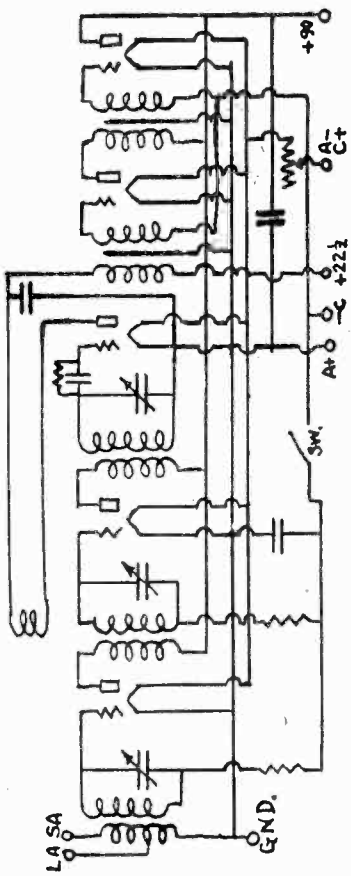
2. Small, adjustable neutrodyne condensers are provided for balancing. Follow the instructions for balancing given on page 4, "Crosley Service Manual." Insulate one of the heater prongs, **not the emitter. Do not use headphones.**

Connections.

1. Follow the connection diagram shown herewith. A small lead near the antenna terminal is provided in order to adjust the set for best operation with different types of aerials. For average operation with an average antenna, this lead should be inserted in terminal "2" at the rear of the chassis. For greatest sensitivity, insert the lead in terminal "1", and for greatest selectivity in terminal "3".

MODEL TRIRDYN
MODEL 51
MODEL 5-38
Schematic

CROSLEY RADIO CORP.



MODEL 5-38

Model 5-38. Series 2 (Serial No. 8000H & Above)

BELOW 8000H 4TH TUBE IS 2RF. 5TH TUBE DET

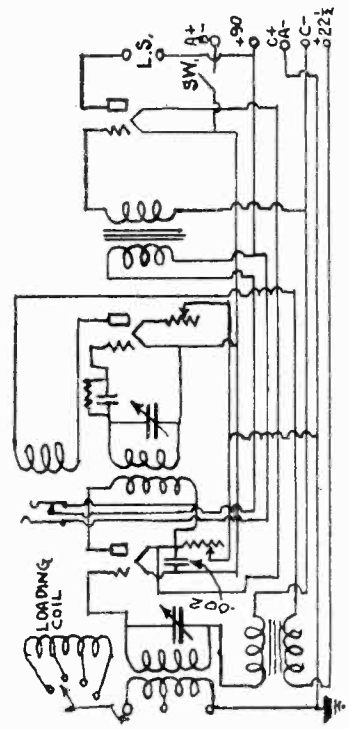
1 RF	2 AF	1 AF	DET	2 RF
○	○	○	○	○
'01A	'01A	'01A	'01A	'01A
OR	OR	OR	OR	OR
X'99	X'99	X'99	X'99	X'99
OR	OR	OR	OR	OR
12	12	12	12	12

FRONT

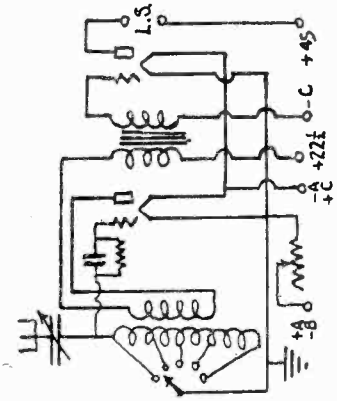
Model Tridyn

RF	DET	2 AF
○	○	○
1 AF		
○		
'01A	'01A	'01A
OR	OR	OR
X'99	X'99	X'99
OR	OR	OR
12	12	12

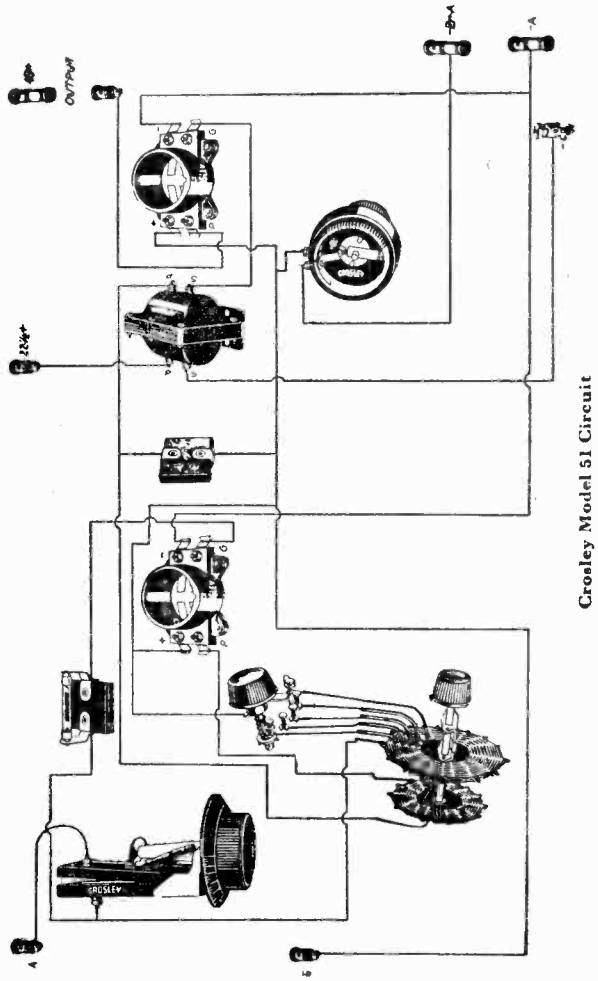
FRONT



MODEL TRIRDYN



MODEL 51



Crosley Model 51 Circuit

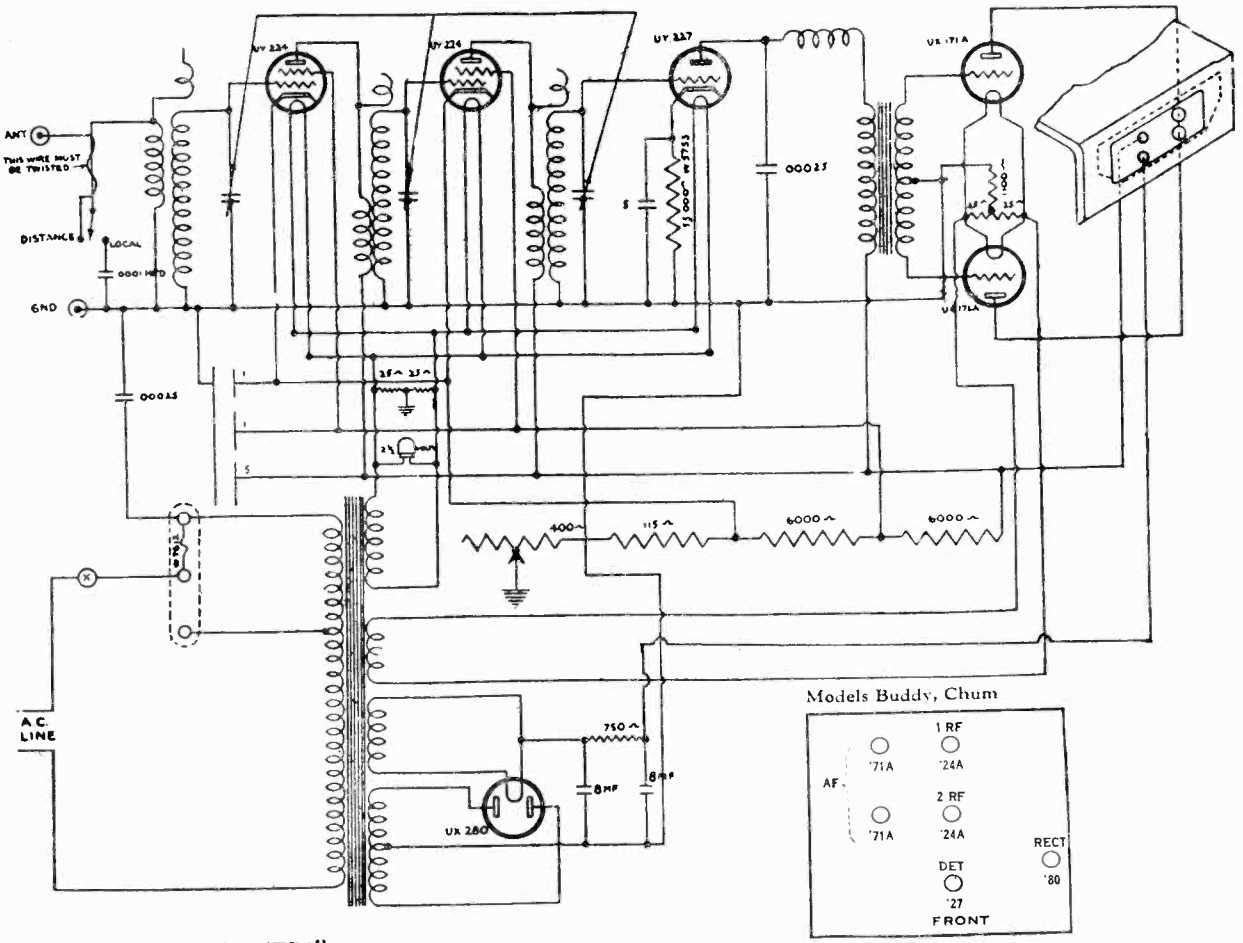
Model 51

DET	AF
○	○
'01A	'01A
OR	OR
X'99	'12A
OR	'71A OR X'99
12	OR '20 OR 12

FRONT

MODEL BUDDY, CHUM
Schematic, Voltage

CROSLEY RADIO CORP



"BUDDY and CHUM"

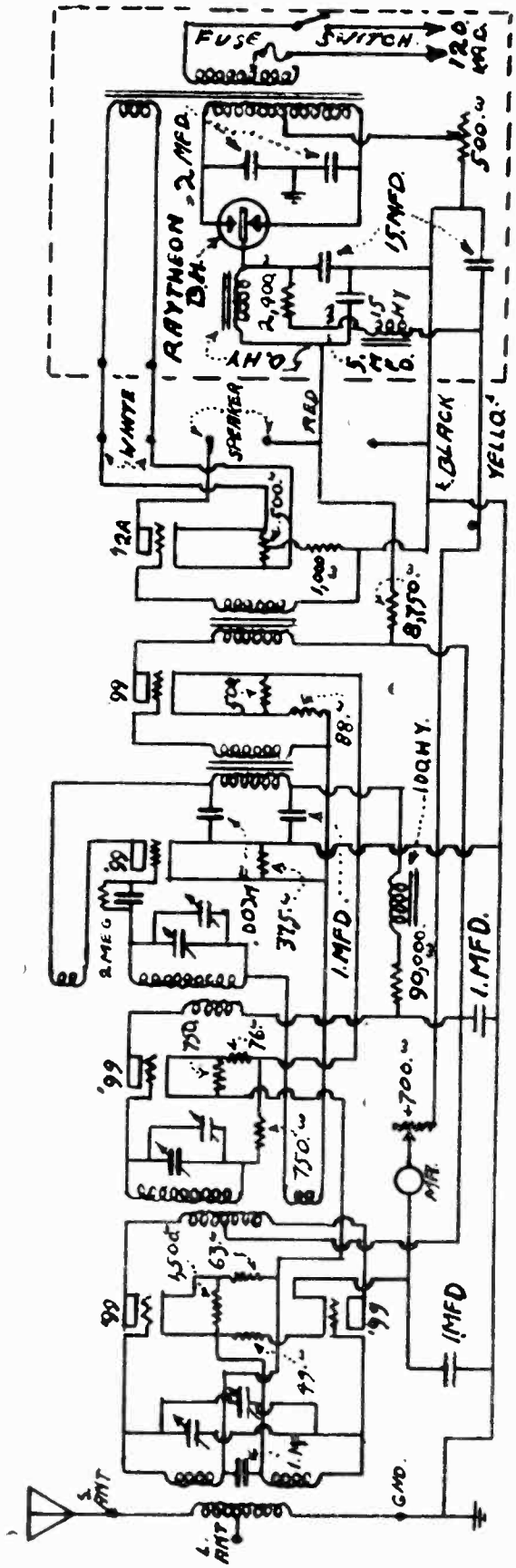
VOLTAGE LIMITS

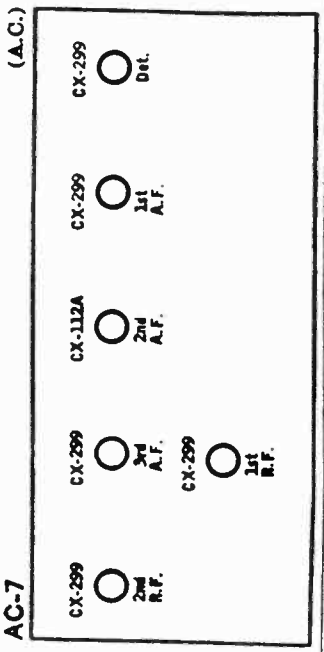
	Volume Control On Full	
Filament Voltages		
R.F. and Detector tubes	2.4	
A.F. and Rectifier tubes	4.8	
- - -	- - -	
Plate Voltages		
All tubes but Rectifier	170	
Rectifier tube	250 each	
- - -	- - -	
Control Grid Voltages		
R.F. tubes	2.8	
Detector tube	12.0	16.0
A.F. tubes	38.0	
- - -	- - -	
Screen Grid Voltages		
R.F.tubes	85.0	

The above readings are to be taken with the receiver in full operating condition, with the volume control on full, and with a line voltage of 117.5 when the fuse is in the "High" position or of 107.5 when the fuse is on the "Low" position. In the case of 220 volt receivers, the line voltages should be respectively 235 and 215. Measure plate and grid voltages with a high-resistance D.C. voltmeter (at least 800 ohms per volt.) These voltages are to be measured from the plate or grid socket contact to the emitter contact or negative filament contact, unless otherwise noted in the table. The contacts must be reached from the bottom of the receiver (unless a set tester is used) with tubes, dial light, and speaker in place. Use a low-range A.C. voltmeter to measure the filament voltages.

MODEL AC-7
AC-7C

CROSLEY RADIO CORP.



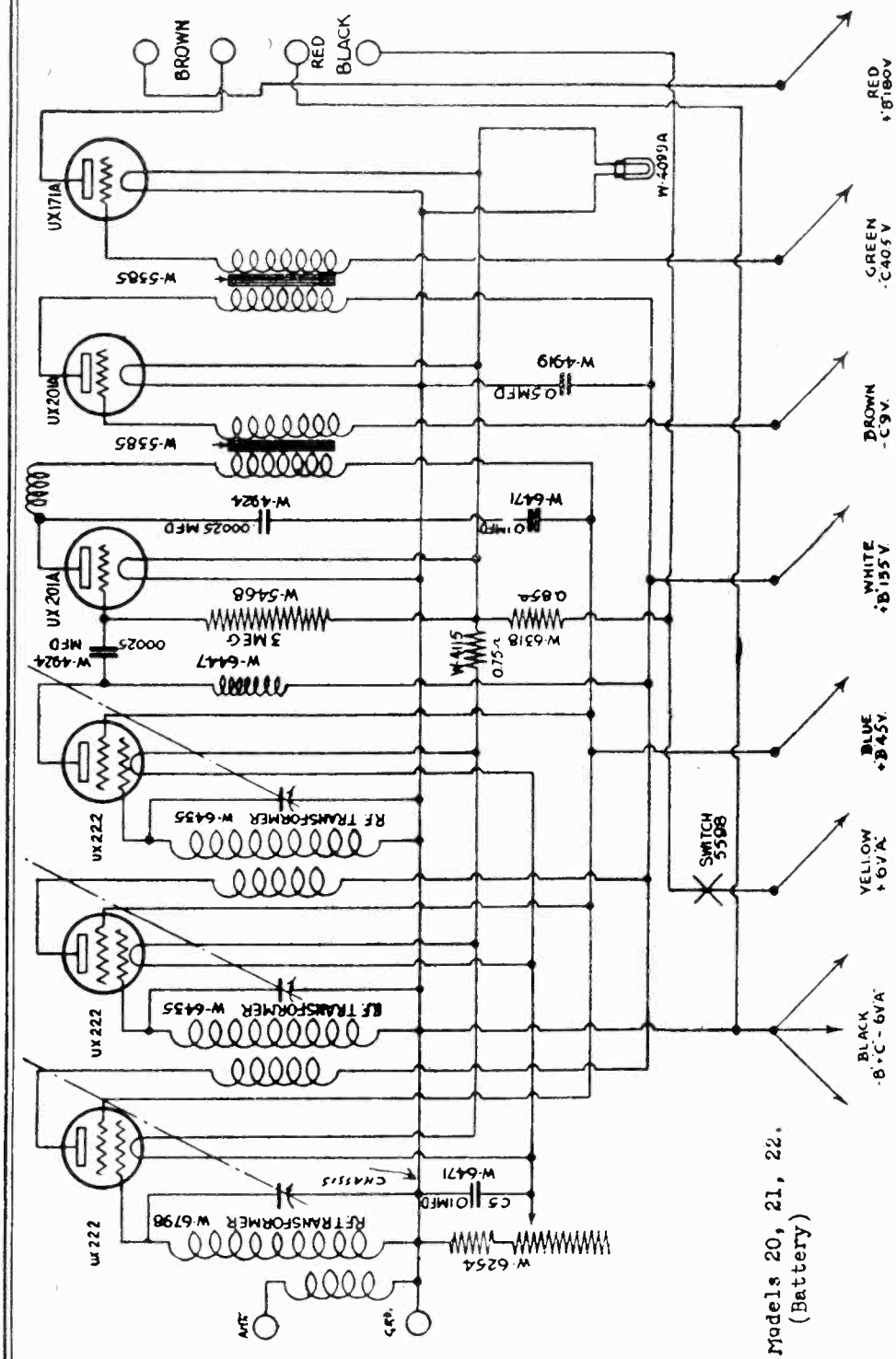


CROSLEY

MODELS AC-7 AND AC-7C

CROSLEY RADIO CORP

MODELS 20,21,22
Schematic, Data
MODELS 21,22
Voltage Data



Models 20, 21, 22.
(Battery)

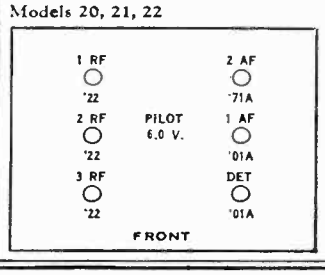
on the circuit diagram.

3. In recent chasses the 3 megohm resistor W5468 in the detector grid circuit is replaced by an A-2 radio-frequency choke, the 0.85 ohm resistor is moved to the negative filament lead, and the detector grid return is connected to the negative side of the 0.85 ohm resistor. See the changes marked "3" on the circuit diagram.

1. The original chasses were built for use with Type E Dynacone. When the type C Dynacone (with separately excited field coils) was introduced, two terminals (Red and Black) were added to the chassis for supplying the field of the "C" type speaker with current direct from the storage battery, or "A" supply.

2. For a short time the yellow and black filament terminals were connected to the points shown by the dotted lines marked "2Y" and "2B"

Models 20, 21, 22

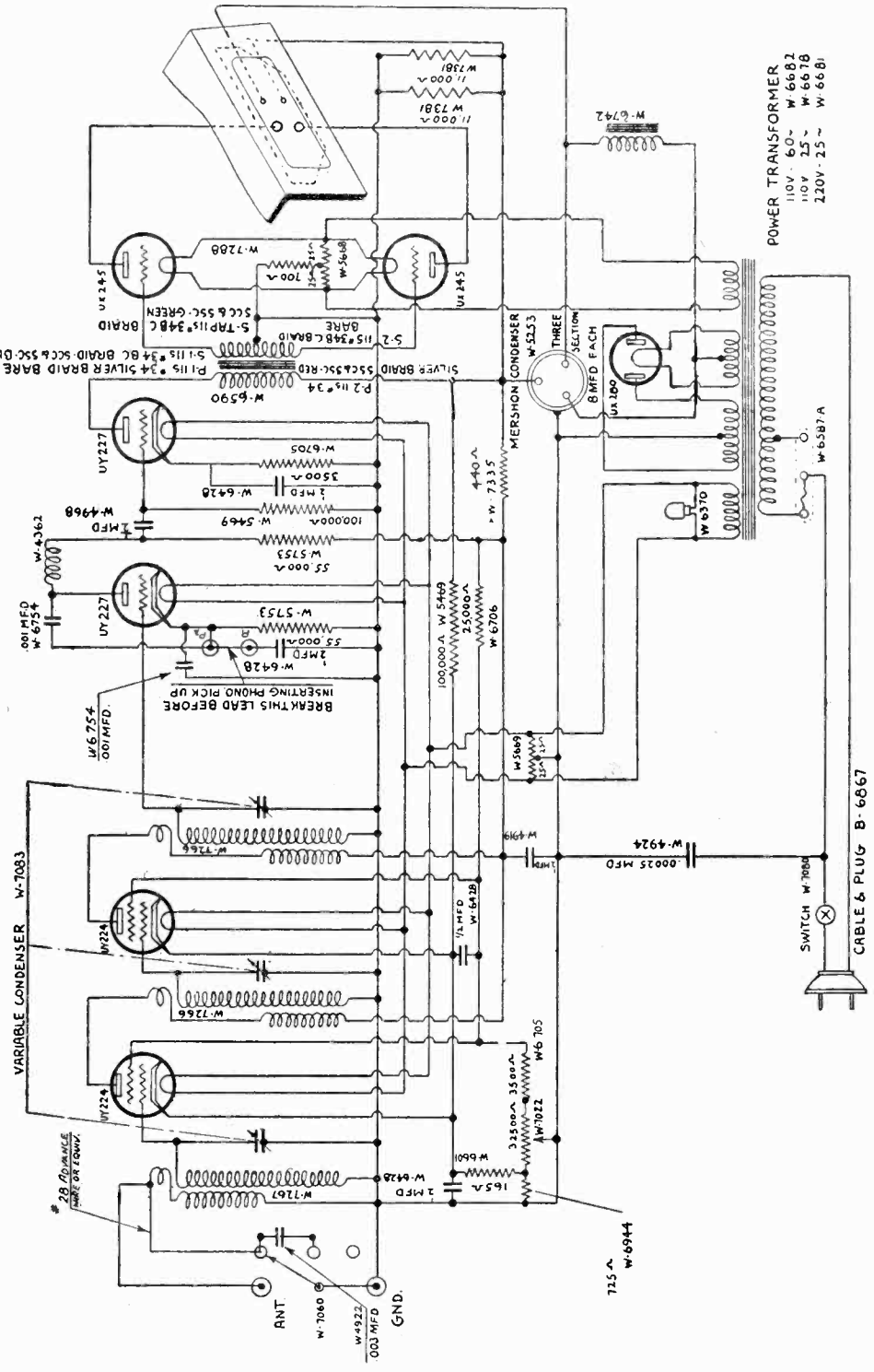


CROSLEY—Models 21-22
Line Voltage 115—Volume Control Position Max
Note: Battery operated.

TUBE NO. IN ORDER	TYPE OF TUBE	POSITION OF TUBE	READINGS, PLUG IN SOCKET OF SET									
			TUBE OUT		TUBE IN TESTER							
			A VOLTS	B VOLTS	A VOLTS	B VOLTS	C VOLTS (CONTROL GRID)	CATHODE HEATER VOLTS	NORMAL PLATE M A	PLATE M A GRID TEST	PLATE M A CHANGE	GRID BIAS VOLTS
1	222	1st RF	5.3	135	5.2	135	1.5	-	.8	1.8	1.0	45
2	222	2nd RF	5.3	136	5.2	136	1.5	-	.8	1.8	1.0	45
3	222	3rd RF	5.3	136	5.2	135	1.5	-	.8	1.8	1.0	45
4	201A	Det.	5.0	-	4.9	45	-	-	3.0	5.0	3.0	-
5	201A	1st AF	5.0	136	4.9	135	9	-	3.5	8.0	4.5	-
6	171A	2nd AF	5.0	180	4.9	180	40.5	-	30	36	6.0	-

MODELS 30S, 31S, 33S, 34S
Schematic, Voltage, Notes

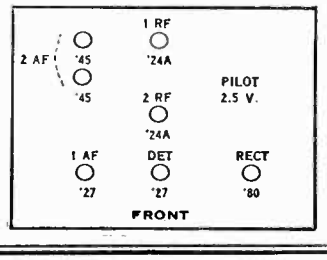
CROSLEY RADIO CORP.



CROSLEY—63 Chassis
Models 30S, 31S, 33S, 34S and Playmate.

TUBE NO. IN ORDER TESTED	TYPE OF TUBE	POSITION OF TUBE IN SET	METER READINGS WITH JEWELL TEST PLUG IN SOCKET OF SET. OPERATING VOLTAGES: FILAMENT OR HEATER	PLATE OR ANODE	CONTROL GRID—SPACE (-) GD+	NORMAL GRID—SCREEN (-) SG+	CATHODE TO HEATER	SCREEN-GD PLATE	MILLIAMPERES: PLATE R. H. SG PLATE	TUBE TEST	PLATE CURRENT CHANGE
1	224	1 R.F.	2.63	153	-1.4	65	1.2	-	2.95	6.	3.03
2	224	2 R.F.	2.63	153	-1.4	65	1.2	-	2.85	5.25	2.4
3	227	Det.	2.4	114	-	-10.9	11.8	-	.3	.39	.9
4	227	1 A.F.	2.65	140	-	-4.	10	-	2.85	3.6	.75
5	245	2.A.F.	2.35	224	-	-42.5		-	30.	33.6	4.6
6	245	2 A.F.	2.35	224	-	-42.5	-	-	30.	33.6	4.6
7	280	Rect.	5.1	-	-	-	-	55	55	-	-

Models 30-S, 31-S, 33-S, 34-S



Installation

These receivers are designed for operation with Type M Dynacoil speakers. The chassis is equipped with a socket into which a plug on the end of the speaker cord fits. Although not shown on page 29, the more recently built chassis of the 40S series are equipped with sockets for Type M Dynacoil speakers instead of with terminals for Type J Dynacoils.

The line voltage should be checked and the chassis fuse inserted in the proper clips as described on page 29 in connection with the 40S series of receivers. If the owner of the receiver complains of tubes burning out too often check the line voltage and see that the fuse is inserted in its proper clips.

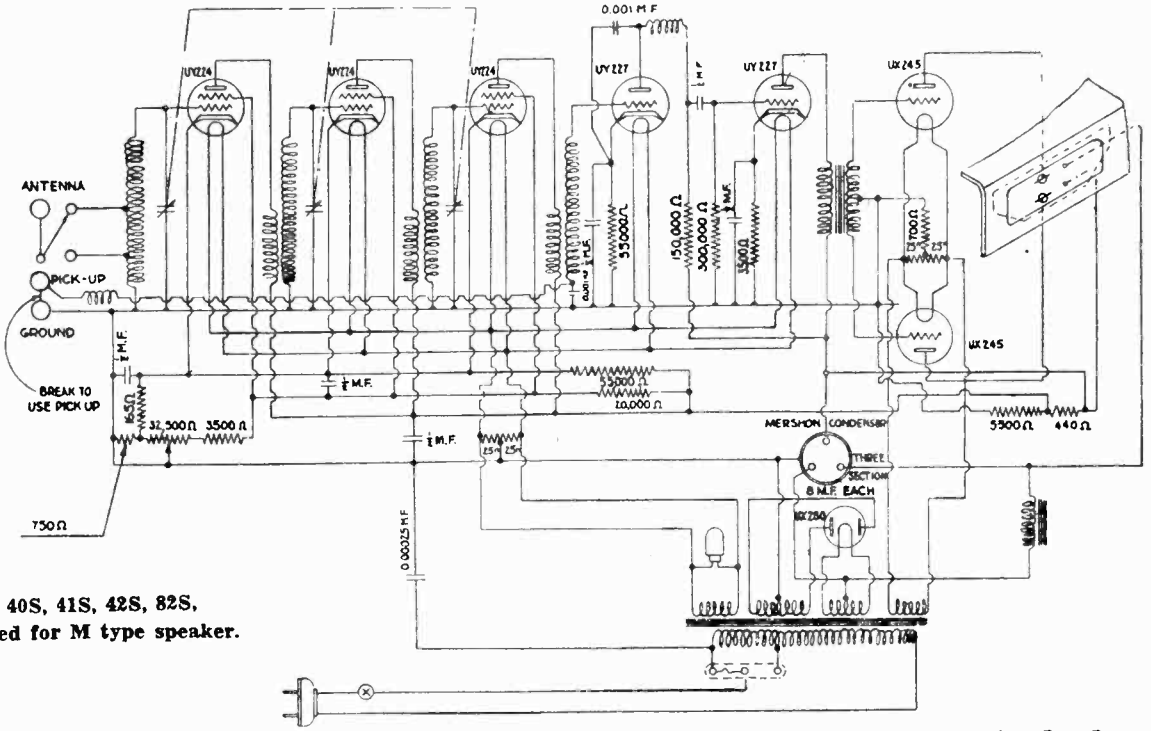
If the dial light burns out, replace it with a 2½ volt Mazda miniature base bulb No. 41 If the fuse requires to be replaced use a two ampere cartridge type automobile light fuse (two ampere fuses are also used on recent chasses of the 40S series)

Installation of Model 30S Unitrad chassis, which is the chassis with front panel only for console mounting, is similar to that described on page 29 for Model 40S. Model 31S is in a metal, table type case. Model 33S and 34S are mounted in wooden consoles, with built-in speakers

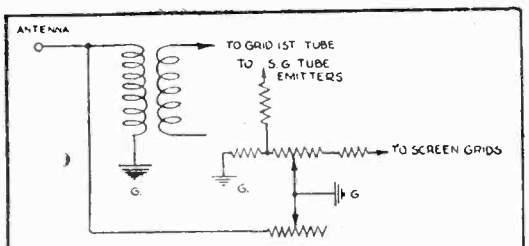
CROSLEY RADIO CORP.

MODELS 40S,41S,42S,82S
Schematic,Voltage

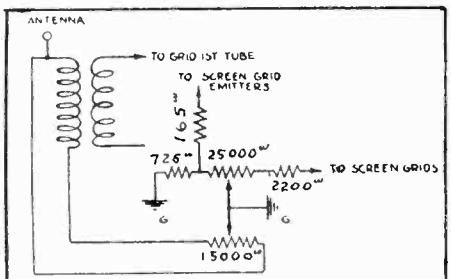
For model 41S receiver, a Dynacoil speaker type J, model 244, is required.



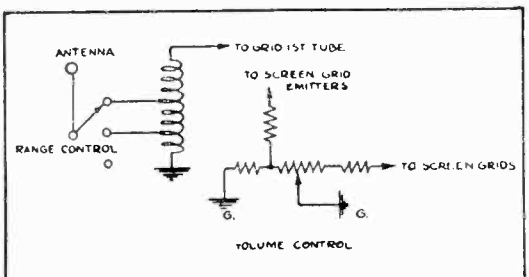
Models 40S, 41S, 42S, 82S, arranged for M type speaker.



First Type of Volume Control.



Second Type of Volume Control.

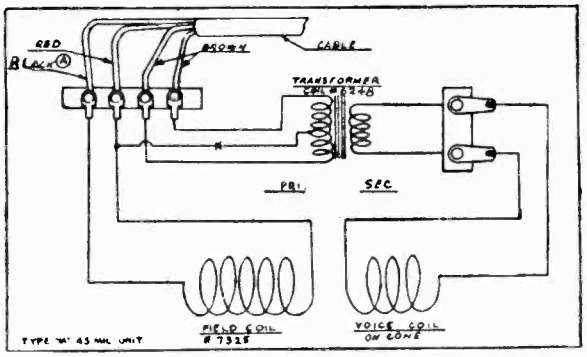


Third Type of Volume Control.

CROSLEY—73 Chassis—Models 40S-41S-42S-82S
Line Voltage 117.5—Set on High Volt Tap—Volume Control Position Max

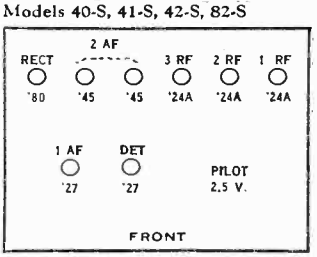
TUBE NO IN ORDER	TYPE OF TUBE	POSITION OF TUBE IN SET	READINGS PLUG IN SOCKET OF SET: TUBE OUT A VOLTS	TUBE OUT B VOLTS	TUBE IN TESTER A VOLTS	TUBE IN TESTER B VOLTS	TUBE IN TESTER C VOLTS (CONTROL GRID)	TUBE IN TESTER CATHODE - HEATER VOLTS	TUBE IN TESTER NORMAL PLATE M A	PLATE M A GRID TEST	PLATE CHANGE M A	SCREEN GRID VOLTS
1	224	1st RF	2.60	180	2.40	175	1.5	1.5	1.5	4.0	2.5	70
2	224	2nd RF	2.60	180	2.40	175	1.5	1.5	1.5	4.0	2.5	70
3	224	3rd RF	2.60	180	2.40	175	1.5	1.5	1.5	4.0	2.5	70
4	227	Det.	2.60	100	2.45	100	12	12	.8	.3	.1	-
5	227	1st AF	2.65	280	2.45	180	15	12	4.0	5.0	1.0	-
6	245	2nd AF	2.55	265	2.30	240	48	-	26	30	4.0	-
7	245	2nd AF	2.55	265	2.30	240	48	-	26	30	4.0	-
8	280	Rect.	5.60	-	5.00		-	-	100	-	-	-

Models 42S and 82S are equipped with Dynacoil speakers, type J, model 255.



For model 40S receiver, Dynacoil type J, model 254 is supplied.

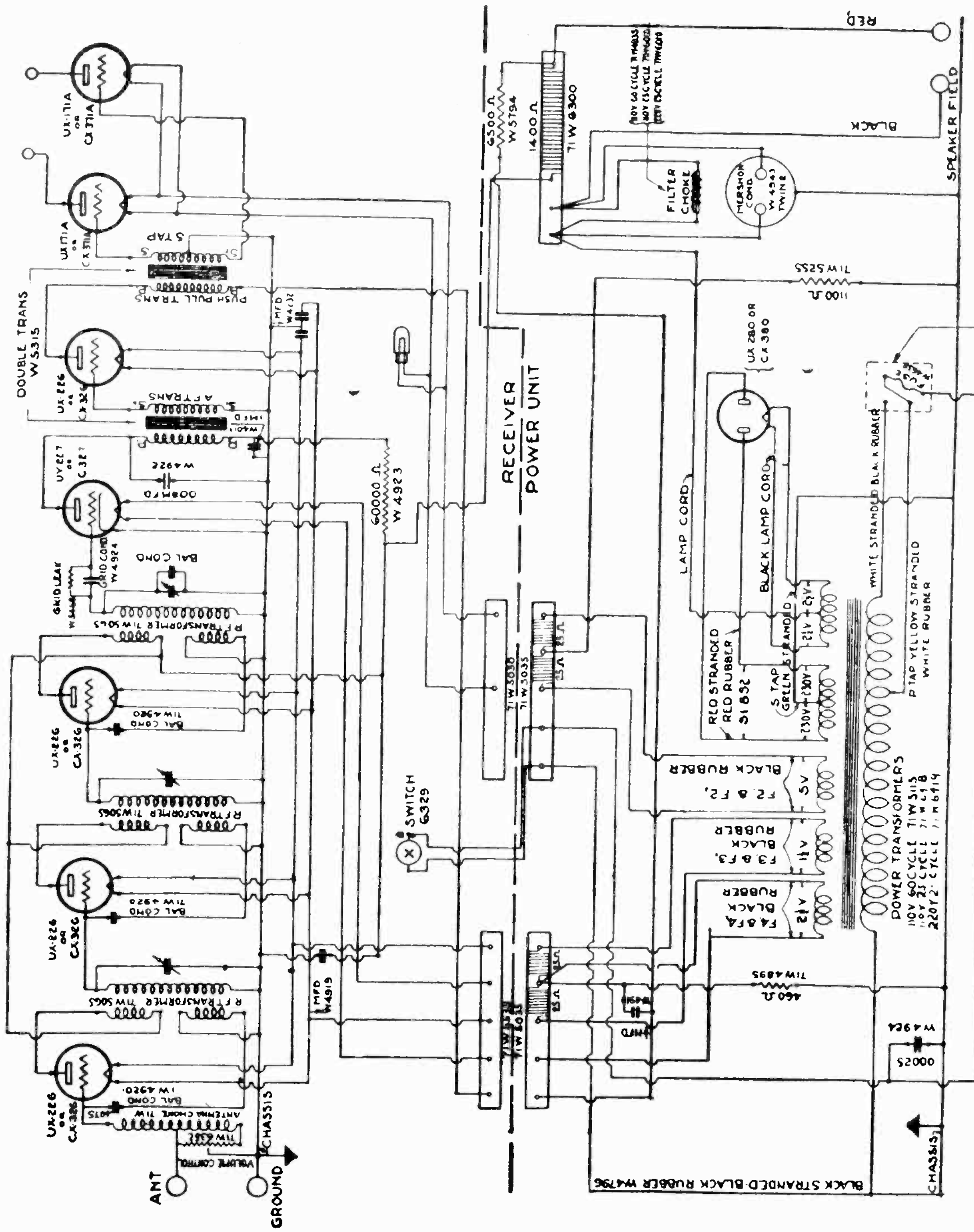
Models 40-S, 41-S, 42-S, 82-S



(ABOVE)
Connections for Dynacoils Types G,H,J,M
Red and Black leads to field coil. Brown leads to speaker output transformer.

MODELS 41,41A,42
Schematic,Voltage

CROSLEY RADIO CORP.



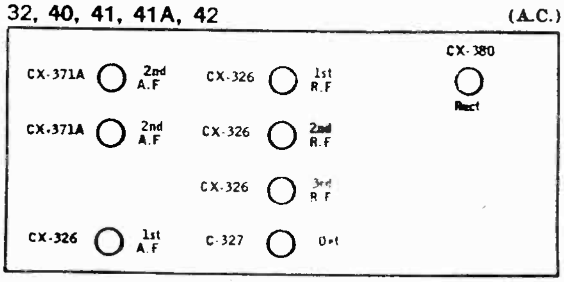
*Dynacoil speaker, Type H, Model 242, for Model 41A receiver Model 42 receiver is equipped with built-in Dynacoil speaker, Type H, Model 243.

*Note—Mershon Condenser in set will probably be ruined if speaker field circuit is opened while set is in operation.

CROSLEY—Models 41-41A-42-704-706
Line Voltage 117.5—227 Emitter Based 11 Volts Negative with Respect to Filament. Detector Grid Test Made with Grid Leak Shorted

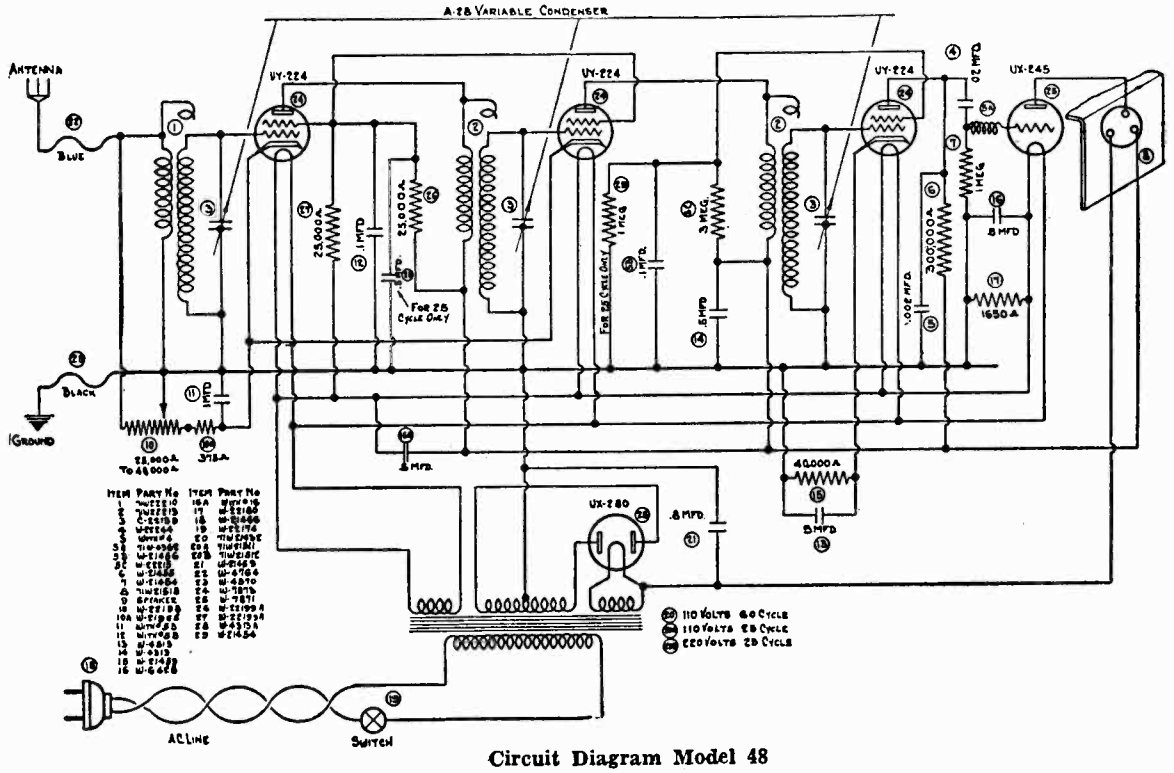
Tube No. in Order	Type of Tube	Position of Tube 1st RF Det etc.	Tube Out A Volts	Tube Out B Volts	Tube in Tester A Volts	Tube in Tester B Volts	Tube in Tester C Volts	Cathode Volts	Normal Plate MA	Plate MA Grid Test	Plate MA Change
1	226	1st.R.F.	1.6	160	1.5	150	11.0		6.5	12.0	5.5
	226	2nd.R.F.	1.6	160	1.5	150	11.0		6.5	13.4	6.9
	226	3rd.R.F.	1.6	160	1.5	150	11.0		6.5	13.4	6.9
	227	Detector	2.50	150	2.25	30	0.0		2.2	2.75	.55
	226	1st.A.F.	1.6	220	1.5	120	9.0		6.2	8.0	1.8
	171A	2nd.A.F.	5.3	185	5.0	170	37.5		20.0	23.0	3.0
7	171A	2nd.A.F.	5.3	185	5.0	170	37.5		20.0	23.0	3.0
	280	Rectifier	5.3		4.9						

32, 40, 41, 41A, 42 (A.C.)



CROSLEY RADIO CORP.

MODEL 48
Schematic, Voltage



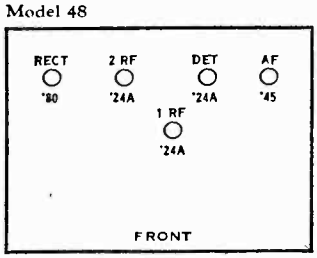
Circuit Diagram Model 48

Voltage Limits

To be measured with tubes in place, speaker connected, and line voltage of 117½ (235 for 220 volt receivers. Measure plate and grid voltages with a high-resistance D. C. volt-meter (600 ohms or more per volt) from plate or grid socket contact to emitter contact. Use a low-range A. C. meter to measure filament voltages.

Filament Voltages	
All tubes but rectifier	2.3 to 2.5
Rectifier tube	4.6 to 4.8
Plate Voltages	
R. F. amplifier tubes	160 to 190
Detector tube	105 to 125
A. F. amplifier tube	125 to 155
Rectifier tube	220 A. C.
Screen Grid Voltages	
R. F. amplifier tubes	80 to 90
Detector tube	40 to 50
Control Grid Voltages	
R. F. amplifier tubes	2.5 to 3.1
Detector tube	6.0 to 7.0
A. F. amplifier tube	25 to 35

Model 48



Installation Notes

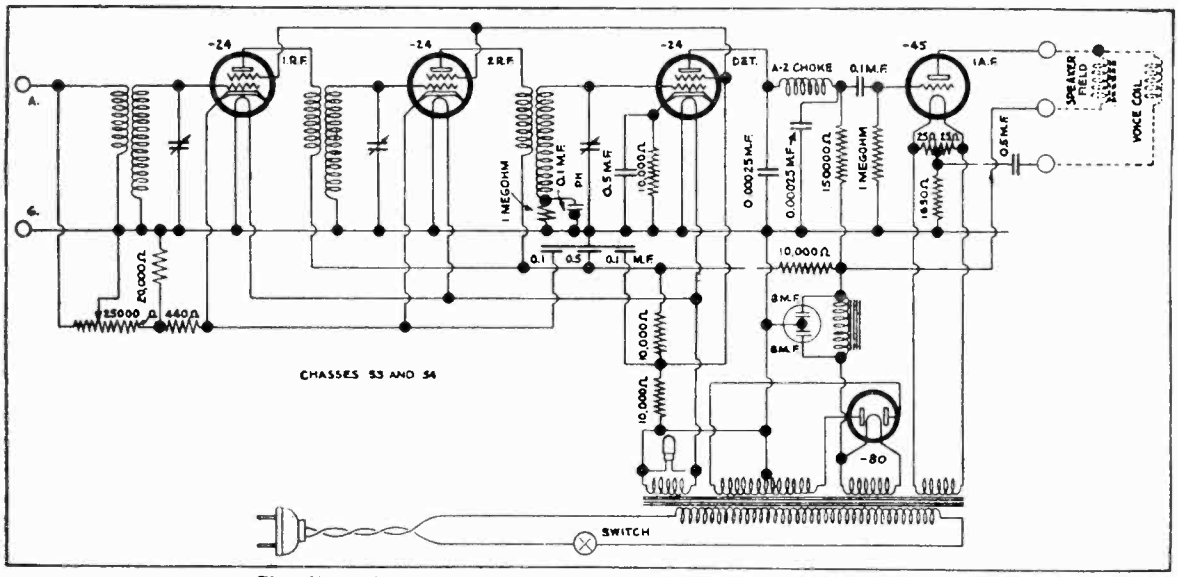
Because of the low sensitivity of this chassis it is better to use a comparatively large aerial with it if possible. A good ground should, of course, be used.

One must be careful in inserting the speaker plug not to force it in when the prongs are improperly lined up with the socket holes.

This model employs the following tubes: two -24 screen grid amplifiers, a -24 screen grid detector, a -45 power output amplifier, and a -80 rectifier.

MODEL 53,54,57
Schematic,Voltage

CROSLEY RADIO CORP.



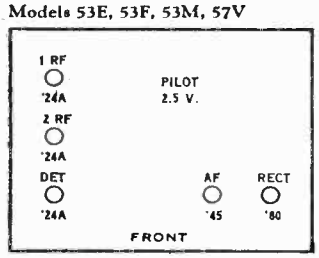
Circuit Model 53 (see note below regarding Models 54 and 57)

Circuit, Models 54 and 57

Model 54 circuit differs from that shown in the diagram in the following particulars: The "PH" terminals are between the r. f. transformer coil and the 0.1 m. f. condenser, instead of between this condenser and ground, as shown. The triple unit condenser near the center of the diagram has values, from right to left, of 0.1, 0.1, 0.5 microfarads, instead of those shown. There is no dial light on Model 54.

Model 57 differs in circuit from the above description in the following particulars: An additional condenser of 0.25 m. f. capacity is shunted across the filter choke. The primary of the speaker output transformer is connected in the position in which the speaker field is shown in the above diagram. Instead of being connected to the 1650 ohm resistor through a condenser, as shown in the above diagram, the bottom speaker terminal is connected to ground. The speaker field is connected from this grounded terminal to the middle speaker terminal on the diagram, so that current from the positive "B" circuit flows through the speaker field to ground. A fixed condenser is shunted across the 1650 ohm output biasing resistor.

Models 53E, 53F, 53M, 57V



Voltage Limits

Filament Voltages	
R. F. and Detector Tubes	2.1 to 2.3
A. F. Tube	2.2 to 2.4
Rectifier Tube	4.1 to 4.3
Plate Voltages	
R. F. Tubes	160 to 180
Detector Tube	215 to 245
A. F. Tube	230 to 260
Rectifier Tube (A. C. Voltage)	340 to 370 each plate
Control Grid Voltages	
R. F. Tubes	3.1 to 3.5
Detector Tube	9.0 to 10.0
A. F. Tube	45.0 to 50.0
Screen Grid Voltages	
R. F. and Detector Tubes	85 to 95
Approximate Plate Current Values	
R. F. Tubes	0.0032
Detector Tube	0.00035
A. F. Tube	0.0335
Rectifier Tube	0.045

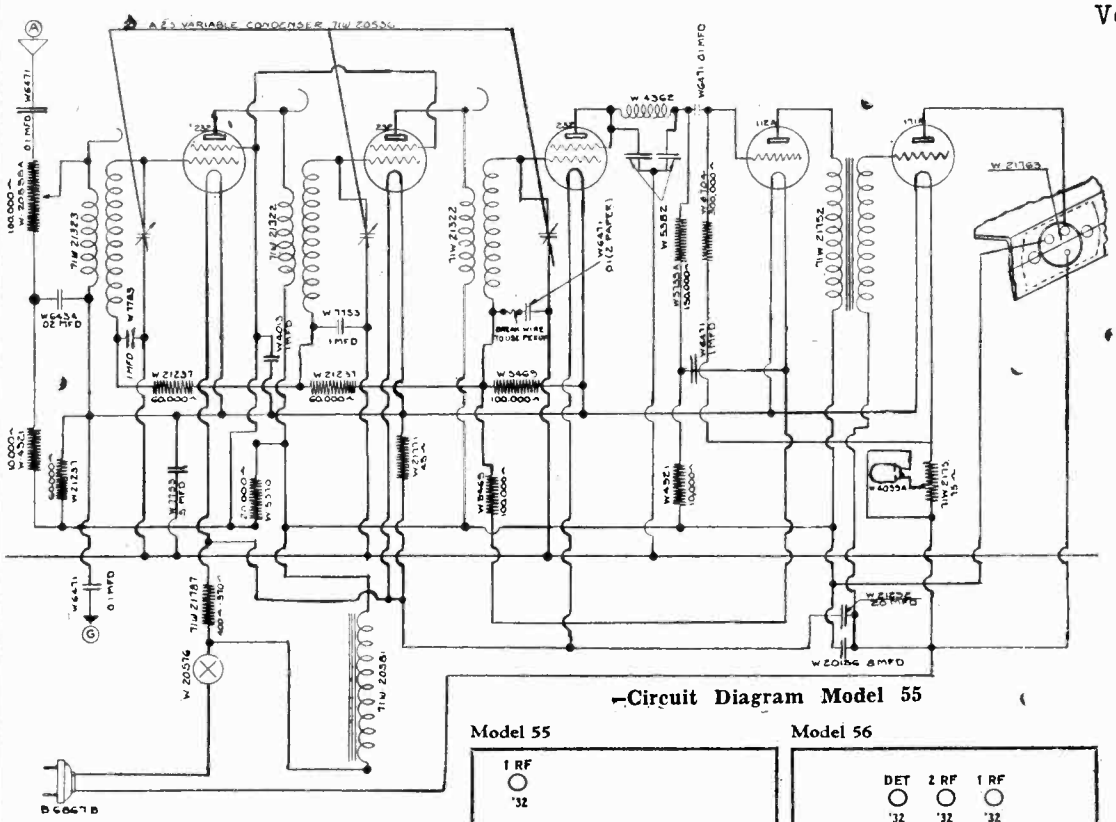
To be measured with speaker connected, tubes in place, and line voltage of 117½ (235 for 220 volt receivers) with fuse in "High" position or of 107½ (215 for 220 volt receivers) with fuse in "Low" position. Measure plate and grid voltages with a high-resistance D. C. voltmeter (600 ohms or more per volt) from plate or grid tube contact to emitter contact, except in the case of the grid voltages of the detector and audio tubes, which should be measured from the emitters to the chassis. The filaments of the output and rectifier tubes serve as the emitters, while the other tubes have heaters and separate emitters. Measure filament voltages with a low-range A. C. voltmeter.

Black 0	Orange 3	Violet 7
Brown 1	Yellow 4	Gray 8
Red 2	Green 5	White 9
	Blue 6	

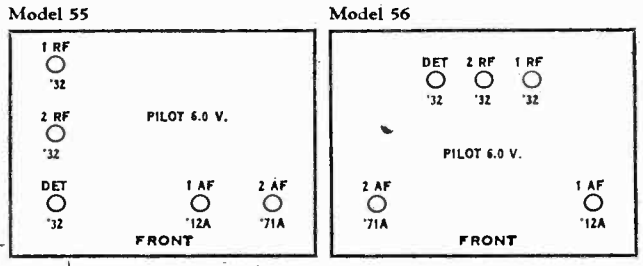
For example, a resistor with orange body color, green end color, and a red dot has a resistance of 3500 ohms.

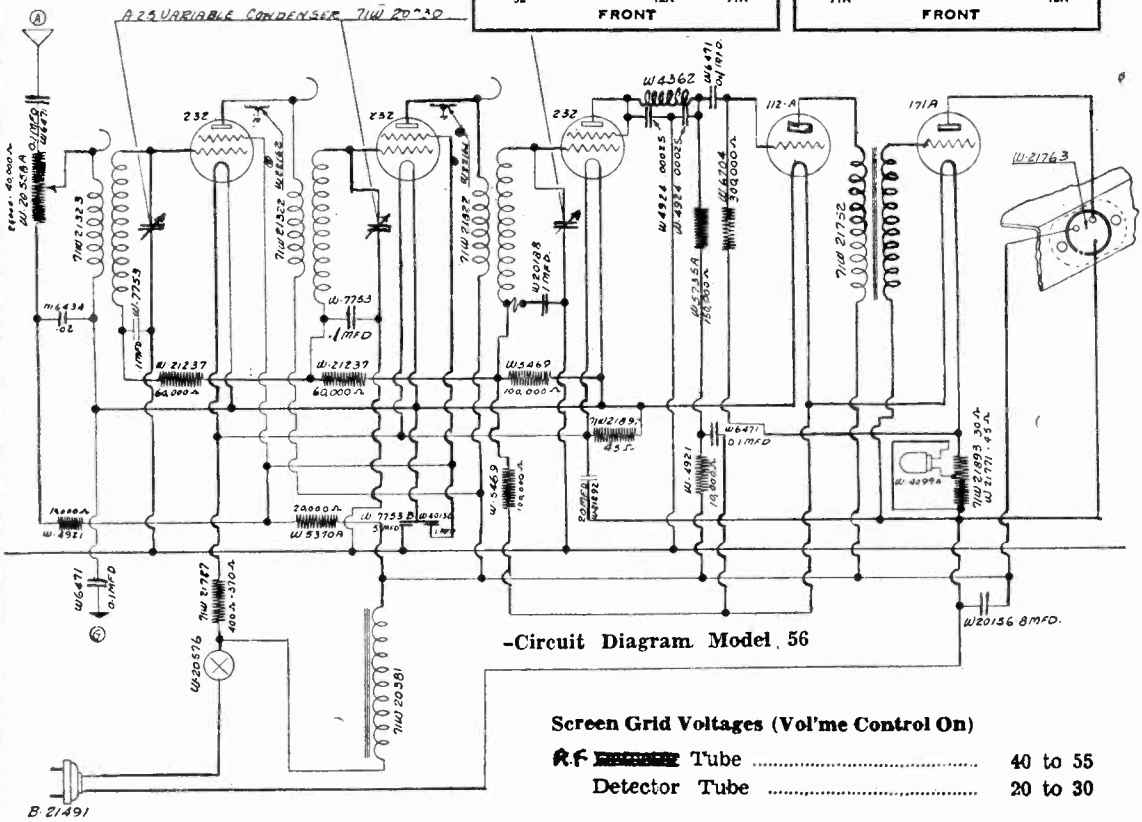
CROSLEY RADIO CORP.

MODEL 55
MODEL 56
Schematic
Voltage



-Circuit Diagram Model 55





-Circuit Diagram Model 56

Plate Voltages

R. F. Tubes	80 to 90
Detector Tube	20 to 30
1st A. F. Tube	75 to 90
Output Tube	85 to 100

Control Grid Voltages

R. F. and Detector Tubes	1.2 to 1.8
1st A. F. Tube	4.0 to 6.0
Output Tube	10.0 to 15.0

Filament Voltages

R. F. and Detector Tubes	1.5 to 2.0
A. F. Tubes	4.2 to 5.0

Screen Grid Voltages (Vol'me Control On)

R.F. [redacted] Tube	40 to 55
Detector Tube	20 to 30

MODEL 55
MODEL 56
Parts Lists

CROSLEY RADIO CORP.

Parts List Model 55

INSTRUCTIONS FOR ORDERING—Give part number, description of part, and serial number of receiver on which part is to be used. If article wanted is not listed separately, then that part of complete assembly containing this article should be ordered. Goods shipped on open account to Crosley Wholesale Distributors only. Cash must accompany Dealer and Consumer orders. Prices are subject to the usual trade discounts.

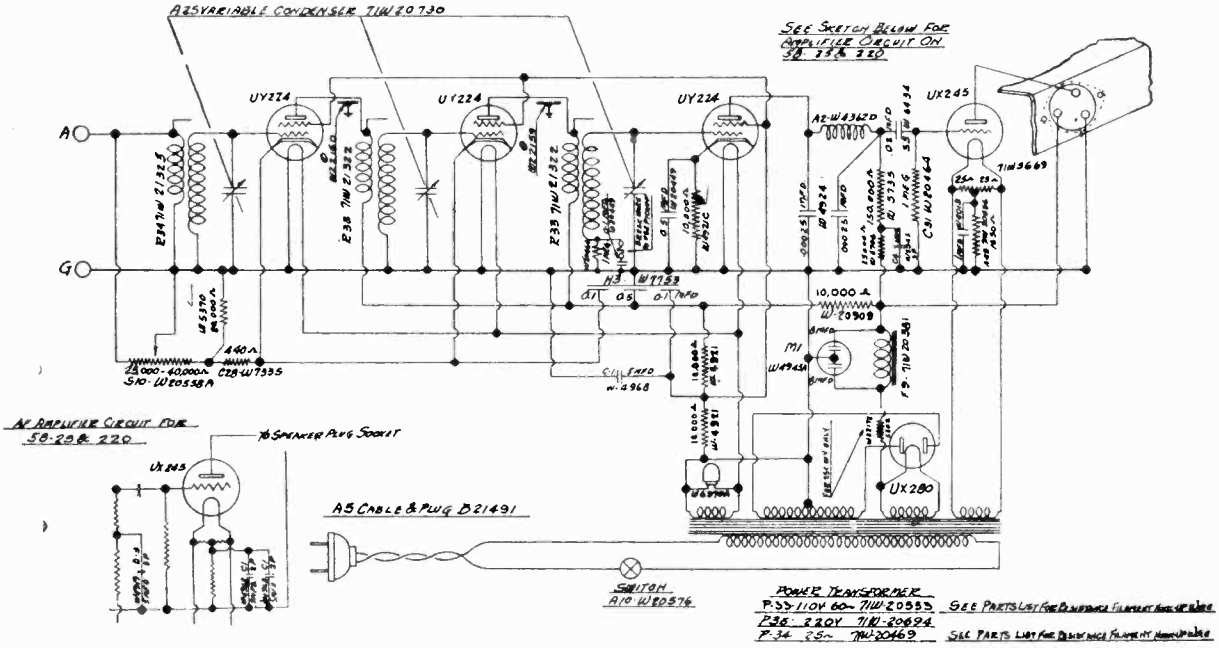
Qty.	Part No.	Description	List Price Each
1	D-21761	Chassis	2.00
5	W-7871	Socket (4 Prong)	.25
5	W-7874	Socket Guide	.10
2	W-21322	R. F. Transformer	2.50
1	W-21323	R. F. Transformer (Ant.)	2.50
3	W-21739	Grid Connectors	.25
3	B-21174	R. F. Coil Shield	.50
1	W-20558	Volume Control	1.75
	W-20536	Variable condenser gang	18.00
1	W-20981	Spider	.30
1	W-7154	Dial Gear	.15
1	W-5596	Set Screw	.05
1	W-5354D	Dial Indicator	.25
1	W-4899	Pinion	.35
1	W-20594	Pinion Bracket (inner)	.15
1	W-20595	Pinion Bracket (outer)	.15
1	W-4907	Spring Washer	.05
1	W-20722	Dial Light Bracket	.25
1	W-20576	Power Switch	.75
1	B-21762	Chassis Plate	.15
1	W-20156	8 Mfd. Condenser	5.00
1	W-21760	Filament drop resistor (400-370 ohms)	1.00
1	W-21779	Filament drop resistor bracket	.10
2	W-4435	Asbestos Washer	.05
1	W-20381	Filter Choke	3.25
1	W-21292	Electrolytic Condenser (20 mfd.)	2.00
1	W-21752	A. F. Transformer	5.00
		PARTS UNDER CHASSIS	
1	W-6471	0.1 Mfd. Fixed Condenser (2 paper)	1.00
1	W-21109	Resistor Assembly	1.00
	W-5713	Mounting Strip	.25
	W-5370	Ressitor 20,000 ohms (red, black, orange spot)	.60
1	W-21237	Resistor 60,000 ohms (blue, black, orange spot)	.60
2	W-5382	0.00025 Mfd. Fixed Condenser	.35
1	W-6471	0.1 Mfd. Fixed Condenser (2 paper)	1.00
1	W-5469	Resistor 100,000 ohms (brown, black, yellow spot)	.60
2	W-21237	Resistor 60,000 ohm	.60
1	W-6434	0.02 Mfd. Fixed Condenser	.60
1	W-20940	Resistor Assembly	1.00
	W-5713	Mounting Strip	.25
	W-4921	Resistor 10,000 ohms	.60
1	W-4362	Plate Choke	.50
1	W-7753	0.1-0.5-0.1 Mfd. Fixed Condenser	2.00
1	W-4013	1. Mfd. Fixed Condenser (2 paper)	1.35
1	W-6471	0.1 Mfd. Fixed Condenser	1.00
1	W-21754	Resistor Assembly	3.15
	W-21771	Mounting Strip & Resistance (45 ohm)	.45
	W-5735	Resistor 150,000 ohms (brown, green, yellow spot)	.60
	W-4921	Resistor 10,000 ohms (brown, black, orange spot)	.60
	W-5469	Resistor 100,000 ohms (brown, black, yellow spot)	.60
	W-6704	Resistor 300,000 ohms (orange black, yellow spot)	.60
1	W-20630	Bottom Bracket	.10
1	W-6471	0.1 Mfd. Fixed Condenser (2 paper)	1.00
1	W-21751	Resistance Assembly (45-30 ohms)	.40
1	W-21798	Junction Block	.10
1	W-6471	0.1 Mfd. Fixed Condenser (2 paper)	1.00
1	W-20883	Terminal (A. G & P H.)	.50
1	W-21763	Speaker Terminal Socket	.40
1	B-6867	Cable	1.50
1	C-21581	R. F. Shield Assembly	1.25
1	C-20658	Chassis Bottom	.50
1	W-20167	Knob (large)	.40
2	W-20482	Knob (small)	.35

Parts List Model 56

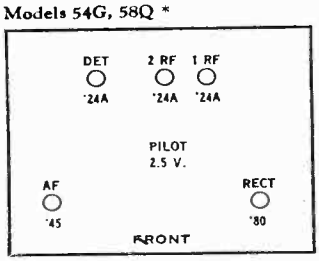
Qty.	Part No.	Description	List Price Each
1	C-21900	Chassis	1.75
5	W-7871	Socket (4 prong)	.25
5	W-7874	Socket Guide	.10
1	W-20558	Volume Control	1.75
1	W-21752	A. F. Transformer	5.50
1	W-21760	Filament Drop Resistor (400-370 ohms)	1.00
1	W-21779	Filament Drop Resistor Bracket	.10
2	W-4435	Asbestos Washer	.05
1	W-20730	Variable Condenser Gang	18.00
1	W-20981	Spider	.30
1	W-22093	Dial	.25
1	W-22094	Dial Strip	.25
1	W-20977	Dial Band	.20
2	W-21322	R. F. Transformers	2.50
1	W-21223	R. F. Transformers (antenna)	2.50
3	W-21739	Grid Connectors	.25
3	W-21257	R. F. Coil Shields	.50
1	C-20871	R. F. Shield	1.25
1	W-20576	Power Switch	.75
1	W-22090	Dial Light Bracket	.25
1	W-21901	Chassis Plate	.15
1	W-20381	Filter Choke	3.25
1	W-20156	Condenser (8 Mfd. 2 paper)	5.00
1	W-21763	Speaker Terminal	.40
1	W-20883	Terminal A. G. & PH.	.50
		PARTS UNDER CHASSIS	
1	W-21893	Fixed Resistance (30 ohm)	.40
1	W-21892	Fixed Resistance (45 ohm)	.40
1	W-20188	0.1 Mfd. Fixed Condenser	.60
1	W-4362	Plate Choke	.50
2	W-4924	0.00025 Mfd. Fixed Condenser	.35
2	W-6471	0.1 Mfd. Fixed Condenser (2 paper)	1.00
1	W-6434	0.02 Mfd. Fixed Condenser	.60
1	W-7753	0.1-0.5-0.1 Mfd. Fixed Condenser	2.00
1	W-4013	1. Mfd. Fixed Condenser (2 paper)	1.35
1	W-21237	Resistor (60,000 ohms) Blue, black, orange	.60
1	W-5469	Resistor 100,000 ohms Brown, black, yellow	.60
1	W-21237	Resistor (60,000) ohms)	.60
3	W-21127	Stiffened Sleeving (3-8"x2")	.05
1	W-20873	Bottom Bracket	.10
2	W-6471	0.1 Mfd. Fixed Condenser (2 paper)	1.00
1	W-21895	Fixed Resistance Assembly	2.50
	W-21771	Resistance and mounting strip (45 ohms)	.45
	W-5735	Resistor 150,000 ohms (Brown, green, yellow)	.60
	W-6704	Resistor 300,000 ohms (Orange, black, yellow)	.60
	W-4921	Resistor 10,000 ohms (Brown, black, orange)	.60
1	W-21894	Resistance Assembly	2.35
	W-6028	Mounting Strip	.30
	W-4921	Resistor (10,000 ohm Brown, black, orange	.60
	W-5469	Resistor (100,000 ohm) Brown, black, yellow	.60
	W-5370	Resistor (20,000 ohm) Red, black, orange	.60
1	W-21292	20 Mfd. Condenser	2.00
1	B-21491	Cable	1.50
1	C-20872	Chassis Bottom	.50
2	W-20482	Knob (Small)	.35

CROSLEY RADIO CORP.

MODEL 58
Schematic
Parts List



Models 54G, 58Q *



Circuit Diagram Model 58

For Voltage Data See Model 54

Parts List—Model 58

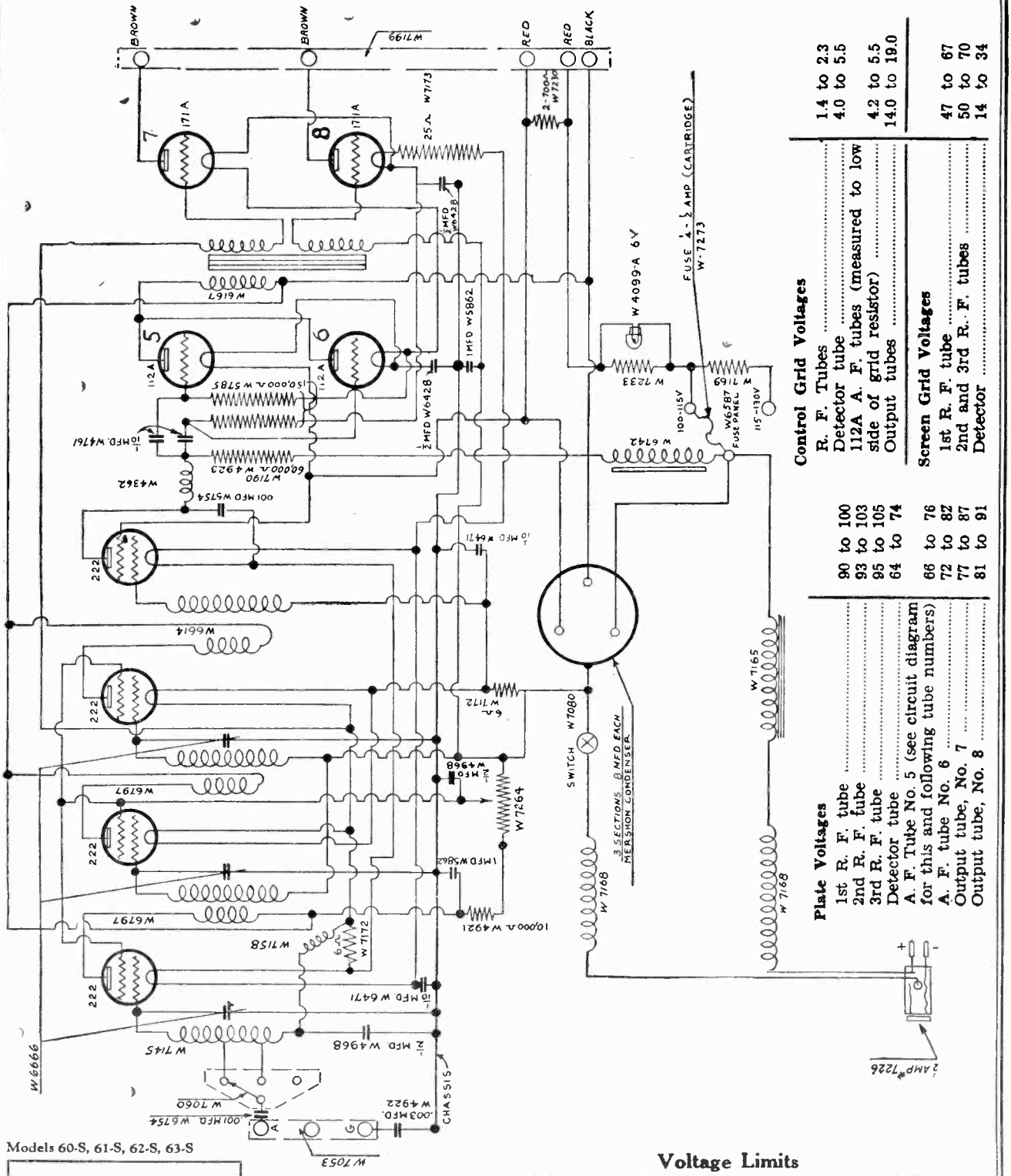
INSTRUCTIONS FOR ORDERING—Give part number, description of part, and serial number of receiver on which part is to be used. If article wanted is not listed separately, then that part of complete assembly containing this article should be ordered. Goods shipped on open account to Crosley Wholesale Distributors only. Cash must accompany Dealer and Consumer orders. Prices are subject to the usual trade discounts.

Qty.	Part No.	Description	List Price Each
1	W-21569	Chassis	1.75
3	W-7873	Socket (5 Prong)	.30
2	W-7871	Socket (4 Prong)	.25
1	W-21518	Speaker Socket	.40
4	W-7874	Socket Guide	.10
1	W-21297	Socket Guide (280)	.10
1	W-20883	Terminal Board (A. G. & Ph.)	.50
1	W-20558	Volume Control	1.75
1	W-20381	Filter Choke	3.25
1	W-4943	Mershon Condenser	4.25
2	W-5033	Condenser Clamp	.15
1	W-4946	Condenser Cap	.25
1	W-20730	Variable Condenser Gang	18.00
1	W-22090	Dial Light Bracket Assembly	.40
1	W-22095	Dial Drum Assembly	.80
	W-22094	Dial Indicator Cover	.25
	W-20977	Dial Band	.20
2	W-21322	R. F. Transformer	2.50
1	W-21323	R. F. Transformer (Antenna)	2.50
3	W-21739	Grid Connector	.25
3	W-21257	R. F. Coil Shield	.50
1	W-20576	Power Switch	.75
1	W-22025	Power Transformer (110 V. 60 Cycle)	13.00
2	W-21597	Tie Straps	.10
1	C-20871	R. F. Shield	1.25

Qty.	Part No.	Description	List Price Each
		PARTS UNDER CHASSIS	
*1	W-5669	.25 -.25 ohm Resistance	.40
1	W-20556	1650 ohm Resistance	.35
1	W-5943	.1 Mfd. Fixed Condenser	1.10
2	W-4924	.00025 Mfd. Fixed Condenser	.35
1	W-4362	Plate Choke	.50
1	W-6434	.02 mfd. Fixed Condenser	.60
1	W-4013	1. mfd. Fixed Condenser	1.35
1	W-20449	.5 -.1 mfd. Fixed Condenser	1.25
1	W-7753	.1 -.5 -.1 mfd. Fixed Condenser	2.00
1	W-4968	.5 mfd. Fixed Condenser	1.20
1	W-21955	3250 ohm Candohm Resistance (2 Section)	.80
1	W-21956	3160 ohm Candohm Resistance	.30
1	W-22043	Mounted Resistor Assembly	2.35
	W-20099	Mounting Strip	.30
	W-5735	150,000 ohm Resistor	.60
	W-5370	20,000 ohm Resistor	.60
	W-6706	25,000 ohm Resistor	.60
1	W-22082	Mounted Resistor Assembly	3.00
	W-20099	Mounting Strip	.30
	W-4921	10,000 ohm Resistor	.60
2	W-20464	1 Meg. Resistor	.60
	W-7335	440 Ohm Resistor	.60
1	B-21491	Cable	1.50
1	C-20872	Chassis Bottom	.50
1	W-20873	Bottom Bracket	.10
2	W-20482	Knob	.35
	W-7947	Knob Spring	.05

MODELS 60S,61S,62S,63S
Schematic, Voltage

CROSLEY RADIO CORP.



Control Grid Voltages

R. F. Tubes	1.4 to 2.3
Detector tube	4.0 to 5.5
112A A. F. tubes (measured to low side of grid resistor)	4.2 to 5.5
Output tubes	14.0 to 19.0

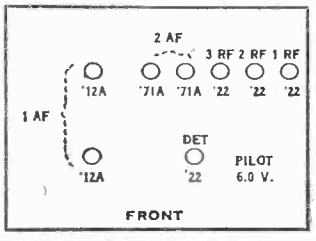
Screen Grid Voltages

1st R. F. tube	47 to 67
2nd and 3rd R. F. tubes	50 to 70
Detector	14 to 34

Plate Voltages

1st R. F. tube	90	to	100
2nd R. F. tube	93	to	103
3rd R. F. tube	95	to	105
Detector tube	64	to	74
A. F. Tube No. 5 (see circuit diagram for this and following tube numbers)	66	to	76
A. F. tube No. 6	72	to	82
Output tube, No. 7	77	to	87
Output tube, No. 8	81	to	91

Models 60-S, 61-S, 62-S, 63-S

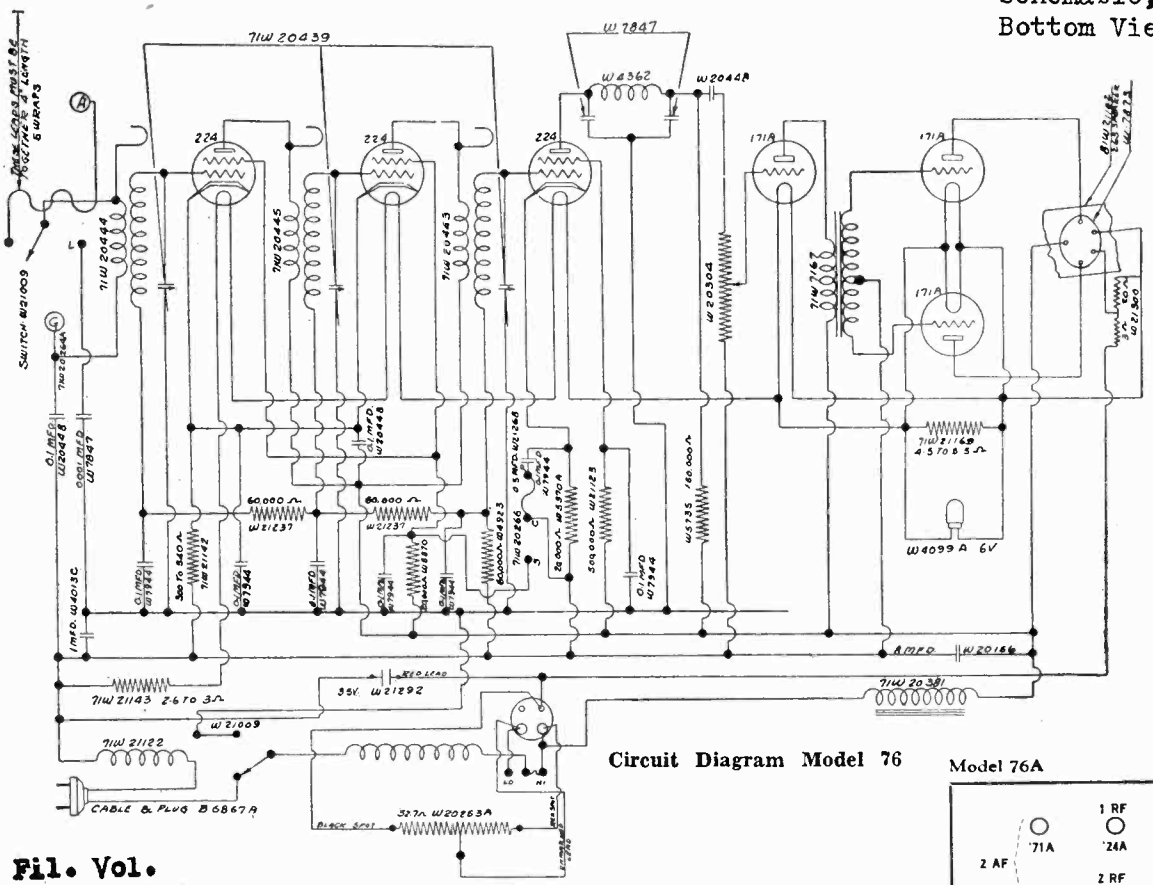


Voltage Limits

	Volume Control on Full
Filament Voltages	
R. F. and Detector tubes	2.6 to 3.4
All A. F. tubes	4.2 to 5.5

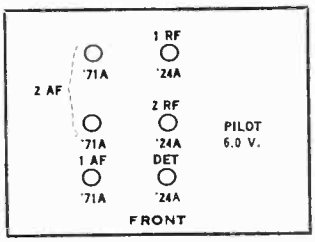
CROSLEY RADIO CORP.

MODEL 76
Schematic, Voltage
Bottom View



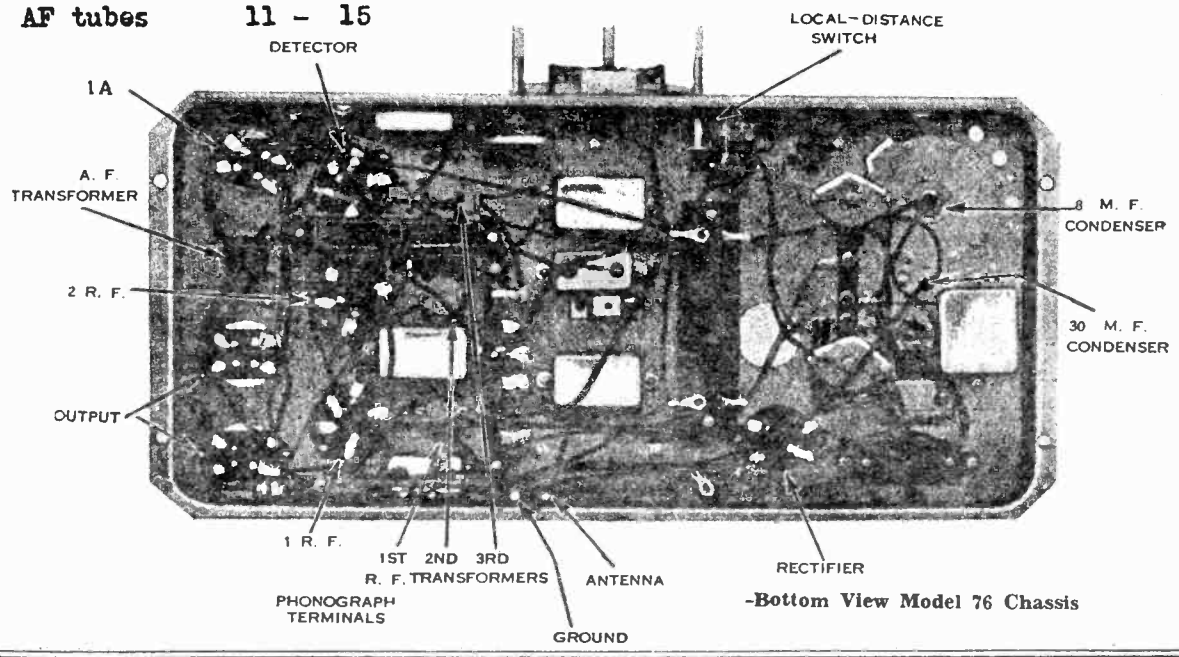
Circuit Diagram Model 76

Model 76A



Fil. Vol.		**Screen Grid**	
RF and Det	2.3- 2.6	RF tubes	60 - 80
AF tubes	4.6- 5.2	Det	9 - 11
Plate Vol.			
RF tubes	90 - 110		
Det	60 - 70		
AF tubes	80 - 100		
Control Grid			
RF tubes	2 - 3.0		
Det	3 - 3.5		
AF tubes	11 - 15		

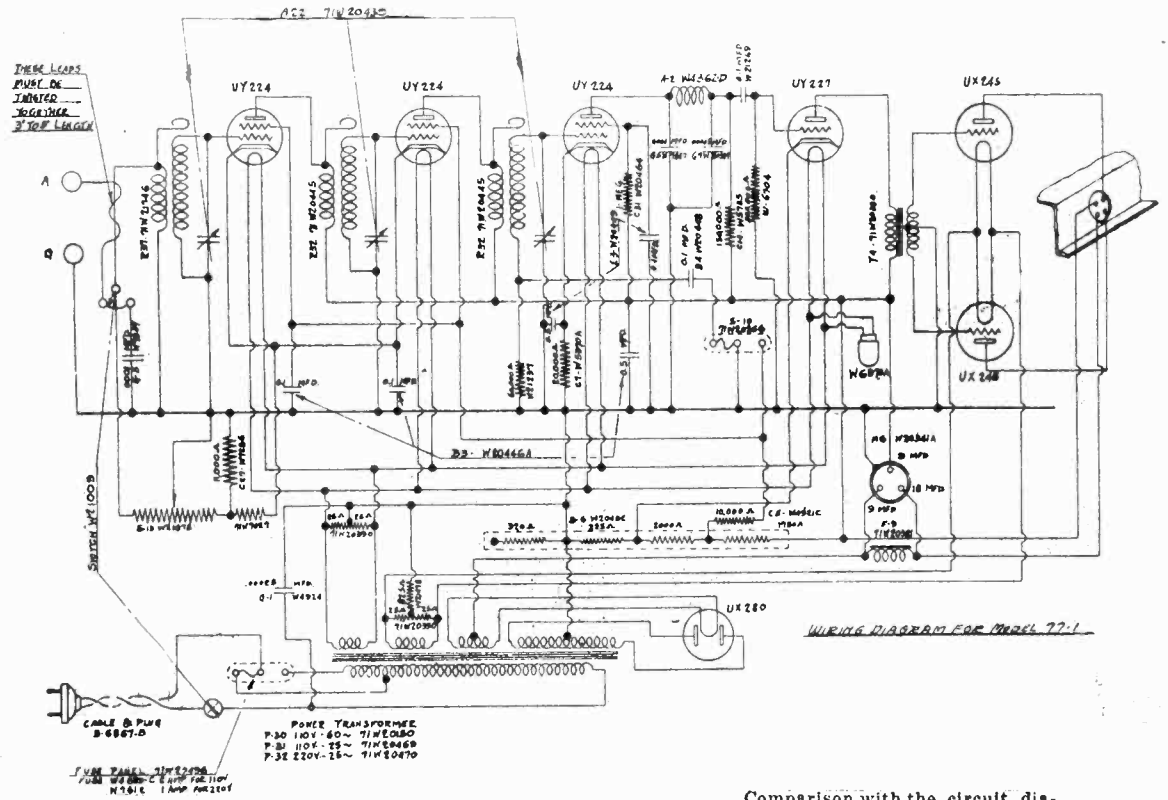
To be measured with speaker in circuit. Fuse in "high" for 117.5 line voltage and in "low" position for 107.5 line voltage.



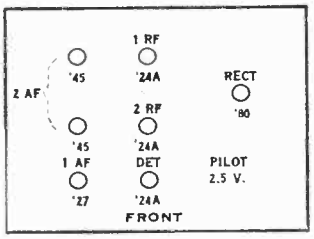
-Bottom View Model 76 Chassis

MODEL 77-1
Schematic
Bottom View, Notes

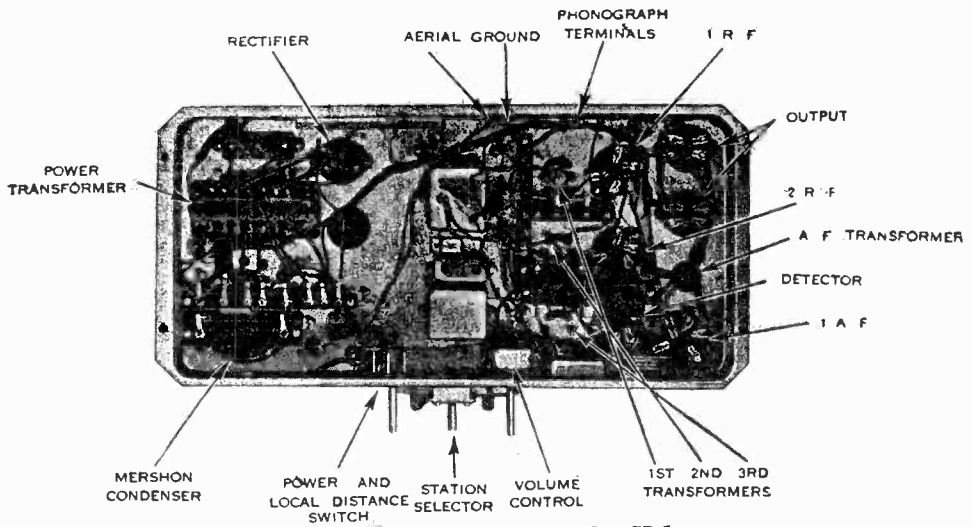
CROSLEY RADIO CORP.



Models 77A, 77B, 77L



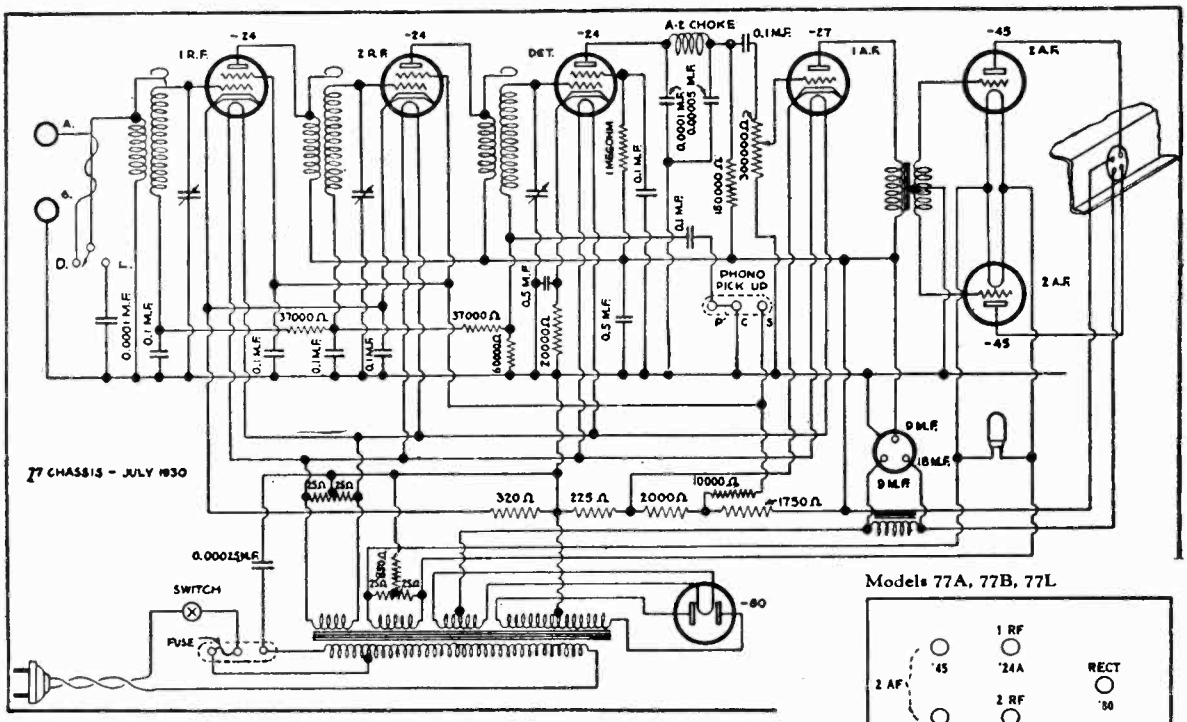
Comparison with the circuit diagram of Model 77, will show that the 37,000 ohm and 16,000 ohm isolating resistors, and the 0.1 micro-farad isolating condensers have been removed from the radio-frequency circuit. In addition a new type of volume control is used, located in the first stage r. f. instead of in the audio frequency circuit. The antenna coil has a low-impedance primary, and is not interchangeable with that on Model 77. These are the essential differences.

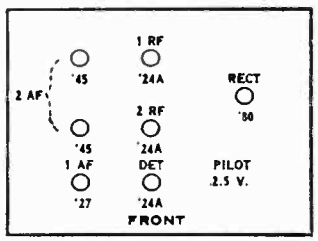


-Bottom View Model 77-1

CROSLEY RADIO CORP.

MODELS 77A, 77B, 77L
Schematic, Voltage





Voltage Limits

Filament Voltages	
All tubes but rectifier	2.3 to 2.6
Rectifier tube	4.6 to 5.2
Plate Voltages	
R. F. tubes	140 to 160
Detector tube	85 to 110
1st Audio tubes	125 to 150
Output tubes	230 to 260
Rectifier tube (A. C. Voltage)	250 to 280 each plate
Control Grid Voltages	
R. F tubes	1.6 to 3.2
Detector tube	2.0 to 3.2
1st Audio tube	8.0 to 10.0
Output tubes	45. to 65.
Screen Grid Voltages	
R. F. tubes	75 to 90
Detector tube	35 to 55

To be measured with speaker connected and line voltage of 117½ (235 for 220 volt receivers) with fuse in "High" position or of 107½ (215 for 220 volt receivers) with fuse in "Low" position. Measure plate and grid voltages with a high-resistance, D. C. voltmeter (600 ohms or more per volt) from plate or grid tube contact to emitter contact, except in the case of the grid voltage of the first audio tube, which should be measured from the emitter to the chassis. The filaments of the output and rectifier tubes serve as the emitters, while the other tubes have heaters and separate emitters. Measure filament voltages with a low-range, A. C. voltmeter.

All voltage readings are to be taken with the speaker connected and the tubes in place.

Installation Notes

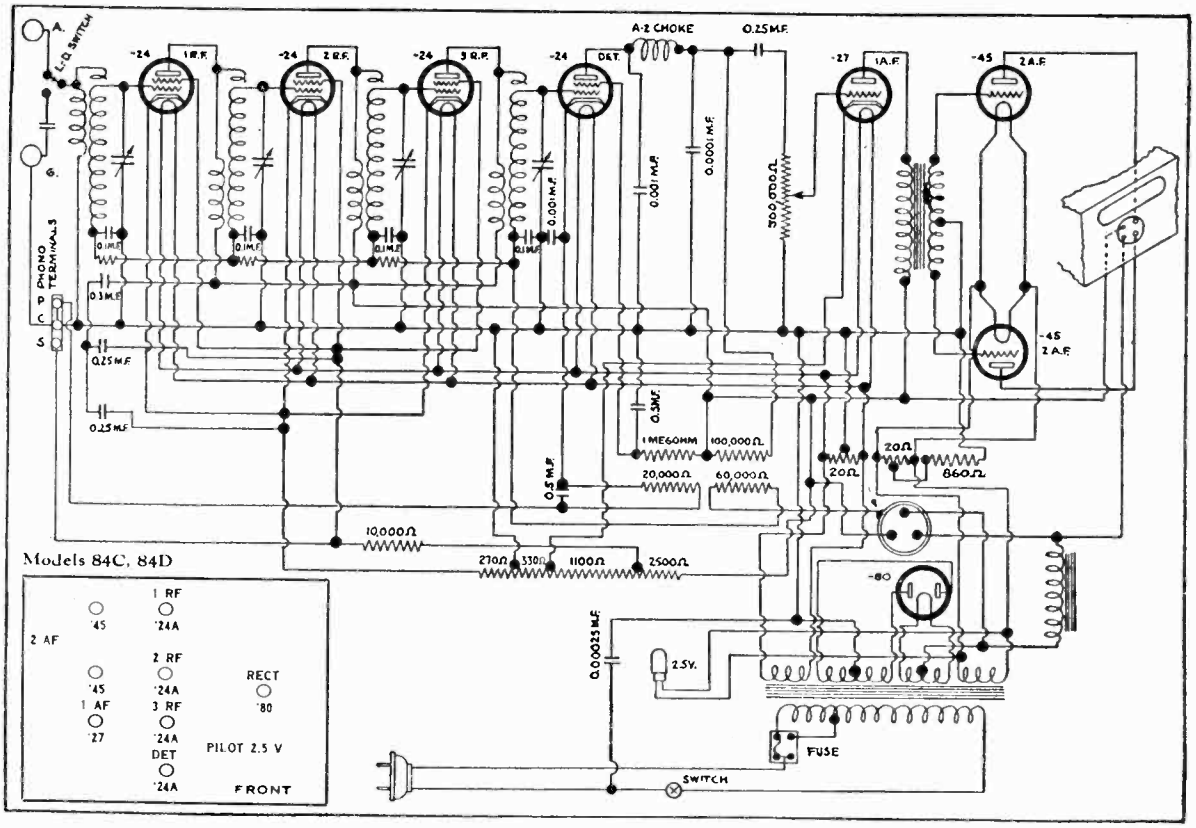
Recommended aerial length: 50 feet or more for outdoor aerial, 20 to 50 feet for indoor aerial.

There are three terminals at the rear of the chassis, marked "P", "C", and "S", for phonograph pick up devices. Instructions for connecting these in Crosley phono-radio combinations will be found in the instruction books accompanying the receivers. To connect other types of phonograph pick up, a single-pole double-throw switch is required. Cut the wire between terminals "P" and "C". Connect the center pole of the switch to terminal "C". Connect the end poles of the switch to terminals "P" and "S". Connect the two leads from the phonograph pick up to the switch poles which are connected to "P" and "C" (terminal "C" is grounded to the chassis). For phonograph reproduction, throw the switch so that the terminals "C" and "S" are connected together. For radio reproduction, throw the switch so that the terminals "P" and "C" are connected together. The volume of phonograph reproduction may be controlled by the volume control on the radio receiver.

If the phonograph attachment is disconnected from the receiver at any time and it is desired to obtain radio reception, it will be necessary to connect a wire from "P" to "C."

MODELS 84C, 84D
Schematic, Voltage
Notes

CROSLEY RADIO CORP.



INSTALLATION NOTES

Recommended aerial length, 50 feet or more for outdoor installations; 20 feet or more for indoor installations.

Terminals are provided for phonograph pick-up devices. When such a device is connected, the wire between terminals "P" and "C" must be out. If the pick-up device is afterwards disconnected, a wire must be connected between "P" and "C" before the receiver may be operated.

To connect a phonograph pick-up a double throw, single-pole switch must be used. Connect the middle pole of the switch to terminal "C" and the end poles to terminals "P" and "S". Connect the pick-up to the switch poles which are connected to "P" and "C", and cut the wire between "P" and "C", as described above. Throw switch toward "P" pole for radio reproduction or toward "S" pole for phonograph reproduction.

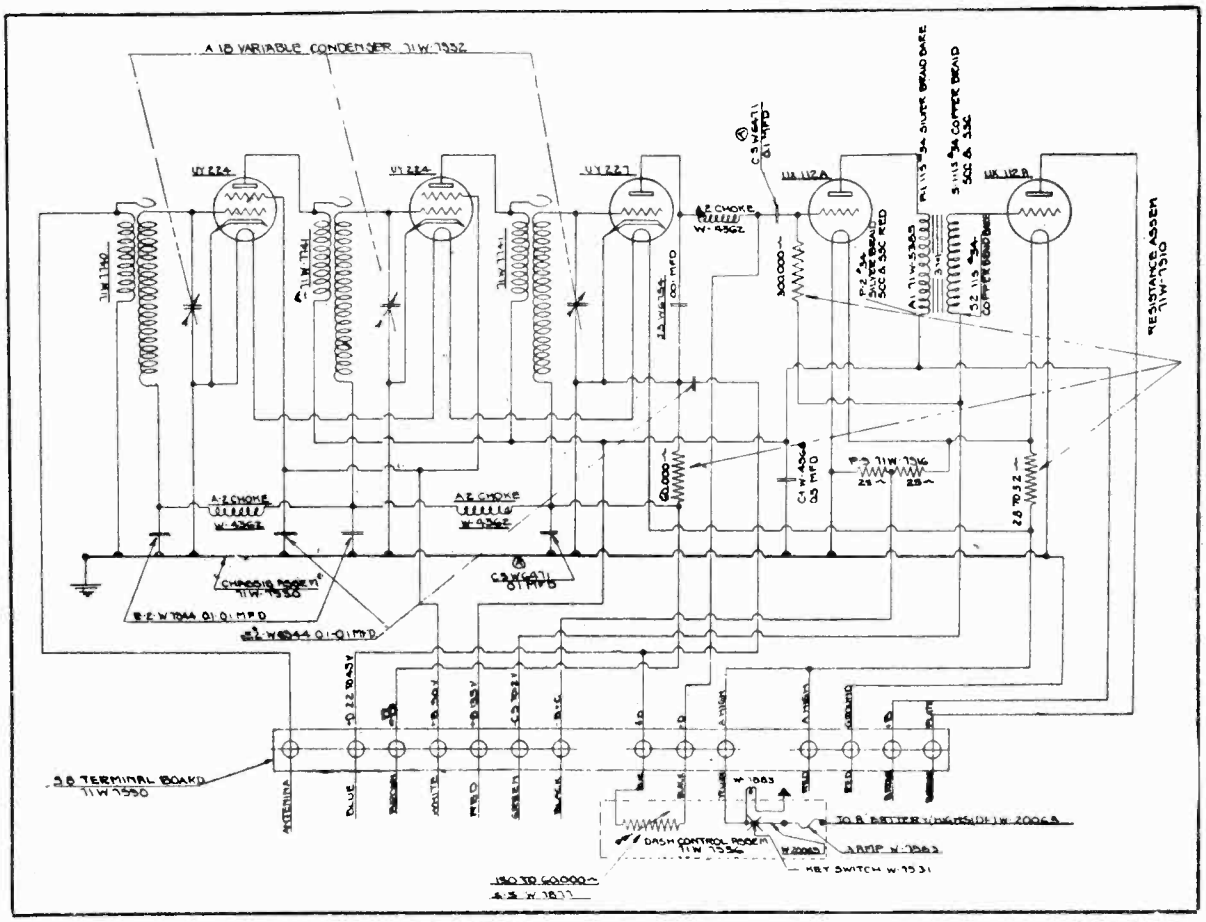
Voltage Limits

Filament Voltages	
All tubes but rectifier	2.3 to 2.6
Rectifier tube	4.6 to 5.2
Plate Voltages	
R. F. tubes	170 to 190
Detector tube	95 to 105
1st Audio tube	130 to 150
Output tubes	220 to 250
Rectifier tube (A. C. voltage)	250 to 280 each plate
Control Grid Voltages	
R. F. tubes	2.5 to 3.5
Detector tube	4.0 to 7.0
1st Audio tube	8.0 to 11.0
Output tubes	40.0 to 50.0
Screen Grid Voltages	
R. F. tubes	60 to 75
Detector tube	35 to 55

To be measured with speaker connected and line voltage of 117½ (235 for 220 volt receivers) with fuse in "High" position or of 107½ (215 for 220 volt receivers) with fuse in "Low" position. Measure plate and grid voltages with a high-resistance, D. C. voltmeter (600 ohms or more per volt) from plate or grid tube contact to emitter contact, except in the case of the grid voltage of the first audio tube, which should be measured from the emitter to the chassis.

CROSLEY RADIO CORP.

MODEL 90 AUTO
Schematic, Voltage

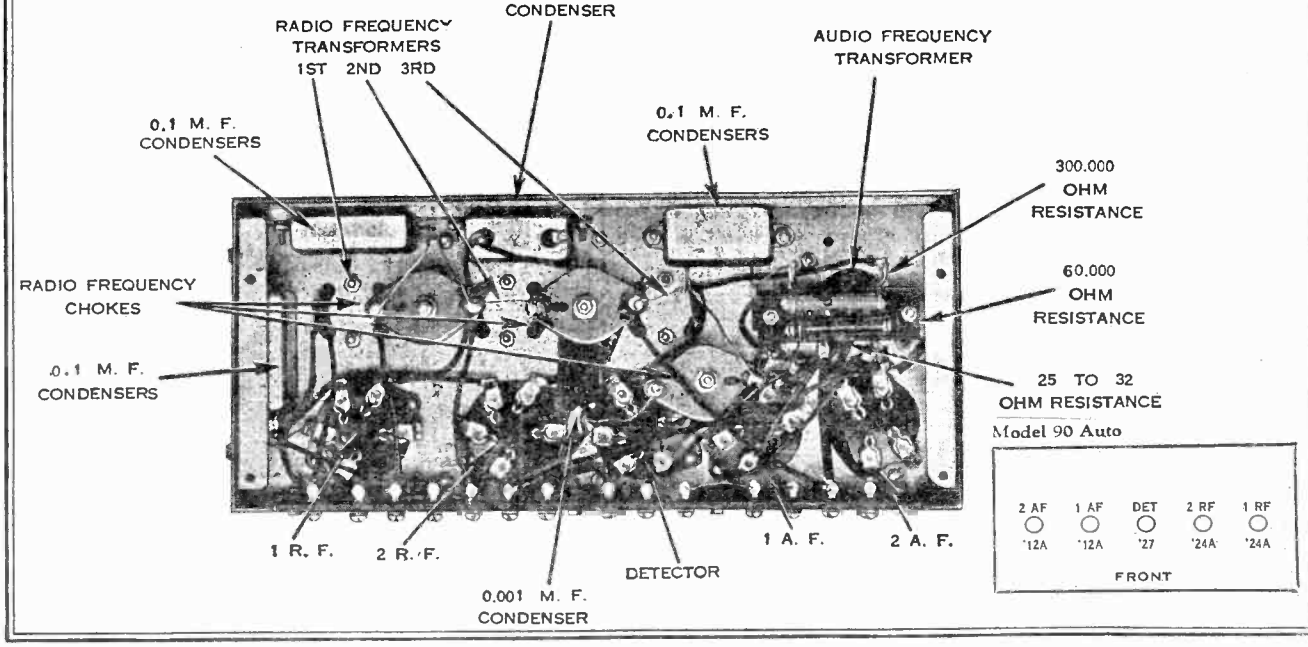


Filament Voltages	
R. F. and Detector Tubes	2.0
A. F. Tubes	4.7

Plate Voltages	
All Tubes but Detector	135
Detector Tube	22½

Control Grid Voltages	
R. F. Tubes	2.5
Detector Tube	3.0
A. F. Tubes	12.0

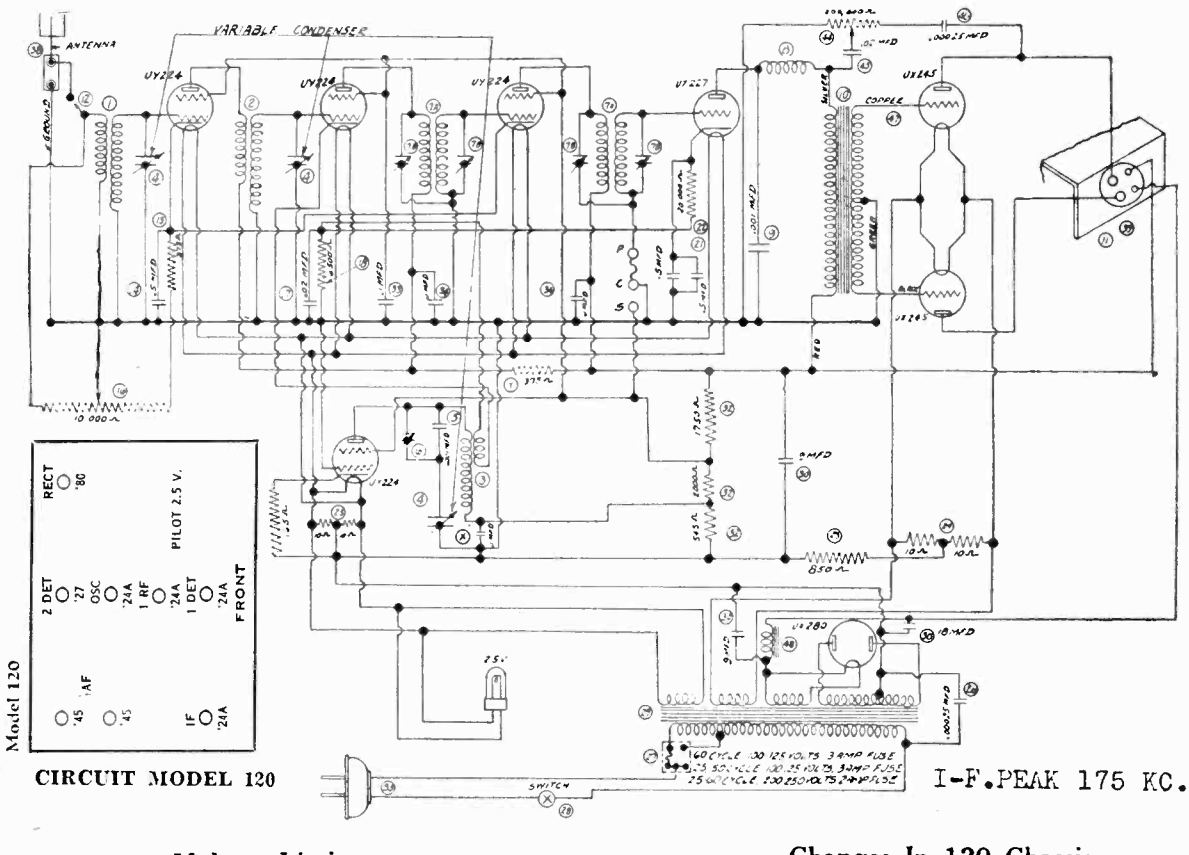
Screen Grid Voltages	
R. F. Tubes	90



Model 90 Auto

MODEL 120
Schematic
Voltage, Notes

CROSLEY RADIO CORP.



CIRCUIT MODEL 120

I-F. PEAK 175 KC.

Voltage Limits

Filament Voltages	
All tubes but output and rectifier	2.4 to 2.6
Output tubes	2.3 to 2.5
Rectifier tube	4.6 to 5.2
Plate Voltages	
1st R. F. and Intermediate Amplifiers	150 to 170
Oscillator	16 to 25
1st Detector	145 to 165
2nd Detector	135 to 155
Output	245 to 275
Rectifier (A. C. voltage)	260 to 290 each plate
Screen Grid Voltages	
All screen grid tubes	85 to 95
Control Grid Voltages	
1st R. F. and Intermediate Amplifiers	2.5 to 3.5
Oscillator	0.5 to 1.5
1st Detector	6.0 to 8.0
2nd Detector	13.0 to 17.0
Output tubes	50 to 58.0

To be measured with speaker connected, volume control on full, and line voltage of 117½ (235 for 220 volt receivers) with fuse in "High" position, or of 107½ (215 for 220 volt receivers) with fuse in "Low" position.

Changes In 120 Chassis

Service Bulletin No. A1 of March 15th covers the A. B. J. A. series of the 120 Chassis. Sets having serial prefix letters A. B. J. B. contain the following changes. Prices of parts remain the same.

W-22017 I. F. Transformer Assembly is replaced by W-22017-E I. F Transformer Assembly.

W-21989 Coil Assembly is replaced by W-21989-B Coil Assembly.

W-21295 I. F Transformer Assembly is replaced by W-21295-B I F Transformer Assembly.

W-21964 Flexible Resistor (165 ohms) is omitted.

W-21965 Flexible Resistor (375 ohms) is added.

W-21995 R. F. Transformer (oscillator) (Rear) is replaced by W-22589 R. F Transformer (oscillator).

New type I. F. Coil Assemblies are marked with a dot of red paint.

New type R. F. Transformer (oscillator), W-22589, has five connections instead of four

To Compensate For Long Aerial With 120 Chassis

Model 120 is so sensitive that a long aerial may give undesirably great pick-up. To reduce the pick-up, connect a 0.0025 mfd. condenser from the antenna terminal to the ground terminal of the receiver, and a 0.00005 mfd. condenser in the antenna lead.