

PHILCO RADIO & TELEVISION CORP.

MODEL 20, 20-A  
Voltage  
Values

**Models 20 and 20-A Receivers**

Model 20 Receivers are for Operation on 105-125 volt, 50-60 cycle AC Lines.  
Model 20-A Receivers are for Operation on 105-125 volt, 25-60 cycle AC Lines.

Bulletin 28 covers the first few weeks' production of Models 20 and 20-A. These Receivers can be identified as having one or two compensating condensers. The later models have three compensating condensers fastened to the tuning condenser housing and are covered by Bulletin 36.

Table 1—Tube Socket Readings Taken with AC Set Tester, AC Line, 115 Volts

Tube		Filament Voltage	Plate Voltage	Grid Voltage	Screen Grid Voltage	Cathode Voltage	Plate Milliamperes
Type	Circuit						
24	1st R. F.	2.3	250	3.0	90.0	12	4.5
24	2d R. F.	2.3	250	3.0	90.0	11	4.5
24	Detector	2.3	35	1.0	2.0	8	....
27	1st Audio	2.3	120	1.0	....	8	3.0
71-A	{ 2d Audio Push-Pull }	5.0	215	50.0	....	....	18.0
71-A		5.0	215	50.0	....	....	18.0
80	Rectifier	5.0	....	....	....	....	36/Plate

All readings taken with antenna disconnected and ground on. Volume Control on full.

Table 2—Power Transformer Voltages

Terminals	A. C. Volts	
1-2	2.5	Heaters of 24 and 27 Tubes
3-4	105 to 125	Primary
7-8	5.0	Filament of 71-A Tubes
5	....	Center Tap of 7-8
10-11	5.0	Filament of 80 Tube
9-12	650	Plates of 80 Tube
6	....	Center Tap of 9-12 and 1-2

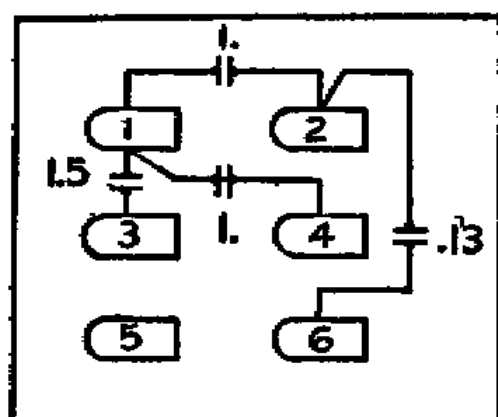
Table 4—Condenser Data  
(Other Than Filter Condenser)

No. on Figs. 3 and 4	Capacity MFD
16	.00025
19	.01
5, 6, 22	.05
8	.05 with 250-ohm resistor winding
14	.25 (two sections)
13	.5

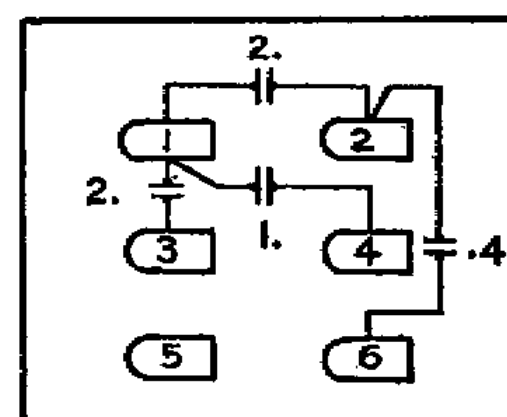
Table 3—Resistor Data

No. on Figs. 3 and 4	Terminal	Resistance	Color
25	{ 1-2 2-3 3-4 5-6 6-7 }	1,400	Long Tubular
		187	
		75	
		2,470	
		975	
		50,000	
12		100,000	Orange
18		250,000	Silver Gray
15		500,000	White
17-20			Battleship Gray

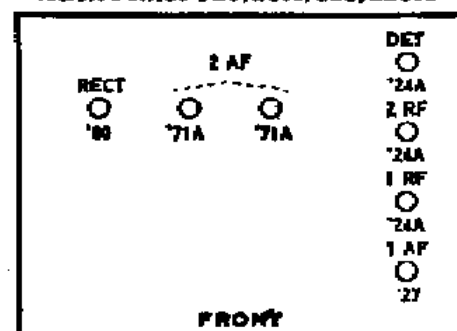
Model 20—Filter Condenser—Part No. 4235



Model 20-A—Filter Condenser—Part No. 4269

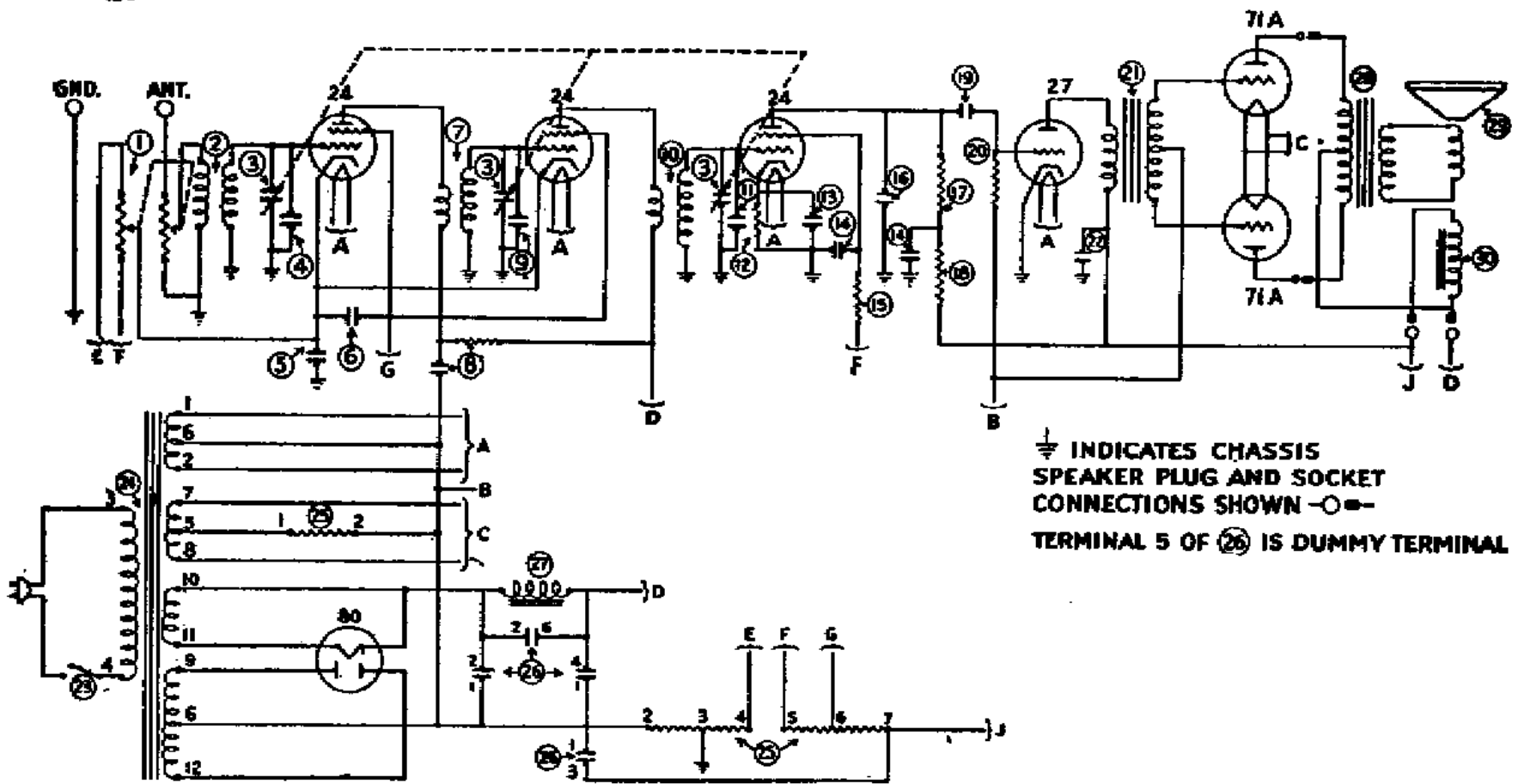


Models Philco's 20, 20A, 220, 220A



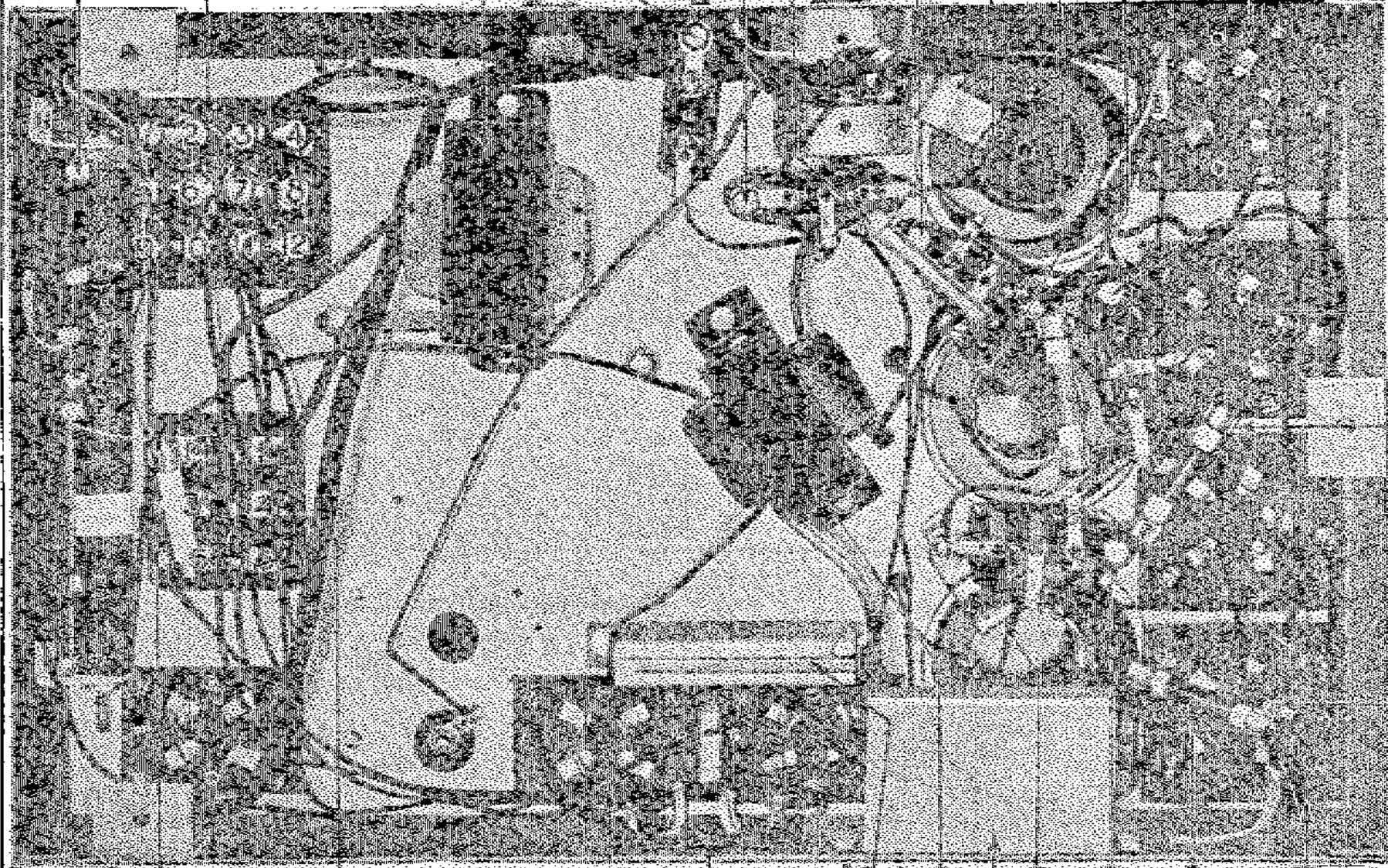
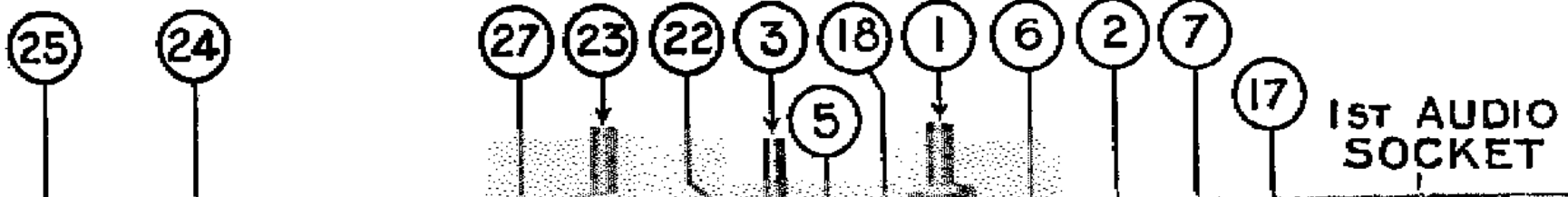
MODEL 20,20-A  
Chassis  
Schematic

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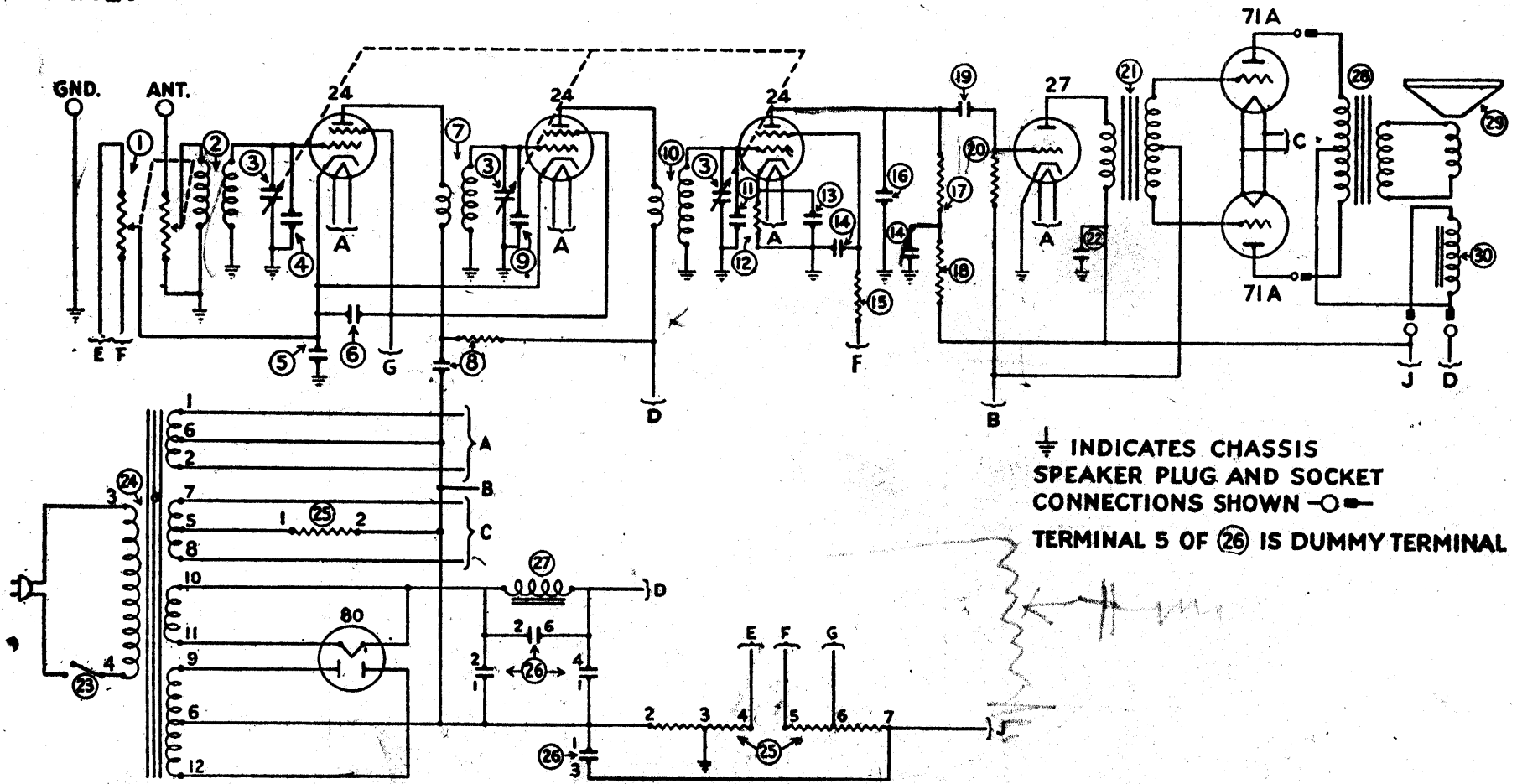
**DIFFERENT CIRCUIT ARRANGEMENT FOR MODEL 20-A**

Model 20-A for use on 25-60 cycle lines is wired differently than the Model 20. The plate supply lead for the two 24 R. F. Tubes is taken from the low side of the Speaker field Coil. The lead "D" to the 24 tubes should be changed to "J" for the Model 20-A only. This will change the plate voltage from 250 volts to 115-125 volts. The plate current readings will also be lower than those given in the table.



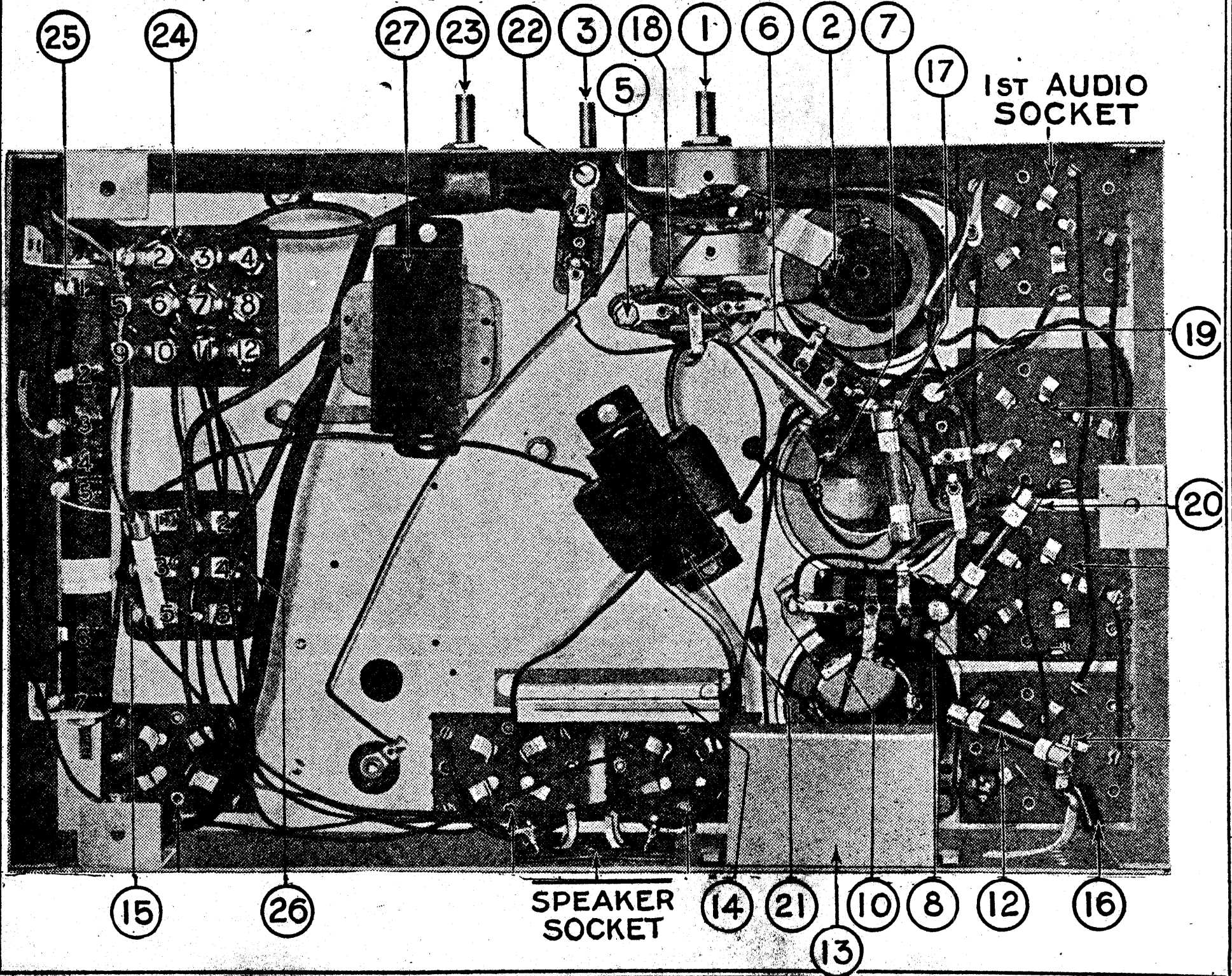
MODEL 20, 20-A  
Chassis  
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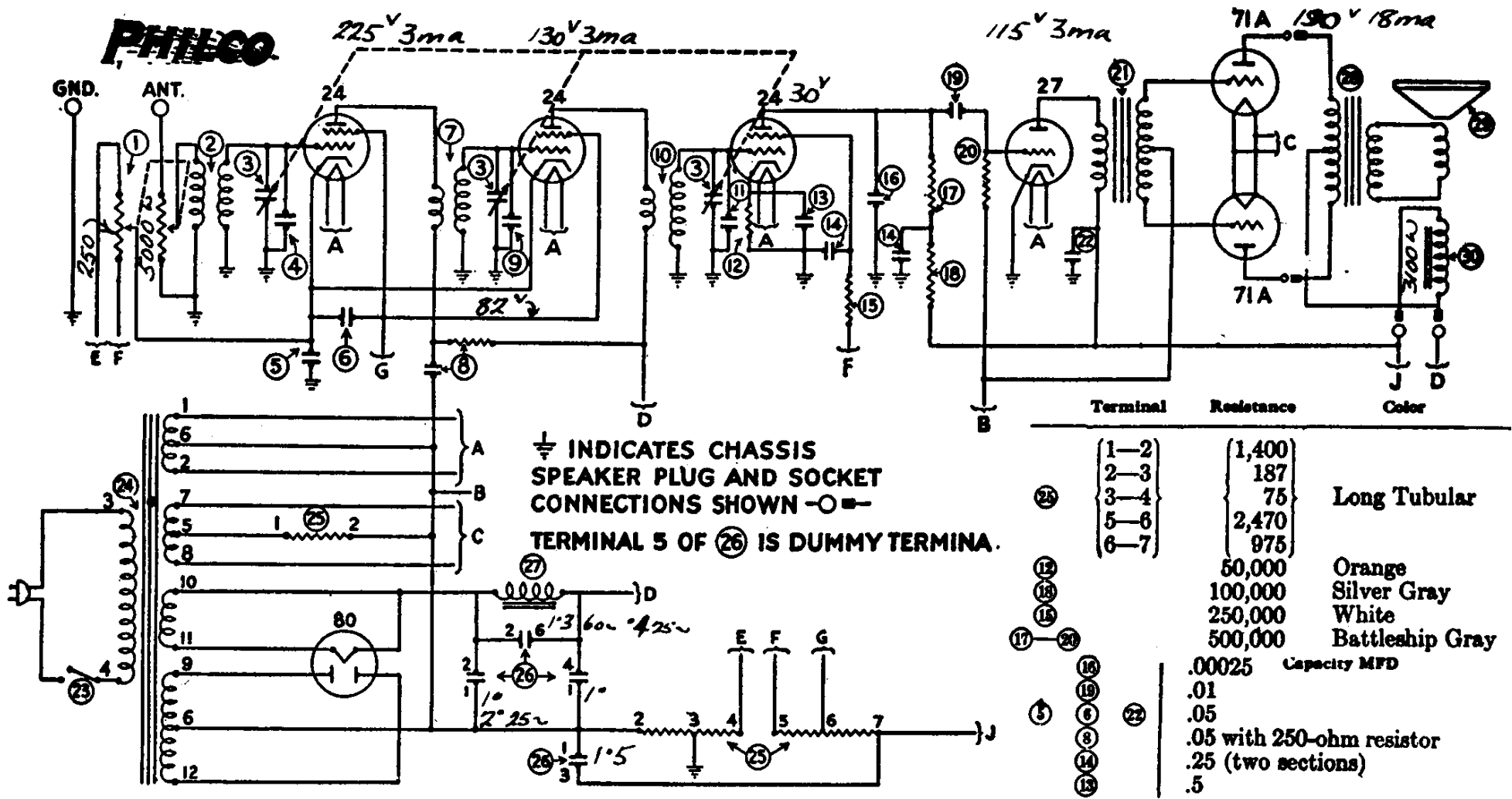
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**DIFFERENT CIRCUIT ARRANGEMENT FOR MODEL 20-A**

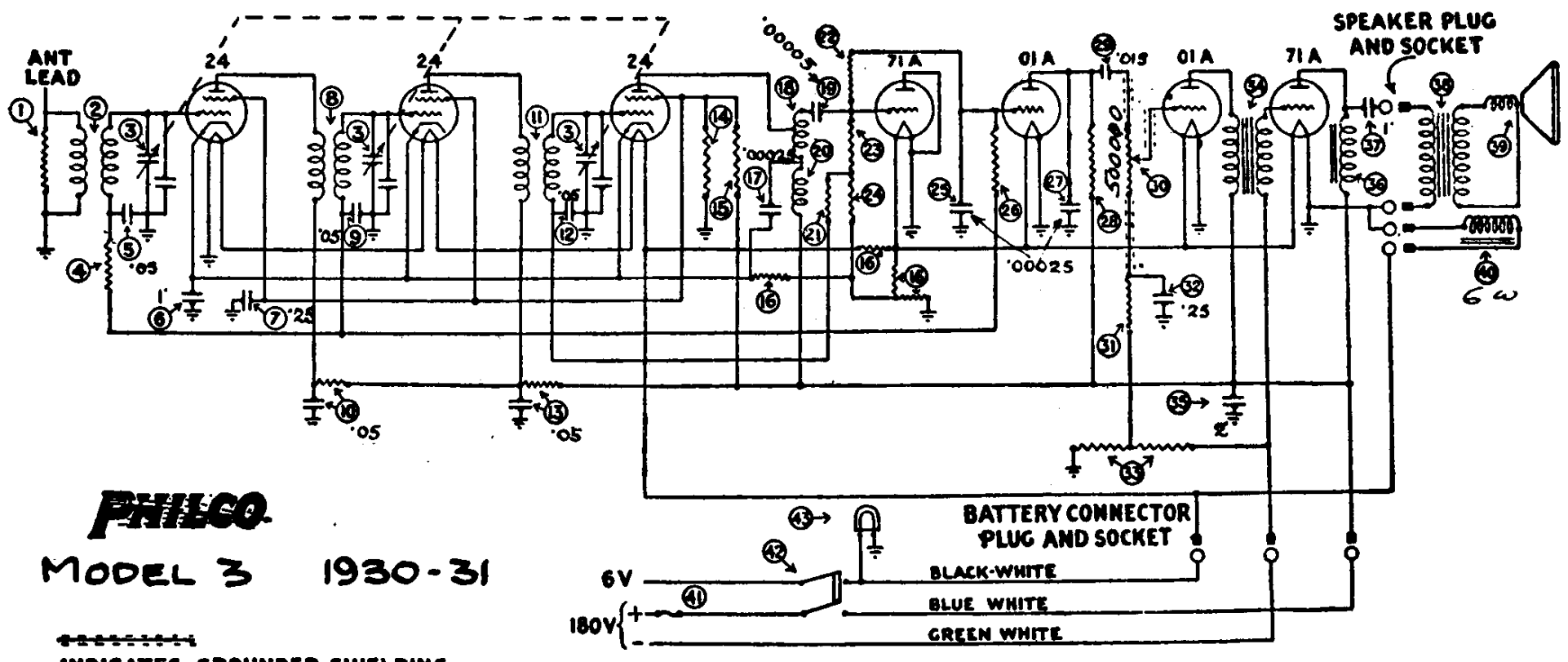
Model 20-A for use on 25-60 cycle lines is wired differently than the Model 20. The plate supply lead for the two 24 R. F. Tubes is taken from the low side of the Speaker field Coil. The lead "D" to the 24 tubes should be changed to "J" for the Model 20-A only. This will change the plate voltage from 250 volts to 115-125 volts. The plate current readings will also be lower than those given in the table.





Tube	Type	Circuit	Filament Voltage	Plate Voltage	Grid Voltage	Screen Grid Voltage	Cathode Voltage	Plate Milliamperes
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24	24	Detector	2.3	35	1.0	2.0	8	...
27	27	1st Audio	2.3	120	1.0	...	8	3.0
71-A	71-A	(2d Audio)	5.0	215	50.0	...	8	18.0

**Models 20  
and 20-A  
1930-31**



**MODEL 3 1930-31**

**Resistance Data**

Fig.	Resistance in Ohms
1	10,000
4-23-24-28	100,000
14	50,000
15	25,000
16	250-1-30-30
21-26	1,000,000
22-31	250,000
33	500-300
10-18	250

**Tube Socket Readings**

Type	Position	A	B	C	Screen	Mills
224	R.F.	2	150	2	80	1.5
171A	Det.-Rect.	5				
201A	Det.-Amp.	5	45	1		1
201A	1 A.F.	5	140	2.5		8
171A	2 A.F.	5	142	32		16

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**DATA SHEET**

**PHILCO-7**