

Atwater Kent

Model: 20 (#4670, #7570, #7960)

Chassis:

Year: Pre June 1933

Power:

Circuit:

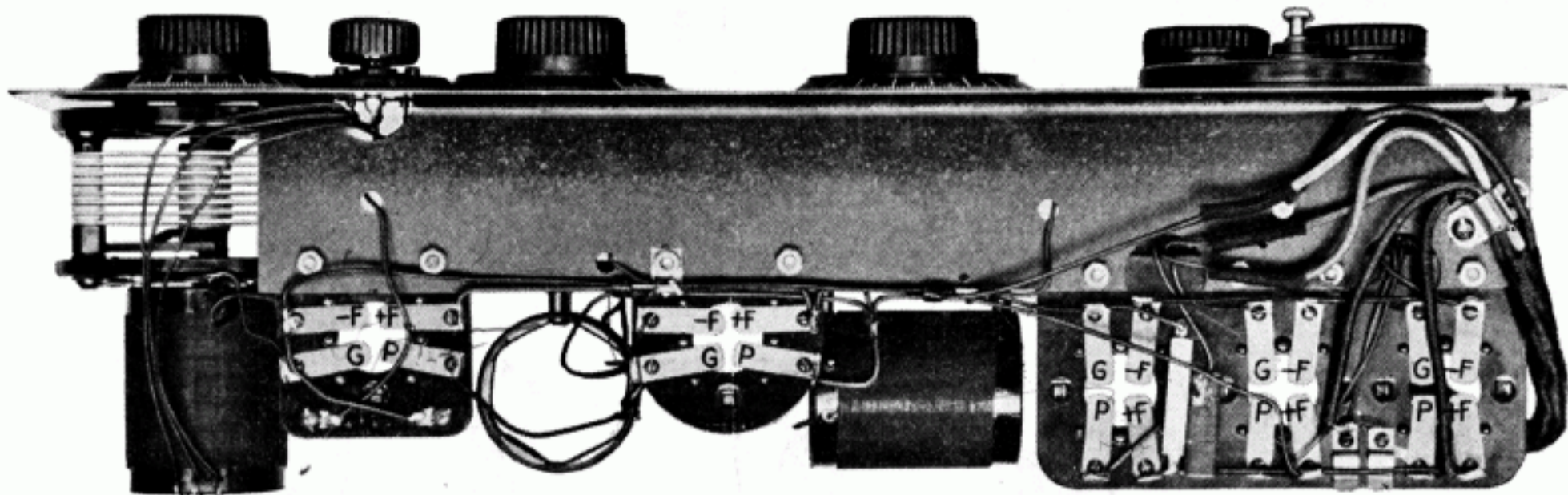
IF:

Tubes:

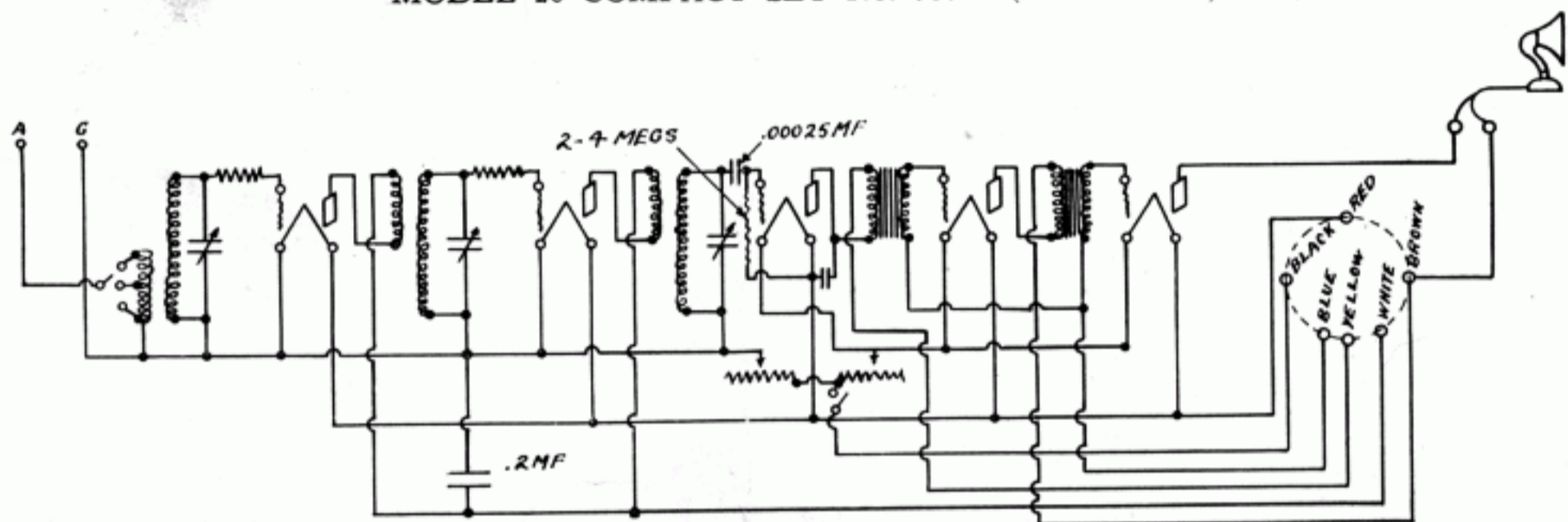
Bands:

Resources

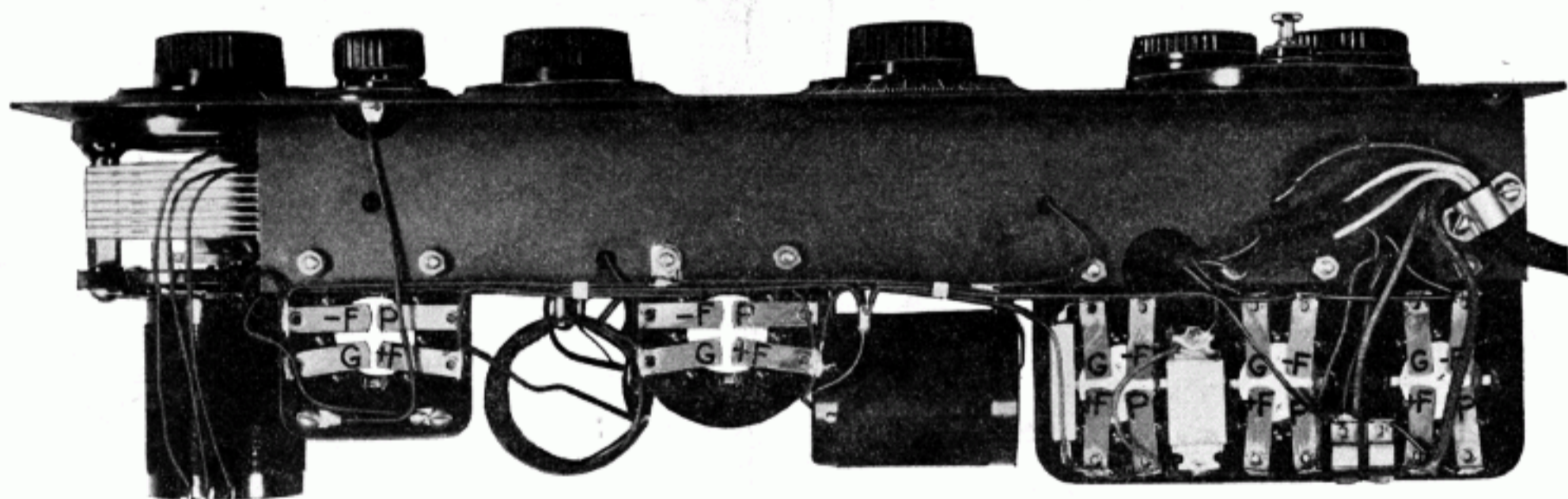
Riders Volume 3 - A-K 3-1



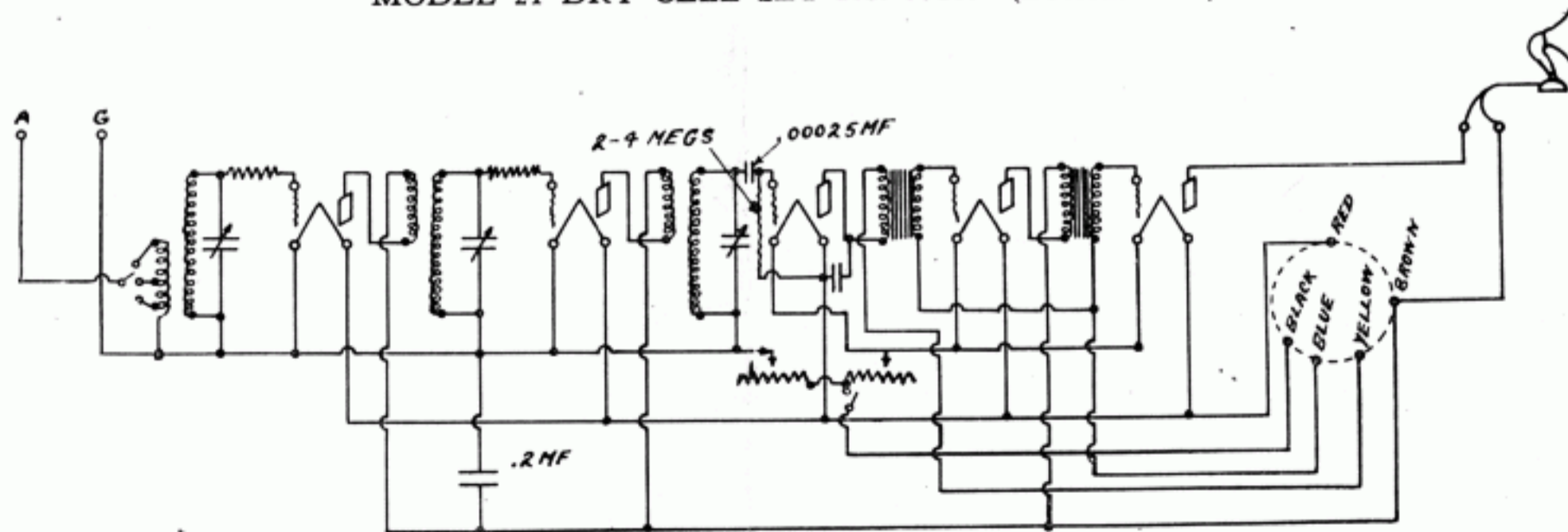
MODEL 20 COMPACT SET No. 7570. (Bottom View)



MODEL 20 COMPACT No. 7570. WIRING DIAGRAM



MODEL 21 DRY CELL SET No. 7780. (Bottom View)



MODEL 21 DRY CELL SET No. 7780. WIRING DIAGRAM

MODEL 20, No. 7570 AND No. 7960

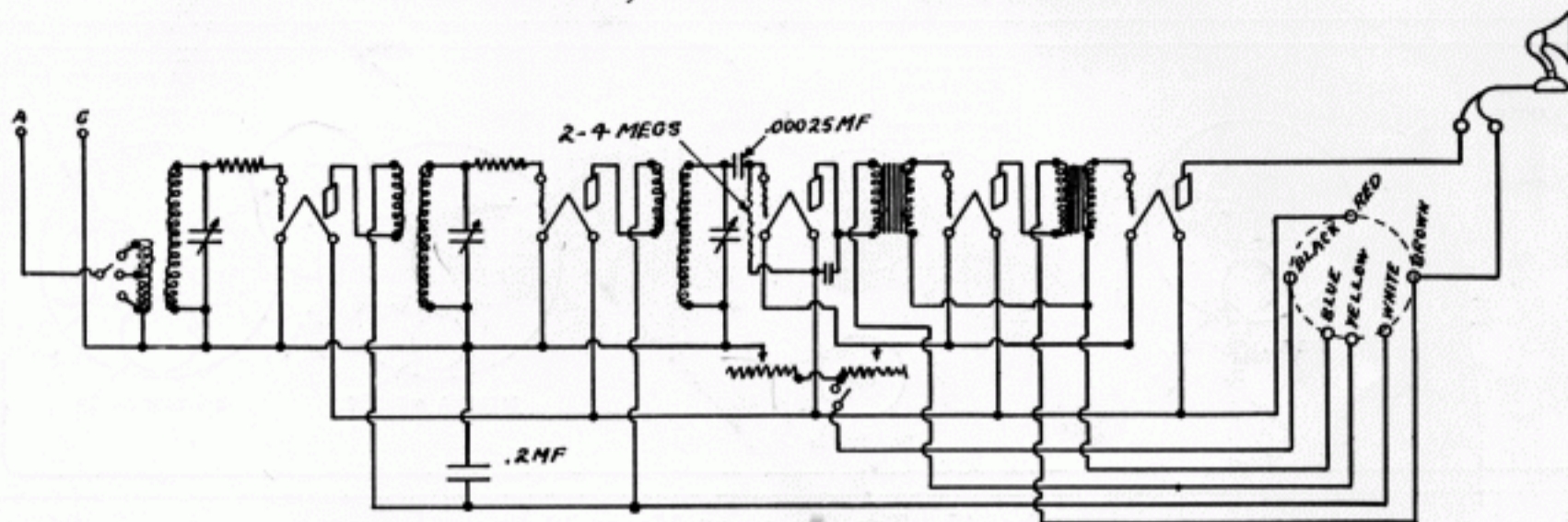


FIG. 51. DIAGRAM OF MODEL 20 COMPACT No. 7570.

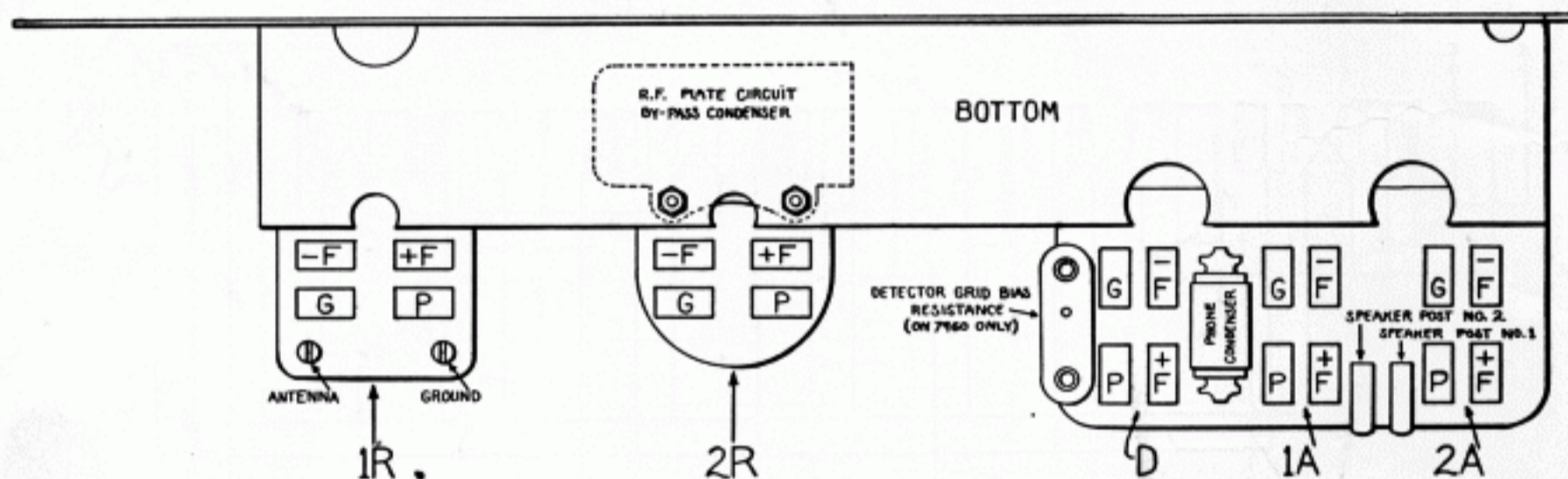


FIG. 52. CHART FOR MODEL 20 COMPACT (BOTH TYPES).

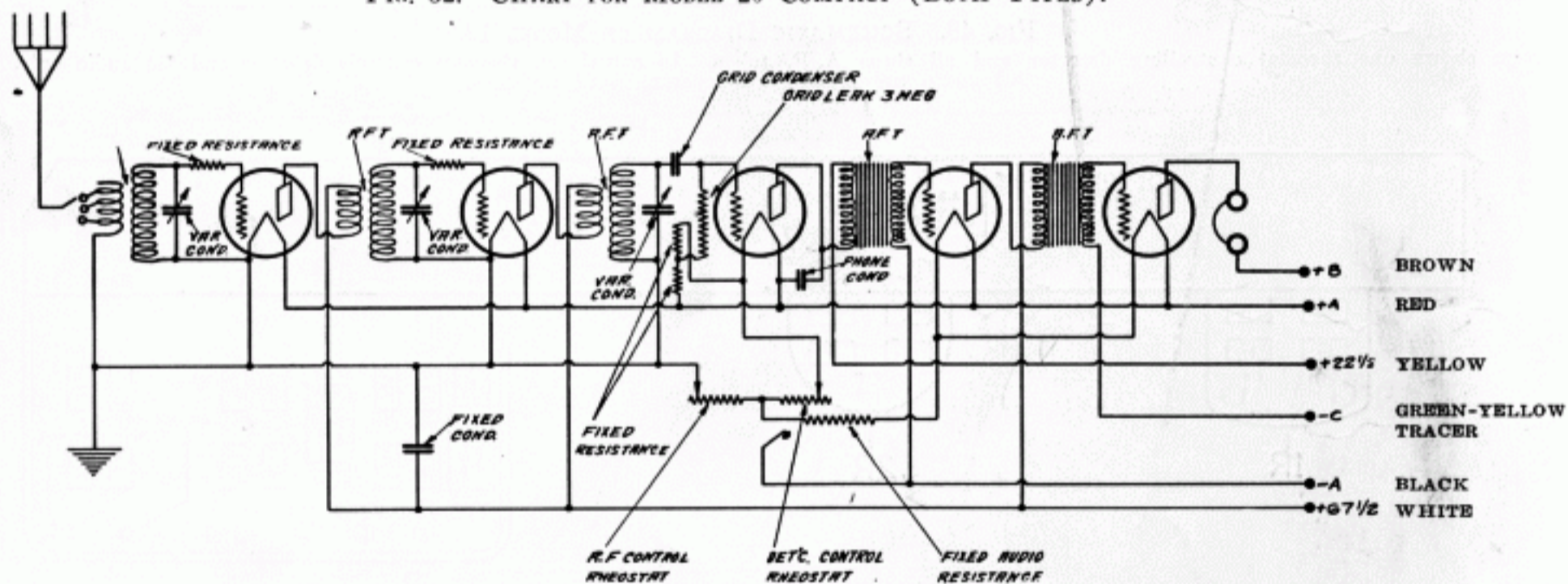


FIG. 53. DIAGRAM OF MODEL 20 COMPACT No. 7960.
See Fig. 66 for rheostat connections.

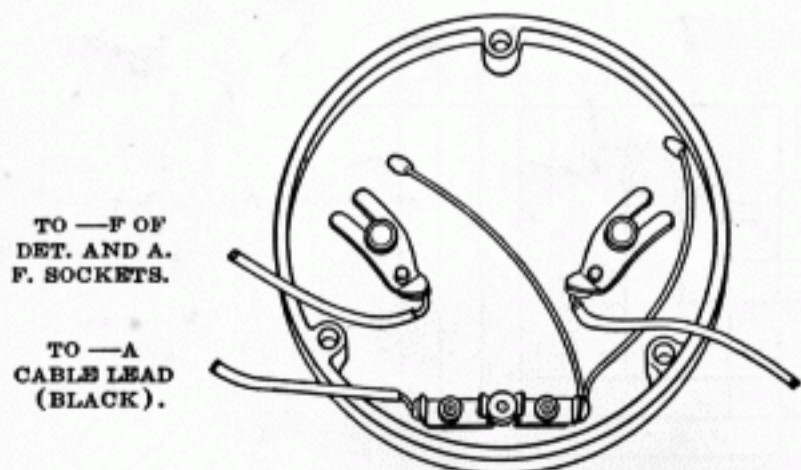


FIG. 54. REAR VIEW OF DOUBLE RHEOSTAT AND FILAMENT SWITCH ASSEMBLY USED IN MODEL 20 (No. 4640-7570), 19 AND 21.

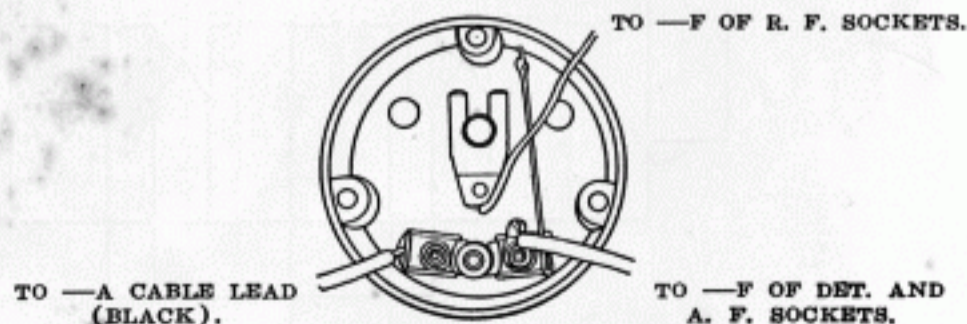


FIG. 55. REAR VIEW OF RHEOSTAT AND FILAMENT SWITCH ASSEMBLY USED IN MODEL 35.

SECTION XI

MISCELLANEOUS SERVICE INFORMATION

1. Use of Power Tubes in Battery Type Sets

The following battery sets were designed to permit the use of a power tube without change:

Model 20 Compact, No. 7960 (Serial Nos. 400,001 up).

Model 30 No. 8000 (later type).

Model 35.

Model 32.

Model 33.

Model 48.

Model 49.

Model 50.

Instructions are given below for changing the various earlier models of battery type sets so that a power tube can be used in the last audio socket:

Model 20 Compact, No. 7570 (Serial Nos. 200,000 to 395,766).

Model 30, No. 8000 (early type)

Remove chassis from cabinet and invert, exposing wiring under audio (3 tube) unit. Locate grid return wire leading from second audio transformer to blue wire of cable, and unsolder it from blue wire. Attach an additional short length (6 or 8 inches) of insulated wire to this lead from transformer, and bring this wire out through back of cabinet. This is the connection for the negative of "C" battery used for power tube. Connect positive of "C" battery to negative "A" battery terminal. Lastly, connect positive (black and red) terminal of speaker direct to highest voltage positive terminal of "B" batteries or "B" power unit, **instead of** to usual speaker post on set.

Note—If a 4½ volt "C" battery has been used already, it can be left connected, and it will then supply "C" voltage to the first audio tube only.

2. Replacement of Rheostat (Battery Type Sets)

(a) Removing Rheostat Assembly

(1) MODELS 20 AND 20 COMPACT. First unsolder wires leading from sub-panel to the Detector 2-stage amplifier assembly and the double rheostat. Remove the four screws which pass through the audio transformer bases which hold detector and audio panel to main sub-panel. This will release the assembly, making accessible the three screws which hold rheostat and switch panel assembly. Remove these three screws and rheostat can then be removed from main panel.

(b) Installing New Resistance

Pull out rheostat knob holding spring, releasing knob. Unsolder resistance wire terminal where it comes

Model 20, No. 4640 (large cabinet), Model 19 and Model 24

Remove set from cabinet and invert. Locate grid return (red wire) which runs from second audio transformer to black wire leading from rheostat to post "Minus A." Unsolder this one red wire (there are two) from black lead, solder an 8-inch length of insulated wire to end of red wire, and bring this lead out for connection to negative of "C" battery. Connect positive of "C" battery to "Minus A" post of set. Apply 135 volts or required "B" voltage to power tube, by connecting positive speaker terminal direct to high voltage terminal of "B" batteries or other "B" voltage supply.

Open Type Sets (Mounted on Board)

Release cover from 3-tube unit and locate secondary wire from second (right-hand) audio transformer. This wire emerges from sealing compound in base of unit and is soldered to bolt head of post "Minus A." Remove this wire from this bolt, solder a separate length of insulated wire to it, and bring this lead out through ventilating hole in cover, to be connected to negative of "C" battery required by power tube. Connect positive of "C" battery to "Minus A" post of 3-tube unit.

Connect high voltage terminal of "B" batteries or "B" Power Unit, as described above for cabinet sets, direct to positive speaker cord terminal. Power tube is placed in last audio socket (right hand of two front tubes in 3-tube unit).

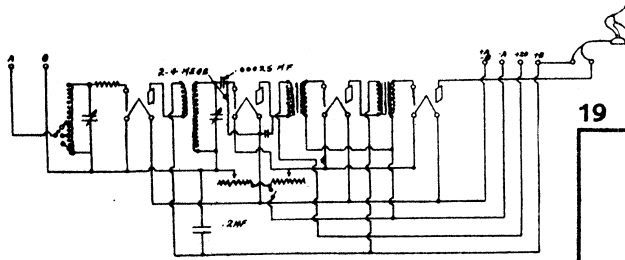
Note—Where dry batteries are used for "B" power, we suggest the "112A" type of power tube, 135 volts total "B" and about 9 volts "C" battery. Where storage "B" batteries or a good "B" power unit, such as the Atwater Kent Model "R," is used, we suggest using the "171A" type power tube. This tube gives perhaps a little better quality than the "112A" type, but consumes too much current to be economical when dry "B" batteries are used.

through panel, and pry out resistance unit. Insert new resistance unit, forcing down equally all around with suitable tool, pushing terminals through small holes in panel. Solder the one terminal, and bend the other over where it projects through panel a fraction of an inch. Replace rheostat knob, then knob holding spring and reassemble, reversing above procedure.

(2) MODELS 30 (early type) and 32. First unsolder the four wires leading to rheostat panel, remove station dial and vernier knob, take out the three screws underneath dial, which hold condenser assembly, then remove four screws (five on Model 32) on bottom of sub-panel. Next, pull condenser sub-panel assembly out from main panel, exposing three screws holding rheostat assembly

MODEL 19
 MODEL 20 # 7570
 MODEL 20 # 4640

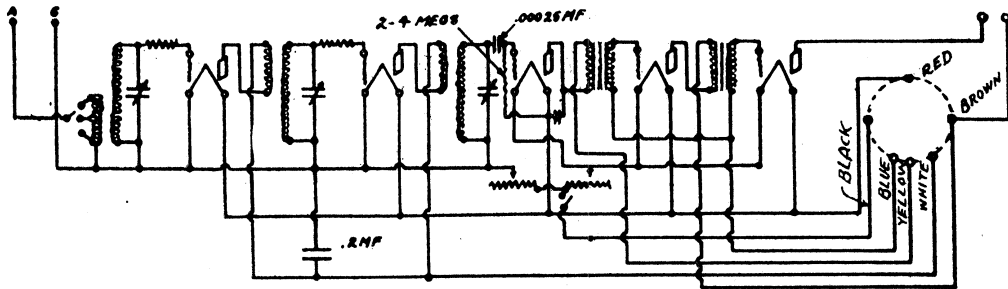
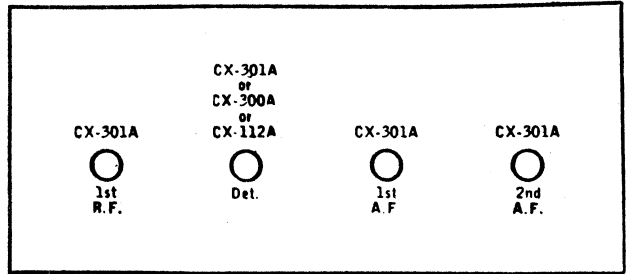
ATWATER KENT MFG. CO.



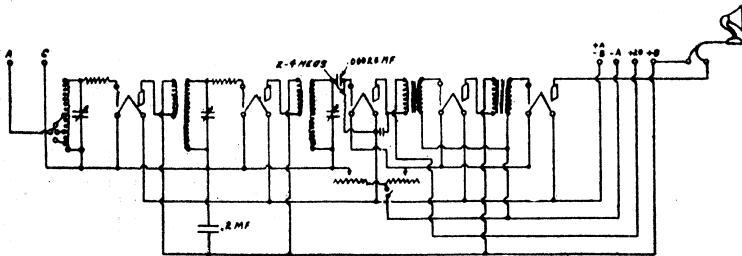
MODEL 19 SET No. 4880.

19

(Batt.)



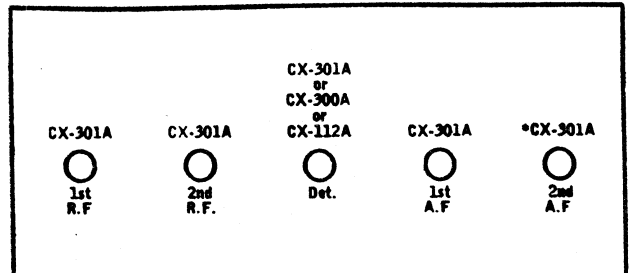
MODEL 20 COMPACT SET No. 7570. WIRING DIAGRAM.



MODEL 20 SET No. 4640.

20

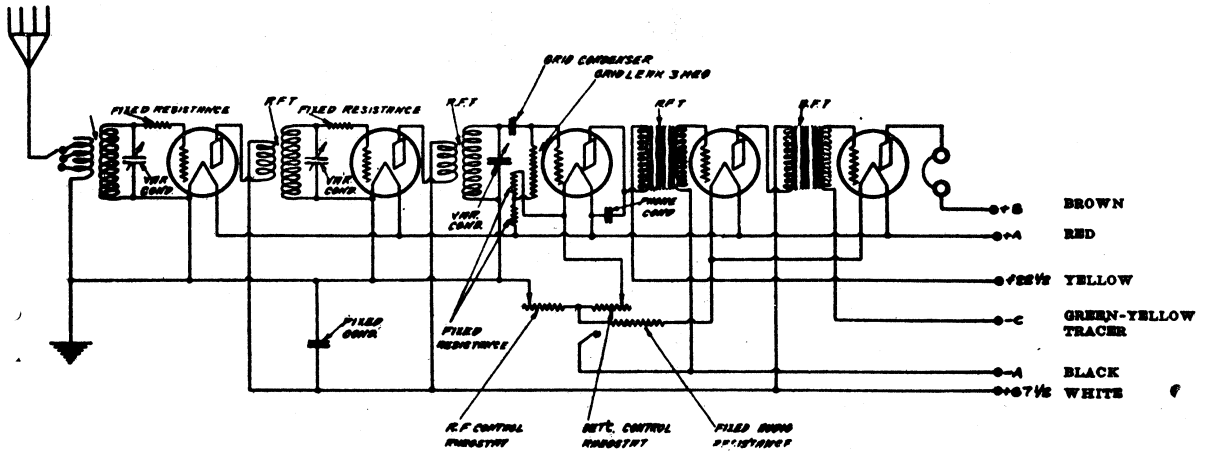
(Batt.)



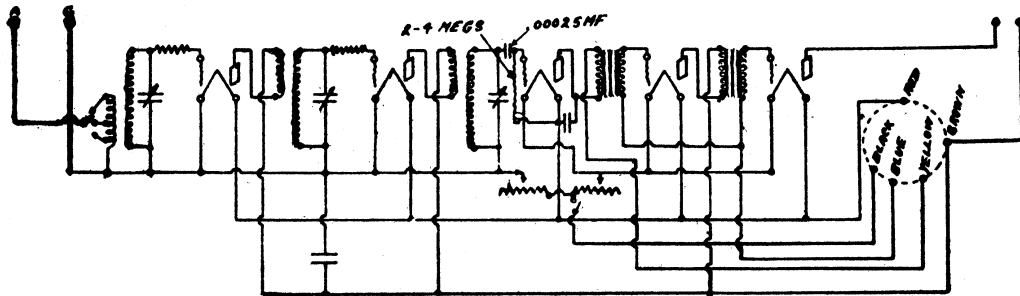
* This tube is a CX-371A in Model 20 compact.

MODRL 20 # 7960
 MODEL 21 # 7780

ATWATER KENT MFG. CO.

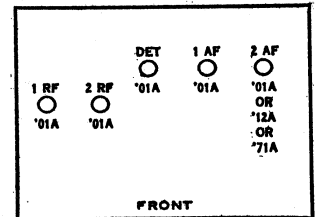


MODEL 20 COMPACT SET No. 7960. WIRING DIAGRAM.

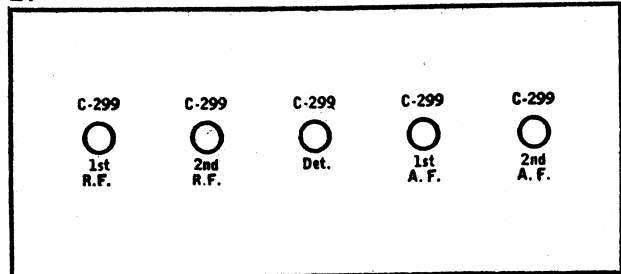


MODEL 21 DRY CELL SET No. 7780.

Model 20 Comp. (1925)



21 (Batt.)



ATWATER KENT MFG. CO.

MODEL 20

Model 20 # 7570

7570

4640

Data

CONDENSERS

Detector phone	.002 mfd	# 8241	500 volts
Detector grid	.000250 mfd	# 4465	500 volts
Plate bypass	.3 mfd	# 14902	450 volts

RESISTORS

Grid suppressors	600 ohms	# 4949	wire wound
Detector grid leak	2 megs	# 15892	1 watt Green
R-f rheostat	10 ohms	# 4690	
Detector rheostat	10 ohms	# 4690	

TRANSFORMERS

1st a-f primary	1700 ohms	# 4779
1st a-f secondary	3250 ohms	
2nd a-f primary	1700 ohms	# 4779
2nd a-f secondary	3250 ohms	

Model 20 # 4640

The parts used in # 4640 are substantially the same as used in # 7570 shown above, with the following exceptions.

1st and 2nd a-f transformers have different part numbers. In # 4640 they are # 7661. The d-c resistance of the respective primary and secondary windings is the same as designated for Model 20 # 7570. In other words a-f transformers # 4779 and # 7661 have like d-c resistance specifications for the primary and secondary windings. In receiver # 4640, transformer # 7661 is used in both the 1st and 2nd stages.

The detector grid condenser in receiver Model 20 # 4640 has the same capacity and voltage rating as used in # 7570, but has a different part number. The part number of this unit in receiver # 4640 is # 8112.

In both receivers, the plate circuit bypass condenser is adjacent to the 2nd r-f stage socket. The grid and phone condensers are adjacent to the detector and a-f assembly.

The wiring diagram in the manual shows a .2 mfd condenser as the plate circuit bypass unit. The Atwater-Kent specifications in their diagram manual shows such a condenser. On the other hand the parts specifications show a .3 mfd condenser in this position. If a .2 mfd unit is being used and the receiver performs well, there is no occasion for a change.

MODEL 20
#7960

ATWATER KENT MFG. CO.

Data

Model 20 # 7960

CONDENSERS

Detector phone	.002 mfd	# 8241	500 volts
Detector grid	.00025 mfd	# 8112	500 volts
Plate bypass	.3 mfd	# 14902	450 volts

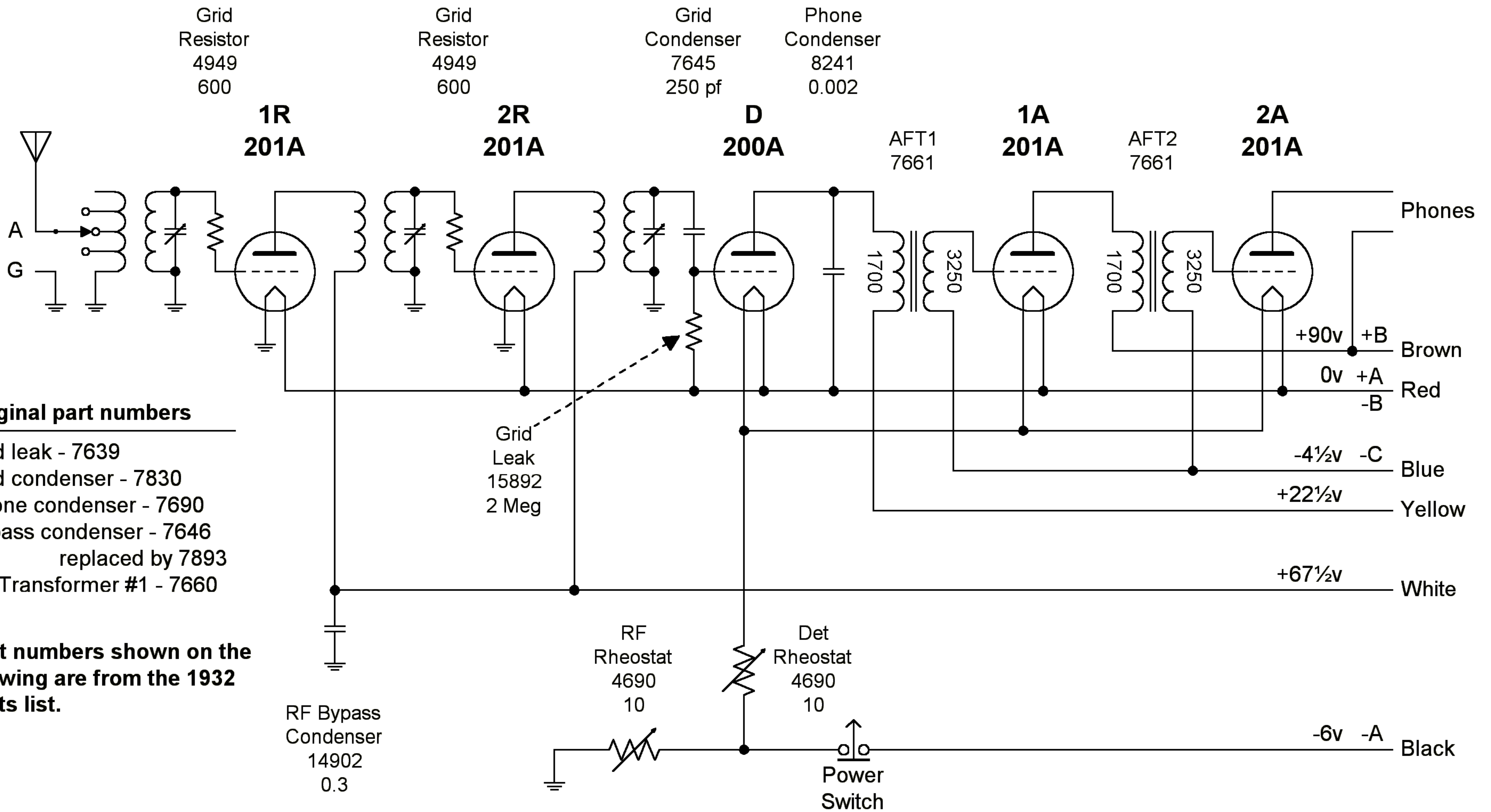
RESISTORS

Grid suppressors	600 ohms	# 4949	wire wound
Detector grid leak	2.0 megs	# 15892	1 watt Green
Detector bias	450 ohms	# 8190	tapped 180-270 ohms
A-f filament	1.0 ohm	# 8303	brown covered
Detector rheostat	20. ohms	# 8310	
R-f rheostat	10. ohms	# 4690	

TRANSFORMERS

1st a-f primary	1000 ohms	# 8060
1st a-f secondary	8000 ohms	
2nd a-f primary	1700 ohms	# 7661
2nd a-f secondary	3250 ohms	

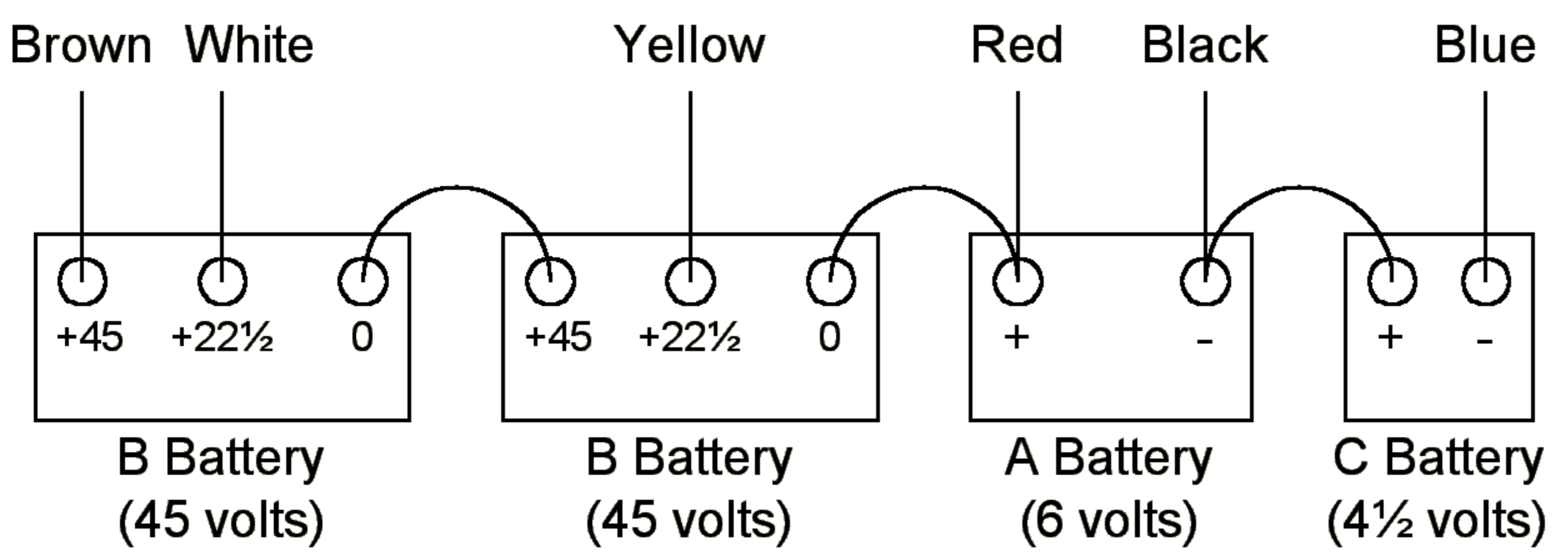
The detector grid bias resistor is adjacent to the detector socket. It is a flat resistor. The plate bypass condenser is adjacent to the 2nd r-f socket. The phone condenser is located between the detector and 1st a-f sockets.



Original part numbers

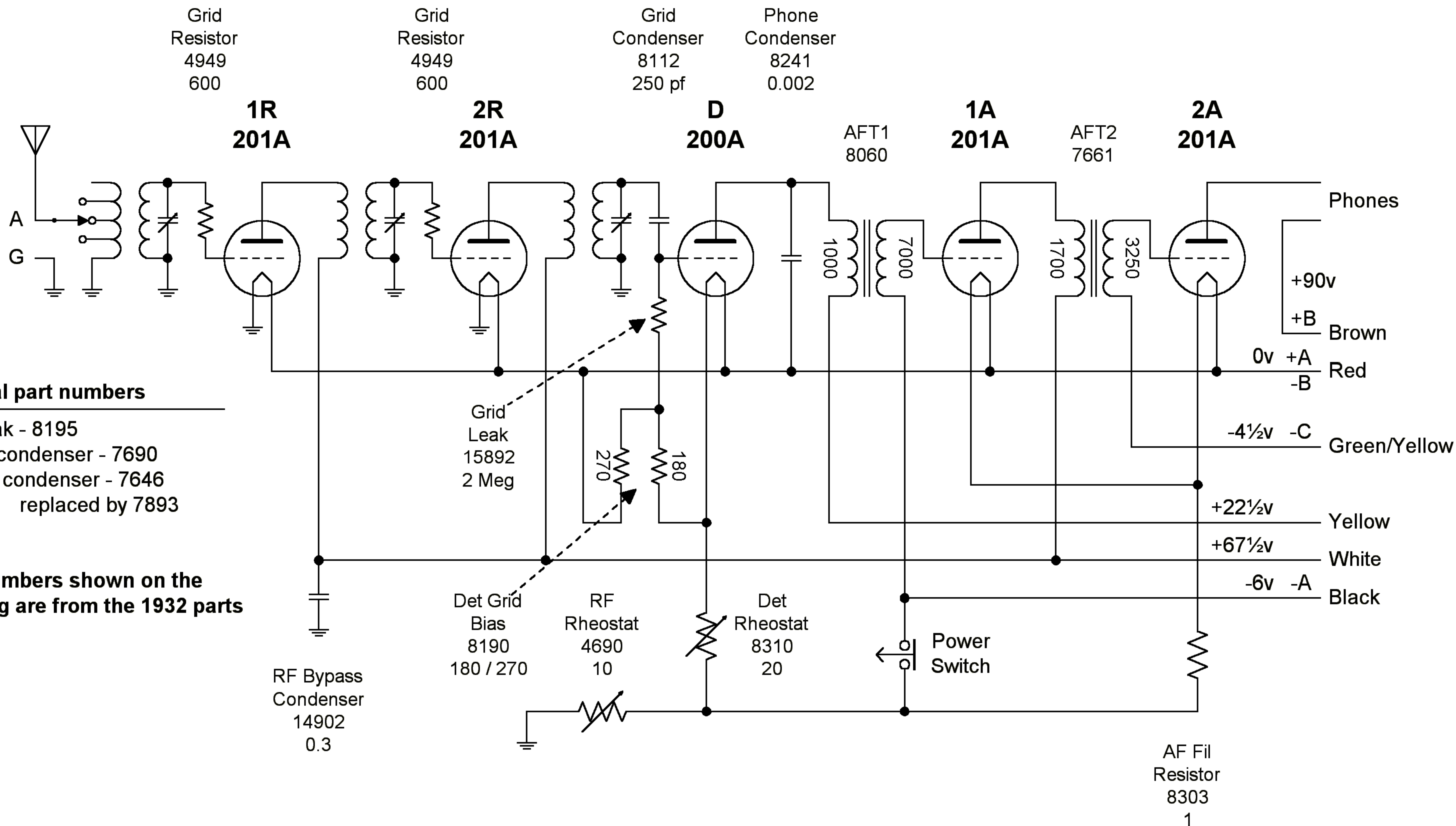
- Grid leak - 7639
- Grid condenser - 7830
- Phone condenser - 7690
- Bypass condenser - 7646
replaced by 7893
- AF Transformer #1 - 7660

Part numbers shown on the drawing are from the 1932 parts list.



PRELIMINARY

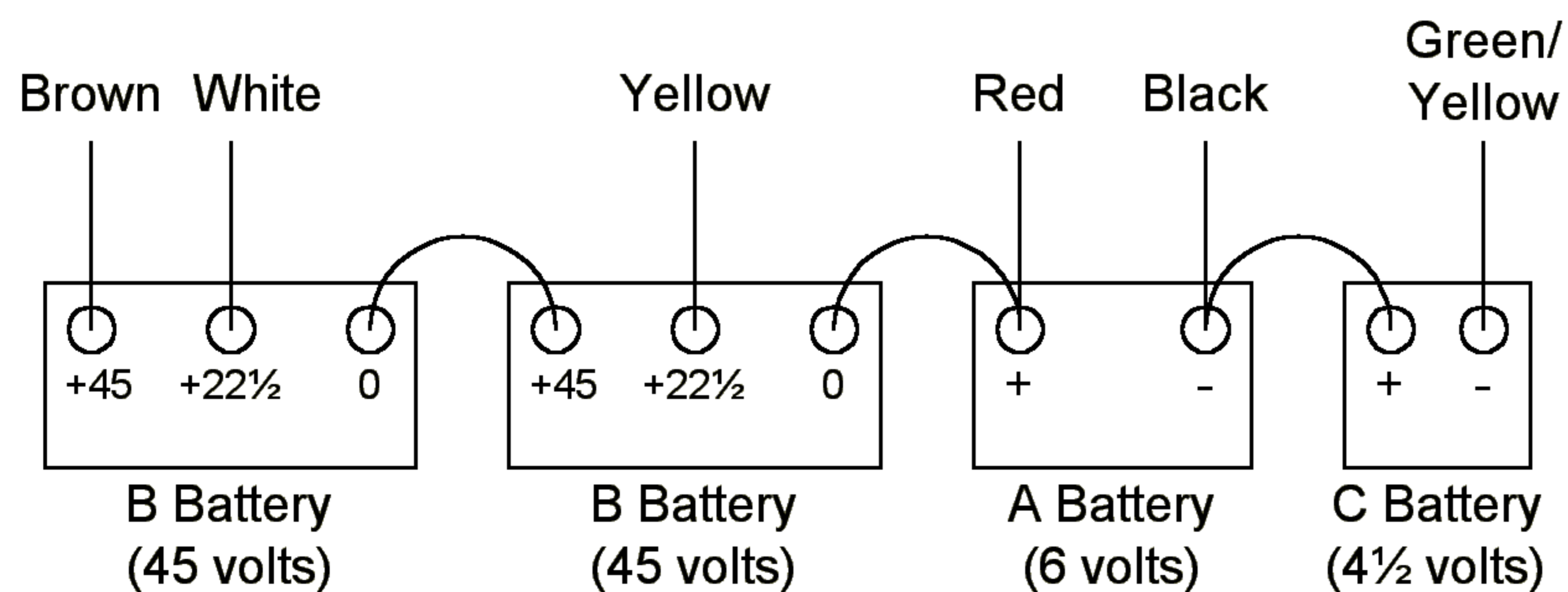
All dimensions in inches All dimensions nominal.	W3NLB			(c) 2003 W3NLB All Rights Reserved
	Atwater Kent Model 20C 7570 Schematic Diagram			
Drawn by: Leigh Bassett W3NLB	FSCM NO	DWG NO AK7570SCHEM	REV D	
Date: 06 Dec 2003	SCALE	SHEET	1 OF 1	



Original part numbers

Grid leak - 8195
 Phone condenser - 7690
 Bypass condenser - 7646
 replaced by 7893

Part numbers shown on the drawing are from the 1932 parts list.



PRELIMINARY

All dimensions in inches All dimensions nominal.		(c) 2003 W3NLB All Rights Reserved	
W3NLB		Atwater Kent Model 20C 7960	
Schematic Diagram			
Drawn by: Leigh Bassett W3NLB	FSCM NO	DWG NO AK7960SCHEM	REV E
Date: 06 Dec 2003	SCALE	SHEET	1 OF 1