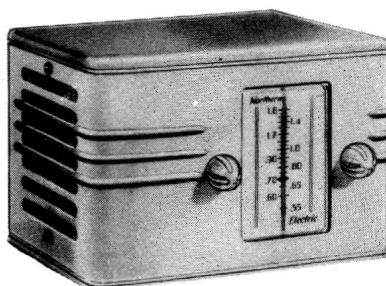


Models 430, 430A

Radio Receivers



MODEL 430

Specifications

Frequency Range:

.535 to 1.600 megacycles

Tubes:

Type	Function
6K7	R.F. Amplifier
6J7	Detector
6Y6G	Output Amplifier
Type IV	Rectifier

Power Supply:

Model 430: 105 to 125 volts A.C., 60 cycles

Model 430A: 105 to 125 volts A.C., 25-60 cycles.

Controls:

Left—A.C. Switch and Volume Control

Right—Tuning Control

Cabinet:

Mantel Model, Metal Cabinet.

GENERAL:—This is an a-c operated radio receiver using a tuned-radio-frequency circuit and employing four tubes. It is housed in a cream and gold finished metal cabinet of modern design, with the five-inch electrodynamic speaker mounted at one end. The dial is of "Dialophane" lighted from the rear and bearing calibrations in megacycles. The indicator operates vertically in the centre of the dial.

The tuning range is .535 to 1.600 megacycles.

The a-c load rating at 115 volts line is 33 watts for both the 60 and 25 cycle models. Model 430 is for operation on 60-cycle supplies and the Model 430-A for operation on supplies from 25 to 60 cycles.

CIRCUIT:—(Refer to fig. 2 — Schematic Circuit Diagram.) The circuit is of the tuned-radio-frequency type, using iron-cored antenna and R.F. transformers. These adjustable iron cores are items 1 and 13, and their use is explained under "Alignment." The antenna and r-f sections of the tuning capacitor gang are items 5 and 7 respectively and items 6 and 8 are the trimmers.

Volume control is effected by the variable resistor, item 11, in the cathode circuit of the type 6K7, R-F Amplifier. When the resistance is a maximum the gain is a minimum. The current flowing through the resistor, item 12, and thence through the volume control maintains a current through the latter so that control is maintained even when the plate current the tube has fallen to a very low value.

The detector is of the biased type and employs a 6J7 tube. Its bias is obtained from the voltage drop

across resistor, item 35, in the minus B lead, and is filtered by items 17 and 19.

The detector is resistance-capacitance coupled to the output amplifier, a type 6Y6G, which is, in turn, coupled to the electrodynamic loudspeaker by the output transformer, item 29. The type 6Y6G obtains its bias from the drop across resistors, items 35 and 26 in the ground return of the power transformer.

The rectifier and filter circuits are of the conventional half-wave type, using a type IV Rectifier.

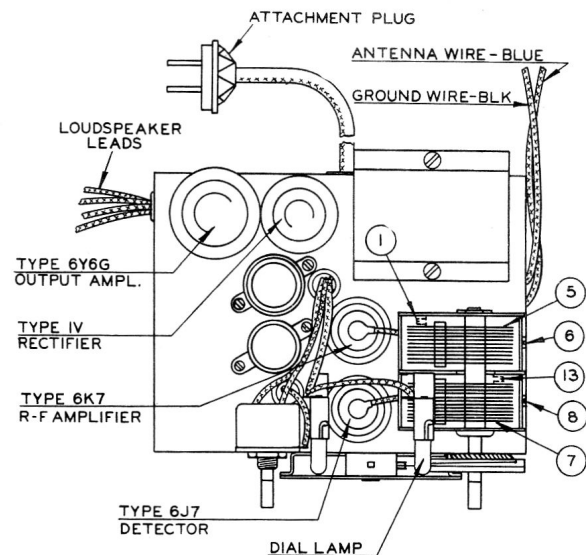


Fig. 1.—Chassis Layout Showing Aligning Positions

ALIGNING INSTRUCTIONS

To secure full advantage of the performance characteristics of this receiver, any realignment necessary should be carried out carefully. A reliable test oscillator or signal generator and an output meter should be employed.

- (a) Connect the signal generator through a 100 mmf. mica capacitor to the antenna (blue) lead. Connect the black ground lead to the receiver chassis.
- (b) Check that the indicator pointer lines up with the bottom of the calibration line when the gang is all in. The pointer can be pushed up and

down by adjusting the pulley on the gang shaft.

- (c) Set the signal generator and receiver to 1400 kc. Adjust trimmer, item 8, (on gang, front) for maximum output. Rock the gang capacitor while adjusting trimmer, item 6, (on gang, rear) for maximum output.
- (d) Set the signal generator and receiver to 600 kc. Adjust variable iron core, item 13, for maximum output. Rock the gang capacitor while adjusting variable iron core, item 1, for maximum output.
- (e) Repeat the above procedure until alignment is accurate.

SOCKET VOLTAGE AND CURRENT READINGS

These readings were taken with the gang capacitor all in, volume control maximum, and line voltage of 115 volts. Voltage readings may be duplicated by using a Weston Model 772 voltmeter (resistance 20,000 ohms per volt): on a Model 663 (1,000 ohms per volt) the reading will be slightly lower. Current readings can be duplicated with the Weston Model 556 Analyzer, and a Model 661-1A Adapter. When taking readings with the analyzer attachment, connect a 0.1 mf. capacitor from the grid of the tube being tested to the chassis, to prevent oscillation.

VOLTAGE					CURRENTS—M.A.		
TUBE	Heater	Plate	Screen	Cathode	Screen	PLATE	
						Normal Bias	Bias Red 4-1/2V
6K7.....	6.3	131	131	2.6	2.4	11	14.5
6J7.....	6.3	40	40	2.25 ①	.1	.4	.5
6Y6G.....	6.3	130	131	19 ②	1.1	18	20.75
1V.....	6.3	—	—	180	—	33	—

① Measured across 65 ohm resistor.

② Measured across 500 and 65 ohm resistors.

SOCKET RESISTANCE READINGS TO GROUND — OHMS

TUBE	TOP CAP (Cont. Grid)	PIN No. 1 (Shell)	PIN No. 2 (Heater)	PIN No. 3 (Plate)	PIN No. 4 (Screen)	PIN No. 5	PIN No. 6	PIN No. 7 (Heater)	PIN No. 8 (Cathode)
Type 6K7 R-F Amplifier	3	0	Below 0.5	1/10 meg.	1/10 meg.	(Suppressor) 220	—	0	220
Type 6J7 Detector	2 meg.	0	Below 0.5	350,000	1.1 meg.	—	(Suppressor) 0	0	0
Type 6Y6G Output Amplifier	—	0	Below 0.5	1/10 meg.	1/10 meg.	(Grid)	—	—	0
Type IV Rectifier	—	(Heater) Below 0.5	Below 0.5	(Cathode) 1/10 meg.	(Heater) 0	—	—	—	—

These readings were taken with volume control maximum and power off. The pin numbers for the sockets correspond with those shown on the schematic.

MODEL 430 RADIO RECEIVER

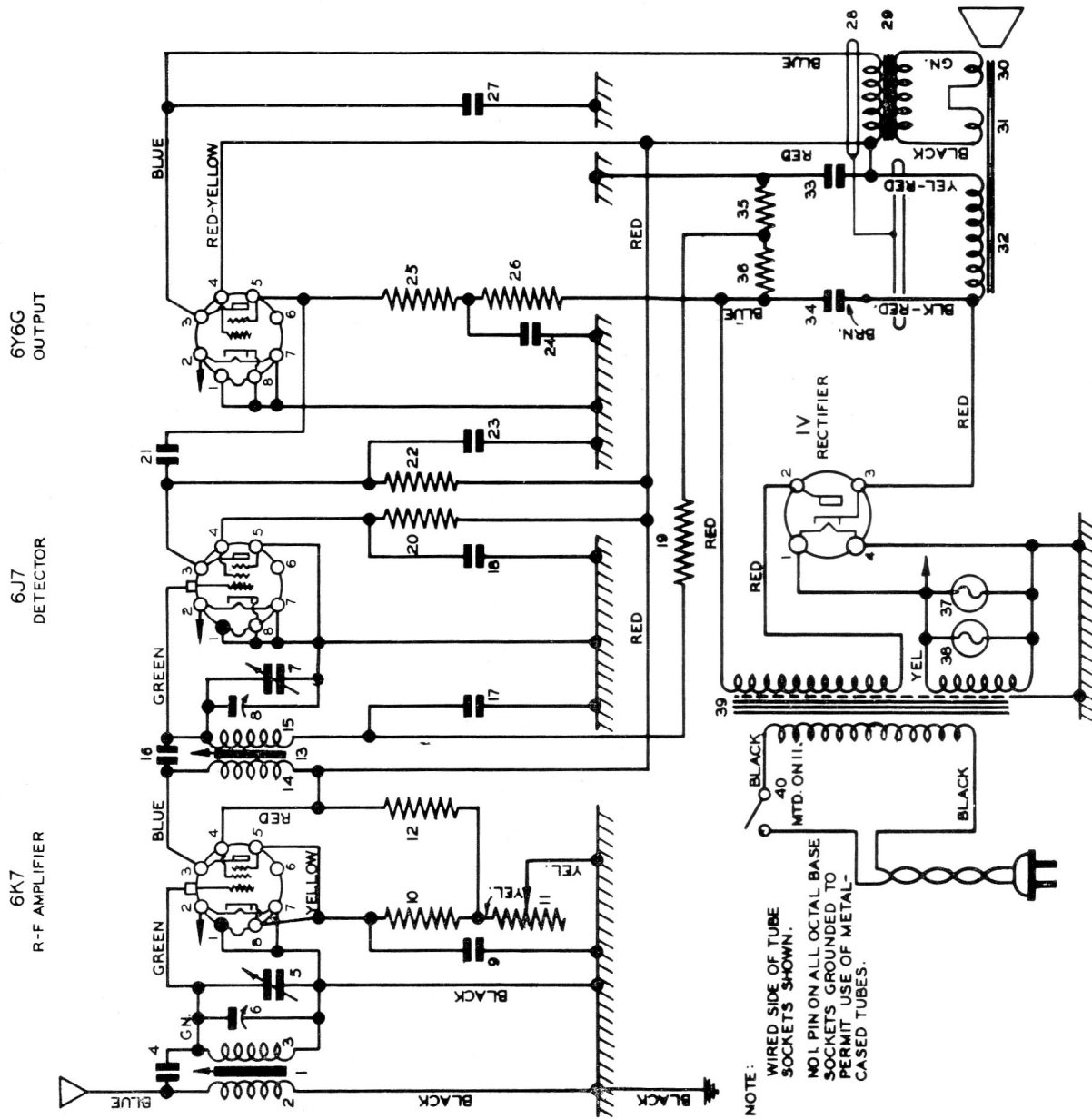


Figure 2—Model 430 Schematic Circuit Diagram

REPLACEMENT PARTS LIST

Item	Description	Part No.
1	Antenna Transformer (iron; var.)	K-3692
2	Antenna Transformer Primary	
3	Antenna Transformer Secondary	
4	Antenna Coupling Capacitor 6 mmf.	
5	Antenna Sect. Tuning Capacitor 352.3 mmf. max.	
6	Antenna Sect. Trimmer Capacitor 2.5-20 mmf.	K-2903-2
7	R-F Sect. Tuning Capacitor 352.3 mmf. max.	
8	R-F Sect. Trimmer Capacitor 2.5-20 mmf.	
9	Capacitor .05 mf. 175 volts.	K-2227-8
10	Resistor, 220 ohms	K-2226-45
11	Volume Control 1/10 megohm	K-3715
12	Resistor, 1/10 megohm	K-2226-5
13	R.F. Transformer (Iron; var.)	K-3695
14	R.F. Transformer Primary	
15	R.F. Transformer Secondary	
16	Capacitor Coupling 10 mmf.	
17	Capacitor .1 mf. 175 volts.	K-2227-9
18	Capacitor, .1 mf, 175 volts.	K-2227-9
19	Resistor, 2 megohm	K-2226-1
20	Resistor, 1 megohm	K-2226-2
21	Capacitor .005 mf, 175 volts.	K-2227-4
22	Resistor, 1/4 megohm	K-2226-4
23	Capacitor, 1,000 mmf. mica.	K-1611-23
24	Capacitor, .05 mf, 175 volts	K-2227-8
25	Resistor, 1 megohm	K-2226-2
26	Resistor, 1/10 megohm	K-2226-5
27	Capacitor, .003 mf, 350 volts	K-2228-3
28	Loudspeaker Cable	K-3694
29	Output Transformer	
30	Voice Coil	
31	Humbucking Coil	
32	Field Coil 1,400 ohms	

Item	Description	Part No
33	Capacitor, 16 mf Electrolyte	K-3672
34	Capacitor, 30 mf. Electrolytic	K-3671
35	Resistor, 65 ohms	K-2226-31
36	Resistor, 500 ohms	K-2226-18
37	Dial Lamp 6.3 volts	K-2589-3
38	Dial Lamp 6.3 volts	K-2589-3
39a	Power Transformer—60 cycle	K-3700-1
39b	Power Transformer—25 cycle	K-3700-2
40	Power Switch mounted on Item 11	—

MISCELLANEOUS:

Loudspeaker, complete with O.T.	K-3694
Sockets, octal base	K-1924-1
Socket	K-1194-1
Dial frame assemblies (including indicator)	K-3678
Dial scales	K-3686-1
Dial cover	K-3691
Drive cable	K-1929
Spring for drive cable	K-3687
Pulley Assembly (with set screws)	K-3688
Lamp sockets (dial)	K-2835-2
Dial lamps	K-2589-3
Felt feet for cabinet	K-2954-4
Speaker mounting screw (8/32 x 3/16)	K-2263-5
Cabinet	K-3703
Baffle	K-3704
Grille cloth	K-3705
Knobs	K-3711
Felt washers for knobs	K-2491-4
Grid clips	K-1821
Tuning wrenches (all models)	K-836

D. C. RESISTANCE OF COILS — OHMS

Item	Description	Resistance	Item	Description	Resistance
2	Antenna Transformer Primary	19	30	Voice Coil	.83
3	Antenna Transformer Secondary	3	31	Humbucking Coil	1.33
14	R-F Transformer Primary	58	32	Field Coil	1400
15	R-F Transformer Secondary	3	39	Power Transformer Primary	19.5
29	Output Transformer Primary	165.0		Power Transformer H.V. Secondary	183
	Output Transformer Secondary	.63		Heaters (below)	0.5