



FOR MEMBERS OF RADIO MANUFACTURERS SERVICE

SERVICE BULLETIN
No. 255

SERVICE DATA

Electrical Specifications

Type Circuit: Superheterodyne, with push-pull pentode audio output, battery operated.

Batteries Required:

"A" supply—A 2 volt storage battery or an air cell battery, type A-600, or a 3 volt dry "A" battery may be used, providing proper means, such as a voltmeter, is provided for adjusting the voltage to 2 volts.

"B" batteries—Three 45 volt heavy-duty, plug-in type "B" batteries are required.

"C" batteries—Two 4½ volt plug-in type "C" batteries are required. It is important to use the "C" batteries with the small type cell, such as Eveready No. 771 and General Dry No. 331. If the proper size cell is not used in the "C" batteries, the "B" batteries will not last as long, and the tone quality will suffer during the latter part of their life.

Connections for Use with 2 Volt Storage "A" Battery—Connect the white wire to the negative (—) terminal of the "A" battery. Connect the white wire with black tracer to the positive (+) terminal of the "A" battery. Tape up the air cell lead (the only remaining lead) in such a manner that it cannot come in contact with any of the batteries.

Connections for Use with Air Cell Battery—If an air cell battery is used in place of a storage battery, connect the white wire to the negative (—) terminal of the air cell. Connect the brown wire to the positive (+) terminal of the air cell. Tape up the white with black tracer lead in such a manner that it cannot come in contact with any of the batteries.

Current Drain: A Battery, 540MA. B Battery, 13MA.

Tubes Used: 1D7G, Detector Oscillator; 1D5G, I.F. Amplifier; 1H6G, 2nd Detector, 1st audio; 1H4G, Phase inverter; and 1E7G, Output.

Frequency Range: 530-1720 K.C.

Intermediate Frequency: 470 K.C.

Speaker: Permanent Magnet Model L2B.

Aligning Compensators

To accurately adjust this receiver precision test equipment is necessary. A signal generator such as the Philco Model 088, covering from 110 to 20,000 K.C. is recommended for adjusting the various compensators at the frequencies specified. A visual indication of the receiver output is also necessary, Philco Model 025 Circuit Tester contains a sensitive output meter and is recommended for this purpose.

Philco fibre handle screw-driver No. 27-7059 and wrench Part No. 3164 complete the equipment necessary for the following adjustments. The locations of the various compensators are shown in Fig. (2).

OUTPUT METER—The 025 Output Meter is connected between one of the plate contacts of the 1E7G tube and ground. Adjust the meter to use the (0-30) volt scale.

INTERMEDIATE FREQUENCY CIRCUIT

Frequency 470 K.C.

1. Connect the 088 Signal Generator output lead through a .1 mfd. condenser to the control grid of the 1C7G tube; and the ground connection of the output lead to the chassis. Then turn the tuning condenser to approximately 580 K.C. and adjust the signal generator for 470 K.C.

2. Now adjust compensators (13)s, 2nd I.F. Sec., (13)p 2nd I.F. Pri., (12)s 1st I.F. Sec., and (12)p 1st I.F. Pri. for maximum output.

RADIO FREQUENCY CIRCUIT

530 to 1720 K.C.

1. Remove the signal generator output lead from the 1C7G tube and connect it through a 100 mmfd. condenser to the antenna post of the receiver, and the generator ground lead to the chassis.

2. Turn signal generator to 1700 K.C. Rotate receiver tuning condenser to maximum capacity position (counter-clockwise); then place a "006" gauge between the rotor and stator plates (left side of tuning condenser facing front of receiver), and turn condenser until rotor and stator gauge

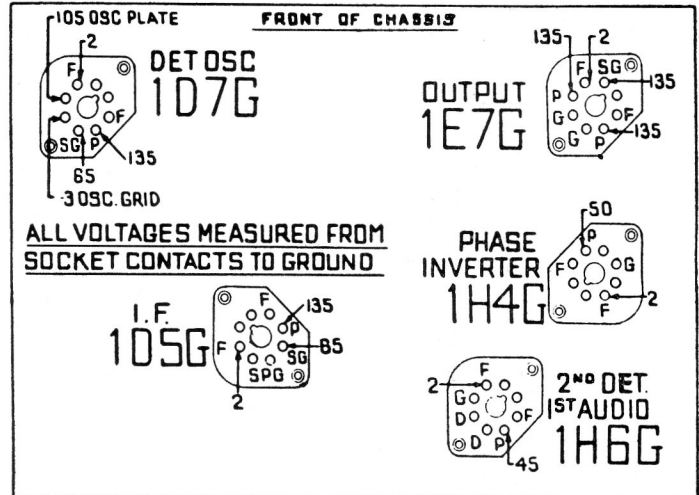


Fig. 1—View of Sockets from Underside Chassis

The voltages indicated by arrows were measured with a Philco 025 Circuit Tester which contains a voltmeter having a resistance of 1000 ohms per volt. Volume Control at minimum.

touch gauge. Now remove gauge without disturbing setting of the plates. Compensators (4)b Osc. and (4)a Ant. are then adjusted for maximum output.

3. Turn signal generator and receiver dials to 580 K.C. and adjust compensator (7) as follows:

First tune compensator (7) for maximum output. Then vary the tuning condenser for maximum output. Now retune compensator (7) and again vary the tuning condenser back and forth about 580 K.C. for maximum output. This operation of first tuning the compensator, then the tuning condenser is continued until maximum output is obtained at the 580 K.C. frequency.

4. Readjust the 1700 K.C. end of dial as given in paragraph 2 above.

5. Then turn signal generator and receiver dials to 1500 K.C. and adjust compensator (4)a Ant. for maximum output.

DIAL CALIBRATION—After the above adjustments have been performed, the dial pointer is adjusted to track properly with the tuning condenser. To do this turn signal generator to 1000 K.C. and tune the receiver tuning condenser for maximum output at this frequency. When maximum output is obtained dial pointer is adjusted to the 1000 K.C. mark on dial.

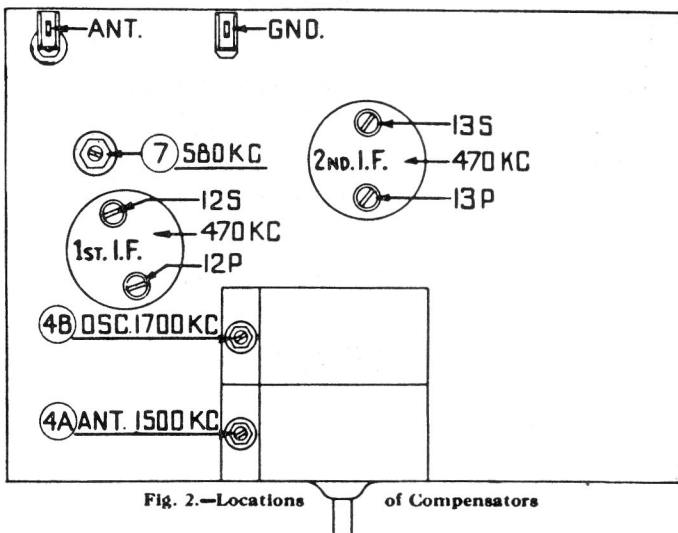


Fig. 2.—Locations of Compensators

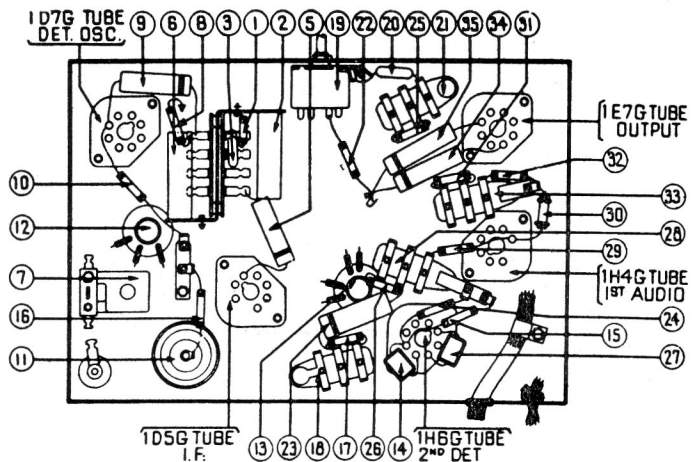


Fig. 3.—Parts Location. Underside of Chassis View

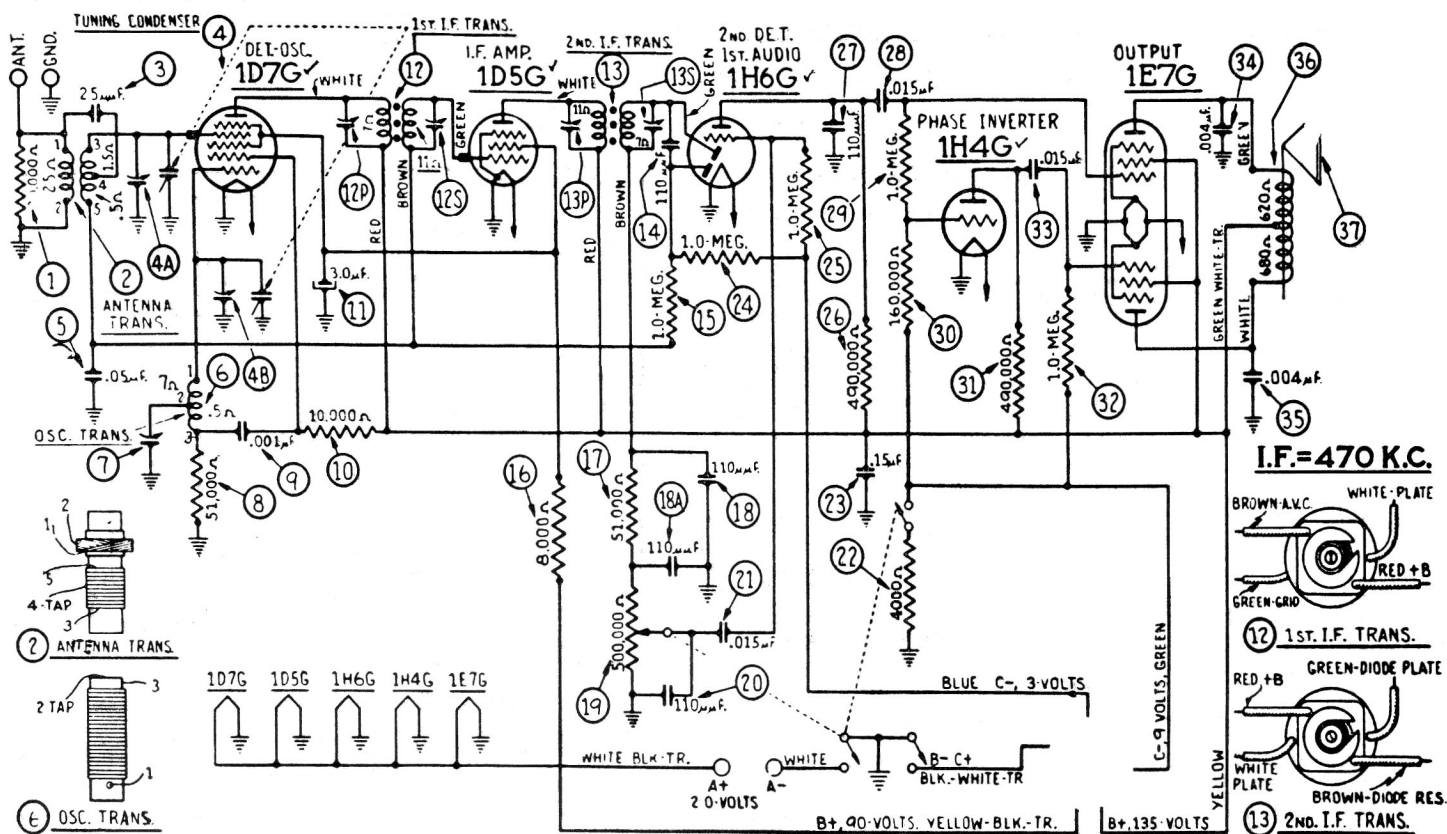


Fig. 4—Schematic Diagram

Replacement Parts—Model 37-333

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1	Resistor (20,000 ohm, ½ watt)	33-320339	23	Condenser (.15 mfd., tubular)	30-4191		Washers	W-442
2	Transformer, Antenna	32-2212	24	Resistor (1 megohm, ½ watt)	33-510339		Mounting Plate (Coil)	28-3808
3	Condenser (25 mmfd., mica)	30-1067	25	Resistor (1 megohm, ½ watt)	33-510339		Spacer	27-8228
4	Tuning Condenser	31-1902	26	Resistor (490,000 ohm, ½ watt)	33-449339		Screw	W-1635
5	Condenser, Tubular (.05 mfd.)	30-4444	27	Condenser (110 mmfd., mica)	30-1031		Socket—7 prong	27-6057
6	Oscillator Transformer	32-2213	28	Condenser (.015 mfd., bakelite)	3793SU		Socket—8 prong	27-6058
7	Compensator (580 K.C.)	04000S	29	Resistor (1 megohm, ½ watt)	33-510339		Shield Base	28-3898
8	Resistor (51,000 ohms)	33-351339	30	Resistor (160,000 ohm, ½ watt)	33-416339		Shield	28-2726
9	Condenser (.001 mfd., tubular)	30-4201	31	Resistor (490,000 ohm, ½ watt)	33-449339		Fahnstock Clip	L-1126
10	Resistor (10,000 ohm, ½ watt)	33-310339	32	Resistor (1 megohm, ½ watt)	33-510339		Washer	4243
11	Electrolytic Condenser (3 mfd.)	30-2158	33	Condenser (.015 mfd., bakelite)	3793SU		Washer	27-7414
12	1st I.F. Transformer	32-2100	34	Condenser (.004 mfd., tubular)	30-4185		Lugs	L-1125
13	2d I.F. Transformer	32-2102	35	Condenser (.004 mfd., tubular)	30-4185		Mounting Screw (Chassis)	W-490
14	Condenser (110 mmfd., mica)	30-1031	36	Speaker L2B, B and F Cabinets	36-1256		Mounting Washer (Chassis)	W-315
15	Resistor (1 megohm, ½ watt)	33-510339	37	Cone Assembly	45-2315		Mounting Nut (Chassis)	W-124
16	Resistor (8,000 ohm, ½ watt)	33-280339		Dial	27-5243		Mounting Bolt (Speaker)	W-1604
17	Resistor (51,000 ohm, ½ watt)	33-351339		Pointer	27-7933		Nut (Speaker)	W-124
18	Condenser (110 mmfd., double bakelite)	8035DG		Felt Washer	27-7807		Washer (Speaker)	W-410
19	Volume Control & Power Switch	33-5169		Knob Assembly	27-4282			
20	Condenser (110 mmfd., mica)	30-1031		Vernier Drive	31-1925			
21	Condenser (.015 mfd.)	3793SU		Pilot Lamp	5316			
22	Resistor (4,000 ohm ½ watt)	33-240344		Pilot Lamp Assembly	38-7964			
				Cable Assembly Battery	41 3219			
				Clamp	28-2345			
				Terminal Panel R.F.	38-7963			
				Spacers	28-4001			

Figures in black type indicate circled figures in base view.

August, 1936

B CABINET

Baffle & Grille Cloth Assembly.....40-5988

F CABINET

Baffle & Grille Cloth Assembly.....40-5933
Bottom Shield27-8440

Printed in Canada