



FOR MEMBERS OF RADIO MANUFACTURERS SERVICE

SERVICE BULLETIN
No. 256

Electrical Specifications

Type Circuit: Superheterodyne, with class "B" audio output, battery operated.

Batteries Required:

"A" supply—A 2 volt storage battery or an air cell battery, type SA850, 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, 720 M.A.; "B" Battery, 20 M.A.

Tubes Used: 1C7G, Detector Oscillator; 1D5G, I.F. Amplifier; 1H4G, 2nd Detector, A.V.C.; 1E5G, 1st Audio; 1H4G, Driver; 1J6G, Output.

Frequency Range: Range 1, 530-1720 K.C.; Range 2, 2.3-7.4 M.C.

Intermediate Frequency: 470.

Speaker: KR-17—B. Cabinet; HR-12—J. Cabinet.

Alignment of Compensators

To accurately adjust this receiver, precision test equipment is necessary. A signal generator such as the PHILCO MODEL 088 Signal Generator, covering from 110 to 20,000 K.C. is recommended for use in adjusting the compensators at the various frequencies specified. A visual indication of the receiver output is also necessary to obtain correct adjustment of the compensators. PHILCO MODEL 025 Circuit Tester contains a sensitive output meter and is recommended for these adjustments.

Philco Fibre Wrench No. 3164 and Fibre Handle Screw-Driver No. 27-7059 complete the necessary equipment for these adjustments. The locations of the various compensators are shown in Figs. 2 and 3.

The following procedure must be observed in adjusting the compensators:

DIAL ADJUSTMENT—The tuning condenser is set at the maximum capacity position, by turning the tuning knob clockwise. Loosen the set screw of dial hub and set dial, with Glowing Indicator centered between the first and second index lines at the low frequency end of scale.

OUTPUT METER—The 025 Output Meter is connected between one of the plate prongs of the 1J6G tube and the chassis. Then 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 generator ground lead to the chassis.

2. Set the range switch in position No. 1 (Broadcast), then rotate the tuning condenser of the receiver to the maximum capacity position (clockwise) and adjust the signal generator for 470 K.C. Now adjust compensators (28)s 2nd I.F. Sec., (28)s 2nd I.F. Pri., (15)s 1st I.F. Sec. and (15)p 1st I.F. Pri. for maximum output.

RADIO FREQUENCY CIRCUIT

Tuning Range 2.3 M.C. to 7.4 M.C.

1. Remove the signal generator output lead from the grid of the 1C7G

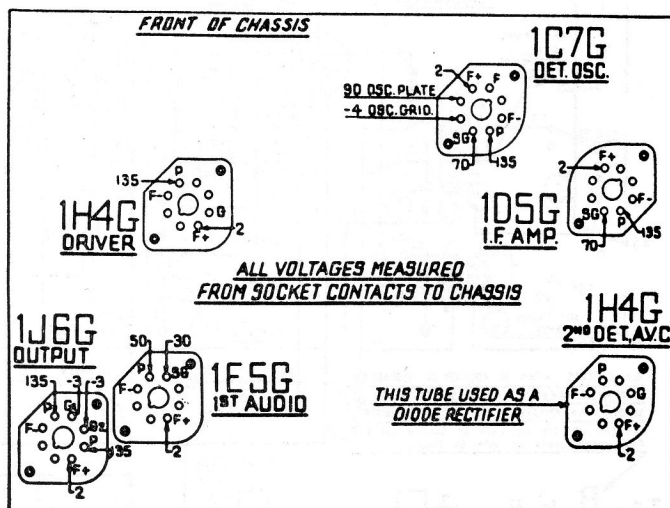


Fig. 1—Socket Voltages—Underside of Chassis View

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, range switch in broadcast position.

tube and connect it through a 200 mmf Condenser to the antenna terminal on input panel (rear of chassis), and the generator ground lead to the ground terminal of this panel.

2. Set the range switch in position No. 2. Turn the receiver and signal generator dials to 7.0 M.C. Now adjust compensator (12) for maximum output.

3. Turn signal generator and receiver dials to 6.0 M.C. and adjust compensator (5)a for maximum output.

Tuning Range 530 to 1720 K.C.

1. Set range switch in position No. (1) (Broadcast). Turn signal generator and receiver dials to 1600 K.C. Then adjust (14) Osc. "Screw", and (5) antenna for maximum output.

2. Turn signal generator and receiver dials to 580 K.C. and adjust compensator (14)a Osc., "nut"—see Fig. 4 above—as follows: To adjust compensator (14)a the tuning condenser must be rolled for maximum output, thusly: First turn the compensator (14)a for maximum output. Then vary the tuning condenser for maximum output about 580 K.C. Now retune compensator (14)a and again vary the tuning condenser back and forth about the 580 K.C. dial mark 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. dial mark. If the signal generator is not accurately calibrated the maximum point on the dial of the receiver may fall slightly above or below the 580 K.C. dial mark.

3. Turn signal generator and receiver dials to 1600 K.C. and readjust compensator (14) Osc. "screw" for maximum output.

4. Turn signal generator and receiver dials to 1500 K.C. and readjust compensator (5) for maximum output.

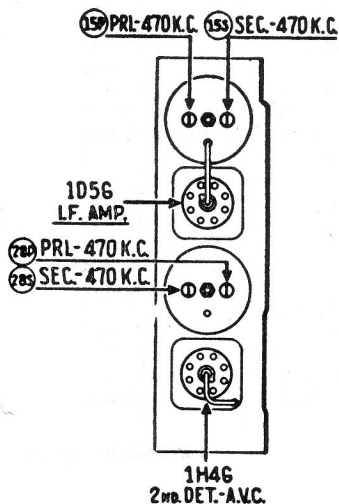


Fig. 2—I.F. Compensators
Top of Chassis

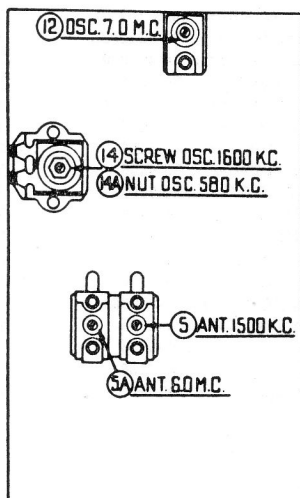


Fig. 3—R.F. Compensators
Underside of Chassis

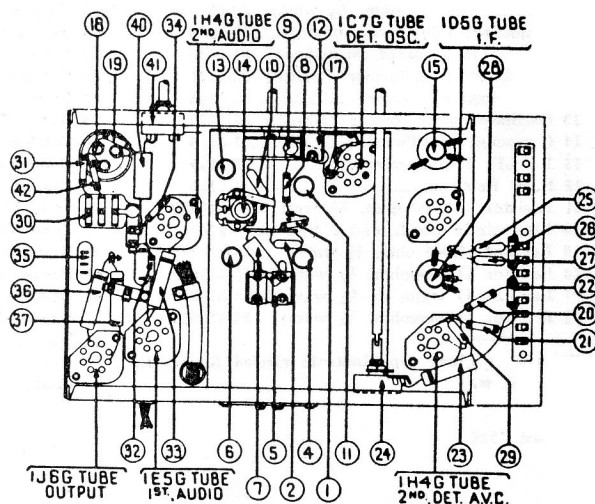
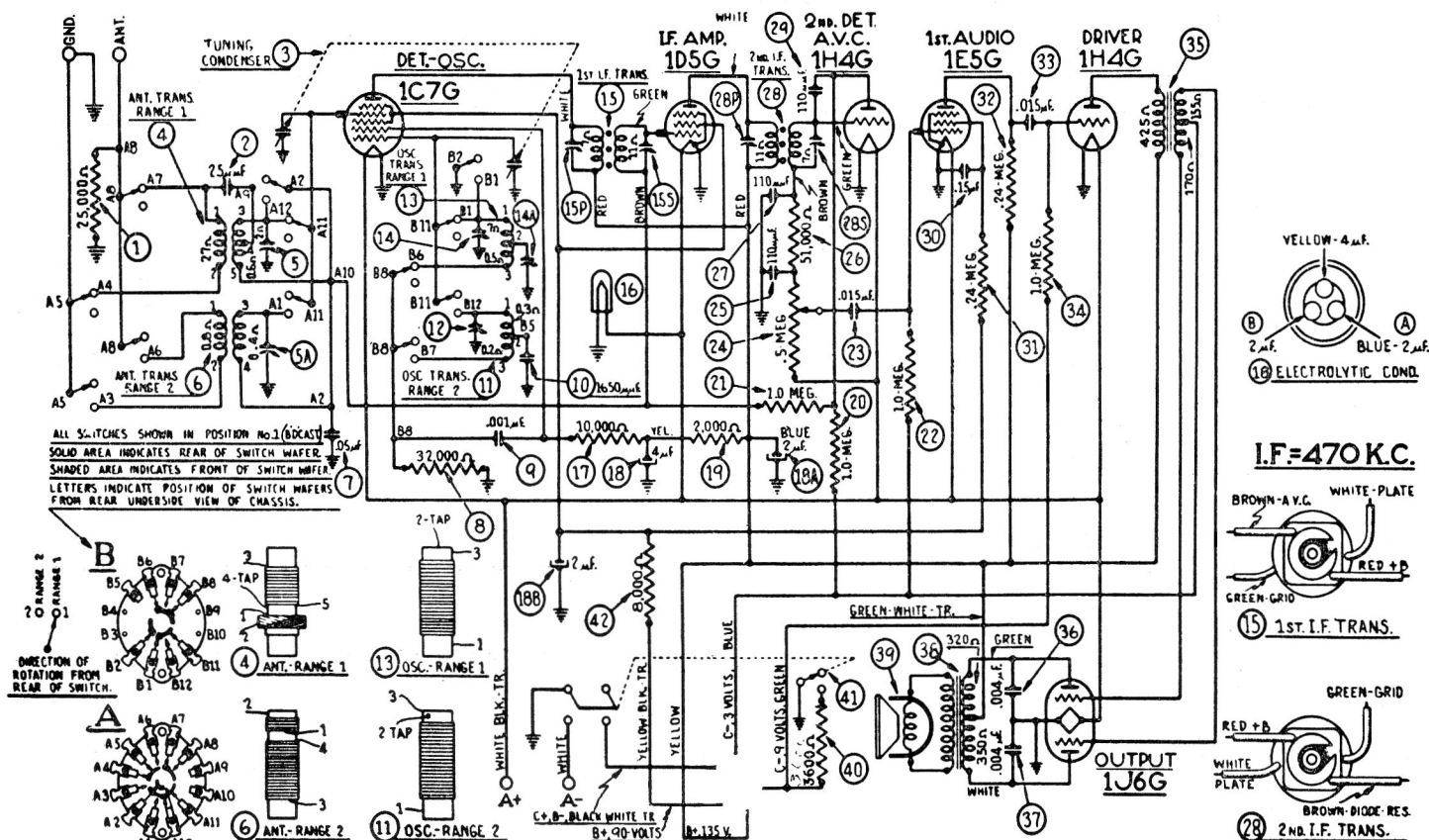


Fig. 4—View of Parts from Underside of Chassis



Replacement Parts—Model 37-338

Schem. No.	Description	Part No.
1	Resistor (25,000 ohm, 1/2 watt).....	33-325339
2	Condenser (25 mmfd. mica).....	30-1067
3	Tuning Condenser	31-1826
4	Antenna Transformer (Broad.)	32-2159
5	Compensator (Twin)	31-6120
6	Antenna Transformer (Police).....	32-2119
7	Condenser (.05 mfd. tubular).....	30-4444
8	Resistor (32,000 ohm, 1/2 watt).....	33-332339
9	Condenser (.001 mfd. tubular).....	30-4453
10	Cond. (1650 mmfd. semi-fixed)	31-6096
11	Oscillator Transformer (Police)	32-2121
12	Compensator (Single)	31-6101
13	Oscillator Transformer (Broad.)	32-2120
14	Compensator (Twin)	31-6100
15	1st I.F. Transformer	32-2100
16	Pilot Lamp	34-2150
17	Resistor (10,000 ohm, 1/2 watt).....	33-310339
18	Electrolytic Cond. (4-2-2 mfd.).....	30-2162
19	Resistor (2,000 ohm, 1/2 watt).....	33-220339
20	Resistor (1 megohm, 1/2 watt).....	33-510339
21	Resistor (1 megohm, 1/2 watt).....	33-510339
22	Resistor (1 megohm, 1/2 watt).....	33-510339

Figures in black type indicate circled figures in Base View.

Schem. No.	Description	Part No.
23	Condenser (.015 mfd. tubular)	30-4358
24	Volume Control	33-5165
25	Condenser (110 mmfd. mica).....	30-1031
26	Resistor (51,000 ohm, 1/2 watt).....	33-351339
27	Condenser (110 mmfd., mica).....	30-1031
28	2d I.F. Transformer	32-2102
29	Condenser (110 mmfd., mica).....	30-1031
30	Condenser (.15 mfd. bakelite).....	6287SG
31	Resistor (240,000 ohm, 1/2 watt)	33-424339
32	Resistor (240,000 ohm, 1/2 watt)	33-424339
33	Condenser (.015 mfd. tubular).....	30-4226
34	Resistor (1 megohm, 1/2 watt).....	33-510339
35	Audio Transformer (Interstage)	32-7637
36	Condenser (.004 mfd. tubular).....	30-4456
37	Condenser (.004 mfd. tubular).....	30-4456
38	Output Trans.—KR17, HR12.....	32-7639
39	Cone Voice Coil—KR17.....	36-3540
	Cone Voice Coil—HR12.....	36-3557
40	Resistor (3600 ohm, 1/2 watt).....	33-236344
41	Power Switch	33-5170
42	Resistor (8,000 ohms, 1/2 watt).....	33-280339
	Screen Bracket Assembly.....	31-1878
	Dial	27-5196
	Hub	28-7152
	Clamp	28-2837

Schem. No.	Description	Part No.
	Set Screw	W-1506
	Pilot Lamp Assembly.....	33-7875
	Vernier Drive	31-1863
	Socket—8 prong	27-6058
	Socket—7 prong	27-6057
	Tube Shield	28-2726
	Tube Shield Base.....	28-3898
	Volume Control Shaft.....	28-6498
	Shaft Spring	28-4117
	Washer	28-4186
	Washer "Spring"	4436
	Shaft Retaining Clip.....	28-8610
	Mounting Grommet R.F. Unit.....	27-4317
	Mounting Sleeve	28-2257
	Washer	W-425
	Screw	W-729
	Washer	28-3927
	Terminal Panel (I.F. Unit).....	33-7703
	Spacer	28-4001
	Cable Assembly (Battery).....	41-3216
	Cable (Speaker)	41-3207
	Knob, Tuning	27-4321
	Knob, Tone and Volume.....	27-4332
	Speaker, KR-17, B. Cabinet.....	36-1248
	Speaker, HR-12, J. Cabinet.....	36-1250