

Electrical Specifications

TYPE CIRCUIT:

Superheterodyne, with a High-Frequency tuning range; covering from 25 to 42 megacycles and a Push-Pull pentode audio output circuit.

POWER SUPPLY:

Voltage	Frequency	Power Consumption
115	50 to 60	130 watts
115	25 to 40	130 watts

Power transformers for the different voltage and frequency ratings are listed in the parts list.

INTERMEDIATE FREQUENCY:

470 K. C.

TUNING RANGES: Four.

- Range 1—530 to 1720 K. C.
- Range 2—2.3 to 7.4 M. C.
- Range 3—7.35 to 22 M. C.
- Range 4—25 to 42 M. C.

UNDISTORTED OUTPUT: 7 watts.

PHILCO TUBES USED: Nine.

Two 6K7G; two 6F6G; two 6J5G; one 6A8G; one 6K5G and one 5Y4G.

- SPEAKERS:** B Cabinet, K35. Part No. 36-1231.
X Cabinet, H26. Part No. 36-1238.

Aerial Connections

To obtain the full advantage of the sensitivity of this receiver the Philco High Efficiency Aerial supplied with the receiver must be used. The connections for the aerial are as follows:

The red and black leads of the High-Efficiency Aerial "transmission line" are connected to terminals 1 and 2 respectively, of the terminal panel provided on the rear of the chassis. Connect the jumper on the terminal panel across terminals 3 and 4.

If a temporary aerial is used, the jumper should be across terminals 2 and 3. The aerial connects to terminal 1 and the ground lead to terminal 3. A good ground connection is desirable in all installations.

Shadow Meter Adjustment

Remove aerial and allow tubes to warm up. Then adjust shadow meter as follows:

1. Move the shadow meter coil backwards and forwards, until the opposite edges of the shadow are $\frac{1}{8}$ of an inch from end of the shadow screen, measuring along the bottom edge of the screen. Adjustment of the shadow meter light bracket may be necessary for perfect centering.
2. Remove the rectifier tube from its socket, and rotate coil until shadow reaches minimum width. This width must not exceed $\frac{3}{16}$ of an inch.

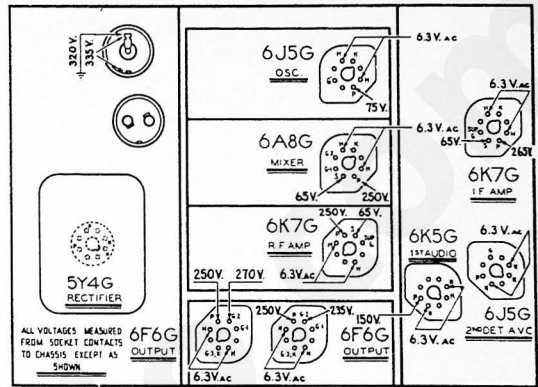


Fig. 1—Socket Voltages—Underside of Chassis View

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, line voltage 115 A. C.

3. Replace the 5Y4G rectifier tube in its socket. The shadow should then widen to not more than $\frac{3}{16}$ of an inch or less than $\frac{1}{16}$ inch from each side of the screen measuring along the bottom edge. If these limits are not obtained readjust the shadow meter as given in paragraphs 1 and 2 until they are reached.

Dial Calibration

In order to adjust this receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this rotate the tuning control to the extreme counter-clockwise position (maximum capacity). Loosen the set screw of the dial hub, then turn dial until the glowing indicator is centered on the middle index line of dial scale (see Fig. 5). Now tighten the dial hub set screw in this position.

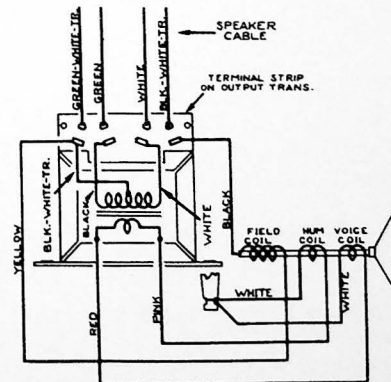
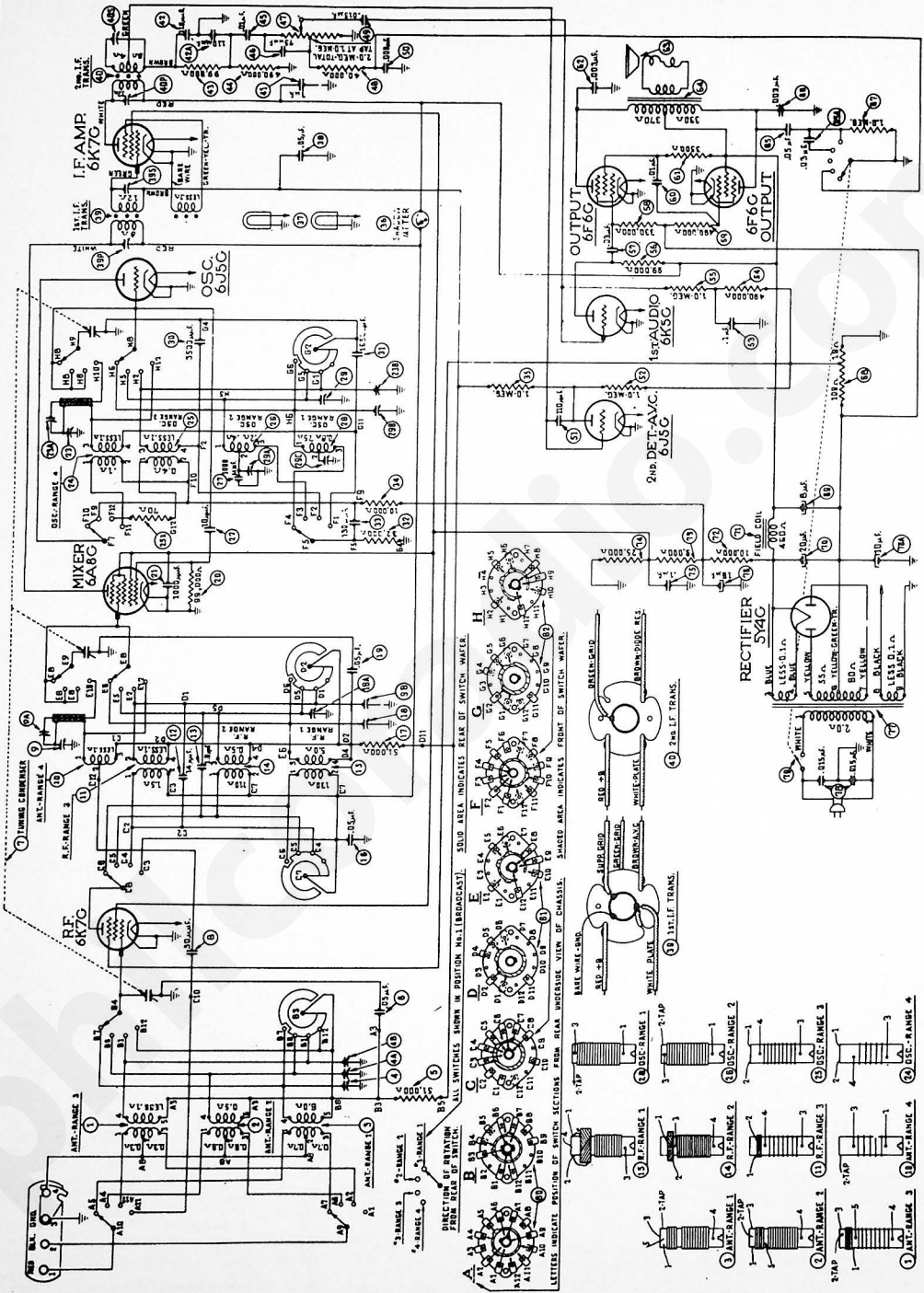


Fig. 2—Speaker Wiring, K-35, H-26



Model 37-665
Fig. 3—Schematic Diagram

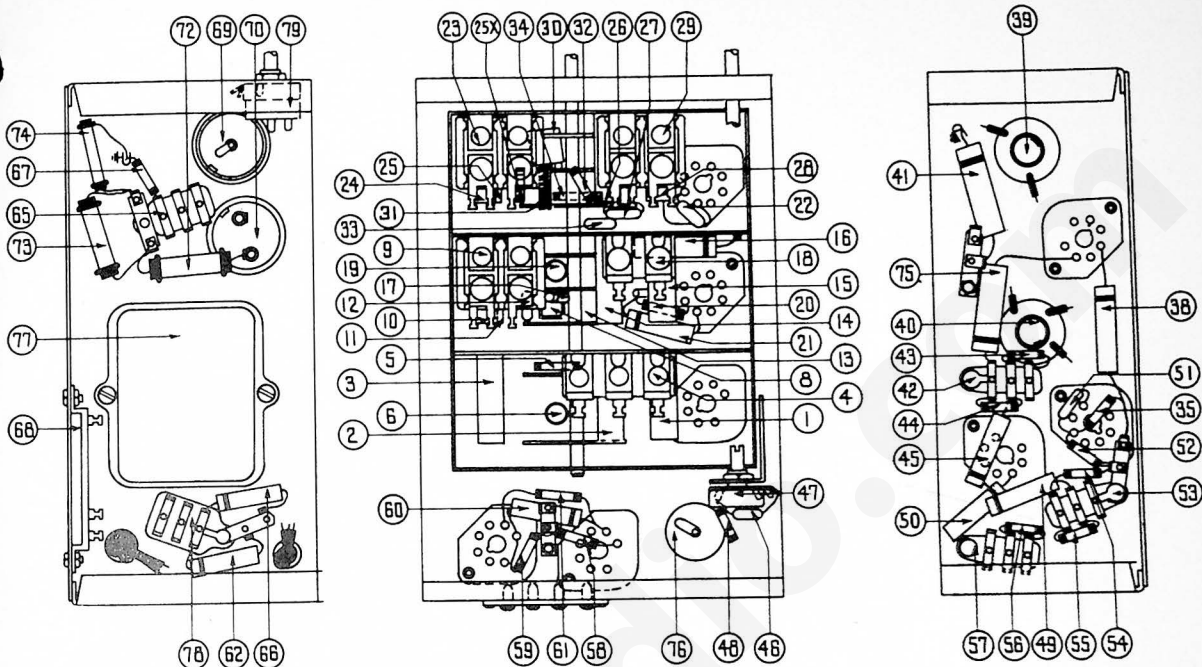


Fig. 4—Base View of Chassis

Replacement Parts—Model 37-665

Schem. No.	Description	Part No.	List Price	Schem. No.	Description	Part No.	List Price	Schem. No.	Description	Part No.	List Price
1	Antenna Transformer (Range 3)	32-2109	\$1.20	48	Resistor (40,000 ohms, ½ watt)	33-340339	\$0.20		Thrust Washer	28-3976	\$0.30 C
2	Antenna Transformer (Range 2)	32-2119	1.20	49	Condenser (.015 mfd. tubular)	30-4358	.20		"C" Washer	28-3904	.01
3	Antenna Transformer (Range 1)	32-2108	1.60	50	Condenser (.006 mfd. tubular)	30-4125	.20		Mask	27-5240	.30
4	Compensator (three section)	31-6092	.80	51	Condenser (.110 mfd. mica)	30-1031	.20		Mask Washer	27-5318	.30 C
5	Resistor (51,000 ohms, ½ watt)	33-351339	.20	52	Resistor (1.0 megohm, ½ watt)	33-410339	.20		Mask Arm & Link Assembly	31-1887	.45
6	Condenser (.05 mfd. tubular)	30-4444	.20	53	Condenser (.1 mfd. Bakelite)	4989-SG	.20		Mask Guide & Bracket	38-7876	.25
7	Tuning Condenser	31-1938	4.80	54	Resistor (490,000 ohms, ½ watt)	33-419339	.20		Indicator & Lens Assembly	31-1900	.30
8	Condenser (50 mfd. mica)	30-1029	.20	55	Resistor (1.0 megohm, ½ watt)	33-410339	.20		Volume Control Shaft	38-8060	1.12 C
9	Compensator (3 section)	31-6225	.20	56	Resistor (99,000 ohms, ½ watt)	33-396339	.20		Retaining Clip	28-4394	.01
10	Ant. Transformer (Range 4)	32-2192	.70	57	Condenser (.03 mfd. bakelite)	30-4469	.20		Socket rectifier	27-6032	.11
11	R. F. Transformer (Range 3)	2-2126	.70	58	Resistor (330,000 ohms, ½ watt)	33-433339	.20		Shield (Tube)	28-2726	.10
12	Condenser (14 mfd.)	30-1073	.20	59	Resistor (490,000 ohms, ½ watt)	33-449339	.20		Base (Shield)	28-3898	.03
13	Condenser (1.0 mfd.) twisted wire and lug	38-7878	.04	60	Condenser (.01 mfd. tubular)	30-4169	.20		Socket 7 prong	27-6057	.11
14	R. F. Transformer (Range 2)	32-2106	.70	61	Resistor (3500 ohms, ½ watt)	33-255339	.20		Socket 8 prong	27-6058	.11
15	R. F. Transformer (Range 1)	32-2105	1.00	62	Condenser (.003 mfd. tubular)	30-4469	.20		Socket rectifier	27-6032	.11
16	Condenser (.05 mfd. Tubular)	30-4123	.20	63	Cone & Voice Coil K35	36-3174	.80		Terminal Panel (Ant.)	38-7714	.15
17	Resistor (51,000 ohms, ½ watt)	33-351339	.20		Cone & Voice Coil H26	36-3801	.20		Grommet Mtg. R. F. Unit	27-4317	.04
18	Compensator (two section)	31-6093	.40	64	Output Transformer K35 and H26	32-7634	1.50		Sleeve Mtg. R. F. Unit	27-7807	.50 C
19	Condenser (.05 mfd. Tubular)	30-4444	.20	65	Condenser (.05, .03 mfd. dual bakelite)	3615-YU	.40		Scram Mtg. R. F. Unit	W-729	45 C
20	Resistor (99,000 ohms)	33-396339	.20	66	Condenser (.003 mfd. tubular)	30-4469	.20		Rubber Mtg. (Gang Condenser)	27-4235	.02
21	Condenser (100 mfd.)	30-4458	.20	67	Resistor (1.0 megohm, ½ watt)	33-410339	.20		Spring Mtg. Shadowmeter	28-8623	.70 C
22	Condenser (10 mfd.)	30-1065	.20	68	Resistor (128 ohms, wirewound)	33-3280	.30		Plate Mtg. R. F. Transformer	28-3808	.02
23	Compensator (three section)	31-6225	.20	69	Electrolytic Condenser (8 mfd.)	30-2024	1.10		Spacer Mtg. R. F. Transformer	27-8228	.01
24	Osc. Transformer (Range 4)	32-2196	1.20	70	Electrolytic Condenser (10, 20 mfd.)	30-2163	2.40		Screw Mtg. R. F. Transformer	W-1635	.30 C
25	Osc. Transformer (Range 3)	32-2110	.70	71	Field Coil Assembly K35 and H26	36-3667	4.00		Shield (Receiver Bottom)	38-8316	.75 C
26	Resistor (70 ohms, ½ watt)	33-470339	.20	72	Resistor (100,000 ohms, ½ watt)	33-396339	.30		Snaps Fasteners	41-3202	.10
27	Osc. Transformer (Range 2)	32-2421	.70	73	Resistor (9,000 ohms, 2 watt)	33-290539	.30		Cable Speaker	41-3279	.75 C
28	Condenser (1000 mfd. mica—Green, White)	30-1007	.30	74	Resistor (25,000 ohms, 1 watt)	33-325439	.20		A. C. Cord	L-2183	.40
29	Osc. Transformer (Range 1)	32-2120	1.00	75	Condenser (.1 mfd. tubular)	30-4170	.25		Knob (tuning)	27-4330	.10
30	Compensator (four section)	31-4108	1.00	76	Condenser (.1 mfd. tubular)	30-4170	.25		Knob (tuning vernier)	27-4331	.10
31	Resistor (10 megohm)	31-6097	.50	77	Electrolytic Condenser (16 mfd.)	30-2118	1.65		Knob (tone & volume)	27-4332	.10
32	Condenser (1650 mfd.)	31-6096	.40		Power Transformer 115 V., 50 to 60 cycles	32-7606	6.25		Knob Range Switch	27-4326	.10
33	Resistor (32,000 ohms, ½ watt)	33-332339	.20		Power Transformer 115/220 V., 50 to 60 cycles	32-7607	9.00		Receptacle (Shadowmeter)	41-3225	.40
34	Condenser (130 mfd.)	30-1050	.25		Power Transformer 115/220 V., 50 to 60 cycles	32-7608	8.00				
35	Resistor (10,000 ohms, ½ watt)	33-310339	.20	78	Condenser (.015 mfd. dual bakelite)	3793-DG	4.00		"B" CABINET		
36	Resistor (1.0 megohm, ½ watt)	33-310339	.20	79	Power & Tone Control Switch	42-1184	.75		Speaker K35	36-1731	7.25
37	Shadowmeter	45-2077	2.50	80	Range Switch Ant.	42-1227	1.25		Baffle & Silk Assembly	40-5975	.40
38	Shadowmeter and Pilot Lamp	34-2039	.07	81	Range Switch R. F.	42-1228	1.60		Bezel Assembly	27-5316	.75
39	Condenser (.05 mfd. tubular)	30-4020	.20	82	Range Switch Osc.	42-1229	1.60		Gasket	27-3313	.01
40	1st I. F. Transformer	32-2169	1.80		Switch Index Plate & Shaft	42-1186	.30		Screw	W-1644	.50 C
41	2nd I. F. Transformer	32-2171	1.90		Pilot Lamp Assembly	38-7706	.35		Glass	27-8299	.06
42	Condenser (110 mfd. Dual Bakelite)	8038-DG	.25		Dial	27-5244	.70		Ring	28-3987	.40
43	Resistor (99,000 ohms, ½ watt)	33-396339	.20		Hub	28-7187	.12		"X" CABINET		
44	Resistor (490,000 ohms, ½ watt)	33-449339	.20		Clamp	28-2837	.10		Speaker H26	36-1238	8.25
45	Condenser (.01 mfd. tubular)	30-4124	.25		Set Screw	W-1641	.02		Bezel Assembly	40-5948	.80
46	Condenser (75 mfd. mica)	30-1031	.20		Gear (Dial)	28-7185	.10		Gasket	27-8300	.06
47	Volume Control	33-5158	1.00		Gear (Drive)	31-1884	.25		Ring	38-3988	.70
					Thrust Spring	28-8811	.01		Speaker Baffle	16276	.70
									Silk	44-1165	.40

Prices Subject to Change Without Notice

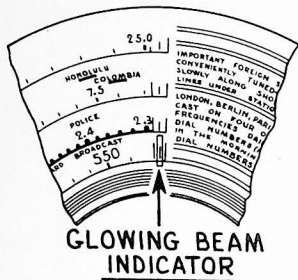


Fig. 5—Dial Calibration

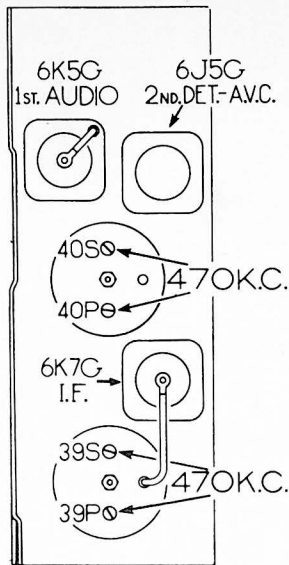


Fig. 6—I. F. Compensators

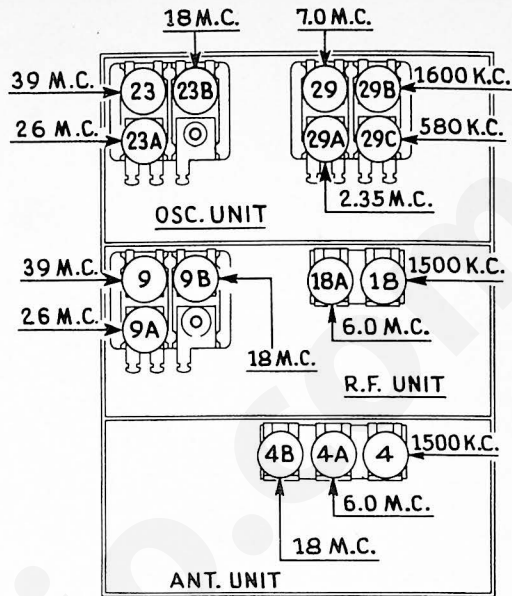


Fig. 7—R. F. Compensators

Alignment of Compensators

EQUIPMENT REQUIRED: (1) Signal Generator; Philco Model 088 (fundamental frequency 110 to 20000 K. C.) is the correct instrument for this purpose; (2) output meter. Philco Model 025 Circuit Tester incorporates an accurate, sensitive output meter and is recommended; (3) Fibre handle screw-driver (Philco Part No. 27-7059); (4) Special variable condenser (Philco Part No. 45-2325).

OUTPUT METER: The 025 Output Meter is connected between the plate and cathode prongs of one of the 6F6G tubes. The meter is adjusted to use the (0-30) volt scale.

INTERMEDIATE FREQUENCY CIRCUIT

- Set controls as follows:
 - Range switch position one (broadcast)
 - Receiver dial 580 K. C.
 - Volume control maximum
 - Signal generator 470 K. C.
 - Connect the 088 signal generator output lead through a .1 mfd. condenser to the control grid of the 6A8G tube and the generator ground connection to the chassis.
- Adjust the following I. F. compensators for maximum output: (39P), (39S), (40P) and (40S).

RADIO FREQUENCY CIRCUIT

Tuning Range (28 to 42 M. C.)

- Set controls as follows:
 - Range switch position 4
 - Connect the signal generator output lead and ground to terminals 1 and 3 respectively on the aerial input panel. Terminals 2 and 3 must be connected with the shorting link provided on the aerial panel.
- Adjust compensators as follows for maximum output:

Signal Generator	Receiver Dial	Compensators in Order
13 M. C.	39 M. C.	(23) Check image signal at 38.06 on the Receiver Dial. (See Note A)
13 M. C.	39 M. C.	(9) Roll gang
13 M. C.	26 M. C.	(23A)
13 M. C.	26 M. C.	(9A)
13 M. C.	39 M. C.	(23) check image (Note A)
13 M. C.	39 M. C.	(9) Roll gang

Tuning Range 7.35 to 22 M. C.

- Set controls and adjust compensators for maximum output as follows: Range Switch Position 3.

Signal Generator & Receiver Dials	Compensators in Order
18 M. C.	(23B) check image 17.06 M. C.
18 M. C.	(9B), (4B) use shunt condenser on (23B). See Note B

Tuning Range 2.3 to 7.4 M. C.

- Range Switch Position 2
 - Signal Generator & Receiver Dials
- | Signal Generator & Receiver Dials | Compensators in Order |
|-----------------------------------|-----------------------|
| 7.0 M. C. | (29), (18A), (4A) |
| 2.35 M. C. | (29A) |
| 7.0 M. C. | (29) |
| 6.0 M. C. | (18A), (4A) |

Tuning Range 530 to 1720 K. C.

- Range Switch Position 1
 - Signal Generator & Receiver Dials
- | Signal Generator & Receiver Dials | Compensators in Order |
|-----------------------------------|-----------------------|
| 1600 K. C. | (29B), (18), (4) |
| 580 K. C. | (29C) Roll gang |
| 1600 K. C. | (29B) |
| 1500 K. C. | (18), (4) |

NOTE "A"—To accurately adjust the compensator to the fundamental and not the image signal, turn the oscillator compensator to the maximum capacity position clockwise. Then slowly turn the compensators counter-clockwise until a second maximum peak is obtained on the output meter. The first peak is the image signal and the receiver must not be adjusted to it. If the above procedure is correctly performed, the image signal will be found 940 K. C. below the frequency being used on any high frequency band.

NOTE "B"—To eliminate the effect of the Ant. and R. F. compensators detuning the Osc. circuit, a variable tuning condenser, Philco Part No. 43-2325 is connected from the oscillator compensators to ground when designated in the padding instruction above. Tune the added condenser from the minimum capacity position until the second harmonic of the receiver oscillator beats against the signal from the generator, resulting in a maximum indication on the output meter. Then adjust compensators as noted for maximum output.

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