

Philco Radio & Television Corp.

Model: **660**

Chassis:

Year: **Pre October 1936**

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

Riders Volume 6 - PHILCO 6-40

Riders Volume 6 - PHILCO 6-41

Riders Volume 6 - PHILCO 6-42

Riders Volume 7 - PHILCO 7-150

MODEL 660
Alignment
Trimmers

PHILCO RADIO & TELEV. CORP.

ADJUSTING COMPENSATING CONDENSERS

Adjustment of compensating condensers in Model 660 requires an accurate signal generator covering long-wave, standard wave, police, and short-wave frequencies. The PHILCO Model 088 All-Wave Signal Generator, having a continuous range of from 100 to 20,000 K.C. (all fundamental frequencies) will be ideal for this purpose.

An output meter is also needed. PHILCO Model 025 Circuit Tester includes a high-grade output meter.

Philco No. 3164 fibre wrench and No. 27-7059 fibre handled screwdriver complete the equipment needed for making these adjustments. The locations of the various compensating condensers are shown in Fig. 2. Connect the output meter to the plate contacts of the output tubes (using the adapters provided with the "025") and set it at the 0-30 volt range.

I.F.—Set the Signal Generator at 460 K.C., and attach its antenna lead to the grid cap of the 77 1st detector tube (having removed the grid clip from the tube). Connect the ground terminal of the Signal Generator to the ground terminal of the set. Turn on the set, turn the waveband switch to standard broadcast (second position from left) and set dial at 60. Turn condenser ④ (2nd I.F. tertiary) all the way down before adjusting the other I.F. Compensators. Now with the fibre screwdriver, adjust condensers ⑦ and ⑥ (3rd I.F.), ⑥ and ⑧ (2nd I.F.), and then ④ and ⑤ (1st I.F.) until maximum reading is obtained in the output meter. Turn down the "attenuator" on the signal generator if the output meter needle goes off the scale. Now adjust condenser ④ (2nd I.F. tertiary) for maximum reading.

WAVE TRAP—Connect the Signal Generator antenna lead to the grid cap of the 78 R.F. tube. Replace the grid clip on the 77 tube cap. With the signal generator operating at 460 K.C. and the set controls adjusted as for I.F., adjust wavetrap ⑩ until the minimum reading is obtained in the output meter.

SHORTWAVE—Turn wave band switch to the shortwave position (extreme right). Set signal generator at 18 megacycles and dial of set at 18.0 (top scale). Now adjust the oscillator, Antenna, and R.F. shortwave compensators in turn, for maximum reading. These are ⑫, ⑬ and ⑪ respectively.

POLICE AND AMATEUR BAND—Turn the waveband switch to position 3 (from left). Set the dial and signal generator at 4.5 megacycles and adjust condensers ⑭, ⑮ and ⑯ respectively for maximum reading.

Set the signal generator at 1800 K.C. and turn the dial to 1.8. Adjust condenser ⑰ (nut), oscillator police series, to maximum reading.

STANDARD BROADCAST BAND—Turn the waveband switch to position 2 (from left). Set the dial and signal generator at 1500 K.C. and adjust condensers ⑱, ⑲ and ⑳ for maximum reading.

Set the dial and signal generator at 600 K.C. and adjust condenser ㉑ (screw), broadcast series, for maximum reading.

LONGWAVE BAND—Turn waveband switch to position 1 (left). Set the dial and signal generator at 340 K.C. and adjust condenser ㉒ (screw) to maximum. Then adjust ㉓ and ㉔ for maximum reading. Finally, set the dial and signal generator at 175 K.C. and adjust condenser ㉕ (nut) for maximum reading. This is the longwave series compensator.

General Specifications

Type Circuit: Superheterodyne, with push-pull pentodes connected as triodes in output; output 10 watts; built in connections for Philco All-wave aerial; aerial selector built into and operated by wave-band switch.

Power Supply: Alternating Current. Voltage and frequency as specified on chassis nameplate.

Tubes Used: Ten (10) Total: 1 type 78 R.F., 1 type 77 1st detector, 1 type 76 oscillator, 2 type 78 I.F., 1 type 75 2nd detector 1st audio, 1 type 42 driver, 2 type 42 output, 1 type 80 rectifier.

Wave Bands: Four—(1) Shortwave; (2) Police and amateur; (3) Standard Broadcast; (4) Longwave (weather forecasts).

Frequency Ranges: Band (1)—5.7-18.0 Megacycles; Band (2)—1.75-5.8 Megacycles; Band (3)—540 to 1750 K.C.; Band (4)—150-390 K.C.

Program Control: 4 positions: (1) Mellow, (2) Brilliant, (3) Normal, (4) Noise reducing. Last two positions recommended for foreign short wave stations.

Tuning Meter: Shadow type tuning meter, mounted directly above scale.

Waveband Indicator: Glowing arrow on tuning scale shifts to proper scale when waveband switch is turned.

Automatic Volume Control: Fully effective on all stations.

Bass Compensation: Automatic; Effective on first two positions of program control, with volume control turned down.

Tuning Drive: Dual planetary, ball bearing. 80 to 1 ratio for slow-speed tuning, 10 to 1 on main knob.

Intermediate Frequency: 460 K.C.

Power Consumption: 90 watts.

Speaker: Type H-13.

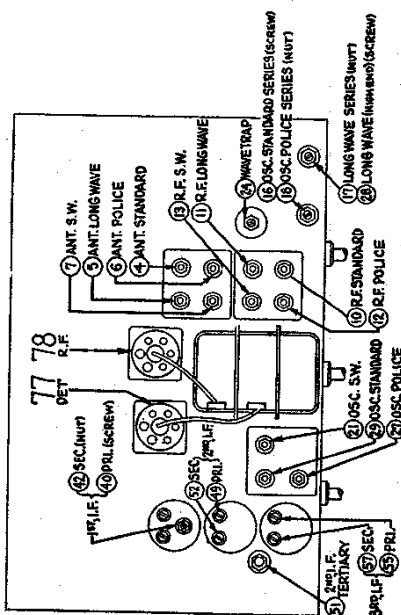


Fig. 2. Location of Compensating Condensers

I. F. — 460 K. C.

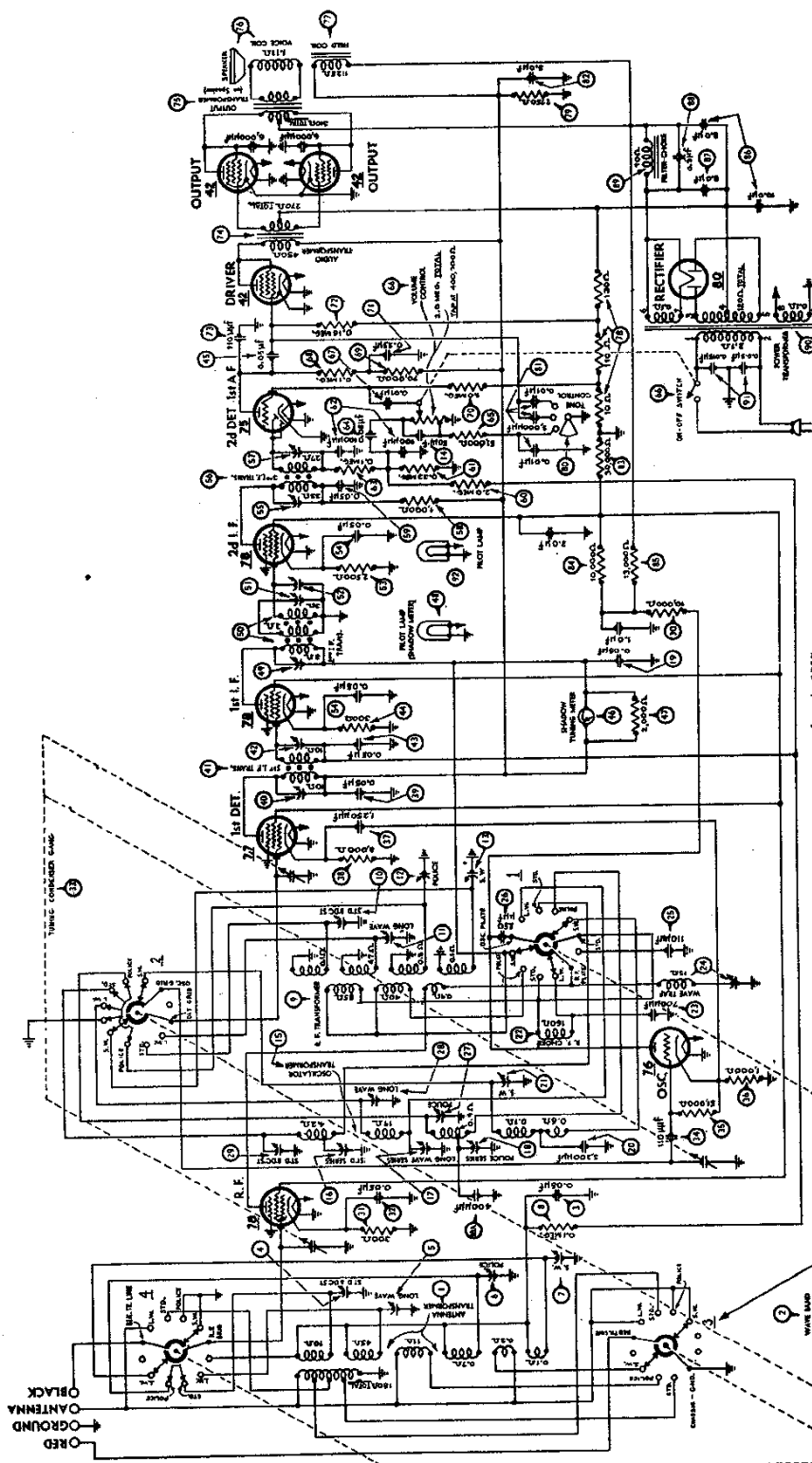


Figure 3 — Schematic Diagram — Model 660

August, 1935

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10 0-004
ALL Switch Sections Shown
In Position No. 4.

Numbers Indicate Relating Post-
tions of Switch Sections as seen
from Front of Chassis.

MODELS 650,660,680(122)

Parts Catalog PHILCO RADIO & TELEV. CORP.

Changes

MODEL 650

Approximate Date of Change	Run No.	CHANGES	
8-1-35	9	Add Part No. 27-8001 Bezel Light Guard. Part ⑥ on base view in bulletin should be 2nd I. F., Part ⑥, 1st I. F. PRICE CORRECTION— Part No. 33-3211 ⑥ resistor; correct list price is \$.65 instead of \$1.60. Part No. 30-4185 tubular condenser (used in several models) price changed from \$0.40 to \$0.25 list. Effective July 15, 1935.	
Part	Remove	Schematic No.	Install
1st I. F. Transformer	32-1835	⑥	32-1917
Condenser	3615-DG		3615-DU
Rubber Bumper	27-4150		
Bezel Glass Gasket	27-7981		27-8036
Bezel Frame Gasket			27-7972
Conversion Code 121 to 123 (RX) —			
Electrolytic Condenser	30-2025	③	7464
Dial Assembly	31-1533		31-1651
Line Cord	L-943A		
Antenna Power Cord			41-3104
Shadow Meter	45-2086	②	45-2082
Tone Control	30-4343	②	30-4378
By-Pass Condenser	3615-SU	②	3615-OSU
By-Pass Condenser	6287-DU	②	6287-ODU
By-Pass Condenser	3615-SG	②	3615-OSG
By-Pass Condenser	3793-DG	②	3793-ODU
By-Pass Condenser	3613-DU	②	3615-ODU
By-Pass Condenser	8035-DG	②	8035-ODG

9-1-35 12 Replace Part No. 30-4351 ② Tone Control with Part No. 30-4379 . 110 mmfd. condenser, Part No. 30-1081 ② removed.

Code 123, Run No. 3. Code 121, Run No. 12. Code 151, Run No. 11. Code 122, Run No. 9.

Part	Old Part	New Part
Resistor ⑥	5385 (70,000 ohms)	33-1115
Resistor ⑥	6208 (15,000 ohms)	33-1177
Resistor ⑥	5310 (5,000 ohms)	6096
Resistor ⑥	5837 (1,000 ohms)	33-1028
	Wiring Panel	38-6151

These changes made to reduce hum.

MODEL 660

9-1-35	8	Remove rubber bumper, Part No. 31-1706, (to prevent microphonics). E. C. Resistors ③, Part No. 33-2020, in Bulletin No. 223, should be 33-3020. Compensating Condenser No. ② in Fig. 2 is labelled "standard." it should be "police"; also Condenser No. ② is labelled "police" and should be "standard."
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Part	Old Part	New Part
Tone Control (Code 121)	30-4343	30-4378
2nd I. F. Transformer ⑥	32-1734	32-1865
Tone Control (Code 122)	30-4351	30-4379

11-1-35 .. Shadow meter shunt resistor (2000 ohms) Part ⑥, Part No. 6984, removed.
Reverse Numbers ② and ③ shown in Fig. 2.

Part	Schematic No.	Old Part	New Part
Condenser	5	② 30-4123 (.05 mf.)	30-4170 (.1 mf.)
Tuning Condenser	3	③ 31-1706	31-1685
Dial Hub Assembly		31-1575	31-1724

12-1-35 .. September Change Notices indicated a change of the 2nd I. F. Transformer ⑥. The Part Number of the new Transformer is 32-1865 and the corresponding Compensating Condenser Number is 31-6067.

MODEL 680 (Code 122)

Approximate Date of Change	Run No.	CHANGES
11-1-35	4	240,000 ohm resistor, Part No. 33-1097, added, connected from wiper arm (center terminal) to bottom terminal of bass control. The correct Part Number (163) on Parts List is 30-4113. Part No. of Large (H Type) Acoustic Clarifier is 36-1158.
12-1-35	5	Shadow Meter (120), Part No. 45-2088 is replaced with No. 45-2083. Shunt Resistor (121), Part No. 7352 (6,000 ohms) removed.
	6	Sensitivity Control (85), Part No. 33-5124 is replaced with Part No. 33-5144. The correct number and price for Input Transformer (157) is 32-7447 at \$3.00.

U-7 SPEAKER

9-1-35 .. The correct cone assembly number for the type U-7 speaker is 36-3381.

CORRECTIONS IN 1936 PHILCO PARTS CATALOG

Tubular Paper Condenser 30-4346 should be 30-4336, working voltage, 1000.

Tubular Condenser Kit (page 18), Part No. 45-1100 should be 45-1139.

Tuning Condenser 31-1039 should be 31-1106, list \$5.30.

Tuning Condenser 31-1006 should be 31-1005, list \$4.00.

Potentiometer, Part No. 33-5511 should be 33-5111.

I. F. Amplifier Kit, Part No. 38-6685 should be 38-7453, list \$6.15.

I. F. Amplifier Kit complete should be Part No. 40-5814, list \$8.81.

Headphones only should be Part No. 45-2098 instead of 8303.

Filter Choke (in short-wave section) should be Part No. 5643 instead of 5463.

Power Amplifier Output Transformer 32-7055 should be 32-7255, list \$15.00 instead of \$4.50.

Heavy Duty Resistor, Part No. 33-3134 should be 33-3176.

Heavy Duty Resistor, Part No. 33-3135 should be 33-3175.

Knobs, Part No. 24-4051 should be 27-4051.

Cones, replacement for K-13 and K-17 speakers should be 36-3159, list \$0.80 instead of 02996 (list \$0.90).

Field Coil, S-15 Speaker should be 36-3519 instead of 36-3579.

PRICE CORRECTIONS IN 1936 CATALOG

	Price Listed	Correct Price
30-2073 Elec. Cond. _____	\$5.75	\$3.15
30-2077 Elec. Cond. _____	3.15	5.75
4234 Power Trans. _____	7.50	7.00
3868 Power Trans. _____	7.50	9.00
32-7067 Amp. Power Trans. _____	30.00	34.00
32-7032 Amp. Power Trans. _____	36.00	35.00
38-6057 Vibrator _____	6.00	5.00
L-1640 Wire _____ (per 100 feet)	2.50	2.00
907-000 Wire _____ (per 100 feet)	1.50	1.85