PHILCO

REG. U.S. PAT. OFF.

Service Bulletin No. 219

Model 630

Type Circuit: Superheterodyne, with preselector R.F. amplifier, and pentode output (5 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: 1 type 78, R.F.; 1 type 6A7, Detector-Oscillator; 1 type 78, I.F.; 1 type 75, 2d Detector and 1st A.F.; 1 type 42 Output; 1 type 80 Rectifier.

Wave Bands: Three—(1) standard (with some Police); (2) Police, Aircraft and Amateur; (3) Short-wave.

Coverage of Each Band: Band 1, 540-1720 K.C.; Band 2, 1750 to 5800 K.C. (1.75-5.8 megacycles); Band 3, 5700-18000 K.C. (5.7 to 18.0 megacycles).

Tuning Drive: Two-speed gear drive, ball bearing. 50 to 1 ratio for slow-speed tuning.

Tone Control: 3-position, with bass compensation effective in first position.

Intermediate Frequency: 460 K.C.

Power Consumption: 70 watts.

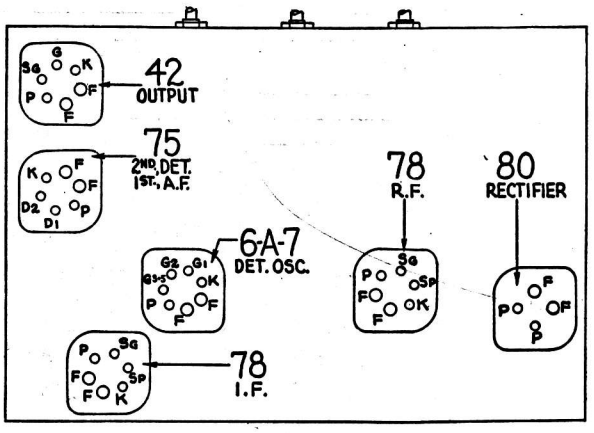

Fig. 1. Tube Sockets as viewed from bottom

Tube Socket Voltages
Measured to Ground

Tube	78 R.F.	6A7 Det. Osc.	78 I.F.	75 2d Det.	42 Output
Point P	245	245	245	188	298
SG	102	102	102	...	311
K	2.7	2.6	2.6	...	...
	6A7: $G_{3\ \&\ 5}$ = 175				

Above voltages were obtained by using a PHILCO type 025 Circuit Tester (or 048A All-purpose Tester), using test prods applied to underside of chassis. Volume control at maximum; dial at 55; waveband switch counter-clockwise (band 1). Use Fig. 1 for test points. Line voltage 115 volts.

Power Transformer Data

Terminals	A.C. Volts	Current	Circuit	Color
1–2	120	.....	Primary	White
3–5	746	78 M.A.	Secondary	Yellow
6–7	5.0	2.0 A.	Fil. Rect.	Blue
8–9	6.3	2.25 A.	Filaments	Black
4	...	.....	Center Tap of 3-5	Yellow, Green Tracer

Adjusting Compensating Condensers
Model 630

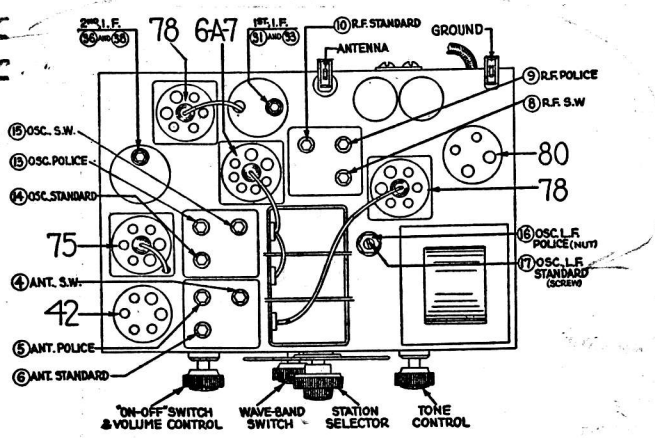

Fig. 2. Location of Compensating Condensers

The adjustment of the compensating condensers in Model 630 requires a signal generator covering the broadcast and police band, and also one capable of producing a signal at certain frequencies in the short wave band. Philco Model 088 All-wave signal generator is ideal for these requirements. Or you can use the Philco Model 024 or 048A instrument for the broadcast frequencies, and the Model 091 crystal controlled short wave signal generator for the "short wave" frequencies. The location of all compensating condensers is shown in Fig. 2. An output meter is also needed, such as in Philco Model 025

Adjustment of I. F.

1. Remove the antenna connection from the receiver, disconnect the grid clip from the first detector (type 6A7 tube), and connect the "ANT" output terminal of the broadcast signal generator to the grid cap of this tube; connect the "GND" terminal of the signal generator to the "GND" terminal of the receiver.

2. Connect the 0 to 30 volt range of the output meter in the Philco 048A or 025 unit to the plate and cathode of the output tube or to the two bottom prongs of the speaker plug.

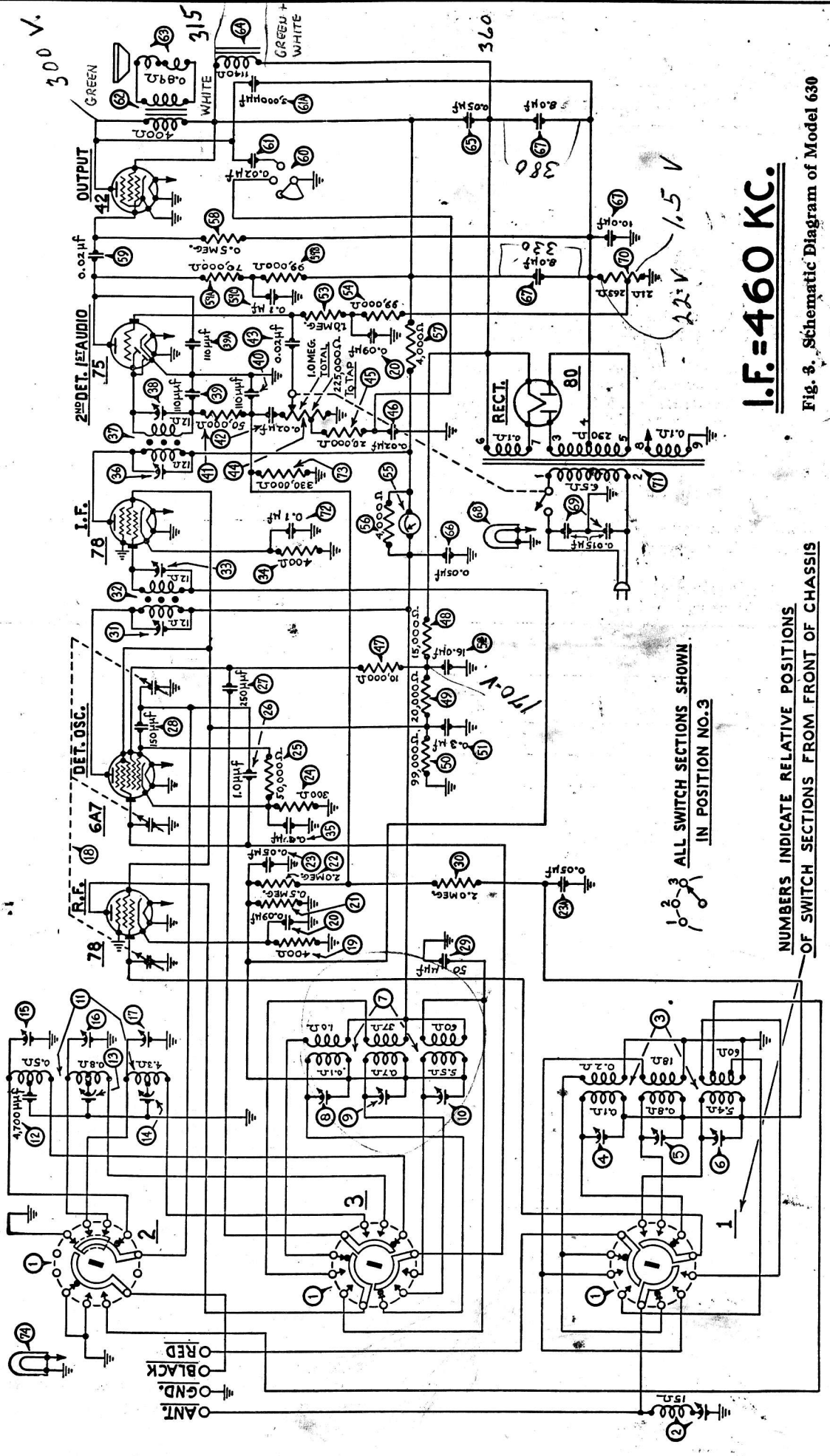

Fig. 3. Schematic Diagram of Model 630

Replacement Parts—Model 630

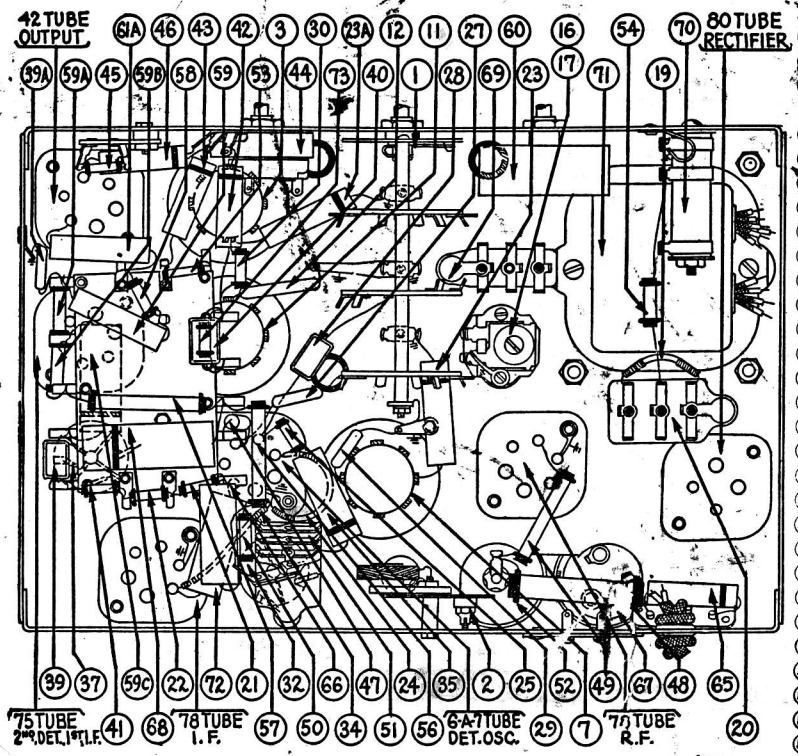

Fig. 4. Bottom View of Chassis

	Description	Part No.	List Price
①	Wave Band Switch	42-1107	$1.75
②	Wavetrap	38-6850	1.10
③	Antenna Transformer	32-1699	3.00
④	Compensating Condenser (Ant. S.W.)	Part of ③	....
⑤	Compensating Condenser (Ant. Police)	Part of ③	....
⑥	Compensating Condenser (Ant. Standard)	Part of ③	....
⑦	R. F. Transformer	32-1636	3.25
⑧	Compensating Condenser (R.F. Short-Wave)	Part of ⑦	....
⑨	Compensating Condenser (R.F. Police)	Part of ⑦	....
⑩	Compensating Condenser (R.F. Standard)	Part of ⑦	....
⑪	Oscillator Transformer	32-1637	2.50
⑫	Condenser (.0047 Mfd. Mica)	30-1052	.60
⑬	Compensating Condenser (Osc. Police)	Part of ⑪	....
⑭	Compensating Condenser (Osc. H. F. Standard)	Part of ⑪	....
⑮	Compensating Condenser (Osc. S. W.)	Part of ⑪	....
⑯	Compensating Condenser (Osc. L.F. Police)	Part of 31-6027	.70
⑰	Compensating Condenser (Osc. L.F. Standard)	Part of 31-6027	
⑱	Tuning Condenser Assembly	31-1526	2.75
⑲	Resistor (400 ohms Flexible) (Yellow, Black, Brown)	33-3016	.20
⑳	Condenser (.09 Mfd. Twin Bakelite Block)	4989-DG	.40
㉑	Resistor (.5 Meg.) (Yellow, White, Yellow)	6097	.20
㉒	Resistor (2 Megs.) (Red, Black, Green)	33-1025	.20
㉓	Condenser (.05 Mfd. Tubular)	30-4020	.35
㉓a	Condenser (.05 Mfd. Tubular)	30-4020	.35
㉔	Resistor (300 ohms Flexible) (Orange, Black, Brown)	33-3010	.20
㉕	Resistor (50000 ohms) (Green, Brown, Orange)	6098	.20
㉖	Condenser (1 Mmfd.)	Part of ⑱	....
㉗	Condenser (.00025 Mfd. Mica)	30-1032	.35
㉘	Condenser (.00015 Mfd. Mica)	30-1033	.35
㉙	Condenser (.00005 Mfd. Mica)	30-1029	.35
㉚	Resistor (2 Megs.) (Red, Black, Green)	33-1025	.20
㉛	Compensating Condenser (1st I.F. Primary)	Part of ㉜	....
㉜	1st I.F. Transformer	32-1646	$2.25
㉝	Compensating Condenser (1st I.F. Secondary)	Part of ㉜	....
㉞	Resistor (400 ohms Flexible) (Yellow, Black, Brown)	33-3016	.20
㉟	Condenser (.1 Mfd. Tubular)	30-4122	.35
㊱	Compensating Condenser (2nd I.F. Pri.)	Part of ㊲	....
㊲	2nd I.F. Transformer	32-1647	2.25
㊳	Compensating Condenser (2nd I.F. Sec.)	Part of ㊲	....
㊴	Condenser (.00011 Mfd. Mica)	30-1031	.35
㊴a	Condenser (.00011 Mfd. Mica)	30-1031	.35
㊵	Condenser (.00011 Mfd. Mica)	30-1031	.35
㊶	Resistor (50000 ohms) (Green, Brown, Orange)	6098	.20
㊷	Condenser (.02 Mfd. Tubular)	30-4215	.30
㊸	Condenser (.02 Mfd. Tubular)	30-4215	.30
㊹	Volume Control and On-Off Switch	33-5105	1.45
㊺	Resistor (20000 ohms) (Red, Black, Orange)	33-1178	.20
㊻	Condenser (.02 Mfd. Tubular)	30-4215	.30
㊼	Resistor (10000 ohms) (Brown, Black, Orange)	4412	.20
㊽	Resistor (15000 ohms) (Brown, Black, Orange)	5718	.35
㊾	Resistor (20000 ohms) (Red, Black, Orange)	6649*	.20
㊿	Resistor (99000 ohms) (White, White, Orange)	6099‡	.20
(51)	Condenser (.3 Mfd. Bakelite Block)	6287-DG	.40
(52)	Condenser (16 Mfd. Electrolytic)	30-2118	1.65
(53)	Resistor (1 Meg.) (Brown, Black, Green)	33-1096	.20
(54)	Resistor (99000 ohms) (White, White, Orange)	6099	.20
(55)	Shadow Tuning Meter	45-2086	2.00
(56)	Resistor (4000 ohms) (Yellow, Black, Red)	33-1040	.20
(57)	Resistor (4000 ohms) (Yellow, Black, Red)	7832	.20
(58)	Resistor (.5 meg.) (Yellow, White, Yellow)	6097	.20
(59)	Condenser (.02 Mfd. Tubular)	30-4113	.30
(59)a	Resistor (70000 ohms) (Violet, Black, Orange)	5385	.20
(59)b	Resistor (99000 ohms) (White, White, Orange)	6099	.20
(59)c	Condenser (.1 Mfd. Tubular)	30-4122	.35
(60)	Tone Control (3 position)	30-4332	.75
(61)	Condenser in Tone Control	Part of (60)	....
(61)a	Condenser (.003 Mfd. Tubular)	30-4042	.25
(62)	Output Transformer	32-7178	1.60
(63)	Voice Coil & Cone Assembly (K-32)	36-3159	.80
(64)	Field Coil & Pot Assembly (K-32)	36-3498	3.25
(65)	Condenser (.05 Mfd. Tubular)	30-4020	.35
(66)	Condenser (.05 Mfd. Tubular)	30-4020	.35
(67)	Condenser (8 Mfd., 8 Mfd., 10 Mfd. Electrolytic)	30-2073	2.15
(68)	Pilot Lamp (Shadow Tuning Meter)	Part of (55)	....
(69)	Condenser (.015 Mfd. Twin Bakelite Block)	3793-DG	.40
(70)	Resistor (BC Wirewound—21 ohms, 263 ohms)	33-3069	.25
(71)	Power Transformer (115 Volts 60 Cycles)	32-7384	5.50
	(115 Volts 25 Cycles)	32-7385	7.75
	(230 Volts 50 Cycles)	33-7386	5.75
(72)	Condenser (.1 Mfd. Tubular)	30-4122	.35
(73)	Resistor (330,000 ohms) (Orange, Orange, Yellow)	33-1200	.20
(74)	Pilot Lamp	34-2064	.09
	Dial Scale	27-5098	.25
	Dial Hub & Set Screw	31-1550	.15
	Dial Front Spring	28-2837	.10
	Knob (Station Selector)	27-4206	.12
	Knob (Fine Tuning)	27-4207	.10
	Knob (Waveband)	27-4219	.10
	Knob (Volume Control, Tone Control)	27-4208	.10
	Tube Shield	28-2726	.10
	Tube Shield Base	28-2725	.03
	Tube Socket (4-Prong)	27-6034	.10
	Tube Socket (6-Prong)	27-6036	.11
	Tube Socket (7-Prong)	27-6037	.11
	Speaker Plug Socket	27-6033	.08
	Chassis Mtg. Screw	W-1495	1.50 per C
	Chassis Mtg. Washer (Rubber)	27-4198	.01
	Electric Cord & Plug	L-943-A	.60

*After Run 2, this is 10000 ohms, Part 3524.
‡After Run 2, this is 20000 ohms, Part 6650.

3. Adjust the signal generator to a frequency of 460 K.C. Place the receiver in operation with the dial turned to the low frequency end of the standard broadcast band, wave band switch to extreme left (clockwise), and have the volume control adjusted near its maximum setting. Adjust the signal generator attenuator for approximately half-scale reading of the output meter.

4. The I.F. compensating condensers are located at the tops of the I.F. coil shields. The primary is adjusted by turning the screw in top and the secondary by the nut. Adjust condensers ㊱ and ㊳ (2d I.F. primary and secondary) for maximum reading in the output meter, and then condensers ㉛ and ㉝ (1st I.F. primary and secondary).

Adjustment of Wave-Trap

1. Connect the signal generator leads to the antenna and ground terminals of the receiver. Replace the grid clip on the 6A7 grid cap.

2. With the wave-band switch of the receiver still in the extreme left (standard band), (540-1720 K.C.), turn the station selector to 55.

3. With the signal generator in operation at 460 K.C., adjust the wave-trap ② condenser until a MINIMUM reading is obtained on the output meter. The Philco fibre wrench, part No. 3164, is used for this adjustment. The wave-trap compensator is reached from rear of chassis.

Adjustment of High and Low Frequency Compensators

1. With the wave-band switch still at Range No. 1 (broadcast band), set the dial at 1700 K.C. Set the signal generator at this frequency and adjust compensators ⑭, ⑥ and ⑩ for maximum output. These are the oscillator, antenna, and R.F. "standard" compensators respectively.

2. Tune the receiver and the signal generator to 600 K.C and adjust compensator ⑰ (screw) for maximum output This is the oscillator L.F. standard compensator.

3. Turn the waveband switch to the second (middle) position. Set the dial at 3.6 M.C. at which point the fundamental of the 091 signal will be heard. If the Model 088 Signal Generator is being used, set it at 3.6 M.C. Adjust condensers ⑬, ⑤ and ⑨ in succession. These are the oscillator, antenna and R.F. police band adjustments.

4. Turn the tuning dial to 1.8 M.C., and set the signal generator (Model 026 or Model 088) at 1800 K.C. Adjust condenser ⑯ (Osc. L.F., police) (nut), to maximum signal.

5. Turn the wave-band switch to Band 3 (extreme right) and adjust the station selector to 18.0 megacycles. Set the signal generator at 18 M.C. By means of the Philco wrench, part No. 3164, adjust the oscillator S.W., antenna S.W. and R.F. S.W. compensators for maximum reading in the output meter. These are numbered ⑮, ④ and ⑧ respectively in figure No. 2.