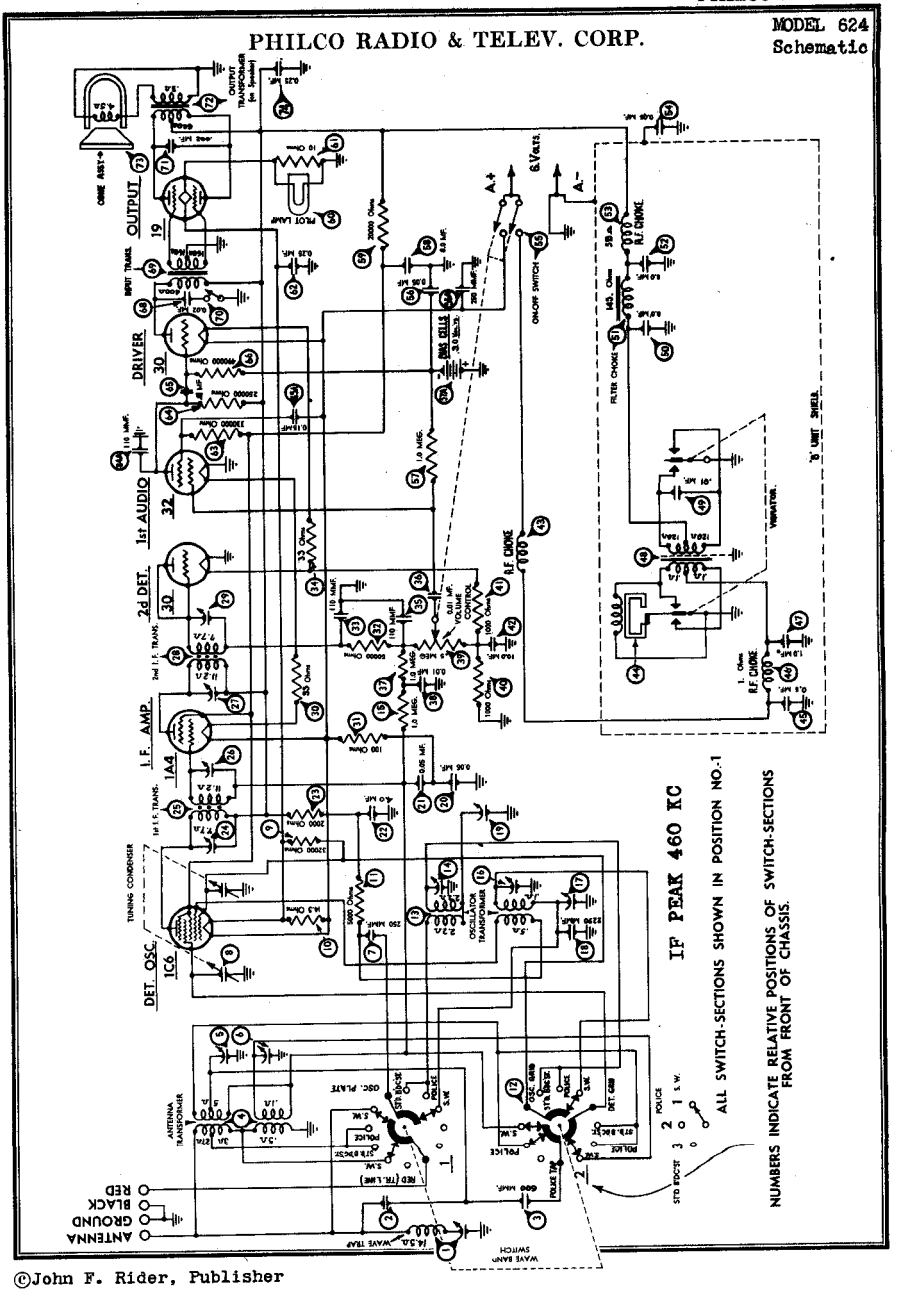
Philco Radio & Television Corp.

	Model: 624	**Chassis:**	**Year:** Pre October 1936
	Power:	**Circuit:**	**IF:**
	Tubes:		
	Bands:		

Resources
Riders 7 (VII) PHILCO 7-91
Riders 7 (VII) PHILCO 7-92
Riders 7 (VII) PHILCO 7-93

PHILCO RADIO & TELEV. CORP.

MODEL 624
Schematic



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MODEL 624
Voltage, Socket
Trimmers, Alignment

PHILCO RADIO & TELEV. CORP.

Adjusting Compensating Condensers

Adjustment of compensating condensers in Model 624 requires an accurate signal generator covering I.F., 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., is 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 and cathode contacts of the type 30 driver tube (using the adapters provided with the "025") and set it at the 0-30 volt range.

Set the signal generator at 460 K.C. with attenuator set at minimum, and attach its antenna lead to the grid cap of the 1A4 I.F. amplifier tube. Connect ground lead to ground terminal on set or some part of chassis. Set the dial at 55 and turn the waveband switch to position 3 (extreme left). Adjust the volume control of set to almost maximum (just before oscillator hiss becomes noticeable), and the 088 attenuator so that about one-fourth (¼) scale reading is had on the output meter. With a fibre screw-driver adjust condensers ㉗ and ㉘ (2nd I.F.) for maximum reading on output meter. Turn attenuator of signal generator to minimum and remove its antenna lead from the grid of the 1A4 I.F. tube. Place it on the grid of the 1C6, removing grid lead. Adjust 088 attenuator as before, then proceed to adjust condensers ㉔ and ㉖ (1st I.F.) for maximum output meter reading. Then remove the 088 oscillator lead and replace grid connection. Care should be taken to keep the output meter reading during adjustments at about one-fourth scale reading. This should be done by using the 088 attenuator control.

Connect the Signal Generator antenna and ground leads to the antenna and ground posts of the set. With the signal generator operating at 460 K.C. and the set controls adjusted as before for I.F. alignment, adjust wavetrap ① until a minimum reading is obtained on the output meter.

SHORT WAVE

In adjusting the short wave or high frequency band, the R.F. compensator will have a tendency to "pull" or **change** the frequency of the oscillator. By shunting a compensating or variable condenser (about .00025 Mf.) across the oscillator section of the gang (front section) and tuning it so that the second harmonic, instead of the fundamental, beats with the incoming signal, this "pull" can be minimized. The procedure for tuning this band is as follows:

Set the dial of the receiver at 18 megacycles (top scale) and the 088 dial at the same frequency. Turn wave band switch to position 1 (extreme right). Connect the shunt condenser to the oscillator section of the gang and tune it so that the second harmonic of the oscillator beats with the 18 M.C. signal from the 088. Next tune condenser ⑯ (antenna) for maximum reading of the output meter. Disconnect shunt condenser and tune condenser ⑱ (osc.) for correct dial calibration. The oscillator frequency, when correctly set, will be higher than that of the incoming signal and the image frequency lower. In order to check this it should be possible to tune the image at approximately 17.1 M.C. by increasing the input from the 088 oscillator.

For the low frequency adjustment of this band, turn the dial to 6.0 M.C., set the signal generator at 6.0 M.C. and adjust condenser ⑰ (nut) for maximum output meter reading. Readjust condenser ⑱ at 18.0 M.C.

STANDARD WAVE: Turn waveband switch to position 3 (standard broadcast), set signal generator at 1500 and dial of set at 150. Now adjust the oscillator and antenna "Standard" condensers for maximum output meter reading. These are ⑭ and ⑮, respectively.

Now turn the dial to 60, set signal generator at 600 and adjust condenser ⑲ (oscillator standard and police series) (screw) for maximum output meter reading.

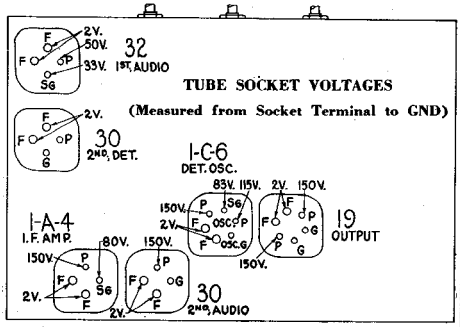

Fig. 1. Bottom View of Sockets, Showing Voltages

The voltages at the points indicated by the arrows above were obtained with a Philco type 025 Circuit Tester which contains a high resistance (1000 ohms per volt) voltmeter. Volume control at minimum, waveband switch at standard broadcast. KR-12 speaker.

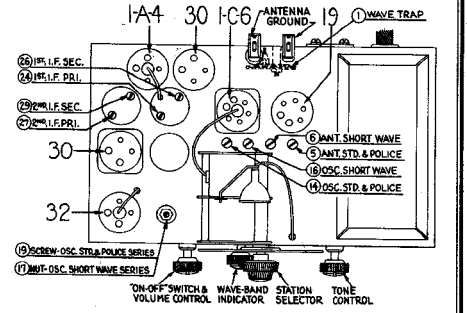

Fig. 2. Location of Compensating Condensers

Description

Philco Model 624 is a new type receiver designed to operate entirely from a 6-volt storage battery. Through a specially designed vibrator and power supply, the 6 volts from the storage battery is stepped up to the necessary "B" voltage for the plate and screen grid of the tubes. The correct filament voltages are obtained by using a series resistor arrangement.

TYPE CIRCUIT: Superheterodyne, with Class B output; built in connections for Philco all-wave aerial; aerial selector built into and operated by wave-band switch.

POWER SUPPLY: Battery operated; Model 624 uses a 6-volt 125-ampere-hour storage battery (Philco 110-R).

WAVE BANDS: Three—(1) Short Wave; (2) Police; (3) Standard.

COVERAGE OF EACH BAND: Band 1, 5700–18,000 K.C. (5.7 to 18.0 megacycles); Band 2, 2300–2500 K.C. (2.3–2.5 megacycles); Band 3, 530–1720 K.C.

TUNING DRIVE: Dual gear drive, ball bearing. 50 to 1 ratio for slow-speed tuning, 6 to 1 on main shaft.

TONE CONTROL: 2-Position.
INTERMEDIATE FREQUENCY: 460 K.C.
CURRENT CONSUMPTION: A battery, 1.5A.
SPEAKER: KR-12, Permanent Magnet Dynamic.

MODEL 624
Chassis
Parts List

PHILCO RADIO & TELEV. CORP.

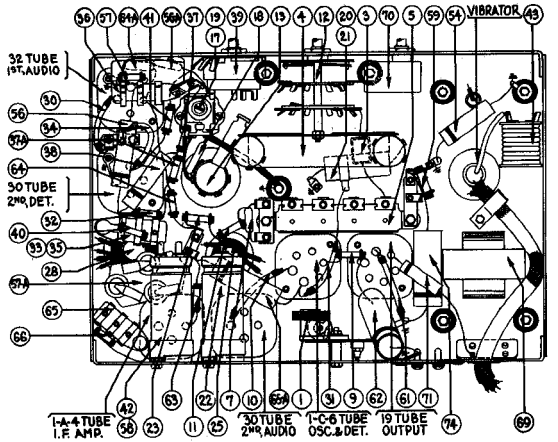

Fig. 4. Base View

Replacement Parts—Model 624

Schematic Number	Part and Description	Part No.	List Price
①	Wave Trap	38-6850	$1.10
②	Condenser (Leads twisted together)		....
③	Condenser (.0006 Mf. mica)	30-1049	.25
④	Aerial Transformer	32-1669	1.15
⑤	Compensator (Antenna Standard & Police)	31-6047	.50
⑥	Compensator (Antenna Short Wave)	Part of ①	....
⑦	Condenser (.00025 Mf. mica)	30-1032	.25
⑧	Tuning Condenser	31-1740	....
⑨	Resistor (32,000 ohms)	33-1208	.20
⑩	Resistor (14.3 ohms wire wound)	33-3232	.20
⑪	Resistor (5,000 ohms)	6096	.20
⑫	Wave Band Switch	42-1151	1.20
⑬	Oscillator Transformer	32-1973	1.00
⑭	Compensator (Oscillator Standard & Police)	Part of ⑤	....
⑮	Resistor (40,000 ohms, ¼ watt)	33-1180	.20
⑯	Compensator (Oscillator Short Wave)	Part of ⑦	....
⑰	Compensator (Nut) (Osc. Short Wave Series)	31-6027	.70
⑱	Condenser (2250 Mmf. mica)	30-1055	.40
⑲	Compensator (Screw) (Osc. Standard Series)	Part of ⑰	....
⑳	Condenser (.05 Mf. twin tubular)	30-4176	.35
㉑	Condenser (.05 Mf.)	Part of ㉚	....
㉒	Electrolytic Condenser (4 Mf., 200 V.)	30-2144	1.05
㉓	Resistor (2000 ohms, ¼ watt)	33-1029	.20
㉔	Compensator (Primary 1st I.F.)	Part of ㉖	....
㉕	1st I.F. Transformer	32-1671	1.35
㉖	Compensator (Secondary 1st I.F.)	Part of ㉕	....
㉗	Compensator (Primary 2nd I.F.)	Part of ㉙	....
㉘	2nd I.F. Transformer	32-1672	1.35
㉙	Compensator (Secondary 2nd I.F.)	Part of ㉘	....
㉚	Resistor (33 ohms wire wound)	33-3233	.20
㉛	Resistor (100 ohms wire wound)	33-3187	.20
㉜	Resistor (51,000 ohms, ¼ watt)	6098	.20
㉝	Condenser (.00011 Mf. twin bakelite)	80315-DG	.25
㉞	Resistor (33 ohms wire wound)	33-3233	.20
㉟	Condenser (.00011 Mf.)	Part of ㉞	....
㊱	Condenser (.01 Mf. bakelite)	3903-SU	.25
㊲	Resistor (1 Meg., ¼ watt)	33-1096	.20
㊲A	Resistor (1 Meg., ¼ watt)	33-1096	.20
㊳	Condenser (.01 Mf. tubular)	30-4124	.25
㊴	Volume Control (.5 Meg.)	33-5137	1.45
㊵	Resistor (1000 ohms, ¼ watt)	33-1028	.20
㊶	Resistor (1000 ohms, ¼ watt)	33-1028	.20
㊷	Electrolytic Condenser (10 Mf., 8.0 Mf.)	30-2143	1.00
㊸	R.F. Choke	32-1954	.40
㊹	Vibrator Unit	41-2015	....
㊺	Condenser (.5 Mf. metal case)	30-4058	.60
㊻	R.F. Choke	32-1954	.40
㊼	Condenser (1.0 Mf. metal case)	30-4399	.75
㊽	Power Transformer	32-7504	2.75
㊾	Condenser (.01 Mf. tubular)	30-4318	.50
㊿	Electrolytic Condenser (8.0 Mf. twin)	30-2138	2.50
(51)	Filter Choke	32-7543	1.35
(52)	Electrolytic Condenser (8.0 Mf.)	Part of ㊽	....
(53)	R.F. Choke	32-1842	.50
(54)	Condenser (.05 Mf. tubular)	30-4020	.20
(55)	Off-On Switch	Part of (56)	....

Schematic Number	Part and Description	Part No.	List Price
(56)	Condenser (.05 Mf. tubular)	30-4020	.20
(56A)	Condenser (.00025 Mf. mica)	30-1032	.25
(57)	Resistor (1.0 megohm, ¼ watt)	33-1096	.20
(57A)	Bias Cells Assembly	38-7275	....
(58)	Electrolytic Condenser (8.0 Mf.)	Part of ㊽	....
(59)	Resistor (20,000 ohms, ½ watt)	6650	.20
(60)	Pilot Lamp	34-2065	.35
(61)	Resistor (10 ohms wire wound)	33-3041	.25
(62)	Condenser (.25 Mf. tubular)	30-4146	.25
(63)	Resistor (330,000 ohms, ¼ watt)	33-1200	.20
(64)	Resistor (240,000 ohms, ¼ watt)	33-1097	.20
(64A)	Condenser (.00011 Mf. mica)	30-1031	.20
(65)	Condenser (.01 Mf. bakelite)	3903-SU	.25
(66A)	Condenser (.15 Mf. tubular)	30-4191	.25
(67)	Resistor (490,000 ohms, ¼ watt)	6097	.20
(68)	Condenser (.00011 Mf. mica)	30-1031	.20
(69)	Condenser (.02 Mf.)	Part of (70)	....
(70)	Input Transformer	32-7454	1.60
(71)	Tone Control Assembly	38-4391	.50
(72)	Condenser (.002 Mf. tubular)	30-4177	.25
(73)	Output Transformer	32-7503	1.65
(74)	Voice Coil and Cone Assembly	36-3540	....
(75)	Condenser (.25 Mf. tubular)	30-4146	.25
	Wiring Panel (2 lug)	38-5500	.03
	Wiring Panel (2 lug)	38-6801	.03
	Wiring Panel (1 lug)	38-7178	.01
	Wiring Panel (2 lug)	38-5501	.03
	Tube Shield Body	28-2726	.10
	Tube Shield Base	28-2725	.03
	Glowing Arrow Mask	27-5167	.20
	Screen	27-5166	.10
	Mask Arm	29-3274	.03
	Link	29-3285	.04
	Coupling	29-3586	.10
	Electrolytic Condenser Support	29-1328	.05
	Screen Bracket Assembly	31-1751	....
	Dial Scale	27-5163	.25
	Hub Assembly	28-7129	.10
	Pilot Lamp Bracket Assembly	38-7499	.25
	R.F. Shield Assembly	38-6757	.20
	Battery Cable	41-3176	.95
	Speaker Plug Socket	27-6043	.08
	Speaker Terminal Cover	02824	.10
	Knob (tuning)	27-4206	.12
	Knob (slow-speed tuning)	27-4207	.10
	Knob (volume, tone, wave switch)	27-4208	.10
	Bezel	28-3163	.50
	Bezel Gasket	27-7980	.01
	Bezel Glass	27-8112	....
	Bezel Glass Mask	28-3429	....
	Bezel Mounting Screw	W-1494	....
	Speaker Cable	36-3009	.35
	Front Bumper	27-4197	2.50C
	Chassis Mounting Screw	W-1496-A	....
	Chassis Mounting Washer (rubber)	27-4198	.01
	Chassis Mounting Cushion (rubber)	27-4199	....
	Chassis Mounting Sleeve	28-2897	....

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