

PHILCO 295 ALL-WAVE BATTERY SET

CIRCUIT.—The coupling of the aerial to V1, an H.F. pentode, is through an inductively coupled three-band preselector circuit. Signals are then fed to V2, the first detector-oscillator.

Coupling to V3, an H.F. pentode is through an I.F. transformer, tuned to 451 kc.

A further transformer links V3 to V4, a double diode. Both transformers have air cores.

One diode of V4 is used for detection and to supply A.V.C. bias to the grid of the preceding valves in the orthodox manner.

The rectified output of V4 is transformer coupled to the output valve, V5, a

quiescent power pentode, and through an output transformer to the permanent magnet speaker.

Special Notes.—The dial light is a special American miniature bayonet fixing type.

The chassis rests on rubber washers, and care should be taken when replacing chassis to see that these are correctly in place.

In some models C2 is omitted.

Removing Chassis.—Remove the knobs, which are secured by spring clips, from the front of the cabinet. Take out four bolts from underneath the cabinet.

The chassis will then slide out of the cabinet far enough for the usual inspection and test without disconnecting the speaker leads.

(Continued on next page.)

VALVE READINGS

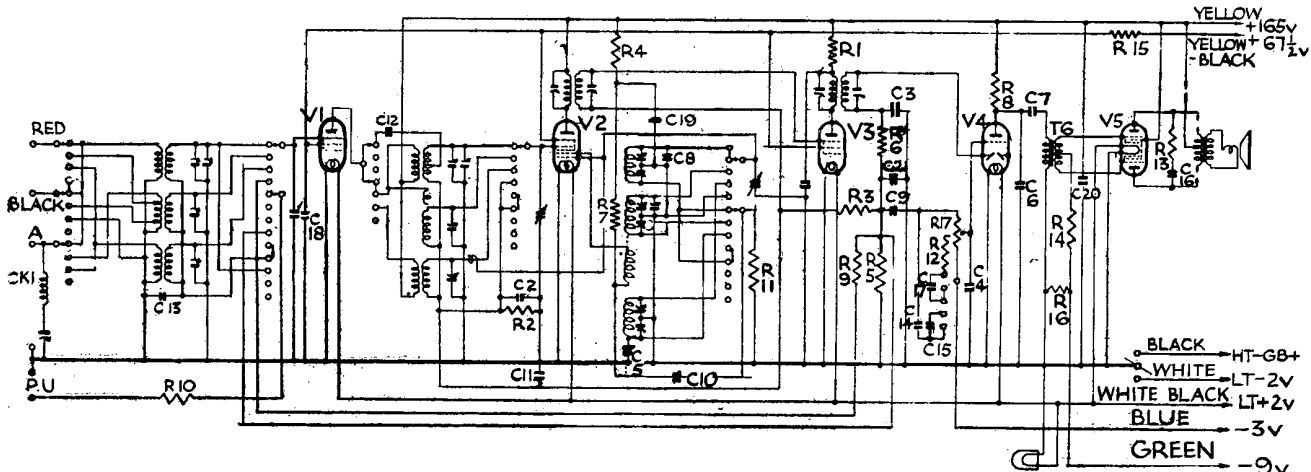
V.	Type.	Electrode.	Volts.	Ma.
1	1A4E (4)	Anode ..	164	.25
		Screen ..	27	.5
2	1C6 (6)	Anode ..	164	.35
		Osc. anode ..	120	1.0
3	1A4E (4)	Anode ..	160	.25
		Screen ..	27	.5
4	2102 (6)	Anode ..	120	1.5
		Screen ..	27	.5
5	2103 (7)	Anode ..	164	4.4
		Screen ..	164	2.4

RESISTANCES

R.	Purpose.	Ohms.
1	V3 anode decoupling ..	1,000
2	V2 decoupling ..	2 meg.
3	V2 A.V.C. decoupling ..	2 meg.
4	Part of V2 triode anode decoupling ..	2,000
5	A.V.C. and demodulator diode load ..	330,000
6	H.F. filter ..	51,000
7	Part of V2 triode anode decoupling ..	10,000
8	V4 anode decoupling ..	51,000
9	V1 A.V.C. decoupling ..	2 meg.
10	Series pick-up ..	51,000
11	— ..	32,000
12	Tone control ..	25,000
13	Pentode compensating ..	25,000
14	V5 grid bias ..	24,000
15	Screen decoupling ..	120,000
16	V5 bias decoupling ..	1,000
17	Volume control ..	215,000

CONDENSERS

C.	Purpose.	Mfd.
1	V3 anode decoupling ..	.09+.09
2	V2 decoupling ..	.05
3	H.F. filter ..	.00011
4	V3 grid by-pass ..	.00011
5	Long wave padding ..	.00225
6	H.F. by-pass ..	.0008
7	L.F. coupling ..	.09
8	Parallel padding ..	.00005
9	L.F. coupling ..	.01
10	— ..	.00025
11	A.V.C. decoupling ..	.05
12	S.W. H.F. coupling ..	.00041
13	A.V.C. decoupling ..	.05
14	Tone control ..	.001
15	Tone control ..	.001
16	Pentode compensating ..	.001
17	Tone control ..	.01
18	V1 screen decoupling ..	4.
19	V2 triode anode decoupling ..	8.
20	H.T. decoupling ..	.00011
21	H.F. filter ..	.00011



Five valves are employed in the Philco 295 battery set. The circuit includes a first signal amplifier and a pair of quiescent operated pentodes on one "bottle."

A Profitable Investment

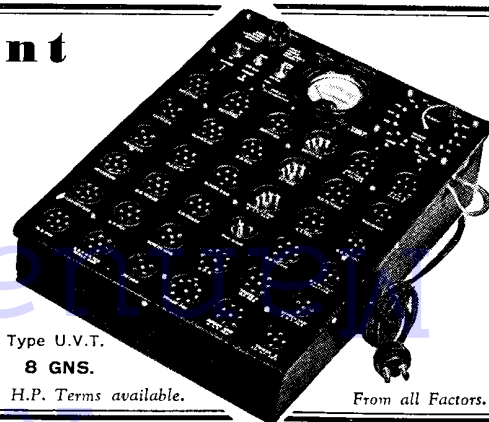
The better the results your customers secure from their sets, the greater their appreciation of your "servicing." Don't let a customer go on using a "tired" valve; prove to him by the "ALL VALVE" tester that he cannot get the best from his set whilst he uses over-worked valves. Sell him "service satisfaction" and he will come to you for all his radio needs.

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Type U.V.T.
8 GNS.

H.P. Terms available.

From all Factors.

PHILCO ALIGNMENT NOTES

Calibration.—Turn tuning knob until the index mark (above 1,500 kc.) appears in the window and check that it is correct. To adjust, slacken the grub screw on the condenser shaft.

I.F. Circuits.—(1) Connect modulated oscillator, tuned to 451 kc., to the grid top cap of V2 and earth. Place an output meter across output transformer primary (green and white leads).

Adjust T1, T2, T3 and T4 for maximum.
 (2) Transfer oscillator to aerial and earth terminals through a dummy aerial and adjust T5 for minimum output.

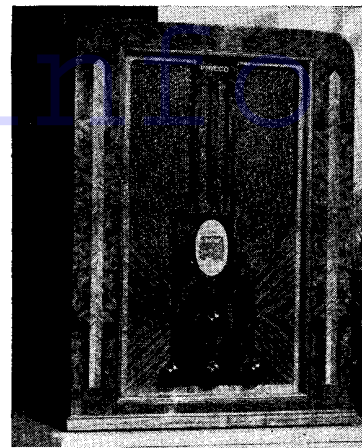
Long-wave Band.—(1) Tune modulated oscillator (connected via a dummy aerial to the aerial and earth terminals) and receiver to 290 kc. Adjust T5 to three-quarters of a turn from tight and adjust T6, T7, T8, T9 and T10 for maximum.

(2) Tune oscillator and set to 100 kc. and adjust T5 for maximum output, at the same time rocking the gang condenser.

(3) Repeat 1 and 2.

Medium-wave Band.—(1) Tune oscillator and set to 1,400 kc., and adjust T11, T12, T13 and T14 for maximum output.

(2) Tune oscillator and set to 600 kc.,



The illustration on the right will assist identification of the Philco all-wave 295 battery superhet. The "tinted" diagram on the left shows where the trimmers are to be found.

On the right is the Philco under chassis layout. Identification of components is facilitated by remembering that resistors are indicated in solid black.

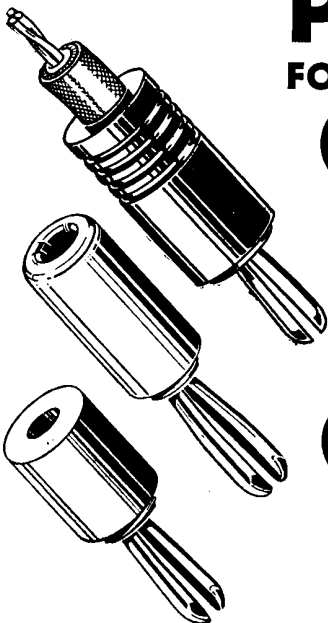
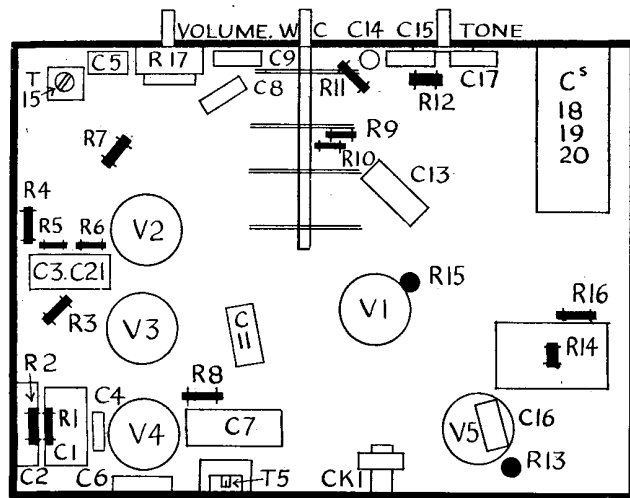
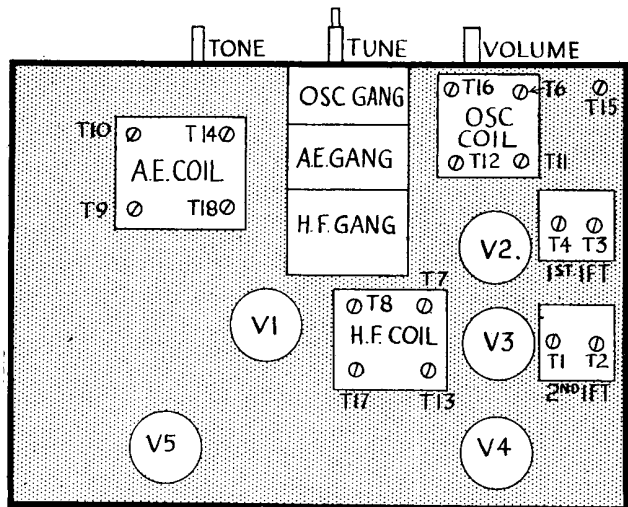
rock gang condenser and adjust T15, for maximum on output meter.

(3) Repeat 1 and 2.

Short-wave Band.—(1) Substitute 400 ohms resistance for the dummy aerial and tune receiver and oscillator to 18 mc. and adjust T16 for maximum output.

(2) Shunt variable condenser of approximately .00035 mfd. across the oscillator section of the gang condenser (nearest scale) and tune in a signal of 18 mc. Adjust T17 and T18 for maximum output.

(3) Disconnect the shunt condenser and readjust T16 for maximum output.



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