PHILCO A7

Six-valve, plus rectifier, three waveband table model superhet with permeability push-button tuning and push-pull output. Suitable for 200–250 volt, 50–100 cycles, A.C. mains. Made by Philco Radio and Television Corporation of Great Britain, Ltd., Perivale, Greenford, Middlesex.

Circuit.—This is a push-button set with pre-set condensers in the aerial circuit and permeability coils in the oscillator section. Three of the eight buttons are for wave changing, three for M.W. and two for L.W.

The aerial input is via a switch bank to simple tuned circuits with a coupling coil on S.W. A wavetrap and choke coil are included. V1 is the frequency-changer, and V2 the I.F. stage.

V3 is a conventional double-diode triode with an A.V.C. delay bias provided by R24 in the negative H.T. line. Demodulation and L.F. coupling arrangements are conventional.

A second S5 valve, V4, acts as a further L.F. amplifier, its grid circuit including VR1, the tone control.

V5 and V6 are push-pull output pentodes in a novel arrangement using neither an input transformer nor a paraphase valve.

V7 is a full-wave rectifier with a smoothing choke in the positive output lead and a bias network in the negative.

WAVEBANDS.—16.6-50, 195-540 and 1,000-2,000 m. Provision for P.U. and 2-3 ohm extension speaker. Power consumption, 70 watts.

PUSH-BUTTONS

The wave-ranges of the buttons and their trimmers are:—

Button.	Range (metres).	Osc.	Aerial.
1	2,000-1,275	T12	T11
2	2,000-1,275	T14	T13
3	540-315	T16	T15
4	540-315	T18	T17
5	340-195	T20	T19

GANGING

I.F. CIRCUITS.—Adjust at 451 kc.

WAVETRAP.—Inject 451 kc. to aerial socket and adjust T1 (nut) for *minimum*.

S.W. BAND.—Inject 18 mc. and adjust T2 for last peak from tight.

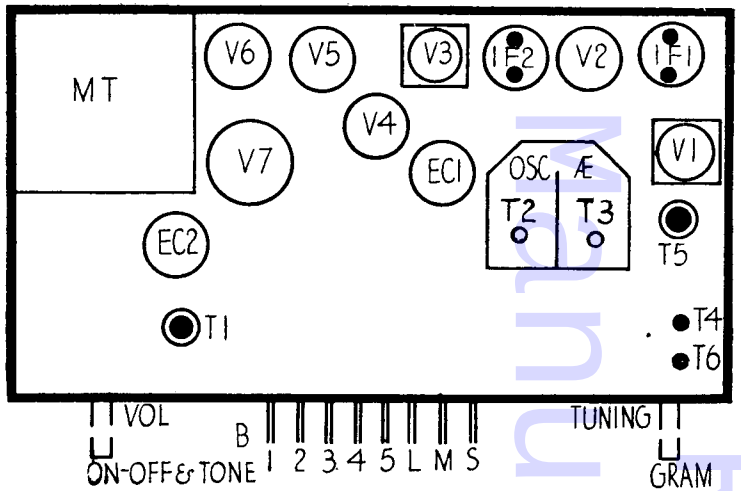
Adjust T3 rocking gang. Readjust T2 with pointer at 18 mc. Check that image is obtained at 17.1 mc. Repeat procedure.

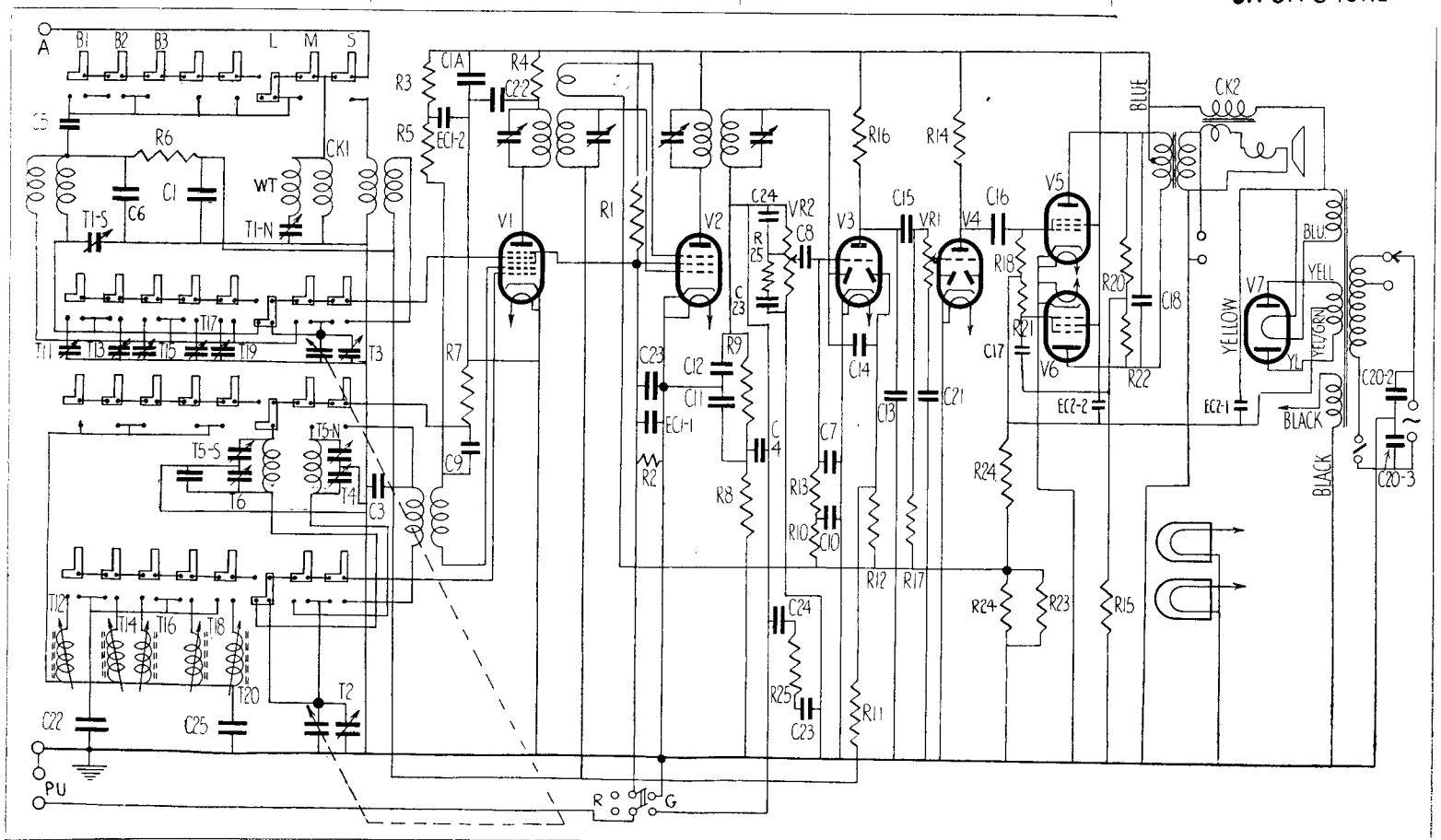
M.W. BAND.—Inject 1,400 kc. and adjust T4, rocking gang.

Inject 600 kc. and adjust T5 (screw), rocking gang. Readjust T4 at 1,400 kc.

L.W. BAND.—Inject 290 kc. and trim T6 and T1 (screw) in that order.

Adjust T5 (nut) at 160 kc., rocking gang. Readjust T6 at 290 kc. Repeat procedure.





VALVE READINGS

V.	Type.	Anode.	Screen.	Heater.
1	6A7	220	65	6.3
		145 (Osc. anode)		
2	78E	230	65	6.3
3	85	35	—	6.3
4	85	35	—	6.5
5, 6	41E	225	230	6.5
7	80	300 A.C.	—	5
Pilot lamps ..		—	—	6.3

RESISTANCES

R	Ohms.	R	Ohms.
1 ..	32,000 or 30,000	15 ..	50,000
2 ..	51,000	16 ..	120,000 or 190,000 or 160,000
3 ..	8,000	17 ..	400,000 or 490,000
4 ..	5,000	18 ..	250,000
5 ..	6,500	20 ..	400,000 or 490,000
6 ..	50,000	21 ..	250,000
7 ..	40,000	22 ..	2 meg.
8 ..	330,000	23 ..	100
9 ..	50,000	24 ..	58+238+180
10 ..	250,000	25 ..	65,000 or 51,000
11 ..	1 meg.	VR1 ..	500,000 or 350,000
12 ..	1 meg.	VR2 ..	2 meg.
13 ..	400,000 or 490,000	CK2 ..	1,140
14 ..	120,000 or 190,000 or 160,000		

CONDENSERS

C	Mfds.	C	Mfds.
EC1 ..	8+8	11 ..	100 mmfds.
EC2 ..	8+16	12 ..	100 mmfds.
1 ..	.04	13 ..	100 mmfds.
1A ..	.1	14 ..	100 mmfds.
2 ..	.09+.09	15 ..	.01
2A ..	60 mmfds.	16 ..	.01
3 ..	2,700 mmfds.	17 ..	.006 or .0065
4 ..	.0008 or .001 or 800 mmfds.	18 ..	.004
		20 ..	.015+.015.
5 ..	.01	21 ..	750 mmfds.
6 ..	4,600 mmfds.	22 ..	370 mmfds.
7 ..	60 mmfds.	23 ..	2,250 mmfds.
8 ..	.01	24 ..	60 mmfds.
9 ..	.1	25 ..	370 mmfds.
10 ..	.1		