

PHILCO A1

Four-valve, plus rectifier, two wave-band miniature table superhet with self-contained aerials and five station selecting push-buttons. For A.C. operation. Made by Philco Radio and Television Corp. of G.B., Ltd., Perivale, Middlesex.

Circuit.—The input is by simple aerial transformer with common primary, L1 to V1, the frequency-changer, L3 is the M.W. grid coil and L4 the L.W. coil. In the oscillator section, L5 is the M.W. coil. For automatic tuning, push

buttons connect pre-set capacities across these coils.

Trimmer-tuned intermediate frequency transformers couple V1, V2 and V3. V2 is the I.F. amplifier, and V3 a double-diode-triode. One diode develops the demodulated signal across VR1, the volume control, from which the signal is applied to the triode grid.

The other diode, fed through a resistance, applies A.V.C. to the grid of V1 and the grid and an auxiliary grid of V2.

Resistance and condenser coupling leads to V4, the output valve. This is a pentode used as a tetrode, two electrodes being strapped for the grid.

Most unusual feature is the use of a half-wave rectifier, fed direct from the mains, for H.T. The heaters and the pilot lamp are energised from a small mains transformer.

CONSUMPTION: 30 watts.

GANGING

I.F. CIRCUITS.—Inject 470 kc. and adjust I.F. trimmers for maximum, reducing signal as circuits come into line.

M.W. BAND.—Set pointer to 1,400 kc. (dot near Radio Lyons), inject 1,400 kc. and adjust T1 and T2.

Inject 600 kc., tune in and adjust T3 while rocking gang. Readjust T1.

There are no L.W. adjustments.

PUSH-BUTTONS

Push the button to be adjusted. If the new station is higher in wavelength than the one to

which the button is set, the trimmers will need to be turned clockwise.

Inject a signal of the required frequency to the aerial and adjust the appropriate oscillator and aerial pre-set trimmers in that order. Make final adjustment on customer's aerial.

To make sure set is not tuned to an image, rotate signal generator over M.W. and L.W. bands. Only one signal should be received for each button adjustment.

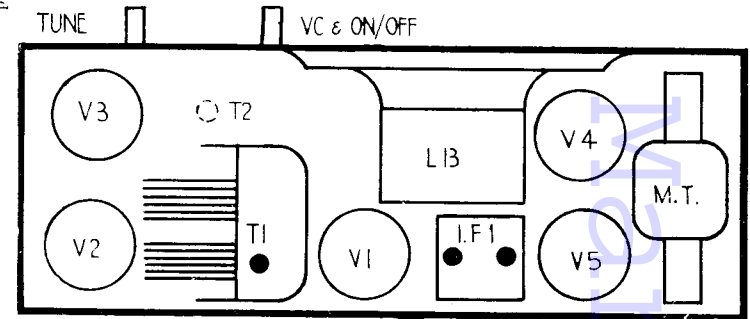
These 10 trimmers are in a row behind the buttons, each pair adjacent to its button. The first trimmer at the manual button end is an oscillator.

PUSH-BUTTONS

Button.	Range.	Osc. T.	Ae. T.
1	2,000-1,000	T12	T13
2	2,000-1,000	T10	T11
3	555-270	T8	T9
4	400-240	T6	T7
5	300-200	T4	T5

RESISTANCES

R	Ohms.	R	Ohms.
1	250,000	7	65,000
2	500	8	2.5 meg.
3	400,000	9	40,000
4	20,000	10	or 45,000
5	or 25,000	10A	2 meg.
6	99,000	10A	2 meg.
6	250	VR1	500,000



The A1 being a miniature set with push-button tuning, the chassis is very compact.

Both aerial and oscillator circuits are tuned by pre-set condensers on push-button stations.

T3

VALVE VOLTAGES

V	Type.	Electrode.	Volts.
1	7ASE	Anode	210
		Osc anode	160
		Screen	45
		Cathode	5
2	7B7E	Anode	210
		Screen	45
		Cathode	5
		VR1	250
3	7C6	Anode	95
		Screen	45
4	7B5E	Anode	195
		Screen	210
		Cathode	13
		Anodes	220 A.C.
5	7Y4	Cathode	250
		VR1	250

CONDENSERS

C	Mfds.	C	Mfds.
E.C.1	10+10	4	.025
E.C.2	25	5	.1
1	.006	6	.04
		7	.04
		8	.04
		9	.04
2	.0065	10	240 mmfds.
		11	.006
		12	or .0065
		13	or .01
3	240 mmfds.	14	240 mmfds.
		15	240 mmfds.

WINDINGS

L	Ohms.	L	Ohms.
1	30	8	25
2	31	9	25
3	1.75	10	700
4	8	11	.5
5	2.5	12	3.5
6	20	13	1,000
7	20	14	350
		15	.5

Warped Cones in Midgets

COMPACT A.C./D.C. receivers sometimes develop distortion owing to the heat from the valves warping the speaker cone and voice coil assembly.

It will generally be found possible to correct this more easily if the cone is re-centred while the assembly is still warm, because when the heat has dissipated the cone will probably return to its original shape and the trouble will automatically disappear.—F. D. L.

