



PHILCO



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Model A.1.

TYPE CIRCUIT: Five-valve compact, easily portable Superheterodyne Midget Receiver with self-contained Aerial, Push-button Automatic Tuning, full A.V.C., and Pentode Output (2 watts). This Receiver incorporates the new type low consumption "Loctal" valves.

POWER SUPPLY: Alternating current mains of 200-250 volts, 50-100 cycles without adjustment.

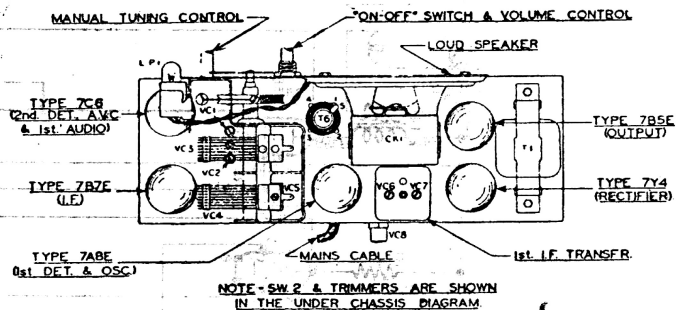
WAVEBAND COVERAGE: Provision is made by means of five of the six push-buttons for the automatic selection of two Long Wave stations between 2,000 and 1,000 metres, and three Medium Wave stations between 555 and 200 metres. Pressing the sixth, button facilitates the tuning of stations in the Medium waveband—200-550 metres, by means of the manual tuning control.

TUNING DRIVE: Slow motion drive—ratio 6-1 for smooth and accurate manual tuning.

LOUD SPEAKER: A 4" diameter fully energised moving coil speaker is used. This midget speaker which has only recently been developed by Philco Engineers, is exceptionally sensitive and gives a full rich tone and clarity.

INTERMEDIATE FREQUENCY: 470 Kc.

POWER CONSUMPTION: 30 watts.



TOP CHASSIS DIAGRAM

TABLE 1—VOLTAGES.

Valve socket readings to chassis taken with an 065, 077 or J3, PHILCO SET TESTER, using the 250, 50 and 10 volts ranges. Volume control at minimum, no aerial connected and one of the tuning buttons pressed in A.C. line, 220 volts, 50 cycles.

POSITION	VALVE	ANODE	SCREEN	BIAS
1st Detector and Oscillator, S3	7A8E	Pin 2. 210 v. Pin 3. 160 v.*	Pin 5. 45 v.	Pin 7. 5 v.
I.F. Amplifier, S4	7B7E	Pin 2. 210 v.	Pin 3. 45 v.	—
2nd Detector, A.V.C. and 1st Audio, S5	7C6	Pin 2. 95 v.	—	—
Pentode Output, S2	7B5E	Pin 2. 195 v.	Pin 3. 210 v.	Pin 7. 13 v.
Half-Wave Rectifier, S1	7Y4	Pins 3 and 6. 220 v. A.C. Pin 7. 250 v. D.C.	—	—

* Oscillator Anode Volts. V.1, V.2, V.3, V.4, V.5 heaters and L.P.1 filament, each 6.3 volts A.C., measured between Pins 1 and 8 on each socket.

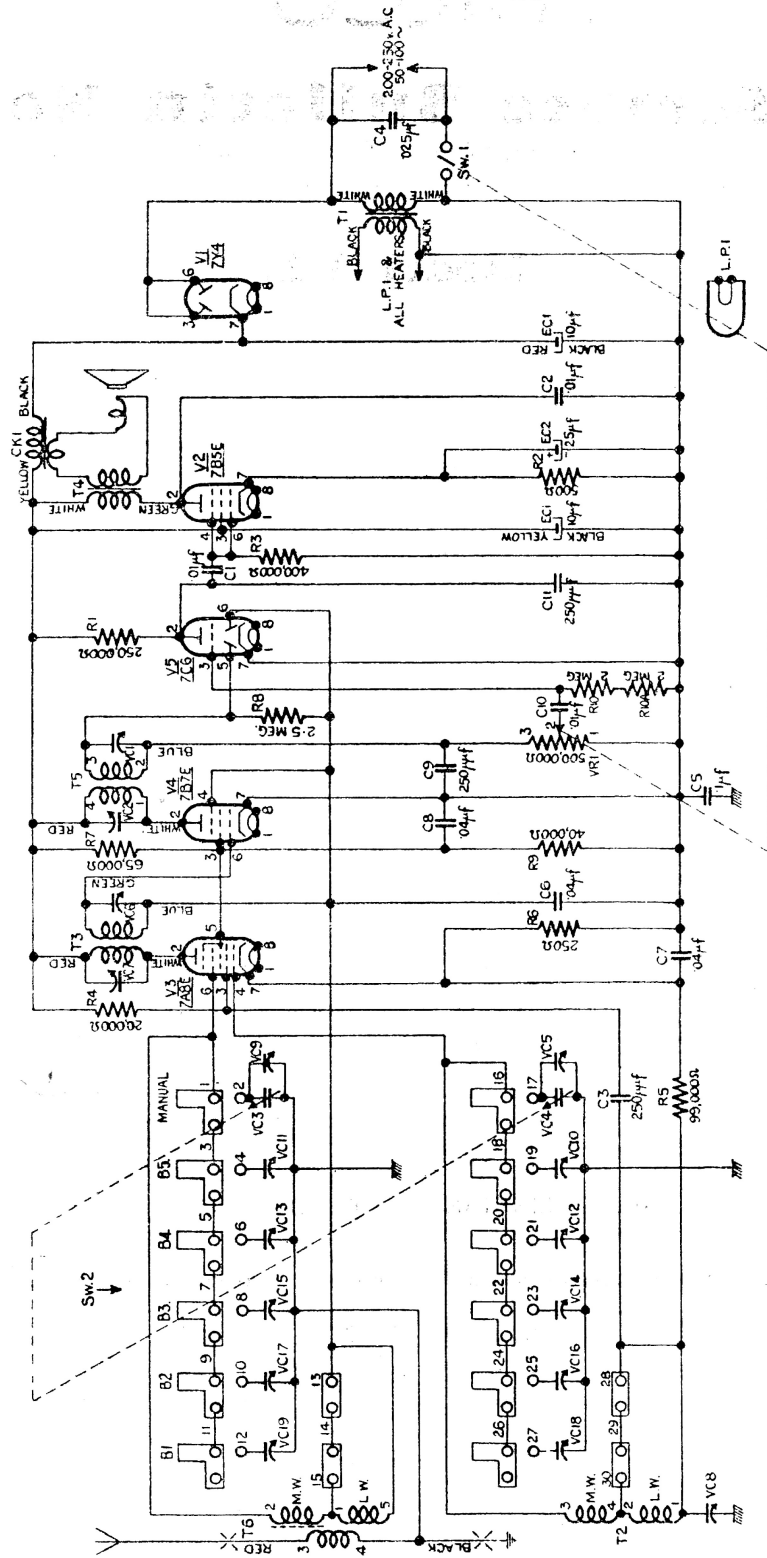
TABLE 2—RESISTANCES OF COILS.

REF. NO.	TEST PROD. 1.	TEST PROD. 2.	RESISTANCE (Ohms.)	REF. NO.	TEST PROD. 1.	TEST PROD. 2.	RESISTANCE (Ohms.)
T.6 Primary	T.6/3	Chassis	30	T.3 Secondary	V.4/6	TB.1/1	20
T.6 Secondary (L.W.)	V.3/6	TB.1/1	Button 1 or 2 pressed in 35	T.5 Primary	V.4/2	V.2/3	25
T.6 Secondary (M.W.)	V.3/6	TB.1/1	Buttons 3, 4, 5 or 6 pressed in 1.75	T.4 Primary	V.5/5	VR.1/3	25
T.2 (L.W.)	V.3/4	T.2/1	Button 1 or 2 pressed in 8	T.4 Secondary	V.2/2	V.2/3	700 approx.
T.2 (M.W.)	V.3/4	T.2/1	Buttons 3, 4, 5, or 6 pressed in 2.5	Output Transformer	Output Transformer	Output Transformer	0.5 †
T.3 Primary	V.3/2	V.2/3	20	Speech Coil	Lead 1	Lead 2	3.5 †
				CK.1	V.2/3	V.1/7	1,000 approx.
				T.1 Primary	V.1/6	VR.1/1	350 approx.
				T.2 Secondary	V.1/1	V.1/8	0.5 **

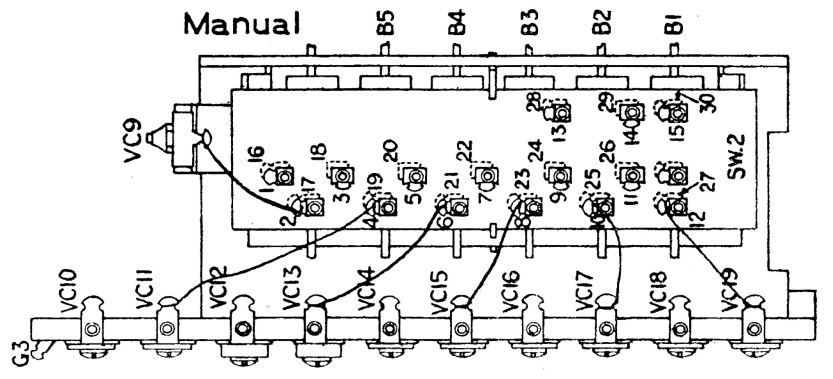
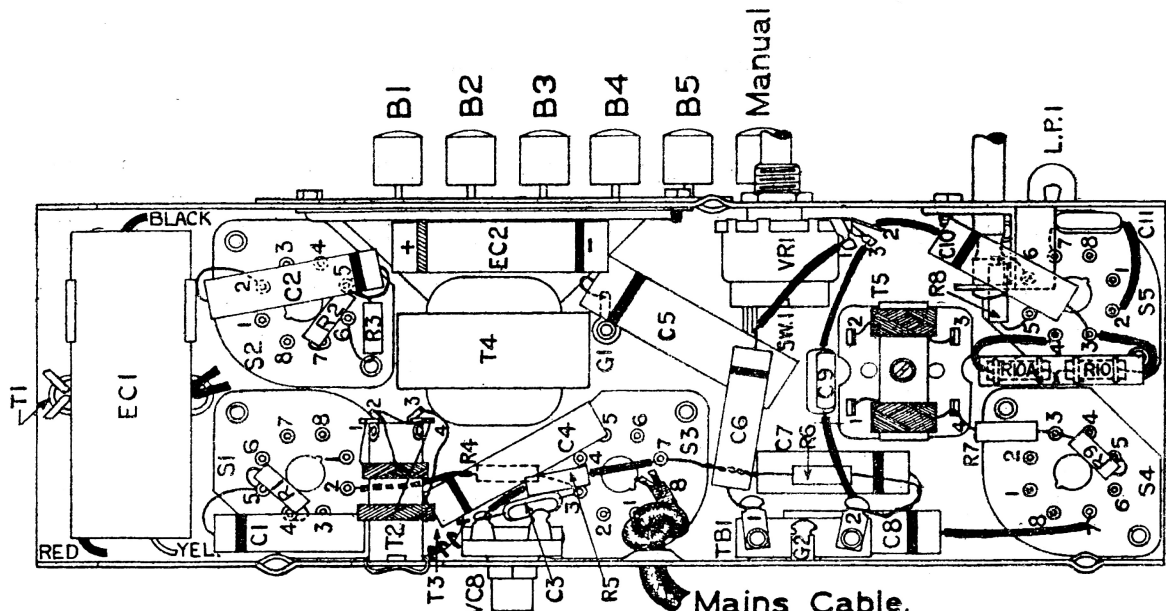
† Resistance of T.4 Secondary alone and Speech Coil alone (taken when disconnected).

** Resistance of T.2 Secondary taken with L.P.1 and all valves removed.

NOTE.—Reference numbers for valves should be read in conjunction with the socket numbers, e.g., V.1-S.1



CIRCUIT DIAGRAM—MODEL A-1



Top View Of Sw.2
& Trimmers.

UNDER CHASSIS DIAGRAM—MODEL A-1

ALIGNMENT PROCEDURE—MODEL A-1

Before leaving the Factory, all Philco Receivers are accurately aligned, but if misalignment is suspected through damage, no alteration must be made without instruction in the correct adjustment of the trimming and padding condensers. It should be carried out only with the aid of an accurately calibrated Signal Generator, and for this purpose the PHILCO ALL-PURPOSE SET TESTER, MODEL 077 or 077E is recommended. Connect the Output Meter, across the Primary of the Output Transformer, i.e., V.2/2 and V.2/3. Press in the button labelled "MANUAL" and turn volume control fully clockwise. Open tuning condenser, to fullest extent and check that pointer registers on dot above letter "E" in word "BOURNE."

INTERMEDIATE FREQUENCY : The I.F. trimmers (VC's 1, 2, 6 and 7) must first be carefully adjusted by feeding in a 470 Kc. signal from the Signal Generator via a Standard Dummy to V3/6 (or SW2/1) and the Signal Generator earthed to the Receiver chassis. Adjust the Signal Generator Attenuator to give a half-scale reading on the Output Meter. The I.F. trimmers must then be adjusted for maximum output.

Transfer Signal Generator lead via the Standard Dummy to the Aerial lead (short red wire protruding from rear of Receiver).

MEDIUM WAVES—MANUAL TUNING : Set pointer to 1,400 Kc. (corresponding to dot against "RADIO LYONS"); feed in a signal of 1,400 Kc. and trim VC's 5 and 9 in that order for maximum output.

Feed in and tune a signal of 600 Kc. (corresponding to dot at 500 metres); rock tuning condenser and pad VC.8 for maximum output. Re-adjust VC.5 at 1,400 Kc.

Repeat the above operation until no further improvement results. Check calibration.

ADJUSTMENT OF AUTOMATIC TUNING BUTTONS :

BUTTON	RANGE	OSCILLATOR TRIMMER	AERIAL TRIMMER
1	2,000—1,000 metres	VC.18	VC.19
2	2,000—1,000 metres	VC.16	VC.17
3	555— 270 metres	VC.14	VC.15
4	400— 240 metres	VC.12	VC.13
5	300— 200 metres	VC.10	VC.11

Press the button which it is desired to adjust. Ascertain whether the wave-length in metres of the required station is higher or lower than that of the station to which the button was set. If higher, the trimmers will need to be turned clockwise, when re-adjusting. Conversely; if lower, the trimmers will need to be turned counter-clockwise, when re-adjusting.

With Signal Generator lead connected via the Standard Dummy to the Aerial lead, feed in a signal of corresponding wave-length or frequency to the desired station, and turn first the oscillator trimmer and then the aerial trimmer associated with the button which is being adjusted, in the required direction (see above) until maximum output is obtained.

To ensure that the Receiver is not tuned to an image signal, rotate Signal Generator tuning knob through whole of M.W. and L.W. bands; only one signal should be obtainable for each button adjustment. In doing this test, care must be taken that the Signal Generator output is kept as low as possible.

NOTE.—For best results, it is advisable to make a final adjustment of the trimmers when the Receiver is connected to the aerial which it is proposed to use. This may be carried out on the actual transmission or on a corresponding signal radiated from the Signal Generator by means of a short length of wire attached to the Signal Generator lead. No direct connection from this wire should be made to the Receiver.

