PHILCO

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Model A-638 Baby Grand

TYPE CIRCUIT: Six-valve Superheterodyne unit-constructed Receiver with full A.V.C. and Pentode output (5 watts) for operation on Short, Medium and Long wavebands. Built-in connections for Philco All-Wave Aeral, automatic bridge balanced aerial selector and alternative link connections—"B" for ordinary aerial, "C" for Philco All-Wave Aerial. Provision is made for connecting a pick-up which may be left permanently connected to the Receiver if desired, as the gramophone operation is controlled by the extreme clockwise rotation of the wave-change switch. Provision is also made for connecting an external speaker of the permanent-magnet moving-coil type having an impedance of 2-3 ohms.

POWER SUPPLY: Alternating current mains of 200 to 230 volts or 231 to 260 volts, 50-100 cycles, when the voltage adjusting plug is fully screwed into the correct socket on the rear-of-cabinet panel.

WAVEBANDS: COVERAGE: Three: (*a*) long, 320-150 Kc. (937.5-2,000 metres); (*b*) Medium, 1,700-550 Kc. (176.4-545 metres); (*c*) Short, 18-5.7 Mc. (16.6-52.6 metres).

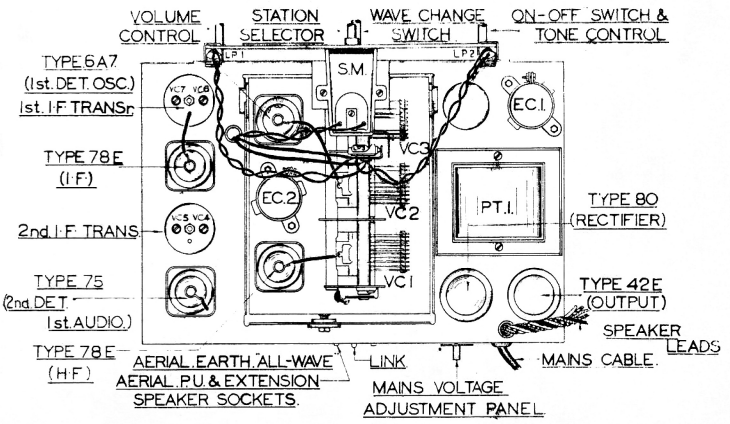
TUNING DRIVE: Two-speed drive—ratios 8 : 1 and 40 : 1 for slow and accurate tuning. Glowing beam station indicator, new spread band 270 degrees scale, and shadow-meter tuning device.

TONE CONTROL: This is continuously variable, enabling a fine degree of tone between brilliant and mellow to be obtained. The on/off switch is combined with this control, thus enabling a particular setting of the separate volume control to be maintained.

LOUDSPEAKER: An 8 in. diameter fully energised moving-coil speaker is used, which gives the highest efficiency audio output, and greater bass response is obtained due to the large baffle.

INTERMEDIATE FREQUENCY: 451 Kc.

POWER CONSUMPTION: 65 watts approx.



TOP CHASSIS DIAGRAM.

TABLE 1—VOLTAGES.

Valve socket readings to chassis taken with an 065 or 077 Philco Set Tester, using the 500, 250 and 10 volt ranges. Volume control at minimum, tone control fully brilliant, wave-change switch in M.W. position and no aerial connected. A.C. line 230 volts 50 cycles.

POSITION.	VALVE	ANODE	SCREEN	BIAS
H.F. Amplifier, S.3	78E	Pin 3. 200 v.	Pin 4. 80 v.	Pin 5. —2 v.
1st Detector and Oscillator, S.4 ..	6A7	Pin 3. 250 v. Pin. 5. 200 v.*	Pin 4. 80 v.	Pin 7. 2 v.
I.F. Amplifier, S.6	78E	Pin 3. 225 v.	Pin 4. 80 v.	—
2nd Detector, A.V.C. and 1st L.F. Amplifier, S.5	75	Pin 3. 180 v.	—	Pin 4. —2.5 v.
Pentode Output, S.1	42E	Pin 3. 320 v.	Pin 4. 330 v.	—20 v.†
Full-wave Rectifier, S.2	80	Pin 3. 340 v. A.C. Pin 4. 340 v. A.C.	—	—

* Oscillator Anode Volts. † Bias measured between R.1/4 and chassis.
Total D.C. 390 volts (measured between V.2 2 and R.1/4).
V.2 filament, 5 volts A.C.; V.1, 3, 4, 5, 6 and L.P.1 filaments, each 6.3 volts A.C.; measured between Pins 1 and 2 on each socket.

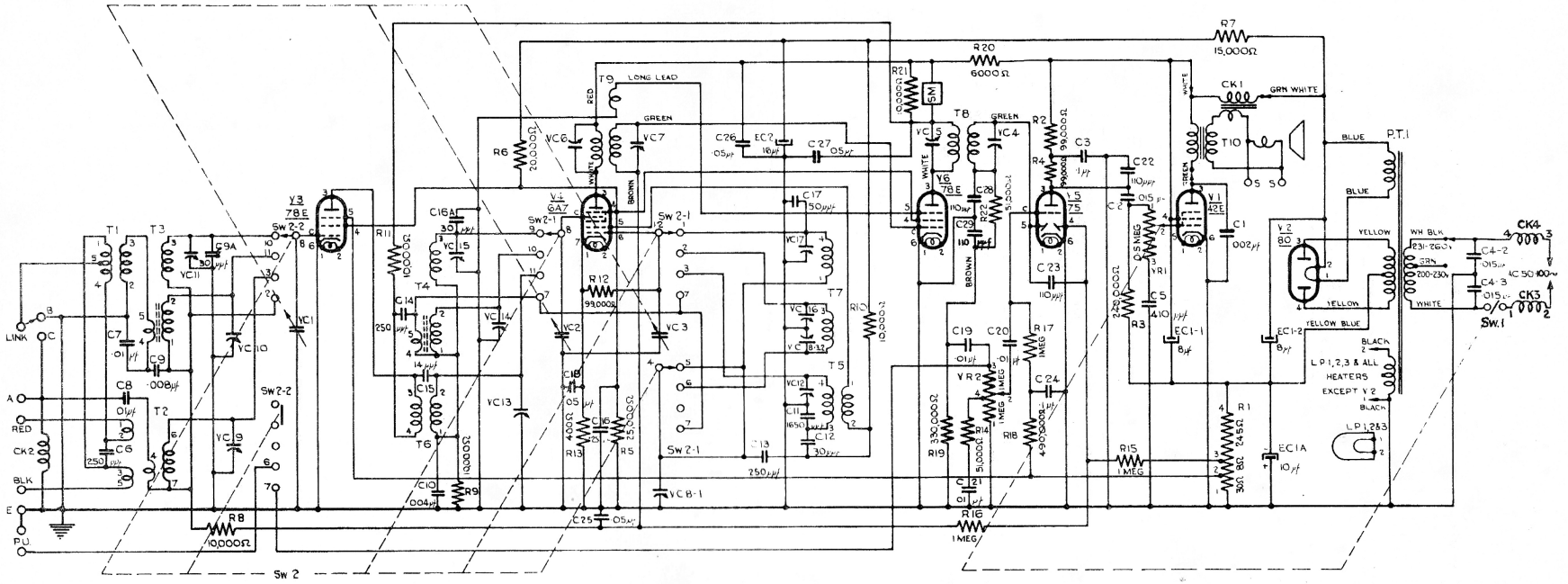
TABLE 2 – RESISTANCES OF COILS.

(Link on TB.3 to be in socket "B")

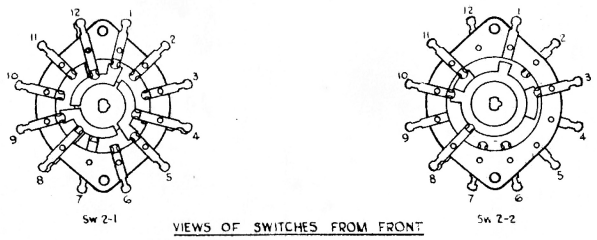
REF. NO.	TEST PROD 1	TEST PROD 2	RESISTANCE (OHMS)
CK.2	T.B.3 Socket "A"	Chassis	17.5
T.1 Primary ..	T.1/1	T.1/4	5
T.1 Primary tapping	T.1/1	Chassis	2.5
T.1 Secondary ..	T.1/3	Chassis	16.5
T.2 Primary No. 1 (with T.1 Primary in series)	TB.3 Socket "Red"	TB.3 Socket "Blk"	5.5
T.2 Primary No. 2	TB.4/3	SW.2/2 tag 2	Less than 0.1
T.2 Secondary ..	V.3 Cap	SW.2/2 tag 2	SW.2. S.W. 0.1 ,, Gram. Zero
T.3 Primary ..	T.1/3	SW2/2 tag 9	0.5
T.3 Secondary ..	V.3 Cap	SW.2/2 tag 2	SW.2 L.W. 25 ,, M.W. 2.5
T.4 Primary ..	SW.2/1 tag 7	TB.5/1	0.5
T.4 Secondary ..	V.4 Cap	TB.5/1	SW.2. L.W. 25 ,, M.W. 2.5
T.6 Primary ..	V.3/3	TB.8/1	1
T.6 Secondary ..	V.4 Cap	TB.5/1	SW.2. S.W. 0.1 ,, Gram. 0.5
T.9 Primary ..	V.4/3	TB.10/6	8
T.9 Secondary ..	V.6 Cap	TB.10/3	12
T.9 Reaction ..	V.6/5	Chassis.	Less than 0.1
T.7	V.4/6	VC.8/1	SW.2. L.W. 16.5 ,, M.W. 2 ,, Gram. Zero
T.5	V.4/6	Joint of C.11 and C.12	SW.2. S.W. 0.1 ,, Gram. Infinity
T.5 Reaction ..	V.4/5	TB.6/2	0.5
S.M. with R.21 in parallel	TB.10/6	TB.10/8	2,600
T.8 Primary ..	V.6/3	TB.10/8	12
T.8 Secondary ..	V.5/5	TB.9/2	51,000 approx.
T.10 Primary ..	V.1/3	V.1/4	240
T.10 Secondary ..	Output Transformer	Output Transformer	0.2*
Speech Coil	Lead 1	Lead 2	2*
CK.1	EC.1 Blue	EC.1 Red	1,140
PT.1 Primary ..	C.4/3	200-230v. tap	30
,, ,, ...	,,	231-260v. tap	35
H.T. Secondary ..	V.2/3	R.1/4	240
,, ,, ..	V.2/4	R.1/4	240
Rectifier L.T. Sec.	V.2/1	V.2/2	0.1†
Heater L.T. Sec...	V.1/1	V.1/2	0.2†
CK.3	TB.1A 1	TB.1A/2	5
CK.4	TB.1A/3	TB.1A 4	5

* Resistance of T.10 Secondary alone and Speech Coil alone (taken when disconnected).
† Resistance of L.T. windings taken with all valves removed.

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



Sw 2 SHEWN IN LW POSITION



VIEWS OF SWITCHES FROM FRONT
CHASSIS BEING UPSIDE DOWN
NOTE - SPINDLE LOCATING NOTCHES ON RIGHT

SCHEMATIC DIAGRAM—MODEL A-638.