



PHILCO



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Model 581

TYPE CIRCUIT: Five valve Superheterodyne Unit-constructed Receiver with full delayed A.V.C. and Pentode Output (3 watts) for operation on Medium and Long Wave-bands. Built-in connections for Philco All-purpose Aerial—aerial selector built into and operated by the wave-change switch. 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 200-260 volts, 40-100 cycles, when the correct transformer tapping is employed. Two tappings are provided; green (labelled 220v.) covering 200-230 volts and white/black (labelled 245v.) covering 231-260 volts.

WAVE-BANDS: COVERAGE: Two; (a) Long 150-320 K.C. (2,000-3,97.5 metres); (b) Medium, 530-1,750 K.C. (566-171.4 metres).

TUNING DRIVE: Geared 7-1 ratio for slow and accurate tuning. Glowing beam station indicator and new spread band 270 degrees scale.

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 allowing a particular setting of the separate volume control to be maintained.

LOUD SPEAKER: An 8 inch 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 K.C.

POWER CONSUMPTION: 60 watts.

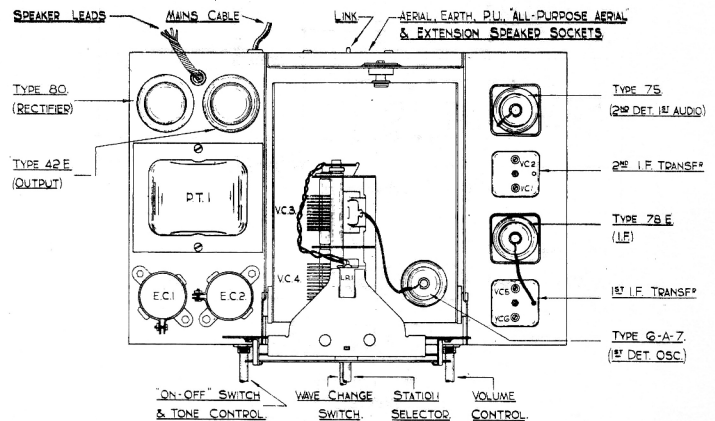


TABLE I — VOLTAGES.

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.
1st Detector and Oscillator, S.3	6A7	Pin 3. 250 v. Pin 5. 150 v.*	Pin 4. 100 v.	Cap. —0.3 v.
I.F. Amplifier, S.5	78E	Pin 3. 250 v.	Pin 4. 100 v.	Cap. —0.3 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier, S.4	75	Pin 3. 100 v.	—	—
Pentode Output, S.2	42E	Pin 3. 240 v.	Pin 4. 250 v.	15 v. †
Full-wave Rectifier, S.1	80	Pin 3. 330 v. A.C. Pin 4. 330 v. A.C.	—	—

* Oscillator anode volts.

† Bias measured between R1 tag 4 and chassis.

Total D.C. 350 volts (measured between S1 tag 2 and R1 tag 4). V1 filament, 5 v. A.C., V2, 3, 4, 5 and L.P. 1 filaments 6.3 v. A.C., measured between Pins 1 and 2 on each socket.

TABLE 2. — RESISTANCES OF COILS.

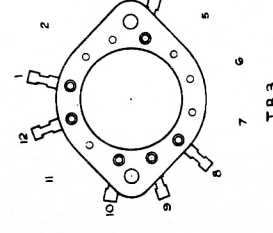
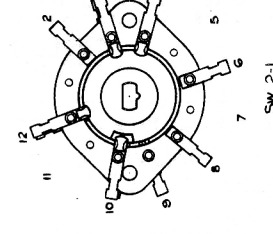
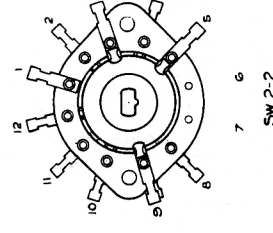
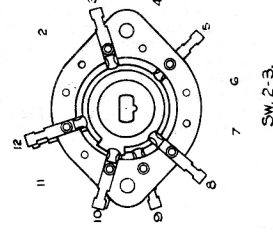
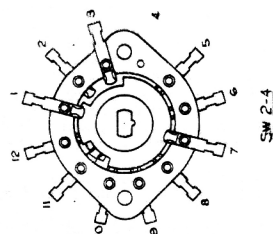
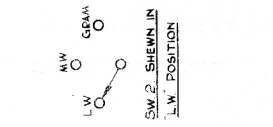
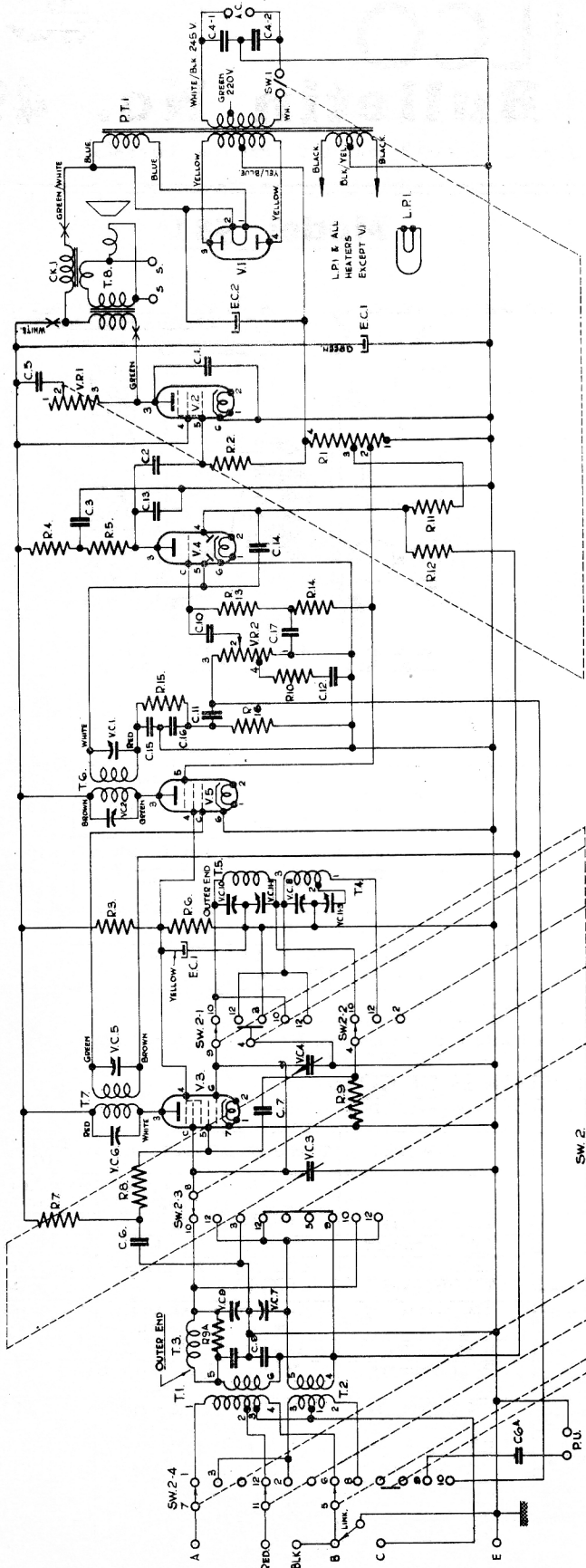
(Link on TB2 to be in socket "B")

REF. NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (Ohms).	REF. NO.	TEST PROD 1	TEST PROD 2	RESISTANCE (Ohms).
T.1. Primary	TB.2 Socket "A"	Chassis	Sw.2 L.W. 80	T.4	V.3/6	Sw.2/2 Tag 4	Sw.2 M.W. 8 Gram. Zero
T.1. Primary tapping 2	TB.2 Socket "Red"	"	" " 10	T.6. Primary	V.5/3	TB.5/11	12
T.1. Primary tapping 3	TB.2 Socket "C"	"	" " 5	T.6. Secondary	TB.5/7	V.4/5	8
T.1. Secondary	TB.3/9	TB.5/3	" " 5	CK.1	EC.2 tag	EC.1 Green	1,140
T.1. Secondary with T.3 in series	V3 Cap.	"	" " 25	T.8. Primary	V.2/3	"	240
T.2. Primary	TB.2 Socket "A"	Chassis	" M.W. 2 Gram. Infinity	T.8. Secondary	Output Trans.	Output Trans.	0.2*
T.2. Primary tapping	TB.2 Socket "C"	"	" M.W. 1 Gram. Infinity	Speech Coil	Lead 1	Lead 2	2*
T.2. Secondary	V3 Cap	TB.5/3	" M.W. 5 Gram. Infinity	P.T.1 Primary	White	White/Black (245v.)	35
T.7. Primary	V.3/3	TB.5/11	8	P.T.1. Primary	White	Green (220v.)	30
T.7. Secondary	TB.5/3	V.5 Cap	12	H.T. Secondary	V.1/3	R.1/4	240
T.5	V.3/6	Sw.2/2 Tag 4	S.W.2. L.W. 16.5	H.T. Secondary	V.1/4	R.1/4	240
				Rectifier			
				L.T. Secondary	V.1/1	V.1/2	0.1 †
				Heater			
				L.T. Secondary	V.2/1	V.2/2	0.2 †

* Resistance of T8 Secondary alone and Speech Coil alone (taken when disconnected).

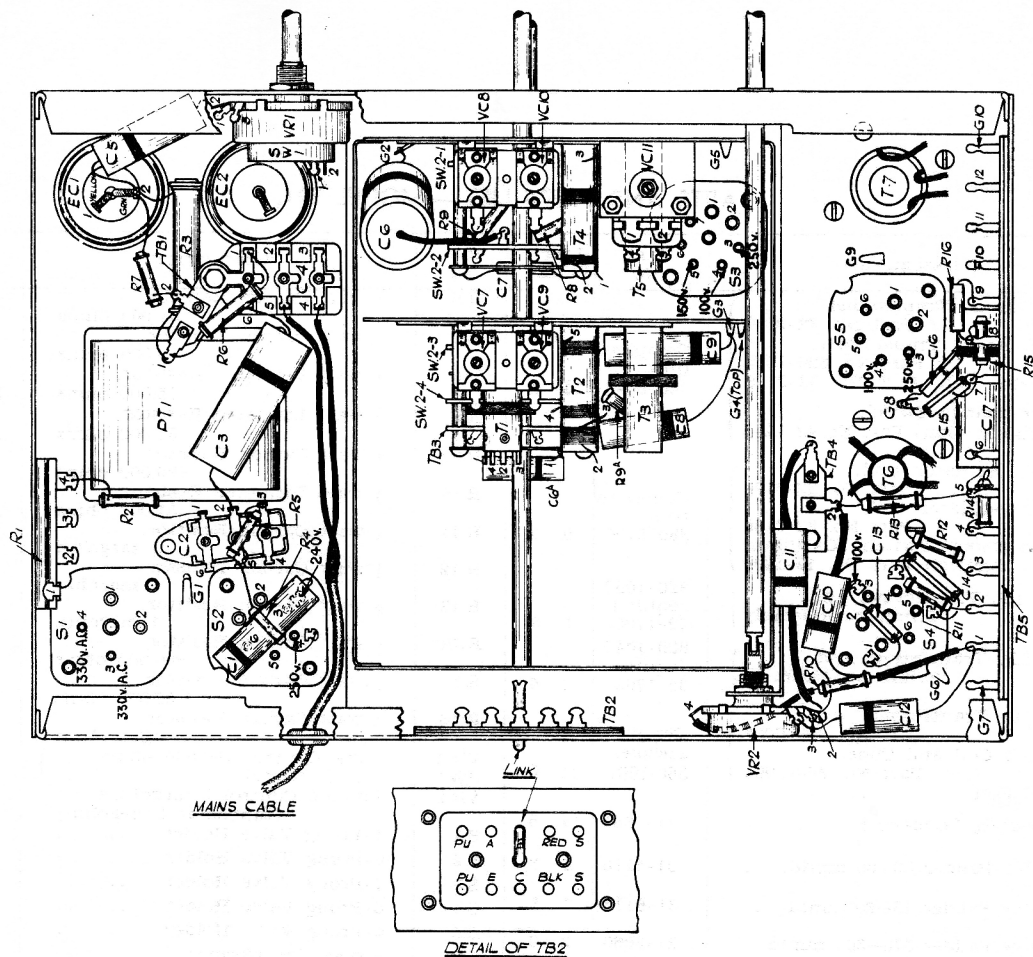
† Resistance of L.T. windings taken with all valves removed.

Note.—Reference numbers for valves should be read in conjunction with the Socket numbers, e.g., V1-S1.



IEWS OF SWITCHES & T.B.3 FROM FRONT.
CHASSIS BEING UPSIDE DOWN
NOTE - SPINDLE LOCATING NOTCHES AT BOTTOM

SCHEMATIC DIAGRAM.



ALIGNMENT PROCEDURE.

Before leaving the Factory, all Philco receivers are accurately aligned, but if misalignment is suspected through damage, it should not be attempted without instruction in the correct adjustment of the trimming and padding condensers. It should only be carried out with the aid of an accurately calibrated Signal Generator, and for this purpose the PHILCO ALL-PURPOSE SET TESTER MODEL 077 is recommended.

Connect the Output Meter across the Primary of the Output Transformer, *i.e.*, green and white leads. With gang condenser fully open, check that indicator reads on index line (above 1,750 K.C.). Set wave-change switch to M.W. (centre) position, turn volume control to maximum and tone control to fully brilliant position.

NOTE.—The link on TB.2 must be placed in socket "B."

INTERMEDIATE FREQUENCY: The I.F. trimmers (V.C.'s 1, 2, 5 and 6) should first be carefully adjusted by feeding in a 451 K.C. signal from the Signal Generator to the grid cap of the 6A7 valve (with grid lead disconnected) 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 a Standard Dummy to the Aerial socket and replace grid lead of 6A7 valve.

LONG WAVES: Turn wave-change switch to L.W. position (counter-clockwise rotation) and set gang at 290 K.C. Feed in a 290 K.C. signal and trim V.C.'s 10 and 9 underneath chassis in that order for maximum output.

Feed in and tune a 160 K.C. signal. Rock gang and pad V.C.11 (nut) for maximum output. Readjust trimming at 290 K.C. and padding at 160 K.C. until no further improvement is obtainable.

MEDIUM WAVES: Turn wave-change switch to M.W. (centre) position and set gang at 1,750 K.C. Feed in a signal of 1,750 K.C. and trim V.C.'s 8 and 7 underneath chassis in that order for maximum output. Feed in and tune a signal of 600 K.C. Rock gang and pad VC.11 (screw) for maximum output. Readjust trimming at 1,750 K.C. and padding at 600 K.C. until no further improvement results.

Check calibration.

PARTS AND PRICE LIST — MODEL 581.

REF. No.	DESCRIPTION.	PART No.	LIST PRICE.	REF. No.	DESCRIPTION.	PART No.	LIST PRICE.
T.1	L.W. Aerial Transformer, Part No. 32-2187	Complete Unit 380-5198	14 0	R.6	½ watt Carbon Resistor, 51,000 ohms	4518	9
T.2	M.W. Aerial Transformer, Part No. 320-1063			R.7	¼ watt Carbon Resistor, 10,000 ohms	33-1000	9
T.3 SW.2-3 SW.2-4 TB.5	Wave-change Switch (Aerial Section), Part No. 42-1205			R.8	½ watt Insulated Resistor, 15,000 ohms	330-2016	9
T.4	M.W. Oscillator Coil, Part No. 32-2120	Complete Unit 380-5196	9 6	R.9	¼ watt Insulated Resistor, 51,000 ohms	330-2015	9
T.5	L.W. Oscillator Coil, Part No. 32-2189			R.9A	¼ watt Carbon Resistor, 490,000 ohms	6097	9
SW.2-1 SW.2-2	Wave-change Switch (Oscillator Section) Part No. 42-1206	320-1057 (equiv.) 32-1706	5 3	R.10	¼ watt Insulated Resistor, 51,000 ohms	330-2015	9
T.6 VC.1 VC.2	2nd I.F. Transformer and Trimmers Assembly			R.11	¼ watt Carbon Resistor, 1 megohm	33-1096	9
T.7 VC.5 VC.6	1st I.F. Transformer and Trimmers Assembly	320-1047 (equiv.) 32-1705	5 6	R.12	¼ watt Carbon Resistor, 1 megohm	33-1096	9
T.8	Output Transformer Part No. 320-7008 Speech Coil and Cone, Part No. 360-3005	Complete Speaker 360-1007	21 0	R.13	¼ watt Carbon Resistor, 1 megohm	33-1096	9
CK.1 VC.3 VC.4	Field Coil	31-1858	17 6	R.14	¼ watt Carbon Resistor, 490,000 ohms	6097	9
VC.7 VC.9	Double Padder 30+80 mmfd. ..			R.15	¼ watt Carbon Resistor, 51,000 ohms	6098	9
VC.8 VC.10	Double Padder 15+80 mmfd. ..	31-6115	1 8	R.16	¼ watt Carbon Resistor, 330,000 ohms	33-1200	9
VC.11	Double Padder 375+600 mmfd. ...	31-6060	2 0	VR.1	Tone Control 100,000 ohms .. }	33-5167	3 6
EC.1	Electrolytic Condenser 8+4 mfd.	30-2129	3 9	SW.1	On-off Switch }		
EC.2	Electrolytic Condenser 8 mfd. ...	30-2014	3 9	VR.2	Volume Control 2 megohms (tapped at 1 megohm)	33-5166	2 6
C.1	Tubular Condenser .003 mfd. ...	30-4042	7	S.1	4-Prong Valve Holder	27-6034	4
C.2	Moulded Condenser .015 mfd. ...	3793-SU	8	S.2	6-Prong Valve Holder	27-6036	5
C.3	Tubular Condenser .1 mfd. ...	30-4170	9	S.3	7-Prong Valve Holder	27-6037	5
C.4	Moulded Condenser .015+.015mfd.	3793-DG	8	S.4	6-Prong Valve Holder	27-6036	5
C.5	Tubular Condenser .02 mfd. ...	30-4113	1 3	S.5	6-Prong Valve Holder	27-6036	5
C.6	Tubular Condenser .5 mfd. ...	30-4117	1 6	PT.1	Power Transformer	320-7039	16 3
C.6A	Tubular Condenser .01 mfd. ...	30-4124	6	LP.1	Pilot Bulb	34-2141	1 4
C.7	Mica Condenser 250 mmfd. ...	300-1014	6		Dial Screen	270-5036	4
C.8	Tubular Condenser .03 mfd. ...	30-4025	7		Dial Scale and Hub Assembly ..	380-5203	2 6
C.9	Tubular Condenser .05 mfd. ...	30-4020	7		Dial Scale Mask	270-5047	6
C.10	Tubular Condenser .01 mfd. ...	30-4124	6		Valve Shield	28-2726	2
C.11	Tubular Condenser .01 mfd. ...	30-4124	6		Grid Clip	28-2214	doz. 5
C.12	Tubular Condenser .01 mfd. ...	30-4124	6		Rubber Bush	4126	1
C.13	Mica Condenser 110 mmfd. ...	300-1020	8		Rubber Buffers	270-7189	1
C.14	Mica Condenser 110 mmfd. ...	300-1020	8		Chassis Mounting Rubbers ..	5189	1
C.15	Mica Condenser 110 mmfd. ...	300-1020	8		Chassis Mounting Washers ..	29-2089	doz. 2
C.16	Mica Condenser 110 mmfd. ...	300-1020	8		Chassis Mounting Bolts ..	W-1345A	1
C.17	Tubular Condenser .1 mfd. ...	30-4122	6		Mains Cable	LO-1009	1 7
R.1	Candohm Wire-wound Resistor, 35+8+200 ohms	33-3284	1 0		Speaker Cable	LO-1035	1 3
R.2	¼ watt Carbon Resistor, 1 megohm	33-1096	9		Knob (Tuning) and Spring ..	270-4041	9
R.3	2 watt Carbon Resistor, 25,000 ohms	33-1072	1 6	V.1	Knob (Volume) and Spring ..	270-4037	5
R.4	¼ watt Carbon Resistor, 99,000 ohms	6099	9	V.2	Knob (Wave-change) and Spring	270-4038	5
R.5	¼ watt Carbon Resistor, 240,000 ohms	33-1097	9	V.3	Knob (Tone) and Spring ..	270-4039	5
or	¼ watt Carbon Resistor, 250,000 ohms	33-1185	9	V.4	Knob Spring	280-5262	doz. 2
				V.5	Red Wander Plug	380-5087	2
					Black Wander Plug	380-5015	doz. 1 6
					Bezel Escutcheon	270-4045	10
					Bezel Glass	270-7196	2 3
					Bezel Spring	290-1160	1
					Type 80 Full Wave Rectifier Valve	3149	8 0
					Type 42E Pentode Output Valve	6447E	13 6
					Type 6A7 Variable-mu Heptode Valve	34-2002	15 0
					Type 75 Double Diode Triode Valve	8002	12 6
					Type 78E Variable-mu H.F. Pentode Valve	8315-E	12 6