



# PHILCO

## Radio Service Bulletin No. 48

Published by the Philco Radio & Television Corporation of Great Britain, Ltd., Perivale, Greenford, Middlesex

**TYPE CIRCUIT:** Five-valve Superheterodyne Unit-constructed Receiver with full delayed A.V.C. and Pentode Output (2.5 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:** The circuit is so arranged that connection may be made to either A.C. or D.C. mains from 190-260 volts without discrimination or adjustment, and on A.C. mains the circuit is independent of periodicity between the limits of 40-100 cycles. A type 25RE, rectifying valve is employed in the receiver and is used as a half-wave rectifier on A.C. and as a resistance on D.C.

**WAVE-BANDS: COVERAGE:** Two (a) Long, 150-320 Kc. (2,000-937.5 metres); (b) Medium, 530-1,750 Kc. (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.

**INTERMEDIATE FREQUENCY:** 451 Kc.

**POWER CONSUMPTION:** 80 watts.

### TABLE I — VOLTAGES.

Valve socket readings to chassis taken with an 065 or 077 Philco Set Tester, using the 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. 245 v. ,, 5. 150 v.*	Pin 4. 100 v.	Pin 7. 2.5 v.
I.F. Amplifier S.5 ... ..	78E	Pin 3. 250 v.	Pin 4. 100 v.	Pin 6. 3.5 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier S.4 ...	75	Pin 3. 110 v.	—	Pin 6. 8 v.
Pentode Output S.1 ... ..	18E	Pin 3. 240 v.	Pin 4. 250 v.	Pin 6. 15 v.
Half-wave Rectifier S.2... ..	25RE	Pins 3 & 6. 230v. A.C. ,, 4 & 5. 260v. D.C.	—	—
Barretter B.1 ... ..	301	Pin 1. 230 v. A.C. ,, 2. 70 v. A.C.	—	—

\* Oscillator Anode volts: V.1 filament, 14 v. A.C.; V.2 filament, 25 v. A.C.; V.3, 4, 5, and LP.1 filaments, each 6.3 v. A.C., measured between Pins 1 and 2 on each socket.

### TABLE 2. — RESISTANCES OF COILS.

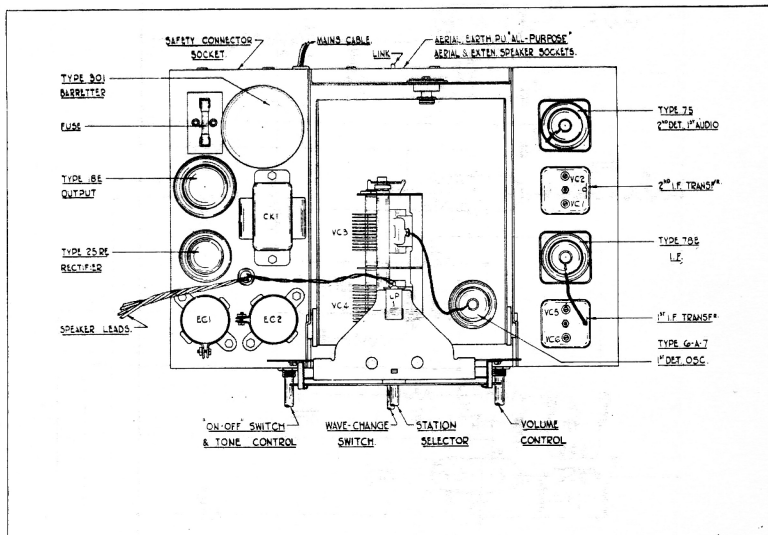
(Link on TB.2 to be in socket "B.")

REF. No. ..	TEST PROD 1	TEST PROD 2	RESISTANCE (Ohms).	REF. No. ..	TEST PROD 1	TEST PROD 2	RESISTANCE (Ohms).
T.1. Primary	TB.3/4	Chassis	Sw.2. L.W. 80	T.7. Primary	V.3/3	TB.6/11	8
T.1. Primary tapping 2	TB.3/3	"	" " 10	T.7. Secondary	TB.6/3	V.5 Cap	12
T.1. Primary tapping 3	TB.2 Socket "C"	"	" " 5	T.5	V.3/6	Sw.2/2 Tag 4	Sw.2. L.W. 16.5
T.1. Secondary	TB.4/9	TB.6/3	" " 5	T.4	"	"	" M.W. 8 Gram. Zero
T.1. Secondary with T.3 in series	V.3 Cap	"	" " 25	T.6. Primary	V.5/3	TB.6/10	12
T.2. Primary	TB.3/4	Chassis	" M.W. 2 Gram. Infinity	T.6. Secondary	TB.6/7	V.4/5	8
T.2. Primary tapping	TB.2 Socket "C"	Chassis	" M.W. 1 Gram. Infinity	CK.1	EC.2 Red	EC.1 Tag	150
T.2. Secondary	V.3 Cap	TB.6/3	" M.W. 5 Gram. Infinity	T.8. Primary	"	V.1/3	240
				T.8. Secondary	Output Trans.	Output Trans.	0.2*
				Speech Coil	Lead 1	Lead 2	2*

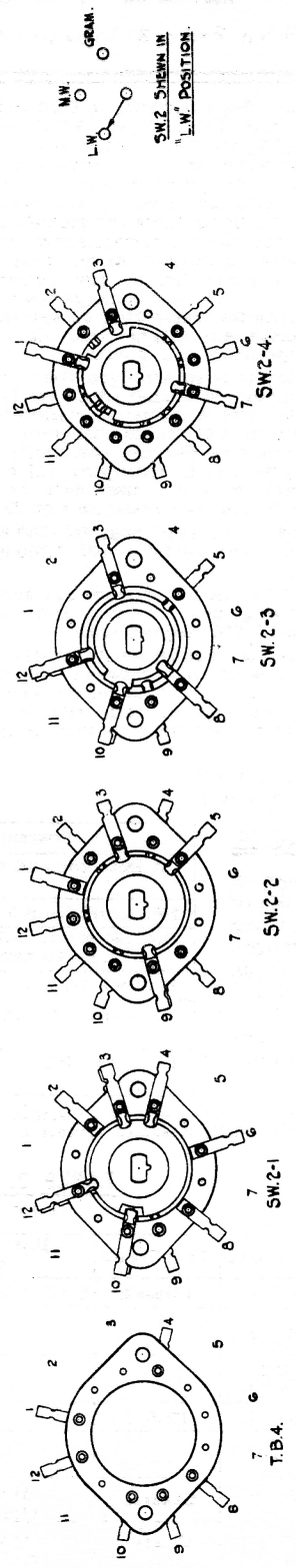
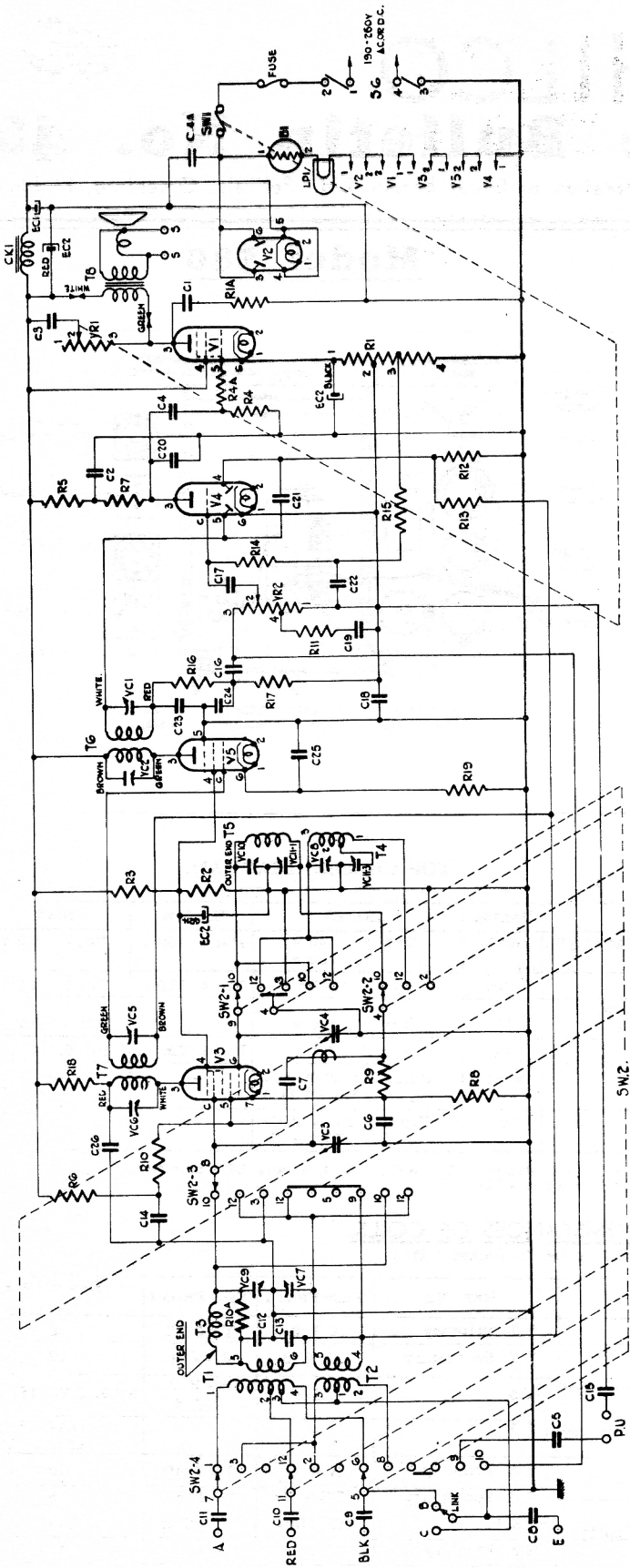
\* Resistance of T.8 Secondary alone and Speech Coil alone (taken when disconnected).

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

## Model 580

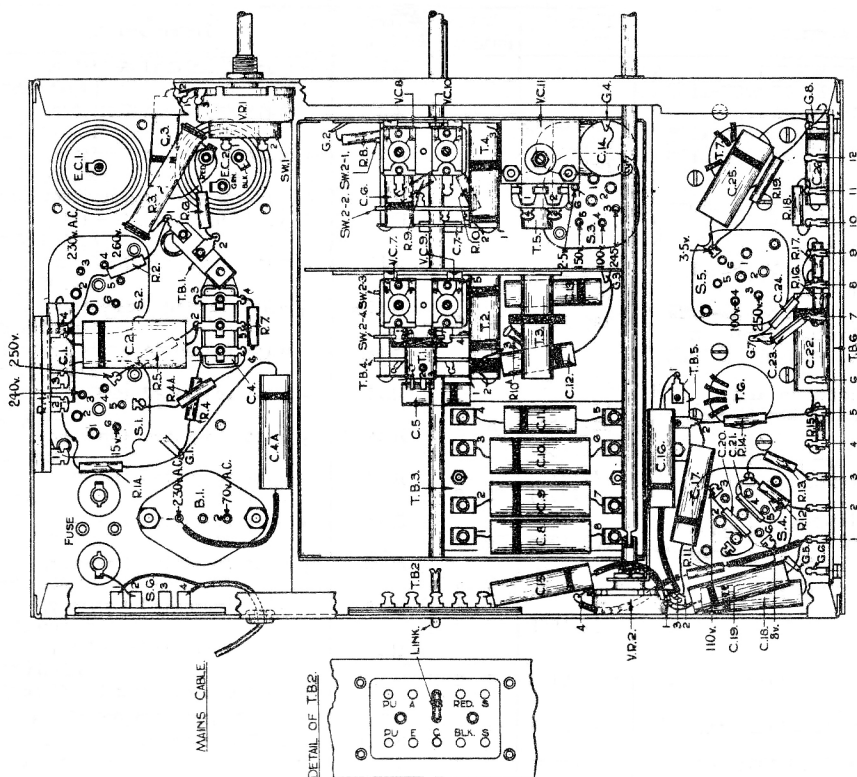


TOP CHASSIS DIAGRAM.



VIEWS OF SWITCHES & T.B.4 FROM FRONT  
 CHASSIS BEING UPSIDE DOWN  
 NOTE - SPINDLE LOCATING NOTCHES AT BOTTOM

SCHEMATIC DIAGRAM.



UNDER CHASSIS 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 Kc.). 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 Kc. 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 Kc. Feed in a 290 Kc. signal and trim VC's 10 and 9 underneath chassis in that order for maximum output.

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

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

Check calibration.

PARTS AND PRICE LIST — MODEL 580.

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.5	½ watt Insulated Resistor, 99,000 ohms	330-2012	9
T.2	M.W. Aerial Transformer, Part No. 320-1063			R.6	½ watt Insulated Resistor, 10,000 ohms	330-2014	9
T.3	Rejector Coil, Part No. 32-2188	Complete Unit 380-5196	9 6	R.7	½ watt Insulated Resistor, 190,000 ohms	33-1117	9
SW.2-3	Wave-change Switch (Aerial Section), Part No. 42-1205			R.8	½ watt Carbon Resistor 300 ohms	330-1006	9
SW.2-4				R.9	½ watt Insulated Resistor, 51,000 ohms	330-2015	9
T.4	M.W. Oscillator Coil, Part No. 32-2120			R.10	½ watt Insulated Resistor, 15,000 ohms	330-2016	9
T.5	L.W. Oscillator Coil, Part No. 32-2189	Complete Unit 380-5196	9 6	R.10A	¼ watt Carbon Resistor, 490,000 ohms	6097	9
SW.2-1	Wave-change Switch (Oscillator Section), Part No. 42-1206			R.11	½ watt Insulated Resistor, 51,000 ohms	330-2015	9
SW.2-2		2nd I.F. Transformer and Trimmers Assembly	R.12	½ watt Insulated Resistor, 1 megohm	330-2018	9	
T.6	1st I.F. Transformer and Trimmers Assembly		R.13	½ watt Insulated Resistor, 1 megohm	330-2018	9	
VC.1		320-1057 (equiv. 32-1706)	R.14	½ watt Insulated Resistor, 1 megohm	330-2018	9	
VC.2	320-1047 (equiv. 32-1705)		R.15	½ watt Insulated Resistor, 490,000 ohms	330-2013	9	
T.7		Output Transformer Speech Coil and Permanent Magnet	R.16	½ watt Insulated Resistor, 51,000 ohms	330-2015	9	
VC.5	Speaker complete		R.17	½ watt Insulated Resistor, 330,000 ohms	330-2017	9	
VC.6		320-7030	R.18	½ watt Insulated Resistor, 1,000 ohms	330-2019	9	
T.8	L.F. Smoothing Choke		R.19	½ watt Carbon Resistor 400 ohms	330-1003	9	
CK.1		Two-gang Condenser .. ..	VR.1	Tone Control 100,000 ohms ..	33-5167	3 6	
VC.3	31-1858		VR.2	On-off Switch .. ..			
VC.4		31-6116	1 8	Volume Control 2 megohms (tapped at 1 megohm)	33-5166	2 6	
VC.7	Double Padder 30+80 mmfd. ..						S.1
VC.9		31-6115	1 8	S.2	6-Prong Valve Holder .. ..	27-6036	5
VC.8	Double Padder 15+80 mmfd. ..			S.3	7-Prong Valve Holder .. ..	27-6037	5
VC.10		31-6060	2 0	S.4	6-Prong Valve Holder .. ..	27-6036	5
VC.11	30-2126			4 3	S.5	6-Prong Valve Holder .. ..	27-6036
EC.1		Electrolytic Condenser 16 mfd. ...	30-2156		5 3	S.6	Mains Safety Socket .. ..
EC.2	Electrolytic Condenser, 25+4+16 mfd.			30-4123		9 9	B.1
C.1		Tubular Condenser .03 mfd. ..	30-4025		7 7		LP.1
C.2	Tubular Condenser .1 mfd. ..			30-4170		9 9	
C.3		Tubular Condenser .05 mfd. ..	30-4123		9 9		Fuse (1 amp.) .. ..
C.4	Moulded Condenser .015 mfd. ..			3793-SU		8 8	Pilot Bulb .. ..
C.4A		Tubular Condenser .1 mfd. ..	30-4170		9 9		Dial Screen .. ..
C.5	Tubular Condenser .01 mfd. ..			30-4124		6 6	Dial Scale and Hub Assembly ..
C.6		Tubular Condenser .05 mfd. ..	30-4020		7 7		Valve Shield .. ..
C.7	Mica Condenser 250 mmfd. ..			300-1014		6 6	Grid Clip .. ..
C.8		Tubular Condenser .01 mfd. ..	30-4145		7 7		Rubber Bush .. ..
C.9	Tubular Condenser .01 mfd. ..			30-4145		7 7	Rubber Buffers .. ..
C.10		Tubular Condenser .01 mfd. ..	30-4145		7 7		Chassis Mounting Rubbers ..
C.11	Tubular Condenser .001 mfd. ..			30-4201		6 6	Chassis Mounting Washers ..
C.12		Tubular Condenser 0.3 mfd. ..	30-4025		7 7		Chassis Mounting Bolts .. ..
C.13	Tubular Condenser .05 mfd. ..			30-4020		6 6	Mains Cable .. ..
C.14		Tubular Condenser .5 mfd. ..	30-4117		1 6		Speaker Cable .. ..
C.15	Tubular Condenser .01 mfd. ..			30-4145		7 7	Knob (Volume) and Spring ..
C.16		Tubular Condenser .01 mfd. ..	30-4124		6 6		Knob (Wave-change) and Spring
C.17	Tubular Condenser .01 mfd. ..			30-4124		6 6	Knob (Tone) and Spring ..
C.18		Tubular Condenser .05 mfd. ..	30-4020		7 7		Knob (Tuning) and Spring ..
C.19	Tubular Condenser .01 mfd. ..			30-4124		6 6	Knob Spring .. ..
C.20		Mica Condenser 110 mmfd. ..	300-1020		8 8		Red Wander Plug .. ..
C.21	Mica Condenser 110 mmfd. ..			300-1020		8 8	Black Wander Plug .. ..
C.22		Tubular Condenser .1 mfd. ..	30-4122		6 6		
C.23	Mica Condenser 110 mmfd. ..			300-1020		8 8	V.1
C.24		Mica Condenser 110 mmfd. ..	300-1020		8 8		V.2
C.25	Tubular Condenser .1 mfd. ..			30-4122		6 6	V.3
C.26		Tubular Condenser .01 mfd. ..	30-4145		7 7		V.4
R.1	Candohm Wire-wound Resistor 190+35+190 ohms			33-3285		1 3	V.5
R.1A		½ watt Insulated Resistor, 15,000 ohms	330-2016		9 9		B.1
R.2	½ watt Insulated Resistor, 51,000 ohms			330-2015		9 9	
R.3		2 watt Carbon Resistor, 25,000 ohms	33-1072		1 6		
R.4	½ watt Insulated Resistor, 490,000 ohms			330-2013		9 9	
R.4A		½ watt Insulated Resistor, 51,000 ohms	330-2015		9 9		