PHILCO

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Model U-527

TYPE CIRCUIT : Five-valve Superheterodyne Receiver with Pentode Output (2.5 watts) for operation on Medium and Long Wavebands. Full delayed A.V.C. is incorporated in the circuit, and provision is made by means of sockets on the speaker panel for connecting an external speaker of the permanent-magnet moving-coil type having an impedance of 2-3 ohms.

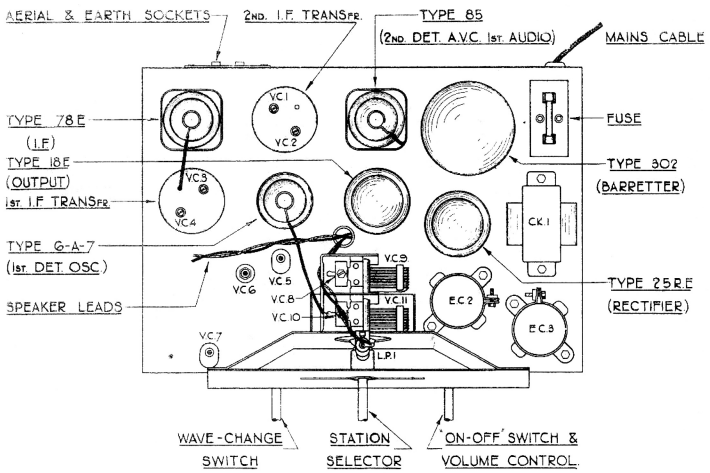
POWER SUPPLY : The circuit is so arranged that connection may be made to either A.C. or D.C. mains from 190 to 260 volts without discrimination or adjustment, and on A.C. mains the circuit is independent of periodicity between the limits of 40-100 cycles. A type 25RE rectifying valve is employed in the Receiver and is used as a half-wave rectifier on A.C. and as a resistance on D.C.

WAVEBANDS : COVERAGE : Two ; (*a*) Long, 300-150 kilocycles (1,000-2,000 metres); (*b*) Medium, 1,510-550 kilocycles (198.6-545.4 metres).

TUNING DRIVE : Geared 6-1 ratio for smooth and accurate tuning.

INTERMEDIATE FREQUENCY : 451 Kc.

POWER CONSUMPTION : 85 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 volts ranges. Volume control at minimum, 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.2	6A7	Pin 3. 250 v. Pin 5. 160 v.*	Pin 4. 80 v.	—
I.F. Amplifier, S.1	78E	Pin 3. 250 v.	Pin 4. 80 v.	—
2nd Detector, A.V.C. and 1st Audio, S.3	85	Pin 3. 20 v.	—	—
Pentode Output, S.4 ..	18E	Pin 3. 240 v.	Pin 4. 250 v.	Pin 6. 15 v.
Half-Wave Rectifier, S.5	25RE	Pins 3 & 6 230 v. A.C. Pins 4 & 5. 260 v. D.C.	—	—
Barretter, B.1	302	Pin 1. 64 v. A.C. Pin 2. 230 v. A.C.	—	—

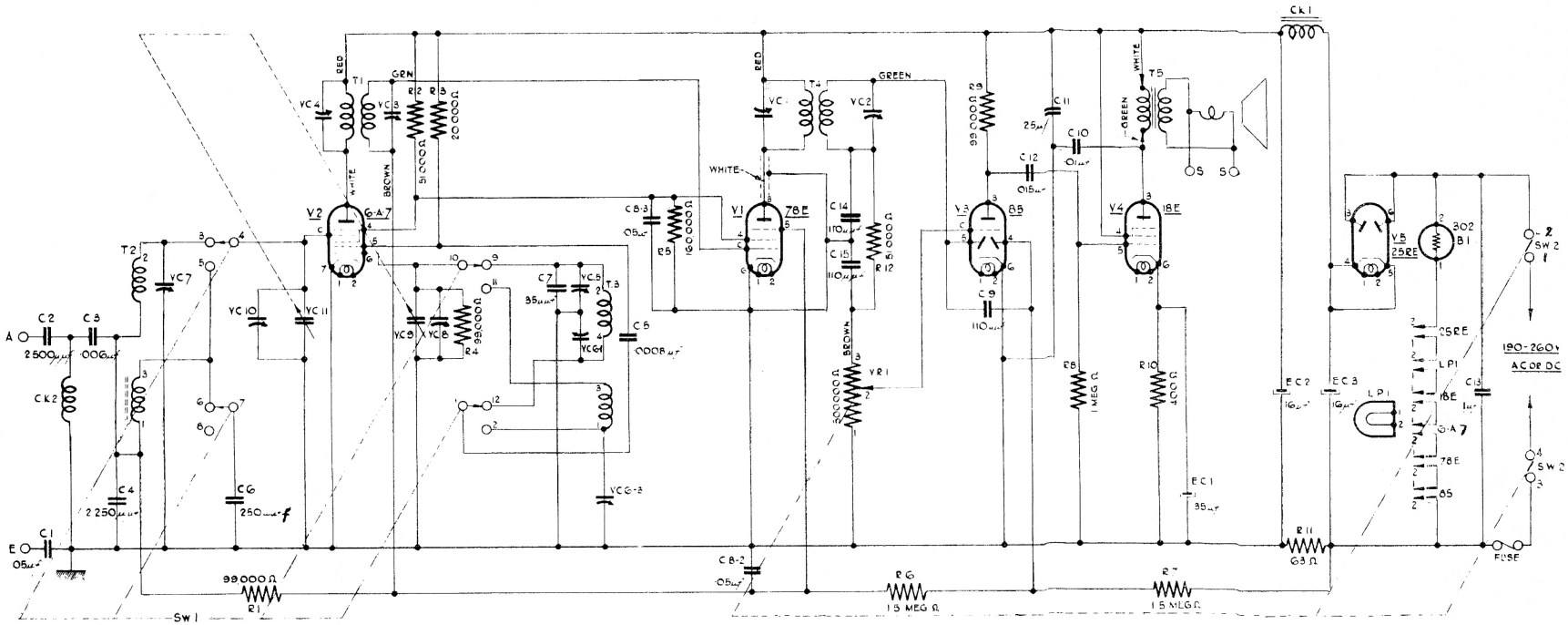
* Oscillator Anode Volts. LP.1, V.1, V.2, and V.3 filaments, each 6.3 volts A.C.; V.4 filament, 14 volts A.C., V.5 filament, 25 volts A.C., measured between Pins 1 and 2 on each socket.

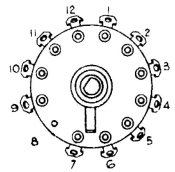
TABLE 2 – RESISTANCES OF COILS.

REF. NO.	TEST PROD 1	TEST PROD 2	RESISTANCE (OHMS)	REF. NO.	TEST PROD 1	TEST PROD 2	RESISTANCE (OHMS)
CK.1	TB.2/1	Chassis	25	T.4 Primary..	V.1/3	TB.2/2	12
T.2	V.2 Cap	TB.5/2	SW.1. L.W. 25 „ M.W 2.5	T.4 Secondary	V.3/5	VR.1/3	51,000 approx.
				T.5 Primary..	V.4/3	V.4/4	240
T.1 Primary..	V.2/3	TB.2/2	8	T.5 Secondary	Output Transfmr.	Output Transfmr.	0.2†
T.1 Secondary	V.1 Cap	TB.3/1	12				
T.3	V.2/6	SW.1/1	SW.1. L.W. 16.5 „ M.W. 2.5	Speech Coil..	Lead 1	Lead 2	2†
				CK.2	V.4/4	V.5/5	150

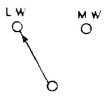
† Resistance of T.5 Secondary alone and Speech Coil alone (taken when disconnected).

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



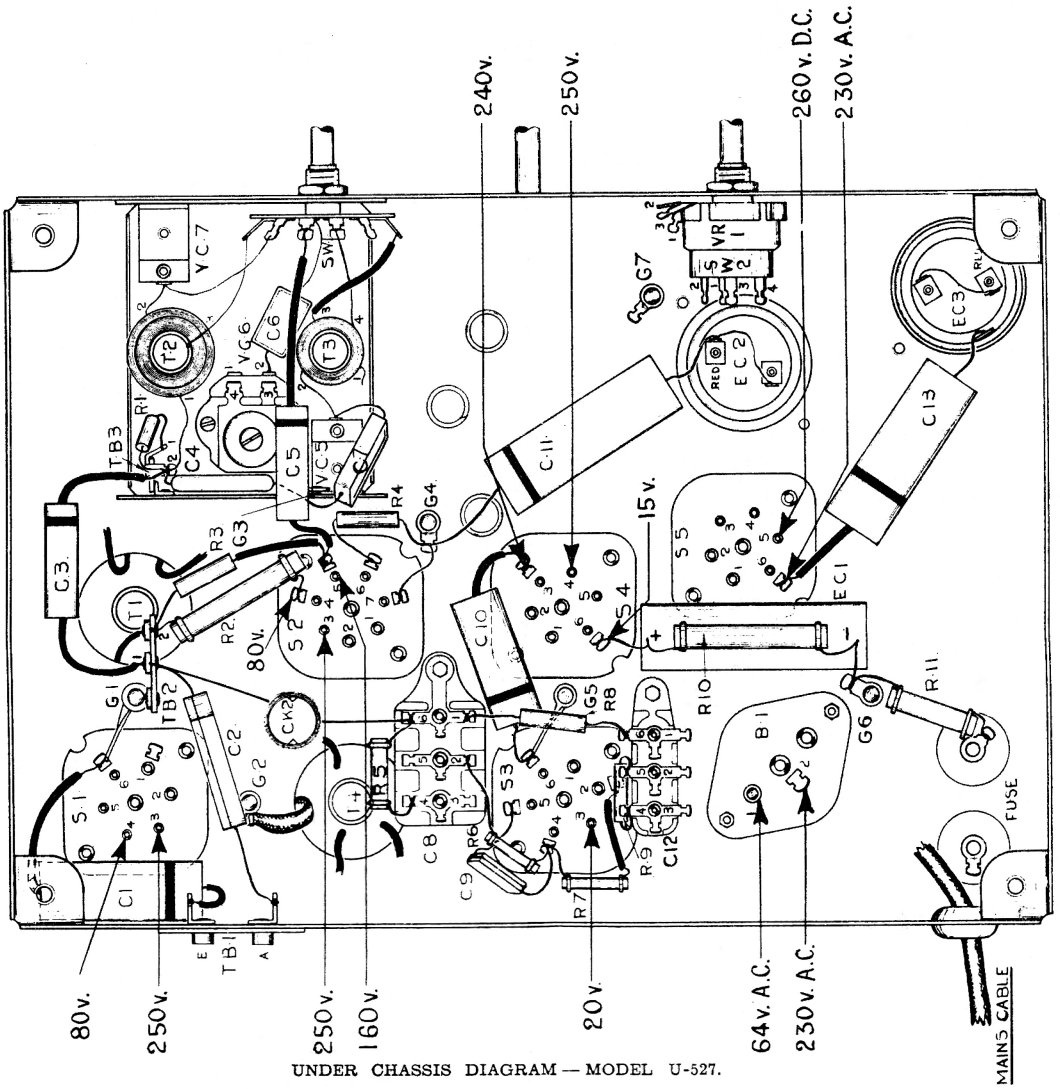


VIEW OF SW-1 FROM FRONT CHASSIS BEING UPSIDE DOWN.



SW1 SHEWN IN L.W. POSITION

CIRCUIT DIAGRAM — MODEL U-527.



UNDER CHASSIS DIAGRAM — MODEL U-527.

ALIGNMENT PROCEDURE.

Before leaving the Factory, all Philco Receivers are accurately aligned, but if mis-alignment is suspected through damage, no alteration should be made 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 top of pointer is vertical in centre of space between the L.W. and M.W. scales. Turn wave-change switch clockwise (M.W. position) and volume control fully clockwise.

INTERMEDIATE FREQUENCY. The I.F. trimmers (VC.'s 1, 2, 3 and 4) should first be carefully adjusted by feeding in a 451 Kc. signal from the Signal Generator via a Standard Dummy to the grid cap of the 6A7 valve (with grid lead connected) and the Signal Generator earthed to the Receiver Earth Socket. 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 with a fibre screwdriver.

Transfer Signal Generator lead via the Standard Dummy to the Aerial Socket.

MEDIUM WAVES. Set pointer at 1,400 Kc. on scale; feed in a signal of 1,400 Kc. and trim VC.'s 8 and 10 in that order for maximum output.

Feed in and tune a signal of 600 Kc. Rock gang and pad VC.6 (screw) for maximum output. Readjust VC.8 at 1,400 Kc. Repeat the above operation until no further improvement results

LONG WAVES. Turn wave-change switch anti-clockwise (L.W. position) and set gang at 290 Kc. Feed in a 290 Kc. signal and trim Vc.'s 5 and 7 in that order for maximum output.

Feed in and tune a 160 Kc. signal. Rock gang and pad VC.6 (nut) for maximum output. Readjust VC.5 at 290 Kc. Repeat the above operation until no further improvement is obtainable.

Check calibration.

PARTS AND PRICE LIST – MODEL U-527.

Ref. No.	Description	Part Number	List Price s.	d.
CK.1	L.F Choke	320-7030	5	3
CK.2	Aerial Choke	320-1191	1	3
T.1, VC.3, VC.4	1st I.F. Transformer and Trimmers Assembly	32-2101 or 320-1125	4	4
T2	M. and L.W. Aerial Coil	32-2528 or 320-1153	8	0
T.3	M. and L.W. Oscillator Coil	32-2531 or 320-1183	8	0
T.4, VC.1, VC.2	2nd I.F. Transformer and Trimmers Assembly	32-2503 or	7	6
C.14	Mica Condenser, 110 mmfd.	320-1126 or	7	6
C.15	Mica Condenser, 110 mmfd.	320-1155	7	6
R.12	¼ watt Insulated Resistor, 51,000 ohms			
T.5	Output Transformer, Part No. 320-8025	Complete Speaker		
	Speech Coil and Cone, Part No. 360-4016	360-1116†	18	9
	Permanent Magnet			
VC.5	Single Padder, 30—110 mmfd.	31-6181 or 310-6045		6 6
VC.6	Double Padder, 130+400 mmfd.	31-6180	1	4
VC.7	Single Padder, 30—110 mmfd.	31-6181 or 310-6045		6 6
VC.8, VC.9, VC.10, VC.11	Two-gang Condenser and Trimmers	31-2012	8	0
EC.1	Electrolytic Condenser, 35 mfd.	300-4022	1	2
EC.2	Electrolytic Condenser, 8+8 mfd.	30-2028	4	6
EC.3	Electrolytic Condenser, 8+8 mfd.	30-2028	4	6
C.1	Tubular Condenser, .05 mfd.	30-4012	1	0
C.2	Mica Condenser, 2,500 mmfd.	300-1008 or 300-1072	1	1
C.3	Tubular Condenser, .006 mfd.	30-4125		6
C.4	Mica Condenser, 2,250 mmfd.	30-1055	1	2
C.5	Tubular Condenser, .0008 mfd.	30-4335		6
C.6	Mica Condenser, 250 mmfd.	30-1032		6
C.7	Mica Condenser, 30 mmfd.	300-1024		9
or	Mica Condenser, 35 mmfd.	300-1046		6
C.8	Moulded Condenser, .05+.05 mfd.	3615-DG	1	0
C.9	Mica Condenser, 110 mmfd.	30-1031		6
C.10	Tubular Condenser, .01 mfd.	30-4145		7
C.11	Tubular Condenser, .25 mfd.	30-4134	1	2
C.12	Moulded Condenser, .015 mfd.	3793-SU		7
C.13	Tubular Condenser, .1 mfd.	30-4170		9
R.1	½ watt Insulated Resistor, 99,000 ohms	330-2012		9
R.2	1 watt Carbon Resistor, 51,000 ohms	4237		9
R.3	½ watt Insulated Resistor, 20,000 ohms	330-2049		9
R.4	½ watt Insulated Resistor, 99,000 ohms	330-2012		9

Ref. No.	Description	Part Number	List Price s.	d.
R.5	¼ watt Insulated Resistor, 160,000 ohms	330-2024		9
R.6	¼ watt Carbon Resistor, 1.5 Megohms	33-1188		9
R.7	¼ watt Carbon Resistor, 1.5 Megohms	33-1188		9
R.8	½ watt Insulated Resistor, 1 Megohm	330-2018		9
R.9	½ watt Insulated Resistor, 99,000 ohms	330-2012		9
R.10	1 watt Carbon Resistor, 400 ohms	330-1001		9
R.11	½ watt Carbon Resistor, 63 ohms	330-1037		9
or	½ watt Insulated Resistor, 63 ohms	330-2044		9
VR.1	Volume Control, 500.000 ohms	33-5212/2		—
SW.2	On/Off Switch (D.P.S.T.)	or 330-5019		—
SW.1	Wave-change Switch	42-1321	2	3
S.1	6-prong Valve Holder	27-6036		5
S.2	7-prong Valve Holder	27-6037		5
S.3	6-prong Valve Holder	27-6036		5
S.4	6-prong Valve Holder	27-6036		5
S.5	6-prong Valve Holder	27-6036		5
B.1	Barretter Socket Assembly	380-5199	1	6
	Fuse (2 amp.)	45-2121		3
L.P.1	Pilot Bulb	34-2141	1	4
	Grid Clip	28-2214	doz.	5
	Valve Shield	28-2726		2
	Mains Cable	LO-1009	1	6
	Speaker Cable	LO-1041		7
	Scale Holder and Spring Assembly	380-5370	1	3
	Dial Scale	270-5075A	1	7
	Pointer and Hub Assembly	380-5371		6
	Dial Screen	270-5046	1	3
	Chassis Mounting Spacers	280-6040	doz.	8
	Chassis Mounting Rubbers	270-7451		1
	Chassis Mounting Bolts	W-1345		1
	Chassis Mounting Cups	270-7374		3
	Chassis Mounting Washers	29-2089	doz.	2
	Knob (Tuning), Grubscrew and Spring	270-4067		5
	Knob (Wave-change), Grubscrew and Spring	270-4126		5
	Knob (Volume), Grubscrew and Spring	270-4124		5
	Black Wander Plug	380-5015		2
	Red Wander Plug	380-5087		2
V.1	Type 78E Variable-mu H.F. Pentode Valve	8315-E	12	6
V.2	Type 6A7 Variable-mu Heptode Valve	34-2002	15	0
V.3	Type 85 Double Diode Triode Valve	7532	12	0
V.4	Type 18E Pentode Output Valve	7209-E	13	6
V.5	Type 25RE Rectifier Valve	34-2035	10	6
	Type 302 Barretter	340-9002	8	6

† When ordering Speaker parts, the letter which will be found in the part number of the Speaker must also be given.

ABOVE PRICES DO NOT APPLY IN I.F.S.