PHILCO

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Model P-527

TYPE CIRCUIT: Five-valve Superheterodyne Receiver with Quiescent Pentode Output (0.6 watt undistorted) for operation on Medium and Long Wavebands. Full 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: Low Tension Accumulator, 2 volts, approximate size 3⅜in. x 3⅜in. x 7½in. height; combined High Tension, 120 volts, and Grid Bias, 9 volts, approximate size 9¼in. x 6⅜in. x 3in. height. Suitable types are Exide type DFG or Ever-Ready type GS45 Accumulator, and Exide type H.1071 or Ever-Ready type "Portable 34" or Siemens' "Full o' Power" type 1342 combined H.T. and G.B. Battery. Provision is made by means of a connecting link for using separate H.T. and G.B. Batteries if desired. The black plug on the link connects to the socket in the black (H.T.—) plug and the red plug on the link is inserted in the positive (+) socket of the separate Grid Bias Battery. With this arrangement, both batteries should be of similar capacity and must be renewed together.

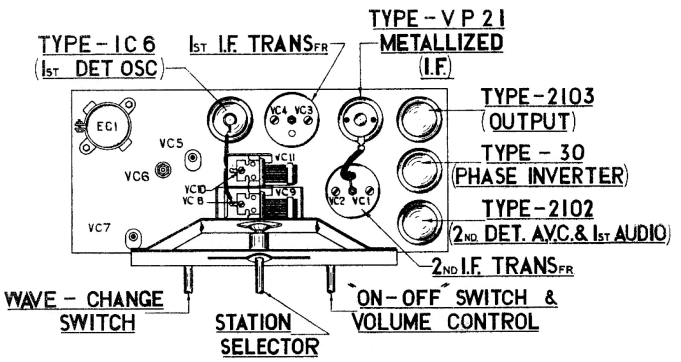
WAVEBANDS: COVERAGE: Two: (*a*) Medium, 1,500-550 Kc. (200-545.4 metres); (*b*) Long, 300-150 Kc. (1,000-2,000 metres).

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

LOUDSPEAKER: An 8in. diameter permanent-magnet moving-coil speaker employing the latest nickel-aluminium alloy 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: L.T. current, 0.6 amp.; H.T. current, 7 milliamps. quiescent, 9.5 milliamps. normal rising to 15 milliamps. on loud signals.



TOP CHASSIS DIAGRAM.

TABLE 1 – VOLTAGES.

Valve socket readings to chassis taken with an 065 or 077 Philco Set Tester, using the 250 and 100 volts ranges. Volume control at minimum, wave - change switch in M.W. position, and no aerial connected.

POSITION	VALVE	ANODE	SCREEN
1st Detector and Oscillator, S.1 ..	1C6	Pin 3. 120 v. Pin 4. 85 v.*	Pin 6. 35 v.
I.F. Amplifier, S.2	VP21 (Metallized)	Cap. 120 v.	Pin 7. 30 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier, S.5	2102	Pin 3. 45 v.	—
Phase Inverter, S.4	30	Pin 3. 40 v.	—
Quiescent Pentode Output, S.3 ..	2103	Pin 3. 120 v. Pin 7. 120 v.	Pin 5. 120 v.

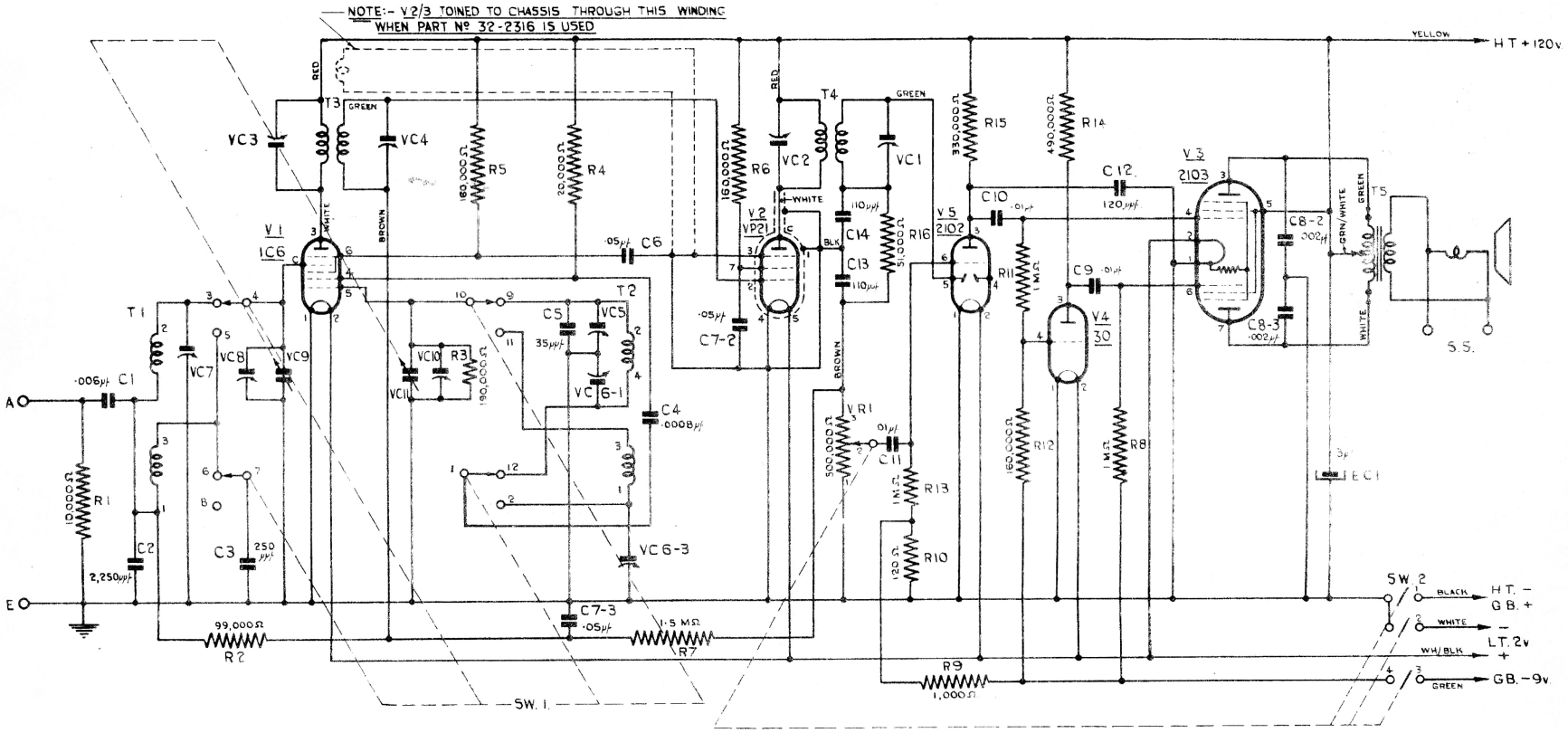
* Oscillator Anode Volts. Filament voltage on each valve, 2 volts.

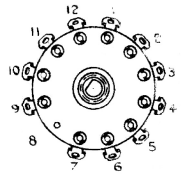
TABLE 2 — RESISTANCES OF COILS.

REF. NO.	TEST PROD 1	TEST PROD 2	RESISTANCE (OHMS)	REF. NO.	TEST PROD 1	TEST PROD 2	RESISTANCE (OHMS)
T.1	V.1 Cap	TB.2/2	SW.1. L.W. 25 ,, M.W. 2.5	T.4 Secondary	V.5/5	VR.1/3	51,000 approx.
T.3 Primary..	V.1/3	TB.3	8	T.5 Primary..	V.3/3 V.3/7	V.3/5 V.3/5	250 250
T.3 Secondary	V.2/2	C.7/3	12	T.5 Secondary	Output Transfmr.	Output Transfmr.	0.2†
T.2	V.1/5	SW.1/1	SW.1. L.W. 16.5 ,, M.W. 2.5				
T.4 Primary..	V.2 Cap	TB.3	12	Speech Coil..	Lead 1	Lead 2	2†

† 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.

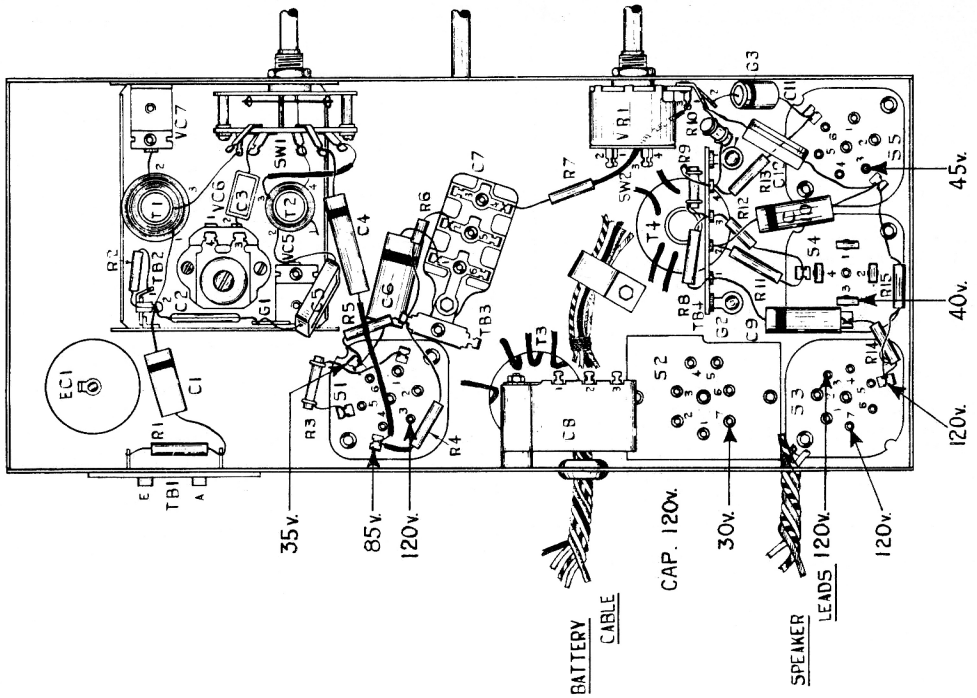




VIEW OF SW-1 FROM FRONT CHASSIS BEING UPSIDE DOWN.

SW-1 SHEWN IN L.W. POSITION

CIRCUIT DIAGRAM — MODEL P-527.



UNDER CHASSIS DIAGRAM — MODEL P-527.

ALIGNMENT PROCEDURE.

Before leaving the Factory, all Philco Receivers are accurately aligned, but if misalignment 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.,* V.3/3 and V.3/7 or 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 1C6 valve (with grid lead connected) 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 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 Ks. and trim VC.'s 10 and 8 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.10 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 results.

Check calibration.

PARTS AND PRICE LIST — MODEL P-527.

Ref. No.	Description	Part Number	List Price s.	List Price d.
T.1	M. and L.W. Aerial Coil	32-2528 or 320-1153	3	3
T.2	M. & L.W. Oscillator Coil	32-2531 or 320-1183	2	6
T.3, VC.3, VC.4	1st I.F. Transformer and Trimmers Assembly	32-2316 or 320-1195 or 320-1196	5	0
T.4, VC.1, VC.2	2nd I.F. Transformer and Trimmers Assembly	32-2693 or 320-1197 or 320-1198	6	6
C.13	Mica Condenser, 110 mmfd. ..			
C.14	Mica Condenser, 110 mmfd. ..			
R.16	¼ watt Insulated Resistor, 51,000 ohms			
T.5	Output Transformer, Part No. 320-8029	Complete Speaker 360-1118†	21	0
	Speech Coil and Cone, Part No. 360-4015			
	Permanent Magnet			
VC.5	Single Padder 30—110 mmfd. ..	31-6181 or 310-6045		6
VC.6	Double Padder, 130+400 mfd. ..	31-6180	1	4
VC.7	Single Padder, 30—110 mmfd. ..	31-6181 or 310-6045		6
VC.8, VC.9, VC.10, VC.11	Two-gang Condenser and Trimmers	31-2012	8	0
EC.1	Electrolytic Condenser, 3 mfd. ..	30-2158	2	3
C.1	Tubular Condenser, .006 mfd. ..	30-4125		6
C.2	Mica Condenser, 2,250 mmfd. ..	30-1055 or 300-1021	1 1	2 3
C.3	Mica Condenser, 250 mmfd. ..	30-1032 or 300-1041		6 6
C.4	Tubular Condenser, .0008 mfd. ..	30-4335		6
C.5	Mica Condenser, 30 mmfd. ..	300-1024		9
	or Mica Condenser, 35 mmfd. ..	300-1046		6
C.6	Tubular Condenser, .05 mfd. ..	30-4020		6
C.7	Moulded Condenser, .05+.05 mfd.	3615-DG	1	0
C.8	Moulded Condenser, .002+.002 mfd.	7296-DG		9
C.9	Tubular Condenser, .01 mfd. ..	30-4124		6
C.10	Tubular Condenser, .01 mfd. ..	30-4124		6
C.11	Tubular Condenser, .01 mfd. ..	30-4124		6
C.12	Mica Condenser, 120 mmfd. ..	300-1065		4
R.1	½ watt Insulated Resistor, 10,000 ohms	330-2014		9
R.2	½ watt Insulated Resistor, 99,000 ohms	330-2012		9
R.3	¼ watt Carbon Resistor, 190,000 ohms	33-1116		9
R.4	½ watt Insulated Resistor, 20,000 ohms	330-2049		9
R.5	¼ watt Insulated Resistor, 160,000 ohms	330-2024		9
R.6	¼ watt Insulated Resistor, 160,000 ohms	330-2024		9
R.7	¼ watt Carbon Resistor, 1.5 megohms	33-1188		9
R.8	½ watt Insulated Resistor, 1 megohm	330-2018		9

Ref. No.	Description	Part Number	List Price s.	List Price d.
R.9	¼ watt Carbon Resistor, 1,000 ohms	33-1028		9
	or ½ watt Insulated Resistor, 1,000 ohms	330-2019		9
R.10	¼ watt Carbon Resistor, 120 ohms ± 2½%	330-1026		9
	or ½ watt Carbon Resistor, 120 ohms ± 2½%	330-1028		9
	or ½ watt Carbon Resistor, 120 ohms ± 10%	330-1032		9
R.11	½ watt Insulated Resistor, 1 megohm	330-2018		9
R.12	¼ watt Insulated Resistor, 160,000 ohms	330-2024		9
R.13	½ watt Insulated Resistor, 1 megohm	330-2018		9
R.14	¼ watt Insulated Resistor, 490,000 ohms	330-2001		9
R.15	½ watt Insulated Resistor, 330,000 ohms	330-2017		9
VR.1, SW.2	Volume Control, 500,000 ohms .. On/Off Switch	33-5213/1	3	4
SW.1	Wave-change Switch	42-1321	2	3
S.1	6-prong Valve Holder	27-6036		5
S.2	7-prong Valve Holder .. .. (English type)	270-6007		5
S.3	7-prong Valve Holder	27-6037		5
S.4	4-prong Valve Holder	27-6044 or 270-6010		4 4
S.5	6-prong Valve Holder	27-6036		5
	Rubber Grommett	270-7341		1
	Speaker Cable	LO-1004		8
	Battery Cable, Part No. LO-1059 Spade Tags, Part No. 280-1012 .. Yellow Plug, H.T.+120 v. Part No. 380-5225 Black Plug, H.T.— Part No. 380-5454 Green Plug, G.B.—9 v., Part No. 380-5021	Complete Assembly 410-3020	3	0
	Separate Batteries Link Assembly	410-3023		4
	Scale Holder and Spring Assembly	380-5442	1	6
	Dial Scale	270-5082		6
	Pointer and Hub Assembly.. ..	380-5371		8
	V.2 Anode Lead, Shield and Cap Assembly	380-5283	1	0
	Scale Window	270-5062	1	6
	Chassis Mounting Screws	W-1345		1
	Chassis Mounting Washers ..	29-2089	doz.	2
	Tuning Knob and Spring	270-4111		7
	Wave-change Knob and Spring ..	270-4122		4
	Volume Knob and Spring	270-4140		4
	Red Wander Plug	380-5087		2
	Black Wander Plug	380-5015		2
V.1	Type 1C6 Variable-mu Heptode Valve	34-2033	14	0
V.2	Type VP21 (Met.) Variable-mu H.F. Pentode Valve	340-2002	11	0
V.3	Type 2103 Quiescent Pentode Output Valve	34-2067	17	6
V.4	Type 30 Triode Valve	4191	6	0
V.5	Type 2102 Double Diode Triode Valve	34-2066	13	0

† 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.