



PHILCO

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Model P-337

TYPE CIRCUIT: Three-valve battery T.R.F. receiver with Pentode Output (0.5 watt) for operation on Short, Medium and Long Wave-bands. Band pass circuit using highly selective iron dust core coils on Medium and Long Wave-bands. Selectivity comparable with that of a normal superheterodyne. 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.

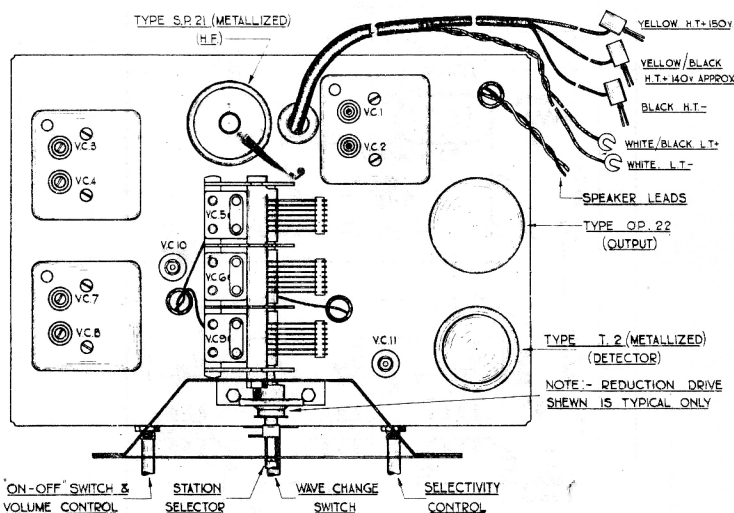
POWER SUPPLY: Low tension accumulator, 2 volts; high tension battery, 150 volts with tapping at 140 volts approx. Suitable types are Exide DFG or Ever-Ready G.S.45 Accumulator and Exide type H.1081A or Ever-Ready "Portable 37" or Siemens "Full-o'-Power" type 1317 H.T. battery, or batteries of similar size and type. No bias battery is needed, as the circuit employs an automatic bias arrangement.

WAVE-BANDS : COVERAGE: Three: (a) Long, 330-140 Kc. (910-2,140 metres); (b) Medium, 1,500-550 Kc. (200-545 metres); (c) Short, 18-5.8 Mc. (16.7-51.5 metres).

TUNING DRIVE: Slow motion drive ratio 6-1 with integral vernier device, ratio 36-1, which enables fine tuning to be obtained.

LOUDSPEAKER: A permanent magnet speaker employing the latest nickel-aluminium alloy gives the highest efficiency audio output, and greater bass response is obtained due to the large baffle.

POWER CONSUMPTION: L.T. current 0.5 amp., H.T. current 9.5 milliamps.



TOP CHASSIS DIAGRAM

TABLE 1—VOLTAGES

Valve socket readings to chassis taken with an 065 or 077 Philco Set Tester, using the 250 and 10 volts ranges. Volume control and selectivity control at minimum, wave-change switch in M.W. position, and no aerial connected.

POSITION	VALVE	ANODE	SCREEN	BIAS
H.F. Amplifier, S.1	S.P.21	Cap. 130 v.	Pin 7, 135 v.	Pin 2. -1.2 v.
Detector, S.3	T.2	Pin 1. 60 v.	—	—
Pentode Output, S.2	OP.22	Pin 1. 140 v.	Pin 5. 145 v.	-5 v.*

* Bias measured between C.1 2 and chassis.

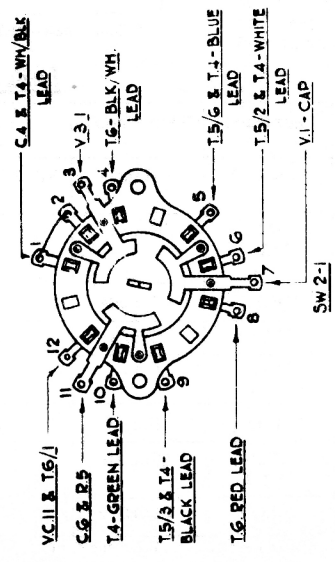
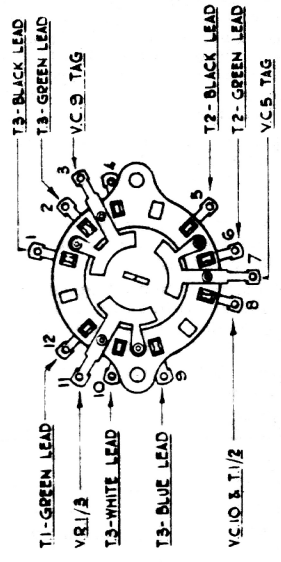
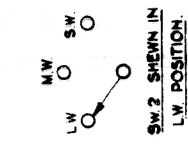
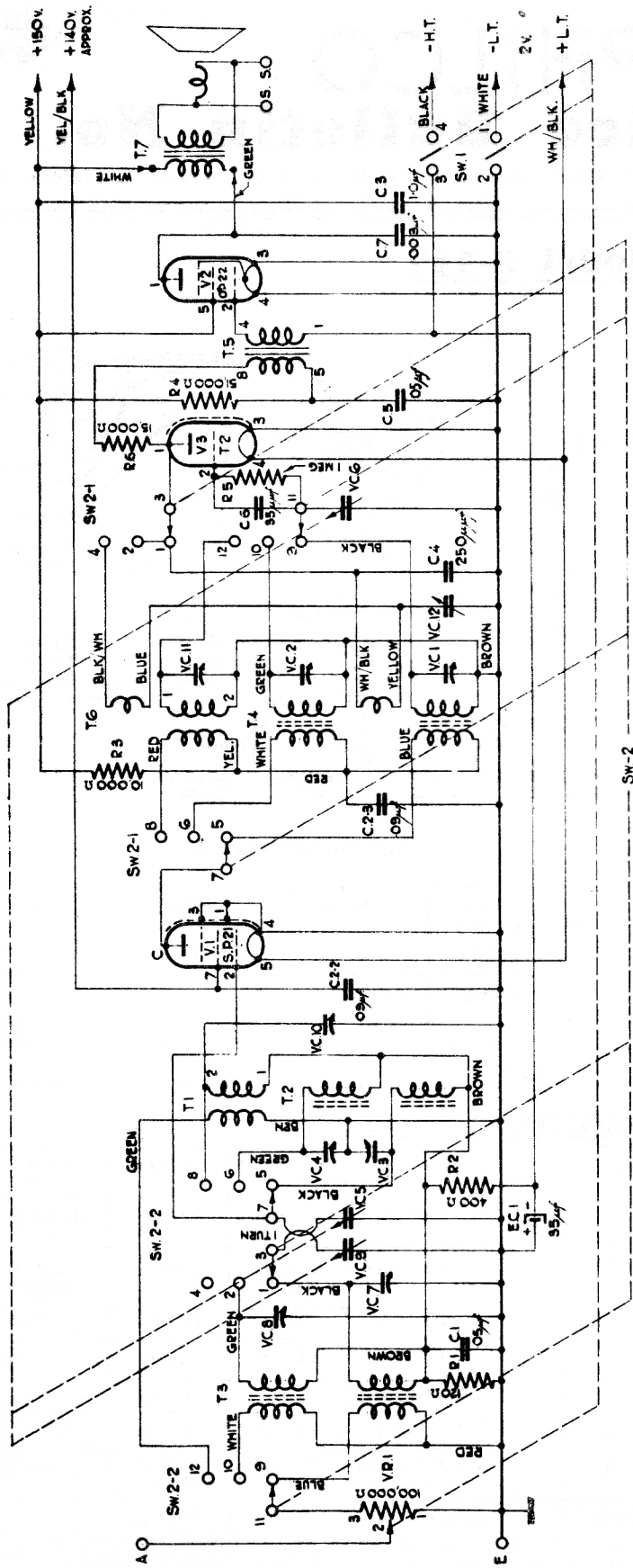
Filament voltage for each valve, 2 volts.

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.3 Primary	VR.1/3	Chassis	SW.2. M.W. 1 .. L.W. 12	T.4 Primary	V.1 Cap	C.2/3	SW.2 M.W. 2.5 .. L.W. 10
T.3 Secondary	SW.2-2 tag 3	C.1/3	.. S.W. Infinity .. M.W. 1.5 .. L.W. 18	T.4 Secondary	SW.2-1 tag 11	Chassis	.. M.W. 1.5 .. L.W. 18
T.1 Primary	VR.1/3	Chassis	.. S.W. 0.5	T.4 Reaction	V.3/1	VC.12/2	.. M. or L.W. 6
T.1 Secondary	V.1/2	C.1/3	.. S.W. 0.1	T.5 Primary	T.5/5	T.5/8	1,250 approx.
T.2	V.1/2	C.1/3	.. M.W. 1.5 .. L.W. 18	T.5 Secondary	T.5/1	T.5/4	10,000 ..
T.6 Primary	V.1 Cap	C.2/3	.. S.W. 0.5	T.7 Primary	V.2/1	V.2/5	650 ..
T.6 Secondary	SW.2-1 tag 11	Chassis	.. S.W. 0.1	T.7 Secondary	Output Trans.	Output Trans.	0.2*
T.6 Reaction	V.3/1	VC.12/2	.. S.W. 0.5	Speech Coil ...	Lead 1	Lead 2	2*

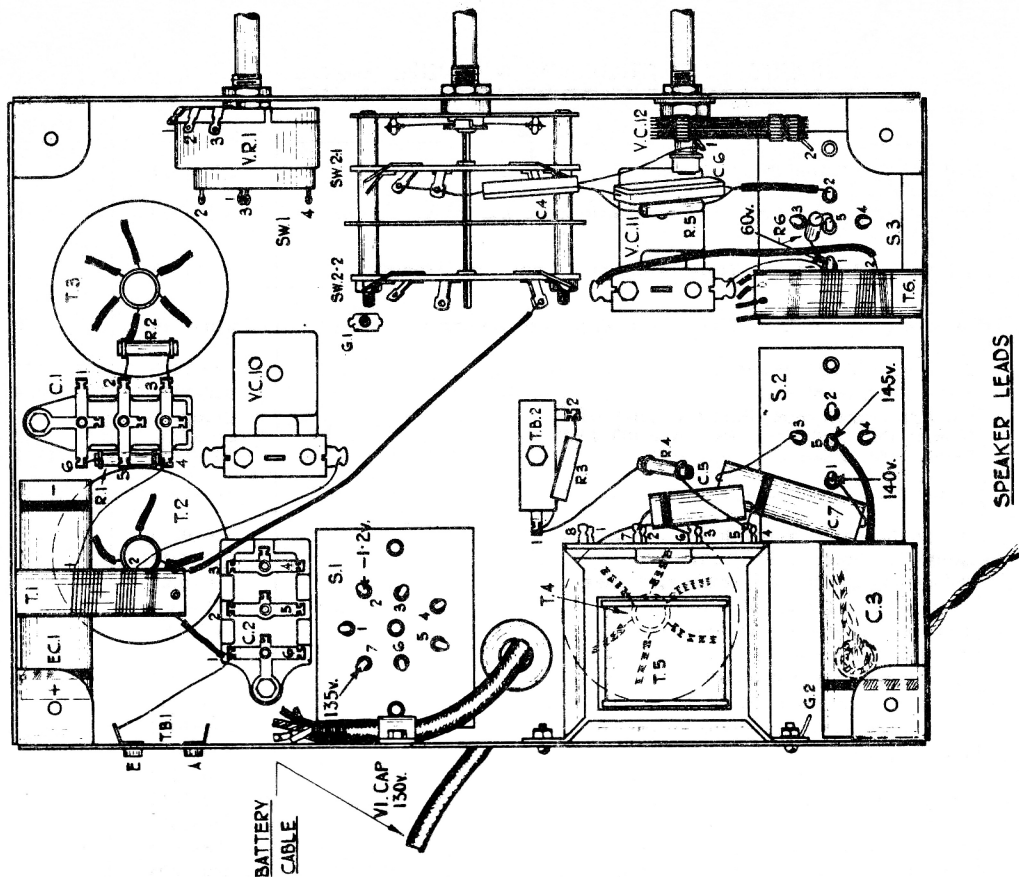
* Resistance of T.7 Secondary alone and Speech Coil alone (taken when disconnected).

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



VIEWS OF SWITCHES FROM FRONT
CHASSIS BEING UPSIDE DOWN

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 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 pointer reads on index line (above 1,500 Kc.). Set wave-change switch to L.W. position (counter-clockwise rotation), turn volume control (bottom left-hand knob) fully clockwise and selectivity control (bottom right-hand knob) fully counter-clockwise.

LONG WAVES: Set pointer at 290 Kc. and feed in a 290 Kc. signal from the Signal Generator through a Standard Dummy to the Aerial and Earth sockets of the receiver. Adjust the Signal Generator Attenuator to give a half-scale reading on the Output Meter. Then adjust VC's 7, 3 and 1 in that order for maximum output. This trimming operation must be carried out at least three times to obtain accurate band-pass alignment.

Increase selectivity control setting and re-trim VC.1, repeating the operation with increasing selectivity until oscillation is about to commence. This setting is very critical.

Note.—VC's 7 and 3 must not be re-trimmed after VC.1 has been adjusted.

Check calibration and sensitivity at 160 Kc.

MEDIUM WAVES: Turn wave-change switch to M.W. (centre) position and selectivity control fully counter-clockwise. Set pointer at 1,400 Kc. and inject a signal of 1,400 Kc. from the Signal Generator. Keep input signal as low as possible by means of the attenuator and adjust VC's 8, 4 and 2 in that order for maximum output. As in the case of Long Waves, this operation must be repeated for accurate alignment.

Increase selectivity control setting and re-trim VC.2, repeating the operation with increasing selectivity until oscillation is about to commence. This setting is very critical.

Note.—VC's 8 and 4 must not be re-trimmed after VC.2 has been adjusted.

Check calibration and sensitivity at 600 Kc.

SHORT WAVES: Turn wave-change switch to S.W. position (fully clockwise) and selectivity control fully counter-clockwise. Substitute a 400 ohms resistor for the Standard Dummy and feed in an 18 Mc. signal. Set pointer at 17.8 Mc. and trim VC's 11 and 10 in that order for maximum output. Check that the signal is received at 18 Mc. on scale when selectivity control is advanced just below point of oscillation.

Check calibration and sensitivity at 6 Mc.

PARTS AND PRICE LIST - MODEL P-337.

REF. No.	DESCRIPTION	PART No.	LIST PRICE
T.1	S.W. Aerial Transformer...	320-1112	£ s. d. 3 6
T.2	2nd M. and L.W. Aerial Coil and Trimmers Assembly ...	320-1109	5 9
VC.3			
VC.4			
T.3	1st M. and L.W. Aerial Transformer and Trimmers Assembly ...	320-1108	7 6
VC.7			
VC.8			
T.4	M. and L.W. H.F. Transformer and Trimmers Assembly ...	320-1110	9 0
VC.1			
VC.2			
T.5	Intervalve Transformer ...	320-1115	11 6
T.6	S.W. H.F. Transformer ...	320-1113	4 6
T.7	Output Transformer, Part No. 320-8003 ... Speech Coil and Cone, Part No. 360-4003 ... Permanent Magnet ...	Complete Speaker 360-1102 †	1 1 0
VC.5	Three-gang Condenser ...	310-1023	10 9
VC.6			
VC.9			
VC.10	Single Trimmer, 5-30 mmfd. ...	310-6015	6
VC.11	Single Trimmer, 5-30 mmfd. ...	310-6015	6
VC.12	Selectivity Condenser, .00025 mfd. max. ...	310-1022	1 9
C.1	Moulded Condenser .05 mfd. ...	3615-SG	9
C.2	Moulded Condenser, .09+.09 mfd. ...	4989-DG	1 3
C.3	Tubular Condenser, 1 mfd. ...	300-4006	1 9
C.4	Mica Condenser, 250 mmfd. ...	300-1014	6
C.5	Tubular Condenser, .05 mfd. ...	30-4020	7
C.6	Mica Condenser, 30 mmfd. ...	300-1043	6
EC.1	Electrolytic Condenser, 35 mfd. ...	300-4022	1 3
R.1	¼ watt Carbon Resistor, 120 ohms ...	330-1032	9
R.2	Spaghetti Resistor, 400 ohms ...	30-3016	6
	or ¼ watt Carbon Resistor, 400 ohms ±5% ...	330-1012	9
R.3	¼ watt Carbon Resistor, 10,000 ohms ...	33-1000	9
R.4	¼ watt Insulated Resistor, 51,000 ohms ...	330-2004	9
R.5	½ watt Insulated Resistor, 1 megohm ...	330-2018	9
R.6	¼ watt Insulated Resistor, 15,000 ohms ...	330-2005	9
VR.1	Volume Control, 100,000 ohms ...	330-5016	4 3
SW.1	On-Off Switch ...		
SW.2-1	Wave-change Switch ...	420-1016	5 0
SW.2-2			
S.1	7-prong Valve Holder ...	270-6007	5
S.2	5-prong Valve Holder ...	270-6005	3
S.3	5-prong Valve Holder ...	270-6005	3
	Rubber Bush ...	4126	1
	Battery Cable Clamp ...	28-2345	doz. 5
	Battery Cable, LO-1059 ...	Complete Assembly 410-3016	3 0
	Yellow Plug, H.T.+150 v., 380-5315 ...		
	Brown Plug, H.T.+140 v., 380-5316 ...		
	Black Plug, H.T., 380-5226 ...		
	Spade Tag, 280-1012 ...		
	Speaker Cable ...	LO-1041	7
	Wave-band Indicator ...	270-5067	5
	Indicator Arm ...	280-1326	1
	Scale ...	270-5065	1 6
	Scale Tension Spring ...	280-1226	1
	Reduction Drive, Grubscrew, and Pointer Assembly ...	380-5309	3 0
	Grid Clip ...	28-2214	doz. 5
	Celluloid Window ...	270-5064	1 0
	Chassis Mounting Washer (Rubber) ...	5189	1
	Chassis Mounting Washer (Metal) ...	29-2089	doz. 2
	Chassis Mounting Screw ...	W-1345	1
	Large Tuning Knob and Spring ...	270-4041	9
	"Wave-change" Knob and Spring ...	270-4038	5
	"Volume" Knob and Spring ...	270-4037	5
	"Selectivity" Knob and Spring ...	270-4080	5
	Knob Spring ...	280-5262	doz. 2
	Black Wander Plug ...	380-5015	doz. 1 6
	Red Wander Plug ...	380-5087	2
V.1	Type SP.21 (Metallized) H.F. Pentode Valve ...	340-2001	11 0
V.2	Type OP.22 Pentode Output Valve ...	340-2006	11 0
V.3	Type T.2 (Metallized) Triode Valve ...	340-2007	4 9

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