



PHILCO



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Model P-429. "The Traveller."

TYPE CIRCUIT: Four valve Superheterodyne Portable Receiver with full A.V.C. and Pentode Output (0.24 watt) for operation on Medium and Long wavebands. This Receiver incorporates the new type low consumption octal valves for operation on dry batteries. Provision is made by means of sockets at the rear of the cabinet for connecting an external aerial and earth if desired.

POWER SUPPLY: Low tension dry battery, 1.5 volts, maximum size $5\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$ " maximum. Suitable types are each $5\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{1}{2}$ " maximum. Suitable types are "Alambra" Type AP.101 dry L.T. battery (Philco Part No. 419-8000) and "Alambra" Type AP.100 H.T. batteries (Philco Part No. 419-8001). No bias battery is needed, as the circuit employs an automatic bias arrangement.

WARNING—On no account must a 2 volts accumulator be used with this Receiver as the valves will be damaged thereby.

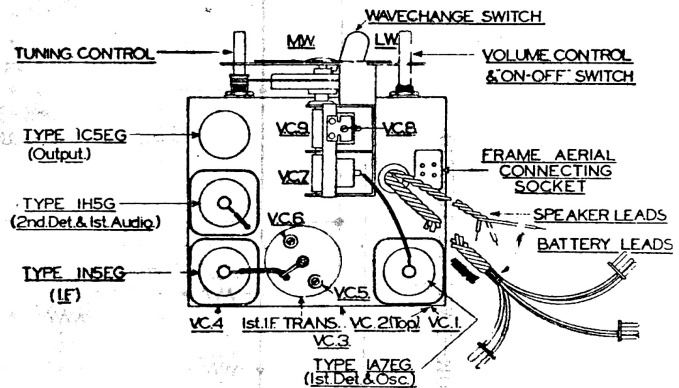
WAVEBANDS: COVERAGE: Two; (a) Medium, 200-540 metres (1,500-555.5 kilocycles); (b) Long, 950-1,950 metres (315.7-152.3 kilocycles).

TUNING DRIVE: Slow motion drive—ratio 6-1 for smooth and accurate tuning.

LOUD SPEAKER: A 5" diameter permanent magnet moving coil speaker employing the latest nickel-aluminium alloy magnet is used.

INTERMEDIATE FREQUENCY: 470 Kc.

POWER CONSUMPTION: L.T. current, 0.25 amp.; H.T. current, 10 milliamps.



TOP CHASSIS DIAGRAM

TABLE 1 —
VOLTAGES

Valve socket readings to chassis taken with an 065, 077 or J3, PHILCO SET TESTER, using the 100, 50 and 10 volts ranges. Volume control at minimum and wave-change switch in M.W. position.

POSITION	VALVE	ANODE	SCREEN	BIAS
1st Detector and Oscillator, S1	1A7EG	Pin 3. 80 v. Pin 6. 70 v.*	Pin 4. 35 v.	—
I.F. Amplifier, S2	1N5EG	Pin 3. 80 v.	Pin 4. 80 v.	Pin 5. -1 v.
2nd Detector, A.V.C. and 1st L.F. Amplifier, S3	1H5G	Pin 3. 25 v.	—	—
Pentode Output, S4	1C5EG	Pin 3. 80 v.	Pin 4. 80 v.	-7 v.†

* Oscillator Anode Volts. † Bias measured between S4/8 and chassis.
Filament voltage on each valve, 1.4 volts, measured between pins 2 and 7 on each socket.

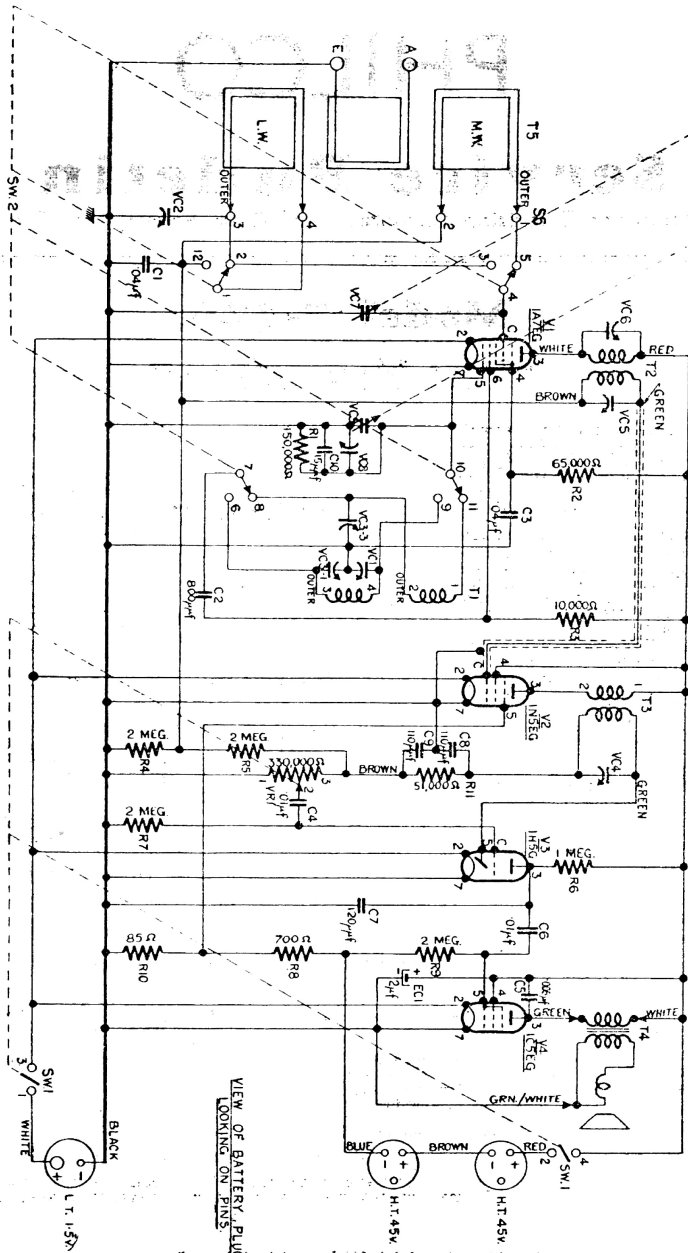
TABLE 2—RESISTANCES OF COILS.

REF. NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (Ohms.)	REF. NO.	TEST PROD. 1	TEST PROD. 2	RESISTANCE (Ohms.)
T.5 (M.W. winding)	V.1 Cap	TB.1/4	SW.2 M.W. 1	T.3 Primary	V.2/3	TB.1/1	30
T.5 (L.W. winding)	V.1 Cap	TB.1/4	SW.2 M.W. Zero	T.3 Secondary	V.3/5	Joint of VC.4 and R.11	8
T.5 (Aer. winding)	"A" socket	Chassis	SW.2 L.W. 15	T.4 Primary	V.4/3	TB.1/1	500 approx.
T.2 Primary	V.1/3	TB.1/1	Less than 0.1	T.4 Secondary	Output Transformer	Output Transformer	0.2 **
T.2 Secondary	V.2 Cap	TB.1/4	8	Speech Coil	Lead 1	Transformer Lead 2	2 **
T.1	V.1/5	Sw.2/7	15				
			SW.2 M.W. 4				
			SW.2 L.W. 18				

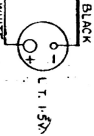
** Resistance of T.4 Secondary alone and Speech Coil alone (taken when disconnected)

NOTE.—Reference numbers for valves should be read in conjunction with the socket numbers, e.g. V.1-8.1.

CIRCUIT DIAGRAM—MODEL P-429



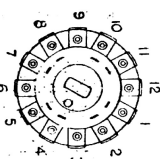
VIEW OF BATTERY PLUGS
LOOKING ON PINS

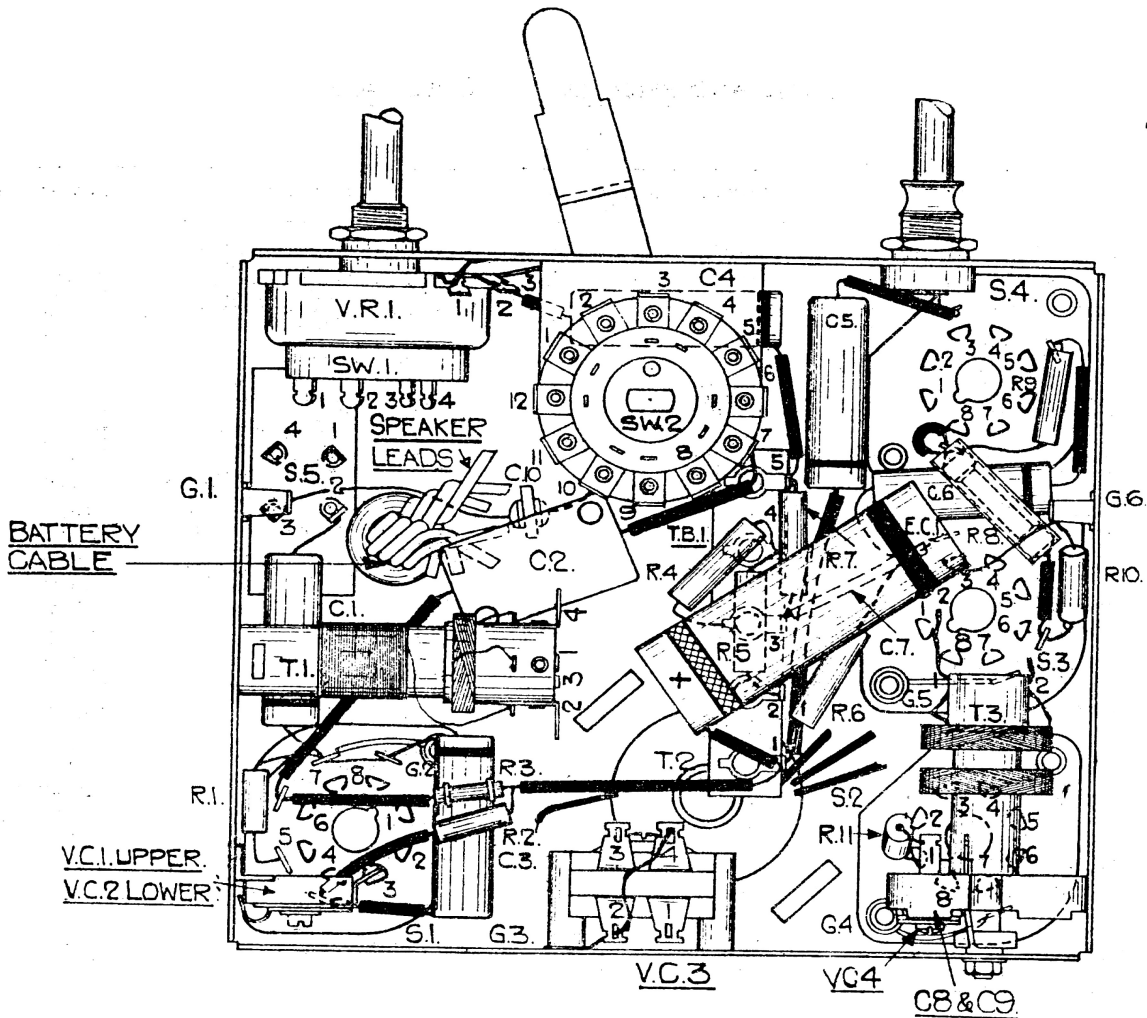


SW2 SHOWN IN MW POSITION

L.W. M.W.

REAR VIEW OF SW 2





UNDER CHASSIS DIAGRAM—MODEL P-429

ALIGNMENT PROCEDURE — MODEL P.429.

Before leaving the Factory, all Philco Receivers are accurately aligned, but if misalignment is suspected through damage, no alteration must be made without instruction in the correct adjustment of the trimming and padding condensers. It should be carried out only with the aid of an accurately calibrated Signal Generator, and for this purpose the PHILCO ALL-PURPOSE SET TESTER MODEL 077 or 077E is recommended.

Connect the Output Meter across the Primary of the Output Transformer, i.e., green and white leads. Set wave-change switch to M.W. position and turn volume control fully clockwise.

Open tuning condenser to fullest extent. 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.

Remove feeler gauge.

INTERMEDIATE FREQUENCY : The I.F. trimmers (VC.'s 4, 5 and 6) must first be carefully adjusted by feeding in a 470 Kc. signal from the Signal Generator via a Standard Dummy to the grid cap of the 1A7EG 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.

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

MEDIUM WAVES : Set pointer at 200 metres setting on scale. Feed in a signal of 1,500 Kc. (200 metres) from the Signal Generator and trim VC.8 for maximum output.

Feed in and tune a signal of 600 Kc. (500 metres). Rock tuning condenser and pad VC.3 (screw) for maximum output. Readjust VC.8 at 1,500 Kc. Repeat the above operation until no further improvement results.

LONG WAVES : Move wave-change switch to L.W. position. Set pointer at 290 Kc. (1034.4 metres) corresponding to dot at the right of 1,000 metres on scale. Feed in a signal of 290 Kc. and trim VC.1 for maximum output. Feed in and tune a signal of 232 Kc. (1,293 metres)—this corresponds to Luxembourg—and adjust VC.2 for maximum output.

Feed in and tune a 160 Kc. (1,875 metres) signal. Rock tuning condenser and pad VC.3 (nut) for maximum output. Readjust VC.1 at 290 Kc. Repeat the above operation until no further improvement is obtainable.

Check Calibration.

NOTE.—It may be found when aligning the Medium and Long wavebands, that sufficient attenuation of the input signal cannot be obtained by means of the Signal Generator Attenuator. In this case, no direct connection should be made between the Signal Generator lead and the Receiver; the signal being radiated by means of a short length of wire attached to the lead, and picked up on the frame aerial of the Receiver.

PARTS AND PRICE LIST — MODEL P-429.

REF. No.	DESCRIPTION.	PART No.	List Price s. d.	REF. No.	DESCRIPTION.	PART No.	List Price s. d.				
T.1	M. & L.W. Oscillator Coil ...	329-1076	8 0	B.7	1 watt Carbon Resistor, 2 megohms ...	33-1025	8				
T.2	1st I.F. Transformer and Trimmers Assembly	329-1078	8 9	B.8	1 watt Carbon Resistor, 700 ohms ...	330-1008	8				
VC.5				B.9	1 watt Carbon Resistor, 2 megohms ...	33-1025	8				
VC.6	2nd I.F. Transformer and Trimmer Assembly	329-1077	5 10	B.10	1 watt Insulated Resistor, 100 ohms ...	339-1108	8				
T.3				or	VR.1	Volume Control, 330,000 ohms ...	330-2062	8			
VC.4	Mica Condenser, 110 mmfd. ...	Complete Speaker 361-1451/3*	26 7	SW.1	On-Off Switch ...	339-5003	6 4				
C.8	Mica Condenser, 110 mmfd. ...			Complete Speaker 361-1451/3*	26 7	SW.2	Wave-change Switch ...	42-1184	3 6		
C.9	1 watt Insulated Resistor, 51,000 ohms ...					Complete Speaker 361-1451/3*	26 7		8-Prong Valve Holder ...	27-6058	1 0
R.11	Output Transformer ...							Complete Speaker 361-1451/3*	26 7		Frame Aerial Connecting Socket ...
T.4	Speech Coil and Cone ...	Complete Speaker 361-1451/3*	26 7								Frame Aerial Connecting Plug and Lead ...
or	Permanent Magnet ...			Complete Speaker 361-1451/3*	26 7						Rubber Grommet ...
T.4	Output Transformer ...					Complete Speaker 361-1451/3*	26 7				Battery Cable and Plugs Assembly ...
and	Speech Coil and Cone, Part No. 360-3023 ...							Complete Speaker 361-1451/3*	26 7		Tuning Spindle Assembly ...
	Permanent Magnet ...	Complete Speaker 361-1451/3*	26 7								Wave-change Switch Bracket ...
				Complete Speaker 361-1451/3*	26 7						Switch Lever, Bush and Grubscrew ...
T.5	M. and L.W. Frame Aerial ...					439-5015	22 0				Drive Pulley, Bush and Grubscrew ...
	Cabinet ...					380-5524	6		Scale Support and Indicator Arm Assembly ...	389-5175	9 5
	Frame Aerial Connecting Panel ...						Drive Cord ...	279-7048	yard 2		
VC.1	Double Padder, 30+80 mmfd. ...	31-6116	1 10		Drive Cord Tensioning Spring ...	289-8004	each 1				
VC.2		Double Padder, 120+375 mmfd. ...	31-6180	1 8		Switch Indicator Disc, Bush and Grub- screw Assembly ...	389-5179	3 0			
VC.3	Two-gang Condenser and Trimmer Assembly	317-2012	11 3		Tuning Scale Assembly ...	279-7126	4 2				
VC.7		Electrolytic Condenser, 2 mfd. ...	309-2008	1 6		Pointer ...	289-1166	11			
VC.8	or	or 309-2009	9		Pointer Bush ...	289-6036	3				
VC.9		Tubular Condenser, .04 mfd. ...	309-4021	9		Valve Shield ...	28-2726	3			
EC.1	Tubular Condenser, 800 mmfd. ...	300-1005	10		Grid Clip ...	28-3888	doz. 6				
C.1	Tubular Condenser, .04 mfd. ...	309-4021	9		Scale Window ...	279-6011	1 4				
C.2	Tubular Condenser, .01 mfd. ...	30-4124	9		"A" and "E" Panel Assembly ...	380-5153	4 6				
C.3	or	or 30-4051	9		Escutcheon ...	289-1167	4 6				
C.4		Tubular Condenser, .006 mfd. ...	or 30-4218	9		Escutcheon Screws ...	WB-1165	doz. 6			
C.5	or	or 30-4125	9		Speaker Mesh ...	289-1162	2 11				
C.6		Tubular Condenser, .01 mfd. ...	or 30-4445	9		Chassis Mounting Screws ...	W-758	doz. 6			
		or 30-4124	9		Chassis Mounting Washers ...	WW-1104	doz. 3				
		or 30-4051	9		Knob and Spring Assembly ...	27-4331	each 8				
		or 309-4218	9		Knob Spring ...	280-5262	doz. 4				
		or 309-4018	9		Red Wander Plug ...	380-5087	doz. 2 6				
		or 300-1232	9	V.1	Black Wander Plug ...	380-5015	doz. 2 6				
C.7	Mica Condenser, 120 mmfd. ...	309-1020	9	V.2	Type 1A7EG Variable-mu Heptode Valve						
or	Silvered Mica Condenser, 115 mmfd. ...	309-1120	9	V.3	Type 1N5EG Variable-mu H.F. Pentode Valve						
C.10	Ceramic Condenser, 15 mmfd. ...	339-2024	8	V.4	Type 1H5G Diode Triode Valve ...						
R.1	1 watt Insulated Resistor, 150,000 ohms.	339-2022	8		Type 1C5EG Pentode Output Valve ...						
R.2	1 watt Insulated Resistor, 65,000 ohms.	33-1000	8		L.T. Battery ...	419-8000	3 6				
R.3	1 watt Carbon Resistor, 10,000 ohms. ...	330-2014	8		H.T. Battery ...	419-8001	4 6				
or	1 watt Insulated Resistor, 10,000 ohms.	33-1025	8		Instruction Manual ...	399-3141	3				
R.4	1 watt Carbon Resistor, 2 megohms ...	33-1025	8								
R.5	1 watt Carbon Resistor, 2 megohms ...	33-1025	8								
R.6	1 watt Insulated Resistor, 1 megohm ...	339-2028	8								
or	1 watt Insulated Resistor, 1 megohm ...	330-2018	8								

* Used in Run 2 Models. † Used in Run 1 Models.
§ Knobs are not separately interchangeable.

ABOVE PRICES DO NOT APPLY IN EIRE.