PHILIPS 617A

Three-valve, plus rectifier, three-waveband superhet for operation from AC mains. Provision is made for a high resistance pickup and a low impedance extra loudspeaker. Manufactured by Philips Lamps Ltd., Service Dept., 74—79, Cherry Orchard Road, Croydon, Surrey.

THE aerial input is fed *via* a switch either to the HF transformer L12, L13 on SW or L6, L7 of a band-pass filter circuit on MW and LW. An IF filter L29, C13 is provided across the aerial and earth sockets.

C4 section of the triple-ganged condenser tunes the secondary coils L10, L11 of the band-pass filter and the short wave grid coil L13.

From these circuits the signal is fed to the control grid of the triode hexode V1, which is cathode biased by R21 decoupled by C14. The oscillator triode section employs tuned anode circuits with the oscillator coils fed from the anode *via* C16 and tuned by C5 section of the ganged condenser. The grid feed-back coils are L15, L17, L19.

An intermediate frequency transformer L20, L21 transfers the signal from V1 to the IF amplifying stage comprising V2 and a second IF transformer L22, L23. A tapping on L23 feeds the signal diode of the double-diode-pentode output valve V3. Delay volts for the signal circuit are derived from a variable tapping on R16 which is in the cathode circuit of V3.

The low frequency signal is fed from the volume control R9/R9A to the grid of the pentode section of V3 *via* the coupling condenser C31 and filter R28 and C39. The pentode section is biased from a tapping on the cathode resistance network R12, R13 which is decoupled by C32. The pickup sockets are connected across the volume control.

The automatic volume control diode of V3 is fed from the anode of V2 *via* C29, the load resistance being R14 and R23, from which the AVC is fed to V1 and V2 grid circuits.

The output from V3 is coupled to the permanent magnet moving coil loudspeaker L27 *via* the matching transformer L25, L26, which also incorporates

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WINDINGS

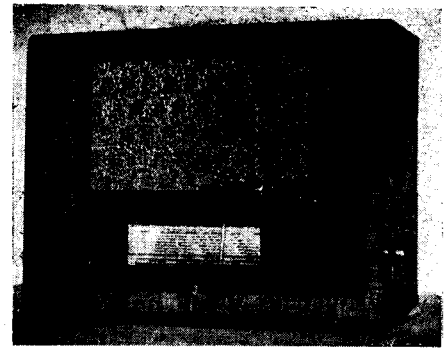
L	Ohms	L	Ohms
1	—	18	32
2	300	19	9.5
3	.5	20	115
4	.5	21	115
6	26	22	115
7	90	23	90
8	4.5	24	35
9	48	25	700
10	4.4	26	1
11	45	27*	2.5 or 5
12	2	29	110
13	.5	30	.7
14	.5	31	.7
15	1	32	180
16	8	33	180
17	2.5	34	800

* See text.

CONDENSERS

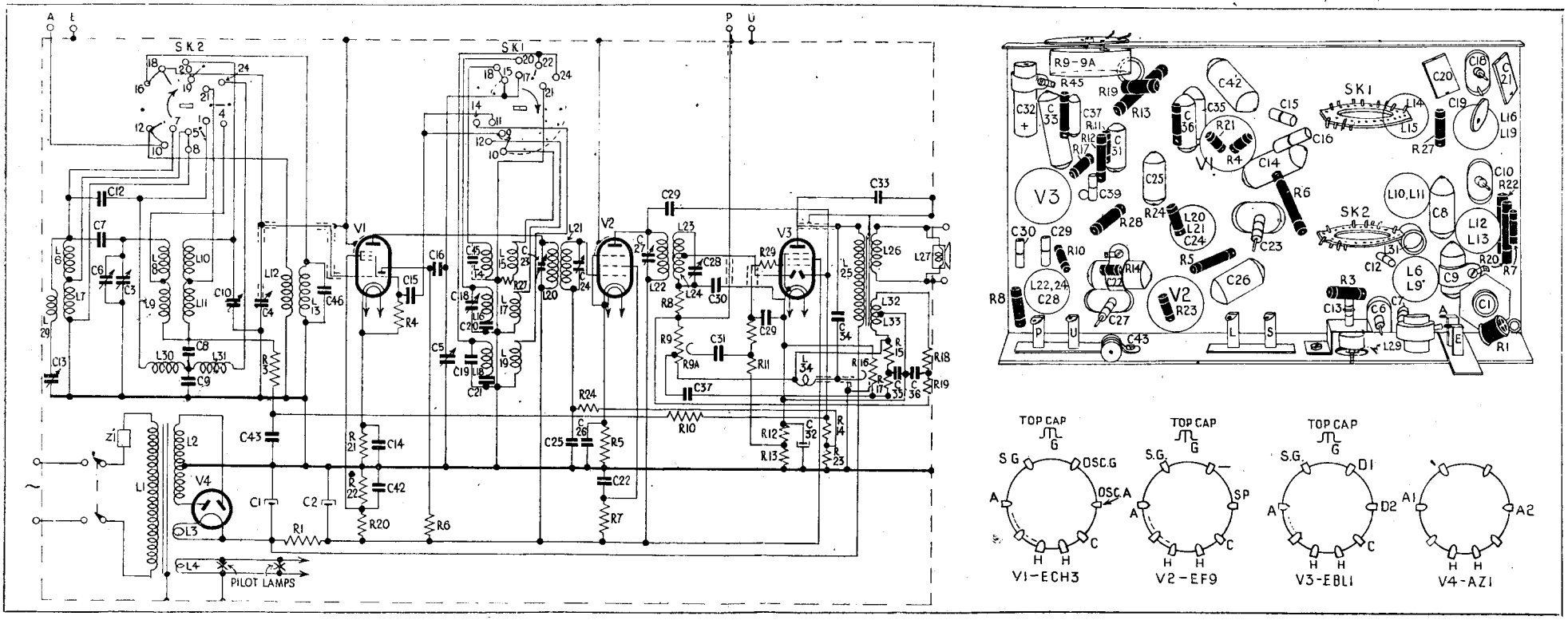
C	Mfd	C	Mfd
1	50	26	.047
2	15 or 2 x 32	29	8.2 mmfd
7	.00001	30	56 mmfd
8	.012	31	.0033
9	.039	32	25
9*	.01	33	.001
12	33 mmfd	34	.0047
14	.047	35	.033
15	47 mmfd	36	.0056
16	.00047	37	.027
19*	33 mmfd	39	.0001
20	.00145	42	.047
21	415 mmfd	43	.047
21*	394 mmfd	45*	6.8 mmfd
22	.047	46*	2.2 mmfd
25	.047		

* Only fitted when gang has aluminium vanes.



RESISTANCES

R	Ohms	R	Ohms
1	1,800	15	1,500
3	100,000	16	50,000
4	47,000	17	12,000
5	330	18	10,000
6	27,000	19	820,000
7	100,000	20	47,000
8	47,000	21	330
9	650,000	22	33,000
9A	50,000	23	560,000
10	1.5 meg	24	1.8 meg
11	1 meg	27	47
12	150	28	82,000
13	390	29	56
14	560,000		



SERVICE ENGINEER INDEX 1944

HERE is a complete index to the receiver reviews and technical articles published in "*Service Engineer*" Supplement from the January to December 1944, issues inclusive.

Extra copies of "*Service Engineer*" have been printed throughout the year and at present all issues are still available.

ARTICLES AND FEATURES

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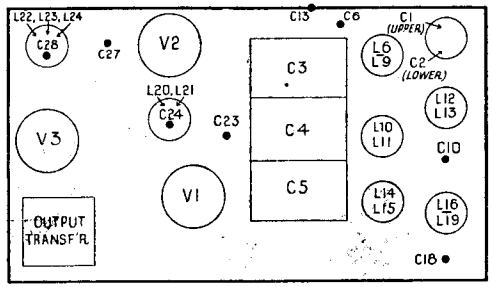
windings L32, L33 for negative feed-back into the grid and cathode circuits of V3.

Some receivers incorporate a matching transformer which has an additional winding between point 4 and an extra eyelet on the same cheek. Loudspeakers with 2.5-ohm speech coils should be connected to the L26 winding only, but 5-ohm loudspeakers should be wired across both L26 and the additional winding.

The high tension supply is derived from a full-wave rectifier V4 with resistance smoothing carried out by R1, C1 and C2. Some mains transformers are suitable for either 4-volt pilot lamps or 6.3-volt pilot lamps; the former models incorporate a 4-volt tapping point on the heater winding L4 which is brought out to an eyelet midway between the two normal outer connections for L4.



GANGING

IF Circuits.—Switch receiver to MW and tune to 180 metres. With volume control at maximum inject a 128 kc signal into the grid (top cap) of V1 *via* a .032 mfd condenser.

Detune L22 by connecting a 80 mmfd condenser across it and adjust C28 for maximum output.

Detune L24 in same way and trim C27. Detune L20 and trim C24. Detune L21 and trim C23.

HF Circuits.—Adjust variable condenser so that the angle between the edges of the fixed and moving vanes is 15 deg; the manufacturers can supply a jig for this purpose.

Inject a 1600 kc signal into the aerial socket and trim C18, C10, C6, C10 and C18 in that order for maximum output.

When the gang is of the type with aluminium vanes the input signal should be 1570 kc.

IF Filter Circuit.—Apply a 128 kc signal to the aerial socket and adjust C13 for *minimum* output.

VALVE READINGS

V	*Type*	*Electrode*	*Volts*	*Ma*
1	ECH3	Anode	255	1.2
		Osc anode	140	4.3
		Screen	70	1.8
2	EF9	Anode	250	5
		Screen	90	1.5
3	EBL1	Anode	260	32
		Screen	240	5.2
		Cathode	19	—
4	AZ1	Heater	300	51

Pilot lamps 4 v or 6.3 v (see text).