

PHILIPS 630A 620A

A five-valve, plus rectifier, receiver marketed in 1933-4. "Straight" circuit with two R.F. amplifiers. Suitable for 200-250 volt A.C. mains. Produced by Philips Lamps, Ltd., Century House, Shaftesbury Avenue, London, W.C.2.

CIRCUIT.—This is one of the Philips "Super-inductance" sets and uses two radio-frequency amplifiers with a four-gang tuning condenser. Band-pass input is used to V1 and a similar band-pass unit couples V1 to V2. Bottom capacity coupling is used in each band-pass unit.

Note that the second band-pass unit, including coupling and tuning con-

densers, is at H.T. potential. C33 is a D.C. stopper for V2 grid, and R18 forms the grid "tie-down."

Coupling between V2 and V3 is untuned, an H.F. choke forming the anode load.

V3 is a triode grid-leak detector with provision for a pick-up connection. Resistance-capacity coupling leads to V4, an L.F. amplifier, and similar coupling links up V5, the output pentode.

The smoothing choke is in the negative lead, making the chassis positive. Bias for pick-up and V4 is tapped off from between the choke and R15, and bias for V5 from a tapping on the choke.

Volume is controlled by V1 bias. V1 is given a negative bias by returning the cathode to an H.T. point (junction of R7-R5). The voltage of the grid negatively with respect to this point is determined by the position of the slider on R7.

Anode and screen supplies are very fully decoupled throughout.

V6 is a full-wave rectifier in a conventional arrangement.

GANGING

Medium Waves.—Inject a frequency towards the bottom of this waveband, tune to this frequency point on the dial and adjust T1, T2, T3 and T4 for maximum.

Check calibration at top end of dial and compensate by adjustment of dial and/or trimmers if necessary.

Long Waves.—Inject frequency towards bottom end of dial, tune to this frequency on the dial and adjust T5, T6, T7 and T8 for maximum.

Check calibration towards top of dial.

VALVE READINGS

V	Type	Electrode	Volts	Ma.
1	S4VB	Anode	190-240	1.6-3
		Screen	100-110	
2	S4VB	Anode	165-180	3-4
		Screen	100-110	
3	244V	Anode	45-70	2.8-3.5
4	244V	Anode	105-135	2.1-2.7
5	PM24A	Anode	210-230	13-19
		Screen	170-190	
6	DW2	Cathode	210-240	

RESISTANCES

R	Ohms.	R	Ohms.
1	50,000	14	400
2	50,000	15	100
3	16,000	16	.5 or .64 meg.
4	20,000	17	1 or 1.25 meg.
5	40,000	18	1 meg.
6	64,000	19	.32 meg.
7	6,200	20	.2 meg.
8	10,000 or 12,500	21	.001 meg.
9	16,000 or 20,000	22	.1 or .25 meg.
10	20,000 or 25,000	23	.5 or .64 meg.
11	15,000	24	32,000
12	.1, .125 or .16 meg.	25	.08 or .1 meg.
13	400	26	2,000

Increasing Volume of Sets

MANY of the later midget T.R.F. receivers give very little volume on B.B.C. stations in many parts of Britain. In the cases I have met with, a remedy has been effected which improves the volume by at least 75 per cent. on the midget's own aerial.

In all instances, the volume control was in series with the cathode of the input valve, the slider going to earth and the other side of the volume control connecting to the coil side of the aerial coupling condenser. The reason for this connection is to prevent distortion

and overloading when receiving powerful stations.

The solution is to insert a switch in series with the wire from aerial coil to the volume control, using the switch in the open position on distant stations and closed on local.—ALFRED ROSE.

DURING an outside P.A. job one of the principal microphones was accidentally damaged. A repair of this on the job was out of the question and, due to distance, the obtaining of another one was also impossible.

The engineer had an extra small speaker in the van with him. This was a permanent magnet type. Most engineers have tried at some time the effect of using 'phones as crude microphones; it was decided to try the loud-speaker in this way.

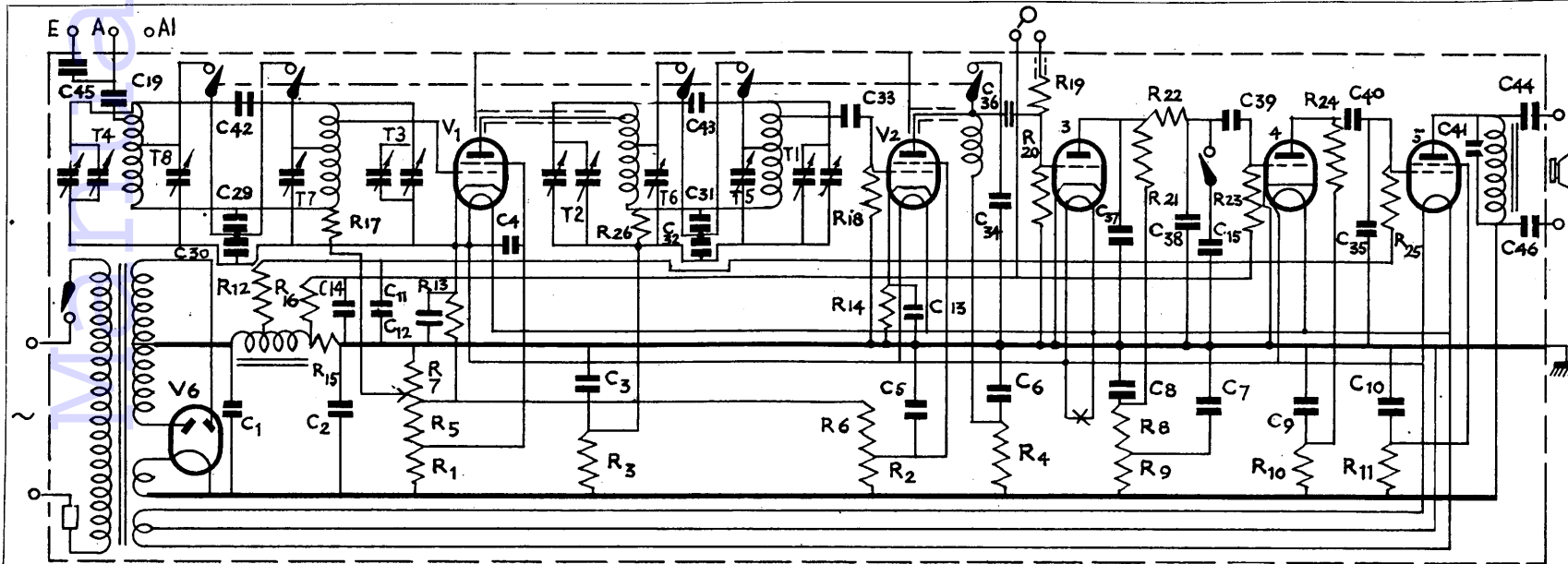
The L.S. transformer was of the high-impedance input type suitable for pentode valves and the microphone, damaged was also of a high impedance type. The transformer was attached to the microphone input terminals on the amplifier.

The results were excellent, and little difference could be seen between it and the proper microphone, either in sensitivity or range of frequency.

F. DAY-LEWIS.

CONDENSERS

C	Mfds.	C	Mfds.
1	.3	31	.05
2	.4	32	.05
3	.5	33	64/80 mmfds.
4	1.5	34	640 mmfds.
5	.5	35	1,600 mmfds.
6	.5	36	100 mmfds.
7	1	37	2,000 mmfds.
8	1	38	250 mmfds.
9	.5	39	8,000 mmfds.
10	.5	40	.05
11	.5	41	.0016 or .002
12	.5	42	.5
13	.5	43	.5
14	.5	44	.2
15	.002	45	80 mmfds.
29	.05	46	.2
30	.05		



The model 630A is a Superinductance set marketed by Philips in 1933-4. It is one of the few sets using two H.F. stages and with a four-gang condenser. Two wavebands are covered.