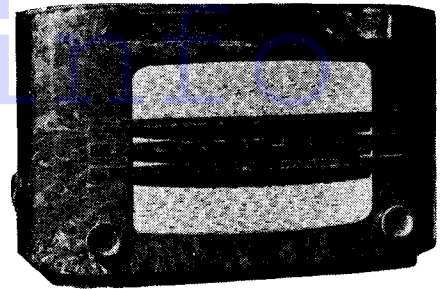


PHILIPS 727A THREE BAND SUPERHET



An attractive moulded cabinet houses the Philips 727A.

CIRCUIT.—The aerial is coupled to the grid of V1, an octode frequency changer, through a set of bandpass coils. A suppression circuit consisting of a coil and associated trimmer is arranged to neutralise whistle interference on the medium and long waves.

The output of V1 passes to the I.F. amplifying stage V2, an H.F. pentode, and thence through a further I.F. transformer with a secondary tapping connected to the demodulating diode of V3, a double-diode triode. The other diode of V3 provides a D.C. potential that is fed back to give A.V.C. The coupling arrangements to the grid of the triode section of V3 include a manual volume control. V3 is resistance-capacity coupled to V4, an output pentode that feeds the speaker via a matching transformer.

A fixed correction condenser is connected across the primary of the speaker transformer, and there is also a variable tone control.

Mains equipment consists of a transformer, half-wave rectifying valve, electrolytic smoothing condensers and smoothing resistances.

Chassis Removal.—Frequency changer chassis: Turn the condenser gang to maximum capacity. Remove wave-change and tuning control knobs by inserting a screwdriver in the holes in the base and chassis.

Turn the cabinet on its side so as to render the base accessible and remove the two fixing bolts and washers. Put the cabinet on its base and remove the bolt that fits into the raised portion. Remove the screw holding the bar of the drum dial to the cabinet and also the bracket on the side of the receiver holding the pulley around which the wire runs that holds the pointer.

The chassis can then be removed for service requirements. The wire around the drum dial should be fixed into position with wax or the like so as to prevent movement.

L.F. Chassis.—Remove the two control knobs from the front and side of the receiver by inserting a screwdriver into the holes provided in the bottom and chassis. Remove the two fixing bolts and washers on the base of the cabinet and turn the cabinet the right way up again. Remove the bolt fitting into the raised portion at the side of the cabinet. Unclear the leads leading to the chassis and remove the VP4B valve. The underside of the chassis can then be inspected.

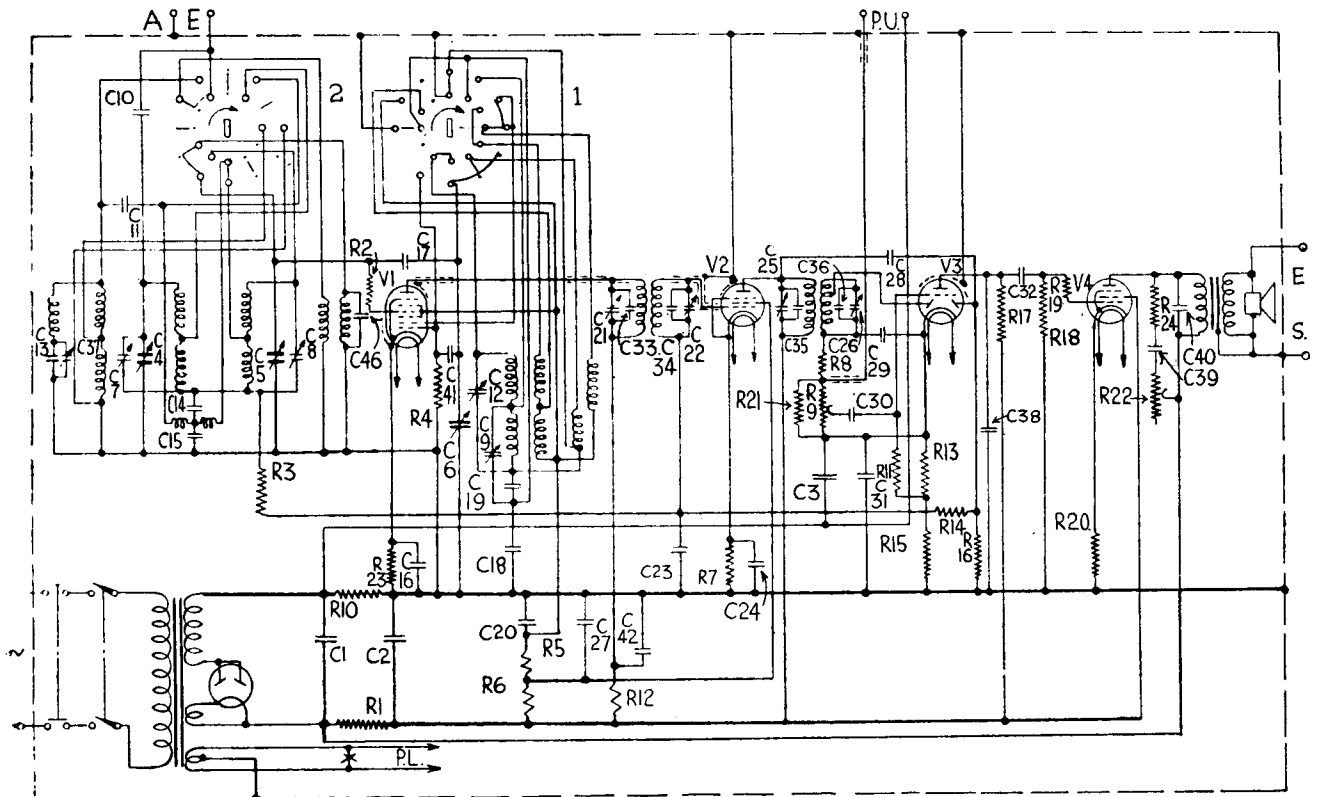
Special Notes.—The receiver is built in three separate parts. At the left will be found the tuning and frequency changing stages, in the middle is the mains transformer, rectifier and smoothing equipment, and at the right is located the I.F. stage, demodulating stage and the output valve.

C1 and C2 are on the panel holding the rectifier valve, R1 (two resistances in parallel) is located near C1 and C2. R5 also is made up of two resistances in parallel. R2 is in the shielded lead to the top grid cap of V1.

The set cannot be trimmed in the cabinet. To ensure correct gang setting when the scale is thus not available, a special 15 deg. jig, which fits on the condenser spindle end, is used. It may be obtained from Philips' Service Department at New Road, Mitcham, Surrey.

The mains voltage adjustment device is located on the rear of the chassis holding the electrolytic condensers and mains transformer and takes the form of a bakelite disc marked with the respective voltages. It is adjusted by pulling out until it revolves and rotating until the desired voltage is located at the top of the circle.

The single dial light is located in a screw-in holder on a panel held by the speaker. The bulb is a Philips 8042-07.



A feature of the Philips 727A circuit is the use of a half-wave rectifier. Actually a full wave type valve is employed with the anodes strapped together.

For more information remember

www.savoy-hill.co.uk

RESISTANCES

R.	Purpose.	Ohms.
1	H.T. smoothing	2,000
2	V1 grid stabiliser	50
3	V1 A.V.C. decoupling	100,000
4	Osc. grid leak	50,000
5	Osc. anode V1 screen de-coupling	12,300
6	V2 screen decoupling	8,000
7	V2 cathode bias	250
8	Demodulating diode load (part)	400,000
9	Demodulating diode load (part) and volume control	500,000
10	H.T. smoothing	16
11	V3 grid leak	1.6 meg.
12	V1 anode decoupling	2,000
13	V3 cathode bias (part)	2,500
14	A.V.C. feed	1.6 meg.
15	V3 cathode bias (part)	6,400
16	A.V.C. diode load	500,000
17	V3 anode load	100,000
18	V4 grid leak	800,000
19	V4 grid stopper	1,000
20	V4 cathode bias	125
21	Demodulating diode load (part)	160,000
22	Tone control (variable)	50,000
23	V1 cathode bias	320
24	Tone control (fixed)	100

CONDENSERS

C.	Purpose.	Mfd.
1	H.T. smoothing	32.
2	H.T. smoothing	32.
3	V3 cathode shunt	25.
10	Aerial coupling .. ..	.00002
11	Top aerial coupling .. ..	.00005
13	I.F. filter fixed trimmer .. ..	.000064
14	Bottom bandpass coupling .. ..	.016
15	Bottom bandpass coupling .. ..	.025
16	V1 cathode shunt .. ..	.05
17	Regeneration feed back control .. ..	.000002
18	Osc. fixed padder .. ..	.0014
19	S.W. osc. fixed padder .. ..	.00067
20	Osc. anode decoupling .. ..	.1
23	V2 A.V.C. decoupling .. ..	.1
24	V2 cathode shunt .. ..	.1
25	V2 screen decoupling .. ..	.05
28	A.V.C. diode coupling .. ..	.00002
29	H.F. bypass .. ..	.0001
30	L.F. coupling .. ..	.01
31	V3 cathode shunt .. ..	.1
32	L.F. coupling .. ..	.01
33	I.F.T.1 primary fixed trim. .. ..	.00005
34	I.F.T.1 secondary fixed trim. .. ..	.00005
35	I.F.T.2 primary fixed trim. .. ..	.00005
36	I.F.T.2 secondary fixed trim. .. ..	.000064
38	H.F. bypass .. ..	.00025
39	Tone control .. ..	.05
40	Pentode compensator .. ..	.002
41	Osc. grid .. ..	.0001
42	V1 anode decoupling .. ..	.1

Circuit Alignment Notes

I.F. Circuits.—Connect an output meter across the primary of the speaker transformer and switch the set to the long waves. Set the volume control to maximum. Connect a service oscillator between the top cap of V2 and chassis via a .03 condenser.

The trimmers are constructed of wire on tubes and are adjusted by varying the number of turns. Before trimming melt the wax holding the wire and when trimming is completed rewax.

Tune the oscillator to 128 kc. and adjust C26 and then C25 for maximum response. Connect the oscillator to the top grid cap of V1 and adjust C21 and then C22 for maximum output, reducing the input as the circuits come into line so as to render the A.V.C. inoperative.

Medium Waves.—Check the tuning pointer before calibrating. Leave the output meter connected as before, but connect the service oscillator between the aerial and earth sockets of the receiver either through an artificial aerial or fixed condenser. Only feed sufficient input from the oscillator to obtain definite peaks in the output meter.

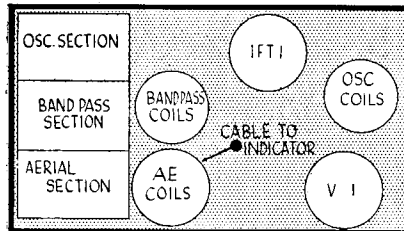
Tune the set and oscillator to 208 metres (1,442 kc.), and trim C12, C7 and C8 in that order for maximum.

Long Waves.—Tune the set and oscillator to 725 metres (414 kc.), and adjust C9 (wire-wound trimmer) for maximum response.

I.F. Wavetrap.—Switch the set to the long waves, and set the pointer to 2,000 metres. Inject a strong signal of 128 kc., and adjust C37 for minimum.

Calibration.—If calibration of the wavelength scale is out, apply a 310 metres signal (810 kc.) and tune the set to resonance. Loosen the screw on the pointer and set the pointer to coincide with 310 metres. Then tighten the clamping screw.

Two exact service replacement condensers for the 727A are available from A. H. Hunt, Ltd., of Garratt Lane, Wandsworth, London, S.W.18. These are: A 32 mfd. unit, type 2989, price 7s. 6d., suitable for either C1 or C2; and unit 2984, 1s. 6d., for C5.



Philips 727A on Test

MODEL 727A.—Standard table model for A.C. operation, 100-260 volts, 50-100 cycles. Price, 9½ gns.

DESCRIPTION.—Four-valve, plus rectifier, table model superhet covering three bands.

FEATURES.—Bakelite cabinet. Controls for tuning, combined volume and on-off, tone and wave changing mounted on front and sides. Full-vision name and wavelength dial let into top, waveband indicator.

LOADING.—76 watts.

Selectivity and Sensitivity

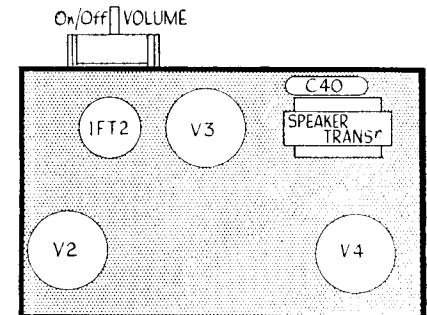
SHORT WAVES.—(16.7-51 metres).—Representative gain and adequate selectivity. No oscillator drift. Handling quite easy.

MEDIUM WAVES. (200-585 metres).—Very good gain and selectivity. Local stations spread on adjacent channels. Gain well maintained.

LONG WAVES. (725-2,000 metres).—Very good gain, excellent selectivity. Deutschlandsender easily received between Droitwich and Radio Paris.

Acoustic Output

Representative well balanced tone with good top response and a well graduated tone control. There is slight colouration on speech and very pleasing tone on musical reproduction.



Two main chassis assemblies are employed in the Philips 727A, the frequency changer chassis which contains the main tuning unit, and the L.F. chassis which incorporates the audio amplifier section. The disposition of the components in these is shown below, the frequency changer section being on the left and the L.F. chassis on the right. Above, the tinted drawings show the top views of these chassis.

