PHILIPS RADIOPLAYER

MODEL 626P. (by Radio Corp.)

SPECIFICATIONS.

(Subject to alteration without notice.)

GENERAL.

Model 626P is a six valve dualwave receiver, with glass edge-lit dial and electron tuning indicator. The tuning ranges are:— 550 to 1600 Kilocycles, and 6 to 16 megacycles. The band illumination is green and amber respectively.

VALVE EQUIPMENT.

Radio frequency amplifier		type EF5 Cap P
Frequency converter (Octode)		type EK2 Cap P
Intermediate frequency amplifier		type EF5 Cap P
Demodulator and 1st audio		type EBC3 Cap P
Power amplifier		type EL2 Cap P
Rectifier		type EZ3 Cap P
Electron tuning indicator		type 6E5 6 pin
Dial lamps	4	type 7 volt .3 amp

ELECTRICAL.

Power Supply	225-250 volts AC
Power Consumption (at 230 V.)	45 watts
Audio Power output	3 watts
IF Frequency	456 KC

ALIGNMENT. Precise alignment is vital to the proper functioning of this receiver. There are four trimming adjustments provided on the iron core IF transformers, and eight RF adjustments—3 trimmers and 1 padder for each band.

The 6 RF trimmers are mounted on the wave-change switch and may be identified as follows:—

From the control end of the switch the broadcast trimmers are the 1st, 3rd, and 5th, and are RF grid circuit, oscillator grid circuit and octode grid circuit respectively. The corresponding shortwave trimmers are the 2nd, 4th and 6th. The shortwave band padder has a .001 (C14) fixed condenser across it.

No attempt should be made to adjust these trimmers unless a suitable service oscillator and visual output meter is available.

For line-up procedure, see service Bulletin "LINE-UP PROCEDURE FOR PHILIPS RADIO-PLAYERS."

CIRCUIT DETAILS. In the case of 626P model the shortwave trimmer for the octode grid circuit (i.e. trimmer No. 6) must be adjusted with care. If this trimmer is reduced in capacity it sometimes produces a patch of instability at the 16 megacycle end of the band. If this occurs, trimmer No. 6 should be closed up slightly. If the instability is still present, it can often be removed by running an earth lead from one of the chassis lugs almost directly below the condenser gang, to the top bar of the wave-change switch. The most effective position may be found by experiment. If the instability occurs with a new Octode, slight adjustment of trimmer No. 6 will usually result in normal operation.

It will be noted from the circuit diagram that resistor R1 parallels the aerial coil. Its purpose is to flatten the characteristics of this coil which is of the high impedance type.

Resistor R5 varies in different chassis from approximately 1250 to 1600 ohms, in order to maintain in all chassis close limits of sensitivity, particularly on the broadcast band, and at the same time to maintain a very favourable signal to noise ratio.

The cathode resistor of the EBC3 (R16) is fixed at the low value of 85 ohms and has passing through it, the cathode current of the EL2 as well as the EBC3 and the 6E5. The reason for this is that 6E5 valves are unusually variable in their characteristics especially during use. Any variation is swamped by the heavy cathode current of the EL2 and the 6E5 can consequently have little effect on the performance of the receiver. This arrangement has necessitated the use of a 25 uF electrolytic condenser from EL2 cathode to earth to avoid regeneration, and it is sometimes advisable to use in addition a .05 or .1 paper condenser in parallel.

Note.—Due to lack of uniformity of 6E5 valves it may happen occasionally that some valves lose their power to fluoresce green, in which case they should be replaced.

In the earliest issue of 626P the AVC system was applied to the RF and IF valves only. The control was taken from the P.D. across one of the .25 megohm load resistors (R14)) and 100,000 ohms in series. The P.D. across the 100,000 ohm resistor controlled the 6E5. In later versions of 626P, the full AVC is applied to the RF and OCTODE valves and half the control voltage is applied to the IF valve and to the 6E5 (the 100,000 ohm resistor is removed.)

The circuit diagram shown, conforms to the latter arrangement.

In taking bias measurements, it should be remembered that the P.D. across R16 is fed back to the controlled valves through the AVC line and offsets some of the bias applied to the controlled valves by their own cathode resistors, i.e., if the cathode voltage of the RF valve is 8 volts, and the cathode voltage of the EBC3 is 3 volts, the actual bias on the RF valve is 5 volts.

SERVICE HINTS. If the small button condenser of 10 uuf (C8) leaks, the effect is to greatly increase the sensitivity of the receiver to the point of instability (due to most, if not all of the bias on the Octode being cancelled out).

If condenser C21 leaks, the receiver becomes much less sensitive than normal due to an effective increase in the bias of the controlled valves, and to other effects.

If the coupling condenser C23 leaks, the tone will be adversely affected and possible damage to the EL2 should be looked for.

If the AC hum from the loudspeaker is considered to be too high under certain conditions, a resistor of 25,000 to 50,000 ohms should be connected in series with the plate resistor R20 of the EBC3 and positive HT, and the junction of the two resistors bypassed to chassis with a .25 uF condenser.

When remounting the chassis in the cabinet special care should be taken to prevent the top metal clamps of the glass edgelit dial from making contact with the front wall of the cabinet, otherwise microphonic trouble may be encountered on shortwaves.

Condenser C3 in earlier models was .25 uFd. This was changed to an 8 uFd dry electrolytic to prevent "flutter" on signals at the high frequency end of the shortwave band.

Do not operate the chassis with the speaker plug removed, otherwise the electrolytic condensers may break down.

If attention has to be given to the dial mechanism itself, do not screw up the corner clamps too tightly or the glass will fracture.

All socket connections can be identified from the Philips Valve Characteristic Chart or Technical Communications.

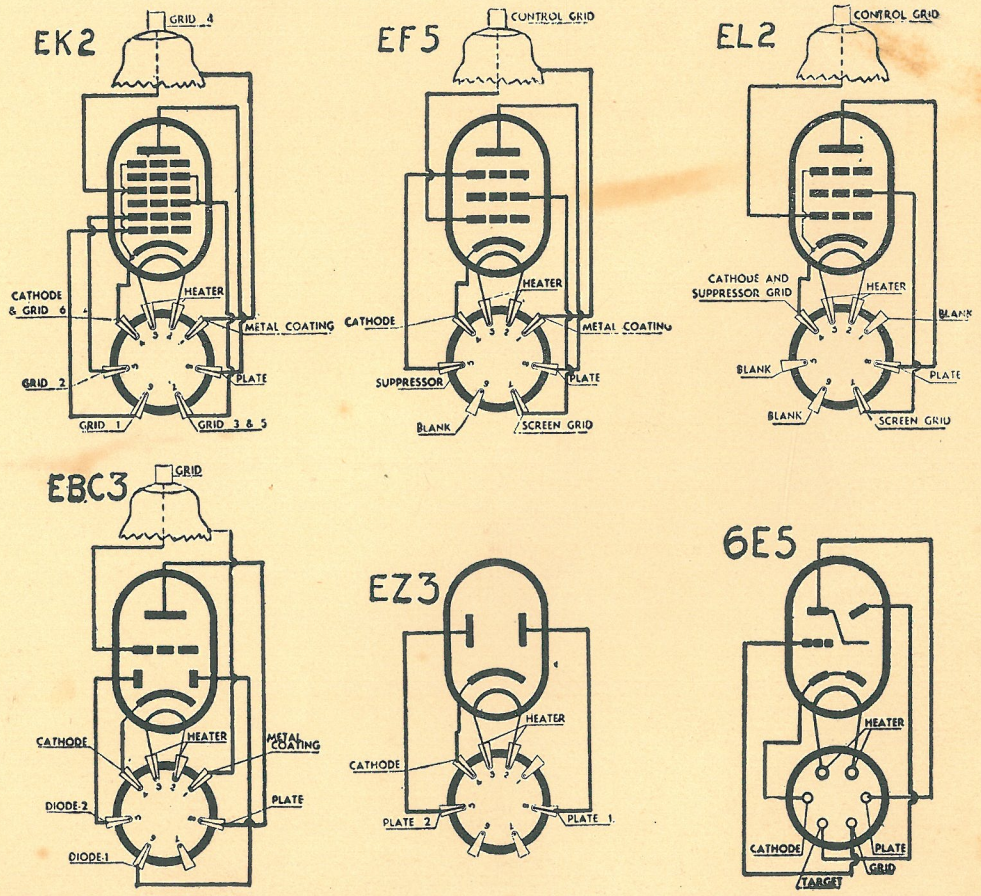
The two end lugs (nearest the wavechange switch) of the 6 lug connecting strip should be carefully inspected and any surplus soldering paste should be thoroughly removed from between these two lugs.

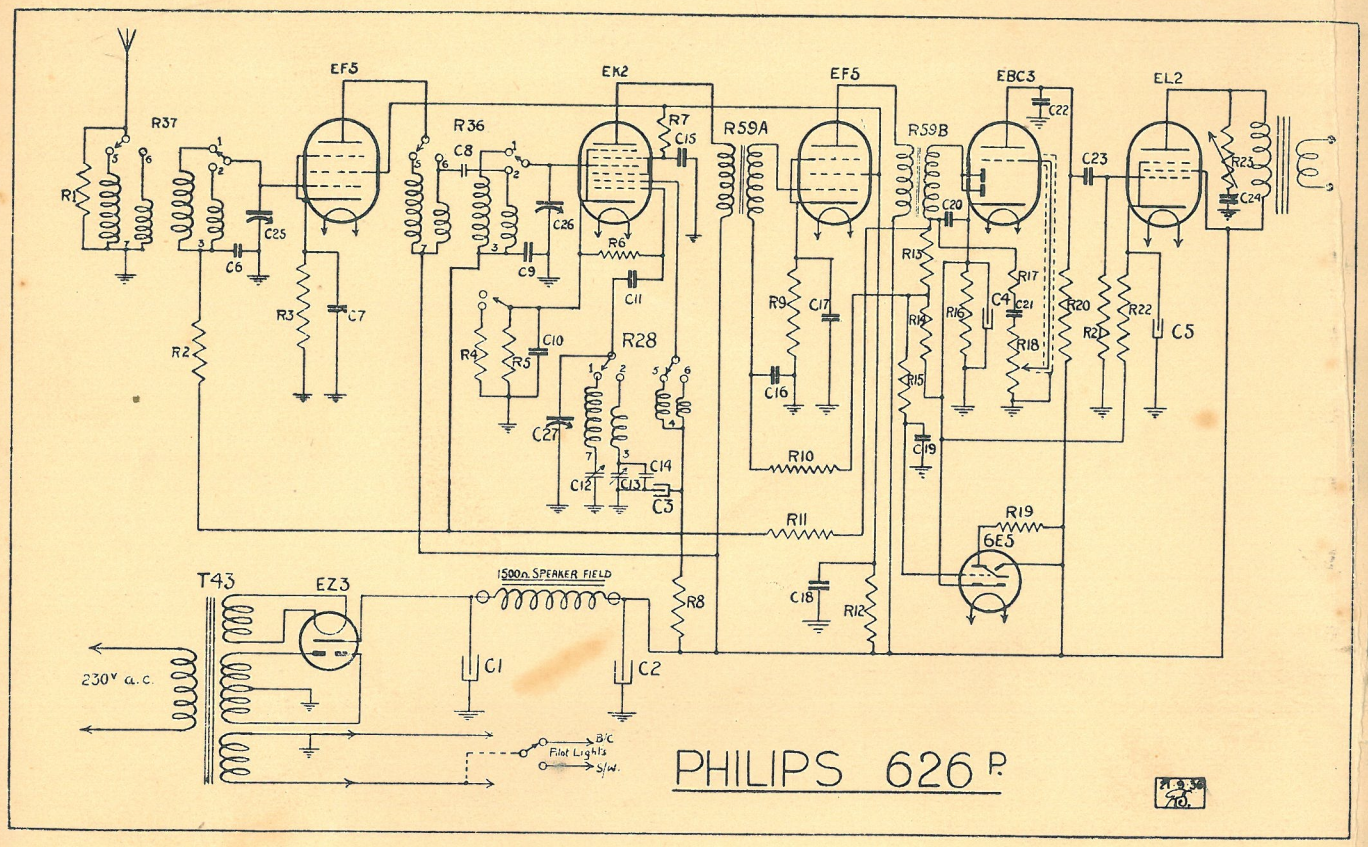
Although the paste used is non-acid, it is now known to absorb a trace of moisture in which case, a leak can develop between the two lugs mentioned, with consequent noise and a reduction of bias on the EBC3 grid to an extent sufficient to cause distortion.

VOLTAGE ANALYSIS

Valve Type	Plate Voltage	Plate Current, M.A.	Screen Voltage	Cathode Voltage
EF5 RF	245	7.7	100	(10V. scale) 7.25
EK2	G2.185 P 245	3.8 .75	67	SW. 3.75 BC. 7.9
EF5 IF	245	8.0	100	6.5
EBC3	110	2.7	—	3.2
EL2	225	32.0	245	(50V. scale) 17.5
EZ3	(1000V. scale) 340–340	Cathode Cur. 66.0	—	(1000V. scale) 400.0
6E5	20 (at socket)	1.2	—	—

All voltage readings are made with a 1,000 ohms-per-volt meter, and are made with the wavechange switch in the broadcast position except where otherwise stated.





COMPONENT PARTS.

Condensers

C1	16 uF Elec.
C2, C3	8 „ „
C4	10 „ „
C5	25 „ „
C6, C7, C9, C10, C15-C19	.05 „ paper
C8	10 uuF Mica
C11, C20, C22	100 „ „
C12	600 „ Padder
C13	1500 „ Padder
C14	.001 uF Mica
C21, C23	.01 uF Paper
C24	.05 uF 600 volts

Resistors

R1	10,000 ohm, ½ watt
R2	.1 megohm, ½ watt
R3, R4	1,000 ohm, wire
R5	1,250–1,600 ohm, wire
R6, R17	50,000 ohm, ½ watt
R7, R12	25,000 ohm, 1 watt
R8	15,000 ohm, ½ watt
R9	700 ohm, wire
R10, R11, R15, R19	1 megohm, ½ watt
R13, R14	.25 megohm, ½ watt
R16	85 ohm, wire
R18	.5 megohm, volume
R20	.1 megohm, 1 watt
R21	.5 meghom, ½ watt
R22	400 ohm, wire
R23	20,000 ohm, tone