

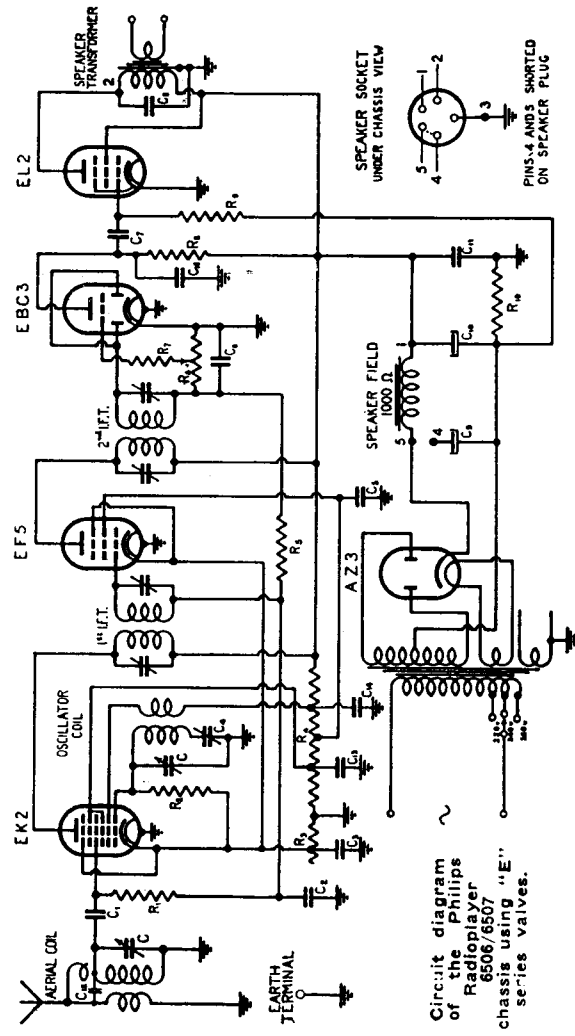
Philips "Radioplayer" A.C. Operated Broadcast Models 6506, 6507

Philips' Radioplayer models "6506" and "6507" both use identical five-valve broadcast chassis designed for A.C. operation. Model 6506 uses a mantle type speaker and is fitted with a five-inch speaker cabinet and uses an eight-inch speaker. Two controls are fitted, these being for volume and tuning.

The normal valve equipment for these models consists of four 6.3 volt, metal-clad, "P" based Philips valves and a 4-volt indirectly-heated rectifier. The circuit arrangement when using this valve equipment is shown herewith. However, some of these models were supplied with alternative (but not interchangeable) valve equipment consisting of four 4-volt,

metal-clad, "P" based Philips valves and a 6.3-volt indirectly-heated rectifier. Several minor circuit variations will be found between the "4-volt" and "6-volt" versions of these models and, for convenience of reference, both circuit arrangements are shown.

The circuit used in these receivers is fairly straightforward and presents no particular difficulties to the serviceman. However, note should be taken of the shunt-fed A.V.C. arrangement for the octode, and attention should also be paid to the diode-bias system for the first A.F. amplifier. The loudspeakers used in these receivers have a field coil resistance of 1,000 ohms, and dial lamps in accordance with the filament voltage are used.

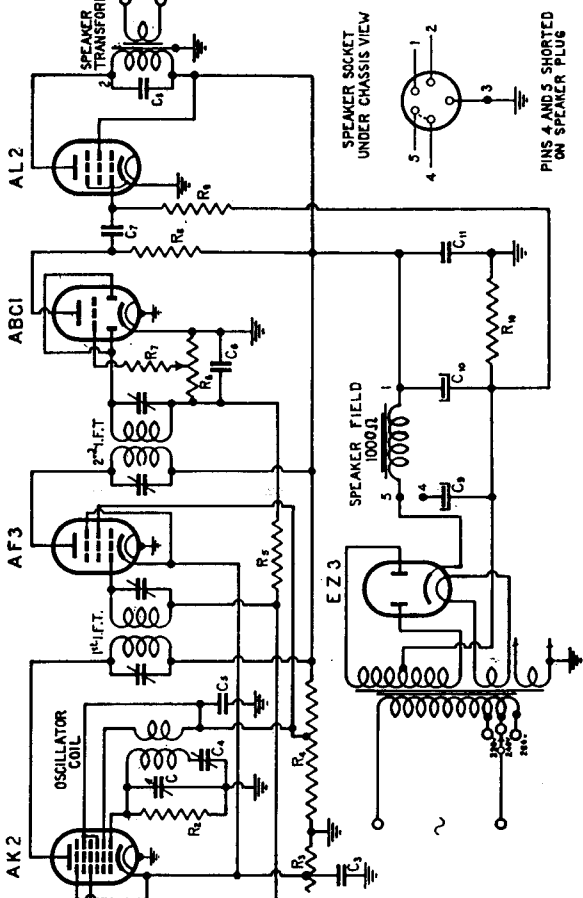


Circuit diagram of the Philips Radioplayer 6506/6507 chassis using "E" series valves.

OPERATING VOLTAGES.

The following measurements were made, under "no signal" conditions, with a "1,000 ohms per volt" meter between chassis and the socket indicated. For convenience of reference, the "4 volt" and "6 volt" chassis operating conditions are listed separately:—

- RADIOPLAYERS 6506, 6507, with 4-volt valve equipment.**
AK2, Frequency Converter: Plate, 250 v.; screen, 100 v.; cathode, 2 v.; osc. anode grid, 100 v. Plate current, 3.5 mA.
AF3, 462.5 KC. I.F. Amplifier: Plate, 250 v.; screen, 100 v.; cathode, 2 v. Plate current, 11 mA.
ABC1, Detector, A.V.C. Rectifier and A.F. Amplifier: Plate, 50 v.; cathode, earthed (triode section is diode biased). Plate current, 1.5 mA.
AL2, Output Pentode: Plate, 240 v.; screen, 250 v.; cathode, earthed (grid is biased from drop across R10, approx. 20 volts). Plate current, 26 mA.



Alternative 4 volt valve circuit for Radioplayers 6506/6507.

COMPONENT VALUES

CONDENSERS.

C₁, C₂—2 gang variable condenser; C₁, C₆, C₁₅—0.00025 mfd. mica; C₂, C₅, C₁₃, C₁₄—0.1 mfd. paper; C₃, C₁₁—0.5 mfd. paper; C₄—7 plate padder; C₇—0.01 mfd. mica; C₈—0.006 mfd. mica; C₉, C₁₀—8 mfd. electrolytic; C₁₂—5 mmfd. special coupling capacitor.

RESISTORS.

R₁, R₅—1.0 megohm, 0.5 watt; R₂, R₇—50,000 ohms, 1 watt; R₃, R₄—250 ohms and 20,000 ohms sections, respectively, of voltage divider; R₆—0.5 megohm potentiometer; R₈—0.25 megohm, 1 watt; R₉—0.5 megohm, 1 watt; R₁₀—300 ohms, 3 watts.

Note: Resistor R₁ and condensers C₁ and C₁₂ are contained in square coil box on top of chassis.

VOLTAGE ANALYSIS.

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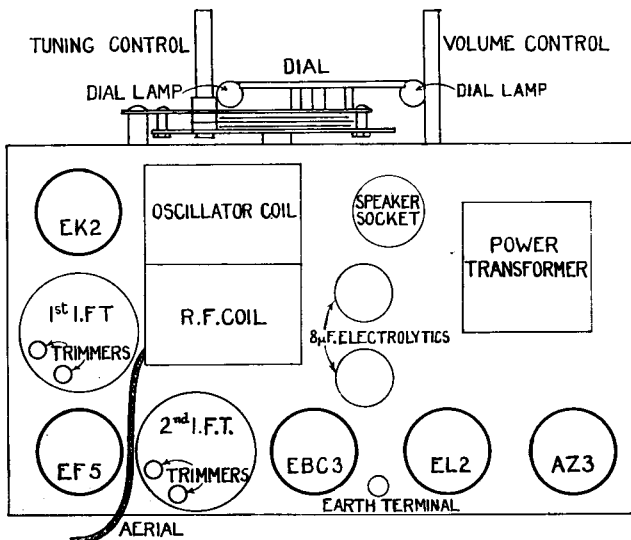
Valve Type	Plate Volts	Plate Current	Screen Volts	Cathode Volts	Heater Volts A.C.
EK2	250 v. (osc. plate G2=200v)	3.5 mA.	50 v.	2 v.	6.3 v.
EF5	250 v.	11 mA.	100 v.	2 v.	6.3 v.
EBC3	50 v.	1.5 mA.	—	0 v.	6.3 v.
EL2	240 v.	26 mA.	250 v.	0 v.	6.3 v.
AZ3	—	—	—	—	4.0 v.

The abovementioned voltage values are measured between the socket points indicated and chassis with the receiver in the no signal condition and the volume control at zero. Voltages are measured with a 1000 ohms per volt voltmeter and may vary as much as 10% from the figures quoted.

The voltage analysis for receivers fitted with the alternative valve equipment will be substantially the same as the above table, exceptions being:

- AK2 osc. plate voltage = 100 v.
- Screen voltage = 100 v.
- Heater voltage — AK2, AF3, ABC1, AL2 = 4 volt (A.C.)
- Heater voltage — EZ3 = 6.3 v. (A.C.)

CHASSIS LAYOUT.



cator. Then adjust the two trimmers on the 2nd I.F. transformer for peak receiver output. Next adjust the two trimmers on the first I.F. transformer for maximum indication on the output meter.

During these adjustments the output of the test oscillator should be regulated so that the output is as low as possible. This will prevent errors in alignment due to the A.V.C. action. The I.F. trimmers should be gone over again to ensure that mutual coupling has not displaced the original adjustment.

R.F. TRIMMER ADJUSTMENTS. The two trimmers on the gang condenser are indicated as oscillator and R.F. trimmer in the component location illustration. The padder indicated as C4 in the same photograph is accessible for adjustment from the front of the chassis.

Before proceeding with the R.F. adjustment see that the dial pointer just coincides with the end of the scale when the tuning condenser plates are fully engaged. Attach the output of the test oscillator to the aerial lead and earth terminal of the receiver. (Disconnect the long aerial wire from the lead.)

Proceed further as follows:—

- (a) Connect output meter to output of set and turn volume control to maximum.
- (b) Adjust test oscillator to 1500 kc/s. and tune receiver until pointer indicates 1500 kc/s. on dial.
- (c) Increase test oscillator output until possibly a small indication is given on the output meter.
- (d) Adjust the *oscillator trimmer* on gang condenser until a maximum output is recorded.
- (e) Adjust test oscillator to 1400 kc/s. and set dial to same frequency. Adjust *R.F. trimmer* on condenser gang for maximum output on meter.
- (f) Adjust test oscillator to 600 kc/s. and tune dial of set to same frequency. Adjust padder C4 for maximum output.
- (g) If padder has been altered very much it will be advisable to return to 1500 kc/s. and recheck alignment as per para. (b), (c), (d).



PHILIPS RADIOPLAYERS

SUPEROCTODYNE MODELS 6506 AND 6507
A.C. OPERATED FOR BROADCAST RECEPTION.

SPECIFICATIONS.

(Subject to alteration without notice.)

Voltage Rating (power supply) 220-260 volts A.C. 40-100 cycles.
Tuning range 200-550 metres
Intermediate frequency 462.5 kc/s.

VALVE EQUIPMENT.

The 6506 and 6507 may be equipped with Philips Metal Clad valves of either 6.3 volt or 4 volt heater rating.

WARNING.—The alternative types are not interchangeable and replacement should only be made with types equivalent to the original equipment.

	Normal valve equipment.	Alternative valve equipment— (not interchangeable).
Frequency Converter	EK2	AK2 —octode
I.F. Amplifier	EF5	AF3 —R.F. penthode
A.V.C., Demodulator and Audio Amplifier	EBC3	ABC1—diode triode
Power Amplifier	EL2	AL2 —power penthode
Rectifier	AZ3	EZ3
Dial Lamps	6.3 volt 0.1A,	4.5 volt 0.3A, panel lamps.

INSTALLATION. Full instructions for the installation of Models 6506 and 6507 are contained in the instruction book supplied with each Radioplayer. The chassis of these two models are identical with the exception of the name plate.

VOLTAGE ADJUSTMENT.

The power transformer may be adapted for A.C. mains of 220-240 or 260 volts by means of a switch located at rear of chassis. This switch is normally covered by an inspection plate and the plate should not be removed unless the power plug is disconnected at the socket. It is important that the receiver should be operated with the transformer switch set at the correct position in accordance with the mains voltage in the locality.

DISMANTLING THE SET.

1. Disconnect power plug.
2. Remove knobs at front of cabinet (recessed grub screws).
3. Withdraw loudspeaker plug from socket behind electrolytic condensers.
4. Unscrew the four bolts holding the chassis to floor of cabinet. The chassis may now be withdrawn from the cabinet.

REMOVING LOUDSPEAKER.

If it is desired to remove the speaker this may be accomplished by unscrewing the four woodscrews securing same. In the case of the 6506 (mantel model) the speaker is only accessible after the chassis has been removed.

ALIGNMENT. Precise alignment is vital to the proper functioning of this receiver. There are four trimming adjustments provided on the intermediate frequency transformers and three in the octode tuning circuits (two at the gang condenser together with the padder).

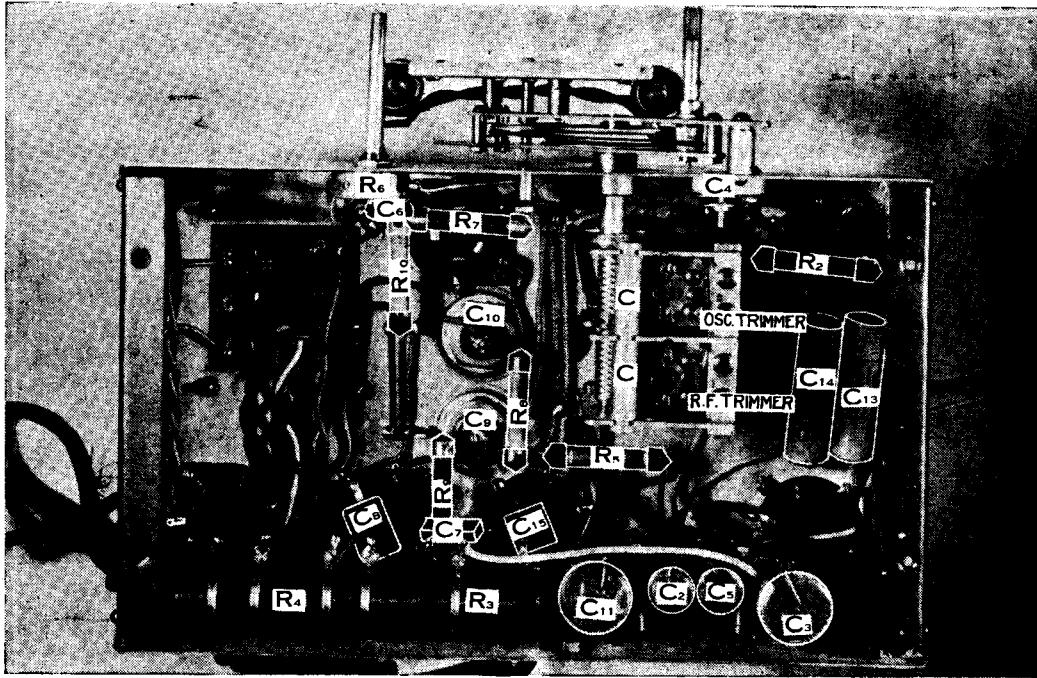
These trimmers are accurately adjusted at the factory and will retain the alignment unless affected by abnormal climatic conditions or unless alterations have been made to the trimmers or wiring for service purposes. Incorrect alignment is usually indicated by loss of selectivity coupled with poor sensitivity. The correct performance can only be obtained if the set alignment is achieved by reliable test apparatus and no attempt should be made to tamper with the trimmers unless a suitable service oscillator and visual output meter is available.

I.F. TRIMMER ADJUSTMENTS. The position of the four I.F. trimmers is shown in the chassis layout diagram. Each must be aligned to the basic frequency of 462.5 kc/s. To accomplish this, connect an output meter to the receiver. The "hot" side of the test oscillator should be connected to the grid of the EK2 or AK2 octode through an 0.5 uF condenser and the "earth" side of the oscillator should be joined to the receiver chassis. The normal grid clip should remain on the cap of the valve. Tune the oscillator to exactly 462.5 kc/s. Advance the volume control to full on position and adjust the receiver tuning control to a point where the condenser plates are fully engaged. Increase the output of the test oscillator until a slight indication is observed on the output indi-

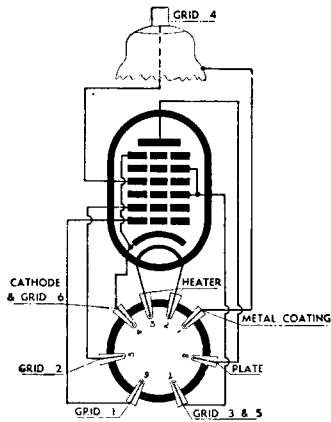
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SERVICE DATA.

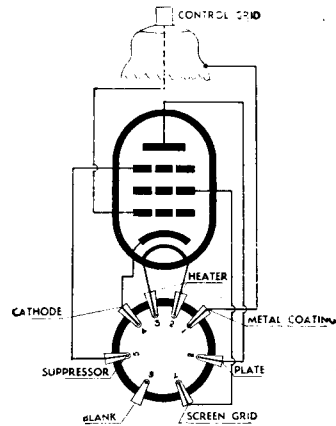
COMPONENT LOCATIONS.



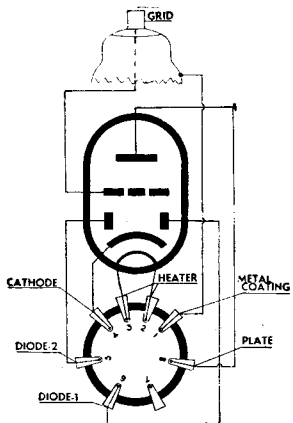
SOCKET CONNECTIONS VIEWED FROM BOTTOM OF BASE.



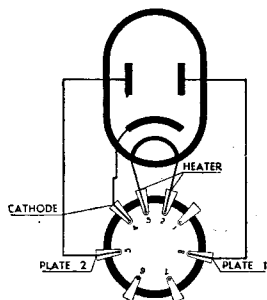
EK2 or AK2



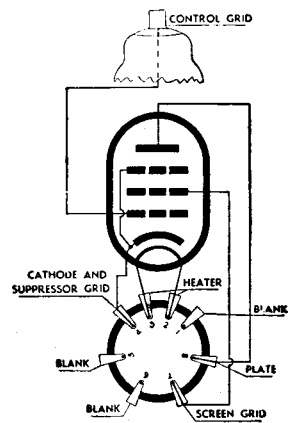
EF5 or AF3



EBC3 or ABC1



AZ3 or EZ3



EL2 or AL2