

# Philips' "Radioplayer" Dual-wave Model 6608

(Circuit diagram and commencement of descriptive matter will be found on Page 307.)

used to protect the indirectly-heated rectifier from the effects of current surges; it is omitted in some model 6608 receivers where a power transformer of high internal resistance is employed.

## VALVE CHANGES.

The circuit as shown is as employed for four-volt valve equipment. Note that the diodes of the type ABC1 audio amplifier are not used at all. The alternative valve equipment consists of a complete set of 6.3 volt ("E" series) valves, with type numbers as shown alongside those of the "A" series. With the exception of the AB2—EB4 stage, the socket wiring is identical for both valve equipments. In the case of the EB4, a "P" type socket is employed instead of the "V" type used for the AB2, and extra connections are necessary to strap the independent cathodes together, and to take care of the internal shield of the EB4.

Another change found in the six-volt valve equipped receiver is the wiring of the oscillator grid lead (R1). In the circuit shown, this resistor is returned to the A.V.C. delay tapping on the bias re-

sistor; for the EK2, it is returned direct to cathode. Changes are also made in the values of R3, R4, R5, but these are dealt with in the components list.

A further variation in this model is the type of valve used in the first audio stage. This is normally an ABC1 (with its diodes left out of circuit) in "four-volt" models, but some sets may be encountered where an AC2 is found in this socket. This is a plain triode, similar to the ABC1, but without diodes.

Some variation may also be found in the type of tuning indicator used. The early receivers of this type used a 6E5, but in some of the later releases this was replaced by a 4678 (now known as the EM1). In these receivers, the value of R2 (mounted inside tuning indicator assembly) is changed from 1.0 to 2.0 megohms.

The dial lamps used in model 6608 are of the 6-volt, single contact, auto type with a rating of 3 watts each. Six are used, four for broadcast dial scale illumination and two for short-waves. Switching is effected by means of a section on the wave-change switch.

## OPERATING VOLTAGES.

The following measurements were taken with a "1,000 ohms per volt" meter between the socket points indicated and chassis. The receiver was operated on 240 volts A.C. mains and detuned from any signal.

## FOUR-VOLT VALVE EQUIPMENT.

**AK2, Octode Frequency Converter:** Plate, 250 v.; screen, 70 v.; cathode, earthed. Plate current, 2 mA. Oscillator plate voltage, 90 v.

**AF3, 462.5 KC. I.F. Amplifier:** Plate, 250 v.; screen, 100 v.; cathode, earthed. Plate current, 10 mA.

**AB2, Duo-diode Detector and A.V.C. Rectifier:** Cathode, 2 v.

**ABC1, or AC2, Audio Amplifier:** Plate 50 v.; cathode, 2 v. Plate current, 1.5 mA.

**AL2, Output Pentode:** Plate, 220 v.; screen, 230 v.; cathode, earthed. Grid bias obtained from drop across R19, which should be approx. 22 v. Plate current, 25 mA.

## SIX-VOLT VALVE EQUIPMENT

**EK2, Octode Frequency Converter:** Plate, 250 v.; screen, 50 v.; cathode, earthed. Plate current, 2 mA. Oscillator plate voltage, 200 v.

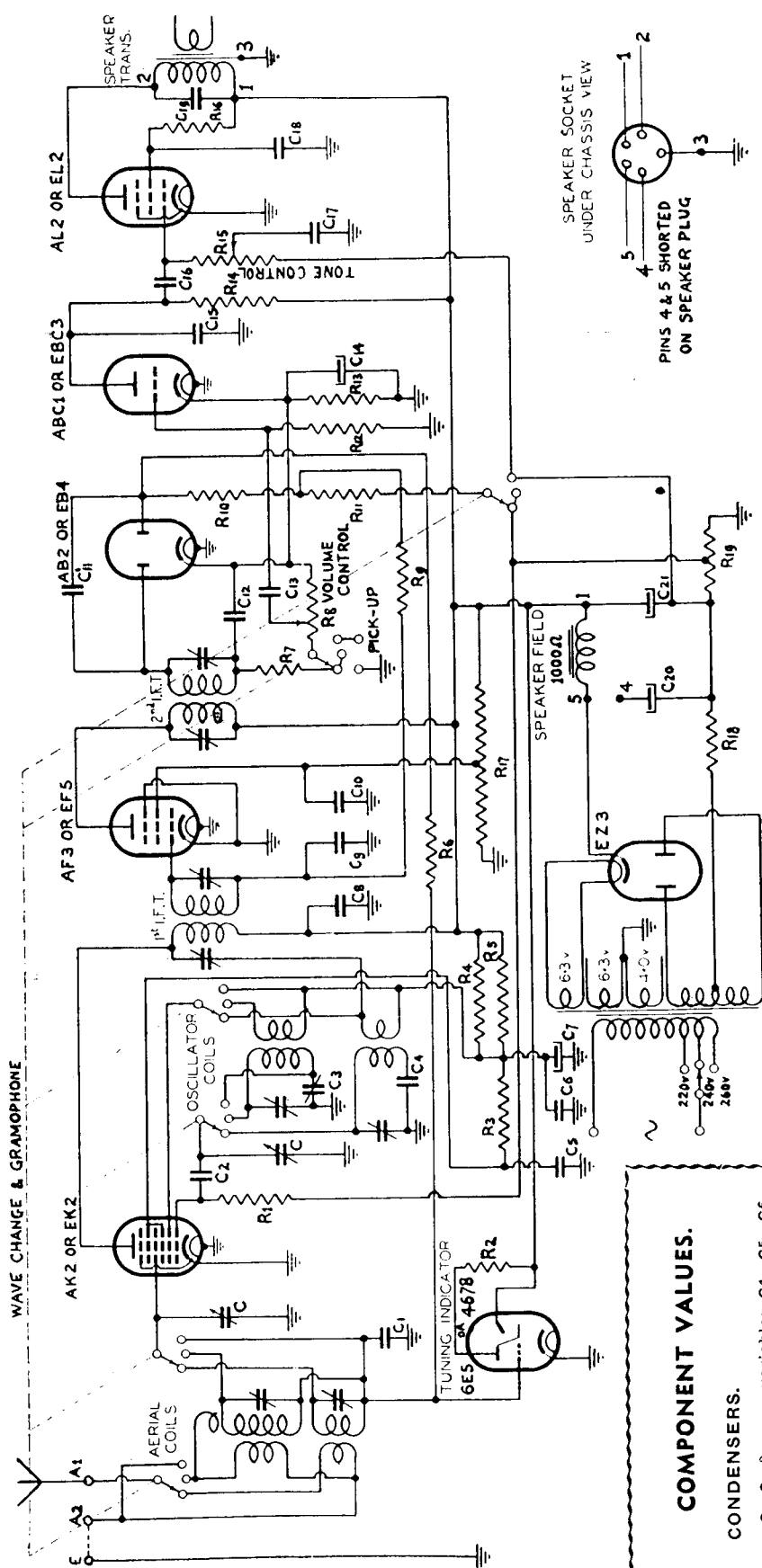
**EF5, 462.5 KC. I.F. Amplifier:** Plate, 250 v.; screen, 100 v.; cathode, earthed. Plate current, 8 mA.

**EB4, Duo-diode Detector and A.V.C. Rectifier:** Cathode, 2 v.

**EBC3, Audio Amplifier:** Plate, 75 v.; cathode, 2 v. Plate current, 1 mA.

**EL2, Output Pentode:** Plate, 240 v.; screen, 230 v. Plate current, 20 mA. Grid bias obtained from drop across R19, which should be 18—20 v.

# Philips "Radioplayer" A.C. Dual-wave Model 6608



Radioplayer Model "6608" is a six-valve receiver designed for dual-wave coverage and operation from 220-260 volts, 40-100 cycles A.C. mains. This receiver is housed in a console cabinet; uses a large, square, edelit dial; is provided with a tuning indicator of the "electron beam" type; and employs an eight-inch diameter loudspeaker with a field resistance of 1,000 ohms. Several variations in valve equipment will be found in various examples of this model, but we will first deal with the features common to them all.

Four panel controls are fitted, these being for tone (continuous), volume, tuning (single ratio), and wave-change (three positions—S.W., B.C., and gramo.). The tuning control and wave-change switch operate on concentric spindles and control of the latter is effected by means of a lever projecting below the tuning knob. A fourth control is fitted to the rear of the chassis in the form of a line voltage selector. This has three positions and provides adjustments for 220, 240 and 260 volts operation.

The circuit itself is a fairly straightforward arrangement with a single 462.5 K.C. I.F. amplifier stage. A separate duo-diode is used for detection and delayed A.V.C. rectification. Delay voltage for the latter is obtained from a tapping on a "bleed" type bias resistor; this same voltage also serves to provide minimum bias for the mixer and I.F. amplifier valves. In the circuit shown, note carefully that the mixer oscillator grid leak is return to the delay voltage tapping instead of being returned direct to cathode. A further point of interest is provided by the fact that the wave-change switch in its "gramo." position not only shorts out the aerial and oscillator coils, but it also applies the full "bleed" bias voltage to the A.V.C. diode (and thence to the mixer and I.F. valves), thus ensuring that the "radio" end is completely inoperative when the set is in use for gramophone reproduction.

Other points of interest are the extra oscillator feed-back provided on short-waves by connecting the first I.F. primary trimmer to the plate side of the oscillator reaction coil; the series voltage feed arrangement employed for mixer oscillator plate and screen grid supplies; the combination tone control and grid leak on the output pentode; the independent screen feed arrangement for the output pentode; and the provision of a current-limiting resistor (R18) in series with the centre-tap of the high-tension secondary. The resistor is

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## COMPONENT VALUES.

### CONDENSERS.

C, C-2 gang variable; C1, C5, C6, C9, C10—0.1 mfd. paper; C2, C11, C12—0.0001 mfd. mica; C3—Broadcast pad; C4, C19—0.004 mfd. mica; C7, C20, C21—8 mfd. electrolytic; C8, C18—0.5 mfd. paper; C13, C16—0.01 mfd. paper; C14—25 mfd., 25 volt, electrolytic; C15—0.00025 mfd. mica; C17—0.02 mfd. mica.

### RESISTORS.

R1, R4, R5, R7—50,000 ohms; 1 watt. In models using type EK2, R4 and R5 are replaced by a single 5,000 ohms resistor; R2, R6, R10, R12—1 meg. 0.5 watt. In models using type 4678 (or EMI) tuning indicator, R2 is changed to 2 meg.; R3, R13—5,000 ohms, 1 watt. In models using type EK2, R3 is changed to 100,000 ohms; R8, R15—500,000 ohms potentiometers for volume and tone control; R9, R11—500,000 ohms, 0.5 watt; R14—250,000 ohms, 1 watt; R16—10,000 ohms, 1 watt; R17—20,000 ohms voltage divider; R18, R19—300 ohms, wire wound. R19 is wound as a clip for tapping off the A.V.C. delay voltage.