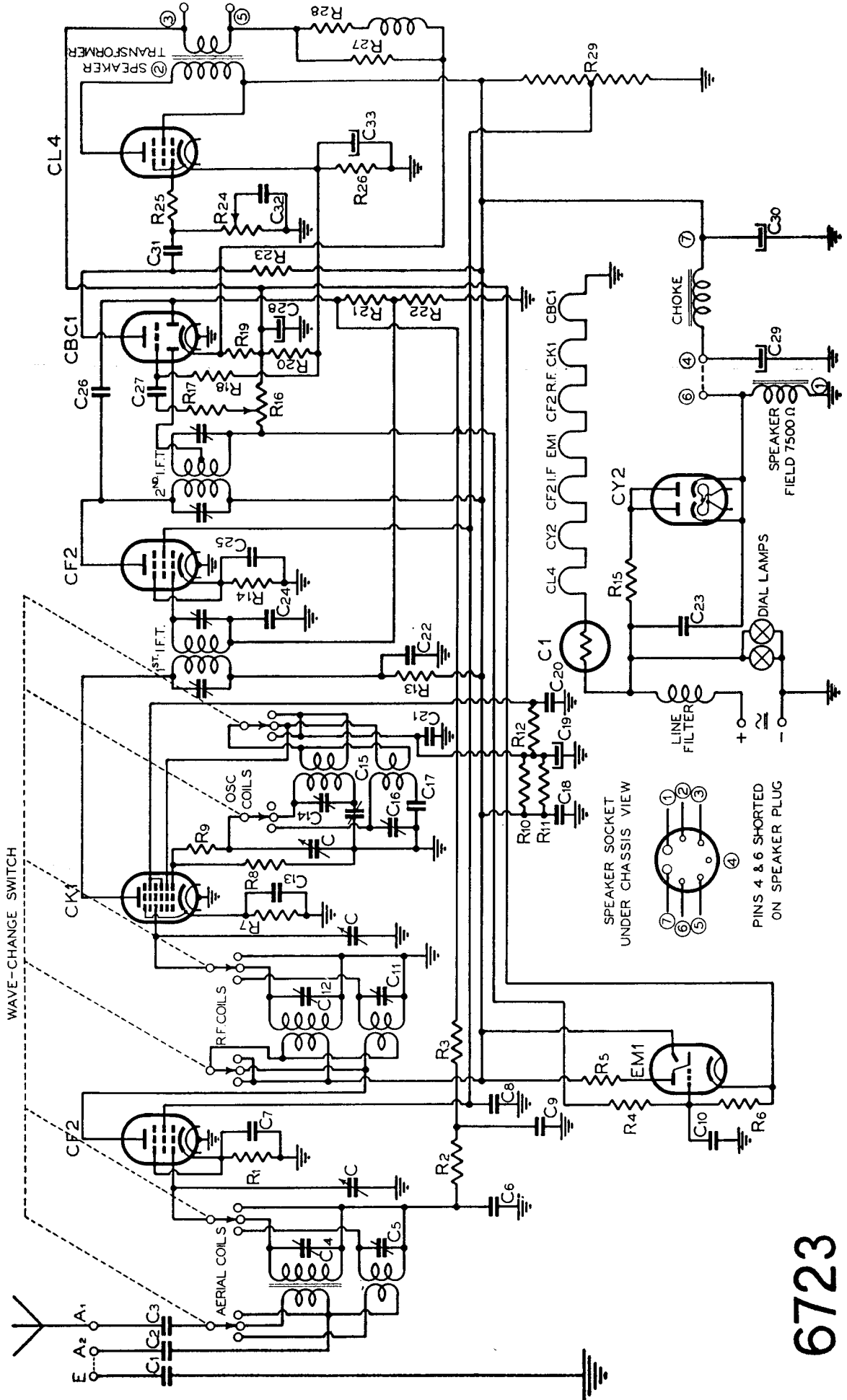


Philips' "Radioplayer" A.C./D.C. Operated Dual-Wave Console Model 6723



6723

This dual-wave console, which uses an I.F. of exactly 472.5 kC., is one of the first of the Philips' "audioscopic" series. The "audioscopic" feature is achieved by means of a frequency-corrected negative feedback system (R27, R28 and coil) connected between the voice-coil and A.F. amplifier cathode circuits. Component values and operating voltages for this model are given on the facing page.

Radioplayer "6723"

1937 Console Model

Uses 8-inch, 7,500 ohms field,
loudspeaker.

Circuit diagram appears on facing
page.

COMPONENT VALUES.

RESISTORS.

R1, R7, R14, R27—500 ohms, $\frac{1}{2}$ W.; R2, R25—100,000 ohms, $\frac{1}{2}$ W.; R3, R22—500,000 ohms, $\frac{1}{2}$ W.; R4, R5, R6—2 meg-ohms, $\frac{1}{2}$ W.; R8—50,000 ohms, $\frac{1}{2}$ W.; R9—50 ohms, $\frac{1}{2}$ W.; R10, R11, R12—50,000 ohms, 1 W.; R12—5,000 ohms, 1 W.; R15—60 ohms, w.w.; R16—500,000 ohms, volume control; R17, R18—1.5 megohm, $\frac{1}{2}$ W.; R19—50 ohms,

1 w.; R20—2,500 ohms, 1 W.; R21—1 meg-ohm, $\frac{1}{2}$ W.; R23—100,000 ohms, 1 W.; R24—500,000 ohms, variable; R26—250 ohms, 1 W.; R28—150 ohms, 1 W.; R29—25,000 ohms, voltage divider.

CONDENSERS.

C—sections of 3-gang variable; C1, C2, C3, C23—0.01 mfd., mica, 1,500 v. test; C4—B/C. aer. trimmer; C5—S/W. aer. trimmer; C6, C10, C24, C32—0.05 mfd., paper; C7, C8, C13, C18, C20, C21, C22, C25—0.1 mfd., paper; C9, C27, C31—0.02 mfd., paper; C11—S/W. R.F. trimmer; C12—B/C. R.F. trimmer; C14—B/C. osc. trimmer; C15—B/C. padder; C16—S/W. osc. trimmer; C17—4.500 mmfd., mica, S/W. padder C19, C29, C30—32 mfd., high voltage, electro.; C26—100 mmfd., mica; C28, C33—25 mfd., low voltage, electro.

OPERATING VOLTAGES.

All measurements were made with a "1,000 ohms per volt" meter and voltages are those existing between the socket contact indicated and chassis. The receiver

was operating under "no signal" conditions with the volume control in the "minimum" position, and the supply voltage was 240 v., A.C. Those measurements shown in parenthesis were made with the receiver operating under similar conditions from a 240 v. D.C. supply, and where only one value is given it applies to both conditions of operation.

CF2, R.F. Amplifier: Plate, 235 v. (195 v.); screen, 95 v. (85 v.); cathode, 2 v. (1.5 v.). Plate current, 3 mA. (2.5 mA.).

CK1, Frequency Converter: Plate, 140 v. (100 v.); screen, 70 v. (60 v.); cathode, 1.5 v.; osc. anode grid, 85 v. (70 v.). Plate current, 0.8 mA.

CF2, 472.5 kC. I.F. Amplifier: Plate, 235 v. (195 v.); screen, 95 v. (85 v.); cathode, 2 v.; 1.5 v.). Plate current, 2.8 mA. (2.6 mA.).

CBC1, Detector, A.V.C. Rectifier and A.F. Voltage Amplifier: Plate, 115 v. (90 v.); cathode, 11.5 v. (7.5 v.). Plate current, 1 mA. (0.8 mA.).

CL4, Output Pentode: Plate, 225 v. (195 v.); screen, 235 v. (190 v.); cathode, 9 v. (7.5 v.). Plate current, 35 mA. (30 mA.).

PHILIPS RADIOPLAYER

A.C./D.C. MODEL 6723

FOR BROADCAST AND SHORT WAVE RECEPTION.

SPECIFICATIONS.

(Subject to alteration without notice)

Voltage Rating (power supply)	195-260 volts A.C. or D.C.
Tuning range	200-550 metres, 16.5-51 metres.
Intermediate frequency	472.5 kc/s.

VALVE EQUIPMENT.

R.F. Amplifier.	CF2—R.F. Penthode
Frequency Converter	CK1—Octode
I.F. Amplifier	CF2—R.F. Penthode
A.V.C. Demodulator and Audio Amplifier	CBC1—Diode triode
Power Amplifier	CL4—Power Penthode
Rectifier	CY2—Indirectly heated
Regulating Lamp	C1—Barretter
Dial Lamps	2-250 volts 15 watt small B.C. Pilot (Frosted)

INSTALLATION. Full instructions for the installation of Model 6723, are contained in the instruction book supplied with each Radioplayer.

THE BARRETTTER or Iron Hydrogen Regulating Lamp represents a new development in Receiver design, the function of which is to regulate the current in the filament circuit so that variations in the power supply have no detrimental effect on the useful life of the receiving valves.

The use of the Barretter furthermore enables the receiver to be operated on any voltage from 195 to 265 volts, A.C. or D.C., without circuit alteration. The Barretter replaces entirely the series resistor employed previously in A.C./D.C. receivers.

SAFETY PRECAUTIONS. Every care has been taken to ensure that the Model No. 6723 is safe in operation. The Radioplayer is fitted with a two-pin plug and receptacle which disconnects the power supply from the set when the protective back of the cabinet is removed. The aerial lead is isolated by the provision of series condensers. It is, however, necessary to exercise due care in the installation or servicing of the Radioplayer.

IMPORTANT. DO NOT MAKE ANY ADJUSTMENTS TO THE AERIAL OR IN ANY WAY TAMPER WITH THE BACK OF THE RECEIVER WITHOUT FIRST REMOVING THE POWER PLUG. ADJUSTMENTS TO TRIMMERS, ETC., UNDER "LIVE" CONDITIONS, SHOULD ONLY BE CARRIED OUT WITH INSULATED TOOLS, AND CARE SHOULD BE TAKEN TO AVOID PERSONAL CONTACT.

DISMANTLING THE SET.

1. Disconnect power plug.
2. Remove back cover from the cabinet.
3. Remove knobs at front of cabinet (recessed grub screws). Remove also the wave-change switch knob by unscrewing the lock-nut with a suitable spanner. This will free the wave-change switch arm so that it will remain on the chassis when it is withdrawn.
4. Withdraw loudspeaker plug from back of chassis.
5. Remove wooden batons under shelf and unscrew the four bolts holding chassis to cabinet.
6. Release tuning indicator valve from holder. First unscrew back cover of bakelite holder and slide back along the connecting leads. The two screws which hold the valve socket in place are then removed, allowing the socket and valve to slide from the holder. 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.

ALIGNMENT.

Precise alignment is vital to the proper functioning of this receiver. All adjustments are located underneath the chassis. There are four trimming adjustments for the intermediate frequency amplifier and seven for the R.F. portion of the set (three short-wave trimmers, three broadcast trimmers, and the broadcast paddler). These

(Continued on back page.)

(Continued from page 1.)

trimmers are accurately adjusted at the factory and sealed. Alignment will be retained unless the receiver is 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, although these effects may also be caused by other faults such as defective valves.

The correct performance of this Radioplayer can only be obtained if the set alignment is achieved by the use of reliable test apparatus and no attempt should be made to tamper with the trimmers unless a suitable oscillator and visual output meter is available, together with a competent operator to carry out the work.

Due to the particularly high quality of associated circuits, the adjustment of trimmers, etc., is fairly critical; in fact, a very small adjustment of a trimmer will have a large bearing on the performance of the set.

I.F. TRIMMER ADJUSTMENTS. The position of the four I.F. trimmers is shown in the component location diagram. Each must be aligned to the basic frequency of 472.5 kc/s. To accomplish this, connect an output meter and the loudspeaker to the receiver. The "hot" side of the test oscillator should be connected to the grid of the CK1 octode through an 0.5 uF condenser and the "earth" side of the oscillator should be joined to the receiver chassis through another 0.5 uF condenser. The normal grid clip should remain on the cap of the valve. Tune the oscillator to exactly 472.5 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 indicator. 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 seven trimmers for the radio-frequency alignment are underneath the chassis and are classified in the component location illustration as follows:—

- Broadcast Aerial trimmer.
- " R.F. trimmer.
- " Oscillator trimmer.
- " Padder (C15)
- Shortwave Aerial trimmer.
- " R.F. trimmer.
- " Oscillator trimmer.

The adjustment of the broadcast and shortwave R.F. trimmers is an entirely separate operation, and the broadcast section alignment should be carried out first. Before proceeding with R.F. adjustments 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.

("E" and "A2" should be bridged.)

Proceed further as follows:—

BROADCAST ALIGNMENT.

- (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 a small indication is given on output meter.
- (d) Adjust the **broadcast oscillator trimmer** until a maximum output is recorded.
- (e) Adjust test oscillator to 1400 kc/s and set dial of receiver to same frequency. Adjust **broadcast aerial trimmer** and **broadcast R.F. trimmer** for maximum output on meter.
- (f) Adjust test oscillator to 600 kc/s and tune dial of set to same frequency. Adjust **broadcast padder** (C15) for maximum output.
- (g) If padder has been altered very much it will be advisable to return to 1400 kc/s and recheck alignment as per para. (e).

SHORT WAVE ALIGNMENT.

- (a) Move wavechange switch on set to shortwave position.
- (b) Adjust test oscillator to 16.5 metres and tune dial of set to same wavelength. Adjust **shortwave oscillator trimmer** for maximum output.
- (c) Adjust test oscillator to 19 metres and set dial of receiver to same wavelength. Adjust **shortwave aerial and R.F. trimmers** for maximum output on meter.

NOTE.—The shortwave section of this receiver is equipped with a fixed padder and consequently the above-mentioned adjustments are all that is required for optimum performance. If the service oscillator in use does not cover 16.5 and 19 metres, it is inadvisable to attempt adjustment of the shortwave trimmers.

REPLACING CHASSIS.

Before replacing the chassis see that the wave-change switch arm is properly mounted on its spindle. See also that the rubber sleeve is properly in place in the forked part of this arm so that the switch arm is insulated from the switch proper.

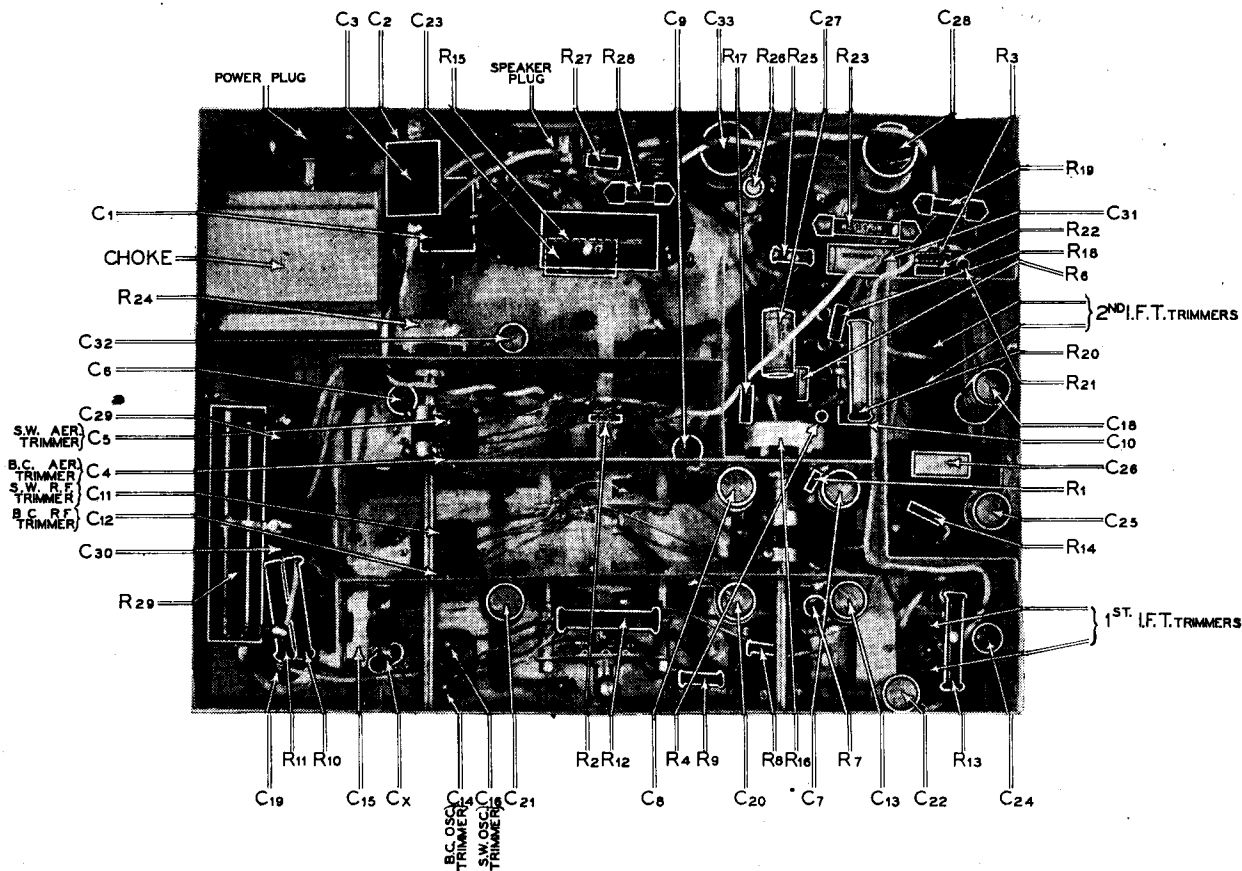
After the chassis is placed in the cabinet, see that the chassis is far enough forward so that the wave-change switch knob can be fitted without drawing the arm away from the chassis. The chassis securing bolts may now be tightened, the speaker plug replaced, and the other knobs fitted to the respective spindles.

TO REMOVE ELECTRON STAR TUNING INDICATOR.

To change the EM1 or to remove the chassis from the cabinet, it is necessary to carry out the following procedure:—

The back cover of the holder is first unscrewed and pushed back down the wiring. The two screws holding the valve socket in place are then removed allowing the socket and valve to slide from the holder.

COMPONENT LOCATIONS



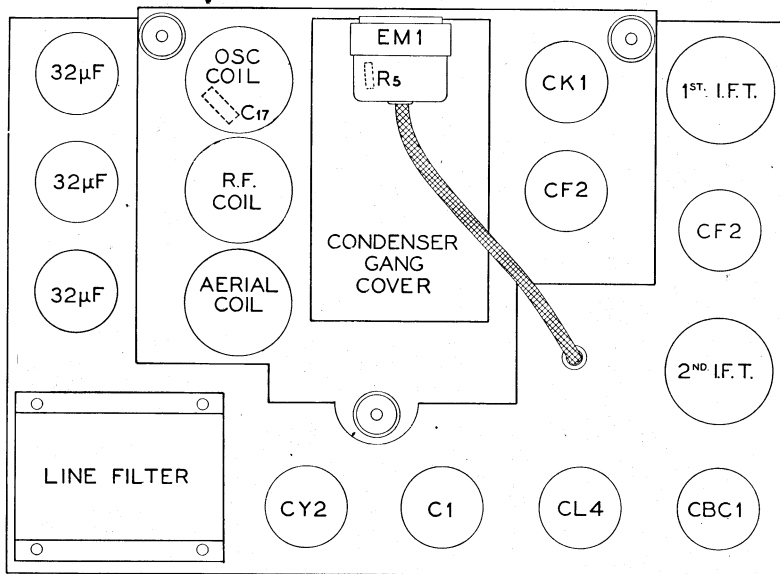
COMPONENT PARTS.

CONDENSERS.	RESISTORS.
C, C, C 3 gang condenser	R1, R7, R14, R27 500 ohms ½ watt
C1, C2, C3, C23 0.01 mica (1500 volts)	R2, R25 100,000 ohms ½ watt
C4 Broadcast aerial trimmer	R3, R22 0.5 megohm ½ watt
C5 Short wave aerial trimmer	R4, R5, R6 2 megohm ½ watt
C6, C10, C24, C32 0.05 paper	R8 50,000 ohm ½ watt
C7, C8, C13, C18, C20, C21, C22, C25 0.1 paper	R9 50 ohms ½ watt
C9, C27, C31 0.02 paper	R10, R11, R13 50,000 ohm 1 watt
C11 Short wave R.F. trimmer	R12 5,000 ohm 1 watt
C12 Broadcast R.F. trimmer	R15 60 ohms wire wound
C14 Broadcast oscillator trimmer	R16, R24 0.5 megohm pot.
C15 Broadcast padder	R17, R18 1.5 megohm ½ watt
C16 Short wave oscillator trimmer	R19 50 ohms 1 watt
C17 0.0045 mica	R20 2,500 ohms 1 watt
C19, C29, C30 32 uF. electrolytic	R21 1 megohm ½ watt
C26 0.0001 mica	R23 100,000 ohm 1 watt
C28, C33 25 uF. electrolytic	R26 250 ohm 1 watt
	R28 150 ohm 1 watt
	R29 25,000 ohms Voltage Divider

(CX is a fixed condenser (0.0003) across the B'cast padder.)

SERVICE DATA

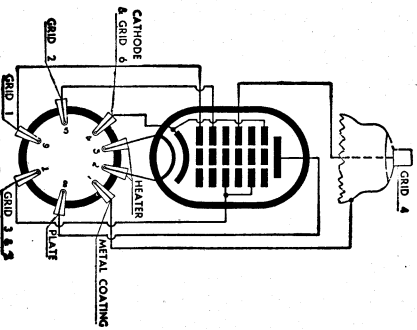
CHASSIS LAYOUT.



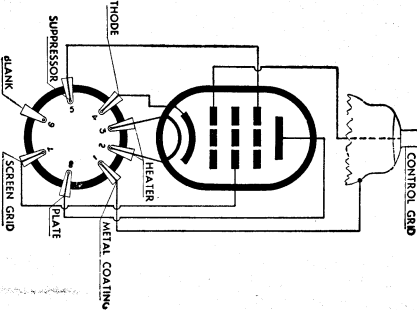
BACK OF CHASSIS

MODIFICATIONS.

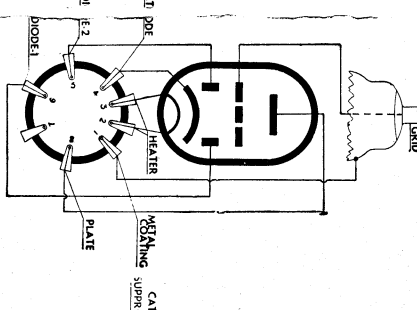
SOCKET CONNECTIONS VIEWED FROM BOTTOM OF BASE.



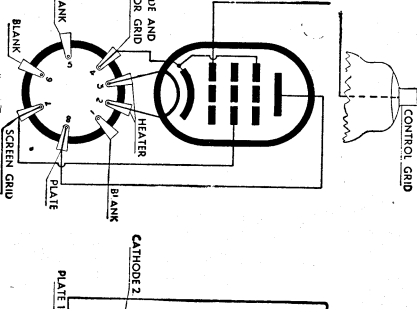
CK1



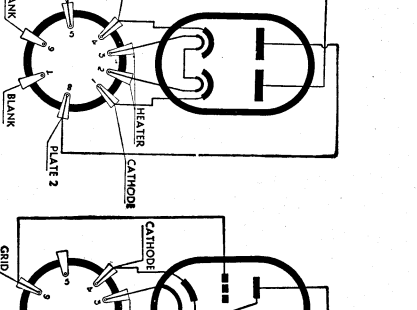
CF2



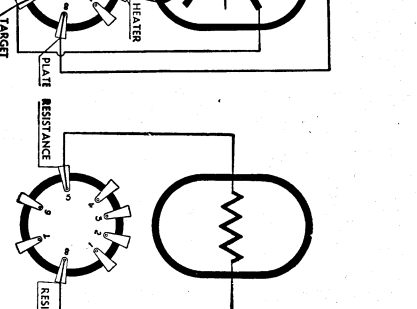
CBC1



CL4



CY2

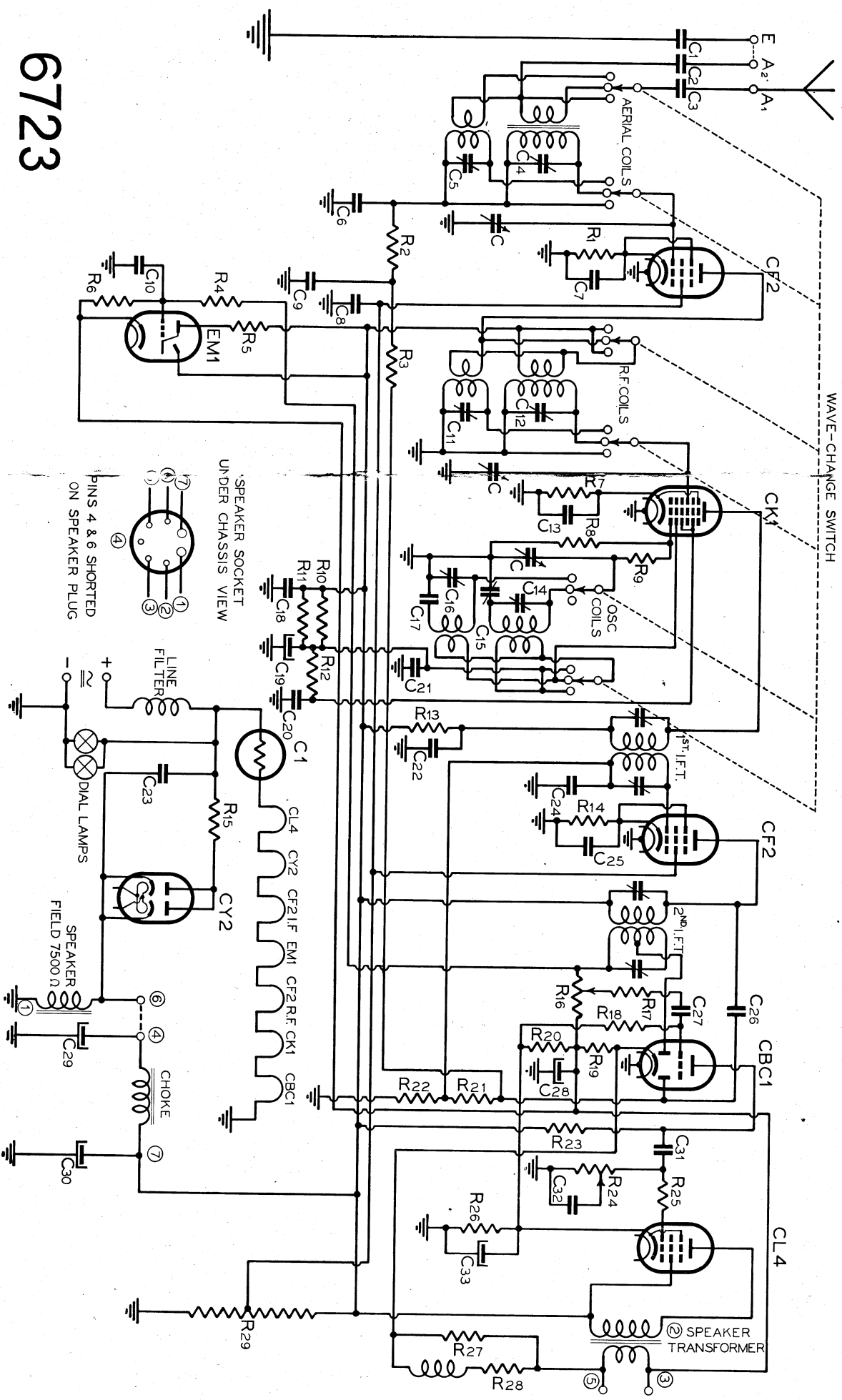


EM1

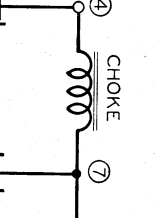
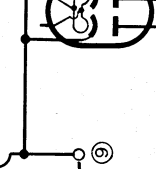
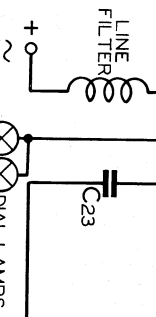
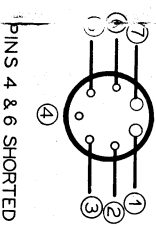


C1

WAVE-CHANGE SWITCH



6723



VOLTAGE ANALYSIS—240 VOLT A.C. SUPPLY.

Valve Type	Plate Volts	Plate Current	Screen Volts	Screen Current	Cathode Volts	Osc. Plate Volts	Heater Volts
CF2	235	2.8	95	1.5	2.2	—	13
CK1	140	0.8	70	2.4	1.6	85	13
CF2	235	2.8	95	1.5	2.2	—	13
CBC1	115	1.0	—	—	11.5	—	13
CL4	225	34.5	235	4.5	9	—	33
CY2	—	—	—	—	—	—	30

VOLTAGE ANALYSIS—240 VOLT D.C. SUPPLY.

Valve Type	Plate Volts	Plate Current	Screen Volts	Screen Current	Cathode Volts	Osc. Plate Volts	Heater Volts
CF2	195	2.6	85	1.4	1.5	—	13
CK1	100	0.7	60	2.2	1.5	70	13
CF2	195	2.6	85	1.4	1.8	—	13
CBC1	90	0.8	—	—	7.6	—	13
CL4	185	27.5	190	3.6	7.6	—	33
CY2	—	—	—	—	—	—	30

NOTE.—The abovementioned voltage values are measured between the socket points indicated and the chassis with the receiver in the no-signal condition and the volume control at zero. Voltages are measured with a 1000 ohm per volt voltmeter, and may vary as much as 10% from the figures quoted for the same line voltages. Variations in line voltage or the use of D.C. as an alternative to A.C. will also have some bearing on the measured voltages.

