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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 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 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 six trimmers for the radio-frequency alignment are underneath the chassis and are classified in the component location illustration as follows:—

- Broadcast Aerial trimmer.
- " Band-pass trimmer.
- " Oscillator trimmer.
- " Padder (C10).
- Shortwave Aerial 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 band-pass 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 (C10)** 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 trimmer** 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.



PHILIPS RADIOPLAYER

MODEL 6603

A.C. OPERATED FOR BROADCAST AND SHORT WAVE RECEPTION.

SPECIFICATIONS.

(Subject to Alteration Without Notice.)

Voltage Rating (power Supply)	220-260 volts A.C. 40-60 cycles.
Tuning Range	200-550 metres. 16.5-51 metres.
Intermediate Frequency	472.5 kc/s.

VALVE EQUIPMENT.

Frequency Converter	AK2	Octode
I.F. Amplifier	AF3	R.F. Penthode
A.V.C. & Demodulator	AB2	Diode
Audio Amplifier	AF7	Penthode
Power Amplifier	AL3	Power Penthode
Tuning Indicator	EM1	Cathode Ray Tuning Indicator
Rectifier	AZ3	Indirectly Heated Rectifier
Dial Lamps	6 volt	Auto Tail Lamps (single contact)

INSTALLATION. Full instructions for the installation of Model 6603 are contained in the instruction book supplied with each Radioplayer.

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 the rear of chassis. 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). 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.
3. Withdraw loudspeaker plug from back of chassis.
4. Unscrew the four bolts holding chassis to floor of cabinet.
5. The chassis may now be withdrawn, but in doing so care should be taken to tilt the chassis so that the cathode-ray tuning indicator assembly will not foul the cabinet.

REMOVING LOUDSPEAKER.

If it is desired to remove the speaker, this may be accomplished by withdrawing the speaker plug from the chassis and unscrewing the four woodscrews securing the loudspeaker.

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 six for the R.F. portion of the set (two short-wave trimmers, three broadcast trimmers, and the broadcast padder). These 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.

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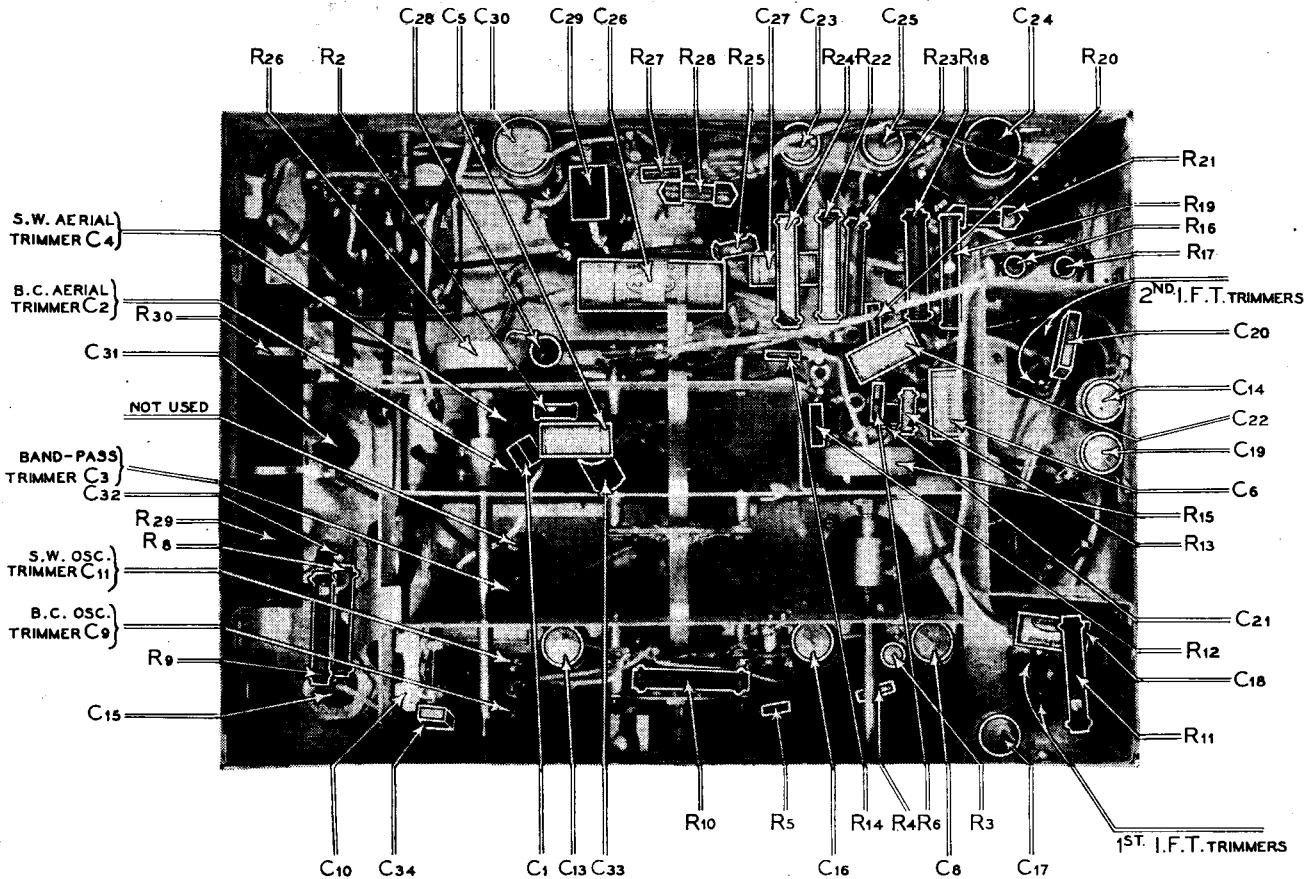
SERVICE DATA.

MODIFICATIONS.

In some chassis an 0.0001 uF Fixed Condenser is shunted across C10 (the broadcast padder).

SERVICE DATA.

COMPONENT LOCATIONS



COMPONENT PARTS

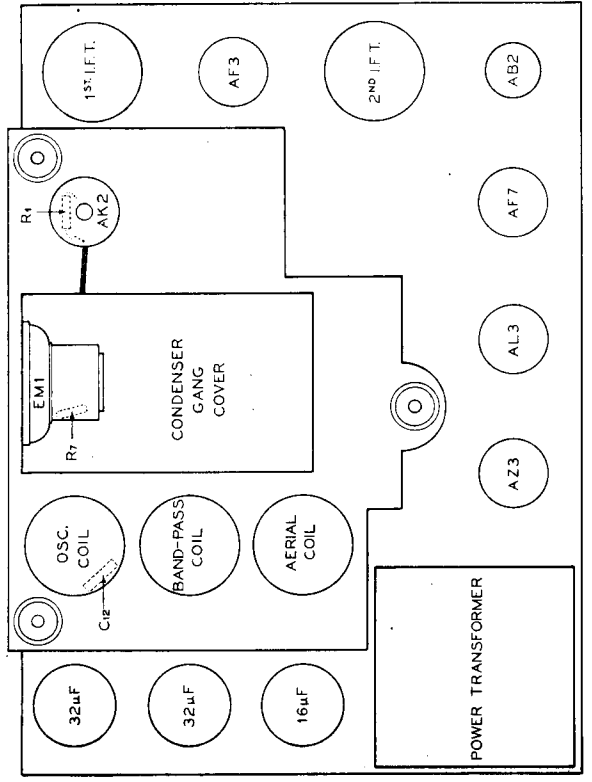
CONDENSERS.	RESISTORS.
C, C, C, 3 gang variable	R1, R5 50 ohm, $\frac{1}{8}$ watt
C1, C20, C21 0.0001 uF mica	R2 0.5 megohm, $\frac{1}{8}$ watt
C2 Broadcast aerial trimmer	R3 250 ohm, wire wound
C3 Broadcast bandpass trimmer	R4, R14 50,000 ohm, $\frac{1}{8}$ watt
C4 Short-wave aerial trimmer	R6, R7, R12 2 megohm, $\frac{1}{8}$ watt
C5, C6, C18 0.05 uF paper	R8, R9 50,000 ohm, 1 watt
C7 Special condenser located under gang	R10, R11, R18 5,000 ohm, 1 watt
C8, C13, C14, C16, C17, C19, C23, C25 0.1 uF paper	R13, R16, R17 1 megohm, $\frac{1}{8}$ watt
C9 Broadcast oscillator trimmer	R15 0.5 megohm potentiometer
C10 Broadcast padder	R19 1,600 ohm, 1 watt
C11 Short-wave oscillator trimmer	R20 1.5 megohm, $\frac{1}{8}$ watt
C12 0.0045 uF mica	R21 12 ohm, wire wound
C15, C32 32 uF electrolytic	R22 0.25 megohm, 1 watt
C22, C27, C28, C33 0.02 uF paper	R23 0.1 megohm, 1 watt
C24, C30 25 uF electrolytic	R24 25,000 ohm, 1 watt
C26 0.25 uF paper	R25 0.1 megohm, $\frac{1}{8}$ watt
C29 0.004 uF mica	R26 0.25 megohm potentiometer
C31 16 uF electrolytic	R27 500 ohm, $\frac{1}{8}$ watt
	R28 150 ohm, wire wound
	R29 25,000 ohm voltage divider
	R30 100 ohm, wire wound

VOLTAGE ANALYSIS.

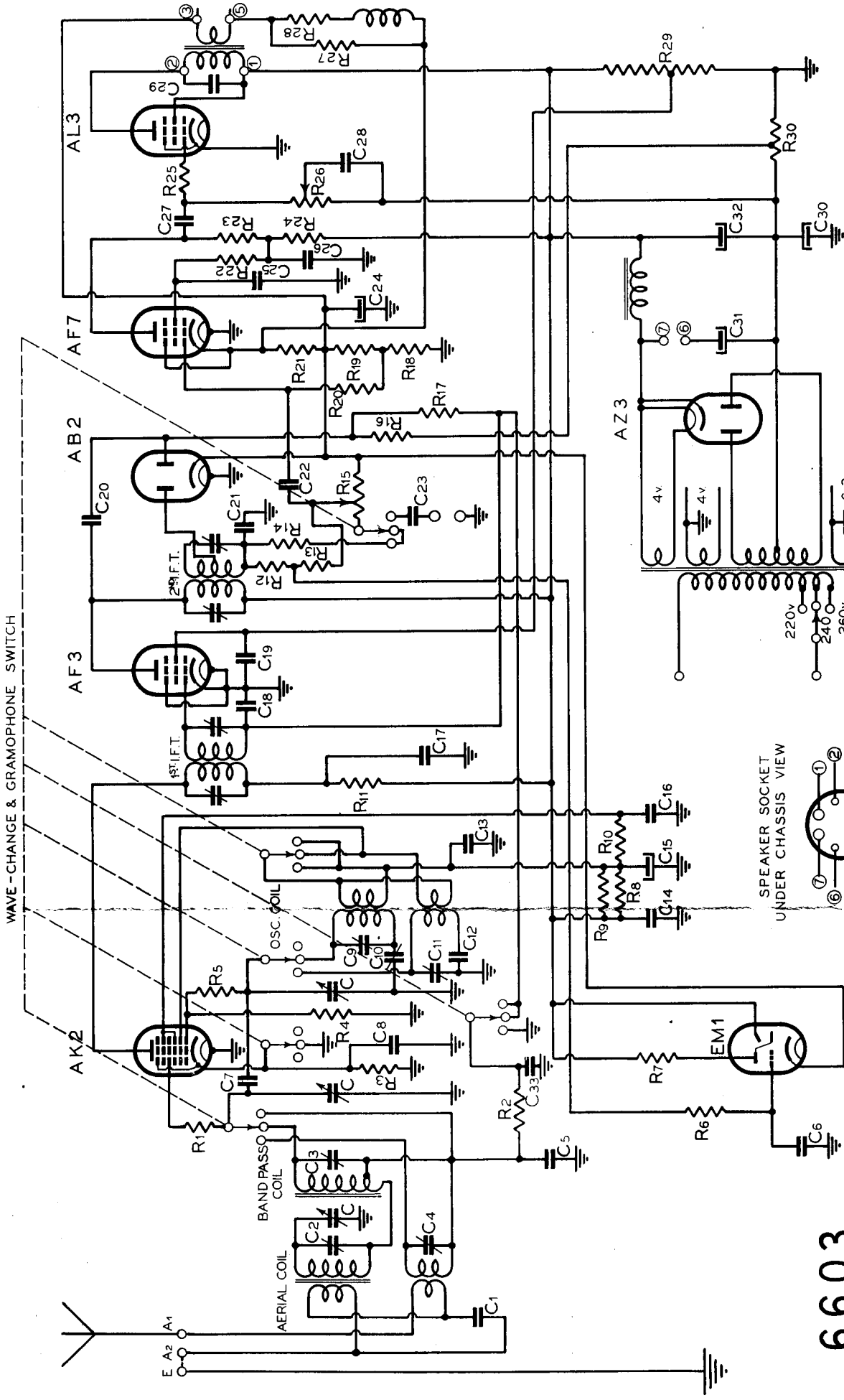
Valve Type	Plate Voltage	Plate Current	Screen Grid Voltage	Cathode Voltage	Heater Voltage (A.C.)
AK2	230 (osc. plate G2 = 90v.)	1.6 mA.	70	1.5 (S/W) 0 (B/C)	4.0
AF3	240	8.0 mA.	90	0	4.0
AB2	—	—	—	14	4.0
AF7	110	1.0 mA.	110	14	4.0
AL3	230	30 mA.	240	0	4.0
AZ3	—	—	—	—	4.0

NOTE.—The above mentioned voltage values are measured between the socket points indicated and chassis with the receiver in the no signal condition and with the volume control at zero. Voltages are measured with a 1,000 ohm per volt voltmeter and may vary as much as 10% from the figures quoted.

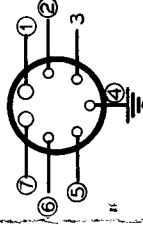
CHASSIS LAYOUT



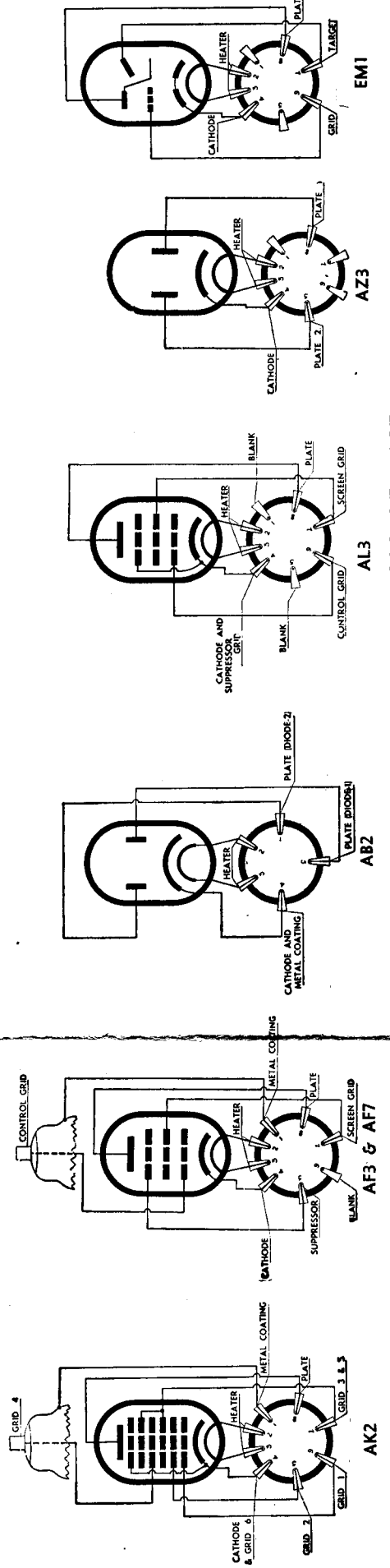
BACK OF CHASSIS



SPEAKER SOCKET UNDER CHASSIS VIEW



6603



SOCKET CONNECTIONS VIEWED FROM BOTTOM OF BASE.