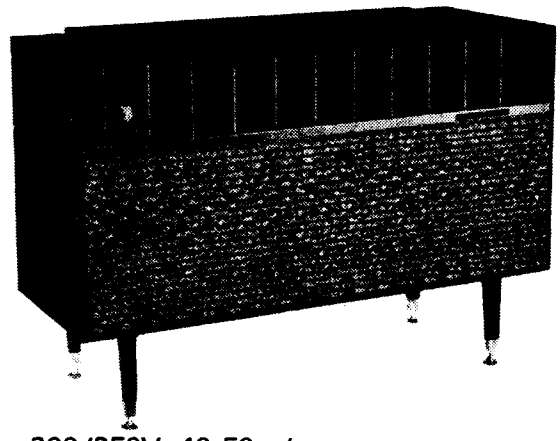
PHILIPS
RADIOPLAYER
MODEL 227



SPECIFICATIONS

(Subject to alteration without notice)

Power Supply	200/250V, 40-50 c/s
Tuning Range	530-1620 Kc/s
Intermediate Frequency	455 Kc/s
Cabinet	Radiogram
Record Changer (Stereo)	Type U.A. 12 or U.A. 14
Pick-up Cartridge	Type T.C. 8S
Stylus (78 r.p.m.)	Type T.C. 8G
Stylus (Microgroove)	Type T.C. 8RS
Power Consumption (Total)	43W approx.

VALVE EQUIPMENT AND VOLTAGE ANALYSIS

Valve Function	Valve No.	Valve Type	Plate Volts	Screen Volts	Osc. P. Volts	Cathode Volts
Frequency Converter	V1	6AN7	208	45	65	
I.F. Amplifier, A.V.C. and Demodulator	V2	6N8	208	45		
Audio Amplifier (T)	V3A	6DX8	92			
Power Amplifier (P)	V3B	6DX8	217	208		3.2
Audio Amplifier (T)	V4A	6DX8	92			
Power Amplifier (P)	V4B	6DX8	217	208		3.2
Rectifier	V5	6V4	230/230 A.C.			238
Dial Lamps (2)	V11, 12	8008D 6.3V. 0.15A Tubular screw.				
Voltage across C22 226V. Voltage across R15 3.6V. Filament Volts 6.3V.						

NOTE: All voltagess are "20,000Ω per volt" meter readings and may vary ± 10% from the figures quoted. They are measured from the socket points indicated to chassis or across the capacitor and resistor listed. The receiver should be in a "no signal" condition.

TO REMOVE CHASSIS FROM CABINET.

Considerable amount of service work can be effected with the chassis in the cabinet, however, should removal be necessary the following procedure should be adopted.

Withdraw the power plug from the mains outlet socket. Release aerial and earth leads and remove cabinet back. Disconnect pick-up lead plug from socket and release record changer power lead from terminal block on receiver chassis. Unplug inbuilt aerial from receiver and release speaker leads from lug strip on chassis. Remove two metal threaded screws securing chassis to cabinet mounting rails.

Do not remove brackets supporting bottom end of chassis.

The chassis may now be withdrawn in its entirety through the aperture in the control panel of the cabinet. During this operation support the chassis inside the cabinet with one hand at the same time guiding the removal with the other.

Do not attempt to extract the chassis by means of the control knobs only, as they are push fitted and may result in damage to cabinet or chassis components.

Replacement is a reversal of the above procedure.

Ensure correct speaker lead connections.

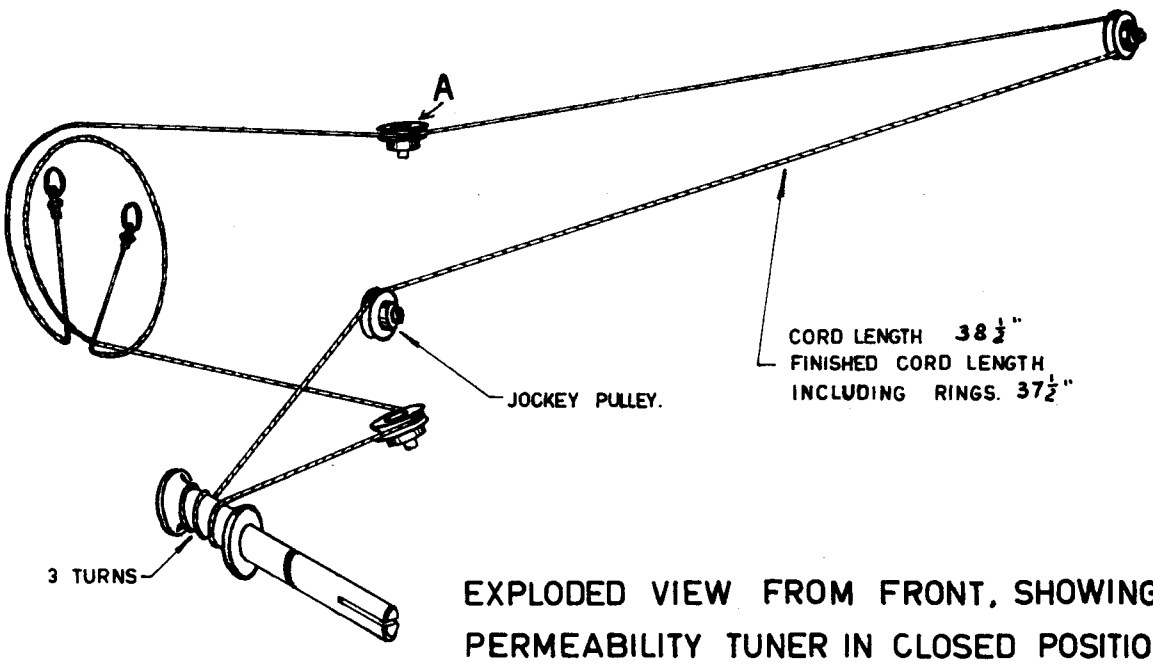
TO REMOVE DIAL ESCUTCHEON AND SCALE.

Remove control knobs (push fitted). Release four shake proof screws from dial back plate and remove escutcheon and dial scale.

SPEAKER REPLACEMENT.

Replacement of speaker located in front of the record storage compartment, necessitates removal of the cabinet baffle assembly. This is accomplished by releasing securing screws inside cabinet. Removal of adjacent speaker can be effected from rear of cabinet.

SERVICE DATA



EXPLODED VIEW FROM FRONT, SHOWING PERMEABILITY TUNER IN CLOSED POSITION.

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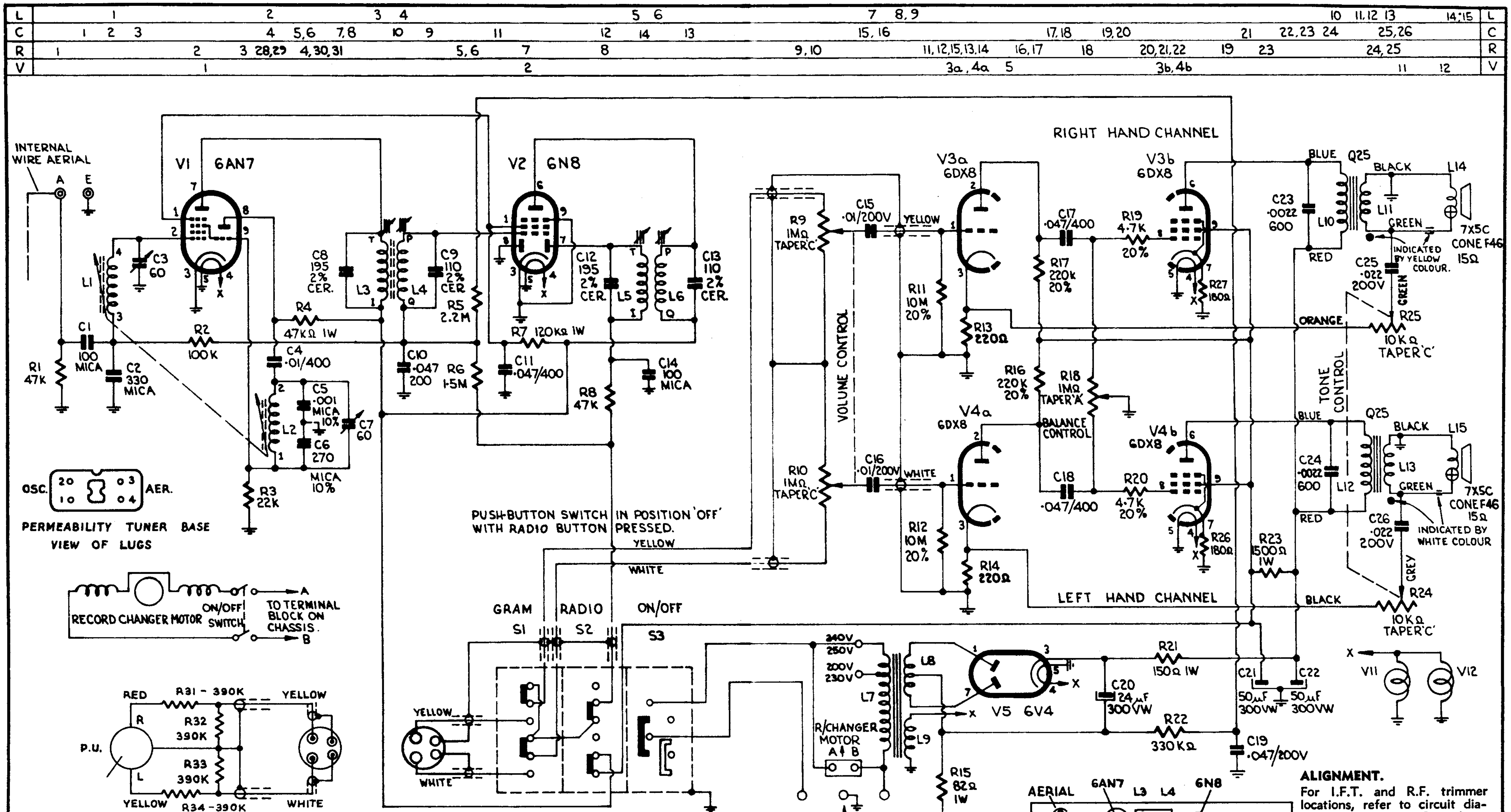


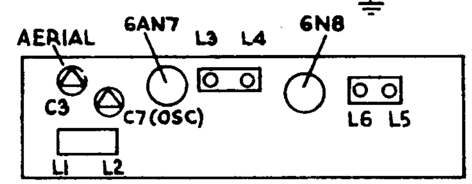
NOTE:- PLUG AND SOCKET DRAWN LOOKING AT PINS. PINS INDICATED BY DOTS.

PRIMARY AND SECONDARY WINDINGS ARE NOT SYMMETRICAL. CORRECT CONNECTION IS ESSENTIAL.

NOTES:-

1. CAPACITOR VALUES:
   WHOLE NUMBERS - pF
   DECIMALS - µF
   SECOND FIGURE - D.C.V.W.
   TOLERANCE ±20% UNLESS OTHERWISE SHOWN.
2. RESISTORS ARE ½W 10% UNLESS OTHERWISE SHOWN.

VALVE Nº		PLATE VOLTS	SCREEN VOLTS	OSC. PLATE VOLTS	CATH. VOLTS
V1	6AN7	208	45	65	
V2	6N8	208	45		
V3a	TRIODE 6DX8	92			
V3b	PENTODE 6DX8	217	208		3·2
V4a	TRIODE 6DX8	92			
V4b	PENTODE 6DX8	217	208		3·2
V5	6V4	230 /230 AC	/	/	238
ACROSS C22 = 226 VOLTS ACROSS R15 = 3·6 VOLTS					
MEASURED WITH 20,000Ω/V VOLT METER. POS. RADIO 240V A.C. MAINS					



TRIMMER LAYOUT
TOP VIEW OF TUNER CHASSIS

ALIGNMENT.
For I.F.T. and R.F. trimmer locations, refer to circuit diagram inset drawing. Set volume control to maximum, tone and balance control to central position.

I.F. ALIGNMENT.
Set permeability tuner fully out.

Apply a modulated 455 kc/s signal via an 0.01µF capacitor to control grid (pin 2) of V1 and peak I.F.T. coils in the following sequence:—

1. Second I.F.T. secondary.
2. Second I.F.T. primary.
3. First I.F.T. secondary.
4. First I.F.T. primary.

R.F. ALIGNMENT.
Set tuner to fully in position and adjust the cursor to position between two vertical white lines situated top extreme right hand side of calibrated scale.

Use a standard dummy aerial and apply a modulated R.F. signal to receiver aerial and earth leads.

Alignment frequency are as follows, commencing with tuner fully in:—
530 Kc/s peak oscillator trimmer (C7).
1,500 Kc/s (3AK) peak aerial trimmer (C3).

CAPACITORS

No.	Description	Code No.
C1	100pF mica	
C2	330pF mica	
C3	60pF trimmer	49.005.58
C4	0.01μF 400V paper	
C5	0.001μF ± 10% mica	
C6	270pF ± 10% mica	
C7	60pF air trimmer	49.005.58
C8, 9	Part of 1st I.F. transformer	
C10	0.047μF 200V paper	
C11	0.047μF 400V paper	
C12, 13	Part of 2nd I.F. transformer	
C14	100pF mica	
C15	0.01μF 200V paper	
C16	0.01μF 200V paper	
C17	0.047μF 400V paper	
C18	0.047μF 400V paper	
C19	0.047μF 200V paper	
C20	24μF 300VW electrolytic	Ducon EO5C
C21	50μF 300VW electrolytic	Ducon
C22	50μF 300VW electrolytic	ECD404
C23	0.0022μF 600V paper	
C24	0.0022μF 600V paper	
C25	0.022μF 200V paper	
C26	0.022μF 200V paper	

All tolerances are ± 20% unless otherwise specified.

RESISTORS

No.	Description	Code No.
R1	47kΩ ½W carbon	
R2	100kΩ ½W carbon	
R3	22kΩ ½W carbon	
R4	47kΩ 1W carbon	
R5	2.2MΩ ½W carbon	
R6	1.5MΩ ½W carbon	
R7	120kΩ 1W carbon	
R8	47kΩ ½W carbon	
R9 / R10	Ganged potentiometer, 2 x 1MΩ taper 'C' (volume)	CZ.032.607
R11	10MΩ ± 20% ½W carbon	
R12	10MΩ ± 20% ½W carbon	
R13	220Ω ½W carbon	
R14	220Ω ½W carbon	
R15	82Ω 1W carbon	
R16	220kΩ ± 20% ½W carbon	
R17	220kΩ ± 20% ½W carbon	
R18	1MΩ potentiometer taper 'A'	CZ.029.341
R19	4.7kΩ ± 20% ½W carbon	
R20	4.7kΩ ± 20% ½W carbon	
R21	150Ω 1W carbon	
R22	330kΩ ½W carbon	
R23	1,500Ω 1W carbon	
R24 / R25	Ganged potentiometer, 2 x 10kΩ taper 'C' (tone)	CZ.029.340
R26	180Ω ½W carbon	
R27	180Ω ½W carbon	
R28, 29, 30, 31	390kΩ ½W carbon	

All tolerances are ± 10% unless otherwise specified.

INDUCTORS

No.	D.C. Resistance (Ohms)	Description	Type or Code No.
L1 / L2	15-16 / 5.8-6.2	Permeability tuner	CZ.109.002
L3 / L4	4.7-5.2 / 8.0-9.0	1st I.F. transformer	A3.126.84
L5 / L6	4.7-5.2 / 8.0-9.0	2nd I.F. transformer	A3.126.84
L7 / L8 / L9	59-72 / 650-800 / <0.5	Power transformer	CZ.344.133
L10 / L11		Output transformer 13.5kΩ/15Ω	Rola type Q25 CZ.345.073
L12 / L13		Output transformer 13.5kΩ/15Ω	Rola type Q25 CZ.345.073
L14		Loudspeaker	Rola 7-5C, F46
L15		Loudspeaker	cone 15Ω V.C.

IMPORTANT! When ordering spare parts, quote CODE NUMBER of part and MODEL NUMBER of Receiver. In claiming free replacement under GUARANTEE, return defective part PROMPTLY and quote MODEL and SERIAL NUMBER of Receiver and DATE OF PURCHASE.

MISCELLANEOUS COMPONENTS

Description	Type or Code No.
Badge, PHILIPS	A3.357.10
Cord, dial 38½" required	(Bulk) 06.606.28
Cursor	CR.480.676
Drum, dial	CS.360.015
Escutcheon, dial	CS.430.077
Knob x4	CR.523.779
Leg, assy., x4	CR.700.211
Name PHILIPS (record changer)	CS.436.498
Plate, dial back	CR.280.824
Scale, dial	CS.412.442
Socket, lamp, x2	CZ.367.952 C/F.733-8-7
Spring, dial cord	CS.210.045
Spring I.F.T. Mtg., x2	A3.652.58
Spindle, tuning	CR.371.108
Surround, badge	CS.436.471
Spring, valve retaining, x3	CS.210.608
Switch, push button	A3.298.48
Wordmark, PHILIPS	CS.436.459
Wordmark, STEREOFIDELITY	CS.436.497

DIAL CALIBRATION.

In the event of an equal calibration error existing over the entire dial scale, correction can be effected by simply sliding the cursor on the dial cord as required. A pointer position centrally over the scale stop mark (two vertical lines extreme top right hand side of calibrated scale) should correspond with permeability tuner fully closed setting. The cursor is accessible through cut out in cabinet back, thereby rendering removal unnecessary.

MAINS VOLTAGE ADJUSTMENT.

The power transformer is provided with two mains voltage tappings on the primary winding — 200/230 volts and 240/250 volts — for adjustment of the receiver to the supply voltage at the point of installation. The receiver is adjusted at the factory to the 240/250 volts tapping.

REMOVAL OF COMPONENTS ON DIAL BACK PLATE.

Potentiometers.

Tone and volume potentiometers are withdrawn direct from the dial back plate. Preparatory to removal of balance control potentiometer, release of dial back plate from chassis is necessary. Remove two of the three securing screws and pivot the plate forward sufficiently to permit removal of the potentiometer. During this operation, if care is excercised, the dial cord may be retained in position by uncoupling from pulley "A" (refer dial cord layout) at the same time maintaining tension as the plate is pivoted.

Push Button Switch.

Withdraw V1 and V2 from their respective sockets. Release two screws mounting switch to dial back plate and remove cover shield. Unsolder leads to switch and carefully withdraw switch buttons through aperture in plate.

Lamp Holders.

Compress side mounting arms of holder and withdraw from locating hole in dial back plate.

Lamp replacement can be effected with chassis in cabinet.

SPEAKER PHASING.

When speaker replacement is necessary, it is essential to determine correct phasing before connecting new speakers into circuit. Reference to the circuit diagram will show that one voice coil terminal of each speaker is marked with ⊕ sign, which is designated as the positive side.

To determine the positive terminal, connect a battery across the voice coil; the positive terminal will be connected to the positive side of the battery when the cone movement is out or forward. Speakers must be connected as in the circuit diagram.