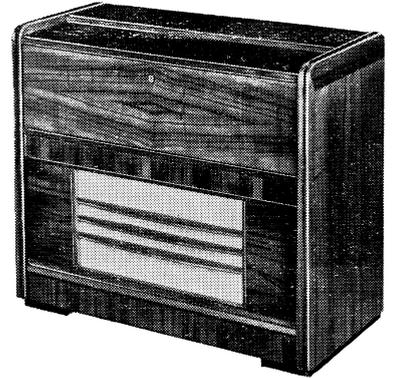


# PHILIPS RADIOPLAYER

## MODELS 156-A-B-C-D



NOTE: Model 156A varies from 156 in cabinet only. Models 156B, C, D have the same cabinet as 156A but use different speakers—refer to "coils," "capacitors" and "resistors" sections of parts lists for details.

### SPECIFICATIONS

(Subject to alteration without notice)

Power Supply .....	200-250V, 40-60 c/s
Tuning Ranges .....	B/C band 530-1620 kc/s S/W band 5.9-18.4 Mc/s
Intermediate Frequency .....	455 kc/s
Cabinet .....	Radiogram
Gramo. Unit .....	Type AG1000 (see separate service sheet)

### VALVE EQUIPMENT AND VOLTAGE ANALYSIS

Valve Function	Valve No.	Valve Type	Plate Volts	Screen Volts	Osc. P. Volts
Frequency Converter	V1	6AN7	245	50	80
I.F. Amplifier, A.V.C. and Demodulator	V2	6N8	245	70	—
Audio Amplifier	V3	6N8	120	—	—
Power Amplifier	V4	6M5	210	245	—
Rectifier	V5	EZ82	Cathode — L17 C.T., 287V.		
Dial Lamps	V11 & V12	6.3V. 0.32A. tubular screw			

Voltage across R23, -2.1V; across R23 and 24, -6.6V.

NOTE: These voltages are measured with an "1,000 ohms per volt" meter and may vary  $\pm 10\%$  from the figures quoted. They are measured from the socket points indicated to chassis or across the resistors listed. The receiver should be in a "no signal" condition.

### ALIGNMENT.

The iron cores for the secondaries of the I.F. transformers are located in the top of the cans; those for the primaries are in the bottom of the cans. When trimming the I.F. circuits, care should be taken not to screw the iron cores in too far, otherwise undesired coupling may give rise to a false peak. A preliminary positioning to the outer edge of the former of all iron cores should be made. Then, when trimming is being carried out, the cores should not be screwed in beyond the first peak. Metallic tools should not be used for I.F. transformer trimming.

Damped alignment of the I.F. channel is necessary. The procedure is:—

- Connect an 100 pF capacitor across the secondary of the 1st I.F.T.
- Trim in order, secondary of 2nd I.F.T., primary of 2nd I.F.T., primary of 1st I.F.T.
- Check (b).
- Remove the shunt from the secondary of the 1st I.F.T. and trim this circuit.
- Check (d).
- Do not alter adjustments without 100 pF shunt in position.

Broadcast band alignment frequencies are 1,420 kc/s, 3XY (oscillator and aerial trimmers), and 600 kc/s, 7ZL (slug padding); short wave alignment frequencies are 18.4 Mc/s (tuning gang fully open, oscillator trimmer) and 17.8 Mc/s (aerial trimmer—rock gang). Before commencing alignment, set the dial cursor to the stop mark, which is the thin vertical mark at the extreme bottom on the right-hand end of the dial scale.

**Do not attempt to adjust the iron cores of the aerial coils.**

### MAINS VOLTAGE ADJUSTMENT.

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

If it is necessary to make a primary tapping change, care should be taken to see that the gramophone unit leads are also changed.

### DIAL CALIBRATION.

If it is required to correct dial calibrations for an equal error on all stations, provision is made for moving the cursor assembly with respect to the dial cord. Loosen the clamping screw, make the necessary adjustment to the cursor position, and securely retighten the clamping screw.

### TO REMOVE CHASSIS FROM CABINET.

Remove the power plug from the mains outlet socket. Remove the four control knobs (a firm pull is all that is necessary) and the cabinet back. Remove the aerial and earth leads from the terminal assembly. Remove the pick-up, speaker and gramophone unit plugs from their respective sockets. The chassis is held to the cabinet by four screws, two at the top of the dial back plate and two at the rear of the chassis. Removal of these screws permits the chassis to be withdrawn from the cabinet. Remove the dial back plate screws first, and during removal of the chassis screws hold the chassis to prevent it falling.

The chassis may be replaced by a reversal of the above procedure.

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PARTS LISTS

**CAPACITORS**

No.	Description	Code No.
C1	10 pF mica	
C2, 9, 20	100 pF mica	
C3	0.05 mF 200V paper	
C4, 5, 13, 14	30 pF air trimmer	CZ.113.700
C6, 7	2 gang tuning	CZ.107.746
C8, 18, 33	0.01 mF 600V paper	
C10	50 pF mica 10%	
C11	475 pF mica 2%	CZ.066.199
C12	20 pF mica	
C15	0.008 mF mica 10%	
C16, 17, 22, 23	Part of I.F. transformers	
C19, 27	24 mF 350V electrolytic	
C21	30 pF mica	
C24	0.002 mF 600V paper	
C25 (156, 156A, 156B, 156D)	0.05 mF 200V paper	
C25 (156C)	0.02 mF 200V paper	
C26, 28	0.02 mF 400V paper	
C30 (156, 156A, 156B)	30 pF mica	
C30 (156C, 156D)	50 pF mica	
C31 (156, 156A, 156B)	100 pF mica	
C31 (156C, 156D)	150 pF mica	
C32	10 mF 40V electrolytic	
C34 (156, 156A, 156C, 156D)	0.02 mF 600V paper	
C34 (156B)	0.01 mF 600V paper	
C37 (156B only)	50 pF mica	

All tolerances are 20% unless otherwise stated.

**RESISTORS**

No.	Description	Code No.
R1, 5	33,000 ohms 1W carbon	
R2	82,000 ohms 1W carbon	
R3, 10, 14, 19	47,000 ohms ½W carbon	
R4	100 ohms ½W carbon	
R6	150,000 ohms 1W carbon	
R7, 8	2.2 megohms ½W carbon	
R9, 18, 22	0.47 megohm ½W carbon	
R11	10,000 ohms ½W carbon 10%	
R12	100,000 ohms ½W carbon	
R13	0.5 megohm tapped carbon potentiometer	CZ.029.137
R15	10 megohms 1W carbon	
R16	2.2 megohms 1W carbon	
R17	220,000 ohms 1W carbon	
R20	22 ohms ½W W/W 10%	
R21	390 ohms ½W carbon 10%	
R23	33 ohms ½W W/W 10%	
R24	75 ohms ½W W/W 10%	
R26 (156C only)	1 megohm ½W carbon	

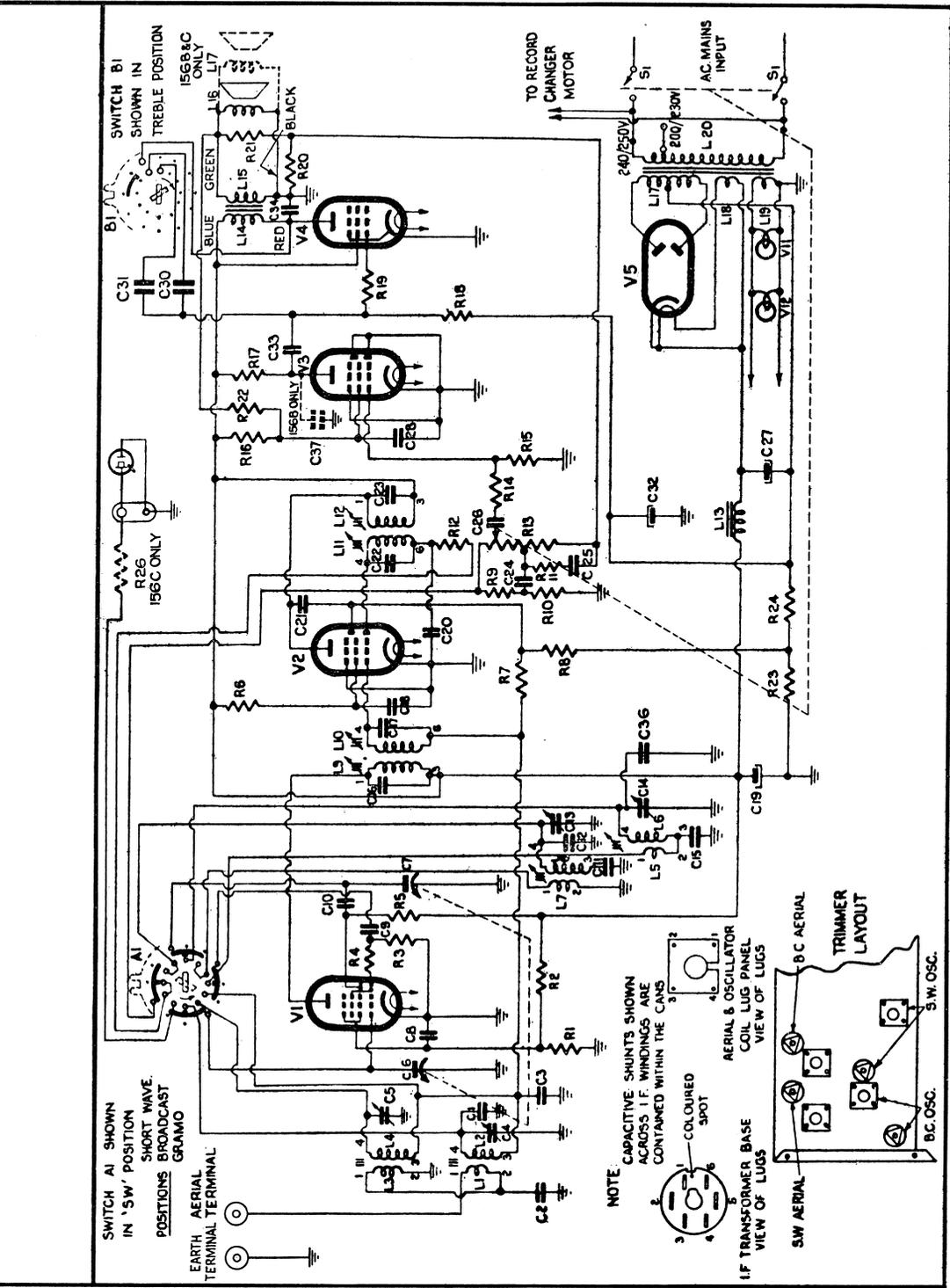
All tolerances are 20% unless otherwise stated.

**COILS**

No.	Ohms	Description	Code No.
L1	1.3-1.7	S/W aerial coil (white spot)	CZ.323.006
L2	<0.5		
L3	25.5-34.5	B/C aerial coil (2 blue spots)	CZ.323.007
L4	1.7-2.3		
L5	<0.5	S/W oscillator coil (yellow spot)	CZ.330.601
L6	<0.5		
L7	1.0-1.4	B/C oscillator coil (red spot)	CZ.330.600
L8	2.9-3.9		
L9	11.5-12.5	1st I.F. transformer	CZ.320.429
L10	11.5-12.5		
L11	11.5-12.5	2nd I.F. transformer	CZ.320.430
L12	11.5-12.5		
L17	365-495		
L18	<0.5		
L19	<0.5	Power transformer	CZ.344.080
L20	31-43		
L13		Filter choke	Type 14/60
L14	Speaker	6,000 ohms 156, 156A	Type JBG69 Type CBG51
L15	Transformer	156B 156C 156D	Type CCG55 Tropik Type 15065
L16	Speaker	156, 156A 156B 156C 156D	Type 12J Type 8K (2 off) Type 8H (2 off) Type 12P2

**IMPORTANT ! In 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.**

L	1,3,24	7, 8, 5, 6	9, 10	11, 12, 13	14, 15, 16, 17, 20, 21	18, 17
C	2	4, 1, 5, 3, 6, 8	9, 10, 7, 11, 12, 15, 14, 16, 19, 3, 6, 17, 18	20, 21, 24, 25, 22, 26, 32, 23, 27, 28, 37, 38, 30, 31	3, 4	
R		1	2, 4, 3, 5	6, 23, 7, 8, 24, 9, 10, 11, 26, 13, 14, 15, 16, 22, 17, 18, 19	3	20, 21, 24
V					12, 5, 11, 4	



SWITCH A1 SHOWN IN 'SW' POSITION SHORT WAVE POSITIONS BROADCAST GRANO

EARTH TERMINAL



# 156-A-B-C-D

## SERVICE DATA

### MISCELLANEOUS COMPONENTS

No. on Dial Cord Layout Drawing	Description	Code No.	No. on Dial Cord Layout Drawing	Description	Code No.
—	Assembly, cursor	CR.480.642	—	Knob, control, 4x for Mahogany cabinet	CS.432.653
—	Assembly, lamp socket, 2x	CZ.367.900	—	Plug, 2-pin polarised (speaker and pick-up)	CZ.365.108
5	Assembly, tuning spindle	CR.371.328	—	Plug, male (gramo. unit power)	CZ.365.115
—	Assembly, T/C switch	CZ.200.237	3	Pulley, dial drive, 4x	CS.359.602
—	Assembly, T/C clicker	CR.450.039	—	Rod, dial slide	CS.382.213
—	Assembly, W/C switch	CZ.200.227	—	Scale, dial	CS.412.371
—	Assembly, W/C clicker	CR.450.040	—	Socket, 2-pin polarised (speaker and pick-up)	CZ.370.107
—	Badge, Philips	CR.531.408	—	Socket, female (gramo. unit power)	CZ.365.116
—	Bank, T/C switch	CZ.200.204	2	Spring, dial drum	CS.210.021
—	Bank, W/C switch	CZ.200.231	—	Switch, mains on/off	CZ.210.108
—	Clip, I.F.T. mounting, 6x	CS.235.833			
4	Cord, dial drive (63" of cord required)				
1	Drum, dial	CS.360.007			
—	Knob, control, 4x for Walnut cabinet	CS.432.630			

### DIAL CORD LAYOUT

VIEW FROM REAR OF CHASSIS.

