

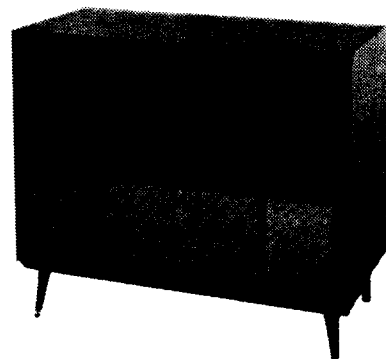
# PHILIPS RADIOPLAYER

## MODEL 203

### SPECIFICATIONS

(Subject to alteration without notice)

Power Supply	.....	200/250V, 40/50 c/s
Tuning Ranges	.....	530-1620 Kc/s 4.7-9.2 Mc/s 9.1-18.4 Mc/s
Intermediate Frequency	.....	455 Kc/s
Cabinet	.....	Radiogram
Record Changer	.....	Philips type AG1014
Pick-up Head	.....	Philips type AG3016
Pick-up Head	.....	Philips type AG3025



### VALVE EQUIPMENT AND VOLTAGE ANALYSIS

Valve Function	Valve No.	Valve Type	Plate Volts	Screen Volts	Osc. P. Volts	Bias Volts
Frequency Converter	V1	6AN7	236	55	56	
I.F. Amplifier, Demodulator and A.V.C.	V2	6N8	236	55		
1st Audio Amplifier	V3	6BD7	66			
Phase Splitter	V4	6BD7	110			35
Push-Pull Power Amplifier	V5	6M5	265	236		8.4*
Push-Pull Power Amplifier	V6	6M5	265	236		8.4*
Rectifier	V7	6V4	260/260 AC		Unfiltered B+, 272V DC Filtered B+, 236V DC	
Dial Lamps (2), Bezel Lamp	V11, 12, 13	6.3V, 0.32A tubular screw			Heater Volts 6.35V AC	
Volts across R26, 9.2V			*Measured with V.T.V.M.			

NOTE: Unless otherwise stated, all voltages are 1,000 ohms per volt meter readings and may vary  $\pm 10\%$  from the figure 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.

#### TO REMOVE CHASSIS FROM CABINET

Withdraw the power plug from the mains outlet socket. Remove the four receiver control knobs (a firm pull is all that is necessary) and cabinet back panel. Unscrew the aerial and earth terminal strip, disconnect the internal aerial and unclip the aerial and earth leads from the cabinet.

Remove the pick-up, speaker and bezel lamp plugs from their respective chassis sockets together with the record changer unit, power plug. Extract the two wood screws at either side extreme top edge of dial back plate and the two 5/32" Whit. metal thread screws securing chassis side flanges. The chassis, complete with push-button unit, dial scale, etc., may now be withdrawn from the cabinet.

Procedure for chassis replacement is a reversal of the foregoing.

#### MAINS VOLTAGE ADJUSTMENT

The power transformer primary winding 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 factory adjusted to the 240/250 volts tapping.

#### DIAL CALIBRATION

In the event of an equal calibration error over the entire dial scale, the dial cursor can easily be moved on the dial drive cord to correct the error.

#### ALIGNMENT

Check that the position of pointer is over the stop mark on the dial scale when tuning gang is fully closed. Adjust if necessary as described in the foregoing.

For I.F.T. and R.F. trimmer locations refer to the circuit diagram inset drawing.

The "Radio" and "Speech" push buttons must remain in the depressed position and the volume control be set to maximum (fully clockwise) throughout alignment procedure.

#### I.F. Alignment

Screw out iron core of 2nd I.F.T. primary.

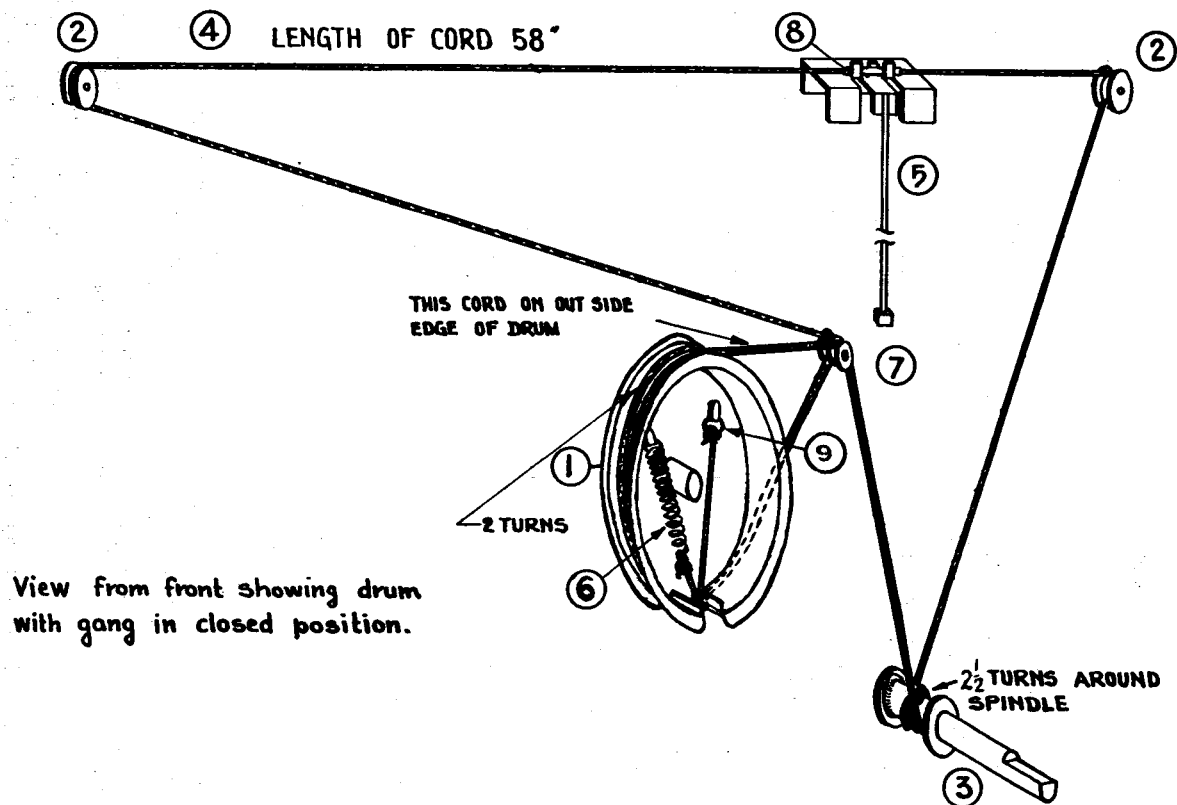
Apply modulated 455 Kc/s signal via a 100 pF capacitor to control grid (pin 2) of V1 and peak I.F.T. cores in the following sequence:—

- Secondary 2nd I.F.T. (L11)
- Secondary 1st I.F.T. (L10)
- Primary 1st I.F.T. (L9)
- Primary 2nd I.F.T. (L12)

Do not repeat any adjustments.

## MISCELLANEOUS COMPONENTS

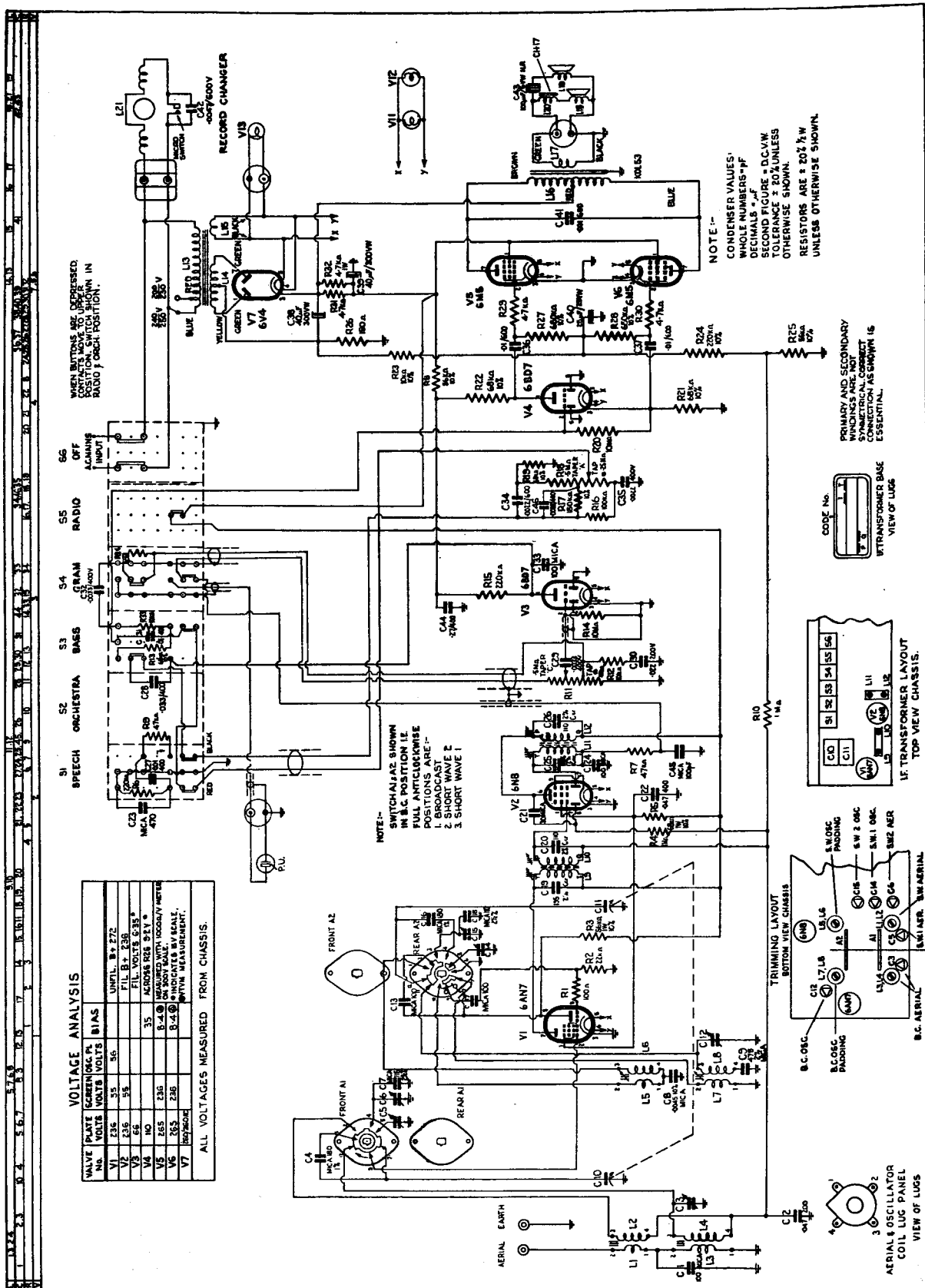
Drawing Reference No.	Description	Type or Code No.	Drawing Reference No.	Description	Type or Code No.
5	Assembly, cursor	CR.480.668	—	Plug, chassis, power	CZ.365.115
3	Assembly, tuning spindle	CR.371.334	—	Plug, 2 pin polarised, x3	C/F 691-5-1
—	Assembly, lamp holder, x2	C/F 733-5-4	—	Scale, dial	CS.412.416
—	Badge	CR.531.408	—	Socket, chassis, power	CZ.365.116
—	Bezel, indicator	CS.430.046	—	Socket, 2 pin polarised, x3	C/F 733-16-1
—	Bracket assy., pulley	CR.265.223	8	*Spring, cursor	CS.212.016
—	Channel, dial mtg. rubber, x2	CS.424.194	6	Spring, dial cord	CS.210.035
—	Clamp, dial, x2	CS.233.570	—	Spring, I.F.T. retaining	A3.652.58
4	Cord, dial drive	58" required	—	Strip, A & E terminal	C/F 679-2-5
1	Drum, dial	CS.360.015	—	Support, brkt., dial, L.H.	CR.248.458
—	Ferrule, cabinet leg, x4	CS.420.216	—	Support, brkt., dial, R.H.	CR.248.459
—	Holder, pick-up head	P4.380.35	—	Support, press button switch, L.H.	CS.232.643
—	Knob, control, x4	CR.523.753	—	Support, press button switch, R.H.	CS.232.642
—	Name "Philips"	A3.308.24	—	Switch, push button (complete)	A3.790.47
—	Name "High Fidelity"	CS.436.451	—	Switch, wave change	CZ.201.211



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**VOLTAGE ANALYSIS**

VALVE	PLATE VOLTS	SCREEN VOLTS	B.IAS VOLTS	UNTIL B.P. 272
V1	236	55	56	FIL B + 236
V2	236	55	56	FIL B + 236
V3	65	55	56	FIL. VOLTS 0.35 *
V4	NO	NO	35	ACROSS R28 0.1V *
V5	265	236	236	MEASURED WITH 100Ω METER
V6	265	236	236	B.-A. INDICATES BY SCALE.
V7	265	236	236	BY W. MEASUREMENT.

ALL VOLTAGES MEASURED FROM CHASSIS.

PARTS LIST

CAPACITORS

No.	Description	Code No.
C1, 13, 17, 24, 33, 45	100 pF mica	
C2	0.047 $\mu$ F 200V paper	
C3, 5, 6, 14, 15	30 pF air trimmer	CZ.113.700
C4, 16	180 pF $\pm$ 1% mica	CZ.065.722
C7	115 pF $\pm$ 2 1/2% mica	CZ.066.138
C8	0.0045 pF $\pm$ 10% mica	
C9	475 pF $\pm$ 2% mica	CZ.066.119
C10, 11	2 gang tuning	CZ.107.759
C12	60 pF air trimmer	
C18	110 pF $\pm$ 2 1/2% mica	
C19, 25	195 pF $\pm$ 2% ceramic	
C20, 26	110 pF $\pm$ 2% ceramic	
C21	30 pF mica	
C22	0.047 $\mu$ F 400V paper	
C23	470 pF $\pm$ 10% mica	
C27	0.001 $\mu$ F 400V paper	
C28	0.033 $\mu$ F 400V paper	
C29, 32, 46	0.0033 $\mu$ F 400V paper	
C30	0.022 $\mu$ F 200V paper	
C31	0.01 $\mu$ F 400V paper	
C34, 35	0.0022 $\mu$ F 400V paper	
C36, 37	0.01 $\mu$ F 600V paper	
C38, 39	40 $\mu$ F 300VW electrolytic	
C40	25 $\mu$ F 25VW electrolytic	
C41	0.001 $\mu$ F 600V paper	
C42	0.0047 $\mu$ F 600V paper	
C43	(Part of record changer) 100 $\mu$ F 6V non-polarised electrolytic	CZ.099.873.D
C44	0.27 $\mu$ F 400V paper	

All tolerances are  $\pm$  20% unless otherwise specified.

B/C Alignment

Use a standard R.M.A. dummy aerial and apply a modulated R.F. signal to the aerial terminal.

Alignment frequencies are: 1,420 Kc/s, 3XY (peak oscillator (C12) and aerial (C3) trimmers), and 600 Kc/s, 7ZL (peak oscillator slug (L7, 8) whilst rocking gang).

S/W Alignment

Alignment of the S/W 2 band (wave change switch in central position) should be completed before commencement of S/W 1 alignment.

RESISTORS

No.	Description	Code No.
R1	100 ohms $\frac{1}{2}$ W W/W	CZ.008.419
R2	22,000 ohms $\frac{1}{2}$ W	
R3	56,000 ohms $\pm$ 10% 1W	
R4	1 megohm 1W	
R5	68,000 ohms $\pm$ 10% 1W	
R6, 24	220,000 ohms $\pm$ 10% $\frac{1}{2}$ W	
R7, 9	47,000 ohms $\frac{1}{2}$ W	
R8, 25	56,000 ohms $\pm$ 10% $\frac{1}{2}$ W	
R10	1 megohm $\frac{1}{2}$ W	
R11	0.5 megohm potentiometer taper "C" tapped at 40,000 ohms	CZ.029.152
R12, 33, 34	10,000 ohms $\frac{1}{2}$ W	
R13, 19		
21, 22	68,000 ohms $\pm$ 10% $\frac{1}{2}$ W	
R14	10 megohms $\frac{1}{2}$ W	
R15	220,000 ohms $\frac{1}{2}$ W	
R16	100,000 ohms $\frac{1}{2}$ W	
R17	180,000 ohms $\pm$ 10% $\frac{1}{2}$ W	
R18	0.5 megohm potentiometer taper "A", tapped at 250,000 ohms	CZ.029.153
R20	10 megohms $\frac{1}{2}$ W	
R23	10,000 ohms $\pm$ 10% $\frac{1}{2}$ W	
R26	150 ohms $\pm$ 10% 1W W/W	
R27, 28	680,000 ohms $\pm$ 10% $\frac{1}{2}$ W	
R29, 30	4,700 ohms $\frac{1}{2}$ W	
R31, 32	4,700 $\pm$ 10% 1W	

All tolerances are  $\pm$  20% unless otherwise specified.

Since the receiver oscillator frequency is above that of the signal, selection of the higher of the two frequencies tunable on the receiver is the correct alignment procedure.

S/W 2 (4.7 to 9.2 Mc/s) band: Alignment frequencies are 4,825 Mc/s (white triangle—peak oscillator (L5, 6) slug), and 8.9 Mc/s (white triangle—peak oscillator trimmer C15 and aerial trimmer C6 whilst rocking gang). If the oscillator slug can be peaked in two positions a core setting nearest to coil connection lugs is the correct setting. The minimum capacitance (furthest out) position of oscillator trimmer C15 is

COILS

No.	Ohms	Description	Type or Code No.
L1	1.2-1.7	S/W aerial coil	CZ.323.027
L2	<0.5		
L3	19.6-26.4	B/C aerial coil	CZ.323.026
L4	1.5-2.0		
L5	<0.5	S/W oscillator coil	CZ.330.614
L6	<0.5		
L9	4.7-5.2	1st I.F. transformer	A3.126.84
L10	8.0-9.0		
L11	4.7-5.2	2nd I.F. transformer	CZ.320.444
L12	8.3-9.2		
L13	26-36	Power transformer	CZ.344.107
L14	315-425		
L15	<0.5		
L16	150/158	Output transformer	Rola KOL53,
L17	<0.5	10,000 $\Omega$ p-p	CZ.345.043
L18	—	Loudspeaker	Rola 8M, F62
L19	—	Loudspeaker	Rola 5FX, F95
L20	<0.5	Choke, dividing network	Rola CH17

**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.**

similarly the true peak setting of two possible peaks obtainable.

S/W 1 (9.1 to 18.4 Mc/s—W/C switch fully clockwise) band: Alignment frequencies are 17.8 Mc/s (green triangle—peak oscillator trimmer C14 and aerial trimmer C5 whilst rocking gang), and 9.65 Mc/s (green triangle—check calibration). The minimum capacitance setting of oscillator trimmer C14 is the correct peak of two peaks obtainable, i.e., an image response is tunable at 16.9 Mc/s.

**Do not attempt adjustment of the slugs in aerial coils L1, 2, and L3, 4.**