

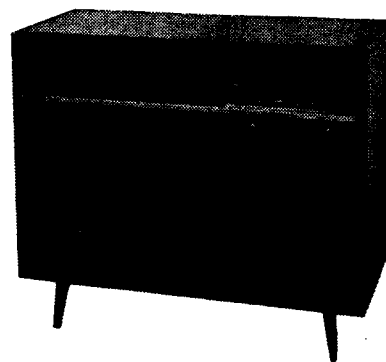
# PHILIPS RADIOPLAYER

## MODEL 202

### SPECIFICATIONS

(Subject to alteration without notice)

|                        |                     |
|------------------------|---------------------|
| Power Supply           | 200/250V, 40/50 c/s |
| Tuning Ranges          | 530-1620 Kc/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 | Cathode Volts                                  |
|---|-----------|------------|---------------------------|--------------|---------------|--|
| Frequency Converter                                 | V1        | 6AN7       | 237                       | 46           | 72            |  |
| I.F. Amplifier, A.V.C. and Demodulator              | V2        | 6N8        | 237                       | 46           |               |  |
| Audio Amplifier                                     | V3a       | 12AX7      | 65                        |              |               |  |
| Phase Splitter                                      | V3b       |            | 115                       |              |               | 31   |
| Power Amplifier                                     | V4        | 6M5        | 275                       | 237          |               | 7.9  |
| Power Amplifier                                     | V5        | 6M5        | 275                       | 237          |               | 7.9  |
| Rectifier   | V6        | 6V4        | 253/253V AC               |              |               | Unfiltered B+, 283V DC<br>Filtered B+, 237V DC |
| Dial Lamps (2)                                      | V11, 12   | 8045D      | 6.3V, 0.32A tubular screw |              |               |  |
| Heater Volts, 6.35V AC; Voltage across R27, 2.2V DC |           |            |                           |              |               |  |

NOTE: All voltages are "1,000 ohms per volt" meter reading 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.

#### TO REMOVE CHASSIS FROM CABINET

Withdraw the power plug from the mains outlet socket. Loosen the four knob retaining grub screws and remove knobs. Remove cabinet back panel. Unscrew the aerial and earth terminal strip, disconnect the internal aerial wire and unclip the aerial and earth leads from the cabinet.

Remove the pick-up and loudspeaker 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 at chassis side flanges. The chassis 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 dial calibration and, if necessary, adjust cursor position as described in the foregoing.

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

Set volume control to maximum and tone control to a central position.

##### 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. (L7)

Secondary 1st I.F.T. (L6)

Primary 1st I.F.T. (L5)

Primary 2nd I.F.T. (L8)

Do not repeat any adjustments.

##### R.F. Alignment

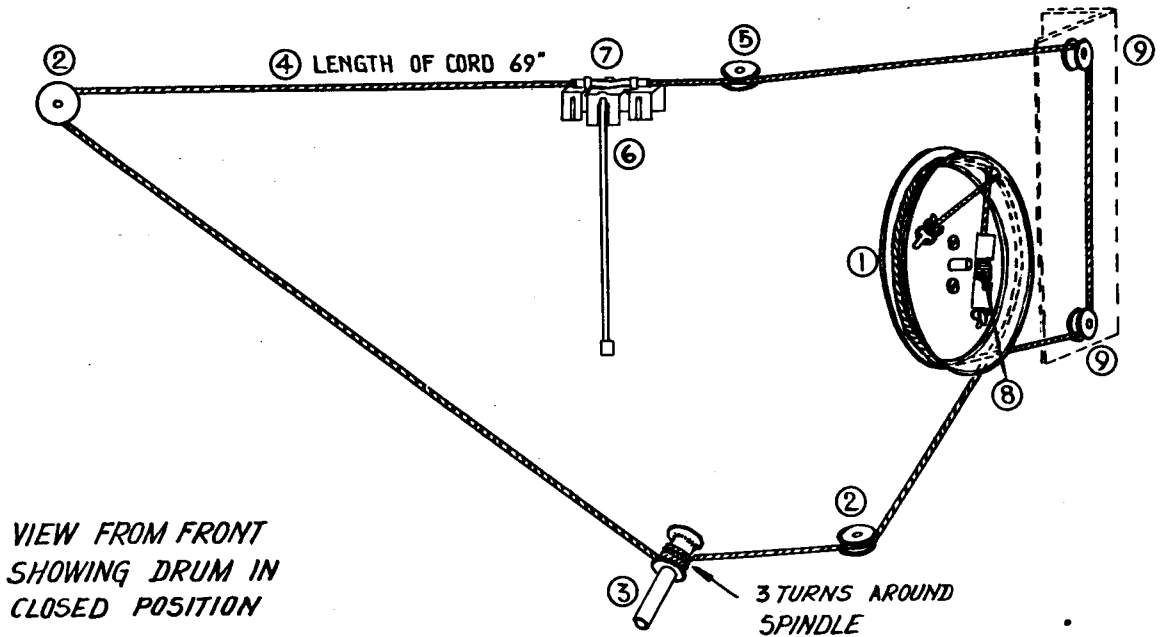
Use a standard R.M.A. dummy aerial and apply a modulated R.F. signal to aerial terminal.

Alignment frequencies are: 1,420 Kc/s, 3XY (peak oscillator (C8) and aerial (C2) trimmers), and 600 Kc/s, 7ZL (peak L3, 4 oscillator slug while rocking gang).

**Do not attempt to adjust the iron core of the aerial coil.**

### MISCELLANEOUS COMPONENTS

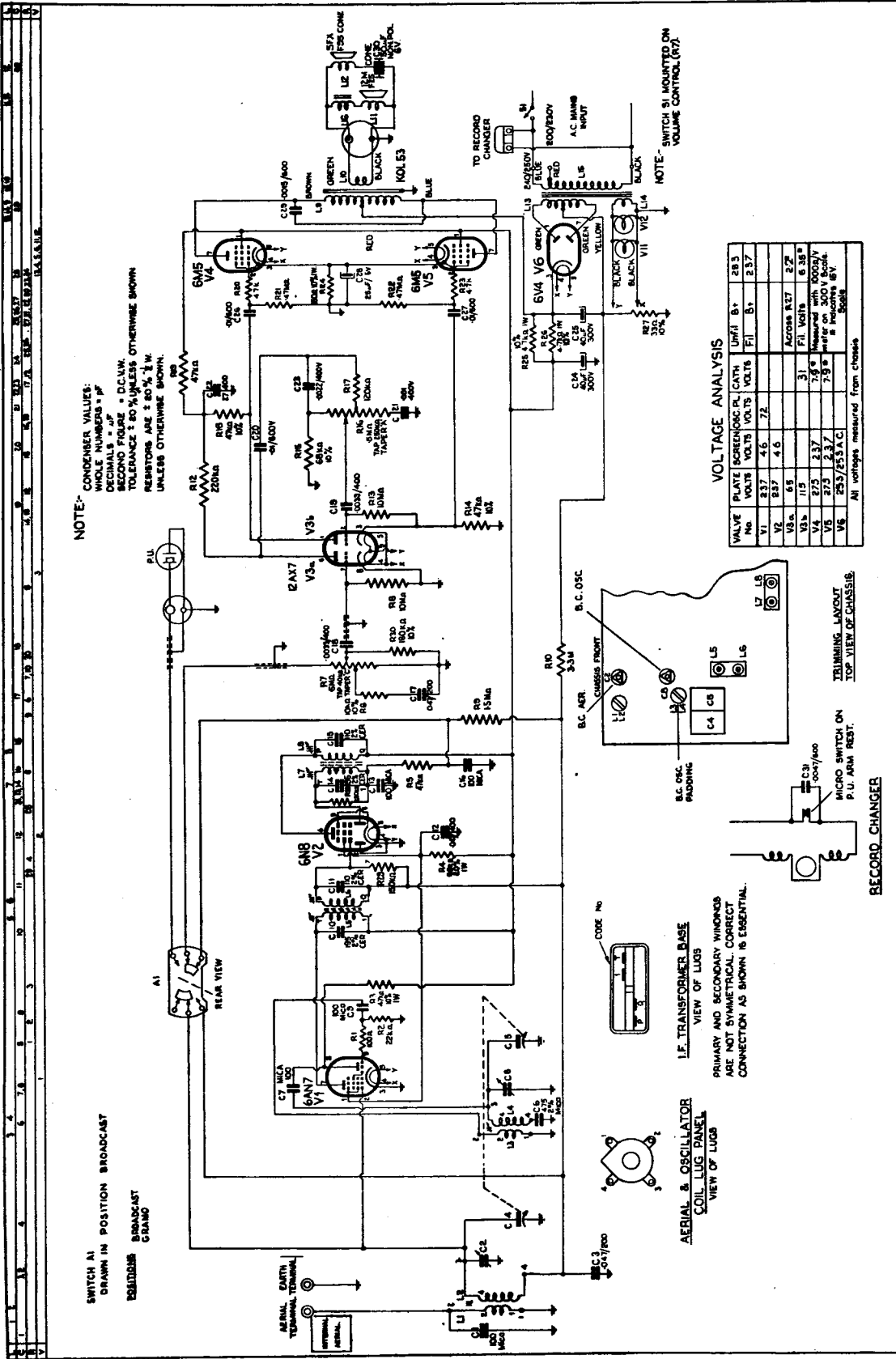
| Drawing Reference No. | Description                    | Type or Code No. | Drawing Reference No. | Description                 | Type or Code No.      |
|-----------------------|--------------------------------|------------------|-----------------------|-----------------------------|-----------------------|
| 6                     | Assembly, cursor               | CR.480.664       | —                     | Name "Philips"              | CR.531.428            |
| —                     | Assembly, lampholder, x2       | C/F 733-5-4      | —                     | Plug, chassis, power        | CZ.365.115            |
| 3                     | Assembly, tuning spindle       | CR.371.335       | —                     | Plug 2 pin polarised, x2    | C/F 691-5-1           |
| —                     | Badge                          | CR.531.408       | 5                     | Pulley, dial (large)        | CS.359.618            |
| 9                     | Bracket assy., cord support    | CR.262.465       | 2                     | Pulley, dial (small)        | CS.359.617            |
| —                     | Channel, rubber (scale mtg.)   | CS.424.194       | —                     | Scale, dial                 | CS.412.415            |
| —                     | Clamp, dial, L.H.              | CS.233.582       | —                     | Socket, 2 pin polarised, x2 | C/F 733-16-1          |
| —                     | Clamp, dial, R.H.              | CS.233.584       | —                     | Socket, power chassis       | CZ.365.116            |
| —                     | Clip, spring (I.F.T. mtg.), x2 | A3.652.58        | 7                     | Spring, cursor              | CS.212.016            |
| —                     | Clip, spring (knob), x4        | CS.281.832       | 8                     | Spring, dial cord           | CS.210.043            |
| 4                     | Cord, dial drive               | 69" required     | —                     | Spring, I.F.T. retaining    | A3.652.58             |
| 1                     | Drum, dial                     | CS.360.006       | —                     | Strip, A & E terminal       | C/F 679-2-5           |
| —                     | Ferrule, cabinet leg, x4       | CS.420.216       | —                     | Stay, cabinet lid           | EFFCO C41, CR.285.809 |
| —                     | Holder, pick-up head retaining | P4.380.35        | —                     | Switch (A1), gram/radio     | OAK 37011.            |
| —                     | Knob, x4                       | CR.523.762       | —                     |                             | CZ.200.250            |
| —                     | Name "High Fidelity"           | CS.436.451       |                       |                             |                       |



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NOTE: CONDENSER VALUES:  
 WHOLE NUMBERS = PF  
 DECIMALS =  $\mu$ F  
 SECOND FIGURE = D.C.V.V.  
 TOLERANCE  $\pm$  80% UNLESS OTHERWISE SHOWN  
 UNLESS OTHERWISE SHOWN.

SWITCH S1  
 DRAWN IN POSITION BROADCAST  
 POSITIONS  
 BROADCAST  
 GRANO

AERIAL  
 EARTH  
 TERMINAL  
 TERMINAL

CODE NO

AERIAL & OSCILLATOR  
 COIL LUG PANEL  
 VIEW OF LUGS

I.F. TRANSFORMER BASE  
 VIEW OF LUGS  
 PRIMARY AND SECONDARY WINDINGS  
 ARE NOT SYMMETRICAL. CORRECT  
 CONNECTION AS SHOWN IS ESSENTIAL.

MICRO SWITCH ON  
 P.U. ARM REST.

RECORD CHANGER  
 TRIMMING LAYOUT  
 TOP VIEW OF CHASSIS.

VOLTAGE ANALYSIS

| VALVE No. | PLATE VOLTS | BORENOSC.PL. VOLTS | CATH VOLTS | UM/1 B+  | 2B3  |
|-----------|-------------|--------------------|------------|--|------|
| V1        | 237         | 4.6                | 7.2        | B+   | 2.37 |
| V2        | 237         | 4.6                |            |  |      |
| V3        | 65          |                    |            | ACROSS R27                                       | 2.2  |
| V4        | 275         | 2.37               | 7.8        | 31 F.I. VOLTS                                    | 6.38 |
| V5        | 275         | 2.37               | 7.8        | Measured with 1000 $\mu$ V meter on 300 V Scale. |      |
| V6        | 253         | 2.37               | 7.8        | Measured with 1000 $\mu$ V meter on 300 V Scale. |      |

All voltages measured from chassis.

NOTE: SWITCH S2 MOUNTED ON VOLUME CONTROL (V2).

RECORD CHANGER

# PARTS LIST

## CAPACITORS

| No.              | Description                      | Code No.   |
|------------------|----------------------------------|------------|
| C1, 7, 9, 13, 16 | 100pF mica                       |            |
| C2               | 30pF air trimmer                 | CZ.113.700 |
| C3, 17           | 0.047 $\mu$ F 200V paper         |            |
| C4, 5            | 2 gang tuning condenser          | CZ.107.755 |
| C6               | 475pF $\pm$ 2% mica              | CZ.066.119 |
| C8               | 60pF air trimmer                 | 49.005.58  |
| C10, 11          | Part of 1st I.F. transformer     |            |
| C12              | 0.047 $\mu$ F 400V paper         |            |
| C14, 15          | Part of 2nd I.F. transformer     |            |
| C18, 19          | 0.0033 $\mu$ F 400V paper        |            |
| C20              | 0.01 $\mu$ F 600V paper          |            |
| C21              | 0.001 $\mu$ F 400V paper         |            |
| C22              | 0.27 $\mu$ F 400V paper          |            |
| C23              | 0.0022 $\mu$ F 400V paper        |            |
| C24, 25          | 40 $\mu$ F 350VP electrolytic    |            |
| C26, 27          | 0.01 $\mu$ F 600V paper          |            |
| C28              | 25 $\mu$ F 25VW electrolytic     |            |
| C29              | 0.0015 $\mu$ F 600V paper        |            |
| C30              | 50 $\mu$ F 6VW N.P. electrolytic | CZ.099.870 |
| C31              | 0.0047 $\mu$ F 600V paper        |            |

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

## RESISTORS

| No.     | Description  | Code No.   |
|---------|--|------------|
| R1      | 100 ohms $\frac{1}{2}$ W W/W   |            |
| R2      | 22,000 ohms $\frac{1}{2}$ W carbon   |            |
| R3      | 47,000 ohms $\pm$ 10%<br>1W carbon   |            |
| R4      | 68,000 ohms 1W carbon  |            |
| R5, 19  | 47,000 ohms $\frac{1}{2}$ W carbon   |            |
| R6      | 10,000 ohms $\pm$ 10%<br>$\frac{1}{2}$ W carbon  |            |
| R7      | 0.5 megohm potentiometer<br>taper "C" tapped<br>at 40,000 ohms with<br>S.P.S.T. switch | CZ.032.025 |
| R8      | 10 megohm $\frac{1}{2}$ W carbon   |            |
| R9      | 1.5 megohm $\frac{1}{2}$ W carbon  |            |
| R10     | 3.3 megohm $\frac{1}{2}$ W carbon  |            |
| R12     | 220,000 ohms $\frac{1}{2}$ W carbon  |            |
| R13     | 10 megohm $\frac{1}{2}$ W carbon   |            |
| R14, 18 | 47,000 ohms $\pm$ 10%<br>$\frac{1}{2}$ W carbon  |            |
| R15     | 68,000 ohms $\pm$ 10%<br>$\frac{1}{2}$ W carbon  |            |
| R16     | 0.5 megohm potentiometer<br>taper "A" tapped<br>at 0.25 megohm                         | CZ.029.151 |
| R17     | 120,000 ohms $\pm$ 10%<br>$\frac{1}{2}$ W carbon                                       |            |
| R20, 23 | 4,700 ohms $\frac{1}{2}$ W carbon  |            |
| R21, 22 | 0.47 megohm $\frac{1}{2}$ W carbon   |            |
| R24     | 150 ohms $\pm$ 10%<br>1W W/W   | CZ.001.621 |
| R25, 26 | 4,700 ohms $\pm$ 10% 1W<br>carbon  |            |
| R27     | 33 ohm $\pm$ 10%<br>$\frac{1}{2}$ W carbon   | CZ.000.317 |
| R28     | 220,000 ohms $\frac{1}{2}$ W carbon  |            |
| R29     | 150,000 ohms $\frac{1}{2}$ W carbon  |            |
| R30     | 180,000 $\pm$ 10% $\frac{1}{2}$ W carbon   |            |

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

# SERVICE DATA

## COILS

| No. | Ohms      | Description            | Type or Code No.          |
|-----|-----------|------------------------|---------------------------|
| L1  | 19.6-26.4 | B/C aerial coil        | CZ.323.026                |
| L2  | 1.5-2.0   |                        |                           |
| L3  | 1.2-1.7   | B/C oscillator coil    | CZ.330.613                |
| L4  | <0.5      |                        |                           |
| L5  | 4.7-5.2   | 1st I.F. transformer   | A3.126.84                 |
| L6  | 8.0-9.0   |                        |                           |
| L7  | 4.7-5.2   | 2nd I.F. transformer   | CZ.320.444                |
| L8  | 8.3-9.2   |                        |                           |
| L9  | 150/158   | Output transformer     | Rola KOL53,<br>CZ.345.043 |
| L10 | <0.5      |                        |                           |
| L11 | —         | Loudspeaker            | Rola 12M, F25             |
| L12 | —         | Loudspeaker            | Rola 5FX, F95             |
| L13 | 315-425   | Power transformer      | CZ.344.089                |
| L14 | <0.5      |                        |                           |
| L15 | 26-36     |                        |                           |
| L16 | —         | 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**.