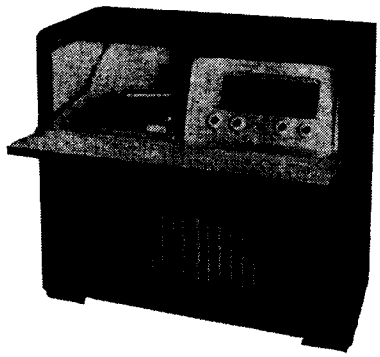
# PHILIPS RADIOPLAYER

## MODEL 180-A-B



**NOTE: Models 180-A-B differ in respect of record changer type only. Refer to "Specifications."**

## 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 180 | Philips type AG1003 |
| 180A | Philips type NG1011 |
| 180B | Philips type AG1014 |

## VALVE EQUIPMENT AND VOLTAGE ANALYSIS

| Valve Function | Valve No. | Valve Type | Plate Volts | Screen Volts | Osc. P. Volts | Cathode Volts |
|---|---|---|---|---|---|---|
| Frequency Converter | V1 | 6AN7 | 240 | 55 | 68 | — |
| I.F. Amplifier | V2 | 6BH5 | 240 | 55 | — | — |
| Demodulator, A.V.C. and 1st Audio | V3 | 6BD7 | 75 | — | — | — |
| Phase Splitter | V4 | 6BD7 | 128 | — | — | 23 |
| Push-Pull Power Amplifier | V5 | 6M5 | 280 | 240 | — | 7.6 |
| Push-Pull Power Amplifier | V6 | 6M5 | 280 | 240 | — | 7.6 |
| Rectifier | V7 | 6V4 | Cathode — L18 C.T., 285V. | | | |
| Dial Lamps (2), Bezel Lamp | V11, 12, 13 | 6.3V, 0.32A tubular screw | | | | |
| Voltage across R26, –2.1V. | | | | | | |

NOTE: These voltages are measured with an "1,000 ohms per volt" meter and may vary ± 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.

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

Remove the pick-up, speaker, gramo. unit power and bezel lamp plugs from their respective sockets. Remove the two screws at the top of the dial back plate and the two screws at the rear of the chassis. The chassis may now be withdrawn from the cabinet.

The replacement of the chassis is a reversal of the above procedure. Care should be taken to see that the front edge of the side chassis flange engages under the lip of the front mounting bracket.

### 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 to the supply voltage at the point of installation. The receiver is adjusted at the factory 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.

During alignment, set volume control at maximum and tone control at central position. With the tuning capacitor fully closed, set the dial cursor on the 120 mark of the relocation scale.

I.F. channel alignment is carried out in the following sequence:—

Screw out iron core of 2nd I.F.T. primary (nearer 6BH5) as far as possible. Adjust iron cores for maximum output in the following sequence—

Peak secondary of 2nd I.F.T. (nearer 6BD7).
Peak secondary of 1st I.F.T. (nearer 6BH5).
Peak primary of 1st I.F.T. (nearer 6AN7).
Peak primary of 2nd I.F.T. (nearer 6BH5).

Do not repeat any adjustments.

The trimmer layout drawing is shown as an inset on the circuit diagram drawing.

B/c band alignment frequencies are: 1,420 kc/s, 3XY (oscillator and aerial trimmers), and 600 kc/s, 7ZL (slug padding with gang rocking).

On the short wave bands the oscillator operates on a frequency above signal frequency so that of the two signals tunable on the receiver, the high frequency one is correct. In short wave alignment, SW2 band (4.7-9.2 Mc/s) should be done first before attempting alignment of SW1 band.

On SW2 band (4.7-9.2 Mc/s) alignment frequencies are: 4.825 Mc/s (114 on relocation scale), (oscillator coil slug) and 8.9 Mc/s (16 on relocation scale), (oscillator and aerial trimmers). Rock the tuning gang while adjusting the aerial trimmer.

SW1 band (9.1-18.4 Mc/s) alignment frequency is 17.8 Mc/s (small green triangle), (oscillator and aerial trimmers, rock gang while adjusting aerial trimmer). Calibration should be checked at 9.65 Mc/s (small green triangle).

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

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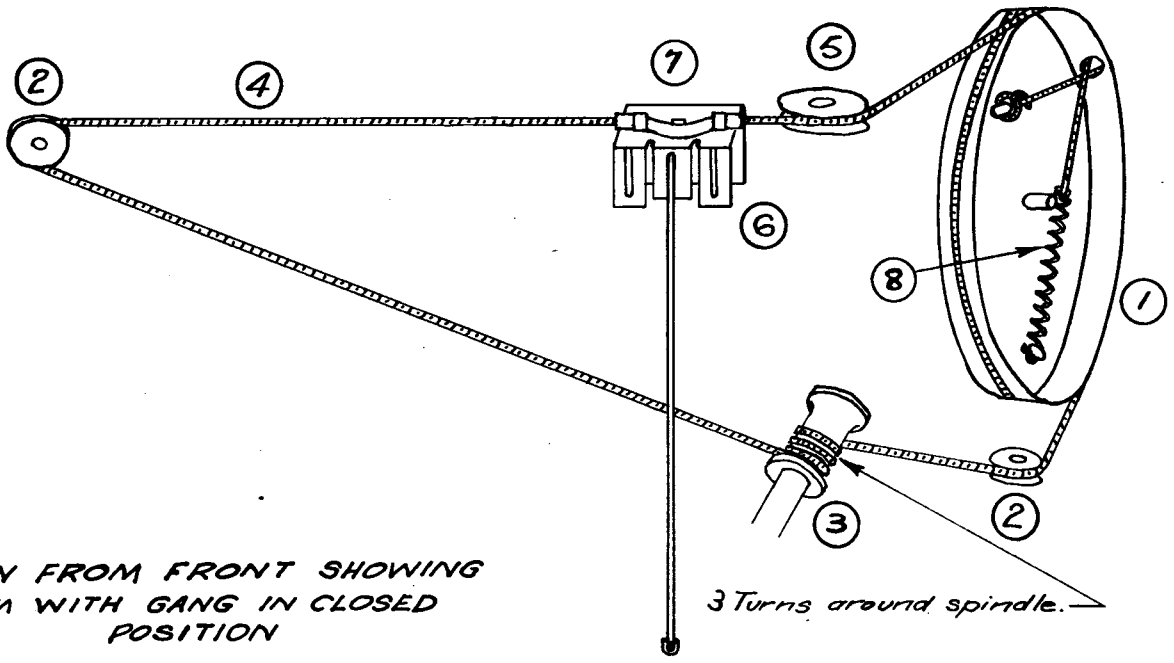
# MISCELLANEOUS COMPONENTS

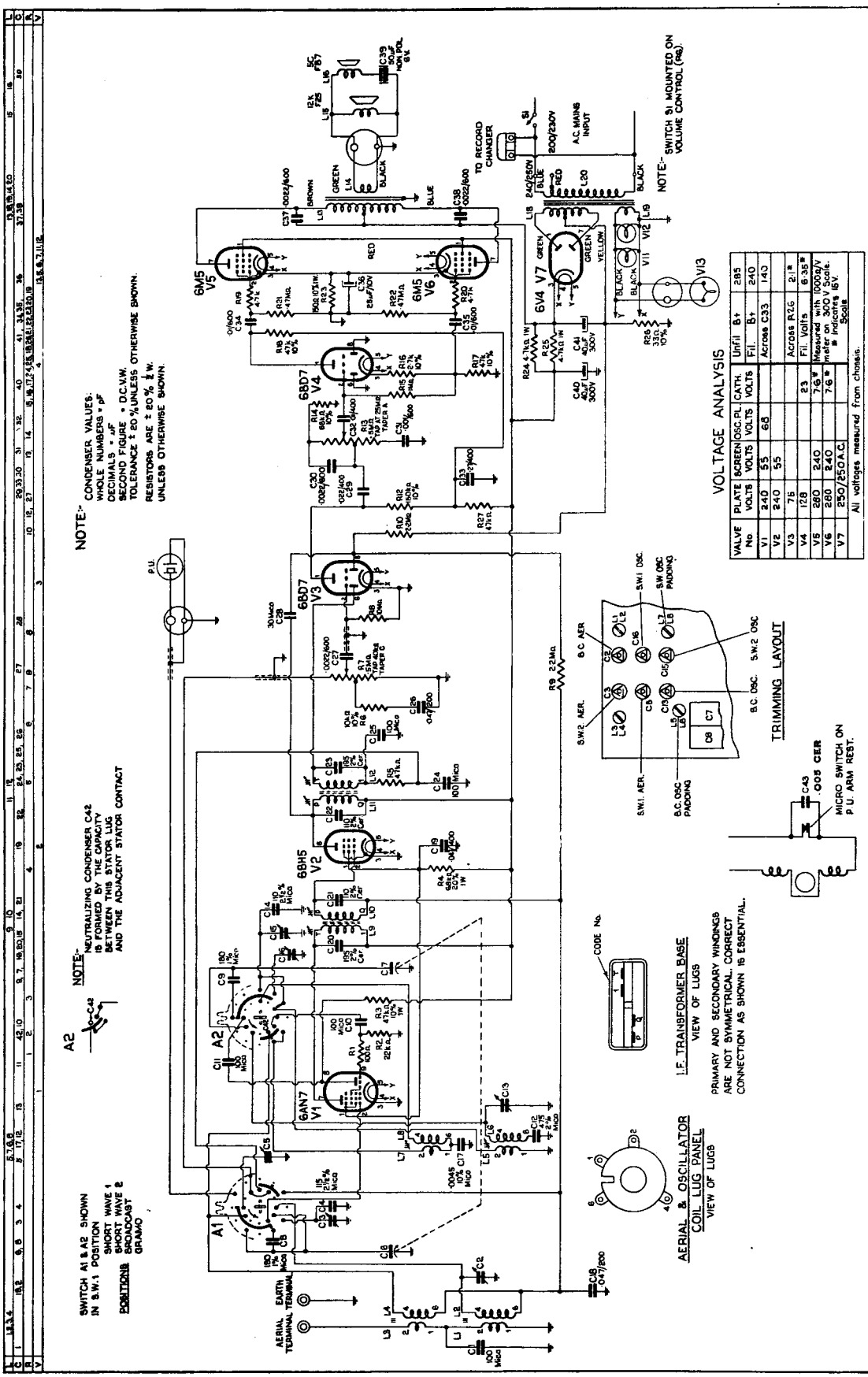
| No. on Dial Cord Layout Drawing | Description | Code No. |
|---|---|---|
| 6 | Assembly, cursor | CR.480.664 |
| — | Assembly, lampholder, 2x | C/F733-5-4 |
| — | Assembly, lampholder bezel | CZ.367.920 |
| 3 | Assembly, tuning spindle | CR.371.223 |
| — | Badge, Philips | CR.531.408 |
| — | Bank, W/C switch (aerial) | CZ.200.060 |
| — | Bank, W/C switch (osc.) | CZ.200.061 |
| — | Bezel | CS.430.023 |
| — | Clip, spring (knob), 4x | CS.281.832 |
| — | Clip, spring (I.F.T. mtg.), 2x | A3.652.58 |
| 4 | Cord, dial drive | 69" of cord required |
| 1 | Drum, dial | CS.360.006 |
| — | Knob, control, 4x | CR.523.714 |

| No. on Dial Cord Layout Drawing | Description | Code No. |
|---|---|---|
| — | Plug, male (gramo, unit power) | CZ.365.115 |
| — | Plug, 2-pin polarized (speaker, pick-up and bezel lamp) | C/F691-5-1 |
| 5 | Pulley, dial (large) | CS.359.618 |
| 2 | Pulley, dial (small), 2x | CS.359.617 |
| — | Scale, dial | CS.412.395 |
| — | Socket, female (gramo. unit power) | CZ.365.116 |
| — | Socket, 2-pin polarized (speaker, pick-up and bezel lamp) | C/F733-16-1 |
| — | Socket, valve (noval), 7x | C/F733-2-14 |
| 7 | Spring, cursor | CS.212.016 |
| 8 | Spring, dial cord | CS.210.043 |




VIEW FROM FRONT SHOWING DRUM WITH GANG IN CLOSED POSITION

Harman & Jacks Ltd., Printers—14256


NOTE:- CONDENSER VALUES:
WHOLE NUMBERS = μF
DECIMALS = μF
SECOND FIGURE = D.C.W.V.
TOLERANCE ± 20% UNLESS OTHERWISE SHOWN.
RESISTORS ARE ± 20% ½ W.
UNLESS OTHERWISE SHOWN.
NOTE:- NEUTRALIZING CONDENSER C42 IS FORMED BY THE CAPACITY BETWEEN THIS STATOR LUG AND THE ADJACENT STATOR CONTACT
SWITCH A1 & A2 SHOWN IN S.W.1 POSITION
SHORT WAVE 1
SHORT WAVE 2
BROADCAST
GRAMO
POSITIONS
VOLTAGE ANALYSIS
VALVE No | PLATE VOLTS | SCREEN VOLTS | OSC. PL. VOLTS | CATH. VOLTS | Unfil B+ | 285
V1 | 240 | 55 | 68 | | Fil. B+ | 240
V2 | 240 | 55 | | | Across C33 | 140
V3 | 75 | | | | Across R26 | 2.1*
V4 | 128 | | | 23 | Fil. Volts | 6.3*
V5 | 280 | 240 | | 7.6* | Measured with 1000Ω/V meter on 300 volt scale.
V6 | 280 | 240 | | 7.6* | * indicates AC Scale
V7 | 250/250 A.C. | | | | All voltages measured from chassis.
TRIMMING LAYOUT
I.F. TRANSFORMER BASE VIEW OF LUGS
PRIMARY AND SECONDARY WINDINGS ARE NOT SYMMETRICAL. CORRECT CONNECTION AS SHOWN IS ESSENTIAL.
AERIAL & OSCILLATOR COIL LUG PANEL VIEW OF LUGS
RECORD CHANGER
MICRO SWITCH ON P.U. ARM REST.
TO RECORD CHANGER
A.C. MAINS INPUT
200/230V
SWITCH S1 MOUNTED ON VOLUME CONTROL (Rear)
AERIAL TERMINAL
EARTH
P.U.
6BD7 V3
6BH5 V2
6AN7 V1
6M5 V5
6M5 V6
6BD7 V4
6V4 V7
SW.1 OSC.
SW. OSC PADDING
SW.2 OSC
SW.2 AER.
B.C. AER.
S.W.1 AER.
B.C. OSC.
B.C. OSC PADDING
CODE No.

# PARTS LISTS

## CAPACITOR

| No. | Description | Code No. |
|---|---|---|
| C1, 10, 11, 24, 25 | 100 pF mica | |
| C2, 3, 5, 15, 16 | 30 pF air trimmer | CZ.113.700 |
| C4 | 115 pF mica 2½% | CZ.066.138 |
| C6, 7 | 2 gang tuning | CZ.107.755 |
| C8, 9 | 180 pF mica 1% | CZ.065.722 |
| C12 | 475 pF mica 2% | CZ.066.119 |
| C13 | 60 pF air trimmer | 49.005.58 |
| C14 | 110 pF mica 2½% | CZ.066.140 |
| C17 | 0.0045 mF mica 10% | |
| C18, 26 | 0.047 mF 200V paper | |
| C19 | 0.047 mF 400V paper | |
| C20, 21, 22, 23 | Part of I.F. transformer | |
| C27, 30, 37, 38 | 0.0022 mF 600V paper | |
| C28 | 30 pF mica | |
| C29 | 0.022 mF 400V paper | |
| C31 | 0.001 mF 600V paper | |
| C32 | 0.01 mF 400V paper | |
| C33 | 0.27 mF 400V. paper | |
| C34, 35 | 0.01 mF 600V paper | |
| C36 | 25 mF 10V electrolytic | |
| C39 | 50 mF 6V non-polarized electrolytic | CZ.099.870 |
| C40, 41 | 40 mF 350V electrolytic | |
| C42 | Inbuilt neutralising capacitor refer circuit diagram drawing | |
| C43 | 0.005 mF ceramic | |

All tolerances are ± 20% unless otherwise specified.

## RESISTORS

| No. | Description | Code No. |
|---|---|---|
| R1 | 100 ohms ½W carbon | |
| R2 | 22,000 ohms ½W carbon | |
| R3 | 47,000 ohms 1W carbon 10% | |
| R4 | 68,000 ohms 1W carbon | |
| R5, 27 | 47,000 ohms ½W carbon | |
| R6 | 10,000 ohms ½W carbon 10% | |
| R7 | 0.5 megohm carbon potentiometer tapped at 40,000 ohms with (volume) SPST switch | CZ.032.016 |
| R8 | 10 megohm ½W carbon | |
| R9, 10 | 2.2 megohm ½W carbon | |
| R12 | 150,000 ohms ½W carbon 10% | |
| R13 | 0.5 megohm carbon potentiometer tapped (tone) at 0.25 megohm | CZ.029.150 |
| R14 | 68,000 ohms ½W carbon 10% | |
| R15 | 1 megohm ½W carbon | |
| R16 | 2,700 ohms ½W carbon 10% | |
| R17, 18 | 47,000 ohms ½W carbon 10% | |
| R19, 20 | 4,700 ohms ½W carbon | |
| R21, 22 | 0.47 megohm ½W carbon | |
| R23 | 150 ohms 1W W/W 10% | |
| R24, 25 | 4,700 ohms 1W carbon | |
| R26 | 33 ohms ½W carbon 10% | |

All tolerances are ± 20% unless otherwise specified.

## COILS

| No. | Ohms | Description | Code No. |
|---|---|---|---|
| L1 | 19.6-26.4 | B/C aerial coil | CZ.323.026 |
| L2 | 1.5-2.0 | | |
| L3 | 1.2-1.7 | S/W aerial coil | CZ.323.027 |
| L4 | <0.5 | | |
| L5 | 0.8-1.2 | B/C oscillator coil | CZ.330.613 |
| L6 | 2.7-3.7 | | |
| L7 | <0.5 | S/W oscillator coil | CZ.330.614 |
| L8 | <0.5 | | |
| L9 | 4.7-5.2 | 1st I.F. transformer | A3.126.84 |
| L10 | 8.0-9.0 | | |
| L11 | 8.3-9.2 | 2nd I.F. transformer | CZ.320.444 |
| L12 | 4.7-5.2 | | |
| L13 | | Output transformer | type KOL53 |
| L14 | | 10,000 Ω p-p | CZ.345.043 |
| L15 | | Speaker | type 12K F25 |
| L16 | | Speaker | type 5C F87 |
| L18 | 26-36 | Power transformer | CZ.344.089 |
| L19 | 315-425 | | |
| L20 | <0.5 | | |

**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.**