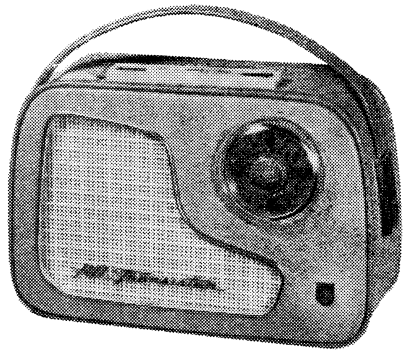
PHILIPS RADIOPLAYER

MODEL 199

SPECIFICATIONS

(Subject to alteration without notice)

Tuning Range	530—1620 Kc/s
Intermediate Frequency	455 Kc/s
Power Supply—Battery	9V. Type 276P.
Battery Consumption	12mA without signal 31mA for 50mW output



TRANSISTOR EQUIPMENT ANDVOLTAGE/CURRENT ANALYSIS

Transistor Function	Transistor No.	Transistor Type	Collector		Base Volts	Emitter Volts
			Volts	mA		
Frequency Converter	TR1	OC44	6.2	0.35	0.85	0.8
1st I.F. Amplifier	TR2	OC45	5.4	0.75	1.7	1.5
2nd I.F. Amplifier	TR3	OC45	7.1	0.9	1.1	0.9
1st Audio Amplifier	TR4	OC71	6.8	0.5	1.8	1.6
2nd Audio Amplifier	TR5	OC71 or OC75	8.4	2.1	2.5	2.36
Push-Pull Audio Amplifier	TR6	OC72	9	5.5*	0.26	0.02
Push-Pull Audio Amplifier	TR7	OC72	9		0.26	0.02
A.V.C.	D1	OA79	Germanium diode			
Demodulator	D2	OA79	Germanium diode			

*Combined current of TR6, TR7.

Voltages measured with an "20,000 ohms per volt" meter on the 10V. range.

PRE-SET BIAS ADJUSTMENT

Correct bias for TR6 and TR7 is achieved by adjustment of potentiometer R27, which is chassis mounted directly behind the speaker. An access hole in the chassis, directly beneath the potentiometer facilitates screwdriver adjustment from the rear of the receiver. Set the volume control to the minimum position, and adjust R27 to achieve a combined TR6, TR7 collector current of 5.5mA.

REPLACEMENT OF VOLUME CONTROL KNOB

Remove chassis from case (see "To remove chassis from case"). Unscrew hexagonal securing nut and withdraw potentiometer from mounting bracket, at the same time extract knob from the potentiometer spindle (push fitted).

PUSH-BUTTON SWITCH REPLACEMENT

To replace the push-button switch, remove chassis from case (see "To remove chassis from case") and release switch from mounting brackets (2 screws). Only the complete switch unit is available as a service replacement. Access to the switch contacts is through a cut-out in the front plate.

REPLACEMENT OF SWITCH ESCUTCHEON

The switch escutcheon is secured to the case by two screws, the heads of which are concealed by two decorative plates. Before securing the screws, adjust escutcheon to ensure free travel of the push-buttons. The decorative plates are attached after final assembly by adhesion. Removal of rod aerial from the supporting brackets allows access to the screws inside the case.

TO REMOVE SPEAKER FROM CHASSIS

Remove two screws, one each side of lug strip cut-out in front plate. Remove screw situated bottom corner (securing front plate, speaker, chassis and utilising a spacer). Release screw securing gang support bracket to front plate. Unsolder speaker leads (black lead at lug strip and green lead at chassis). Detach speaker mounting brackets (3 off).

With the receiver face down, raise the chassis sufficiently to clear the speaker magnet, then withdraw speaker from the front plate.

ALIGNMENT

Because of the compactness of this receiver, it is necessary to remove the chassis from the case when re-alignment is necessary (see "To remove chassis from case").

I.F. Alignment

With volume control at maximum, tone control at treble and gang in open position (minimum capacity), apply a 455 kc/s signal through a 0.1μF capacitor to TR1 base.

Detune L3, L4 and L9 by screwing slugs out one turn.

Connect a 20pF capacitor between pin 8 of L7 and chassis.

Peak L8.

Transfer capacitor to pin 4 of L8 and chassis.

Peak L7 and L9.

Transfer capacitor to pin 8 of L7 and chassis.

Peak L4.

Transfer capacitor to pin 4 of L4 and chassis.

Peak L3.

Do not re-adjust iron cores.

R.F. Alignment

Location of R.F. trimmers is shown as an inset to the circuit diagram. Small indentations in receiver front plate represent alignment calibration markers. The marker directly below gang spindle is the gang closed position. Proceeding in an anti-clockwise direction, the 600 kc/s and 1420 kc/s markers follow. The existing cursor, if inverted on the tuning capacitor spindle, will make a satisfactory reference pointer.

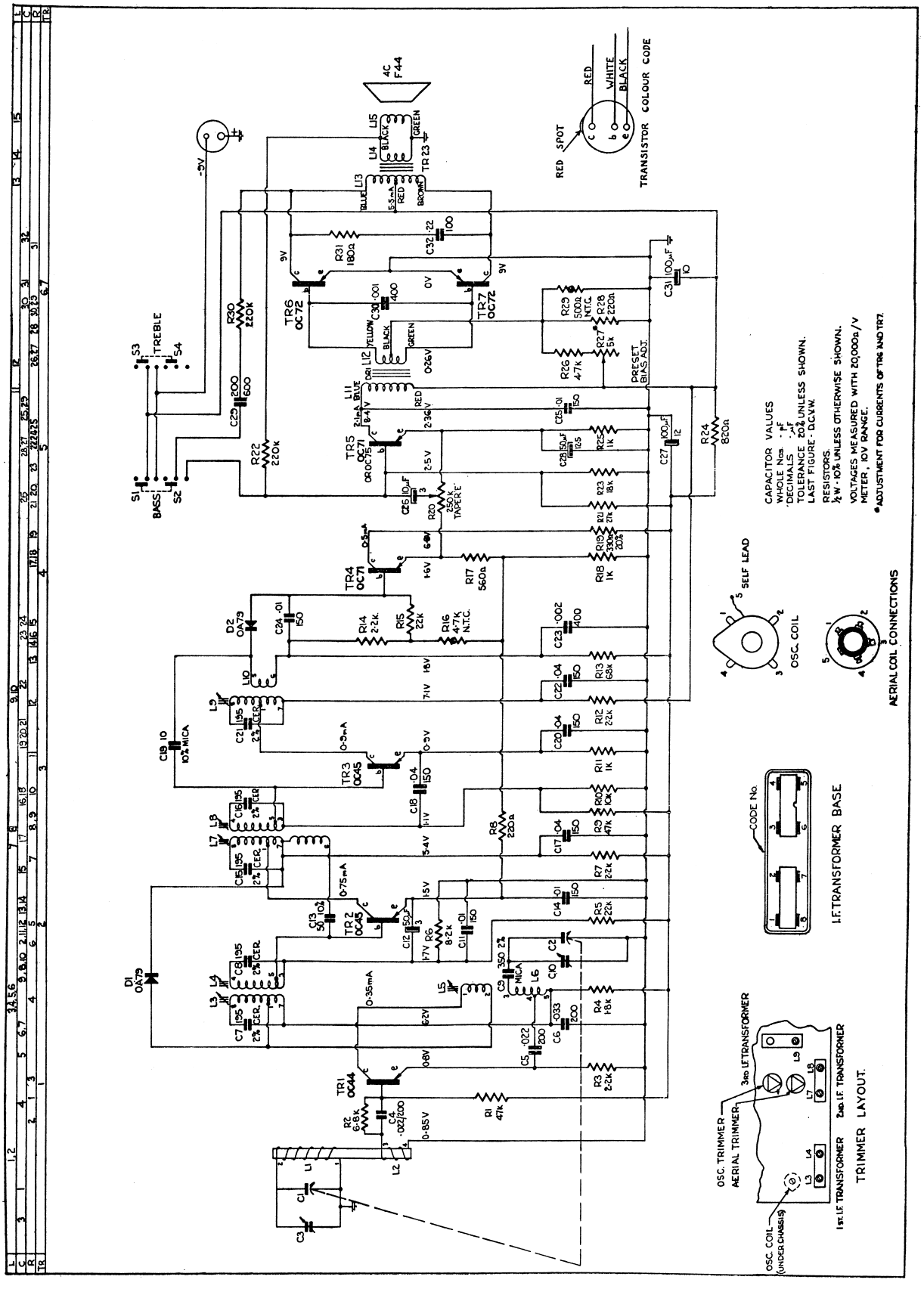
Position receiver on bench with the speaker facing upward and place rod aerial in position as near as possible to its permanent posture in case. With the gang in closed position, adjust the cursor to the stop position marker. Set volume control to maximum, tone to treble position and connect generator through a series network comprising an 0.1μF capacitor and 5,000Ω resistor to lug 3 of rod aerial.

Alignment frequencies are:—

600 kc/s peak oscillator coil slug, whilst rocking gang.

1420 kc/s peak oscillator and aerial trimmers.

Repeat above trimming procedure.


TRANSISTOR COLOUR CODE
RED SPOT
RED
WHITE
BLACK
CAPACITOR VALUES
WHOLE Nos. : pF
DECIMALS : µF
TOLERANCE 20% UNLESS SHOWN.
LAST FIGURE - D.C.W.V.
RESISTORS.
½W - 10% UNLESS OTHERWISE SHOWN.
VOLTAGES MEASURED WITH 20,000Ω/V METER, 10V RANGE.
*ADJUSTMENT FOR CURRENTS OF TR6 AND TR7.
AERIAL COIL CONNECTIONS
SELF LEAD
OSC. COIL
CODE No.
I.F. TRANSFORMER BASE
TRIMMER LAYOUT.
OSC. TRIMMER
AERIAL TRIMMER
3rd I.F. TRANSFORMER
2nd I.F. TRANSFORMER
1st I.F. TRANSFORMER
OSC. COIL (UNDER CHASSIS)
TREBLE
BASS
PRESET BIAS ADJ.
4C F44
-9V
9V
0V
TR1 OC44
TR2 OC45
TR3 OC45
TR4 OC71
TR5 OC71
TR6 OC72
TR7 OC72
D1 OA79
D2 OA79

PARTS LIST

CAPACITORS

No.	Description	Code No.
C1, 2	2 gang tuning capacitor	CZ.107.767
C3, 10	30pF air trimmer	CZ.113.700
C4, 5	0.022μF 200V paper	
C6	0.033μF 200V paper	
C7, 8, 15, 16, 21	Part of I.F. transformers	
C9	350pF ± 2% mica	
C11, 14, 24, 25	0.01μF 150V paper	
C12, 28	50μF 12.5V electrolytic	AC.5713/50
C13	50pF ± 10% mica	
C17, 18, 20, 22	0.04μF 150V paper	
C19	10pF ± 10% ceramic	
C23	0.002μF 400V paper	
C26	10μF 3V electrolytic	AC.5710/10
C27	100μF 12.5V electrolytic	AC.5713/100
C29	200pF 600V paper	
C30	0.001μF 400V paper	
C31	100μF 10V electrolytic	
C32	0.22μF 100V paper	

All tolerances are ± 20% unless otherwise specified.

RESISTORS

No.	Description	Code No.
R1, 9	4,700Ω ½W carbon	
R2	6,800Ω ½W carbon	
R3, 7,12, 14	2,200Ω ½W carbon	
R4	1,800Ω ½W carbon	
R5, 15	22,000Ω ½W carbon	
R6	8,200Ω ½W carbon	
R8, 28	220Ω ½W carbon	
R10	10,000Ω ½W carbon	
R11, 18, 25	1,000Ω ½W carbon	
R13	68,000Ω ½W carbon	
R16	4,700Ω 20% ½W N.T.C.	B8.320.07P/4K7
R17	560Ω ½W carbon	
R19	330Ω 20% ½W carbon	
R20	250,000Ω carbon potentiometer	CZ.034.002
R21	27,000Ω ½W carbon	
R22, R30	220,000Ω ½W carbon	
R23	18,000Ω ½W carbon	
R24	820Ω ½W carbon	
R26	4,700Ω ½W carbon	
R27	5,000Ω carbon potentiometer (pre-set)	CZ.034.004
R29	500Ω 20% 1W N.T.C.	B8.320.01P/500E
R31	180Ω ½W carbon	

All tolerances are ± 10% unless otherwise specified.

INDUCTORS

No.	D.C. Resistance Ohms	Description	Type or Code No.
L1	1.1-1.3	Rod aerial assembly	CZ.323.040
L2	<0.5		
L3	5.0-6.0	1st I.F.T.	CZ.320.460
L4	5.0-6.0		
L5	2.2-2.8	Oscillator coil	CZ.330.619
L6	1.1-1.3		
L7	5.1-6.3	2nd I.F.T.	CZ.320.461
L8	5.1-6.3		
L9	5.0-6.0	3rd I.F.T.	CZ.320.462
L10	1.3-1.6		
L11	275	Driver transformer	Type DR1 CZ.345.823
L12	95		
L13	7.7-9.4	Output transformer	Type TR23 CZ.345.059
L14	<0.5		
L15		Speaker	Type 4C-F44

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	Code No.
Badge	CR.531.433
Bracket, aerial support, R.H.	CS.231.264
Bracket, aerial support, L.H.	CS.231.263
Bracket, gang support	CS.233.581
Bracket, potentiometer mounting	CS.229.640
Bracket, switch mounting, x2	CS.233.573
Bracket, speaker mounting, x3	CS.233.591
Case, leather, luggage brown	CR.572.550
Case, leather, atmosphere grey	CR.572.555
Case, leather, spring fever red	CR.572.556
Clip, grille trim	CS.430.050
Cover, handle end, x2	CS.430.410
Cursor	CS.410.648
Escutcheon, switch	CS.430.049
Foot, case, x4	CS.240.033
Grille, moulded (front)	CS.430.955
Grille, moulded (rear)	P5.350.26/159
Handle, luggage brown	CR.523.419
Handle, atmosphere grey	CR.523.420
Handle, spring fever red	CR 523.421
Knob, tuning	CR.523.510
Knob, volume	CR.523.504
Plate, handle securing, x2	CS.241.730
Plate, trim, switch escutcheon mounting screws, x2	CS.430.952
Name, Philips	CS.436.459
Scale, dial	CS.412.423
Shield, chassis	CS.420.422
Spring, I.F.T. mounting, x3	A3.652.58
Spring, cursor securing	CS.211.032
Spacer, chassis to front plate	CS.213.292
Speed fix, chassis securing	CH.629.059
Strip, insulating	CS.115.209
Strip, chassis securing, x2 (attach to case)	CS.470.272
Switch, complete, push-button unit	A3.791.13
Trim, grille	CS.430.956
Trim, handle cover decorative, x2	CS.430.052
Wordmark "All Transistor"	CS.436.453

TO REMOVE CHASSIS FROM CASE

Remove tuning knob (push fit). Detach the cursor from the tuning capacitor spindle with the assistance of long-nose pliers. Remove battery pack. Detach handle decorative cover plates (pull out at bottom and slide upward to release) and unscrew chassis retaining screws (one each side of case). Release rod aerial from mounting brackets. Carefully lower the chassis as far as possible and withdraw the bottom section until the switch buttons and volume control knob are clear. Whilst withdrawing the chassis care should be exercised to ensure damage-free extraction of the switch buttons from the switch escutcheon.

Re-insertion is a reversal of the above method; however, when replacing retaining screws, hold chassis firmly against case front and top. Before final assembly, check tuning gang spindle concentricity with dial scale and ensure free movement of push-buttons and volume control knob in their respective cavities.

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