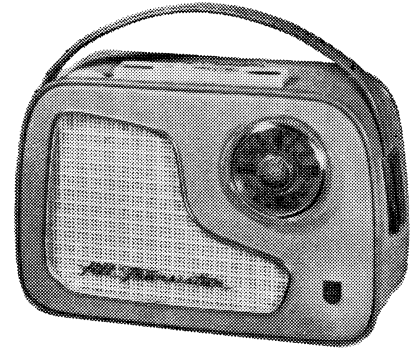


# PHILIPS RADIOPLAYER

## MODEL 198 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 AND VOLTAGE/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				

\*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 and gang in open position (minimum capacity) apply a 455 Kc/s signal through a 0.01 mF capacitor to TR1 base.

Detune 1st and 3rd I.F.T. by screwing in slugs of L3, L4 and L9.

Peak 2nd I.F.T. L7.

Connect a 68,000 ohms resistor from pin 8 of L7 (2nd I.F.T.) to chassis.

Peak 3rd I.F.T. (L9), 1st I.F.T. secondary (L4) and 1st I.F.T. primary (L3).

DO NOT RE-ADJUST SLUGS.

##### R.F. Alignment

Location of R.F. trimmers is shown as an inset to the circuit diagram. Early receivers were without alignment calibration marks for trimming. A spare dial scale or template made from the existing scale with the closed gang, 600 Kc/s and 1,420 Kc/s alignment positions, would suffice. Future receivers will have alignment calibration marks on the front plate. The existing cursor, if inverted on the tuning capacitor spindle, will make a satisfactory reference pointer. With the gang in a closed position, adjust the cursor to coincide with the horizontal dividing line through the centre of the dial scale. Stations 7ZL and 3XY are reference points for 600 Kc/s and 1,420 Kc/s respectively.

Position receiver on bench with the speaker facing upward, place rod aerial in position as near as possible to its permanent posture in case.

Adjust volume control to maximum and connect generator through a series network comprising a 0.01 mF capacitor and 5,000 ohm resistor to TR1 base.

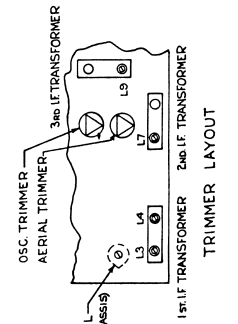
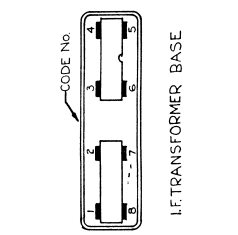
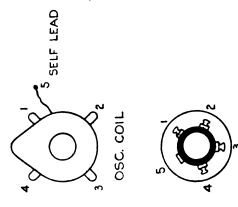
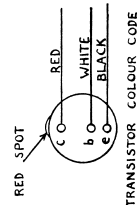
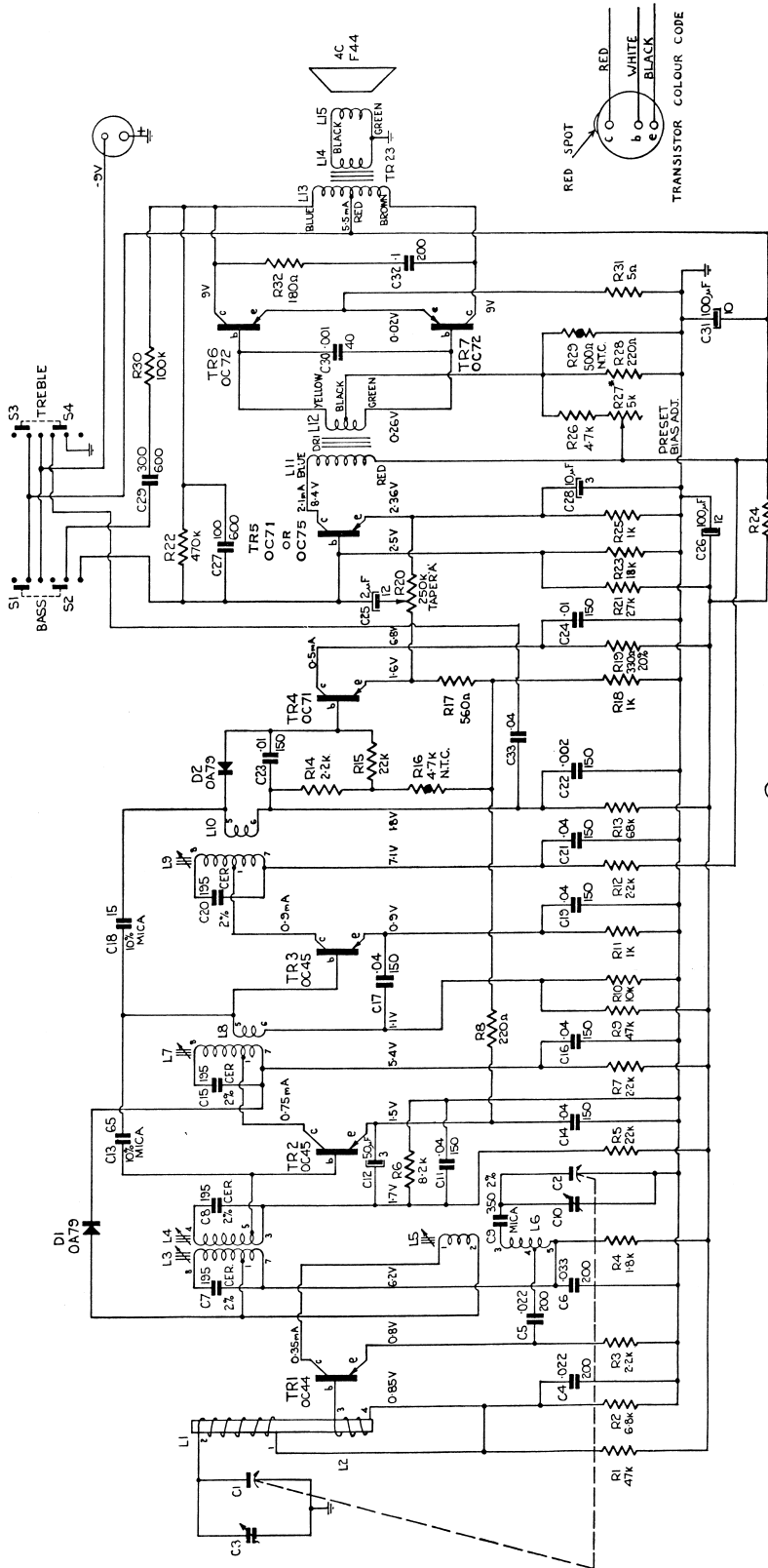
Alignment frequencies are:—

600 Kc/s (7ZL) peak oscillator coil slug, whilst rocking gang.

1,420 Kc/s (3XY) peak oscillator and aerial trimmers.

Repeat above trimming procedure.

L	1.2	3.4, 5.6	7	8	9, 10	11	12	13	14	15	16	17	18, 19, 20	21	22, 23, 24	25	26, 27	28	29, 30	31	32	33	34	35
C	2	4	5	6, 7	8, 9, 10	11	12	13	14, 15	16	17	18	19, 20, 21	22, 23, 24, 25	26	27, 28	29	30, 31	32	33	34	35	36	37
R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19, 20	21	22	23	24	25
TR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24



CAPACITOR VALUES  
 VALUE No.  $\mu$ F  
 DECIMAL POINT  
 TOLERANCE % UNLESS SHOWN  
 LAST FIGURE - D.C.V.M.  
 RESISTORS  
 $\frac{1}{4}$  W - 10% UNLESS OTHERWISE SHOWN.  
 VOLTAGES MEASURED WITH 20000  $\mu$  V  
 METER, 10V RANGE.  
 \* ADJUSTMENT FOR CURRENTS OF TR6 AND TR7.

## PARTS LIST

### CAPACITORS

No.	Description	Code No.
C1, 2	2 gang tuning capacitor	CZ.107.767
C3, 10	30 pF air trimmer	CZ.113.700
C4, 5	0.022 $\mu$ F 200V paper	
C6	0.033 $\mu$ F 200V paper	
C7, 8, 15, 20	Part of I.F. transformers	
C11, 14, 16, 17, 19, 21, 33	0.04 $\mu$ F 150V paper electrolytic	
C12	50 $\mu$ F 12.5V electrolytic	AC5713/50
C13	65 pF $\pm$ 10% mica	
C18	15 pF $\pm$ 10% mica	
C22	0.002 $\mu$ F 400V paper	
C23, 24	0.01 $\mu$ F 150V paper	
C25	2 $\mu$ F 9V electrolytic	AC5712/2
C26	100 $\mu$ F 12.5V Electrolytic	AC5713/100
C27	100 pF 600V paper	
C28	10 $\mu$ F 3V electrolytic	AC5710/10
C29	300 pF 600V paper	
C30	0.001 $\mu$ F 400V paper	
C31	100 $\mu$ F 10V electrolytic	
C32	0.1 $\mu$ F 200V paper	

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

### RESISTORS

No.	Description	Code No.
R1, 9	47,00 ohms $\frac{1}{2}$ W carbon	
R2	6,800 ohms $\frac{1}{2}$ W carbon	
R3, 7, 12, 14	2,200 ohms $\frac{1}{2}$ W carbon	
R4	1,800 ohms $\frac{1}{2}$ W carbon	
R5, 15	22,000 ohms $\frac{1}{2}$ W carbon	
R6	8,200 ohms $\frac{1}{2}$ W carbon	
R8, 28	220 ohms $\frac{1}{2}$ W carbon	
R10	10,000 ohms $\frac{1}{2}$ W carbon	
R11, 18, 25	1,000 ohms $\frac{1}{2}$ W carbon	
R13	68,000 ohms $\frac{1}{2}$ W carbon	
R16	4,700 ohms 20% $\frac{1}{2}$ W N.T.C.	B8.320.07P/4K7
R17	560 ohms $\frac{1}{2}$ W carbon	
R19	330 ohms 20% $\frac{1}{2}$ W carbon	
R20	250,000 ohms carbon potentiometer	CZ.034.002
R21	27,000 ohms $\frac{1}{2}$ W carbon	
R22	470,000 ohms $\frac{1}{2}$ W carbon	
R23	18,000 ohms $\frac{1}{2}$ W carbon	
R24	820 ohms $\frac{1}{2}$ W carbon	
R26	4,700 ohms $\frac{1}{2}$ W carbon	
R27	5,000 ohms carbon potentiometer	CZ.034.004
R29	500 ohms 20% $\frac{1}{2}$ W N.T.C.	B8.320.01P/500E
R30	100,000 ohms $\frac{1}{2}$ W carbon	
R31	5 ohms $\frac{1}{2}$ W W/W	
R32	180 ohms $\frac{1}{2}$ W carbon	

All tolerances are  $\pm$  10% unless otherwise specified.

### COILS

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.320.449
L4	5.0-6.0		
L5	2.2-2.8	Oscillator coil	CZ.330.619
L6	1.1-1.3		
L7	11.7-14.3	2nd I.F.T.	CZ.320.450
L8	0.9-1.1		
L9	11.7-14.3	3rd I.F.T.	CZ.320.451
L10	<0.5		
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.	Description	Code No.
Badge	CR.531.433	Handle, spring fever red	CR.523.421
Bracket, aerial support, R.H.	CS.231.264	Knob, tuning	CR.523.501
Bracket, aerial support, L.H.	CS.231.263	Knob, volume	CS.432.706
Bracket, gang support	CS.233.581	Plate, handle securing, x2	CS.241.730
Bracket, potentiometer mounting	CS.229.640	Plate, trim, switch escutcheon mounting screws, x2	CS.430.952
Bracket, switch mounting, x2	CS.233.573	Scale, dial	CS.412.418
Bracket, speaker mounting, x3	CS.233.591	Shield, chassis	CS.420.422
Case, leather, luggage brown	CR.572.550	Spring, I.F.T. mounting, x3	A3.652.58
Case, leather, atmosphere grey	CR.572.555	Spring, cursor securing	CS.211.032
Case, leather, spring fever red	CR.572.556	Spacer, chassis to front plate	CS.213.292
Clip, grille trim	CS.430.050	Speed fix, chassis securing	CH.629.059
Cover, handle end, x2	CS.430.410	Strip, insulating	CS.115.209
Cursor	CS.410.645	Strip, chassis securing, x2 (attach to case)	CS.470.272
Escutcheon, switch	CS.430.049	Switch, complete, push-button unit	A3.791.13
Foot, case, x4	CS.240.033	Trim, grille	CS.430.956
Grille, moulded	CS.430.955	Trim, handle cover decorative, x2	CS.430.052
Handle, luggage brown	CR.523.419	Wordmark "All Transistor"	CS.436.453
Handle, atmosphere grey	CR.523.420		

**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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