BEETHOVEN Model B84

General Description : Five-valve (including rectifier), three-waveband table radiogramophone with built-in frame aerial and three-speed automatic record changer.

Power Supply : A.C. mains, 200–250 volts (two adjustment tappings 200–225 and 226–250 volts), 50 c/s.

Wavebands : S.W. 13–50 m.; M.W. 180–550 m.; L.W. 800–2000 m.

Intermediate Frequency : 470 kc/s.

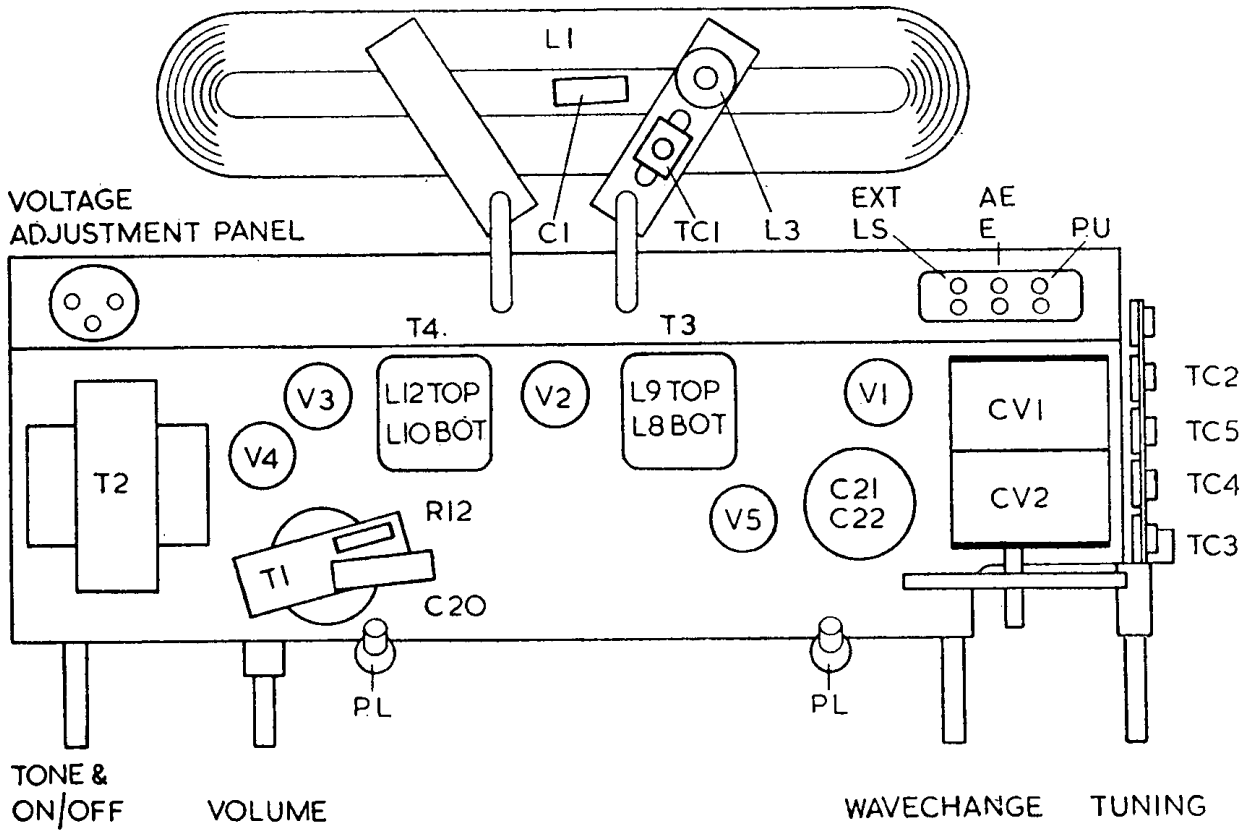
Valve Analysis : D.C. voltages measured to chassis.

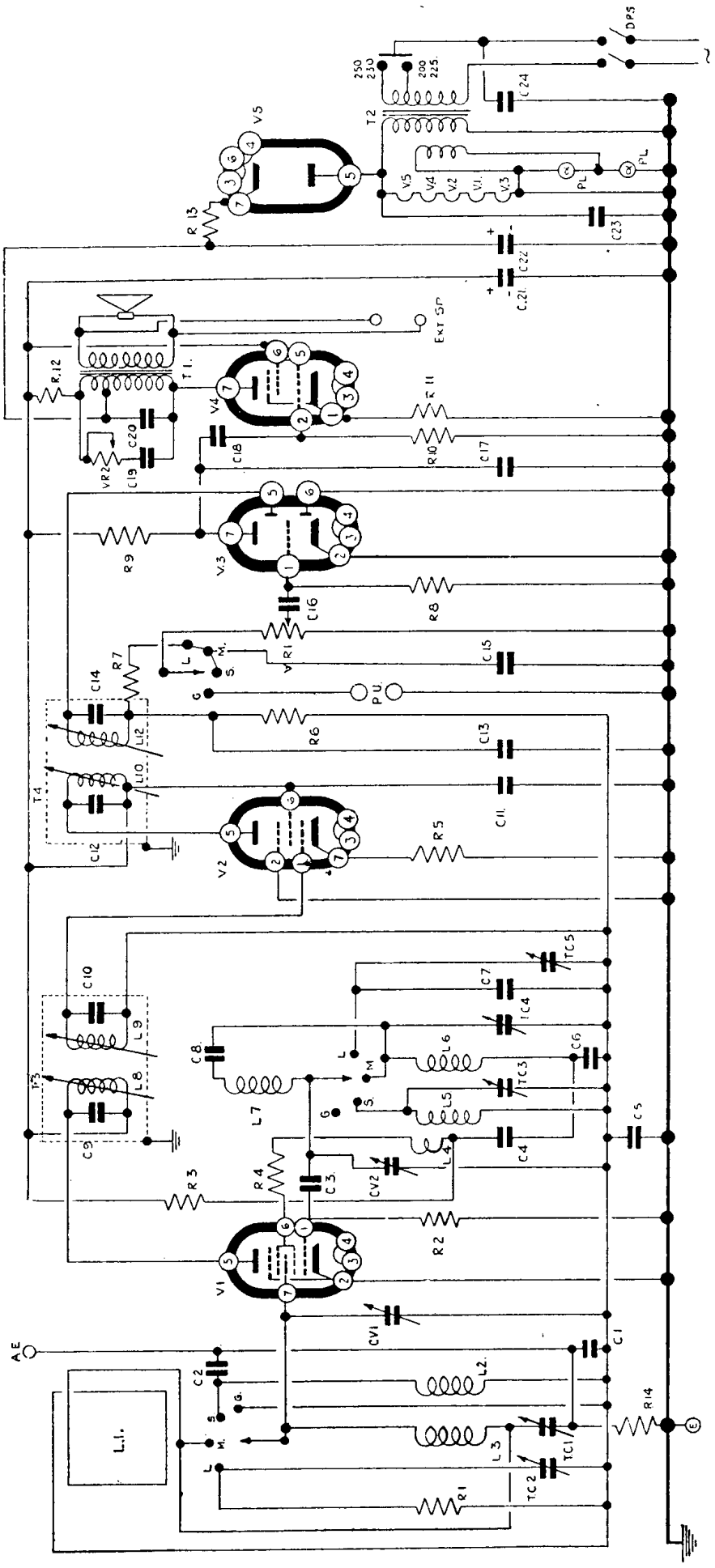
	Valve	*Va*	*Ia*	*Vg2*	*Ig2*	*Vk*
V1	12BE6 or HK90	95	1·3	65	4·2	—
V2	12BA6 or HF93	95	8·0	96	3·0	0·6
V3	12AT6 or HBC90	15 *	0·2	—	—	—
V4	50C5 or HL92	115	35	96	3·3	5·2
V5	35W4 or HY90	115 A.C.	—	—	—	120

* Measured on 1200-volt range. Total H.T. current 55 mA.

Dial Lamps : Two 6·5 volts, 0·3 amp.

Alignment Procedure : *I.F. :* Inject signal between grid of V2 and chassis and with receiver set to M.W. (tuning gang fully enmeshed), adjust L12 (top 2nd I.F.T.), then L10 (bottom 2nd I.F.T.). Transfer signal to between grid of V1 and chassis, and then adjust L9 (top 1st I.F.T.), then L8 (bottom of 1st I.F.T.). Do *not* retune 2nd I.F.T. while injecting signal to grid of V1.





CIRCUIT DIAGRAM—BEETHOVEN MODEL B84

Capacitors.

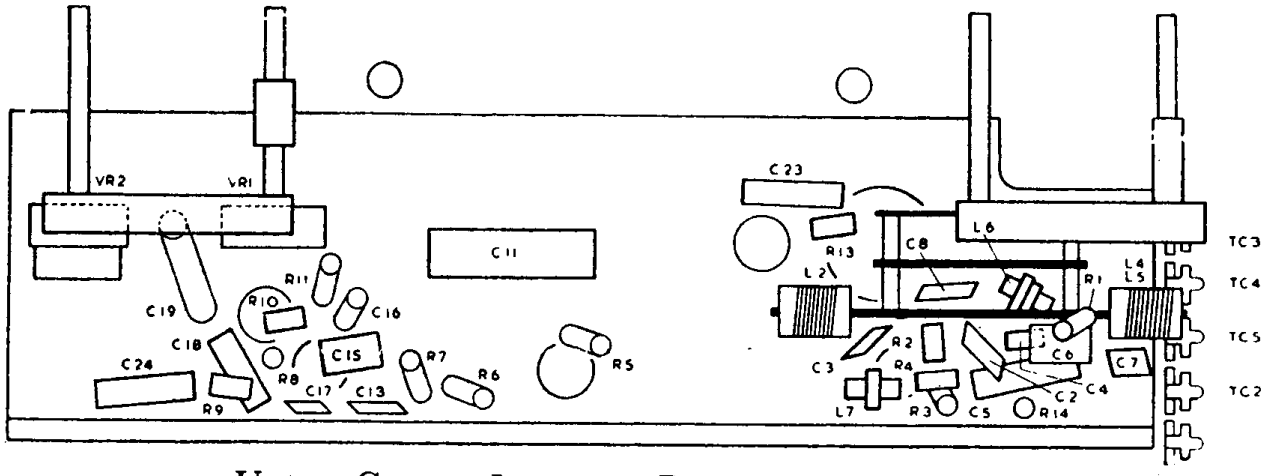
C1	39 pF.
C2	39 pF.
C3	300 pF.
C4	0·01
C5	0·05
C6	490 pF. (2%)
C7	100 pF. (2%)
C8	490 pF. (2%)
C9	100 pF. (2%)
C10	100 pF. (2%)
C11	0·25
C12	100 pF. (2%)
C13	200 pF.
C14	100 pF. (2%)
C15	200 pF.
C16	0·001
C17	200 pF.
C18	0·01
C19	0·05
C20	0·02 (750 v.)
C21	32 (El. 350 v.)
C22	32 (El. 350 v.)
C23	0·02 (750 v.)
C24	0·02 (750 v.)
CV1	13–483 pF.
CV2	13–483 pF.
TC1	4–50 pF.
TC2	4–50 pF.
TC3	4–50 pF.
TC4	4–50 pF.
TC5	4–50 pF.

Resistors.

R1	330k
R2	22k
R3	6·8k
R4	180
R5	56
R6	2·2M
R7	47k
R8	22M
R9	330k
R10	390k
R11	150 (1 W.)
R12	1·5k (1 W.)
R13	27 (½ W.)
R14	6·8k
VR1	0·5M
VR2	50k

D.C. Resistances (ohms).

L1	Very low
L2	Very low
L3	22
L4	Very low
L5	Very low
L6	5
L7	8
L8	10·5
L9	10·5
L10	10·5
L12	10·5



UNDER CHASSIS LAY-OUT—BEETHOVEN MODEL B84

R.F. : With tuning gang fully enmeshed, ensure that the pointer coincides with the datum line on the scale plate. Inject signals from test oscillator in the following order, using a dummy aerial fed to the aerial and earth sockets on S.W. and a dummy frame aerial or loop close coupled (inductively) to the built-in frame aerial on M.W. and L.W. (*i.e.*, do not feed signals directly to aerial and earth sockets on M.W. and L.W.).

Operation	*Set Pointer to*	*Set Test Oscillator to*	*Adjust for Maximum Output*
(1) S.W. . . .	13 m.	23·1 Mc/s.	TC_3 *
(2) M.W. . . .	200 m.	1500 kc/s.	TC_4, then TC_1
(3) L.W. . . .	1000 m.	300 kc/s.	TC_5, then TC_2

* Select trimming position requiring the lesser capacitance.

Removing Chassis : (1) Disconnect mains supply; (2) remove front knobs; (3) remove nuts securing frame aerial and free from supports; (4) remove chassis-securing screws (taking care not to allow chassis to slip forward on to scale); (5) remove mains lead to gramophone motor; (6) withdraw chassis; (7) unplug loudspeaker leads from output transformer. To re-assemble reverse the above order.