

# BEETHOVEN

# Model B97

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**General Description:** Seven-valve (including rectifier and tuning indicator), four-waveband (including V.H.F.), combined A.M./F.M. auto-radiogramophone with electrostatic "tweeter" loudspeaker.

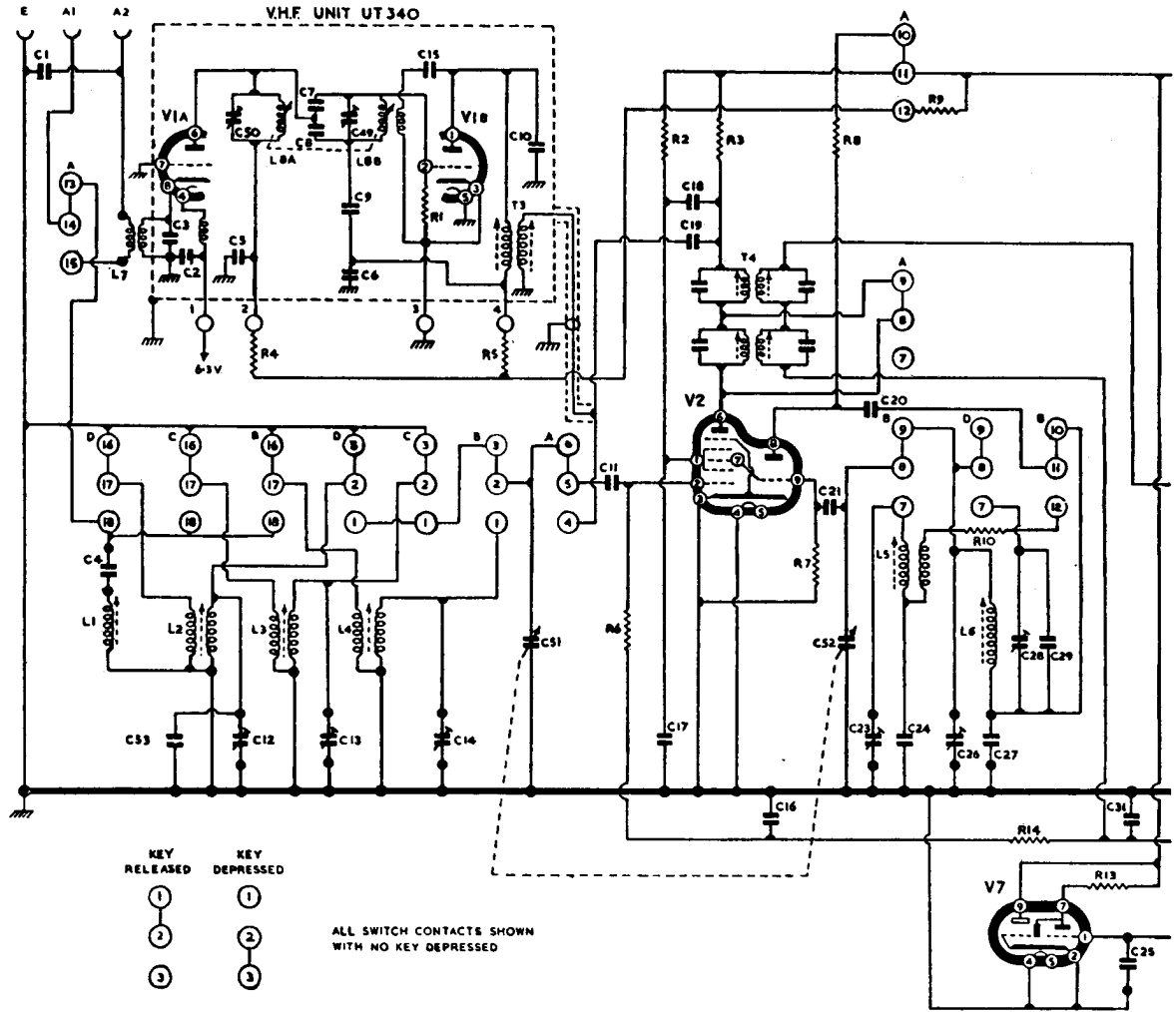
**Power Supply:** A.C. mains, 200–250 volts.

**Valve Functions:** (V<sub>1</sub>) ECC85 (F.M. only, grounded-grid R.F. amplifier and additive mixer); (V<sub>2</sub>) ECH81 (A.M. frequency changer with heptode section as 1st I.F. amplifier on F.M.); (V<sub>3</sub>) EF89 (dual I.F. amplifier); (V<sub>4</sub>) EABC80 (A.M. demodulator/A.G.C., two diodes as F.M. ratio detector, and triode section as common 1st A.F. amplifier); (V<sub>5</sub>) EL84 (output); (V<sub>6</sub>) EZ80 (rectifier); (V<sub>7</sub>) EM80 (tuning indicator).

**Pilot Lamps:** Two 6.5 volts, 0.3-amp.

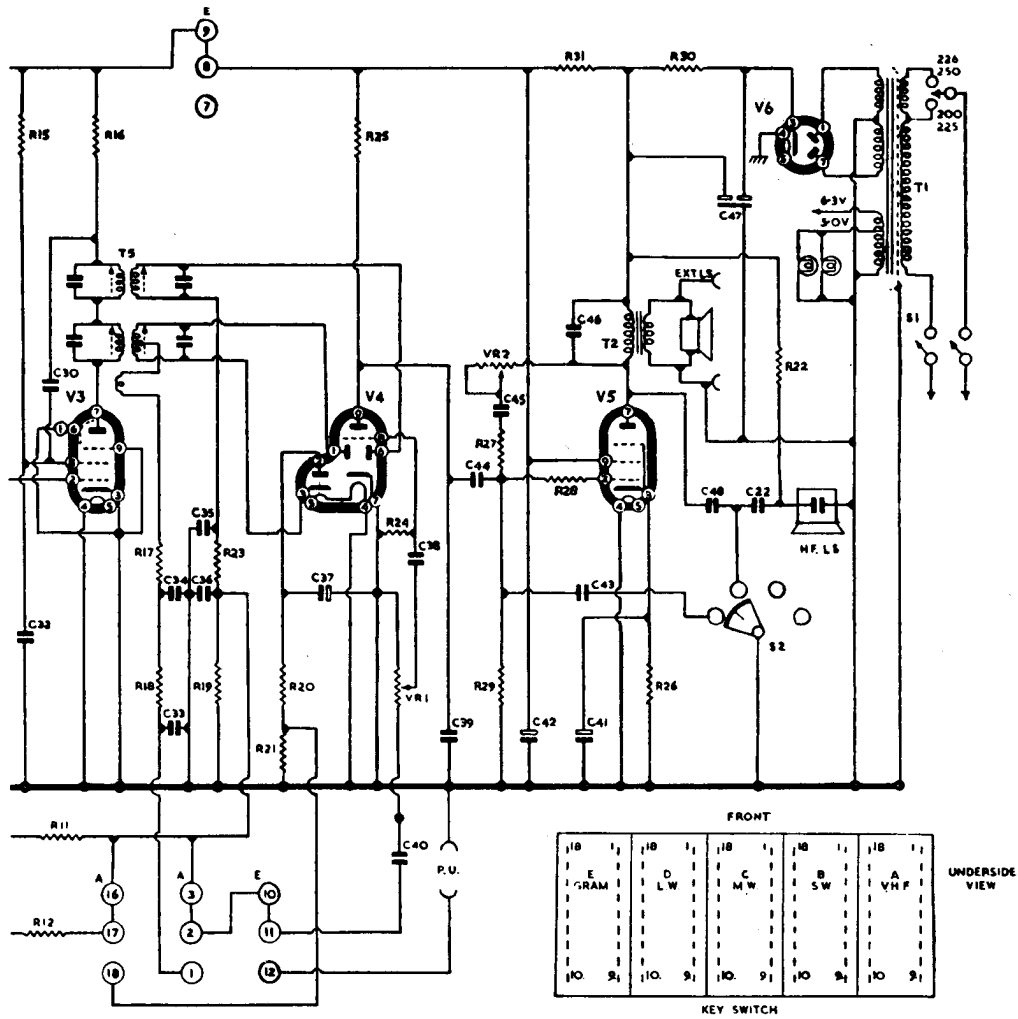
**Intermediate Frequencies:** A.M. 470 kc/s.; F.M. 10.7 Mc/s.

**Modifications:** In early models C<sub>43</sub> was connected to V<sub>4</sub> pin 9 instead of to the junction of R<sub>27</sub>, R<sub>28</sub>; C<sub>38</sub> was 0.005  $\mu$ F. or 0.001  $\mu$ F. instead of 0.01  $\mu$ F.; C<sub>44</sub> was 0.05  $\mu$ F. instead of 0.01  $\mu$ F.



CIRCUIT DIAGRAM—

Capacitors.			
C1	20 pF.	C16	0.1
C2	1000 pF.	C17	0.001
C3	10 pF.	C18	0.001
C4	60 pF. (5%)	C19	3 pF. ( $\pm \frac{1}{2}$ pF.)
C5	1000 pF.	C20	200 pF.
C6	70 pF. (2%)	C21	50 pF.
C7	10 pF.	C22	0.005
C8	10 pF.	C23	4-40 pF.
C9	9 pF.	C24	5000 pF. (2%)
C10	10 pF.	C25	0.01
C11	200 pF.	C26	60 pF. (5%)
C12	120 pF.	C27	450 pF. (2%)
C13	60 pF.	C28	200 pF. (5%)
C14	4-40 pF.	C29	200 pF. (5%)
C15	15 pF. (5%)	C30	0.001
		C31	0.1
		C32	0.005
		C33	0.001
		C34	400 pF.
		C35	100 pF.
		C36	100 pF.
		C37	5 (50 v.)
		C38	0.01
		C39	100 pF.
		C40	0.05
		C41	50 (12 v.)
		C42	16 (350 v)
		C43	0.01
		C44	0.01
		C45	0.001



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|-----|---------------------|-----|------|-----|-----------------|
| C46 | 0.001 (300 v. A.C.) | R5  | 10k  | R20 | 22k             |
| C47 | 32 + 32 (350 v.)    | R6  | 1.2M | R21 | 10k             |
| C48 | 0.005               | R7  | 33k  | R22 | 47k             |
| C49 | 3-15 pF.            | R8  | 33k  | R23 | 47k             |
| C50 | 3-15 pF.            | R9  | 150k | R24 | 10M             |
| C51 | 528 pF. (swing)     | R10 | 150  | R25 | 220k            |
| C52 | 528 pF. (swing)     | R11 | 1.2M | R26 | 150             |
| C53 | 50 pF.              | R12 | 1.2M | R27 | 100k            |
|     |                     | R13 | 470k | R28 | 22k             |
|     |                     | R14 | 470k | R29 | 820k            |
|     |                     | R15 | 47k  | R30 | 450 (4 W. W.W.) |
|     |                     | R16 | 1k   | R31 | 1.5k            |
|     |                     | R17 | 27   | VR1 | 0.5M (log.)     |
|     |                     | R18 | 47k  | VR2 | 2M (log.)       |
|     |                     | R19 | 330k |     |                 |