

**FERRANTI****Models 245, 345**

**General Description :** These two models employ a basically similar chassis; Model 245 is an A.C. table receiver, while Model 345 is an A.C. radiogramophone. The chassis is a five-valve (including rectifier), three-waveband superheterodyne receiver. Model 345 is fitted with a Garrard RC110 three-speed record changer, with turnover-type crystal pick-up.

**Power Supply :** A.C. mains, 200–250 volts (three adjustmentappings). Model 245, 50–100 c/s. Model 345, 50 c/s.

**Wavebands :** S.W. 16–50 m.; M.W. 190–570 m.; L.W. 1000–2000 m.

**Valve Analysis :** The voltage (measured to chassis) and current readings given below are average, and were measured under no-signal conditions with a Model 7 Avometer. These readings refer to Model 245, due to the different values of R19, voltage readings for the 345 will be slightly higher.

<i>Valve</i>	<i>Anode, volts</i>	<i>Anode Current, mA.</i>	<i>Screen, volts</i>	<i>Screen Current, mA.</i>	<i>Osc. Anode, volts</i>	<i>Cathode, volts</i>
V <sub>1</sub> ECH <sub>42</sub>	265	2.4	75	2.8	103	—
V <sub>2</sub> EF <sub>41</sub>	265	5.0	75	1.5	—	—
V <sub>3</sub> EBC <sub>41</sub>	70	0.65	—	—	—	—
V <sub>4</sub> EL <sub>41</sub>	260	30	235	5.0	—	4.7
V <sub>5</sub> EZ <sub>40</sub>	—	—	—	—	—	275

Total H.T. current at V<sub>5</sub> cathode, 57 mA. Bias across R<sub>20</sub>, 1.8 volts. To check that the oscillator is functioning earth its grid and note that oscillator anode voltage falls by approximately 30 volts.

**Dial Lamp :** 6.2 volts, 0.3 amp., M.E.S.

**Alignment Procedure :** Connect a high-resistance output meter (100 volts A.C.) via a 0.1- $\mu$ F. series capacitor across the primary of the output transformer TR<sub>1</sub>. During alignment maintain the input signal at a level which produces a meter reading of 10–20 volts. To prevent damage to iron-dust cores use a non-metallic screw-driver which exactly fits the slots in the cores.

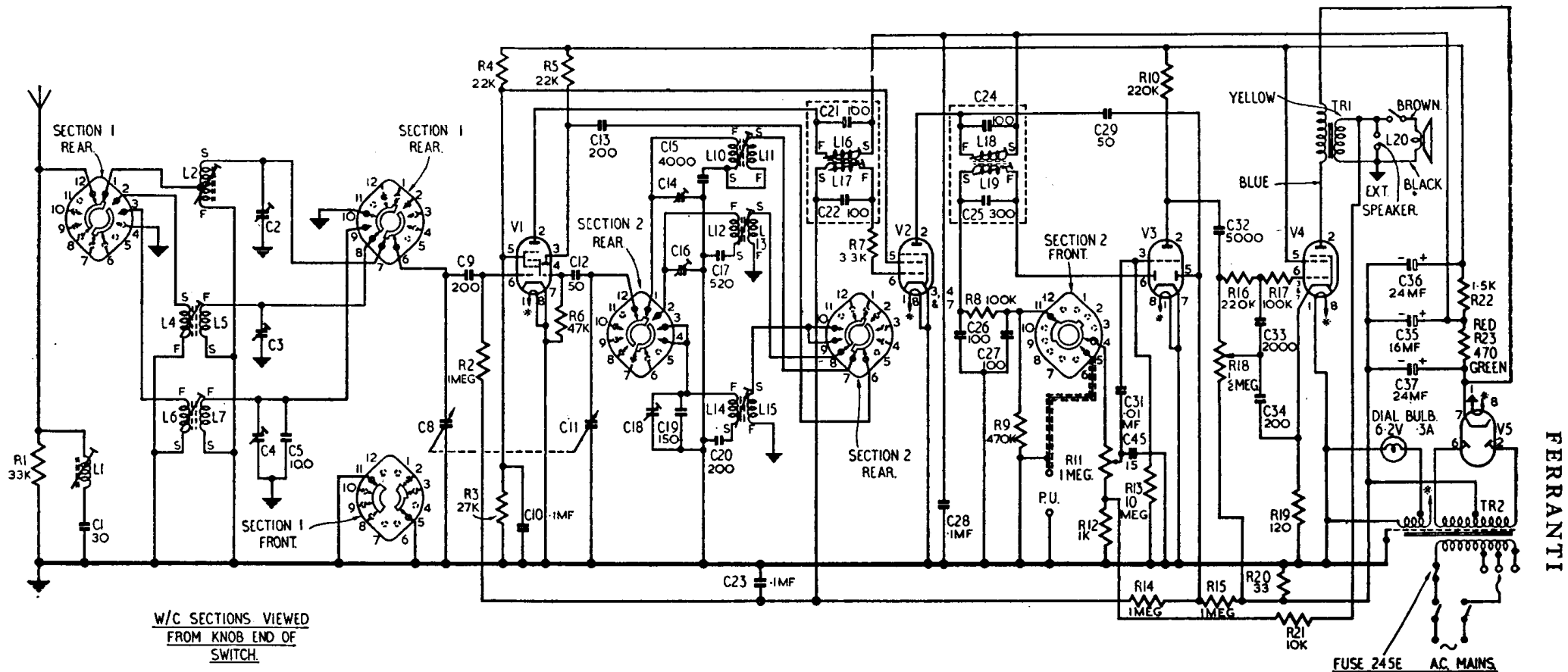
**I.F.:** Switch to L.W. with tuning gang vanes fully enmeshed. Inject a 470-kc/s. signal via a 0.1- $\mu$ F. capacitor to signal grid of V<sub>1</sub> (i.e., front section of tuning gang). Adjust cores of L<sub>19</sub>, L<sub>18</sub>, L<sub>17</sub> and L<sub>16</sub> for maximum gain. Each tuning core has two tuning positions—the correct one is the first as the core is screwed into the coil. Repeat adjustments until no further gain can be obtained.

**R.F.:** Calibration points are marked on the front of the chassis. Prior to alignment, check that with tuning gang at maximum the pointer coincides with the right-hand line. Inject signals to aerial socket via appropriate dummy aeri-als.

<i>Operation</i>	<i>Generator Tuning</i>	<i>Receiver Tuning</i>	<i>Adjust for Optimum Response</i>
(1) M.W. . . .	500 m.	600 kc/s.	L <sub>12</sub> , then L <sub>5</sub>
(2) . . . . .	200 m.	1500 kc/s.	C <sub>16</sub> , then C <sub>3</sub>
(3) . . . . .		Repeat (1) and (2)	
(4) . . . . .	470 kc/s.	Gang fully enmeshed	L <sub>1</sub> for <i>minimum</i>
(5) L.W. . . .	1800 m.	166.6 kc/s.	L <sub>14</sub> , then L <sub>7</sub>
(6) . . . . .	1128 m.	266 kc/s.	C <sub>18</sub> , then C <sub>4</sub>
(7) . . . . .		Repeat (5) and (6)	
(8) S.W. . . .	45 m.	6.6 Mc/s.	L <sub>10</sub> ,* then L <sub>2</sub>
(9) . . . . .	20 m.	15 Mc/s.	C <sub>14</sub> ,† then C <sub>2</sub>
(10) . . . . .		Repeat (8) and (9)	

\* First tuning position as core is screwed in.

† Lower capacitance tuning position.



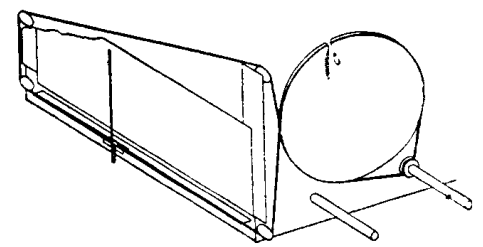
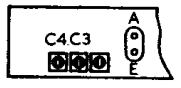
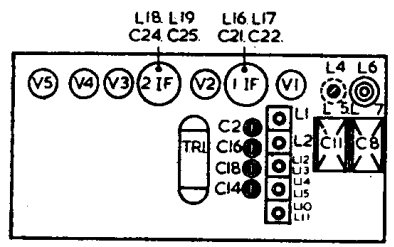
FERRANTI

CIRCUIT DIAGRAM—FERRANTI MODEL 245

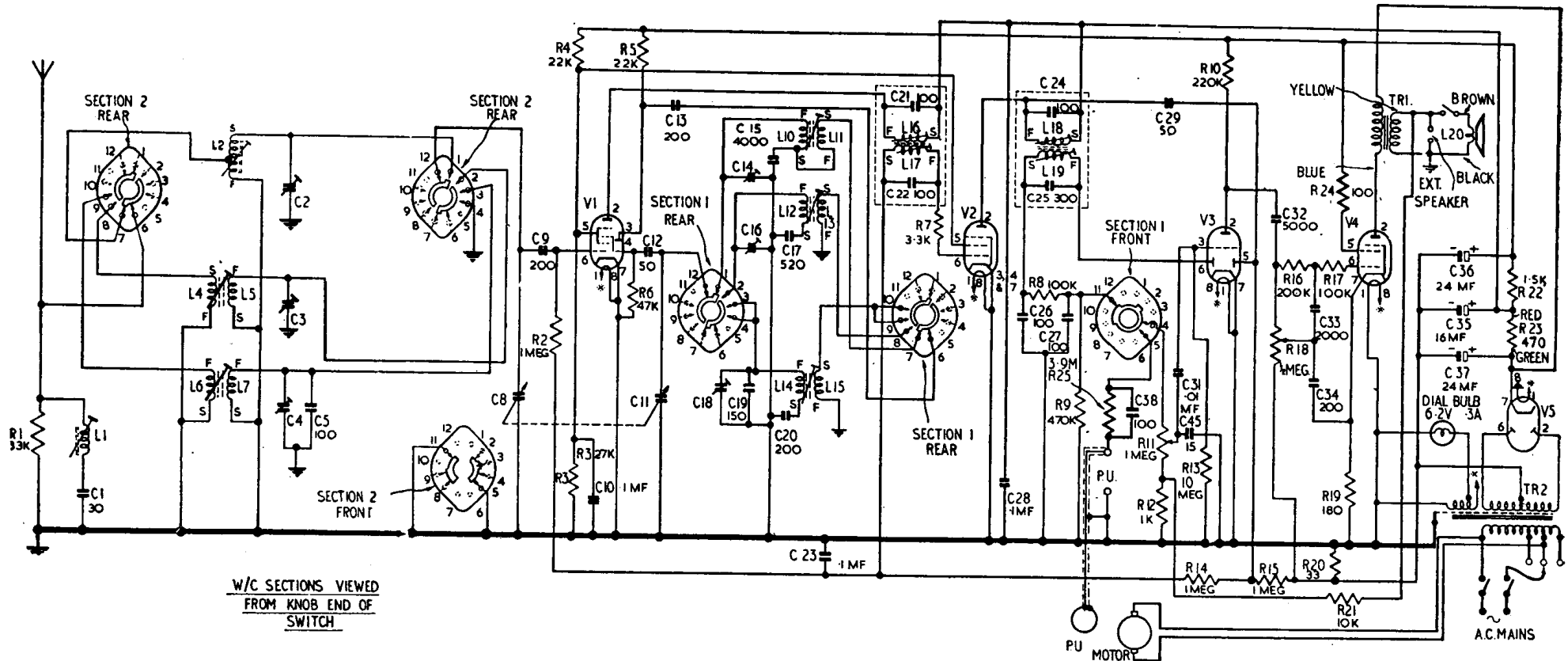
The following values apply to Models 245, 345.

Capacitors.

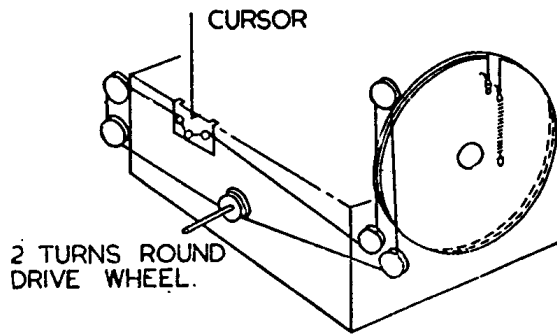
C1	30 pF. (10%)	C16	5-50 pF.	C28	0.1
C2	5-50 pF.	C17	520 pF. (1%)	C29	50 pF. (15%)
C3	5-50 pF.	C18	5-50 pF.	C31	0.01 (500 v.)
C4	5-50 pF.	C19	150 pF. (5%, 1000-v. test)	C32	0.005 (+50, -25%)
C5	100 pF. (5%)	C20	200 pF. (2%)	C33	0.002 (+50, -20%)
C8	Tuning	C21	100 pF. (5%)	C34	200 pF.
C9	200 pF.	C22	100 pF. (5%)	C35	16 (350 v.)
C10	0.1	C23	0.1	C36	24 (350 v.)
C11	Tuning	C24	100 pF. (5%)	C37	24 (350 v.)
C12	50 pF. (15%)	C25	300 pF. (5%)	C38	100 pF.
C13	200 pF.	C26	100 pF.	C45	15 pF.
C14	5-50 pF.	C27	100 pF.		
C15	4000 pF. (2%)				



The length of cord required is 63 in. Use nylon-covered glass fibre.



CIRCUIT DIAGRAM—FERRANTI MODEL 345



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Use nylon-covered glass fibre.

*Resistors.*

- R1 33k
- R2 1M
- R3 27k (½ W.)
- R4 22k (1 W.)
- R5 22k (½ W.)
- R6 47k
- R7 3.3k
- R8 100k
- R9 470k
- R10 220k
- R11 1M (Pot)
- R12 1k
- R13 10M (½ W.)
- R14 1M

- R15 1M
- R16 220k
- R17 100k
- R18 0.5M (Pot)
- R19 (245) 120 (½ W.)
- R19 (345) 180 (10%, ½ W.)
- R20 33 (10%)
- R21 10k
- R22 1.5k (1 W.)
- R23 470 (½ W.)
- R24 100
- R25 3.9M

*D.C. Resistances (ohms).*

- |        |                       |
|--------|-----------------------|
| L1 18  | L14 10                |
| L2 *   | L15 1                 |
| L4 30  | L16 6.5               |
| L5 2.5 | L17 6.5               |
| L6 48  | L18 7                 |
| L7 15  | L19 3.5               |
| L10 *  | L20 2.6               |
| L11 *  | TR1 450 (pri.)        |
| L12 4  | TR2 37 (total) (pri.) |
| L13 *  | 180 (sec.)            |

\* Under 1 ohm.