

FERRANTI**Models 245, 345**

www.radio-workshop.co.uk

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 adjustment tappings). 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 ₁ ECH ₄₂	265	2.4	75	2.8	103	—
V ₂ EF ₄₁	265	5.0	75	1.5	—	—
V ₃ EBC ₄₁	70	0.65	—	—	—	—
V ₄ EL ₄₁	260	30	235	5.0	—	4.7
V ₅ EZ ₄₀	—	—	—	—	—	275

Total H.T. current at V₅ cathode, 57 mA. Bias across R₂₀, 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- μ F. series capacitor across the primary of the output transformer TR₁. 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- μ F. capacitor to signal grid of V₁ (i.e., front section of tuning gang). Adjust cores of L₁₉, L₁₈, L₁₇ and L₁₆ 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.

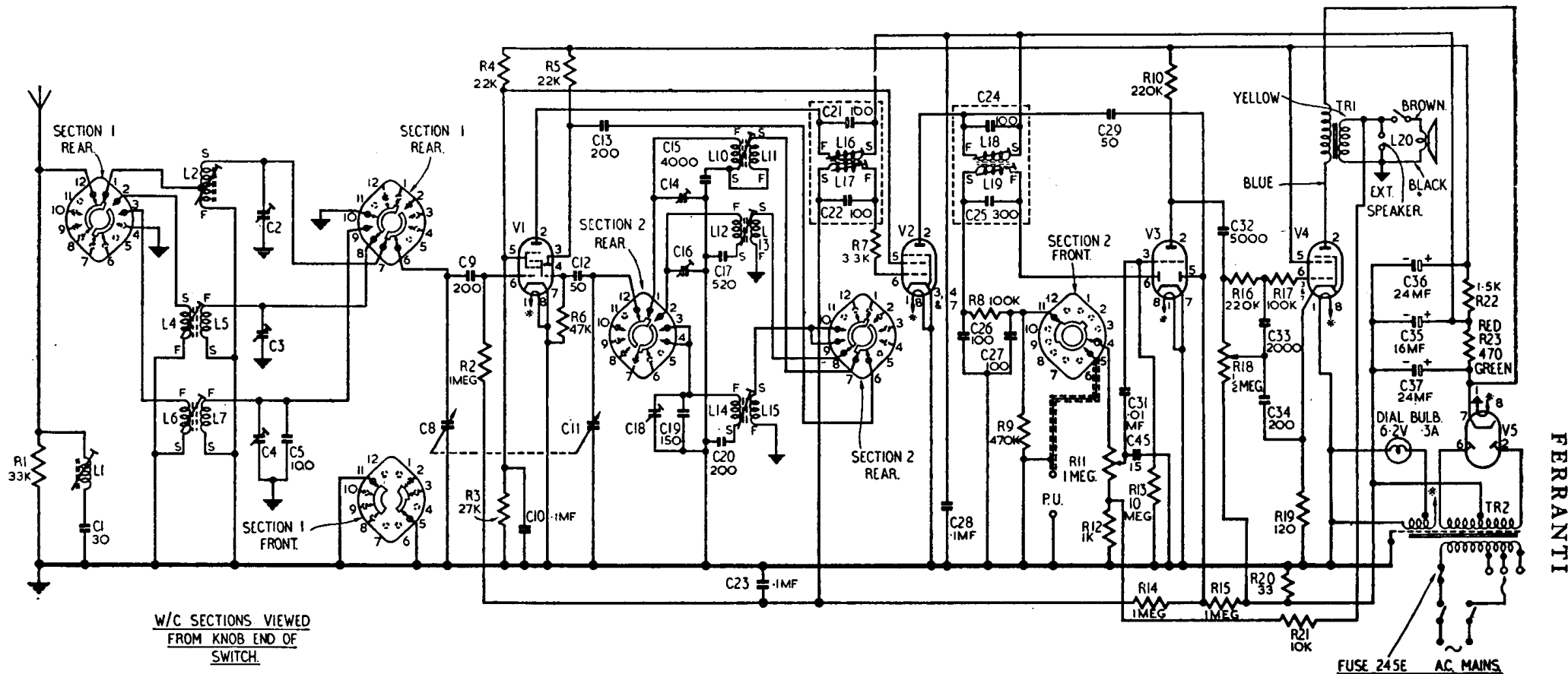
R.F.: Calibration points are marked on the front of the chassis. Prior to alignment, check that with tuning gang at maximum the pointer coincides with the right-hand line. Inject signals to aerial socket via appropriate dummy aeri-als.

FERRANTI

<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.	L12, then L5
(2)	200 m.	1500 kc/s.	C16, then C3
(3)		Repeat (1) and (2)	
(4)	470 kc/s.	Gang fully enmeshed	L1 for <i>minimum</i>
(5) L.W. . . .	1800 m.	166.6 kc/s.	L14, then L7
(6)	1128 m.	266 kc/s.	C18, then C4
(7)		Repeat (5) and (6)	
(8) S.W. . . .	45 m.	6.6 Mc/s.	L10,* then L2
(9)	20 m.	15 Mc/s.	C14,† then C2
(10)		Repeat (8) and (9)	

* First tuning position as core is screwed in.

† Lower capacitance tuning position.

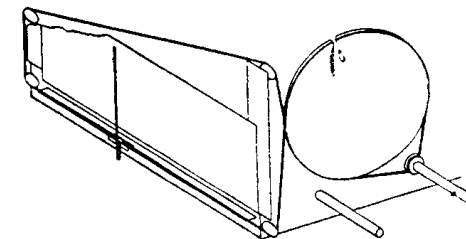
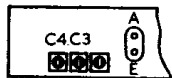
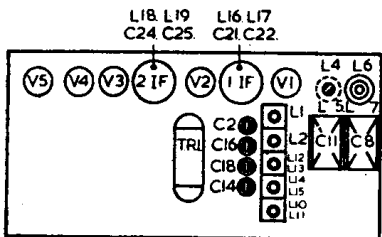


CIRCUIT DIAGRAM—FERRANTI MODEL 245

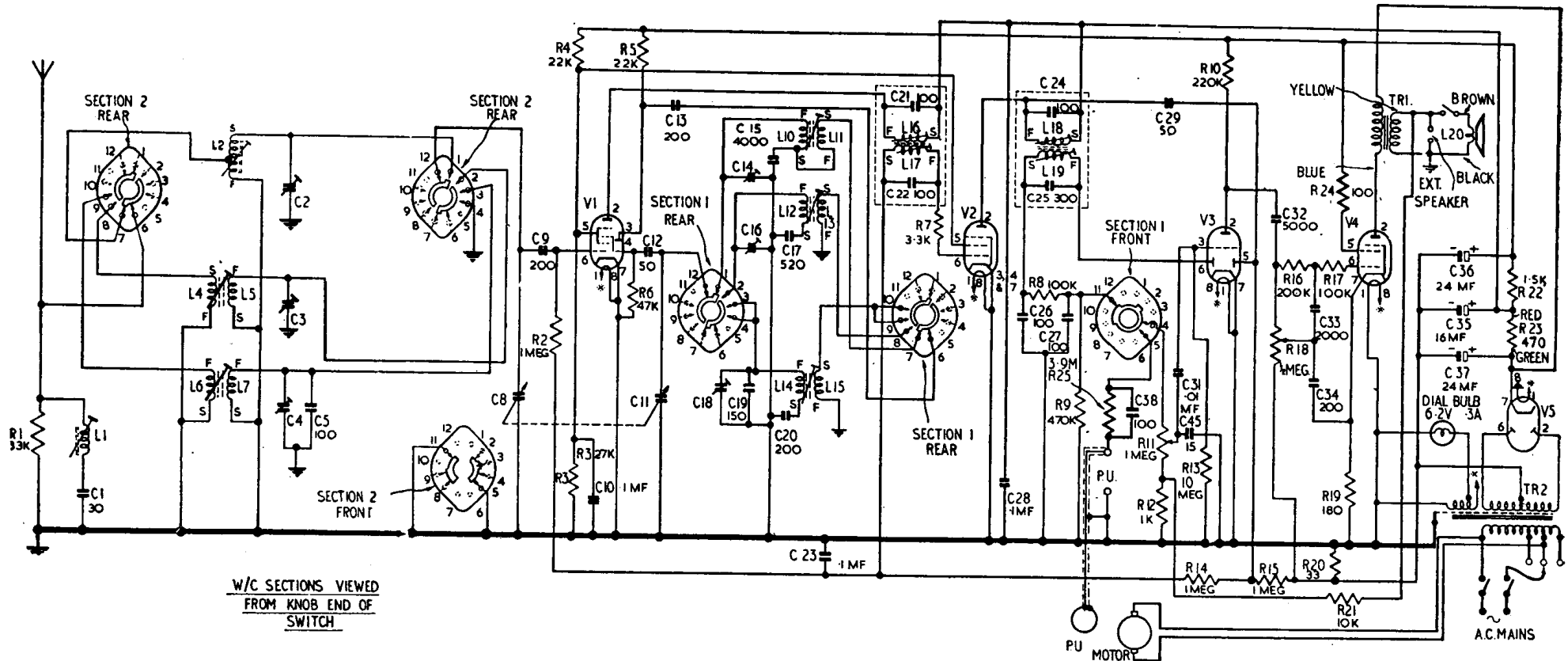
The following values apply to Models 245, 345.

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%)				

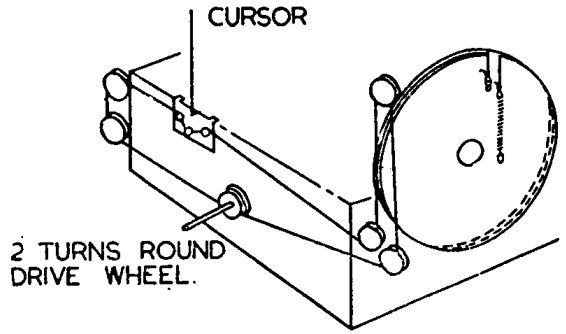


The length of cord required is 63 in. Use nylon-covered glass fibre.



W/C SECTIONS VIEWED FROM KNOB END OF SWITCH

CIRCUIT DIAGRAM—FERRANTI MODEL 345



The length of cord required is 63 in. 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
L2	*
L4	30
L5	2.5
L6	48
L7	15
L10	*
L11	*
L12	4
L13	*

L14	10
L15	1
L16	6.5
L17	6.5
L18	7
L19	3.5
L20	2.6
TR1	450 (pri.)
TR2	37 (total) (pri.)
	180 (sec.)

* Under 1 ohm.