

FERGUSON**Models 203U, 213RG**

General Description : Four-valve (including rectifier), two-waveband superheterodyne receiver. Model 213RG is a table radiogramophone with a basically similar chassis.

Power Supplies :

Model 203U: A.C./D.C. mains, 200–250 volts.

Model 213RG: A.C. mains, 110–130 and 200–250 volts, 50 c/s.

Wavebands : M.W. 192–585 m.; L.W. 750–2000 m.

Intermediate Frequency : 470 kc/s.

Valves : (V1) CCH35; (V2) EF39; (V3) EBC33; (V4) CL33; (V5) CY31.

Note : In both models the chassis is connected to one side of the mains supply.

Record Player : Model 213RG—Garrard “S”.

Alignment Procedure :

I.F.: Remove top-cap connector of V1 and attach signal-generator leads to top cap and chassis via isolating capacitors. Connect 100,000-ohm resistor between top cap and chassis. Switch receiver to L.W., fully enmesh tuning gang and set volume control to maximum gain. Inject 470-kc/s. signal and adjust core of L9 and then C10 and C11 for maximum response. Remove signal-generator leads and resistor.

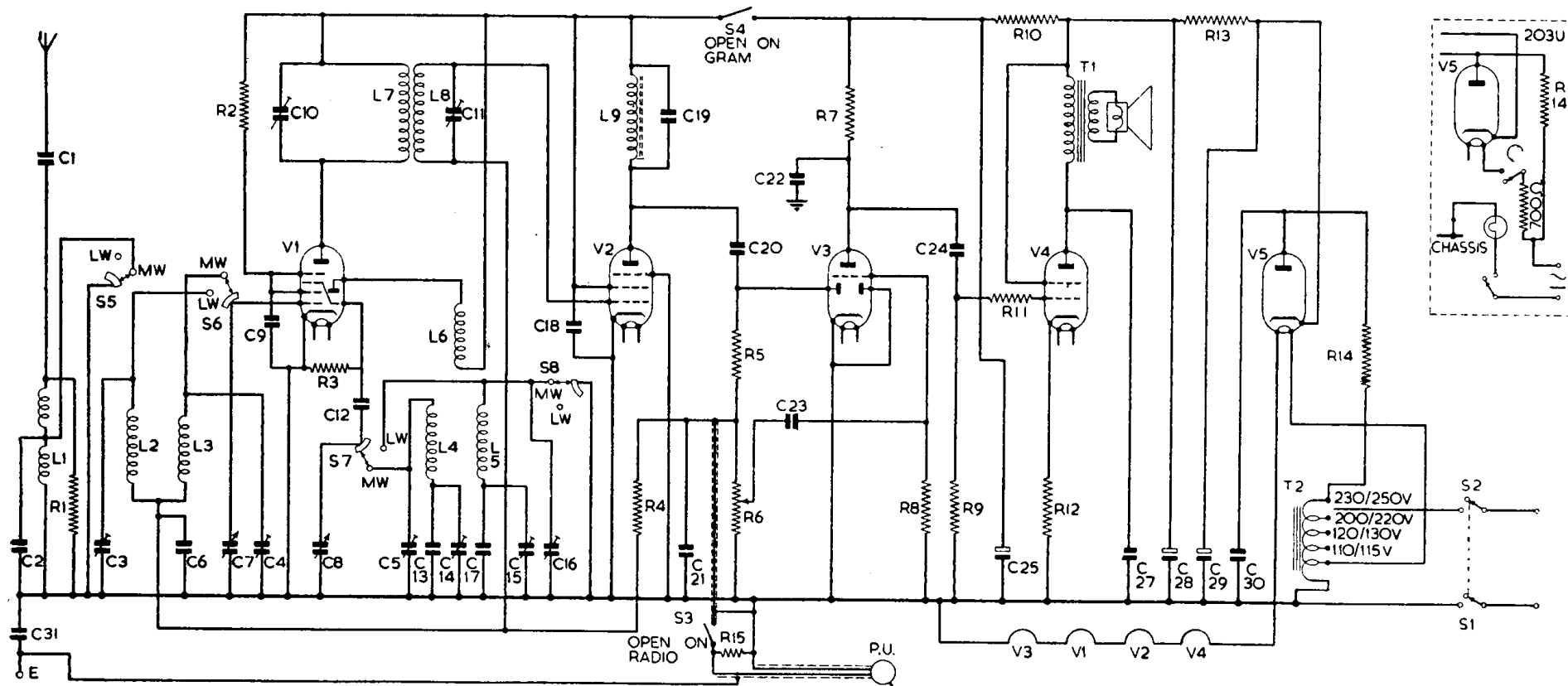
R.F.: With tuning gang fully enmeshed the pointer should be parallel with the dividing lines between the two scale calibrations. Connect signal-generator leads to aerial socket via dummy aerial and to chassis via isolating capacitor.

M.W.: Set pointer to 214 m., inject 1400-kc/s. signal and adjust C5 and then C4 for maximum response. Set pointer to 500 m., inject 600-kc/s. signal and adjust C14 for maximum response. Repeat adjustments successively until no further improvement can be obtained.

L.W.: Set pointer to 750 m., inject 400-kc/s. signal and adjust C16 and then C3 for maximum response. Set pointer to 2000 m., inject 150-kc/s. signal and adjust C15 for maximum response. Repeat adjustments successively until no further improvement can be obtained.

Valve Analysis : Voltages and currents given below are those measured in an average Model 213RG operating on A.C. mains, 240 volts. Voltages were measured on the 480-volt range of a Model 40 Avometer, chassis being the negative connection.

	<i>Anode Voltage</i>	<i>Anode Current</i>	<i>Screen Voltage</i>	<i>Screen Current</i>
V1	100 v.	0.8 mA.	45 v.	1.6 mA.
V1 (osc.)	100 v.	6.0 mA.	—	—
V2	100 v.	9.5 mA.	100 v.	1.6 mA.
V3	23 v.	0.18 mA.	—	—
V4	170 v.	30 mA.	185 v.	3.0 mA.
V5		Cathode to chassis	256 v.	



CIRCUIT DIAGRAM—FERGUSON MODEL 213RG

Inset is shown the modified power supply arrangements for Model 203U.

Capacitors.

C1	250 pF.
C2	150 pF.
C3	4-40 pF.
C4	4-40 pF.
C5	4-40 pF.
C6	0.02
C7	540 pF.
C8	540 pF.
C9	0.02
C10	180 pF.
C11	180 pF.

C12	100 pF.
C13	400 pF. (2%)
C14	40-80 pF.
C15	40-80 pF.
C16	4-40 pF.
C17	100 pF. (2%)
C18	0.02
C19	100 pF.
C20	100 pF.
C21	100 pF.

C22	100 pF.
C23	0.05 (500 v.)
C24	0.05 (500 v.)
C25	4 (350 v.)
C26	—
C27	0.005 (500 v.)
C28	16
C29	16
C30	0.02 (500 v.)
C31	0.005 (1000 v.)

Resistors.

R1	47k
R2	33k
R3	47k
R4	2.2M
R5	100k
R6	0.5M (Pot.)
R7	470k
R8	6.8M

R9	470k
R10	4.7k (2 W.)
R11	10k
R12	220 (½ W.)
R13	1.2k (6 W.)
R14	100
R15	47k