

FERGUSON

Models 321U, 322URG

General Description : Five-valve (including rectifier), three-waveband superheterodyne receiver, basically similar to the 321A and 322RG models but for A.C./D.C. supplies. The slight circuit differences between the table model (321U) and three-speed auto-change radiogramophone (322URG) are described below.

Power Supply : A.C./D.C. mains 200–250 volts.

Wavebands : S.W. 15.7–55.4 m. (19.12–5.42 Mc/s.); M.W. 184–575 m. (1630–522 kc/s.); L.W. 733–2050 m. (409–146 kc/s.).

Intermediate Frequency : 470 kc/s.

Valve Analysis : Values given below are those measured on a Model 7 Avometer on a sample receiver operating on 230 volts A.C. Set switched to M.W. with gang fully enmeshed, no-signal condition.

Valve	Anode Voltage	Anode Current	Screen Voltage	Screen Current	Cathode Voltage
V ₁ UCH42 (osc.)	184 75	2.3 4.4	75 —	4.7 —	— —
V ₂ UBF80	184	3.7	82	1.5	—
V ₃ UF41	*	0.16	*	*	0.25
V ₄ UL41	218	40.0	212	7.0	12.5
V ₅ UY41	*	*	—	—	232

* Measurement impracticable. Voltage across R₂₄, 2.1 v.

Alignment Procedure : See Model 321A.

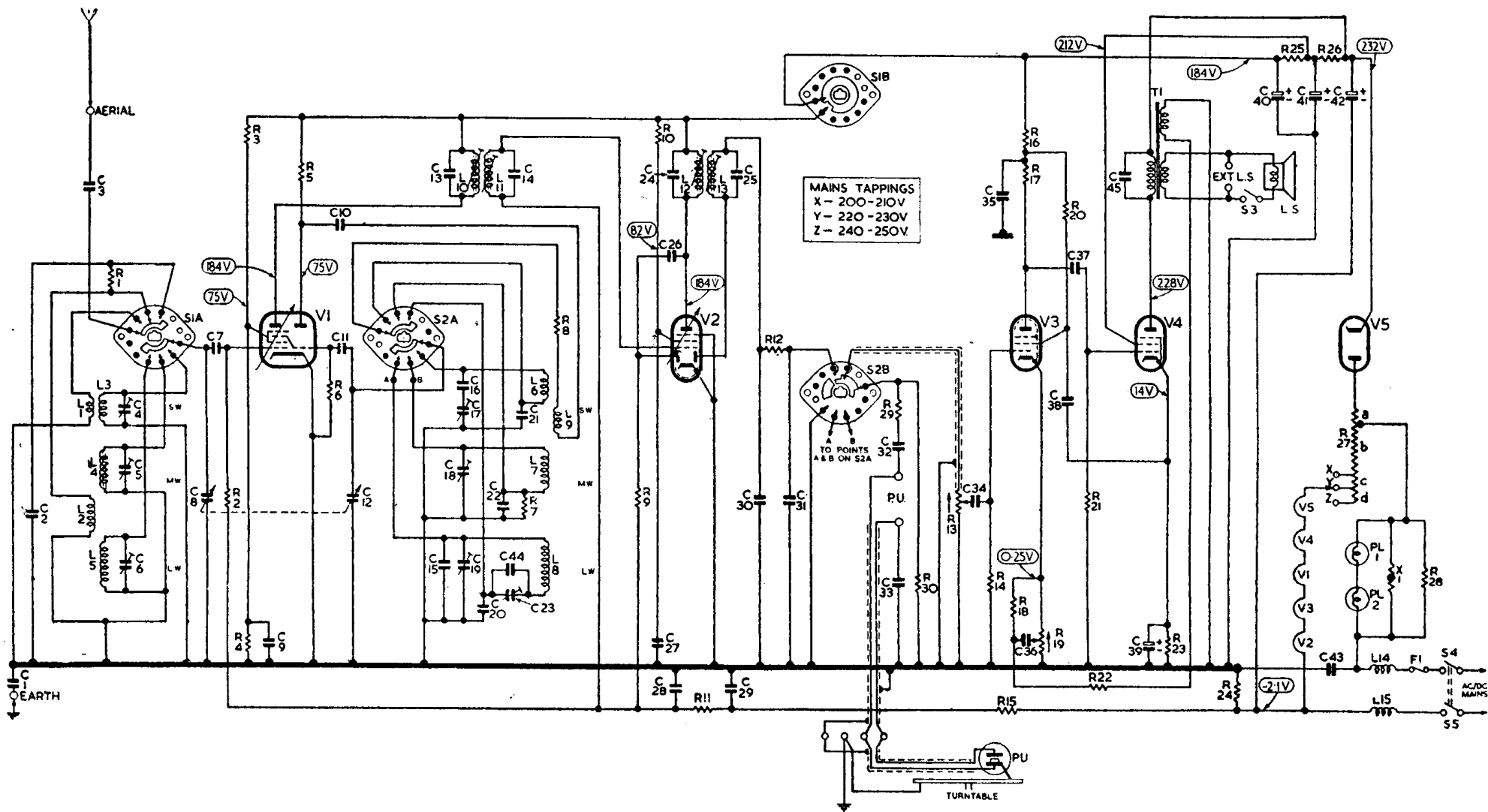
Circuit Differences : In the 322URG the scale lamps are at mains potential with respect to chassis, to prevent hum on record reproduction, but in the 321U are connected in the lead from R₂₄. In 321U, R₂₉ is connected in parallel and not in series with the P.U. sockets, while output tone correction is by means of a 100-pF. capacitor from the anode of V₄ to the negative feedback line, C₄₅ being omitted.

Modifications : In early 321U receivers the 100-pF. capacitor referred to above was omitted. In a few receivers of both types, R₂₂ is 22 kilohms instead of 10 kilohms: this is due to the use of a different type of output transformer.

Component Values :

Capacitors.

C ₁ 0.05 (322URG)	C ₁₃ 100 pF. (2%)	C ₂₅ 180 pF. (2%)	C ₃₇ 0.003
C ₁ 0.005 (321U)	C ₁₄ 100 pF. (2%)	C ₂₆ 50 pF.	C ₃₈ 0.05
C ₂ 500 pF.	C ₁₅ 30 pF.	C ₂₇ 0.1	C ₃₉ 50 (12 v.)
C ₃ 0.001 (1000 v.)	C ₁₆ 20 pF.	C ₂₈ 0.1	C ₄₀ 24 (275 v.)
C ₄ 40 pF.	C ₁₇ 40 pF.	C ₂₉ 0.1	C ₄₁ 24 (275 v.)
C ₅ 40 pF.	C ₁₈ 40 pF.	C ₃₀ 100 pF.	C ₄₂ 32
C ₆ 40 pF.	C ₁₉ 40 pF.	C ₃₁ 100 pF.	C ₄₃ 0.01 (1000 v.)
C ₇ 200 pF.	C ₂₀ 500 pF. (10%)	C ₃₂ 0.005 (1000 v.)	C ₄₄ 200 pF. (322URG)
C ₈ 528 pF. (Swing)	C ₂₁ 3550 pF. (5%)	C ₃₃ 0.05 (322URG)	100 pF. (321U)
C ₉ 0.1	C ₂₂ 560 pF. (1%)	C ₃₄ 0.1 (321U)	C ₄₅ 0.005 (322URG)
C ₁₀ 200 pF.	C ₂₃ 8–80 pF. (322URG)	C ₃₅ 0.005	
C ₁₁ 50 pF.	C ₂₄ 350 pF. (321U)	C ₃₆ 0.1	
C ₁₂ 528 pF. (Swing)	C ₂₄ 100 pF. (2%)	C ₃₆ 0.01	



CIRCUIT DIAGRAM—FERGUSON MODEL 322URG

<i>Resistors.</i>	R6 47k	R12 100k	R18 47k	R24 33	R27d 200 (0.1 amp.)
R1 3.3k	R7 3.3k	R13 500k (log.)	R19 2.5 (Lin.)	R25 1.5k	R28 330 (½ W.)
R2 1M	R8 220	R14 3.3M	R20 4.7M	R26 680 (½ W.)	R29 150k (322URG)
R3 18k (1 W.)	R9 470k	R15 470k	R21 1M	R27a 130 (0.1 amp.)	R29 47k (321U)
R4 27k (½ W.)	R10 68k (½ W.)	R16 100k	R22 10k	R27b 700 (0.1 amp.)	R30 1M (322URG)
R5 22k	R11 470k	R17 1M	R23 270	R27c 200 (0.1 amp.)	