

FERGUSON - 611U

CIRCUIT ALIGNMENT

Equipment Required.—A signal generator with an output impedance of 75Ω which covers the whole of Band II (87-100Mc/s) and 10.7Mc/s and can be amplitude modulated to 30 per cent and frequency modulated to ± 25 kc/s deviation at 10.7Mc/s; an output meter that can indicate 100mV, to which level it should be maintained throughout the process; a 400 pF capacitor; and an insulated trimming tool.

I.F. Stages.—Remove chassis from cabinet. Connect signal generator output via the 400 pF capacitor to control grid (pin 2) of V2, switch on receiver and signal generator and allow them to warm up for at least ten minutes. Turn volume control to maximum, and then retard it 90 degrees. Turn tone control to maximum treble (knob fully clockwise). Connect output meter to T1 secondary.

Feed in a 10.7Mc/s deviated F.M. signal and adjust the cores of L11, L10 and L9 for maximum output, reducing signal generator output to maintain the 100mV reading on the output meter.

Resistors

R1	1.8M Ω	A2
R2	1.8M Ω	AS
R3	68 Ω	A1
R4	680k Ω	E4
R5	2.2k Ω	E4
R6	680k Ω	E3
R7	6.8k Ω	E4
R8	6.8M Ω	B1
R9	47k Ω	B2
R10	2.7k Ω	C2
R11	120k Ω	C1
R12	47k Ω	C2
R13	15k Ω	C1
R14	2.7k Ω	C2
R15	470 Ω	C1
R16	100k Ω	D1
R17	1M Ω	C1
R18	27k Ω	D1
R19	10M Ω	D2
R20	1M Ω	B1
R21	330k Ω	D2
R22	300 Ω	D2
R23	1M Ω	D2
R24	470 Ω	D2
R25	330 Ω	D2
R26	6.8k Ω	—
R27	2.2k Ω	—
R28	1k Ω	—
R29	180 Ω	D1
R30	250 Ω	B2
R31	2.2k Ω	B2
R32	100 Ω	C2

Capacitors

C1	470pF	A2
C2	470pF	A2
C3	47pF	E4

C4	47pF	E4
C5	15pF	E4
C6	220pF	E4
C7	7pF	E4
C8	37pF	E4
C9	15pF	B1
C10	1,500pF	E4
C11	5pF	E3
C12	5pF	E3
C13	18.5pF	E3
C14	17.5pF	E3
C15	50pF	E3
C16	15pF	B2
C17	12pF	E3
C18	88pF	E3
C19	0.005 μ F	B1
C20	0.002 μ F	B1
C21	0.01 μ F	A1
C22	0.005 μ F	B2
C23	18pF	C2
C24	12pF	C2
C25	150pF	C1
C26	1,800pF	C1
C27	0.005 μ F	C2
C28	20pF	C1
C29	56pF	C1
C30	220pF	C1
C31	0.02 μ F	C1
C32	0.005 μ F	B1
C33	32 μ F	C2
C34	330pF	D1
C35	4 μ F	D2
C36	0.02 μ F	D1
C37	40 μ F	C2
C38	40 μ F	C2
C39	0.02 μ F	D2
C40	25 μ F	D2
C41	0.01 μ F	—

C42	0.005 μ F	D2
C43	0.001 μ F	E3
C44	2,500pF	A1
C45	0.001 μ F	E3
C46	2,500pF	A1
C47	0.005 μ F	B2
C48	0.005 μ F	C2
C49	0.02 μ F	C2

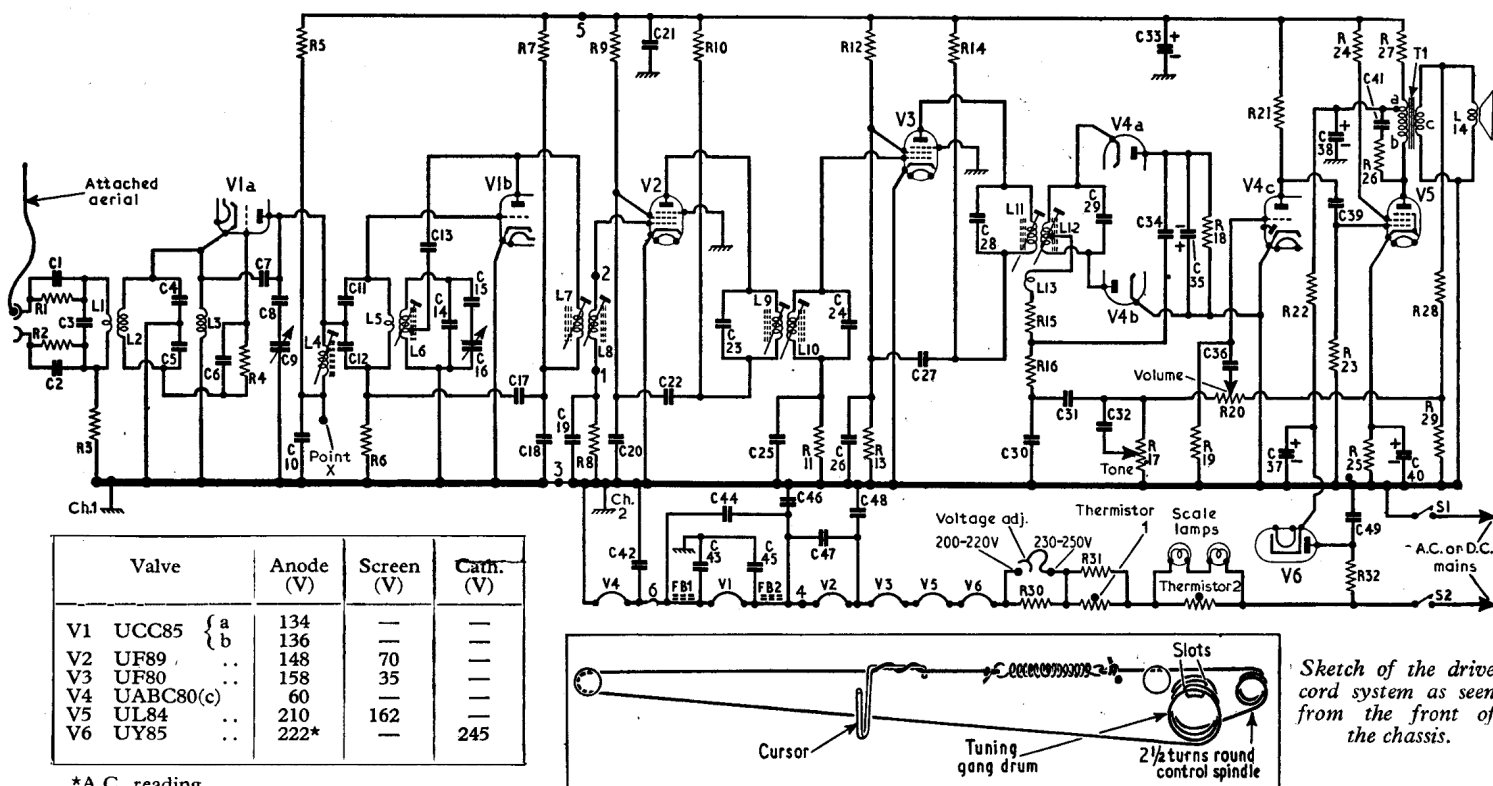
Coils*

L1	—	E4
L2	—	E4
L3	—	E4
L4	—	E4
L5	—	E3
L6	—	E3
L7	—	E3
L8	—	E3
L9	—	C2
L10	—	C2
L11	—	C1
L12	—	C1
L13	—	C1
L14	2.5	—

Miscellaneous*

T1	{ a 50.0 b 425.0 c 0.3 }	—
FB1, FB2	—	E4
Thermistor 1	—	B2
Thermistor 2	—	B2
S1, S2	—	C1
Voltage Adj.	—	B2

*Approximate D.C. resistance in ohms.
§Varistor VA1010.



Switch signal generator to A.M., and adjust the core of L12 for minimum output. Switch signal generator back to F.M. and check that F.M. output has been retained. Recheck that the same setting of L12 core results in minimum A.M. output and maximum F.M. output. If it does not, then maximum rejection of A.M. (minimum output) should be ensured even at the expense of a slight loss of F.M. output.

Transfer signal generator output via the 400pF capacitor to Test Point X (A1), and unscrew core of L8 (E3) so that it protrudes from its former by about $\frac{1}{8}$ in, which can be seen with the screening cover on the unit. Feed in a 10.7 Mc/s F.M. signal, adjust first L7 for maximum output, and then peak L8.

Replace chassis in cabinet and see that the cursor coincides with the right-hand edge of the scale aperture when the gang is turned to minimum capacitance. Tune by cursor to 91 Mc/s on scale.

Transfer signal generator output to aerial sockets, feed in a 91 Mc/s signal, and adjust the core of L6 (E3) to tune in the signal. If two peaks can be found, use that at which the core is nearer the top of the former. Then adjust the core of L4 (E4) for maximum output with the core on the lower side of the coil, so that the trimming tool goes through the coil. Finally, check calibration over the tuning range.

Switches.—As this is a single-band receiver covering the V.H.F. radio Band 11 only, there is no waveband switching. The only switches are S1, S2 for switching on and off the mains. These are ganged with the tone control R17.

Mains Voltage.—The mains voltage adjustment has two settings for mains of 200-220V and 230-250V. Adjustment is by means of a sliding contact which either short-circuits R30 or leaves it in circuit as ballast.

Scale Lamps.—These are two Atlas lamps, rated at 12V, 0.1A, with M.E.S. bases and small spherical bulbs. They are shunted by thermistor 2.