

BEETHOVEN - U3038

OTHER COMPONENTS		Approx. Values (ohms)	Location
L1	Aerial S.W. coup.	0.2	G3
L2	Aerial tuning coils	Very low	G3
L3		2.5	G3
L4		20.0	G3
L5	Oscillator tuning coils	Very low	G3
L6		3.0	G3
L7		7.0	F3
L8	Osc. S.W. reaction	0.1	G3
L9	1st I.F. trans. { Pri.	7.0	A2
L10	1st I.F. trans. { Sec.	7.0	A2
L11	2nd I.F. trans. { Pri.	7.0	B2
L12	2nd I.F. trans. { Sec.	5.0	B2
L13	Speech coil	2.3	—
L14	H.T. choke	230.0	C1
T1	Speaker { Pri.	500.0	—
	Speaker { Sec.	0.1	—
S1-S9	Waveband switches	—	G3
S10	Mains sw, g'd R14	—	F3

Drive Cord Replacement.—The sketch (col. 2) shows the course taken by the tuning drive cord as seen when viewed from the front of the receiver, neglecting obstructions such as the scale backing-plate and chassis member, with gang at maximum.

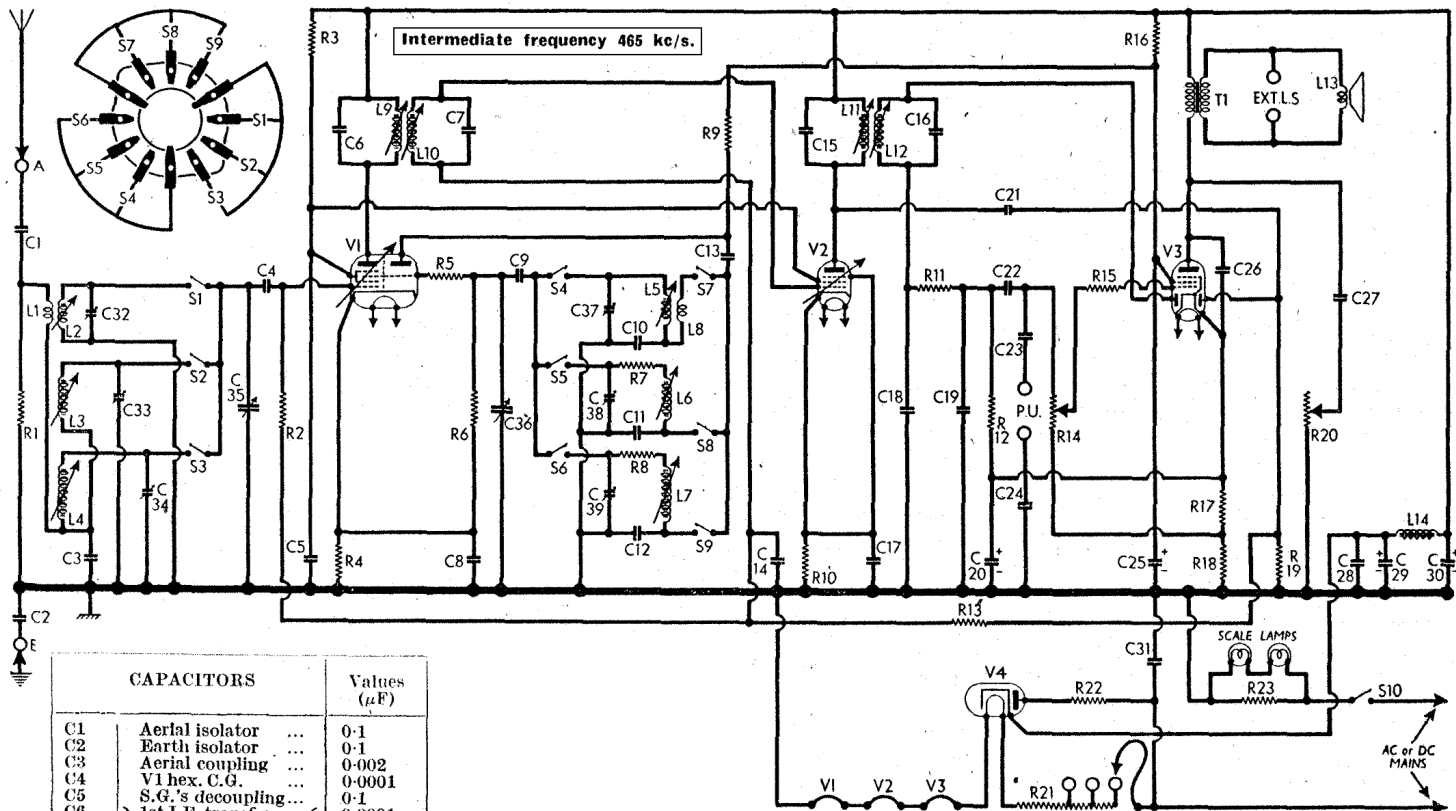
Four feet of nylon braided glass cord provides ample length with sufficient to spare for tying off. The sketch is self explanatory, but it is helpful to remove the glass scale panel (four self-tapping screws with moulded spacing collars).

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 CCH35	208	5.0	100	1.6
V2 EF39	80	4.0	100	1.8
V3 CBL31	208	6.0	180	5.0
V4 CY31†	195	40.0	—	—

† Cathode to chassis, 225V, D.C.

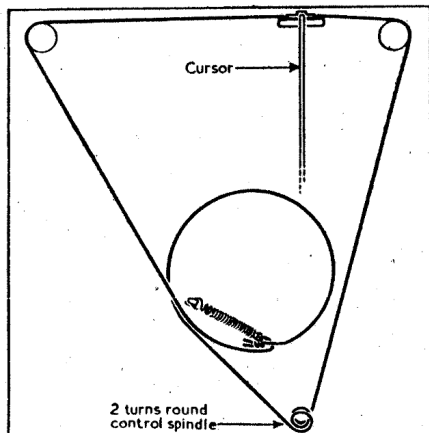
RESISTORS		Values (ohms)	Location
R1	Aerial Shunt	10,000	G3
R2	V1 hex. C.G.	1,000,000	B2
R3	S.G.'s H.T. feed	33,000	H4
R4	V1 fixed G.B.	220	H3
R5	Osc. C.G. stopper	20	H3
R6	V1 osc. C.G.	47,000	H3
R7	Osc. M.W. stabilizer	50	G3
R8	Osc. L.W. stabilizer	180	F3
R9	Osc. H.T. feed	20,000	H3
R10	V2 fixed G.B.	270	H4
R11	I.F. stopper	33,000	F4
R12	Signal diode load	470,000	F4
R13	A.V.C. decoupling	1,200,000	G4
R14	Volume control	1,000,000	F3
R15	V3 C.G. stopper	47,000	C2
R16	H.T. feed resistor	6,800	F4
R17	V3 G.B., and A.V.C. {	180	F3
R18	delay resistors ...	180	E3
R19	A.V.C. diode load	1,200,000	F4
R20	Tone control	50,000	E3
R21	Heater ballast	625*	D2
R22	V4 surge limiter	100	F4
R23	Scale lamp shunt	100	D2

* Tapped at 525Ω + 50Ω + 50Ω from V4 heater.



CAPACITORS		Values (μF)
C1	Aerial isolator	0.1
C2	Earth isolator	0.1
C3	Aerial coupling	0.002
C4	V1 hex. C.G.	0.0001
C5	S.G.'s decoupling	0.1
C6	1st I.F. transformer {	0.0001
C7	tuning ...	0.0001
C8	V1 cath. by-pass	0.1
C9	V1 osc. C.G.	0.0001
C10	S.W. tracker	0.005
C11	M.W. tracker	0.000335
C12	L.W. tracker	0.00013
C13	Osc. anode coup.	0.01
C14	A.V.C. decoupling	0.1
C15	2nd I.F. trans. tun-	0.0001
C16	ing ...	0.0001
C17	V2 cath. by-pass	0.1
C18	I.F. by-pass capaci-	0.00015
C19	tors ...	0.00015
C20*	V3 cath. by-pass	25.0
C21	A.V.C. coupling	0.00001
C22	A.F. coupling	0.02
C23	P.U. isolating cap-	0.01
C24	acitors ...	0.01
C25*	H.T. decoupling	4.0
C26	Tone corrector	0.002
C27	Tone control	0.05
C28	H.T. R.F. by-pass	0.01
C29*	H.T. smoothing	16.0
C30*	capacitors ...	16.0
C31	Mains R.F. by-pass	0.01
C32†	Aerial S.W. trim	0.00003
C33†	Aerial M.W. trim	0.00003
C34†	Aerial L.W. trim	0.000075
C35†	Aerial tuning	0.000442
C36†	Oscillator tuning	0.000442
C37†	Osc. S.W. trim	0.00003
C38†	Osc. M.W. trim	0.00003
C39†	Osc. L.W. trim	0.000075

* Electrolytic. † Variable. ‡ Pre-set.



Sketch of the tuning drive system, as seen from the front.

CIRCUIT ALIGNMENT

I.F. Stages.—Switch set to M.W., turn volume control to maximum and gang to minimum capacitance, and connect signal generator, via an 0.1 μF capacitor in each lead, to control grid (top cap) of V1 and E socket. Feed in a 465 kc/s (645.16 m) signal, and adjust the cores of L9, L10, L11 and L12 (location references A2, B2) for maximum output.

R.F. and Oscillator Stages.—With the gang at maximum capacitance the cursor should coincide with the transparent vertical rectangles at the high wavelength ends of the three scales. It may be adjusted in position by slackening the screw clamping the cursor carriage to the drive cord. Transfer "live" signal generator lead to A socket, via a suitable dummy aerial.

L.W.—Switch set to L.W., tune to 2,000 m on scale, feed in a 2,000 m (150 kc/s) signal, and adjust the cores of L7 (F3) and L4 (G3) for maximum output. Tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C39 and C34 (G3) for maximum output. Check calibration at 2,000 m and repeat adjustments if necessary.

M.W.—Switch set to M.W., tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the cores of L6 and L3 (G3) for maximum output. Tune to 214 m on scale, feed in a 214 m (1,400 kc/s) signal, and adjust C38 and C33 (G3) for maximum output.

S.W.—Switch set to S.W., tune to 6 Mc/s on scale, feed in a 6 Mc/s (50 m) signal, and adjust the cores of L5 and L2 (G3) for maximum output. Tune to 19 Mc/s (15.78 m) signal, and adjust C37 and C32 (G3) for maximum output.