

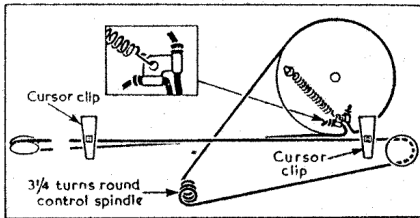
CIRCUIT ALIGNMENT

I.F. Stages.—Switch receiver to M.W. and set gang to about two thirds maximum capacitance. Connect output of signal generator, via an $0.1\mu\text{F}$ capacitor in the "live" lead, to control grid (pin 2) of V2 and chassis. Feed in a 470 kc/s (658.3 m) signal and adjust the cores of L14 (location reference B1) and L13 (B1) for maximum output. Transfer signal generator "live" lead, together with the $0.1\mu\text{F}$ capacitor, to control grid (pin 0) of V1 and chassis. Feeding in a 470 kc/s signal, adjust the cores of L7 (A1) and L6 (A1) for maximum output.

R.F. and Oscillator Stages.—As the tuning scale remains fixed to the cabinet when the chassis is withdrawn, reference is made in the following alignment to the substitute tuning scale fixed to the back of the tuning drive drum. This scale has the trimming and tracking points marked on it in wavelengths, and is read off against the top sloping edge of the fixed metal pointer. Check that with the gang at maximum capacitance, the pointer coincides with the datum line on the substitute scale.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 UCH42	140 100 Oscillator	1.5 3.8	50	2.1	—
V2 UBF80	140	—	50	—	—
V3 UL41	130	† 36.0	140	† 7.0	7.7
V4 UY41	210*	—	—	—	195.0†

* A.C. reading. † Cathode current 55 mA.
‡ No reading quoted; cathode current 4.6 mA.



Sketch of the tuning drive cord system.

Intermediate frequency 470 ko/s.

BUSH - DAC41

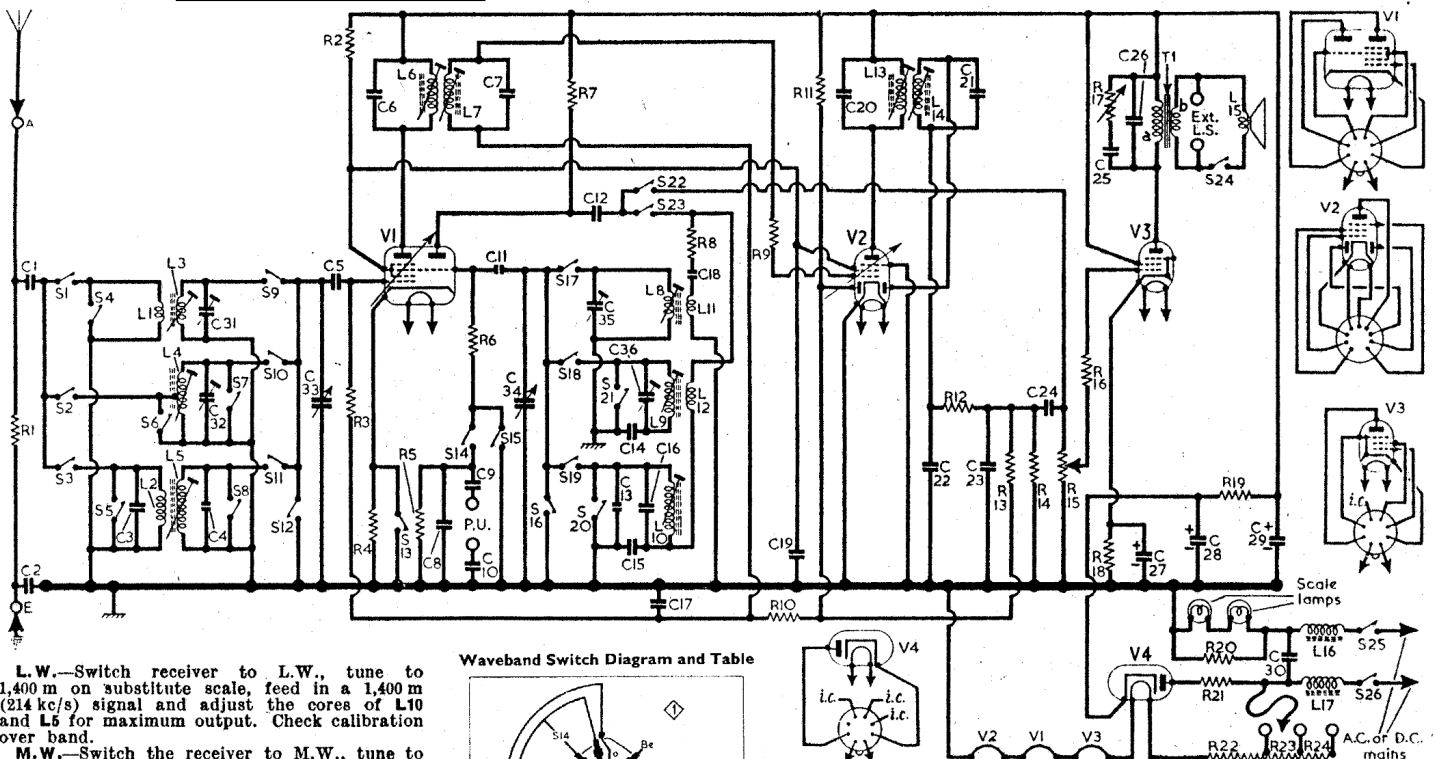
When the chassis is finally replaced in its cabinet, check that with the gang at maximum capacitance, the cursors coincide with the short vertical lines at the high wavelength ends of the tuning scales. The positions of all the R.F. and oscillator adjustments are shown in the sketch below where they are drawn as seen from the aerial input end of an upright chassis. Connect output of signal generator, via a dummy aerial, to A and E sockets.

CAPACITORS		Values	Locations
C1	Aerial and earth isolators	0.001 μF	G3
C2	L.W. aerial shunt	0.01 μF	G3
C3	L.W. aerial trim	85pF	G3
C4	V1 C.G.	100pF	G3
C5	1st I.F. trans.	110pF	A1
C6	tuning	110pF	A1
C7	P.U. tone correction	0.002 μF	G3
C8	P.U. isolators	0.005 μF	F3
C9	Osc. C.G.	0.01 μF	G3
C10	Osc. anode coup.	56pF	G2
C11	L.W. osc. trim	0.001 μF	F2
C12	M.W. osc. tracker	33pF	G2
C13	L.W. osc. tracker	515pF	G2
C14	L.W. osc. trim	385pF	G2
C15	L.W. osc. trim	240pF	G2
C16	A.G.C. decoupling	0.05 μF	F2
C17	S.W. reaction coup.	56pF	G2
C18	S.G. decoupling	0.05 μF	F2
C19	2nd I.F. trans.	110pF	B1
C20	tuning	110pF	B1
C21	I.F. by-passes	100pF	F3
C22	A.F. coupling	0.002 μF	E3
C23	Part tone control	0.002 μF	E3
C24	Tone correction	0.005 μF	E2
C25	V3 cath. by-pass	50 μF	E2
C26	H.T. smoothing	50 μF	B1
C27	Mains R.F. by-pass	50 μF	B1
C28	S.W. aerial trim	—	G3
C29	M.W. aerial trim	—	G3
C30	Aerial tuning	—	A1
C31	Oscillator tuning	—	A1
C32	S.W. osc. trim	—	G2
C33	M.W. osc. trim	—	G2

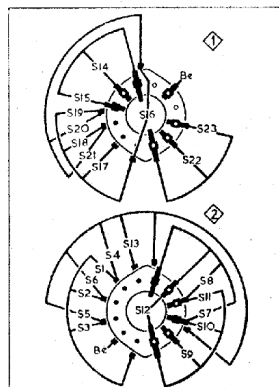
RESISTORS		Values	Locations
R1	Anti-static shunt	1M Ω	G3
R2	S.G. H.T. feed	27k Ω	F2
R3	V1 C.G.	680k Ω	G3
R4	V1 G.B.	330 Ω	G3
R5	P.U. shunt	680k Ω	G3
R6	V1 osc. C.G.	47k Ω	G2
R7	Osc. anode feed	10k Ω	F2
R8	Osc. stabilizer	100 Ω	G2
R9	V2 C.G. stopper	2.2k Ω	F3
R10	A.G.C. decoupling	1.5M Ω	F2
R11	Delay diode bias	20M Ω	E2
R12	I.F. stopper	47k Ω	E3
R13	A.G.C. decoupling	680k Ω	F2
R14	Signal diode load	330k Ω	E2
R15	Volume control	500k Ω	E2
R16	V3 C.G. stopper	47k Ω	E2
R17	Tone control	50k Ω	D2
R18	V3 G.B.	180 Ω	E2
R19	H.T. smoothing	1k Ω	E3
R20	Scale lamp shunt	75 Ω	D2
R21	V4 surge limiter	250 Ω	C1
R22	Heater ballast	1,030 Ω	C1
R23		200 Ω	C1
R24		200 Ω	C1

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Aerial coupling coils	50-0	G3
L2	Aerial tuning coils	7-0	G3
L3	Aerial tuning coils	20-0	G3
L4	1st I.F. trans. { Pri. Sec. }	12.5	A1
L5	1st I.F. trans. { Pri. Sec. }	12.5	A1
L6	Oscillator tuning coils	1-0	G2
L7	Oscillator tuning coils	5-0	G2
L8	Oscillator reaction coils	5-0	G2
L9	2nd I.F. trans. { Pri. Sec. }	12.5	B1
L10	2nd I.F. trans. { Pri. Sec. }	12.5	B1
L11	Speech coil	2.5	C1
L12	Mains R.F. chokes	3-0	C1
L13	Mains R.F. chokes	3-0	C1
L14	O.P. trans. { a b }	410-0	—
L15	Waveband sw.	—	G2
L16	Speaker switch	—	—
L17	Mains sw., g'd R15	—	E2

* Electrolytic. † Variable. ‡ Pre-set.



Waveband Switch Diagram and Table



Switches	S.W.	M.W.	L.W.	Gram.
S1	o	o	o	o
S2	o	o	o	o
S3	o	o	o	o
S4	o	o	o	o
S5	o	o	o	o
S6	o	o	o	o
S7	o	o	o	o
S8	o	o	o	o
S9	o	o	o	o
S10	o	o	o	o
S11	o	o	o	o
S12	o	o	o	o
S13	o	o	o	o
S14	o	o	o	o
S15	o	o	o	o
S16	o	o	o	o
S17	o	o	o	o
S18	o	o	o	o
S19	o	o	o	o
S20	o	o	o	o
S21	o	o	o	o
S22	o	o	o	o
S23	o	o	o	o

L.W.—Switch receiver to L.W., tune to 1,400 m on substitute scale, feed in a 1,400 m (214 kc/s) signal and adjust the cores of L10 and L5 for maximum output. Check calibration over band.

M.W.—Switch the receiver to M.W., tune to 500 m, feed in a 500 m (600 kc/s) signal and adjust the cores of L9 and L4 for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust C36 and C32 for maximum output.

S.W.—Switch receiver to S.W., tune to 30 m, feed in a 30 m (10 Mc/s) signal and adjust the cores of L8 and L3 for maximum output. Tune receiver to 15 m, feed in a 15 m (20 Mc/s) signal and adjust C35 and C31 for maximum output.

Switches.—S1-S23 are the waveband and radio/gram change-over switches, ganged in two rotary units beneath the chassis. These units are indicated in our underside view of the chassis, and shown in detail in the diagrams in col. 2, where they are viewed in the directions indicated by arrows in the under-chassis illustration. The associated switch table gives the switch operations for the four control settings, starting from the fully anti-clockwise position of the control knob. A dash indicates open, and C, closed.

Scale Lamps.—These are 3.5V, 0.15A lamps, with large clear spherical bulbs and M.E.S. bases.

Drive Cord Replacement.—About 50 inches of nylon-braided glass yarn is required for a new drive. The cord should be run as shown in the sketch of the tuning drive system, where it is drawn as seen from the front of the chassis with the gang at maximum capacitance.