DULCI- MLU5

CIRCUIT ALIGNMENT

The chassis should be withdrawn from the cabinet for the following alignment adjustments.

I.F. Stages.—Connect output of signal generator, via an 0.1 μF capacitor in each lead, to control grid (pin 7) of **V1** and chassis. Switch receiver to M.W. and tune to highest wavelength end of scale. Feed in a 422 kc/s (711 m) signal and adjust the cores of **L7** (location reference E4), **L6** (A2) and **L5** (F4) for maximum output, reducing the gain as the circuits come into line to avoid A.G.C. action.

R.F. and Oscillator Stages.—With the tuning cores of **L1** and **L4** fully in the coils, the cursor should coincide with the high wavelength end of the clear section of the M.W. tuning scale. If any error exists, the cursor can be moved relative to its spindle. With the tuning slugs in the fully out position, against the minimum gang stop, the cursor should coincide with the low wavelength end of the clear portion of the scale. Corrections at this end of the scale can be made by adjusting the end-stop screw (location reference A1) which controls the amount the tuning cores, and thus the pointer, can travel in this direction. The adjustments to trimmers and cores should be made in the following order, any further M.W. adjustments always being followed by L.W. re-alignment.

M.W.—Switch receiver to M.W., and tune to 200 m. Transfer "live" signal generator lead to **A** socket. Feed in a 200 m (1,500 kc/s) signal and adjust **C23** (A1) and **C22** (A1) for maximum output. Tune to 500 m, fed in a 500 m (600 kc/s) signal, slacken the locking-nuts, and adjust the cores of **L4** (A1) and **L1** (A1) for maximum output. Repeat these adjustments until no further improvement results and then tighten up the locking nuts.

L.W.—Switch receiver to L.W., tune to 1,500 m, feed in a 1,500 m (200 kc/s) signal and adjust the core of **L3** (A2) for maximum output.

Intermediate frequency 422 kc/s.

	CAPACITORS	Values	Locations
C1	Aerial couplers	700pF	E3
C2	Aerial couplers	470pF	E3
C3	L.W. aerial shunt	0·004μF	E3
C4	L.W. aerial tune ...	0·002μF	F3
C5	M.W. aerial tune	35pF	A1
C6	V1 C.G.	75pF	F4
C7	1st I.F. trans.	100pF	A2
C8	1st I.F. trans. tuning ...	100pF	A2
C9	A.G.C. decoupling	0·1μF	D4
C10	V1 osc. C.G. ...	75pF	F4
C11	M.W. osc. tuning...	75pF	A1
C12	L.W. osc. tuning	120pF	F3
C13	S.G. H.T. decoup.	0·1μF	D4
C14	I.F. coil tuning ...	470pF	B2
C15	I.F. by-pass ...	180pF	E3
C16	Signal diode feed...	75pF	B2
C17	A.F. couplers	0·01μF	E3
C18	A.F. couplers	0·01μF	D3
C19*	H.T. smoothing ...	32μF	A1
C20*	H.T. smoothing ...	32μF	A1
C21	Mains R.F. by-pass	0·01μF	D4
C22†	M.W. aerial trim.	—	A1
C23†	L.W. osc. trim. ...	—	A1

* Electrolytic. † Pre-set.

	RESISTORS	Values	Locations
R1	Aerial shunt ...	4·7kΩ	E3
R2	V1 C.G.	1MΩ	F4
R3	V1 osc. C.G. ...	22kΩ	F4
R4	V1 osc. stabilizer	120Ω	F4
R5	S.G. H.T. feed ...	10kΩ	F4
R6	V2 G.B.	68Ω	E4
R7	A.G.C. decoupling	2·2MΩ	E3
R8	I.F. stopper ...	100kΩ	E3
R9	Volume control ...	500kΩ	E3
R10	V3 C.G.	10MΩ	E3
R11	V3 C.G. stopper ...	220kΩ	E3
R12	V3 anode load ...	220kΩ	D3
R13	V4 C.G.	470kΩ	D3
R14	V4 G.B.	330Ω	D4
R15	Neg. feed-back pot. divider	330Ω	E3
R16	Neg. feed-back pot. divider	120Ω	E3
R17	H.T. smoothing ...	2·2kΩ	F4
R18	V5 surge limiter ...	120Ω	D4
R19	Ballast resistor ...	1,150Ω*	C2

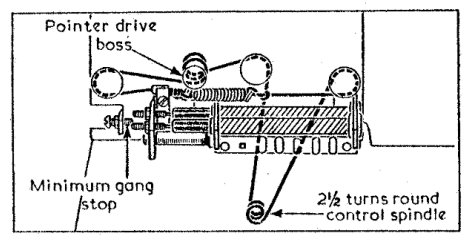
* Tapped 150Ω+865Ω+135Ω from V5 heater.

	OTHER COMPONENTS	Approx. Values (ohms)	Locations
L1	Aerial tuning ...	30·0	B1
L2	M.W. osc. shunt ...	15·0	B1
L3	L.W. osc. coil ...	8·5	F4
L4	Osc. tuning, total...	5·6	B1
L5	I.F. trans. Pri. ...	7·0	A2
L6	I.F. trans. Sec. ...	7·0	A2
L7	I.F. coil	9·5	B2
L8	Speech coil ...	2·5	C1
T1	O.P. trans. Pri. ...	280·0	D3
T1	O.P. trans. Sec. ...	0·5	D3
S1-S4	Waveband switches	—	F3
S5	Mains s.w., g'd S1-S4	—	F3

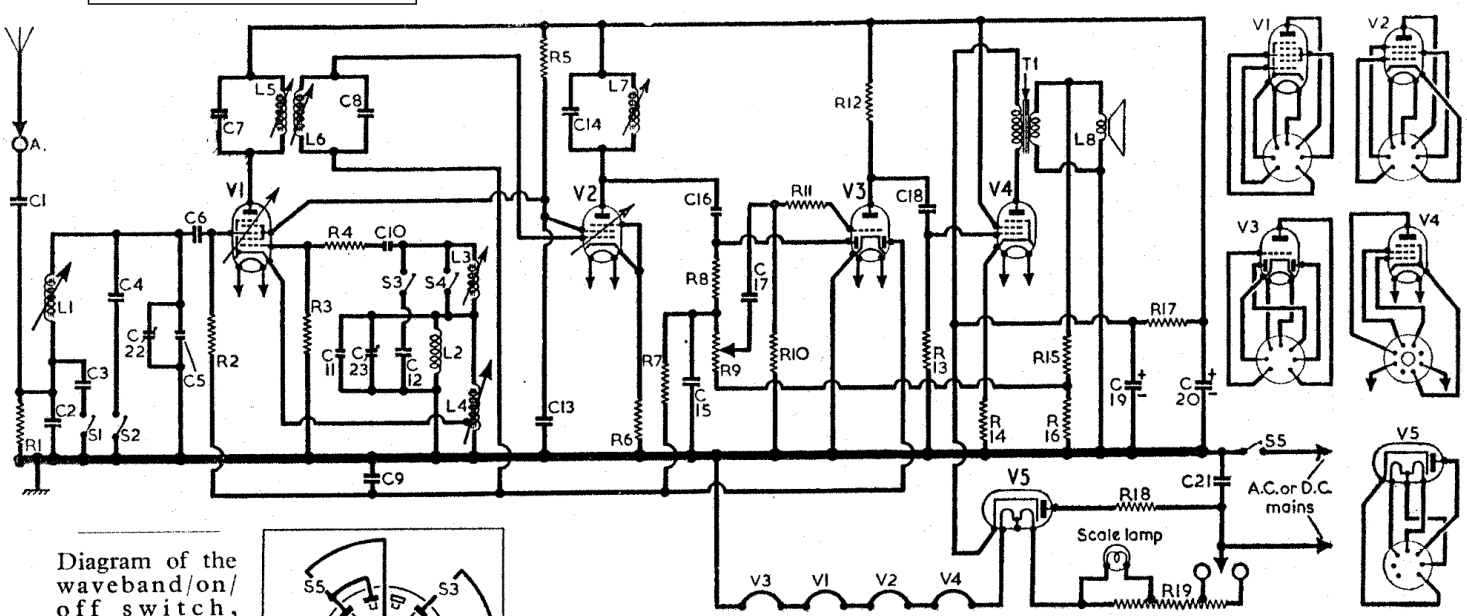
VALVE ANALYSIS

Valve	Anode V	Anode mA	Screen V	Screen mA	Cath. V
V1 12BE6 ...	194	2·2	93	1·5	—
V2 12BA6 ...	194	8·0	93	3·0	0·9
V3 12AT6 ...	78	0·55	—	—	—
V4 12A6 ...	250	20·0	194	3·5	7·4
V5 35W4 ...	205†	—	—	—	250·0

† A.C. reading.



The drive cord system can be seen from this sketch, which is drawn as seen from the rear.



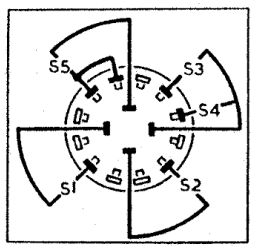


Diagram of the waveband/on/off switch, drawn as seen when viewed from the rear of an inverted chassis.

Chassis Divergencies.—**C4** in our sample receiver was 0.002 μF, but the value originally intended was 0.00183 μF, and this may be the value in some chassis. Similarly **C6**, which was 75 pF in our chassis, might be 100 pF.

Drive Cord Replacement.—About 24 inches of fine gauge nylon braided glass yarn is required for a new drive cord, which should be run as shown in the sketch in col. 1, where the system is drawn as seen from the rear, neglecting obstructions.