BUSH - DAC90A

Intermediate frequency 465 kc/s.

Valve	Anode V	Anode mA	Screen V	Screen mA	Cath. V
V1 UCH42	98	1·5	47	1·6	0·8
	Oscillator				
	47	0·5			
V2 UF41	98	2·5	47	0·8	1·0
V3 UBC41	74	0·2	—	—	1·0
V4 UL41	190	27·5	98	4·0	5·0
V5 UY41	222*	—	—	—	205·0

* A.C. reading.

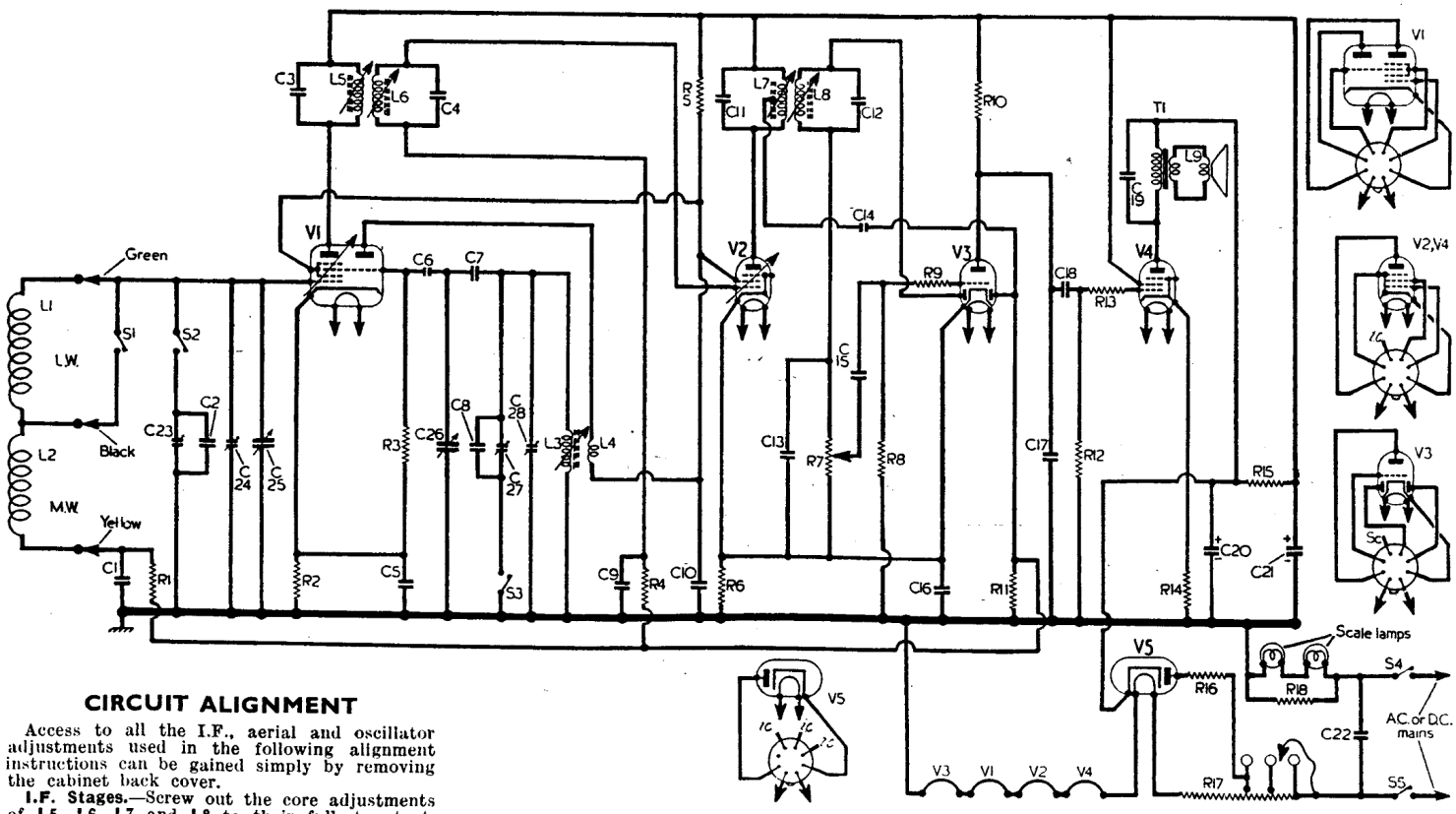
OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	L.W. frame aerial	3·25	A2
L2	M.W. frame aerial	3·25	A1
L3	Osc. tuning coil ...	1·5	H4
L4	Osc. reaction coil...	1·0	H4
L5	1st I.F. trans. Pri.	12·5	B2
L6	1st I.F. trans. Sec.	12·5	B2
L7	2nd I.F. trans. Pri.	12·5	C2
L8	2nd I.F. trans. Sec.	12·5	C2
L9	Speech coil ...	3·0	—
T1	O.P. trans. Pri.	500·0	D1
	O.P. trans. Sec.	0·75	
S1-S3	Waveband switches	—	H3
S4, S5	Mains sw., g'd R7...	—	E3

CAPACITORS		Values	Locations
C1	A.G.C. decoupling	0·05μF	G3
C2	L.W. aerial trim ...	130pF	H4
C3	1st I.F. trans	110pF	B2
C4	1st I.F. trans tuning	110pF	B2
C5	V1 cath. by-pass	0·05μF	G3
C6	V1 osc. C.G. ...	50pF	G4
C7	Osc. tracker ...	605pF	H4
C8	L.W. osc. trim. ...	515pF	H4
C9	A.G.C. decoupling	0·05μF	F3
C10	H.T. decoupling	0·05μF	G3
C11	2nd I.F. trans.	110pF	C2
C12	2nd I.F. trans. tuning	110pF	C2
C13	I.F. by-pass ...	100pF	F4
C14	A.G.C. coupling ...	50pF	F4
C15	A.F. coupling ...	0·01μF	F3
C16	V3 cath. by-pass	0·05μF	F3
C17	Tone corrector ...	0·003μF	F3
C18	A.F. coupling ...	0·01μF	E3
C19	Tone corrector ...	0·01μF	D1
C20*	H.T. smoothing ...	32μF	B1
C21*	H.T. smoothing ...	16μF	B1
C22	Mains R.F. by-pass	0·1μF	D1
C23‡	L.W. aerial trim....	40pF	G4
C24‡	M.W. aerial trim.	40pF	G4
C25†	Aerial tuning ...	528pF	A2
C26†	Oscillator tuning	528pF	A2
C27‡	L.W. osc. trim. ...	40pF	G4
C28‡	M.W. osc. trim. ...	40pF	G4

*Electrolytic. † Variable. ‡ Pre-set.

RESISTORS		Values	Locations
R1	A.G.C. decoupling	1MΩ	F3
R2	V1 G.B.	220Ω	G3
R3	V1 osc. C.G. ...	47kΩ	G4
R4	A.G.C. decoupling	2·2MΩ	F3
R5	H.T. feed	12kΩ	G3
R6	V2, V3, G.B. ...	330Ω	F3
R7	Volume control ...	500kΩ	E3
R8	V3 C.G.	2·2MΩ	F3
R9	V3 C.G. stopper ...	100kΩ	F4
R10	V3 anode load ...	150kΩ	F3
R11	A.G.C. diode load	1MΩ	F3
R12	V4 C.G.	470kΩ	E4
R13	V4 C.G. stopper ...	47kΩ	E4
R14	V4 G.B.	150Ω	E4
R15	H.T. smoothing ...	10kΩ	D2
R16	V5 surge limiter	250Ω	C2
R17	Heater ballast ...	1,250Ω†	D1
R18	Scale lamp shunt...	75Ω	C2

† Tapped at 950Ω + 150Ω + 150Ω.



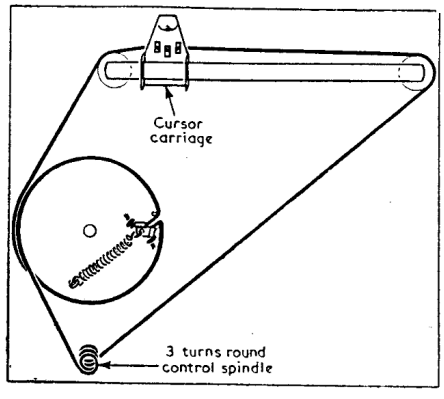
CIRCUIT ALIGNMENT

Access to all the I.F., aerial and oscillator adjustments used in the following alignment instructions can be gained simply by removing the cabinet back cover.

I.F. Stages.—Screw out the core adjustments of **L5, L6, L7** and **L8** to their fullest extent. Connect signal generator, via an isolating clear of powerful signals. Feed in a 465 kc/s (645.16 m) signal and adjust the cores of **L8** (location reference C2) and **L7** (C2) for maximum output. Transfer "live" signal generator lead to control grid (pin 6) of **V1**, feed in a 465 kc/s signal and adjust **L6** (B2) and **L5** (B2) for maximum output. Repeat these adjustments, starting again at **L7** and **L8** with the signal generator connected to **V2** control grid.

R.F. and Oscillator Stages.—If the receiver is to be aligned out of its cabinet, use may be made of the calibration points on the metal scale reflector plate. These points take the form of a line of indentations on the top rear edge of the plate. Viewed from the rear of the chassis and reading from left to right, these indentations represent the following calibration points: Maximum capacitance setting of gang; 500 m; 1,400 m; 300 m; 1,200 m; 200 m. Check that with the gang at maximum capacitance, the cursor coincides with the maximum capacitance calibration point on the reflector plate or with the vertical lines at the high wavelength end of the tuning scale.

The signal generator should be coupled to the receiver via a single loop of wire about the same size as the frame aerial, and placed 12 to 18 inches away from it. The M.W. alignment should be carried out first as **C28** and **C24** are common to both wavebands and will affect L.W. adjustments.



Sketch of the drive cord system drawn as seen from rear of chassis with gang at maximum.

M.W.—Switch receiver to M.W., tune to 500 m, feed in a 500 m (600 kc/s) signal and adjust the core of **L3, L4** (H4) for maximum output. Tune receiver to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust **C28** (G4) and **C24** (G4) for maximum output. Repeat these adjustments.

L.W.—Switch receiver to L.W., tune to 1,402 m. feed in a 1,402 m (214 kc/s) signal and adjust **C27** (G4) and **C23** (G4) for maximum output.

Switches.—**S1-S3** are the waveband switches, ganged in a single rotary unit beneath the chassis. This is shown in detail in our underchassis illustration. In the M.W. position (control knob anti-clockwise) **S1** closes; in the L.W. position, **S2** and **S3** close.

Scale Lamps.—These are rated at 3.5 V, 0.15 A. They have small, clear, spherical bulbs and M.E.S. bases.

Tuning Drive Replacement.—About 3½ feet of nylon braided glass yarn is required for a new drive cord which should be run as indicated in the sketch in column 2.