CHAMPION 820, 830

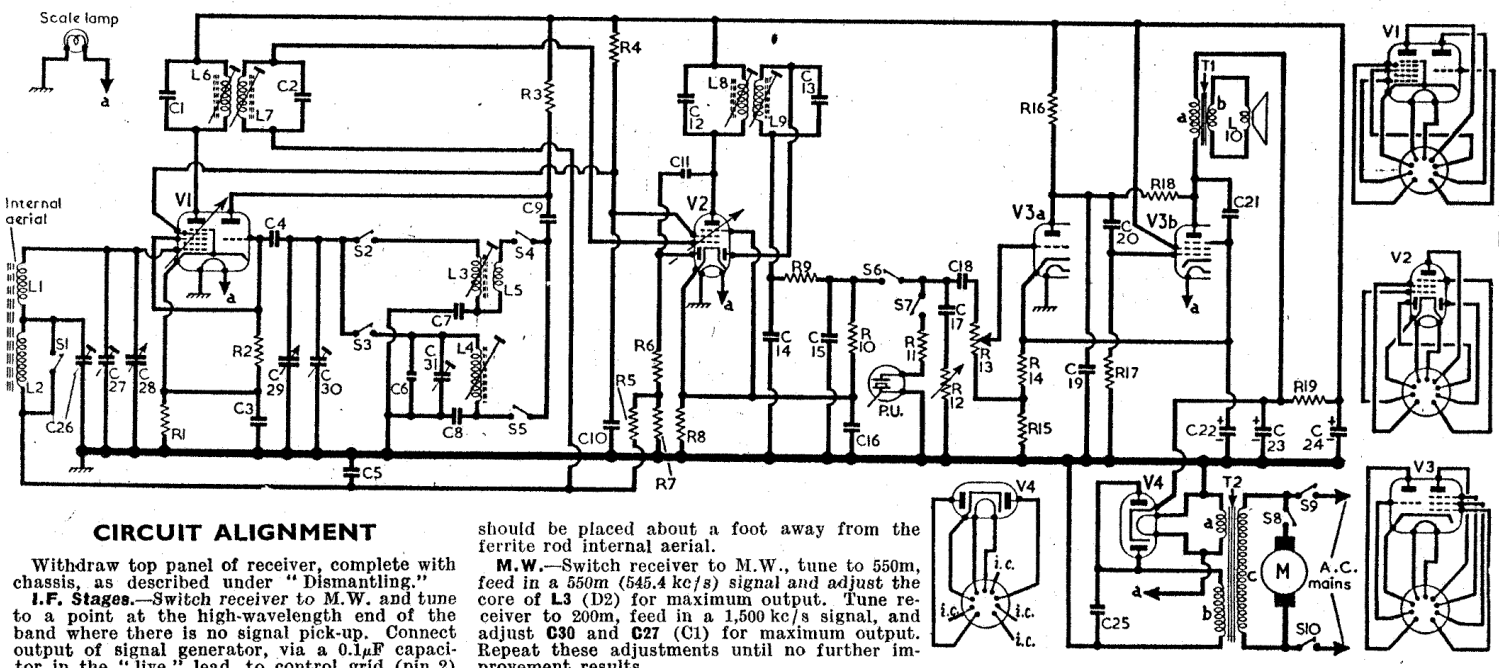
Intermediate frequency 465 kc/s

RESISTORS		Values	Locations
R1	V1 G.B.	220Ω	E2
R2	V1 osc. C.G. ...	47kΩ	E2
R3	Osc. anode feed ...	22kΩ	E3
R4	S.G. H.T. feed ...	15kΩ	F3
R5	A.G.C. decoupling	1MΩ	F3
R6	A.G.C. pot. divider	1MΩ	F3
R7		470kΩ	F3
R8	V2 G.B.	470Ω	F3
R9	I.F. stopper ...	100kΩ	F2
R10	Signal diode load...	470kΩ	F2
R11	P.U. tone corrector	470kΩ	B1
R12	Tone control ...	1MΩ	D3
R13	Volume control ...	1MΩ	E3
R14	V3 G.B.	150Ω	F3
R15		150Ω	E3
R16	V3a anode load ...	220kΩ	G3
R17	V3b C.G.	680kΩ	G2
R18	Neg. feed-back ...	3·3MΩ	G2
R19	H.T. smoothing ...	1·5kΩ	G3

CAPACITORS		Values	Locations
C1	1st I.F. trans. tuning	150pF	B1
C2		150pF	B1
C3	V1 cath. by-pass...	0·1μF	E2
C4	V1 osc. C.G. ...	100pF	E3
C5	A.G.C. decoupling	0·05μF	D2
C6	L.W. osc. trim. ...	50pF	D2
C7	M.W. osc. tracker	550pF	D2
C8	L.W. osc. tracker...	180pF	D2
C9	Osc. anode coup....	100pF	E3
C10	S.G. decoupling ...	0·1μF	E3
C11	A.G.C. coupling ...	50pF	F3
C12	2nd I.F. trans. tuning	150pF	C1
C13		150pF	C1
C14	I.F. by-passes ...	100pF	G2
C15		100pF	F2
C16	V2 cath. by-pass ...	0·1μF	F2
C17	Part tone control...	0·001μF	E3
C18	A.F. coupling ...	0·01μF	E3
C19	I.F. by-pass ...	100pF	F3
C20	A.F. coupling ...	0·01μF	G3
C21	Tone correction ...	0·002μF	G2
C22*	V3 cath. by-pass ...	500μF	G3
C23*	H.T. smoothing ...	32μF	B1
C24*		32μF	B1
C25	R.F. by-pass ...	0·01μF	G2
C26‡	L.W. aerial trim....	—	C1
C27‡	M.W. aerial trim....	—	C1
C28†	Aerial tuning ...	—	C1
C29†	Oscillator tuning...	—	C1
C30‡	M.W. osc. trim. ...	—	C1
C31‡	L.W. osc. trim. ...	—	C1

*Electrolytic. †Variable. ‡Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Internal aerial coils	0·2	A1
L2		5·5	B1
L3	Oscillator tuning coils	2·8	D2
L4		7·0	D2
L5	M.W. osc. reaction	0·4	D2
L6	1st I.F. trans. Pri.	10·0	B1
L7	Sec.	10·0	B1
L8	2nd I.F. trans. Pri.	10·0	C1
L9	Sec.	10·0	C1
L10	Speech coil ...	2.8	—
T1	O.P. trans. a ...	400·0	A1
	b ...	—	
T2	Mains trans. a ...	—	
	b ...	250·0	B1
	c ...	50·0	
S1-S7	Waveband/gram. sw.	—	D3
S8	Gram motor switch	—	—
S9 S10	Mains sw., g'd R13	—	E3



CIRCUIT ALIGNMENT

Withdraw top panel of receiver, complete with chassis, as described under "Dismantling."

I.F. Stages.—Switch receiver to M.W. and tune to a point at the high-wavelength end of the band where there is no signal pick-up. Connect output of signal generator, via a 0.1μF capacitor in the "live" lead, to control grid (pin 2) of **V1** and chassis. Feed in a 465 kc/s (645.16m) signal and adjust the cores of **L9** (location reference F2), **L8** (B1), **L7** (F2) and **L6** (C1) for maximum output. Repeat these adjustments until no further improvement results.

R.F. and Oscillator Stages.—Transfer signal generator leads to a dummy loop aerial which should be placed about a foot away from the ferrite rod internal aerial.

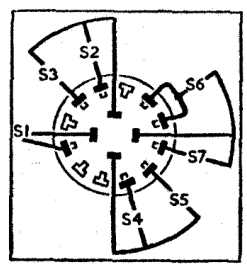
M.W.—Switch receiver to M.W., tune to 550m, feed in a *550m (545.4 kc/s)* signal and adjust the core of **L3** (D2) for maximum output. Tune receiver to 200m, feed in a 1,500 kc/s signal, and adjust **C30** and **C27** (C1) for maximum output. Repeat these adjustments until no further improvement results.

L.W.—Switch receiver to L.W., tune to 2,000m, feed in a 2,000m (150 kc/s) signal and adjust the core of **L4** (D2) for maximum output. Tune receiver to 1,000m, feed in a 1,000m (300 kc/s) signal and adjust **C31** and **C26** (C1) for maximum output. Repeat these adjustments until no further improvement results.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	V
V1 ECH81	166	1·2	64	3·8	2·0
	Oscillator				
	88	3·4			
V2 EBF80	166	3·0	64	1·0	2·0
V3 ECL80 a	50	0·5	—	—	5·6
V3 ECL80 b	180	15·0	166	2·8	5·6
V4 EZ80	162*	—	—	—	188·0†

* A.C. reading, each anode. † Cathode current 31 mA.

Diagram of the switch unit.



Switch Table

Switches	Gram.	M.W.	L.W.
S1	—	C	—
S2	—	C	—
S3	—	—	C
S4	—	C	—
S5	—	—	C
S6	—	C	C
S7	C	—	—

S8 is the gram motor switch and consists of a *press-button on/off unit mounted on* the motor board beside the pick-up.

S9, S10 are the Q.M.B. mains switches ganged with the volume control **R13.**

Scale lamp.—This is a 6.5 V, 0.3 A lamp with a clear spherical bulb and an M.E.S. base.