

215B MODIFICATIONS

In the table model 215B, the principal circuit differences are concerned with the aerial circuit, of which a separate diagram appears in col. 2. The aerial coupling coils have a D.C. resistance of 23 Ω and 50 Ω respectively for M.W. and L.W., and the tuning coils 2.5 Ω and 23.5 Ω . The switches shown have the same action and physical position as they have in the 205B.

V1 and V2 have separate screen feeds of 51,000 Ω and 0.1 μF each instead of our R4, C7 (which are common to both valves), and C9 becomes 0.0001 μF to provide tone correction, as a different speaker is used. V4 is a Mullard KLL32, which, except for its octal base, is equivalent to the 7-pin QP22B.

Dismantling procedure is entirely different, and that given here for the portable does not apply to the table model. The cord drive system is mainly similar, but in the 215B the upper horizontal run is raised several inches above the position shown in our front chassis illustration to accommodate the vertical scale. One additional pulley is involved.

Alignment instructions are modified slightly also, as the 215B scale is attached to the cabinet. The backing plate is therefore marked with three indented dots which represent 214 M (1,400 kc/s), 1,250 m (240 kc/s) and maximum gang setting for the cursor, reading from left to right.

FERGUSON - 205B, 215B

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 KK32	73 Oscillator 50	0.6 2.0	34	1.35
V2 KF35	73	1.3	34	0.35
V3 KBC32	13	0.35	—	—
V4 QP22B	110*	1.6*	112	0.85

* Each anode.

CAPACITORS		Values (μF)	Locations
C1	V1 C.G. decoup. ...	0.1	C1
C2	V1 osc. C.G. ...	0.0001	L5
C3	L.W. fixed trim. ...	0.00015	C2
C4	Osc. M.W. tracker ...	0.00059	C1
C5	Osc. L.W. tracker ...	0.00028	D1
C6	Osc. H.T. decoup. ...	0.1	D2
C7	S.G.'s decoupling ...	0.1	K5
C8	L.F. by-passes ...	0.0001	I4
C9		0.00025	E1
C10	A.V.C. decoupling ...	0.1	I5
C11	A.F. coupling ...	0.001	E1
C12	A.V.C. coupling ...	0.0001	H4
C13*	H.T. feed decoup. ...	8.0	E2
C14	A.F. coupling ...	0.02	E2
C15	L.F. by-pass ...	0.0005	F2
C16	V4 G.B. decoup. ...	0.1	H3
C17	Tone corrector ...	0.002	G5
C18†	Aerial M.W. trim. ...	0.00004	D2
C19†	Aerial L.W. trim. ...	0.00008	D2
C20†	Aerial tuning ...	0.000582§	B1
C21†	Oscillator tuning ...	0.000582§	B1
C22†	Osc. M.W. trim. ...	0.00004	C2
C23†	Osc. L.W. trim. ...	0.00008	C2
C24†	1st I.F. transformer {	0.00018	B2
C25†		tuning ...	0.00018
C26†	2nd I.F. sec. tuning	0.0002	D2

* Electrolytic. † Variable. ‡ Pre-set. § "Swing" value, min. to max.

Intermediate Frequency 470 kc/s

RESISTORS		Values (ohms)	Locations
R1	V1 C.G. decoup. ...	560,000	D1
R2	V1 osc. C.G. ...	27,000	L5
R3	Osc. H.T. feed ...	10,000	C1
R4	S.G.'s H.T. feed ...	22,000	K5
R5	I.F. stopper ...	100,000	H4
R6	Volume control ...	500,000	K1
R7	V3 triode C.G. ...	2,200,000	F1
R8	V3 triode load ...	100,000	H5
R9	A.V.C. decoupling ...	1,000,000	H5
R10	A.V.C. diode load ...	1,000,000	H4
R11	H.T. line decoup. ...	4,700	H5
R12	V4 C.G.'s decoupling	47,000	G4
R13		560,000	G3
R14	V1, V2, V4 G.B. and	47	G5
R15	A.V.C. delay	910	G4

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Frame aerial windings ...	Very low	—
L2		1.0	—
L3		12.0	—
L4	Oscillator tuning coils ...	1.5	C1
L5		3.6	C1
L6	Osc. react. coil ...	3.5	C1
L7	1st I.F. { Pri. ...	8.0	B2
L8		Sec. ...	8.0
L9	2nd I.F. { Pri. ...	32.0	D2
L10		Sec. ...	8.0
L11	Speech coil ...	2.5	—
T1	Intervalve { Pri. ...	470.0	F1
	trans. { Sec. ...	—	—
T2	Speaker { total trans. ...	4,000.0	F1
	{ Pri. ...	630.0	—
S1-S6	W/band switches ...	0.4	D1
S7	Battery switches, {	—	E1
S8		ganged R6 ...	—

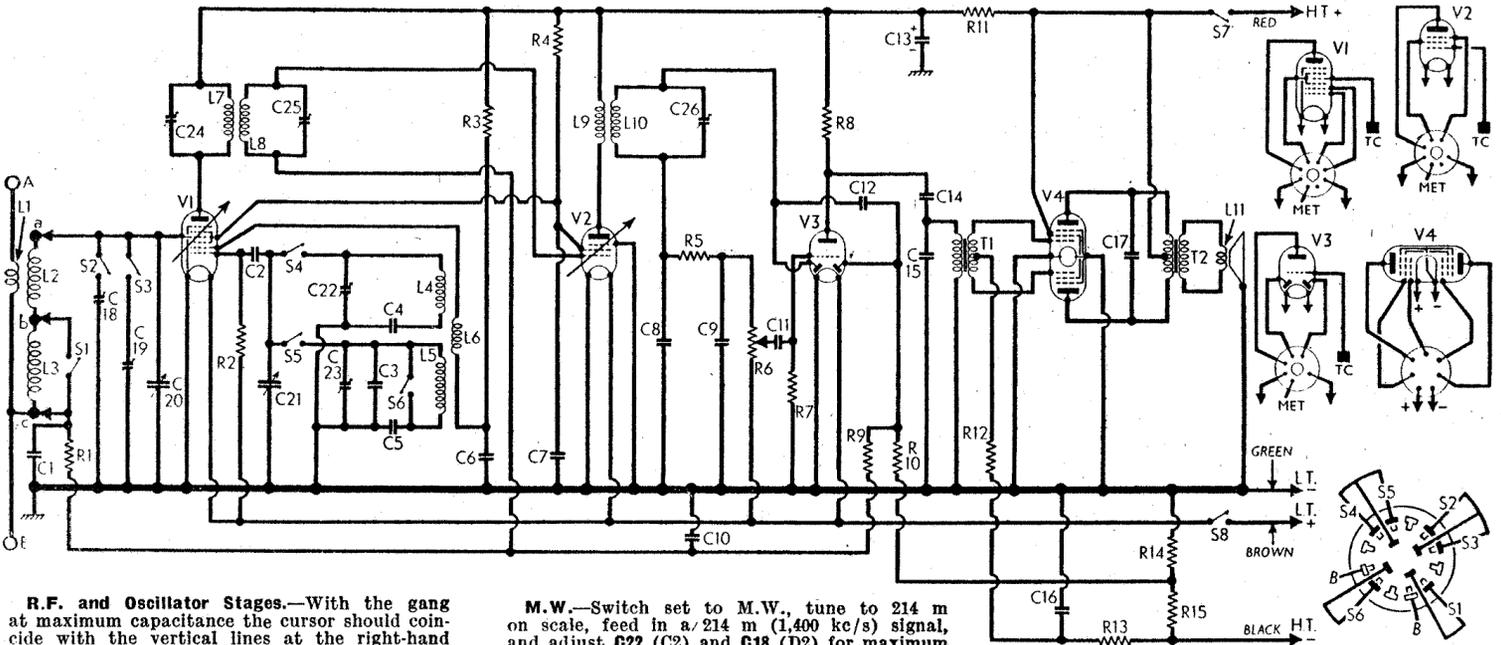
CIRCUIT ALIGNMENT

These operations may be carried out with the chassis in position in the carrying case or cabinet.

I.F. Stages.—Connect signal generator to control grid (top cap) of V1 and chassis, removing the existing top cap connector but connecting a 500,000 Ω resistor between the top cap of the valve and chassis. Switch set to M.W., turn the volume control to maximum, and tune to 200 m on scale.

Feed in a 470 kc/s (638.3 m) signal, and adjust C24, C25 and C26 (location references B2, D2) for maximum output.

Finally, remove the 500,000 Ω resistor and "live" signal generator lead, and replace V1 top cap connector.



R.F. and Oscillator Stages.—With the gang at maximum capacitance the cursor should coincide with the vertical lines at the right-hand ends of the scales; or, in the table model, with the right-hand indentation in the scale backing plate. It may be adjusted in position by sliding the cursor carriage along the drive cord. Transfer "live" signal generator lead to A connection, via a suitable dummy aerial.

M.W.—Switch set to M.W., tune to 214 m on scale, feed in a 214 m (1,400 kc/s) signal, and adjust C22 (C2) and C18 (D2) for maximum output. Check calibration at 500 m (600 kc/s).

L.W.—Switch set to L.W., tune to 1,250 m on scale, feed in a 1,250 m (240 kc/s) signal, and adjust C23 (B2) and C19 (D2) for maximum output. Check calibration at 2,000 m (150 kc/s).