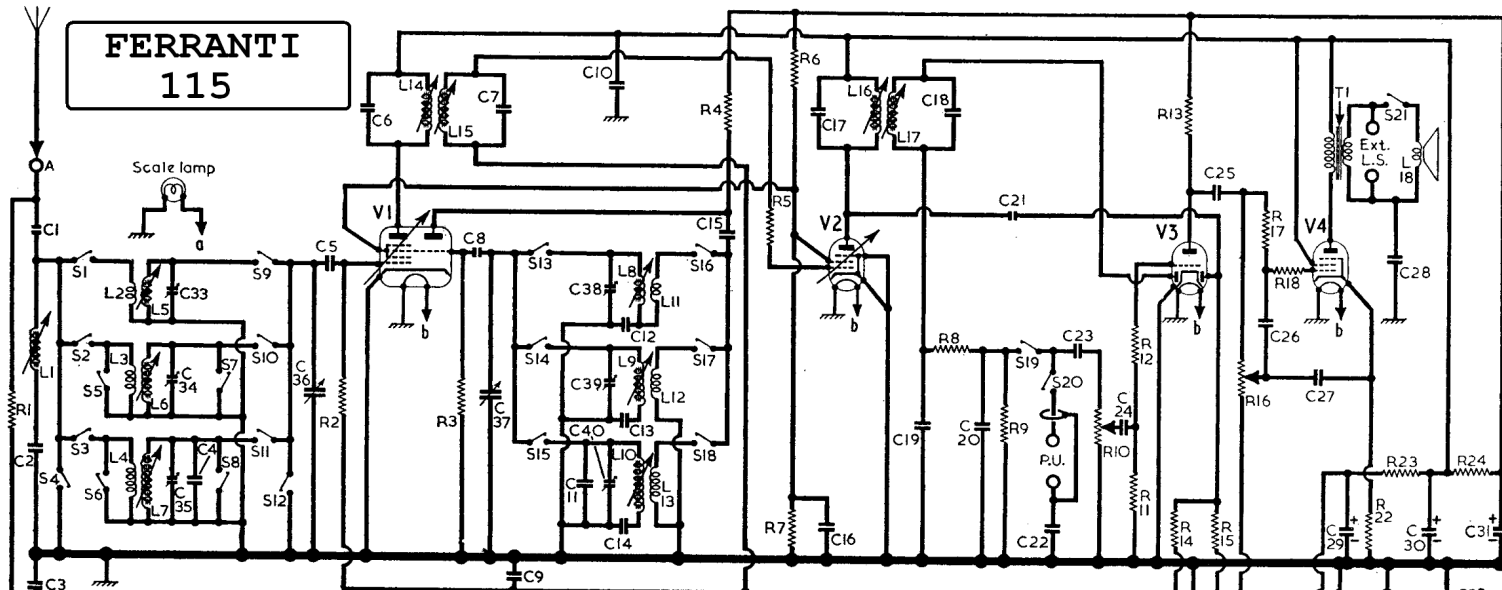
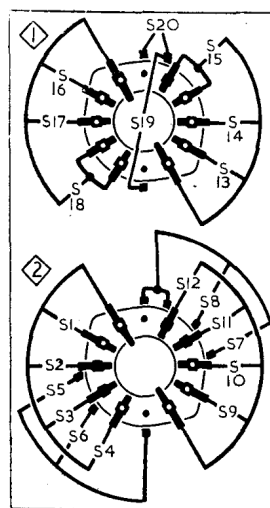


FERRANTI 115



RESISTORS	Values
R1 Aerial shunt ...	33kΩ
R2 V1 C.G. ...	1MΩ
R3 V1 osc. C.G. ...	47kΩ
R4 Osc. anode feed ...	22kΩ
R5 V2 C.G. stopper ...	3.3kΩ
R6 S.G. potential divider ...	22kΩ
R7 I.F. stopper ...	27kΩ
R8 Signal diode load ...	100kΩ
R9 Volume control ...	470kΩ
R10 V3 C.G. ...	1MΩ
R11 V3 C.G. stopper ...	22MΩ
R12 V3 anode load ...	4.7kΩ
R13 A.G.C. decoupling ...	220kΩ
R14 A.G.C. diode load ...	1MΩ
R15 Tone control ...	500kΩ
R16 Part tone control ...	220kΩ
R17 V4 C.G. stopper ...	100kΩ
R18 Common G.B. ...	33kΩ
R19 V5 surge limiters ...	60Ω
R20 V4 G.B. ...	60Ω
R21 H.T. smoothing ...	120Ω
R22	470Ω
R23	1.5kΩ
R24	1.5kΩ

CAPACITORS	Values
C1 Aerial series ...	0.001μF
C2 I.F. filter tune ...	30pF
C3 Chassis isolator ...	0.02μF
C4 L.W. aerial trim. ...	100pF
C5 V1 C.G. ...	200pF
C6 1st I.F. trans. {	100pF
C7 tuning ...	100pF
C8 V1 osc. C.G. ...	50pF
C9 A.G.C. decoupling ...	0.1μF
C10 H.T. by-pass ...	0.1μF
C11 L.W. osc. trim. ...	150pF
C12 S.W. osc. tracker ...	0.004μF
C13 M.W. osc. tracker ...	520pF
C14 L.W. osc. tracker ...	200pF
C15 Osc. anode coup. ...	200pF
C16 S.G. decoupling ...	0.1μF
C17 2nd I.F. trans. {	100pF
C18 tuning ...	300pF
C19 I.F. by-passes ...	100pF
C20 A.G.C. coupling ...	50pF
C21 P.U. isolator ...	0.02μF
C22	0.01μF
C23 A.F. couplers ...	0.01μF
C24	0.005μF
C25 Part tone control ...	0.002μF
C26	200pF
C27 Ext. L.S. isolator ...	0.02μF
C28	32μF
C29* H.T. smoothing ...	32μF
C30*	16μF
C31* Mains R.F. by-pass ...	0.02μF
C32 S.W. aerial trim. ...	50pF
C33 M.W. aerial trim. ...	50pF
C34 L.W. aerial trim. ...	50pF
C35 Aerial tuning ...	—
C36 Oscillator tuning ...	—
C37 S.W. osc. trim. ...	50pF
C38 M.W. osc. trim. ...	50pF
C39 L.W. osc. trim. ...	50pF
C40	50pF



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

OTHER COMPONENTS	Approx. Values (ohms)
L1 I.F. filter ...	18.0
L2 Aerial coupling coils ...	30.0
L3	48.0
L4 Aerial tuning coils ...	2.5
L5	15.0
L6 Oscillator tuning coils ...	4.0
L7	10.0
L8 Oscillator reaction coils ...	1.5
L9	7.0
L10 1st I.F. trans. { Pri. ...	7.0
L11	7.0
L12 2nd I.F. trans. { Pri. ...	3.5
L13	3.0
L14 Speech coil ...	450.0
L15 O.P. trans. { Pri. ...	—
L16	—
L17 Mains { Pri., total trans. { Htr. sec. ...	120.0
L18	—
T1 Waveband switches ...	—
T2 Speaker switch ...	—
S1-S20 Mains sw., g'd R16	—

Valve	Anode		Screen		Cath.
	V	mA	V	mA	V
V1 ECH42	230	2.4	70	2.3	—
V2 EF41	110	4.0	—	—	—
V3 EBC41	230	3.6	70	1.1	—
V4 EL41	66	0.55	—	—	—
V5 EZ40	216	29.0	230	4.0	4.3
	220†	—	—	—	255.0

* Electrolytic. † Variable. ‡ Pre-set.

CIRCUIT ALIGNMENT

Remove chassis from cabinet and stand it on its mains transformer end on the bench. Check that the mains lead is connected so that the chassis is not "live."

I.F. Stages.—Switch receiver to L.W., turn gang to maximum and connect output of signal generator, via an 0.1μF capacitor, to control grid (pin 6) of V1 and chassis. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of L17, L16, L15 and L14 (location references B2, E5, F5) for maximum output. Repeat these adjustments until no further improvement results. It should be noted that two peaks are obtainable when adjusting the cores, the correct one being with the core set further out from the coil.

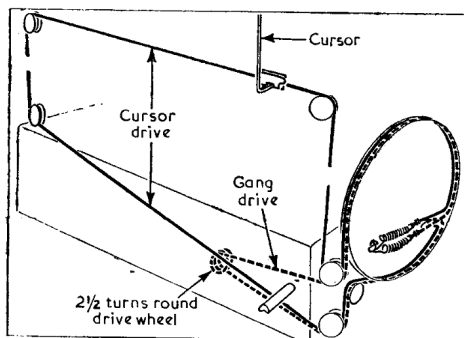
R.F. and Oscillator Stages.—As the tuning scale remains fixed in the cabinet when the chassis is withdrawn, reference must be made during alignment to the substitute scale printed on the side of the tuning drive drum. The calibration frequencies on this scale are read off against the wire cursor which is bolted to the chassis. Check that with the gang at maximum capacitance this cursor coincides with the vertical line marked "LMS" on the substitute scale. Transfer signal generator leads, via a suitable dummy aerial, to A and E sockets.

M.W.—Switch receiver to M.W., tune to 600 kc/s on the substitute scale, feed in a 600 kc/s (500 m) signal and adjust the cores of L9 (A1) and L6 (A2) for maximum output. Tune receiver to 1,500 kc/s, feed in a 1,500 kc/s (200 m) signal and adjust C39 (B1) and C34 (A2) for maximum output. Repeat these adjustments. Tune receiver to highest wavelength end of scale, feed in a 470 kc/s (638.3 m) signal and adjust the core of L1 (A2) for minimum output.

L.W.—Switch set to L.W., tune to 166.6 kc/s, feed in a 166.6 kc/s (1,800 m) signal and adjust the cores of L10 (A1) and L7 (G4) for maximum output. Tune receiver to 266 kc/s, feed in a 266 kc/s (1,128 m) signal and adjust C40 (B1) and C35 (A2) for maximum output. Repeat these operations.

S.W.—Switch receiver to S.W., tune to 6.6 Mc/s mark on substitute scale, feed in 6.67 Mc/s (45 m) and adjust the cores of L8 (A1) and L5 (A1) for maximum output. If two peaks are found with L8, adjust to the peak with the core further out. Tune receiver to 15 Mc/s, feed in a 15 Mc/s (20 m) signal and adjust C38 (B1) and C33 (B2) for maximum output. If two peaks are found when adjusting C38, it should be set to the lower capacitance peak. Repeat these adjustments.

Drive Cord Replacement.—There are two separate drive cords, one for the gang and one for the cursor. About four feet of nylon braided glass yarn is required for the gang drive, and about six feet for the cursor drive. They should be run as shown in the accompanying sketch, where both systems are drawn together as seen when viewed from the front right-hand corner of the chassis when the gang is at maximum capacitance. The lengths quoted allow plenty for tying off.



The double-cord tuning drive system, drawn as seen from the front right-hand corner.