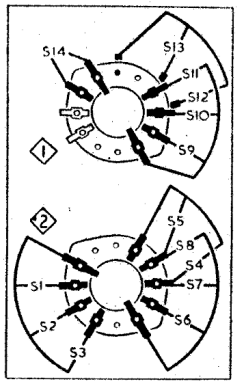
FERRANTI
615, 618



Waveband switch units, with table (below).

Switches	S.W.	M.W.	L.W.
S1	C	—	—
S2	—	C	—
S3	—	—	C
S4	C	—	—
S5	C	C	—
S6	C	—	—
S7	—	C	—
S8	—	—	C
S9	C	—	—
S10	—	C	—
S11	—	—	C
S12	C	—	—
S13	C	C	—
S14	C	—	—

OTHER COMPONENTS		Approx. Values (Ohms)	Locations
L1	I.F. rejector ...	18·0	F4
L2	Aerial coupling coils	—	G4
L3		29·0	G4
L4		45·0	G4
L5	Aerial tuning coils	—	G4
L6		3·5	G4
L7		17·0	G4
L8	Oscillator tuning coils	—	F3
L9		3·5	G3
L10		12·0	G3
L11	Oscillator reaction coils	—	F3
L12		1·0	G3
L13		3·0	G3
L14	1st I.F. trans. (Pri.	7·0	A2
L15	1st I.F. trans. Sec.)	7·0	A2
L16	2nd I.F. Trans. (Pri.	7·0	B2
L17	2nd I.F. Trans. Sec.)	7·0	B2
L18	Speech coil ...	2·5	—
T1	Intervalve trans. (Pri. ...	900·0	D4
	Intervalve trans. (Sec., total	10,000·0	
T2	O.P. trans. (Pri., total	420·0	C2
	O.P. trans. (Sec. ...	—	
S1-S14	Waveband switches	—	G3
S15, S16	Batt. sw., g'd R18	—	D3

Valve	Anode		Screen	
	V	mA	V	mA
V1 TP25 ...	111	0·4	48	0·92
	Oscillator 93	*		
V2 VP23 ...	111	1·4	48	0·92
V3 HL23DD	110	1·45	—	—
V4 QP25 ...	110	4·5†	111	1·0

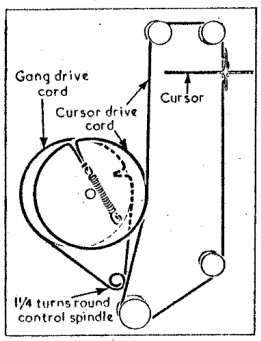
* No reading quoted. † Total current measured at T2 primary centre tap.

RESISTORS		Values	Locations
R1	Aerial shunt ...	33kΩ	F4
R2	V1 osc. grid leak ...	33kΩ	F3
R3		15kΩ	F3
R4	Osc. stabilizer ...	47Ω	F3
R5	Osc. anode load ...	4·7kΩ	F4
R6	Osc. stabilizer ...	470Ω	G3
R7	S.G. H.T. feed ...	47kΩ	F4
R8	V2 C.G. stopper ...	2.2kΩ	A2
R9	I.F stopper ...	47kΩ	F4
R10	Signal diode load ...	470kΩ	E4
R11	Volume control ...	1MΩ	E3
R12	A.G.C. decoupling	2·2MΩ	E4
R13	A.G.C. diode load	2·2MΩ	D4
R14	V3, V4, G.B. ...	100Ω	D3
R15		*650Ω	D3
R16	V4, C.G.	47kΩ	D4
R17	Part tone control ...	15kΩ	D3
R18	Tone control ...	500kΩ	D3

* Two resistors, 680Ω and 15kΩ, in parallel.

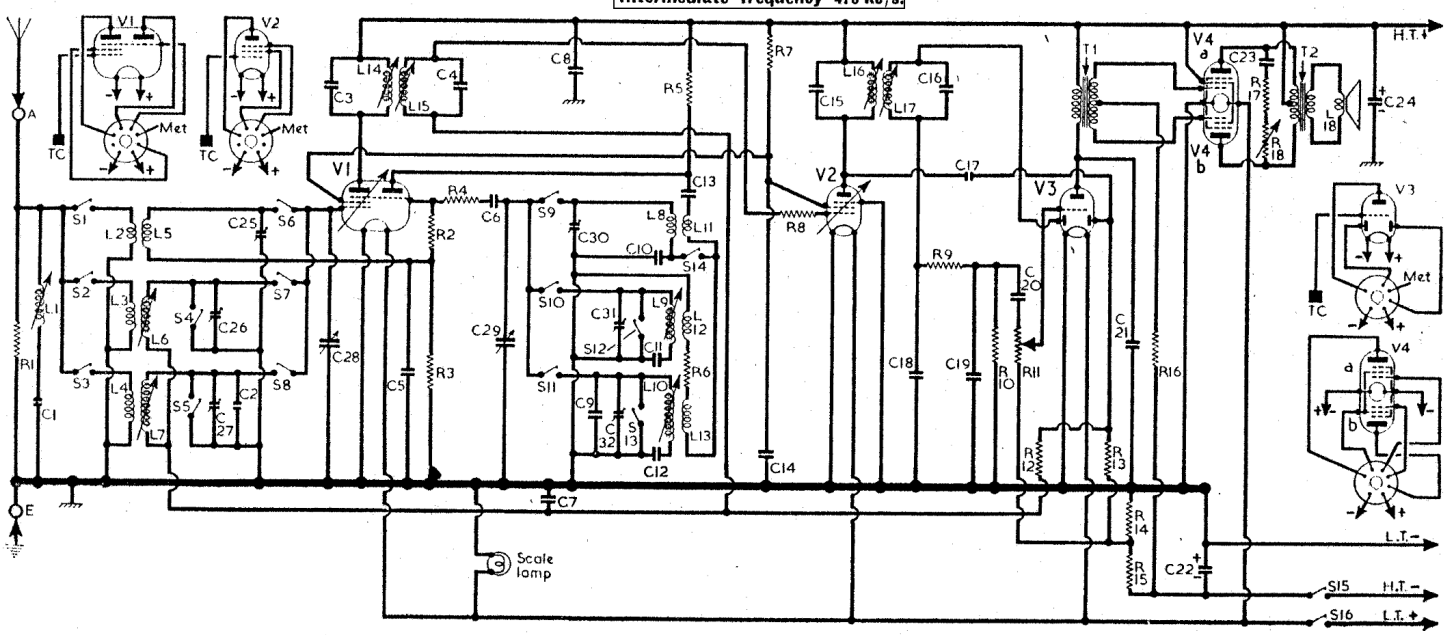
CAPACITORS		Values	Locations
C1	Part I.F. rejector ...	30pF	F4
C2	L.W. aerial trim. ...	80pF	G4
C3	1st I.F. trans. tuning	105pF	A2
C4		105pF	A2
C5	S.W. G.B. decoup.	0·1μF	E3
C6	V1 osc. C.G. ...	100pF	F3
C7	A.G.C. decoupling	0·1μF	E3
C8	H.T. by-pass ...	0·1μF	F4
C9	L.W. osc. trim. ...	100pF	G3
C10	S.W. osc. tracker ...	0·004μF	F3
C11	M.W. osc. tracker	470pF	G3
C12	L.W. osc. tracker	130pF	G3
C13	Osc. anode coup ...	0·001μF	F3
C14	S.G. decoupling ...	0·1μF	E3
C15	2nd I.F. trans. tuning	105pF	B2
C16		180pF	B2
C17	A.G.C. coupling ...	50pF	E4
C18	I.F. by-passes ...	130pF	E4
C19		130pF	E4
C20	A.F. coupling ...	0·02μF	E3
C21	I.F. by-pass ...	400pF	D4
C22*	G.B. by-pass ...	25μF	D4
C23	Part tone control ...	0·02μF	D4
C24*	H.T. reservoir ...	8μF	E3
C25‡	S.W. aerial trim. ...	50pF	A2
C26‡	M.W. aerial trim.	50pF	A2
C27‡	L.W. aerial trim. ...	50pF	A2
C28†	Aerial tuning ...	—	B1
C29†	Oscillator tuning ...	—	B1
C30‡	S.W. osc. trim. ...	50pF	A1
C31‡	M.W. osc trim. ...	50pF	A1
C32‡	L.W. osc. trim. ...	50pF	A1

* Electrolytic † Variable. ‡ Pre-set.



Sketch of the tuning drive system, seen from the front. The gang and cursor have separate drive drums.

Intermediate frequency 470 kc/s.



Drive Cord Replacement.—The gang drive and cursor drive are separate cords with separate drums on the gang spindle. The gang cord requires about 15in of nylon braided glass yarn, and the cursor drive 36in. They should be run as shown in the sketch above.

CIRCUIT ALIGNMENT

I.F. Stages.—Switch receiver to L.W. and turn gang to maximum capacitance. Connect signal generator output, via an 0.1 μF capacitor in the "live" lead, to control grid (top cap) of **V1** and chassis. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of **L17** (location reference B2) **L16** (E4), **L15** (A2) and **L14** (F4) for maximum output. Repeat these adjustments until no further improvement results.

R.F. and Oscillator Stages.—Transfer signal generator leads, via a standard dummy aerial, to **A** and **E** sockets. Check that with the gang at maximum capacitance, the cursor coincides with the marks at the high wavelength ends of the tuning scales.

M.W.—Switch receiver to M.W., tune to 200 m, feed in a 200 m (1,500 kc/s) signal and adjust **C31** (A1) for maximum output. Feed in a 228 m (1,316 kc/s) signal and tune receiver to it. Adjust **C26** (A2) for maximum output. Tune receiver to 500 m, feed in a 500 m (600 kc/s) signal, and adjust the cores of **L9** (A1) and **L6** (A2) for maximum output, rocking the gang while adjusting **L9** for optimum results. Repeat these adjustments until no further improvement results.

I.F. Rejector.—With the receiver switched to M.W., turn gang to maximum capacitance. Feed in a 470 kc/s (638.3 m) signal and adjust the core of **L1** (A2) for minimum output.

L.W.—Switch receiver to L.W., tune to 1,128 m, feed in an 1,128 m (266 kc/s) signal and adjust **C32** (A2) and **C27** (A2) for maximum output. Tune receiver to 1,800 m, feed in an 1,800 m (167 kc/s) signal and adjust the cores of **L10** (A1) and **L7** (A2) for maximum output, rocking the gang while adjusting **L10** for optimum results. Repeat these adjustments until no further improvement results.

S.W.—Switch receiver to S.W., tune to 16.7 m, feed in a 16.67 m (18 Mc/s) signal and adjust **C30** (A1) for maximum output. Two peaks will be found when making this adjustment, the correct one being that which involves the lesser capacitance. Tune receiver to 20 m, feed in a 20 m (15 Mc/s) signal, and adjust **C25** (A2) for maximum output, rocking the gang for optimum results. Tune receiver to 45 m, feed in a 45 m (6.67 Mc/s) signal and adjust the position of the thick yellow tracking lead, which is looped round **L5** (G4) from the waveband switch, for maximum output, while rocking the gang for optimum results. Repeat these adjustments until no further improvement results. Another tracking lead, round **L8**, is set at the works.