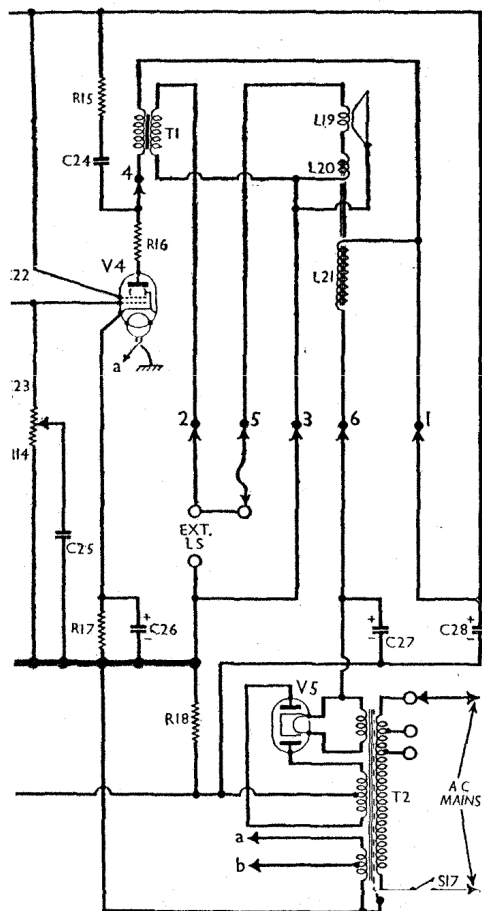
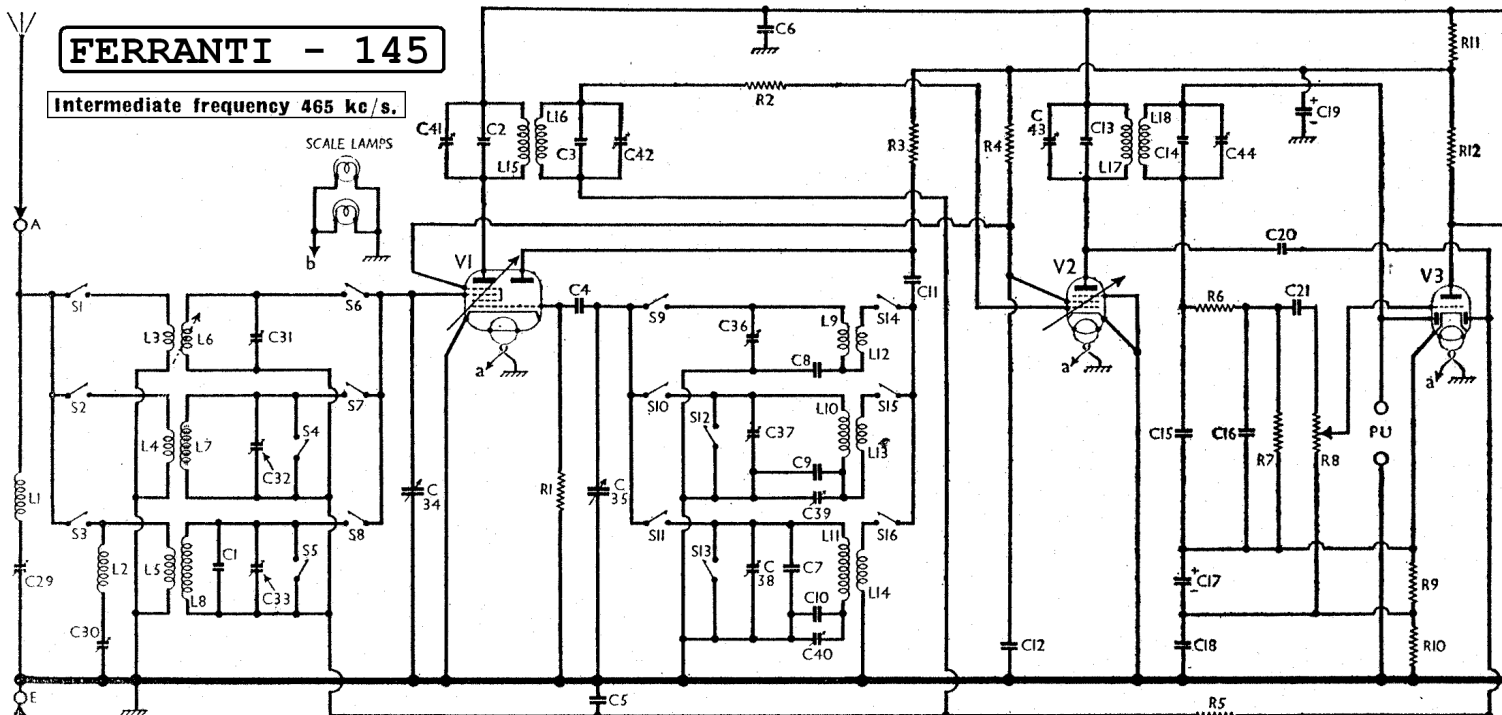


FERRANTI - 145

Intermediate frequency 465 kc/s.



Value	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6K8G	300	2.1	114	6.6
V2 6K7G	110	4.1	114	2.4
V3 6Q7G	300	9.2	300	4.4
V4 6V6G	110	0.8	—	—
V5 5Z4G	290	49.0	—	—

† Each anode, A.C.

CAPACITORS		Values (μF)
C1	Aerial L.W. fixed trimmer	0.00005
C2	1st I.F. transformer fixed trimmer	0.00009
C3	1st I.F. transformer fixed trimmer	0.00009
C4	V1 osc. C.G. capacitor	0.0001
C5	A.V.C. line decoupling	0.05
C6	H.T. circuit R.F. by-pass	0.1
C7	Osc. L.W. fixed trimmer	0.0001
C8	Osc. S.W. tracker	0.004
C9	Osc. M.W. fixed tracker	0.0004
C10	Osc. L.W. fixed tracker	0.00015
C11	V1 osc. anode coupling	0.001
C12	V1, V2 S.G.'s decoupling	0.1
C13	2nd I.F. transformer fixed trimmer	0.00009
C14	2nd I.F. transformer fixed trimmer	0.00009
C15	I.F. by-pass capacitors	0.00015
C16	I.F. by-pass capacitors	0.00015
C17*	V3 cathode by-pass capacitors	50.0
C18	V3 cathode by-pass capacitors	0.1
C19*	H.T. line decoupling	4.0
C20	A.V.C. diode coupling	0.00005
C21	A.F. coupling to V3 triode	0.02
C22	A.F. coupling to V4	0.05
C23	I.F. by-pass	0.0004
C24	Fixed tone corrector	0.005
C25	Part of tone control	0.005
C26*	V4 cathode by-pass	50.0
C27	H.T. smoothing capacitors	16.0
C28	H.T. smoothing capacitors	8.0
C29	Aerial I.F. filter tuning	0.00007
C30	Image suppressor tuning	0.00007
C31	Aerial circ. S.W. trimmer	0.00002
C32	Aerial circ. M.W. trimmer	0.00002
C33	Aerial circ. L.W. trimmer	0.00007
C34	Aerial circuit tuning	—
C35	Oscillator circuit tuning	—
C36	Osc. circ. S.W. trimmer	0.00004
C37	Osc. circ. M.W. trimmer	0.00007
C38	Osc. circ. L.W. trimmer	0.00007
C39	Osc. circ. M.W. tracker	0.0002
C40	Osc. circ. L.W. tracker	0.00007
C41	1st I.F. trans. pri. tuning	0.00007
C42	1st I.F. trans. sec. tuning	0.00007
C43	2nd I.F. trans. pri. tuning	0.00007
C44	2nd I.F. trans. sec. tuning	0.00007

* Electrolytic. † Variable. ‡ Pre-set.

RESISTORS		Values (ohms)
R1	V1 osc. C.G. resistor	47,000
R2	V2 C.G. stopper	5,600
R3	V1 osc. anode H.T. feed	22,000
R4	V1, V2 S.G. H.T. feed	10,000
R5	A.V.C. line decoupling	2,200,000
R6	I.F. stopper	100,000
R7	V3 signal diode load	470,000
R8	Manual volume control	1,000,000
R9	V3 triode G.B. and A.V.C.	2,200
R10	delay resistors	3,300
R11	H.T. feed resistor	6,800
R12	V3 triode anode load	100,000
R13	V3 A.V.C. diode load	2,200,000
R14	Variable tone control	500,000
R15	Part of tone corrector	22,000
R16	V4 anode stopper	100
R17	V4 G.B. resistor	270
R18	V1, V2 fixed G.B. resistor, part A.V.C. delay	47

OTHER COMPONENTS		Approx. Values (ohms.)
L1	Aerial I.F. filter coil	37.0
L2	Image suppressor coil	5.0
L3	Aerial S.W. coupling coil	0.3
L4	Aerial M.W. coupling coil	40.0
L5	Aerial L.W. coupling coil	66.0
L6	Aerial S.W. tuning coil	Very low
L7	Aerial M.W. tuning coil	3.0
L8	Aerial L.W. tuning coil	27.0
L9	Osc. S.W. tuning coil	Very low
L10	Osc. M.W. tuning coil	5.0
L11	Osc. L.W. tuning coil	12.0
L12	Osc. S.W. reaction coil	0.4
L13	Osc. M.W. reaction coil	0.4
L14	Osc. L.W. reaction coil	4.0
L15	1st I.F. trans. {Pri. ...	9.0
L16	1st I.F. trans. {Sec. ...	9.0
L17	2nd I.F. trans. {Pri. ...	9.0
L18	2nd I.F. trans. {Sec. ...	9.0
L19	Speaker speech coil	2.5
L20	Hum neutralising coil	0.2
L21	Speaker field coil	1,000.0
T1	Speaker input {Pri. ...	350.0
	trans. {Sec. ...	0.2
T2	Mains {Pri. total ...	27.0
	Heater, sec. ...	0.15
	trans. {Rect. heat, sec. ...	0.15
	trans. {H.T. sec., total ...	300.0
S1-S10	Waveband switches	—
S17	Mains switch, ganged R14	—

Switch Table

Switch	S.W.	M.W.	L.W.
S1	...	—	—
S2	...	—	—
S3	...	—	—
S4	...	—	—
S5	...	—	—
S6	...	—	—
S7	...	—	—
S8	...	—	—
S9	...	—	—
S10	...	—	—
S11	...	—	—
S12	...	—	—
S13	...	—	—
S14	...	—	—
S15	...	—	—
S16	...	—	—

FERRANTI - 147

CIRCUIT ALIGNMENT

I.F. Stages.—Turn the gang to maximum, the volume control to maximum, the tone control as far anti-clockwise as it will go without operating the switch, and switch the set to L.W. Connect signal generator leads via a 0.05 μ F capacitor to control grid (top cap) of **V1** and chassis, feed in a 465 kc/s (645.16 m) signal, and adjust **C41**, **C42**, **C43** and **C44** for maximum, but adjusting signal generator attenuator at the same time to maintain a reading of about 50 mW on the output meter.

To check sensitivity of I.F. stages, adjust attenuator to produce 50 mW reading on output meter. With signal generator connected as above, its output should not now exceed 120 μ V. If the signal generator lead is transferred from the top cap of **V1** to the top cap of **V2**, and the attenuator is again adjusted, but nothing else is altered, the signal generator output should not now exceed 2 mV.

R.F. and Oscillator Stages.—With the gang at maximum capacitance, the pointer should lie along the two horizontal gilt lines running left and right across the scale. See that the scale sits squarely in its mounting, and that the small hole in the gilt centre-panel is concentric with the pointer spindle. Transfer signal generator leads to **A** and **E** sockets via a suitable dummy aerial.

I.F. Filter.—With controls adjusted as described for I.F. stages, feed in a strong 465 kc/s signal and adjust **C29** for minimum output.

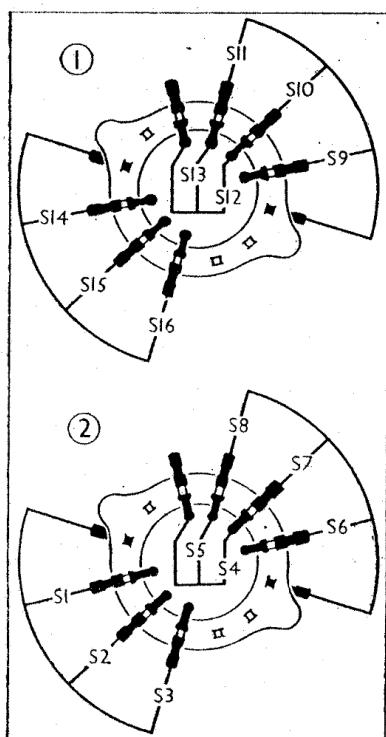
M.W.—Switch set to M.W., tune to 200 m on scale, feed in a 200 m (1,500 kc/s) signal, and adjust **C37** for maximum output. Feed in a 228 m (1,316 kc/s) signal, tune it in, and adjust **C32** for maximum output. Feed in a 500 m (600 kc/s) signal, tune it in, and adjust **C39** for maximum output while rocking the gang for optimum results. Repeat all the M.W. adjustments in the same order until no improvement can be obtained, finishing up with a final check at 200 m.

L.W.—Switch set to L.W., tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust **C38** for maximum output. Feed in a 1,128 m (266 kc/s) signal, tune it in, and adjust **C33** for maximum output. Feed in an 1,800 m (166.5 kc/s) signal, tune it in, and adjust **C40** for maximum output while rocking the gang for optimum results. Then repeat the whole of the L.W. adjustments.

Image Rejector.—To adjust the image (or second channel) rejector, feed in a strong 261 m (1,149 kc/s) signal (greater than 0.1 V) and tune in the image at about 1,370 m. Then adjust **C30** for minimum output.

S.W.—Switch set to S.W., tune to 16.67 m on scale, feed in a 16.67 m (18 Mc/s) signal, screw both **C31** and **C36** right down, and unscrew **C36** slowly until a signal is indicated. Pass the first peak, and continue unscrewing until the second peak is reached, then adjust **C36** accurately for maximum output on the second peak.

Feed in a 20 m (15 Mc/s) signal, tune it in, and adjust **C31** for maximum output, then rock gang slightly one way and readjust **C31**; then rock it slightly the other way and readjust **C31**; and so on until no improvement can be obtained. Finally, feed in a 40 m (7.5 Mc/s) signal, tune it in, and adjust the loop in the connecting wire from the waveband switch unit to **L6** for maximum output.



Diagrams of the waveband switch units, drawn as seen from the rear of an inverted chassis.