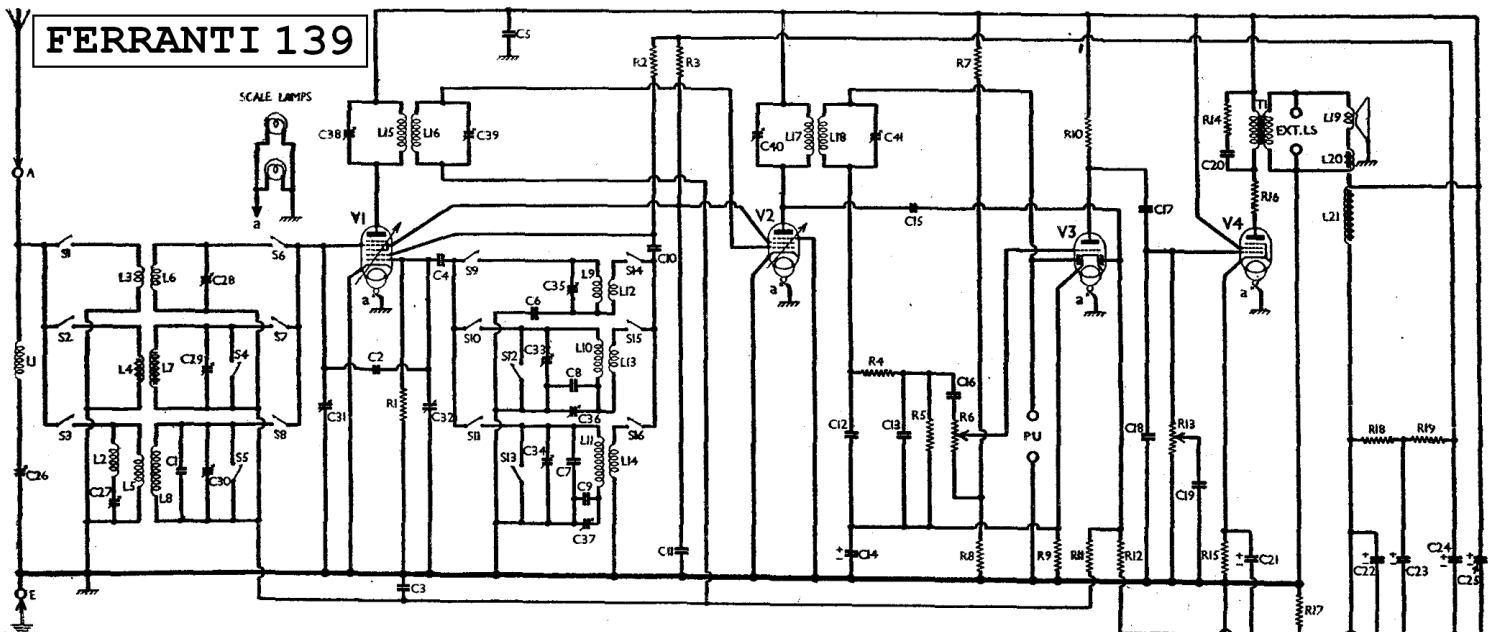


FERRANTI 139



CONDENSERS

Values
(μ F)

CONDENSERS	Values (μ F)
C1 Aerial LW fixed trimmer ...	0.00005
C2 Small coupling ...	Very low
C3 AVC line decoupling ...	0.05
C4 V1 osc. CG condenser ...	0.0001
C5 HT circuit RF by-pass ...	0.1
C6 Osc. circuit SW tracker ...	0.004
C7 Osc. circuit LW fixed trimmer ...	0.0001
C8 Osc. circuit MW fixed tracker ...	0.0004
C9 Osc. circuit LW fixed tracker ...	0.00015
C10 V1 osc. anode coupling ...	0.001
C11 V1, V2 SG's decoupling ...	0.1
C12 IF by-pass condensers ...	0.00015
C13 V3 cathode by-pass ...	0.00015
C14* V3 coupling to V3 AVC diode ...	6.0
C15 AF coupling to V3 triode ...	0.00005
C16 V3 triode to V4 AF coupling ...	0.02
C17 V4 CG IF by-pass ...	0.05
C18 Part of variable tone control ...	0.0004
C19 Part of fixed tone corrector ...	0.005
C20 V4 cathode by-pass ...	0.01
C21* HT smoothing condensers ...	50.0
C22* ...	12.0
C23* ...	4.0
C24* ...	4.0
C25* ...	12.0
C26 Aerial IF filter tuning ...	—
C27 Aerial 261 m filter tuning ...	—
C28 Aerial circuit SW trimmer ...	—
C29 Aerial circuit MW trimmer ...	—
C30 Aerial circuit LW trimmer ...	—
C31 Oscillator circuit tuning ...	—
C32 Osc. circuit MW trimmer ...	—
C33 Osc. circuit LW trimmer ...	—
C34 Osc. circuit SW trimmer ...	—
C35 Osc. circuit MW tracker ...	0.0002
C36 Osc. circuit LW tracker ...	0.00007
C37 1st IF trans. pri. tuning ...	0.0002
C38 1st IF trans. sec. tuning ...	0.0002
C39 2nd IF trans. pri. tuning ...	0.0002
C40 2nd IF trans. sec. tuning ...	0.0002
C41	—

RESISTANCES

Values
(ohms)

RESISTANCES	Values (ohms)
R1 V1 osc. CG resistance ...	50,000
R2 V1 osc. anode HT feed ...	10,000
R3 V1, V2 SG's HT feed ...	40,000
R4 IF stopper ...	100,000
R5 V3 signal diode load ...	500,000
R6 Manual volume control ...	1,000,000
R7 V3 triode GB potential divider resistances ...	20,000
R8 AVC delay resistance ...	250
R9 V3 triode anode load ...	10,000
R10 AVC line decoupling ...	250,000
R11 V3 AVC diode load ...	2,000,000
R12 Variable tone control ...	2,000,000
R13 Part of fixed tone corrector ...	500,000
R14 V4 GB resistance ...	20,000
R15 V4 anode stabiliser ...	450
R16 V1, V2 fixed GB ...	100
R17 V1 osc. anode and V1, V2 SG HT feed resistances ...	50
R18	10,000
R19	10,000

OTHER COMPONENTS

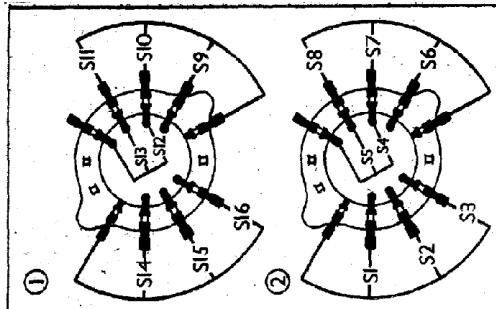
Approx.
Values
(ohms)

OTHER COMPONENTS	Approx. Values (ohms)
L1 MW aerial IF filter coil ...	35.0
L2 LW aerial 261 m filter coil ...	5.0
L3 Aerial SW coupling coil ...	0.25
L4 Aerial MW coupling coil ...	35.0
L5 Aerial LW coupling coil ...	65.0
L6 Aerial SW tuning coil ...	Very low
L7 Aerial MW tuning coil ...	2.5
L8 Aerial LW tuning coil ...	25.0
L9 Osc. circuit SW tuning coil ...	0.05
L10 Osc. circuit MW tuning coil ...	5.0
L11 Oscillator SW reaction ...	12.0
L12 Oscillator MW reaction ...	Very low
L13 Oscillator LW reaction ...	1.5
L14 1st IF trans. Pri. ...	3.0
L15 1st IF trans. Sec. ...	9.5
L16 2nd IF trans. Pri. ...	9.5
L17 2nd IF trans. Sec. ...	9.5
L18 Speaker speech coil ...	2.0
L19 Hum neutralising coil ...	0.25
L20 Speaker field coil ...	1,000.0
L21 Speaker input. trans. Pri. ...	220.0
L22 Speaker input. trans. Sec. ...	0.4
T1 Mains. Pri. total ...	45.0
T2 Mains. Rect. heater sec. ...	0.2
T3 HT sec., total ...	0.2
S1-S16 Waveband switches ...	450.0
S17 Mains switch, ganged R13 ...	—

* Electrolytic. † Variable. ‡ Pre-set.

Switch	SW	MW	LW
S1	C	—	—
S2	—	C	—
S3	—	—	C
S4	—	—	—
S5	—	—	—
S6	—	—	—
S7	—	—	—
S8	—	—	—
S9	—	—	—
S10	—	—	—
S11	—	—	—
S12	—	—	—
S13	—	—	—
S14	—	—	—
S15	—	—	—
S16	—	—	—

Diagrams of the switch units, as seen from the rear of the underside of the chassis.



VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 230V, using the 230V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the MW band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6A8G	295	1.2	67	2.4
V2 6K7G	138	5.1	67	3.1
V3 6Q7G	295	2.7	—	—
V4 6F6G	86	0.6	295	7.4
V5 R4	230	38	—	—
	357†	—	—	—

† Each anode, AC.

CIRCUIT ALIGNMENT

IF Stages.—Turn volume control to maximum, gang condenser to maximum, and switch set to LW. Connect signal generator to control grid (top cap) of V1 (via a 0.05 μ F fixed condenser) and chassis and screw C39 down tightly. Feed in a 450 KC/S signal, and adjust C38, C40 and C41 for maximum output. Then adjust C39 for maximum output.

RF and Oscillator Stages.—Connect signal generator via a suitable dummy aerial to A and E sockets.

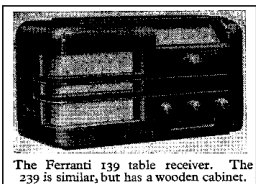
SW.—Switch set to SW, and use a SW dummy aerial. Turn gang to minimum, feed in a 16.67 m (18 MC/S) signal, and adjust C36 for maximum output. The peak requiring the lesser trimmer capacity is the correct one. Now tune to 20 m on the scale, feed in a 20 m (15 MC/S) signal, and adjust C28 for maximum output.

MW.—Switch set to MW and, with gang still at a minimum, feed in a 200 m (1,500 KC/S) signal, and adjust C33 for maximum output. Feed in a 238 m (1,310 KC/S) signal, tune it in, and adjust C29 for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C36 for maximum output, rocking the gang for optimum results.

Turn gang to maximum, feed in a 450 KC/S signal, and adjust C26 for minimum output. Repeat the 500, 228 and 500 m adjustments.

LW.—Switch set to LW, tune to 1,128 m on scale, feed in a 1,128 m (256 KC/S) signal, and adjust C34, then C30, for maximum output.

Feed in a 1,800 m (166.5 KC/S) signal, tune it in, and adjust C37 for maximum output, while rocking the gang for optimum results.



The Ferranti 139 table receiver. The 239 is similar, but has a wooden cabinet.