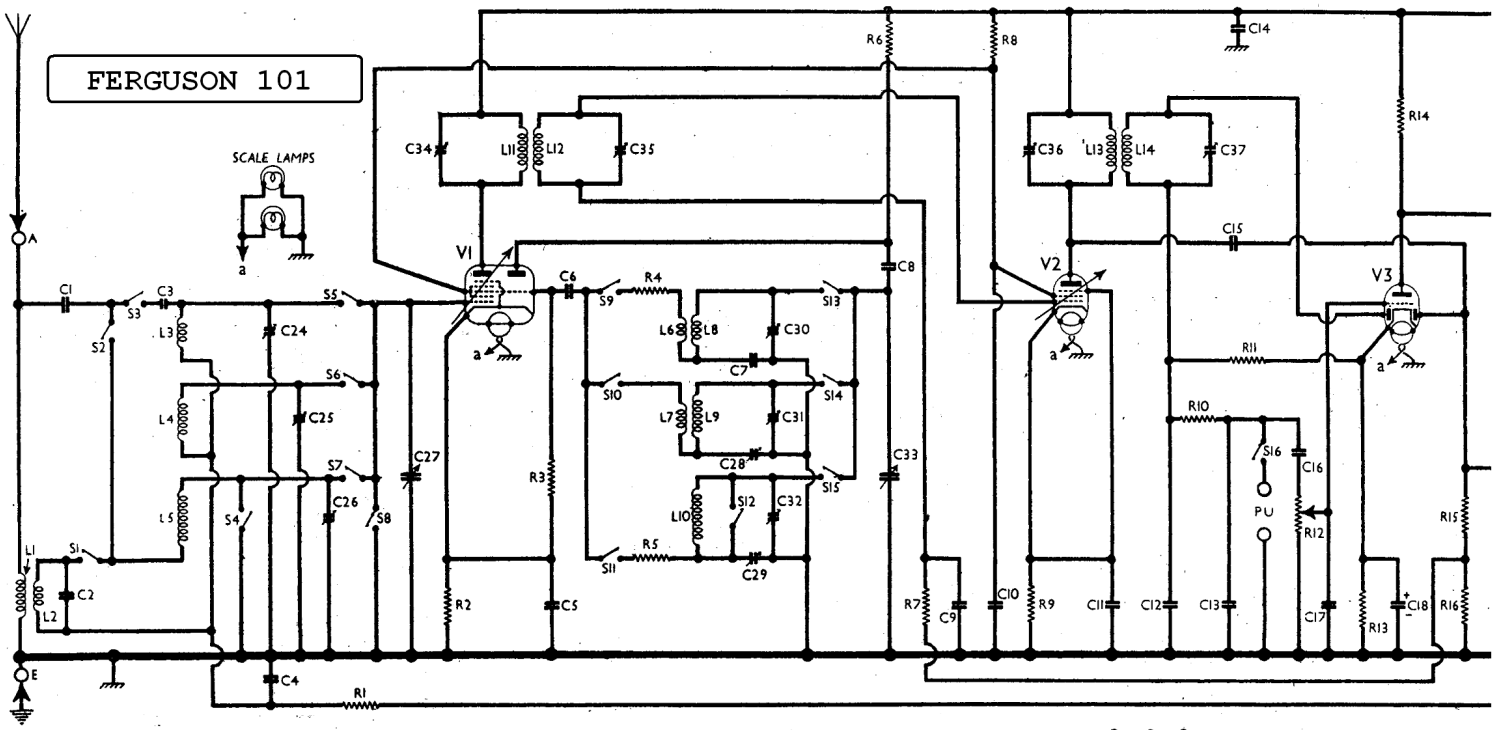
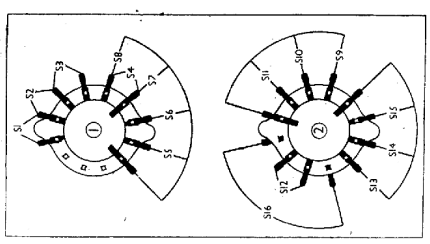
FERGUSON 101



CONDENSERS		Values (μF)
C1	Aerial MW coupling ...	0·0005
C2	Part LW coupling ...	0·002
C3	Aerial SW coupling ...	0·00001
C4	V1 heptode CG decoupling	0·1
C5	V1 cathode by-pass ...	0·1
C6	V1 osc. CG condenser ...	0·0001
C7	Osc. circuit SW tracker ...	0·005
C8	V1 osc. anode coupling ...	0·0001
C9	V2 CG decoupling ...	0·1
C10	V1, V2 SG's decoupling ...	0·1
C11	V2 cathode by-pass ...	0·1
C12	IF by-pass condensers ...	0·00025
C13		0·00025
C14	HT circuit RF by-pass ...	0·1
C15	Coupling to V3 AVC diode	0·0001
C16	AF coupling to V3 triode	0·02
C17	IF by-pass condenser ...	0·0001
C18*	V3 cathode by-pass ...	25·0
C19	V3 triode to V4 coupling	0·02
C20	Fixed tone corrector ...	0·005
C21	Part variable tone control	0·05
C22*	HT smoothing condensers	16·0
C23*		16·0
C24‡	Aerial circ. SW trimmer...	0·00003
C25‡	Aerial circ. MW trimmer	0·00003
C26‡	Aerial circ. LW trimmer	0·00011
C27†	Aerial circuit tuning ...	—
C28‡	Osc. circuit MW tracker...	0·0006
C29‡	Osc. circuit LW tracker...	0·00025
C30‡	Osc. circuit SW trimmer...	0·00003
C31‡	Osc. circuit MW trimmer	0·00003
C32‡	Osc. circuit LW trimmer	0·0002
C33†	Oscillator circuit tuning...	—
C34‡	1st IF trans. pri. tuning...	—
C35‡	1st IF trans. sec. tuning...	—
C36‡	2nd IF trans. pri. tuning...	—
C37‡	2nd IF trans. sec. tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

RESISTANCES		Values (ohms)
R1	V1 heptode CG decoupling	550,000
R2	V1 fixed GB resistance ...	330
R3	V1 osc. CG resistance ...	50,000
R4	Osc. SW reaction damping	50
R5	Osc. LW reaction damping	10,000
R6	V1 osc. anode HT feed ...	27,000
R7	V2 CG decoupling ...	560,000
R8	V1, V2, SG's HT feed ...	50,000
R9	V2 fixed GB resistance ...	330
R10	IF stopper	82,000
R11	V3 signal diode load ...	500,000
R12	Manual volume control ...	2,000,000
R13	V3 fixed GB ; AVC delay	2,600
R14	V3 triode anode load ...	250,000
R15	V3 AVC diode load resis-	560,000
R16	tances	560,000
R17	V4 CG resistance	560,000
R18	V4 GB resistance ...	150
R19	V4 anode stopper ...	100
R20	Variable tone control ...	100,000



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

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial circuit choke ...	330·0
L2	Aerial LW coupling ...	20·0
L3	Aerial SW tuning coil...	Very low
L4	Aerial MW tuning coil	3·0
L5	Aerial LW tuning coil	26·0
L6	Oscillator SW reaction	0·1
L7	*Oscillator MW reaction*	1·0
L8	Osc. circ. SW tuning coil	Very low
L9	Osc. circ. MW tuning coil	2·0
L10	Osc. circ. LW tuning coil	5·25
L11	1st IF trans. Pri. ...	8·5
L12	1st IF trans. Sec. ...	8·5
L13	2nd IF trans. Pri. ...	8·5
L14	2nd IF trans. Sec. ...	8·5
L15	Speaker speech coil ...	2·0
L16	Hum neutralising coil...	0·1
L17	Speaker field coil ...	1,500·0
T1	Speaker input trans. Pri. ...	550·0
	trans. Sec. ...	0·3
T2	Mains trans. Pri., total ...	29·0
	Mains trans. Heater sec ...	0·1
	Mains trans. Rect. heat sec.	0·15
	Mains trans. HT sec., total	330.0
S1-S15	Waveband switches ...	—
S16	Gram PU switch ...	—
S17	Mains switch, ganged R12	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 235 V, using the 240-250 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium waveband, and the volume control was at maximum, but there was no signal input.

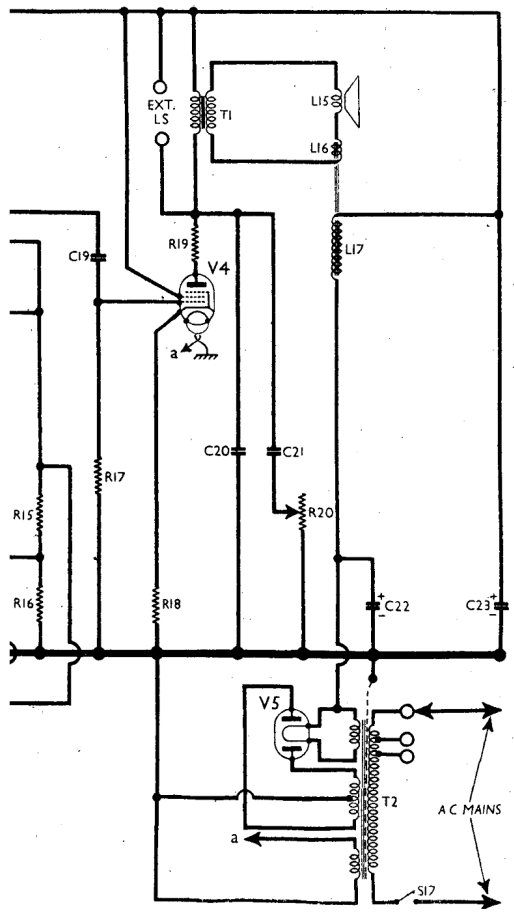
Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 ECH35	254	1·5	95	1·7
	Oscillator			
	126	4·3		
V2 EF39	254	6·1	95	1·8
V3 EBC33	43	0.6	—	—
V4 EL33	229	34·0	254	5·0
V5 5Y3G	340†	—	—	—

† Each anode, AC.

Switch Table

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



CIRCUIT ALIGNMENT

IF Stages.—Switch set to SW, and turn gang and volume control to maximum. Remove the top cap connector of **V1** and connect a 500,000 Ω resistance between the connector and the top cap of the valve. Connect the signal generator, via a 0.0002 μF condenser, between the grid (top cap) of **V1** and the earth lead.

Feed in a 470 KC/S signal, and adjust **C37, C36, C35** and **C34** in turn for maximum output. Repeat these adjustments.

RF and Oscillator Stages.—With the gang at maximum, pointer should be horizontal. Connect signal generator, via a suitable dummy aerial, to aerial and earth leads.

SW.—Switch set to SW, tune to 15 m on scale, feed in a 15 m (20 MC/S) signal, and adjust **C30,** using the peak involving the lesser capacity, and then **C24,** in that order, for maximum output. There is no adjustable tracking on this band, but performance should be checked at 50 m (6 MC/S).

MW.—Switch set to MW, tune to 214 m on scale, feed in a 214 m (1,400 KC/S) signal, and adjust **C31,** then **C25,** for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust **C28** for maximum output while rocking the gang for optimum results. Repeat the 214 m adjustments.

LW.—Switch set to LW, tune to 1,250 m on scale, feed in a 1,250 m (240 KC/S) signal, and adjust **C32,** then **C26,** for maximum output. Feed in a 2,000 m (150 KC/S) signal, tune it in, and adjust **C29** for maximum output while rocking the gang for optimum results. Repeat the 1,250 m adjustments.