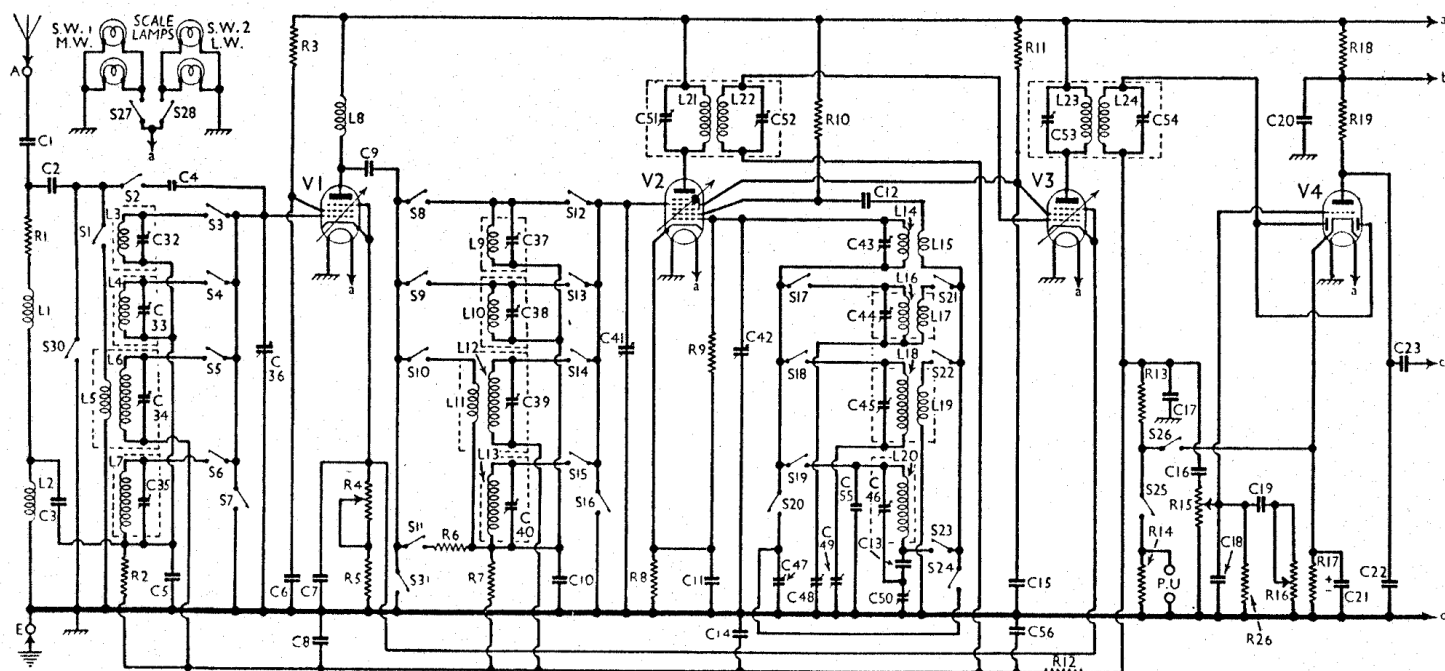


FERGUSON - 378



Circuit diagram of the Ferguson 378 A.C. all-wave superhet. A diagram of the speaker plug, viewed from the ends of the pins, is inset, the numbers corresponding with those in the circuit.

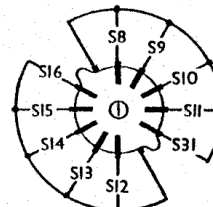
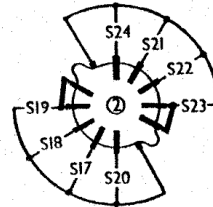
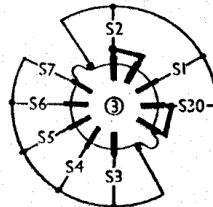
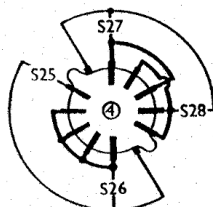
Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6D6*	265	5.6	70	1.6
V2 6A7	265	1.5	75	2.6
V3 6D6	265	5.7	75	1.4
V4 75	65	0.2	—	—
V5 76	50	0.4	—	—
V6 42	250	27.0	265	5.3
V7 42	250	26.0	265	4.7
V8 80	300†	—	—	—

* Osc. anode (G2) 150 V, 4.0 mA.

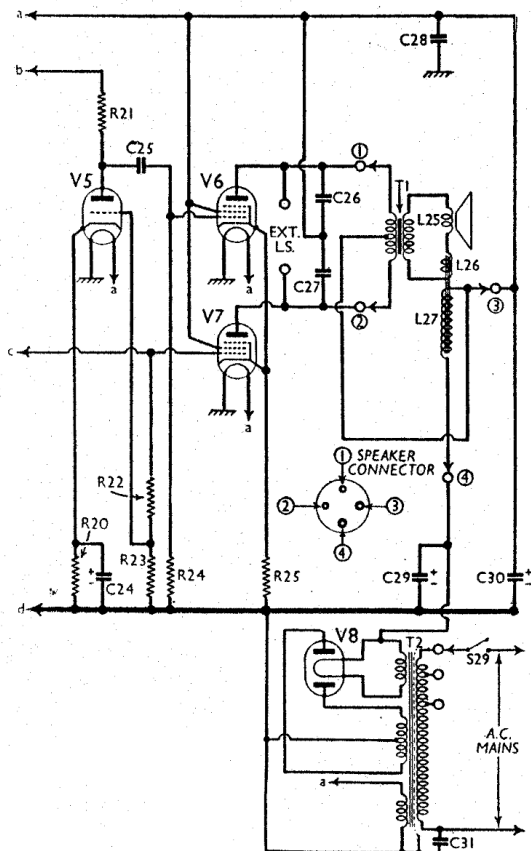
† Each anode, A.C.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	Aerial series resistance	2,500
R2	V1 C.G. decoupling	500,000
R3	V1 S.G. H.T. feed	100,000
R4	Sensitivity control	3,000
R5	Sensitivity control fixed min.	200
R6	V2 F.C. G.B. series resistance (L.W.)	50,000
R7	V2 F.C. C.G. decoupling	500,000
R8	V2 fixed G.B. resistance	500
R9	V2 osc. C.G. resistance	50,000
R10	V2 osc. anode resistance	25,000
R11	V2, V3 S.G.'s H.T. feed	50,000
R12	A.V.C. line decoupling	250,000
R13	V4 signal diode load	250,000
R14	Gram. P.U. shunt	25,000
R15	Manual volume control	500,000
R16	Variable tone control	500,000
R17	V4 G.B. resistance	10,000
R18	V4, V5 anodes decoupling	100,000
R19	V4 triode anode load	250,000
R20	V5 G.B. resistance	10,000
R21	V5 anode load	250,000
R22	V7 C.G. resistances	500,000
R23	V7 C.G. resistances	50,000
R24	V6 C.G. resistance	500,000
R25	V6, V7 G.B. resistance	300
R26	Manual vol. control shunt	250,000



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



FERGUSON 378 (A.C.)—Continued

CONDENSERS		Values (μ F)
C1	Aerial series condenser	0.01
C2	Aerial coupling (S.W. & M.W.)	0.00025
C3	Aerial coupling (L.W.)	0.01
C4	Aerial coupling (S.W.)	0.00005
C5	V1 C.G. decoupling	0.002
C6	V1 S.G. by-pass	0.1
C7	V1, V3 cathodes by-pass	0.1
C8	V1 A.V.C. line decoupling	0.1
C9	V1 to V2 H.F. coupling	0.00025
C10	V2 F.C. C.G. decoupling	0.002
C11	V2 cathode by-pass	0.1
C12	V2 osc. anode condenser	0.00025
C13	Oscillator L.W. fixed tracker	0.00025
C14	V2 A.V.C. line decoupling	0.1
C15	V2, V3 S.G.'s by-pass	0.1
C16	L.F. coupling to V4 triode	0.01
C17	I.F. by-passes	0.00025
C18	I.F. by-passes	0.00025
C19	Tone control condenser	0.01
C20	V4, V5 anodes decoupling	0.1
C21*	V4 cathode by-pass	30.0
C22	V4 anode I.F. by-pass	0.001
C23	V4 to V7 L.F. coupling	0.01
C24*	V5 cathode by-pass	5.0
C25	V5 to V6 L.F. coupling	0.01
C26	Tone correctors	0.002
C27	H.T. supply H.F. by-pass	0.002
C28	H.T. smoothing	0.1
C29*	H.T. smoothing	8.0
C30*	H.T. smoothing	8.0
C31	Mains H.F. by-pass	0.01
C32	Aerial circuit trimmer (S.W.1)	—
C33	Aerial circuit trimmer (S.W.2)	—
C34	Aerial circuit trimmer (M.W.)	—
C35	Aerial circuit trimmer (L.W.)	—
C36	Aerial circuit tuning	—
C37	F.C.C.G. circuit trimmer (S.W.1)	—
C38	F.C.C.G. circuit trimmer (S.W.2)	—
C39	F.C.C.G. circuit trimmer (M.W.)	—
C40	F.C.C.G. circuit trimmer (L.W.)	—
C41	F.C.C.G. circuit tuning	—
C42	Oscillator circuit tuning	—
C43	Osc. circuit trimmer (S.W.1)	—
C44	Osc. circuit trimmer (S.W.2)	—
C45	Osc. circuit trimmer (M.W.)	—
C46	Osc. circuit trimmer (L.W.)	—
C47	Osc. circuit tracker (S.W.1)	—
C48	Osc. circuit tracker (S.W.2)	—

CONDENSERS (Continued)		Values (μ F)
C49†	Osc. circuit tracker (M.W.)	—
C50†	Osc. circuit tracker (L.W.)	—
C51†	1st I.F. trans. pri. tuning	—
C52†	1st I.F. trans. sec. tuning	—
C53†	2nd I.F. trans. pri. tuning	—
C54†	2nd I.F. trans. sec. tuning	—
C55	Osc. circuit trimmer (L.W.)	0.000025
C56	V3 A.V.C. line decoupling	0.01

* Electrolytic † Variable ‡ Pre-set

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial choke coils	21.0
L2	Aerial tuning coil (S.W.1)	17.0
L3	Aerial tuning coil (S.W.2)	Very low
L4	Aerial coupling coil (M.W.)	0.05
L5	Aerial tuning coil (M.W.)	0.5
L6	Aerial tuning coil (L.W.)	5.5
L7	Aerial tuning coil (L.W.)	25.0
L8	V1 anode H.F. choke	21.0
L9	F.C. C.G. tuning coil (S.W.1)	Very low
L10	F.C. C.G. tuning coil (S.W.2)	0.05
L11	F.C. C.G. coupling coil (M.W.)	0.5
L12	F.C. C.G. tuning coil (M.W.)	5.5
L13	F.C. C.G. tuning coil (L.W.)	25.0
L14	Osc. tuning coil (S.W.1)	Very low
L15	Osc. reaction coil (S.W.1)	0.6
L16	Osc. tuning coil (S.W.2)	0.05
L17	Osc. reaction coil (S.W.2)	0.6
L18	Osc. tuning coil (M.W.)	3.2
L19	Osc. reaction coil (M.W.)	2.5
L20	Osc. tuning coil (L.W.)	6.0
L21	1st I.F. trans. { Pri. ..	9.5
L22	1st I.F. trans. { Sec. ..	13.0
L23	2nd I.F. trans. { Pri. ..	13.0
L24	2nd I.F. trans. { Sec. ..	8.5
L25	Speaker speech coil	1.6
L26	Hum neutralising coil	0.1
L27	Speaker field coil	1,000.0
T1	Speaker input { Pri. total ..	750.0
	trans. { Sec. ..	0.2
	{ Pri. total ..	23.0
T2	Mains trans. { Heater sec. ..	0.05
	{ Rect. fil sec. ..	0.1
	{ H.T. sec. total	310.0
Sr-24	Waveband and muting switches	—
S30-31	Gram. P.U. switches	—
S25-26	Scale lamp switches	—
S27-28	Scale lamp switches	—
S29	Mains switch, ganged Rr6	—

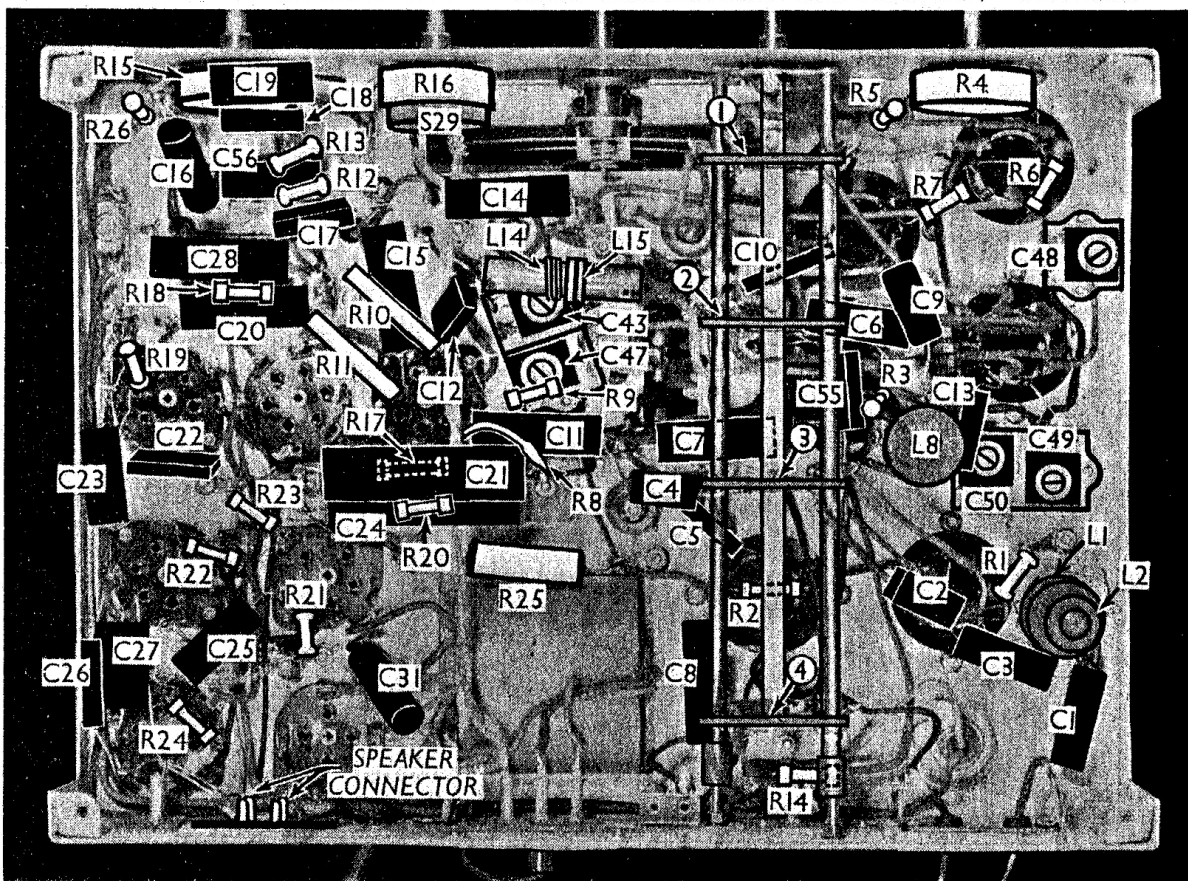
GENERAL NOTES

Switches.—In all there are twenty-eight wavechange, muting and scale lamp switches, and two pick-up switches, arranged in four 5-position rotary units, ganged together beneath the chassis. The numbers in circles in our under-chassis view refer to the units as shown in the separate switch diagrams, the arrows indicating the directions in which they are viewed.

Note that each unit consists of two separate sets of five switches.

The table below gives the switch positions for the various control settings, O indicating open, and C, closed.

Switch	S.W.1 (U.S.W.)	S.W.2 (S.W.)	M.W.	L.W.	Gram.
S1	O	O	C	O	O
S2	C	C	O	O	O
S3	C	C	O	O	O
S4	O	C	O	O	O
S5	O	O	C	O	O
S6	O	O	O	C	O
S7	O	O	O	O	C
S8	C	O	O	O	O
S9	O	C	O	O	O
S10	O	O	C	O	O
S11	O	O	O	C	O
S12	C	O	O	O	O
S13	O	C	O	O	O
S14	O	O	C	O	O
S15	O	O	O	C	O
S16	O	O	O	O	C
S17	O	C	O	O	O
S18	O	O	C	O	O
S19	O	O	O	C	C
S20	C	O	O	O	O
S21	O	C	O	O	O
S22	O	O	C	O	O
S23	O	O	O	C	C
S24	C	O	O	O	O
S25	O	O	O	O	C
S26	C	C	C	C	O
S27	C	O	C	O	O
S28	O	C	O	C	C
S30	O	O	O	C	C
S31	O	O	O	O	C



Under-chassis view. R8 is a flexible resistor. Note the S.W.1 oscillator coils L14, L15. The numbers in circles refer to the switch diagram on p. VII.

S29 is the Q.M.B. mains switch, ganged with control **R16**.

Coils.—**L1** and **L2**, **L8** and **L14**, **L15** are, beneath the chassis, the remaining coils being in seven screened units on the chassis deck. Six of the units incorporate two trimmers each, the seventh containing three.

Scale Lamps.—These are two National Union M.E.S. types, marked "6-8 V."

External Speaker.—Provision is made for an external high resistance speaker.

Condensers C29, C30.—These are two 8 μ F dry electrolytics in a single metal can on the chassis deck, with a common negative (black) lead. The red lead is the positive of **C29** and the yellow the positive of **C30**.

Condenser C21.—In our chassis this consists of a 25 μ F tubular, with an extra 5 μ F, inside the **C24** unit in parallel.