

FERGUSON - 351U

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 UCH42	153	4.4	80	2.0	—
V2 UBF80	54	3.7	—	—	—
V3 UL41	88	6.5	85	2.5	—
V4 UY41	172	37.0	153	6.4	188

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	M.W. frame aerial	1.5	—
L2	L.W. loading coil...	15.0	F3
L3	Oscillator tuning coils	12.0	A1
L4	1st I.F. trans. {Pri. ...	2.7	A1
L5	1st I.F. trans. {Sec. ...	8.0	B1
L6	2nd I.F. trans. {Pri. ...	8.0	B1
L7	2nd I.F. trans. {Sec. ...	6.0	C1
L8	Speech coil	2.6	E4
L9	Mains R.F. filter	3.5	C2
L10	coils	3.5	C2
L11	O.P. trans. {Pri. ...	350.0	C2
T1	O.P. trans. {Sec. ...	0.4	—
S1-S8	Waveband switches	—	A1
S9, S10	Mains sw., g'd R12	—	C1

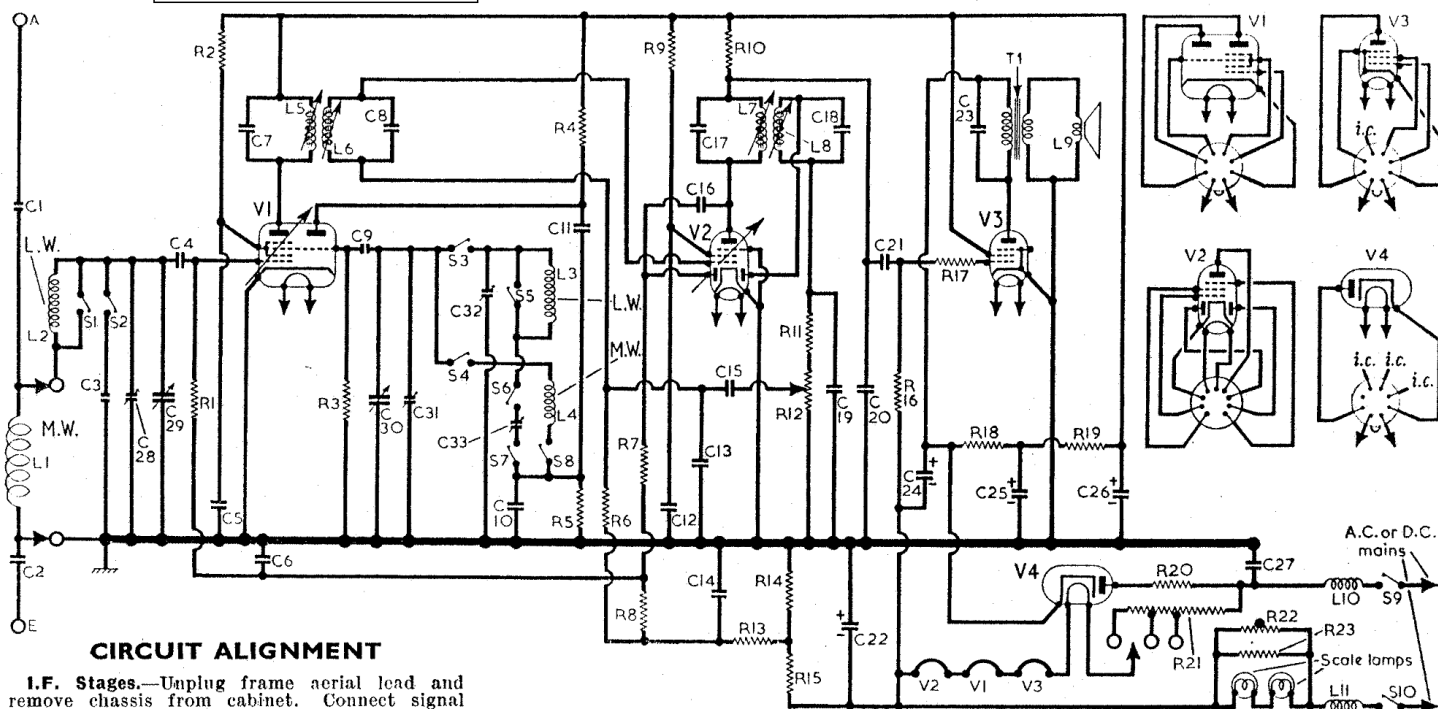
RESISTORS		Values	Locations
R1	V1 C.G. ...	1MΩ	F3
R2	V1 S.G. feed ...	33kΩ	D3
R3	V1 osc. C.G. ...	47kΩ	F3
R4	Osc. anode feed ...	22kΩ	F4
R5	Osc. reaction limiter	3.9kΩ	F3
R6	V2 C.G. ...	1MΩ	E3
R7	A.G.C. diode load	330kΩ	D3
R8	V2 S.G. feed ...	680kΩ	D4
R9	V2 A.F. load ...	27kΩ	D3
R10	I.F. stopper	10kΩ	D3
R11	I.F. stopper	100kΩ	D3
R12	Volume control	500kΩ	C1
R13	A.G.C. delay decoupling	150kΩ	D4
R14	G.B. resistors	33Ω	D4
R15	V3 C.G. ...	150Ω	D4
R16	V3 C.G. stopper ...	470kΩ	D4
R17	H.T. smoothing	470Ω	F4
R18	V4 surge limiter ...	820Ω	F4
R19	V4 surge limiter ...	140Ω	B2
R20	Heater ballast	1.22kΩ	B2
R21*	Brimistor CZ2	—	C1
R22	Scale lamp shunt...	1.2kΩ	C1
R23	Scale lamp shunt...	1.2kΩ	C1

CAPACITORS		Values	Locations
C1	Aerial coupling ...	15pF	—
C2	Earth isolator ...	0.005μF	—
C3	L.W. aerial trim. ...	35pF	A1
C4	V1 C.G. ...	200pF	A2
C5	V1 S.G. decoupling ...	0.05μF	F3
C6	A.G.C. decoupling ...	0.02μF	F3
C7	1st I.F. trans. tuning	100pF	B1
C8	ing ...	100pF	B1
C9	V1 osc. C.G. ...	50pF	F3
C10	M.W. osc. tracker	600pF	F4
C11	Osc. anode coupling	100pF	F3
C12	V2 S.G. decoupling	0.1μF	E4
C13	I.F. by-pass	500pF	E3
C14	G.B. decoupling	0.05μF	D4
C15	A.F. coupling	0.01μF	D3
C16	A.G.C. coupling	100pF	D3
C17	2nd I.F. trans. tuning	100pF	C1
C18	ing ...	180pF	C1
C19	I.F. by-passes	200pF	D3
C20	A.F. coupling	0.001μF	D3
C21	G.B. decoupling	0.01μF	D4
C22*	Tone corrector	100pF	D4
C23	H.T. smoothing	0.005μF	C2
C24*	H.T. smoothing	32μF	F4
C25*	H.T. smoothing	32μF	F4
C26*	H.T. smoothing	16μF	F4
C27	Mains R.F. by-pass	0.01μF	B2
C28†	M.W. aerial trim.	40pF	A2
C29†	Aerial tuning	\$528pF	B2
C30†	Oscillator tuning	\$528pF	B1
C31†	M.W. osc. trim.	65pF	A1
C32†	L.W. osc. trim.	65pF	A2
C33†	L.W. osc. tracker	400pF	A1

Intermediate frequency 470 kc/s.

* Tapped at 820Ω + 200Ω + 200Ω from L10.

* Electrolytic. † Variable. ‡ Pre-set. § "Swing" value, min. to max.



CIRCUIT ALIGNMENT

I.F. Stages.—Unplug frame aerial lead and remove chassis from cabinet. Connect signal generator output, via an 0.1μF capacitor in each lead, to junction of C29 and C4 and to chassis. Switch receiver to L.W. and turn volume control to maximum. Feed in a 470 kc/s (638.3 m) signal and adjust the cores of L8 (location reference D3), L7 (C1), L6 (E3) and L5 (B1) for maximum output, reducing the input as the circuits come into line to avoid A.G.C. action.

R.F. and Oscillator Stages.—The chassis should be replaced in its carrying case for the following adjustments and the frame aerial lead plugged in. When adjusting the M.W. aerial trimmer, the back cover must be in position. Connect the signal generator leads to a loop of wire placed parallel and fairly close to the back cover, or lay the generator leads close to the back cover.

As the trimming and tracking points are not marked on the tuning scale it is necessary to make up a substitute paper scale as follows. Using the right-hand edge of the paper strip to represent the highest wavelength pointer setting, measure off and label the following points, the measurements being made each time to the right-hand edge: 160 kc/s, 0.7in; 580 kc/s, 0.86in; 220 kc/s, 2.52in; 950 kc/s, 3.82in; 350 kc/s, 4.58in; 1,500 kc/s, 4.95in. When in use the substitute paper scale is held against the tuning scale and its right-hand edge is lined up with the high wavelength ends of the tuning scales. Check that with the gang at maximum capacitance, the cursor coincides with the high wavelength ends of the tuning scales.

M.W.—Switch receiver to M.W., tune to 1,500 kc/s, feed in a 1,500 kc/s (200 m) signal and adjust C31 (A1) for maximum output.

L.W.—Switch receiver to L.W., tune to 160 kc/s, feed in a 160 kc/s (187.5 m) signal and adjust C33 (A1) for maximum output, while rocking the gang for optimum results. Tune receiver to 350 kc/s, feed in a 350 kc/s (857 m) signal and adjust C32 (A2) for maximum output. Repeat these adjustments until no further improvement results.

M.W. Aerial.—Replace back cover, switch receiver to M.W., tune to 1,500 kc/s, feed in a 1,500 kc/s (200 m) signal and adjust C28 (A2) through back cover for maximum output.

L.W. Check.—Remove back cover, switch receiver to L.W., tune to 350 kc/s, feed in a 350 kc/s (857 m) signal and readjust C33 (A1) for maximum output while rocking gang for optimum results.

Tracker C33.—This is a special type of capacitor, with a fixed and a variable section. Its combined value is 250 pF minimum and 400 pF maximum.

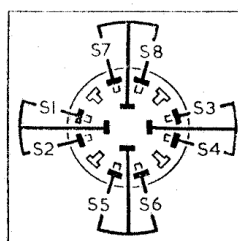


Diagram of the waveband switch unit, as seen in our rear chassis illustration. Below is the associated table.

Switch	M.W.	L.W.
S1	C	—
S2	—	C
S3	—	C
S4	C	—
S5	C	—
S6	—	C
S7	—	C
S8	C	—