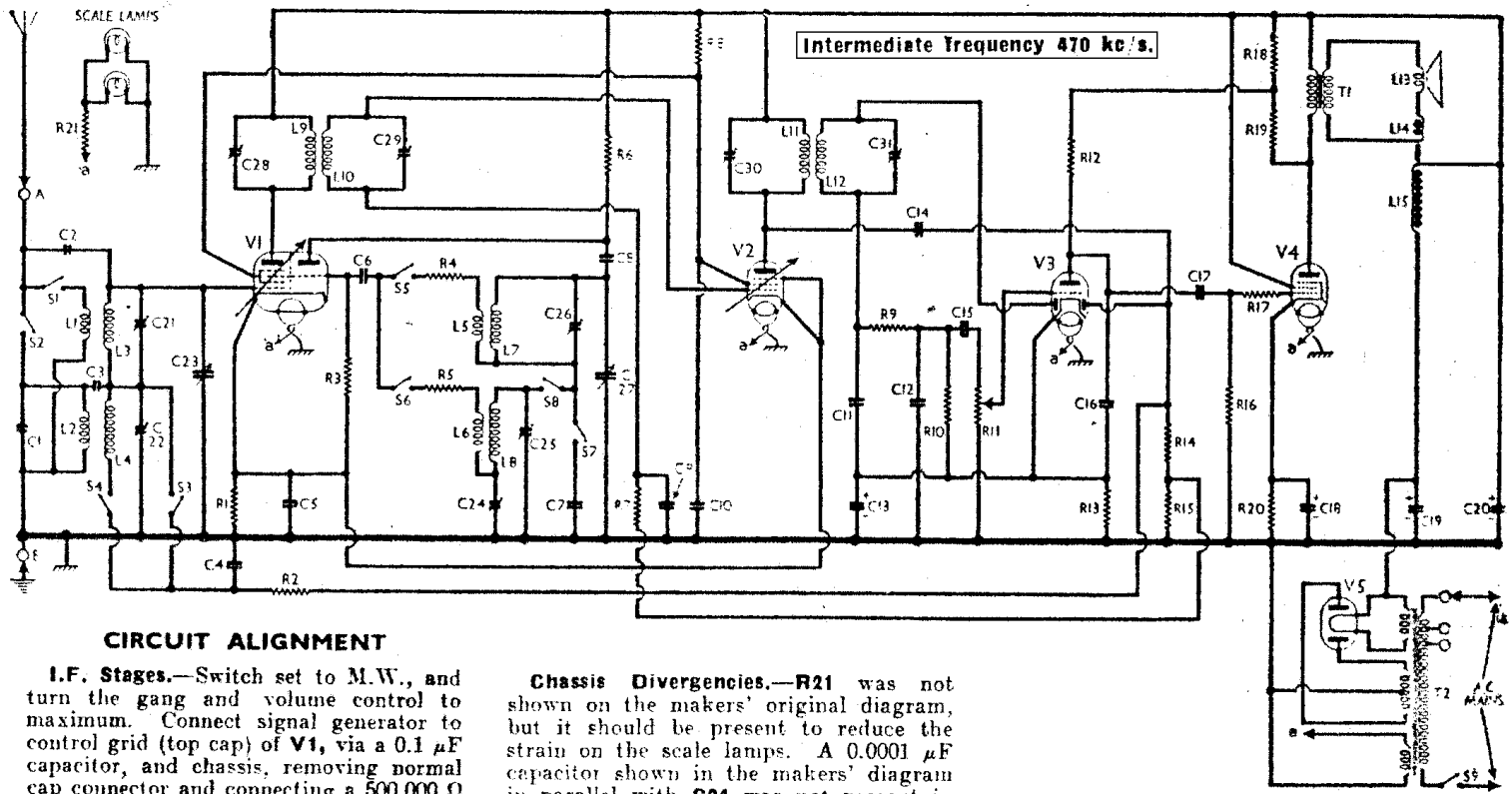
FERGUSON - 450

OTHER COMPONENTS			Approx. Values (ohms)
L1	Aerial S.W. coupling coil		1·4
L2	Aerial M.W. coupling coil		30·0
L3	Aerial S.W. tuning coil		Very low
L4	Aerial M.W. tuning coil		3·0
L5	Osc. S.W. reaction coil		0·15
L6	Osc. M.W. reaction coil		1·0
L7	Osc. S.W. tuning coil		Very low
L8	Osc. M.W. tuning coil		2·0
L9	1st I.F. trans.	Pri.	8·5
L10		Sec.	8·5
L11	2nd I.F. trans.	Pri.	8·5
L12		Sec.	8·5
L13	Speaker speech coil		3·0
L14	Hum neutralising coil		0·1
L15	Speaker field coil		1,200·0
T1	Speaker input trans.	Pri.	450·0
		Sec.	0·4
T2	Mains trans.	Prl., total	31·0
		Heater sec.	0·2
		Rect. heat sec.	0·2
		H.T. sec., total	550·0
S1–S8	Waveband switches		—
S9	Mains switch, ganged R11		—

RESISTORS		Values (ohms)
R1	V1, V2 fixed G.B. resistor	150
R2	V1 hex. C.G. decoupling	680,000
R3	V1 osc. C.G. resistor	56,000
R4	Osc. S.W. reaction damping	50
R5	Osc. M.W. reaction damping	2,700
R6	V1 osc. anode H.T. feed	22,000
R7	V2 C.G. decoupling	680,000
R8	V1, V2 S.G.'s H.T. feed	27,000
R9	I.F. stopper	56,000
R10	V3 signal diode load	680,000
R11	Manual volume control	2,000,000
R12	V3 triode anode load	50,000
R13	V3 G.B. resistor; A.V.C. delay	1,500
R14	V3 A.V.C. diode load resistors	680,000
R15		680,000
R16	V4 C.G. resistor	680,000
R17	V4 grid stopper	4,700
R18	Negative feed-back resistors	4,700
R19		100,000
R20	V4 G.B. resistor	200
R21	Scale lamp ballast	2

CAPACITORS		Values (μF)
C1	Aerial M.W. shunt	0·00002
C2	S.W. "top" coupling	0·000002
C3	M.W. "top" coupling	0·000005
C4	V1 hex. C.G. decoupling	0·1
C5	V1 cathode by-pass	0·1
C6	V1 osc. C.G. capacitor	0·0001
C7	Osc. circ. S.W. tracker	0·005
C8	V1 osc. anode coupling	0·0001
C9	V2 C.G. decoupling	0·1
C10	V1, V2 S.G.'s decoupling	0·1
C11	I.F. by-pass capacitors	0·00015
C12		0·0001
C13*	V3 cathode by-pass	25·0
C14	V3 A.V.C. diode coupling	0·0001
C15	A.F. coupling to V3 triode	0·02
C16	I.F. by-pass	0·0001
C17	A.F. coupling to V4	0·02
C18*	V4 cathode by-pass	25·0
C19*	H.T. smoothing capacitors	16·0
C20*		16·0
C21‡	Aerial S.W. trimmer	0·00003
C22‡	Aerial M.W. trimmer	0·00022
C23†	Aerial circuit tuning	—
C24‡	Osc. circ. M.W. tracker	0·00005
C25‡	Osc. circ. M.W. trimmer	0·00003
C26‡	Osc. circ. S.W. trimmer	0·00003
C27†	Oscillator circuit tuning	—
C28‡	1st I.F. trans. pri. tuning	0·00015
C29‡	1st I.F. trans. sec. tuning	0·00015
C30‡	2nd I.F. trans. pri. tuning	0·00015
C31‡	2nd I.F. trans. sec. tuning	0·00015

* Electrolytic. † Variable. ‡ Pre-set.



CIRCUIT ALIGNMENT

I.F. Stages.—Switch set to M.W., and turn the gang and volume control to maximum. Connect signal generator to control grid (top cap) of **V1**, via a 0.1 μF capacitor, and chassis, removing normal cap connector and connecting a 500,000 Ω resistor between it and the valve cap. Feed in a 470 kc/s (638.3 m) signal, and adjust **C28, C29, C30** and **C31** for maximum output. Replace top cap connector.

R.F. and Oscillator Stages.—With the gang at maximum, pointer should be in line with the scale end markers. Transfer signal generator leads to **A** and **E** leads via a suitable dummy aerial. This may be a 0.0002 μF capacitor for M.W., but it is very important that it should be a 400 Ω resistor for S.W.

M.W.—Switch set to M.W., tune to 214 m on scale, feed in a 214 m (1,400 kc/s) signal, and adjust **C25**, then **C22** for maximum output. Feed in a 500 m (600 kc/s) signal, tune it in, and adjust **C24** for maximum output, while rocking the gang. Recheck at 214 m.

S.W.—Switch set to S.W., tune to 20 Mc/s on scale, feed in a 20 Mc/s (15 m) signal, and adjust **C26** for maximum output, taking care to select the peak involving the lesser trimmer capacity if two are found. Then adjust **C21** for maximum output, while rocking the gang for optimum results. Check at 6 Mc/s (50 m).

Chassis Divergencies.—**R21** was not shown on the makers' original diagram, but it should be present to reduce the strain on the scale lamps. A 0.0001 μF capacitor shown in the makers' diagram in parallel with **C24** was not present in our sample, but it is added in cases where the capacitance of **C24** is required to be increased beyond its maximum. In some cases, also, **R9** may be 50,000 Ω.

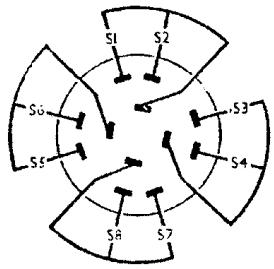


Diagram of the waveband switch unit, as seen from the rear of an inverted chassis.