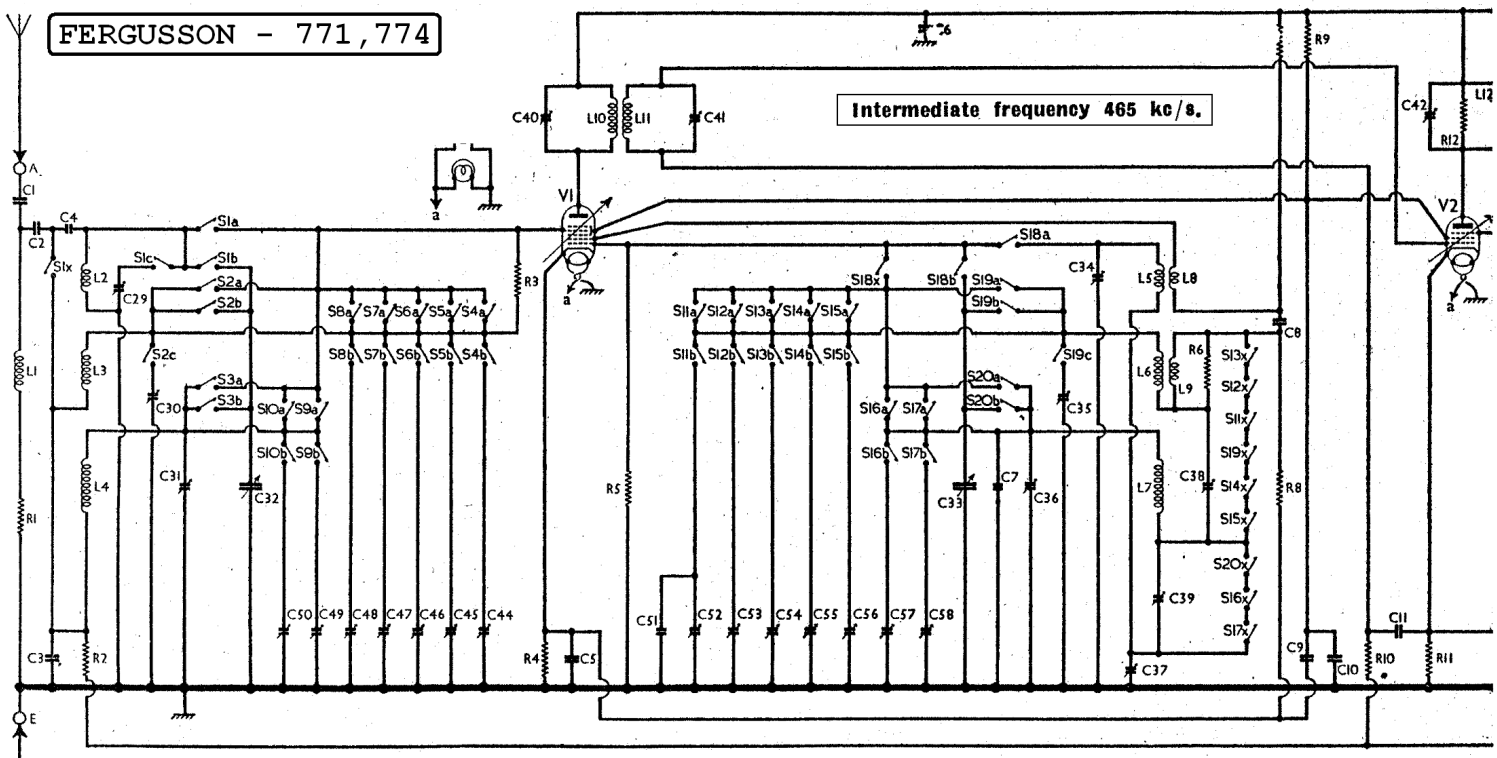
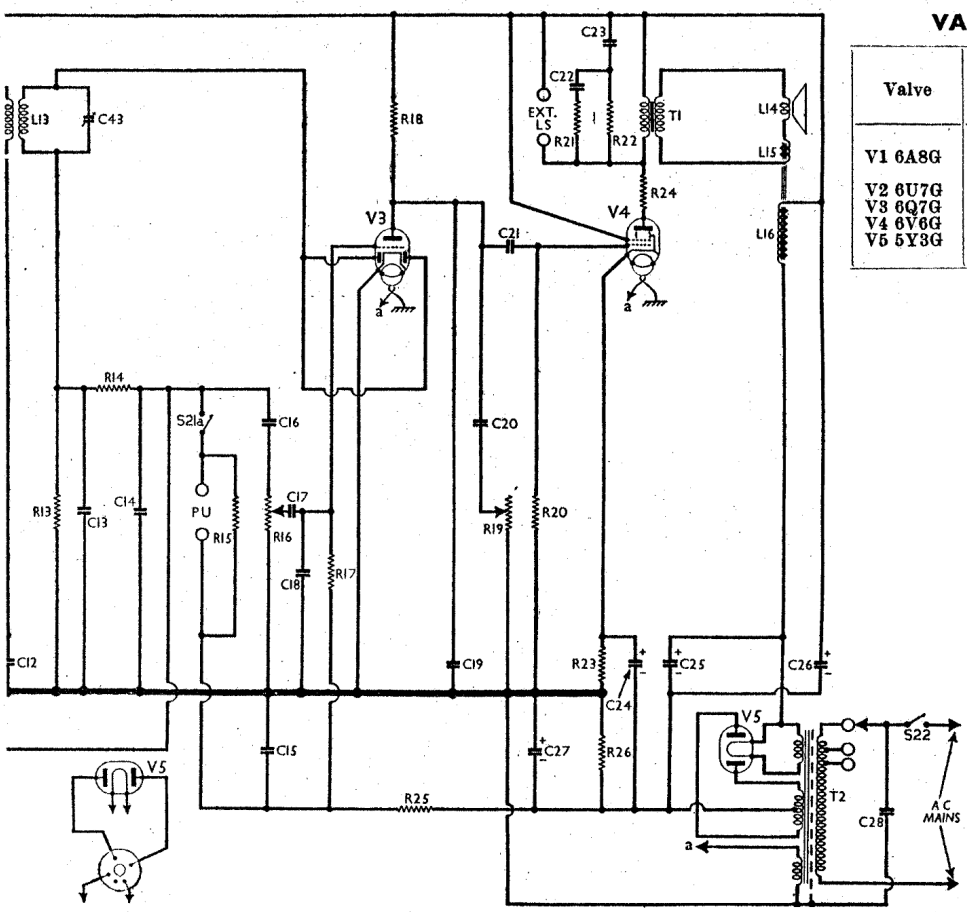
FERGUSSON - 771, 774





VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6A8G	240	5·2	90	3·4
	Oscillator			
	138	3·1		
V2 6U7G	240	7·2	90	2·1
V3 6Q7G	115	0·4	—	—
V4 6V6G	220	35·0	240	3·2
V5 5Y3G	315†	—	—	—

† Each anode, AC.

	RESISTORS	Values (ohms)
R1	Anti-modulation damping	10,000
R2	V1 tetrode CG decoupling	500,000
R3	V1 tetrode CG resistor ...	3,000,000
R4	V1 fixed GB resistor ...	150
R5	V1 osc. CG resistor ...	500,000
R6	Osc. MW reaction damping	2,500
R7	V1 osc. anode HT feed	25,000
R8	V1 osc. CG resistor ...	50,000
R9	V1, V2 SG's HT feed ...	25,000
R10	V2 CG decoupling ...	500,000
R11	V2 fixed GB resistor ...	300
R12	2nd IF trans. pri. damping	600,000
R13	V3 diodes load resistor...	500,000
R14	IF stopper	25,000
R15	Gramophone PU shunt	25,000
R16	Manual volume control...	500,000
R17	V3 triode CG resistor ...	500,000
R18	V3 triode anode load ...	250,000
R19	Variable tone control ...	100,000
R20	V4 CG resistor	500,000
R21, R22	Parts of fixed tone corrector	10,000 each
R23	V4 GB resistor	300
R24	V4 anode stopper ...	100
R25	V3 CG decoupling ...	250,000
R26	V3 GB resistor	35

	CONDENSERS	Values (μF)
C1	Aerial series condenser...	0·0005
C2, C3	Aerial circuit LW coupling potential divider	0·0001, 0·004
C4	Aerial SW coupling ...	0·00002
C5	V1 cathode by-pass ...	0·1
C6	HT circuit RF by-pass...	0·1
C7	Osc. LW fixed trimmer...	0·00006
C8	V1 osc. anode coupling...	0·00025
C9	V1 SG RF by-pass ...	0·00025
C10	V1, V2 SG's decoupling	0·1
C11	V2 CG decoupling ...	0·1
C12	V2 cathode by-pass ...	0·1
C13, C14	IF by-pass condensers ...	0·00025, 0·00025
C15	V3 triode CG decoupling	0·25
C16, C17	AF coupling condensers to V3 triode	0·02, 0·02
C18, C19	IF by-pass condensers...	0·00015, 0·00025
C20	Part tone control ...	0·01
C21	V3 triode to V4 coupling	0·01
C22, C23	Parts of fixed tone corrector	0·01, 0·01
C24*	V4 cathode by-pass ...	5·0
C25*, C26*	HT smoothing condensers	16·0, 8·0
C27*	V3 GB circuit by-pass ...	25·0
C28	Mains RF by-pass ...	0·01
C29‡	Aerial SW (manual) trimmer	—
C30‡	Aerial MW (manual) trimmer	—
C31‡	Aerial LW trimmer ...	—
C32†	Aerial manual tuning ...	—
C33†	Oscillator manual tuning	—
C34‡	Osc. circ. SW trimmer...	—
C35‡	Osc. MW (manual) trimmer	—
C36‡	Osc. circ. LW trimmer...	—
C37‡	Osc. circ. SW tracker ...	—
C38‡	Osc. circ. MW tracker ...	—
C39‡	Osc. circ. LW tracker ...	—
C40‡	1st IF trans. pri. tuning	—
C41‡	1st IF trans. sec. tuning	—
C42‡	2nd IF trans. pri. tuning	—
C43‡	2nd IF trans. sec. tuning	—
C44‡, C45‡, C46‡, C47‡, C48‡	Aerial circuit MW automatic tuning trimmers	—
C49‡, C50‡	Aerial circuit LW automatic tuning trimmers	—
C51		0·00005
C52‡, C53‡, C54‡, C55‡, C56‡	Oscillator circuit MW automatic tuning trimmers	—
C57‡, C58‡	Oscillator circuit LW auto tuning trimmers	—

* Electrolytic. † Variable. ‡ Pre-set.

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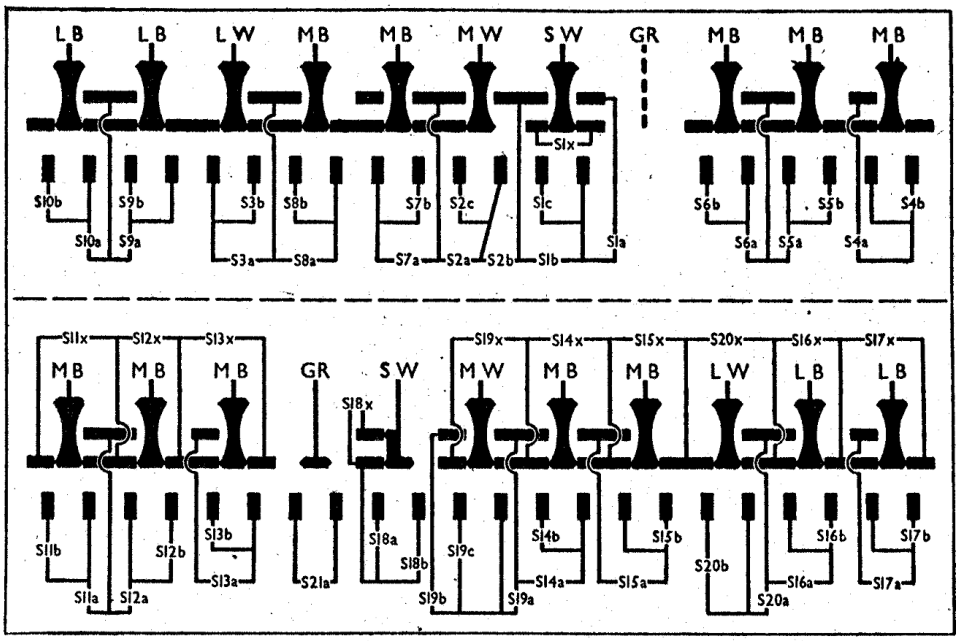

Diagrams showing both sides of the press-button switch unit. The lower view is that seen from beneath the chassis, and the upper one is that facing the underside of the chassis deck.

CHASSIS DIVERGENCIES

A few chassis went out at the beginning of the run with a rather different circuit. Our sheet has been prepared from one of the later chassis, which can be identified by the fact that the screw holding the **L1** unit at the back of the chassis has a black washer underneath its head, while the early models have no such washer. The arrangement of the press-buttons is also different. Reading from left to right, looking at the front of the set, our chassis has buttons as follows: Three MW pre-set; gram; SW; MW; two MW pre-set; LW; two LW pre-set. The arrangement in the early chassis was: Three MW pre-set; Gram; SW; MW; LW; two MW pre-set; two LW pre-set.

In early chassis also, the aerial coupling on SW was different, the bottom end of **L2** being returned to the junction of **R2, C3** and **S1x.** The oscillator circuit switching and coil arrangements were also slightly different, and trackers **C37** and **C38** were interchanged in position.

In some chassis, too, the fixed tone corrector may be modified, **R21, C22** being omitted, and **C51,** in the oscillator auto-tuning bank, may not be present.

CIRCUIT ALIGNMENT

IF Stages.—Remove the grid (top cap) connection of **V1,** and connect a 500,000 Ω resistor between the connection and the cap. Connect signal generator between the cap (via a 0.00025 μF condenser) and chassis. Switch set to MW, and turn gang and volume control to maximum.

Feed in a 465 kc/s (645.16 m) signal, and adjust **C43, C42, C41** and **C40** for maximum output. Re-check these settings, then remove the resistor and replace top cap.

RF and Oscillator Stages.—With the gang at maximum, pointer should be at the right hand terminations of the horizontal scales. Connect signal generator to **A** and **E** leads, via a suitable dummy aerial. Turn volume control to maximum.

SW.—Since the SW tracker is in series with the MW and LW trackers it is essential to align the SW band first.

Switch set to SW, tune to 15 Mc/s on scale, and feed in a 15 Mc/s (20 m) signal. Adjust **C34** for maximum output, using the peak involving the lesser trimmer capacity. Now adjust **C29** for maximum output.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Anti-modulation choke ...	20·0
L2	Aerial SW tuning coil ...	0·1
L3	Aerial MW tuning coil ...	3·0
L4	Aerial LW tuning coil ...	17·0
L5	Osc. SW tuning coil ...	0·1
L6	Osc. MW tuning coil ...	3·0
L7	Osc. LW tuning coil ...	5·0
L8	Osc. SW reaction ...	0·5
L9	Osc. MW reaction ...	1·0
L10	1st IF trans. Pri. ...	9·0
L11	1st IF trans. Sec. ...	11·0
L12	2nd IF trans. Pri. ...	12·0
L13	2nd IF trans. Sec. ...	9·0
L14	Speaker speech coil ...	2·0
L15	Hum neutralising coil ...	0·15
L16	Speaker field coil ...	1,800·0
T1	Speaker input trans. Pri. ...	500·0
	Speaker input trans. Sec. ...	0·5
T2	Mains trans. Pri., total ...	30·0
	Mains trans. Heater sec. ...	0·05
	Mains trans. Rect. heat. sec.	0·1
	Mains trans. HT sec., total	360·0
S1a, b, c, x S18a, b, x	SW manual button groups	—
S2a, b, c S19a, b, c, x	MW manual button groups	—
S3a, b S20a, b, x	LW manual button groups	—
S4a, b to S8a, b S11a, b, x to S15a, b, x	MW automatic button groups	—
S9a, b S10a, b S16a, b, x S17a, b, x	LW automatic button groups	—
S21a	Gram PU switch ...	—
S22	Mains switch, ganged R16	—

Feed in a 6 Mc/s (50 m) signal, tune it in, and adjust **C37** for maximum output, while rocking the gang for optimum results. Return to 15 Mc/s and re-check **C29** and **C34.** Repeat until no further improvement results.

MW.—Switch set to MW and tune to 250 m on scale. Feed in a 250 m (1,200 kc/s) signal, and adjust **C35,** the **C30** for maximum output. Feed in a 520 m (580 kc/s) signal, tune it in, and adjust **C38** for maximum output, while rocking the gang for optimum results. Return to 250 m and re-check **C35** and **C30.** Repeat until no further improvement results.

LW.—Switch set to LW, and tune to 1,250 m on scale. Feed in a 1,250 m (240 kc/s) signal, and adjust **C36,** then **C31,** for maximum output. Feed in a 2,000 m (150 kc/s) signal, tune it in and adjust **C39** for maximum output, while rocking the gang for optimum results. Return to 1,250 m and re-check **C36** and **C31.** Repeat until no further improvement results.