

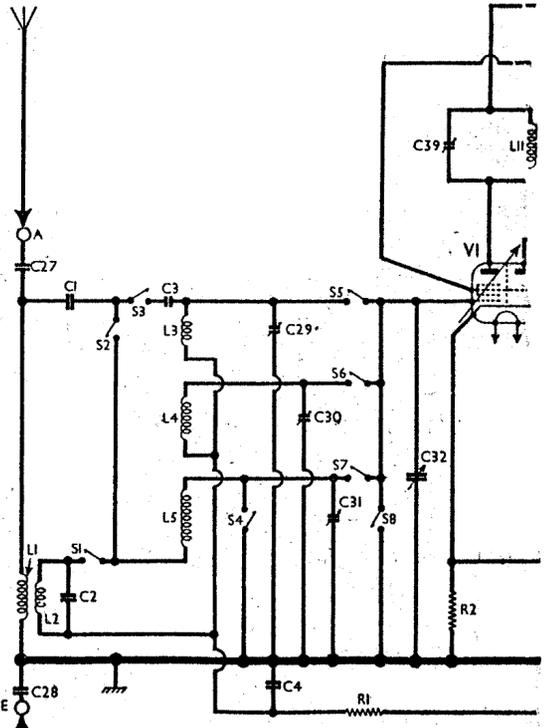
FERGUSON - 101U

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	500,000
R8	V1, V2, SG's HT feed	60,000
R9	V2 fixed GB resistance	300
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	1,000
R14	V3 triode anode load	50,000
R15	V3 AVC diode load resistances	560,000
R16	V4 CG resistance	560,000
R17	V4 GB resistance	150
R18	V4 anode stopper	100
R19	Variable tone control	100,000
R20	V5 surge limiter	100
R21	Scale lamp shunt	200

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 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	Mains RF by-pass	0.01
C25*	V4 cathode by-pass	25.0
C26	PU mains isolator	0.1
C27	Aerial mains isolator	0.002
C28	Earth mains isolator	0.1
C29†	Aerial circ. SW trimmer	0.00003
C30†	Aerial circ. LW trimmer	0.00003
C31†	Aerial circ. LW trimmer	0.00011
C32†	Aerial circuit tuning	—
C33†	Osc. circuit MW tracker	0.0006
C34†	Osc. circuit LW tracker	0.00025
C35†	Osc. circuit SW trimmer	0.00003
C36†	Osc. circuit MW trimmer	0.00003
C37†	Osc. circuit LW trimmer	0.0002
C38†	Oscillator circuit tuning	—
C39†	1st IF trans. pri. tuning	—
C40†	1st IF trans. sec. tuning	—
C41†	2nd IF trans. pri. tuning	—
C42†	2nd IF trans. sec. tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

Intermediate frequency 470 KC/S.

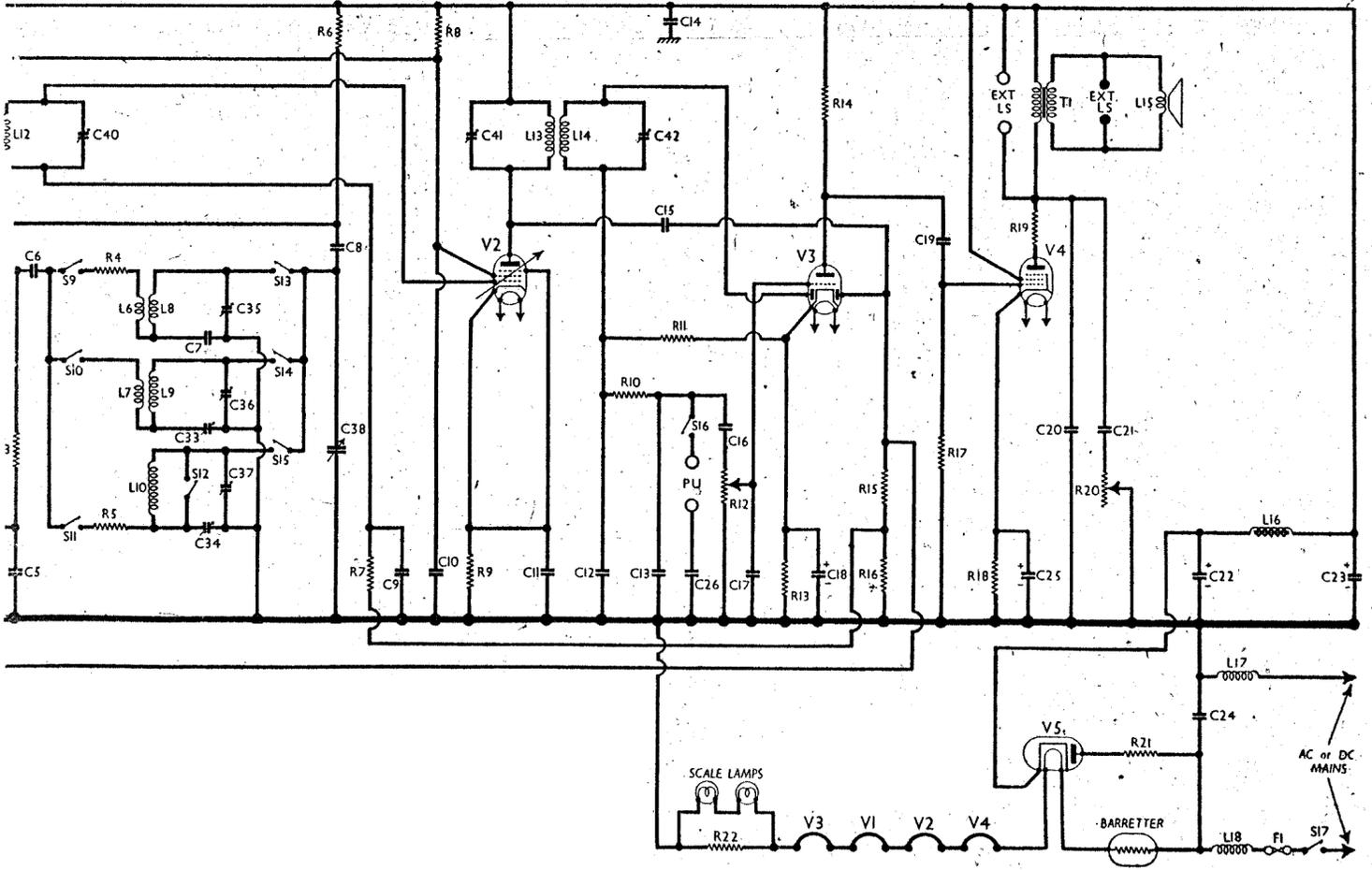


VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 CCH35	225	0.8	65	1.5
V2 EF39	105	3.9	65	1.1
V3 EFG33	225	3.8	225	10.0
V4 CL33	200	5.0	—	—
V5 CV31	250†	—	—	—

† Cathode to chassis, DC.

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		Sec. 8.5
L13	2nd IF trans.	Pri. 8.5
L14		Sec. 8.5
L15	Speaker speech coil	2.0
L16	HT smoothing choke	300.0
L17	Mains filter chokes	4.5
L18		4.5
T1	Speaker input trans.	Pri. 400.0 Sec. 0.3
F1	Mains fuse, 5A	—
S1-S15	Waveband switches	—
S16	Gram PU switch	—
S17	Mains switch, ganged R12	—



**EXPORT MODEL
MODIFICATIONS**

The export version of the 101 series employs what is virtually the standard English chassis with modifications to suit overseas requirements. There are an AC and an AC/DC model, and they are distinguished by the suffix letter "X" in their type numbers: 101X is the export version of the 101 AC ("Trader" Service Sheet 550); and 101UX is that of the 101U, which is covered by this Service Sheet. Special AC and AC/DC models have an additional mains voltage tapping for low voltage mains. This is available in "X" models only.

The differences between the English and export models are exactly the same in the AC and AC/DC models, and the following remarks apply equally to the 101X and 101UX, with the single exception that in the original 101 AC we found that V4 cathode by-pass was omitted, whereas it is present in the 101X.

Three wavebands are provided in the export models, but they comprise two SW bands (SW1 and SW2) and one MW band (referred to in makers' manual as "BB"). There is no LW band. The aerial and oscillator circuits are, therefore, very different from those of the English models, and we include a separate diagram showing the modified part of the circuit in cols. 5 and 6.

For convenient reference, the sheet may be folded to permit the modified circuit to overlap the original drawing overleaf and thus show the complete diagram of the 101UX.

The SW1 band in the 101UX is the same as the SW band in the 101U; the SW2 band takes up the position occupied in the 101U by the MW band; and the MW band, with a modified aerial circuit, moves down in the diagram to the position occupied in the 101U by the LW band. The SW2 wave range is 50-166.5 m.

In the modified diagram all the numbered components bear the same number as they do in the 101U diagram overleaf. Additional components (mostly those introduced with the SW2 band) are not numbered, while some components (those associated with the discarded LW band and the special aerial coupling circuits) are omitted from the modified diagram.

It will be seen that the original SW band (now SW1) is unaffected in the modified version. The aerial coupling coils for SW2 and MW bands are connected in series across the aerial circuit, while the original LW short-circuiting switches S4 and S12 are transferred to the MW band. Another switch, which is connected across the new MW aerial coupling coil, closes on SW2, so that while this band is in operation all the MW aerial and oscillator coils except L7 are short-circuited.

The switches, with the exception of the one just mentioned, all bear the same numbers as they do in the 101U diagram overleaf. It is apparent from the makers' diagram of the "X" models that the

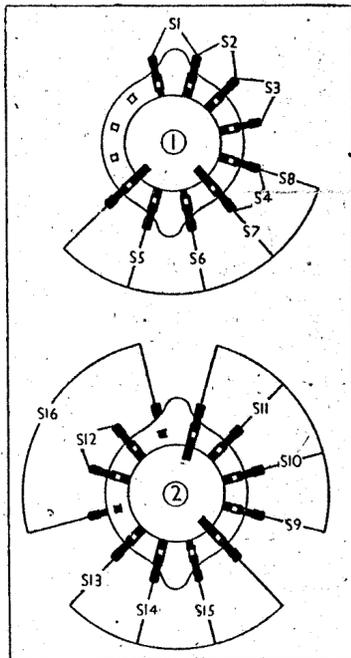
order of switching, from the fully anti-clockwise position of the control, is: SW1, SW2, MW, gram; so that S6, S10 and S14 now close on SW2 instead of MW, and S7, S11 and S15 now close on MW instead of LW. This is, of course, consistent with our suggestion that the MW circuits have been moved down in the diagram to the original LW position.

The positions of the pre-set condensers are in the same band sequence as in the English model; that is to say, SW1 adjustments are in the positions occupied by the SW adjustments in the 101U, SW2 adjustments take the positions vacated by the MW band, and the MW band adjustments take up positions occupied in the 101U by LW adjustments.

**CIRCUIT ALIGNMENT
(Export Models)**

The order of alignment in the makers' instruction is IF stages, SW1, SW2 and MW. Except for the SW2 band, the procedure for the 101U may be followed. The following is the procedure for SW2, assuming the IF and SW1 to have been completed:

Switch set to SW2, tune to 4.5 MC/S on scale, feed in a 4.5 MC/S (66.7 m) signal, and adjust the oscillator and aerial SW2 trimmers for maximum output. Feed in a 1.8 MC/S (166.7 m) signal, tune it in, and adjust the SW2 tracker for maximum output while rocking the gang for optimum results. Check calibration at 4.5 MC/S.



Diagrams of the switch units viewed from the rear of the underside of the chassis. The switch table is below.

Switch	SW	MW	LW	Gram.
S1	—	—	C	—
S2	—	C	—	—
S3	C	—	—	—
S4	—	C	—	C
S5	C	—	—	—
S6	—	C	—	—
S7	—	—	C	—
S8	—	—	—	C
S9	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 C42, C41, C40 and C39 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 C35, using the peak involving the lesser capacity, and then C29, 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 C36, then C30, for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C33 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 C37, then C31, for maximum output. Feed in a 2,000 m (150 KC/S) signal, tune it in, and adjust C34 for maximum output while rocking the gang for optimum results. Repeat the 1,250 m adjustments.

