FERGUSON 501

Four-valve, plus rectifier, three-waveband superhet. Provision is made for a pickup and high resistance loudspeaker. Suitable for operation from AC mains 200–250 v, 50–100 cycles. Marketed by Ferguson Radio Corp. Ltd. Services and spares by TEI Service, 55 Blossom Street, Manchester 4.

AERIAL signals are fed *via* C1 and C2 to th short wave coupling coil L2. Coupling on medium and long waves is effected by C3 to the grid coils L4 (MW), L5 (LW). L1 is claimed to minimise modulation hum with R1 to broaden any resonant peak.

Signals from the grid coils are fed to the control grid of the frequency-changer V1, which is cathode biased by R3, decoupled by C5. The oscillator section employs tuned grid circuits L6 (SW), L8 (MW) and L10 (LW). Feed-back is established by L7 and L9 on SW and MW with common coupling across T13 on LW.

An intermediate frequency transformer L11, L12 couples V1 to the IF amplifier pentode V2, which is biased by R10 decoupled by C11. A second IF transformer L13, L14 passes on the signal to the strapped diodes of the double diode triode V3.

The load resistance is R11, and LF signals are fed *via* C12 to the volume control VR1. The DC component across R11 is used for automatic volume control and is applied *via* decoupling components to the grid circuits of V1 and V2.

V3 is cathode biased by R12, decoupled by C16, and a variable tone control comprising VR2, C14 and C15 is connected across the signal load circuit. Pickup sockets are provided across the volume control input.

VALVE READINGS

V	*Type*	*Electrode*	*Volts*	*Mas*
1	FC4	Anode	247	1.2
		Osc anode	78	3.7
		Screen	71	4
2	VP4B	Anode	247	13
		Screen	248	4.6
3	TDD4	Anode	51	.3
4	PEN4VA	Anode	227	28.5
		Screen	248	2.6
5	DW4/350	Anodes	330AC each	

Pilot lamps 4.5v, .3 amps MBC

Readings taken with volume control at maximum on 200m with no signal input.

The low frequency signals from V3 are resistance-capacity coupled by R13, C17 and R14 to the grid of the output pentode V4. IF filtering is effected by C18 and cathode bias derived from R16, decoupled by C19.

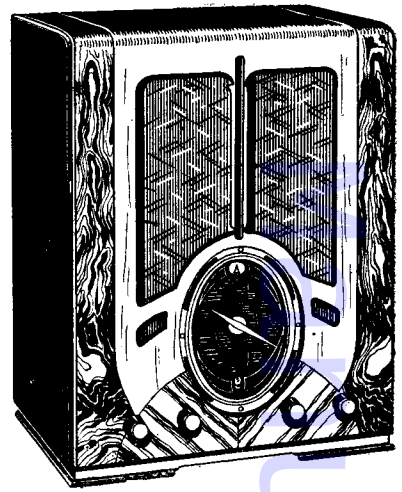
A permanent degree of tone correction is effected by C20 across the primary L15 of the output transformer which couples V4 to the moving-coil energised loudspeaker. Extra loudspeaker sockets are provided across L15 for a high-resistance loudspeaker.

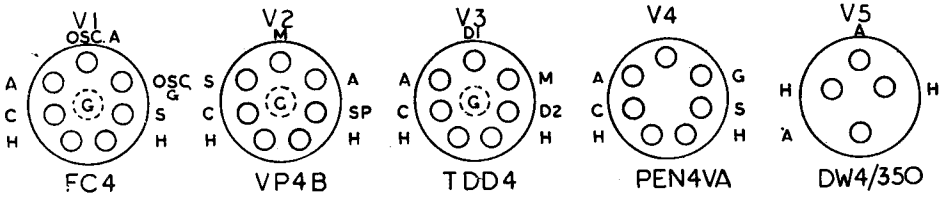
The supply circuits for high and low tension are conventional. V5 is a full-wave rectifier, and its output is smoothed by the field winding L19 and

Continued overleaf

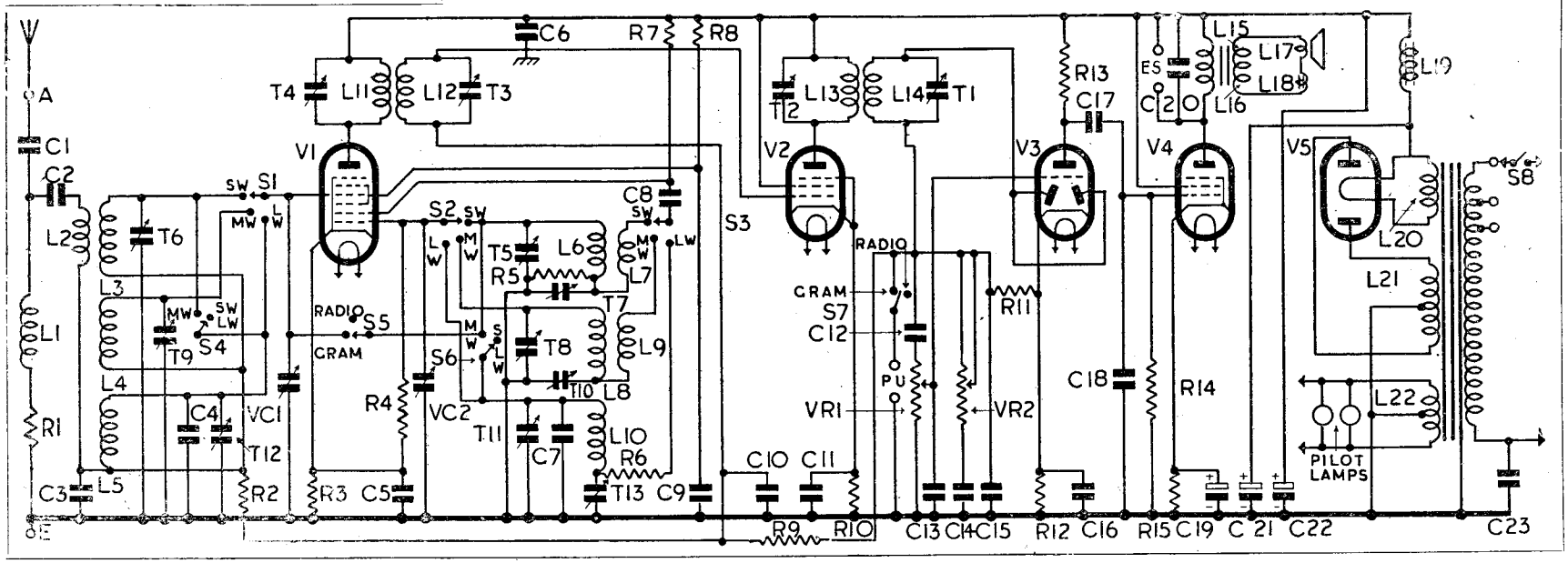
RESISTORS

R	*Ohms*	*R*	*Ohms*
1	2,500	10	300
2	500,000	11	500,000
3	300	12	10,000
4	25,000	13	500,000
5	500,000	14	500,000
6	2,500	15	600
7	50,000	VR1	500,000
8	50,000	VR2	500,000
9	500,000		





Left, the bases of the valves as seen with set inverted : the letters code the electrodes. Below, the circuit of this four-valve, plus rectifier, AC superhet.



CONDENSERS

C	*Mfd*
1	.00025
2	.00025
3	.002
4	25mmfd
5	.1
6	.1
7	.00011
8	.00025
9	.1
10	.1
11	.1
12	.01
13	.00025
14	.01
15	.002
16	25
17	.01
18	.00025
19	5
20	.002
21	8
22	8
23	1.0

WINDINGS

L	*Ohms*
1	19
2	Low
3	Low
4	3
5	16.5
6	Low
7	.1
8	2
9	.6
10	5
11	9.5
12	12
13	12
14	9.5
15	650
16	.25
17	1.5
18	.15
19	1,800
20	.75
21 (total)	380
22	Low
23 (total)	26

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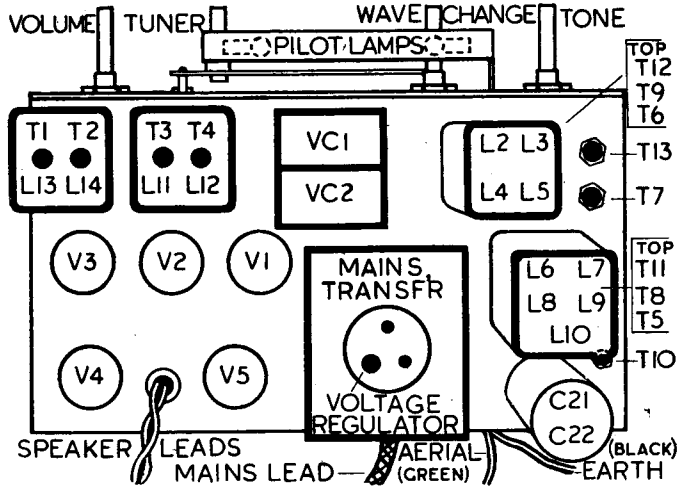
—Continued—

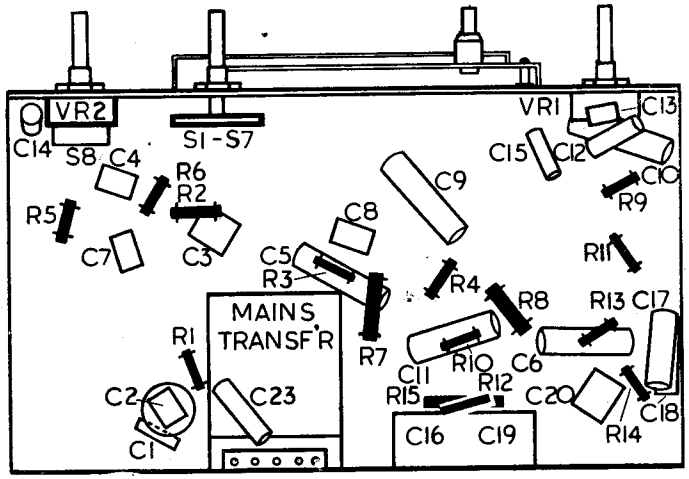
condensers C21, C22. Mains HF filtering is provided by C23.

GANGING

IF Circuits.—Switch receiver to long waves and tune condenser to maximum capacity.

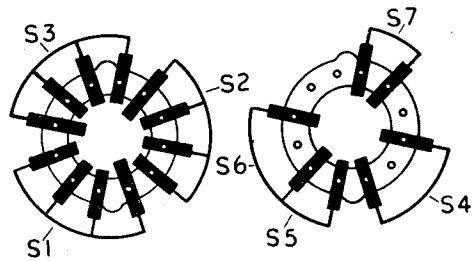
Inject a 465 kc signal into the grid cap of V2, and adjust T1, T2, T3, and T4 for maximum output, keeping the input low to avoid AVC action.





These two diagrams identify the components above and below the Ferguson chassis.

Below, details of the single switch bank. On the left is the view as seen from the back of the chassis.



SW Band.—Check tuning pointer. It should be vertical when the gang is at maximum capacity. Marks on the scale are provided for this check.

First adjust T7, T10 and T13 at the upper end of each band with the gang condenser at maximum capacity. This may be accomplished by connecting a high frequency signal *via* a 50 mmfd condenser to aerial lead and adjusting the trackers for maximum output.

Switch receiver to SW and inject a 21 m signal into the aerial and earth leads. Tune receiver to 21 m on scale and adjust T5, T6 for maximum output.

Adjust tuning condenser to full capacity and re-adjust T7 as described above. Check adjustments of T5 and T6. If T5 peaks at two places, adjust to the peak with the least trimmer capacity.

MW Band.—Injeet a signal of 250 m. Tune receiver to this wavelength on the scale, and adjust T8 and T9 for maximum output.

Adjust tracking condenser T10 as described above.

LW Band.—Switch receiver to LW. Tune it to 1200 m. and inject a signal of this wavelength.

Adjust T11 and T12 for maximum output, and track T13 as described above.