

MARCONIPHONE MODEL 260 (Cont.)

the auxiliary grids of the pentodes, and the correct position for matching should be found by connecting the m.a. meter in each anode lead (between the leads and terminals 3 and 5 on the speaker transformer) and inserting the plugs into the sockets which give the same anode current for each valve. The no-signal current for each should not exceed 1.2 m.a.

The pilot lamps are 2 v. .06 amp. type.
Removing Chassis.—Remove the knobs (grub screws, centre screw on small adjustment).

Disconnect the speaker leads from the transformer. Remove accumulator case by undoing two screws on platform and one at the back of the case. Remove the four holding bolts from underneath the battens.

VALVE READINGS

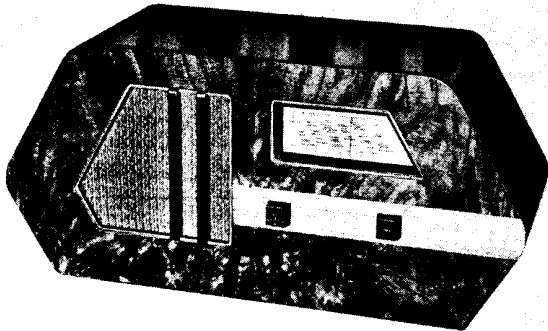
No signal. V.C. just below oscillation point.					
Valve.	Type.	Electrode.	Volts.	M.A.	
1	VS2 met. (4)	anode	145	1	
		screen	50		
2	HL2 met. (4)	anode	60	1.5	
3 & 4	PT 2 (5)	anode*	166	1.2	
		aux.grid.*			

* See special notes.

General Notes.—Connections to the condenser block:—

- C11, yellow leads.
- C9, red leads.
- C5, yellow and red lead.
- C4, green and black lead.
- Black lead is common to C9, C5, and C4.

Replacing Chassis.—Slide the chassis on to the battens and replace the four holding screws, remembering the earthing lead and washers. Replace the battery case with three screws, reconnect the speaker leads, and replace the knobs.



The 235 is one of the most distinctively-housed receivers on the market.

McMICHAEL 235

Circuit.—The combined first-detector oscillator valve, A.C./T.P. met. (V1), a triode pentode, has a band-pass aerial coupling, and is followed by a band-pass I.F. transformer (frequency, 128.5 kc.).

Bias for the pentode section is by A.V.C. and cathode resistance, and the oscillator grid circuit contains a harmonic suppressor R4.

The I.F. valve, MVS Pen. met. (V2), is also biased by A.V.C. and cathode resistance,

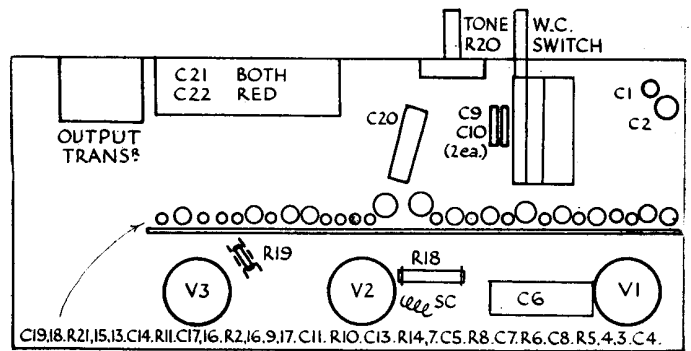
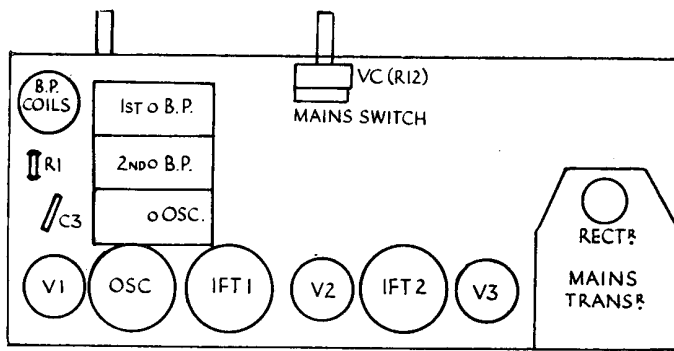
and is followed by a second band-pass I.F. transformer.

The second detector and output valve, A.C.2 Pen. DD. (V3), is a double-diode output pentode. The diode anodes are used in the conventional manner, with the volume control forming the grid leak of the pentode section.

Mains equipment consists of: Transformer with screened primary, full-wave 442 BU rectifier, and the speaker field in the positive H.T. lead with electrolytic condensers.

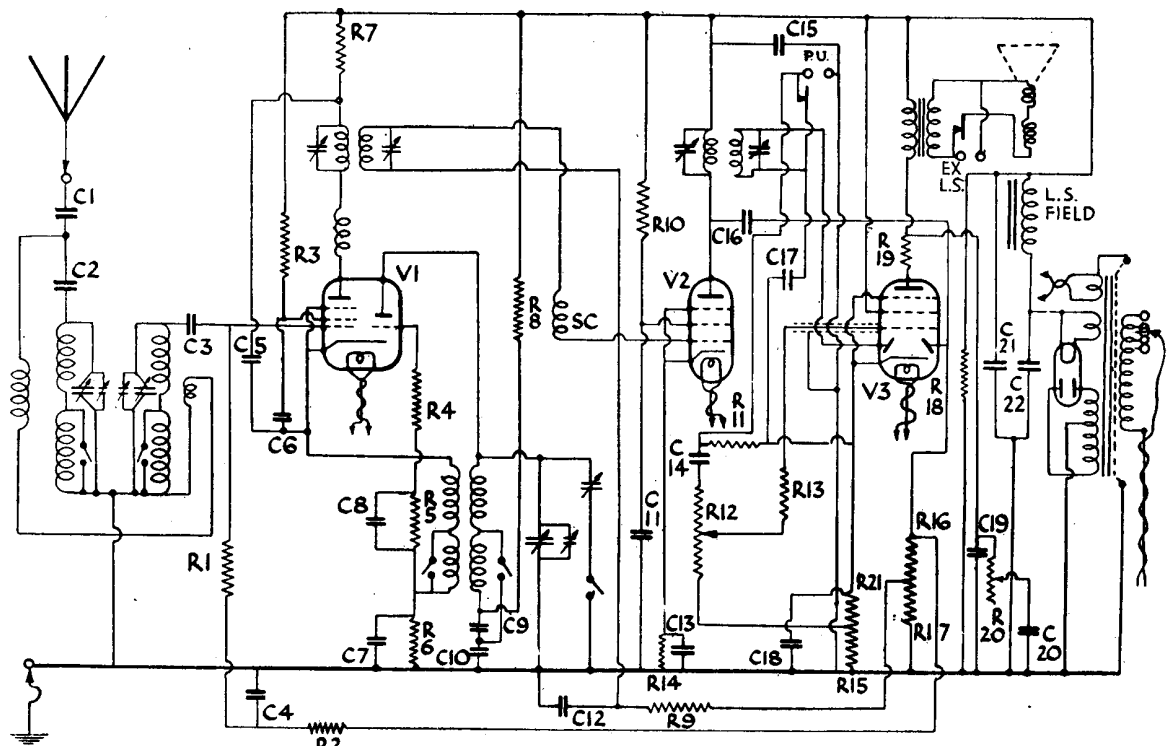
Special Notes.—The external low-impedance speaker plug operates a jack switch

(Continued on next page.)



As the under chassis layout diagram shows (above, right) the output transformer is inaccessible for Quick Test purposes. The first tests of the 235 should be, therefore, valve tests.

A triode-pentode frequency-changer is followed by a variable-mu H.F. pentode and a combined double diode output pentode.



McMICHAEL MODEL 235 (Cont.)

inside to disconnect the internal speaker. The gramophone plug breaks the lead from the diode.

Quick Tests.—The output transformer is inside the chassis, and the terminals are inaccessible. First tests should be carried out on the valves.

Removing Chassis.—Pull off the knobs. Remove the four holding screws from underneath the cabinet and, after removing the rectifying valve, ease the chassis out, power-

VALVE READINGS

No Signal.				
Valve.	Type.	Electrode.	Volts.	M.a.
1	A.C. TP Met. (9)	anode*	190	3.4
		aux. grid*	185	2.5
		osc. anode*	90	6.7
2	MVS Pen (7)	anode	270	6.7
		aux. grid	200	
3	ACz Pen DD. (7)	anode	216	26
		aux. grid	230	6
		* Valve not oscillating due to capacity of leads.		

pack end first, so as to avoid damage to the band-pass coils.

General Notes.—Both the condensers C21 and C22 are the same value, and the

CONDENSERS

C.	Purpose.	Mfd.
1	Series aerial	.0002
2	Series aerial	.00001
3	V1 grid	.001
4	Decoupling V1 grid	.1
5	Decoupling V1 anode	.1
6	Decoupling V2 aux. grid	.5
7	V1 cathode by-pass	.1
8	V1 osc. grid reservoir	.0002
9	L.W. track on osc.	.00125
10	M.W. track on osc.	*.0025
11	Decoupling V2 aux. grid	.1
12	Decoupling V2 grid	.1
13	V2 cathode by-pass	.1
14	L.F. coupling to V3 grid	.005
15	Decoupling H.T. line	.1
16	L.F. coupling to AVC diode	.0001
17	H.F. by-pass	.0001
18	V3 cathode by-pass	el. 25 (25v.)
19	Tone compensating V3	.002
20	Tone control circuit	.03
21	H.T. smoothing	8 el.
22	H.T. smoothing	8 el.

leads are red. The black is common negative.

Replacing Chassis.—Place the chassis carefully into the cabinet, H.F. end first, and replace the holding screws and knobs.

RESISTANCES

R.	Purpose.	Ohms.
1	Decoupling V1 grid	1 meg (4)
2	Decoupling AVC to V1	1 meg (4)
3	Decoupling V1 aux. grid	25,000 (1)
4	V1 osc. grid suppressor	1,000 (4)
5	V1 osc. grid leak	50,000 (4)
6	V1 cathode bias	1,000 (4)
7	Decoupling V1 anode	10,000 (1)
8	Decoupling V1 osc. anode	60,000 (1)
9	Decoupling V2 grid	.5 meg (4)
10	Decoupling V2 aux. grid	60,000 (1)
11	Diode load	.5 meg (4)
12	Volume control	var. .5 meg
13	V3 grid stabiliser	100,000 (4)
14	V2 cathode bias	250 (4)
15	Part of V3 bias ptr.	350 (1)
16	Part of AVC ptr.	.5 meg (1)
17	Part of AVC ptr.	.5 meg (1)
18	H.T. bleeder	40,000 (2)
19	V3 anode stabiliser	50 (1)
20	Tone control	var. 100,000
21	Part of V3 bias ptr.	150 (1)
	L.S. field	2,500

Bracketed figures give wattage rating.

FERRANTI 1935-6 ARCADIA

Circuit.—The combined first-detector-oscillator valve, VHT4 met. (V1), has a band-pass aerial coupling incorporating a suppressor circuit. Oscillator tuning is in the grid circuit, and bias is by A.V.C. and cathode limiting resistance. Coupling to the next valve is by band-pass I.F. transformer (frequency, 125 kc.).

The I.F. valve, VPT4 met. (V2), is also biased by A.V.C. and cathode resistance, and is followed by a second band-pass I.F. transformer.

The second detector and L.F. valve, H4D (V3), uses one diode anode for A.V.C. and the other for L.F. purposes. The volume control is the grid leak. The L.F. coupling

condenser is C13, which is connected to the grid leak by the link across the pick-up terminals at the back of the chassis.

Between the triode section of the H4D and

the output valve is a resistance-capacity filter with a special transformer to improve the response characteristic.

A triode output valve, LP4 (V4), is biased from a potentiometer across the speaker field which is in the negative H.T. lead.

Mains equipment consists of: Transformer and full-wave R4 rectifier, while smoothing is by speaker field and electrolytic condensers.

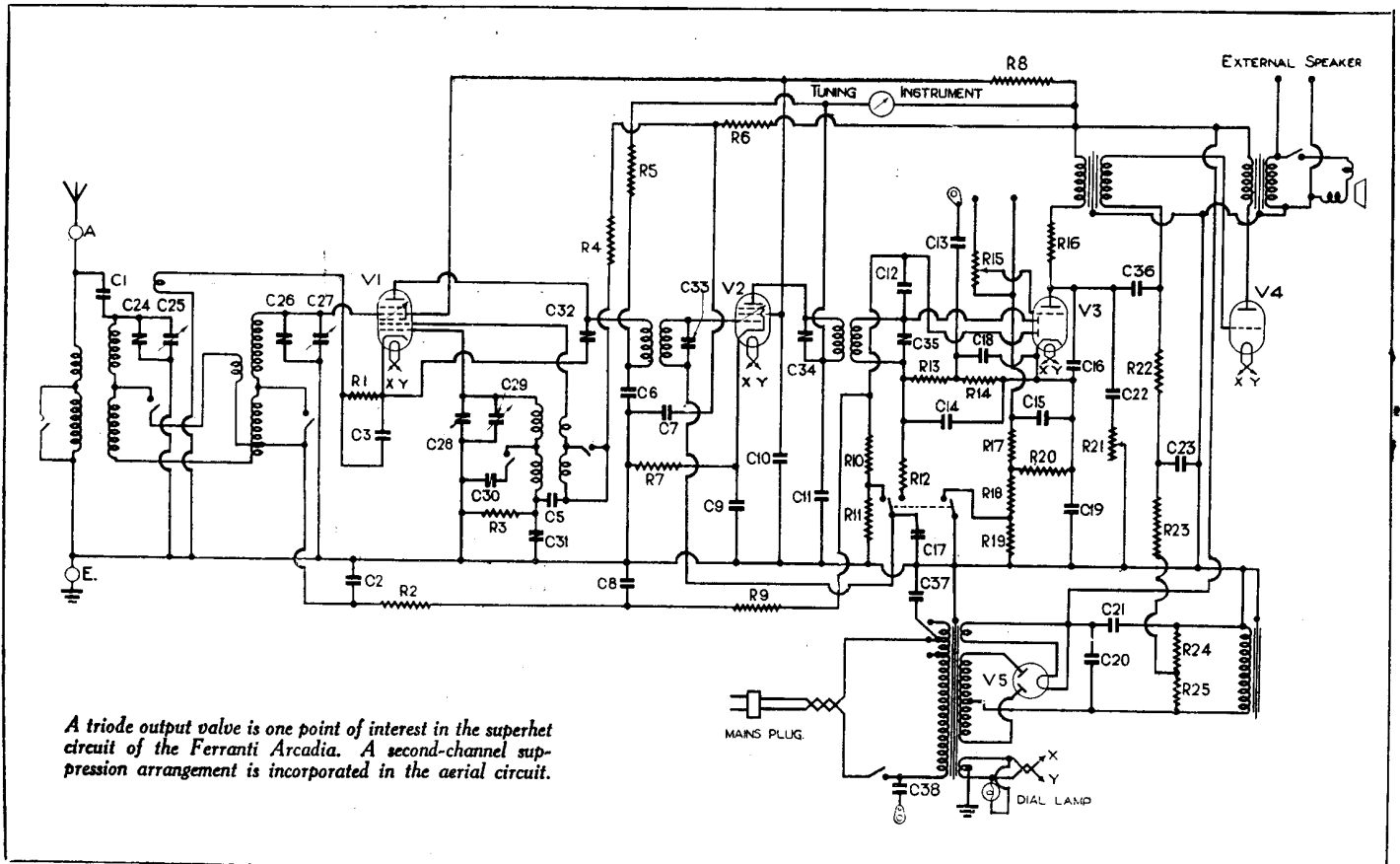
Special Notes.—The tone control circuit, C22, R21, is connected to the anode of V3 instead of to the output valve.

Quick Tests.— Voltages between the inner terminals on the rectifier panel and

(Continued on opposite page.)

VALVE READINGS

No signal.				
Valve.	Type.	Electrode.	Volts.	M.a.
1	VHT4 met.(7)	anode	250	2
		screen	90	4
		osc. anode	90	1.5
2	VPT4 met. (7)	anode	250	4.5
		aux. grid	90	2
		anode	180	2
3	H4D	anode	180	2
4	LP4	anode	245	48



A triode output valve is one point of interest in the superhet circuit of the Ferranti Arcadia. A second-channel suppression arrangement is incorporated in the aerial circuit.