

# MARCONIPHONE MODEL 276

**Circuit.**—The H.F. valve, VMS4B (V1), is preceded by a band-pass aerial circuit in which the semi-variable condenser, TC1, adjusts the aerial to the circuit.

Bias is by A.V.C. and by cathode resistances, one of which is made variable to form a noise suppressor control.

The separate oscillator valve, MH4 (V2), has the tuning in the grid circuit.

Coupling between V1 and V3 is by choke-capacity filter, and the grid circuit of the VMS4B first detector (V3) is coupled to the oscillator coils. V3 is also biased by A.V.C. and cathode resistance and is coupled to the next valve by a band-pass I.F. transformer (frequency 120 kc.).

The I.F. valve, MS4B (V4), is biased by cathode resistance and is coupled to the metal rectifiers by a special tapped I.F. transformer.

One metal rectifier, MR1, is used to provide A.V.C. and is fed from a tapping on the primary I.F. transformer through a condenser. The other, MR2, is fed from a tapping on the secondary. Coupling to the L.F. valve is through the H.F. stopper R13 and the coupling condenser C13. The volume control forms the grid leak.

The L.F. valve, MH4 (V5), is coupled to the output stage by a parallel-fed tone-correction transformer.

The output valve, PX4 (V6), is a triode, and a hum adjustment is provided by having the usual hum-dinger across the filament leads to provide an adjustable tapping.

Mains equipment includes a transformer

and a full-wave U12 rectifier. A separate smoothing choke is included in the H.T. lead to V5, and the speaker field is connected across the H.T., with a tapping to provide the potential for the screens of the H.F. valves.

**Special Notes.**—The pilot lamp is a 6-volt type.

The table model, type 276, has VR2, VR3 and VR4 mounted as shown in the diagram, but in models 290 and 291 VR3 and VR4 will be found in the position of VR2, while VR1 and TC1 will be mounted on the aerial panel.

**Quick Tests.**—Between the following terminals (numbered) on speaker, transformer and chassis: (3) Yellow, V6 anode, 285 volts; (4) red, H.T. smoothed by CK3, 293 volts; (5) yellow and red, screen tapping, 88 volts (6) red and black, H.T. smoothed by CK2, 300 volts.

**Removing Chassis.**—Remove the knobs

(grub screw), disconnect leads from terminal panel on speaker and undo the cleat, remove four screws from underneath, and lift the chassis out.

**Removing Speaker.**—Remove the four nuts from the inside of the cabinet. The colour coding of the leads is: (1) Black, (2) pink, (3) yellow, (4) red, (5) yellow and red, (6) red and black.

**General Notes.**—Either high- or low-resistance M.C. speakers can be used as extras. Connect high-resistance speakers across terminals 3 and 4. Low-resistance speakers should be connected to the appropriate sockets.

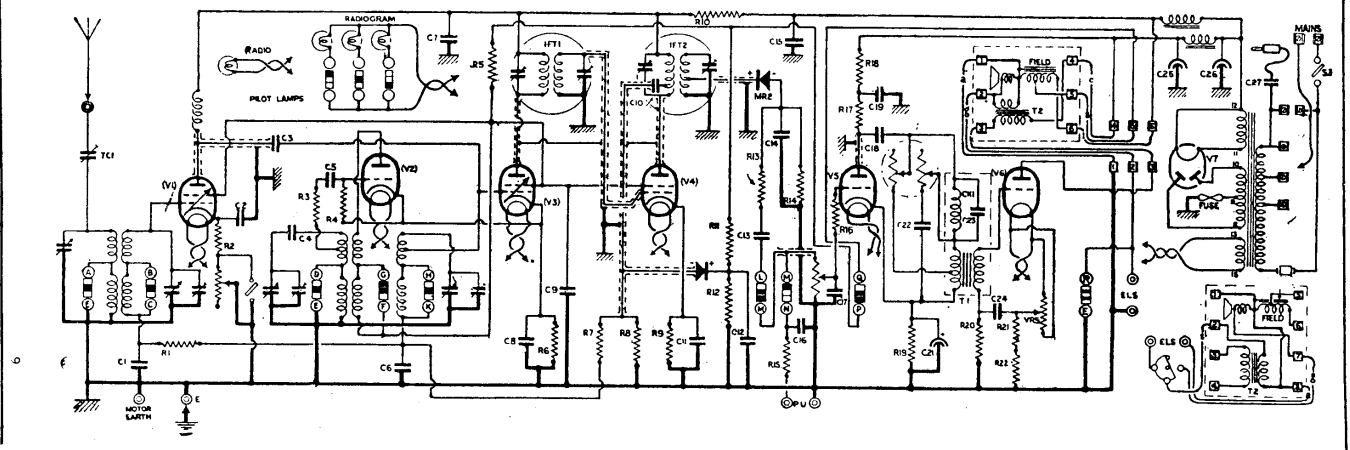
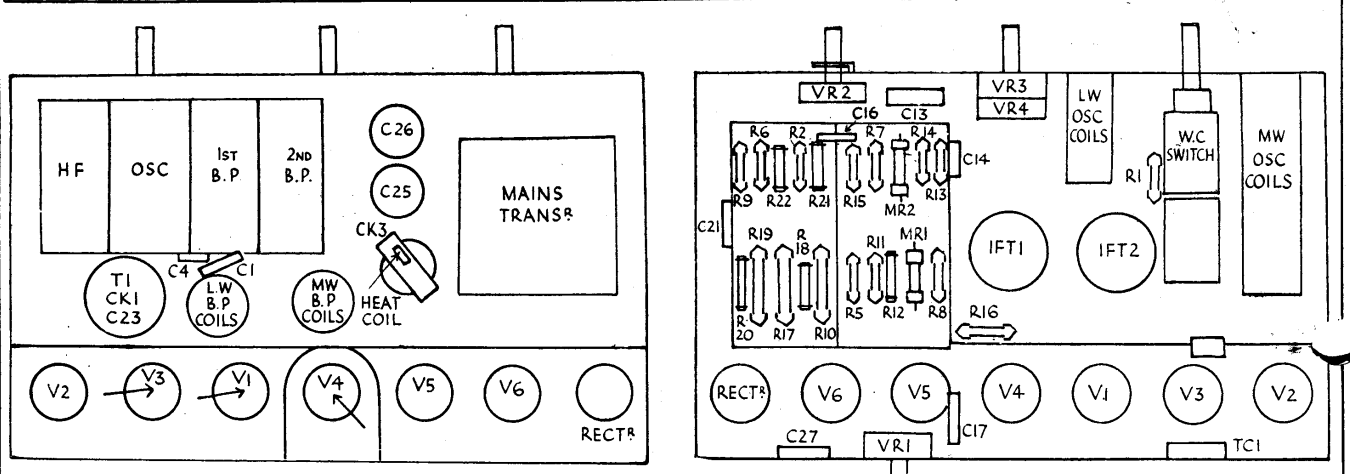
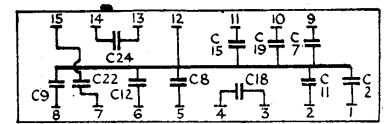
In working with this set remember that the heat coil of 1.5 ohms in the mains lead acts as a fuse and that a fuse is included in the negative H.T. lead from the transformer.

Replacing the tuning cord: Remove VR3 and VR4 as far as wiring will allow. If the correct cord (S.515) cannot be obtained from the makers, a piece of flax fishing line (40 lb. type) 27 in. long can be used.

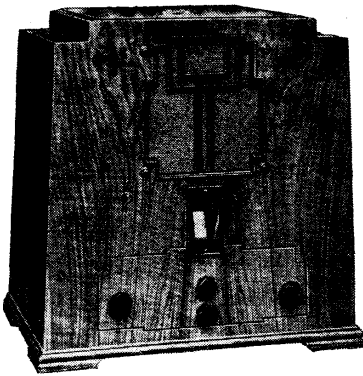
Turn the condenser vanes to minor (out) position and rotate spindle as far as possible anti-clockwise.

Tie a loop of 1-in. length on the cord and

VALVE READINGS					
No signal. Static suppressor knob "in." On M.W.					
Valve	Type	Electrode	Volts	M.A.	
1	VMS4B (5)	anode	280	2.5	
		screen	80	—	
2	MH4 (5)	anode	80	2.5	
3	VMS4B (5)	anode	280	1.4	
		screen	80	—	
4	MS4B (5)	anode	280	1.5	
		screen	80	—	
5	MH4	anode	145	1.5	
6	PX4	anode	285	40	



The 276 circuit is typical of those in use before octodes and heptodes were introduced. A feature of the chassis is the inclusion of a heat-coil fuse. The detail drawing is of the condenser block which has the part number 7581B.



Marconiphone introduced the model 276 7-valve A.C. superhet for 1933/4 season.

### MARCONIPHONE MODEL 276 (Cont.)

RESISTANCES		
R.	Purpose.	Ohms.
1	Decoupling V1 grid .. ..	200,000
2	Fixed part of V1 cathode bias .. ..	1,000
3	V2 grid suppressor .. ..	5,000
4	V2 grid leak .. ..	25,000
5	Decoupling V2 anode .. ..	2,000
6	V3 cathode bias .. ..	1,000
7	Decoupling A.V.C. line .. ..	.5 meg
8	A.V.C. rectifier load .. ..	35,000
9	V4 cathode bias .. ..	1,000
10	Decoupling H.T. to V1, V3 and V4 .. ..	10,000
11	Bias ptr. for A.V.C. rectifier .. ..	75,000
12	Bias ptr. for A.V.C. rectifier .. ..	10,000
13	H.F. stopper from M.R.2 .. ..	100,000
14	M.R.2 load .. ..	200,000
15	Series with P.U. lead .. ..	230,000
16	H.F. stopper V5 grid .. ..	35,000
17	V5 anode decoupling .. ..	50,000
18	V5 anode decoupling .. ..	25,000
19	V5 cathode bias .. ..	2,000
20	V6 grid decoupling .. ..	50,000
21	V6 cathode bias .. ..	450
22	Series with R 21 .. ..	450
VR1	Static suppressor control .. ..	14,000
VR2	Volume control .. ..	100,000
VR3	Tone control .. ..	23,000
VR4	ganged with VR3 for tone control .. ..	35,000
VR5	Hum-dinger .. ..	20
—	Speaker field, 3,750 + 7,500 .. ..	2,000
—	C.K.2 .. ..	2,000
—	C.K.3 .. ..	1,500

pass the loop over the gripping stud on the drum.

Lead the cord downwards, underneath the key-wheel and six times round the drive spindle beginning at the front and winding anti-clockwise. Take cord under the lower pulley and over the one nearer the drum.

After taking it round the drive section of the drum, pass it through the loose end of

### CONDENSERS

C.	Purpose.	Mfd.
1	Decoupling V1 grid .. ..	.1
2	V1 cathode by-pass .. ..	.1*
3	H.F. coupling to V3 .. ..	.00005
4	Osc. tracking .. ..	.0017
5	V2 grid reservoir .. ..	.0003
6	Decoupling V3 grid .. ..	.1
7	V1 anode decoupling .. ..	1*
8	V3 cathode by-pass .. ..	.5*
9	V1, V3 and V4 screen by-pass .. ..	1*
10	L.F. feed to A.V.C. rectifier .. ..	.0001
11	V4 cathode by-pass .. ..	.1*
12	Decoupling bias on rectifier .. ..	.5*
13	L.F. coupling to V5 .. ..	.1
14	H.F. by-pass .. ..	.0001
15	H.T. smoothing to V1, V3 and V4 .. ..	4*
16	Across P.U. .. ..	.001
17	H.F. by-pass .. ..	.0001
18	L.F. feed to transformer .. ..	.025*
19	Decoupling V5 anode .. ..	1*
21	V5 cathode by-pass .. ..	50 el.
22	Part of tone control circuit .. ..	.05*
23	Part of tone control circuit .. ..	.001
24	Decoupling to V6 grid .. ..	.1*
25	H.T. smoothing .. ..	8 el.
26	H.T. smoothing .. ..	8 el.
27	Mains aerial .. ..	.0003

\* In condenser block.  
The part no. of the condenser block is 75<sup>8</sup>1 B.

the spring and pull tight. Knot it into a loop, maintaining the tension.

**Replacing Chassis.**—Lay the chassis inside the cabinet. Replace holding bolts, reconnect the speaker leads and clip the cable.