McMICHAEL 808 BIJOU MAINS PORTABLE

CIRCUIT.—Self-contained frame aerial windings constitute the grid coils of V1, a triode hexode frequency changer. A small capacity, C1, enables an external aerial to be coupled to the frame windings for use in screened localities.

The oscillator section employs tuned reaction windings with fixed padding condensers and the customary oscillator anode load and coupling condenser.

An I.F. transformer, tuned to 465 kcs., provides the intervalve coupling between the frequency changer and the I.F. amplifying valve V2, a pentode. Both V1 and V2 are automatic volume controlled.

Another I.F. transformer effects the coupling to the demodulating diode of V3, a double-diode triode. The connection to the demodulating diode load is made *via* an H.F. filter network. The other diode of V3, fed by a coupling condenser from the anode of V2, provides a D.C. potential that is utilised for automatic volume control. A delay voltage is provided by R20.

The rectified potentials from the demodulating diode are led by an L.F. coupling condenser to the manual volume control which feeds the triode grid of V3.

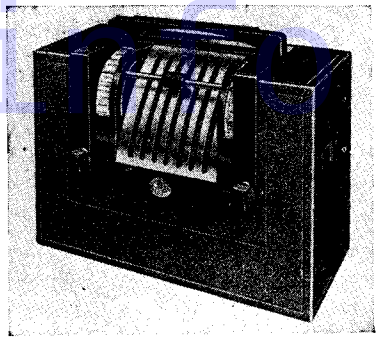
V3 is resistance-capacity coupled to the output pentode V4. A pentode compensator condenser is connected between the anode of V4 and chassis, and a further condenser can be switched in parallel to further modify the tone.

Mains equipment consists of a mains transformer, a full-wave rectifier V5, electrolytic smoothing condensers and a smoothing choke.

Chassis Removal.—Remove back of cabinet and the two grub screw fixed control knobs. Unscrew the two nuts from the roof (inside) securing the carrying bar, and remove this complete with escutcheon.

Removal of the escutcheon will reveal four bolts. Unscrew these and remove the two metal securing bars held by the four bolts. Pull out the tone control wander plug from its socket on the side of the cabinet.

The chassis, speaker and frame aerial structure can then be removed as a complete unit, and, if desired, operated externally of the cabinet.



The fabric-covered model of the McMichael frame aerial five-valve mains portable. A walnut cabinet version is also produced.

The underside of V3 and the second I.F. transformer are shielded by a metal plate secured by two screws, the plate being insulated from the components by means of an insulating panel.

Special Notes.—A pair of sockets on the speaker panel enables an extension speaker of 2 to 4 ohms to be connected.

VALVE READINGS

No signal. Volume maximum. M.W. min. cap. 200 volt A.C. mains.

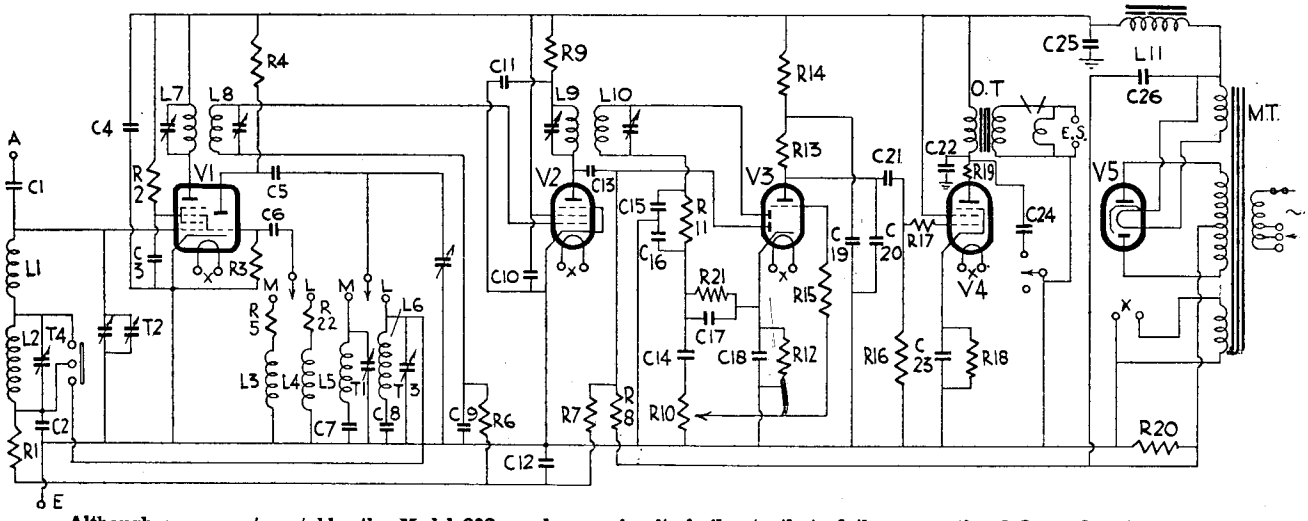
V.	Type	Electrode.	Volts.	Ma.
	All Mazda. octals.			
	AC/TH1A ..	Anode ..	185	3
		Screen ..	78	6.5
		Osc. anode	80	6
2	VP4 ..	Anode ..	175	9.5
		Screen ..	185	2
3	HL41 DD ..	Anode ..	70	1.9
4	AC5 Pen ..	Anode ..	175	21.5
		Screen ..	185	6
	UU6	Heater ..	220	—

RESISTANCES

R.	Purpose.	Ohms.
1	V1 A.V.C. decoupling ..	500,000
2	V1 screen decoupling ..	20,000
3	Osc. grid leak.	50,000
4	Osc. anode load	20,000
5	Regeneration modifier MW	2,500
6	V2 A.V.C. decoupling ..	500,000
7	A.V.C. line decoupling ..	500,000
8	A.V.C. diode load	1 meg.
9	V2 anode decoupling ..	1
10	Volume control	500,000
11	HF stopper	50,000
12	V3 cathode bias	1,000
13	V3 anode load	50,000
14	V3 anode decoupling ..	10,000
15	V3 grid stopper	100,000
16	V4 grid leak	500,000
17	V4 grid stopper	100,000
18	V4 cathode bias	250
19	V4 anode stabiliser	50
20	A.V.C. delay volts	40
21	Demodulating diode load ..	250,000
22	Regeneration modifier L.W.	5,000

CONDENSERS

C.	Purpose.	Mfds.
1	External aerial coupling ..	.00001
2	V1 A.V.C. decoupling ..	.1
3	V1 screen decoupling ..	.1
4	H.T. line bypass	.25
5	Osc. anode coupling	.0001
6	Osc. grid	.0001
7	M.W. osc. fixed padder ..	.000482
8	L.W. osc. fixed padder ..	.000174
9	V2 A.V.C. decoupling ..	.1
10	V2 screen decoupling ..	.1
11	Va anode decoupling ..	.1
12	A.V.C. line decoupling ..	.01
13	A.V.C. diode coupling ..	.0001
14	L.F. coupling	.01
15	H.F. bypass	.0001
16	H.F. bypass	.0001
17	H.F. bypass	.0001
18	V2 cathode bias shunt ..	.1
19	V3 anode decoupling ..	.4
20	V3 anode shunt	.0003
21	L.F. coupling	.01
22	Pentode compensator ..	.03
23	V4 cathode bias shunt ..	50
24	Tone modifier.	.03
25	H.T. smoothing	8
26	H.T. smoothing	8



Although a compact portable, the Model 808 employs a circuit similar to that of the conventional five valve, two waveband superhet. The frame aerial provides good input selectivity.

A wander plug on the side of the cabinet, adapted to be inserted in one of two sockets, provides two tone positions.

The mains adjustment device consists of three sockets marked with voltage values, and located on an insulating strip on the mains transformer. A threaded member is screwed into the appropriate socket.

C22 is connected across the speaker transformer, C13 and R8 are inside the second I.F. transformer. The separate smoothing choke is mounted on a bracket on the speaker frame. As the wave-change switch is inaccessible and the resistances of windings taken from other sources, we have dispensed with our usual drawing of wave-change contacts.

Alignment Notes

I.F. Circuits.—Connect an output meter across the extension L.S. sockets or primary of speaker transformer. Switch set to M.W. band, turn gang to maximum and plug tone control wander plug into "high" position. Turn volume to maximum. Connect a service oscillator between the top grid cap of V1 and chassis.

Tune service oscillator to 465 kcs., and adjust the trimmers of I.F.T.2 and then I.F.T.1 for maximum, reducing the input as the circuits come into line to keep the A.V.C. inoperative.

Signal Circuits.—Connect the service oscillator to a coil of wire and bring near to receiver, so that sufficient input can be obtained without direct connection between receiver and service oscillator.

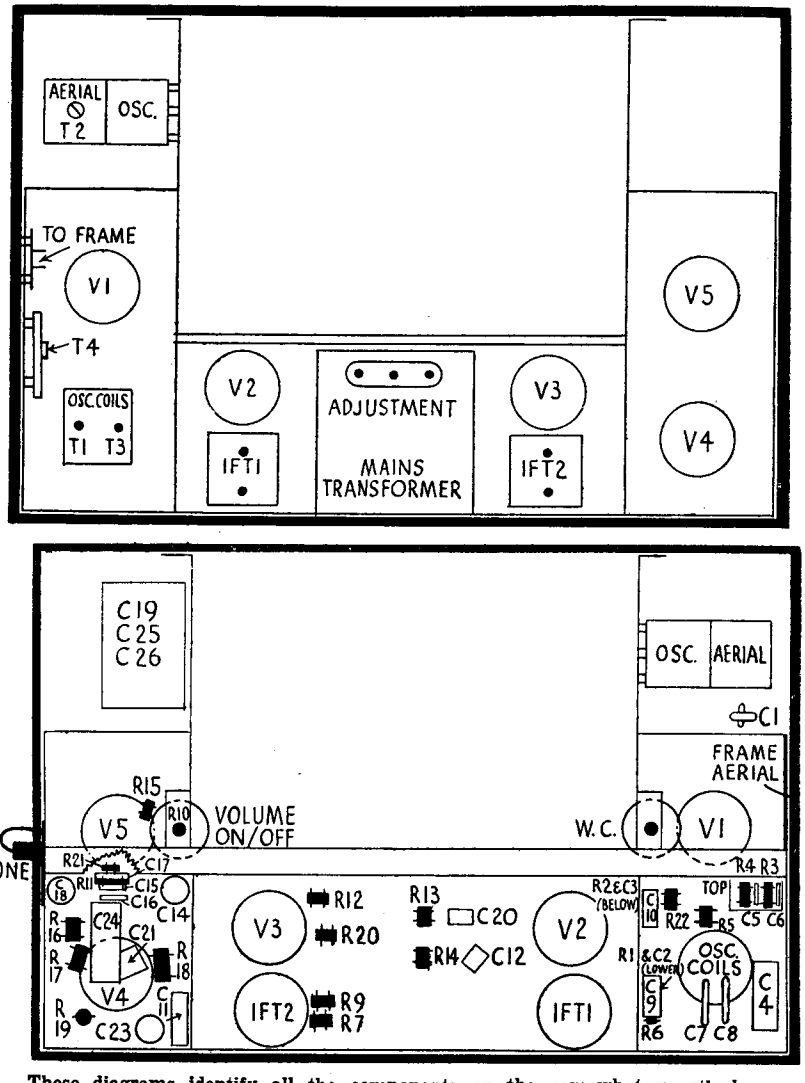
Only feed sufficient input from the service oscillator to obtain reliable peaks in the output meter, and reduce the input as the circuits come into line.

Medium Waves.—Tune set and oscillator to 214 metres (1,400 kcs.) and adjust T1 and then T2 for maximum.

The medium-wave padding is fixed, but check calibration throughout the range covered, compensating slightly with T1.

Long Waves.—Tune set and oscillator to approximately 1,000 metres (300 kcs.) and adjust T3 and then T4 for maximum response.

The long-wave padding is fixed.



These diagrams identify all the components on the somewhat unorthodox "chassis." It will be seen that the parts are arranged in logical order within the frame aerial housing.

McMichael A.C. Bijou

MODEL 808.—For A.C. mains, 200-260 volts, 40-60 cycles. Price 9½ gns. In walnut, 10 gns.

DESCRIPTION. — Four-valve, plus rectifier, two-band superhet A.C. portable.

FEATURES.—Receiver and frame aerials in leatherette-covered case or walnut cabinet. Turntable on base. Unique combined slow and fast tuning control constituted by a metal bar in front of speaker grille. Edgewise tuning scales on each side of speaker grille calibrated in metres and station names. Other controls for combined volume and master switch, wave selection and plug-control of tone. Sockets for external aerial and earth and low-impedance L.S.

LOADING.—48 watts.

Sensitivity and Selectivity

MEDIUM WAVES (200-550 metres). —Good gain and excellent selectivity, with a reasonably quiet background for a portable set. Gain well maintained over the band.

LONG WAVES (1,000-2,000 metres). —Satisfactory gain and selectivity. All main stations easily received, with a quiet background.

Acoustic Output

Sufficient volume for an ordinary room, with pleasing balance for a small receiver. There is appreciable crispness in upper registers in the higher tone position, and the medium low-note radiation is good. Colouration on speech is slight and orchestral reproduction is very satisfactory.

Replacement Condensers

EXACT replacement condensers are available from A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18, for two units in the 808. For the block containing C25, C26 and C19 there is unit 4,295, price 6s. 9d., and for C23, unit 2,915, 1s. 9d.

QUICK TESTS

Quick tests are available on the leads to the speaker panel. Voltages measured between these and the chassis should be :—

Brown lead, 220 volts, unsmoothed H.T.
Red lead, 185 volts, smoothed H.T.
Yellow lead, 175 volts, smoothed H.T.

WINDINGS (D.C. RESISTANCES)

L.	Ohms.	Range.	Where measured.
1	1.3	M.W.	Frame aerial tags.
2	23.3	L.W.	Frame aerial tags.
3	2.4	—	R5 and chassis.
4	2.8	—	R22 and chassis.
5	2.4	M.W.	Osc. gang and C7.
6	8.6	L.W.	Osc. gang and C8.
7	13	—	Tags.
8	12.5	—	Top grid V2 and tag.
9	12.6	—	Tags.
10	—	—	Inaccessible.
11	655	—	Brown and red leads spk.
O.T. prim.	430	—	Yellow and red lead spkr.
M.T. prim.	30	—	Mains plug pins.