

# McMICHAEL TWIN SUPERVOX

Four-valve, two-waveband, TRF receiver with band-pass input and twin loudspeakers. Provision is made for a high impedance pickup (which must be provided with its own volume control) and a high impedance extra loudspeaker. Suitable for AC mains 200-250 volts, 40/100 cycles. Marketed by McMichael Radio Ltd., Service Dept.: Pratts Bottom, Farnborough, Kent.

THE aerial input may be taken either via a very low capacity condenser C1 or direct to the potential dividing condenser network C2, C3. From here the signals are taken to a band-pass filter in which L1, L2 are the medium wave coils and L3, L4 the long wave coils. The filter is tuned by VC1

and VC2 sections of the triple-ganged condenser and coupling units C4, C5 and C6 are incorporated.

The signal is fed to the grid of V1 operating as an HF valve with tuned anode coupling circuit to V2. L5 is the MW coil and L6 the LW coil, C28 being the coupling condenser. VC3 section of the tuning condenser tunes the anode circuit.

Volume control is effected by V1 grid circuit being taken to a bias potentiometer R16 in the HT negative line.

The screening grids of V1 and V2 are fed from the potential divider network R4, R5 which is decoupled by C11. V2 is biased by its grid being connected via the grid leak R6 and the decoupling resistance R9 to a tapping point between the resistances R14, R15 in the HT negative circuit. C10 decouples the grid circuit.

The signals from V2 are coupled by aperiodic chokes L7, L8 and C14 to the grid of the triode detector V3. A switch in the grid circuit allows gramophone reproduction to be obtained from pickup sockets, one of which is connected to the V2 bias line so that V3 operates as an amplifier on gramophone.

The low frequency signals from V3 are resistance capacity coupled to an auto-transformer L9. The decoupling resistance R11, LF coupling resistance

R10 and coupling condenser C17 are all contained in the LF unit with L9. C15 is the decoupling condenser for the anode circuit and C16 is the HF by-pass.

From L9 the signals are fed via a grid stopper R12 to the grid of the output pentode V4 which is biased by L9 being taken to the extreme negative end of the bias resistance R15 in the HT negative line. R13, C18 decouple the grid circuit.

The output from V4 is coupled by the matching transformer L10, L11 to the speech coils L12, L14 of the twin loudspeakers. A permanent degree of tone correction is effected by C20, C21 and R17 across L10, and additional high note attenuation may be obtained by switching in C22.

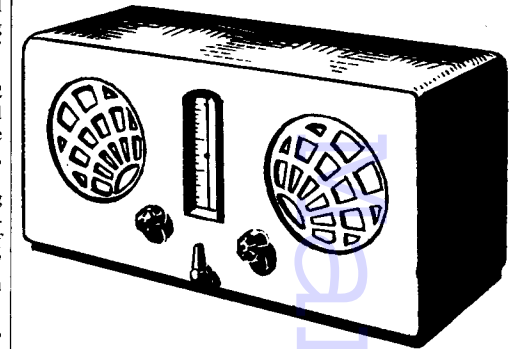
Extra loudspeaker sockets are provided across L10,

Continued on page iv

## VALVE READINGS

V	Type	Electrode	Volts	Ma
1	MS4B	Anode	220	4.5
		Screen	112	1.3
2	MS4B	Anode	215	4.5
		Screen	112	1.3
3	MH4	Anode	90	3.5
4	MPT4, Catkin or AC/Pen	Anode	240	24
		Screen	205	4

Pilot lamp, 4 v, .3 amp M.E.S.



This popular McMichael radio was first reviewed in "Service Engineer" 11 years ago. In response to requests we reprint a revised version of the service notes.

## RESISTORS

R	Ohms	R	Ohm
1	5 meg	11	20,000
2	10,000	12	500,000
3	500	13	100,000
4	20,000	14	30
5	20,000	15	300
6	2 meg	16	5,000
7	10,000	17	20,000
8	500,000	18	50
9	500,000	19	1,500
10	30,000		

## CONDENSERS

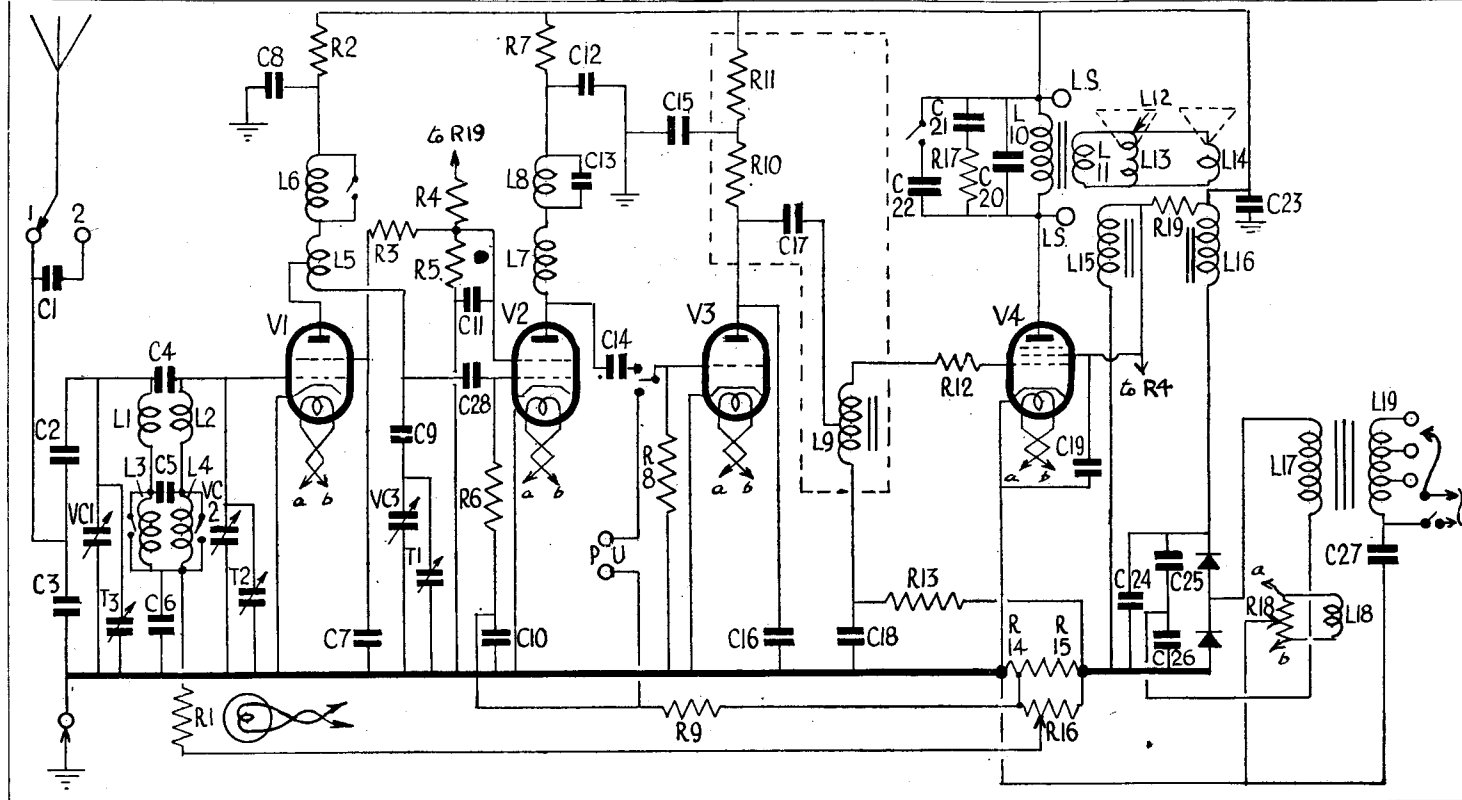
C	Mfds	C	Mfds
1*	Very low	15	1
2	11 mmfd	16	.002
3	.00003	17	.5
4	.6 mmfd	18	1
5	.11 mmfd	19	.1
6	.1	20	.002
7	.1	21	.01
8	.1	22	.01
9	.1	23	.8
10	1	24	.8
11	1	25	.4
12	1	26	4
13	.0002	27	.01
14	.00005	28	.0002

\* Comprises twisted insulated wire.

## WINDINGS

L	Ohms	L	Ohms
1	1.4	11	.1
2	1.4	12	—
3	14	13	—
4	14	14	—
5	1.4	15	7,500
6	14	16	1,500
7	18	17	74
8	30	18	.05
9 (total)	3,000	19	36
10	390		

NOTE.—Values of L10-L14 will depend upon type of speaker transformer in receiver being serviced. Magnavox and Celestion are usual types.



# McMICHAEL SUPERVOX

Continued

which means that any extra loudspeaker used with the receiver must be of the high impedance type or, if a moving coil, must incorporate a suitable matching transformer.

The HT supply is rather unusual and comprises the HT secondary winding L17 and two metal rectifiers operating in a voltage-doubling circuit, with C25, C26.

The main HT supply is taken through the field winding L16 of one of the loudspeakers with C24 as the reservoir condenser and C23 the smoother. From the HT positive line a potential divider arrangement comprises R19 and the field, L15, of the second loudspeaker, and from the junction of these two components is fed the screening grid of V4 with decoupling by C19.

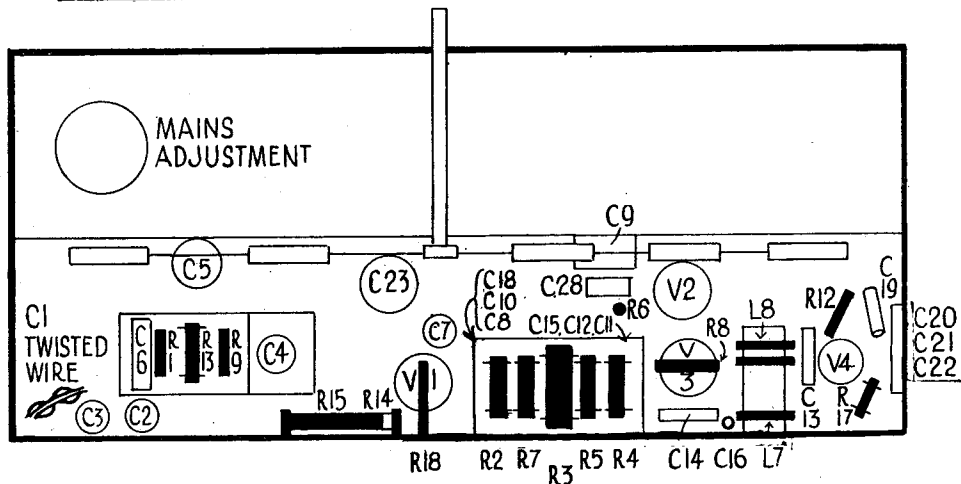
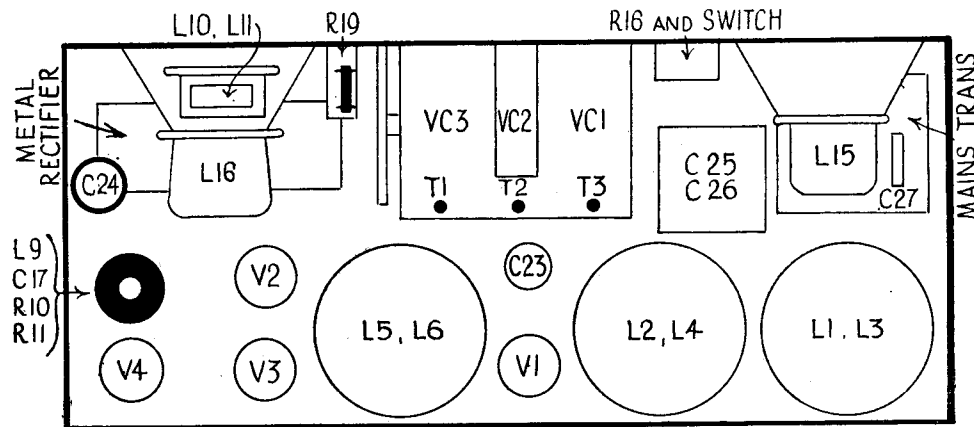
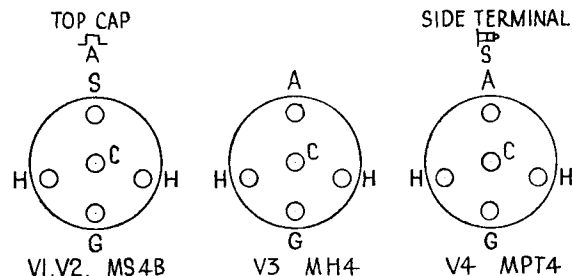
The heater supply is derived from a

secondary winding across which is connected a humdinger R18. HF filtering of the mains input is effected by C27.

## GANGING

Inject a weak signal into the aerial and earth sockets via a dummy aerial and switch receiver to MW.

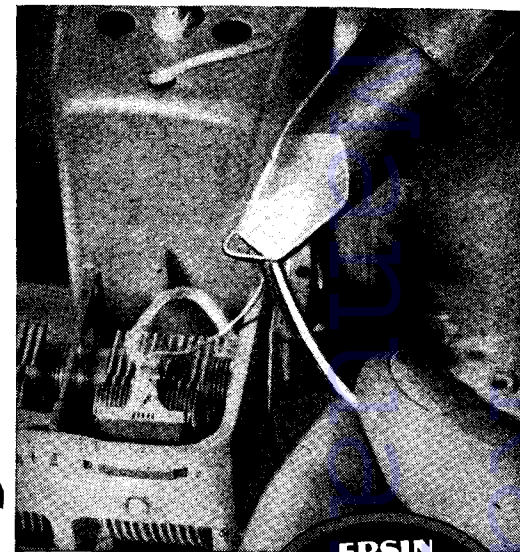
Tune service oscillator and receiver to about 210 m and adjust T1, T2 and T3 for maximum output.



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