

McMICHAEL 45IS

Four-valve (including rectifier) three wave-band superhet for operation on AC mains 90-110V or 210-250V, 40-100cs. Provision for external loudspeaker and PU. Marketed by McMichael Radio, Ltd., London and Slough.

THE aerial circuit incorporates IF filter L1, C1 connected between aerial input and earth. The filter may be disconnected by removing the link coupling screw beside the aerial socket. On LW the aerial is connected via S1 to lower end of L2, the top of L2 being earthed by S2. C3 is connected between bottom of L2 and earth. L2 is inductively coupled to L3, the LW grid coil. T1 is LW trimmer.

On MW aerial is fed via S1 to top of L2 and S2 connects lower end of the winding to earth. L2 is inductively coupled to L4, the MW grid coil. C2 provides further capacitive coupling on MW only. T2 is MW trimmer.

On MW the LW grid coil L3 is shorted to earth by S2 via C5. On LW, the MW coil L4 is earthed by S2 via C2.

On SW aerial is fed via S1 to a separate coupling coil L5. S2, at the same time, earths L2 and L4 via C2. L5 is inductively coupled to L6, the SW grid coil. T3, shunted by C8, is SW trimmer.

AVC is fed to grid of V1 via R10—C15 and R2—C4. S3 selects grid coils to V1, frequency changer. VC1 is aerial tuning capacitor.

Triode oscillator grid circuits are selected by S4. L11 is used for LW and MW coupling. R9 is limiting resistor. On SW, L14 is coupling coil and R7 is limiting resistor.

R6, C10 provide leak-condenser bias to oscillator grid. C9 is coupling condenser. L12 is LW anode coil. T8, shunted by C11, is trimmer. C12 provides fixed padding capacity. L13 is MW anode coil. T9 is trimmer, and C13 fixed padder.

On SW, L15 is anode coil. T10 is trimmer, and C14 padder. S5 selects the anode coils to oscillator, which are tuned by VC2, and also earths L12 when on MW, and L13 when on SW. R5 is anode load of oscillator section of V1.

Hexode section of V1 has in its anode circuit L7, the primary of IFT1. T4 is its trimmer. R4, decoupled C7, in series with R3 provides screen voltage to V1. R8 decoupled by C6 feeds HF to V1. L8, secondary of IFT1, feeds grid of V2, IF amplifier. T5 is the trimmer.

Continued on next page

RESISTORS

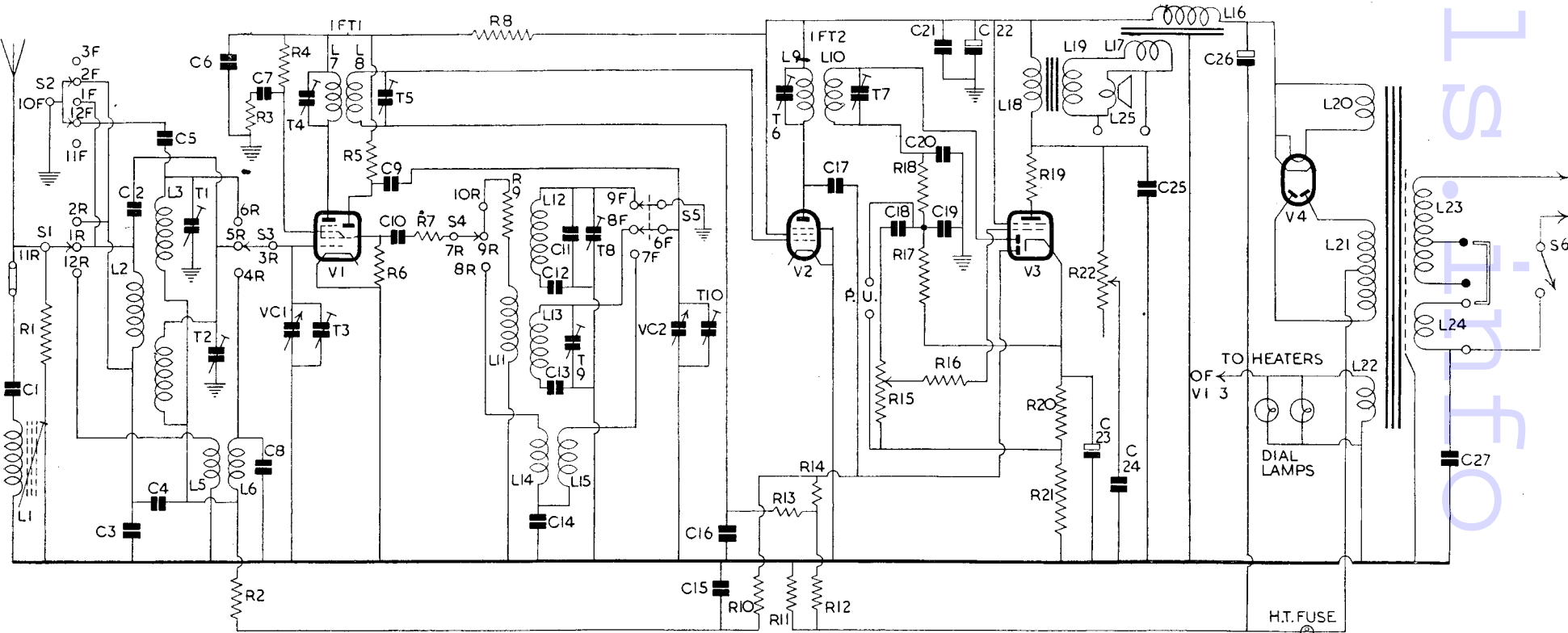
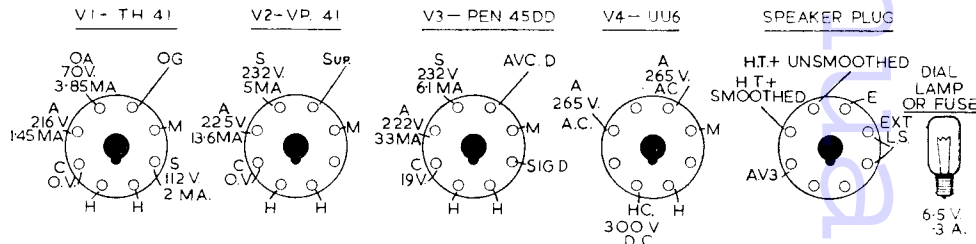
R	Ohms	19	20	21	22
1	10 K	47	13	507.5 pf Silver Mica	4
2	470 K	180	14	.0035 Mica	5
3	180 K	330	15	.01 Tubular 1000 v	6
4	47 K	50 K var	16	.1 Tubular 350 v	7
5	39 K		17	100 pf Mica	8
6	39 K		18	.001 Tubular 350 v	9
7	47 K		19	100 pf Mica	10
8	100		20	100 pf Mica	11
9	1 K		21	.1 Tubular 350 v	12
10	1.5 K		22	8 Electrolytic 450 v	13
11	470 K		23	25 Electrolytic 25 v	14
12	470 K		24	.03 Tubular 1000 v	15
13	470 K		25	.002 Tubular 1000 v	16
14	470 K		26	8 Electrolytic 450 v	17
15	1 meg var		27	.002 Tubular 1000 v	18
16	100 K				19
17	470 K				20
18	47 K				21

CAPACITORS

C	Mfds	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	400pf Silver Mica	23	24	25	26	27																						
2	6pf Ceramic																											
3	.004 Mica																											
4	.1 Tubular 350v																											
5	.001 Tubular 500v																											
6	.1 Tubular 350v																											
7	1 Tubular 350v																											
8	20 pf Silver Mica																											
9	100 pf Silver Mica																											
10	100 pf Silver Mica																											
11	50 pf Silver Mica																											
12	168 pf Silver Mica																											

INDUCTORS

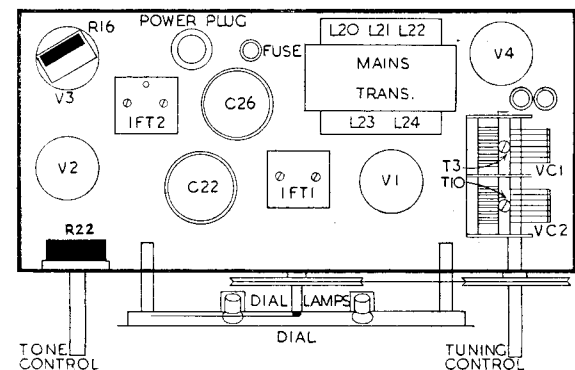
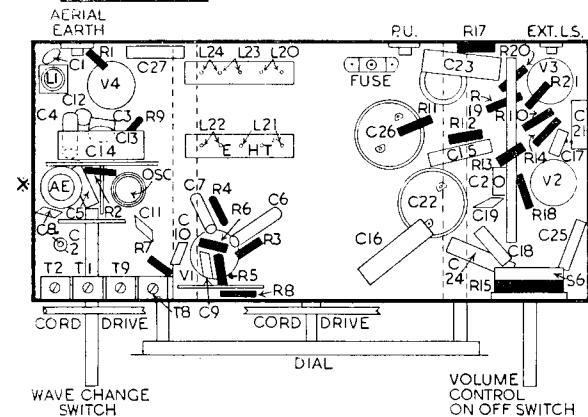
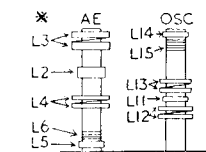
L	Ohms	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											
13																											
14																											
15																											
16																											
17																											
18																											



McMichael 451S—Continued

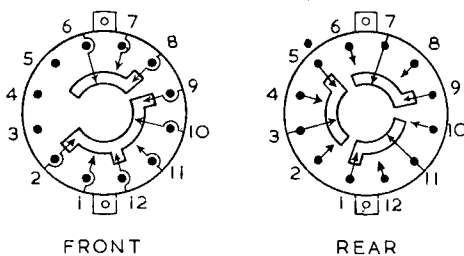
TRIMMING INSTRUCTIONS

Apply Signal as below	Tune Receiver to	Adjust in Order stated for Max. Output
465 KC to grid V1 leaving existing lead connected	550 metres	T7, T6, T5, T4
15 MC between AE & E via a dummy aerial	20 metres	T10, T3
1.5 MC as above	200 metres	T9, T2
273 KC as above	1,100 metres	T8, T1
465 KC as above	—	Core of L1 for minimum output



WAVECHANGE SWITCHING

VIEWS FRONT OF CHASSIS
—CHASSIS INVERTED.



AVC is fed to grid of V2 via R13, C16. Cathodes of both V1 and V2 are at earth potential. Primary, L9, of IFT2 is in anode of V2. T6 is its trimmer. Screen voltage is derived from main HT line. L10, the secondary of IFT2, feeds the signal diode of V3. T7 is its trimmer.

R17 is diode load. R18, C19, C20 form an IF filter network. C18 feeds rectified signal to R15, the volume control, and then via R16, a grid stopper, to grid of pentode section of V3.

PU is connected across R15 via C18.

AVC diode of V3 is fed from primary of IFT2 by C17. AVC diode load consists of R14, R12 and R11. AVC delay voltage and a small standing bias for V1 and V2 is developed across R11 which is in the HT negative line to chassis. Full AVC voltage is fed to V1, and approx. half AVC voltage is fed to V2.

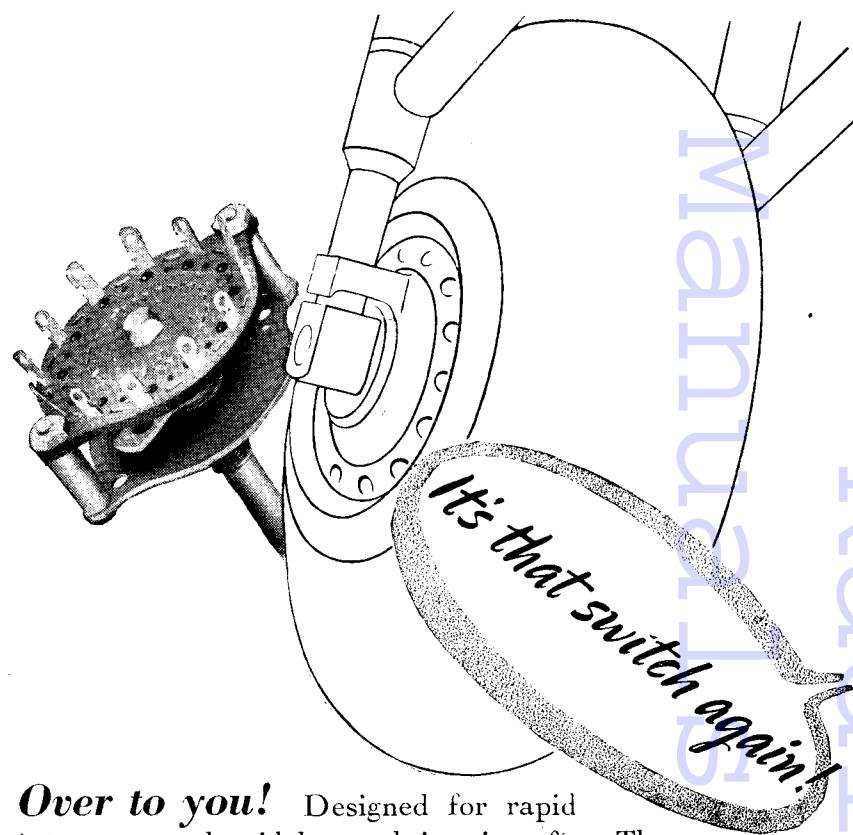
L18, primary to LS output transformer, is in anode circuit of V3. R19 is anode stopper resistor.

C25 gives fixed tone connection; R22, C24 provide variable tone control.

R20, R21 decoupled by C23 provides cathode bias to V3. Screen voltage is obtained direct from HT line. L19, secondary of LS output transformer, feeds a low-impedance speech coil, L25, in series with L17, a hum bucking coil. External LS sockets are connected to speech coil.

HT is provided by FW rectifier V4 fed from L21, HT secondary of mains transformer, and L20 which supplies heater current. L22 provides heater voltage to V1—V3 and dial lamps.

Smoothing is by L16, field coil of LS, together with C22 and C26. C21 is RF bypass capacitor. L23, L24 comprise primary of MT. C27 is mains input filter capacitor. S6 is mains on/off switch.



Over to you! Designed for rapid inter-com and widely used in aircraft. The Type 40/1542 is a simple two-way switch, spring biased so that it automatically returns to one position, normally used for speech. To listen the user rotates and holds in Position 2. This switch will find wide uses in civil aircraft and for inter-office communication on subsidiary stations.

WALTER INSTRUMENTS LIMITED, GARTH ROAD, LOWER MORDEN, SURREY. TELEPHONE: DERWENT 4421-2-3

WALTER Type 40
made for **Life**

THE SWITCH OF OVER 2,000 ASSEMBLIES
C.R.C.18