

Intermediate frequency 465 KC/S.

COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1 Aerial series resistance (L.W.)	3,000
R2 V1 C.G. resistance	1,000,000
R3 V1 C.G. decoupling	1,000,000
R4 V1 S.G. H.T. feed	10,000
R5 V1 fixed G.B. resistance	100
R6 V2 hexode C.G. decoupling	1,000,000
R7 V2 hexode S.G. H.T. feed	50,000
R8 V2 fixed G.B. resistance	200
R9 Osc. C.G. resistance	50,000
R10 Osc. C.G. series resistance (S.W.)	100
R11 Osc. C.G. series resistance (M.W.)	2,500
R12 Osc. C.G. series resistance (L.W.)	4,500
R13 Osc. anode resistance	40,000
R14 V3 C.G. decoupling	500,000
R15 V3 S.G. H.T. feed	10,000
R16 V3 fixed G.B. resistance	100
R17 V4 signal diode load	500,000
R18 Manual volume control	500,000
R19 V4 C.G. I.F. stopper	100,000
R20 V4 G.B. and A.V.C. delay vol.	150
R21 tate resistances	350
R22 V4 anode circuit stabiliser	50
R23 V4 A.V.C. diode load	500,000
R24 V4 A.V.C. diode load	500,000
R25 Variable tone control	100,000
R26 H.T. smoothing	500
R27 H.T. circuit ballast	40,000

OTHER COMPONENTS	Approx. Values (ohms)
L1 Aerial S.W. coupling coil	0.25
L2 Aerial S.W. tuning coil	Very low
L3 Aerial M.W. coupling coil	2.0
L4 Aerial M.W. tuning coil	3.5
L5 Aerial L.W. coupling coil	23.0
L6 Aerial L.W. tuning coil	28.0
L7 H.F. trans. S.W. pri.	0.25
L8 H.F. trans. S.W. sec.	Very low
L9 H.F. trans. M.W. pri.	2.0
L10 H.F. trans. M.W. sec.	3.5
L11 H.F. trans. L.W. pri.	7.5
L12 H.F. trans. L.W. sec.	28.0
L13 V2 hexode S.G. S.W. choke	Very low
L14 Osc. S.W. grid coil	7.5
L15 Osc. S.W. tuning coil	Very low
L16 Osc. M.W. grid coil	1.5
L17 Osc. M.W. tuning coil	2.2
L18 Osc. L.W. grid coil	2.0
L19 Osc. L.W. tuning coil	5.0
L20 1st I.F. trans. Pri.	4.5
L21 1st I.F. trans. Sec.	4.5
L22 2nd I.F. trans. Pri.	4.5
L23 2nd I.F. trans. Sec.	4.5
L24 Speaker speech coil	2.0
L25 Hum neutralising coil	0.2
L26 Speaker field coil	1,500.0
T1 Output trans. Pri.	450.0
T1 Output trans. Sec.	0.5
T2 Mains trans. Pri. total	23.0
T2 Mains trans. Heater sec.	0.05
T2 Mains trans. Rect. heat. sec.	0.1
T2 Mains trans. H.T. sec. total	420.0
S1-24 Waveband switches	—
S25 Gram. pick-up switch	—
S26 Int. speaker switch	—
S27 Mains switch, ganged R18	—

Circuit diagram of the McMichael 362 3-band A.C. superhet. S25 and S26 are jack switches. Alignment is accomplished by fixed tracking condensers and variable trimmers on all bands.

CONDENSERS	Values (μF)
C1 Aerial series condenser	0.0002
C2 Aerial circuit L.W. trimmer	0.00005
C3 V1 C.G. condenser	0.001
C4 V1 C.G. decoupling	0.1
C5 V1 C.G. decoupling	0.005
C6 V1 S.G. by-pass	0.1
C7 V2 cathode by-pass	0.1
C8 V2 cathode by-pass	0.01
C9 H.F. trans. sec. L.W. trimmer	0.00005
C10 V2 hexode C.G. decoupling	0.1
C11 V2 hexode S.G. by-pass	0.1
C12 V2 cathode by-pass	0.1
C13 Osc. C.G. condenser	0.001
C14 Osc. C.G. series condenser (S.W.)	0.0001
C15 Osc. C.G. series condenser (M.W.)	0.0001
C16 Osc. S.W. tracker	0.00354
C17 Osc. M.W. tracker	0.000618
C18 Osc. L.W. trimmer	0.000075
C19 Osc. L.W. tracker	0.000216
C20 Osc. anode condenser	0.0001
C21 V3 C.G. decoupling	0.1
C22 V3 C.G. decoupling	0.1
C23 V3 S.G. by-pass	0.1
C24 V3 cathode by-pass	0.1
C25 I.F. by-pass	0.0001
C26 L.F. coupling to V4 pentode	0.005
C27 H.T. supply H.F. by-pass	0.1
C28 V4 cathode by-pass	25.0
C29 V4 A.V.C. diode feed	0.0001
C30 Fixed tone corrector	0.002
C31 Part of T.C. filter	0.03
C32 H.T. smoothing	8.0
C33 Aerial circuit S.W. trimmer	—
C34 Aerial circuit M.W. trimmer	—
C35 Aerial circuit L.W. trimmer	—
C36 Aerial circuit tuning	—
C37 H.F. trans. sec. S.W. trimmer	—
C38 H.F. trans. sec. M.W. trimmer	—
C39 H.F. trans. sec. L.W. trimmer	—
C40 H.F. trans. sec. tuning	—
C41 Osc. circuit S.W. trimmer	—
C42 Osc. circuit M.W. trimmer	—
C43 Osc. circuit L.W. trimmer	—
C44 Osc. circuit tuning	—
C45 1st I.F. trans. pri. tuning	—
C46 1st I.F. trans. sec. tuning	—
C47 2nd I.F. trans. pri. tuning	—
C48 2nd I.F. trans. sec. tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 220 V, using the 220 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 AC/VP1	240	12.0	200	3.1
V2 AC/TH1*	240	1.1	55	3.2
V3 AC/VP1	240	11.0	200	2.9
V4 AC/2Pen/DD	225	29.0	240	6.1
V5 UU3	350†	—	—	—

* Oscillator anode, 70 V, 4.9 mA.

† Each anode, A.C.

GENERAL NOTES

Switches.—S1-S24 are the wavechange switches, in three ganged rotary units beneath the chassis, indicated in our under-chassis view by numbers in circles and arrows. The latter show the directions in which the units are viewed in the diagrams on page VIII.

The table (p. VIII) gives the switch positions for the three control settings, starting from the fully anti-clockwise position. O indicates open, and C, closed.

Switch	S.W.	M.W.	L.W.
S1	C	O	O
S2	O	C	O
S3	O	O	C
S4	C	O	O
S5	O	C	O
S6	C	O	O
S7	O	C	O
S8	O	O	C
S9	C	O	O
S10	O	C	O
S11	O	O	C
S12	C	O	O
S13	O	C	O
S14	C	O	O
S15	O	C	O
S16	O	O	C
S17	C	O	O
S18	O	C	O
S19	O	O	C
S20	C	O	O
S21	O	C	O
S22	C	O	O
S23	O	C	O
S24	O	O	C

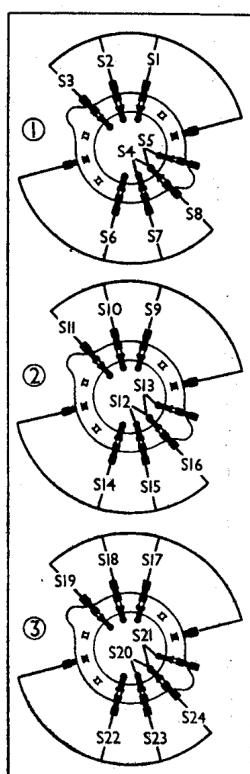
S25 and **S26** are two jack switches, at the rear of the chassis, for pick-up and internal speaker switching respectively. The switches are normally closed but when the pick-up or external speaker twin plug is fully inserted, the appropriate switch opens.

S27 is the Q.M.B. mains switch, ganged with the volume control, **R18**.

Coils.—**L1-L6**, **L7-L12**, **L14-L19** and the I.F. transformers **L20**, **L21** and **L22**, **L23** are in five screened units on the chassis deck. Each of the first three units contains three trimmers, reached through holes in the side of the screen, and numbered from top to bottom in our plan chassis view. Each of these units also contains one or more fixed condensers. The I.F. transformers have their trimmers at the tops of the screens, the second

transformer unit also containing **C28**.

L13 is a small single layer choke, beneath the chassis.



Condensers C17, C18, C19.—These are all inside the third (oscillator) coil unit. **C17** is the larger of the two flat ceramic cased types, **C19** the smaller, and **C18** the small cup-type ceramic at the top of the unit.

Scale Lamp.—This is an Osram 6.2 V, 0.3 A M.E.S. type.

External Speaker.—Two sockets are provided at the rear of the chassis for the connection of a low resistance

Switch diagrams, looking at the underside of the chassis in the directions indicated by the arrows in the under-chassis view.

external speaker (20). By pushing the plug of this speaker fully in, **S26** opens, and the internal speaker is disconnected.

Condensers C31, C32.—These are two 8 μ F dry electrolytics in a single carton beneath the chassis, with a common negative (black) lead. The red lead going to the right hand tag on **T1** is the positive of **C31**, and the red lead to the second tag

from the right is the positive of **C32**.

Resistances R26, R27.—These are mounted on the speaker unit. **R26** is the larger of the two (green body).

CIRCUIT ALIGNMENT

I.F. Stages.—Connect a 0.1 μ F or larger swamp condenser across the oscillator section of the gang (**C44**). Switch set to M.W., lift off thimble cap of **V2** and connect in its place one lead from the signal generator, the other going to chassis. Feed in a 465 KC/S signal, and adjust **C48**, **C47**, **C46** and **C45**, in that order, for maximum output, keeping the input low to avoid A.V.C. action. Finally check by moving the generator over a range of about 5 KC/S each side of the 465 KC/S setting, watching the output meter to see whether a symmetrical tuning curve has been obtained. Remove swamp condenser, and replace **V2** cap.

H.F. and Oscillator Stages.—Switch set to L.W., tune to 1,000 m. on scale, and inject a 300 KC/S (1,000 m.) signal into the A and E sockets. Adjust **C43**, then **C39** and **C35** for maximum output.

Switch set to M.W., and tune until upper end of pointer just coincides with lower edge of "RAD. LYONS" (214 m.) Inject a 1,400 KC/S (214 m.) signal, and adjust **C42**, **C38** and **C34** for maximum output.

Switch set to S.W., and tune to 19 m. on the scale. Inject a 15.79 MC/S (19 m.) signal and adjust **C41** for maximum output. The correct peak is that obtained with **C41** nearer minimum (slacker screw position). Then adjust **C37** and **C33** for maximum output.

As there may be interaction between the various circuits on the S.W. band, repeat the adjustments until the maximum output reading is obtained at the correct tuning point on the scale.