



Circuit diagram of the McMichael 371 3-band A.C. superhet. Note the unusual method of tuning the S.W. oscillator coil L11 by C22. The switch S3 is incidental to the switch assembly used, and is not shown in the maker's diagram.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 S.G. H.T. feed	20,000
R2	V1 S.G. anti-parasitic resistance	40
R3	V1 fixed G.B. resistance	250
R4	V1 osc. C.G. resistance	50,000
R5	Osc. reaction S.W. damping	50
R6	Osc. reaction M.W. damping	2,500
R7	Osc. reaction L.W. damping	5,000
R8	V1 oscillator anode H.T. feed	40,000
R9	V2 S.G. anti-parasitic resistance	40
R10	V2 fixed G.B. resistance	100
R11	Manual volume control	500,000
R12	V3 signal diode load	500,000
R13	V3 pent. C.G. I.F. stopper	100,000
R14	V3 pentode G.B. and A.V.C. delay potential resistances	15k
R15	V3 anode circuit stabiliser	50
R16	A.V.C. line decoupling	500,000
R17	V3 A.V.C. diode load	1,000,000
R18	Variable tone control	100,000
R19	Voltage surge reducer	40,000

CONDENSERS		Values (μF)
C1	Aerial S.W. coupling	0.00005
C2	Aerial M.W. and L.W. couplings	0.0002
C3	V1 S.G. decoupling	0.00001
C4	V1 cathode by-pass	0.1
C5	A.V.C. line decoupling	0.5
C6	V1 osc. C.G. condenser	0.0001
C7	H.T. positive line R.F. by-pass	0.1
C8	Osc. circuit L.W. tracker	0.001081
C9	V1 osc. anode coupling	0.0001
C10	V2 cathode by-pass	0.1
C11	A.F. coupling to V3 pentode	0.005
C12	I.F. by-pass	0.0001
C13	Coupling to V3 A.V.C. diode	0.0001
C14	V3 cathode by-pass	25.0
C15	V3 anode fixed tone corrector	0.002
C16	Part of variable T.C. filter	0.03

CONDENSERS (Continued)		Values (μF)
C18*	H.T. smoothing	8.0
C19*	Mains R.F. by-pass	8.0
C20	Band-pass pri. M.W. trimmer	0.002
C21†	Band-pass pri. and S.W. osc. tuning	—
C22†	Band-pass sec. M.W. trimmer	—
C23†	Band-pass sec. and S.W. aerial tuning	—
C24†	Osc. circuit M.W. trimmer	—
C25†	Osc. circuit L.W. trimmer	—
C26†	Oscillator circuit tuning (M.W. and L.W.)	—
C27†	1st I.F. trans. pri. tuning	—
C28†	1st I.F. trans. sec. tuning	—
C29†	2nd I.F. trans. pri. tuning	—
C30†	2nd I.F. trans. sec. tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial M.W. and L.W. coupling	10.75
L2	Band-pass primary coils	3.6
L3	Image suppressor	11.5
L4	Aerial S.W. tuning coil	0.45
L5	Band-pass secondary coils	0.1
L6	Oscillator S.W. grid reaction	3.3
L7	Oscillator M.W. grid reaction	11.75
L8	Oscillator L.W. grid reaction	6.0
L9	Osc. circuit S.W. tuning coil	2.5
L10	Osc. circuit M.W. tuning coil	4.75
L11	Osc. circuit L.W. tuning coil	0.1
L12	1st I.F. trans. Pri.	3.2
L13	1st I.F. trans. Sec.	14.3
L14	2nd I.F. trans. Pri.	65.0
L15	2nd I.F. trans. Sec.	65.0
L16	Speaker speech coil	65.0
L17	Hum neutralising coil	3.0
L18	Speaker field coil	0.15
L19	Speaker input trans.	1,800.0
L20	Speaker input trans.	600.0
T1	Mains trans. Pri. total	0.1
T2	Mains trans. Heater sec.	30.0
	Mains trans. Rect. heat. sec.	0.1
	H.T. sec. total	0.1
S1-S17	Waveband switches	550.0
S18-20	Scale lamp switches	—
S21	Mains switch, ganged R11	—

VALVE ANALYSIS

Valve voltages and currents given in the table (Col. 3) are those measured in our receiver when it was operating on mains of 230 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, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 AC/TH1*	240	2.3	93	6.4
V2 AC/VP2	240	12.0	240	3.4
V3 AC/zPen/DD	220	27.0	240	5.8
V4 UU4	335†	—	—	—

* Oscillator anode, 70 V, 4.0 mA.

† Each anode, A.C.

GENERAL NOTES

Switches.—S1-S17 are the waveband switches, and S18-S20 the scale lamp switches, all ganged in two rotary units beneath the chassis. These are indicated in our under-chassis view, and are shown in detail in the diagrams on page viii. Note the extra switches formed by the two contacts on the rotor of the first switch unit. S3 appears to be merely incidental to the switching system used. It is not shown in the maker's diagram, but we include it for the sake of completeness.

No variable tracking is provided on M.W. or L.W., and no variable trimming or tracking on S.W.

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

S21 is the Q.M.B. mains switch, ganged with the volume control R11.

Coils.—L1-L4 and L6, L7 are on a single unscreened tubular former mounted vertically on the chassis deck. The positions of the individual coils, from top to bottom, are indicated in our plan chassis view. L5 is on a separate unscreened former mounted just above the chassis deck. L9, L10, L12, L13 and the I.F. transformers L14, L15 and L16, L17 are in three screened units on the chassis deck. The S.W. oscillator coils L8, L11 are on an unscreened tubular former beneath the chassis. L11 is the enamelled wire winding.

Scale Lamps.—There are five of these in all, two being for indirect illumination of the scale, and alight whenever the set is on, the remainder being switched in one at a time by S18-S20, according to the waveband in use. The three lamps rotate with the large indicator wheel behind the scale, their connections passing through the hollow spindle and being brought out to flexible leads.

CIRCUIT ALIGNMENT

With the gang at maximum the tuning drive should be adjusted (using the set-screws of the flexible coupling) so that when switched to the M.W. band the orange indicating slit points to the calibration mark which will be found about $\frac{1}{2}$ in. to the right of the 550 m. calibration.

I.F. Stages.—Connect signal generator to grid (top cap) of V1 and chassis, switch set to M.W., connect a 0.1 μF or larger swamp condenser across C27, and feed in a 128.5 KC/S signal. Adjust C31, C30, C29 and C28 in turn for maximum output. Re-check, then remove swamp condenser and replace normal top cap connection.

R.F. and Oscillator Stages.—Connect signal generator to A and E sockets.

M.W.—Switch set to M.W., tune so that pointer light is at the bottom edge of the station name "Rad. Lyons." Inject a 1,400 KC/S (214 m.) signal, and adjust C25 for maximum output. Then adjust C23 and C21 for maximum output.

L.W.—Switch set to L.W., set pointer light to read 1,000 m., and inject a 1,000 m. (300 KC/S) signal. Adjust C26 for maximum output.

Switch diagrams, looking from the rear of the underside of the chassis. B indicates blank, and b, bearer.

