



"X" is a plug on a flying lead used in conjunction with the sockets 1 to 3 to mute radio on gram.

## COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1	Aerial series resistance .. 100,000
R2	V1 pentode C.G. decoupling .. 100,000
R3	V1 osc. C.G. resistance .. 20,000
R4	Part V1 S.G. H.T. feed .. 50,000
R5	Part V1 S.G. H.T. feed, M.W. and L.W. only .. 50,000
R6	Oscillator M.W. reaction damping .. 5,000
R7	V3 diode load .. 500,000
R8	I.F. stopper .. 100,000
R9	A.V.C. line decoupling .. 500,000
R10	Manual volume control .. 500,000
R11	V3 triode anode load .. 50,000
R12	V4 C.G. resistance .. 500,000
R13	V4 grid stopper .. 100,000

CONDENSERS	Values (μF)
C1	Aerial M.W. and L.W. coupling .. 0.000018
C2	Band-pass L.W. top coupling .. Very low
C3	Band-pass bottom coupling .. 0.02
C4	Aerial S.W. trimmer .. 0.000006
C5	Small S.W. coupling .. Very low
C6	V1 osc. C.G. condenser .. 0.0001
C7	Osc. circuit L.W. fixed trimmer .. Very low
C8	Osc. circuit M.W. fixed tracker .. 0.0005
C9	V1 S.G. decoupling .. 0.1
C10	V1 osc. anode R.F. by-pass .. 0.1
C11	V2 C.G. decoupling .. 0.1
C12	R.F. by-passes .. 0.0002
C13	Part variable selectivity control .. 0.0001
C14	A.F. coupling to V3 triode .. 0.02
C15	V3 triode to V4 coupling .. 0.02
C16	Fixed tone corrector .. 0.0025
C17	H.T. reservoir condenser .. 2.0
C18*	Band-pass pri. L.W. trimmer .. —
C19*	Band-pass primary tuning .. —
C20†	Band-pass pri. M.W. trimmer .. —
C21†	Band-pass sec. L.W. trimmer .. —
C22†	Band-pass sec. and S.W. aerial tuning .. —
C23†	Band-pass sec. M.W. trimmer .. —
C24†	Oscillator circuit tuning .. —
C25†	Osc. circuit M.W. trimmer .. —
C26†	Osc. circuit L.W. trimmer .. —
C27†	Osc. circuit L.W. tracker .. —
C28†	Osc. circuit M.W. tracker .. —
C29†	1st I.F. trans. pri. tuning .. —
C30†	1st I.F. trans. sec. tuning .. —
C31†	2nd I.F. trans. pri. tuning .. —
C32†	2nd I.F. trans. sec. tuning .. —
C33†	—

\* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS (Continued)	Approx. Values (ohms)
L10	Oscillator S.W. tuning coil .. Very low
L11	Oscillator M.W. tuning coil .. 4.0
L12	Oscillator L.W. tuning coil .. 13.0
L13	Oscillator S.W. reaction .. 0.2
L14	Oscillator M.W. reaction .. 3.4
L15	Oscillator L.W. reaction .. 6.75
L16	1st I.F. trans. { Pri. .. 80.0
L17	{ Sec. .. 80.0
L18	2nd I.F. trans. { Pri. .. 80.0
L19	{ Sec. .. 80.0
L20	Speaker speech coil .. 3.6
T1	Speaker input trans. { Pri. .. 900.0
	{ Sec. .. 0.85
S1	Local-distant switch .. —
S2-S13	Waveband switches .. —
S14	Part of variable selectivity control .. —
S15	Scale lamp switch .. —
S16	H.T. circuit switch .. Ganged
S17	L.T. circuit switch .. R10

## VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 FC2A	130	0.6	39	0.9
V2 VP2	130	2.1	—	—
V3 TDD2A	85	0.6	130	0.8
V4 PM22A	127	2.1	130	0.4

Valve voltages and currents given in the table above are those measured in our receiver when it was operating with an H.T. battery reading 130 V on load. The receiver was tuned to the lowest wavelength on the medium band and both the volume and sensitivity controls were at maximum (the latter down), but there was no signal input. Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

If V1 should become unstable when measurements are being made of its anode current, as in our case, it can be stabilised by connecting a non-inductive condenser of about 0.1 μF from grid (top cap) to chassis.

## GENERAL NOTES

**Switches.**—S1 is the local-distant Q.M.B. switch, at the rear of the chassis. When the knob is down, the switch closes and shorts out R1.

**S2-S13** are the waveband switches, ganged in a single unit beneath the chassis. All the switches are clearly indicated in our under-chassis view. The table below gives the switch positions for the three control settings, starting from fully anti-clockwise. A dash indicates open, and C, closed.

S14 and S15 are in a separate unit, and are operated by a plate attached to the selectivity control spindle. Both switches are open for the major part of this spindle's rotation, but near the fully clockwise position S14 closes, and at the fully clockwise position S15 closes as well.

S16 and S17 are the Q.M.B. battery circuit switches, ganged with the volume control R10.

**Coils.**—L1, L2; L3, L4; L6, L8, L9; L11, L12, L14, L15 and the I.F. transformers L16, L17 and L18, L19 are in six screened units on the chassis deck. The I.F. trimmers are in dual units at the tops of their respective cans, and each pair is adjusted by a nut and screw.

L5, L7 and L10, L13 are in two unscreened units beneath the chassis deck, L7 and L10 being the thick wire windings.

**Scale Lamp.**—This is an M.E.S. type, rated at 2.5 V. The consumption, though not indicated, is 0.25 A. The lamp is switched into circuit by S15 when the selectivity control is turned fully clockwise.

## CIRCUIT ALIGNMENT

The selectivity control should be turned fully clockwise and the volume control should be at maximum.

**I.F. Stages.**—Connect signal generator via a 0.1 μF condenser to control grid (top cap) of V1, and chassis. Short circuit C25. Feed in a 130 KC/S signal, and adjust C33, C32, C31 and C30 for maximum output. Remove short from C25.

**R.F. and Oscillator Stages.**—Connect signal generator to A and E sockets, and feed in a 214 m. (1,400 KC/S) signal. Switch set to M.W., and tune to 214 m. on scale (a black dot is provided for this setting). Adjust C26, C24 and C21 for maximum output. Feed in a 500 m. (600 KC/S) signal, tune it in, and adjust C29 for maximum output, while rocking the gang for optimum results.

Switch set to L.W., feed in a 1,200 m. (250 KC/S) signal, tune to 1,200 m. on scale, and adjust C27, C22 and C19 for maximum output. Feed in a 1,712 m. (175 KC/S) signal, tune it in, and adjust C28 for maximum output, while rocking the gang for optimum results.

No separate S.W. adjustments are provided.