



Note the unusual arrangements for the connection of a gramophone pick-up. When a pick-up is used V3 becomes an A.F. amplifier with its screen acting as the anode, and R7, C11 and R11 act as a resistance capacity coupling between V3 and V5.

## COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 hexode C.G. decoupling ..	100,000
R2	V1 hexode anode decoupling ..	5,000
R3	V1 osc. C.G. resistance ..	50,000
R4	V1 S.G. decoupling ..	15,000
R5	V1 osc. anode and S.G. feed ..	10,000
R6	V2 anode decoupling ..	5,000
R7	Part V2, V3 S.G. pot. on radio : V3 anode load on gram. ..	20,000
R8	Part V2, V3 S.G. pot. ..	10,000
R9	V3 anode decoupling ..	5,000
R10	I.F. stopper ..	100,000
R11	Manual volume control ..	500,000
R12	V4 signal diode load ..	500,000
R13	A.V.C. line decoupling ..	500,000
R14	V4 A.V.C. diode load ..	500,000
R15	I.F. stopper ..	7,000
R16	V5 G.B. resistance ..	150
R17	Variable tone control ..	50,000
R18	A.V.C. delay resistance ..	40

CONDENSERS		Values (μF)
C1	Small aerial coupling (M.W., L.W.) ..	0.000018
C2	Small aerial coupling (L.W.) ..	0.000017
C3	V1 hexode C.G. decoupling ..	0.02
C4	V1 hexode anode decoupling ..	0.1
C5	V1 S.G. decoupling ..	0.1
C6	V1 osc. C.G. condenser ..	0.00005
C7	Oscillator L.W. trimmer ..	0.00007
C8	V1 osc. anode decoupling ..	0.1
C9	V2 anode decoupling ..	0.1
C10*	V2, V3 S.G. decoupling ..	2.0
C11	V3 S.G. decoupling on radio ; A.F. coupling on gram. ..	0.1
C12	A.V.C. line decoupling on radio ; pick-up coupling on gram. ..	0.1
C13	V3 anode decoupling ..	0.1
C14	A.F. coupling to V5 ..	0.02
C15	I.F. by-pass ..	0.00005
C16	V4 A.V.C. diode coupling ..	0.000015
C17*	V5 cathode by-pass ..	25.0
C18	Part of T.C. circuit ..	0.01
C19	Fixed tone corrector ..	0.0005
C20*	H.T. smoothing ..	8.0
C21*	Mains R.F. filter ..	16.0
C22	Aerial circuit S.W. trimmer ..	0.01
C23	Band-pass primary M.W. trimmer ..	—
C24	Band-pass primary L.W. trimmer ..	—
C25	Band-pass primary tuning ..	0.0005
C26	Band-pass secondary M.W. trimmer ..	—
C27	Band-pass secondary L.W. trimmer ..	—
C28	Band-pass secondary tuning ..	0.0005
C29	Oscillator circuit tuning ..	0.0005
C30	Oscillator circuit S.W. trimmer ..	—
C31	Oscillator circuit M.W. trimmer ..	—
C32	Oscillator circuit L.W. trimmer ..	—
C33	Oscillator circuit M.W. tracker ..	—
C34	Oscillator circuit L.W. tracker ..	—
C35	1st I.F. trans. pri. tuning ..	—
C36	1st I.F. trans. sec. tuning ..	—
C37	2nd I.F. trans. pri. tuning ..	—
C38	2nd I.F. trans. sec. tuning ..	—
C39	3rd I.F. trans. pri. tuning ..	—
C40	3rd I.F. trans. sec. tuning ..	—

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

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial circuit S.W. coupling ..	0.1
L2	High impedance aerial circuit coils	13.0
L3	Aerial circuit S.W. tuning coil	35.0
L4	Band-pass primary coils	Very low
L5	Band-pass secondary coils	2.8
L6	Oscillator circuit S.W. tuning coil	25.0
L7	Oscillator circuit S.W. reaction coil	3.2
L8	Oscillator circuit M.W. tuning coil	24.0
L9	Oscillator circuit L.W. reaction coil	Very low
L10	Oscillator circuit M.W. reaction coil	0.1
L11	Oscillator circuit L.W. tuning coil	3.25
L12	Oscillator circuit M.W. reaction coil	1.75
L13	Oscillator circuit L.W. reaction coil	6.8
L14	1st I.F. trans. Pri. ..	1.9
L15	1st I.F. trans. Sec. ..	17.5
L16	2nd I.F. trans. Pri. ..	17.5
L17	2nd I.F. trans. Sec. ..	17.5
L18	3rd I.F. trans. Pri. ..	17.5
L19	3rd I.F. trans. Sec. ..	17.5
L20	Speaker speech coil ..	1.9
L21	Hum neutralising coil ..	0.1
L22	Speaker field coil ..	1,250.0
L23	Output trans. Pri. ..	450.0
T1	Output trans. Sec. ..	0.4
T2	Mains trans. Pri. total ..	29.0
	Heat. sec. total ..	0.5
	Rect. heat. sec. ..	0.25
	H.T. sec. total ..	200.0
S1-S21	Waveband switches ..	—
S22-27	Radio-gram. switches ..	—
S28	Mains switch, ganged R11 ..	—

## VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH4A*	250	1.0	75	2.9
V2 9D2	235	4.0	80	0.8
V3 9D2	235	3.9	80	1.0
V4 10D1	—	—	—	—
V5 7D8	245	32.0	260	7.9
V6 R2	305†	—	—	—

\* Oscillator anode 120 V, 10.9 mA.  
† Each anode, A.C.

our receiver when it was operating on mains of 235 V, using the 225 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.

## GENERAL NOTES

**Switches.**—S1-S21 are the waveband switches, ganged in three rotary units beneath the chassis. They are indicated in our under-chassis view and shown in detail in col. 3 where they are seen looking from the rear of the underside of the chassis.

The table (col. 2) gives the switch positions for the three control settings, starting from fully clockwise. O indicates open and C closed.

S22-S27 are the pick-up switches, in a single rotary unit beneath the chassis. This is indicated in our under-chassis view by the switch numbers and shown in detail in col. 3. The table for this unit (col. 2) gives the switch positions for the two control settings starting from anti-clockwise (radio). O indicates open and C closed.

S28 is the Q.M.B. mains switch, ganged with the volume control, R11.

**Coils.**—The R.F. and oscillator coils are mounted on nine tubular formers in three screened compartments beneath the chassis. Each former except that on which L2 and L3 are mounted carries a trimmer at its end. The I.F. transformers L15, L16; L17, L18, and L19, L20 are in three screened units on the chassis deck, with their associated trimmers.

**Scale Lamp.**—This is a special Osram tubular type with a double contact S.B. cap. It is rated at 230 V 15 W and is so connected across the primary of T2 that it always receives the same conservative voltage when the voltage adjustment of the receiver is correct for the mains in use. Upon insertion of a replacement it should be rotated until the scale is evenly illuminated.

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

Switch	Radio	Gram.
S22	C	O
S23	C	O
S24	O	C
S25	O	O
S26	C	O
S27	C	O

