

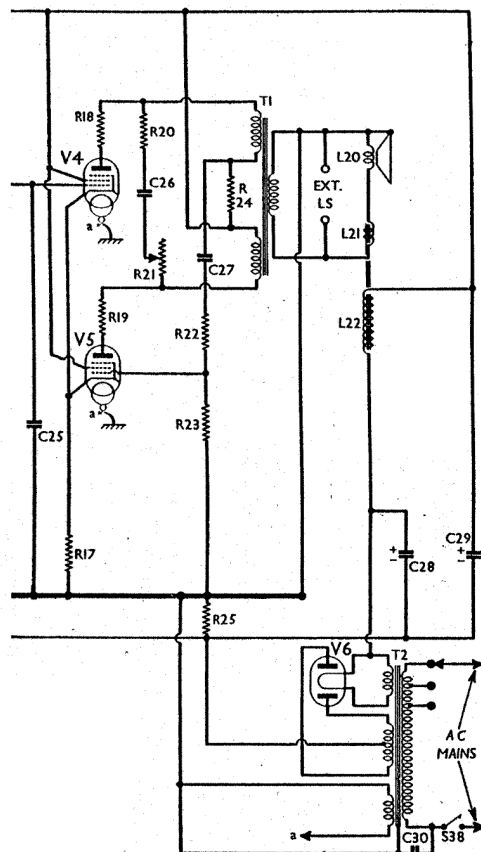
COMPONENTS AND VALUES

CONDENSERS		Values (μF)
C1	Aerial LW fixed trimmer ..	0.00005
C2	1st IF trans. pri. trimmer ..	0.00009
C3	1st IF trans. sec. trimmer ..	0.00009
C4	Small coupling ..	Very low
C5	AVC line decoupling ..	0.0001
C6	V1 osc. CG condenser ..	0.0001
C7	HT circuit RF by-pass ..	0.1
C8	Osc. circuit SW tracker ..	0.004
C9	Osc. circuit LW fixed trimmer ..	0.0001
C10	Osc. circuit MW fixed trimmer ..	0.0004
C11	Osc. circuit LW fixed trimmer ..	0.00015
C12*	V1 osc. anode decoupling ..	6.0
C13	V1 osc. anode coupling ..	0.001
C14	V1, V2 SG's RF by-pass ..	0.1
C15*	V1, V2 SG's decoupling ..	2.0
C16	2nd IF trans. pri. trimmer ..	0.00009
C17	2nd IF trans. sec. trimmer ..	0.00009
C18	Coupling to V3 AVC diode ..	0.00005
C19	IF by-pass ..	0.00015
C20	V3 cathode RF by-pass ..	0.05
C21	IF by-pass ..	0.00015
C22	AF coupling to V3 triode ..	0.02
C23*	V3 triode CG decoupling ..	6.0
C24	V3 triode to V4 AF coupling ..	0.05
C25	V4 CG IF by-pass ..	0.0004
C26	Part of variable tone control ..	0.02
C27	V5 CG condenser ..	0.05
C28*	HT smoothing condensers ..	12.0
C29*	HT smoothing condensers ..	12.0
C30	Mains RF by-pass ..	0.002
C31†	Aerial IF filter tuning ..	—
C32†	Aerial 261 m filter tuning ..	—
C33†	Aerial circuit SW trimmer ..	—
C34†	Aerial circuit MW trimmer ..	—
C35†	Aerial circuit LW trimmer ..	—
C36†	Aerial circuit manual tuning ..	—
C37†	Oscillator circuit manual tuning ..	—
C38†	Osc. circuit MW trimmer ..	—
C39†	Osc. circuit LW trimmer ..	—
C40†	Osc. circuit SW trimmer ..	—
C41†	Osc. circuit MW tracker ..	0.0002
C42†	Osc. circuit LW tracker ..	0.00007
C43†	1st IF trans. pri. tuning ..	0.00007
Continued in next column		
C44†	1st IF trans. sec. tuning ..	0.00007
C45†	2nd IF trans. pri. tuning ..	0.00007
C46†	2nd IF trans. sec. tuning ..	0.00007
C47	Automatic tuning aerial coupling ..	0.00001
AUTOMATIC TUNING UNIT		
C48†	Aerial	—
C49	Oscillator	—
C50†	Aerial	—
C51	Oscillator	—
C52†	Aerial	—
C53	Oscillator	—
C54†	Aerial	—
C55	Oscillator	—
C56†	Aerial	—
C57	Oscillator	—
C58†	Aerial	—
C59	Oscillator	—
C60†	Aerial	—
C61	Oscillator	—
C62†	Aerial	—
C63	Oscillator	—
C64†	Aerial	—
C65	Oscillator	—
C66†	Aerial	—
C67	Oscillator	—
C68†	Aerial	—
C69	Oscillator	—
C70†	Auto osc. circuit temperature compensating condenser ..	0.00004
C71	Auto osc. circuit temperature compensating condenser ..	0.00004

For values see separate table

RESISTANCES		Values (ohms)
R1	V1 osc. CG resistance ..	50,000
R2	1st IF trans. damping on auto ..	50
R3	V1 osc. anode HT feed resistance ..	10,000
R4	V1, V2 SG's HT feed ..	10,000
R5	IF stopper ..	40,000
R6	V3 signal diode load ..	250,000
R7	Manual volume control ..	500,000
R8	V3 triode anode load ..	1,000,000
R9	V3 triode CG decoupling ..	130,000
R10	V3 GB resistance ..	50,000
R11	V3 GB resistance ..	3,000
R12	AVC delay voltage HT potential divider ..	25,000
R13	AVC line decoupling ..	1,500
R14	V3 AVC diode load ..	2,000,000
R15	V4 CG resistance ..	2,000,000
R16	V4, V5 GB resistance ..	500,000
R17	V4 anode stabiliser ..	220
R18	V5 anode stabiliser ..	100
R19	V5 anode stabiliser ..	100
R20	Part variable tone control ..	1,000
R21	Variable tone control ..	100,000
R22	V5 CG feed resistances ..	140,000
R23	V4 to V5 coupling resistance ..	330,000
R24	V1 tetrode and V2 fixed GB ..	990
R25	V1 tetrode and V2 fixed GB ..	30

OTHER COMPONENTS		Approx. Values (ohms)
L1	MW aerial IF filter coil ..	35.0
L2	LW aerial 261 m filter coil ..	5.0
L3	Aerial SW coupling coil ..	0.25
L4	Aerial MW coupling coil ..	35.0
L5	Aerial LW coupling coil ..	65.0
L6	Aerial SW tuning coil ..	Very low
L7	Aerial MW tuning coil ..	2.5
L8	Aerial LW tuning coil ..	25.0
L9	Osc. circuit SW tuning coil ..	0.05
L10	Osc. circuit MW tuning coil ..	5.0
L11	Osc. circuit LW tuning coil ..	12.0
L12	Oscillator SW reaction ..	1.5
L13	Oscillator MW reaction ..	Very low
L14	Oscillator LW reaction ..	3.0
L15	1st IF trans. pri. ..	9.5
L16	Part IF trans. coupling on auto ..	0.8
L17	1st IF trans. sec. ..	9.5
L18	2nd IF trans. { Pri. ..	9.5
L19	2nd IF trans. { Sec. ..	9.5
L20	Speaker speech coil ..	2.0
L21	Hum neutralising coil ..	0.25
L22	Speaker field coil ..	550.0
L23	Aerial automatic tuning circuit coils ..	85.0
L24	Oscillator automatic tuning circuit coil, total ..	1.15
L25	Oscillator automatic tuning circuit coil, total ..	9.5
T1	Speaker input { V4 pri. ..	250.0
	trans. { V5 pri. ..	300.0
	trans. { Sec. ..	0.5
T2	Mains { Pri., total ..	30.0
	trans. { Heater sec. ..	0.1
	trans. { Rect. heat. sec. ..	0.1
	trans. { HT sec., total ..	280.0
S1-S3	Manual waveband switches ..	—
S4-S12	Auto/manual change switches ..	—
S13-S14	Radio/gram change switches ..	—
S15-S16	Scale/auto indicator lamps ..	—
S17-S18	switches ..	—
S19-S20	Mains switch, ganged R8 ..	—
S21-S22	Auto selector switches ..	—



VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 223 V, using the centre 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 400 V scale of a model 7 Universal Avometer, chassis being negative.

If, as in our case, V2 should become unstable when its screen current is being measured, it can be stabilised by connecting a non-inductive condenser of 0.1 μF from that electrode to chassis.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 X63	253	2.3	81	3.0
V2 6K7G	158	4.0	81	1.2
V3 6Q7G	253	5.0	—	—
V4 6F6G	118	0.6	253	6.2
V5 6F6G	210	35.0	253	6.6
V6 5Y3G	240	30.0	—	—
	350†	—	—	—

† Each anode, AC.

* Electrolytic. † Variable. ‡ Pre-set.

Coils.—L1 is on the chassis deck, and the remainder of the RF and oscillator coils, including those used solely in the automatic tuning circuits (L23-L25), are beneath the chassis. The IF transformers L15-L17 and L18, L19 are in two screened units on the chassis deck.

Scale and Indicator Lamps.—These are three Osram MES type bulbs, rated at 6.5 V, 0.3 A. They have small bulbs.

External Speaker.—Two sockets are provided on the internal speaker connection panel for a low impedance (2 to 3 Ω) external speaker.

Condensers C28, C29.—These are two 12 μF dry electrolytic types, in a large tubular carton fitted on the chassis deck. The black lead is the common negative, the red lead to V6 holder is the positive of C28, and the other red lead that of C29.

Condensers C12, C15.—These are two dry electrolytics in a single rectangular carton beneath the chassis, having a common negative (black) lead. The red lead is the positive of C12 (6 μF) and the yellow lead the positive of C15 (2 μF).

Condenser C4.—This is a small capacity formed by an insulated wire from the top connecting tag of C37 being twisted round the top tag of C36.

Auto Unit.—The three connections to the auto unit are indicated by the letters A to C in the under-chassis view, the view of the auto-unit, and the circuit.

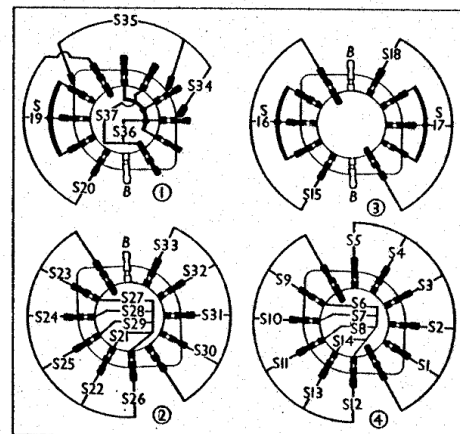
Ten different station groupings, each embodying six out of fourteen alternative stations, are available. The values of the aerial and oscillator circuit fixed trimmers for these stations are given in a table below, and the types of pre-set trimmers used are also indicated.

AUTOMATIC TRIMMER CAPACITIES				
Pre-set stations	Aerial Circuit		Oscillator Circuit	
	Fixed	Pre-set	Fixed	Pre-set
L. Nat. ..	0.000035	Y	0.000016	X
Stagshaw ..	0.000035	Y	0.000016	X
R. Normandie ..	0.000045	Y	0.00002	X
West Reg. ..	0.000055	Y	0.000028	X
Mid. Reg. ..	0.000065	Y	0.000035	X
N. Ireland ..	0.000075	Y	0.00004	X
Lond. Reg. ..	0.00012	Y	0.000062	X
Welsh Reg. ..	0.00016	Y	0.000082	X
Scot. Reg. ..	0.00018	Y	0.000093	X
Hilversum ..	0.000215	Y	0.00011	X
N. Reg. ..	0.00027	Y	0.00013	X
Athlone ..	0.00041	Y	0.000184	X or Y
Luxembourg ..	0.00311	Y	0.00052	Y
Droitwich ..	0.00441	Y	0.000585	Y

X trimmers are special silvered ceramic types.
Y trimmers are all 0.00005 μF maximum.

TABLE AND DIAGRAMS OF THE SI-S37 SWITCH UNITS

Switch	SW	MW	LW	Auto	Gram
S1	C	—	—	—	—
S2	—	C	—	—	—
S3	—	—	C	—	—
S4	—	—	—	C	—
S5	—	—	—	—	C
S6	—	C	C	C	C
S7	C	C	C	C	C
S8	C	C	—	—	—
S9	C	—	—	—	—
S10	—	C	—	—	—
S11	—	—	C	—	—
S12	—	—	—	—	C
S13	—	—	—	C	—
S14	C	C	C	C	C
S15	—	—	—	—	—
S16	C	C	C	—	—
S17	C	C	C	—	—
S18	—	—	—	—	—
S19	C	C	C	—	—
S20	—	—	—	—	—
S21	C	C	C	—	—
S22	—	—	—	—	—
S23	C	—	—	—	—
S24	—	C	—	—	—
S25	—	—	C	—	—
S26	—	—	—	—	C
S27	—	C	C	C	C
S28	C	C	C	C	C
S29	C	C	—	—	—
S30	C	—	—	—	—
S31	—	C	—	—	—
S32	—	—	C	—	—
S33	—	—	—	C	—
S34	C	C	C	C	C
S35	—	—	—	—	C
S36	C	C	C	—	—
S37	—	—	—	C	—



Switch diagrams, as seen from the rear of the underside of the chassis.

signal generator via a suitable dummy aerial to A and E sockets.

MW.—Switch set to MW, keep gang at minimum, feed in a 200 m (1,500 KC/S) signal and adjust C38 for maximum output. Feed in a 228 m (1,316 KC/S) signal, tune it in, and adjust C34 for maximum output.

Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C41 for maximum output, while rocking the gang slightly.

Turn gang to maximum, feed in a 450 KC/S signal, and adjust C31 for minimum output.

Repeat the 200, 228 and 500 m adjustments.

LW.—Switch set to LW, tune to 1,128 m on scale, feed in a 1,128 m (266 KC/S) signal, and adjust C39, then C35, for maximum output.

Feed in a 1,800 m (166.5 KC/S) signal, tune it in, and adjust C42 for maximum output, while rocking the gang.

Tune to 1,200 m on scale, feed in a strong 261 m (1,149 KC/S) signal, and adjust C32 for minimum output.

Return to 1,128 m and re-adjust C39 and C35, then re-adjust C42 at 1,800 m.

SW.—Switch set to SW, and use a SW dummy aerial. Turn gang to minimum, feed in a 16.67 m (18 MC/S) signal, and adjust C40 for maximum output. The peak requiring the least trimmer capacity is the correct one. Now tune to 20 m on the scale, feed in a 20 m (15 MC/S) signal, and adjust C33 for maximum output.

Chassis Divergencies.—Our receiver was an early model, produced when Radio Normandie was at the bottom of the MW band. In this case C48 had no fixed trimmer across it, while C49 was 0.000212 μF. In later models, there will be a 0.000045 μF fixed condenser across the Normandie variable aerial trimmer, while a 0.00002 μF fixed condenser will be across the Normandie variable oscillator trimmer, in place of the 0.000212 μF condenser.

The extra fixed condenser is not shown in our circuit diagram or in the view of the auto-unit, but it will be across C48 when Normandie is set up on the left-hand button.

CIRCUIT ALIGNMENT

IF Stages.—Turn volume control to maximum, gang condenser to minimum, and switch set to LW. Connect signal generator to control grid (top cap) of V1 (via a 0.05 μF fixed condenser) and chassis. Feed in a 450 KC/S signal, and adjust C43, C44, C45 and C46 for maximum output.

RF and Oscillator Stages.—Connect

S39-S50 are the auto-selector switches incorporated in the push - button unit. Each button controls two of the switches, which close when the button is depressed. The switches are shown in detail in a separate view of the auto unit.

GENERAL NOTES

Switches.—S1-S37 are ganged in four rotary units beneath the chassis. These are indicated in our under-chassis view, and shown in detail in the diagrams in col. 6. The table (col. 5) gives the switch positions for the five control settings, starting from fully anti-clockwise. A dash indicates open, and C closed.

S38 is the QMB mains switch, ganged with the volume control R8.