

Circuit diagram of the K.B. 652 and 642 receivers.

C5 may not be used in some chassis.

COMPONENTS AND VALUES

RESISTANCES	Values (ohms)
R1	Aerial circuit shunt .. 5,000
R2	V1 hexode CG decoupling .. 100,000
R3	V1 fixed GB resistance .. 65
R4	V1 hex. anode HT feed .. 5,000
R5	V1 osc. CG resistance .. 50,000
R6	V1 osc. anode HT feed .. 20,000
R7	V1, V2 SG's HT potential divider .. 20,000
R8	V1, V2 SG's HT potential divider .. 50,000
R9	V2 fixed GB resistance .. 250
R10	IF stopper .. 1,000,000
R11	Manual volume control .. 500,000
R12	V3 signal diode load .. 500,000
R13	V3 GB and AVC delay .. 10,000
R14	V3 triode anode decoupling .. 50,000
R15	V3 triode anode load .. 250,000
R16	AVC line decoupling .. 500,000
R17	V3 AVC diode load .. 500,000
R18	V4 CG resistance .. 100,000
R19	V4 GB resistance .. 150
R20	Scale lamp shunt .. 75
R21	V5 anode current limiter .. 75
R22	Heater circuit ballast .. *750

* Tapped at 410+115+95+130.

OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial LW choke .. 16.5
L2	Aerial SW coupling coil .. 0.1
L3	Aerial SW tuning coil .. 0.05
L4	Aerial MW tuning coil .. 3.0
L5	Aerial LW tuning coil .. 13.0
L6	Osc. circuit SW tuning coil .. 0.05
L7	Osc. circuit MW tuning coil .. 3.5
L8	Osc. circuit LW tuning coil .. 7.25
L9	Oscillator SW reaction coil .. 0.1
L10	Oscillator MW reaction coil .. 1.8
L11	Oscillator LW reaction coil .. 2.25
L12	1st IF trans. { Pri. .. 7.5
L13	2nd IF trans. { Sec. .. 7.5
L14	1st IF trans. { Pri. .. 7.5
L15	2nd IF trans. { Sec. .. 7.5
L16	Speaker speech coil .. 2.0
L17	Hum neutralising coil .. 0.2
L18	Speaker field coil .. 1,000.0
L19	Mains filter chokes { Pri. .. 4.0
L20	Mains filter chokes { Sec. .. 4.0
T1	Speaker input trans. { Pri. .. 400.0
S1-S16	Waveband switches { Pri. .. 0.4
S17	Mains switch .. ---

Safety Device.—a paxolin panel, mounted by brackets on the inside of the cabinet at the rear, carries two pairs of spring contacts, one for each pole of the mains input, and when the back of the cabinet is in place, two metal plates, mounted in a suitable position on it, short circuit each pair of contacts and so connect the mains to the receiver, via S17. When the back of the cabinet is removed, both mains connections are broken.

For testing the chassis, the contact plates can be removed from the back of the cabinet, and used to short the spring contacts.

Coils.—The choke L1 is in an unscreened unit beneath the chassis, while L2-L11 are in six tubular units in screened compartments beneath the chassis, each unit having a trimmer on the top of it.

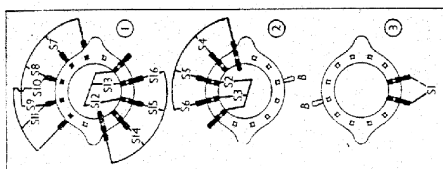
The IF transformers L12, L13 and L14, L15 are in two screened units on the chassis deck, with their trimmers.

The two mains chokes L19, L20 are in a single unit on the chassis deck, the black leads belonging to L19 and the yellow one to L20.

Scale Lamp.—This is an MES type, rated at 6.2 V, 0.3 A, and is connected in parallel with R20, wound on the same former as R22 (on the chassis deck).

CONDENSERS	Values (μF)
C1	Aerial isolating condenser .. 0.01
C2	Earth isolating condenser .. 0.01
C3	Aerial coupling condenser .. 0.0005
C4	MW and LW aerial coupling .. 0.005
C5	Aerial LW fixed trimmer .. Very low
C6	V1 hex. anode decoupling .. 0.1
C7	Small coupling .. Very low
C8	V1 cathode by-pass .. 0.1
C9	V1 osc. CG condenser .. 0.0001
C10	AVC line decoupling .. 0.1
C11	Osc. circuit LW fixed trimmer .. 0.00007
C12	V1 osc. anode decoupling .. 0.1
C13	V1, V2 SG's decoupling .. 0.1
C14	Coupling to V3 AVC diode .. 0.00005
C15	V2 cathode by-pass .. 0.1
C16	AF coupling to V3 triode .. 0.02
C17	IF by-pass .. 0.0005
C18*	V3 cathode by-pass .. 25.0
C19*	V3 triode anode decoupling .. 2.0
C20	V3 triode to V4 AF coupling .. 0.02
C21	Fixed tone corrector .. 0.005
C22*	V4 cathode by-pass .. 25.0
C23*	HT smoothing .. 8.0
C24*	Mains RF by-pass .. 16.0
C25	Mains RF by-pass .. 0.01
C26†	Aerial circuit SW trimmer .. ---
C27†	Aerial circuit MW trimmer .. ---
C28†	Aerial circuit LW trimmer .. ---
C29†	Aerial circuit tuning .. 0.0005
C30†	Oscillator circuit tuning .. 0.0005
C31†	Osc. circuit MW tracker .. ---
C32†	Osc. circuit LW tracker .. ---
C33†	Osc. circuit SW trimmer .. ---
C34†	Osc. circuit MW trimmer .. ---
C35†	Osc. circuit LW trimmer .. ---
C36†	1st IF trans. pri. tuning .. ---
C37†	2nd IF trans. sec. tuning .. ---
C38†	2nd IF trans. pri. tuning .. ---
C39†	2nd IF trans. sec. tuning .. ---

* Electrolytic. † Variable. ‡ Pre-set.



Diagrams of the three switch units, as seen from the underside of the chassis, looking in the directions of the arrows in the under-chassis view.

VALVE ANALYSIS

Valve voltages and currents given in the table (col. 3) are those measured in our receiver when it was operating on AC mains of 230 V, using the 225 V tapping on the mains resistance. 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.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH22C	172	2.0	65	3.7
V2 9D2	80	5.3	—	—
V3 11D3	186	3.3	65	0.9
V4 7D6	57	0.1	—	—
V5 1D5†	176	21.0	186	4.3

† Cathode to chassis 240 V, DC

GENERAL NOTES

Switches.—S1-S16 are the waveband switches, ganged in three rotary units beneath the chassis, which are indicated in our under-chassis view, and shown in detail in the diagrams on page viii, where they are drawn as seen looking in the directions of the arrows in the under-chassis view.

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.

S17 is the QMB mains switch mounted on the left-hand side of the cabinet.

(250 KC/S) signal, and adjust C35, then C28, for maximum output. Feed in a 1.714 m (175 KC/S) signal, tune it in, and adjust C32 (screw) for maximum output, while rocking the gang for optimum results.

SW Switch set to SW, tune to 17.6 m on scale, feed in a 17.6 m (17 MC/S) signal, and adjust C33, then C26, for maximum output. Check the adjustments and calibration at 50 m (6 MC/S).

Switch	LW	MW	SW
S1	---	C	C
S2	---	C	C
S3	---	C	C
S4	---	C	C
S5	---	C	---
S6	C	---	---
S7	---	C	C
S8	---	C	---
S9	C	---	---
S10	---	---	C
S11	---	C	C
S12	---	C	C
S13	---	C	C
S14	---	C	C
S15	---	C	---
S16	C	---	---

CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator to control grid (top cap) of V1 and chassis, and feed in a 464 KC/S signal. Adjust C39, C38, C37 and C36 in turn for maximum output.

RF and Oscillator Stages.—MW—Connect signal generator to A and E sockets, and feed in a 214 m (1,400 KC/S) signal. Switch set to MW, tune to 214 m on scale, and adjust C34, then C27, for maximum output. Feed in a 500 m (600 KC/S) signal, tune it in, and adjust C31 (nut) for maximum output, rocking the gang slightly for optimum results.

LW—Switch set to LW, tune to 1,200 m on scale, feed in a 1,200 m