

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 fixed GB resistance .. 250 |
| R9 | IF stopper .. 1,000,000 |
| R10 | Manual volume control .. 500,000 |
| R11 | V3 signal diode load .. 500,000 |
| R12 | V3 GB and AVC delay .. 10,000 |
| R13 | V3 triode anode decoupling .. 50,000 |
| R14 | V3 triode anode load .. 250,000 |
| R15 | V3 triode anode load .. 500,000 |
| 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 | Osc. circuit MW reaction coil .. 1.8 |
| L11 | Oscillator LW reaction coil .. 2.25 |
| L12 | 1st IF trans. Pri. .. 7.5 |
| L13 | 1st IF trans. Sec. .. 7.5 |
| L14 | 2nd 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 .. 4.0 |
| L20 | Mains filter chokes .. 4.0 |
| T1 | Speaker input trans. Pri. .. 400.0 |
| T1 | Speaker input trans. Sec. .. 0.4 |
| S1-S16 | Waveband switches .. --- |
| 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.

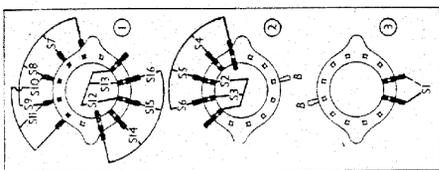
The IF transformers L12, L13 and L14, L15 are in two screened units on the chassis deck, with their trimmers.

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† | 1st 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.

| 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

(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).