

# KOLSTER BRANDES MODEL 560

**CIRCUIT.**—A band-pass filter with bottom capacity coupling joins the aerial to V1, the frequency changer, on medium and long waves. An additional top coupling condenser is switched into circuit on the long waves. On short waves a single tuned circuit is employed. The aerial input circuit is arranged so that various types of aerials may be correctly matched.

The output of V1 is coupled through a capacity coupled I.F. transformer tuned to 464 kc. and employing an iron dust core to V2, an H.F. pentode, and through a second similar transformer to V3, a double-diode triode. One diode of this is used for demodulation and the other to supply A.V.C. bias to the preceding valves.

The TV4 cathode-ray tuning indicator is operated from the A.V.C. line.

Rectified signals from the demodulator diode are fed through a resistance and capacity stage, which incorporates the volume control, to the grid of the triode portion of V3. This switch operates as an L.F. amplifier and feeds the output pentode through a further resistance and capacity stage.

Mains equipment consists of transformer and full-wave rectifier. Smoothing is by a resistance and the speaker field.

**Special Notes.**—The dial lights are rated at 6.2 volts, .3 amp., and are secured to the dial assembly by spring clips.

When the station names in either aper-

ture appear out of focus, this can be corrected by screwing the lamp in or out a little. The filaments should be at right angles to the dial face.

In some districts remote from the local transmitters, and in cases where the aerial installation is poor, it will be noticed that the indication given by the tuning indicator is poor.

In such cases an improvement will result if the link, between R8 and R9 indicated on the circuit diagram be broken. Adjustment between this result and the original standard may be made by connecting a resistance, say of 2 megohms, in place of the link.

**Switch Positions.**—According to the switch position the following contacts connect:—

**SWITCH NUMBER 1.**—Long wave, —; medium wave, 1-2, 7-8; short, 1-2 and 3, 7-8 and 9; gramophone, 1-2 and 3, 7-8 and 9.

**NUMBER 2.**—Long waves, 2-6, 12-8; medium, 1-2, 3-6, 9-12; short, 1-2 and 3; gramophone, 1-2 and 3, 11-12.

**NUMBER 3.**—Long waves, 2-6; medium, 1-2, 3-6; short, 1-2 and 3, 4-6, 10-12; gramophone, 1-2, 3 and 4; 5-6, 7-10, 11-12.

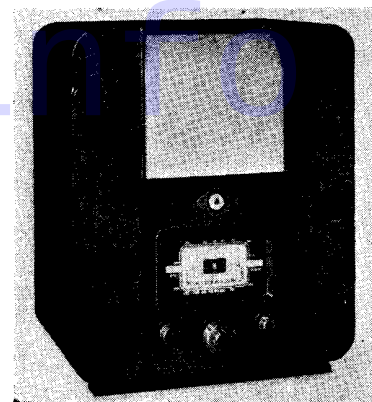
**NUMBER 4.**—Long waves, 2-6, 12-8; medium, 1-2, 3-6, 7-8, 9-12; short, 1-2 and 3, 4-6, 7-8 and 9, 10-12; gramophone, 1-2, 3 and 4; 7-8, 9 and 10.

**Removing Chassis.**—The cabinet of this receiver is fitted with a false bottom, and most of the work necessary may be done after removing this.

Removal of the chassis is as follows:

Take off the knobs from the front of the cabinet (they are secured by spring clips) and next remove the four chassis fixing bolts from underneath the cabinet.

After pulling out the power unit connecting plug and freeing the tuning indi-



A Fototune dial and an electronic tuning indicator are features of the Kolster-Brandes 560.

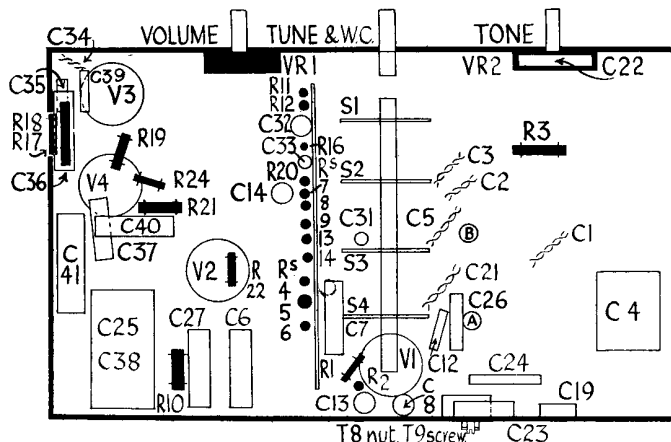
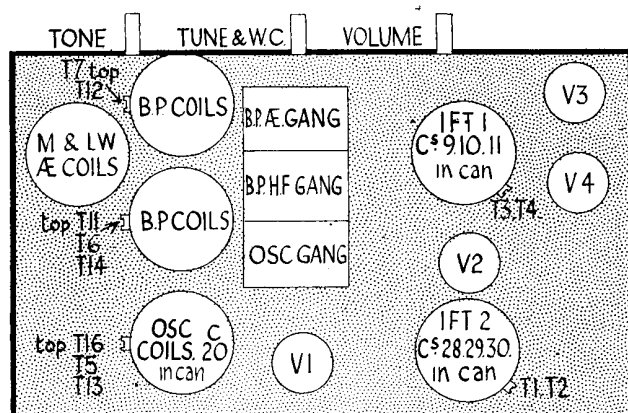
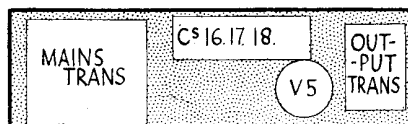
## CONDENSERS

| C. | Purpose.                 | Mfds.    |
|----|--------------------------|----------|
| 1  | Top capacity coupling    | .000018  |
| 2  | Top capacity coupling    | .000018  |
| 3  | L.W. band-pass shunt     | .000018  |
| 4  | Bottom capacity coupling | .02      |
| 5  | L.W. band-pass shunt     | .000018  |
| 6  | V1 anode decoupling      | .1       |
| 7  | V1 swamp                 | .1       |
| 8  | V1 screen decoupling     | .1       |
| 9  | I.F. coupling            | .0000013 |
| 10 | I.F.T. 1 shunt           | .0001    |
| 11 | I.F.T. 1 shunt           | .0001    |
| 12 | V1 osc. grid             | .0001    |
| 13 | V1 cathode bias shunt    | .1       |
| 14 | A.V.C. decoupling        | .1       |
| 15 | Mains suppressor         | .01      |
| 16 | H.T. smoothing           | .8       |
| 17 | H.T. smoothing           | .8       |
| 18 | H.T. smoothing           | .8       |
| 19 | S.W. osc. padding        | .01      |
| 20 | L.W. osc. shunt          | .00008   |
| 21 | L.W. osc. shunt          | .000018  |
| 22 | Tone control             | .02      |
| 23 | L.W. osc. padding        | .00025   |
| 24 | M.W. osc. padding        | .001     |
| 25 | V1 osc. anode decoupling | .10      |
| 26 | V1 osc. anode decoupling | .01      |
| 27 | V2 cathode bias shunt    | .1       |
| 28 | I.F. coupling            | .0000013 |
| 29 | I.F.T. 2 shunt           | .0001    |
| 30 | I.F.T. 2 shunt           | .0001    |
| 31 | Tone filter              | .0005    |
| 32 | L.F. coupling            | .02      |
| 33 | H.F. filter              | .0005    |
| 34 | A.V.C. diode coupling    | .000012  |
| 35 | H.F. filter              | .0003    |
| 36 | L.F. coupling            | .02      |
| 37 | Pentode compensating     | .0005    |
| 38 | V3 cathode bias shunt    | .25      |
| 39 | V3 cathode bias shunt    | .0005    |

## VALVE READINGS

No signal. Volume maximum. 200 volt A.C. mains.

| V. | Type.         | Electrode. | Volts. | M.A. |
|----|---------------|------------|--------|------|
| 1  | TH4 met. (7)  | Anode      | 240    | 1.6  |
|    | Mullard.      | Screen     | 65     | 3.9  |
|    |               | Osc. anode | 140    | 5.8  |
| 2  | 9D2 (7)       | Anode      | 255    | 4    |
|    | Brimar.       | Screen     | 135    | 2.8  |
| 3  | TDD4 met. (7) | Anode      | 100    | 1.6  |
| 4  | 7A3 (7)       | Anode      | 250    | 25   |
|    | Brimar.       | Screen     | 260    | 4.5  |
| 5  | R2(4)Brimar   | Filament   | 370    | —    |



cator the chassis may be completely removed.

To remove the power unit take out the four bolts passing through the wooden battens and supports.

## Circuit Alignment Notes

**I.F. Circuits.**—Connect a modulated oscillator to the grid cap of V1 and an output meter across the external speaker terminals.

### RESISTANCES

| R.  | Purpose.                               | Ohms.   |
|-----|----------------------------------------|---------|
| 1   | V1 osc. grid leak ..                   | 25,000  |
| 2   | V1 cathode bias ..                     | 150     |
| 3   | V1 A.V.C. decoupling ..                | 1 meg.  |
| 4   | V1 anode decoupling ..                 | 5,000   |
| 5   | V1 screen and osc. anode decoupling .. | 10,000  |
| 6   | V1 screen decoupling ..                | 15,000  |
| 7   | TV4 grid filter ..                     | 4 meg.  |
| 8   | TV4 grid filter ..                     | 1 meg.  |
| 9   | TV4 grid filter ..                     | 2 meg.  |
| 10  | V2 cathode bias ..                     | 150     |
| 11  | Tone filter ..                         | 100,000 |
| 12  | V3 H.F. stopper ..                     | 100,000 |
| 13  | A.V.C. decoupling ..                   | 100,000 |
| 14  | A.V.C. diode load ..                   | 1 meg.  |
| 15  | H.F. filter ..                         | 600     |
| 16  | Demodulator diode load ..              | 500,000 |
| 17  | V3 anode decoupling ..                 | 50,000  |
| 18  | V3 anode load ..                       | 50,000  |
| 19  | V4 grid stopper ..                     | 100,000 |
| 20  | V3 cathode bias ..                     | 1,000   |
| 21  | V4 cathode bias ..                     | 150     |
| 22  | Pilot light voltage dropper ..         | 4       |
| 23  | TV4 anode feed ..                      | 2 meg.  |
| 24  | V4 grid leak ..                        | 100,000 |
| VR1 | Volume control ..                      | 500,000 |
| VR2 | Tone control ..                        | 50,000  |

Inject a signal of 464 kc. of such strength that a reading of about .5 volt is obtained on the output meter, and trim T1, T2, T3 and T4 for maximum.

**Medium Waves.**—Inject a signal of 214 metres to the aerial and earth terminals. Tune the receiver to this wavelength and adjust T5, T6 and T7 for maximum.

Now inject and tune in a signal of 500 metres and adjust T8 for maximum.

Inject a minimum of signal and repeat the whole of the above adjustments. Then tune to 300 metres and check.

**Long Waves.**—Tune the oscillator and receiver to 1,716 metres and adjust T9 for maximum.

Tune to 1,200 metres and trim T10, T11 and T12 for maximum.

Repeat the above adjustments using a minimum of signal.

**Short Waves.**—Tune the oscillator and the receiver to 20 metres and adjust T13 and T14 for maximum.

If the gain on the short-wave band does not seem up to standard after the above adjustments, then the inductance of the aerial and oscillator coils must be adjusted.

Two heavy tinned copper wires, A and B on the under chassis diagram, will be found at the bottoms of the aerial and oscillator coil cans soldered to tags.

These should be unsoldered and the positions of the joints altered until maximum output is obtained. This should be done at 50 metres.

Finally, repeat the adjustment of T13 and T14 at 20 metres and again at 50 metres.

## K.B. Model 560 on Test

**MODEL 560.**—Standard model for 200-250 volt, 50-100 cycle A.C. mains; 16 gns.

**DESCRIPTION.**—A five-valve, including rectifier, three-waveband A.C. superhet table receiver. Modern design wooden cabinet.

**FEATURES.**—Dual-ratio tuning. Tuning control combined with wave-change, which is operated by push-pull action. "Fototune" dial; cathode-ray tune-point indicator. Extra speaker can be connected on secondary side of output transformer and should have 2.5 ohms impedance.

**LOADING.**—70 watts.

**Sensitivity and Selectivity**  
**SHORT WAVES** (19-52 metres).—Very easily handled; particularly good results. Excellent sensitivity.

**MEDIUM WAVES** (195-565 metres).—Sensitivity and selectivity very good; all useful channels may be received on a medium aerial.

**LONG WAVES** (895-1,950 metres).—Selectivity such that Deutschland-sender may be received in swamp area with practically no interference when adjacent channels are working.

**Acoustic Output**  
Tone full; higher frequencies do not predominate. General balance pleasing.

