

KOLSTER-BRANDES

800

Four valve, three waveband, battery-operated table model superhet. Made by Kolster-Brandes, Ltd., Cray Works, Sidcup, Kent.

Circuit.—Single tuned circuits on each of the three bands couple the aerial to V1, the frequency-changer. L1 is the S.W. primary coil and C2, a special .005 condenser, in association with R2, provide bottom coupling to the M. and L.W. coils. R2 also provides A.V.C. on M. and L.W. The oscillator circuits are

very similar, feed back from the anode being via C6 and R6, and T8, the M.W. padder providing coupling on M.W. and L.W.

Trimmer tuned I.F. transformers link up V2, the I.F. amplifier, and V3, the double-diode. V2 is a six-electrode valve with one grid returned to the A.V.C. line instead of earth and two grids strapped to form the screen.

The A.V.C. diode of V3 is fed from the anode of V2 by means of C9 and is connected to the bias system for the necessary delay volts. The demodulation diode circuit is straightforward with R7 for the load and R9, C10 for an I.F. filter.

The anode of the V3 triode section is connected through a condenser and an auto-transformer to V4, the output pentode.

C15 is across the H.T. battery for L.W. decoupling, and C14 as an H.F. by-pass. The H.T. current returns to negative via R13 and R12. The total voltage across these (6 volts) biases V4, and the drop across R13 (2 volts) provides A.V.C. delay via R12.

BATTERIES.—The L.T. is an Exide GFG4C, and the H.T. a Drydex H1131, 135 volt. The connections are: H.T., +, red; H.T., -, yellow; L.T., +, orange; L.T., -, black.

SWITCH MOVEMENTS.—S.W., 1-2, 3-4-5, 7-8, 9-10-11. M.W., 1-3, 4-5, 7-9, 10-11. L.W., 1-4, 7-10.

GANGING

I.F. CIRCUITS.—Tune to 580 m., inject 464 kc., and adjust I.F. trimmers.

M.W. BAND.—First switch to L.W., and adjust T9 roughly at 250 kc. (1,200 m.) and T8 roughly at 175 kc. (1,714 m.).

Switch to M.W., inject 1,400 kc. (214 m.), and adjust T7 and T2.

Inject 600 kc. (500 m.), and adjust T8, rocking gang slightly. Readjust T7, T2 at 1,400 kc.

L.W. BAND.—Inject 250 kc. (1,200 m.), and adjust T9 and T3.

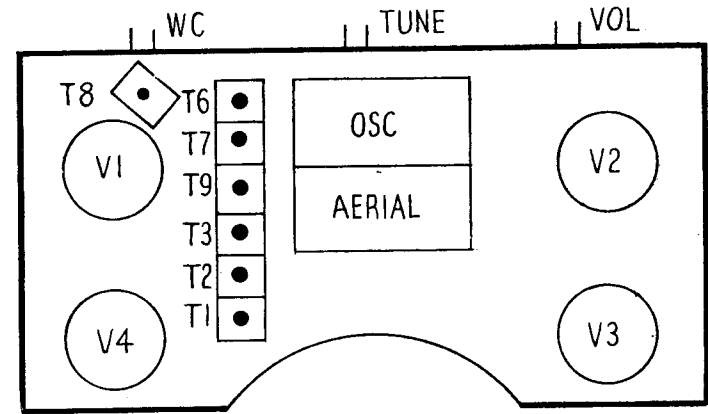
S.W. BAND.—Inject 15 mc. (20 m.) through a 400 ohm resistor, and adjust T6 and T1.

VALVE READINGS

| V | Type. | Electrode. | Volts. | Ma. |
|---|-----------|---------------|--------|--------|
| 1 | .. TH2 | .. Anode | .. 129 | .. 1.2 |
| | | .. Screen | .. 52 | .. .8 |
| | | .. Osc. anode | .. 55 | .. .3 |
| 2 | .. VP2B | .. Anode | .. 129 | .. 1.5 |
| | | .. Screen | .. 52 | .. .6 |
| 3 | .. TDD2A. | .. Anode | .. 45 | .. .7 |
| | | .. PM22A. | .. 128 | .. .2 |
| | | .. Screen | .. 129 | .. .3 |

CONDENSERS

| C | Mfd. | C | Mfd. |
|---|---------------|----|--------------|
| 1 | .. .005 | 9 | .. 25 mmfds. |
| 2 | .. .005 | 10 | .. 500 " |
| 3 | .. 25 mmfds. | 11 | .. .01 " |
| 4 | .. 100 " | 12 | .. .01 " |
| 5 | .. .1 | 13 | .. .005 " |
| 6 | .. .01 | 14 | .. .1 " |
| 7 | .. 230 mmfds. | 15 | .. .2 " |
| 8 | .. .1 | 16 | .. .25 " |



Although battery operated, the model 800 contains all the features of the mains superhet, including automatic bias.

RESISTANCES

| R | Ohms. | R | Ohms. |
|----|------------|----|-------------|
| WC | .. 1 meg. | 7 | .. .5 meg. |
| 1 | .. 5,000 | 8 | .. .5 meg. |
| 2 | .. .5 meg. | 9 | .. 50,000 |
| 3 | .. 30,000 | 10 | .. .25 meg. |
| 4 | .. 50,000 | 11 | .. .25 meg. |
| 5 | .. 20,000 | 12 | .. 400 |
| 6 | .. 50 | 13 | .. 200 |

Faults in Series

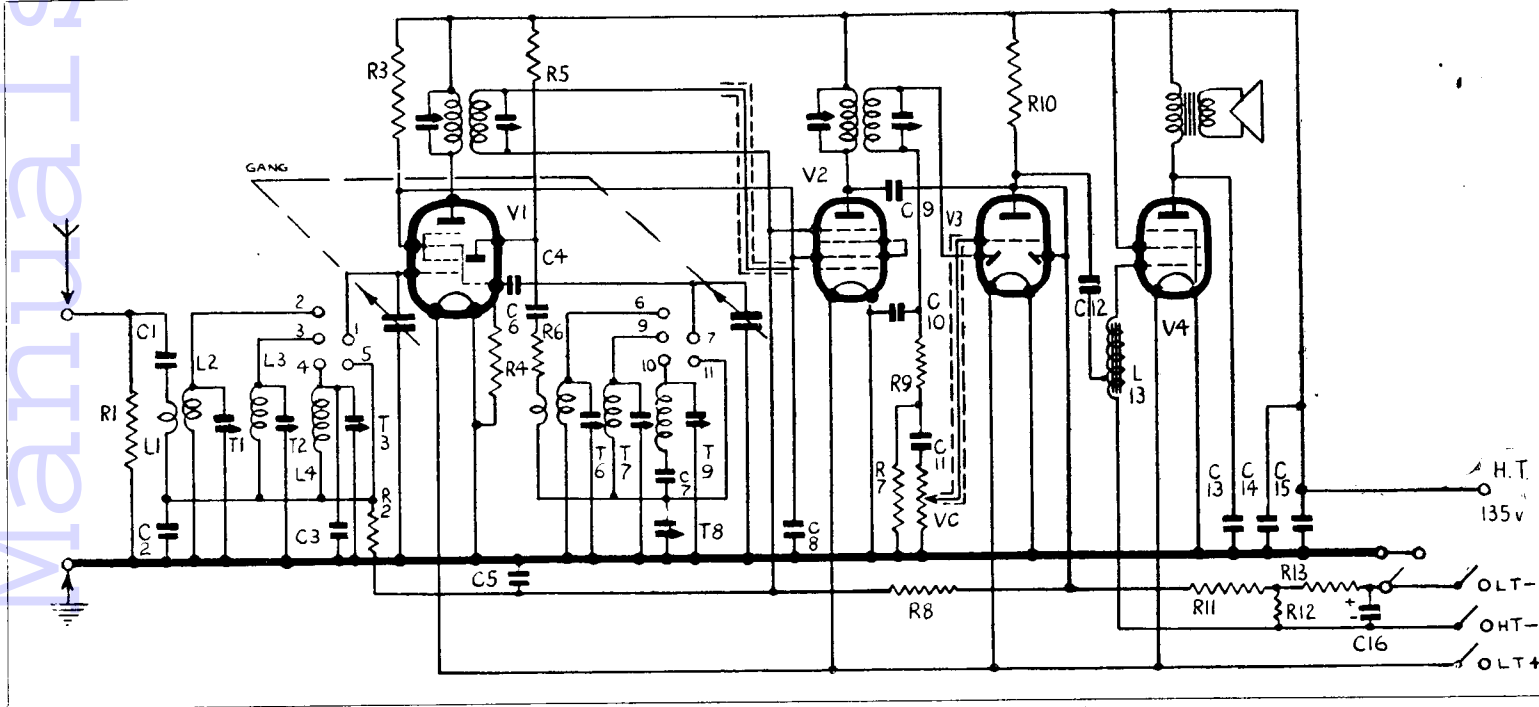
A five-valve A.C./D.C. superhet functioned with hardly any volume from the speaker. A check on the anode of the I.F. valve indicated excessive voltage. The biasing resistance was found to be open circuit.

It was also found that the I.F. valve had low emission. On changing the valve and the resistance, the volume returned to normal, but a ripple was heard.

This was due to a 25 mfd. H.T. smoothing electrolytic having been replaced by an 8 mfd. The change had not shown much effect at the time, as the set was being used on D.C. until recently. The correct capacity condenser was fitted and the set functioned up to standard for about a quarter of an hour. It then became distorted and the volume decreased.

This was due to a fault in the output valve, a Pen 36C. The valve was changed and the set returned to normal.—ALFRED ROSE.

THE first step when inspecting a silent set is to check the mains and aerial earth connections. Now that extra speaker connections are so familiar, it is advisable to add a check of the extra speaker switch position to these initial investigations.



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