

SERVICE ENGINEER

KOLSTER-BRANDES MODEL 515 ALL-WAVE A.C. THREE

CIRCUIT.—This receiver is a three-valve model, for operation on A.C. mains, covering the usual medium- and long-wave-bands and short waves from 20—50 metres.

The input to V1, an H.F. pentode, is an inductively coupled aerial coil. Signals from this valve are passed through a tuned H.F. transformer to V2, a triode. Reaction is employed in the orthodox manner.

The L.F. output of V2 is passed through a resistance and capacity stage to the output pentode V3 and then to the speaker through a matching transformer.

Volume is controlled by varying the bias on the cathode of V1.

In the coupling between V2 and V3 a tone control condenser C7 is brought into circuit on medium and long waves.

V1 and V2 have heaters rated at 13 volts, while V3 and the rectifier have the more usual 4-volt heaters, taken from tapings on the 13-volt windings.

Mains equipment consists of transformer, full-wave rectifier, electrolytic condensers and the speaker field.

Special Notes.—The dial lamp is rated at 6.2 volts .3 amp., and fixed by means of a rubber bush into a slot in the dial assembly. It may be removed by lifting the lampholder and bush vertically.



The K.-B. Model 515 is an A.C. three giving reception on the short wave band of 20-50 metres in addition to the usual medium and long wave transmissions.

The external speaker connections are on the secondary of the output transformer, and the speaker to be used should have a speech coil resistance of from 2 to 4 ohms. The connecting tags are the top two on the output transformer.

Exposing Chassis.—Practically all the work necessary on this receiver may be done without removing the chassis from the cabinet by removing the false bottom which is secured by four wood screws.

To remove the chassis take off the three knobs from the front of the cabinet (spring clips), and undo four bolts from underneath. Free the speaker leads from the cleats. The chassis will then slide out.

ALIGNMENT NOTES

Calibration.—Check that when the pointer is at zero it lines up with the datum mark on the scale. If not, adjust it by loosening the grub screw securing it to the condenser spindle.

Long and Medium Waves.—Connect a modulated oscillator through a dummy aerial and earth terminals and an output meter across the external speaker terminals.

Tune the oscillator and receiver to 214 metres and trim T1 and T3 for maximum on the output meter.

Short Waves.—With volume at maximum and reaction control advanced until the receiver is almost oscillating, inject and tune in a signal of 20 metres. Then, while rocking the tuning condenser, trim T2 for maximum reading on the output meter.

The circuit, and resistance and condenser tables are given on the facing page.

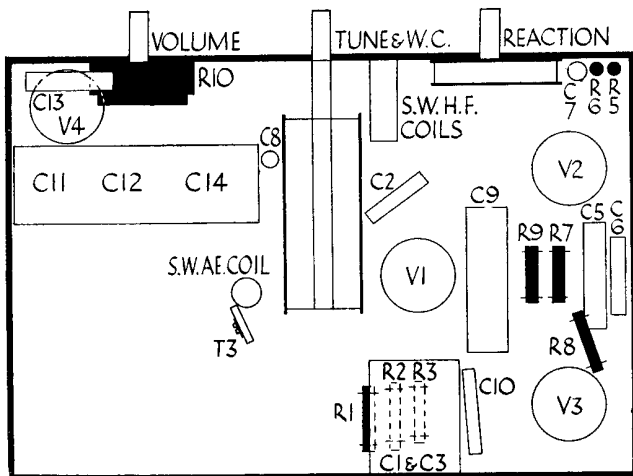
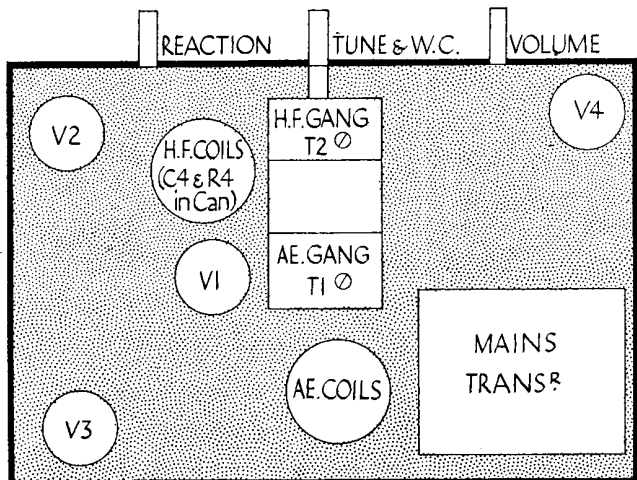
QUICK TESTS

Quick tests are available on this receiver on the terminal strip on the speaker transformer. Volts measured between this and the chassis should be:—

- Red 350 Unsmoothed H.T.
- Black 250 Smoothed H.T.
- Blue 230 Smoothed H.T.

Below are given the chassis layouts of the K.-B. Model 515 all wave A.C. three. On the left is the plan view, while the disposition of the components underneath is on the right.

| VALVE READINGS | | | | |
|---|------------------------|--------------|--------|------|
| No signal and no reaction. Volume at maximum. | | | | |
| V. | Type. | Electrode. | Volts. | Ma. |
| 1 | All Brimar. 9D2 (7) | Anode ... | 240 | 11.5 |
| | | Screen ... | 85 | 3.5 |
| 2 | 4D1 (7) | Anode ... | 80 | 6 |
| | | Screen ... | 225 | 34 |
| 3 | 7A3 (7) | Anode ... | 240 | 6.5 |
| | | Screen ... | 350 | — |
| 4 | R2 (4) | Filament ... | 350 | — |

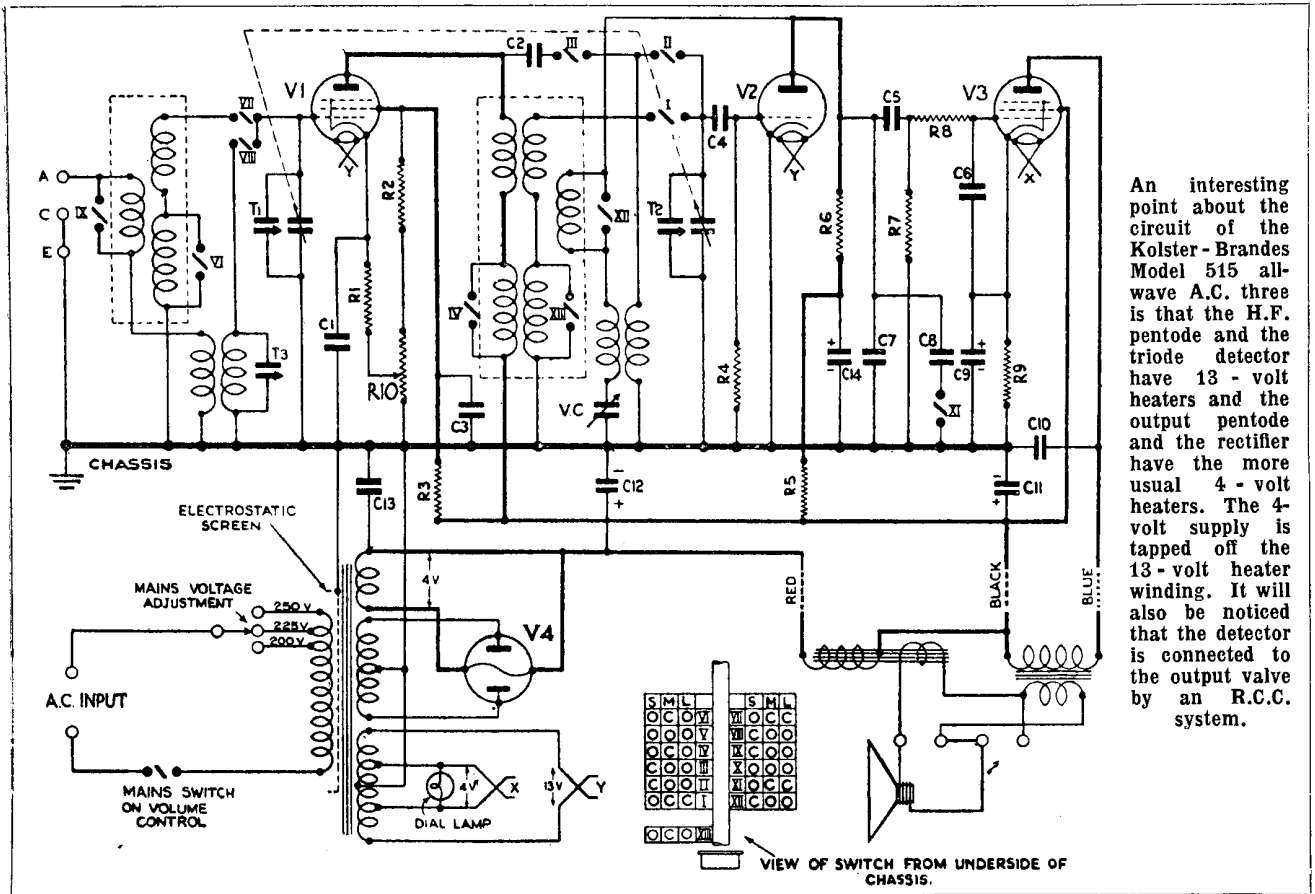


KOLSTER-BRANDES MODEL 515 ALL-WAVE A.C. THREE RECEIVER (Continued)

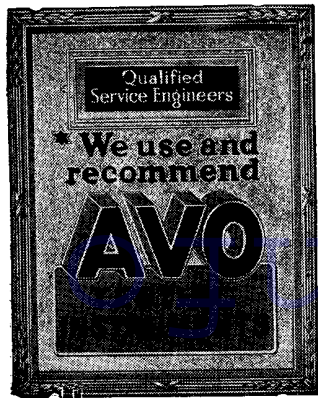
| CONDENSERS | | |
|------------|--------------------------|--------|
| C. | Purpose. | Mfds. |
| 1 | V1 cathode bias shunt | .1 |
| 2 | Short wave H.F. coupling | .00005 |
| 3 | V1 screen decoupling | .1 |
| 4 | V2 grid | .0001 |
| 5 | L. F. coupling | .05 |
| 6 | Grid circuit shunt | .0005 |
| 7 | H.F. filter | .0001 |

| CONDENSERS—Continued | | |
|----------------------|---------------------------|-------|
| C. | Purpose. | Mfds. |
| 8 | Tone control on M. & L.W. | .001 |
| 9 | V3 cathode bias shunt | 25 |
| 10 | Pentode compensating | .003 |
| 11 | H. T. smoothing | 8 |
| 12 | H. T. Smoothing | 8 |
| 13 | H. F. by-pass | .1 |
| 14 | V2 anode decoupling | 8 |

| RESISTANCES | | |
|-------------|---------------------------|---------|
| R. | Purpose. | Ohms. |
| 1 | V1 cathode bias | 300 |
| 2 | V1 screen decoupling pot. | 15,000 |
| 3 | V1 screen decoupling pot. | 25,000 |
| 4 | V2 grid leak | 2 meg. |
| 5 | V2 anode decoupling | 10,000 |
| 6 | V2 anode load | 25,000 |
| 7 | V3 grid leak | 250,000 |
| 8 | V3 grid stopper | 100,000 |
| 9 | V3 cathode bias | 150 |
| 10 | Volume control | 10,000 |



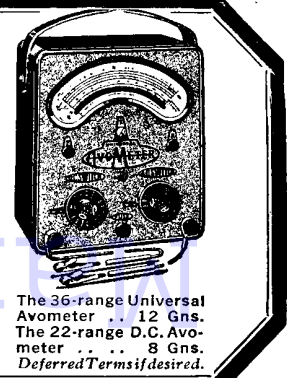
An interesting point about the circuit of the Kolster-Brandes Model 515 all-wave A.C. three is that the H.F. pentode and the triode detector have 13-volt heaters and the output pentode and the rectifier have the more usual 4-volt heaters. The 4-volt supply is tapped off the 13-volt heater winding. It will also be noticed that the detector is connected to the output valve by an R.C.C. system.



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