# COSSOR 46

*Four-valve, plus rectifier, three-waveband table model superhet for 200-250 volt A.C. or D.C. supplies. Made by A. C. Cossor, Ltd., Highbury Grove, London, N.5.*

**Circuit.**—The aerial circuit, which contains a series I.F. rejector, feeds V1, the frequency-changer, through transformer coils on each of the three bands. M. and L.W. primaries are iron-dust cored.

The oscillator circuits are straightforward with anode reaction coils and additional coupling on M.W. by the fixed padder C16.

Permeability trimmed I.F. transformers link V2, the I.F. amplifier, and V3, the double-diode triode. The volume control, R13, forms the signal diode load with R11–C29 as an H.F. filter and R15–C31 as a tone control.

The A.V.C. diode is energised from I.F.2 primary, R10 being the load.

Resistance and capacity feed the output tetrode, V4. A switched high-resistance (5,000 ohm) extension speaker connection is provided, and on the output secondary circuit is a negative feed-back connection to V3 cathode.

H.T. is provided, as usual with an A.C./D.C. set, by a half-wave rectifier, with smoothing by choke and electrolytics. All the valve heaters are in series.

H.F. noise filter chokes, L14, L15, and condenser, C41, are included in the mains input. The dial lamps are across R28 in the main negative return.

**Extension Speaker.**—The extension is provided with a switch so that the internal speaker is disconnected when the plug is pushed right in. The extension is on the H.T. or primary side and the additional speaker should have an output transformer of 8,000 ohms impedance.

## GANGING

**I.F. Circuits.**—Remove paper discs on each I.F. coil and soften wax covering cores with warm screwdriver. Tune to M.W., inject 465 kc. to V1 grid and adjust I.F. cores for maximum. Keep input low so that A.V.C. does not function.
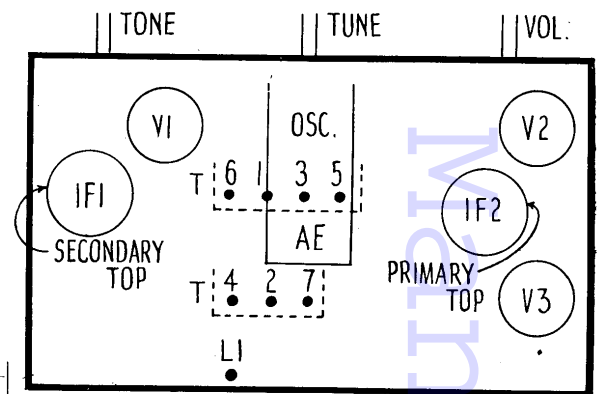
**M.W. Band.**—Tune to 214 m., inject 1,400 kc. to aerial and adjust T1, T2. Padding is fixed (C16). Compensate with trimmers if necessary.

**L.W. Band.**—Tune to 1,200 m., inject 250 kc. to aerial and adjust T3, T4. Inject 160 kc., tune in, and adjust T5 for maximum while rocking gang slightly.

**S.W. Band.**—Tune to 18 mc., inject this frequency and adjust T6, T7. Padding is fixed; compensate with trimmers if necessary.

**I.F. Filter.**—Inject 465 kc. to aerial and adjust L1 for minimum.

The Cossor chassis is in two parts — radio and power. The top layout of the radio section is shown here. The trimmers are actually situated underneath.



### WINDINGS

| L | Ohms |
|---|---|
| 1 | 4.2 |
| 2 | .5 |
| 3 | V. low |
| 4 | 25 |
| 5 | 2.1 |
| 6 | 130 |
| 7 | 15.5 |
| 8 | V. low |
| 9 | V. low |
| 10 | 6 |
| 11 | 2.5 |
| 12 | 14 |

| L | Ohms |
|---|---|
| 13 | 6.2 |
| 14 | 7.5 |
| 15 | 7.5 |
| 16 | 485 |
| 17 | 400 |
| 18 | .38 |
| 19 | 2 |
| IF1, P & S | 3.7 |
| IF2, P & S | 18.5 |

### VALVE READINGS

| V | Type | Electrode | Volts | Ma. |
|---|---|---|---|---|
| 1 | 202STH | Anode | 187 | 1.6 |
| | | Screen | 85 | 4.7 |
| | | Osc. anode | 80 | 5.35 |
| | | Cathode | 1.85 | 11.65 |
| 2 | 202VPB | Anode | 187 | 3 |
| | | Screen | 69 | 1.05 |
| | | Cathode | 1.4 | 4.05 |
| 3 | 202DDT | Anode | 98 | 1.5 |
| | | Cathode | 3.1 | 1.5 |
| 4 | 402OT | Anode | 172 | 35 |
| | | Screen | 187 | 6 |
| | | Cathode | 6.15 | 41 |
| 5 | 40SUA | Anodes | 190A.C. | — |
| | | Cathode | 220 | 57.8 |

Pilot lamps, 8 v., 1.6 watts, No. 222.

Model 46 is a " short " superhet with half-wave rectifier and for A.C. or D.C. operation. There are coupled circuits on each of the three bands with iron-core coils on M. and L.W. and for the I.F. transformers. The " break " between the two chassis is indicated.
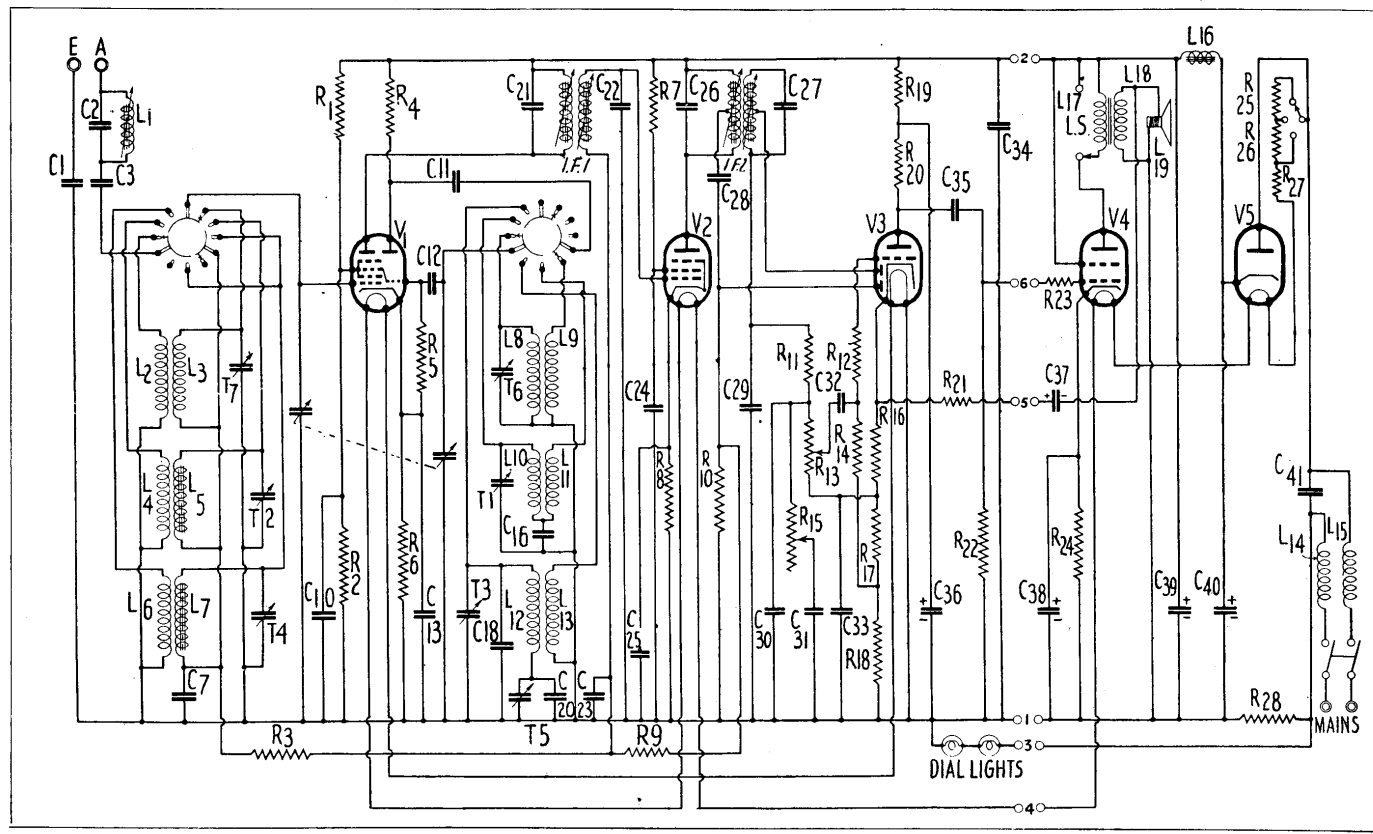
### CONDENSERS

| C | Mfds. | C | Mfds. |
|---|---|---|---|
| 1 | .05 | 26 | 60 mmfds. |
| 2 | 225 mmfds. | 27 | 75 mmfds. |
| 3 | .0005 | 28 | 50 mmfds. |
| 7 | .05 | 29 | 50 mmfds. |
| 10 | .04 | 30 | 50 mmfds. |
| 11 | .0005 | 31 | .004 |
| 12 | .0001 | 32 | .01 |
| 13 | 1 | 33 | 50 mmfds. |
| 16 | 638 mmfds. | 34 | .0005 |
| 18 | 50 mmfds. | 35 | .01 |
| 20 | 140 mmfds. | 36 | 2 |
| 21 | 225 mmfds. | 37 | 10 |
| 22 | 225 mmfds. | 38 | 50 |
| 23 | .04 | 39 | 16 |
| 24 | .04 | 40 | 32 |
| 25 | .1 | 41 | .05 |

### RESISTANCES

| R | Ohms | R | Ohms |
|---|---|---|---|
| 1 | 10,000 | 15 | 2 meg. |
| 2 | 15,000 | 16 | 100 |
| 3 | .5 meg. | 17 | 750 |
| 4 | 20,000 | 18 | 2,000 |
| 5 | 25,000 | 19 | 20,000 |
| 6 | 160 | 20 | 30,000 |
| 7 | .1 meg. | 21 | 500 |
| 8 | 350 | 22 | .5 meg. |
| 9 | 3 meg. | 23 | .1 meg. |
| 10 | 1 meg. | 24 | 150 |
| 11 | 50,000 | 25 | 105 |
| 12 | .1 meg. | 26 | 85 |
| 13 | .5 meg. | 27 | 260 |
| 14 | 2 meg. | 28 | 60 |