

COSSOR 584 ALL-WAVE SUPERHET FIVE

CIRCUIT.—The aerial input circuit provides connections for either an ordinary single wire aerial or an aerial of the doublet type.

The aerial is coupled to the grid of V1, a triode-hexode frequency-changer, via a set of band-pass coils on the medium and long wave bands. On the short wave band the coupling is afforded by a single stage of preselection.

The signal, converted to the IF frequency (465 kc.), then passes to the IF amplifying valve V2, an HF pentode, via an iron-cored IF transformer. This is of the variable-coupling type, thereby allowing the band-width to be altered at will, so that a control of selectivity is obtained.

Another IF iron-cored transformer with fixed coupling provides the connection to the demodulating diode of V3, a double-diode-triode. An iron-cored transformer in the anode circuit of V3 is used to operate a bulb that constitutes a visual tuning device. When a signal is tuned in, the A.V.C. operates, thereby reducing the anode current of the valve, whereby the inductance of the transformer increases and the current of the lamp is reduced, thus indicating the resonance point of the signal.

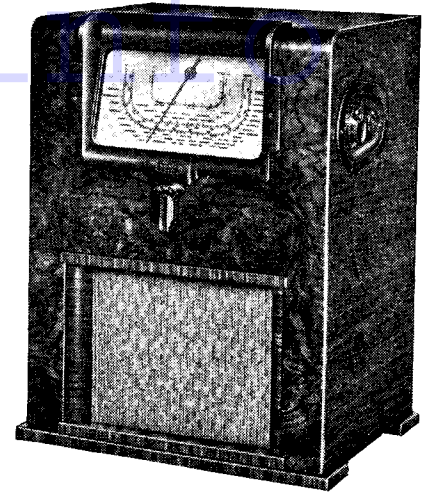
The other diode of V3 provides a D.C. potential that is utilised by being fed back to the preceding stages for A.V.C.

Coupling arrangements to the grid of the triode section of V3 include a manual volume control that operates so as to vary the input to the grid.

V3 is resistance capacity coupled to V4, an output tetrode, in the anode circuit of which is connected the matching transformer feeding the speaker. Across the primary of the transformer a condenser and resistance are connected in series to effect a modification of the tone. A pentode compensator condenser connected between the anode of the valve and chassis supplements these two components, as also does a variable resistance and condenser connected between the anode of V3 and chassis.

Mains equipment consists of a mains transformer with suitable voltage tapings, a full-wave rectifying valve V5, electrolytic smoothing condensers and smoothing choke (speaker field energising coil).

Chassis Removal.—Remove the back of the cabinet (secured by six bolts) and the three control knobs from the front of the



cabinet. These are of the grub-screw fixing type. The tuning control knob on the side of the cabinet is removed by unscrewing the two grub screws on the control shaft accessible from the rear of the cabinet. The control knob is then rotated until the two projecting screws coincide with two slots in the side of the cabinet. The mains switch, also at the side of the cabinet, is removed by unscrewing the two wood screws holding the small sub-panel, pulling the switch through the side of the cabinet and unscrewing the switch from the panel.

Now remove the four bolts and washers from the underside of the shelf of the cabinet and also the metal bar on the top inside, and unclasp the loudspeaker cable.

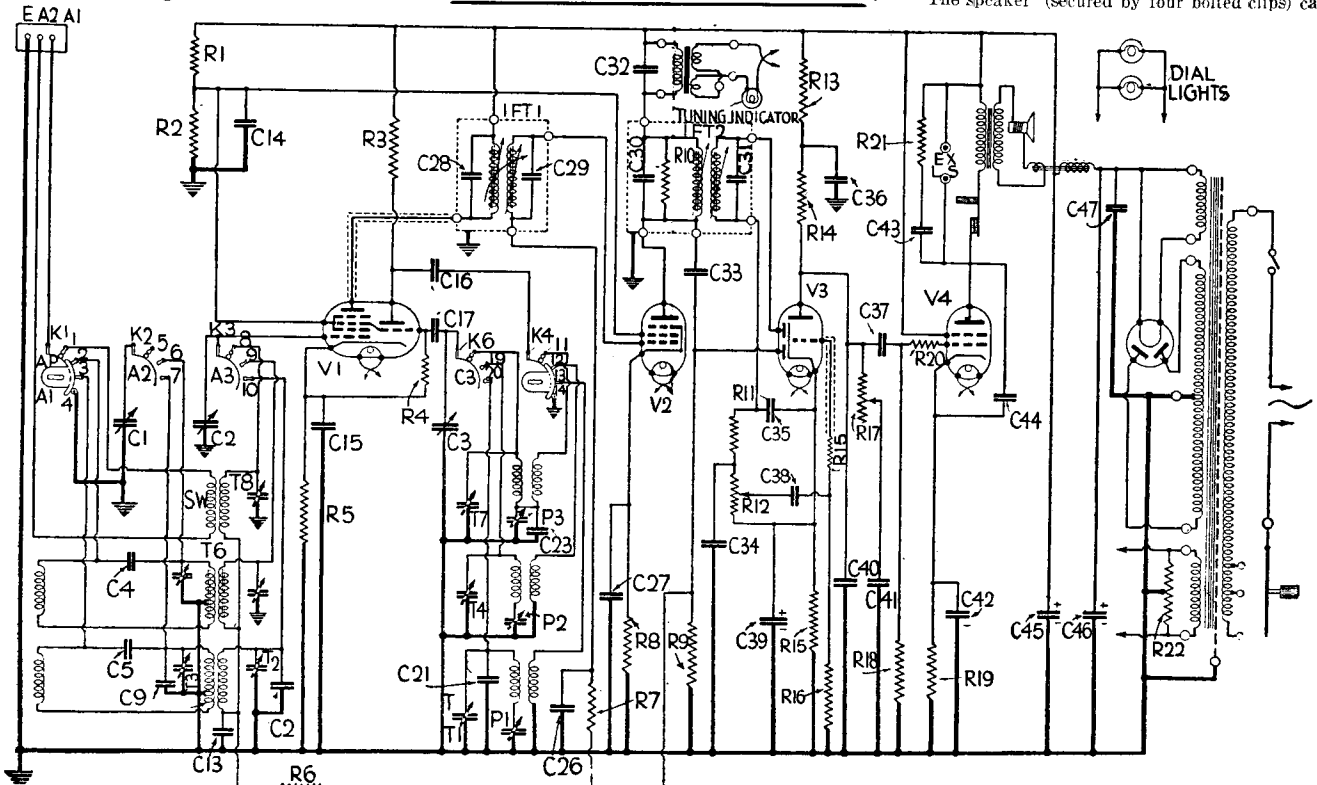
The chassis can then be removed from the cabinet, with the cabinet on its side.

The speaker (secured by four bolted clips) can

VALVE READINGS

No signal. Volume maximum. M.W. band.
200 v. A.C. 1,000 ohms/volt meter.

V.	Type. (All Cossor).	Electrode.	Volts.	Ma.
1	41STH (7) met.	Anode ..	268	2
		Screen ..	100	2.3
2	MVS/PEN (7) met.	Osc. anode ..	100	6.7
		Anode ..	270	5.4
3	DDT (7 met.)	Screen ..	90	2.1
		Anode ..	92	1.2
4	42 O.T. (or 42 MP/Pen) (7)	Anode ..	240	33
		Screen ..	270	7.3
5	442BU ..	Filament	375	—



Single-wire and doublet aerial connections are available on the Cossor 584. Input to the mixer is band-pass on medium and long waves and by a single preselector stage on short waves.

be removed if required, or the leads detached from the terminals on the speaker panel. For the reverse process the yellow lead is clamped to the top terminal, red to the centre and blue to the lowest terminal.

Special Notes.—A pair of sockets at the rear of the chassis enable an external speaker to be connected. A special plug is provided whereby the internal speaker is cut out when the plug is pushed right home; when it is only pushed in half-way the two speakers operate together. The external speaker should be of the P.M. moving-coil type and have a matching transformer with a resistance of 8,000 ohms.

Aerial input sockets are arranged to be fed by either a doublet or else a single wire aerial. When the latter is used a metal connecting link must be connected between the A2 terminal and the earth terminal.

A voltage adjustment device on a panel located on the mains transformer consists of holes threaded to fit an adjusting screw for voltages of 200/250.

There are two dial lights, located in rubber-insulated screw-in holders, one on each side of the dial assembly. To remove these rotate the rubber holders until the projecting end-pieces coincide with the withdrawal slots on the dial reflector strip. They are Osram bulbs, rated at 6.5 volts 3 amp. The visual tuning indicator bulb, mounted in a similar holder on the wave-length dial assembly, is also an Osram bulb, rated at 3.5 volts 2 amp. This is of clear glass, while the dial lights are painted yellow to obviate glare. In our particular chassis the single bulb was found to have a rating of 2.5 volts.

The fixed condensers of the I.F. transformers are located inside the respective coil cans.

Circuit Alignment

I.F. Circuits.—Connect an output meter across the primary of the speaker matching transformer and a service oscillator between the grid

top cap of V1 and chassis. Turn the tone and selectivity control fully anti-clockwise and the volume control to maximum. Switch the set to medium waves and fully interleave the vanes of the gang condenser.

Tune the service oscillator to 465 kc. and adjust the cores of the I.F. transformers (starting with I.F.T.2) for maximum response, reducing the input from the service oscillator as the circuits come into line to render the A.V.C. inoperative.

As the cores are sealed by wax, it is essential that the wax is melted sufficiently for trimming purposes.

A non-metallic trimming tool should be used for adjustment purposes.

Signal Circuits.—Leave the output meter connected as before, but connect the oscillator to the receiver via the A1 and earth terminals, either through a dummy aerial or fixed condenser. Short A2 to the earth terminal with the link provided.

Feed only sufficient input from the service oscillator to obtain definite peaks in the output meter so as to render the A.V.C. inoperative. The gang should be rocked through the tuning point during adjustment to ensure optimum results.

Long Waves.—Tune set and oscillator to 1,000 metres (300 kc.) and adjust T1, then T2 and T3 for maximum. Tune set and oscillator to 1,875 metres (160 kc.) and adjust P1 for maximum. Repeat both operations until no further improvement is noticed.

Medium Waves.—Tune set and oscillator to 214 metres (1,400 kc.) and adjust T4 and then T5 and T6 for maximum. Tune set and oscillator to 522 metres (575 kc.) and adjust P2 for maximum. Repeat both operations until no further improvement is noticed.

Short Waves.—Tune set and oscillator to 16.7

Cossor 584 on Test

MODEL 584.—Standard table model for A.C. operation, 200-250 volts, 40-100 cycles. Price, 13 gns.

DESCRIPTION.—Four-valve and rectifier table model superhet covering three wavebands.

FEATURES.—Large full-vision scale. Tuning control recessed in side of case. Lever switch for waveband selection. Variable selectivity ganged with tone control. Saturated-core type tuning indicator. Extension I.S. sockets; none for pick-up. Sockets for double aerial.

LOADING.—30 watts.

Selectivity and Sensitivity

SHORT WAVES (16-52 metres).—Good gain and selectivity; easy handling and no drift.

MEDIUM WAVES (196-566 metres).—Good gain, well maintained. Local station spread small; very clean background. Selectivity very good.

LONG WAVES (968-2,050 metres).—Good gain and excellent selectivity. Deutschlandsender subject only to very slight sideband splash, even with control in low selectivity position.

Acoustic Output

Adequate volume for a large room without overloading. Tone control fairly vigorous in action. Tone deep and full, with slight coloration, but quite appreciable top note response. General nature quite pleasing.

metres (18 mc.) and adjust T7 and then T8 for maximum. Tune set and oscillator to 50 metres (6 mc.) and adjust P3 for maximum. Repeat both operations until no further improvement is noticed.

Replacement Condensers

TWO exact replacement condenser units for the Cossor 584 are available from A. H. Hunt, Ltd., Garratt Lane, Wandsworth, London, S.W.18.

These are: for part containing C39 and C42, unit 3824, price 4s.; for part containing C45 and C46, unit 2942, price 7s. 6d.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 screen potr. (part)	15,000
2	V1 screen potr. (part)	15,000
3	Osc. anode load	30,000
4	Osc. grid leak	25,000
5	V1 cathode bias	300
6	V1 A.V.C. decoupling	1 meg.
7	V2 A.V.C. decoupling	2 meg.
8	V2 cathode bias	300
9	A.V.C. diode load	1 meg.
10	I.F.T. 2 primary damping	250,000
11	H.F. filter	50,000
12	Volume control and demodulating diode load (part)	500,000
13	V3 anode decoupling	50,000
14	V3 anode load	2,000
15	V3 cathode bias	2,000
15A	V3 grid stopper	100,000
16	V3 grid leak	2 meg.
17	Tone control	20,000
18	V4 grid leak	500,000
19	V4 cathode bias	150
20	V4 grid stopper	50,000
21	Tone control (fixed)	10,000
22	Filament C.f. resistance	25
—	Loud speaker field coil	1,500

CONDENSERS

C.	Purpose.	Mfd.
4	M.W. aerial coupling	.000009
5	L.W. aerial coupling	.000009
9	L.W. aerial coupling	.00008
12	Aerial coil fixer trimmer	.00008
13	V1 A.V.C. decoupling	0.5
14	V1 screen decoupling	.1
15	V1 cathode shunt	.1
16	Osc. anode coupling	.002
17	Osc. grid	.0001
21	L.W. osc. fixed trimmer	.0001
23	S.W. osc. fixed padder	.002
26	V2 A.V.C. decoupling	.05
27	V2 cathode shunt	.1
28	I.F.T.1 primary fixed trimmer	.00025
29	Iditto, secondary ditto	.00025
30	I.F.T.2 primary fixed trimmer	.00006
31	Iditto, secondary ditto	.00008
32	T1 transformer primary shunt	.5
33	A.V.C. diode coupling	.00005
34	H.F. bypass	.00005
35	H.F. bypass	.00005
36	V3 anode decoupling	.25
37	L.F. coupling	.01
38	L.F. coupling	.01
39	V3 cathode shunt	50
40	H.F. bypass	.0002
41	Tone control	.03
42	V4 cathode shunt	50
43	Tone control	.01
44	Pentode compensator	.0005
45	H.T. smoothing	8
46	H.T. smoothing	8
47	H.F. bypass	.0002

Below (left) : top of the 584 chassis. Right : underside view of the chassis.

