



Circuit diagram of the Cossor 3783 3-band A.C. receiver. It operates as a simple superhet on the S.W. band only, the circuit on M.W. and L.W. being that of a 3-stage T.R.F. model.

COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	V1 S.G.'s H.T. potential divider	50,000
R2		200,000
R3	V1 fixed G.B. resistance	100
R4	V1 gain control	12,000
R5	V1 osc. anode resistance	10,000
R6	V1 osc. C.G. resistance	50,000
R7	V1 hexode anode decoupling	10,000
R8	Reaction circuit stabiliser	300
R9	V2 C.G. circuit stabiliser	200
R10	V2 grid leak	1,000,000
R11	V2 S.G. H.T. feed	500,000
R12	V2 anode load	100,000
R13	V3 C.G. resistance	500,000
R14	V3 C.G. R.F. stopper	100,000
R15	V3 filament pot	25
R16	V3 G.B. resistance	300

CONDENSERS		Values (μF)
C1	Aerial series condenser	0.0005
C2	V1 S.G.'s by-pass	0.1
C3	V1 cathode by-pass	0.1
C4	V1 osc. anode condenser	0.00005
C5	V1 osc. C.G. condenser	0.00005
C6	Osc. S.W. tracker	0.00012
C7	V1 hexode anode decoupling	0.1
C8	V2 C.G. condenser	0.0001
C9	V2 S.G. by-pass	0.1
C10	V2 anode R.F. by-pass	0.0002
C11	V2 to V3 A.F. coupling	0.01
C12	Tone corrector	0.005
C13	V3 C.G. R.F. by-pass	0.0002
C14*	V3 G.B. circuit by-pass	50.0
C15*		6.0
C16*	H.T. smoothing	4.0
C17†	Aerial circuit tuning	—
C18†	Aerial circuit trimmer	—
C19†	H.F. trans. and osc. tuning	—
C20†	H.F. trans. pri. trimmer	0.00003
C21†	Reaction control	0.0005

OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial S.W. coupling coil	0.2
L2	Aerial S.W. tuning coil	Very low
L3	Aerial M.W. and L.W. coupling	8.7
L4	Aerial M.W. and L.W. tuning	1.3
L5	coils	13.0
L6	Osc. tuning coil (S.W.)	Very low
L7	Osc. reaction coil (S.W.)	7.0
L8	H.F. trans. primary (M.W. and L.W.)	1.6
L9		12.5
L10	Reaction coils	0.5
L11		3.5
L12	H.F. trans. secondary (M.W. and L.W.)	1.3
L13		12.5
L14	Speaker speech coil	2.1
L15	Hum neutralising coil	0.1
L16	Speaker field coil	2500.0
T1	Speaker input trans. { Pri. total	210.0
	{ Sec.	0.25
	{ Pri. total	60.0
T2	Mains trans. { L.T. sec.	0.15
	{ Rect. fil. sec.	0.2
	{ H.T. sec. total	1300.0
S1-8	Waveband switches	—
S9	Mains switch	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 230 V, using the 220 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but the reaction control was at minimum. There was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 41STH*	140	4.6	60	2.2
V2 MS/Pen	75	0.8	30	0.4
V3 PT41 ..	185	24.0	195	5.5
V4 442BU	310†	—	—	—

* Oscillator anode 90V, 9.9 mA.
† Each anode, A.C.

GENERAL NOTES

Switches.—S1-S9 are the waveband

Switch	M.W.	L.W.	S.W.
S1	C	O	C
S2	O	O	C
S3	C	C	O
S4	C	C	O
S5	O	O	C
S6	C	O	C
S7	C	O	C
S8	C	O	C
S9	C	C	C

and mains switches, ganged together in a single unit beneath the chassis, the individual switches being indicated in our under-chassis view. The table (col. 1) gives the switch positions for the various control settings, rotating clockwise from the "off" position." All switches except S1 are open in the "off" position.

Coils.—L1, L2 and L6, L7 are on two tubular formers beneath the chassis, L2 and L6 being the bare copper windings. L3-L5 and L8-L13 are in two screened

Scale Lamps.—These are two 6.5 V, 0.3A Osram M.E.S. types.

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Condenser C18.—The aerial circuit trimmer is incorporated in the ganged unit, in the same compartment as C17. It is operated by a spindle concentric with the main tuning spindle.

External Speaker.—Two sockets are provided at the rear of the chassis for a high impedance (8,000 Ω) external speaker. Cossor Model 595 is recommended.

Condensers C15, C16.—These are two dry electrolytics in a single carton beneath the chassis, with a common negative (black) lead. The red lead is the positive of C15 (6μF), and the yellow the positive of C16 (4μF).

Resistance R15.—This is a centre-tapped wire-wound component.

Condenser C6.—In our chassis, this consists of two units in parallel.

Condenser C20.—This is adjustable through a hole in the front of the chassis.

CIRCUIT ALIGNMENT

For alignment purposes this receiver should be treated as an ordinary straight H.F., detector and L.F. type. The S.W. band will be brought into line automatically after aligning on the M.W. band.

Switch the set to the M.W. band, and tune the set to 300 m. on the scale, after making sure that the pointer indicates 200 m. when the tuning knob is rotated fully anti-clockwise.

Inject a 300 m. signal at the A and E terminals, and adjust C18 (concentric with main tuning knob) for maximum output. Next adjust C20 (through hole in front of chassis), for maximum output, at the same time rocking knob of C18 in an attempt to increase the output. Alignment should be performed with a fair amount of reaction in use, the control knob being about half-way between minimum and maximum.