

NUMBER 141

'TRADER' SERVICE SHEETS

COSSOR 379

3-VALVE A.C./D.C. RECEIVER

FOR operation on either A.C. or D.C. mains of 200-250 V (50-100 c.p.s. in the case of A.C.), the Cossor 379 is a 3-valve (plus rectifier) receiver with a variable-mu pentode H.F. amplifier, a pentode detector and a triode output valve. Separate reaction and volume controls are provided and an aerial trimmer is mounted concentrically with the main tuning knob.

CIRCUIT DESCRIPTION

Aerial input via series condenser **C1**, coupling coil **L1**, and M.W. coupling condenser **C2** to single tuned circuit **L2, L3, C17** which precedes variable-mu pentode radio-frequency amplifier (**V1**, **Cossor metallised 13 VPA**). Gain control by variable cathode resistance **R4** which varies G.B. applied.

Tuned-primary transformer coupling by **C19, L4, L5, L8, L9** to H.F. pentode detector (**V2**, **Cossor metallised 13SPA**) operating on grid leak system with **C7** and **R8**. Reaction is applied from anode by coils **L6, L7** and controlled by variable condenser **C21**.

Parallel-fed auto-transformer coupling by **R11, C11** and **T1** to triode output valve (**V3**, **Cossor 402P**). Tone correction in anode circuit by fixed condenser **C12**.

When the receiver is used with A.C. mains, H.T. current is supplied by a half-wave rectifying valve (**V4**, **Cossor 40SUA**), which, with D.C. supplies, behaves as a

resistance of low value. Smoothing is effected by speaker field winding **L12** and electrolytic condensers **C14** and **C15**.

Valve heaters are connected in series together with tapped ballast resistance **R16** across mains input circuit. Chokes **L13** and **L14** with condenser **C16** form a filter for the suppression of mains-borne interference.

COMPONENTS AND VALUES

CONDENSERS		Values (μF)
C1	Aerial series condenser	0.0005
C2	Aerial coupling (M.W.)	0.000015
C3	Earth blocking condenser	0.1
C4	V1 S.G. by-pass	0.1
C5	V1 cathode by-pass	0.1
C6	V1 anode decoupling	0.1
C7	V2 C.G. condenser	0.0001
C8	V2 S.G. by-pass	0.1
C9	V2 anode decoupling	0.25
C10	V2 anode H.F. by-pass	0.0001
C11	L.F. coupling to T1	0.1
C12	Tone corrector	0.005
C13*	V3 cathode by-pass	50.0
C14*	H.T. smoothing	8.0
C15*		0.1
C16	Mains H.F. by-pass	0.1
C17†	Aerial circuit tuning	0.0005
C18†	Aerial circuit trimmer	—
C19†	H.F. trans. pri. tuning	0.0005
C20†	H.F. trans. pri. trimmer	—
C21†	Reaction control	0.0005

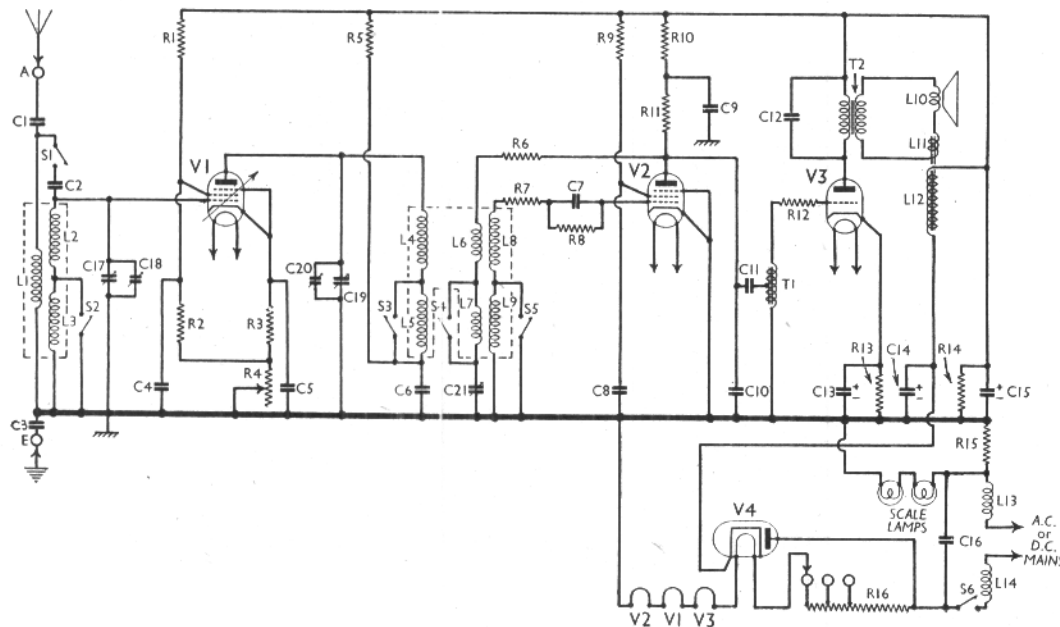
* Electrolytic. † Variable. ‡ Pre-set.

RESISTANCES		Values (ohms)
R1	V1 S.G. H.T. potential divider	50,000
R2		25,000
R3	V1 fixed G.B. resistance	350
R4	V1 gain control	12,000
R5	V1 anode decoupling	10,000
R6	Reaction circuit stabiliser	300
R7	V2 C.G. circuit stabiliser	200
R8	V2 grid leak	1,000,000
R9	V2 S.G. H.T. feed	500,000
R10	V2 anode decoupling	50,000
R11	V2 anode load	100,000
R12	V3 C.G. H.F. stopper	250,000
R13	V3 G.B. resistance	600
R14	H.T. supply bleeder	3,000
R15	Scale lamps shunt	100
R16	Heater circuit ballast, total	620

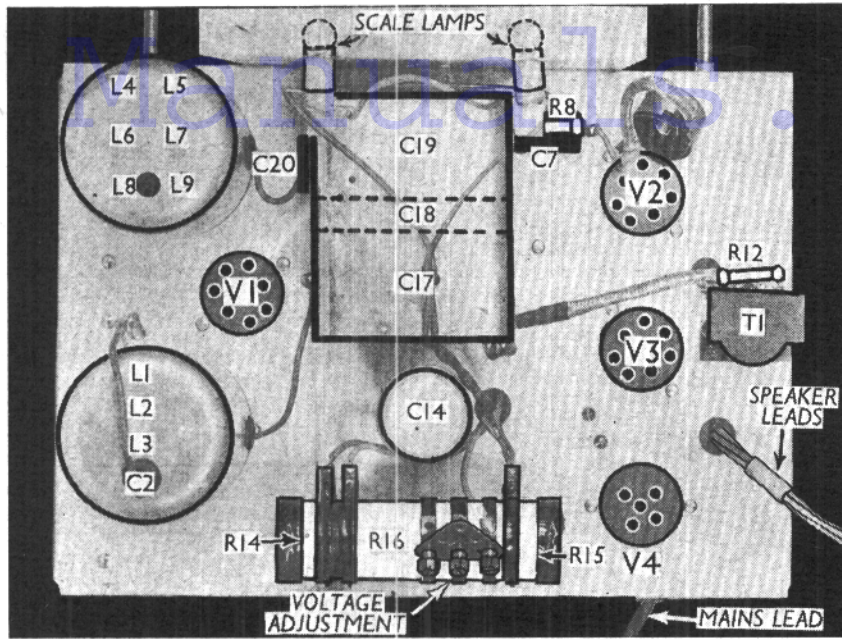
OTHER COMPONENTS		Approx. Values (ohms)
L1	Aerial coupling coil	9.0
L2	Aerial tuning coils	1.5
L3		14.0
L4	H.F. transformer primary	1.5
L5		13.5
L6	Reaction coils	0.6
L7		3.5
L8	H.F. transformer secondary	1.2
L9		13.0
L10	Speaker speech coil	2.0
L11	Hum neutralising coil	0.1
L12	Speaker field coil	400.0
L13	Mains filter chokes	10.0
L14		10.0
T1	Intervalve auto-trans., total winding	2,500.0
T2	Speaker input trans. { Pri. Sec. }	300.0 0.25
S1-S5	Waveband switches	—
S6	Mains switch	—

DISMANTLING THE SET

A detachable bottom is fitted to the receiver and upon removal (two knurled head screws and insulating washers)



The circuit diagram of the Cossor 379 A.C./D.C. receiver. A "straight" 3-valve (plus rectifier) circuit is used, with a triode in the output stage.



Plan view of the chassis. Note the three power resistances R14, R15, R16, on a single tubular former. The first coil unit, L1 to L3, also contains the M.W. coupling condenser C2.

gives access to most of the under-chassis components.

Removing Chassis.—If it is necessary to remove the chassis from the cabinet, remove the five control knobs (all recessed screws, except the trimmer knob, which is held by a small screw passing through the centre) and the back (six screws and washers). Now remove the detachable bottom and the four bolts (with washers and lock washers) holding the chassis to the bottom of the cabinet.

Next free the tuning scale from the two cleats holding it at the top and remove the partition from the cabinet. The chassis can now be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes.

When replacing, do not forget to refix the paper covers over the chassis holding bolts.

To free the chassis entirely, disconnect the speaker leads (screw terminals). When replacing, connect the leads as follows, numbering the terminals from left to right:—1 and 2 joined together, yellow; 3, blank; 4, red; 5, blue.

Removing Speaker.—To remove the speaker from the cabinet, slacken the four clamps holding it to the sub-baffle. When replacing, see that the transformer is at the bottom.

VALVE ANALYSIS

Valve voltages and currents given in the table (Col. 2) are those measured in our receiver when it was operating on A.C. mains of 230 V, using the 220 V tapping on the mains resistance. The volume control was at maximum but the reaction control was at minimum; and there was no signal input.

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

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 13VPA	125	3.0	40	0.7
V2 13SPA..	20	0.9	30	0.3
V3 402P ..	150	18.0	—	—
V4 40SUA†	—	—	—	—

† Cathode to chassis, 190 V, D.C.

GENERAL NOTES

Switches.—S1-S5 are the waveband switches and S6 the mains circuit switch. They are all ganged together in a single unit beneath the chassis. In the "off" position of the control knob all contacts are open; on M.W. all contacts are closed; on L.W., S6 only is closed. The rotor of the switch unit can easily be removed, enabling the contacts to be properly cleaned.

Coils.—The aerial coils L1-L3 and H.F. transformer coils L4-L9 are in two screened units on the chassis deck. The aerial coil assembly also contains the small M.W. coupling condenser C2.

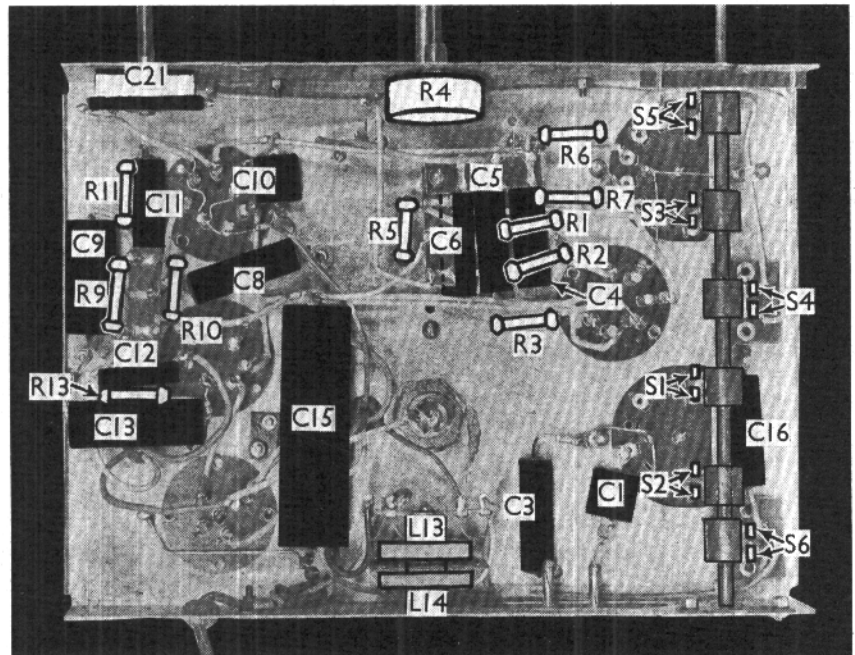
L13 and L14 are mains filter chokes mounted underneath the chassis.

Condensers.—C18 is the aerial circuit trimmer. It is not of the usual pre-set type, but is an air dielectric type included in the gang condenser and operated by a knob concentric with the tuning control.

C14 is an 8μF 500 V aqueous electrolytic condenser in a metal can on the chassis deck, and C15 is an 8μF 450 V dry type in a tubular cardboard container underneath the chassis.

Resistances.—R14, R15 and R16 are separate power resistances wire-wound on a common tubular former mounted on the chassis deck. R14 is the H.T. supply bleeder, R15 the scale lamp shunt, and R16 the main heater circuit ballast resistance with tapings for voltage adjustments.

Scale Lamps.—These are two 8 V 0.2 A M.E.S. types (Cossor Cat. No. 222) wired in series.



Under-chassis view. The six switches in the switch unit are clearly marked. C21 is the reaction control, and L13, L14 are the mains filter chokes.