COSSOR 67, 67A RADIOGRAMS

SUPPLEMENT TO SERVICE SHEET 506

THE Cossor model 67 radiogram employs a chassis in which the RF, oscillator and IF circuits are practically similar to that used in the model 74 table receiver, which was fully dealt with in our *Service Sheet* No. 506, which can be used for servicing those parts of the receiver.

The AF and output circuits, however, are different in many ways, and the information given on this sheet explains the differences. It should be used in conjunction with *Service Sheet* No. 506, to which it is supplementary.

The Cossor 67 is a 5-valve (plus rectifier) 3-band AC superhet radiogram, suitable for use with 200-250 V, 50-60 C/S mains.

The model 67A is similar, but is equipped with an automatic record-changer.

Release date: January, 1940.

CIRCUIT DESCRIPTION

Audio frequency component in rectified output from **V4** signal diode is developed across manual volume control **R12** and passed via AF coupling condenser **C24** and stopper **R14** to CG of **V4** triode section, which operates as AF amplifier.

Pick-up input is fed via scratch filter circuit **R28, C44, R29, C45** and switch **S29**, and is developed across **R12.**

The variable tone control circuit **R18, C25,** which operates on radio and gramophone, is connected across **R12.**

Resistance-capacity coupling by **R15, C26** and **R19,** via grid stopper **R20,** between **V4** triode and pentode output valve **(V5, Cossor PT10),** which is indirectly heated. Provision for connection of high impedance external speaker between **V5** anode and HT positive line, while jack type switch **S32** opens automatically and mutes the internal speaker by disconnecting **T1** primary from **V5** anode when the external speaker plug is fully inserted in its sockets. It should be noted that the HT current to **V5** anode must then flow via the external speaker.

Signal voltages developed across **T1** secondary appear also across the negative feed-back circuit **R31, R32, C47,** and that portion of them which appears across **R32** is thus coupled back to **V4** cathode circuit.

HT current is supplied by IHC full-wave rectifying valve **(V6, Cossor 43 IU).** Smoothing by speaker field **L26,** iron-cored choke **L27** and electrolytic condensers **C49, C50, C51.**

COMPONENTS AND VALUES

	RESISTANCES	Values (ohms)
R11	T.I. CG decoupling ...	2,000,000
R12	Manual volume control; V4 signal diode load ...	500,000
R13	V4 triode CG resistance...	2,000,000
R14	V4 triode grid stopper ...	100,000
R15	V4 triode anode load ...	30,000
R16	AVC line decoupling ...	2,000,000
R17	V4 AVC diode load ...	1,000,000
R18	Variable tone control ...	2,000,000
R19	V5 CG resistance... ...	500,000
R20	V5 grid stopper	100,000
R24	Heater circuit pot., total	25*
R27	Additional IF stopper ...	50,000
R28	Parts of pick-up scratch filter	30,000
R29		50,000
R30	V4 triode anode decoupling	20,000
R31	Negative feed-back feed resistances	450
R32		100
R33	V5 GB resistance... ...	140
R34	Auto GB resistance ...	15

* Centre-tapped.

	CONDENSERS	Values (μF)
C21	Coupling to V4 AVC diode	0·00005
C23	IF by-pass condenser ...	0·00005
C24	AF coupling to V4 triode...	0·01
C25	Part variable tone control	0·003
C26	V4 triode to V5 coupling ...	0·01
C44	Parts of pick-up scratch filter	0·001
C45		0·002
C46*	V4 triode anode decoupling	2·0
C47	Part of negative feed-back	0·02
C48*	V5 cathode by-pass ...	50·0
C49*	HT smoothing condensers	16·0
C50*		16·0
C51*		8·0

*Electrolytic

	OTHER COMPONENTS	Approx. Values (ohms)
L24	Speaker speech coil ...	2·5
L25	Hum neutralising coil	0·1
L26	Speaker field coil ...	800·0
L27	HT smoothing choke...	100·0
T1	Speaker input trans. Pri. ...	450·0
	Sec. ...	0·5
T2	Mains trans. Pri., total ...	27·0
	Heater sec. .	0·05
	Rect. heat. sec. ...	0·1
	HT sec. total	257·0
S28, S29	Radio/gram switches .	—
S32	Speaker muting switch	—
S33	Mains switch	—
S34	Gram motor switch ...	—

GENERAL NOTES

This supplement deals with the model 67 and 67A radiograms only in so far as they differ from the 74 table model.

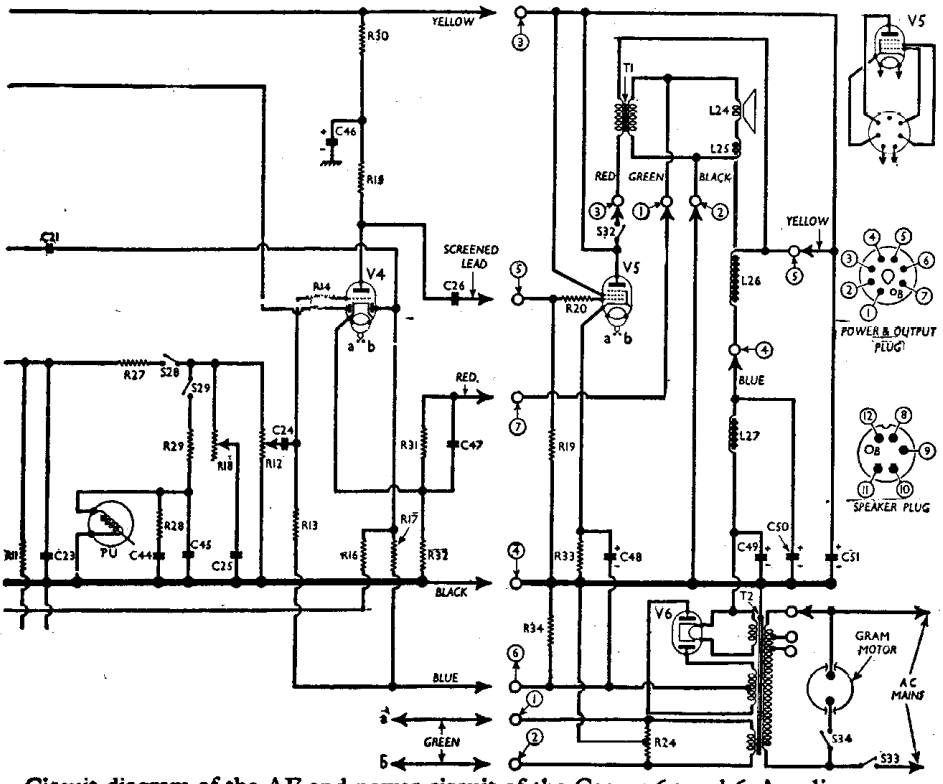
The main circuit differences are that the pick-up is fed in via a scratch filter, the tone control is across the volume control, a decoupling circuit is added to **V4** anode circuit, negative feed-back is introduced, an IHC pentode output valve replaces the directly heated triode, the smoothing circuit is augmented by the addition of a choke and a condenser, and the speaker field is in the HT positive circuit.

Physically, a different speaker, output transformer and mains transformer are used, and the chassis are differently disposed. The main chassis is mounted vertically in the radiogram cabinet, while the power unit is mounted on the floor of the cabinet. A lead with a two-pin plug connector carries the mains switch **S33** to the control panel at the top of the cabinet.

Since **V5** is now a 4 V IHC valve, its heaters are connected across the **a, b** heater secondary, and the 2 V **c, d** secondary is dispensed with.

Chassis Divergencies.—Some model 67 receivers employ variable selectivity, as shown in the model 74, while in others this is omitted.

Resistance R4.—This component is not shown in the accompanying circuit diagram, but in the model 74 its value was 300 O. In the model 67 its value is 200 O.



Circuit diagram of the AF and power circuit of the Cossor 67 and 67A radiograms.

Printed in England by The Cornwall Press Ltd., Paris Garden, London, S.E.1. [B2198-H541]