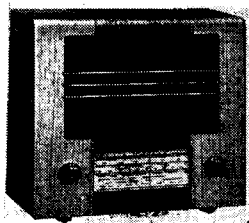
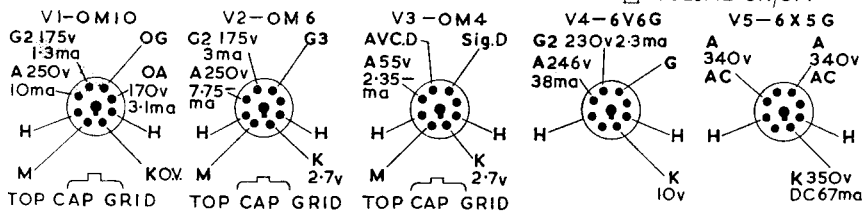
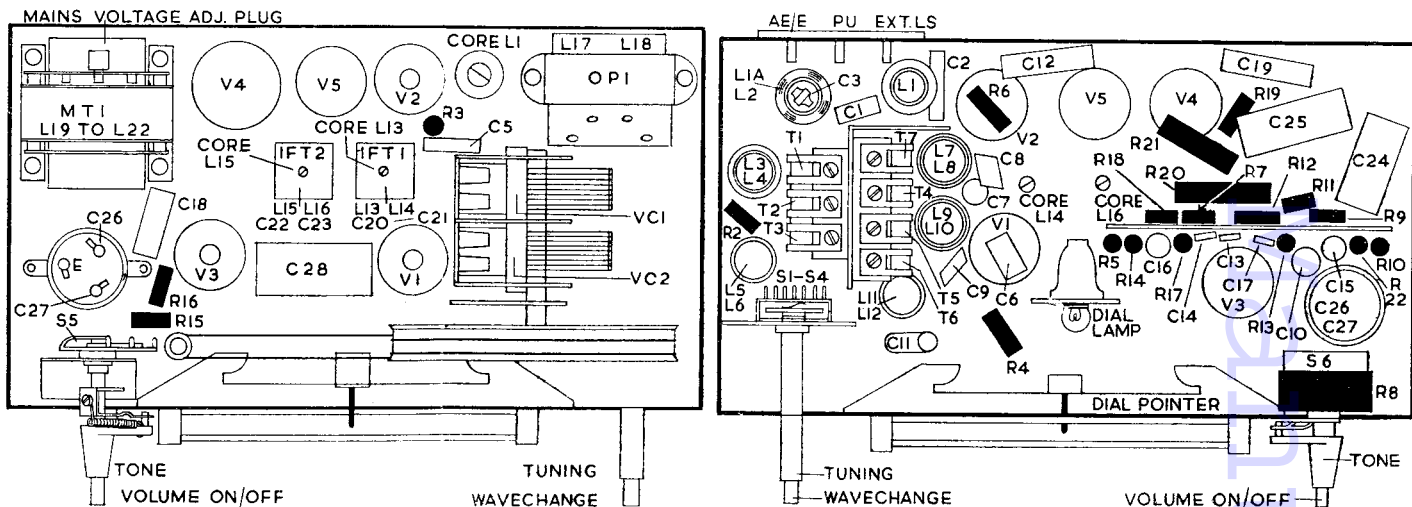


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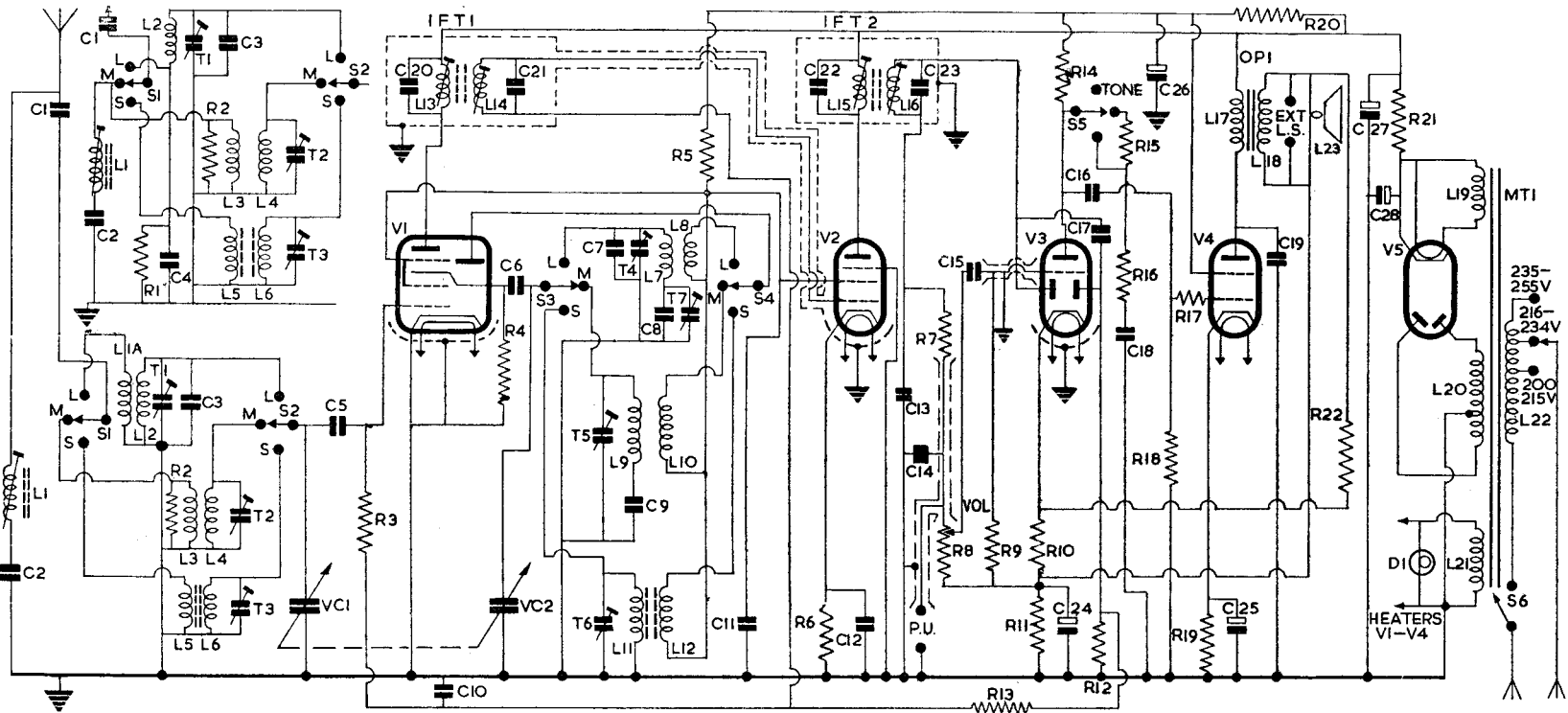
# COSSOR 470 AC



Five-valve three-waveband superhet for operation on AC mains 200-250V 50 cycles. Fitted with pick-up and extension loudspeaker sockets. Housed in walnut veneer wood cabinet. Made by A. C. Cossor, Ltd., Highbury Grove, London, N5.



INDUCTORS		RESISTORS	
L	Ohms	R	Ohms Watts
1	5	1	12 k 1/2w*
1A	45	2	3.3 k 1/2w
2	33	3	330 k 1/2w
3	19	4	12 k 1/2w
4	3	5	10 k 1/2w
5	.7	6	270 1/2w
6	very low	7	47 k 1/2w
		8	500 k pot. (with switch)
		9	4.7 m 1/2w
		10	100 1/2w
		11	2.2 k 1/2w
		12	1 m 1/2w
		13	2.2 m 1/2w
		14	100 k 1/2w
		15	6.8 k 1/2w
		16	6.8 k 1/2w
		17	100 k 1/2w
		18	470 k 1/2w
		19	270 1/2w
		20	3.9 k 1/2w
		21	1.5 k 7.5 w
		22	220 1/2w



C	Mfd's	Type
1	500pf mica	
2	225pf silver mica	
3	25pf ceramic	
4	1500pf silver mica*	
5	300pf mica	
6	100pf silver mica	
7	75pf ceramic	
8	140pf silver mica	
9	570pf silver mica	
10	.1 tubular 500 v	
11	.1 tubular 500 v	
12	.01 tubular 500 v	
13	100pf silver mica	
14	100pf silver mica	
15	.005 tubular 500 v	
16	.01 tubular 500 v	
17	100pf silver mica	
18	.05 tubular 500 v	
19	.01 tubular 500 v	
20, 23	100pf silver mica	
24	25 electrolytic 25 v	
25	25 electrolytic 25 v	
26	8 electrolytic 450 v	
27	8 electrolytic 450 v	
28	8 electrolytic 450 v	

\* Not in chassis tes.ed, but fitted in later models.

## COSSOR 470AC—Continued

**A**ERIAL is fed to IF filter, L1, C2, and through C1 to S1, and thence to primaries L1A (LW), L3 (MW), L5 (SW) of aerial coupling transformers. R2 is shunted across L3, the MW coupling coil. The tuned secondaries L2 (LW), L4 (MW), L6 (SW), are connected, by S2, across the aerial tuning capacitor VC1, and through coupling and AVC isolating capacitor C5 to grid of V1. T1, T2, T3 are trimmers. C3 is additional capacity across LW trimmer T1.

AVC is applied to grid V1 through R3 and is decoupled by C10. No cathode bias is provided for V1, its cathode being connected direct to chassis. Screen voltage is obtained from R5, which also supplies oscillator HT and screen of V2. C11 is decoupling capacitor. L13, C20, the primary of IFT1, is in the anode circuit of V1.

On later models a different aerial input circuit is used, as shown on the additional diagram. Aerial is fed through C1 to S1, and thence to L3 (MW) and L5 (SW), as previously. On LW, however, aerial is fed to bottom end of aerial tuned coil L2. R1 and C4 are additional components associated with the bottom end coupling. The IF filter L1, C1 is connected in circuit on MW only, instead of, as previously, on all wavebands.

**Oscillator** is connected in a tuned-grid series-fed circuit. The tuned coils L7 (LW), L9 (MW), and L11 (SW) are switched by S3 across the oscillator tuning capacitor VC2, and through C6 to oscillator grid. T4, T5, T6 are trimmers, C7 providing extra capacity across LW trimmer T4. T7, C8 are LW padders, and C9 is MW padder.

On SW the outer split vanes of VC1 and VC2 are used for tracking adjustments. Leak-condenser bias for oscillator grid is provided by R4, C6. The anode reaction coils L8 (LW), L10 (MW), L12 (SW) are connected in the oscillator HT circuit and switched by S4. HT is obtained from R5.

**IF Amplifier** operates at a frequency of 465 Kc/s. L14, C21, the secondary of IFT1, feeds signal to grid of V2. AVC, from R13, is applied in series with L14, to grid of V2.

Cathode bias is provided by R6 and decoupled by C12, and screen voltage from R5 and C11. R5 also supplies oscillator HT and screen of V1. L15, C22, the primary of IFT2, are in the anode circuit V2.

**Signal Rectification.** L16, C23, the secondary of IFT2, feeds signal to one of diodes of V3. R8, the volume control, is the diode load resistor, and R7, C13, C14 form a filter circuit. PU sockets are fitted across R8, R11 for connection of a high resistance type pick-up.

**Automatic Volume Control.** C17 feeds signal from secondary of IFT2 to second diode of V3. R12 is the diode load resistor, and R13, R3, C10 AVC line decoupling components. Delay voltage is that developed across the cathode load R11.

**AF Amplifier.** C15 feeds signal from volume control R8 to grid of triode section V3. R9, C15 provide self-bias for triode grid. R10 in the cathode circuit introduces negative feedback from output transformer secondary. R11, decoupled by C24, supplies AVC delay voltage. R14 is the anode load resistor. S5, together with R15, R16, C18, provide adjustable tone control at this stage.

**Output Stage.** C16 feeds signal from anode V3 to grid V4. R18 is the grid resistor, and R17 a grid stopper. R19, decoupled by C25, provides

cathode bias for V4. Screen voltage is obtained from R20, decoupled by C26. R20 also supplies anode of V3, screens of V1 and V2, and oscillator HT. L17, the primary of output matching transformer OPI, is in the anode circuit of V4. C19 prevents rise of impedance of L17 at higher frequencies. L18, the secondary of OPI, drives an 8-inch PM loudspeaker L23.

Sockets are fitted across secondary of OPI for low-impedance extension loudspeaker.

Negative feedback voltages developed across L18 are fed through R22 to R10 in cathode of V3.

**High Tension** is provided by a full-wave, indirectly-heated rectifier V5. L20 supplies its anode voltages and L19 its heater voltage of 6.3V.

R21, R20, C26, C27, C28 provide resistance capacitance smoothing of the HT supply.

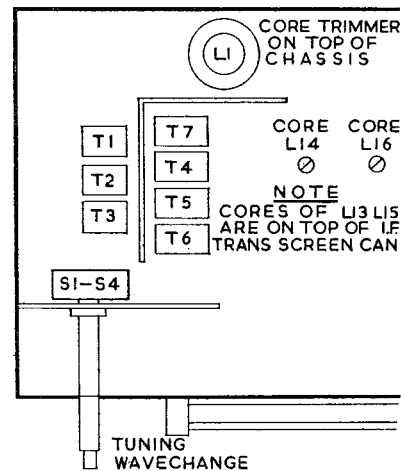
**Heaters of V1 to V4 and Dial Light** obtain their voltage from L21.

The primary L22 of mains input transformer MT1 is tapped for voltages 200-250 AC, 50 cycles.

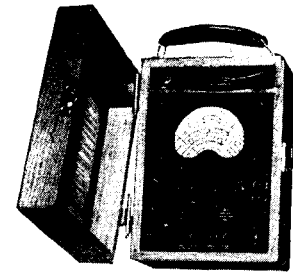
S6, ganged to R8, is on/off switch.

### TRIMMING INSTRUCTIONS

Apply Signal as Stated Below.	Tune Receiver to.	Trim in Order Stated for Max. Output.
(1) 465 Kc/s to grid of V1 via .01 capacitor.	500 metres	Core of L16, L15, L14, L13
(2) 18 Mc/s to aerial socket via dummy aerial.	16.6 metres (approx.)	T6, T3
(3) 1.4 Mc/s. As above.	215 metres	T5, T2
(4) 300 Kc/s. As above.	1,000 metres	T4, T1
(5) 160 Kc/s. As above.	1,875 metres	T7 and then repeat (4).
(6) 465 Kc/s. As above.	—	Core L1 for minimum.



**COSSOR 481B.** This receiver was reviewed in last month's CHARTS but incorrectly described as model 471B. Readers are requested to correct the title of the chart in their files.

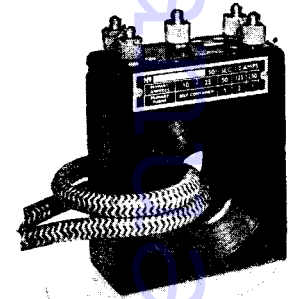


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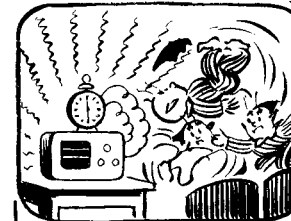
- **RANGES:** 5, 25, 125, 250 and 1,000 volts. 1, 10, 100 and 1,000 Milliamps. 150 to 50,000 ohms and 7.5 Megohms. .02 to 16 Microfarads.
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## COLLARO MICROGRAM

—Continued

R14, R13, C13, C14 provide resistance-capacitance smoothing of the HT supply and C9 is fitted to eliminate modulation hum.

Heaters of V1 to V3 are series connected and obtain their current from the mains through tapped voltage dropper resistor R15. R15 is tapped for input mains voltage of 100-125 and 200-250V AC. S1, which is ganged to the volume control R1, is the amplifier on/off switch.

**Removal of motorboard and amplifier.** Secure tone arm of pick-up to its rest arm by means of a piece of wire or string. Remove spring collar from retaining groove on turntable and carefully remove turntable.

Remove the eight roundhead wood screws along sides of motorboard. Gently ease up one edge of motorboard and then lift sufficiently clear of case to be able to unplug the lead to the loudspeaker situated on the left-hand side of case. Motorboard can now be removed.

**Automatic stop mechanism.** The pick-up, while travelling across the record, moves the operating lever O, which in turn makes lever L approach the main spindle. Striker S checks this movement by knocking lever L back at every revolution, until the run-off groove is reached, when the greater movement of lever L causes pawl P to drop off slide A. The next revolution of the striker actuates the stop by operating trigger T.

If the stop operates before the end of a record adjust screw R so that pawl P has a greater overlap.

**Adjustment of stop.** Load the stop by pulling the brake pad towards centre until trigger T snaps in. Turn striker S to the position shown in the diagram and place the lever L in contact with it.

Loosen the locking screw H, push the pawl P to the left with the left hand and adjust the slide A by means of its adjusting screw R so that the pawl P, when again released, rests on the edge of the slide and overlaps it by about 1/64 in., as shown in the drawing. Finally, tighten the locking screw H.

## AMBASSADOR 4756

—Continued from page vi

Cathode bias is from R9, C21 and screen voltage for V2 and V1 is obtained from R8, C6. L27, C17, the primary of IFT2, is in V2 anode circuit.

**Signal rectifier.** L28, C18, IFT2 secondary, apply signal to one diode of V3. Volume control R15 is load resistor. R14, C22, C23 form an IF filter. S7 switches volume control from radio input to PU socket.

**Automatic volume control.** C19 feeds signal from anode V2 to second diode V3. R11, R13 form the load. Full AVC, decoupled by R10, C8, is applied to grid V1. Approximately two-thirds of the AVC voltage decoupled by R12, C20, is fed to grid of V2. Delay voltage is developed across cathode bias resistor R19.

**AF amplifier.** C24 feeds signal from volume control R15, through grid stopper R17, to grid of triode section V3. R18 is grid resistor and cathode bias for triode is developed by R19, C34. R16 is anode load resistor and C27 is HF bypass.

**Output stage.** Signal is fed by C26 to grid V4, pentode output valve. R25, R26 form the grid resistor. Cathode bias developed across R27 is decoupled by C35. Screen voltage comes from R20, C36.

L30, primary of OP1, the output matching transformer, is in the anode circuit of V4 with R22 as anode stopper.

L31, the OP1 secondary, is provided with two sets of output sockets; one set for the internal loudspeaker and the other for an external loudspeaker of low-impedance type.

**Negative feedback and tone control.** R21, C25 introduce negative feedback from the anode of V4 to its grid, via the coupling capacitor C26. Position 1 of S7-8-9 connects capacitor C28 between grids of V3 and V4, and at the same time shunts R29 across R24. This gives treble attenuation at about 3,000 c/s.

In position 2, R29 is still shunted across R24, but C28 is now connected across the grid resistors R25, R26 to earth. This gives a nicely balanced response for normal listening.

In position 3, C28 is connected across R24 and R29 is disconnected from across R24. The effect of this is to give both bass and treble lift, the bass lift being to compensate for transformer and baffle losses, and the treble lift to overcome the dip in the overall selectivity curve of the receiver.

A secondary feedback network consisting of R23, C29 is used to counteract phase shift introduced by the main feedback circuit. When S7 and S8 are in the gram position, conditions are the same as in position 2.

**High tension** is supplied by an indirectly heated full-wave rectifier V5. L33, the HT secondary of MT1, the mains input transformer, provides the anode voltages for the rectifier. C32, C33 are fitted to eliminate modulation hum. L32 supplies V5 heater voltage.

In latest models of this receiver an EZ35 rectifier is fitted. This valve has an isolated cathode and a 6.3 volt heater. The heater voltage is obtained from the same secondary as that supplying heaters of V1 to V4. L29, C37, C38 provide choke-capacity smoothing of the HT supply. In addition, R20, C36 provide further smoothing of the HT supply to anodes V1, V3 and screens V1, V2. V2 anode is supplied from main HT line. C31 provides HF decoupling for HT supply.

**Heaters of V1 to V4 and dial lamps** are supplied by L34. In some models L34 also supplies heater voltage to the rectifier (EZ35).

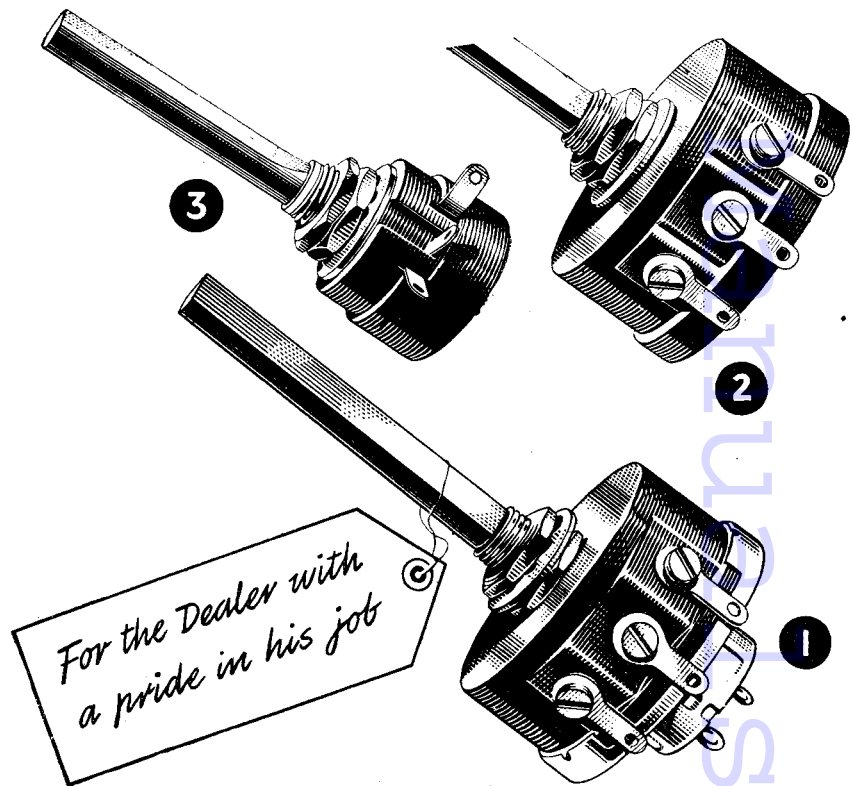
The primary L35 of MT1 is tapped for 100 to 250 volts, 50 c/s. S10, ganged to the volume control, is on/off switch.

**Removal of chassis.** Remove the four control knobs and back panel of cabinet. Unplug LS from sockets at left hand side of chassis. Unfasten and remove four chassis retaining bolts on underside of cabinet. Chassis can be withdrawn.

**Replacement of cord drive.** The glass station name plate must be removed. It is held in place by four corner clips, which, when unfastened, allow the dial plate to be removed. If necessary, the metal cover plate over the condenser drive wheel may be removed by unfastening the two screws at the top edge.

## COSSOR 470AC

A. C. Cossor, Ltd., state that certain figures relating to production models of their 470AC receiver differ from those published in February SERVICE CHARTS. The anode current of OM10 is 3mA, the resistance of L8 is 8 ohms, and of L12 is 26 ohms. The pilot lamp rating is, of course, 0.3A, not 3A as printed, and the resistance of the HT secondary is 125 ohms.



### RADIOSPARES WIRE-WOUND VOLUME CONTROLS

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Identical control, less switch, 3 watt type, fitted 1/4" flat spindle of 2" free length—illustrated (2) above (one-quarter enlarged). Available in following values:— 1,000Ω 2,500Ω 5,000Ω 10,000Ω 15,000Ω 20,000Ω 25,000Ω 35,000Ω 50,000Ω. All at a nett trade price of 4/- each.

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