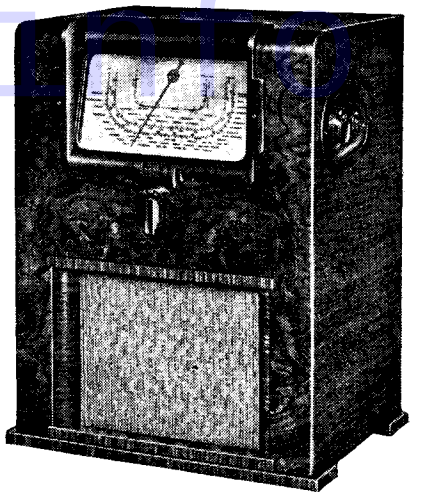
COSSOR 484U A.C.-D.C. SUPERHET



The 484U is a universal version of the Cossor three-valve plus rectifier chassis used in the 484 and 438 A.C. receivers.

CIRCUIT.—The aerial input is *via* a series aerial condenser to separate coupling coils and tuned circuits for each of the three wavebands; a condenser, C2, provides additional coupling on the M.W. band. The L.W. aerial coil has a resistance shunted across it.

V1, the frequency charger, is a triode hexode. The volume control of the receiver is in the cathode circuit of this valve and operates by varying the bias.

In the anode circuit of V1 is the I.F. transformer of the receiver. By means of switches, operated by the wave selection control, the I.F. is made 465 kc. on the medium and long wavebands, while on the short it is 1,363 kc. Reaction is obtained from the anode of V2 by means of a winding incorporated in the I.F. transformer and a variable condenser.

V2 is the demodulator of the receiver and is an H.F. pentode operating on the familiar grid leak system. A choke in the I.F. coupling arrangements prevents hum appearing when the receiver is operated in an oscillating condition.

V2 is resistance capacity coupled to V3, an output tetrode, in the anode circuit of which is connected the speaker matching transformer.

Mains equipment consists of a mains voltage adjustment resistance, a half-wave rectifying valve, V4, electrolytic smoothing condensers and a smoothing choke consisting of the speaker field energising coil. A pair of H.F. chokes in the mains leads, together with a fixed condenser, operate as a mains suppressor arrangement.

Chassis Removal.—Remove the back of the cabinet (secured by six bolts) and also the panel shielding the back of the chassis (secured by four wood screws). Remove the waveband selector switch from the front of the cabinet (internal grub-screw

WINDINGS

Winding.	Ohms.	Winding.	Ohm.
L1	.1	L10	16
L2	7	L11	.3
L3	.48	L12	2.25
L4 ..	Too low	L13	3
L5	1.25	L14	.9
L6	17	L15	3.5
L7 ..	Too low	Speaker field ..	400
L8	1.1	Speaker trans. prim. ..	850
L9	9	Mains resistance	540

VALVE READINGS

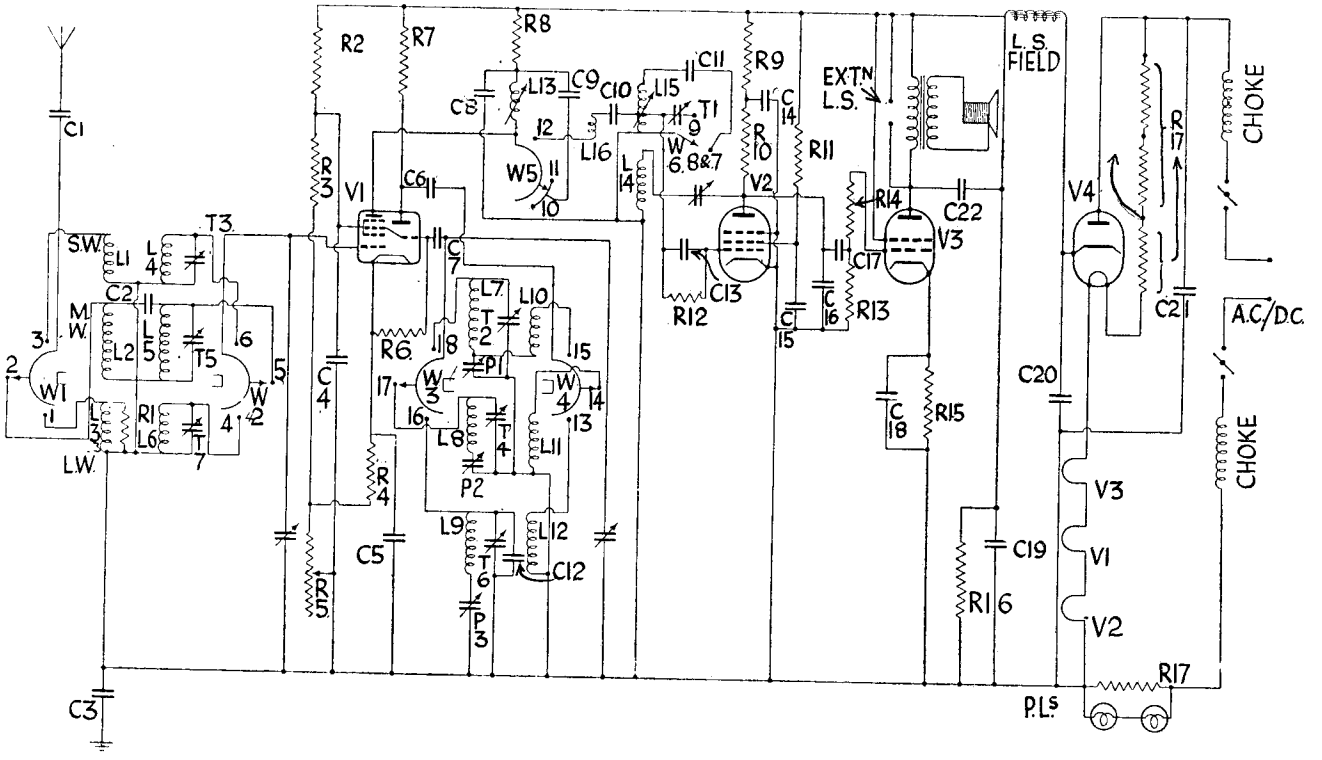
No signal. Volume minimum. Bottom M.W. band. No reaction. 200 volts, A.C. mains

V.	Type.	Electrode.	Volts.	Ma.
1	(All Cossor) 202 S.T.H.met. (7)	Anode ..	148	Very low.
		Screen ..	100	Very low.
		Osc.anode	100	4.3
2	13SPA met. (7)	Anode ..	35	.5
		Screen ..	Very low.	13
3	4020T. (7) ..	Anode ..	140	22
		Screen ..	150	4.7
4	442SUA (5) ..	Filament	185	—

QUICK TESTS

Quick tests are available on this receiver on the leads to the speaker panel. Voltages measured between these and the chassis should be:—

Blue lead, 185v., unsmoothed H.T.
Red, 140v., smoothed, H.T.
Yellow, 150v., smoothed H.T.



A decidedly interesting circuit is employed in the 48 series. A triode-hexode frequency changer is followed by a regenerative pentode detector valve. Mains rectification is half wave.

fixing) and also the on-off switch from the side.

The tuning control and combined volume and reaction control knobs are detached by removing the grub screws on the extension shafts inside the cabinet, rotating the control knobs until the screws coincide with the withdrawal slots and removing knob and extension shaft as a complete unit.

Remove the wood screw at the top rear of the cabinet holding the metal bar, push bar forward and then withdraw. Uncleat the speaker cable from the side of the cabinet. Tilt the back of the chassis upwards and withdraw.

For complete removal, the leads to the speaker panel must be removed from the fixing terminals and the cable pulled through the hole in the shelf. When replacing, connect the blue lead to the top terminal, the red to the middle and yellow to the bottom.

Special Notes.—As is usual with universal receivers, the heaters of the valves are connected in series.

There are two dial lights mounted in screw-in holders fitted with an all-rubber surround to obviate crackle. These are removed by rotating clockwise until the side projections come into line with the withdrawal slots. They are Osram bulbs rated at 8 volts 1.6 watts, fitted with M.E.S. bases and painted yellow.

The mains adjustment device, located at the rear of the chassis on the mains resistance, consists of a triangular piece of bakelite marked with voltages. To adjust, detach the three terminal heads and bakelite strip, and replace strip so that the desired mains voltage can be read horizontally.

Sockets at the rear of the chassis provide connections for an extension speaker with a matching transformer having an impedance of 8,000 ohms.

The I.F. transformer can contains R12 and C13.

RESISTANCES

R.	Purpose.	Ohms.
1	L.W. aerial coil shunt	50,000
2	V1 screen potr. (part)	10,000
3	V1 screen potr. (part)	15,000
4	V1 fixed cathode bias	140
5	Volume control and V1 variable bias	5,000
6	Oscillator grid leak	100,000
7	Oscillator anode	10,000
8	V1 anode decoupling	2,000
9	V2 anode decoupling	50,000
10	V2 anode load	100,000
11	V2 screen decoupling	100,000
12	V2 grid leak	1 megohm
13	V3 grid leak	50,000
14	V3 grid stopper	500,000
15	V3 cathode bias	200
16	H.T. bleeder	3,000
17	Mains voltage adjustment resistance	629

Alignment Notes

I.F. Circuits.—Connect an output meter across the primary of the speaker transformer. Switch the set to the M.W. band and fully interleave the vanes of the gang. Set the volume control to maximum and disconnect the reaction condenser. Connect a modulated oscillator between the top grid cap of V1 and chassis.

Tune the service oscillator to 465 kc. and adjust the cores of L13 and L14 (with a non-metallic trimming tool) for maximum.

Switch the set to short waves and adjust T1 for maximum.

Short Waves.—Tune set and oscillator to 16.6 metres (18 mc) and adjust first T2 and then T3 for maximum.

Tune set and oscillator to 49.9 metres (7 mc.) and adjust P1 for maximum, simultaneously rocking the gang. Repeat both operations.

Medium Waves.—Tune set and oscillator to 214 metres (1,400 kc.) and adjust first T4 and then T5 for maximum.

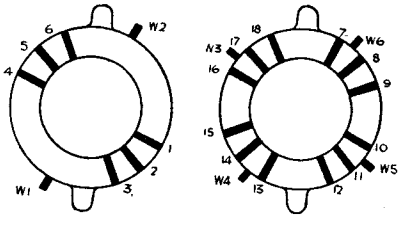
Tune set and oscillator to 522 metres (575 kc.) and adjust P2 for maximum, simultaneously rocking the gang. Repeat both operations.

Long Waves.—Tune set and oscillator to 1,000 metres (300 kc.) and adjust first T6 and then T7 for maximum.

Tune set and oscillator to 1,875 metres (160 kc.) and adjust P3 for maximum, simultaneously rocking the gang. Repeat both operations.

CONDENSERS

C.	Purpose.	Mfds.
1	Series aerial	.0005
2	M.W. aerial coupling	.000015
3	Chassis isolating	.05
4	V1 screen decoupling	.1
5	V1 cathode bias shunt	.1
6	Oscillator anode coupling	.0003
7	Oscillator grid	.0002
8	V1 anode decoupling	.1
9	I.F.T. primary fixed trimmer	.000155
10	S.W. I.F. coupling	.0002
11	M.W. and L.W. I.F.T. secondary fixed trimmer	.000165
12	L.W. oscillator fixed trimmer	.00005
13	V2 grid	.0001
14	V2 anode decoupling	.25
15	V2 screen decoupling	.1
16	H.F. by-pass	.0001
17	L.F. coupling	.01
18	V3 cathode bias shunt	50
19	H.T. smoothing	24
20	H.T. smoothing	16
21	Mains suppressor	.1
22	Pentode compensator	.005



Cossor 484U on Test

MODEL 484 U.—Standard model for operation on A.C. or D.C. mains, 200-250 volts (40-100 cycles A.C.). Price 10 gns.

DESCRIPTION. — Three-waveband, four valve including rectifier, table model superhet.

FEATURES. — Full-vision scale. Controls for tuning, combined volume and reaction, range selection and separate mains control. Pentode used as demodulator with adjustable reaction on I.F. Sockets for external speaker. On short waves the I.F. is 1,363 kc.

LOADING.—67 watts.

Sensitivity and Selectivity

SHORT WAVES (16-53 metres).—Easy handling with very smooth reaction. Good gain and selectivity well maintained over the waveband.

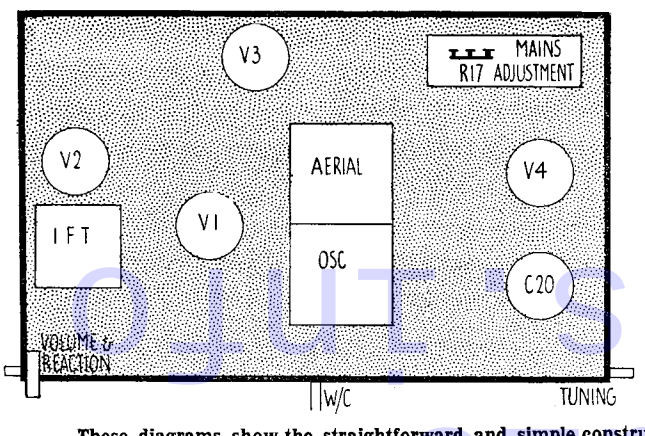
MEDIUM WAVES (190-590 metres).—Excellent selectivity with good gain. Combined volume and reaction is well graded and enables full advantage to be taken of the selectivity of the circuit. Local station spread is extremely small. Gain well maintained.

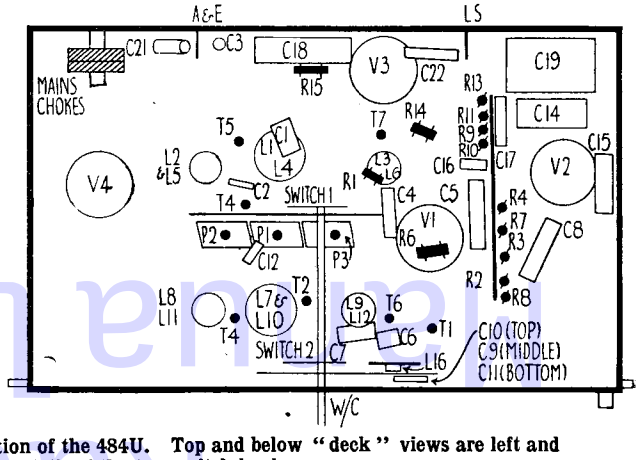
LONG WAVES (800-2,300 metres).—Excellent selectivity and adequate sensitivity. Deutschlandsender received with very little side splash.

Acoustic Output

Ample volume for an ordinary room with mellow deep tone. Orchestral balance pleasing on all types of music and only very little colouration on speech.

Hunt's condensers for the 484U are: for C20, 3867, 6s. 6d.; C19, 3866, 6s. 6d.; C18, 3497, 1s. 9d.





These diagrams show the straightforward and simple construction of the 484U. Top and below "deck" views are left and right respectively. Above these are details of the two switch banks.