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ULTRA'S "LYNX" THREE FOR A.C. MAINS

Circuit.—The H.F. valve *ACSG/VM* (*V1*) is preceded by a tuned H.F. transformer with a choke connected in series with the L.W. to prevent "break through" of the local. Volume is controlled manually by the conventional variable resistance in series with the cathode lead. Tuned grid coupling is used to the next valve.

The detector valve AC/SG (*V2*) works on the anode bend principle and is coupled to the output by resistance capacity.

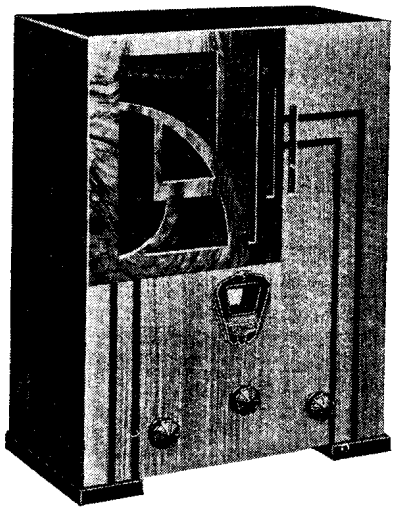
The output valve, AC/Pen. (*V3*) is compensated by either a condenser C8 connected between the anode and earth or by resistance and condenser in series across the primary of the output transformer.

Full wave valve rectification is used, 1W3, and the L.S. field is included in the positive H.T. feed for smoothing with two 8 mfd. electrolytic condensers.

Special Notes.—The anti-break-through chokes are mounted inside the M.W. coil formers. The screening grid potential of V2, the anode bend detector, is derived from the cathode potential of the output valve, which is approximately 16 volts positive with relation to the chassis. It should be noted that loss of emission in V3 will result in a lower amplification from V2.

The 75-ohm limiting resistance R2 is inside the volume control.

Quick Tests.—Voltage between outer terminal on output transformer and chassis, 250.



Ultra Electric's "Lynx" screen-grid, detector and pentode mains three sells at 10 gns.

Between inner terminal and chassis, 260. Between aux. grid V3 and chassis, 260.

Removing Chassis.—Remove knobs (grub screw). Remove four screws from underneath. Slide chassis out. L.S. leads are long.

General Notes.—Changing coils. First remove the switch by undoing the two bolts holding the frame and two holding the spindle to the front of the chassis.

Remove two bolts holding end plate to base of chassis and unsolder four leads to coil (marking them). Undo two nuts on the canister pins underneath.

The assembly can then be lifted out.

The removal and replacement of all the other components is simple.

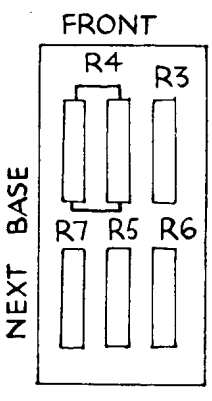
When a new coil has been fitted it is advisable to check the ganging in the L.W.

For Resistance and Condenser Tables see col. 1, p.13.

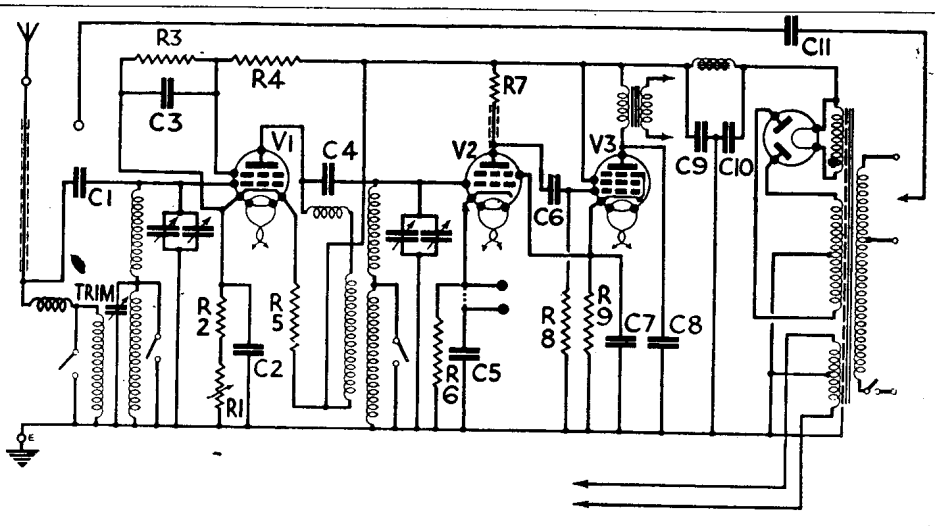
VALVE READINGS

Valve.		Connection.	Volts.	M.A.
V1 ACSGVM	...	anode ...	260	5.8
		screen ...	130	—
V2 AC SG	...	anode ...	120	.1*
		screen ...	16	—
V3 AC/Pen.	...	anode ...	260	30
		aux. grid ...	260	5
Rectifier UU	...	60/250 or 1W2	260 A.C.	—

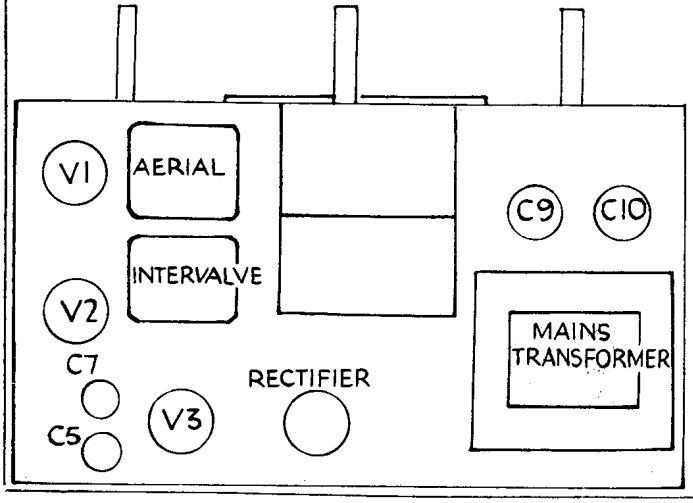
* This is an anode bend detector with a 1 megohm coupling resistance. Even with good meters an entirely erroneous voltage reading is obtained. The current is the important factor. No signal current is .1 m.a.

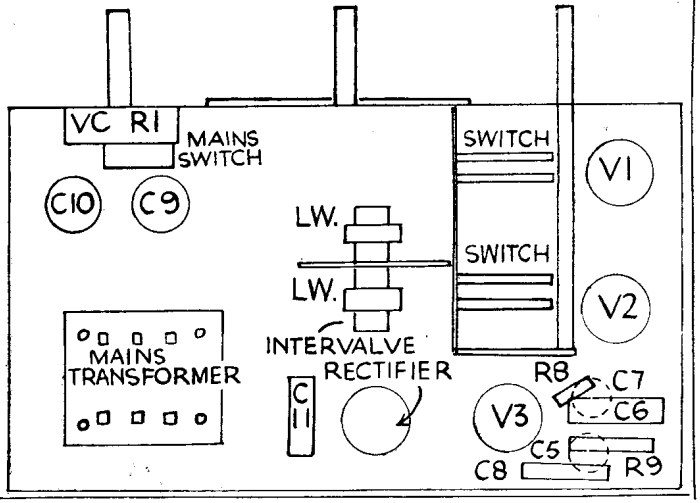


Left, is the key to the resistance panel; and right, is the circuit diagram of the "Lynx."



Below are shown the lay-out of components both on (left) and below (right) the chassis of the Lynx.





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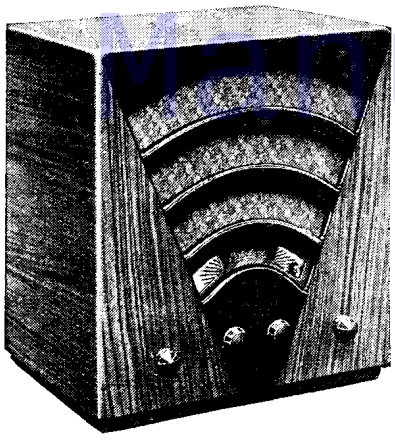
PORTADYNE S/A.C. FIVE-VALVE SUPERHET



The S/A.C. superhet five-valve receiver for A.C. mains by Portadyne Radio, Ltd.

(*Continued from col. 2, page 12.*)

If this is wrong, trim the L.W. aerial coil by the small semi-variable condenser mounted on the coil former underneath the chassis (see diagram).

Replacing Chassis.—Slide chassis into position. Replace four screws underneath. Replace knobs.

RESISTANCES

R.	Purpose.	Ohms.
1	Variable volume control ..	10,000
2	Series with R1	75
3	Lower half of S.G. Ptr. ..	20,000
4	Upper half of S.G. Ptr. ..	25,000
5	Between H.T. and V1 cathode	.1 meg.
6	Bias resister V2	15,000
7	V2 coupling resistance	1 meg.
8	V3 grid leak	.5 meg.
9	Bias resister V3	400
	L.S. field	2 500
	Output transformer primary ..	650

CONDENSERS

C.	Purpose.	Mfd.
1	Series aerial condenser	.00001
2	Cathode V1	.1
3	Screen V1..	.1
4	Coupling to grid coil V1 to V2	.00001
5	Cathode V2	25 El.
6	Coupling V2 to V3	.004
7	Cathode V3	25 El.
8	Anode compensator V3.. ..	.02
9	Smoothing	8 El.
10	Smoothing	8 El.

Circuit.—*A combined oscillator first detector* (*V1*) *ACS2Pen.* is preceded by a negatively inductively coupled band-pass tuner. Reaction is applied in the anode cathode-grid circuit and coupling to the I.F. valve is by I.F. transformer *intermediate frequency* 112 *kc.* The intermediate frequency valve (V2) VP4 is coupled to the second detector by another band-pass I.F. transformer. Manual volume control is in the cathode circuit of this valve.

A double diode triode second detector, V3, ACHLDD or TDD4, in which one diode anode is used for ordinary diode rectification and the other to provide A.V.C. bias for the I.F. valve, has the triode section coupled to the output valve by a tone correction circuit with straight resistance coupling.

The output valve V4 AC2Pen. is compensated, and has a variable condenser connected between the grid and earth to act as a tone control.

Full wave valve rectification DW3 is employed, and modulation hum is prevented by condensers across the high potential (A.C.) winding. The L.S. field is included in the + H.T. lead.

Special Notes.—The switch connecting R1 to earth is situated in the space underneath the bottom of the cabinet, and the leads must be unsoldered before the chassis can be removed.

The band-pass M.W. and L.W. coils are on top of the chassis, and care must be taken to ensure that they are not damaged.

Quick Tests.—Voltages at terminals on L.S. transformer :—

1 (top)	350 v.	full rectified voltage.
2	250	V4 anode voltage.
3	270	H.T.+ of set.
V1 Anode (left-hand)	240 v.	
V2 ,,	230 v.	

Removal of Chassis.—Unsolder leads to local-distance switch under cabinet. Remove knobs and four holding screws from underneath. Undo cleat holding L.S. leads.

Chassis can then be removed sufficiently for examination of components.

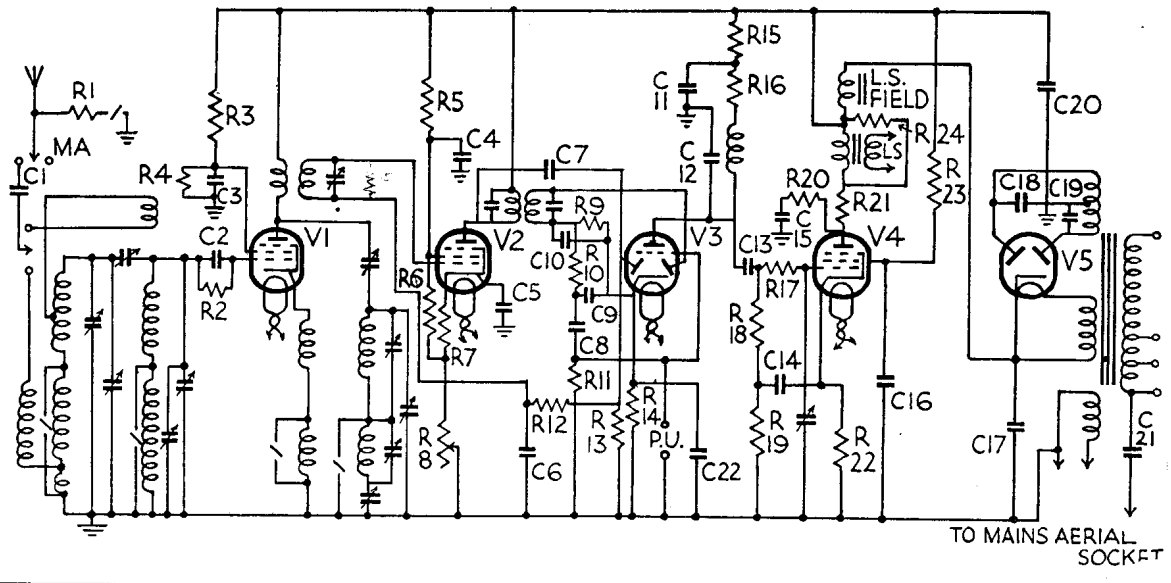
When it has to be removed completely,

RESISTANCES

R.	Purpose.	Ohms.
1	Local de-sensitiser	30
2	Grid leak V1	2 meg.
3	Top of V1 S.G. Ptr.	50,000
4	Lower part of V1 S.G. Ptr. ...	20,000
5	Top of V2 S.G. Ptr.	30,000
6	Lower part of V2 S.G. Ptr. ...	15,000
7	Fixed Cathode resistor V2 ...	600
8	Variable volume control	550
9	Part of detector system... ...	.5 meg.
10	,, ,, ,, ...	.2 meg.
11	Grid leak triode V3 ,, ...	2 meg.
12	Part of AVC system	.25 meg.
13	AVC system	1 meg.
14	Bias resistor V3	1,000
15	Decoupler anode V3	50,000
16	Coupling resistance V3, V4 ...	10,000
17	H.F. stopper grid V4	100,000
18	Grid leak V4	100,000
19	Decoupling grid V4	.25 meg.
20	Tone compensator	10,000
21	Anti parasitic oscillations anode V4	300
22	Bias resistor V4	150
23	Voltage dropping to aux. grid V4	10,000
24	Across output trans, primary ...	20,000
—	L.S. field	2,000
—	Primary, output transformer ...	650

CONDENSERS

C.	Purpose.	Mfd.
1	Series aerial	.0005
2	Grid V1 (wire condenser on R2 holder)	—
3	Screen V1	1
4	Screen V2..	1
5	Cathode V2	1
6	Decoupling AVC..	.01
7	Feed to AVC anode V3 ..	.0001
8	L.F. coupling to DDT grid ..	.01
9	H.F. by-pass	.0001
10	H.F. by-pass	.0001
11	Decoupling anode V3	1
12	H.F. by-pass anode V3 ..	.0005
13	Coupling V3-V4	.01
14	Decoupling grid V4	1
15	Tone compensator	.01
16	Aux. grid V4	1
17	Electrolytic smoothing	8
18	De-modulator of mains.. ..	.1
19	De-modulator of mains.. ..	.1
20	Electrolytic smoothing	8
21	Mains aerial	.0005
22	Cathode V3	1



An initial band-pass input coupled by both capacity and inductance is found in the circuit of the Portadyne S/A.C.

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