

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

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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 resistor V2	15,000
7	V2 coupling resistance	1 meg.
8	V3 grid leak	.5 meg.
9	Bias resistor 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 EI.
6	Coupling V2 to V3	.004
7	Cathode V3	25 EI.
8	Anode compensator V3	.02
9	Smoothing	8 EI.
10	Smoothing	8 EI.

# PORTADYNE S/A.C. FIVE-VALVE SUPERHET

**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.

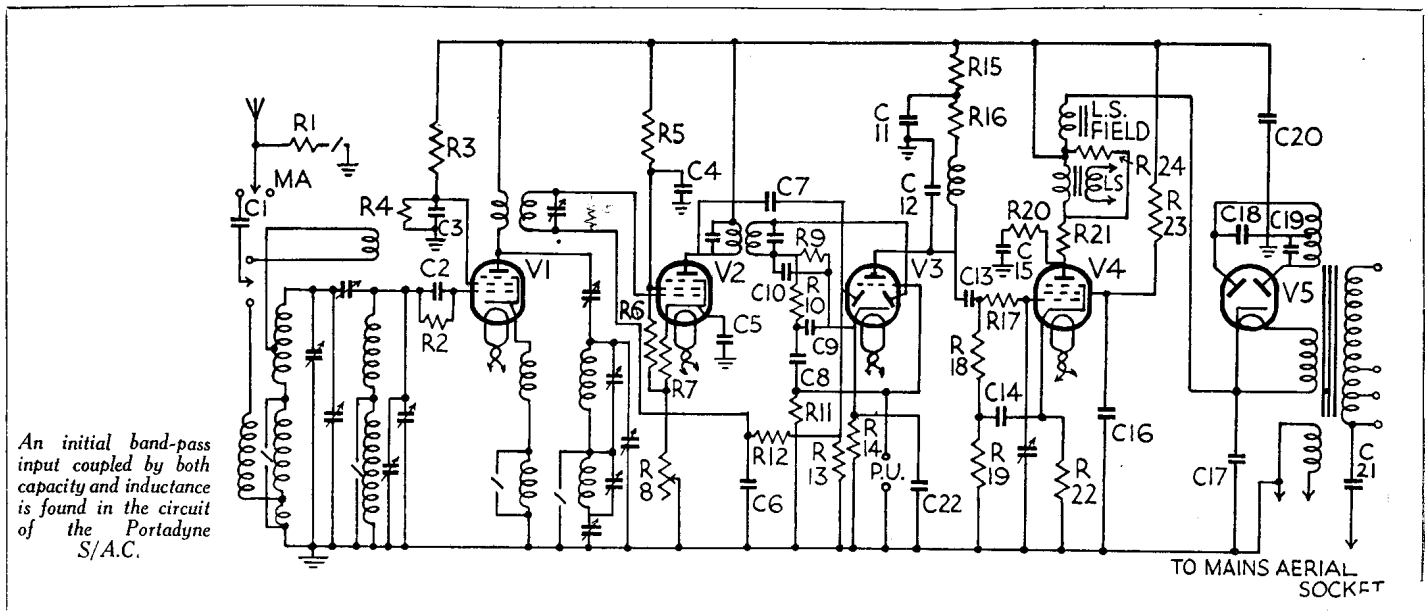
**Removal of Chassis.**—Unsolder leads to local-distance switch under cabinet. Remove knobs and four holding screws from underneath. Undo cleat holding L.S. leads. Chassis can then be removed sufficiently for examination of components. When it has to be removed completely,

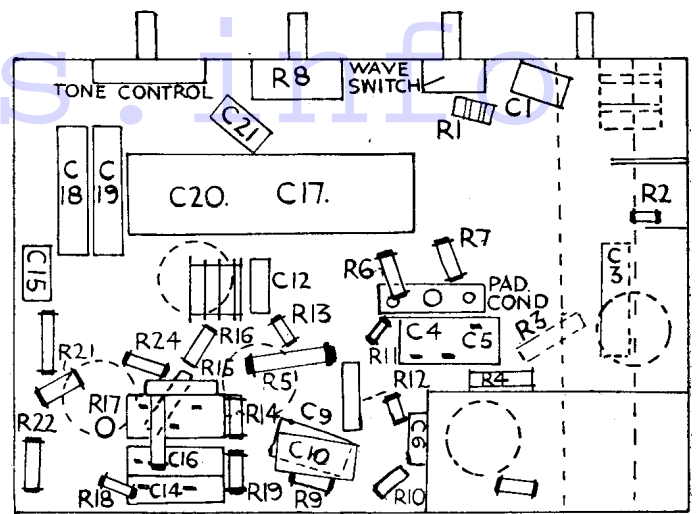
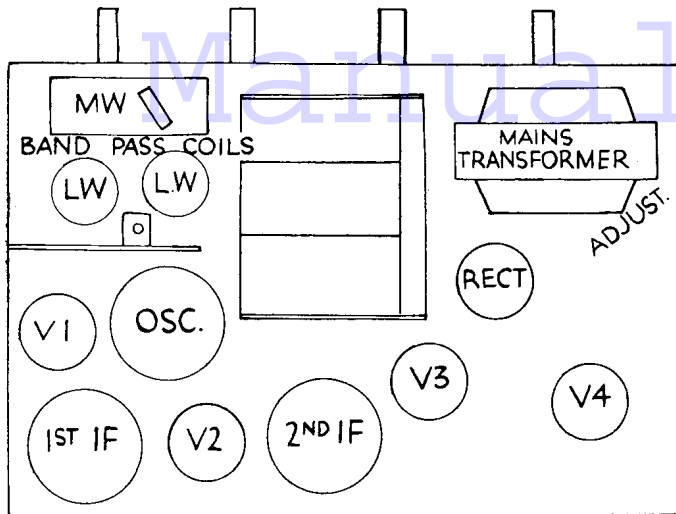
**RESISTANCES**

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	Grid leak triode V3	.2 meg.
11	Part of AVC system	2 meg.
12	AVC system	.25 meg.
13	Bias resistor V3	1 meg.
14	Decoupler anode V3	1,000
15	Coupling resistance V3, V4	50,000
16	H.F. stopper grid V4	10,000
17	Grid leak V4	100,000
18	Decoupling grid V4	100,000
19	Tone compensator	.25 meg.
20	Anti parasitic oscillations anode V4	10,000
21	Bias resistor V4	300
22	Voltage dropping to aux. grid V4	150
23	Across output trans, primary	10,000
24	L.S. field	20,000
—	Primary, output transformer	2,000
—		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





The above and below "deck" arrangements of the Portadyne S/A.C. receiver. All the components are easily accessible and there is no need to disturb the wiring. Doing so may introduce new capacities which will upset the ganging.

(Continued from previous page.)

undo four screws holding mains switch. Remove screws holding speaker baffle to cabinet.

**General Notes.**—Do not disturb the wiring any more than is necessary. All the components can be reached comfortably.

The mains transformer is a standard one with the various secondaries labelled. There is no multiple condenser bank and

the single or double types are easily recognisable.

**Replacing the Chassis.**—Slide it to within 4 in. of the front of the cabinet.

Push the local-distance switch leads through the aperture, and, easing the mains transformer carefully past the mains switch, press the chassis home.

Replace four screws underneath (self-threading screws). Resolder L.D. switch leads. Replace knobs and L.S. lead cleat.

**VALVE READINGS**

V.C. max. No signal.

Valve.	Connection.	Volts.	M.A.
V1 ACS2 Pen.met.	anode ...	240	2.7
	screen ...	65	—
V2 VP4 Pen.met.	anode ...	230	1.8
	screen ...	110	—
V3 ACHLDDmet.	triode anode	140	2.7
V4 AC2 Pen.	anode ...	250	20
	aux. grid ...	205	6

**EKCO A.C.74 FIVE-VALVE SUPERHET**

**Circuit.**—The combined oscillator first detector (V1) SP4 follows a band-pass aerial circuit. Anode, cathode-grid reaction is applied by an H.F. choke, and the band-pass intermediate transformer is on the low H.F. potential side of the choke. The intermediate frequency is 110 kc.

The I.F. valve (V2) is another SP4, and the coupling following it is a second band-pass I.F. transformer.

The second detector is a double diode triode (V3) A.C.HL.DD. Rectification for L.F. amplification takes place at the diode anode fed from the secondary of the second

I.F. transformer, and D.C. for the delayed A.V.C. is obtained from the other, which is coupled by a condenser to the primary of the second I.F. transformer. Resistance-capacity coupling is used following the triode section.

The output valve (V4) A.C./Pen. is compensated by a .0025 condenser connected between the anode and earth.

Full-wave rectification IW3 is used, and the field coil is included in the positive H.T. lead.

The mains transformer has a screened primary.

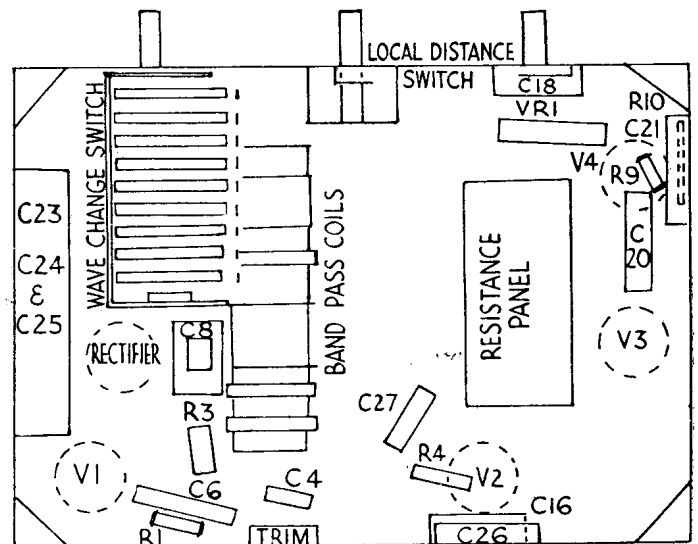
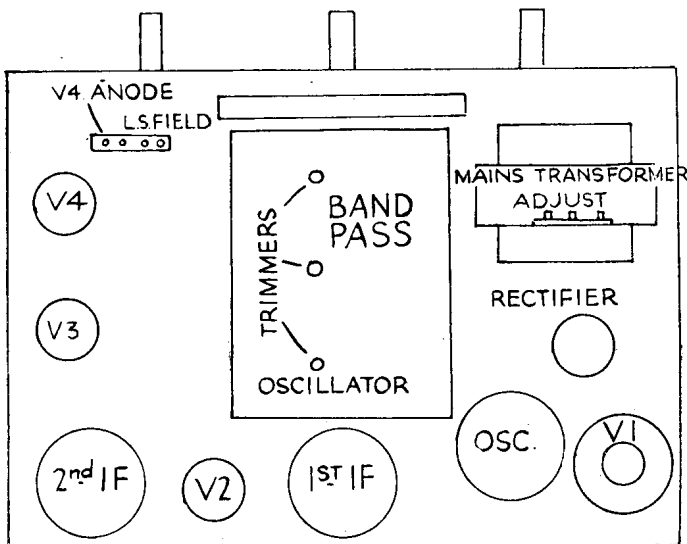
**VALVE READINGS**

(V.C. max.)

Valve.	Connection.	Volts.	M.A.
V1 SP4 plain	anode ...	225	.8
	screen ...	90	—
V2 VP4 met.	anode ...	225	2.2
	screen ...	90	—
V3 ACHLDD met.	triode anode	110	1.8
V4 AC/Pen.	anode ...	280	30
	aux. grid ...	250	5

ALTERNATIVE VALVES are:—

- V1 ... MS Pen.
- V2 ... MVS Pen.
- V3 ... TDD4 or DDT.
- V4 ... Pen. LVA.



Component layout diagrams for the Ekco A.C.74 by E.K. Cole, Ltd. A detail drawing for the resistance panel inside the chassis is given on the opposite page.