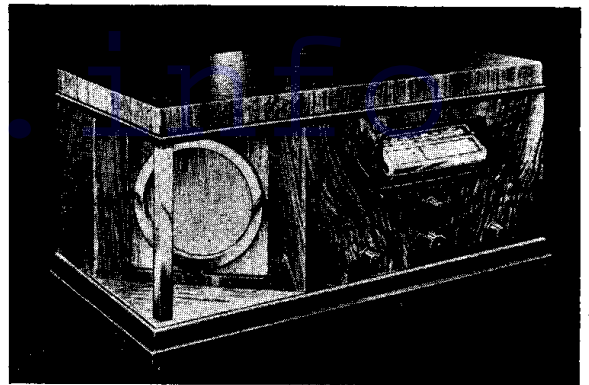


# ATLAS 758 MAINS SUPERHET



The Atlas 758 4-valve plus rectifier A.C. mains superhet is made by H. Clarke & Co. (Manchester), Ltd.

**Circuit.**—The combined detector oscillator FC4 (V1), an octode, is preceded by a band-pass aerial tuner of which the first unit is an aerial transformer. Bias is controlled from the A.V.C. line and is limited by a resistance in the cathode lead.

Coupling to the I.F. valve from the H.F. pentode section is by band-pass intermediate frequency transformer (frequency 117.5 k.c.).

The I.F. valve VP4 (V2) is also biased from the A.V.C. line and by cathode resistance. Coupling to the next valve is by a similar band-pass I.F. transformer.

In the second detector valve TDD4 (V3), which is a double diode triode, one diode anode is fed from the secondary of the second I.F. transformer for L.F. purposes, and the other diode anode is coupled by a condenser to the high (H.F.) potential end of the primary of the I.F. transformer for A.V.C. purposes.

The output of one diode anode has the volume control as a load resistance and the L.F. impulses are passed on to the grid of the triode section by the coupling condenser C8. The triode section has a fixed grid leak.

Resistance-capacity filter couples the triode anode to the output valve.

For the output valve an A.C.044 (V4) directly heated triode is used. This has a grid stabilising resistance and a tone control in the anode circuit consisting of a condenser in series with a variable resistance.

Mains equipment consists of transformer, full-wave rectifier 1W3 with the field coil in the positive H.T. lead for smoothing with electrolytic condensers.

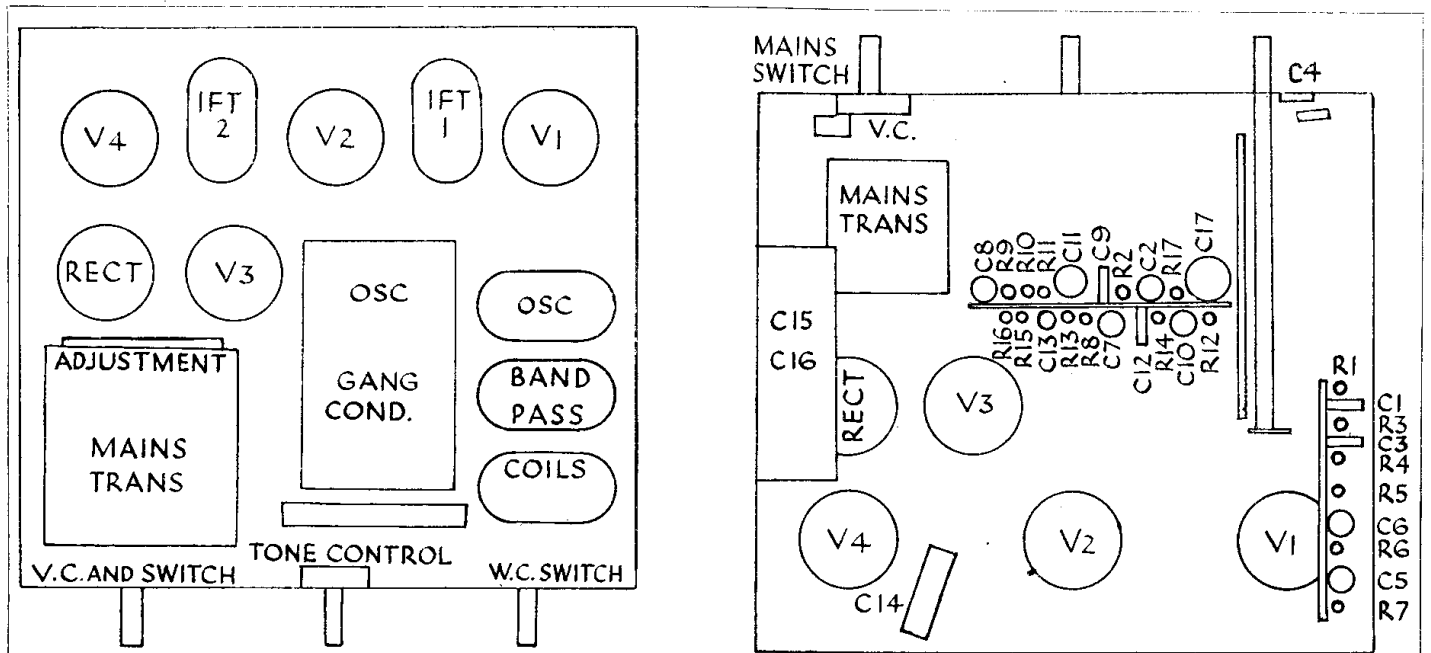
**Quick Tests.**—The only accessible high voltage points are the green L.S. field terminals on the mains adjustment panel behind the rectifying valve. The voltage between

chassis and the outer terminal (H.T. unsmoothed) should be 390 volts, and the inner 240 volts, which is approximately the voltage at the anode of V2.

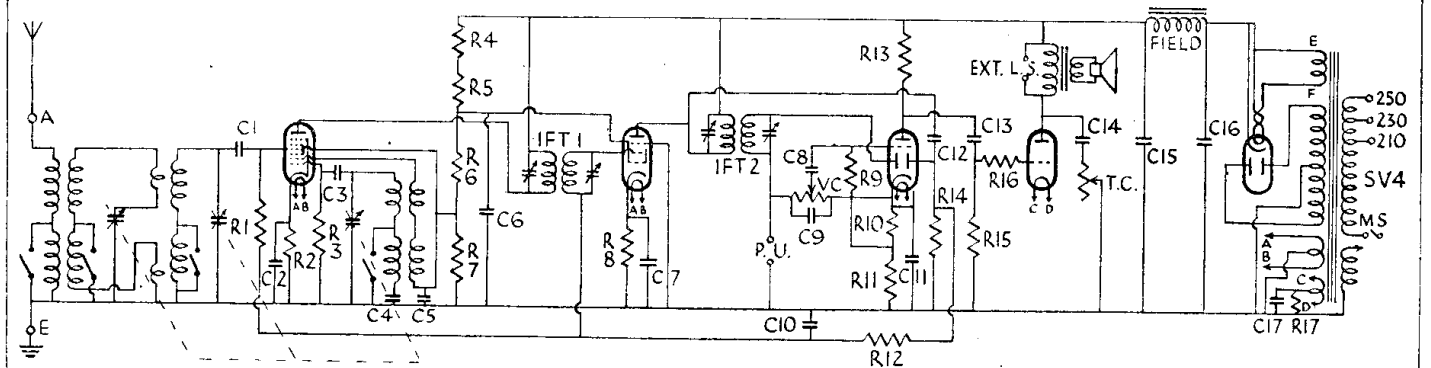
**Removing the Chassis.**—Remove knobs (grub screw) and press the top of the adjustable dial back far enough to allow the bottom corners to clear the projections on the escutcheon.

Remove three cheese-headed screws underneath and lift the chassis out clear of the door stop at the back.

**General Notes.**—V4 has a separate heater winding and is biased by R.17. The dial assembly is supported on two hollow



On the left is the layout diagram of the top of the chassis of the Atlas 758. Assembly construction results in the clean arrangement below "deck" shown on the right.



An octode frequency changer is used in the 758, and another interesting feature is the fitting of an output triode in place of the usual pentode. As a whole, the circuit is orthodox.

## ATLAS 758 A.C. MAINS SUPERHET (Cont.)

pivots which allow the cord to pass through the centre of rotation. The cord connection is straightforward—each end goes half round the drum, one end being attached to the coil spring.

The pointer is clipped on to the cord and can be reached from the front by undoing the two screws at the sides of the plated surround. In replacing this remember the

VALVE READINGS				
No signal				
Valve	Type	Electrode.	Volts	M.A.
1	FC4	anode	234	.9
		aux. grid	65	
		osc. anode	65	1.9
2	VP4	anode	138	4.8
		aux. grid	108	
3	TDD4	Tri. anode	114	1.4
4	ACO44	anode	230	43

two distance pieces round the screws. The pilot lamp holder lifts upwards.

Underneath the chassis the components are well spaced and connections to the assemblies should be easy to follow.

Switch contacts are towards the underside,

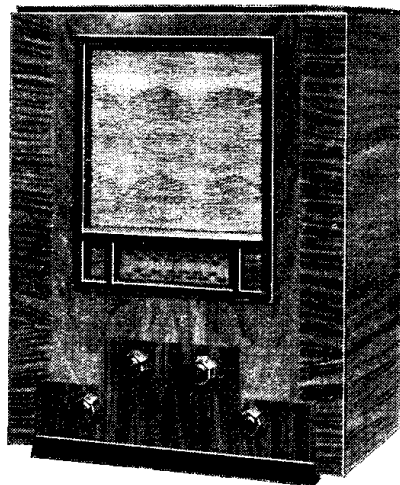
RESISTANCES		
R	Purpose.	Ohms.
1	V1 grid leak	2 meg.
2	V1 cathode bias	250
3	V1 osc. grid leak	20,000
4	H.T. potentiometer	8,000
5		7,000
6		4,000
7		30,000
8	V2 cathode bias	250
9	V3 grid leak	2 meg.
10	V3 cathode bias on radio	2,000
11	V3 cathode bias on gram (series with R10)	5,000
12	Decoupling A.V.C. line	2 meg.
13	V3 anode L.F. coupling	75,000
14	AVC diode load	1 meg.
15	V4 grid leak	1 meg.
16	V4 grid stabiliser	.25 meg.
17	V4 bias	500
	Field coil	1,125

and can be cleaned easily with a cloth. (Do not use any gritty material).

**Replacing Chassis.**—See that dial is in the position nearest to horizontal, and then lay chassis inside cabinet. Replace holding screws and knobs.

Make sure that the L.S. field plugs have not been pulled from the sockets.

CONDENSERS		
C	Purpose.	Mfd.
1	V1 pentode grid	.0001
2	V1 cathode	.1
3	V1 osc. grid	.001
4	Var. L.W. tracking on osc.	variable
5	Osc. anode decoupling	.25
6	V2 aux. grid	.1
7	V2 cathode	.1
8	L.F. coupling to V3 grid	.01
9	H.F. by-pass from diode anode	.0002
10	Decoupling A.V.C. line	.05
11	V3 cathode	.5
12	I.F. feed to A.V.C. diode anode	.0002
13	I.F. coupling V3 to V4	.01
14	Tone control circuit V4 anode	.25
15	H.T. smoothing	6 e.l.
16	"	10 e.l.
17	Across V4 bias resistance	25 e.l.



The 4501 A.C./D.C. receiver by Halcyon Radio, Ltd., can be serviced without taking out the chassis.

**Circuit.**—The combined first detector-oscillator FC13 met. (V1), has a band-pass aerial coupling.

## HALCYON UNIVERSAL 4501

Bias is partly fixed by cathode resistance and partly derived from the A.V.C. line. Coupling to the next valve is by band-pass I.F. transformer (frequency 110 k.c.).

The I.F. valve VP13A (V2) is biased from a separate A.V.C. line and also by cathode resistance. This valve is followed by a second band-pass I.F. transformer.

A WM26 Westector is the second detector, and the positive side of the elements is maintained at a positive potential by being connected to the resistance R10 in the cathode lead to V2 (part of H.T. ptr.).

The L.F. coupling to the next valve is through R14, an H.F. stopper, and C14, while R12 and C13 form the diode load and reservoir condenser respectively. The I.F. feed for V1 A.V.C. is taken through a condenser, C9, from the anode of V2 and has R9 as the D.C. load resistance.

The L.F. valve HL1320 met. (V3) is a triode. Volume is controlled both on radio and gram by having the grid leak as a variable potentiometer. Bias is obtained by cathode resistance, and the coupling to the output valve is by resistance-capacity filter. The anode circuit is properly decoupled.

The Pen. 3520 output valve (V4) uses cathode bias and is tone-compensated by a condenser, C24, across the primary of the output transformer. Tone control is provided by connecting the condensers C22 and C23 in parallel with C24 by means of a stud switch.

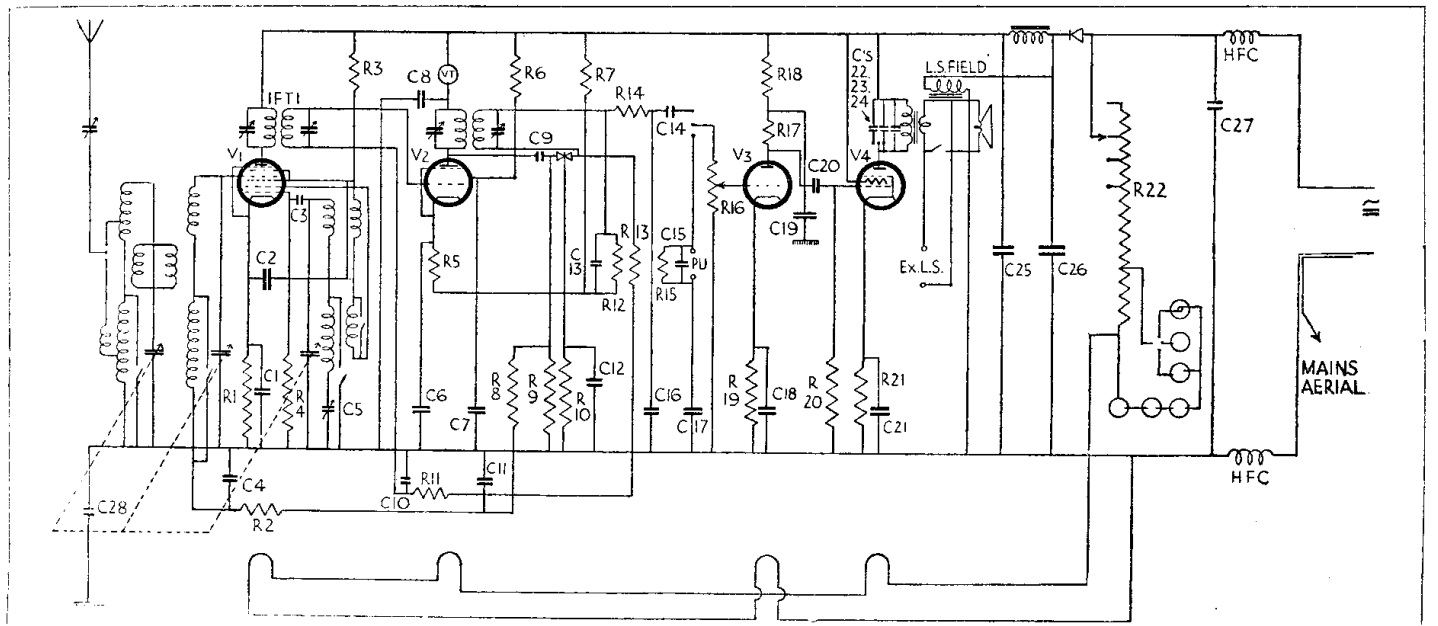
Mains equipment consists of half-wave, B27, metal rectifier for rectification on A.C. with a choke in the positive lead for smoothing, with two 24-mfd. electrolytic condensers. The B27 rectifier acts as a pure resistance on D.C. The L.S. field is connected across the unsmoothed H.T.

Both mains leads have H.F. chokes and by-pass condensers to act as interference suppressors.

**Special Notes.**—The valves are the 13-volt type, consuming .2 amp. The order of wiring from the resistance R22 is:—V4, V2, V1, V3.

The valve holders vary according to the type of valve. V1 and V2 have Mullard universal bases, while V3 and V4 have ordinary 7-pin bases.

In the Mullard universal base there are  
(Continued on next page.)



A Westector forms the second detector in the Halcyon 4501 and is arranged to provide automatic volume control. Half-wave rectification, provided by a metal rectifier, is used on A.C. supplies.