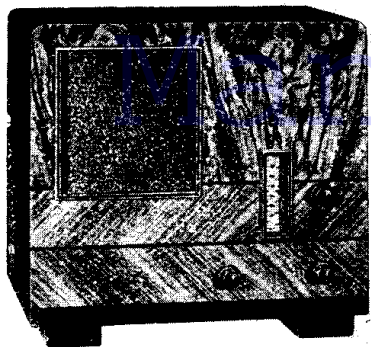


AERODYNE "SWALLOW" SUPERHET FIVE



A five-valve (including rectifier) A.C. mains receiver, the Swallow by Aerodyne Radio incorporates a circuit arrangement which makes it typical of the 1934-5 season's superhets.

Circuit.—The combined first detector oscillator valve, 15A2 (V1), is an octode. The aerial circuit is a band-pass coupling with suppressor circuit, and the oscillator section has the tuned coil in the grid circuit.

Bias is obtained by limiting cathode resistance and from the A.V.C. line. Coupling to the I.F. valve is by band-pass I.F. transformer (I.F. 125 kc.).

The I.F. valve, VP4 (V2), a variable-mu H.F. pentode, is also biased from the A.V.C. line and cathode resistance, and is coupled to the next valve by a second band-pass I.F. transformer.

The combined second detector and L.F. valve, TDD4 (V3), a double diode triode, has one diode anode for L.F. purposes, and the other is fed from V2 anode through a condenser, and is used for A.V.C. Coupling to the triode section is, variable load potentiometer (VC) through an L.F. coupling condenser, C17.

Both the diode and grid leads contain H.F. stoppers. Coupling to the output valve is by resistance capacity filter with proper anode decoupling.

The output pentode valve, Pen. 4VA, has

a stabilising resistance in its grid circuit, and tone control is provided by a condenser in series with a variable resistance between the anode and chassis.

Mains equipment consists of mains transformer, full-wave, IW2, rectifier, and the L.S. field in the positive H.T. lead for smoothing with two 8 mfd. electrolytic condensers.

Quick Tests.—Between the tags at the right-hand side of the panel on the speaker transformer and chassis:—

- Top (1) blue V4 anode 212 volts.
- (2) connected to 4.
- (3) black, H.T. unsmoothed 400 volts.
- (4) red, H.T. smoothed 250 volts.

Removing Chassis.—Pull off the knobs, remove four holding screws underneath and the two screws at the top of the dial plate. Remove two nuts from panel on speaker and unsolder the earthing lead from the tag underneath.

Lift the chassis out.

General Notes.—In testing this set, particularly with a modulated oscillator, it is
(Continued on next page.)

VALVE READINGS

[No signal.]

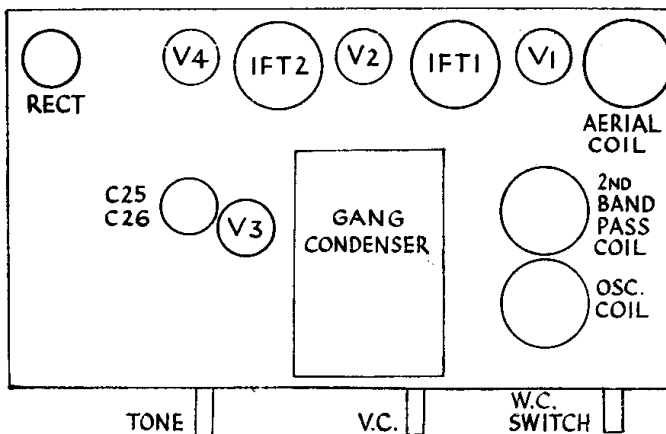
Valve.	Type.	Electrode.	Volts.	Ma.
1	15A2 or (FC4)	anode ...	250	1.25 (.75 for FC4)
		aux. grid ...	70	
		osc. anode ...	135	
2	VP4	anode ...	250	3.5
		aux. grid ...	66	1.1
3	TDD4	anode ...	90	1.9
4	Pen.4VA	anode ...	212	32
		aux. grid ...	250	7.4

RESISTANCES

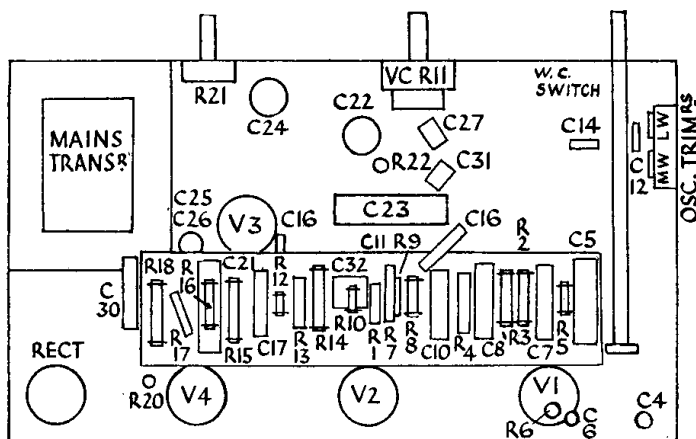
R.	Purpose.	Ohms.
1	Decoupling V1 grid ...	.5 meg.
2	V1 and V2 screen ptr. ...	11,000
3	V1 and V2 screen ptr. ...	11,000
4	V1 and V2 screen ptr. ...	30,000
5	V1 cathode bias ...	250
6	V1 osc. grid ...	20,000
7	Decoupling V2 grid ...	.5 meg.
8	V2 cathode bias ...	200
9	Decoupling AVC line ...	.5 meg.
10	H.F. stopper in L.F. diode lead ...	50,000
11	Diode load (variable V.C.) ...	.5 meg.
12	H.F. stopper V3 grid ...	50,000
13	V3 grid leak ...	1 meg.
14	V3 cathode bias ...	1,000
15	V3 anode decoupling ...	10,000
16	V3 anode L.F. coupling ...	75,000
17	V4 grid leak ...	.5 meg.
18	V4 cathode bias ...	500
19	V1 grid stabiliser ...	750
20	V4 grid stabiliser ...	100,000
21	V4 rone control ...	50,000
22	AVC diode load ...	2 meg.
—	L.S. field ...	2,500

CONDENSERS

C.	Purpose.	Mfd.
4	Decoupling AVC to V1 ...	.05
5	V1 cathode ...	.25
6	V1 osc. grid ...	.001
7	Decoupling osc. anode ...	.1
8	By-pass from V1 and V2 aux. grids.	.1
9	Decoupling AVC to V2...	.01
10	V2 cathode ...	.1
11	Decoupling AVC line ...	.01
12	M.W. pad. on osc. ...	.00004
14	L.W. pad. on osc. ...	.0012
16	Feed to AVC diode anode ...	.00005
17	L.F. coupling to V3 grid ...	.05
18	H.F. by-pass from V3 grid ...	.0001
19	H.F. by-pass from diode anode ...	.0001
20	H.F. by-pass from diode anode (filter).	.0001
21	L.F. coupling V3 to V4 ...	.1
22	V3 cathode ...	25 el.
23	V3 anode decoupling ...	1
24	V4 cathode ...	25 el.
25	H.T. smoothing ...	8 el.
26	H.T. smoothing ...	8 el.
27	Mains aerial (series with C31) ...	.0003
30	Tone compensating circuit V4 anode.	.05
31	Mains aerial ...	.0003
32	Parallel to C19 ...	.0003



The Swallow is compact but clean, and the valves are accessibly placed.



One long resistance and condenser assembly strip does much to simplify the finding of any faults that may occur in the Swallow.

AERODYNE "SWALLOW" SUPERHET (Cont.)

advisable to note that both diode anodes are biased by the full voltage drop across the biasing resistances in the cathode lead.

This prevents the rectification of signals of

less than approximately 1.5 volts, and to a certain extent provides noise suppression.

When trimming IFT2 it is necessary to provide a strong signal to the primary from the anode lead to V2.

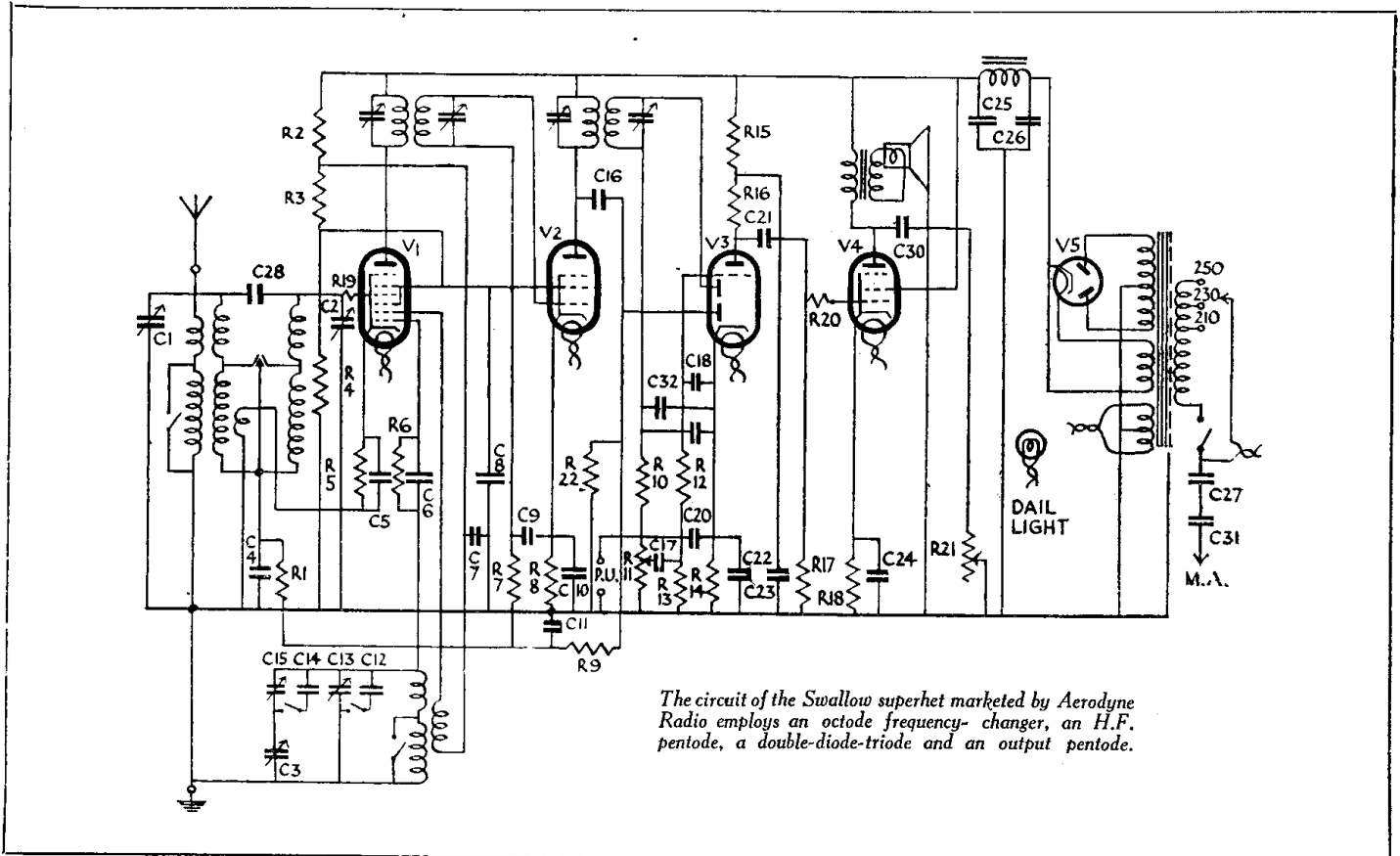
Apart from the resistance condenser panel, of which full details are given in the lay-out diagram, the wiring is easy to follow.

Replacing Chassis.—See that the rubber

buffers are in position and, holding the screening tray inside the bottom of the chassis (flanges upwards), slide the chassis into position.

Replace the holding screws before those at the top of the dial bracket.

Replace the screw holding the L.S. cable, and press on the knobs. There are small discs inside these to act as distance pieces.



The circuit of the Swallow superhet marketed by Aerodyne Radio employs an octode frequency-changer, an H.F. pentode, a double-diode-triode and an output pentode.

VIDOR THREE-VALVE BATTERY SET

Circuit.—The H.F. valve S.P.2 met. (V1), an H.F. pentode, is preceded by a tuned aerial coil which has coupled to it a semi-aperiodic aerial circuit which forms an extra tuned circuit on the M.W. and prevents break-through on the L.W. The valve is biased only by having the grid return connected to L.T. —

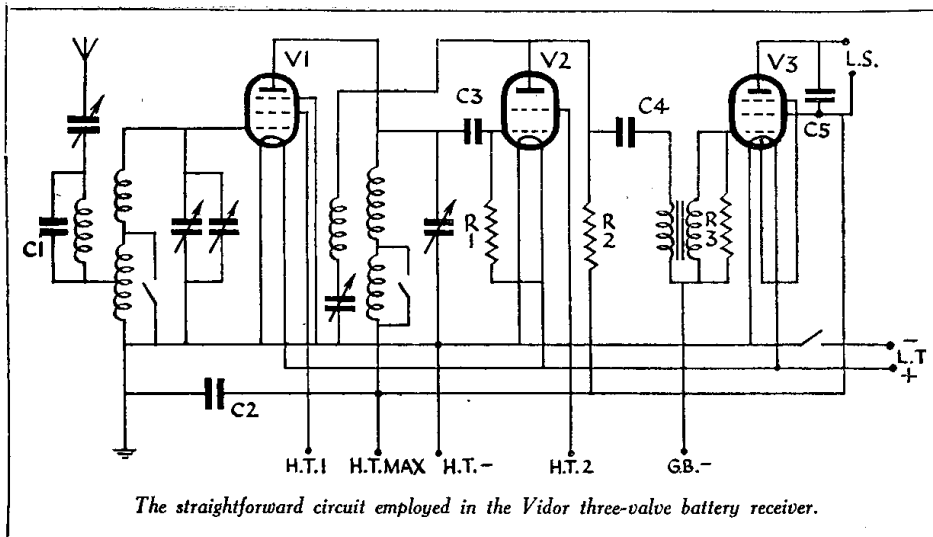
Coupling to the next valve is by tuned anode coil.

A PM12A met. (V2) operates as a leaky grid detector with the leak connected to L.T.+. Straight reaction is employed and coupling to the output valve is by parallel fed transformer with a low value of coupling condenser.

The output pentode PM22A (V3) has a "damping" resistance across the secondary of the L.F. transformer and is tone compensated by an anode condenser.

The on-off switch incorporated with the

(Continued on opposite page.)



The straightforward circuit employed in the Vidor three-valve battery receiver.

VALVE READINGS				
Valve.	Type.	Electrode.	Volts.	M.A.
1	SP2met.(7)	anode ...	120	1.1
		aux. grid	asHT1	
2	PM12Amet(4)	anode ...	67	.5
		screen ...	asHT2	
3	PM22A(5) ...	anode ...	116	5.5
		aux. grid	120	

COMPONENT VALUES		
	Purpose.	Value.
C1	Semi aperiodic tuning of aerial coil ...	.0005mfd.
C2	Across H.T. battery ...	1 mfd.
C3	V2 grid ...	.0002mfd.
C4	L.F. feed to transformer ...	.01mfd.
C5	Tone compensating V3 ...	.005mfd.
R1	V2 grid leak ...	2 meg.
R2	V2 anode coupling ...	50,000 ohm
R3	Across secondary of L.F. transformer ...	.5 meg.