AERODYNE "SWALLOW" SUPERHET (Cont.)

advisable to note that both diode anodes are biassed by the full voltage drop across the biassing 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.

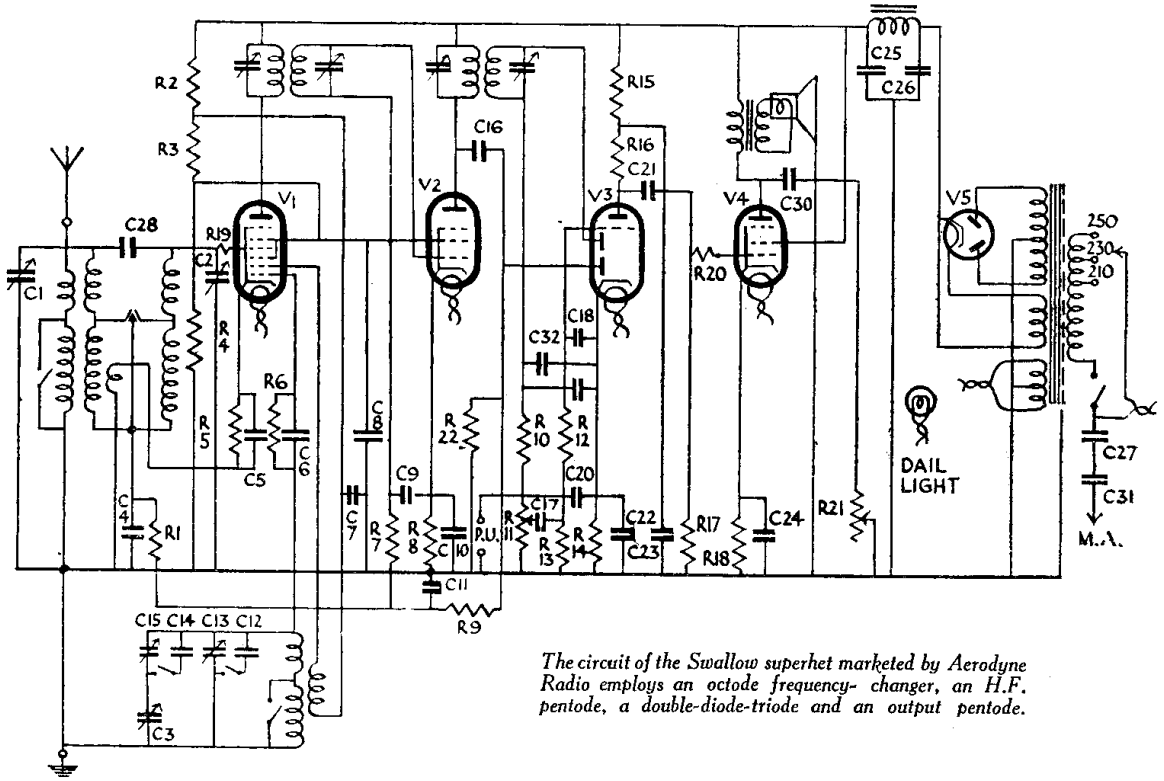
When trimming IFT2 it is necessary to provide a strong signal to the primary from the anode lead to V2.

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 biassed only by having the grid return connected to L.T.–

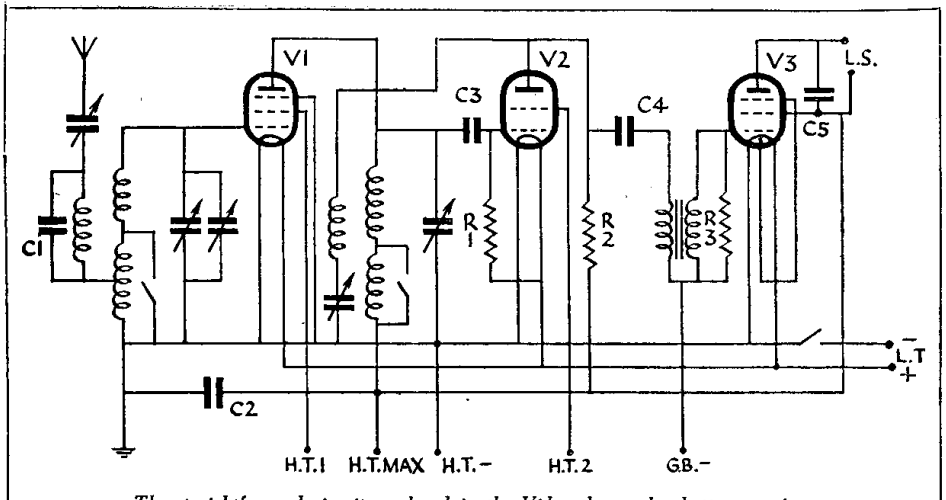
Coupling to the next valve is by tuned anode coil.

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.

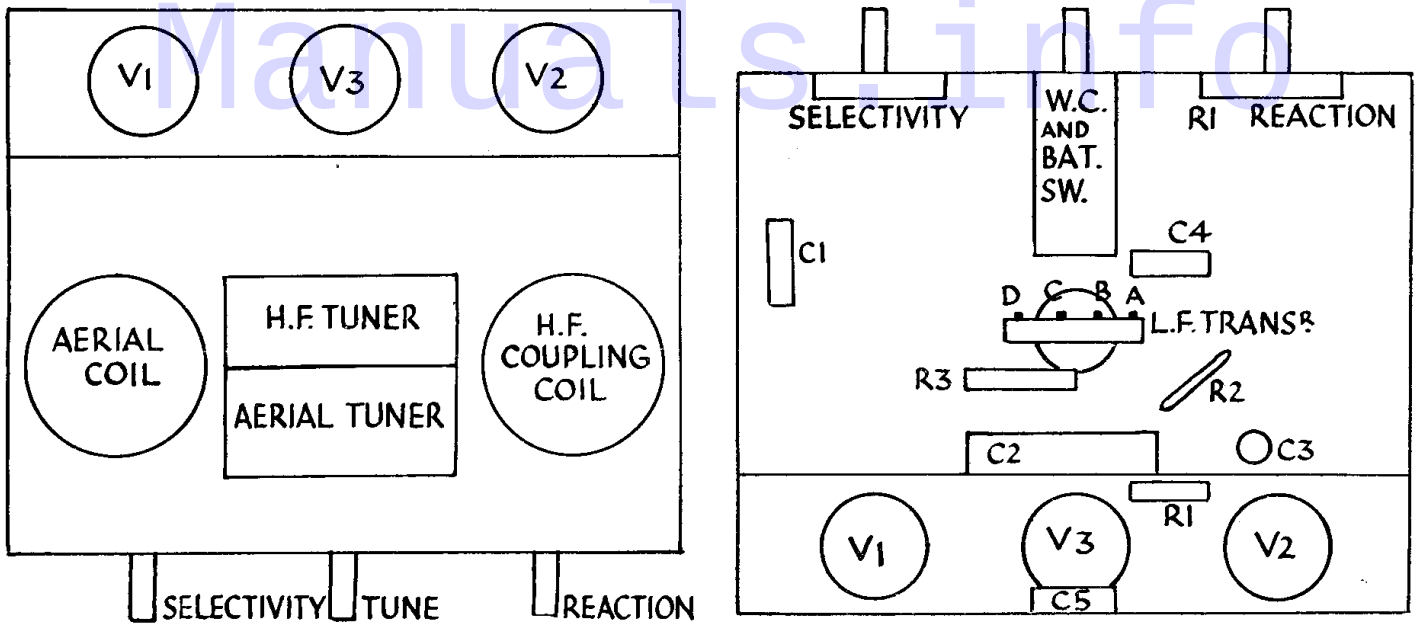
VALVE READINGS

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	1.3

COMPONENT VALUES

	Purpose.	Value.
C 1	Semi aperiodic tuning of aerial coil	.0005mfd.
C 2	Across H.T. battery	1 mfd.
C 3	V2 grid	.0002mfd.
C 4	L.F. feed to transformer ...	.01mfd.
C 5	Tone compensating V3	.005mfd.
R 1	V2 grid leak	2 meg.
R 2	V2 anode coupling	50,000 ohm
R 3	Across secondary of L.F. transformer	.5 meg.

VIDOR BATTERY THREE (Continued)



These two diagrams indicate how the components are situated above (left) and below (right) the chassis of the three-valve battery set produced by Vidor Ltd. Stepped chassis construction is used and the small components are suspended on the wiring.

wave change switch breaks only the L.T.– connection.

Special Notes.—This is a perfectly straightforward set and is a useful subject for the beginner.

Battery connections are :—H.T.1, 80; H.T.2, 50 to 60; H.T. max., 120; G.B.–, 3 to 4½ volts negative.

Quick Tests.—Total H.T. consumption, taken in H.T.– lead is 9 m.a. approx. Any reading substantially greater than this may be caused by a disconnection inside the G.B.– (yellow) plug. See that the metal plug is actually making contact with the bare section of the wire.

Removing Chassis.—Remove the knobs (grub screw). Remove one screw underneath the cabinet and two round-headed screws from the back of the chassis (inside). Undo the two cleats holding the leads on each side.

To remove the chassis properly it is necessary either to unsolder the L.S. leads or to remove the battery platform by easing it up with a screwdriver.

General Notes.—On the switch the three pairs of contacts are :—

Front.—Aerial coil.
Middle.—L.T. battery.
Rear.—Tuned anode coil.

If crackling, not due to a run-down H.T. battery or to dirty leads, is experienced, contacts should be cleaned by inserting a thin screwdriver with a piece of clean cloth round it between the contacts which are visible from the aerial-coil side of the chassis.

The condenser C5 may be connected to chassis instead of to H.T.+.

The connections on the parallel fed L.F. transformer are (see diagram) :—A and B primary, C and D secondary. A is connected to D and to G.B.–.

The selectivity control condenser and the reaction condenser are each .0005 mfd.

Replacing Chassis.—Lay chassis inside cabinet, replace two screws inside and one underneath. Replace the knobs and the cleats holding the leads.

P.A. 6 SUPERHET BY PORTADYNE

Circuit.—The H.F. valve VP4 met. (V1) is preceded by a frame aerial, of which the long wave section is short-circuited when the medium waveband is required. Coupling to the next valve is by tuned anode coil. Bias is partly fixed by cathode resistance and partly obtained from the A.V.C. line.

The first detector oscillator AC/S2/Pen. (V2) operates with cathode injection with the tuned oscillator coil in series with the I.F. transformer primary. (I.F. 112 K.C.).

The I.F. coupling is a band-pass I.F. transformer.

The I.F. valve VP4 met. (V3) is biased partly by fixed cathode resistance and partly from the A.V.C. line, and is coupled to the next valve by another band-pass L.F. transformer.

A double diode triode, TDD4 (V4), utilises one diode anode for L.F. purposes, and the other for A.V.C. The latter is fed through a condenser from the anode of the I.F. valve. Coupling to the triode grid is through the H.F. filter R12, C10, C11, and the coupling condenser C9 to the grid leak R13. The P.U. is connected directly between the grid and chassis.

The triode anode coupling consists of a resistance with a special tone-correction circuit between the anode and chassis, followed by the coupling condenser and grid leak, the latter being in the form of a variable potentiometer volume control.

The output pentode AC21 Pen has both grid and anode stabilising resistances, and is compensated by a condenser between anode and cathode, and another between anode and chassis.

Mains equipment consists of transformer, full-wave 1W3 indirectly heated rectifier, with the L.S. field in the positive H.T. lead for smoothing in conjunction with 4 mfd. and 8 mfd. electrolytic condensers.

Special Notes.—Resistances, R4 and R27, are connected across the long-wave windings of the tuned anode coil and the frame aerial respectively.

The tone control switch (at bottom of cabinet) connects the condenser C19 between the grid of V5 and chassis.

The noise suppressor switch at the side of the cabinet changes the return lead of the diode anode load from cathode to chassis, thereby causing a delay bias to be applied to the L.F. signal diode.

Quick Tests.—Between the following terminals on the L.S. transformer and chassis, counting from top :—

(1) Maroon, 335 volts H.T. unsmoothed.
(2) and (3) joined, buff, 230 H.T. smoothed.
(4) 200, V5 anode.

Removing Chassis.—Unsolder the leads to the tone control switch and remove the four holding screws. Unscrew the one hole fixing nut of the noise suppressor switch and remove the switch.

Undo the knobs, (two grub screws) and remove the three screws holding the dial frame to the cabinet. Lift the chassis out carefully.

Removing Frame Aerial.—To reach many of the components it is necessary to remove the frame aerial. Unsolder the leads

(*Continued on page 143.*)

VALVE READINGS

[No signal.]

Valve.	Type.	Electrode.	Volts.	Ma.
1	VP4 met.	anode ...	165	1.6
		aux. grid ...	45	
2	ACS2 Pen. met.	anode ...	165	1.3
		screen ...	35	
3	VP4 met.	anode ...	165	3.5
		aux. grid ...	70	
4	TDD4 met.	anode ...	110	1.6
5	AC2 Pen.	anode ...	200	29
		aux. grid ...	230	5.8