

AERODYNE 301 AC

Four-valve, plus rectifier, three-waveband superhet for AC mains of 200—250 volts, 50 cycles. Provided with PU and ES sockets. Made by Aerodyne, Ltd., Platina Street, London, EC2.

THE aerial is fed via capacitor C1 to aerial coupling coils L1 (SW), L2 (MW) and L3 (LW), which are connected in series and shorted as necessary by S1. S2 connects the grid coils L4 (SW), L5 (MW), L6 (LW), which are tuned by VC1, to grid of V1 a triode-hexode frequency changer. T1 (SW), T3 (MW) and T5 (LW) are trimmers and C2 provides extra capacity across T5.

AVC is fed to grid of V1 on MW and LW via

R5 decoupled by C3. L4 (SW) grid coil is returned direct to chassis. Cathode bias for V1 is derived from R9 decoupled by C7.

Screen voltage is obtained from junction of R1, R2 and is decoupled by C4. L13, C12 the primary of IFT1, a permeability tuned IF transformer, is in the anode circuit of V1.

S3 selects the oscillator grid coils L7 (SW), L8 (MW), L9 (LW), which are tuned by VC2. T2 (SW), T4 (MW) and T6 (LW) are trimmers and C11 (SW), C10 (MW) and C9 (LW) are fixed padding capacitors. C8 provides additional capacitance across T6.

L5 and L6, the aerial grid coils, and L8 and L9, the oscillator grid coils, are of the permeability type and further trimming adjustments are provided by variation of their iron cores. R4, C6 supply leak-condenser bias to oscillator grid of V1.

L10 (SW), L11 (MW) and L12 (LW), which are connected in series and switched by S4, are oscillator anode reaction coils. C5 is anode coupling capacitor and R3 oscillator load.

L14, C13 which form the secondary of IFT1

feed the signal to grid of V2, an IF amplifier. A VC is fed to the grid by R10 decoupled by C19. Cathode bias is derived from R9 decoupled by C20. Screen voltage is obtained from same source as that of V1.

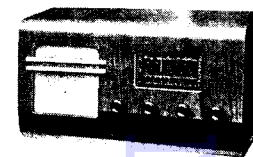
L15, C14 the primary of IFT2, a permeability tuned IF transformer, is in the anode, etc., of V2. L16, C15, forming the secondary of IFT2, feed the signal diode of V3.

R7 is signal diode load and R6, C17, C18 comprise an IF filter. C16 feeds the audio signal to R8, the volume control, via S5. PU is switched across R8 by means of S5 which is ganged with wave-change switches S1—S4. On gram position of S1—S5 the grid of V1 is connected direct to AVC line and oscillator grid is earthed.

The AVC diode is fed from secondary of IFT2 by C28. R11 is AVC diode load. The grid of V3 is fed direct from R8 the volume control. Cathode bias to V3 is supplied by R9 decoupled by C20.

R12 is anode load of V3 and C22 feeds the amplified signal to grid of V4, the output valve.

Aerodyne 301



C21 is anode RF by-pass capacitor. R14 is grid leak and R13 grid stopper for V4. R16 provides cathode bias and negative feed back to V4. The screen voltage is derived from R15 decoupled by C23. The HT line for V1—V3 is also taken from this point.

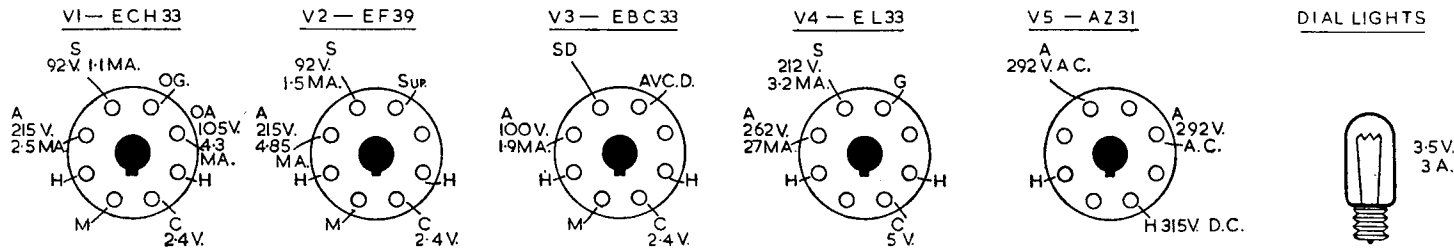
L17, the primary of OPI, the LS output transformer, is in the anode of V4. R17 and C27 provide variable tone control, and C26 prevents parasitic oscillations.

L18 the secondary of OPI, feeds a low impedance speech coil L19. Ext LS sockets are connected here. Provision is made to disconnect the internal LS when using external speaker.

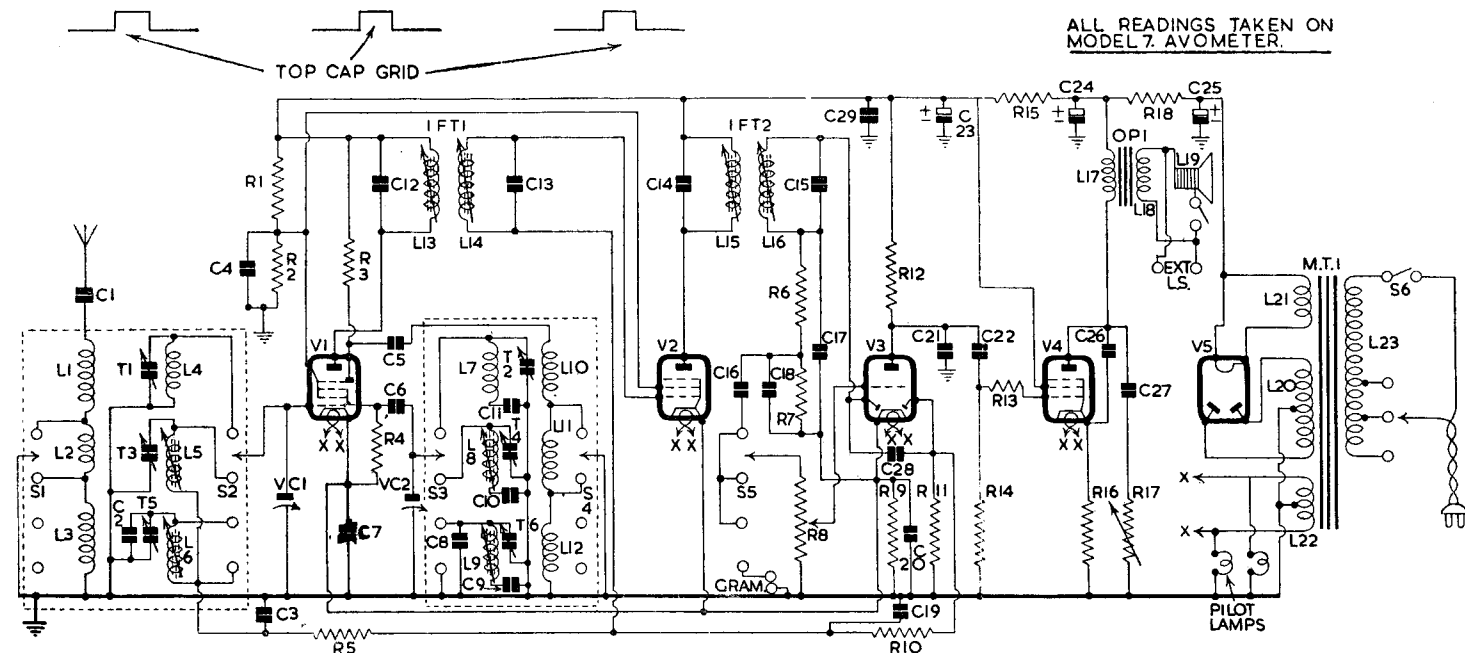
HT is obtained from V5 which is fed from L20 the HT secondary of MT1, the mains input transformer. L21 supplies filament voltage for V5.

Smoothing of the HT is of the resistance capacitance type, R18, C24 and C25 forming the network. L22 supplies heater voltage to V1—V4 and also the dial lights. L23 the primary of MT1 is tapped for mains voltages from 200—250.

TRIMMING INSTRUCTIONS AND CHASSIS DIAGRAMS OVERLEAF.



ALL READINGS TAKEN ON MODEL 7. AVOMETER.



CAPACITORS

C	pf
1	200 pf Mica
2	56 pf Silver Mica
3	.05 Tubular
4	.1 Tubular
5	100 pf Mica
6	47 pf Silver Mica
7	.1 Tubular
8	56 pf Silver Mica
9	200 pf Silver Mica
10	575 pf Silver Mica
11	5,600 pf Silver Mica
12	100 pf Silver Mica
13	100 pf Silver Mica
14	100 pf Silver Mica
15	100 pf Silver Mica
16	.005 Tubular
17	100 pf Silver Mica
18	100 pf Silver Mica
19	.05 Tubular
20	.5 Tubular
21	200 pf Mica
22	.01 Tubular
23	16 Electrolytic
24	16 Electrolytic
25	8 Electrolytic
26	.005 Tubular
27	.05 Tubular
28	200 pf Mica
29	.1 Tubular

L	Ohms
7	Very low
8	1.5
9	4.5
10	Very low
11	1
12	2
13	6.5
14	6.5
15	6.5
16	6.5
17	145
18	Very low
19	1
20	450
21	Very low
22	Very low
23	22

RESISTORS

R	Ohms	Watts
1	22 K	1
2	30 K	1
3	27 K	1
4	47 K	1
5	250 K	1
6	47 K	1
7	470 K	1
8	1 Meg Potr.	1
9	150	1
10	1 Meg	1
11	1 Meg	1
12	47 K	1
13	47 K	1
14	560 K	1
15	2.2 K	2
16	150	1
17	50 K Potr.	1
18	1 K	2

INDUCTORS

L	Ohms
1	Very low
2	.5
3	.52
4	Very low
5	2.25
6	10

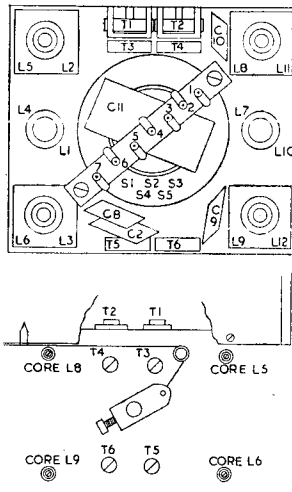
AERODYNE 301AC—Contd.

TRIMMING INSTRUCTIONS

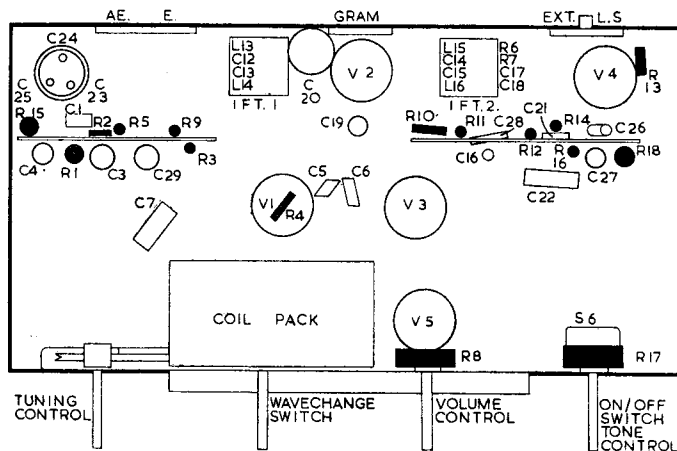
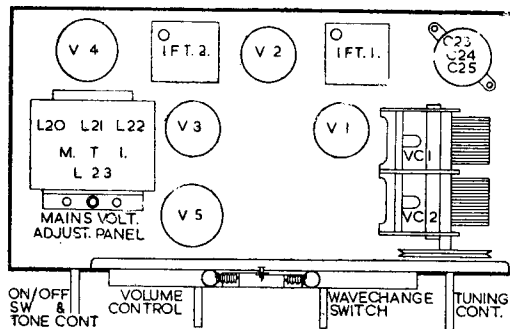
Inject signal as stated below	Tune Receiver to	Trim in order stated for max. output
(1) 460 KC to grid V1 via .01 mfd.	550 metres	L16, L15, L14 and L13
(2) 15 MC to aerial socket via dummy aerial...	20 metres	T2 and T1
(3) 600 KC as above	500	L8, L5
(4) 1.5 MC as above	200 metres	T4, T3. Repeat (3) and adjust L5, L8 if necessary

(5) 150 KC as above	2,000 metres	L9, L6
(6) 300 KC as above	1,000 metres	T6, T5. Repeat (5) and adjust L9, L6 if necessary

COIL PACK (Right)
 1—to VC2 and C6
 2—to C5
 3—to PU sockets
 4—to C16
 5—to C1
 6—to AVC line
 7—to VC1



Above: Trimmers as seen from front of chassis, right way up.



SERVICE chart on the Philco model BP425 in the October (1946) issue, did not correctly identify some of the components in the under-chassis diagram. T3 should read T4, T4 should be T6, and T6 be T3. C13 and C14 are reversed.

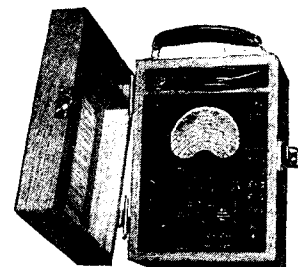
C2 does not affect the frequency on long waves as stated, but simply acts as a virtual short circuit.

Since our review was prepared, Philco have

modified later models as follows: C2, C6 and R4 have been removed and the bottom ends of L1 and S1 grounded. R6 has been increased to 1 megohm.

Smith's Clock Motor

The Smith's synchronous clock motor has a magnetised steel rotor, not a soft iron type as stated in the article on page 1 of the November Service Charts.

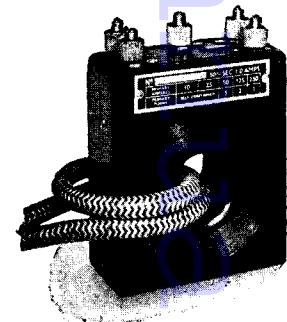


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MULTI-RANGE TESTING SET FOR A.C. AND D.C.

Measures: Volts — Amperes — Resistance and Capacity.

- RANGES: 5, 25, 125, 250 and 1,000 volts. 1, 10, 100 and 1,000 Milliamps. 150 to 50,000 ohms and 7.5 Megohms. .02 to 16 Microfarads.
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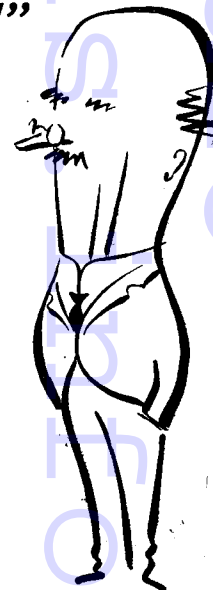
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