

# SERVICE ENGINEER

## AERODYNE MODEL 52 ALL-WAVE A.C. MAINS THREE

**CIRCUIT.**—A three-valve A.C. mains receiver covering a short wave band in addition to the usual medium and long waves.

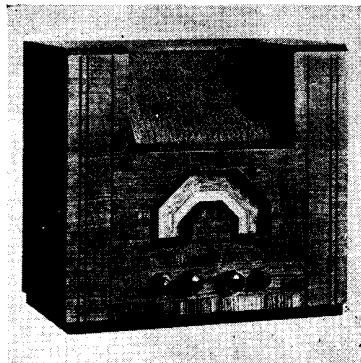
An inductively coupled band-pass filter employing iron-cored coils precedes V1, an H.F. pentode; an alternative aerial tap is provided which brings into circuit a coil and pre-set condenser which forms a Droitwich filter.

A direct-coupled H.F. coil couples V1 to V2, a triode; tuning is in the anode circuit of V1, and reaction is fed back from the anode of V2 in the usual manner.

A resistance and capacity network, which includes an H.F. choke, carries the signal to V3, the output pentode, which passes it to the speaker *via* a matching transformer.

Volume is controlled by R10, which varies the amount of bias applied to the cathode of V1. The pick-up is connected between the grid of V2 and the chassis, no switching being provided.

Mains equipment consists of transformer, full-wave rectifier, electrolytic condensers and the speaker field.



Aerodyne's Model 52, an all-wave three for operation on A.C. mains. It has a straight circuit.

**Special Notes.**—The connections for an external speaker are taken from the secondary of the output transformer, so that an extension should have a low speech coil impedance. The two sockets for extra speaker will be found one at each end of the terminal strip on the output trans-

former, which is fixed to the internal speaker chassis.

The dial-light is rated at 3.5 volts .15 amp. The holder is fixed to the dial pointer; the best way to remove it is to turn the pointer to about 400 metres and then with care it may be unscrewed.

**Removing Chassis.**—Remove four knobs from the front of the cabinet, the volume and reaction knobs being fixed by spring clips and the remaining two by grub screws; remove the two wood screws securing the dial assembly to the front of the cabinet. Next unsolder the leads from the speaker transformer, reconnection being as follows: 1 and 2, red lead; 3, blank lead; 4, blank lead; 5, blue lead; 6, black lead; and a blue rubber wire from the speaker chassis to earth. Finally, remove three bolts from underneath the cabinet.

The set *must not* be connected to the mains without the speaker being connected, as the field forms part of the smoothing equipment. Failure to observe this will result in considerable damage to the mains transformer, rectifier and smoothing condensers.

### ALIGNMENT NOTES

**Short Waves.**—Connect a modulated oscillator to the aerial and earth terminals and an output meter across the external speaker terminals

Tune the receiver to 19 metres and inject a signal of this wavelength to give a reading of about .5 volt on the output meter. Rock the gang condenser and adjust T1 for maximum reading on the output meter.

(Continued on next page.)

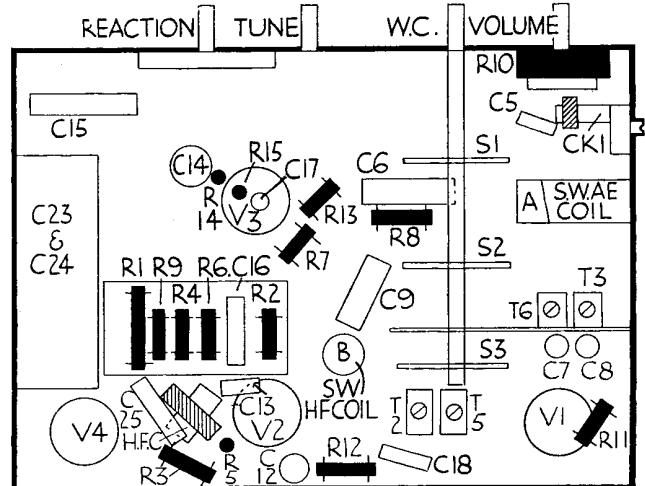
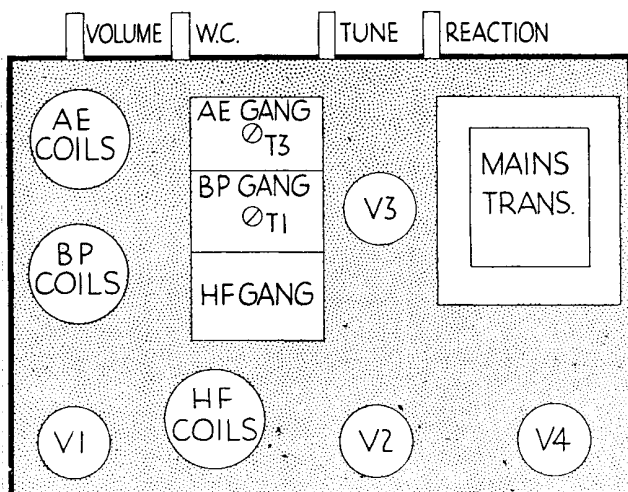
### VALVE READINGS

No signal. No reaction. Volume maximum. 200 volt A.C. mains.

V.	Type.	Electrode.	Volts.	M.a.
1	Mullard VP4B Met. (7).	Anode ..	160	4.4
		Screen ..	95	1.5
2	Mazda AC/HL Met. (5).	Anode ..	69	1.7
3	Mullard Pen 4B (7).	Anode ..	180	36
		Screen ..	205	4.7
4	Mullard I.W.3 (4)	Filament	320	—

### QUICK TESTS

Quick tests are available on the terminal strip on the speaker transformer. Volts measured between this and the chassis should be:—  
 Red lead .. 210 volts Smoothed H.T.  
 Blue lead .. 185 volts Smoothed H.T.  
 Black lead .. 320 volts Unsmoothed H.T.



Left is the chassis of the Aerodyne Model 52 as it appears from above; right is the underside view. All resistors are shown in solid black.

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**ALIGNMENT NOTES**

(Continued from page 5.)

Inject and tune in a signal of 50 metres and check the calibration. If this is correct, adjust the loose turn "A" on the aerial coil, using the reaction control as a guide, until the set oscillates easiest.

Should the calibration be wrong, then first adjust the loose turn "B" on the anode coil and then proceed with "A" as above.

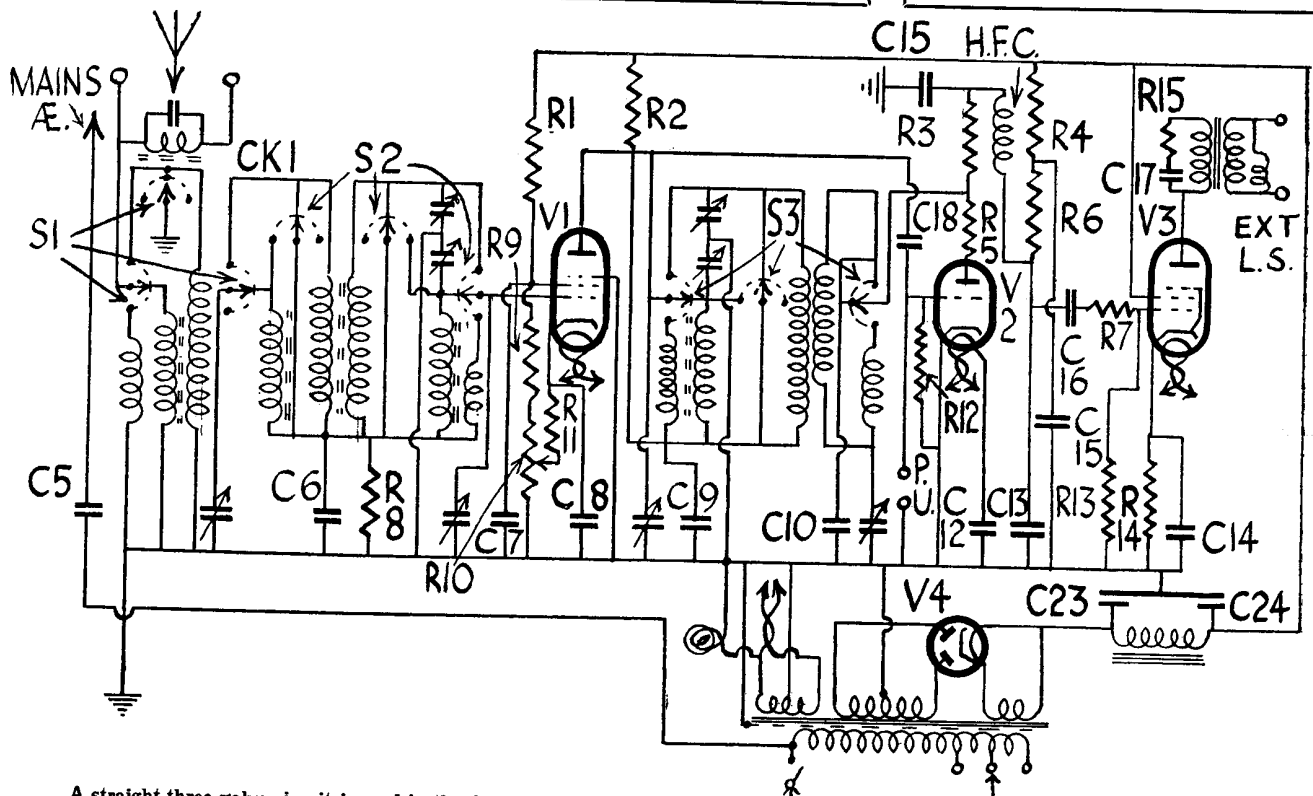
**Medium Waves.**—Tune the receiver to 250 metres and inject a signal of this wavelength, and adjust T2 for maximum output and correct calibration, and then T3 and T4 for maximum output.

**Long Waves.**—Inject and tune in a signal of 1,300 metres and, while rocking the tuning condenser, adjust T5 for maximum output, then adjust T6 for maximum.

**AERODYNE MODEL 52 A.C.  
ALL-WAVE THREE**

CONDENSERS		
C.	Purpose.	Mfd.
5	Mains aerial .. .. .	.0002
6	V1 bias decoupling .. .. .	.02
7	V1 screen pot. decoupling .. .. .	.1
8	V1 cathode bias shunt .. .. .	.1
9	V1 anode decoupling .. .. .	.1
10	H.F. by-pass .. .. .	.0005
12	V2 heater decoupling .. .. .	.01
13	H.F. by-pass .. .. .	.0005
14	V3 cathode bias shunt .. .. .	25
15	V2 anode decoupling .. .. .	1
16	L.F. coupling .. .. .	.01
17	Pentode compensating .. .. .	.01
18	H.F. coupling .. .. .	.00005
23	H.T. smoothing .. .. .	8
24	H.T. smoothing .. .. .	8

RESISTANCES		
R.	Purpose.	Ohms.
1	V1 screen decoupling potentiometer.	20,000
2	V1 anode decoupling .. .. .	8,000
3	H.F. stopper .. .. .	5,000
4	V2 anode decoupling .. .. .	20,000
5	Reaction coil series .. .. .	40
6	V2 anode load .. .. .	50,000
7	V3 grid stopper .. .. .	100,000
8	V1 grid leak .. .. .	1,000
9	V1 screen decoupling potentiometer.	20,000
10	Volume control .. .. .	10,000
11	V1 cathode bias (part) .. .. .	140
12	V2 grid leak .. .. .	500,000
13	V3 grid leak .. .. .	500,000
14	V3 cathode bias shunt .. .. .	140



A straight three-valve circuit is used in the Aerodyne 52 A.C. all-wave set. This theoretical diagram is, with the component tables above, a complete "brief guide" to the set.

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