"WAYFARER" FOUR-VALVE BATTERY PORTABLE

CIRCUIT.—A four-valve portable battery receiver with a frame aerial for operation on the usual medium and long waves.

A tuned frame aerial precedes V1, which is a screen grid valve. An external aerial tap is provided, which connects it through a series condenser to the grid of V1.

Coupling to V2, a triode, is through a direct coupled tuned anode coil, reaction being fed back from the anode in the usual manner.

Signals are fed to V3, which is also a triode, through a resistance and capacity network, and this valve is, in turn, coupled to V4, the output pentode, by means of a resistance-fed L.F. transformer.

The amplified output from V4 passes to the moving-coil speaker through a matching transformer.

H.T. is obtained from a Drydex type H1139 battery, which is made specially for Wayfarer portables. Grid bias is provided by a Drydex type H1041 battery and L.T. from an Exide D.O.J3

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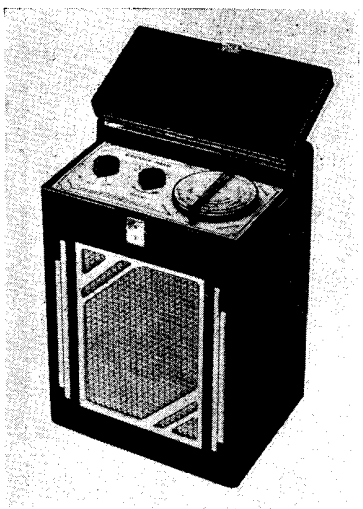
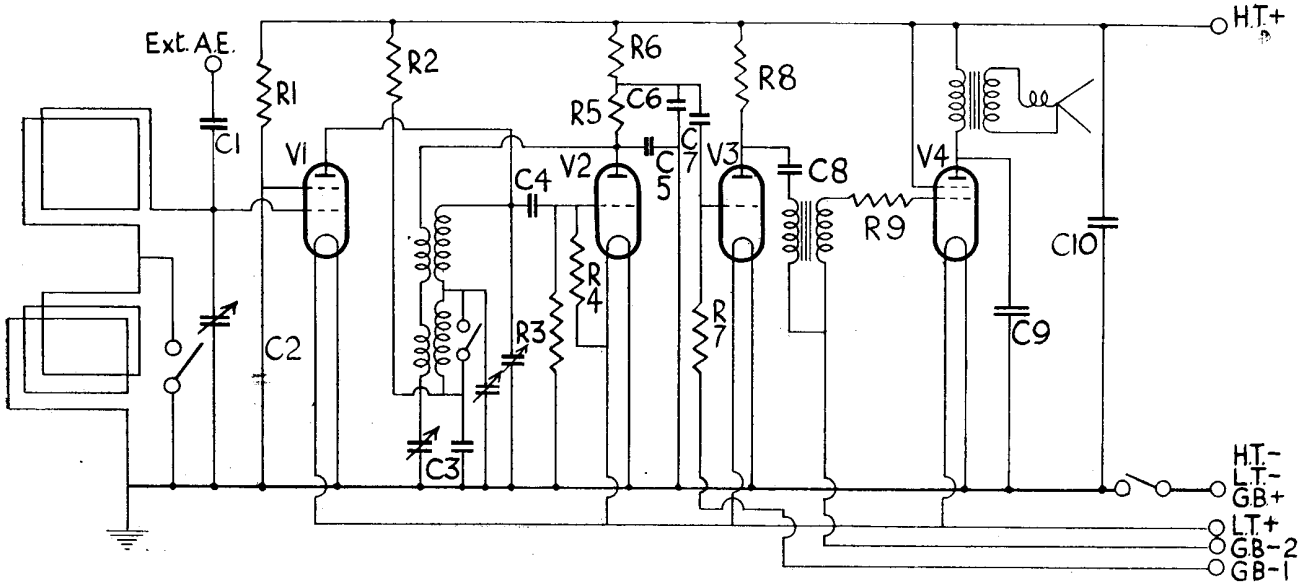


RESISTANCES

R.	Purpose.	Ohms.
1	V1 screen decoupling.. ..	40,000
2	V1 anode decoupling.. ..	3,000
3	V2 grid leak potr.	3 meg.
4	V2 grid leak potr.	3 meg.
5	V2 anode load	5,000
6	V2 anode decoupling ..	50,000
7	V3 grid bias feed	.5 meg.
8	V3 anode load	50,000
9	V4 grid stopper	.5 meg.

CONDENSERS

C.	Purpose.	Mfd.
1	Series aerial	—
2	V1 screen decoupling.. ..	.1
3	V1 anode decoupling.. ..	.5
4	V2 grid..	.0001
5	H.F. filter	.0001
6	H.F. filter	.003
7	L.F. coupling	.01
8	L.F. coupling	.01
9	Pentode compensating ..	.003
10	H.T. shunt	8



Above is an illustration of the Wayfarer Major portable, while below is a diagram of the four valve battery circuit.

"WAYFARER" BATTERY FOUR PORTABLE (Contd.)

Special Notes.—The lid of this receiver must be raised before the back can be removed. A locking bar is brought into operation when the lid is shut.

The grub screw securing the combined tuning knob and dial to the condenser spindle has a square hole in its end, in place of the usual slot. A small square screw driver is therefore required for its removal.

C1 consists of twisted wire, and is twisted round the grid socket of V1 valve holder.

Removing Chassis.—Remove the back, batteries and knobs (see special notes) from the back. Remove the wood screw in each end of the batten, carrying the screws which lock the cabinet back in position, and push it out from the front. Remove three wood screws, one in each side, and one passing through the bottom of the aerial frame.

The complete unit comprising the aerial, speaker and chassis may now be withdrawn from the cabinet.

VALVE READINGS

No signal. No reaction. New batteries.

V.	Type.	Electrode.	Volts.	Ma.
	(All Hivac.)			
1	SG215 met. (4)	Anode ..	60	2
		Screen ..	26	.8
2	D210 met. (4)	Anode ..	24	.2
3	D210 met. (4)	Anode ..	30	.3
4	Z220 (5) ..	Anode ..	67	5.9
		Screen ..	70	.7

Next remove the celluloid panel from the top of the unit. This is held by four panel pins. The heads of four brass bolts will now be revealed, two 6BA, in the back edge with nuts which are on the valve panels, and two 4BA, near the controls, which screw into the chassis. Before removing these bolts unsolder the frame aerial leads and free the accumulator leads, and the H.T. battery leads by unscrewing the contact plate from the side of the frame.

The chassis may then be withdrawn to the extent of the speaker leads, which may be removed if required by first removing the insulating strip from the top of the speaker transformer. A careful note of the positions of all wires unsoldered should be made for replacement purposes.

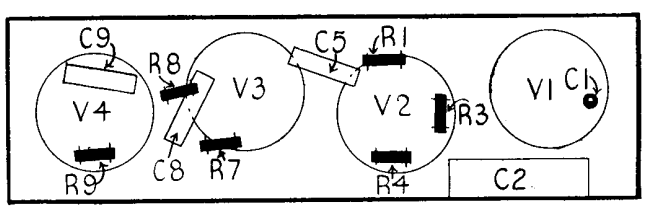
ALIGNMENT NOTES

Medium Waves.—Set dial, with condenser full in, to 550 metres below cursor and tighten grub screw. Set modulator and dial to 220 metres and bring T1 and T2 seen on top right of speaker fret into line. Check at 350 and 400 metres.

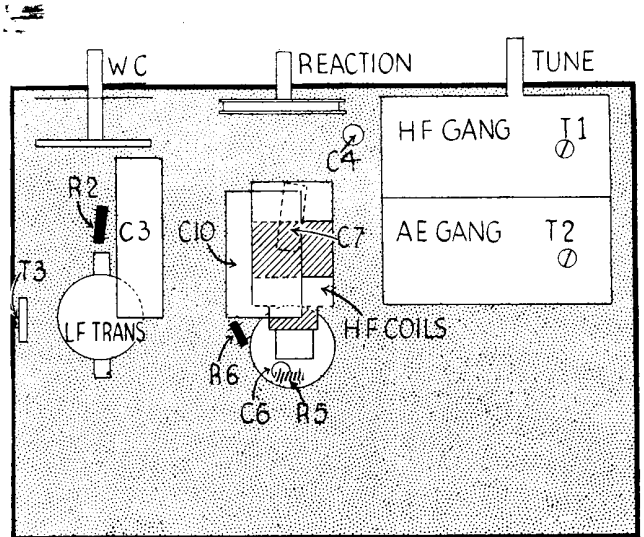
Long Waves.—Calibration should be found correct if medium waves are in order, and only the alignment of the tuned anode coil trimmer, T3, situated at left hand top side of frame, is required.

Check at 1,000, 1,500 and 1,800 metres.

Make all alignment adjustments with reaction fairly tightly coupled.



Above, the arrangement on the valve deck in the Wayfarer Major battery portable. Below shows the disposition of components on the main chassis, which is a separate construction.



Some Causes of Intermittent Reception

FADING and intermittent reception frequently prove more difficult to locate than any complete breakdown. Generally speaking, these troubles are usually due to valves and volume controls.

In the case of valves, the fault can be caused by a short or disconnection which occurs as the electrodes heat up and expand.

When intermittent trouble proves difficult to locate, the best plan is not to waste time with haphazard experimenting, but to proceed to stage-by-stage tests by means of interjected audio and H.F. signals.

An audio note—from a pick-up if an L.F. oscillator is not available—should be applied to the L.F. stages working "backwards" from the speaker. I.F. and H.F. signals should then be applied to the previous stages in turn until the point at which the failure occurs becomes apparent.

Another fault that often puzzles by its persistence is modulation hum.

In some cases a clue to its origin can be obtained simply by moving the receiver to a different location in the room or building. It is not impossible for a set to be entirely surrounded by invisible and therefore unsuspected house wiring, or for an aerial or earth lead to pass close to mains wiring.