

The "Picnic Portable"

A Cheap, Compact, and
Powerful Portable weighing
only 24 pounds

By the Assistant Technical Editor.



WITH the approach of summer we have received quite a number of inquiries concerning the design of portable sets—so many in fact that we set to work to design and build one for description in the Christmas issue. Hence the "Picnic Portable." It has been designed in accordance with the limitations imposed on us by our readers' suggestions, which were in general as follow:—

1. Light "A" and "B" battery drain, enabling the set to be adequately supplied with current from a small portable two-volt accumulator, and the lightest "B" battery possible, consistent with good service and the necessary voltage.

2. The set to operate from a built-in frame antenna, but provision to be made for the attachment of an aerial and earth to enable distant stations to be secured either at home or wherever a temporary aerial and earth carried in the set might be fitted up.

3. Complete cost to be under £10.

4. To be as compact as possible, but using only parts the constructor might happen to have on hand or which may be easily obtained.

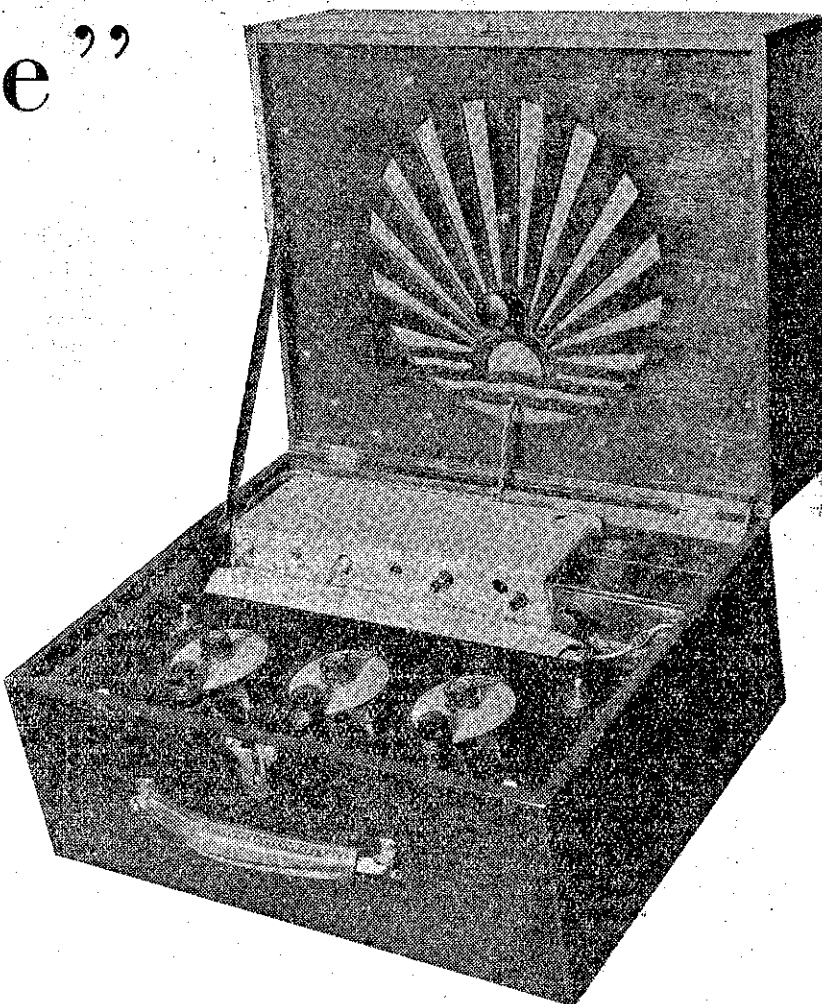
5. Good loudspeaker performance within reasonable range of a high-powered station.

The above is rather a "tall" order, but we are confident that we have fulfilled it. The third condition, and that of cost, limited the number of valves

to three, which, because of the restrictions imposed on "A" and "B" supply, must of necessity be of the light "A" and "B" consumption type. This turned our thoughts immediately to the new 230 type valves, and these we have incorporated in the set. A 232 has been used for the screen-grid stage and two 230's for the detector and audio stages. Relatively high plate drain of the 231 type power valve and the necessity for high bias prohibited its use in the last stage. As an alternative to the 230 used in this position, a small power valve of the type P215 may be substituted to improve the tone. The total "A" drain of the set, using the P215 type valve in the output stage, is .27 of an amp, and the "B" drain is about 9 m.amps.—both valves being well below those permissible with the batteries used.

If preferred, English valves may be used throughout with equal success. The "A" drain will be slightly higher, while still well within the maximum permissible, but the "B" drain will, if anything, be slightly less. As the wiring of the r.f. stage as depicted in the photograph and layout sketch is that for a 232 valve, it will have to be slightly modified if an English screen-grid valve is used, for the connections to the valve base and cap are different.

In the American valve the ordinary grid is at the top, the screen-grid connections are taken to "G" on the valve base, and that to the plate, to "P." In the English type, however, the plate



is at the top, the ordinary grid connection is taken to "G," and the screen-grid to "P."

The extra components necessary to fill the second condition are six in number, namely, a three-point switch with one common terminal, two banana plugs and sockets, a .0001 mfd. fixed condenser, and a suitable secondary coil, with a valve base for mounting. These have been arranged in such a way that by operating a switch on the front panel the set may be worked

from either the frame antenna or an aerial, which is plugged into a banana socket on the front panel. Another socket is provided for the attachment of an earth. A length of insulated cable, and a length of earth wire to which is attached a small pointed copper rod, are carried to the set itself, for use in suitable locations. To eliminate all danger of shorting, both are rolled up and wrapped in oiled silk, as shown in the photograph.

As regards the third condition, the

For the Picnic Portable A Complete Kit of Parts

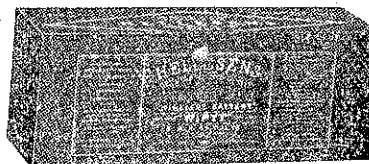
Aluminium Base, 2/6.	Shielding of inside and screen partition, 2/6
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One .0003 Telsen Differential Condenser	3/-
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One .00025, 1/-; One .0001 Standard Condenser	1/-
One Telsen .0003 Grid Condenser with Leak	1/9
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