very long life with much usage, the 3 volts can be obtained by employing two 1½ volt Bell cells (flag type) joined in series. Some batteries have terminals and the leads can be screwed to these. However, the type 800 has flat blades and we suggest you solder the battery leads to a paper clip, or a crocodile clip if available, and this clip can be attached to the battery blade connectors. You should always disconnect the LT battery when the receiver is not in use, to prevent wastage and a resultant run-down battery.

HT Battery. Any voltage HT battery can be employed from 60v. to 120v. depending on the availability from your local shop. The 120v. battery is very economical, and will be required if you convert the receiver to two valves.

Headphones. These should be of high resistance for best reception. A value of 2000 ohms is normal.

Aerial. Should be as high as possible, and above all neighbouring buildings, it need not be long, 25 to 40 feet. Wholly vertical can be employed as an alternative.

Earth. Is almost as important as an aerial, should be short and direct, and kept moist where buried.

Bandspread Condenser, where this is included, it should be connected in parallel with the tuning condenser, i.e., Bandspread fixing and moving vanes connected to the equivalent on the tuning condenser. Do not connect up the bandspread condenser until the original circuit wiring has been tested, and found correct. (This condenser is not supplied in standard kit).

Coils. If ordering additional coils, always specify "DENCO-H.A.C." type "DX." These are manufactured especially for this H.A.C. design. The adjustable core in the coil should be positioned half way up the coil, i.e., with the screw protruding approximately ½in. out of the top.

OPERATION

Connect up the batteries, aerial, earth and 'phones. Plug in valve. Open reaction vanes, and as they are gradually closed (knob to right) the receiver should go into oscillation, when a faint rushing sound is heard in the 'phones. This "H.A.C." receiver is simple to operate having only two controls, but it must be remembered that tuning is very critical. On amateur bands there may be as many as 50 or more stations audible over 2 or 3 degrees. In fact the whole of the 40 metre band is spread over less than 2 metres. Therefore, it will be realised that all Short Wave tuning must be carried out very slowly. When searching for stations set reaction so that receiver is just oscillating, and rotate tuning dial very slowly, otherwise the faint signals will be missed.

NOTE. The reaction must be followed up all the time, so that receiver is just oscillating and no more. Both controls must be manipulated at once. To receive morse signals, the receiver must be just oscillating, but to receive 'phone stations, reaction must be slackened off so that receiver is just below oscillation point. **IMPORTANT:** We recommend that you employ coil number 4 for your testing, as most stations work on this waveband.

When the receiver is working correctly, you can then connect up the bandspread condenser as stated above. You will now use the main tuning condenser only to set the tuning to the particular band that you require to receive. You should then use the bandspread condenser for fine tuning over this band, as described above, for station searching.

Constructors who are new to the Short Waves are recommended to read the S.W. articles in the various radio periodicals, "The Short Wave Magazine," "Practical Wireless," and "Short Wave News," give regular articles and hints on S.W. working, invaluable to all interested in this hobby. These magazines also list Short Wave broadcasting stations, give details concerning call-signs and state the best times for listening. From past experience we find that about one out of every 100 constructors meet with difficulty and do not obtain success at their first attempt. If you are unlucky enough to be this odd one please be assured that we will help you and ultimately guarantee that your receiver will operate satisfactorily. If you write to use and give full symptoms, we will endeavour to assist you—please send stamped addressed envelope for speedy reply.

Receivers must **not** be returned to this office, as we have no facilities for service or testing at this address.