

Short-Wave**Report from W9XF**

MR. S. CONNER, of Wellington, sends the following letter received from W9XF, Chicago, Illinois: "This transmitter was constructed for the purpose of relaying the programmes of station WENR to foreign countries, where they may be rebroadcast by foreign stations. It is operating on an experimental license granted by the Federal Radio Commission.

The transmitter is located on the site of the WENR transmitter, which is 3½ miles south of Downer's Grove, Illinois, or about 23 miles south-west of Chicago. The power output is 5000 watts. The transmitter is operating on a frequency of 6020 k.c. at the present time. We are authorised to use the frequencies of 11,800 and 20,500. Separate transmitter will be built to operate the frequencies at a later date.

W9XF transmits all the programmes of WENR, and all announcements include the call letters of both stations.

We would be pleased to have further reports from you, especially as to tone quality and fading. We would like to know whether fading is of short duration, or it is rapid enough to produce an audible tone.

The address of W9XF is: "Great Lakes Broadcasting Co., Straus Buildings, 310 South Michigan Avenue, Chicago, Illinois, America."

A Useful Suggestion**Stabilising R.F. Stages**

THE following paragraph from an English magazine might help those who had difficulty in stabilising a two stage R.F. receiver such as the 2 R.F. Browning-Drake.

"You know how troublesome it has proved to me to screen two high-frequency amplifying stages successfully. But I have succeeded in carrying out this difficult piece of wireless work, and I considered that my success came from two things.

"The first of these two things was the employment of proper screening boxes for the screening of the variable condenser and the high-frequency transformer of each of the two stages. Before I forget, let me give you a useful tip on this screening. It is to place two screening boxes a good four inches apart. This spacing makes all the difference.

"The second of the two things which brought me success was an idea entirely my own. It was to use lead-covered cable for the connecting wires in the amplifier and to earth the lead covering. The idea was used by German engineers in the war."

Mullard
THE MASTER VALVE

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known to Valve Manufacturers.

Protecting Components**Avoiding Trouble with Breakdowns**

EVERY radio component has a definite voltage or current limitation. If we impress too much voltage across a fixed condenser we destroy its internal insulation. Likewise, excessive current in the filament of a valve can burn it out. As a general rule, components are worked well within their safety lines. In one or two instances, however, care must be taken that the right standard or type of component is used for a definite job.

A typical example of this is the fixed condenser which figures in resistance-capacity audio stages. This condenser is joined between the plate of one valve and the grid of another. The grid of this second valve will also be joined through a grid leak via the grid bias, and to A—, earth, B—, and so on. Thus practically the full voltage of the "B" supply will be impressed upon that coupling condenser.

Obviously then, this particular component must be of such construction that it can withstand that pressure. For this reason, one generally sees that for such work a mica condenser is advised in set specifications. Mica condensers are quoted for the simple reason that mica dielectric condensers of any origin are invariably capable of standing moderate voltages, whereas there are a good many paper dielectric condensers which are not quite as satisfactory as they should be in this respect.

This is unfortunate for the one or two very satisfactory paper condensers that are available. In power packs one has to be very careful in regard to fixed condensers. Here you are liable to get the full voltage of the A.C. mains impressed across the terminals of such a component.

A Very Important Point.

WITH A.C. mains one comes against greater voltages than nominal ratings. The specified voltage of A.C. mains will be calculated on a basis of what is known as a root mean square. The alternating current is rising and falling from zero to a maximum all the time, and 250-volt mains will have a voltage rising to well over 300.

One does not have to take this into account in any ordinary current resistance calculations, but it is of importance in regard to fixed condensers, and that is why condensers that are tested at voltages round about double that at which the mains are rated should be used. Additionally, of course, in power packs one comes up against voltage surges which have to be taken into account.

A properly constructed air condenser is practically indestructible, but, as the dielectric constancy of air is unity, this scheme can only be employed at

the sacrifice of compactness. A 4-mfd. air condenser suitable for a power pack would assume something of the dimensions of a bookcase.

Loud Speakers.

TURNING to the current handling capacities of other components, do not operate on the assumption that, provided the gauge of wire used seems to be such that a certain amount of current can be passed through it, one is safe if he works within those margins. An obvious example is the loud-speaker.

By passing a current of a D.J. character through the wrong way, the permanent magnets which figure in many kinds of speakers can be demagnetised. The result will be insensitivity. In the case of an audio choke, too much D.C. may temporarily reduce the inductance to a value worthless for the purpose.

Injury can be done to some types of audio transformers of small sizes. By short-circuiting the primary winding across the "B" supply the core charac-

teristic can be completely upset. The smallness of these audio transformers is generally achieved by using a nickel and iron alloy for the core stampings, instead of Stalloy, which is a silicon steel.

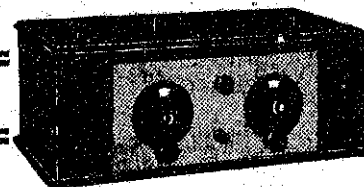
It should be noted that electrolytic condensers of the type generally met with in these circumstances require careful handling. A common rating is 1500 or 2000 mfd. at 12 volts or so. This 12 volts represents a definite limitation. If much more than this is impressed across its two terminals the component may be completely ruined.

Also, electrolytic condensers, being of a polarised nature, must be connected up in one definite way.

And, in conclusion, a word or two about fuses. An H.T. fuse should figure in every valve set. The purpose of such may be twofold. Valve filaments can be protected against burn-outs by shorted H.T., and protect the H.T. battery itself from the injurious results of short-circuit. In the case of a mains unit a fuse should figure in each of the input leads, and these fuses should be such that they break down at currents not too much in excess of those dealt with by the apparatus.

WANTED AND FOR SALE.

for column of casual advertisement see page 32.

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