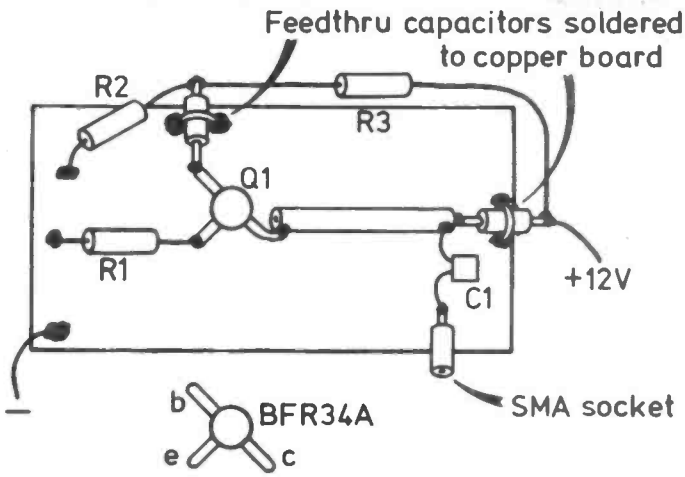
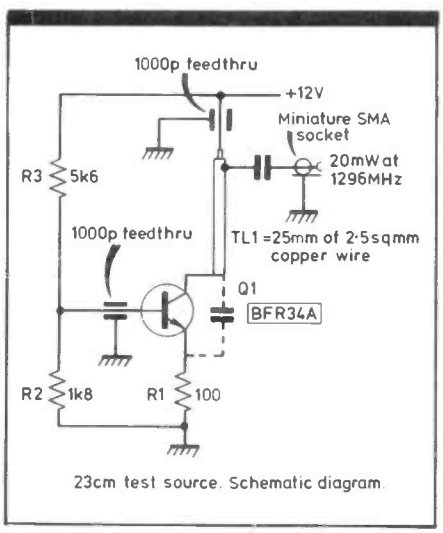


Fig. 6 23cm test source, actual size.

A cure can often be effected by the set-up shown in **Fig. 2.** By including a series capacitor in the earth return, the inductance of the wire can be tuned out. Electrically it forms a series resonant circuit which, of course, represents a short circuit across its ends. When used as the earth return, it has the effect of bringing the waterpipe, earth spike or whatever right up to your equipment.

It makes adjustment of the aerial a little bit tricker. You must resonate the earth return with a neon or similar device before you can tune the aerial for optimum efficiency. However, the sparing of third degree burns is well worth the extra aggravation.

It should be pointed out that the series C tuning system is limited to earth returns which are no longer than about one eigth of a wave length at the operating frequency.



23cm test source. Schematic diagram.

Top band aerial

It's a shame that more people have not yet discovered the delights of Top Band working. And it is a delight. No titanic power struggles, very few contests, just a handful Germans around 1830kHz and virtually no Russians. Marvellous. Furthermore, you can always get a report from the WAB net on 1930kHz. Very gentlemenly. I suspect that a lot of people are put off by the daunting lengths of wire called for by the classic aerial references.

Well, yes. The best signals on Top Band are those coming from hundreds of feet of wire set at hundreds of feet above ground. However, it is possible to put out a respectable local working (inter G) high angle signal with a fairly modest arrangement. I offer the following design from G4B something or other . . . apologies, I can't remember the rest of his callsign. I have tried the following arrangement and can report that it does work.

Fig. 3 gives the salient details. A wire from the TX ATU goes upwards to the eves or, better still, a mast attached to the chimney stack of the house where it passes through an attached insulator. It continues on horizontally down the length of the garden to a guyed aluminium mast at the far end. The top horizontal makes an electrical connection to the mast, the bottom of which is connected to a buried earthing mass such as an old water tank.

At the house end, the TX ATU is earthed to a buried metallic waterpipe or some other earthed object.

In reality, the system is a tuned loop with the ground making up the missing side. Certainly my own experience suggest that the system is about as efficient as it is possible to get within the confines of an eighth wavelength rear garden.

VHF MOSFET linear

About a year ago, Hitachi announced the development of a new RF power MOSFET family, the biggest of which could deliver a claimed 180W of CW at 100MHz reducing to at least 120W at 175MHz. Annotated the 2SK317, the World had not seen anything like this performance before. Companies such as Siliconix and Motorola have produced smaller devices but, apart from the sheer power capability of the Japanese device, there are two other aspects which set the Hitachi technology apart from the competition.

It is high voltage. The drain source breakdown voltage is greater then 180V. The other major parameter, perhaps even more important, is the reverse transfer capacity — the residual capacity between the drain and gate terminals. This is just half a pF, orders of magnitude better than anything else sold as an RF power MOSFET.

These two parameters alone are enough cause for interest. For instance, the high voltage capability means relatively high operational impedances for a given power level. This translates to high efficiency and high power gain — both of which our own development project has realised in practice. The optimal load impednace is around 20 ohms, an order of magnitude higher than

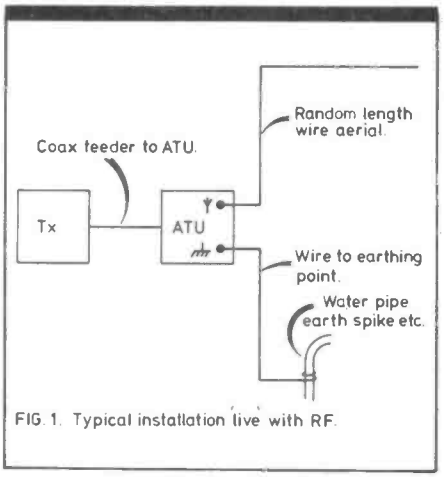


FIG. 1. Typical installation live with RF.