CARRIER WAVE

April 2006

Aberdeen Amateur Radio Society

The Club has had a relatively quiet period since the last newsletter. The severe weather in February and March has had an understandable effect on the attendance at meetings. However there has always been a turnout for talks and demonstrations.

The committee took the decision to cancel the Junk Sale of February as the weather was at its worst around that time. We hope that the news of cancellation managed to reach all the members who would have otherwise attended that evening. If you were unfortunate enough to turn up at the Club premises to find the place in darkness then please accept our sincere apologies and tell a member of the committee so that we can make every attempt that such an oversight does not occur again.

The construction evenings have more or less come to a close since virtually all the 3.5 MHz TX projects are now functional. Some of these are finding their way to being on the air as a growing group of QRP enthusiasts are congregating around 3.579 MHz or 3.560 MHz on Monday evenings at around 8.00 pm local time, or 1900 UTC for the purists. The 2m CW skeds at that time have effectively been replaced by the HF alternative. Not only does this give an opportunity for the builders to activate their gear but it also allows stations outwith Aberdeen to join in the fun. These sessions are not restricted to QRP or indeed homebrew gear, they are there to encourage members to use CW where they may have been too reluctant to do so in the past. There may be a need to split into two groups, as those less confident with their CW feel a little to scared to dip their toe in the water! Think about the best way of doing this. Separate frequencies, Group A at 1900 UTC and Group B at 1930 UTC or Alternate weeks for slower and faster operators.

Remember that since the change to daylight saving time the time entries into your log book should remain at GMT, one hour behind the local clock time.

As the hours of daylight grow we turn our thoughts to outside events. One of the first is the station at the Bucket Mill at Finzean. At the time of writing this is likely but not yet confirmed with the owner and we are trying to negotiate a somewhat better accommodation. Any ideas on this would be appreciated. After the computer evening of 30th March, it is hoped that more members will feel confident in using the computer to write up a log at events such as the Bucket

Mill. As this is not a contest event as such, it is an opportunity to use Winlog 32, so get this installed on your computer and do a bit of practising before May.

One site of interest has been mentioned for VHF operations other than the "Cairn" which is already earmarked by a VHF group. As there is a QRP VHF field day on a different date it might be an idea for the Club to try out one or two sites then as there will be a number of VHF stations on the bands for that competition. We probably have sufficient interest within the Club to set up a one-band station at either of these events. Shortly lists of operators/helpers will be passed around for members to append their names.

Receiver to match 5 watt transmitter club project. (BSQ TXR.)

After completing my club project transmitter, I tested it on air using my TS850S as a receiver, all worked well and I made a couple of G QSOs. This combination of transmitter and receiver seemed not only impractical but as there was no satisfactory transmitter/receiver muting or side tone I decided to construct a small receiver to match the BSQ transmitter.

In order to build a receiver quickly I browsed radio magazines and looked at the Internet for ideas. There are a number of suitable DC (direct conversion) receivers available as kits, but I finally settled on a kit comprising of a circuit board and components from Walford Electronics. This is a receiver kit which is designed to work alongside their own 1 watt transmitter; it is the Walford Sutton DC receiver. It is designed as a multi-band receiver kit but in its basic form is a DC receiver for 80M, other bands (10, 15, 20, 40 and 160) can be used but require additional plug in cards. I opted for the basic 80M kit to match the club TX project.

The kit duly arrived, it comprises of a double sided printed circuit board, complete with all components, pots, switches and even a basic front panel with comprehensive building instructions. The board is remarkably easy to work on, being reasonably sized. It has three transistors and four main IC's. I opted to wire the IC's not direct to the circuit board as per instructions but bought additional sockets for the chips to plug into, making life easier when fault finding.

It is designed to operate from 8.5 volt to 22 volt supply rail.

Although the instructions supplied were more than adequate to successfully build the receiver, I found the Practical Wireless article photographs very helpful in placing components etc. The receiver has 7 front panel controls; audio gain, RIT, Main tuning, narrow/ wide filtering, two switches to extend the frequency range of the band in use and a switch to enable any of the plug-in cards if fitted. This latter switch disables the receiver when no plug-in card is fitted and is ideal for a TX/RX switch. In this disabled receiver state, side tone "bleeds" through and is suitable for electronic keyer monitoring. The front panel has a 3.5 mm jack socket for either L/S or headphone listening.

The netting switch on the BSQ transmitter enables me to accurately "net" the Sutton receiver to my two xtal frequencies, 3.575 MHz and the QRP calling frequency 3.560 MHz.

I dispensed with the supplied front panel, building the receiver into a Maplin Aluminium box; 6ins by 4.5ins by 3ins. This size of box would be capable of taking the additional bands plug in cards if necessary.

Does it work, most certainly, When compared alongside my Yaesu FT817 transceiver, the Sutton receiver holds its own very well. It is much quieter than the FT817, being almost as sensitive and very stable.

Using the club project TX and the Sutton RX I have worked numerous stations in GM, G, DL, F and SM.

This kit is described in full in the Practical Wireless May 2005 issue. Information is available on www.users.globalnet.co.uk/walford

Club members may have already built a DC receiver as a previous project designed by Ian/GM4GVK. This receiver, based on the “Neophyte” receiver, works well with the BSQ 5 watt transmitter. Ian has successfully fitted both of these projects into one case with transmitter muting of the receiver and used this on air.

I still transmit CW on 144.250MHz on Mondays 2000 local, but will relocate to 3.575 MHz to enable club members utilize the BSQ transmitter and work stations further afield…..Perhaps this is a case for GM3BSQ/P to be given a QRP airing??

GM3WIJ.

As a follow up to this article, Tony, GM4HTU, has suggested that we invite members to submit short articles describing their amateur radio activities. These could be on topics such as :-

- Your favourite band(s)
- Your favourite antenna(s)
- Your favourite mode(s)
- Your special interest e.g. RTTY, Dxing, years on the air
- How I got into Amateur Radio

In this way members would gain a better knowledge of who does what. New members should find this useful as they may wish to ask questions on a particular topic.

Technical Corner

Power Kites as Antenna Supports

These kites can provide considerable lifting force in moderate winds. They can be used to provide very high support points and in quite a number of configurations as seen below.

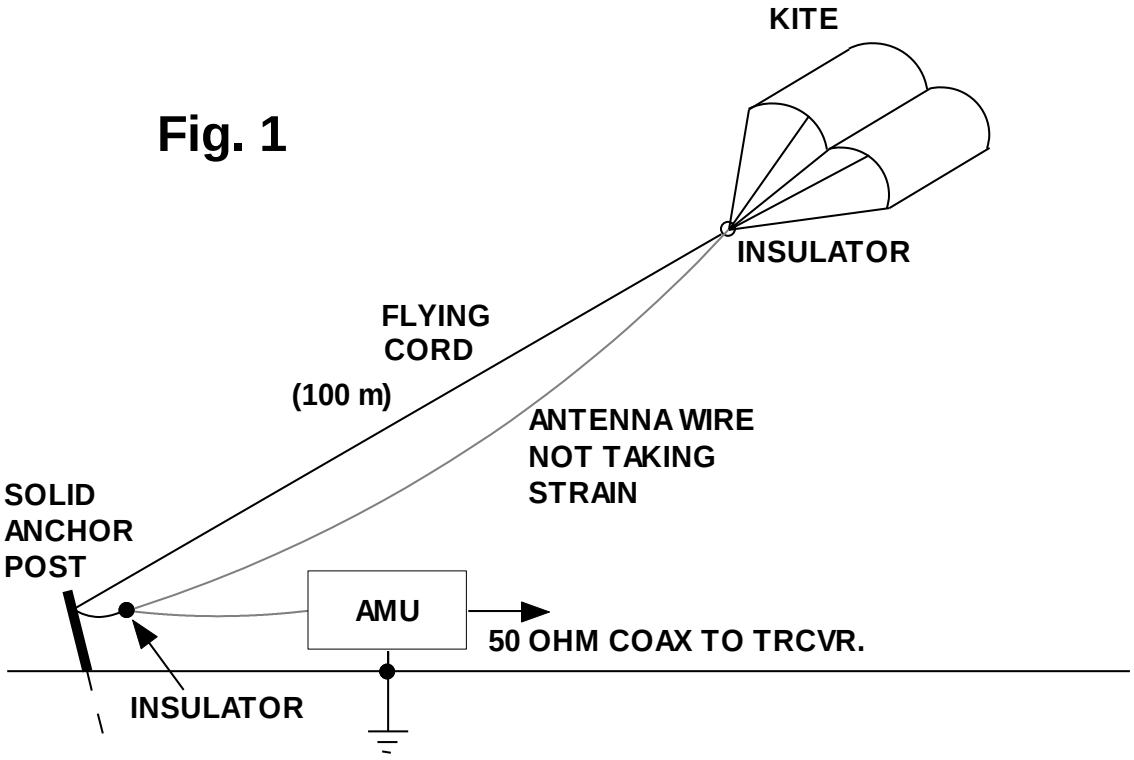

Figure 1 shows the simplest of arrangements where a thin wire can be used for the antenna as long as steps are taken to ensure that no great strain is placed on the wire itself. The matching unit is a standard 'L' network but it **must contain an RF choke across the 50 ohm output socket** of the unit to provide a path for charge which may build up on the antenna due to wind passing the wire. Not only can this be a danger to the user and the rig but also it can build up S9+ noise in the RX.
If the wire is ONE wavelength and the top angle is 30^{o}, there is some gain to the right. (Handbook of Wireless Telegraphy 1938)

Fig. 2

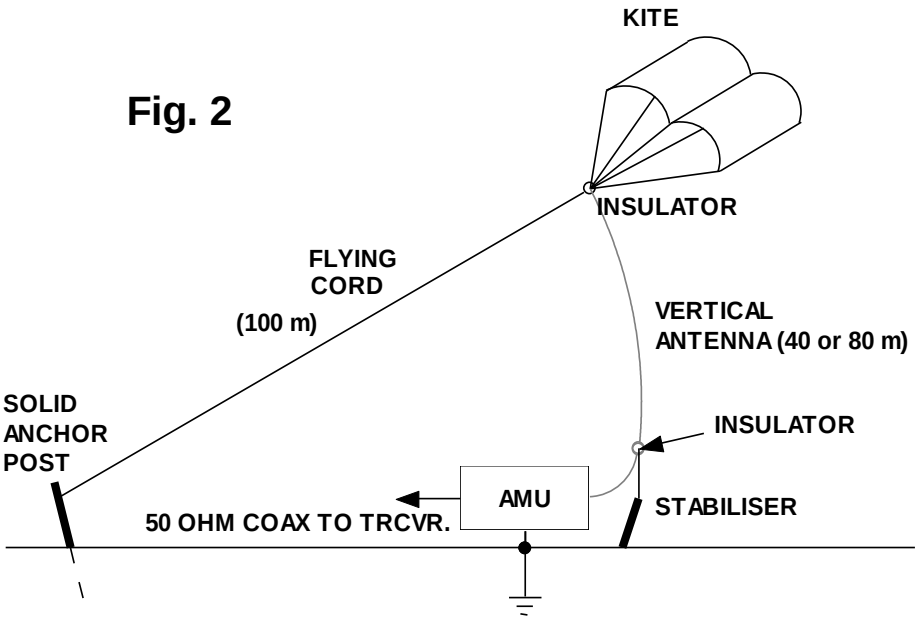

Figure 2 shows a vertical antenna being supported by the kite. A stabiliser is placed in the ground to stop tugging at the matching unit. The bottom of the antenna is voltage fed as before making the current maximum well above ground. A top-band vertical should just be possible bearing in mind the legal flying height. On the higher frequency bands it is possible to have 2, 3 or 4 vertical half-wave elements separated with phasing coils so that all the antenna currents add to give considerable gain and extremely low angle radiation. The coils consist of two quarter wavelengths of thin wire wound in opposite directions on a foam or expanded polystyrene formers to reduce weight. A sharp point, directed outwards in the air, in the centre of each coil prevents build up of static but because it is at the zero voltage point for RF, no coronal discharge losses occur. All wire should be thin bare copper as plastic coated conductor becomes electrically charged on the outside of the plastic by air friction and this causes signal loss and noise. A 3 element, 2 coil version for 20 m was tried at Walker Park last year and all signals from the U.S.A. were 59+ and 599+.

Do not use this antenna system near power lines, main roads, airports and railways.

For Sale **Ian Munro GM4GVK (01224 316787)**

- Pair of Magnum–K Speakers 25 Hz to 20 kHz, 3 speakers with 12" Bass unit gives excellent quality. Dimensions 15" x 24" x 11.5"
- Heathkit HW-8 QRP Rig. 80-10m approx 2W o/p. Includes mains PSU and Manual. **£100.00**
- Yaesu FRG7700 Gen. Cov. RX, 30 kHz to 30 MHz, SSB, FM &AM wide and narrow + 2 VHF converters 118 – 150 MHz and 140 – 170 MHz. Full manual and circuit diagrams included. **£85.00**
- Goldring variable speed turntable, shure 75 pick-up

Thank you to **Tony**, GM4HTU, **Ian**, GM4GVK and **Norman**, GM3WIJ, for their help at various stages of construction and testing of the 3.5 MHz QRP transmitters.

Thank you to **Norman**, GM3WIJ and **Tony**, GM4HTU for their contributions to this newsletter.

Wanted Does anyone know of a scrap KW2000 or similar in which there is a working Kokusai MF-455-10K mechanical filter which would be available to repair the above rig?

Graham, GM4OBD

Items for the June Newsletter should be submitted by Thursday 25th May, 2006