only three wires needed: Data in, Data out and Signal ground, and all the instructions to the *AMT-1* are given from the computer keyboard. A suitable program for the *VIC 20* was supplied by the manufacturers, ICS Electronics Ltd, and this was written in BASIC, so that any alterations could be made very easily. It was only necessary to make the connections between the *AMT-1*, the *VIC 20* and my transceiver (I use the Trio *TS820S*) and load the program to start everything working. The screened leads and DIN plugs are supplied with the *AMT-1*.

When the program is loaded and run you are asked to insert your callsign and press 'return'. You are next asked to insert your SELCALL. This comprises the four letters of your call, leaving out the figure, or any other combination of four letters you wish to input. In my case the SELCALL is 'GRDG'. After this, the next request is for the number of characters you wish to print before the automatic carriage return linefeed operates. For those who are using the standard VIC 20 without the 40/80 columns card, the number is '15'. Having pressed 'return' you are then asked which mode you require. 'R' for RTTY, 'A' for AMTOR, 'C' for CW transmit or 'D' for direct ASCII in and out. For the first QSO it was 'R' for RTTY. There are cards supplied to fit over the function keys of the *VIC 20,* so that whichever mode is in use the necessary reminders of the usage of the keys is there to see. This is a great help at the start as I wanted to be reminded when to press the correct key!

With the card for RTTY over the function keys, I tried my first QSO. There was no difficulty at all. The *AMT-1* has a line of green LEDs which when nothing is being received light up in a random fashion. What has to be done is to tune in a station until one LED either side of the centre line is brightly lit, and the ones in the middle are dim. You just tune the receiver until this occurs and fine copy results. The instruction to transmit is given by the *VIC 20* (Control 'R', F3), and when this is done the Send LED lights and you are away. There is no need to think about Figure shift, Letter shift, Carriage return or Linefeed, its all done for you in the *AMT-1*. Wonderful. As regards the speed of RTTY: on switch-on this is at 45.45 bauds, but can be varied to 50 or 75 bauds by merely typing 'B' followed by the speed you require and pressing 'return'. Other facilities which I have incorporated in my program and which are controlled by keys on the *VIC 20* are: A line of 'RY' 'Quick brown fox', CW ident (which uses the callsign previously entered), call CQ, call CQ Contest, and sending the Time. This last one requires that the internal clock of the VIC 20 be set to the correct time before loading the program, and of course, each time the program is used, unless the computer is always left switched on. I used the AMT-1/VIC 20/TS820S combination in the BARTG Spring HF Contest and everything behaved perfectly.

I then turned my hand to AMTOR. To do this one has to press 'Escape' when the menu will be displayed. 'A' is pressed followed by 'return. The 'ARQ' led then lights up, and if you wish to listen first, 'ARQ listen' is pressed. The lefthand indicator light will change from STBY to PHASE, and you are then ready to receive AMTOR.

When the familiar chirp-chirp is heard one has to tune it in slightly differently to RTTY. The AMTOR chirp-chirp when correctly tuned in, will appear as two dots either side of the centre line, with the middle blank. When this is achieved text should appear on the screen. I must emphasise that it requires a little practice to resolve the signals satisfactorily, as I soon discovered. Having been used to the two ellipses on a Monitor scope, it was a little while before I mastered it. In the end, however, it turned out to be as simple as the old arrangement. Rather like driving a different make of car.

The beauty of operating the *AMT-1* is its flexibility. Its all in one strong steel box measuring 310mm (W) X 235mm (D) X 60mm (H), and that's it. No odd boxes and birds nests of wire connecting it all. The printed circuit board is very businesslike in appearance, and the User's Manual most explicit in its description of the various functions of the equipment. The *AMT-1* is not self-powered and requires a supply of 12/14 volts DC at 800mA. There was no difficulty here for me since I already had a 12 volt supply to run my transverter, but in any case 800mA is not a great load, and a small power supply can easily be made from parts in the 'junk box'.

I have been using an ST6 Terminal Unit with a CW filter in the *TS820S,* and on some occasions, the Datong FL2, to receive copy, but I find that the four section audio filter/discriminator demodulator of the AMT-1 is equal if not superior to that setup. All in all, as far as I am concerned, I would recommend the *AMT-1* without reservation to anyone wishing to have a complete RTTY/AMTOR/CW station in one unit. As a user, I am completely satisfied.

G3RDG

Thanks go to ICS Electronics of Arundel, Sussex for help in the preparation of this article.