

THE

# SARC

MAGAZINE

Issue 4 - June 1984

## From your Chairman

To all those who participated in this year's hf nfd, my thanks. Don't forget that vhf nfd is still to come (7&8 July) and more help will be required for this event.

With decreasing numbers, during the warm evenings, I've been putting some thought as to what we might do to increase Friday activities. Some *bright spark* then suggested that we might organise some outdoor events on Fridays during the summer. (I find it hard to believe that the *bright spark* was in fact Clive!!). So how about it? What about a df hunt? Any other ideas? As Clive was the first to come up with the idea, perhaps he would organise the first one.

The next Committee meeting is on June 28 1984.

Bob, G4BWB

MANY HOURS INTO  
NFD....



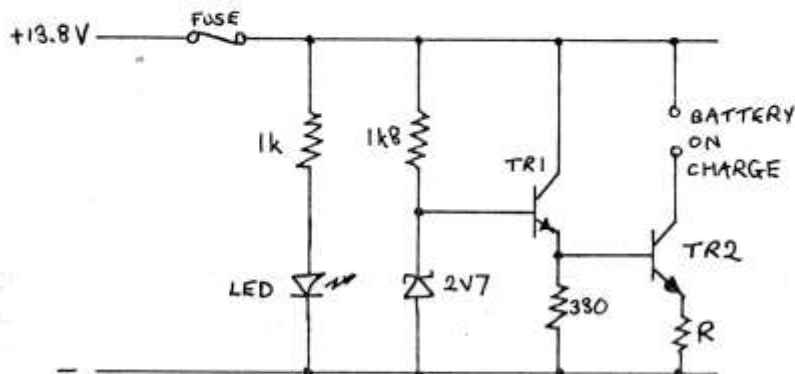
"ARE YOU SURE WE'RE  
STILL IN THE PUB?  
... HIK!"

SHIREHAMPTON AMATEUR RADIO CLUB  
Twyford House, Lower High Street, Shirehampton, Bristol.

### A SIMPLE CONSTANT CURRENT NICAD CHARGER

Nicad cells should only be charged at a constant current, and this simple circuit differs from other published designs in that it requires an external 13.8v dc supply. This is not such a great drawback as it might seem, since many operators who use nicads possess a base station with a 13.8v psu, and so can save themselves the trouble of building a unit with its own mains transformer etc.

The circuit is as follows -



The operation is straightforward: the base of TR1 is held constant by the zener diode, and assuming constant transistor base-emitter voltages, the emitter of TR2 is at a constant voltage, say  $2.7 - 0.7 - 0.7 = 1.3\text{v}$ . Since the voltage across R is constant, the current flowing through it is constant, as determined by our hero Mr. Ohm. Thus the collector current is constant i.e. the charging current.

None of the component values are critical, and the unit can be constructed from items from the junk box. Items such as the fuse and the LED are optional extras. If it is intended to charge size D cells at 400 mA, TR2 should be something like a TIP 31 bolted to the box in which the charger is built. The author's unit uses BFY 50 as TR1 and TIP 41 as TR2.

If nicads of various types are to be charged then R could be switched. Since the voltage across R depends on the exact characteristics of the zener and the transistors, it must be measured and suitable values calculated. An example is given, assuming 1.3v across R.

Type of cell	Max charge current	R (calculated)	Preferred value	Actual charge current
PP3	10 mA	130 ohms	150 ohms	8.6 mA
AA	50	26	27	48
AAF	150	8.6	10	130
C	180	7.2	8.2	158
D	400	3.25	3.3	393

In the above examples, the 3.3 ohm resistor for type D cells should be at least 1 W rating. In practice, it will be necessary to put a suitable value of resistor in the emitter of TR2 and measure the emitter voltage accurately. A check of current will show that all is performing correctly. The values for R can be calculated, and the next higher preferred value chosen, so that the maximum charging current is not exceeded; then calculate the wattage.

Dave, G4DPJ

## In praise of 4 metres

*Another episode in an occasional series*

Regular readers will realise from SARC Magazine Issue 2 that there is Amateur Radio life beyond 2 metre fm and not all aeriels are Slim Jims, J-poles and similar dummy loads. Some may even contemplate 2 metre ssb, erect a 19 element monster and with several megawatts, compete with several thousand other amateurs for that elusive "rare square". However, there is a vhf band where local qso's may be carried on without "this is my frequency - I've been on it all day" and where long-distance qso's are easier to obtain. No prizes for guessing the band, 70 MHz or 4 metres.

4 metres is rather different from 2 metres in several respects.

1. Obviously less amateurs are active on 4 metres in that only Class A calls are heard. This also means that following a call on ssb, someone may well call on cw and an ssb/cw qso results. I found this rather alarming at first but soon got used to it.

2. I have yet to hear a "wally" on 4 and the only pirate heard has been a cordless phone. Another gentleman's band.

3. Anomalous propagation is somewhat different. Tropospheric lifts do not have a specific direction as on higher vhf bands. Aurorae last longer on 4 and distortion on ssb is far less than on 2. Sporadic E occurs frequently but there are only two dx stations (ZB2BL & 5B4CY) workable directly, although many continental stations may reply on 28.885. F-layer propagation has also occurred according to some, with the working of VE1AYX at the sunspot peak. Meteor scatter is frequent, but tricky within the UK unless you have a poor, (high angle radiation), aerial!

4. Most amateurs active on 4 use home constructed equipment although Micro-wave Modules are making their mark.

5. Aerials. There is a "standard" aerial - a four element yagi. Other aerials are in use of course, but it is reminiscent of 2, ten years ago when most stations used an eight element yagi.

6. Lack of international dx. In view of the frequent lifts of various sorts, this is the most disappointing part of 4 and probably the reason it has not caught on. Countries now active are - all-UK, EI, ZB2 and 5B4. C31 has been active and it may still be possible to obtain a temporary permit, TF has fallen foul of tv and DN was granted the band for 1 day a few years back. According to my copy of the Dnani licence, A4X may use 4 and I suspect this may be true of many countries using UK-like amateur licences.

Come and support vhf nfd, in particular the station on 4. It is a fascinating band!

Garry, G4FRD  
Fourmetre Radio Operator

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### Events

7 & 8 July 1984 (Sat/Sun)  
VHF NFD

Keep this weekend free  
Get your photo in RadComm ?

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DF hunts ? - see G4NAQ

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RTTY & BARTG

A growing interest in the Club appears to be rtty, (demonstrated a few weeks ago by Colin, G3YHV), using computers, although at least one Club member is known to be using a collection of levers, springs, ratchets & pawls etc. otherwise called a teleprinter.

Also of interest will be Datacom which is the new, improved newsletter of the British Amateur Radio Teleprinter Group (BARTG - pronounced bartag). The last issue consisted of 108 pages of entertaining and informative comment on various aspects of both mechanical and electronic rtty. A recent past issue published listings of bbc-rtty transmit and receive programs complete with a how-it-works explanation. The next issue of Datacom will especially cater for newcomers and looks like being another winner.

BARTG also transmits a news bulletin from Bristol (GB2ATG, 1st & 3rd Sundays of the month, 1830 bst, 50 baud fsk).

The excellent terminal unit that you will all now be wanting is the ST5 modified for use with computers (the ST5C). The price is not known to myself, but an SAE to

Ian Bothwell, G4EAN  
BARTG Components and Publications  
Manager  
56 Arnot Hill Road  
Arnold  
NOTTINGHAM NG5 6LQ

will probably reveal all.

Use of various forms of data transmission is undoubtedly the way amateur radio is moving. For those to whom rtty is too slow and computer speed ascii merely a way of increasing error rates, try AMTOR, or for those with bionic brain cells, packet radio. If you wish to learn more, why not join BARTG and receive Datacom and discount on BARTG components. Just send £5, your name, call sign and address to

John Beedie, G6MOK  
161 Tudor Road  
HAYES  
Middlesex UB3 2QG

I would be delighted to receive your next contribution to SARC Magazine as an rtty tape - in any case, see you on the screen!

Barry, G4FRD

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SALE

FT 290 R + case + nicads  
LSB works only occasionally (sleepy crystal?) but this will only worry satellite fans.  
Bargain at £190

R 1000 - (200 kHz to 30 MHz receiver). Listen to lots of weird and wonderful hf things, even amateurs.  
Snip at only £185

4 metre transverter. MMT70/144 which means 2m in for 4m out.  
Award winning gear for a mere £75

WANTED

4 metre transverter with 10m I.F.

Articles for next SARC magazine.