



# Wirral & District Amateur Radio Club



Airwave 70.450 MHz

Volume 3, Issue 2

[www.wadarc.com](http://www.wadarc.com)

May 3rd 2003

## 2003 Committee

**Neil G4OAR**

Chairman

**Bob G4NCI**

Treasurer

**Tom G4BKF**

Secretary & Publicity

**Colin G3RLA**

NARSA Rep. &

Club Librarian

**Steve G7BBF**

Broadband

**Phil G6IIM**

**Gordon G8MMM**

**Gerry G8TRY**

Meetings are

held at Irby

Cricket Club

2nd & 4th

Wednesdays

8pm Start

Visitors are

always most

welcome

Suggestions for  
Club talks or your  
comments on  
any topic .. to:-

Neil

[g4oar@wadarc.com](mailto:g4oar@wadarc.com)

☎ 0151 608 1377

or any committee  
member

## Club Roundup



### Great News

to tell you this time is that membership of WADARC continues to grow. This year we have just passed 40, almost double over two years ago. A exciting turn around, reflecting the growing enthusiasm and support from you, the members. The word is definitely getting round which is very pleasing indeed. Club Nights are also benefiting from increased attendances, and the Club Room at Irby CC is feeling full again.

After the **Pre-owned Bargain Items Evening**, Tom, G4BKF presented **Choppers Aweigh** with some new photo's not previously seen. It was good to hear from Mike G8RXB and the progress **Raynet** are making. Steve gave us a fascinating talk **From Cables to Wireless** which held everyone spell-bound till nearly a record 11pm! Phil G0JSB took us a stage further **Designing our Web Pages** and Paul Bell, from the Proudman Institute told us all about their **Radar Project on Hilbre Island**. Glyn Parry brought some fine old photo's

on **"Wirral—before it's too late"** The 14th May will be another "Not to be missed" night with **John Locker G7MIZ**. John's topic is **"Pictures from Space"** starting with telescope to web-cam imaging followed by Sat links which all the broadcasters share and finally the Balkans Spy Planes including many video clips not previously seen. This time we have another 4 page Newsletter, and my thanks and appreciation go to Denis G3UVR for his splendid articles on 4 meters, the **A**-attenuator and the Sniffer. I hope as many as possible have fun building these items. We have just enjoyed our first Spring DF Hunt in North Wales and our thanks to Tom G4BKF our Secretary for the organisation. An excellent day out with a record 10 cars at the start of the day. Well done Tom. The Club BBQ, now renamed **"Family BBQ"**, has been brought forward to Wed 11th June, away from holidays and we would like it to be an opportunity to bring the XYL and family as it used to be. Our Summer DF Hunts are coming along and we intend to run **GB4LL at Leasowe Light-house again on 16/17th August** Mark your diaries and see you there. Once again no more space! 73 de Neil G4OAR

## GB3LI Repeater

GB3LI the 70cms L'pool repeater (seen right) has recently had the antenna's re-sited at MDHC request on to a 10ft square scaffold gantry on the centre of the grain terminal roof. The LI antenna is on the extreme left with the view looking up river from Seaforth.



## Red Nose Day

Supporter of the Charity Day, Vic, G4UDR seen here showing his best features in a very natural pose!



in less than four hours. Well Done Vic

Some of those participating on last Sunday's North Wales DF Hunt (Photo by Colin G3RLA)



L to R : Phil G6IIM, Andy GM7HUD, Neil G4OAR, Brian G4EWJ, Jim G6NOI, Andy G7TSX, Chris M1EEV, Richard G8ZHA, Phil G0JSB, Martin GW4CQZ, Ian G8PWE, Paul GW6ONZ, Denis G3UVR, Bob G4NCI, Frank G8REQ, Robin G4YLQ, Bob G0BHP and John G6ISA

## Tech.Tip

## 4m Report by Denis G3UVR

Starting now in the month of May through to mid August on a number of days the Sporadic E MUF (maximum usable frequency) will rise to 4 meters and above.

This means that even on your recently acquired 4m FM Ascom radio connected to your dipole or mobile whip you will hear strange foreign accents and callsigns coming out of your speaker over strength 9. The most common are S51DI, S53 X and S54M but several others will also be active. Band openings can range from a few minutes to over an hour. QSO's are usually fairly brief giving signal report and QTH locator, (so work it out ready). Heswall does not mean a great deal to a dx station but IO83KH or 11 kilometres south west of Liverpool does. Names with brief station details are usually exchanged. Don't hog the DX as there are many more UK stations wanting a crack at the DX while there are only a small number of them for us to work.

S5 callsigns are from Slovenia and they are one of the few countries outside of the UK that have permission to use 70MHz. ZC4 Cyprus and ZB2 Gibraltar are sometimes heard on SSB or CW. Sporadic E happens when the E layer in the earth's atmosphere ionises and starts to reflect VHF signals back to earth. Normally they carry on into space. One bounce or "hop" puts your signal nicely down into S5 or ZB2 around 1500 kilometres away. ZC4 is over twice the distance and requires two "hops" (earth-E layer-earth-E layer-earth to get there. Consequently openings are less likely and less strong.

**How do you know when the band is open ?** For those with CW or SSB facilities, beacons can be monitored as sometimes there are openings when no amateurs are active. I monitor the DX Spider Cluster on packet looking for an increase in 6 meter activity or 4 meter spots directly. Another way of telling that the MUF has reached up to 70 MHz is the appearance of East Euro-

pean broadcast stations on the band. Transmissions come from Poland, Hungary, Bulgaria, Romania and Czechoslovakia. 68 to 73 MHz is the equivalent of our 88 to 108 MHz band. The signals are wide band FM and will appear very distorted in our narrow band amateur IF filters. If you only have FM, stay tuned to 70.450 and the DX will appear there. QSY's to an operating frequency are not very common as QSO's are fairly short.

Be warned, signals can be stronger than your mate 5 miles down the road. So, between now and August, keeping your overs shorter and take a brief pause to listen before you key up the mike to reply to friends. This would be seen as good operating practice.

✉ [g3uvr@wadarc.com](mailto:g3uvr@wadarc.com)

### Old Photo's

If you have any old photo's of Club activities of yester-year that we could scan for the Newsletter, please let me know.

Neil, G4OAR



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## Wirral & District ARC - Calendar 2003

### May

- 05 (Bank Holiday Mon) Winsford Rally
- 07 D&W - The Green Lodge, Hoylake
- 14 "Pictures from Space" by John Locker G7MIZ
- 21 D&W - The Chimneys, Hooton
- 28 Practice 2m DF Hunt - Heswall Lay-by 8pm

### June

- 04 D&W - The Farmers Arms, Frankby
- 08 Elvaston Castle Radio Rally, Nr Derby
- 11 Club Annual "Family BBQ"
- 18 D&W - The Shrewsbury Arms, Oxtou
- 25 Eileen Medley 2m DF Hunt - Heswall Lay-by 8pm

### July

- 02 D&W - The Harp, Lower Neston
- 09 Bring & Tell - Bring an object and tell us all about it
- 16 D&W - The Fox & Hounds, Barnston
- 23 Revenge 2m DF Hunt. Foxed by the EM. Winner
- 30 D&W - Wheatsheaf, Raby Mere

### August

- 16/17 GB4LL at Leasowe Lighthouse - Come and Support

We enjoy a summer break during the month of August, however, there will be a D&W each Wednesday for those not away on holiday. The following weeks D&W will be decided by those present each week. Details will be posted on GB7OAR packet BBS, the club website or by calling on 70.450 Last resort ring Neil G4OAR ☎ 608 1377 (who will not be on holiday)

### September (Opening Autumn Season)

- 03 D&W - The Bridge Inn, Port Sunlight
- 10 Pre-Owned Bargain Items Evening !
- 17 D&W - The Anchor, Irby

**Got a WAP Phone ?** Want to know what's on next Wednesday ?

Go to <http://wadarc.mywap.genie.co.uk/> To receive the bookmark by SMS send a text message with the words WADARC to 07740 148156



### Welcome

The Wirral & District ARC extends a warm welcome to the following

New Members:-

Graeme G0KQS  
Alan G3NPJ  
Lester G7NIR  
Steve M3GIM

And wish you a long and happy stay with us.

### Cannibals

Two Cannibals were walking through the jungle when the first mentioned that he had a nasty belly ache. The second cannibal asked "Well, have you eaten anything out of the ordinary ?" "No," replied the first, "All I've eaten was a missionary." "Hmm," said the second, "And how did you cook him ?" "I boiled him as usual," replied the first. The second asked, "Was he tall, thin and wearing a black robe with a white collar ?" "No," replied the first, "He was short, fat, balding and wore a brown robe." "Ah ha !" exclaimed the second, "there's your problem, you shouldn't have boiled him. That was a Friar !"



### Antenna Planning Permission

The Office of the Deputy Prime Minister has put out a series of documents proposing **major changes** to the General Permitted Development Order (GPDO) Details either at the Club or [www.planning.odpm.gov.uk/consult/satothan/index.htm](http://www.planning.odpm.gov.uk/consult/satothan/index.htm) **This is a great opportunity to have an anonymous input. Use it !**

Any questions ... ✉ [g4oar@wadarc.com](mailto:g4oar@wadarc.com)

## Tech.Tip How to construct a "Sniffer" for 2m DF by Denis G3UVR

Last time, we discussed making a good switched attenuator so when you have taken bearings and arrived in an area of high signal strength you can switch in up to around 30db of attenuation and continue to take important bearings to get even closer. Well now we've arrived within 100 meters and the HB9CV and attenuator are no longer any use ... what next ? Now is the time to change over to a "Sniffer" and this one is designed to help you DF the fox from within 100 meters.

### Construction of the "Sniffer"

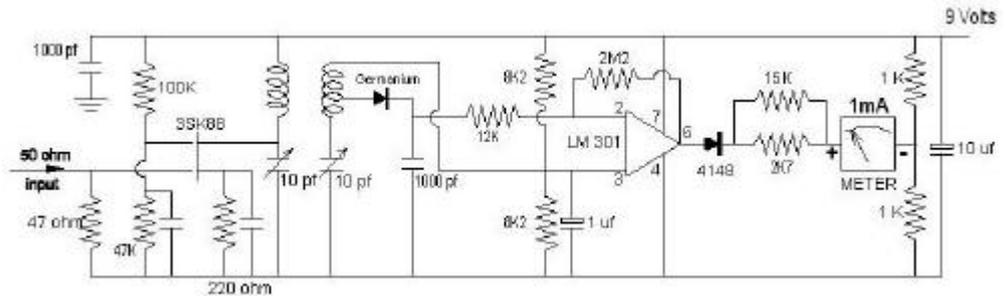
- 1 It's Suitable for DF at 144MHz within 100 meters of target
- 2 Battery Operated
- 3 Could be made from junk box parts
- 4 No special parts or PCB required
- 5 Cost approx. £7.50 if parts be bought in



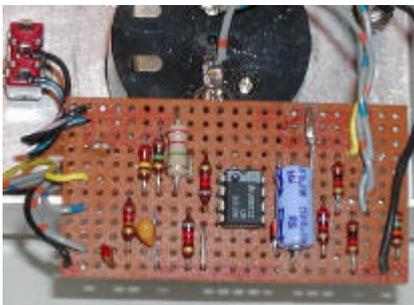
The unit described is built in a stock aluminium box 102mm x 67mm x 36mm and powered by a PP3 9 volt battery that consumes seven milliamps when switched on so the battery lasts almost forever. A BNC RF input socket is used to connect up the sense antenna, usually a HB9CV. The RF circuit is built dead bug style on PCB 63mm x 31mm, and the DC amplifier constructed on Vero board by 12 holes point one pitch.

### Parts Required

2 x 2-10pf trimmers  
 (RS 125-957 or 125-648)  
 2 x 1000pf feed through caps  
 2 x 1000pf wire end caps  
 1 x 10uf and 1uf 16 volt caps  
 LM301 ic, Germanium Diode, 1N4148 diode and 3SK88 Mosfet  
 Resistors 47 ohm, 220 ohm, 2 x 1k0 ohms, 2k7 ohms, 2 x 8k2 ohms, 12k ohms, 15k ohms, 100k ohms and 2m2 ohms  
 Meter One Milliamp FSD. 18  
 SWG wire for coils. 6 turns 6mm inside diameter.



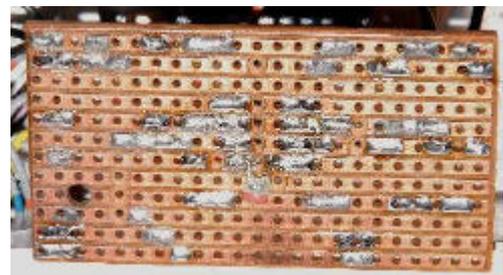
The RF part was the third option. My first idea was to use a passive front end consisting of just the tuned coils to give some rejection to out of band signals driving the amplifier, but this was too insensitive unless very close to the target. My second used a preamp to drive the amplifier with an additional tuned circuit in the gate of the 3SK88, but this was too sensitive picking up RF from hi power PMR sites if they were close by. The final arrangement substituted the input tuning on the gate for a simple 47 ohm resistor. This is what I have used for 2 meter DF's for the last few years.



One small mod I did a couple of years ago was to fit a switch to reduce the gain of the amplifier. In most cases this avoided the use of the external attenuator. It just connects a 1 meg resistor in parallel with the 2m2 feedback resistor. Another idea would be to use say a 100k in series with a 2m2 variable to adjust the gain. If I ever get round to building the Mk4 version I would build a stepped attenuator ahead of the 3SK88 into the same box and illuminate the meter or use an LED display to improve visual reading in low light levels.



Built as described, the unit can produce a meter reading from 5 watts of RF from 100 meters away and yet is sensitive enough to read on low power, unmanned foxes of 50 milliwatts at about 5 meters distant. Some experienced foxes use higher power to try and swamp receiving equipment. I found that using the 30db stepped attenuator previously described ahead of this sniffer still kept the meter reading on the scale. The DC amplifier board is not critical except for the value of the resistor in between the 1N4148 and the meter. Too large a value the meter failed to reach FSD and with too small a value you bend the meter needle round the end stop .. literally. 15k parallel with 2k7 produced a nice



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## Tech.Tip by Tom G4BKF

**Ever had an apparent intermittent RX fault while 4m mobile ?**

If you have ever experienced an apparent random "deafness" of your 4m mobile RX, see if it occurs only when the heated rear windscreen is switched on. I have now experienced this twice. On both occasions, the problem was one of the heater elements going "high resistance" and hence generating RF at about 70MHz which flattened the front end of my rig. The solution was easy .. turn the heated window off !

Long term, a repair to the element using propriety repair "metallic paint" provides a permanent solution to the problem.

✉ [g4bkf@wadarc.com](mailto:g4bkf@wadarc.com)

## To WADARC Club Members

As a special facility for Club Members Only, you could use this space to advertise an item you want to sell ? or advertise for that elusive component or piece of equipment you cannot find.

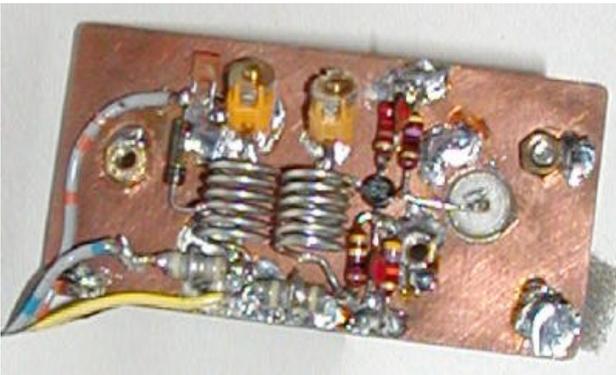


To advertise, please talk to Neil G4OAR

✉ [g4oar@wadarc.com](mailto:g4oar@wadarc.com)

## Cont'd:- Constructing a Sniffer by Denis G3UVR

response up to FSD when the circuit would current limit avoiding damage to the meter. You can see this 15k having been added at the edge of the board after straightening my meter needle ! Another addition at a later date was to add a compensation capacitor of 47pf on the underside of the board between pin 1 and 8 of the LM301. This is shown on data sheets for the device.



My thanks again to Colin G3RLA who took the photo's  
 Denis G3UVR [g3uvr@wadarc.com](mailto:g3uvr@wadarc.com)

Higher resolution pictures will be available together with the article very soon on the Club Website - [www.wadarc.com](http://www.wadarc.com)  
 This concludes two excellent articles by Denis which we hope will encourage members to both come and join in our Club Fox Hunting activities but also enjoy the satisfaction of using equipment they have built themselves.  
 Thank you Denis for a great contribution. Neil G4OAR

## The AGM Challenge

Well we now have nearly **double** the membership we had two years ago but I am still looking for more ... just never satisfied ! ... so who is going to win the fine quality bottle of Malt in 2003 ?

Same rules .. the member who introduces the most new members (not renewals) to the club during 2003 (Minimum 5) will win. Presented by the Chairman at the 2004 AGM. Forms available from Secretary Tom G4BKF or any Club Officer.



## The WADARC Teaser

What is the only food that doesn't spoil ?

Answer next time ☺ Ed



## ...and finally,

The **World Radio Conference** takes place during June/July this year. It is anticipated that the Morse Test requirement of an A licence will be dropped. It is understood that the RA intends to leave existing callsigns unchanged. Licences will then be:- Foundation Licence, Intermediate Licence and Full Licence. Everyone keeps their current callsign and the A and B licence conditions simply merge into Full.

**Interactive Courses** for the Foundation Licence and the Intermediate Licence on CD Roms are available with full details via <http://www.ukradioamateur.org/> Any-one who would like more local information, please contact our Club Secretary Tom G4BKF at [secretary@wadarc.com](mailto:secretary@wadarc.com)