



**RAG CHEW**

**JUNE 2016**

## From The Editor

To many of the older GARES members the first weekend in June means only one thing – National Field Day. For many years Pat G3MA, ably assisted by Owen G2HX and Cyril G2RT were our club NFD stalwarts. Looking through some old archive material I came across this photograph taken by the Gloucester “Citizen” at the Gordon League Rugby ground at Hempsted Lane in 1969 – and for yours truly it was the first NFD I attended – I’m the one wearing a tie!! Pat is on the key with Cyril and Owen in the background. With the passing of time I have, however, forgotten who is logging for Pat.



7-8 JUNE 1969  
**City radio  
hams call  
the world**

AT 5 pm yesterday after 24 hectic hours, Gloucester Radio Society's station had contacted 305 others in the USA and Europe. The reason for it all: the annual Field Day contest between all the amateur stations in the country. Over the same period, about 200 took part.

At stake are three awards: the national trophy for the most stations contacted with a double station entry; the Bristol Trophy for the most stations contacted with a single-station entry; and an individual trophy for the most stations contacted on one band.

Since three bands are used during the contest, any station could win three of these individual trophies.

The first award, for the most stations contacted with a double-station entry, does not apply to Gloucester, since only one station was used—the Society's own portable one positioned under cover at the Gordon League Rugby ground.

Using the maximum power allotted—10 watts—Gloucester contacted stations in the U.S.A., Germany, France, Belgium, Netherlands, Switzerland, Norway and Sweden.

About 14 members of the club took a hand in the contest, but there were four main operators.

The contest was inaugurated in 1934 when Gloucester won the national trophy. It has also won the individual award for the most contacts on one band.

The results will be known about September.

(Picture on page nine).

Many thanks to Gary M0XAC and Dave G4BCA for submitting articles about their latest projects and I'm sure they will inspire other members not only to get the soldering iron out but to submit an article to Ragchew.

With Summer rapidly approaching we can make the most of the light nights and warmer days by taking our hobby outdoors and operating /P. If you are planning to combine your holiday with some amateur radio activity do write up an article about your experiences. In particular, antennas are always a favourite topic – the recent Bank Holiday gathering at Crickley saw a large variety so I'm sure you will have plenty to report in the near future.

## Contest Gossip

GARES are now in 13<sup>th</sup> place in the 80m Club Championship thanks to entries from Gary M0XAC, Russell M0SLT, Matt M6XMM, Mike G4IZZ, Bob M0NQN and yours truly G4CIB.

For Russell and Mike it was their first entries into the 80m CC for GARES.

I noted from the May CW contest blog that Mike G4IZZ submitted the following comment:-

“First time in a contest for 25 years!! Great fun – but very rusty. It's all a lot slicker”

GARES members are regularly submitting entries in the SSB, CW and Data sections.

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GARES members have been supporting the Tuesday evening VHF UK Activity Contests – for latest positions do log into the VHF pages of the RSGB web site <http://www.rsgbcc.org/vhf/>. In the 4m UKAC on the last day of May, Dave G4BCA using his newly built transverter (featured in this issue) and an indoor dipole bagged EA6SX on the key at a distance 1437km!! Well done Dave.

As of the 27<sup>th</sup> May we are now in 47<sup>th</sup> place (up from 51<sup>st</sup>) in the overall UKAC table out of a total of 97 entrants. Many thanks to all the GARES members who regularly submit logs for these events.

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## Construction Competition 2016 By Gary M0XAC

It was Christmas 2015 when Mike G6OTP suggested making the Pixie qrp cw transceiver. I don't remember what prompted the idea now but it seemed like it could be fun so I promptly forgot about it! A couple of months into 2016, I started hearing from various people about the Pixie again and I thought it was about time I got a move on so I went over to Ebay and started looking for it. The Pixie comes in kit form, a pcb and a hand full of components and a couple of sheets of paper and that's it. I don't know where the design originates but the kits all seem to come from China (as does most other things) so I did try to find a UK dealer. Unfortunately most of their prices seemed a bit expensive so I took a deep breath and ordered four kits from a Chinese dealer for the princely sum of £2.47 each! Which included postage! Some UK dealers wanted more than the price of four for just one kit! The thinking was that I could have a spare if I ruined one and have a couple spare for others (all three spare kits went to others as it turned out).

Amazingly, after about 10 days the kits arrived. Quite a bargain really and a few days after that I finally got round to making one. The kit went together pretty easily although I did have to refer to the books to check the resistor colour coding as I never remember those and I had to check online to make sure I had the fixed inductor values right. Also a large magnifying glass came in handy to see the markings on the diodes and generally make things more legible! There is a crystal for 7.023 MHz making 38 components all together and a nice test of your soldering skills as the board is only about 2 inches square.

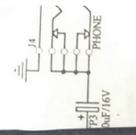
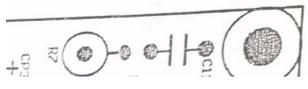
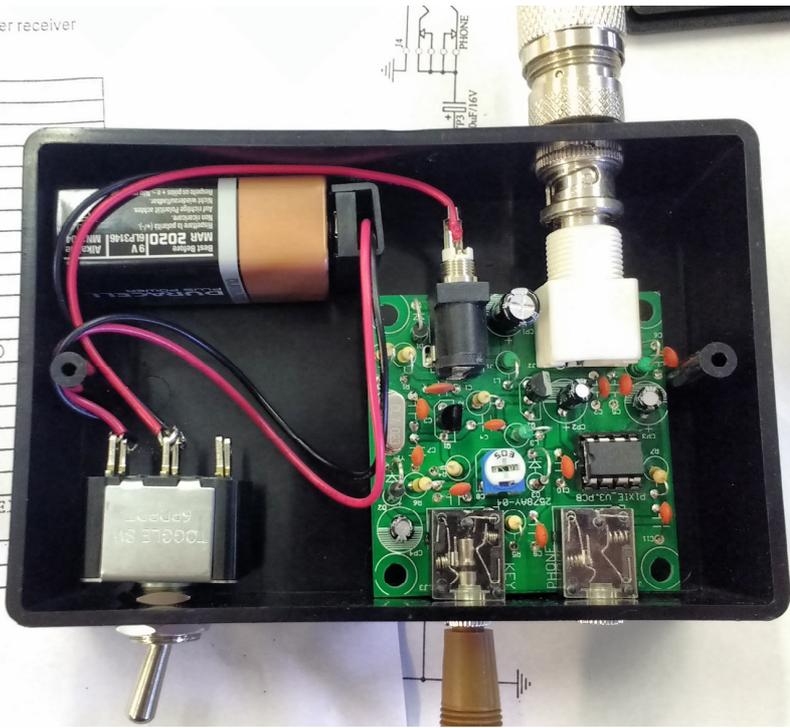
The kit was constructed in less than an hour and now it was time to test it. I connected a 9v battery and plugged it in to my doublet aerial system and powered it up. Low and behold I could hear cw signals! Not very loud but a lot of them. The Pixie is only a simple receiver and is quite wide band so I was hearing signals from all over and a bit of broadcast station for good measure but at least I was hearing something. There is the facility to adjust the frequency slightly but only slightly. My cw is still embryonic really but I managed to copy an Italian station so that was that test passed! Next was to see if it would put out a signal so I connected a dummy load and turned on my portable radio and set it to the right frequency and using two wires as a rudimentary key I started sending and immediately a signal was picked up by the receiver!

So, it appeared that I had a working Pixie transceiver. The next thing to do was to try it on the air and some days later Tom, G3XMM offered his services and we arranged a sked. I had to borrow a straight key from the club as I only have paddles and I did have to use my main transceiver as a receiver and to monitor my own signal as Tom's signal like all the others was weak in the Pixie but we managed the contact and another test was passed. I apologise once again to Tom for my appalling keying!

And that was that for a while until the construction competition loomed.(Yes, I got there eventually) I actually had no intention of entering at first but I knew other members were going to enter their Pixies as there was talk of a special Pixie section so I thought it would be rude not to join in. I thought I should do something to spruce up the Pixie so I boxed it and added an on off switch and leads to a battery so that it was all self contained. I also thought that it would be nice to make it interactive on the night so I connected a key and dummy load and placed my portable radio next to it so that you could actually transmit with it. I was rewarded on the night with a joint first place in the basic category, very nice! I am sure that the cake I brought in had no bearing on proceedings! Next year I shall have to try something more sophisticated but this was a nice simple project for a first go at the construction competition.

7.023 MHz Short-wave radio transmitter receiver

Electrolytic capacitor	
CP1	100uF /16V
CP2, CP3, CP4	10uF /16V
晶体管	
D1, D2	1N4001
D3	1N4148
Q1	9018
Q2	8050
集成电路	
U1	LM386 (DIP8)
晶体	
Y1	7.023MHz
其他元件	
J1	DC
J2	Q9 (BNC)
J3	3.5mm (KEY)
J4	3.5mm (PHONE)
PCB	×1



## **28-70 MHz Transverter Kit from Transverters Store** **by Dave G4BCA**

### **Introduction**

I have wanted to give 4 metres a try for quite a while now, and recently came across this kit from 'Transverters Store' in the Ukraine. I didn't want to spend a lot of money on building a multimode 4m capability, and so this low-cost transverter was an ideal way to get going to try out the band and to participate in the RSGB 4m Activity Contests under the Club banner.

### **Description**

The basic transverter is a single circuit board 80 by 45 mm in size, with both discrete and surface mounted device (SMD) components. It is designed to be driven with 1 – 100 mW of RF on 28 MHz. A frequency doubled local oscillator, producing an output at 42 MHz, is mixed with the 28 MHz input from the driving transceiver, producing an output on 70 MHz. This is amplified by a Motorola MOSFET to produce about 12 W output. The MOSFET is bolted to the chassis to provide heat-sinking.

As the RF input requirements of the transverter board are so low, Transverters Store also offers an attenuator/interface board. This is basically a 30 dB attenuator to drop the output of the driving transceiver, and also provides PTT switching and appropriate antenna routing using relays, again on a single circuit board. So the complete transverter can be safely driven with 5 W from an FT-817 without risk of damaging the MOSFET in the transverter board. The instructions that come with the transverter state that care must be exercised if using a 100 W transceiver as *'if you apply more than 0.1 W to the transverter board from your radio you instantly get the transverter killed'*.

### **Options & Pricing**

The transverter board is available at US\$75, the attenuator board at US\$32 or both for US\$90. It is also possible to purchase all the 'other bits you need' such as box, connectors, etc for US\$130. All prices include shipping. This was when I checked the website on 1<sup>st</sup> May; I paid US\$125 (£91) for the last option a few weeks ago, but would recommend potential purchasers not to buy the box as it has plastic end panels (see problems below). A proper diecast box would be much better. BNC sockets are also supplied; I would have preferred to use SO-239 sockets.

### **Putting it together**

It was all fairly straight forward to put together, despite not having done much (any?) construction, apart from antennas, for a long time. However, I did have a few problems when wiring up the boards and mounting them in the box, and also a couple of teething problems in getting the transverter to work properly:

- The coaxial connections on the main circuit board are on 0.1 inch-spaced header pins, which is quite tight even using thin coaxial cable
- As the RF connections to the box are made via BNC sockets mounted on the plastic end pieces, I found that I had to solder a thick copper wire to connect the backs of the sockets together to provide proper earthing.
- When first switched to transmit it turned out that the transverter was in feedback, and full output was being delivered irrespective of the drive power. I didn't realise this until I switched to SSB and a full carrier output appeared. This problem was

sorted out by ensuring the coaxial cables between the input and output sockets and the boards were well separated.

## Testing

I decided to use my FT-817 to drive the transverter to avoid the possibility of over-driving it with my main station rig, and to allow for portable operation. After ironing out the problems described above I found that the transverter was delivering about 12 W forward power (for 5 W input on 28 MHz) into a 70 MHz dipole with a 1.3:1 VSWR. I also had an SSB QSO with Brian G4CIB which confirmed that the transverter sounded OK on the air, followed by good audio reports during SSB and FM QSOs at the GARES Bank Holiday Crickley Hill operating session on 2<sup>nd</sup> May. One of these QSOs was with a local station using the same transverter driven by an FT-817. I was surprised by the level of activity on 4m but of course the elevation of the site no doubt helped.

I was also surprised to hear a simplex repeater ('parrot') on 70.4375 MHz, MB7FM in Tring, Hertfordshire. I didn't realise that these were on the 4m band and of course there are no 'conventional' repeaters on the band. Incidentally the Harwell beacon GB3RAL on 70.050 MHz was S9 at Crickley; I cannot hear this at all at home in Churchdown.

In conclusion, the construction of the transverter has been useful experience and has given me a multimode capability on 4m at a reasonable power output and at a very reasonable cost. I'm pleased with the transverter performance so far and look forward to testing it out in anger in the next 4m Activity Contest.

## References

Transverters Store website <http://transverters-store.com/>

Review article (thanks to Brian G4CIB for supplying a copy): *28/70 Transverter Kit by Transverters Store, Review by Robert Snary G4OBE (Practical Wireless January 2016, pp21-22)*



Figure 1. The transverter is about the same volume as the FT-817 to its left.

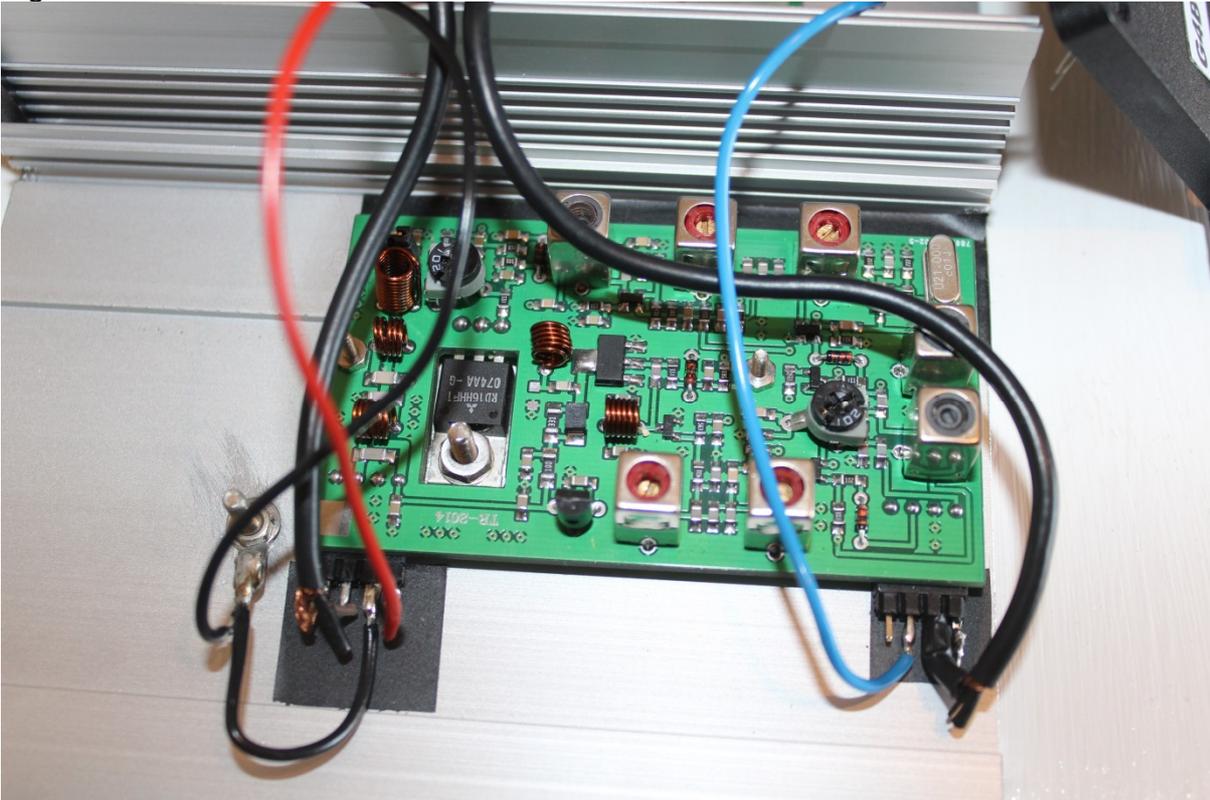


Figure 2. Transverter board with power MOSFET to left hand side bolted to chassis.

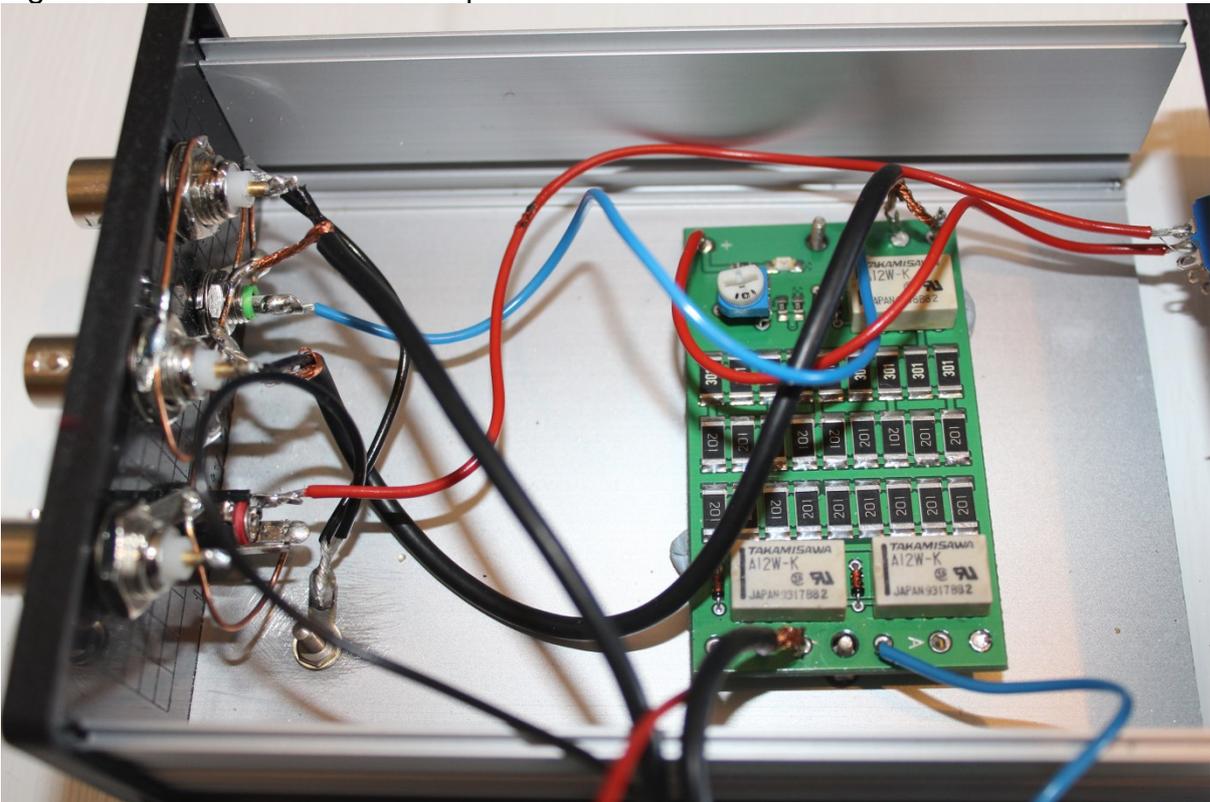
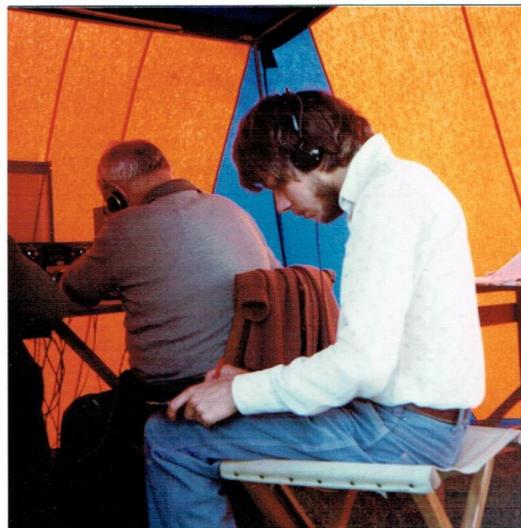


Figure 3. Attenuator/interface board showing interconnections with transverter board and BNC sockets, DC power and PTT line.

More NFD photos from the club archives

1980 – Gordon League Rugby Ground, Gloucester



Well, that's about it for this month. Do send me your articles to [g4cib@outlook.com](mailto:g4cib@outlook.com)

Coming next month:

More photos from the club archives.

Operating from Lundy (held over from this month)

A Moxon Loop for 70cm

73 and good DX de Brian G4CIB