

## REPEATER OF THE MONTH – GB3LG ..... GM4COX

Continuing our series on a look at the Group's various repeaters in this edition of FM NEWS we are looking at what I think was one of our most interesting projects so far! Namely the ability to be independent of fixed mains power sources to power our repeaters. If we were successful with this project it gave us the advantage of being able to site certain repeaters in superb radio locations. GB3LG MkII was the first of such repeaters.

GB3LG MkI kicked off this project when the Group was approached in early 1991 by Stuart GM4WMM from Lochgilphead. A group of amateurs had mooted the idea for a repeater which would fill-in areas of Mid-Argyll that were not covered by the Highlands & Islands repeater GB3HI on the island of Mull. I have a fairly extensive file and correspondence of this period but I thought it would be interesting for Stuart to put his slant on it:

"As I remember we had started talking seriously about a 2m repeater for Mid-Argyll in 1990 - with Meall Mor (just south of Lochgilphead) being the favourite site of course! The idea was to cover the areas which were not well served by GB3HI

For some reason the Hydro site at Blarbuie was suggested and we held a meeting at Paul GM4VXA's qth to take this forward. I think it was just myself, Liam GM4VYQ, Paul GM4VXA and Colin GM4HMK who were present.

Colin made the initial contact with the Hydro communication manager who gave us the go ahead to do tests and get access to the site. Thereafter I contacted the local Police radio technician who took me up to the site and also identified some antennas and feeder which we could use. We then met again and decided that I should make contact with CSFMG to see if they would be willing to assist.... This must have been

sometime early in 1991 as we had the licence through later that year and switch on in Feb 1992".



Duncan 0PUF, Liam 4VYQ & Stuart 4WMM Standing outside the Blarbuie radio cabin - 1992

By 1994 the consensus of opinion was that coverage from Blarbuie did not live up to expectation so the Argyll lads were on the lookout for a new site. Now as it happened Colin GM4HMK was one of the original group and he just owned a farm and on this farm there was a 1400' hill with a rocky outcrop. Handy! What was not quite so handy was the lack of any local power - hence the concept of wind power for certainly there was no lack of wind as we were later to find out! In discussion with the local lads the concept was to erect two small lattice towers which had been obtained from a Glasgow aerial company. These were fabricated locally so that they could be bolted to the uneven rocky outcrop. One tower would take the generator and the other the aerial. In the interim I carried out investigations into which generator and battery configuration would be most suitable for this project. We settled for a furling 12V (FM910) generator manufactured

in England by Marlec. I was swayed by their blurb, which stated their generators were so reliable that they were even in use in Antarctica. Maybe they could stand-up to the Antarctic weather but as it turned out they couldn't hack the west coast of Scotland! Another interesting feature of the project was proposed housing arrangements considering that the repeater would be exposed to some fairly horrendous weather. The offer of a grit bin from at that time a fairly large local authority roads dept was gracefully accepted. Of course this had to be modified. There was no point in having a gaping hole where you would normally access the salt. This was duly sealed and a few other mods carried out and it was ready for business. Batteries for the project were obtained in England at an advantage price courtesy of Graeme G(M)8JIP and transported to Scotland. Now that most of the main hardware was together the first job was to install the towers. This is where quad bikes come into their own in transporting the hardware up the hill. A number were used in tandem courtesy of Colin and Paul and all the heavy kit was moved. The towers were duly mounted and the grit bin and the associated batteries were located in a sheltered hollow below the rocks. To try and stop the aerial feeder becoming tit-bits for the local hoven browsers it was installed in plastic piping. Armoured cable was used for the power feed to the batteries.



**'Toys for the boys' 4COX takes control of a quad with dire consequences**

With all the main hardware installed the site was now ready to take the new RF and logic equipment. As the site was so remote and could only be serviced by rucksack and shank's pony it was decided to base the RF and the logic units around ones, which could be carried within a rucksack if they had to be removed from the site. The RF unit was based on a mobile Storno CQM612 and the logic was housed in a sealed diecast box of about the same dimensions as the Storno. Incidentally to comply with the 20 minute shutdown licence requirement the repeater could be remotely shutdown due to an addition to the control logic of a DTMF decoder board designed by Peter GM0MUO.

April 1995 saw a team of us (G8JIP, GM0MUO and myself) heading up to Paul's QTH for pre-installation and checks before the duplexer, Storno, logic and Graeme's Marconi 2955 test set and other accoutrement's were transported to again via the quad bikes to the site. And what a day we chose for the installation. Couldn't have been better! It was one of those early spring days - brilliant clarity and wall-to-wall sunshine. After a few adjustments by the end of the day GB3LG-2 was on the air and what a difference in the coverage!

However this was just the start of the saga as Stuart recalls:

".....we eventually ended up at Creag Buirenich with the wind genny. My main memories of this time are the endless trips up the hill to try and find out why the repeater had gone off yet again. So all in all it was quite frustrating, but I think I quite enjoyed the many hikes in a perverse sort of way - it almost became a weekly routine ; a bit like doing the shopping! I was always very grateful for Duncan GM3TNT (whose QTH was near Ayr at the time) or Robin GM7PKT or Dougie GM7OSQ being on the other end of the mic when I was looking for signal reports or trying to retune the duplexer. I remember one trip when I managed to persuade Liam to come along and he

brought his junior op who ran on ahead of us. Some time later he came running down the hill towards us with a couple of broken blades and asked " is this part of the repeater Dad ?" Of course when we arrived on site we found bits of generator all over the hill.

I don't know if I told you this story, but when we had to replace the genny which Graham GM3RTJ had got for us I contacted Marlec for their catalogue and price list. This arrived and on the front cover was a picture of a furlmatic on a pole on top of a rocky outcrop - looks very familiar I thought. Sure enough they had had the cheek to take a picture of the installation which I had sent them some years before and airbrush out our genny and superimpose a picture of a new one and use this to advertise their ....reliable generators which can survive in Arctic conditions.... Needless to say I wrote a snotty letter to them pointing out just how reliable their genny was and how dare they use my picture without permission. They never replied of course."

As I mentioned earlier I was excited with this project as we were trying something fairly new and knew that there would no doubt be problems. The two weak links in the set-up were the Marlec generator's furling mechanism and the duplexer. In our original plans for LG-1 at Blarbuie the repeater was initially designed to use two aerial working but I managed to get a hold of 6 ex CAA Blue cavity filters and press them into service as a duplexer. Some of the filters had seen better days and were mechanically suspect. They were partially refurbished but always a bit problematic. The large temperature variations inside the grit bin played havoc with them and as Stuart mentioned he was for ever up re-adjusting. On the generator front it was very seldom that there were periods without wind considering when you looked west from the site you looked directly out over Jura & Islay and the Atlantic. The problem was we had too much wind for the generator to cope with the furling mechanism thrashing about

like a mad banshee. We (or was it Mother Nature) destroyed 3 generators over a period of 4 years at the site.

I felt these problems could have been solved. In discussion with Stuart we looked at the possibility of the addition of a second antenna and putting the repeater onto two aerial working which would have taken the strain off the duplexer. The generator problem I thought could have been resolved by fixing it in a permanent direction (SW) and in the winter reducing the normal 6 blades to 3 again therefore reducing the strain. Also arrangements had been made to supplement the battery charging arrangements with the addition of 4 solar panels. Unfortunately enthusiasm for the project had waned (principally with Stuart with all the site visits he had to carry out and the flak he was taking over the performance of the repeater) so it was decided to cut our losses and abandon the site for a more practical site. So in 2000 the CSFMG handed over the recovered equipment to the Mid Argyll Amateur Radio Association to allow them to resurrect LG-Mk3 from a new location.

In discussion with Peter Gaskin - MM1FEO who has taken on the technical responsibility and is the keeper for the new repeater, Peter and the lads have re-engineered LG and hope to have the new repeater up and running from the original site (Blarbuie) later this year. We wish them all success with the new 'beastie' and feel sure it will be a credit to the amateur radio fraternity. At the end of the day we are all winners whoever provides coverage in these remoter locations. You never know LG someday may come on from its lofty airy?

#### **Checkout:**

<http://www.maars.freemove.co.uk/repeater/arg.htm> for the latest details on GB3LG-Mk3.

And for more information and photographs on GB3LG-Mk1 and Mk11 use - EASY LINK - [www.csfm.org/GB3LGhist.htm](http://www.csfm.org/GB3LGhist.htm) location at the CSFMG Website.



## GB3LG MkII – Specifications

**RF Platform** – Storno CQM612

**Tx Power**– 10W into duplexer

**Tx Power**– 6W out of duplexer

**Duplexer**– CAA Cavities

**Logic** – CSFMG - 6502 based

**Aerial** – Collinear 3dB

**Feeder** – Andrew’s LDF450

**Talk-thru time** – 3.5Mins

**Ident** – ‘GB3LG’ in morse every 6 mins if not in use or 12 mins if in use.

**Access** – 1750 for greater than 0.5 secs but no greater than 4 secs. No CTCSS

**Power** – 12V ~ 300AH capacity

**Generator** – Marlec FM910

GB3LG – MkII - Circa 1995

